

Asthma Exacerbations

EVIDENCE REPOSITORIES

Evidence repositories are collections of best available resources and evidence (clinical guidelines, peer reviewed literature, systematic reviews, etc.), collated by our knowledge synthesis team and content advisors. 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. We search databases (Cochrane Library, PubMed, TRIP Database) and web search engines (Google, Google Scholar) to locate evidence. Additionally, hospital websites are browsed for guidance documents, such as clinical practice guidelines (CPG) for healthcare professionals.

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 at <https://pubmed.ncbi.nlm.nih.gov/28537762/>

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Asthma Exacerbations

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

Clinical Guidelines

1. Global Initiative for Asthma. [Global Strategy for Asthma Management and Prevention](#), 2022.
2. Trottier ED, Gauvin F, Pettersen G, et al. [Clinical Practice Guideline: Guide Clinique Asthme](#) 2021
3. Alberta Health Services. [Alberta Childhood Asthma Pathways \(ACAP\)](#). 2021.
4. Provincial Council for Maternal and Child Health and Lung Health Association. [Clinical Handbook for Paediatric Asthma Ontario](#). 2021.
5. Trottier ED, Gauvin F, Pettersen G, et al. [Clinical Practice Guideline: Asthme: Algorithme status asthmaticus](#) 2019.
6. Tesse R, Borrelli G, Mongelli G, Mastrorilli V, Cardinale F. [Treating Pediatric Asthma According Guidelines](#). Ront Pediatr. 2018;6:234.

Summaries of Systematic Reviews

1. Craig SS, Dalziel SR, Powell CV, Graudins A, Babl FE, Lunny C. [Interventions for escalation of therapy for acute exacerbations of asthma in children: an overview of Cochrane Reviews](#). Cochrane Database Syst Rev. 2020;8(8):Cd012977.
2. Pollock M, Sinha IP, Hartling L, Rowe BH, Schreiber S, Fernandes RM. [Inhaled short-acting bronchodilators for managing emergency childhood asthma: an overview of reviews](#). Allergy. 2017;72(2):183-200.
3. Jat KR, Chawla D. [Ketamine for management of acute exacerbations of asthma in children](#). Cochrane Database Syst Rev. 2012;11(11):Cd009293.
4. Boyd M, Lasserson TJ, McKean MC, Gibson PG, Ducharme FM, Haby M. [Interventions for educating children who are at risk of asthma-related emergency department attendance](#). Cochrane Database Syst Rev. 2009;2009(2):Cd001290.
5. Rowe BH, Spooner C, Ducharme F, Bretzlaff J, Bota G. [Early emergency department treatment of acute asthma with systemic corticosteroids](#). Cochrane Database Syst Rev. 2001.

Systematic Reviews

1. Cai KJ, Su SQ, Wang YG, Zeng Y M. Dexamethasone Versus Prednisone or Prednisolone for Acute Pediatric Asthma Exacerbations in the Emergency Department: A Meta-Analysis. Pediatr Emerg Care. 2021;37(12):e1139-e44.
2. Sawanyawisuth K, Chattakul P, Khamsai S, et al. [Role of Inhaled Corticosteroids for Asthma Exacerbation in Children: An Updated Meta-Analysis](#). J Emerg Trauma Shock. 2020;13(2):161-6.
3. Murphy KR, Hong JG, Wandalsen G, et al. [Nebulized Inhaled Corticosteroids in Asthma Treatment in Children 5 Years or Younger: A Systematic Review and Global Expert Analysis](#). J Allergy Clin Immunol Pract. 2020;8(6):1815-27.

Asthma Exacerbations

4. Normansell R, Sayer B, Waterson S, Dennett EJ, Del Forno M, Dunleavy A. [Antibiotics for exacerbations of asthma](#). Cochrane Database Syst Rev. 2018;6(6):Cd002741.
5. Knightly R, Milan SJ, Hughes R, et al. [Inhaled magnesium sulfate in the treatment of acute asthma](#). Cochrane Database Syst Rev. 2017;11(11):Cd003898.
6. Bravo-Soto GA, Harismendy C, Rojas P, Silva R, von Borries P. [Is dexamethasone as effective as other corticosteroids for acute asthma exacerbation in children?](#) Medwave. 2017;17(Suppl2):e6931.
7. Griffiths B, Kew KM. [Intravenous magnesium sulfate for treating children with acute asthma in the emergency department](#). Cochrane Database Syst Rev. 2016;4(4).
8. Keeney GE, Gray MP, Morrison AK, et al. [Dexamethasone for acute asthma exacerbations in children: a meta-analysis](#). Pediatrics. 2014;133(3):493-9.
9. Shan Z, Rong Y, Yang W, et al. [Intravenous and nebulized magnesium sulfate for treating acute asthma in adults and children: a systematic review and meta-analysis](#). Respir Med. 2013;107(3):321-30.
10. Griffiths B, Ducharme FM. [Combined inhaled anticholinergics and short-acting beta2-agonists for initial treatment of acute asthma in children](#). Cochrane Database Syst Rev. 2013(8).
11. Cates CJ, Welsh EJ, Rowe BH. [Holding chambers \(spacers\) versus nebulisers for beta-agonist treatment of acute asthma](#). Cochrane Database Syst Rev. 2013(9).
12. Edmonds ML, Milan SJ, Brenner BE, Camargo Jr CA, Rowe BH. [Inhaled steroids for acute asthma following emergency department discharge](#). Cochrane Database Syst Rev. 2012(12).
13. Boyd M, Lasserson TJ, McKean MC, Gibson PG, Ducharme FM, Haby M. [Interventions for educating children who are at risk of asthma-related emergency department attendance](#). Cochrane Database Syst Rev. 2009(2).
14. Camargo CA Jr, Spooner CH, Rowe BH. [Continuous versus intermittent beta-agonists in the treatment of acute asthma](#). Cochrane Database Syst Rev. 2003(4).
15. Rowe BH, Bretzlaff JA, Bourdon C, Bota GW, Camargo CA, Jr. [Magnesium sulfate for treating exacerbations of acute asthma in the emergency department](#). Cochrane Database Syst Rev. 2000(2):Cd001490.

Key Studies

1. Katsunuma T, Fujisawa T, Maekawa T, et al. [Low-dose l-isoproterenol versus salbutamol in hospitalized pediatric patients with severe acute exacerbation of asthma: A double-blind, randomized controlled trial](#). Allergol Int. 2019;68(3):335-41..
2. Gauto BR, Morilla-Sanabria LP, Pavlicich V, Mesquita M. [High flow nasal cannula oxygen therapy in patients with asthmatic crisis in the pediatric emergency department](#). Rev Chil Pediatr. 2019;90(6):642-8.
3. Ballesteros Y, De Pedro J, Portillo N, Martinez-Mugica O, Arana-Arri E, Benito J. [Pilot Clinical Trial of High-Flow Oxygen Therapy in Children with Asthma in the Emergency Service](#). J Pediatr. 2018;194:204-10.e3.
4. Turker S, Dogru M, Yildiz F, Yilmaz SB. [The effect of nebulised magnesium sulphate in the management of childhood moderate asthma exacerbations as adjuvant treatment](#). Allergol Immunopathol (Madr). 2017;45(2):115-20.

Asthma Exacerbations

5. Navanandan N, Federico M, Mistry RD. [Positive Expiratory Pressure for the Treatment of Acute Asthma Exacerbations: A Randomized Controlled Trial](#). J Pediatr. 2017;185:149-54.e2.
6. Mandhane PJ, Paredes Zambrano de Silbernagel P, Aung YN, et al. [Treatment of preschool children presenting to the emergency department with wheeze with azithromycin: A placebo-controlled randomized trial](#). PLoS One. 2017;12(8):e0182411.
7. Ducharme FM, Chalut D, Plotnick L, et al. [The Pediatric Respiratory Assessment Measure: a valid clinical score for assessing acute asthma severity from toddlers to teenagers](#). J Pediatr. 2008;152(4):476-80, 80.e1.
8. Chalut DS, Ducharme FM, Davis GM. [The Preschool Respiratory Assessment Measure \(PRAM\): a responsive index of acute asthma severity](#). J Pediatr. 2000;137(6):762-8.

Other Resources

1. Scolnik D, Meht S, Helman A. [Emergency Medicine Cases Podcast: Management of Acute Pediatric Asthma Exacerbations](#) [Internet]; 2016. Podcast.
2. Gilbride P, Lloyd T, Cheng E, Calldrige N, Yee M. [Emergency Medicine Cases Rapid Review: Pediatric Asthma Part 1](#) [Internet]; 2016. Podcast.
3. Ontario Lung Association. [Pediatric Respiratory Assessment Measure \(PRAM\) App](#). Google Play 2015.