



## **Pneumothorax Clinical Pathway Synopsis**

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### **Objective of Clinical Pathway**

To provide care standards for the patient diagnosed with spontaneous pneumothorax. This clinical pathway guides the management of these patients, including timely and appropriate consultation of Surgery and Pulmonology, treatment recommendations, and criteria for admission versus discharge.

### **Background**

Management of spontaneous pneumothorax relies on clinical factors, including pneumothorax size, respiratory compromise, and pain severity, to guide decisions about whether to pursue conservative or interventional approaches.<sup>1</sup> While no pediatric-specific clinical guidelines currently exist, evidence from a recent study offers a structured framework for evaluating and monitoring patients with imaging-confirmed spontaneous pneumothorax.<sup>2</sup> This clinical pathway integrates that guidance and incorporates recommendations for early consultation with Surgery and Pulmonology to ensure timely, standardized, and evidence-based care for patients presenting with pneumothorax to manage symptoms and prevent recurrence.

### **Target Users**

- Physicians (Emergency Department, Urgent Care, Hospital Medicine, Ambulatory, Surgery, Pulmonology, Fellows, Resident Physicians)
- Nurse Practitioners
- Physician Assistants

### **Target Population**

#### **Inclusion Criteria**

- Patients diagnosed with spontaneous pneumothorax based on imaging findings
- Patients seen at or transferred to any CM location

#### **Exclusion Criteria**

- Prior spontaneous pneumothorax on the SAME side
  - Prior contralateral pneumothorax is NOT an exclusion criterion
- Tension pneumothorax
- Respiratory failure
- Secondary pneumothorax (traumatic, iatrogenic, asthma, etc.)

### **Practice Recommendations**

In lieu of a clinical practice guideline fully addressing the management of pneumothorax in pediatric and adolescent patients, guidance from pediatric literature was used in conjunction with the expert consensus of the Clinical Pathway Committee to inform the assessment, acute management, and referral guidance in this pathway<sup>1-2</sup>.

### **Additional Questions Posed by the Clinical Pathway Committee**

- In patients with primary spontaneous pneumothorax, does the use of oxygen therapy compared to no use of oxygen therapy increase the resolution rate?
  - A literature search was conducted with the assistance of a medical librarian on February 23, 2026 (see Appendix 1 for search strategy and results). These results were shared with the committee on February 26, 2026. There is a lack of literature, either for or against, the use of oxygen therapy in this specific clinical context. Therefore, recommendations were not provided regarding the use of oxygen therapy as treatment for pediatric patients with spontaneous pneumothorax.

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### **Measures**

- Access of the clinical pathway (website hits)

### **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 by reducing costs and resource utilization for healthcare facilities.

- Decreased frequency of admission, when appropriate
- Decreased unwarranted variation in care

### **Organizational Barriers and Facilitators**

#### **Potential Barriers**

- Variability of the acceptable level of risk among providers
- Variability in experience among clinicians
- 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
- Effective communication and coordination among clinicians and specialties
- High rate of use of the clinical pathway

### **Bias Awareness**

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

### **Order Sets**

- There are no order sets associated with this clinical pathway.

### **Clinical Pathway Preparation**

This pathway was prepared by the EBP Department in collaboration with the Pneumothorax Clinical Pathway Committee, composed of content experts at Children's Mercy. Literature analysis for additional questions posed by the Pneumothorax Committee was performed by the EBP department.

### **Pneumothorax Clinical Pathway Committee Members and Representation**

- Stephen Cliff, DO | Pulmonology | Committee Co-Chair
- Christopher Oermann, MD | Pulmonology | Committee Co-Chair
- Tolu Oyetunji, MD, MPH, MBA | Surgery | Committee Member
- Erin Scott, DO | Emergency Department | Committee Member
- Shawn St. Peter, MD | Surgery | Committee Member
- Tomica Blocker, MD, PhD | Hospital Medicine | Reviewer
- Amanda Nedved, MD | Urgent Care | Reviewer

#### **EBP Committee Members**

- Todd Glenski, MD, MSHA, FASA | Anesthesiology, Evidence Based Practice
- Megan Gripka, MPH, MLS (ASCP) SM | Evidence Based Practice

### **Clinical Pathway Development Funding**

The development of this clinical pathway was underwritten by the following departments/divisions: Emergency Department, Pulmonology, Surgery, and Evidence Based Practice.

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### Conflict of Interest

The contributors to the Pneumothorax 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 Pneumothorax 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
Emergency Department	June 2026
Pulmonology	June 2026
Surgery	June 2026
Hospital Medicine	June 2026
Urgent Care	June 2026
Evidence Based Practice	June 2026

### Version History

Date	Comments
July 2026	Version one – development of algorithm

### Date for Next Review

- July 2026

### 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"
- 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) that accompany the clinical pathway.

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### **References**

1. Brown SGA, Ball EL, Perrin K, et al. Conservative versus interventional treatment for spontaneous pneumothorax. *N Engl J Med.* 2020;382(5):405-415. doi:10.1056/NEJMoa1910775
2. Miscia ME, Lauriti G, Lisi G, Riccio A, Lelli Chiesa P. Management of spontaneous pneumothorax in children: a systematic review and meta-analysis. *Eur J Pediatr Surg.* 2020;30(1):2-12. doi:10.1055/s-0039-3402522

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