Comer Emergency Department (ED) Clinical Guidelines: Febrile Seizure

Population:
- **Definition:** Seizure occurring in the appropriate age group (6-60 months) in conjunction with a fever (T ≥ 38°C), or history of recent fever, without a history of previous afebrile seizures or presence of any other underlying cause (neurologic disease or CNS infection).
- Most common age group is 6mo – 3yrs (range 6mo-60mo)
- Febrile seizures occur in 2-5% of all children between the ages of 6mo-5yrs
- Febrile seizures represent the most common cause of pediatric seizures seen in the out-of-hospital and emergency department settings.
- Children have only a slightly increased risk of having afebrile seizure disorder
- HHV-6 (causative agent of Roseola) is the most commonly identified viral association

History:
- Seizure may occur prior to the parent knowing the child actually had a fever
- Detailed description of seizure (generalized tonic-clonic versus focal), pre/postictal activity
- No other concerning complaints (no headache, vomiting, lethargy, focal neurologic complaints)
- Child essentially “normal” before the seizure, and again after awakening from postictal period
- May or may not have viral/URI symptoms
- May have history of febrile seizures in the past (1/3 of febrile seizures recur)
- FMHx of febrile seizures (strong association), afebrile seizures

Physical Exam:
- General appearance (including vital signs and pulse oximetry on room air)
- Rapid cardiopulmonary assessment (including evaluation of perfusion)
- Evaluate for signs of meningitis-nuchal rigidity, bulging fontanel, Kernig and Brudzinski sign
- Assess for lethargy, degree of irritability, presence of high-pitched cry
- Detailed neurological examination for focal deficits or abnormalities
- Evaluate for source of infection/fever (see ‘Fever 3-36 months guideline’)

Evaluation & Management:
- Most febrile seizures are brief, do not require any specific treatment or extensive workup, and have a benign prognosis.
- Begin with attention to the ABC’s
- Check fingerstick blood glucose
- Seizures lasting greater than 5 minutes should be treated with benzodiazepines:
  - Lorazepam 0.1mg IV
  - Rectal valium if no IV access is available
    - 1-5y = 0.5mg/kg
    - 6-11yr = 0.3mg/kg
    - 12+yr = 0.2mg/kg
- For seizures refractory to benzodiazepines, see ‘Status Epilepticus’ clinical guideline
- For further workup, determine if the child’s seizure meets criteria for ‘Simple’ or ‘Complex’
  - **Simple Febrile Sz:**
    - **Criteria:**
      - Generalized (nonfocal)
      - Lasting less than 15 min
      - Occurs once in 24 hr period
    - **Work-up:**
      - Evaluate as you would any other child with a similar degree of fever
Complex Febrile Sz:
- Criteria (any of the following):
  - Focal
  - Lasting greater than 15 min
  - Occurring more than once in 24 hr period
- Work-up:
  - Strongly consider a more extensive workup that may include any or all of the following:
    - CBC, Blood Cx
    - U/A and Cx (clean catch urine or catheterized urine)
    - BMP (electrolytes)
    - CT scan
    - LP
    - Urine toxicology
- In addition it is important to make some distinction regarding age.
  - Most patients should fall into the age range 6 mo - 3 yrs. Although there may be children both younger and older who will ultimately be determined to have febrile seizures, the farther one is from that basic age range the more important it is to consider other causes.
  - In addition it is generally appreciated that it may be more difficult in younger children to appreciate meningeal signs – particularly those under 12 mo of age.
  - The 2011 AAP Clinical Practice Guideline strongly recommends that a lumbar puncture (LP) should be performed in any child who presents with a seizure and a fever and has meningeal signs and symptoms or whose history/exam is suggestive of meningitis or intracranial infection.
  - The 2011 AAP Clinical Practice Guideline state that a lumbar puncture is an option for the following children:
    - any infant between 6 and 12 months who presents with a seizure and fever when the infant is considered deficient in Haemophilus influenza type b (Hib) or Streptococcus pneumonia immunizations (ie, has not received scheduled immunizations as recommended), or if immunization status cannot be determined.
    - any child who presents with a seizure and fever and is pretreated with systemic antibiotics, regardless of route of administration, days before the seizure.
  - The 2003 ACEP Committee on PEM recommends that an LP should be strongly considered in a child younger than 18 months if any of the following are present:
    - History of irritability, decreased feeding or lethargy
    - An abnormal appearance or mental status persisting after the postictal period
    - Any physical signs of meningismus (bulging fontanelle, Kernig or Brudzinski signs, photophobia, or severe headache)
    - Any complex features (Sz > 15 min, more than 1 in 24 hrs, or any focality)
    - Any slow postictal clearing of mentation
    - Pretreatment with antibiotics
- Neuroimaging with CT scan is generally not recommended unless there is clinical evidence of increased ICP (papilledema, obtundation, or “sunsetting”), or a suspicion of cerebral abscess (immunocompromised, focal neurologic findings, evidence of endocarditis). These are somewhat related to the above indications for performing an LP. Most would agree with a plan that includes a CT prior to performing the LP whenever any of these atypical or “complex” features are present.
- An EEG should not be performed in the evaluation of a neurologically healthy child with a simple febrile seizure.
Comer Emergency Department (ED) Clinical Guidelines:
Febrile Seizure

- Treatment is otherwise largely supportive.
- The use of antipyretics such as Tylenol or ibuprofen have not been shown to prevent febrile seizures.

Disposition:
- Admission should be considered for:
  - Infants < 6mo
  - Children with complex features
  - Social concerns
- Discharge instructions in the form of detailed anticipatory guidance should occur and include specific information relating to the recurrent nature of these seizures, worrisome signs to watch for, what to do if another seizure occurs, and when they should call 911 and/or return for further evaluation. In addition to verbal instructions, there are written discharge instruction sheets available.
- Although the use of antipyretics have not been shown to prevent febrile seizures, it is still reasonable to recommend the continuation of antipyretics for the fever.

REFERENCES:

DISCLAIMER:
This clinical guideline has been developed for the purpose of unifying the general emergency care of children with febrile seizures. It is intended to aid, rather than substitute for, professional judgment. It is not
intended to serve as a rigid protocol or a written proxy for the standard of care. Failure to comply with this guideline does not represent a breach of the standard of care.