NHS
Vale of York
Clinical Commissioning Group

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Teaching Hospitals
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Referral Support Service

Paediatrics

PA19 Fever in a Pre-school Child

Paediatric Normal Values (adapted from APLS)			
Age	Resp Rate	Heart Rate	Systolic BP
Neonate <4w	40-60	120-160	>60
Infant <1 y	30-40	110-160	70-90
Toddler 1-2 yrs	25-35	100-150	75-95
2-5 yrs	25-30	95-140	85-100

Definition

Feverish illness is diagnosed in all children who present with a temperature over 38°C as measured by the following;

- In those <4 weeks – electronic thermometer placed in axilla
- In those >4weeks – chemical dot in axilla, electronic thermometer in axilla or infra-red tympanic thermometer.

A summary of the Fever Pathway is on the RSS Paediatric Urgent Care pages

Exclude Red Flag Symptoms

- Children under 3 months with a temperature ≥ 38°C

Low Threshold for Admission

- Children aged 3-6 months with a temperature ≥ 39°C

General Points

- Very common in young children, with between 20-40% of parents reporting such an illness each year
- Fever usually indicates underlying infection
- It is a cause of significant worry for parents and carers
- It is the second most common reason for a child being admitted to hospital
- Infections remain the leading cause of death in children under 5 years
- Diagnosing the cause of fever can be a significant challenge and even after a detailed assessment the cause may remain elusive, 'pyrexia of unknown origin'
- Ask parents about the presence features since the onset of fever, because they may have resolved by the time of assessment

Assessment

1. Consider observations outside of the consultation room

It can be helpful to view the waiting room as an extension of the consultation room. If the child is unwell within the consultation then consider keeping them for 30 minutes in the waiting room to see if things settle. Consider arranging a review later that day or within 24-48h. This could be face to face or virtual depending on the clinician's and parents' comfort with either.

2. Listen to parental concerns

A parent's report of fever should be considered valid, even if the child has a normal temperature in the consultation room. It is important that parental or carer's concerns are elicited and addressed.

3. Measure temperature accurately

- In those <4 weeks – electronic thermometer placed in axilla
- In those > 4weeks – chemical dot in axilla, electronic thermometer in axilla or intra-red tympanic thermometer. Wax doesn't affect the reading.

4. Examine child thoroughly

- Leave examinations that are most likely to upset the child to the end.
- Undress the child fully to ensure no rashes or other clinical signs that could point to the cause of fever are not missed.
- Look carefully for common causes of fever such as tonsillitis, upper and lower respiratory tract infections.
- Document temperature, heart rate, respiratory rate and capillary refill time
- Assess for signs of dehydration

Tips for paediatric examinations

- Allow parent/carer to undress the child
- Examine the child on their parent/carer lap whenever possible
- Ensure the room is warm
- Leave ears and throat to last
- Try whispering/lowering your voice
- Distraction toys – bubbles and lights are always popular!

5. Exclude serious infection

Differential Diagnosis	Clinical Features
Meningococcal disease	• Non-blanching rash particularly with one or more of the following • ill-looking child • Lesions larger then 2mm (purpura) • CRT >3s • Neck stiffness
Meningitis	• Neck stiffness • Bulging fontanelle • Decreased level of consciousness • Seizures
Herpes simplex encephalitis	• Focal neurological signs • Focal seizures • Decreased level of consciousness

Pneumonia	• Tachypnoea • Crackles on auscultation • Oxygen saturations ≤ 95%
Urinary tract infections	• Vomiting • Poor feeding • Lethargy • Irritability • Abdominal pain or tenderness • Urinary frequency or dysuria
Septic arthritis	• Swelling of a limb or joint • Not using a limb • Non-weight bearing
Kawasaki disease	• Fever for ≥ 5 days and at least four of the following • Bilateral conjunctival injection • Change in mucous membranes • Change in extremities • Polymorphous rash • Cervical lymphadenopathy • N.B. Children <1y may have fever features but are at higher risk of coronary artery abnormalities than older children.

6. Consider investigations

- Children presenting with an unexplained fever (T ≥38°C) should have urine testing within 24h
  - See advice here on how to obtain urine
- Chest x-rays should not be routinely organised for children thought to have pneumonia

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	Traffic light system for identifying severity of illness		
	Green – Low Risk	**Amber – Intermediate Risk**	**Red – High Risk**
Activity	• Responds normally to social cues • Content/smiles • Stays awake/awakens quickly • Strong normal cry	• Altered response to social cues • No smile • Reduced activity • Parental anxiety	• Not responding normally or no response to social cues • Unable to rouse or if roused does not stay awake • Weak, high pitched or continuous cry • Appears ill
Skin	• Normal skin colour • CRT <2 secs • Normal skin turgor • Warm extremities • Normal eyes	• Normal skin colour • Pallor reported by parent/carer • Cool peripheries • CRT 2-3 secs	• Pale, mottled, ashen • Cold extremities • CRT >3 secs • Sunken eyes
Respiratory	• Normal breathing • <12m: RR <50bpm • 1-5y: RR <40bpm • O_2 sats ≥ 95% • No chest recessions • No nasal flaring	• Tachypnoea • Moderate recessions • May have nasal flaring • <12m: RR 50-60bpm • 1-5y: RR 40-60bpm • O_2 sats: 92-94%	• Significant respiratory distress • Grunting • Apnoeas • Severe recessions • Nasal flaring • All ages: RR >60bpm • O_2 sats:≤ 92%
Circulation	• Tolerating 75% of fluid • Occasional cough induced vomit • Moist mucous membranes	• 50-75% fluid intake over 3-4 feeds • Cough induced vomiting • Reduced urine output	• 50% or less fluid intake over 2-3 feeds • Cough induced vomiting frequently • Significantly reduced urine output
Fever	• Systemically well • T <38°C	• Age 3.6m: T ≥ 39°C • Fever for ≥5d • Rigors • Swelling of a limb or joint • Non-weight bearing limb/not using an extremity	• Age <3m: T ≥ 38°C • Non-blanching rash • Bulging fontanelle • Neck stiffness • Status epilepticus • Focal neurological signs • Focal seizures
	All green	**Any amber and no red**	**If any red**
	• Can be managed at home • Give fever information leaflet •	• Consider same day review • If you feel the child is ill, needs O_2 support or will not maintain hydration discuss with paediatrician on-call	• Refer immediately to emergency care – consider 999 • Bleep paediatrician on-call • Consider appropriate means of transport • If appropriate commence relevant treatment to stabilise child for transfer • Consider starting high flow oxygen support

Management

Non-Pharmacological Methods

- Tepid sponging is not recommended for the treatment of fever
- Children with fever should not be under dressed or over- wrapped

Anti-pyretic Medication

- Anti-pyretic agents do not prevent febrile convulsions and should not be used specifically for this purpose
- Consider using either **paracetamol** or **ibuprofen** in children with fever who appear distressed
- Do not use anti-pyretic agents with the sole aim of reducing body temperature in children with fever
- When using **paracetamol** or **ibuprofen** in children with fever:
  - Continue only as long as the child appears distressed
  - Consider changing to the other agent if the child's distress is not alleviated
  - Do not give both agents simultaneously
  - Only consider alternating these agents if the distress persists or recurs before the next dose is due
- When a child has been given anti-pyretics, do not rely on a decrease or lack of decrease in temperature at 1-2 hours to differentiate between serious and non-serious illness
- Advise the parent/carer that **paracetamol** and **ibuprofen** are available to purchase OTC

Antibiotic Medication

- Do not prescribe oral antibiotics to children with fever without an apparent source.

When to Arrange Emergency Hospital Admission

- Children with fever who appear shocked, unrousable or show signs of meningococcal disease
- All Children under 3m (because sepsis or meningitis is more likely so a full septic screen is needed).

While awaiting admission to hospital

- Give controlled supplementary oxygen to all children with symptoms of severe illness or impending respiratory failure
- Emergency treatment of sepsis, before urgent transfer to hospital if transfer time >1h:
  - **Benzylpenicillin** IM
    - <1y: 300mg
    - 1-9y: 600mg

If parents or carers think there's a history of allergy NICE guidance (CG102) on Suspected meningococcal disease (meningitis with non-blanching rash or meningococcal septicaemia) may help. It says in paragraph 1.2.5: "Withhold benzylpenicillin only in children and young people who have a clear history of anaphylaxis after a previous dose; a history of a rash following penicillin is not a contraindication".

The number of children who have had anaphylaxis to previous dose of benzylpenicillin will only be a very small number. If time permits where the extent of allergy is unclear clinicians should discuss the risk with parents / carers of both administering and not administering potentially life-saving antibiotics and inform them of the NICE guidance.

When to Consider Hospital Admission

- Children aged over 3m without an apparent source, a period of observation in hospital should be considered as part of an assessment to help differentiate non-serious from serious illness
- In additional to the child's clinical condition, consider the following factors when deciding to admit a child with fever
    - Social and family circumstances
    - Co-morbidities
    - Parental anxiety and instinct (based on their knowledge of the child)
    - Contacts with other people who have serious infectious diseases
    - Recent travel abroad to tropical/subtropical areas, or areas with high risk of endemic infectious disease
    - When the parent/carer's concern for their child's current illness has caused them to seek medical advice repeatedly
    - When 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-limited illness

Low Risk for Community Management

- Consideration should be given to urine testing. See advice here on how to obtain urine.
- If the child is well enough to be managed in the community they should be given appropriate advice as follows
    - How to manage fever
    - To encourage oral fluids
    - How to detect signs of dehydration – including when they should seek advice
    - How to identify a non-blanching rash
    - To check their child during the night
    - Keep away from school or nursery until fever has improved
- Parents should seek medical attention if
    - The child has a seizure
    - Fever lasts longer than 5 days
    - Child becomes more unwell
    - Parent/carer is distressed or concerned that they are unable to look after their child
    - A non-blanching rash develops

Patient information leaflets/ PDAs

There are parent leaflets on Fever and Febrile Convulsion on the RSS Paediatric Urgent Care pages

References

- National Institute for Clinical Excellent [NICE] (2019) *Fever in under 5s: assessment and initial management [NG143]* [Viewed 12 Nov 2021]
- National Institute for Clinical Excellent [NICE] (Updated 2018) *Urinary tract infection in under 16s: diagnosis and management [CG54]* [Viewed 12 Nov 2021]
- National Institute for Clinical Excellent [NICE] (2015) Meningitis (bacterial) and meningococcal septicaemia in under 16s: recognition, diagnosis and management (CG102) [Viewed 7 Dec 21]

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