

# CLINICAL GUIDELINE:

## EVALUATION AND MANAGEMENT OF RHINOSINUSITIS In the Ambulatory Setting



Physician Clinical Integration  
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### Scope

Sinusitis affects approximately one in eight adults in the United States, resulting in more than 30 million annual diagnoses [1]. More than one in five antibiotics prescribed in adults are for sinusitis, making it the fifth most common diagnosis for antibiotic therapy [1]. Distinguishing acute viral rhinosinusitis, related to colds and influenza-like illnesses, from a bacterial infection is a frequent challenge to the primary care clinician [2]. The PCIN Quality Committee is focused on improving evaluation and management of acute bacterial rhinosinusitis (ABRS) to decrease microbial resistance and overall cost of care with patients presenting with acute rhinosinusitis.

#### Population Included

Adults  $\geq 18$  years of age

### Guidance

The PCIN Quality Committee and its designees reviewed the available information in the medical literature and societal guidelines on the evaluation and management of rhinosinusitis in the ambulatory setting, as well as information derived from their clinical practices to devise these guidelines.

#### Exclusions

None

### Recommendations

#### Diagnosis

- ✓ Persistent symptoms lasting longer than ten days without evidence of clinical improvement.
- ✓ Worsening symptoms characterized by the onset of fever, headache, or increase in nasal discharge following a viral upper respiratory infection lasting five to six days with initial improvement of symptoms.
- ✓ Three of the following clinical symptoms: purulent drainage, facial pain/pressure/fullness, nasal obstruction, and elevated temperature ( $>38$  degrees Celsius).

#### Treatment

- ✓ In cases of mild to moderate ABRS “watchful waiting” should occur. If there is no improvement in seven days, antimicrobial therapy should be started.
- ✓ Antibiotic therapy should be implemented in severe cases of ABRS, in patients with comorbidities, immunocompromised patients, or those who have a decrease in quality of life or productivity.
- ✓ Amoxicillin-clavulanate (rather than amoxicillin) is recommended as first-line antimicrobial therapy.
- ✓ Duration of therapy for uncomplicated ABRS is five to ten days.
- ✓ Doxycycline or a respiratory fluoroquinolone (levofloxacin or moxifloxacin) is recommended as an alternative agent for empiric antimicrobial therapy in adults who are allergic to penicillin.
- ✓ Routine antimicrobial coverage for *Staphylococcus aureus* (*S. aureus*) or methicillin-resistant *Staphylococcus aureus* (MRSA) for first line therapy is not recommended.

## Adjunct Therapy

- ✓ Intranasal saline irrigation is recommended as an adjunctive treatment.
- ✓ Intranasal corticosteroids are recommended as an adjunct to antibiotics in the empiric treatment of ABRS, especially in patients with a history of allergic rhinitis.
- ✓ Decongestants and antihistamines are not recommended as adjunct treatment.

## Nonresponsive/Treatment Failure

- ✓ Treatment is considered nonresponsive if symptoms worsen after 48-72 hours of initial antimicrobial therapy or if symptoms fail to improve in three to five days despite taking medication correctly.
- ✓ Patients who are nonresponsive to initial treatment should be evaluated for resistant pathogens, noninfectious etiology, structural abnormalities, and other possible causes.
- ✓ Cultures should be obtained by direct sinus aspiration.
- ✓ Radiographic imaging is only recommended in complicated cases, not for patients who have acute rhinosinusitis.
- ✓ Complicated individuals should be referred to a specialist, such as otolaryngologist, infectious disease, or allergist.

## Rationale

### Diagnosis

Distinguishing acute bacterial from acute viral rhinosinusitis without an intra-sinusal culture can be difficult and may lead to an incorrect diagnosis and inappropriate treatment. However, many providers do not preform sinus punctures in the office and must rely on patient's presenting symptoms for diagnosis. Diagnostic characteristics for ABRS include:

- symptoms lasting longer than ten days with little or no improvement [2-5]
- a history of a recent viral infection or a worsening of symptoms after initial improvement of a viral infection [2-3, 5]
- and contain three of the following clinical symptoms: purulent drainage, facial pain/pressure/fullness, nasal obstruction, hyposmia/anosmia, or elevated temperature (>38 degrees) [2-7].

The presence of three or more Berg criteria (purulent rhinorrhea with unilateral predominance, local pain with unilateral predominance, pus in the nasal cavity, or bilateral purulent rhinorrhea) has a positive likelihood ration of 6.75 for ABRS [6]. Acute viral infections usually last six days and generally do not have facial pain/pressure, headache, or purulent nasal drainage [2].

### Treatment

Watchful waiting should be taken with healthy adult patients with mild to moderate cases of acute rhinosinusitis [4-8]. Watchful waiting should only be done in reliable patients with assured follow-up. One in two patients diagnosed with acute rhinosinusitis are better in a week, and three out of four are better in fourteen days without microbial therapy [8]. Antibiotics should be considered in adults with severe cases of ABRS, in those with comorbid conditions, if symptoms fail to improve in seven days of watchful waiting, and when quality of life or productivity are reduced [4-6]. Weighing benefits against the risks is important in deciding treatment regimens. In a Cochrane Review it was found that antibiotics decreased the rate of illness duration in five patients per 100 compared to placebo; however, 12 per 100 patients experienced adverse effects from medication [8]. For mild to moderate ABRS, intranasal corticosteroids should be prescribed to reduce inflammation, promote sinus drainage, and improve sinus ventilation. Amoxicillin-clavulanate (rather than amoxicillin) is recommended as first-line antimicrobial therapy [3-4]. Macrolide antibiotics should not be used due to high rates of bacterial resistance [3, 4, 8]. Either doxycycline or respiratory fluoroquinolone is recommended as an alternative agent for empiric antimicrobial therapy in adults who are allergic to penicillin [3]. The recommended duration of therapy for uncomplicated ABRS in adults is five to ten days [4, 6]. Although *S. aureus* is a pathogen that can cause ABRS, routine antibacterial coverage for *S. aureus* or MRSA is not recommended [3].



## Adjunct Therapy

Clinicians may recommend analgesics, topical intranasal steroids, and/or nasal saline irrigation for symptomatic relief of ABRS [3-5, 9]. Intranasal saline irrigation with either physiologic or hypertonic saline is recommended as an adjunctive treatment in adults [3]. Intranasal corticosteroids (INCS) are recommended as an adjunct to antibiotics in the empiric treatment of ABRS, primarily in patients with a history of allergic rhinitis [3, 10]. A meta-analysis found significant benefit of 15 to 21 days of INCS therapy added to antibiotic therapy in improving the symptoms of cough and nasal discharge in patients with ABRS [6]. Neither topical or oral decongestants and/or antihistamines are recommended as adjunctive treatment [3]. Topical decongestants are controversial and should not be used for longer than three days due to the risk of rebound congestion [6].

## Nonresponsive/Treatment Failure

Failure of response after 72 hours of antibiotic treatment indicates antibiotic resistance, and the antibiotic should be changed to another class or a second-line agent. Patients who clinically worsen despite 72 hours of treatment or fail to improve after three to five days of empiric antimicrobial therapy with an appropriate agent should be evaluated for the possibility of resistant pathogens, a noninfectious etiology, structural abnormality, patient noncompliance, or other causes for treatment failure [3]. Complicated patients with ABRS who have signs or symptoms indicating spread beyond the paranasal sinuses and nasal cavity should be urgently referred to an otolaryngologist for evaluation and diagnosis. These include, but are not exclusive to, patients with high persistent fevers (>102 degrees Fahrenheit); periorbital edema, inflammation, pain, or erythema; cranial nerve palsies; abnormal extraocular movements; proptosis; vision changes (double vision or impaired vision), severe headache; altered mental status; or meningeal signs [2, 6]. If failure occurs after a second course of antibiotic therapy, specialist assessment is warranted [6].

Diagnostic testing (culture or imaging) is not indicated in the initial evaluation unless complications of ABRS are suspected [2, 6]. Cultures should be obtained by direct sinus aspiration rather than by nasopharyngeal swab in patients with suspected sinus infection who have failed to respond to empiric antimicrobial therapy [3]. Clinicians should not obtain radiographic imaging for patients who meet diagnostic criteria for acute rhinosinusitis unless a complication or alternative diagnosis is suspected [2, 4]. In ABRS patients with suspected suppurative complications, axial and coronal views of contrast-enhanced computed tomography (CT) rather than magnetic resonance imaging (MRI) is recommended to localize the infection and to guide further treatment [2-3].

## Benefits/Risks of Implementing:

- Possible adverse effects of specific antibiotic therapy
- Possible radiation exposure can be harmful to the patient and the healthcare personnel; use caution in women who are pregnant or may be pregnant
- Possible oral candidiasis with the administration of intranasal corticosteroids



## References

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