University of Nebraska Medical Center
Nebraska Medicine

Guidance on Management of Acute Sinusitis and Rhinosinusitis

Epidemiology

Acute sinusitis is common and most frequently viral. Viral URI occurs at a rate of 2-3 episodes per year in adults and is often associated with acute rhinosinusitis. Only 0.5-2% of episodes are secondary to bacterial infection, and many cases of presumed bacterial sinusitis resolve without antibiotics[1]. Differentiating bacterial infections which will benefit from antibiotics from viral infection which will not is challenging. Even when meeting criteria for possible bacterial sinusitis, studies suggest that 50-60% of patients will improve without antibiotics. This means that most patients with upper respiratory and sinus symptoms should not receive antibiotics. The criteria below are the subset of patients where providing antibiotics is reasonable (although not required).

Definition of possible acute bacterial sinusitis

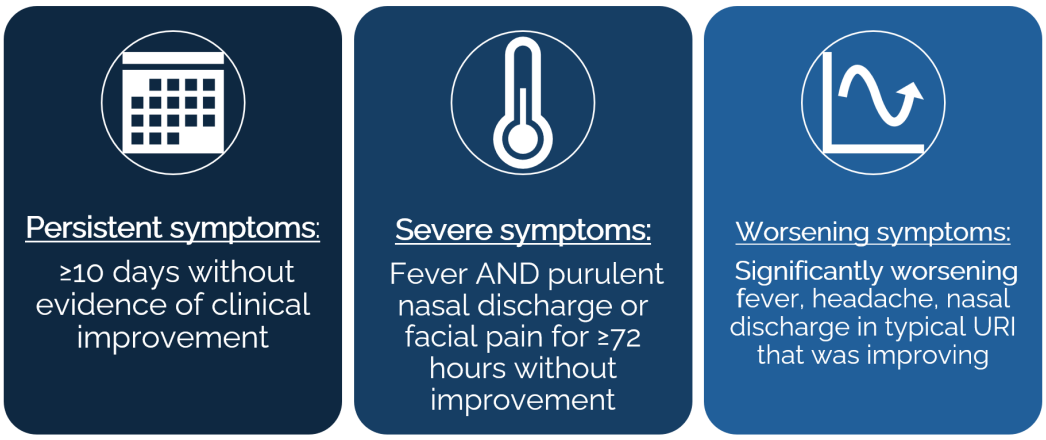

Figure 1: Definition of possible acute bacterial sinusitis

We recommend limiting antibiotic use to patients that meet the following criteria:

- Persistent symptoms ≥10 days without evidence of clinical improvement
- Severe symptoms at onset (fever ≥39°C/102°F **and** purulent nasal discharge or facial pain (lasting for 3-4 days)
- Onset of worsening symptoms including fever, headache, increase in nasal discharge following a typical viral upper respiratory infection that lasted 5-6 days and was improving (double sickening)

Treatment

Consider watchful waiting:

- Recommend waiting an additional 3-5 days from initial evaluation or a total of 14 days of symptoms prior to initiation of antibiotics in patients with persistent symptoms that are not worsening[1]
- Without antibiotics, 46% of patients with acute bacterial sinusitis recovered by day 7, increasing to 64% by day 14[2]
- In sinusitis the number needed to treat to benefit one additional patient from antibiotics is 19[2]. That means 18 patients will receive antibiotics which provide no benefit suggesting the benefit of antibiotics in sinusitis is quite low.
- Antibiotic related adverse events are more frequent among patients treated with antibiotics. The number needed to harm is 8, meaning that for every patient benefitted by antibiotics, 2 will have an adverse event.[2]

Utilize Symptomatic Treatment:

- Analgesics: acetaminophen or NSAIDs
- Nasal glucocorticoids
    - Fluticasone
    - Mometasone
    - Flunisolide
    - Budesonide
- Saline nasal rinses
- Decongestants
    - Nasal decongestants preferred as they have shown more benefit (i.e. oxymetazoline or Afrin spray)
    - Systemic pseudoephedrine
    - Phenylephrine and antihistamines no longer recommended
    - Counsel patients to use decongestants for short intervals (3-5 days) to prevent rebound congestion

Antibiotic Recommendations

Treat if patient has not improved after 5 days of watchful waiting or a total duration of 14 days of symptoms, have severe symptoms, or double sickening

First line agents:

- **Amoxicillin/clavulanate** 875/125mg PO BID x 5 days
    - Rates of beta-lactamase producing *Haemophilus influenzae* have increased in recent years (27-42%)[3]
    - The addition of clavulanate to amoxicillin ensures coverage of *Moraxella catarrhalis* and *Haemophilus influenzae*
- **Doxycycline** 100mg BID PO x 5 days
    - Alternative for penicillin allergic patients

Treatment failure:

- **Amoxicillin** 1g PO TID x 5 days
    - High dose amoxicillin can overcome penicillin resistant *Streptococcus pneumoniae* however will likely not cover other potential causes (Gram negative *Moraxella and Haemophilus spp*.)
- Penicillin allergic patient that has failed doxycycline
    - Levofloxacin 500mg PO daily x 5 days
    - FDA black box warning recommends against routinely using fluoroquinolones in acute sinusitis due to high risk of adverse effects relative to benefit, only use as last resort in patients that cannot tolerate first line agents

Agents to avoid:

- Azithromycin - High rates of resistance
- Cefdinir - Limited *Streptococcus pneumoniae* coverage, poor penetration
- Levofloxacin
    - Clinically active but overly broad
    - FDA black box warning recommends against routine use

Recommended Regimens for Management of Acute Bacterial Sinusitis

Watchful waiting

- Reasonable in most patients
- Observe 5 days for improvement prior to initiation of antibiotic
- Not recommended in cases of severe symptoms or double sickening

Symptomatic Treatment

- Analgesics: ibuprofen, acetaminophen
- Saline nasal rinses
- Nasal glucocorticoids
- Decongestants: nasal oxymetazoline, systemic pseudoephedrine

First line antimicrobial therapy

- Non-penicillin allergic patients
  - Amoxicillin/clavulanate 875/125mg PO BID x 5 days
- Penicillin allergic patients
  - Doxycycline 100mg PO BID x 5 days

Treatment failure to first line agents

- Non-penicillin allergic patients
  - Amoxicillin 1g PO TID x 5 days
    - Aims to overcome penicillin resistance in *Streptococcus pneumoniae*
- Penicillin allergic patients
  - Levofloxacin 500mg PO daily x 5 days
    - **Warning: reserve only for patients unable to take penicillin and have failed doxycycline. FDA black box warning for fluoroquinolones recommends against use in most patients for acute sinusitis.**

Figure 2: Printable Table of Sinusitis Treatment Recommendations

References

1. Payne SC, McKenna M, Buckley J, et al. Clinical Practice Guideline: Adult Sinusitis Update. *Otolaryngol Head Neck Surg*. Aug 2025;173 Suppl 1:S1-S56. doi:10.1002/ohn.1344
2. Lemiengre MB, van Driel ML, Merenstein D, Liira H, Makela M, De Sutter AI. Antibiotics for acute rhinosinusitis in adults. *Cochrane Database Syst Rev*. Sep 10 2018;9(9):CD006089. doi:10.1002/14651858.CD006089.pub5
3. Chow AW, Benninger MS, Brook I, et al. IDSA clinical practice guideline for acute bacterial rhinosinusitis in children and adults. *Clin Infect Dis*. Apr 2012;54(8):e72-e112. doi:10.1093/cid/cir1043