NHS
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Feverish illness in children

Assessment and initial management in children younger than 5 years

NICE clinical guideline 47

What this presentation covers

- Background
- Methodology
- Key recommendations

Background: why this guideline matters

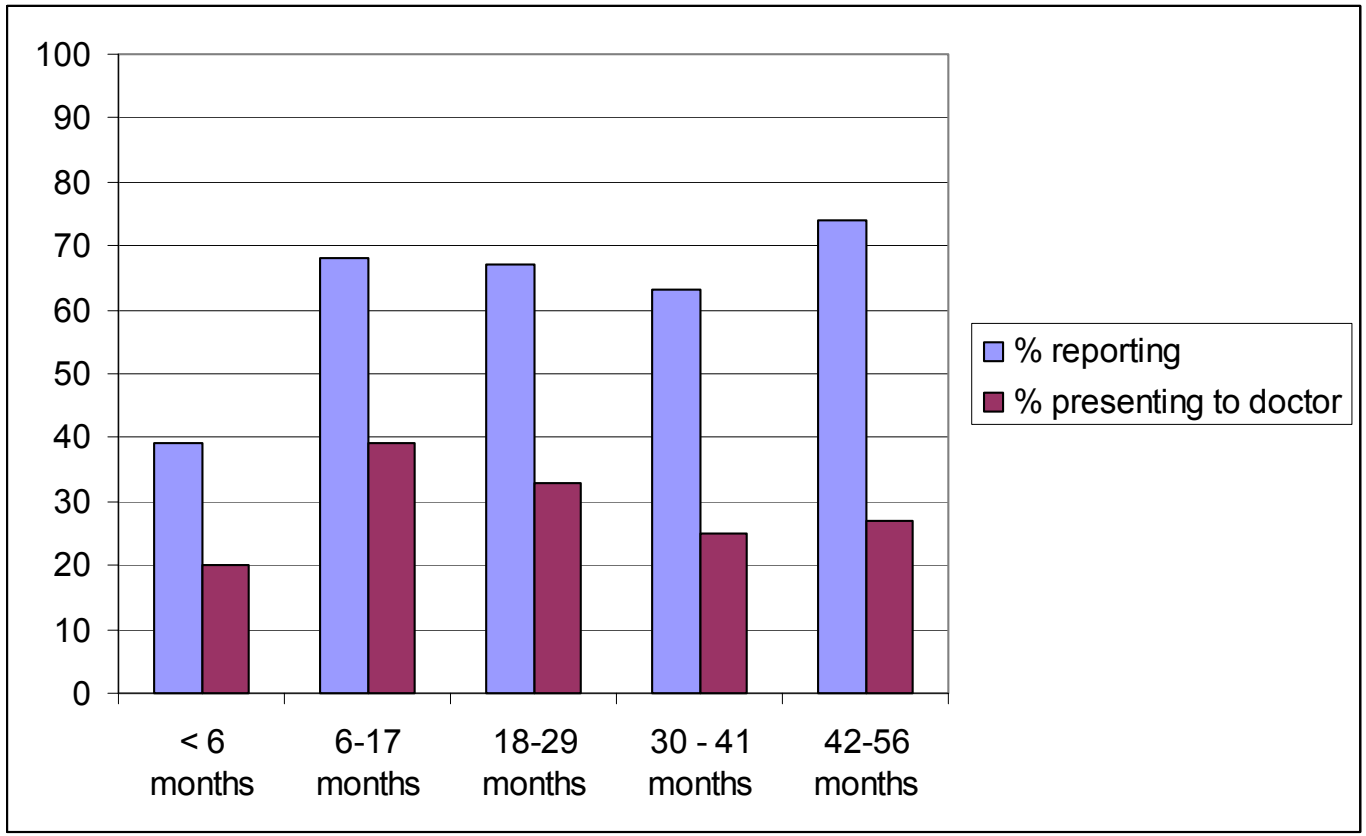


Figure 1. Proportions of children reporting and presenting to doctors with high temperature by age range (data from Hay et al 2005).

Background: why this guideline matters

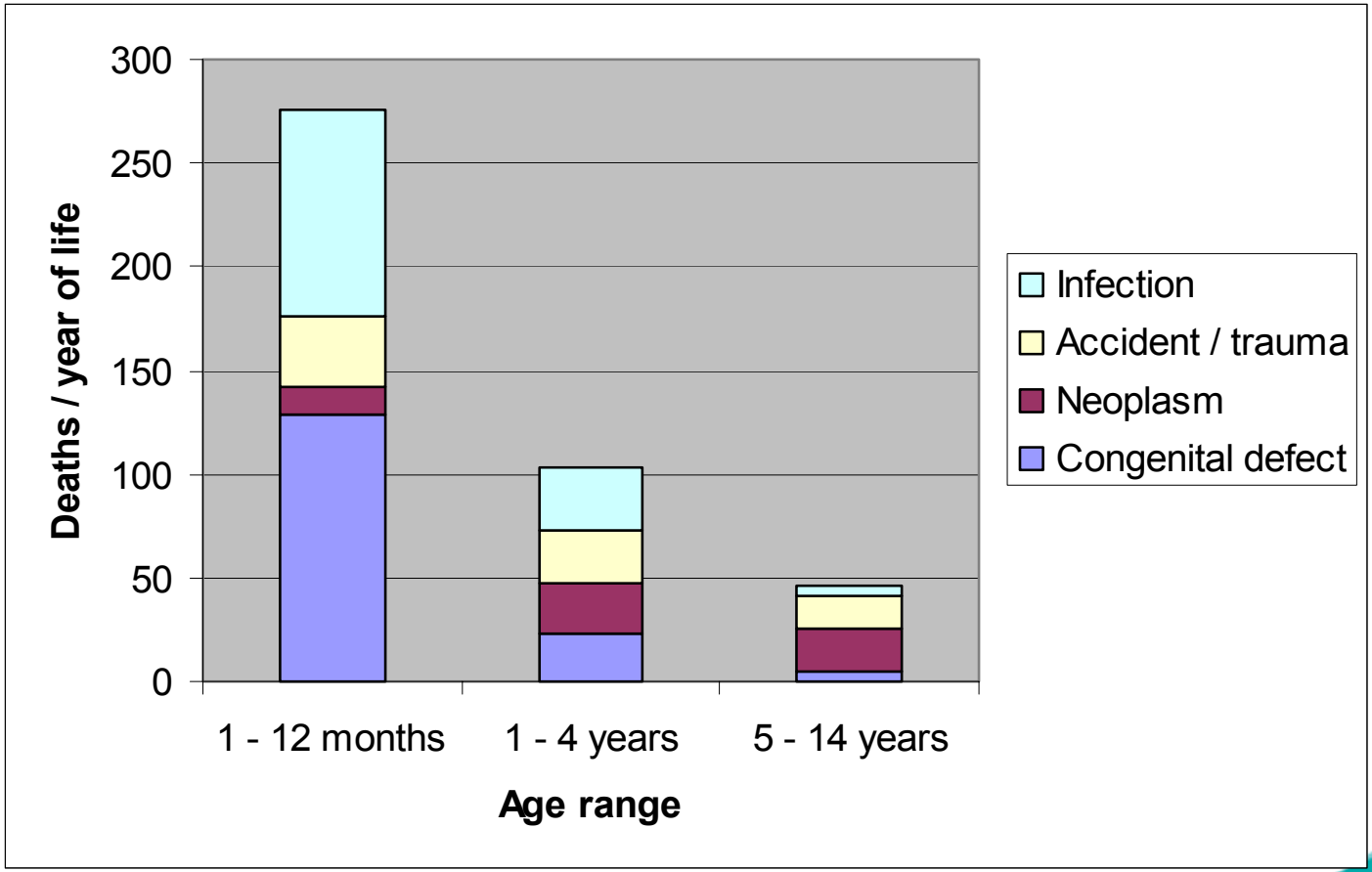
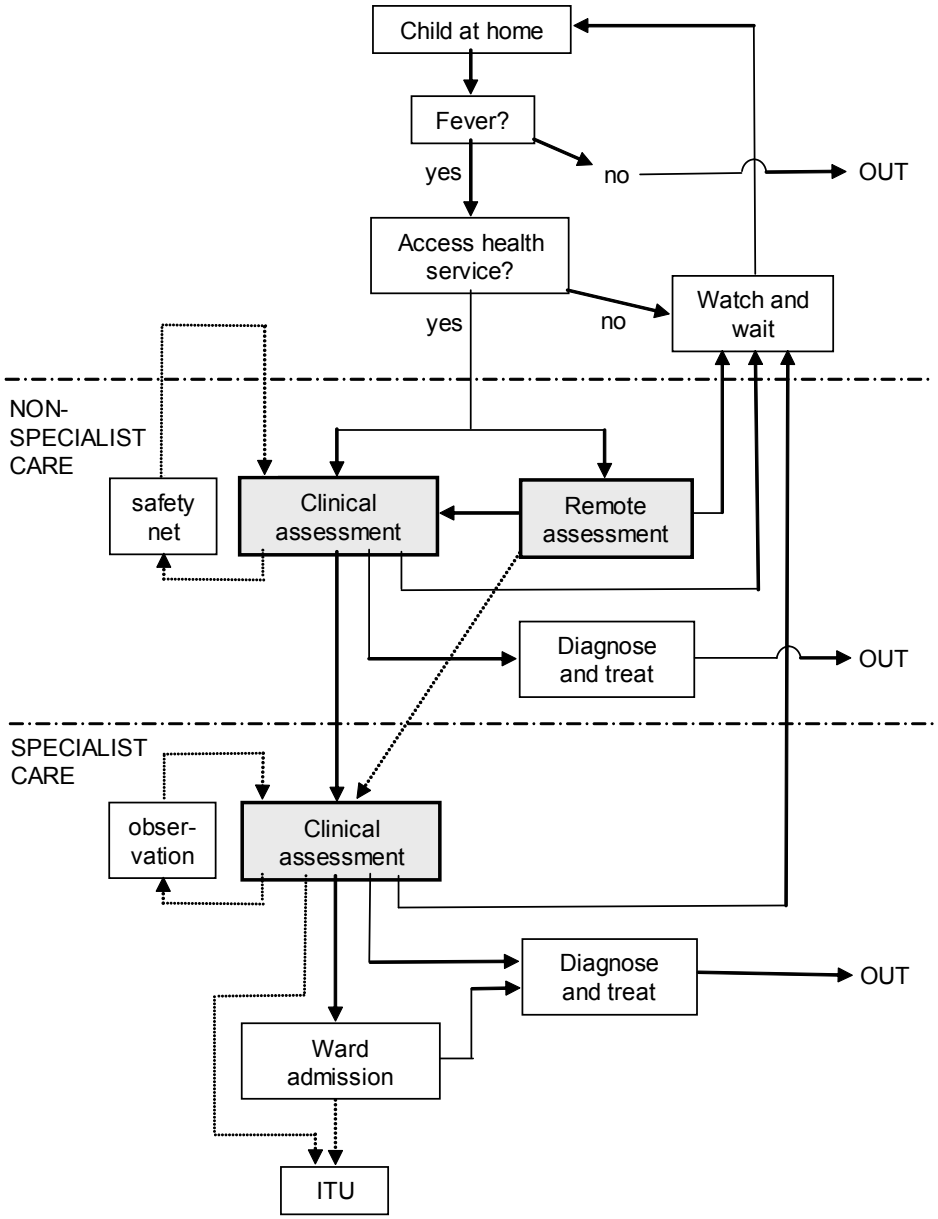


Figure 2. The four major causative categories of childhood mortality, England and Wales, 2004

Methodology

- Guideline Development Group
- Standard NICE literature searches and reviews
    - problem based guideline
    - prognosis
- Delphi consensus

Feverish Illness in Children: Clinical Pathway



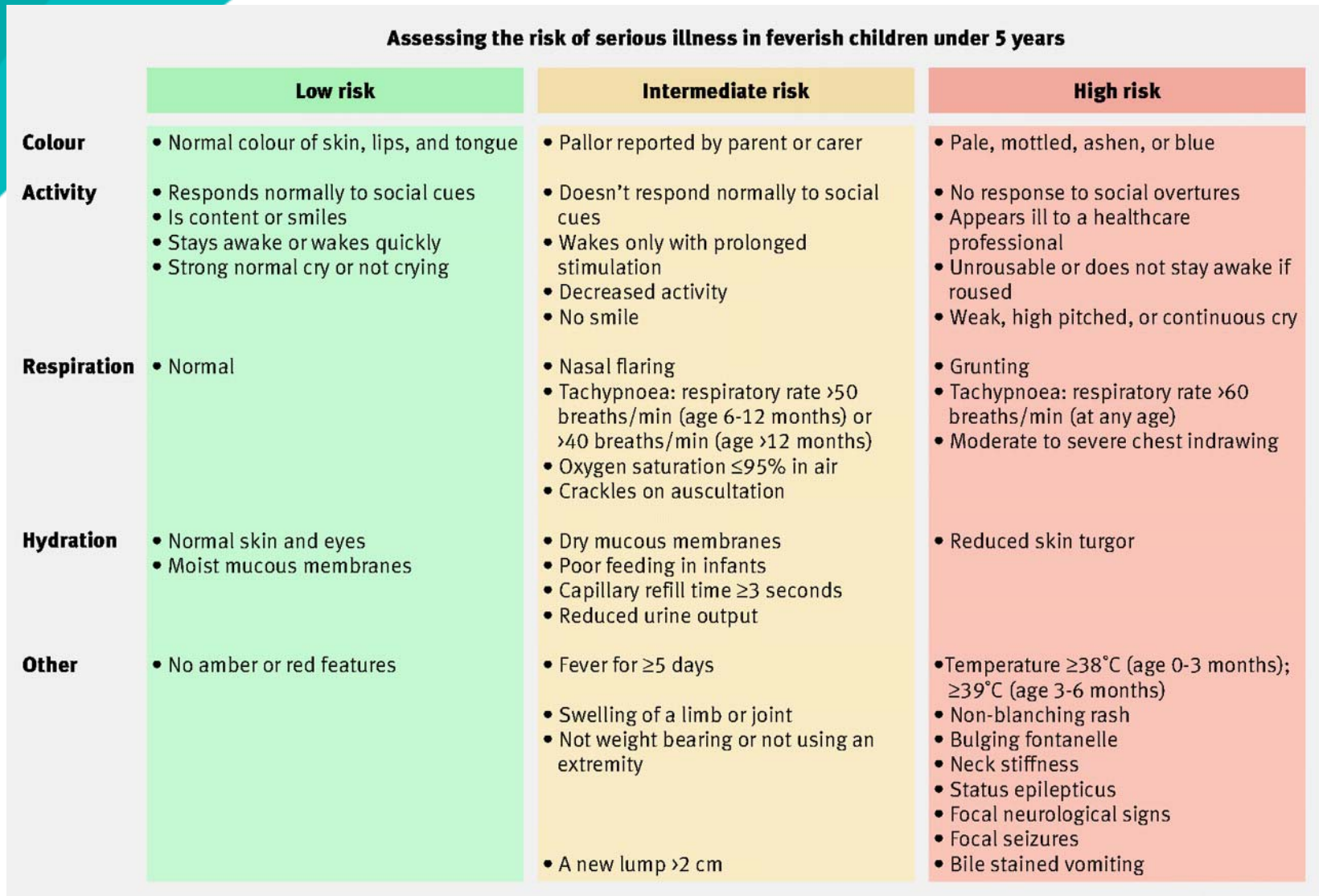
Clinical assessment

1. Check for any immediately life-threatening features.

2. Use traffic light system to check for symptoms and signs that predict the risk of serious illness.

3. Look for a source of fever and check symptoms and signs associated with specific diseases.

Assessing the risk of serious illness in feverish children under age 5 years



Assessing the risk of serious illness in feverish children under 5 years

	Low risk	Intermediate risk	High risk
Colour	• Normal colour of skin, lips, and tongue	• Pallor reported by parent or carer	• Pale, mottled, ashen, or blue
Activity	• Responds normally to social cues • Is content or smiles • Stays awake or wakes quickly • Strong normal cry or not crying	• Doesn't respond normally to social cues • Wakes only with prolonged stimulation • Decreased activity • No smile	• No response to social overtures • Appears ill to a healthcare professional • Unrousable or does not stay awake if roused • Weak, high pitched, or continuous cry
Respiration	• Normal	• Nasal flaring • Tachypnoea: respiratory rate >50 breaths/min (age 6-12 months) or >40 breaths/min (age >12 months) • Oxygen saturation ≤95% in air • Crackles on auscultation	• Grunting • Tachypnoea: respiratory rate >60 breaths/min (at any age) • Moderate to severe chest indrawing
Hydration	• Normal skin and eyes • Moist mucous membranes	• Dry mucous membranes • Poor feeding in infants • Capillary refill time ≥3 seconds • Reduced urine output	• Reduced skin turgor
Other	• No amber or red features	• Fever for ≥5 days • Swelling of a limb or joint • Not weight bearing or not using an extremity • A new lump >2 cm	• Temperature ≥38°C (age 0-3 months); ≥39°C (age 3-6 months) • Non-blanching rash • Bulging fontanelle • Neck stiffness • Status epilepticus • Focal neurological signs • Focal seizures • Bile stained vomiting

Richardson, M. et al. BMJ 2007;334:1163-1164

The Traffic Light System

- Tool for identifying the likelihood of serious illness
- Evidence based
    - prognostic studies
    - scoring systems (eg Yale)
    - individual infections

Traffic light system: red

Colour	Pale / mottled / ashen / blue
Activity	No response to social cues Appears ill to a healthcare professional Unable to rouse or if roused does not stay awake Weak/high pitched / continuous cry
Respiratory	Grunting Tachypnoea: RR>60 /min Moderate or severe chest indrawing
Hydration	Reduced skin turgor
Other	Age 0-3 months, temperature ≥38°C Age 3-6 months, temperature ≥39°C Non blanching rash Neck stiffness Focal neurological signs Bile-stained vomiting Bulging fontanelle Status epilepticus Focal seizures

Traffic light system: amber

Colour	Pallor reported by parent/carer
Activity	Not responding normally to social cues Wakes only with prolonged stimulation Decreased activity No smile
Respiratory	Nasal flaring Tachypnoea: RR>50/min age 6-12 months, RR>40/min age >12 months Oxygen saturation ≤ 95% in air Crackles
Hydration	Dry mucous membranes Poor feeding in infants CRT ≥3 seconds Reduced urine output
Other	Fever for ≥5 days Swelling of a limb or joint Non-weight bearing/not using an extremity A new lump >2cm

Traffic light system: green

Colour	Normal colour of skin, lips and tongue
Activity	Responds normally to social cues Content/smiles Stays awake or awakens quickly Strong / normal cry / not crying
Respiratory	
Hydration	Normal skin and eyes Moist mucous membranes
Other	None of the amber or red symptoms or signs

Clinical assessment

Measure and record temperature, heart rate, respiratory rate and capillary refill time in all children with fever

Be aware that a raised heart rate is a sign of serious illness

Do not use height or duration of fever alone to predict risk of serious illness

(Exceptions)

Meningitis

- Neck stiffness
- Bulging fontanelle
- Decreased level of consciousness
- Status epilepticus

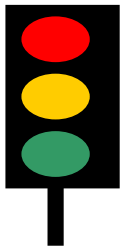
(Classical signs often absent in infants)

Meningococcal disease

Any child with a non-blanching rash, particularly with

- an ill looking child
- lesions > 2mm
- capillary refill ≥ 3 seconds
- neck stiffness

Management by remote assessment



Do symptoms and/or signs suggest an immediately life-threatening illness?

No

Look for traffic light symptoms and signs

Yes

Refer immediately to emergency medical care

If all **green** features and no amber or red

Child can be managed at home with appropriate care advice

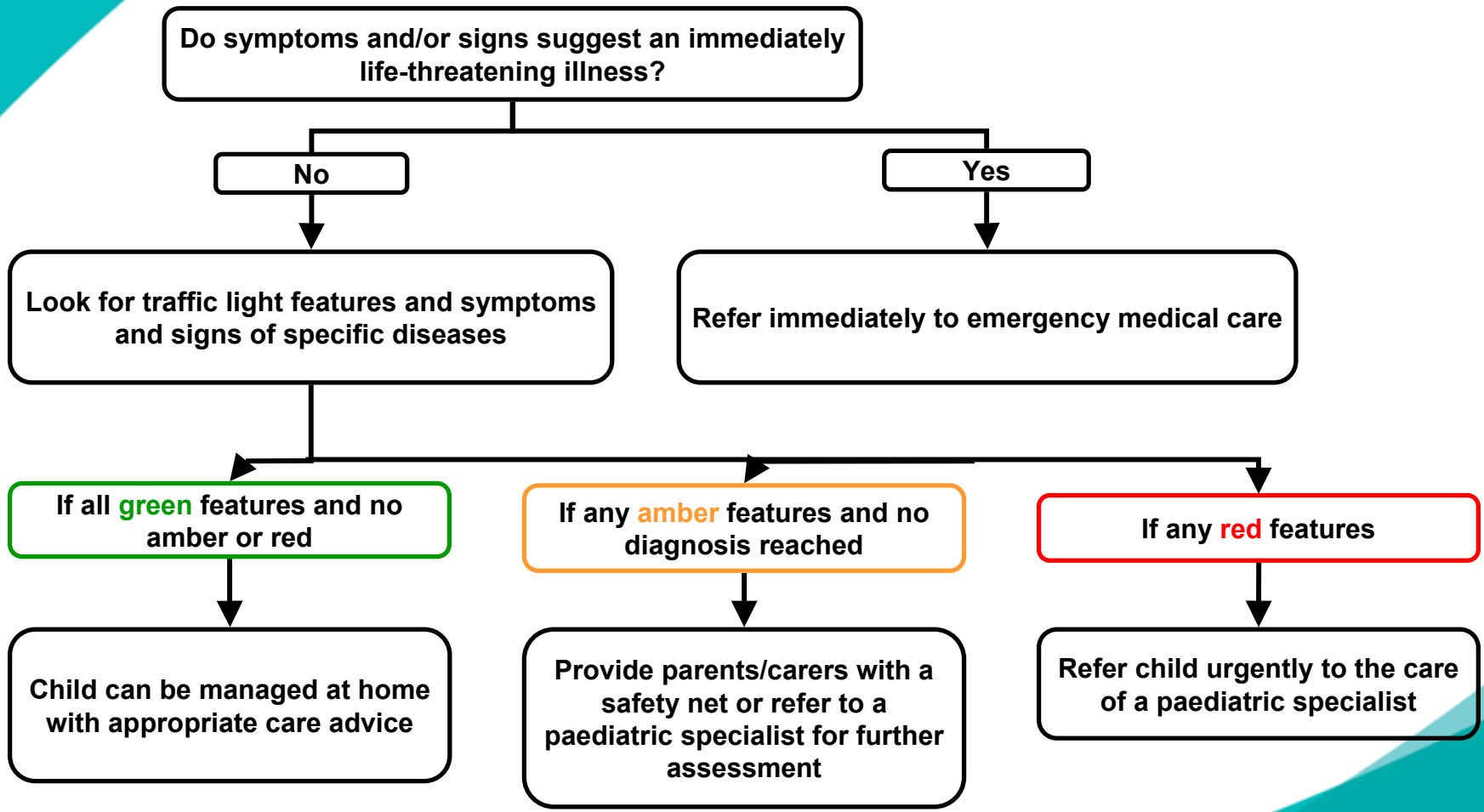
If any **amber** features and no red

Send child for assessment in a face-to-face setting.

If any **red** features

Send child for urgent assessment in a face-to-face setting within 2 hours

Management by a non-paediatric practitioner



Safety net

- Provide verbal and/or written information on warning symptoms and how to access further healthcare

- Arrange follow-up appointment

- Liaise with other healthcare professionals, including out-of-hours providers, to ensure the parent/carer has direct access to a further assessment

Management of children under 3 months by a paediatric specialist

Assess: look for life-threatening, traffic light and specific diseases symptoms and signs

Observe and monitor:
- temperature
- heart rate
- respiratory rate.

Perform:
- full blood count
- C-reactive protein
- blood culture
- urine test for urinary tract infection
- chest X-ray if respiratory signs are present
- stool culture if diarrhoea is present.

Admit, perform lumbar puncture and start parenteral antibiotics if the child is:
- younger than 1-month old
- 1–3 months old appearing unwell
- 1–3 months old and with a white blood cell count of less than 5 or greater than 15 x 10^9/litre

Whenever possible, perform lumbar puncture before the administration of antibiotics

Management of children 3 months to 5 years by a paediatric specialist

Assess: look for life-threatening, traffic light and specific diseases symptoms and signs

- **Perform test for urinary tract infection.**
- **Assess for pneumonia.**
- **Do not perform routine blood tests or chest X-ray.**

If no diagnosis is reached, manage the child at home with appropriate care advice.

Perform (unless deemed unnecessary)
- urine test for urinary tract infection
- full blood count
- blood culture
- C-reactive protein.

Perform chest x-ray if fever higher than 39°C and white blood cell count greater than 20 x 10^9/litre.

Consider lumbar puncture if child is younger than 1-year old.

Perform:
- blood culture
- full blood count
- urine test for urinary tract infection
- C-reactive protein.

Consider the following, as guided by clinical assessment:
- lumbar puncture in children of all ages
- chest X-ray
- serum electrolytes
- blood gas.

Consider admission. If admission is not necessary but no diagnosis has been reached, provide a safety net for the parents/carers.

Further management

- Immediate fluids
- Immediate antibiotics
- Other support

Meningococcal disease

- Immediate parenteral antibiotics

- Children in hospital should be under paediatric care, supervised by a consultant and have their need for inotropes assessed

Admission to hospital

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 infectious diseases
- recent travel abroad to tropical/subtropical areas
- when the parent or carer's concern for their child's current illness has caused them to seek healthcare advice repeatedly

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.

Children with 'green' features and none of the 'amber' or 'red' features can be managed at home with appropriate advice for parents and carers, including advice as to when to seek further attention from the healthcare services.

Put your trust logo here

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Discharge advice sheet for carers of children younger than 5 years who have a fever

We think that your child is well enough to go home now, but please telephone the number below if:

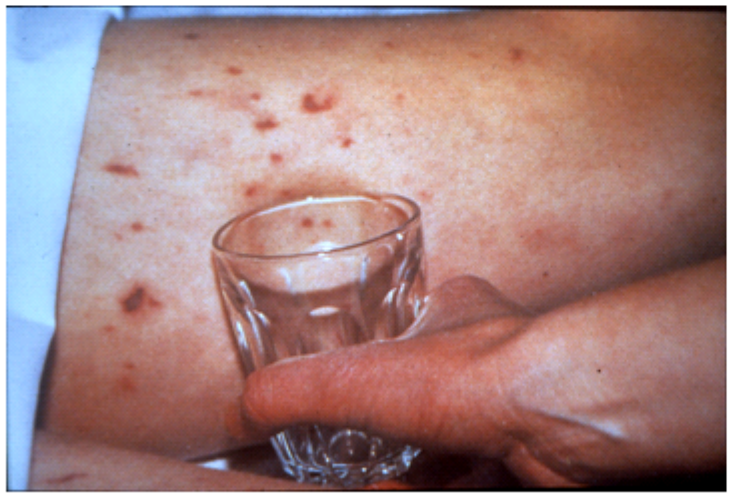
- your child's health gets worse
- you are worried
- you have concerns about looking after your child at home
- your child has a fit
- your child develops a rash that does not disappear with pressure (see the 'tumbler test' at the end of this sheet)
- the fever lasts longer then 5 days.

Checking on your child

Check your child during the night for rashes and to see if they are getting better. If a rash appears, do the tumbler test (see below). If you are concerned that your child is not improving phone the number on the front of this sheet to seek advice.

Keep your child away from nursery or school while they have a fever and notify the school or nursery of the illness.

The tumbler test



(Photo courtesy of the Meningitis Research Foundation)

Do the 'tumbler test' if your child has a rash. Press a glass tumbler firmly against the rash. If you can see the spots through the glass and they do not fade this is called a 'non-blanching rash'. If this rash is present seek medical advice immediately. The rash is harder to see on dark skin so check paler areas, such as palms of the hands, soles of the feet, tummy and inside the eyelids.

Feverish illness in children

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

Guidance type: **Clinical guideline**

Date issued: **May 2007**

Expected review date: **May 2011**

Reference: **CG47**

Summary | Documents | Development history

Summary

This advice in this guideline covers the care and treatment of children aged under 5 years with fever in the NHS in England and Wales.

Top

Documents

For healthcare professionals

- CG47 Feverish illness in children: NICE guideline (MS Word format)
- CG47 Feverish illness in young children: NICE guideline
- CG47 Feverish illness in young children: Full guideline
- CG47 Feverish illness in young children: Quick reference guide

For patients, carers and the public

- CG47 Feverish illness in children: Understanding NICE guidance
- CG47 Feverish illness in children: Understanding NICE guidance (MS Word format)

Background information

- None found

Implementing this guidance

http://guidance.nice.org.uk/CG47