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# DHA TELEHEALTH CLINICAL GUIDELINES

# FOR VIRTUAL MANAGEMENT

# OF ACUTE RHINOSINUSITIS – 50

**Issue date:** 27/07/2021

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Health Policies and Standards Department

Health Regulation Sector (2021)

## INTRODUCTION

Dubai Health Authority (DHA) is the responsible entity for regulating, licensing and monitoring health facilities and healthcare professionals in the Emirate of Dubai. The Health Regulation Sector (HRS) is an integral part of DHA and was founded to fulfil the following overarching strategic objectives:

Objective #1: Regulate the Health Sector and assure appropriate controls are in place for safe, effective and high-quality care.

Objective #2: Position Dubai as a global medical destination by introducing a value-based, comprehensive, integrated and high-quality service delivery system.

Objective #3: Direct resources to ensure happy, healthy and safe environment for Dubai population.

## ACKNOWLEDGMENT

This document was developed for the Virtual Management of Acute Rhinosinusitis in collaboration with Subject Matter Experts. The Health Policy and Standards Department would like to acknowledge and thank these professionals for their dedication toward improving the quality and safety of healthcare services.

**The Health Regulation Sector**

**Dubai Health Authority**

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## EXECUTIVE SUMMARY

Telehealth is based on Evidence Based Practice (EBP) which is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient. It means integrating individual clinical expertise with the best available external clinical evidence and guidelines from systematic research.

EBP is important because it aims to provide the most effective care virtually, with the aim of improving patient outcomes. As health professionals, part of providing a professional service is ensuring that practice is informed by the best available evidence.

This guideline is presented in the format comprising of clinical history/symptoms, differential diagnosis, investigations and management. Identification of 'Red Flags' or serious conditions associated with the disease is an essential part of this telehealth guideline as it aids the physician to manage patients safely and appropriately by referrals, if indicated during virtual telehealth assessment, to ER, family physicians or specialists for a face to face management.

The primary purpose of this Telehealth Guideline is to prove the health physicians, who will be managing patients virtually, with a summary of the best available evidence for the virtual management of this very common condition among adults.

This guideline also identifies key "Red Flags" or serious symptoms associated with Acute Rhinosinusitis which warrant a referral to specialist for further face-to-face management.

## DEFINITIONS/ABBREVIATIONS

**Virtual Clinical Assessment**: Is the evaluation of the patient's medical condition virtually via telephone or video call consultations, which may include one or more of the following: patient medical history, physical examination and diagnostic investigations.

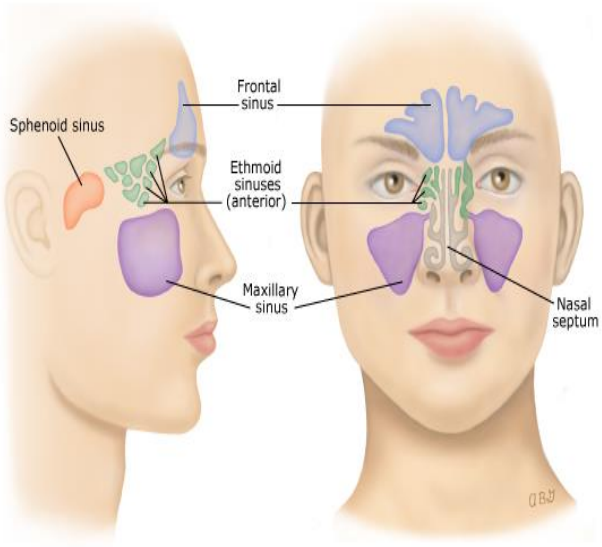
**Patient**: The person who receives the healthcare services or the medical investigation or treatment provided by a DHA licensed healthcare professional.

## ABBREVIATIONS

| | | |
|---|---|---|
| **DHA** | : | Dubai Health Authority |
| **EBP** | : | Evidence Based Practice |
| **ER** | : | Emergency Room |
| **KPI** | : | Key Performance Indicator |

## 1. BACKGROUND

### 1.1. Introduction




1.1.1. Sinusitis is defined as symptomatic inflammation of the nasal cavity and paranasal sinuses

1.1.2. The term "rhinosinusitis" is preferred to "sinusitis" since inflammation of the sinuses rarely occurs without concurrent inflammation of the nasal mucosa.

1.1.3. Acute rhinosinusitis is self-limiting and usually triggered by a viral infection of the upper respiratory tract for example, a common cold.

1.1.4. Up to 2% of cases are complicated by bacterial infection, but it can be difficult to distinguish these.

1.1.5. Symptoms can last for 2 to 3 weeks – most people will get better within this time without treatment, regardless of cause (bacteria or virus).

1.1.6. Antibiotics are not needed for most people. The number of people improving with antibiotics is similar to the number getting adverse effects, such as diarrhoea.

1.1.7. Complications of acute rhinosinusitis are rare. Withholding antibiotics is unlikely to lead to complications.

1.1.8. Previous antibiotic use may lead to resistant organisms if the same antibiotic is used again.

## 2. SCOPE

2.1. Telehealth services in DHA licensed Health Facilities.

## 3. PURPOSE

3.1. To support the implementation of Telehealth services for Acute Rhinosinusitis in Dubai Health Authority (DHA) licensed Health Facilities

## 4. APPLICABILITY

4.1. DHA licensed physicians and health facilities providing Telehealth services.

4.2. Exclusion for Telehealth services are as follows

4.2.1. Emergency cases where immediate intervention or referral is required.

4.2.2. Prescribe Narcotics, Controlled or Semi-Controlled medications.

## 5. TYPES

5.1. Classification of rhinosinusitis is based upon symptom duration:

5.1.1. Acute rhinosinusitis – Symptoms for less than 4 weeks

5.1.2. Subacute rhinosinusitis – Symptoms for 4 to 12 weeks

5.1.3. Chronic rhinosinusitis – Symptoms persist greater than 12 weeks

5.1.4. Recurrent acute rhinosinusitis – 4 or more episodes per year, with interim symptom resolution

5.2. This focus of this guideline will be mainly on focus on ARS.

5.3. Further classification of ARS based on etiology and clinical manifestations:

5.3.1. Acute viral rhinosinusitis (AVRS) – ARS with viral etiology

5.3.2. Uncomplicated acute bacterial rhinosinusitis (ABRS) – ARS with bacterial etiology without clinical evidence of extension outside the paranasal sinuses and nasal cavity (e.g., without neurologic, ophthalmologic, or soft tissue involvement)

5.3.3. Complicated acute bacterial rhinosinusitis – ARS with bacterial etiology with clinical evidence of extension outside the paranasal sinuses and nasal cavity.

## 6. EPIDEMIOLOGY AND RISK FACTORS

6.1. Incidence is higher in women than men. Among adults, incidence is highest among those aged 45 to 64 years.

6.2. Risk factors for ARS include

6.2.1. Older age

6.2.2. Smoking

6.2.3. Air travel

6.2.4. Exposure to changes in atmospheric pressure (e.g., deep sea diving)

6.2.5. Swimming

6.2.6. Asthma and allergies

6.2.7. Conditions such as cystic fibrosis and GERD

6.2.8. Nasal polyps or other anatomic obstruction in the ostiomeatal complex

6.2.9. Dental disease

6.2.10. Immunodeficiency

## 7. ETIOLOGY

7.1. Acute viral rhinosinusitis (AVRS)

7.1.1. The vast majority of cases of acute rhinosinusitis (ARS) is due to viral infection. Acute viral rhinosinusitis (AVRS) begins with viral inoculation via direct contact with the conjunctiva or nasal mucosa. Symptoms, if they develop, usually present in the first day after inoculation.

7.1.2. The most common viruses that cause AVRS are rhinovirus, influenza virus, and parainfluenza virus.

7.1.3. Viral rhinitis spreads to the paranasal sinuses by systemic or direct routes. Nose blowing may be an important mechanism; positive intranasal pressures generated during nose blowing may propel contaminated fluid from the nasal cavity into the paranasal sinuses. Inflammation follows, resulting in sinonasal hypersecretion and increased vascular permeability leading to transudation of fluid into the nasal cavity

and sinuses. Viruses also can exert a direct toxic effect on nasal cilia, impairing mucociliary clearance. A combination of mucosal edema, copious thickened secretions, and ciliary dyskinesia results in sinus obstruction and perpetuates the disease process.

7.2. Acute bacterial rhinosinusitis (ABRS)

7.2.1. Acute bacterial infection occurs in only 0.5 to 2 % of episodes of ARS. ABRS occurs when bacteria secondarily infect an inflamed sinus cavity.

7.2.2. ABRS most commonly occurs as a complication of viral infection but can also be associated with rhinitis or conditions that obstruct the nose or impair local or systemic immune function. These include allergic or nonallergic rhinitis, mechanical obstruction of the nose, dental infection, impaired mucociliary clearance (e.g., cystic fibrosis, ciliary dysfunction), immunodeficiency, and other factors that impair sinus drainage.

7.2.3. The most common bacteria associated with ABRS are Streptococcus pneumoniae, Haemophilus influenzae, and Moraxella catarrhalis.

7.2.4. Nosocomial bacterial sinusitis may develop in patients in the intensive care unit, particularly in those with prolonged intubation.

## 8. CLINICAL HISTORY

8.1. The symptoms of acute viral rhinosinusitis (AVRS) and acute bacterial rhinosinusitis (ABRS) overlap. There are no clinical criteria that have been validated to distinguish between them. However, AVRS and ABRS have different clinical courses

8.2. AVRS – AVRS has a similar clinical course to other viral upper respiratory infections (URIs) with patients having partial or complete resolution of symptoms within 7 to 10 days. Although symptoms may persist for more than 10 days, there is typically some improvement by day 10. In most cases of viral URI, symptoms peak in severity between day 3 and 6, after which symptoms improve.

8.3. Patients typically do not have fever. If fever is present, it is generally present early in the illness and disappears within the first 24 to 48 hours, with respiratory symptoms becoming more prominent after the fever has resolved. Patients with viral infection may have purulent nasal discharge during the course of their illness; discoloured nasal discharge is a sign of inflammation. Most often, the discharge starts clear, becomes purulent, and then becomes clear again.

8.4. ABRS – Patients with ABRS tend to have symptoms that last longer (>10 days). A biphasic pattern illness ("double worsening"), characterized by worsening symptoms after an initial period of improvement, also suggests a bacterial cause. Individual symptoms such as purulent sputum or facial pain cannot be used to accurately distinguish ABRS from AVRS. The full pattern of symptoms and its progressive

pattern should be taken into account when making the diagnosis. The symptoms include the following:

8.4.1. Duration of symptoms

8.4.2. Nasal congestion and obstruction

8.4.3. Purulent nasal discharge

8.4.4. Postnasal discharge

8.4.5. Maxillary tooth discomfort

8.4.6. Facial pain or pressure that is worse or localized to the sinuses when bending forward

8.4.7. Tenderness to pressure over the floor of the frontal sinus immediately above the inner canthus

8.4.8. Fever

8.4.9. Fatigue

8.4.10. Cough

8.4.11. Hyposmia or anosmia

8.4.12. Ear pressure or fullness, tinnitus or hearing loss

8.4.13. Headache

8.4.14. Halitosis

8.5. Chronic sinusitis manifests more subtly than acute sinusitis. However, it may start suddenly, as an upper respiratory tract infection or acute sinusitis that does not

resolve or emerge slowly and insidiously over months or years. At times, the initial symptoms may be acute in nature. Unless an appropriate history is taken, the diagnosis may be missed. The typical symptoms of acute sinusitis—fever and facial pain—are usually absent in chronic sinusitis. Fever, when present, may be low grade. The rest of the symptoms are as above.

## 9. RED FLAGS

9.1. Fever higher than 102°F (38.9°C)

9.2. Frontal swelling

9.3. Severe frontal headache (worse than patient has experienced before)

9.4. Neck stiffness or other meningeal signs

9.5. Reduced level of consciousness or altered mental status

9.6. Reduced visual acuity

9.7. Double vision (diplopia)

9.8. Periorbital oedema/erythema (cellulitis)

9.9. Displaced globe, proptosis

9.10. Ophthalmoplegia

9.11. Unilateral symptoms of obstruction with blood stained discharge

9.12. Persistent (>3weeks) unilateral symptoms of obstruction

9.13. Unilateral or bleeding polyps

9.14. Paraesthesia of cheek

9.15. Persistent unexplained epistaxis

9.16. Abnormal extraocular movements

## 10. DIFFERENTIAL DIAGNOSIS

10.1. Acute invasive fungal rhinosinusitis - Symptoms of acute invasive fungal rhinosinusitis are similar to acute rhinosinusitis (ARS), but acute invasive fungal rhinosinusitis is often rapidly progressive, and many patients have extension of the infection outside the sinuses at presentation. The majority of patients with acute invasive fungal rhinosinusitis are immunosuppressed or have poorly controlled diabetes. Early diagnosis is of paramount importance. Patients with suspected acute invasive fungal sinusitis require immediate referral for evaluation by an otolaryngologist (ENT).

10.2. The common cold — Symptoms of the common cold and ARS often overlap. However, patients with the common cold generally do not have facial pain. They typically primarily have symptoms of rhinitis (sneezing and anterior or posterior rhinorrhea), often with a sore throat or cough.

10.3. Noninfectious rhinitis - Allergic rhinitis and nonallergic vasomotor rhinitis are common causes of rhinorrhea and nasal congestion. These can be distinguished from ARS as symptoms of sneezing, rhinorrhea, nasal congestion, and nasal itching predominate. These patients generally do not have facial pain/pressure, headache, or purulent nasal drainage.

10.4. Facial pain – Multiple conditions may cause facial pain, including neuralgias, temporomandibular joint disorder, cancer pain, or carotidynia. These patients do not have the other symptoms of ARS.

10.5. Headache – Frontal sinus pain may result from a variety of headache etiologies, including migraine headaches, tension headaches, and cluster headaches.

10.6. Nasal polyposis (which are painless, benign growths on the lining of sinuses)—symptoms include: Persistent stuffiness, Postnasal drip; Decreased or absent sense of smell, snoring and/or Loss of sense of taste

10.7. Dental pain – While dental infection may be a direct source of bacterial involvement of the maxillary sinuses, patients with dental infection or inflammation may have referred pain to the sinuses without actual infection within the sinuses. Patients should be asked about prior dental procedures or heat or cold sensitivity in the teeth. These patients do not have the other symptoms of ARS (purulent nasal drainage, nasal congestion/obstruction).

## 11. COMPLICATIONS

11.1. Refer to APPENDIX 1 for Complications of Acute Bacterial Rhinosinusitis

## 12. INVESTIGATIONS

12.1. Specialist investigations are not required as a diagnosis should be made on clinical grounds. However, the evaluation for both acute and chronic might include the following diagnostic tests if complications are suspected:

12.1.1. X-ray of para-nasal sinuses (PNS)

12.2. The below investigations, if required, will need a face to face consultation:

12.2.1. C.T. scan para-nasal sinuses

12.2.2. Nasal cytology

12.2.3. Nasal-sinus biopsy

12.2.4. Tests for immunodeficiency, cystic fibrosis, or ciliary dysfunction

12.2.5. Cultures- Not routinely done but reserved for immunocompromised patients

12.2.6. MRI

## 13. REFERRAL CRITERIA

13.1. Referral to Emergency Department

13.1.1. Neck stiffness or other meningeal signs

13.1.2. Reduced level of consciousness or altered mental status

13.1.3. Reduced/impaired visual acuity

13.1.4. Double vision (diplopia)

13.1.5. Periorbital oedema/erythema (cellulitis)

13.1.6. Intraorbital complications

13.1.7. Severe frontal headache (worse than patient has experienced before)

13.1.8. Persistent unexplained epistaxis

13.1.9. Abnormal extraocular movements

13.1.10. Severe systemic infection

13.2. Referral to Family Physician or Specialist

13.2.1. Patient not responding to antibiotic treatment, including those who may have resistance to antibiotic due to previous use.

13.2.2. An alternative diagnosis is suspected

13.2.3. Fever higher than 102°F (38.9°C)

13.2.4. Frontal swelling

13.2.5. Displaced globe, proptosis

13.2.6. Ophthalmoplegia

13.2.7. Unilateral symptoms of obstruction with blood stained discharge

13.2.8. Persistent (>3weeks) unilateral symptoms of obstruction

13.2.9. Unilateral or bleeding polyps

13.2.10. Paraesthesia of cheek

13.2.11. Persistent or recurrent symptoms

13.2.12. Relapse or failure to response to antibiotic treatment

13.2.13. People presenting at any time who are systemically very unwell, have symptoms and signs of a more serious illness or condition, or are at high risk of complications

## 14. MANAGEMENT

14.1. Refer to APPENDIX 2 for the Virtual Management of Rhinosinusitis Algorithm

14.2. Non-pharmacological Management

14.2.1. Patient Education

a. Educate patient and give advice about:

b. The usual course of acute sinusitis (2 to 3 weeks)

c. An antibiotic not being needed

d. Managing symptoms, including fever, with self-care

e. Avoid risk factors including smoking, swimming and exposure to changes in atmospheric pressure

f. Seeking medical help if symptoms worsen rapidly or significantly, do not improve after 7 days, or they become systemically very unwell.

14.3. Pharmacological Management

14.3.1. Acute viral rhinosinusitis (AVRS) Treatment

Patients with acute viral rhinosinusitis (AVRS) should be managed with supportive care. There are no treatments to shorten the clinical course of the disease.

AVRS may not completely resolve within 10 days but is expected to improve. Patients who fail to improve after ≥10 days of symptomatic

management are more likely to have acute bacterial rhinosinusitis (ABRS) and should be managed as ABRS patients.

Conservative treatment:

a. Over-the-counter (OTC) analgesics and antipyretics such as nonsteroidal anti-inflammatory drugs (NSAID) and Paracetamol can be used for pain and fever relief as needed
    - Adult dosage of paracetamol is 500mg to 1g every 4–6 hours to a max. of 4 g daily.
    - Example of NSAID include Ibuprofen, initially 300–400 mg 3– 4 times daily; increased if necessary to max. 2.4 g daily; maintenance dose of 0.6–1.2g daily.
b. Intranasal glucocorticoids – these are likely to be most beneficial for patients with underlying allergic rhinitis
    - Fluticasone propionate 50–200 micrograms twice daily; Child 4–12 years 50–100 micrograms twice daily
c. Intranasal saline spray – Sterile intranasal saline spray may temporarily improve nasal passage patency by moisturizing and loosening secretions. This approach may be useful in combination with intranasal glucocorticoids.

d. Intranasal ipratropium bromide - can help reduce rhinorrhoea in patients with concurrent common cold symptoms.

e. Oral decongestants – Oral decongestants may be useful when Eustachian tube dysfunction is a factor for patients with AVRS. These patients may benefit from a short course (3 to 5 days) of oral decongestants. Oral decongestants should be used with caution in patients with cardiovascular disease, hypertension, angle-closure glaucoma, or bladder neck obstruction.

f. Intranasal decongestants – Intranasal decongestants are often used as symptomatic therapies by patients. If used, topical decongestants should be used sparingly for no more than 3 consecutive days to avoid rebound congestion, addiction, and mucosal damage associated with long-term use.

- Xylometazoline hydrochloride 0.1%, Nasal drops, Dose 2–3 drops into each nostril 2–3 times daily when required; max. duration no more than 7 days; not recommended for children under 12 years

g. Antihistamines – Antihistamines are frequently used for symptom relief due to their drying effects; however, there are no studies

investigating their efficacy for ARS. Over-drying of the mucosa may lead to further discomfort.

- Dosage: E.g.: Loratadine 10mg once daily

14.3.2. Acute Bacterial Rhinosinusitis (ABR) Treatment

a. In addition to supportive care, options for the outpatient management of uncomplicated acute bacterial rhinosinusitis (ABRS) are observation or antibiotics depending on patient follow-up.

b. Refer to APPENDIX 3 for the suggested approach to observation versus antimicrobial therapy for outpatient treatment of uncomplicated ABRS in immunocompetent adults

14.3.3. People presenting with symptoms for around 10 days or more with no improvement:

a. Consider prescribing a high-dose nasal corticosteroid for 14 days for adults and children aged 12 years and over, being aware that nasal corticosteroids:

- May improve symptoms but are not likely to affect how long they last
- Could cause systemic effects, particularly in people already taking another corticosteroid
- May be difficult for people to use correctly.

b. Consider no antibiotic prescription or a back-up antibiotic prescription, taking account of

- Evidence that antibiotics make little difference to how long symptoms last, or the proportion of people with improved symptoms
- Withholding antibiotics is unlikely to lead to complications
- Possible adverse effects, particularly diarrhoea and nausea
- Factors that might make a bacterial cause more likely

c. When a back-up antibiotic prescription is given, give verbal and written advice about:

- Managing symptoms, including fever, with self-care
- An antibiotic not being needed immediately
- Using the back-up prescription if symptoms do not improve within 7 days or if they worsen rapidly or significantly at any time
- Advise patient to seek medical help if symptoms worsen rapidly or significantly despite taking the antibiotic, or the antibiotic has been stopped because it was not tolerated.

d. Refer to APPENDIX 4 to see NICE guideline antibiotic recommendations should antibiotics be prescribed

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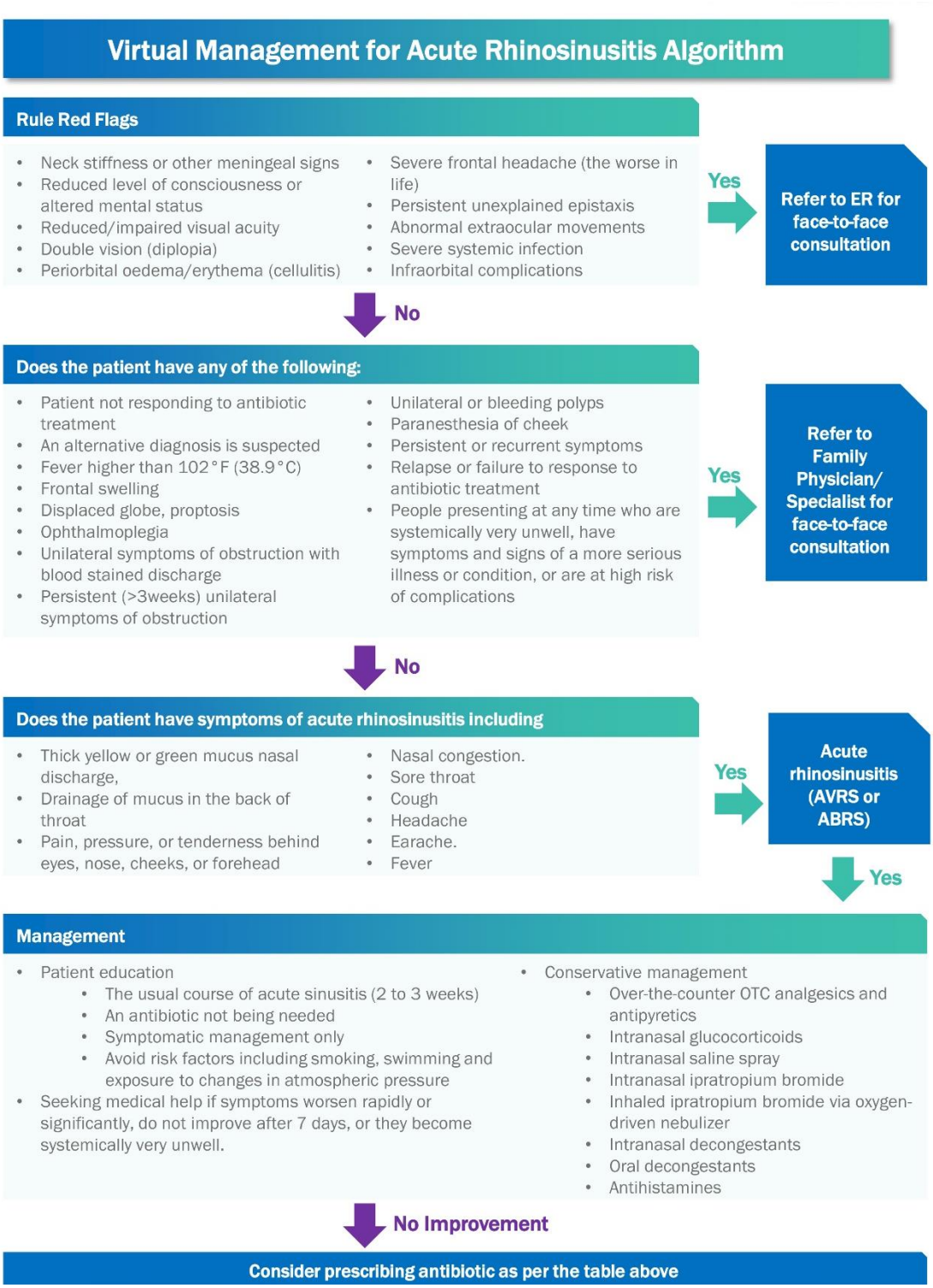
## APPENDICES

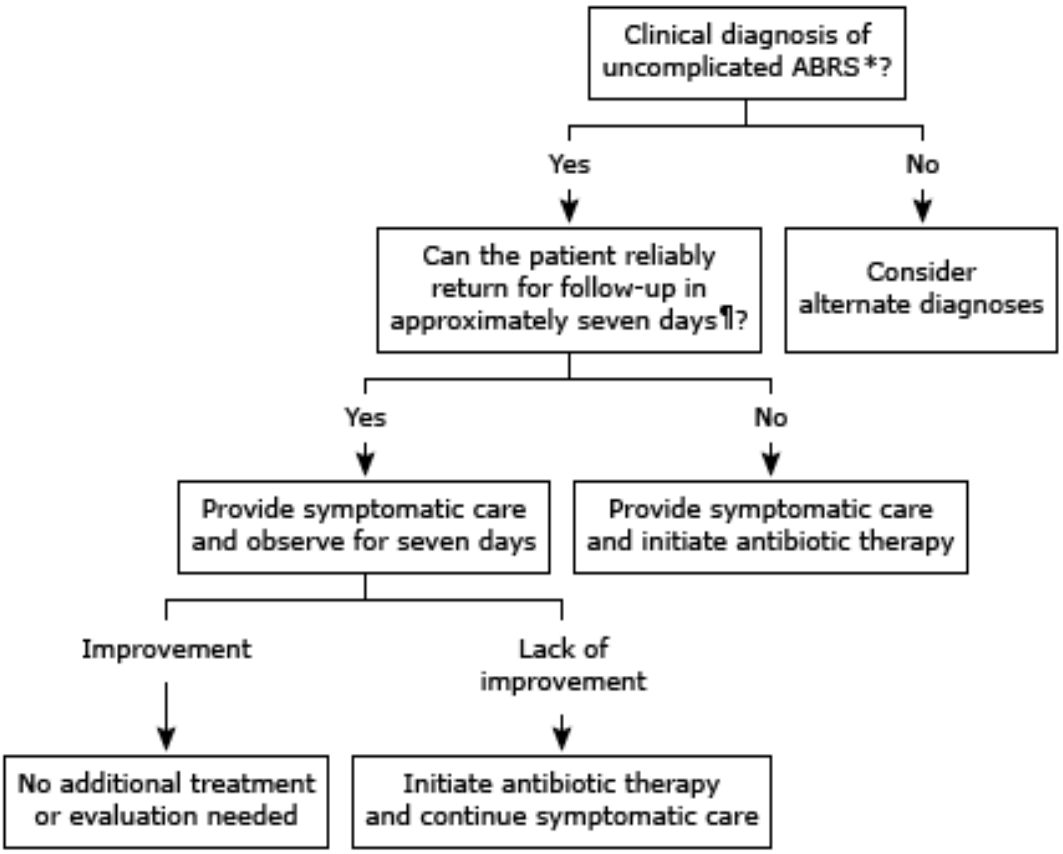
### APPENDIX 1 – COMPLICATIONS OF ACUTE BACTERIAL RHINOSINUSITIS

| Complication | Clinical features | Imaging evaluations which are done after referral |
|---|---|---|
| Preseptal cellulitis | Ocular pain, eyelid swelling, and erythema | Clinical diagnosis (imaging usually not needed unless there is concern for orbital cellulitis) |
| Orbital cellulitis | Ocular pain, eyelid swelling, and erythema plus pain with eye movements, proptosis, or visual changes suggesting involvement of the orbital tissue | CT with contrast or MRI without and with contrast of the head, including the orbit and paranasal sinuses |
| Subperiosteal abscess | Displacement of the globe, in addition to symptoms of orbital cellulitis | MRI without and with contrast of the head, orbit, and paranasal sinuses |
| Intracranial abscess | Headache with or without altered mental status, fever, or nausea/vomiting | CT with contrast or MRI without and with contrast of the head and paranasal sinuses |
| Meningitis | Fever, neck stiffness, and/or altered mental status | CT of the head without contrast may be indicated prior to lumbar puncture |
| Septic cavernous sinus thrombosis | Cranial nerve palsies (CN III, IV, VI) with or without headache and fever | MRI without and with contrast of the head and paranasal sinuses. MR venography either without or with contrast. |
| Osteomyelitis | Dull pain at involved site often with overlying tenderness, erythema, or swelling | CT with contrast or MRI without and with contrast of the head and paranasal sinuses |

**Appendix 2 –** VIRTUAL MANAGEMENT OF RHINOSINUSITIS ALGORITHM



**Appendix 3** – SUGGESTED APPROACH TO OBSERVATION VERSUS ANTIMICROBIAL THERAPY FOR OUTPATIENT TREATMENT OF UNCOMPLICATED ABRS IN IMMUNOCOMPETENT ADULTS



**Appendix 4 –** NICE GUIDELINE ANTIMICROBIAL PRESCRIBING FOR ACUTE BACTERIAL RHINOSINUSITIS (ABR)

**Antibiotics for adults aged 18 years and over**

| Antibiotic[1] | Dosage and course length for adults |
|---|---|
| First choice | |
| Phenoxymethylpenicillin | 500 mg four times a day for 5 days |
| First choice if systemically very unwell, symptoms and signs of a more serious illness or condition, or at high risk of complications | |
| Co-amoxiclav | 500/125 mg three times a day for 5 days |
| Alternative first choices for penicillin allergy or intolerance | |
| Doxycycline | 200 mg on first day, then 100 mg once a day for 4 days (5-day course in total) |
| Clarithromycin<br>Erythromycin (in pregnancy) | 500 mg twice a day for 5 days<br>250 mg to 500 mg four times a day or 500 mg to 1000 mg twice a day for 5 days |
| Second choice (worsening symptoms on first choice taken for at least 2 to 3 days)<br>➔ Refer to specialist for further assessment and management. | |
| If co-amoxiclav used as first choice, refer to specialist for further assessment and management (see referral criteria) | |
| Alternative second choice for penicillin allergy or intolerance, or worsening symptoms on second choice taken for at least 2 to 3 days<br>➔ Refer to specialist for further assessment and management (see referral criteria) | |
| [1] See BNF for appropriate use and dosing in specific populations, for example, hepatic impairment, renal impairment, pregnancy and breast-feeding | |

**Antibiotics for children and young people under 18 years**

| Antibiotic[1] | Dosage and course length for children and young people[2] |
|---|---|
| First choice | |
| Phenoxymethylpeni-cillin | 1 to 11 months, 62.5 mg four times a day for 5 days<br>1 to 5 years, 125 mg four times a day for 5 days<br>6 to 11 years, 250 mg four times a day for 5 days<br>12 to 17 years, 500 mg four times a day for 5 days |
| First choice if systemically very unwell, symptoms and signs of a more serious illness or condition, or at high risk of complications[2] | |
| Co-amoxiclav | 1 to 11 months, 0.25 ml/kg of 125/31 suspension three times a day for 5 days<br>1 to 5 years, 5 ml of 125/31 suspension or 0.25 ml/kg of 125/31 suspension three times a day for 5 days<br>6 to 11 years, 5 ml of 250/62 suspension or 0.15 ml/kg of 250/62 suspension three times a day for 5 days<br>12 to 17 years, 250/125 mg or 500/125 mg three times a day for 5 days |
| Alternative first choice for penicillin allergy or intolerance | |
| Clarithromycin | Under 8 kg, 7.5 mg/kg twice a day for 5 days<br>8 to 11 kg, 62.5 mg twice a day for 5 days<br>12 to 19 kg, 125 mg twice a day for 5 days<br>20 to 29 kg, 187.5 mg twice a day for 5 days<br>30 to 40 kg, 250 mg twice a day for 5 days<br>12 to 17 years, 250 mg twice a day or 500 mg twice a day for 5 days |
| Doxycycline[3] | 12 to 17 years, 200 mg on first day, then 100 mg once a day for 4 days (5-day course in total) |
| Second choice (worsening symptoms on first choice taken for at least 2 to 3 days)<br>⇨ Refer to specialist for further assessment and management (see referral criteria) | |
| Alternative second choice for penicillin allergy or intolerance, or worsening symptoms on sec- ond choice taken for at least 2 to 3 days<br>➔ Refer to specialist for further assessment and management (see referral criteria) | |

[1] See BNF for children for use in specific populations (e.g. hepatic and renal impairment)

[2] In practice, the prescriber will use age bands with other factors such as severity of the condition and the child's size in relation to the average size of children of the same age

[3] Doxycycline is contraindicated in children under 12 years