Acute Mastoiditis
Clinical Pathway Synopsis

Objective of Clinical Pathway

To provide care standards for the patient presenting with signs and symptoms concerning for acute mastoiditis. The Acute Mastoiditis Clinical Pathway offers decision support and guidance for the diagnosis and management of patients with and without intracranial involvement.

Background

Acute mastoiditis is a recognized complication of acute otitis media and develops when inflammation extends into the mastoid air cells, potentially leading to bone erosion and abscess formation. The condition predominantly affects pediatric patients and typically presents with fever, otalgia, postauricular erythema or swelling, and auricular protrusion.[1]

Recent studies suggest both a rising incidence and evolving microbiology, with *Streptococcus pyogenes* increasingly identified as a prominent pathogen associated with severe disease and intracranial complications, including meningitis, sigmoid sinus thrombosis, intracranial abscess, and otitic hydrocephalus.[1,2] Early diagnosis and management, including timely antimicrobial treatment, Otolaryngology (ENT) evaluation, and prompt neurosurgical consultation when intracranial involvement is suspected, are essential to reducing morbidity.[3] The Mastoiditis Clinical Pathway Committee aims to minimize clinical variation and ensure that patients with signs and symptoms concerning for acute mastoiditis receive timely evaluation, accurate diagnosis, appropriate antimicrobial treatment, and surgical management when indicated.

Target Users

- Physicians (Pediatric Emergency Medicine, Urgent Care, Primary Care, Hospital Medicine, Infectious Diseases, ENT, Fellows, and Resident Physicians)
- Advanced Practice Providers
- Pharmacists

Target Population

Inclusion Criteria

- Patients with signs or symptoms concerning for acute mastoiditis (e.g., auricular protrusion and/or postauricular fluctuance, tenderness, edema, with or without erythema)

Exclusion Criteria

- Patients who are immunocompromised
- Patients with imaging-only temporal bone changes in the absence of clinical signs of mastoiditis
- Patients with known trauma

Practice Recommendations

In lieu of a clinical practice guideline fully addressing the management of acute mastoiditis in pediatric and adolescent patients, guidance from pediatric acute mastoiditis literature was used in conjunction with the expert consensus of the Mastoiditis Clinical Pathway Committee to inform the assessment, acute management, and referral guidance in this pathway.[3-44]

Additional Questions Posed by the Clinical Pathway Committee

- Among children with acute mastoiditis, what intervention, medical versus surgical therapy, has the highest chance of cure?
    - A literature search modeled on an existing systematic review was conducted with the assistance of a medical librarian on April 13, 2026.[5] See Appendix 1 for the search strategy and results. Thirty-one articles were reviewed, including scoping reviews, systematic reviews, descriptive reviews, and retrospective studies deemed relevant to the clinical question.[3,4,7,9-17,19, 20, 22, 26, 27, 30-43] Findings regarding the variability in the management of pediatric acute mastoiditis and its associated

complications were shared with the committee on April 30, 2026. These findings informed the development of the surgical management considerations outlined in the clinical pathway.

Updates from Previous Versions of the Clinical Pathway

- The Acute Mastoiditis Clinical Pathway is a newly developed evidence-based pathway with no previous version for comparison

Measures

- Access of the Acute Mastoiditis Clinical Pathway (website hits)

Value Implications

The following improvements may increase value by reducing healthcare costs 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.

- Increased early identification of complications
- Decreased risk of overtreatment or undertreatment (i.e., the appropriate antimicrobial is prescribed with the recommended dose and duration)
- Decreased inpatient length of stay
- Decreased unwarranted variation in care

Organizational Barriers and Facilitators

Potential Barriers

- Variability of the acceptable level of risk among clinicians
- Variability in experience among clinicians
- Need for effective communication and coordination among clinicians and specialties
- Challenges with access to healthcare and health literacy faced by some families

Potential Facilitators

- Collaborative engagement across the continuum of clinical care settings and healthcare disciplines during clinical pathway development

Bias Awareness

Our goal is to recognize the social determinants of health and minimize healthcare disparities, while acknowledging that unconscious biases can contribute to them.

Order Sets

- There are no order sets or order panels associated with this clinical pathway

Educational Materials

- Mastoiditis: How to Care for Your Child - Nemours Foundation/KidsHealth
  - Describes mastoiditis and provides home care instructions
  - Found in Epic Education
  - Available in English and Spanish

Clinical Pathway Preparation

This pathway was prepared by the EBP Department in collaboration with the Mastoiditis Clinical Pathway Committee, composed of content experts at Children's Mercy. If a conflict of interest is identified, the conflict will be disclosed next to the committee member's name.

Mastoiditis Clinical Pathway Committee Members and Representation

- Maria (Pachi) Deza Leon, MD | Infectious Diseases | Committee Co-Chair
- Jill Arganbright, MD | Otolaryngology (Ear, Nose, and Throat) | Committee Co-Chair

- Joan Magee, BSN, RN, CPN | Comprehensive Otology and Hearing Program | Committee Member
- Theodore Barnett, MD | Pediatric Emergency Medicine | Committee Member
- Katlyn Mayer, MD | Pediatric Emergency Medicine Fellow | Committee Member
- Marina Dantas, MD, MSCR | Hospital Medicine | Committee Member
- Meghan Bullock, DNP, CPNP-AC | Hospital Medicine | Committee Member
- Paige Haynes, MD | Neurosurgery | Committee Member
- Michael Puricelli, MD | Otolaryngology (Ear, Nose, and Throat) | Committee Member
- Alaina Burns, Pharm.D., BCPPS | Pharmacy | Committee Member
- Sarah Dierking, MSN, RN, CPHQ | Clinical Practice and Quality | Committee Member

EBP Committee Members

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

Clinical Pathway Development Funding

The development of this clinical pathway was underwritten by the following departments/divisions: Otolaryngology, Pediatric Emergency Medicine, Hospital Medicine, Infectious Diseases, Neurosurgery, Pharmacy, Clinical Practice and Quality, and Evidence Based Practice

Conflict of Interest

The contributors to the Mastoiditis 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 EBP Department and the Mastoiditis Clinical Pathway Committee after committee members garnered feedback from their respective divisions/departments. It was then approved by the Medical Executive Committee.

Review Requested

Department/Unit	Date
Otolaryngology	June 2026
Comprehensive Otology and Hearing Program	June 2026
Pediatric Emergency Medicine	June 2026
Hospital Medicine	June 2026
Infectious Diseases	June 2026
Neurosurgery	June 2026
Pharmacy	June 2026
Clinical Practice and Quality	June 2026
Evidence Based Practice	June 2026

Version History

Date	Comments
June 2026	Version one – developed the Acute Mastoiditis Clinical Pathway and synopsis

Date for Next Review

- June 2029

Implementation & Follow-Up

- Once approved, the pathway was implemented and presented to the appropriate care teams:
  - Announcements made to relevant departments
  - Additional institution-wide announcements were made via the hospital website and relevant huddles
  - Community clinics affiliated with CM received announcements via "Progress Notes"

- The standing orders policy was reviewed. This details a process for ensuring patients who undergo a procedure associated with mastoiditis receive antibiotics based on an evidence-based approach.
- Care measurements may be assessed and shared with appropriate care teams to determine if changes need to occur.
- Pathways are reviewed every 3 years (or sooner) and updated as necessary within the EBP Department at Children's Mercy. Pathway committees are involved with every review and update.

Disclaimer

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

These clinical pathways do not establish a standard of care to be followed in every case. It is recognized that each case is different, and those individuals involved in providing health care are expected to use their judgment to determine what is in the best interests of the patient based on the circumstances existing at the time.

It is impossible to anticipate all possible situations that may exist and to prepare clinical pathways for each. Accordingly, these clinical pathways should guide care with the understanding that departures from them may be required at times.

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Appendix

Appendix 1. Search Strategies and Results for Management of Pediatric Acute Mastoiditis

Embase

1) 'mastoiditis'/exp/mj/dm_su
2) 'mastoiditis'/exp AND ('anticoagulation'/exp OR anticoagulation:ti,ab,kw OR anticoagulant:ti,ab,kw OR thromboisis:ti,ab,kw)
3) #1 OR #2
4) #3 AND ('adolescent':ag OR 'child':ag OR 'infant':ag OR 'newborn':ag OR 'preschool':ag OR 'school':ag) AND [2020-2026]/py
5) #4 AND ('article'/it OR 'note'/it OR 'preprint'/it OR 'review'/it OR 'editorial'/it OR 'short survey'/it)
6) #5 NOT 'case report'/de

Search Dates: 2020 – Current
Records identified through Embase database searching, *n* = 100
Additional records identified through other sources, *n* = 0

PubMed

(((mastoiditis[MeSH Major Topic]) AND (antibiotic OR antimicrobial OR antibacterial OR anti-infective OR medical OR conservative OR non-surgical[MeSH Terms])) AND (surgery OR perioperative period OR postoperative period OR preoperative period OR mastoidectomy OR middle ear ventilation OR myringotomy OR tympanostomy tube OR grommet OR retroauricular puncture OR pressure equalization OR mastoidectomy OR tympanmastoidectomy OR mastoid surgery OR surgery OR surgical OR operative[MeSH Terms])) AND (child OR adolescent OR pediatric OR paediatric OR young OR infant OR newborn OR neonatal OR preschool OR pre-school[MeSH Terms])
Search Dates: 2020 – Current
Records identified through PubMed database searching, *n* = 88
Additional records identified through other sources, *n* = 0