



This optimal usage guide is mainly intended for primary care health professionals. It is provided for information purposes only and should not replace the clinician's judgement. The recommendations were developed using a systematic approach and are supported by the scientific literature and the knowledge and experience of Quebec clinicians and experts. For more details, go to iness.qc.ca.

GENERAL INFORMATION

IMPORTANT CONSIDERATIONS

- ▶ Most cases of acute rhinosinusitis are caused by a virus, and only a small percentage are complicated by bacterial infection.
- ▶ Most cases of acute rhinosinusitis are self-limiting and resolve spontaneously within 10 to 14 days.
- ▶ Judicious antibiotic prescription is a contentious issue because **antibiotic therapy is generally not needed**, even for the treatment of acute bacterial rhinosinusitis.
- ▶ The increase in antimicrobial resistance is directly linked to the prescribed amount of antibiotics.

PATHOGENS

Pathogens responsible for more than 70 % of acute bacterial rhinosinusitis infections	Other, less frequent pathogens
<ul style="list-style-type: none"> ▶ <i>Streptococcus pneumoniae</i> ▶ <i>Haemophilus influenzae</i> 	<ul style="list-style-type: none"> ▶ <i>Moraxella catarrhalis</i> ▶ <i>Staphylococcus aureus</i> ▶ <i>Streptococcus pyogenes</i>

PREVENTIVE MEASURES

- ▶ Hand-washing
- ▶ Smoking cessation

DIAGNOSIS

ACUTE RHINOSINUSITIS

For a diagnosis of acute rhinosinusitis, more than one of the main symptoms must be present.

Main symptoms:	<ul style="list-style-type: none"> • Unilateral dental or facial pain • Nasal obstruction or congestion • Coloured anterior or posterior rhinorrhea
Other symptoms to consider:	<ul style="list-style-type: none"> • Headache • Hyposmia/anosmia • Cough

- ▶ The nose and the back of the throat should be examined to look for:
 - Purulent secretions between the middle turbinate and the lateral nasal wall (middle meatus) using an otoscope.
 - Secretions in the back of throat.
- ▶ Palpation or percussion of the maxillary or frontal sinuses may be helpful for the diagnosis.
- ▶ The symptoms of **acute bacterial rhinosinusitis** and acute viral rhinosinusitis overlap.

ACUTE BACTERIAL RHINOSINUSITIS

The diagnosis of acute bacterial rhinosinusitis will depend on one of the following two clinical situations:

- The symptoms persist (for 10 to 14 days) without improvement.
- The symptoms worsen 5 to 7 days after an initial improvement (biphasic infection).

If either of these two criteria is met, treatment will be guided by the illness's impact on the patient's functional status.



IMPACT	SIGNS AND SYMPTOMS	ACTIONS
MILD	Slight discomfort with a minor impact on the patient's functional status	Use adjunct therapies only
MODERATE	Discomfort and constant tolerable symptoms with a moderate impact on the patient's functional status	Use adjunct therapies before considering antibiotics Close observation is also an option
SEVERE	Major impact on the patient's functional status and sleep	Consider using antibiotics
DANGER SIGNS	<ul style="list-style-type: none"> - Significant deterioration in the patient's overall condition - Severe headache (risk of frontal or sphenoid rhinosinusitis or of central nervous system changes) - Measured persistent fever (> 38 °C) - Periorbital edema/redness 	Refer immediately to hospital

RADIOGRAPHY

- ▶ Radiography is not routinely required.

TREATMENT PRINCIPLES

SUPPORTIVE TREATMENTS

Relief of discomfort, facial pain and measured fever

- ▶ Antipyretic and analgesic medications

Relief of facial pain, nasal congestion and purulent rhinorrhea

- ▶ Nasal irrigations with a saline solution at least twice a day.

There is no evidence that using a nasal spray provides any symptomatic relief, but data indicate that irrigations provide slight relief.

- ▶ A topical decongestant at the lowest concentration when nasal congestion is most bothersome (e.g., at night)

There is no evidence that using a decongestant once a day for less than 10 days leads to rebound congestion.

- ❶ Intranasal corticosteroids¹ provide a **modest therapeutic benefit**, but their routine use is not encouraged. However, they may be useful in patients with an allergic component or with recurrent episodes.

Of 15 patients with acute rhinosinusitis who used intranasal corticosteroids for an extended period (15 to 20 days), only one experienced global symptomatic improvement.

1. In Canada, only mometasone furoate monohydrate has a therapeutic indication for acute rhinosinusitis.

HISTORY OF ALLERGIC REACTION TO A PENICILLIN ANTIBIOTIC

- ▶ True penicillin allergy is uncommon. For 100 people with a history of penicillin allergy fewer than 10 will be **CONFIRMED** to have a true diagnosis of allergy.
 - It is therefore important to carefully assess the allergy status of a patient who reports a history of allergic reaction to penicillin, before considering using alternatives to beta-lactams. For help, consult the [decision-making tool in case of allergy to penicillins](#).

ANTIBIOTIC THERAPY

- ▶ Antibiotic effectiveness is **modest**, and the literature reports that:
 - Of approximately 17 patients with acute bacterial rhinosinusitis treated with antibiotics, only one experienced global symptomatic improvement.
 - Of approximately 18 patients with acute bacterial rhinosinusitis treated with antibiotics for a period of 7 to 14 days, only one experienced a shortened duration of symptoms.
 - Of approximately 8 patients with acute bacterial rhinosinusitis who received an antibiotic, one experienced adverse effects.

Close observation, which consists in not immediately prescribing an antibiotic and asking the patient to see his/her doctor again if the symptoms worsen or do not improve within 48 to 72 hours, is a valid option for patients who are moderately impacted by the illness

- ▶ If the patient has been on antibiotics for the last 3 months, prescribe a different class of antibiotics
- ▶ There is no indication for the use of azithromycin in the treatment of acute bacterial rhinosinusitis

ANTIBIOTIC THERAPY FOR ACUTE BACTERIAL RHINOSINUSITIS

	Antibiotic ^{1,5}	Dosage	Recommended duration
FIRST-LINE ANTIBIOTIC THERAPY			
	Amoxicillin²	500 mg PO TID	5 days
<ul style="list-style-type: none"> ▶ If high resistance³ is suspected ▶ Immunocompromised patient ▶ Frontal or sphenoid sinusitis 	Amoxicillin/Clavulanate⁴	500/125 mg PO TID OR 875/125 mg PO BID	7 days
<ul style="list-style-type: none"> ▶ If history of allergic reaction to a penicillin antibiotic 	Click here  to view the acute bacterial rhinosinusitis algorithm for help in choosing an antibiotic therapy		
SECOND-LINE ANTIBIOTIC THERAPY			
Indication for second-line antibiotic therapy: <ul style="list-style-type: none"> ▶ Failure to respond to first-line antibiotic therapy after 72 to 96 hours ▶ First-line treatment is causing side effects 	Amoxicillin/Clavulanate⁴	500/125 mg PO TID OR 875/125 mg PO BID	7 days
	Levofloxacin	500 mg PO daily	10 days
	Moxifloxacin	400 mg PO daily	5 days

1. Antibiotics are listed here alphabetically by their generic name.
2. Amoxicillin, 1000 mg PO BID: There is no scientific data to support recommending or prohibiting this dosage.
3. Risk factors for developing antibiotic resistance: Close contact with a child under the age of 2 at a day-care centre, high regional prevalence of antibiotic resistance, smoking, age > 65.
4. The 7:1 (875/125 mg) PO BID formulation of amoxicillin/clavulanate is preferred because of its better gastrointestinal tolerance.
5. Ciprofloxacin (500 mg PO BID x 7 days) may be indicated for the treatment of patients with infections caused by the following microorganism strains: *Haemophilus influenzae* and *Moraxella catarrhalis*.

CRITERIA FOR A CONSULTATION IN OTORHINOLARYNGOLOGY (ORL)

Refer the patient to a specialist if:

- ▶ Complications are suspected;
- ▶ The rhinosinusitis is recurrent (> 3 episodes per year);
- ▶ The symptoms persist for more than 8 weeks (chronic rhinosinusitis).

MAIN REFERENCES

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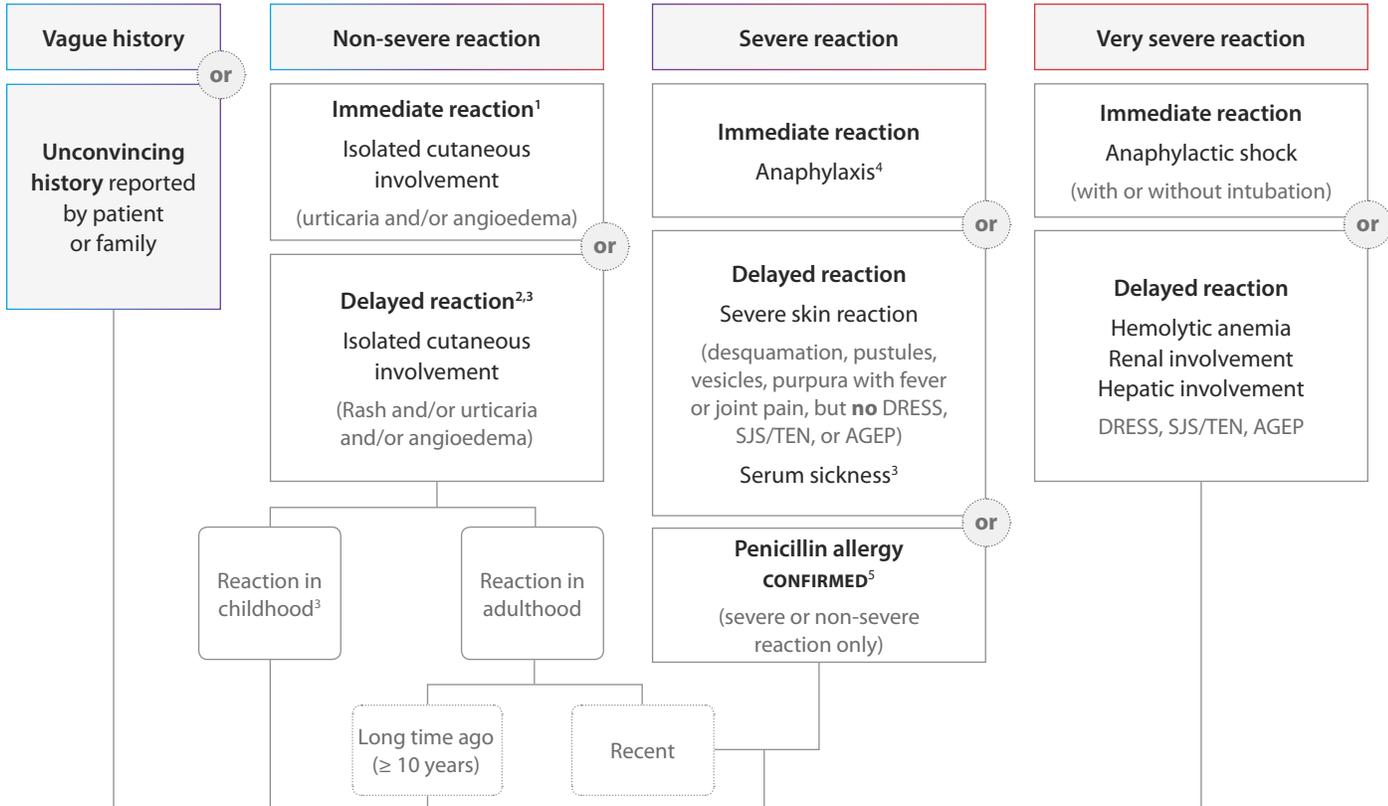
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Please note that other references have been consulted.



ASSESS THE SEVERITY OF THE INITIAL REACTION

SEVERITY OF PREVIOUS ALLERGIC REACTION TO PENICILLIN ANTIBIOTICS



DECISION-MAKING FOR CHOOSING A BETA-LACTAM AND THE CONDITIONS OF ADMINISTRATION

THE FOLLOWING CAN BE PRESCRIBED SAFELY

DISSIMILAR cephalosporins
Cefuroxime axetil OR Cefixime

PRESCRIBE THE FOLLOWING WITH CAUTION

Penicillins
Amoxicillin +/- Clavulanate

The 1st dose should **always** be administered under medical supervision.

If history of :

- **Immediate reactions**, a drug provocation test should be performed;
- **Delayed reactions**, the patient or his/her family should be informed of the possible risk of recurrence in the days following initiation of the antibiotic.

PRESCRIBE THE FOLLOWING WITH CAUTION

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If history of :

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AVOID PRESCRIBING

Penicillins
Amoxicillin +/- Clavulanate

IF A BETA-LACTAM⁶ CANNOT BE ADMINISTERED, THE FOLLOWING CAN BE PRESCRIBED...

Clarithromycin OR Doxycycline OR Sulfamethoxazole/Trimethoprim

AVOID PRESCRIBING

Beta-lactams⁶
Choose another class of antibiotics.

PRESCRIBE THE FOLLOWING

Clarithromycin OR Doxycycline OR Sulfamethoxazole/Trimethoprim

1. Immediate reaction (type I or IgE-mediated): usually occurs within one hour after taking the **first dose** of an antibiotic.
2. Delayed reaction (types II, III and IV): may occur at any time from one hour after administration of a drug.
3. Delayed skin reactions and serum sickness-like reactions that occur in children on antibiotic therapy are generally non-allergic and may be of viral origin.
4. Anaphylaxis without shock or intubation: requires an extra level of vigilance.
5. With no recommendations concerning other beta-lactams.
6. Penicillins, cephalosporins and carbapenems.

For further information, see [the interactive tool](#) and [the decision-making tool](#).

AGEP : acute generalized exanthematous pustulosis;
DRESS : drug reaction with eosinophilia and systemic symptoms;
SJS : Stevens–Johnson syndrome;
TEN : toxic epidermal necrolysis.

**FIRST-LINE ANTIBIOTIC THERAPY FOR ACUTE BACTERIAL RHINOSINUSITIS
IF HISTORY OF ALLERGIC REACTION TO A PENICILLIN ANTIBIOTIC**

	Antibiotic	Dosage	Recommended duration
Beta-lactams ⁴ recommended, according to the clinical judgement support algorithm	Cefixime	400 mg PO daily	10 days
	Cefuroxime axetil	250 mg PO BID	7 days
	Amoxicillin¹	500 mg PO TID	5 days
	Amoxicillin/Clavulanate²	500/125 mg PO TID OR 875/125 mg PO BID	7 days
Alternative if a beta-lactam ⁴ cannot be administered	Clarithromycin	500 mg PO BID	7 days
	Clarithromycin XL	1 000 mg PO daily	7 days
	Doxycycline	100 mg PO BID	10 days
	Sulfamethoxazole/Trimethoprim³	160/800 mg PO BID	7 days

1. Amoxicillin, 1000 mg PO BID: There is no scientific data to support recommending or prohibiting this dosage.
 2. The 7:1 (875/125 mg) PO BID formulation of amoxicillin/clavulanate is preferred because of its better gastrointestinal tolerance.
 3. Sulfamethoxazole/trimethoprim is no longer recommended for the empirical treatment of acute rhinosinusitis in adults due to increased resistance rates in *S. pneumoniae* and *H. influenzae*. However, it is still endorsed by Canadian guidelines as an option in beta-lactam-allergic individuals.
 4. Penicillins, cephalosporins and carbapenems.
- !** If the cautious administration of penicillin is the option chosen, opt for amoxicillin/clavulanate instead of amoxicillin alone if any of the following applies : suspicion of high resistance, patient in an immunocompromised state or has frontal or sphenoidal sinusitis.