Pediatric Acute Sinusitis Empiric Treatment Algorithm
Ages 1 to 18 years old

Clinical Pearls | Bibliography | Disclaimer

- Refer to page 2 for dosing information and additional clinical guidance.
- Treatment duration 5-7 days; 10 days for severe symptoms
- AAP and IDSA Guidelines for acute bacterial sinusitis
- AAP Red Book Systems-Based Treatmen tTable

Concern for acute sinusitis

↓

Findings consistent with bacterial infection?
- *Persistent symptoms:* nasal discharge or daytime cough > 10 days
- *Worsening symptoms:* worsening cough or new onset fever, daytime cough, nasal discharge after initial improvement of a viral URI
- *Severe symptoms:* fever >38°C, purulent nasal discharge for at least 3 consecutive days

no → Consider viral or alternative diagnosis. Antibiotic therapy is not warranted

yes ↓

Mild Symptoms? → Consider watchful waiting for up to 3 days with follow-up for severe or worsening disease

↓

Antibiotic therapy recommended

↓

First-line
Amoxicillin

Second-line
Amoxicillin-clavulanate
- History of amoxicillin use within 30d
- Other reason to suspect antibiotic resistance (see p.2)
- Consider a single dose of IM ceftriaxone prior to PO therapy in children unable to tolerate oral intake

Alternatives for penicillin allergy
- Levofloxacin
- Clindamycin + Cefixime

This work was supported, in part, by the Kentucky Cabinet for Health and Family Services Department for Medicaid Services under a State University Partnership contract; Norton Children's Hospital; and the University of Louisville School of Medicine, Department of Pediatrics.

Pediatric Acute Sinusitis Empiric Treatment Algorithm
Ages 1 to 18 years old

Algorithm | Bibliography | Disclaimer

Clinical decision points

- Sinusitis is rare in children under 12 months and antibiotic therapy is not routinely indicated
- Risk factors for antibiotic resistance: age < 2y and daycare, prior antibiotics in the past month, prior hospitalization, comorbidities, immunocompromised
- Cefdinir is not preferred for treatment of pediatric bacterial infections due to (1) poor pharmacokinetic (PK) characteristics; (2) high rates of resistance; and (3) broad but mismatched spectrum of coverage4,5,6
- Amoxicillin-clavulanate products are not interchangeable. Incorrect ratios could lead to
- subtherapeutic concentrations or severe diarrhea. High-dose, BID regimens should use 14:1 or 16:1 formulations: 600mg/42.9mg per 5 mL (ES) or 1000mg/62.5mg (Extended Release) tablet
- Up to 90% of penicillin allergies are misdiagnosed. Always clarify history of allergy and de-label if appropriate (e.g. family history without patient history). For more information on patient screening, contact the ASP pharmacist (502-629-5568) or consider referral to outpatient allergy.

Bacterial Pathogens

- Common : Streptococcus pneumonia, Haemophilus influenza
- Less common: Moraxella catarrhalis, Streptoccous pyogenes, Staphylococcus aureus, gram-negative bacilli, anaerobes

Treatment Failure:

- See Table 4. of AAP guidelines2 for more information
- If symptoms worsen after 48-72h of therapy or fail to improve after 3-5 days
- Broaden coverage or switch to different antimicrobial class
- After second-line or alternative therapy, consider: (1) CT or MRI to investigate noninfectious causes or suppurative complications; (2) sinus or meatal cultures for pathogen-specific therapy

Antibiotic dosing

- Amoxicillin 80-90 mg/kg oral BID (max 4,000 mg/day)
- Amoxicillin-clavulanate 90 mg/kg per day oral in 2 divided doses (max 4,000 mg amoxicillin/day)
  - Using ES-600 suspension or 1000 mg/62.5 mg ER tablet
- Levofloxacin 10-20 mg/kg per day oral every 12-24h (max 500 mg/day)
- Clindamycin 10 mg/kg oral TID (max 1,800 mg/day) *plus* cefixime 4 mg/kg BID (max 400 mg/day)

Bibliography

- Chow AW, Benninger MS, Brook I,et a/. IDSA clinical practice guideline for acute bacterial rhinosinusitis in children and adults. Clinical infectious diseases. 2012 Apr 15;54(8):e72-112.
- Wald ER, Applegate KE, Bordley C,et *al.* Clinical practice guideline for the diagnosis and management of acute bacterial sinusitis in children aged 1 to 18 years. Pediatrics. 2013 Jul 1;132(1):e262-80.
- Committee on Infectious Diseases, System-based treatment table editors: Kimberlin DW, Barnett ED, Lynfield R, Sawyer MH, eds. *Red Book 2021-2024 Report of the Committee on Infectious* Diseases. 32 *ed.*Itasca, IL: American Academy of Pediatrics; 2021:990-1003.
- Wattles B, Vidwan N, Ghosal S, Feygin Y, Creel L, Myers J, Woods C, Smith M. Cefdinir use in the Kentucky Medicaid population: a priority for outpatient antimicrobial stewardship. Journal of the Pediatric Infectious Diseases Society. 2021 Feb;10(2):157-60.
- Parker S, Mitchell M, Child J. Cephem antibiotics: wise use today preserves cure for tomorrow. Pediatr Rev 2013; 34:510—23; quiz 523—4.
- Harrison CJ, Woods C, Stout G,et *al.* Susceptibilities *olHaemophilus* influenzae,Sfrepfococcus *pneumoniae,* including serotype 19A, and/Uoraxe/la catarrfia/ispaediatric isolates from 2005 to 2007 to commonly used antibiotics. J Antimicrob Chemother 2009; 63:511—9.

Pediatric Acute Sinusitis Empiric Treatment Algorithm
Ages 1 to 18 years old

Algorithm | Clinical Pearls | Bibliography

The policies set forth in this policy library do not establish a standard to be followed in every case. It is impossible to anticipate all possible solutions that may exist and to prepare policies for each. These policies should be considered guidelines with the understanding that departures from them may be required at times. Accordingly, it is recognized that those individuals employed in providing healthcare are expected to use their own judgment in determining what is in the best interests of the patient based on the circumstances existing at the time. If a policy contains references to clinical literature or other resources, such as Lippincott, Ovid, and/or Elsevier, these resources are only intended to support the reasoning for adoption of certain guidelines contained herein. It is not an endorsement of any article or text as authoritative. Norton Healthcare specifically recognizes there may be articles or texts containing other opinions on point that may be helpful and valid which would support other care or actions, given a particular set or circumstances. No literature is ever intended to replace the education, training and experience or exercise of judgment of the healthcare providers.

Last update: 12/2024

Contact: adam.isacoff@nortonhealthcare.org