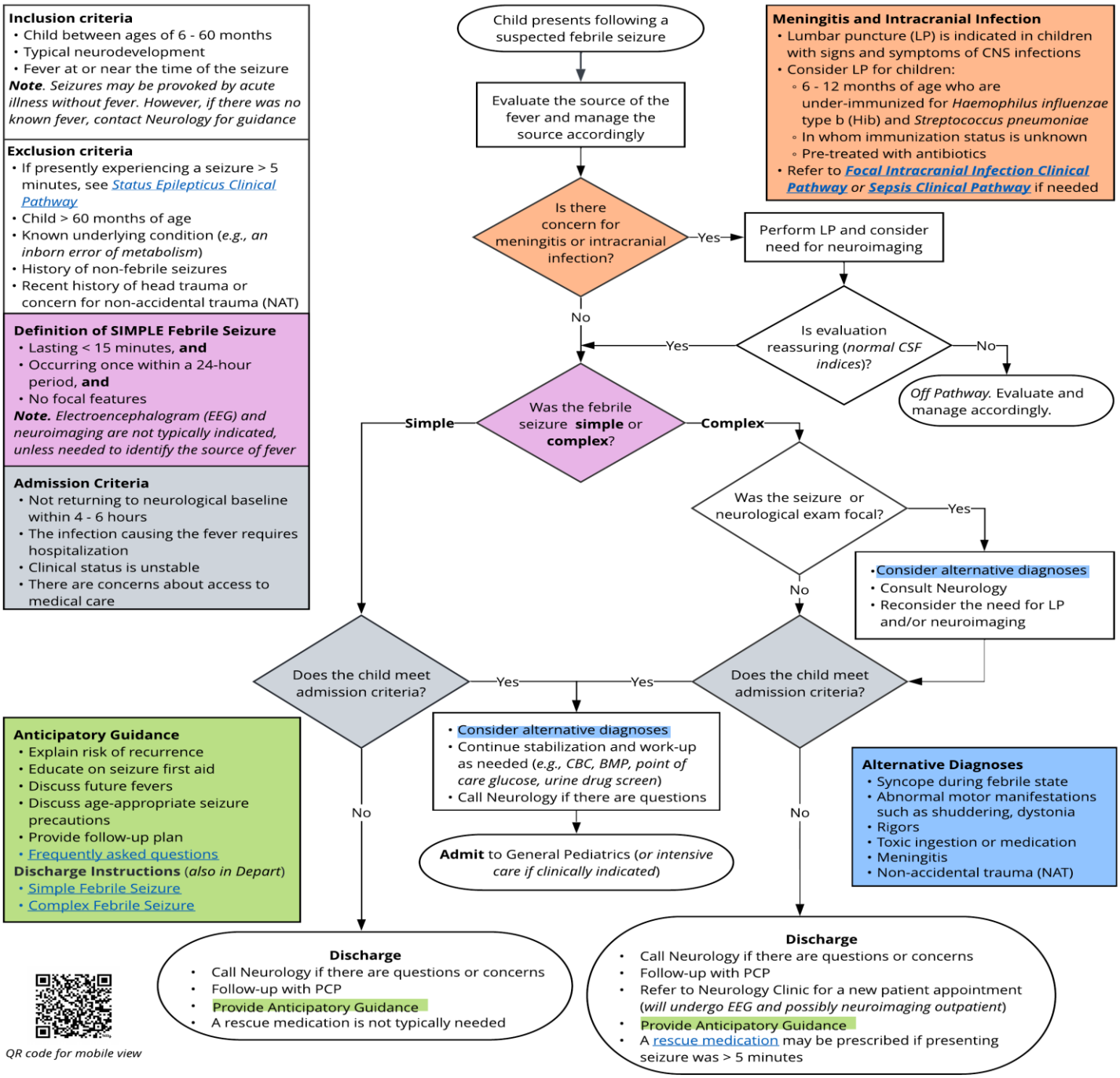
8-2024

Seizure: Febrile

Children's Mercy Kansas City

Seizure: Febrile
Clinical Pathway Synopsis

Seizure: Febrile (Simple and Complex) Algorithm



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Objective of Clinical Pathway

To provide care standards for the child presenting to the acute care setting for a febrile seizure. The Seizure: Febrile Clinical Pathway renders guidance regarding recommended assessment and treatment to minimize variation of care.

Background

Febrile seizures, with an incidence up to 5% in the United States, are the most common type of seizure affecting children less than 5 years of age (Eilbert & Chan, 2022). A febrile seizure is defined as a seizure that is accompanied by a fever in the absence of an intracranial infection, hypoglycemia, or an acute electrolyte imbalance occurring in children between the ages of 6 to 60 months (Elbert & Chan, 2022; Laino et al., 2018; American Academy of Pediatrics [AAP] Subcommittee on Febrile Seizures, 2011). While viral infections are most often the cause by which a child will experience a febrile seizure, bacterial pathogens such as *Haemophilus influenzae* and *Streptococcus pneumoniae* precipitating high febrile states can also provoke an event (Teran et al., 2012).

Febrile seizures can be classified as simple or complex (AAP Subcommittee on Febrile Seizures, 2011). Each classification details the features associated with the febrile seizure that address duration, focality, and recurrence (AAP Subcommittee on Febrile Seizures, 2011). Febrile seizure classification assists the provider in decision-making throughout the care process (Eilbert & Chan, 2022; Laino et al., 2018; AAP Subcommittee on Febrile Seizures, 2011). The Seizure: Febrile Clinical Pathway guides healthcare providers caring for children presenting for a suspected febrile seizure by providing evidence-based recommendations for assessment and treatment.

Target Users

- Physicians (Emergency Medicine, Urgent Care, Hospital Medicine, Fellows, Resident Physicians)
- Advanced Practice Providers
- Nurses

Target Population

Inclusion Criteria

- Child between the ages of 6 to 60 months
- Typical neurodevelopment
- Fever at or near the time of the seizure

Note. A seizure may be provoked by acute illness without fever. However, if there was no known fever, contact Neurology for guidance

Exclusion Criteria

- If the child is presently experiencing a seizure lasting > 5 minutes, refer to *Status Epilepticus: Initial Management Clinical Pathway*
- Child > 60 months of age
- Known underlying condition, such as an inborn error of metabolism
- History of non-febrile seizures
- Recent history of head trauma or concern for non-accidental trauma (NAT)

AGREE II

The American Academy of Pediatrics national guideline provided guidance to the Seizure: Febrile Clinical Pathway Committee (Subcommittee on Febrile Seizures, 2011). See Table 1 for AGREE II.

Table 1

AGREE II Summary for the AAP Guideline (Subcommittee on Febrile Seizures, 2011)

Domain	Percent Agreement	Percent Justification^
Scope and purpose	96%	The aim of the guideline, the clinical questions posed and target populations **were** identified.
Stakeholder involvement	88%	The guideline **was developed** by the appropriate stakeholders and represents the views of its intended users.

Rigor of development	72%	The process used to gather and synthesize the evidence, the methods to formulate the recommendations and to update the guidelines **were** stated.
Clarity and presentation	100%	The guideline recommendations **are** clear, unambiguous, and easily identified; in addition, different management options are presented.
Applicability	66%	Barriers and facilitators to implementation, strategies to improve utilization and resource implications **were addressed** in the guideline, though criteria for monitoring or auditing the guideline **was not** addressed
Editorial independence	100%	The recommendations **were not** biased with competing interests.
Overall guideline assessment	87%	
See Practice Recommendations		

Note: Four EBP Scholars completed the AGREE II on this guideline.
^Percentage justification is an interpretation based on the Children's Mercy EBP Department standards.

Practice Recommendations

Please refer to the American Academy of Pediatrics (Subcommittee on Febrile Seizures, 2011) Clinical Practice Guideline for full evaluation and treatment recommendations.

Additional Questions Posed by the Clinical Pathway Committee

No clinical questions beyond the scope of the parent guideline (AAP Subcommittee on Febrile Seizures, 2011) were posed for formal literature review.

Updates from Previous Versions of the Clinical Pathway

- The previous version had separate algorithms for the management of simple febrile seizure and complex febrile seizure, whereas the updated Seizure: Febrile Clinical Pathway provides the management for both in a single algorithm
- The previous version centered on the evaluation occurring in the Emergency Department or Urgent Care Center, whereas the updated Seizure: Febrile Clinical Pathway addresses the care process for any care setting
- The updated version more clearly outlines indications for Neurology Clinic referral, EEG and/or neuroimaging

Recommendation Specific for Children's Mercy

No deviations were made from the AAP Clinical Practice Guidelines (Subcommittee on Febrile Seizures, 2011) regarding practice recommendations, but logistical processes specific to Children's Mercy were added.

- Placing the order for Neurology Clinic follow-up at the time of discharge
- Prescribing seizure rescue medication, if appropriate, at the time of discharge

Measures

- Utilization of the Seizure: Febrile Clinical Pathway
- Utilization of the Seizure: Febrile order sets

Value Implications

The following improvements may increase value by reducing healthcare and non-monetary costs (e.g., missed school/work, loss of wages, stress) for patients and families and reducing costs and resource utilization for healthcare facilities.

- Decreased risk of unnecessary diagnostic interventions
- Decreased frequency of unnecessary admission
- Decreased unwarranted variation in care
- Increased effectiveness of medical staff communication with patients and families

Organizational Barriers and Facilitators

Potential Barriers

- Variability of acceptable level of risk among providers

- Challenges with follow-up faced by some families
- Wait time for subspecialty follow-up in some cases
- Inconsistencies in communication from medical staff to families regarding diagnosis

Potential Facilitators

- Collaborative engagement across care continuum settings during clinical pathway development
- High rate of use of the clinical pathways and order sets at this institution
- Updated, standardized order set for the Emergency Department, Urgent Care Center, and Hospital Medicine
- Updated and expanded patient/family materials

Diversity/Equity/Inclusion

Our aim is to provide equitable care. These issues were discussed with the Seizure: Febrile Clinical Pathway Committee, reviewed in the literature, and discussed prior to making any practice recommendations.

Power Plans

- EDP Simple and Complex Febrile Seizure Pathway
- Simple and Complex Febrile Seizure Pathway

Associated Policies

- Seizure Precautions (Pediatric) Clinical Skills – Patient Care Policy

Education Materials

- Simple Febrile Seizure – Discharge Instructions
  - Intended to be discussed and provided to the patient and family following a simple febrile seizure at the time of discharge
  - Found in Cerner Depart process
  - Available in English and Spanish
- Complex Febrile Seizure – Discharge Instructions
  - Intended to be discussed and provided to the patient and family following a complex febrile seizure at the time of discharge
  - Found in Cerner Depart process
  - Available in English and Spanish

Clinical Pathway Preparation

The clinical pathway was prepared by the Evidence Based Practice (EBP) Department in collaboration with the Seizure: Febrile Clinical Pathway Committee composed of content experts at Children's Mercy Kansas City.

Seizure: Febrile Clinical Pathway Committee Members and Representation

- Gina Jones, DO | Neurology | Committee Co-Chair
- Mark Grady, MD | Pediatric Neurology Fellow | Committee Co-Chair
- Allison (Allie) Adam, MD | Pediatric Emergency Medicine Fellow | Committee Member
- Lina Patel, MD | Pediatric Emergency Medicine | Committee Member
- James Hubbard, MD | Urgent Care | Committee Member
- Jonathan Ermer, MD | Pediatric Hospital Medicine Fellow | Committee Member
- Christine Scoby, DO | Hospital Medicine | Committee Member
- Jill Vickers, MSN, RN-BC, CPN | Clinical Practice and Quality | Committee Member

Patient/Family Committee Member

- Allen Hall | Committee Member

EBP Committee Members

- Kathleen Berg, MD, FAAP | Hospitalist, Evidence Based Practice
- Kelli Ott, OTD, OTR/L | Evidence Based Practice

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Clinical Pathway Development Funding

The development of this clinical pathway was underwritten by the following departments/divisions: Neurology, Emergency Medicine, Urgent Care, Hospital Medicine, Clinical Practice and Quality, Patient and Family Engagement, and Evidence Based Practice

Conflict of Interest

The contributors to the Seizure: Febrile Clinical Pathway have no conflicts of interest to disclose related to the subject matter or materials discussed.

Approval Process

- This pathway was reviewed and approved by the Seizure: Febrile Clinical Pathway Committee, Content Expert Departments/Divisions, and the EBP Department; after which they were approved by the Medical Executive Committee.
- Pathways are reviewed and updated as necessary every 3 years within the EBP Department at CMKC. Content expert teams are involved with every review and update.

Review Requested

Department/Unit	Date Obtained
Neurology	July 2024
Pediatric Emergency Medicine	August 2024
Urgent Care	August 2024
Hospital Medicine	July 2024
Clinical Practice and Quality	August 2024
Patient and Family Engagement	June 2024
Evidence Based Practice	June 2024

Version History

Date	Comments
January 2016	Version one – (developed clinical pathway algorithm and Powerplans)
August 2024	Version two – (the information from the separate simple and complex febrile seizure algorithms was combined to create a comprehensive febrile seizure clinical pathway, revised associated EDP and Inpatient Powerplans, reviewed associated Seizure Precautions (Pediatric) Clinical Skills – Patient Care Policy, developed the clinical pathway synopsis, and revised the febrile seizure discharge instruction handout)

Date for Next Review

- August 2027

Implementation & Follow-Up

- Once approved, the pathway was presented to appropriate care teams and implemented. Care measurements will be assessed and shared with appropriate care teams to determine if changes need to occur.
- Order sets/power plans consistent with recommendations were updated for each care setting
- The associated policy was updated. This details the seizure precautions clinical skills process for nursing staff. The policy was submitted to the Nursing Practice Council Patient Care Policy Committee for approval.
- Education was provided to all stakeholders:
  Department of Emergency Medicine, Urgent Care, Hospital Medicine, and Neurology
- Additional institution-wide announcements were made via email, hospital website, and relevant huddles.

Disclaimer

When evidence is lacking or inconclusive, options in care are provided in the supporting documents and the power plan(s) that accompany the clinical pathway.

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References

American Academy of Pediatrics Subcommittee on Febrile Seizures (2011). Febrile seizures: Guideline for the neurodiagnostic evaluation of the child with a simple febrile seizure. *Pediatrics, 127*(2), 389-394. https://doi.org/10.1542/peds.2010-3318

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