FIGHTING CHILDHOOD FEVERS

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Fever is a normal physiological response to illness, which facilitates and accelerates recovery. The condition is common in children, and often benign and self-limiting. However, as childhood fever may be associated with increased morbidity in children, it frequently causes concern among parents and healthcare providers, and is consequently one of the most common reasons for which children are brought to seek medical attention.

In most cases, fever is a presenting symptom of a self-limiting viral infection. However, it may also be associated with serious bacterial infections, such as meningitis and pneumonia, and other non-infective illnesses such as Kawasaki's disease and malignancy.

Thus it is important for healthcare professionals to determine the underlying illness causing the fever, and to identify children with life-threatening features and those at risk of serious illness so that timely intervention and proper referral can be made.

The most common causes of fever seen in children who seek treatment at the Children's Emergency department at KK Women's and Children's Hospital include viral fevers, upper respiratory tract infections and gastroenteritis.

GUIDELINES FOR CLINICAL ASSESSMENT AND MANAGEMENT OF FEVERS IN CHILDREN

1. Identify and treat immediate life-threatening features

Be alert to features such as compromised airway, breathing or circulation, and decreased level of consciousness.

2. Conduct thorough history-taking and systematic examination

After stabilising the child with fever, a thorough history-taking and systematic examination should be carried out to determine the underlying cause of the fever and assess the child for risk of serious illness.

It is crucial to measure and record the child's vital signs such as temperature, heart rate, respiratory rate and capillary refill time. Signs of dehydration such as prolonged capillary refill time, abnormal skin turgor, abnormal respiratory pattern, weak pulse and cool extremities should also be assessed.

3. Identify and treat features suggestive of specific diseases (Table 1)

TABLE 1. FEATURES IN CONJUNCTION WITH FEVER THAT ARE SUGGESTIVE OF SPECIFIC DISEASES

DIAGNOSIS TO BE CONSIDERED	FEATURES IN CONJUNCTION WITH FEVER
Meningococcal disease	Non-blanching rash, particularly with one or more of the following features: • an ill-looking child • lesions larger than 2 mm in diameter (purpura) • capillary refill time of ≥3 seconds • neck stiffness
Kawasaki disease	Fever for more than 5 days, and at least four of the following features: • bilateral conjunctival injection • change in mucous membranes • change in the extremities • polymorphous rash • cervical lymphadenopathy
Bacterial meningitis	• Neck stiffness • Bulging fontanelle in infants • Decreased level of consciousness • Convulsive status epilepticus
Herpes simplex encephalitis	• Focal neurological signs • Focal seizures • Decreased level of consciousness
Septic arthritis	• Swelling of a limb or joint • Avoiding use of, or bearing weight on, an extremity
Pneumonia	• Tachypnoea > 60 breaths/minute, age 0–5 months; > 50 breaths/minute, age 6–12 months; > 40 breaths/minute, age more than 12 months • Crackling sounds in the chest • Nasal flaring • Chest indrawing • Cyanosis • Oxygen saturation ≤95%
Urinary tract infection	• Vomiting • Poor feeding • Lethargy • Irritability • Abdominal pain or tenderness • Urinary frequency or dysuria

"Children with features indicating low risk of illness can be cared for at home; however, it is important to diagnose and treat the underlying cause of fever appropriately."

4. Assess the risk of serious illness in children with fever (Table 2)

TABLE 2. TRAFFIC LIGHT SYSTEM FOR ASSESSING RISK OF SERIOUS ILLNESS IN CHILDREN YOUNGER THAN FIVE YEARS

FEATURE	LOW RISK	INTERMEDIATE RISK	HIGH RISK
Colour (skin, lips or tongue)	• Normal colour	• Pallor reported by parent or carer	• Pale/mottled/ashen/blue
Activity	• Responds normally to social cues • Content/smiles • Stays awake or awakes quickly • Strong normal cry/not crying	• Not responding normally to social cues • No smile • Wakes only with prolonged stimulation • Decreased activity	• No response to social cues • Appears ill to a healthcare professional • Does not wake or if roused does not stay awake • Weak, high-pitched or, continuous cry
Respiratory		• Nasal flaring • Tachypnoea - respiratory rate: >50 breaths/minute, age 6–12 months >40 breaths/minute, age >12 month • Oxygen saturation ≤95% in air • Crackles in the chest	• Grunting • Respiratory rate >60 breaths/minute • Moderate or severe chest indrawing
Circulation and hydration	• Normal skin and eyes • Moist mucous membranes	• Dry mucous membranes • Poor feeding in infants • Reduced urine output • Capillary refill time ≥3 seconds • Tachycardia: >160 beats/minute, age <12 months >150 beats/minute, age 12–24 months >140 beats/minute, age 2–5 years	• Reduced skin turgor
Other		• Age 3–6 months, temperature ≥39°C • Fever for ≥5 days • Rigors • Swelling of a limb or joint • Non-weight bearing limb/ not using an extremity	• Age <3 months, temperature ≥38°C • Non-blanching rash • Bulging fontanelle • Neck stiffness • Status epilepticus • Focal neurological signs • Focal seizures

Source: NICE Clinical Guideline on Feverish illness in children: Assessment and initial management in children younger than 5 years, National Institute for Health and Care Excellence, United Kingdom, May 2013

Continued on page 6...