



Clinical Champion Update

Date: 05/02/22

Subject: Antibiotic Stewardship

It is projected that by the year 2050, there will be over 10 million deaths per year worldwide attributable to antimicrobial resistance.

Acute Sinusitis

Most sinusitis in the ambulatory setting is due to a viral infection that will resolve on its own. Acute bacterial infection occurs in only **0.5 to 2.0 percent** of cases.

Despite consistent recommendations to the contrary, antibiotics are prescribed in over 80% of outpatient visits for acute sinusitis.

Diagnosis

Use the following criteria to diagnose acute bacterial rhinosinusitis (ABRS), derived from the American Academy of Otolaryngology-Head and Neck Surgery guidelines and the Infectious Diseases Society of America guidelines:

- Persistent symptoms or signs of acute rhinosinusitis lasting 10 or more days without evidence of clinical improvement **or**
- A biphasic pattern of illness, typically extending over a 10-day period, characterized by signs and symptoms of ARS that initially start to improve but then worsen approximately five to six days later ("double worsening").

The onset of severe symptoms or signs of severe illness (eg, high fever [$>39^{\circ}\text{C}$ or 102°F], purulent nasal discharge, facial pain) for at least three to four consecutive days at the beginning of illness supports the diagnosis of ABRS. However, severity of illness alone is NOT sufficient criteria for starting antibiotics.

Treatment

In the majority of patients, **ABRS is a self-limited disease**. Systematic reviews and meta-analyses have found that 70 to 80 percent of immunocompetent patients improve within two weeks without antibiotic therapy.

- For immunocompetent patients with ABRS who have good follow-up, we suggest symptomatic management and observation over a seven-day period (**watchful waiting**) (Grade 2B). For patients who have been managed with observation who have worsening symptoms or fail to improve within the observation period, antibiotics should be started
- For patients who do not have good follow-up, we initiate antibiotic therapy upon diagnosis of ABRS.

Antibiotics:

- Either amoxicillin (500 mg three times daily or 875 mg twice daily) or amoxicillin-clavulanate (500 mg/125 mg three times daily or 875 mg/125 mg twice daily) is appropriate initial therapy for patients who do not have risk factors for resistance
 - The evidence to support the use of amoxicillin-clavulanate rather than amoxicillin is stronger in children than adults
 - See UpToDate for more info on antibiotic selection in patients with risk factors or penicillin allergy
 - Macrolides (clarithromycin or **azithromycin**) and trimethoprim-sulfamethoxazole **are not recommended** for empiric therapy because of high rates of resistance of *S. pneumoniae* (stop those Z-packs!)
- Duration of therapy: **5 to 7 days**
- Failure of initial therapy:
 - Patients who have worsening symptoms or fail to have improvement within seven days on initial therapy **should have the diagnosis of ABRS confirmed**. (Remember, 98-99.5% of cases are viral! Also consider allergic rhinitis, chronic rhinosinusitis, laryngeal reflux, headache syndromes, TMJ)
 - If ABRS remains the most likely diagnosis, treat with an alternate agent for **7 to 10 days**

Meta-analyses have consistently found that, compared with placebo, patients with ABRS may benefit from antibiotics at the cost of increased adverse events. Estimates of the number needed to treat to benefit range from 13 to 18 patients, while the number needed to harm is approximately 8 patients.

- “For clinically diagnosed sinusitis the identifiable utility of antibiotics is to reduce respiratory symptoms in a small percentage of patients, while trading this for (arguably more vexing) gastrointestinal symptoms in a larger percentage of patients.” (The NNT Group)

Prescribing longer courses of antibiotics than necessary leads to increased risk for resistance. As above, only treat for **5 to 7 days**, or 7 to 10 days after initial treatment failure. Longer courses should be avoided. In the attached Excel file you will find data on our antibiotic prescribing for acute sinusitis in 2021, including the duration of those prescriptions (there are two tabs). Notice the variability among our providers, and take note of your own prescribing practices. Please work toward fewer unnecessary prescriptions and shorter courses in the coming years, to support the health of our community.

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Antibiotic Stewardship Clinical Champion