

Community Acquired Pneumonia

EVIDENCE REPOSITORIES

This evidence repository is a collection of best available resources and evidence collated by a knowledge synthesis team at Alberta Research for Health Evidence ([ARCHE](#)) and the clinical content team.

The knowledge synthesis team utilizes a pyramid-shaped framework, built upon the [“4S” hierarchy of evidence model](#), to provide detailed evidence appropriate to meet stakeholders’ needs. They search a combination of databases (Cochrane Library, PubMed, TRIP Database) and web-based search engines (Google, Google Scholar) to locate evidence for the knowledge pyramids. Publication types sought in the initial topic searches are organized into five levels that determine the order in which resources are presented:

- (1) Bottom Line Recommendations
- (2) Clinical Practice Guidelines and Pathways
- (3) Overviews and Summaries of Systematic Reviews
- (4) Systematic Reviews
- (5) Key Studies

Where applicable resources for families and parents are also listed.

The knowledge synthesis team collaborates with the clinical content team to select the most relevant guidelines, reviews, and key studies, which can be found below. This evidence repository is not intended to be an exhaustive list of resources for a topic, but rather a curated list of current, evidence-based resources, based on expert consensus of relevance and usability for a general emergency department setting. Every effort is made to identify resources that are open access (i.e. publicly available, free of charge, not requiring a subscription).

More information about the creation of our evidence repositories can be found [here](#).

CONTENT TEAM

Thank you to the following clinical content experts and Knowledge Synthesis team who led the development of this evidence repository.

Todd Florin, MD, MSCE, Associate Professor of Pediatrics, Department of Pediatrics, Northwestern University Feinberg School of Medicine; Director of Research, Division of Emergency Medicine, Ann & Robert H. Lurie Children’s Hospital of Chicago; Director, Grainger Research Program in Pediatric Emergency Medicine

Sriram Ramgopal, MD, Assistant Professor of Pediatrics, Department of Pediatrics, Northwestern University Feinberg School of Medicine, Division of Emergency Medicine, Ann & Robert H. Lurie Children’s Hospital of Chicago

Jeffrey Pernica, MD, MSc, Head, Division of Infectious Disease, Department of Pediatrics, McMaster University

Liza Bialy, BSc, MPH, Knowledge Synthesis Project Coordinator, Alberta Research Centre for Health Evidence, Department of Pediatrics, University of Alberta

Sarah Elliott, PhD, Assistant Director, Alberta Research Centre for Health Evidence, Department of Pediatrics, University of Alberta



TREKK developed resources for healthcare providers and parents & families can be found [here](#).

Clinical Practice Guidelines and Pathways

1. National Institute for Health and Care Excellence (NICE). [Pneumonia \(community-acquired\): antimicrobial prescribing](#). 2019.
2. New South Wales Government. [Infants and children: Acute management of community acquired pneumonia](#). 2018.
3. Le Saux N, Robinson JL. [Uncomplicated pneumonia in healthy Canadian children and youth: Practice points for management](#). *Paediatr Child Health*. 2015;20(8):441-50.
4. World Health Organization (WHO). [Revised WHO classification and treatment of childhood pneumonia at health facilities: evidence summaries](#). 2014.
5. Harris M, Clark J, Coote N, et al. [British Thoracic Society guidelines for the management of community acquired pneumonia in children: update 2011](#). *Thorax*. 2011;66 Suppl 2:ii1-23.
6. Bradley JS, Byington CL, Shah SS, et al. [The management of community-acquired pneumonia in infants and children older than 3 months of age: clinical practice guidelines by the Pediatric Infectious Diseases Society and the Infectious Diseases Society of America](#). *Clin Infect Dis*. 2011;53(7):e25-76.

Overviews and Summaries of Systematic Reviews

1. Ojuawo O, Ojuawo A, Aladesanmi A, et al. [Childhood pneumonia diagnostics: a narrative review](#). *Expert Rev Respir Med*. 2022;16(7):775-85.
2. Cooper-Sood J, Wallihan R, Naprawa J, et al. [Points & Pearls: Pediatric community-acquired pneumonia: diagnosis and management in the emergency department](#). *Pediatr Emerg Med Pract*. 2019;16(4):e1-e2.
3. Mathur S, Fuchs A, Bielicki J, et al. [Antibiotic use for community-acquired pneumonia in neonates and children: WHO evidence review](#). *Paediatr Int Child Health*. 2018;38(sup1):S66-s75.
4. Kredo T, Bernhardsson S, Machingaidze S, et al. [Guide to clinical practice guidelines: the current state of play](#). *Int J Qual Health Care*. 2016;28(1):122-8.

Systematic Reviews

1. Gao Y, Liu M, Yang K, et al. Shorter Versus Longer-term Antibiotic Treatments for Community-Acquired Pneumonia in Children: A Meta-analysis. *Pediatrics*. 2023;151(6):e2022060097
2. Pratt MTG, Tasnim PC, Richmond HC, et al. [Prevalence of respiratory viruses in community-acquired pneumonia in children: a systematic review and meta-analysis](#). *Lancet Child Adolesc Health*. 2022;6:555-70.
3. Kuitunen JJ, Korppi M, Renko M. [Antibiotic treatment duration for community acquired pneumonia in outpatient children in high-income countries - a systematic review and meta-analysis](#). *Clin Infect Dis*. 2022 May 17:ciac374.
4. Chee E, Huang K, Haggie S, et al. [Systematic review of clinical practice guidelines on the management of community acquired pneumonia in children](#). *Paediatr Respir Rev*. 2022;42:59-68.

Visit [TREKK.ca](https://www.trekk.ca) for more resources related to pediatric emergency care

© FEBRUARY 2024, TREKK; FOR REVISION 2025. VERSION 1.0



COMMUNITY ACQUIRED PNEUMONIA

5. Weragama K, Mudgil P, Whitehall J. [Paediatric antimicrobial stewardship for respiratory infections in the emergency setting: A systematic review](#). *Antibiotics (Basel)*. 2021;10(11).
6. Lassi ZS, Padhani ZA, Das JK, et al. [Antibiotic therapy versus no antibiotic therapy for children aged 2 to 59 months with WHO-defined non-severe pneumonia and wheeze](#). *Cochrane Database Syst Rev*. 2021;1(1):Cd009576.
7. Wang L, Song W, Wang Y, et al. [Lung ultrasonography versus chest radiography for the diagnosis of pediatric community acquired pneumonia in emergency department: a meta-analysis](#). *J Thorac Dis*. 2019;11(12):5107-14.
8. Shah SN, Bachur RG, Simel DL, et al. [Does this child have pneumonia? The rational clinical examination systematic review](#). *JAMA*. 2017;318(5):462-71.
9. Wang K, Gill P, Perera R, Thomson A, Mant D, Harnden A. [Clinical symptoms and signs for the diagnosis of *Mycoplasma pneumoniae* in children and adolescents with community-acquired pneumonia](#). *Cochrane Database Syst Rev*. 2012(10).

Key Studies - Diagnosis

1. Kessler D, Dessie A, Kanjanaptom P, et al. [Lack of association between a quantified lung ultrasound score and illness severity in pediatric emergency department patients with acute lower respiratory infections](#). *J Ultrasound Med*. 2022;41(12):3013-22.
2. Kaiser SV, Rodean J, Coon ER, et al. [Common diagnoses and costs in pediatric hospitalization in the US](#). *JAMA Pediatr*. 2022;176(3):316-8.
3. Sartori LF, Zhu Y, Grijalva CG, et al. [Pneumonia severity in children: Utility of procalcitonin in risk stratification](#). *Hosp Pediatr*. 2021;11(3):215-22.
4. Lipsett SC, Monuteaux MC, Bachur RG, et al. [Negative Chest Radiography and Risk of Pneumonia](#). *Pediatrics*. 2018 Sep;142(3):e20180236.
5. Shah VP, Tunik MG, Tsung JW. [Prospective evaluation of point-of-care ultrasonography for the diagnosis of pneumonia in children and young adults](#). *JAMA Pediatr*. 2013;167(2):119-25.
6. Schuh S, Lalani A, Allen U. [Evaluation of the utility of radiography in acute bronchiolitis](#). *J Pediatr*. 2007 Apr;150(4):429-33.
7. Swingler GH, Hussey GD, Zwarenstein M. [Randomised controlled trial of clinical outcome after chest radiograph in ambulatory acute lower-respiratory infection in children](#). *Lancet*. 1998;351(9100):404-408.

Key Studies - Prognosis

1. Ramgopal S, Lorenz D, Navanandan N, et al. [Validation of prediction models for pneumonia among children in the emergency department](#). *Pediatrics*. 2022;150(1).
2. Ramgopal S, Cotter JM, Navanandan N, et al. [Disease severity of community-acquired pneumonia among children with medical complexity](#). *Pediatr Pulmonol*. 2022.
3. Ramgopal S, Ambroggio L, Lorenz D, et al. [A prediction model for pediatric radiographic pneumonia](#). *Pediatrics*. 2022;149(1).
4. Lipsett SC, Hirsch AW, Monuteaux MC, Bachur RG, Neuman MI. [Development of the novel pneumonia risk score to predict radiographic pneumonia in children](#). *Pediatr Infect Dis J*. 2022;41(1):24-30.



COMMUNITY ACQUIRED PNEUMONIA

- Gao HM, Ambroggio L, Shah SS, et al. [Predictive value of clinician "gestalt" in pediatric community-acquired pneumonia](#). *Pediatrics*. 2021;147(5): e2020041582.
- Florin TA, Ambroggio L, Lorenz D, et al. [Development and internal validation of a prediction model to risk stratify children with suspected community-acquired pneumonia](#). *Clin Infect Dis*. 2021;73(9):e2713-e21.
- Florin TA, Ambroggio L, Brokamp C, et al. [Biomarkers and disease severity in children with community-acquired pneumonia](#). *Pediatrics*. 2020;145(6).
- Florin TA, Brokamp C, Mantyla R, et al. [Validation of the Pediatric Infectious Diseases Society of America severity criteria in children with community-acquired pneumonia](#). *Clin Infect Dis*. 2018;67(1):112-9.
- Williams DJ, Zhu Y, Grijalva CG, et al. [Predicting severe pneumonia outcomes in children](#). *Pediatrics*. 2016;138(4).
- Jain S, Williams DJ, Arnold SR, et al. [Community-acquired pneumonia requiring hospitalization among U.S. children](#). *N Engl J Med*. 2015;372(9):835-45.
- Neuman MI, Monuteaux MC, Scully KJ, et al. [Prediction of pneumonia in a pediatric emergency department](#). *Pediatrics*. 2011;128(2):246-53.

Key Studies - Treatment

- Williams DJ, Creech CB, Walter EB, et al. [Short- vs standard-course outpatient antibiotic therapy for community-acquired pneumonia in children: The scout-cap randomized clinical trial](#). *JAMA Pediatr*. 2022;176(3):253-61.
- Same RG, Amoah J, Hsu AJ, et al. [The association of antibiotic duration with successful treatment of community-acquired pneumonia in children](#). *J Pediatric Infect Dis Soc*. 2021;10(3):267-73.
- Pernica JM, Harman S, Kam AJ, et al. [Short-course antimicrobial therapy for pediatric community-acquired pneumonia: The SAFER randomized clinical trial](#). *JAMA Pediatr*. 2021;175(5):475-82.
- Bielicki JA, Stöhr W, Barratt S, et al. [Effect of amoxicillin dose and treatment duration on the need for antibiotic re-treatment in children with community-acquired pneumonia: The cap-it randomized clinical trial](#). *JAMA*. 2021;326(17):1713-24.
- Barratt S, Bielicki JA, Dunn D, et al. [Amoxicillin duration and dose for community-acquired pneumonia in children: the CAP-IT factorial non-inferiority RCT](#). *Health Technol Assess*. 2021;25(60):1-72.
- Lipshaw MJ, Eckerle M, Florin TA, et al. [Antibiotic use and outcomes in children in the emergency department with suspected pneumonia](#). *Pediatrics*. 2020;145(4).
- Nascimento-Carvalho CM, Xavier-Souza G, Vilas-Boas AL, et al. [Evolution of acute infection with atypical bacteria in a prospective cohort of children with community-acquired pneumonia receiving amoxicillin](#). *J Antimicrob Chemother*. 2017;72(8):2378-84.
- Greenberg D, Givon-Lavi N, Sadaka Y, et al. [Short-course antibiotic treatment for community-acquired alveolar pneumonia in ambulatory children: a double-blind, randomized, placebo-controlled trial](#). *Pediatr Infect Dis J*. 2014;33(2):136-42.



Key Studies - Admission

1. Gill PJ, Thavam T, Anwar MR, et al. [Prevalence, cost, and variation in cost of pediatric hospitalizations in Ontario, Canada](#). *JAMA Netw Open*. 2022;5(2):e2147447.
2. Gill PJ, Anwar MR, Thavam T, et al. [Identifying Conditions with High Prevalence, Cost, and Variation in Cost in US Children's Hospitals](#). *JAMA Netw Open*. 2021;4(7):e2117816. Published 2021 Jul 1.

Other

1. Helman, A., Sommer, L., Morris, A. [Episode 130 – Community acquired pneumonia – emergency management](#). *Emergency Medicine Cases*. 2019