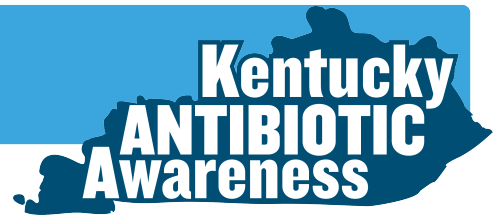


Pediatric Acute Sinusitis  
Empiric Treatment Algorithm  
Ages 1 to 18 years



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?**

Yes

Consider **watchful waiting** for up to 3 days with follow-up for severe or worsening disease

No

Antibiotic therapy recommended

Refer to page 2 for dosing recommendations

**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 Allergy**  
Levofloxacin  
Clindamycin + Cefixime

**Additional Information**

- ▶ Refer to page 2
- ▶ AAP and IDSA Guidelines for Acute Bacterial Sinusitis<sup>1,2</sup>
- ▶ AAP Red Book Systems-Based Treatment Table<sup>3</sup>

**Treatment Duration<sup>3</sup>**

5 - 7 days  
10d for severe symptoms

## Pediatric Acute Sinusitis Clinical Pearls

### Treatment Considerations

- ▶ 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 coverage<sup>4,5,6</sup>
- ▶ **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 a full allergy assessment and testing, consider referral to outpatient allergy.

### Common AOM Bacterial Pathogens

- ▶ *Streptococcus pneumoniae*
- ▶ *Haemophilus influenzae*
- ▶ Less common: *Moraxella catarrhalis*, *Streptococcus pyogenes*, *Staphylococcus aureus*, gram-negative bacilli, anaerobes

### Treatment Failure

- ▶ See Table 4. of AAP guidelines<sup>2</sup> 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

### Sinusitis 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)

### References

1. Chow AW, Benninger MS, Brook I, et al. IDSA clinical practice guideline for acute bacterial rhinosinusitis in children and adults. *Clinical infectious diseases*. 2012 Apr 15;54(8):e72-112.
2. 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.
3. 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.
4. 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.
5. Parker S, Mitchell M, Child J. Cephem antibiotics: wise use today preserves cure for tomorrow. *Pediatr Rev* 2013; 34:510–23; quiz 523–4.
6. Harrison CJ, Woods C, Stout G, et al. Susceptibilities of *Haemophilus influenzae*, *Streptococcus pneumoniae*, including serotype 19A, and *Moraxella catarrhalis* paediatric isolates from 2005 to 2007 to commonly used antibiotics. *J Antimicrob Chemother* 2009; 63:511–9.