

CSPE Rhinosinusitis: Evaluation Summary (9/19/17)

Rapid Diagnosis Reference Chart (modified after Rosenfeld 2015 & Orlandi 2016)

Type of Rhinosinusitis (RS)	Definition	Diagnostic Criteria
Acute rhinosinusitis (ARS)	ARS is symptomatic inflammation of the paranasal sinuses and nasal cavity.	Sudden onset of symptoms and up to 4 weeks of purulent nasal drainage (anterior or posterior) ¹ or nasal obstruction/congestion , ² and facial pain-pressure-fullness , ³ or reduction/loss of smell . ⁴
Viral rhinosinusitis (VRS)	ARS presumed to be caused by a viral infection.	Symptoms or signs of acute rhinosinusitis are present less than 10 days and the symptoms are not worsening
Acute bacterial rhinosinusitis (ABRS)	ARS presumed to be caused by a bacterial infection.	a. ARS fails to improve within 10 days or more beyond the onset of upper respiratory symptoms or b. symptoms or signs of ARS worsen within 10 days after an initial improvement (double worsening)
Subacute rhinosinusitis (<i>not a common classification</i>)	Probably slow to resolve ARS or an early presentation of CRS	Rhinosinusitis symptoms lasting between 4-12 weeks.
Chronic rhinosinusitis (CRS) Can be subdivided into <i>with</i> and <i>without</i> polyps.	Signs and symptoms of RS lasting 12 weeks or longer	≥2 of the following signs and symptoms: <ul style="list-style-type: none"> • nasal mucopurulent drainage (anterior, posterior, or both), • nasal obstruction (congestion), • facial pain-pressure-fullness, or • decreased sense of smell. <p style="text-align: center;">AND</p> inflammation is documented by one or more of the following findings: <ul style="list-style-type: none"> • purulent mucus or edema in the middle meatus or anterior ethmoid region,⁵ • polyps in nasal cavity or the middle meatus,⁵ and/or • CT imaging shows paranasal sinuses inflammation
Recurrent acute rhinosinusitis	≥4 episodes/year of ABRS without signs or symptoms between episodes	• each episode of ABRS should meet RS diagnostic criteria

TIMELINES

PRESENTATION	PROBABLE DIAGNOSIS
2-3 days, mild SX	Rhinitis
4-7 days (may go 14 days with symptoms steadily improving) , mild to moderate SX	Viral RS
>10 days, or a “double sickening” around day 5-7 or very severe symptoms at day 3 or 4	Bacterial RS

Additional symptoms may include sore throat, foul breath, nasal speech, toothache, and in children cough and peri-orbital edema.

¹ Anterior through the nasal passage or posterior into the pharynx.

² Nasal obstruction may be reported by the patient as nasal obstruction, congestion, blockage, or stuffiness, or may be diagnosed by physical examination.

³ Facial pain-pressure-fullness may involve the anterior face, periorbital region, or manifest with headache that is localized or diffuse.

⁴ In children cough is a much more significant symptom than is decreased sense of smell. The 4 most common symptoms identified in children with sinusitis are headache, nasal obstruction, postnasal drainage/rhinorrhea, and cough.

⁵ Assessment is usually by endoscopy.

IMAGING/ SCOPING	(pp 14-16)	LABORATORY TEST	(pp 16-17)
Endoscopy	Recommended for <u>chronic</u> RS.	Bacterial culture	Rarely needed. Nasopharyngeal cultures not recommended; sample from the middle meatus guided by endoscopy (rarely done for routine, uncomplicated RS)
CT (<i>without contrast</i>)	Imaging modality of choice to confirm <u>chronic RS</u>	ESR/CRP	Not required for acute RS; occasionally helpful to DDX more difficult cases.
MRI	Rarely needed; reserved for DDX of serious conditions identified by CT	CBC	Only when systemic involvement is suspected.
Radiographs	Not recommended	Nasal secretion	Rarely need, an option in equivocal cases
Ultrasound	Usefulness undetermined	Allergy testing	May be helpful for suspected allergic RS chronic or recurrent cases.

Risk Factors for Chronic RS: Deviated septum/other anatomical variations, tooth infection, GERD, vitamin D deficiency, aspirin intake. (p 6)

Predisposing factors for acute episodes

(pp 18-19)

- Recent URI (check for bimodal pattern), dental procedures, exposure to smoke, physical or chemical irritants, household molds, and forceful nose blowing.
- Frequent swimming and diving, immunosuppressive therapy, chronic diseases (diabetes or renal disease).
- A history of recurrent allergic rhinitis or uncontrolled allergies.
- Nasal polyps previous nose/facial trauma or surgery to the nose or birth defects.

Assessment strategy (p 18)

1. Differentiate RS vs rhinitis vs referred pain. (pp 14)
2. DDX acute, chronic, or recurrent RS. (If chronic, with or without polyps). (pp 4-5)
3. DDX viral vs bacterial vs allergic/irritant. (pp 11-13)
4. Screen for severe complications (infectious spread beyond the sinuses); refer as needed. (p. 13)
5. Set baseline to monitor improvement (e.g., Sx severity, frequency & duration, SNOT-20 especially for chronic/recurrent RS. (See Appendix 1).
6. Assess chronic & recurrent RS for co-morbidities such as *asthma*, *cystic fibrosis*, *ciliary dyskinesia** and any *immunocompromised state*.

* Primary ciliary dyskinesia is a rare genetic disorder that associated with dysfunction of cilia lining the respiratory tract, sinuses, Eustachian tube and middle ear.

Physical Exam (pp 19-23)

- Observe
- Take temperature (& other vitals)
- Percuss sinuses; transilluminate (optional)
- Rhinoscopic exam
- Examine pharynx & tap maxillary teeth
- Palpate lymph nodes
- Examine cervical muscles and joints and TMJ
- Perform otoscopic exam (in children)
- Lung auscultation (if indicated)
- Cranial nerves II to VI (if indicated)

Special Considerations: Pediatrics (p 23)

- Cough, not loss of sense of smell, may predominate
- Periorbital edema and irritability are more common.
- Sx may be more insidious; history less reliable.
- Fever, headache, and facial pain may indicate complications. Consider referring or further evaluation.
- Tympanic membrane changes are the most common exam findings associated with RS in peds.

Poorer Conservative Care Prognosis (p 23)

- Fever of 102°F and/or chills
- Yellow, brown or green discharge, positive culture, or positive ESR/CRP: possible referral for antibiotics if conservative care fails in a week.
- Stiff neck and/or disorientation, orbital pain, peri-orbital swelling/ erythema, or facial swelling/ erythema: immediate referral.
- Changes in visual acuity or deficits in cranial nerve III (e.g., abnormal extraocular motion, proptosis), IV, or V suggest an infection of the sphenoid: Rare medical emergency.

STRATEGY BASED ON PATIENT PROFILE

Approach to Rhinitis (p 25)

Presentation: Symptoms of recent onset of rhinitis/cold, congestion, a headache/sinus "pressure" lasting several days.

Strategy: In the first week or so (from the time of onset), treat like a cold (e.g., rest, fluids, adjust, lymphatic massage, etc.).

For mild to moderate symptoms, **intranasal corticosteroids** are effective for both allergic and non-allergic rhinitis and **saline irrigation** can be beneficial. If needed, a second generation antihistamine (e.g., loratadine, cetirizine, fexofenadine) is an option. If allergic rhinitis is suspected, attempt to identify and eliminate allergens. If rhinitis is secondary to a drug, then eliminate or find a substitute.

DRUGS THAT CAN INDUCE RHINITIS

Oral medications

ACE inhibitors	Oral contraceptives
Beta-blockers	Antidepressants
NSAIDs	

Rebound effects (after discontinuing)

Alpha-adrenergic decongestive sprays (if used for 5-7 days)
 Intranasal cocaine
 Methamphetamines

Approach to Acute Rhinosinusitis (pp 25-26)

Presentation: Symptoms (i.e., purulent discharge, facial pain/headache, loss of sense of smell, congestion/nasal obstruction, perhaps a failure to respond to decongestants) that last longer than several days but without any red flags or complications. Symptoms that last longer than 10 days, are very severe early on, or come on as part of a "double sickening" suggest a bacterial cause. Symptoms of acute RS generally last less than a month.

Strategy: For acute viral and bacterial RS, recommendations include analgesics, topical intranasal steroids, and/or nasal saline irrigation.

Manual therapy options include spinal manipulation, sinus percussion and lymphatic drainage. If the episode appears to part of a longer trend, more direct

treatment of the nasal passages with nasal specific or argyrol may also be considered. If the patient fails to respond in approximately one week of care, consider referring for antibiotics.

If any red flags or complicating factors are present, consider immediate referral for antibiotic therapy.

First line treatments

Saline irrigation	Analgesics
Corticosteroid sprays	

Optional

Spinal manipulation	Nasal specific therapy
Sinus percussion	Allergy/immune assessment
Lymphatic drainage	Argyrol treatment
Referral for antibiotic	Steam inhalation

MDs either prescribe initial antibiotic therapy for adults or offer watchful waiting with uncomplicated acute bacterial RS. Antibiotic therapy is started if the condition fails to improve by 7 days after diagnosis or if it worsens at any time.

Approach to Chronic Rhinosinusitis (pp 26-27)

Presentation: Symptoms lasting more than 8-12 weeks or more than 2 episodes over a 6-month period, with or without previous evaluation or management.

Strategy: In the uncomplicated case (e.g., no polyps), nasal specific or argyrol applications may be useful to promote adequate drainage. If no improvement in 4-6 weeks of treatment, consider referral for further evaluation, CT/endoscopy, and/or possible treatment with macrolides and/or a brief course of oral corticosteroids. In chronic or recurrent RS, it may be indicated to test for allergies.

Chronic RS without nasal polyps (RSsNP)

First line treatments

Saline irrigation	Nasal specific therapy
Corticosteroid spray	

Optional

Manipulation	Allergy/immune assessment
Sinus percussion	Steam inhalation
Lymphatic drainage	
Referral for macrolides	
Argyrol	

Chronic RS with nasal polyps (CRSwNP)

First line treatments

Saline irrigation
Intranasal corticosteroid sprays
Refer for oral corticosteroids (1 short course)
Address asthma symptoms if present
Aspirin desensitization (AERD** patients)

Optional

Manipulation
Sinus percussion/lymphatic drainage
Referral for macrolides
Allergy/immune assessment
Argyrol
Low salicylate diet for AERD patients

Approach to Resistant Chronic RS

If conservative care and medical therapy (macrolides and corticosteroids) fail, surgical interventions, balloon dilation therapy, and/or diet modifications may be indicated.

Manual Procedures

Nasal Specific (pp 29-31, Appendix III)

Expect symptom reduction in one to three treatments. If no improvement is achieved after three treatments, discontinue. Generally, two to five treatments over a two-week period achieve maximum benefit.

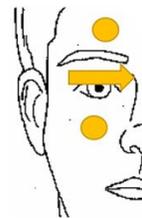
Complications and side effects: Crackling or popping sounds, temporary stuffiness or minor soreness in the face or teeth for a couple of days. Epistaxis is rare. High risk patients include those with bleeding disorders, taking anticoagulant medications should be considered high risk. Patients with recent (< 2 years) nasal or facial bone fracture or prior nasal surgery, especially with modification of the turbinates, are not good candidates for nasal specific because the integrity of the structures is unpredictable.

Adjusting/Joint Mobilization (p 33)

Special attention to the upper cervical spine. Two to three times per week during the early stages of treatment. A two-week therapeutic trial should be sufficient to yield results.

Percussion (p 32)

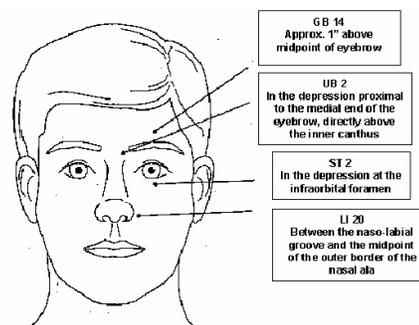
Warm towels can be placed over the sinuses for 5-10 minutes before beginning the percussion. Gently percuss the frontal and maxillary sinuses for several minutes.



Facial Massage and Lymphatic Drainage Techniques

(p 32)

Acupressure points in this area include GB14, UB2, ST2, LI20, and multiple points along the orbital ridges. These points may be gently held with thumb or finger pressure for 5-10 seconds throughout the massage. See Appendix III.



To perform lymphatic drainage, elevate the patient's head, turn it to one side and massage down the neck along the anterior and posterior SCM lymphatic chains. Turn the head to the opposite side and repeat this procedure. Following the massage and lymphatic drainage, place warm towels along the sinuses and neck for 5-10 minutes. (See CSPE videotape, "Sinusitis.")

Eustachian Tube Manipulation (AKA "Endonasal" Technique*) or Ear Popper (pp 33-35)

Indicated if ear stuffiness or pain is a complaint. Perform once a week for three weeks as a therapeutic trial for the treatment of eustachian tube dysfunction. If reduction of symptoms is not achieved after three treatments, discontinue. Contraindicated when there is evidence of acute throat infection.

** Asthma exacerbated respiratory disease

* Historically at UWS this procedure has gone by the misnomer "endonasal" technique even though the treatment is not performed through the nasal passage.

Additional Procedures

Nasal Lavage (19) (pp 35-37)

Recommend for patients who can tolerate it. There is no “optimum” formula. Mix one-fourth teaspoon of sea salt with 7 ounces of warm water (3-5 % hypertonic saline may be better than hypotonic solution). * Irrigation bottles should regularly be disinfected (e.g., microwave after irrigation) and periodically replaced. Using distilled water or boiling or treating tap water with ultraviolet light is recommended. Using well water or carbon filtration is not recommended.

Complications & Adverse Effects

Minor adverse effects include nasal burning/bleeding, nausea, ear plugging (hypertonic solutions have been associated with 10-25% of cases), headaches, and bottle contamination.

Argyrol Nasal Applications (pp 38-39)

Repeat this procedure for two consecutive days, skip a day, and repeat on the fourth day. On rare occasions, a fourth application is added if it appears the patient would derive some benefit.

Dietary/Nutritional Options (pp 40-41)

Probiotic Supplementation. Typical amounts for preventing respiratory illness in most studies are 1 to 10 billion CFU (colony-forming units) of a *Lactobacillus* strain daily for children or adults.

High Nondigestible Carb Diet. Diets high in fruits and vegetables and lower in fats and sugars may create a more favorable environment in the gut and indirectly affect RS pathogens.

Low Salicylate Diet. This diet may benefit patients with aspirin exacerbated respiratory disease (AERD). Certain foods contain high levels of nonacetylated salicylates. (For more details, see Appendix VII.)

Mediterranean diet. Although studies specifically on RS are lacking, the anti-inflammatory effects of a Mediterranean diet have demonstrable CRP lowering effects, the ability to lower the risk for multiple conditions such as heart disease, type 2 diabetes, and cancer as well as beneficial effects for asthma and Crohn’s disease.

Allergen Elimination Diet. The most common food allergens are milk, eggs, wheat, rye, corn, sugar, choc-

olate, cola, yeast, coffee, tea, alcohol, legumes and food additives.

Vitamin and Botanical Considerations (pp 41-43)

Sinupret ©. Typical daily dosing of Sinupret is 3 to 6 tablets in divided doses.

Bromelain. See Appendix II for dosing.

Pelargonium Sidoides. Marketed as UMCKA ColdCare. Take as directed on the label.

N-acetylcysteine (NAC). The typical adult oral dose is 600-1,500 mg daily in three divided doses. NAC is generally safe and well tolerated. Common side effects of high oral doses are nausea, vomiting, and other gastrointestinal symptoms.

Over-the-Counter Medications (p 43)

Decongestants. May have short term effect on symptoms of the common cold, but they do not affect the sinuses. If decongestants are used, topical sprays may be preferable to oral agents but they should always be discontinued after 72 hours to prevent the complication of rebound congestion. Decongestants do have many possible adverse effects and should be used cautiously. Their use should be especially cautious among elderly or hypertensive patients (Smith 1993).

Antihistamines. Unless prominent allergic symptoms are also present, antihistamines are probably of little value in the management of acute sinusitis. They may dry nasal mucosa excessively and thus impede sinus drainage.

Analgesics. Acetaminophen or over the counter NSAIDs may help relieve pain or fever in acute RS and chronic viral RS. Narcotics are not recommended.

General Self-Care Advice (pp 43-44)

Note: Patients should be instructed to call back if symptoms worsen or do not improve within 1 week of home therapy.

- Drink six to eight 8-oz. glasses of water per day.
- Chronic cases may be aided by moderate exercise.
- Using a humidifier may be beneficial.
- In recurrent cases, consider air filtration systems for the home.
- Steam inhalation has not proven effective except

to reduce sinus associated headaches. One to two 15-minute treatments daily. Eucalyptus or camphor can be added to the water*

- Smokers with recurrent and/or chronic sinusitis should be encouraged to quit smoking.
- Avoid exposure to possible allergens/ irritants (e.g., smoke, abrupt change in temperature, dust)

Outcome Measurements (p 44)

- Reduction or cessation of symptoms (Institute for Clinical Systems 1998).
- In recurrent sinusitis, alleviating the number or intensity of episodes.
- Use appropriate CSPE questionnaires (such as the SNOT 20). See Appendix I.

Prognosis (p 44)

- Patients with acute bacterial sinusitis generally respond to antibiotic therapy within 3 to 5 days.
- Patients with uncomplicated acute sinusitis seem to respond to conservative care within 3 to 10 days.
- Expect a significant improvement with chronic sinusitis within 3 to 4 weeks.

Considerations For Referral/Consultation (p 44)

Fever over 102°F, facial pain and/or malaise warrant consideration for referral. Minor bacterial infections may best be treated with the conservative care procedures outlined here. In any case, if the patient fails to respond to treatment, or the condition worsens after 7 to 10 days, then referral is indicated.

Pharmaceutical Therapeutics

Antibiotic Therapy (pp 45-47)

Oral Steroids (pp 47-48)

Medical & Surgical Procedures

Balloon Ostial Dilatation (p 48)

Oral Steroids (p 47-48)

*Consensus of the CSPE working group.

