# Febrile Seizures in Children

## Red Flags

- Febrile and unwell
- Infants aged < 6 months
- Neurological abnormality on history or examination
- Developmental delay
- Major disease in any other system, including endocrine, cardiac

## Background

About febrile seizures in children

### About febrile seizures in children

Febrile seizures occur in 3 to 4% of normal children, aged 6 months to 6 years (although can be outside this range), often with a family history of febrile seizures. They are usually associated with a febrile illness in the absence of a central nervous system infection or previous history of afebrile seizures, and are recurrent in 1/3 of children.

- Simple febrile convulsions:
  - Generalised, tonic-clonic seizures lasting < 15 minutes.
  - Do not recur within the same febrile illness.
  - Not associated with increased risk of neurological disorder.
  - Small increased risk of epilepsy, with a greater risk if there is a first degree relative with epilepsy.
- Complex febrile convulsions have one or more of the following:
  - Focal features at onset or during the seizure.
  - Duration > 15 minutes.
  - Recurrence within the same febrile illness.
  - Incomplete recovery within 1 hour.

Febrile status epilepticus is a febrile convulsion lasting > 30 minutes.

## Assessment

**Practice Point!**

Generally, febrile seizures occur between 6 months to 6 years. Outside those ages, fits may still be triggered by fever, but they may have a less benign prognosis, so are of greater concern.

1. Check airway, breathing, and circulation.

### Airway

Airway compromise:

- Secretions and trismus are common.
- Complete airway obstruction is very rare.
- Check airway positioning e.g., jaw thrust.
- Avoid blind suctioning.

### Breathing

Peri-oral cyanosis is common. If present, give oxygen.

### Circulation

- Tachycardia and poor peripheral perfusion are common.
- Shock is uncommon. If present, consider sepsis as the underlying cause.
- Ensure appropriate monitoring, including BP.

2. Check blood glucose. If blood sugar level < 3 mmol/L:
   - arrange immediate transport by ambulance for acute paediatric assessment
   - treat immediately with 15 g fast acting carbohydrate.

**15 g of fast-acting carbohydrate**

- 1 x Hypo-Fit gel, if available
- 3 or 4 glucose tablets (equalling 15 g carbohydrate)
- 1 tablespoon of glucose powder dissolved in water
- 1/2 to 1 glass (or a small box) of fruit juice
- 1 tablespoon of jam or sugar
- 5 to 7 mentos

3. For simple febrile convulsions, determine the cause of the fever after the convulsions have stopped. Viral respiratory infections are the most common.
4. Review medical history of seizures.
5. Consider meningitis in any unwell child, especially younger children.
6. Investigations, including an EEG, are not indicated in febrile convulsions.

## Management

1. If continuing convulsion (> 5 minutes duration):
    - Any unconscious child should be put in the coma (recovery) position.
    - Arrange immediate transport by ambulance for acute paediatric assessment.
    - Give intramuscular midazolam 0.2 mg/kg dose (maximum 10 mg) if available, **OR**
    - buccal or intranasal midazolam at 0.5 mg/kg dose (maximum 10 mg), **OR**
    - if intravenous or intraosseous access is available, give midazolam via intravenous or intraosseous route at 0.15 mg/kg dose (maximum 10 mg).

    Dose may be repeated once if the child is still fitting after a further 5 minutes.

    **Note: Midazolam is not in doctor's bag supply and many general practitioners will not have access to it in their surgeries.**

    - **Second line:**
        1. give diazepam via intravenous or intraosseous route at a dose of 0.25 mg/kg, **OR**
        2. if available diazepam rectally 0.3 to 0.5 mg/kg (maximum 10 mg).

    **Note: If two appropriate doses fail to terminate the seizure, further doses are unlikely to be effective and increase the risk of respiratory depression.**

    - See Starship Clinical Guidelines – Seizures (Febrile).

Note that anti-pyretic medication (e.g., paracetamol, ibuprofen) can be expected to lower body temperature, but will not reduce the likelihood of seizure. See Starship Clinical Guidelines – Seizures (Febrile).

Give caregivers patient information and advise that:

- seizures recur in 30% of children, and there is a higher risk if there is a family history of febrile convulsions.
- an EEG is not indicated in single or recurrent, simple or complex febrile convulsions.

## Request

- Refer to the Emergency Department if:
  - midazolam or diazepam has been administered.
  - the possibility of serious illness e.g., meningitis or acute metabolic decompensation, cannot be excluded.

- Request acute paediatric medical assessment if the child has:
  - prolonged postictal coma without big doses of sedating antiepiletics.
  - persisting postictal paresis or other neurological abnormality.

- If multiple seizures and parental concern, request non-acute paediatric medical assessment.

- If co-existing illnesses, refer to the child's current specialist.