King Saud University,
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Family medicine department, 2019

Upper respiratory tract infections

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1)Rhinosinusitis

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435201438

Definition:

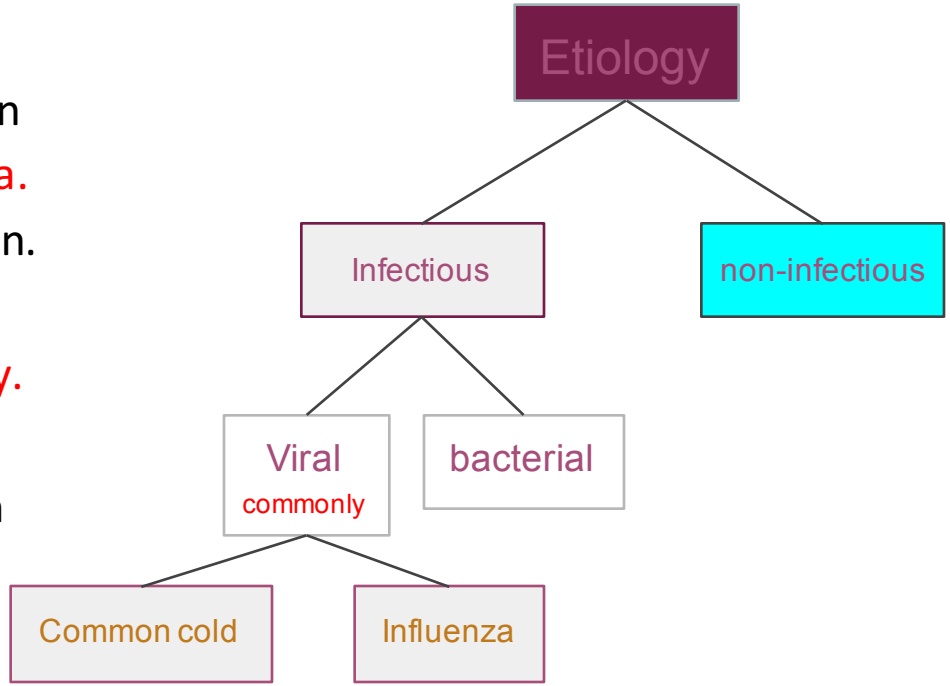
Rhinitis: Inflammation of the nasal mucous membranes.

Sinusitis: Inflammation of sinus cavities.

Inflammation of the sinuses rarely occurs without concurrent inflammation of the nasal mucosa; therefore, *Rhinosinusitis* is a more accurate term!!

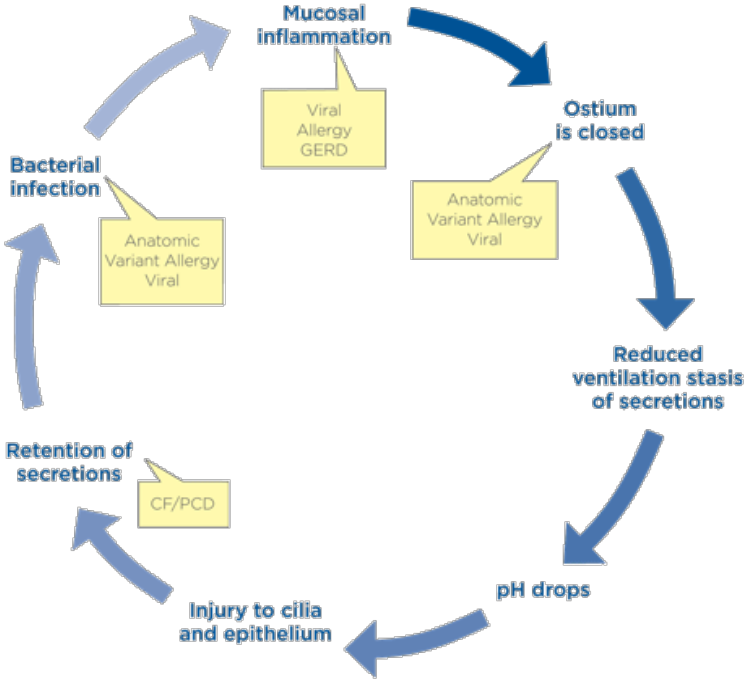
Pathophysiology & Etiology

- Most important pathologic process in disease is obstruction of natural ostia.
- Obstruction leads to hypooxygenation.
- Hypooxygenation leads to ciliary dysfunction and poor mucous quality. Collection of secretion.
- Ciliary dysfunction leads to retention of Bacterial.
- Viral and bacterial infections impair the cilia which transport mucus.

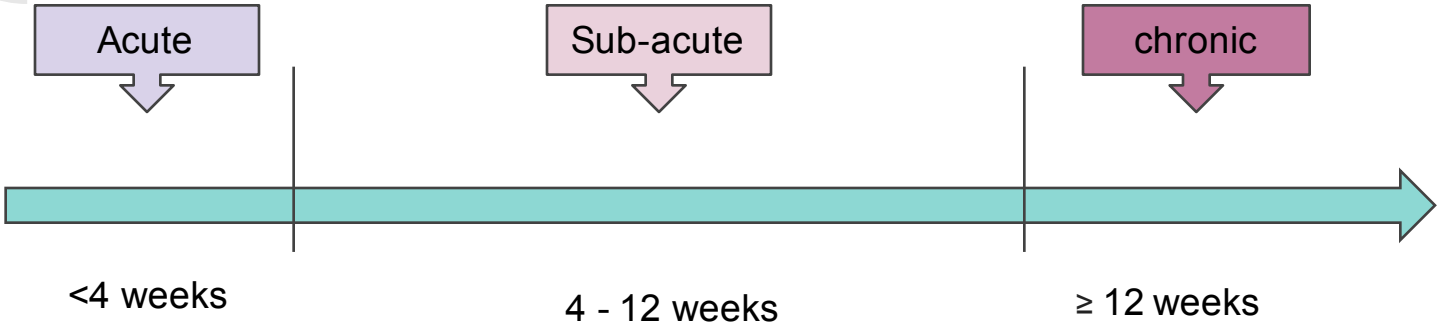


Pathophysiology & Etiology

Figure 1



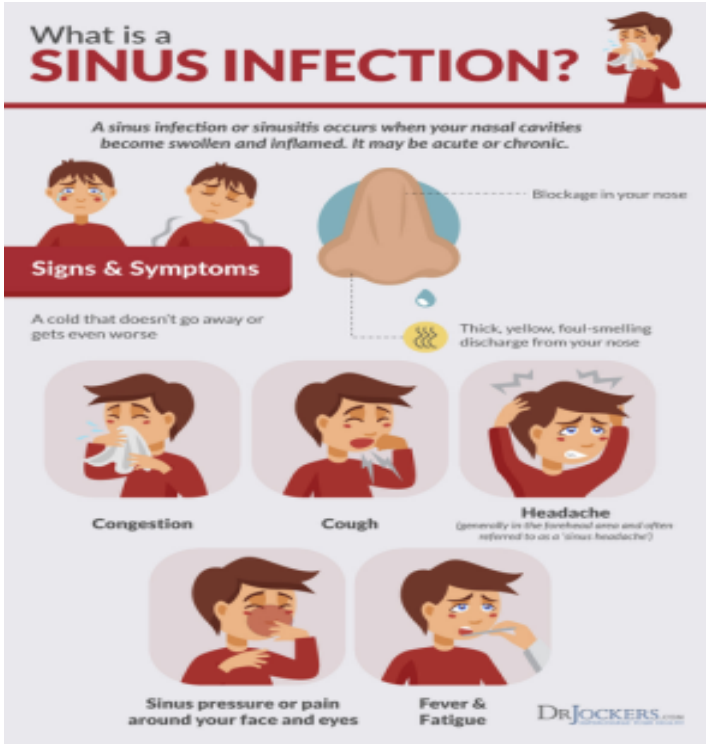
Classification based on duration:



Recurrent Rhinosinusitis?

Signs and symptoms:

- Facial pain, pressure, or fullness (pain on bending forward)
- Nasal Congestion.
- Nasal Discharge.
- Hyposmia.
- Fever and fatigue
- Postnasal Drip.
- Cough and halitosis.
- Sinus Headache.
- Toothache.
- Otalgia.



Causes: Infectious!

Influenza:

- **Family :** Orthomyxoviridae, **Types of viruses :** A,B,C

Common cold:

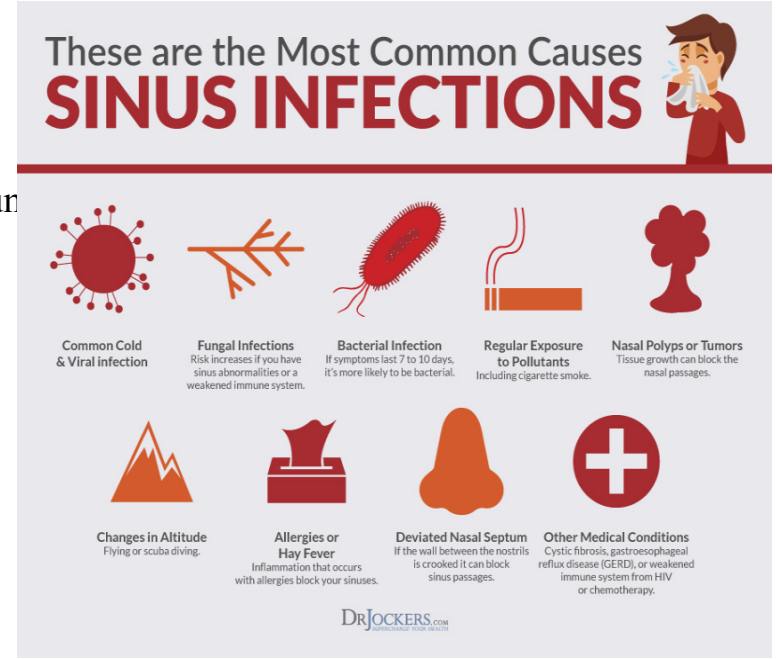
- **Family:** Rhinoviruses, Coronaviruses, and adenoviruses,Hun
  respiratory syncytial virus (in adults)Parainfluenza viruses

Bacterial :

- Streptococcus pneumoniae
- Haemophilus influenzae
- Staphylococcus aureus
- Moraxella catarrhalis.

Fungal:

- Aspergillus



Non-infectious: Also risk factors!

- **Nasal obstruction** (allergic rhinitis, nasal polyps, tumors, mucus plug, septal deviation).
- **Primary ciliary dyskinesia.**
- Patients with immune deficiency or hyper inflammatory disease such as **Wegener's disease.**
- **Cystic fibrosis.**

How to Differentiate between Bacterial & Viral Rhinosinusitis?

★ **Most commonly viral.**

- **BUT!!! If any of the following are true it's probably bacterial!!!!!**
  - ➢ **Persistent symptoms** or signs compatible with acute rhinosinusitis, lasting for **≥10 days** without any evidence of clinical **improvement.**
  - ➢ Onset with **severe** symptoms or signs of high fever (**≥38.8/39**) and **purulent** nasal discharge or facial pain lasting for at least **3-4 consecutive days** at the beginning of illness.
  - ➢ **Worsening** symptoms or signs characterized by the new onset of fever, headache, or increase in nasal discharge **following** a typical viral **URTI** that lasted 5-6 days and were **initially improving** (''double sickening'')
  - ➢ **Immunocompromised** patient.

0.5%-2% of viral Rhinosinusitis are complicated by bacterial infection!

Diagnosis:

History:

PODS:

- Pain (site)
- Obstruction (uni/bi)
- Discharge (Thickness, Consistency, Color, Amount, Frequency)
- Smell disorder

Other: Fever, Fatigue, Headache, Earache.

Physical examination:

- Tenderness overlying sinuses.
- Hyponasality.
- Purulent nasal secretions.
- Erythema (facial, Mucosal).
- Oral cavity examination.

Investigation:

Investigations:

- CBC, ESR (nonspecific).
- Culture (if life threatening).
- CT (for complications).
- MRI (for complications).
- Fiberoptic endoscopy (structural lesion).

Cultures:

Not routinely done:

Done if :

- Patient In ICU
- Immunocompromised
- Children not responding to medical management..
- complications.

Imaging:

Done :

- **Complication** (orbital, intracranial, or soft tissue involvement)
- **Alternative diagnosis** (malignancy, other noninfectious causes of facial pain)

Radiographic imaging is not recommended for evaluating uncomplicated acute rhinosinusitis.

When should you suspect & test for MERS-CoV in someone with acute rhinosinusitis?

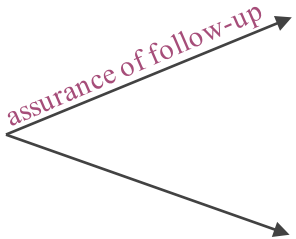
- History of exposure to a confirmed or suspected MERS-CoV in the 14 days prior to onset of symptoms.
- History of contact with camels or camel products in the 14 days prior to onset of symptoms.
- Unexplained acute febrile (**≥38°C**) illness, body aches, headache, diarrhea, or nausea/vomiting, with or without respiratory symptoms, AND leukopenia & thrombocytopenia.

Management:

Acute viral: Supportive care!

- **Acute VRS may not completely resolve within 10 days but is expected to improve.**
- **Symptomatic management:**
  - Rest, fluids
  - Analgesics paracetamol NSAIDS
  - Antipyretics
  - SNI saline nasal irrigation
  - INCS intranasal corticosteroids
  - Decongestants
  - Antihistamine
  - Treat complications, e.g. antibiotics for secondary bacterial infection; treatment of exacerbations of COPD or asthma.

Acute bacterial :



Watchful waiting (without antibiotics)

Prescribe initial **antibiotic** therapy for adults with uncomplicated ABRS.

Amoxicillin±clavulanate is the first-line therapy for 5 to 10 days for most adults.

Antibiotic failure:

If the patient **worsens** or **fails** to improve with the initial management option by 7 days after diagnosis, reassess the patient to:

- **Confirm ABRS**
- **Exclude** other causes of illness
- Detect **complications**.

If ABRS is confirmed:

▷ **antibiotic** therapy should be started.

▷If the patient was initially managed with an antibiotic, the clinician should **change** the antibiotic.

Complications of rhinosinusitis:

Bony:

Osteomyelitis , Pott's puffy tumor

(Subperiosteal abscess)

Intracranial:

- Cavernous sinus thrombosis
- Epidural abscess
- Intracranial abscess
- Meningitis
- Subdural abscess
- Superior sagittal sinus thrombosis

Orbital: (most commonly involved)

- Cavernous sinus thrombosis
- Inflammatory edema and erythema (preseptal cellulitis)
- Orbital abscess
- Orbital cellulitis
- Subperiosteal abscess

Prevention of RHINOSINUSITIS:

- Good Sinus hygiene.
- Hydration (to keep nasal secretions thin).
- Saline nasal sprays (keep the nasal passages moist, helping in removal of infectious agents).
- Smoking cessation.
- Allergen avoidance.

2) Influenza virus

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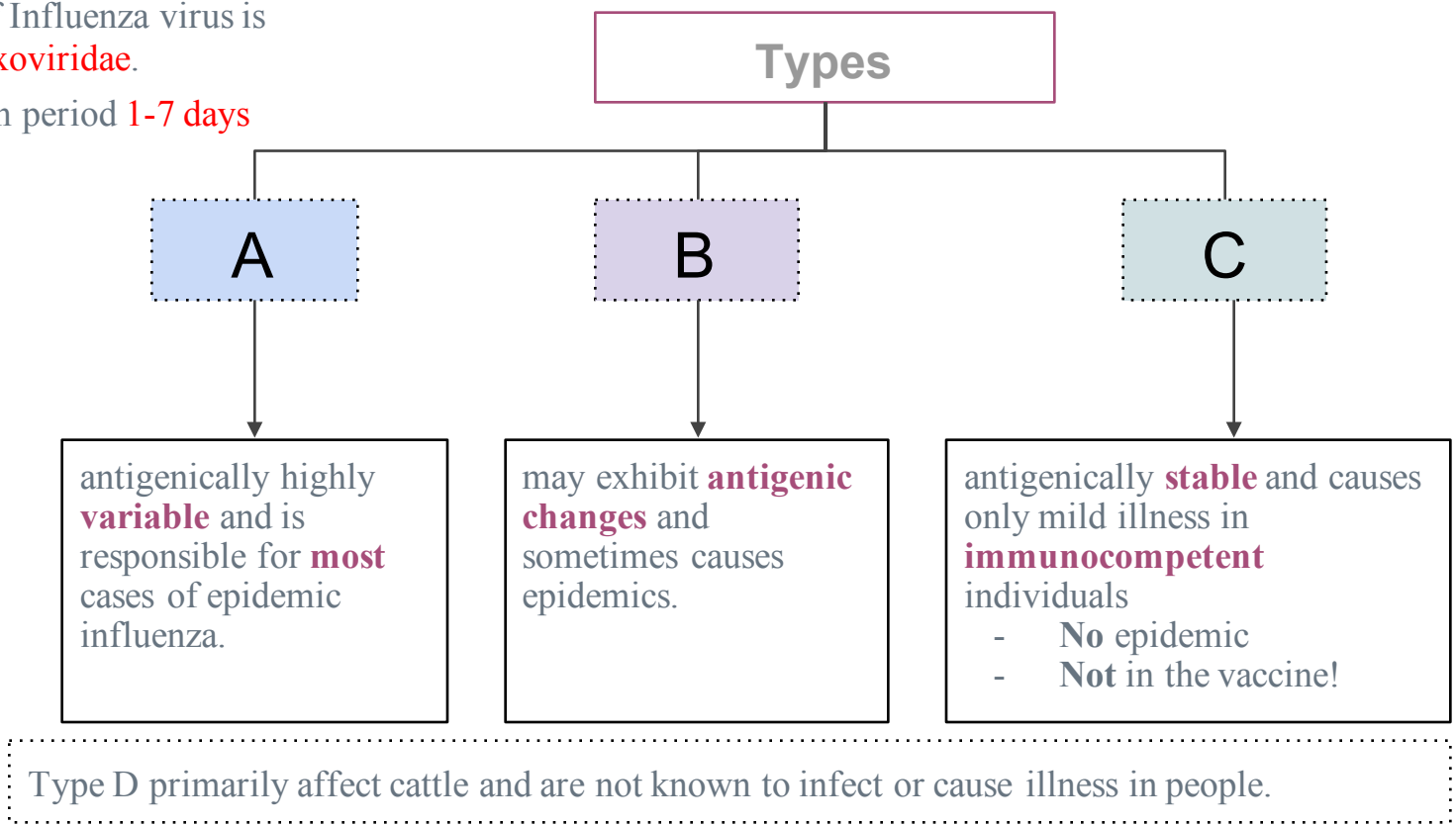
Influenza virus

Family of Influenza virus is Orthomyxoviridae.

incubation period 1-7 days



Sign and symptoms of INFLUENZA

Influenza spread:

Characterized by the abrupt onset of constitutional and respiratory signs and symptoms (e.g., fever, myalgia, headache, malaise, nonproductive cough, sore throat, and rhinitis)

- **Contact**:
  - Direct (e.g. shaking hands)
  - Indirect (contaminated items)
- **Droplet** transmission (unprotected sneeze or cough) **travel up to 6 ft.**
- **Airborne** transmission

You may be able to pass on the flu to someone else before you know you are sick! as well as while you are sick.

Diagnostic tests for influenza

Rapid Influenza Diagnostic Tests (RIDTs):

- **Antigen** detection tests
- **Quick** results
- Sensitivity **62.3%**
- Specificity **98.2%**

-ve result does NOT exclude a diagnosis of influenza in a patient with suspec
influenza.

Reverse transcription polymerase chain reaction (RT-PCR) and Viral culture:

- More **accurate** but takes **longer** time.
- When influenza is suspected and antiviral treatment is **indicate**
  antiviral treatment should begin **as soon as possible and shoul**
  not wait for the results of testing.

Diagnostic Tests for Influenza

TEST	*TYPE OF TEST*	*SENSITIVITY FOR 2009 PANDEMIC INFLUENZA A (H1N1)**	*DISTINGUISHES 2009 H1N1 INFLUENZA FROM OTHER INFLUENZA A VIRUSES?*
Direct and indirect immunofluorescence assays	Antigen detection	47 to 93 percent	No
Rapid influenza diagnostic test	Antigen detection	10 to 70 percent	No
Real-time reverse transcriptase polymerase chain reaction tests	RNA detection	86 to 100 percent†	Yes
Viral culture	Virus isolation and identification	NA	Yes

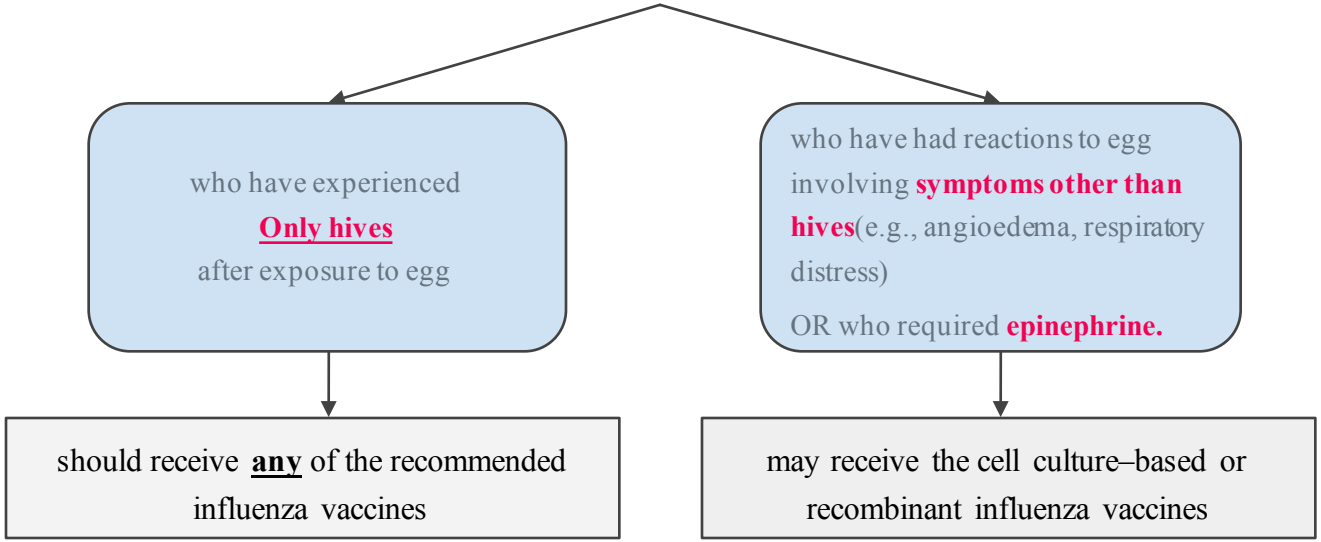
Prevention of INFLUENZA:

- Good hygiene.
- Avoid contact with sick people.
- Vaccination?

It's content?	**3-4 strains** (it changes from season to season).
Given when?	**Flu season** (It takes about 2 weeks for the antibodies to develop in the body).
For who?	Everyone from **six months** and older without **contraindications**
Contraindications?	A previous **severe allergic reaction** to influenza vaccine.
How frequent?	**Yearly**
Associated Food allergy?	**Egg** ??

Egg allergy and INFLUENZA vaccination:

The ACIP recommendations for persons with a history of egg allergy:



How to Differentiate Between Common Cold and Influenza?

- ★ It is difficult to differentiate between them based on symptoms alone.
- ★ In general, the flu is worse than the common cold.
- ★ Flu can have very serious associated complications (such as pneumonia, bacterial infections, or hospitalizations).

Candidates for antiviral therapy:

- Special group (children **< 2 years and** adults **> 65 years.)**
- persons with **chronic** diseases:
    - Pulmonary (e.g. asthma).
    - Cardiovascular (except hypertension alone).
    - Renal.
    - Hepatic.
    - Hematological (including SCA).
    - Metabolic disorders (including DM).
    - Neurological and neurodevelopmental conditions (e.g. CP, epilepsy, stroke).
- Persons with **immunosuppression** (caused by medications or by HIV infection).
- **Pregnant** or postpartum women (Oral oseltamivir is the preferred agent)
- Persons < 19 years who are receiving long-term **aspirin** therapy.
- Persons who are morbidly **obese** (i.e. BMI > 40).

SORT: KEY RECOMMENDATIONS FOR PRACTICE

CLINICAL RECOMMENDATION	*EVIDENCE RATING*	*REFERENCES*
The decision to begin antiviral treatment should be based on the clinical diagnosis of influenza, not on test results.	C	4, 16, 20, 21
Patients at risk of complications from influenza should begin antiviral treatment within 48 hours of symptom onset.	C	3, 4, 8, 16, 20, 21
The choice of antiviral agent should be based on local patterns of virus activity and susceptibility.	C	3, 4, 8, 16, 20, 21

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, go to https://www.aafp.org/afpsort.xml.

A 25 year old male came to the PHC to have a shot of Influenza vaccine. He was ill and his vital signs show fever. In his record there was a documentation of previous allergic reaction to vaccination 5 years ago. **What does the pt. have as contraindication to Influenza vaccine ?**

A. fever
B. headache
C. A previous severe allergic reaction.
D. Muscle and joint pain

3) Pharyngitis

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Sore Throat Vs. Pharyngitis

Sore Throat:

- Refers to pain, itchiness, or irritation of the throat. Patients may have difficulty swallowing food and liquids, and the pain may get worse when they try to swallow.

Pharyngitis|:

- Defined as rapid onset of sore throat and inflammation or irritation of the pharynx.

Etiology of Pharyngitis (Sore Throat)

Sore Throat:

Infectious:

★ **Viral:** Most common, Eg.Influenza virus, Parainfluenza virus, Rhinovirus, Coronavirus, Adenovirus, Respiratory syncytial virus, Epstein-Barr virus

★ **Bacterial : Eg.** Group A β-hemolytic streptococcus (GAS) (Most common), Group C & G Streptococcus, Fusobacterium Necrophorum, Chlamydia Pneumoniae, Mycoplasma Pneumoniae.

Non-Infectious:

- Post-nasal drainage due to allergic rhinitis
- Sinusitis
- Gastroesophageal reflux disease
- Acute thyroiditis
- Persistent cough

Who is at Risk of developing bacterial pharyngitis?

Risk of Group A β-hemolytic Streptococcus

According to the Patient's Age Group:

In patients with sore throat, the likelihood of GABHS = (GAS) pharyngitis is highest in:

1. Children from 5 to 15 years of age (37%).
2. Lower in younger children (24%).
3. Adults (5% to 15%).

How to differentiate between viral & bacterial pharyngitis?

Clinical Characteristics: Bacterial vs.Viral

Viral Sore Throat	Bacterial Sore Throat
★ Cough ★ Conjunctivitis ★ Coryza (inflammation of the mucus membranes of the nose) ★ Hoarseness ★ Diarrhea ★ Discrete ulcerative stomatitis or vesicles ★ Viral exanthema	★ Tonsillar exudates (White patches or pus on tonsils) ★ Fever ★ Tender anterior cervical adenopathy ★ abdominal pain (especially in children due to abdominal lymphadenopathy).

Alarming Symptoms:

SHOULD BE ASKED TO RULE OUT SERIOUS ETIOLOGY/COMPLICATIONS IN A SORE THROAT HISTORY:

- ★ **Drooling.**
- ★ **Respiratory distress .**
- ★ **Stiff neck .**
- ★ Inability to open mouth fully, **trismus = lockjaw**.
- ★ **Fevers**, Weight loss, night sweats.
- ★ Muffled voice or hot potato voice
- ★ History of recent foreign body impaction or oropharyngeal procedure (trauma).

Diagnosis of pharyngitis patient!

Diagnosis:

- ★ Wide range of illnesses must be considered.
- ★ Infectious causes range from generally benign viruses to GABHS.
- ★ Inflammatory presentations may be the result of allergy, reflux disease or, rarely, neoplasm or Kawasaki disease.
- ★ Integrated information from the **history**, **physical examination**, **environmental** and **epidemiologic** factors also may need to be assessed.

Diagnosis: Approach specific to GABHS!

Important historical elements include:

- ★ Onset, duration, progression, and severity of the associated symptoms (e.g., fever, cough, respiratory difficulty, swollen lymph nodes),
- ★ Exposure to infections.
- ★ Presence of comorbid conditions (e.g., diabetes).

The pharynx should be examined for:

- ★ Erythema, hypertrophy, foreign body, exudates, masses, petechiae, and adenopathy.
- ★ Assess the patient for fever, rash, cervical adenopathy, and coryza. When streptococcal pharyngitis is suspected, listen for the presence of a heart murmur and evaluate the patient for hepatosplenomegaly.

Diagnosis: Approach specific to GABHS!

CLINICAL DECISION RULES: Using Centor Score:

- The original **Centor score** uses **four signs and symptoms** to estimate the probability of acute streptococcal pharyngitis in adults with a sore throat.
- The score was later modified by adding **age** and validated in 600 adults and children.
- The cumulative score determines the likelihood of streptococcal pharyngitis and the need for antibiotics.

Modified/McIsaac Centor Score

Patient with sore throat

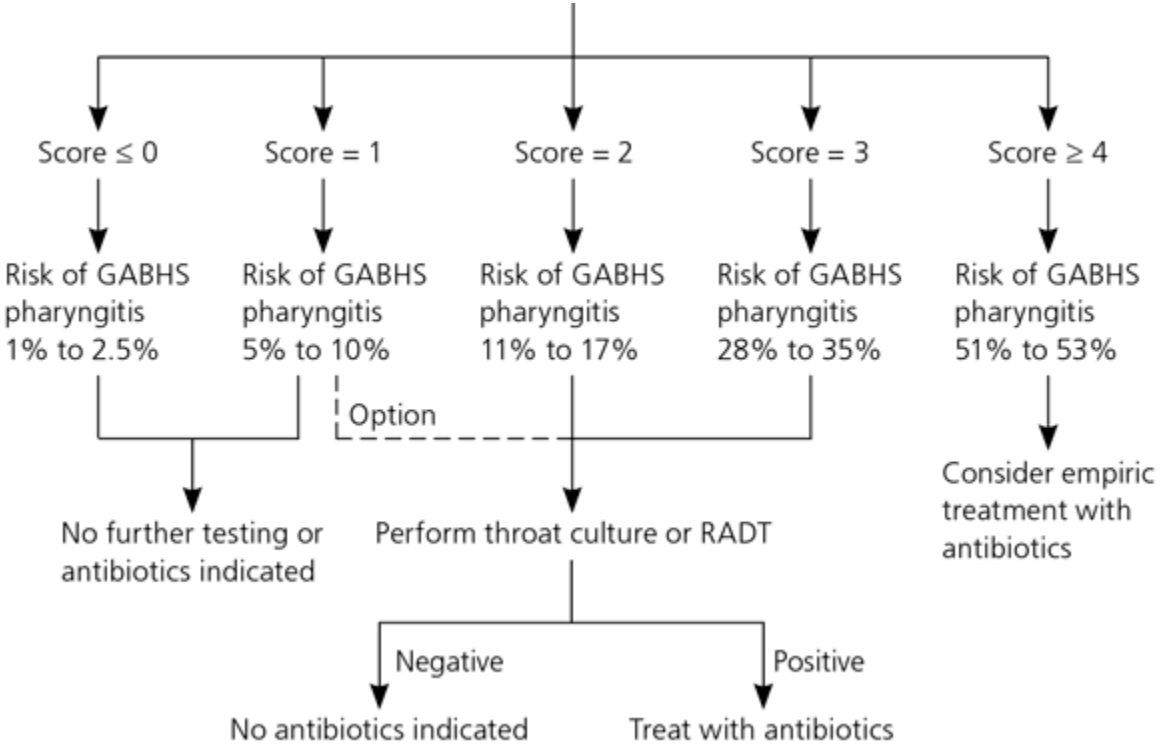
↓

Apply streptococcal score

↓

Criteria	*Points*
Absence of cough	1
Swollen, tender anterior cervical nodes	1
Temperature > 100.4°F (38°C)	1
Tonsillar exudates or swelling	1
Age	
3 to 14 years	1
15 to 44 years	0
45 years or older	–1
Cumulative score:	_____

Modified/McIsaac Centor Score



Investigations:

- **Throat swabs:** Culture of a throat swab on a sheep- blood agar plate has been the standard for the documentation of the presence of GAS pharyngitis, **the disadvantage** of throat cultures is the delay (overnight or longer) in obtaining results
- **Rapid antigen detection test (RADT):** detect the presence of GABHS antigen in throat swab in 10-15 minutes, >90% specificity and 59%-95% sensitivity (higher in newer kits).
- **Backup throat cultures:** A negative RADT should be accompanied by a follow-up or back-up throat culture in children and adolescents, while this is not necessary in adults under usual circumstances.

TABLE 1

Selected Laboratory Tests for Identifying the Cause of Pharyngitis

NAME OF TEST	*TYPE OF TEST*	*SENSITIVITY AND SPECIFICITY*
Throat culture	Specimen obtained by throat swab of posterior tonsillopharyngeal area and inoculated onto 5 percent sheep-blood agar plate to which a bacitracin disk is applied; results in 24 to 48 hours	Sensitivity: 97 percent; specificity: 99 percent; results dependent on the technique, medium, and incubation
Rapid antigen detection test or rapid streptococcal antigen test	Detects presence of group A streptococcal carbohydrate on a throat swab (change in color indicates a positive result); results available within minutes; in-office test	Specificity: > 95 percent; sensitivity: 80 to 97 percent, depending on the test
Monospot test	Rapid slide agglutination test for mononucleosis	Overall sensitivity: 86 percent; overall specificity: 99 percent
		First week sensitivity: 69 percent; specificity: 88 percent
		Second week: sensitivity: 81 percent; specificity: 88 percent

Information from references 1,2,4,6,7,11,17, and 23 through 27.

Management!

Management

Symptomatic	★ Advise analgesia and antipyretics (e.g. paracetamol and/or ibuprofen) ★ NSAIDs (be aware of **GI** and **renal** side effects, **aspirin** should be avoided in **children**)
Antibiotic	★ First-line treatment for GABHS pharyngitis includes a 10-day course of penicillin or amoxicillin. ★ Patients allergic to penicillin can be treated with first-gen cephalosporins (for eg cephalexin) for 10 days, clindamycin or clarithromycin for 10 days, or azithromycin for 5 days antibiotics. ★ Antibiotics give a modest benefit in **symptom relief** (8h less symptoms) and may confer slight **protection against some complications** (e.g. quinsy = peritonsillar abscess, otitis media)

Antibiotics Role..

In a meta-analysis of 14 randomized trials comparing penicillin with placebo in over 8000 adults and children with sore throat, **penicillin decreased the risk of rheumatic fever by about two-thirds.**

Antibiotics probably **prevent poststreptococcal glomerulonephritis** based on a meta-analysis of 10 randomized trials comparing antibiotics with placebo in adults and children with sore throat.

Reasons To Give Antibiotics Immediately:

- ★ Acute sore throat where **more than 4 centor criteria** are present.
- ★ Patient is **systemically** very unwell.
- ★ Symptoms and signs suggestive of serious illness and/or complications (e.g. peritonsillar abscess, peritonsillar cellulitis)
- ★ High risk of serious complications because of **pre-existing comorbidity** (e.g. significant heart, lung, renal, liver, or neuromuscular disease, immunosuppression, cystic fibrosis, and young children born prematurely)

Pharyngitis Complications!

Pharyngitis Complications:

- ★ **Quinsy (peritonsillar abscess):**
  - *Signs:* unilateral peritonsillar swelling, difficulty swallowing (even saliva), and trismus (difficulty opening jaw).
  - Rx: refer for IV antibiotics + incision and drainage
- ★ **Retropharyngeal abscess:** Occurs in children
  - *Signs:* inability to swallow, fever.
  - Rx: for IV antibiotics + incision and drainage
- ★ **Rheumatic fever:**
  - **60%** develop chronic rheumatic heart disease (**70%** mitral valve) Likelihood correlates with severity of initial disease
  - Recurrence may occur after further streptococcal infection or be precipitated by pregnancy or combined hormonal contraception
- ★ **Scarlet fever (occurs at the same time with pharyngitis).**
- ★ **Acute glomerulonephritis.**

Prevention & General Considerations

Prevention:

- ★ Try to avoid close contact with sick people.
- ★ If you are sick with flu-like illness, CDC recommends that you stay home for **at least 24 hours** after your fever is gone.
- ★ Cover your nose and mouth with a tissue when you cough or sneeze. Throw the tissue in the trash after you use it.
- ★ Wash your hands often with soap and water. If soap and water are not available, use an alcohol-based hand rub.
- ★ Avoid touching eyes, nose and mouth.
- ★ Clean and disinfect surfaces and objects that may be contaminated with germs.

General Considerations..

Chronic GABHS Carrieres..

It is recommended that GAS carriers **do not** ordinarily justify efforts to identify them nor do they generally require antimicrobial therapy because GAS carriers are **unlikely to spread** GAS pharyngitis to their close contacts and are at **little or no risk** for developing suppurative or non-suppurative complications (e.g. acute rheumatic fever)

Contact with GABHS Pharyngitis..

Diagnostic testing or empiric treatment of asymptomatic household contacts of patients with acute streptococcal pharyngitis is **not** routinely recommended,

A 13-year-old adolescent boy presents with fever and sore throat for the last 2 days. His vital signs was: temperature 38°C puls: 120 beats /min. upon physical examination there was tender, enlarged left cervical lymphadenopathy. His pharynx is erythematous but without tonsillar enlargement or exudate. He had no cough. **What is the best step in management?**

A. Treat empirically with antibiotic.
B. Order rapid strep test and, if positive, treat with antibiotics.
C. Neither further testing nor antibiotics.
D. Order throat culture and, if positive, treat with antibiotics.

4) Otitis media

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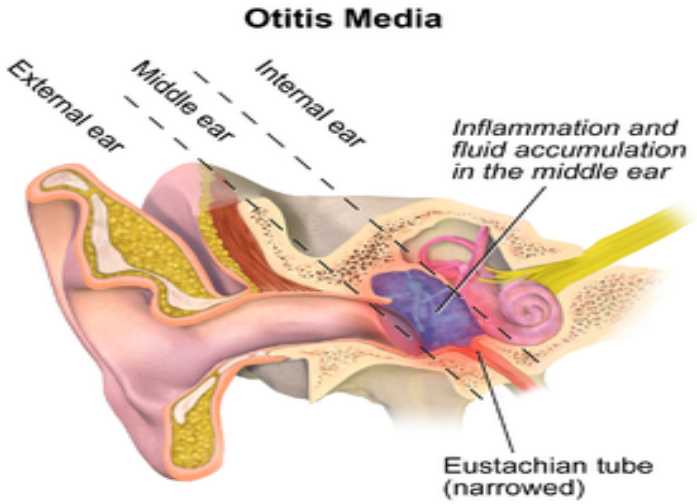
Definition & Etiology:

★ **Acute infection** of the mucous membrane lining of the middle ear cleft.

Etiology: Usually, AOM is a complication of eustachian tube dysfunction that occurred during an acute viral upper respiratory tract infection. Bacteria can be isolated from middle ear fluid cultures in 50% to 90% of cases of AOM and OME.



Causes:

- **Eustachian tube dysfunction/obstruction/abnormality:**
  - Swelling of tubal mucosa (e.g. URTI)
  - obstruction/infiltration of Eustachian tube ostium.
  - Inadequate tensor palati function: cleft palate (even after repair)
  - Abnormal Eustachian tube

- **Disruption of action of:**
  - Cilia of Eustachian tube (Kartagener's syndrome)
  - Mucus secreting cells
  - Capillary network that provides humoral factors, PMNs, phagocytic cell

- **Immunosuppression/deficiency due to:**
  - Chemotherapy, steroids, DM, hypogammaglobulinemia, cystic fibrosis.

Risk factors:

Pediatrics:

- Age (**younger**)
- No breastfeeding (supine Bottle feeding)
- Pacifier use
- Gastroesophageal reflux (GERD)
- Attending **day care** group

All age groups:

- Allergies
- Craniofacial abnormalities
- Exposure to environmental **smoke** or other respiratory irritants
- Family **history of recurrent** acute otitis media
- Immunodeficiency
- Upper respiratory tract infections (**URTI**)

Common causative organism:

Bacterial: (SMH)

- **Streptococcus pneumonia**
- **Haemophilus influenzae**
- **Moraxella catarrhalis**

Viral:

- Rhinovirus
- Parainfluenza virus
- Influenza virus

* **H. influenzae** has become the **most prevalent organism among children** with severe or refractory AOM following the introduction of the pneumococcal conjugate vaccine.

Signs & Symptoms:

- **Otalgia**
- Fever (especially in younger children)
- **Headache**
- **Deafness**
- **Irritability**
- Otorrhea
- Vomiting
- Loss of appetite

Examination:

Otoscopy of Tympanic membrane :

- **Bulging**.
- **Impaired mobility**. (assessed by pneumatic otoscopy)
- **Redness** or **cloudiness**.

Otoscopic view of acute otitis media. Erythema and bulging of the tympanic membrane with loss of normal landmarks are noted.

Diagnosis:

Criteria for diagnosis:

- Moderate to severe bulging of the tympanic membrane.
- New onset of otorrhea not caused by otitis externa.
- Mild bulging of the tympanic membrane associated with recent onset of ear pain (less than 48 hours) or erythema.

Management:

Antipyretics/analgesics (e.g. paracetamol and/or ibuprofen)

Observation VS Antibiotic therapy
When do we give ABx??!

Children 6 months or older with otorrhea or severe signs or symptoms	Children 6 to 23 months of age with bilateral acute otitis media without severe signs or symptoms	Children 6 to 23 months of age with unilateral acute otitis media without severe signs or symptoms	Children 2 years or older without severe signs or symptoms
ABx for 10 days	**ABx** for 10 days	Observation **or** **ABx** for 10 days	observation **or** ABx for 5 - 7 days

Severe signs or symptoms?

- Moderate or severe otalgia.
- Otalgia for at least 48 hours.
- Temperature of 102.2°F [39°C] or higher.

Management:

If symptoms persist 48-72 hours after initiating therapy?
Re-examination: If a bulging, inflamed tympanic membrane is observed, therapy should **be changed to a 2nd line agent.**

Antibiotics Treatment	
1st line	High-dose Amoxicillin (80-90 mg/kg/d into two doses). For patients who are allergic to penicillin →Oral cephalosporins, such as cefuroxime (Ceftin)
2nd line	For patients initially on amoxicillin → Amoxicillin/clavulanate For patients initially on oral cephalosporin → intramuscular ceftriaxone, clindamycin, or tympanocentesis may be considered.

* A common side effect to antibiotic treatment of OM is **diarrhea**.

Complications:

Inter-temporal Complications:

- Hearing loss & Language delay
- **Mastoiditis** (most common & serious)
- Facial Nerve Paralysis
- Labyrinthitis
- Labyrinthine fistula

Intra-cranial Complications:

- Extradural Abscess
- Subdural Abscess
- Meningitis
- Sigmoid Sinus Thrombosis
- Brain Abscess

Prevention:

- Parent education about risk factors.
- Eliminate bottle propping and pacifiers. (sucking on a pacifier increases the reflux of nasopharyngeal secretions into the middle ear)
- Eliminate exposure to passive smoke.
- Pneumococcal and influenza vaccine.
- Check for allergies.

Which of the following is the most sensitive physical finding for otitis media?

A. Redness.
B. Immobility.
C. Bulging.
D. Decreased light reflex.
E. Decreased hearing.

A 4 year-old boy brought to the PHC by his mother as chief complaint of sudden onset of **deafness** in his right ear, his mother mention a history of **fever** and **otalgia** for the last week, which has been resolved. **Upon otoscopy examination, what do you expect to see:**

A. Bulging of tympanic membrane
B. Ruptured tympanic membrane
C. Swollen and reddened tympanic membrane
D. Retraction of tympanic membrane

5) Allergic Rhinitis

- Definition & classification
- Assessment of severity & triggers
- Allergy testing
- Allergic rhinitis treatment

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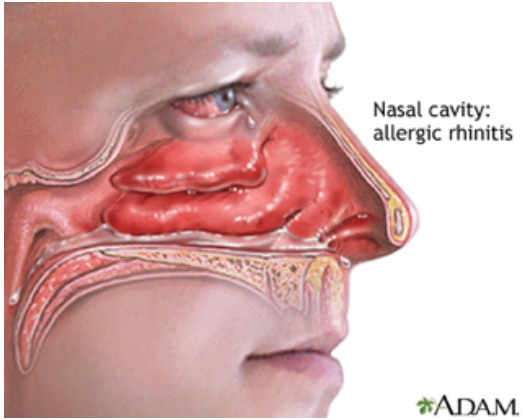
Definition

Is a type of rhinitis, which is an inflammation of the **nasal mucosa**, mediated by an IgE-associated response to ubiquitous indoor and/or outdoor environmental allergens.

characterized by:

- Nasal pruritus
- Sneezing
- Rhinorrhoea± Nasal congestion



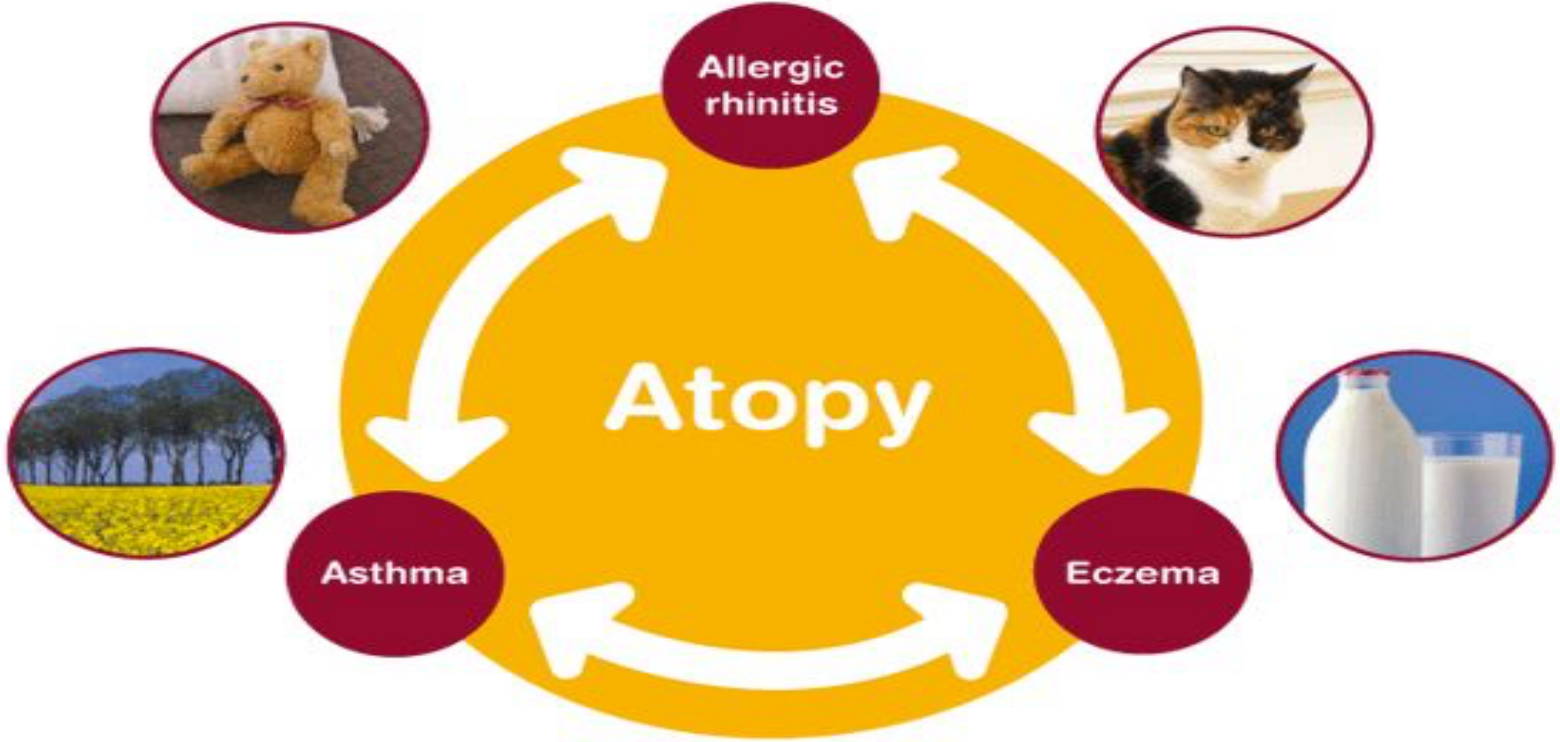
Clinical signs:

1. **Allergic Salute:** The use of the hand palm to rub and raise the tip of the nose
2. **Nasal Crease:** results from a chronic upward rubbing of the nose
3. **Allergic shiners:** are dark circles under the eyes, caused by venous stasis due to nasal congestion

* Ultimately, prolonged symptoms could lead to facial distortion

The Allergic Triangle

People who have one atopic condition are more likely to develop another atopic condition and the trigger factors for each may be the same



Classification:

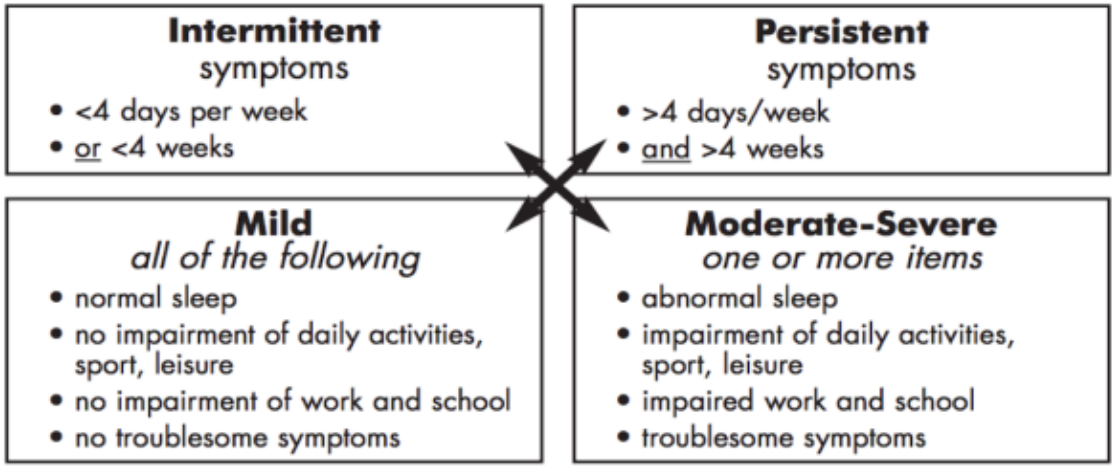
1. **Based on the temporal pattern:**
    a. Seasonal (e.g. cyclic pollens)
    b. Perennial [all year] (e.g. dust mite)

2. **Based on frequency:**
    a. Persistent (>4 days/week and >4 weeks)
    b. Intermittent (<4 days/week or <4wk at a time)

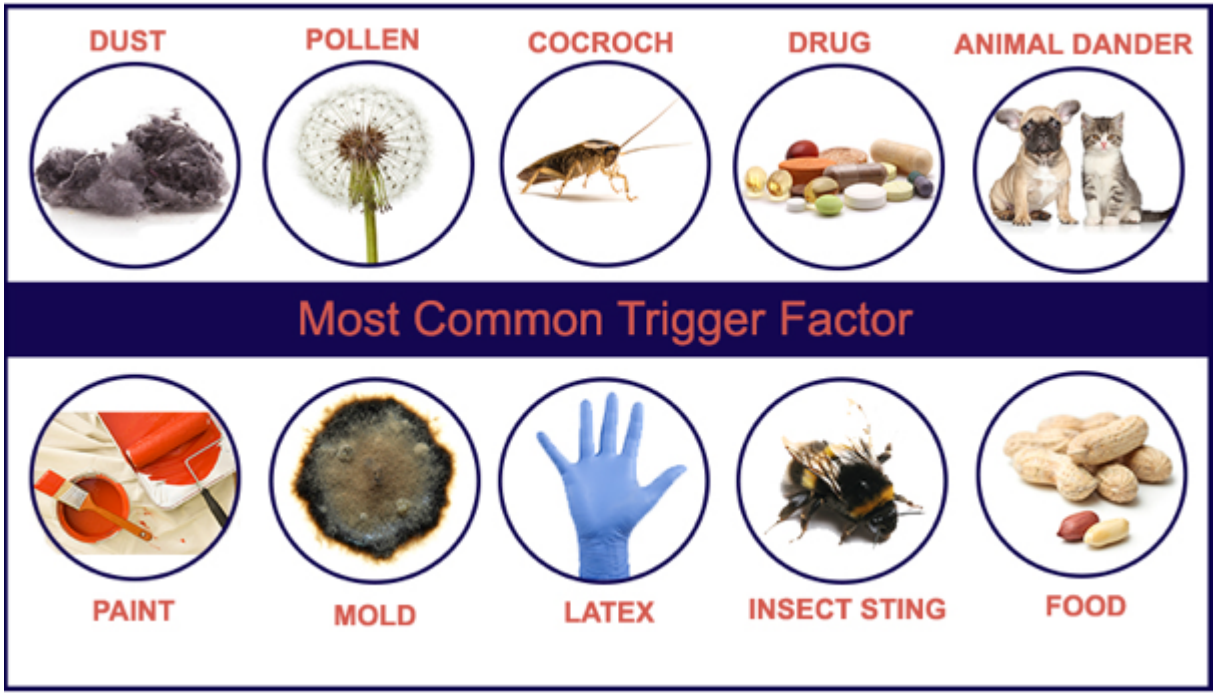
3. **Based on Severity:**
    a. Mild
    b. Moderate
    c. Severe

ARIA severity Classification:

4 categories:(Mildintermittent, Mildpersistent,
Moderate-Severeintermittent,Moderate-Severepersistent)



Triggers:


DUST
POLLEN
COCROCH
DRUG
ANIMAL DANDER
Most Common Trigger Factor
PAINT
MOLD
LATEX
INSECT STING
FOOD

Allergy testing:

When?

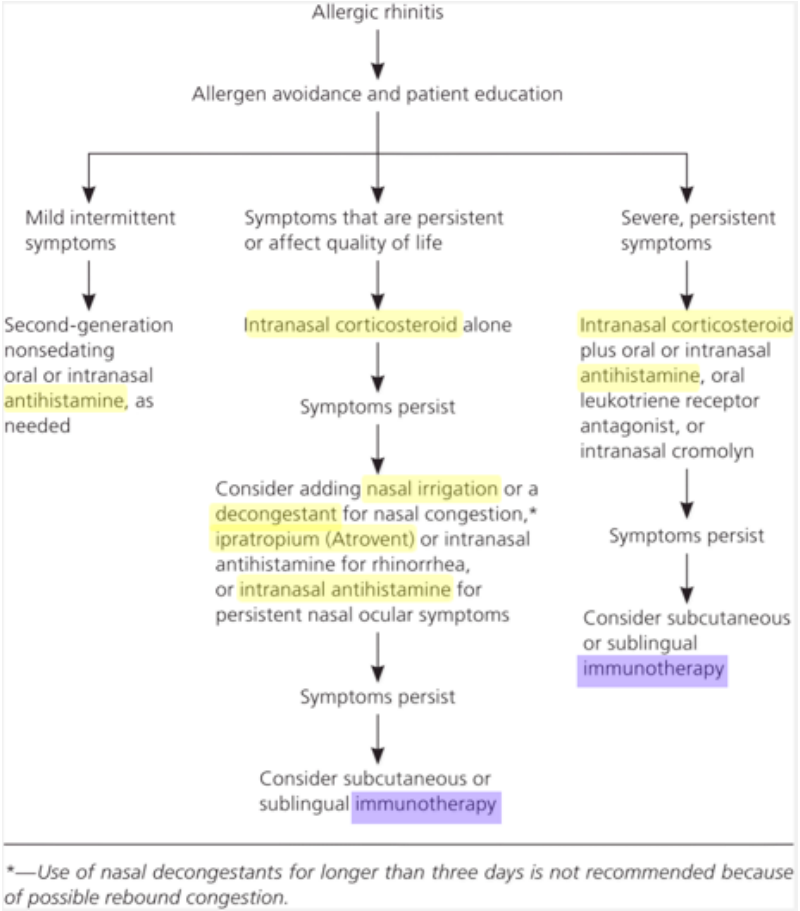
1. treatment is ineffective.
2. A diagnosis of allergic rhinitis is uncertain.
3. identification of a certain allergen could affect therapy, or to aid in titration of therapy.
4. Coexisting persistent asthma and/or recurrent sinusitis/otitis media.
5. patient's desire to try to avoid the allergen rather than take medications to control symptoms.

Intradermal Skin Tests

AR treatment:

1. **Allergen avoidance**
   Is a major principle and first-line therapy for AR.

1. **Immunotherapy:**
   Only treatment that changes the natural course of allergic rhinitis (acts directly on the cause rather than symptoms)



A pt. Come to the PHC complaining of runny nose and itchiness. You were attending that clinic and the doctor ask you "**Which conditions are associated with allergic rhinitis**":

A. Asthma
B. Allergic dermatitis
C. Allergic conjunctivitis
D. All of the above

CASE DISCUSSION / ROLE PLAY

Case!

A 19 y/o female comes to your clinic complaining of pain in her left ear that started 2 days ago.

How will you approach her?

History:

➔ SOCRATE

➔ Rule out other DDx:

- Acute laryngitis: fever, cough, dysphonia or a hoarse voice.
- chronic sinusitis: Nasal obstruction,congestion, Chronic unproductive cough.
- Temporal Bone Fractures: recent trauma.
- Malignancies: constitutional symptoms

Physical examination:

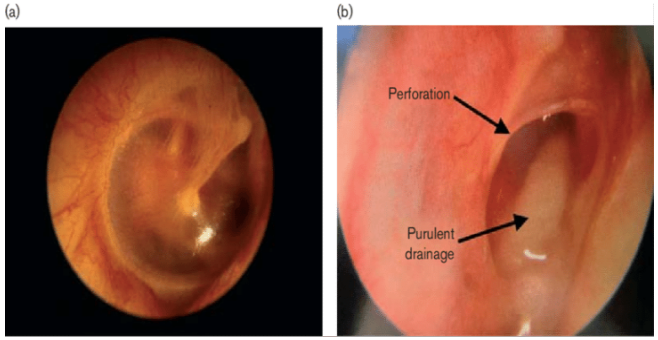
- ➔ Vital signs.
- ➔ Otoscope.
- ➔ Complete ENT examination.

Summery:

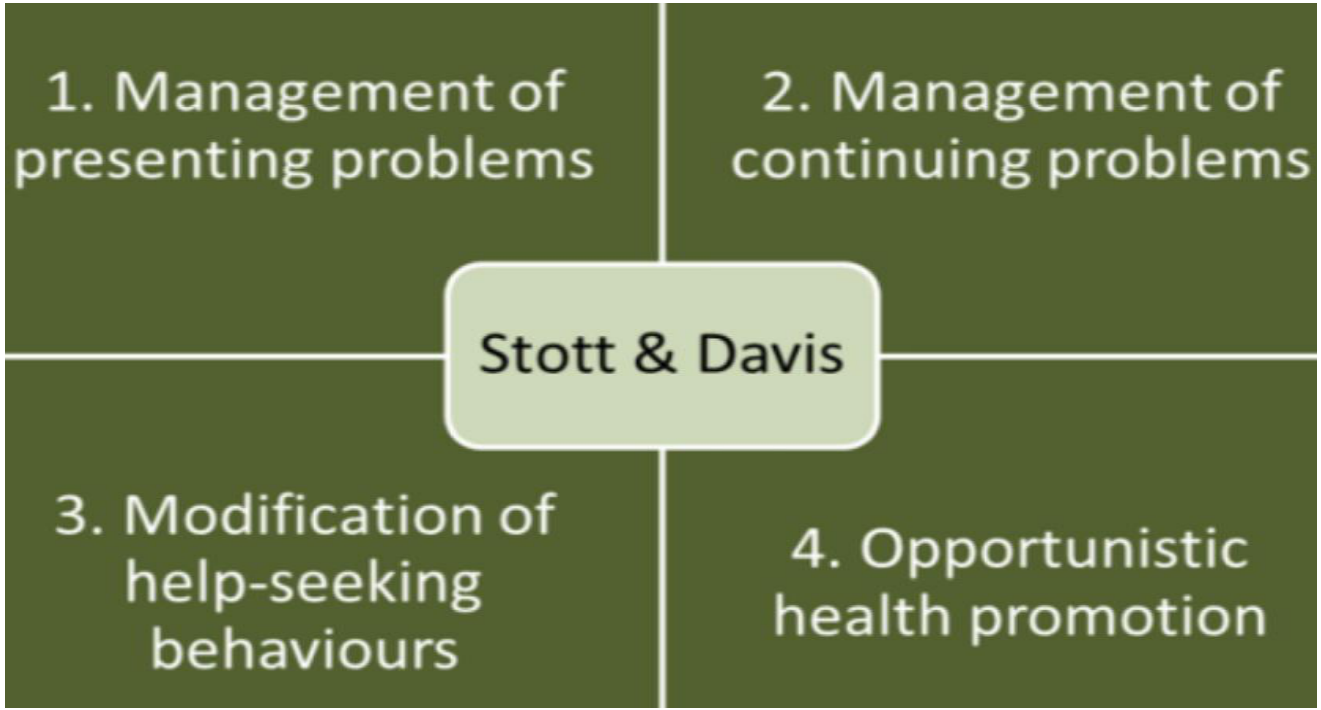
A 19 y/o female comes to your clinic complaining of pain in her left ear that started 2 days ago. The patient had no history of cough or hoarseness in her voice, no nasal obstruction or congestion or constitutional symptoms.

- ➔ Vital signs: Temperature was 38.3℃.
- ➔ Otoscope: shows fluid coming out from the ear, erythematous eardrum and bulging tympanic membrane.
- ➔ Neck ex: non tender lymph nodes.

How you will manage her?



Model of consultation:



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THANK YOU
Any Questions?