

MANAGEMENT OF A FEBRILE CHILD

GUIDELINES FOR MANAGEMENT OF A FEBRILE CHILD

The attached clinical practice guideline applies to all institutions where paediatric patients are managed. The aim of formulating these guidelines is to develop conformity and to improve the quality of management in paediatrics. This is prepared by a working group of Sri Lanka College of Paediatricians.

It should be noted that this document reflects what is currently regarded as a safe and appropriate approach to care. However, as in any clinical situation there may be factors which cannot be covered by a single set of guidelines. This document should be used as a guide, rather than as a complete authoritative statement of procedures to be followed in respect of each individual presentation. It does not replace the need for the application of clinical judgment to each individual presentation.

Management guidelines are considered under the following headings

- 1. Introduction**
- 2. Definition of fever**
- 3. Key factors to be considered in the management of a febrile child**
- 4. Rationale for the clinical approach**
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1. Introduction

Acute febrile illness in an infant or a young child is a common clinical scenario that can be a diagnostic challenge. The evaluation is guided by the history and physical examination, along with judiciously selected screening tests. The

overwhelming majority of non-toxic but febrile infants and young children have a viral infection. The physician's primary task is to identify the infant or child who is at risk for serious bacterial infection. Our aim is to detect those children with serious causes of fever such as meningitis, pneumonia and bacteraemia, without subjecting too many children to too many procedures or tests. This requires a combination of clinical judgment, specific investigations and observation

Parental anxiety should not be discounted. It is often of significance even if the child does not appear especially unwell.

2. Definition of fever

Fever is defined as a rectal temperature $>38^{\circ}\text{C}$. However, a lower temperature too, is significant in some circumstances. (eg neonates, immunocompromised)

Fever is usually measured at the axilla. The staff should be aware that axillary temperature is up to 1°C lower than rectal. Tympanic temperature measurements are recommended in children above 2 years of age. Oral temperature measurement is not recommended in children due to risk of infection.

Table 1
Normal temperature ranges

Measurement method	Normal temperature range
Rectal	36.6°C to 38°C (97.9°F to 100.4°F)
Ear	35.8°C to 38°C (96.4°F to 100.4°F)
Oral	35.5°C to 37.5°C (95.9°F to 99.5°F)
Axillary	34.7°C to 37.3°C (94.5°F to 99.1°F)

Ref;- *Community Paediatrics Committee, Canadian Paediatric Society*

3. Key factors to be considered in the management of a febrile child:

- Child's age
- Height of temperature
- Severity of illness / Toxicity
- Presence of a focus of infection
- Possibility of Dengue infection
- White cell count.

4. Rationale for clinical approach

4.1 Age

As the risk of sepsis is high in young children, the younger the child the lower should be the threshold for treatment.

4.1.1 Neonates (<28 days) and young infants:

- May not have the characteristic signs of serious infection (temperature can be high or low)
- Can deteriorate rapidly
- This category need rapid assessment and investigation, and admission to hospital.
- Consult a senior in the emergency department or paediatric staff about the extent of investigations (full blood count, cultures of blood, urine and CSF, chest x-ray) and the administration of antibiotics.

4.1.2 Older infants/toddlers: - (Age > 3 months - 1 year)

- Localise infection better than neonates, but may still be pre-verbal.
- Risk group for occult bacteraemia is high with no clear focus.

4.1.3 Older children: (> 3 years)

- Usually verbalise and localize symptoms well.
- Frequently exposed to infectious diseases in childcare and preschools.

4.2 Height of temperature

The higher the fever, the greater the risk of serious bacterial infection. In general, as the temperature rises above 39 °C, the risk of serious bacterial infection increases.

4.3 Severity of illness/Toxicity

Use this simple system to work out how sick a child appears to be:

- A** - **Arousal, Alertness and Activity**
- B** - **Breathing difficulties**
- C** - **poor Colour (pale) and poor Circulation (cold peripheries)**
CRT(capillary refill time)
- D** - **Decreased fluids intake and Decreased urine output**

Abnormality of any of these signs places the child at high risk of serious illness. The presence of more than one sign increases the risk. Children with these signs must be seen urgently, investigated and treated as a priority.

4.4 Presence of a focus of infection

Children with a definite focus of infection should have specific investigations of that focus.

4.5 Look for the possibility of dengue infection

Dengue fever should be excluded in any febrile unwell child irrespective of the age. Presence of high fever, headache rash/ flushed appearance and hepatic tenderness increases the possibility of dengue infection

4.6 White cell count.

- The risk of serious bacterial infection correlates with the total white cell count. A low white cell count does not exclude serious bacterial infection in some children.
- As the white cell count may be normal in up to one third of children with bacteraemia, other clinical features, particularly the age of the child and severity of illness must also be considered in the assessment
- Research has shown a WCC of 15,000 as a threshold because it is a good balance between sensitivity and specificity (a balance between picking up all the cases and investigating too many children).
- Absolute neutrophil count (ANN) > 10,000cells/ mm³ is also associated with bacteraemia.
- In neonates the band cell count or I:T ratio is more accurate in assessing the bacteraemia.
- Serious bacterial infection correlates better with total white cell count than with absolute neutrophil count.

5. Special situations

5.1 Immunocompromized children

These children will not show any clinical evidence of serious infection. Therefore they require more aggressive evaluation and management than other children.

5.2 Chronic illnesses

Infants and children with fever who have known chronic illnesses that affect immune status, sickle cell disease, cystic fibrosis, diabetes and congenital heart anomalies may require more aggressive evaluation and management than other children.

5.3 Recent antibiotic therapy

A more aggressive approach may be warranted in infants and young children with fever who have recently been treated with antibiotics. These children tended to be less ill-looking. Physicians must always bear in mind the possibility of partially treated meningitis when they are evaluating febrile infants and young children who have recently been prescribed antibiotics.

References

1. *(National Health and Medical Research Council A Guide to the Development, implementation and evaluation of Clinical Practice Guidelines, Endorsed 16 November 1998, available from www.nhmrc.gov.au/publications/*
2. *parents information sheet* - This parent information was developed by The Children's Hospital at Westmead, Sydney Children's Hospital, Randwick and John Hunter Children's Hospital.

Parent information sheet

What is a fever ?

A fever is when the body's temperature is higher than normal. Humans usually have a body temperature within a very narrow range. Normally a child has a fever when their temperature is over 37.5°C (when taken by a thermometer under the arm). A child with a fever often has a hot, flushed face. The forehead may feel hot. The child may feel hot, or sometimes even shivery. A child's hands and feet may feel cold, even when the rest of the child is hot. Children with fever are often miserable or tired.

Is fever good or bad ?

Fever is the body's natural response to infection. Raising the body temperature helps the body to fight off the infection, so it is not always necessary to treat the fever. However, children with fever often feel uncomfortable and unwell. Using measures to bring down their temperature can help. Fevers, especially if they are rapidly increasing, may occasionally bring about convulsions (fits) in children under five years old. These are not dangerous but they can be frightening.

Keeping a child's temperature from getting too high may prevent fits.

What causes fever ?

The most common cause of a fever is infection. Infections of the upper respiratory tract, such as colds and flu, are very common, especially in preschool children. Young preschoolers can have five to ten infections each year. These infections are caused by a virus and get better on their own without antibiotics.

Some infections, like ear infections and some throat infections, may be caused by bacteria. If your child has a bacterial infection, he or she will get better much quicker if antibiotics are prescribed by a doctor. Fever may also be caused by other factors, such as prolonged exposure to the sun on a hot day.

When do you need to see a doctor ?

You need to see a doctor if your child has a fever and:

- Your child is very young (six months or younger)
- Your child seems very sick.

You also need to see a doctor if your child:

- has an earache
- has difficulty swallowing
- has fast breathing
- has a rash
- has vomiting
- has neck stiffness
- has bulging of the fontanelle (the soft spot on the head in babies)
- is very sleepy or drowsy
- you are concerned.

Older children who have a cold, but are not very sick, generally do not need to see a doctor with every fever.

Managing a fever

Since a fever is the body's natural response to infection it is not always necessary to reduce a fever. However, if your child is very hot and uncomfortable, you can try these simple steps:

- Take off your child's clothes.
- Give medications to reduce fever, eg paracetamol . This medication should be given at the correct dose, so ask your doctor or refer the instructions on the bottle for the correct dose.
- Give your child plenty to drink as children with a fever need more fluids.
- Consult a doctor if the fever does not settle or your child is still sick.

Remember

- Most fevers are caused by viral infections.
- Make sure your child drinks plenty of fluids.
- Babies under six months with a high temperature should be seen by a doctor.
- See a doctor if your child seems very sick.

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