

Pharyngitis

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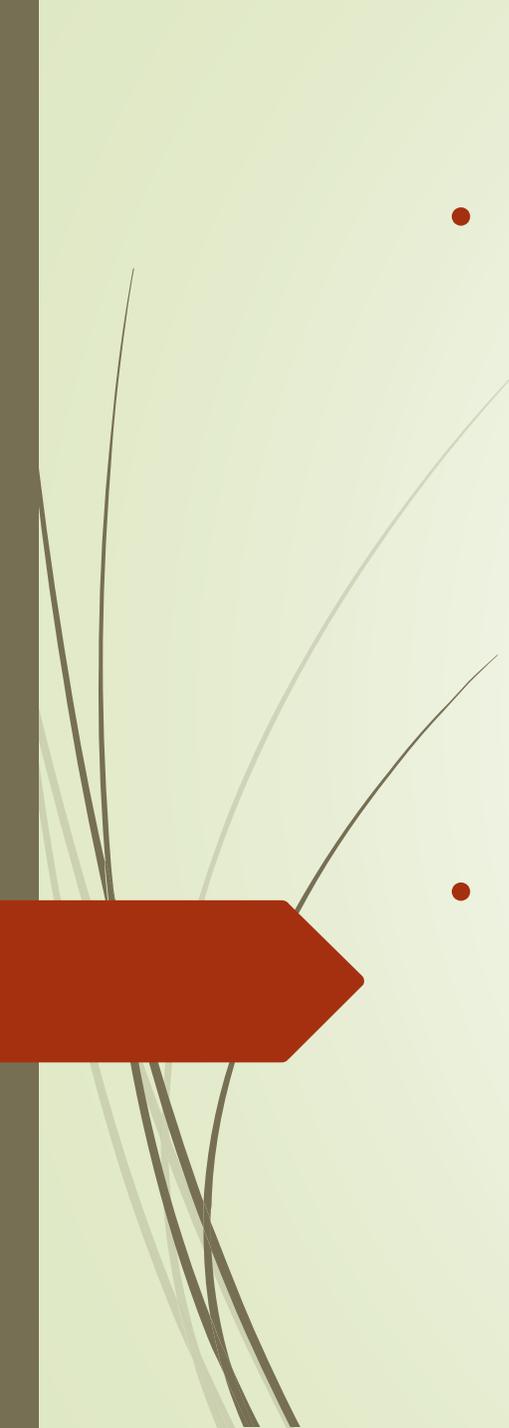
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- The differential diagnosis of acute pharyngitis includes multiple viral and bacterial pathogens.
 - Viruses are the most common cause of pharyngitis in all age groups.
 - Experts estimate that group A strep, the most common bacterial cause, causes 20% to 30% of pharyngitis episodes in children.
 - In comparison, experts estimate it causes approximately 5% to 15% of pharyngitis infections in adults.

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- Patients with pharyngitis caused by respiratory viruses usually have other signs and symptoms of upper respiratory tract infection, such as:
 - fatigue, nasal congestion, and cough. Coryza, conjunctivitis, sneezing, hoarseness, ear pain, sinus discomfort, oral ulcers, and a viral exanthem are additional features.
 - Fever is typically low grade except in patients with influenza. Cervical lymphadenopathy may be present but is generally not prominent.

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- Classic signs and symptoms of GAS pharyngitis include:
 - acute-onset sore throat, fever, pharyngeal edema, patchy tonsillar exudates, and prominent, tender, anterior cervical lymphadenopathy.
 - Other features that support the diagnosis include palatal petechiae, a scarlatiniform rash and a strawberry tongue .
 - Occurrence in a younger adult and exposure to others with GAS pharyngitis also make the diagnosis more likely.



Because clinical features of GAS pharyngitis broadly overlap with pharyngitis caused by viruses and other pathogens, empiric treatment for GAS without microbiologic confirmation is generally not recommended.

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- The great majority of patients who have presumed viral pharyngitis or who test negative for group A Streptococcus (GAS) pharyngitis recover fully within five to seven days without specific treatment. For these patients, symptom relief is the mainstay of care.
 - Patients with GAS pharyngitis usually recover sooner, often within 24 to 72 hours of starting antibiotics.

CRITERIA	POINTS	
Temperature >38°C	1	
Absence of cough	1	
Swollen, tender anterior cervical nodes	1	
Tonsillar swelling or exudate	1	
Age		
3–14 yr	1	
15–44 yr	0	
45 yr or older	-1	
SCORE	RISK OF STREPTOCOCCAL INFECTION	SUGGESTED MANAGEMENT
≤0	1%–2.5%	No further testing or antibiotic
1	5%–10%	
2	11%–17%	Culture all: antibiotics only for positive culture results
3	28%–35%	
≥4	51%–53%	Treat empirically with antibiotics and/or culture

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- Ibuprofen 200 to 400 mg decreases acute sore throat pain by 32 to 80 percent at two to four hours .
 - Several randomized trials in different countries among patients with acute pharyngitis have shown that ibuprofen produces a significantly greater reduction in sore throat pain compared with acetaminophen.

DRUG	DOSE	DURATION
Oral Regimens		
Penicillin V	Children: 250 mg bid or tid Adolescents and adults: 250 mg tid or qid or 500 mg bid	10 days
Amoxicillin	50 mg/kg once daily (maximum 1000 mg) Alternative: 25 mg/kg bid (maximum 500 mg)	10 days
For Penicillin-Allergic Patients		
Erythromycin	Varies with formulation	10 days
First-generation cephalosporins	Varies with agent	10 days
Intramuscular Regimens		
Benzathine penicillin G	600,000 units for patients <27 kg	1 dose
	1.2 million units for patients ≥27 kg	1 dose
Mixtures of benzathine and procaine penicillin G	Varies with formulation	1 dose

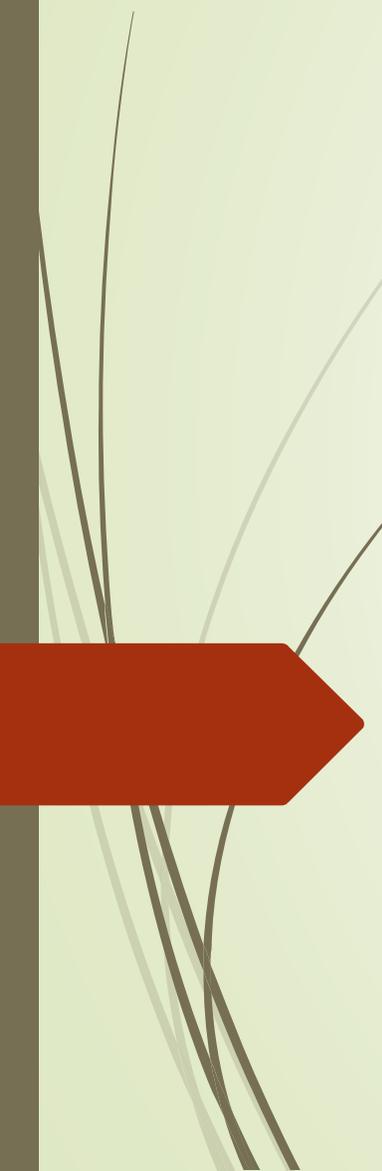
Otitis



External otitis

Infections of the external canal may be subdivided into four categories:

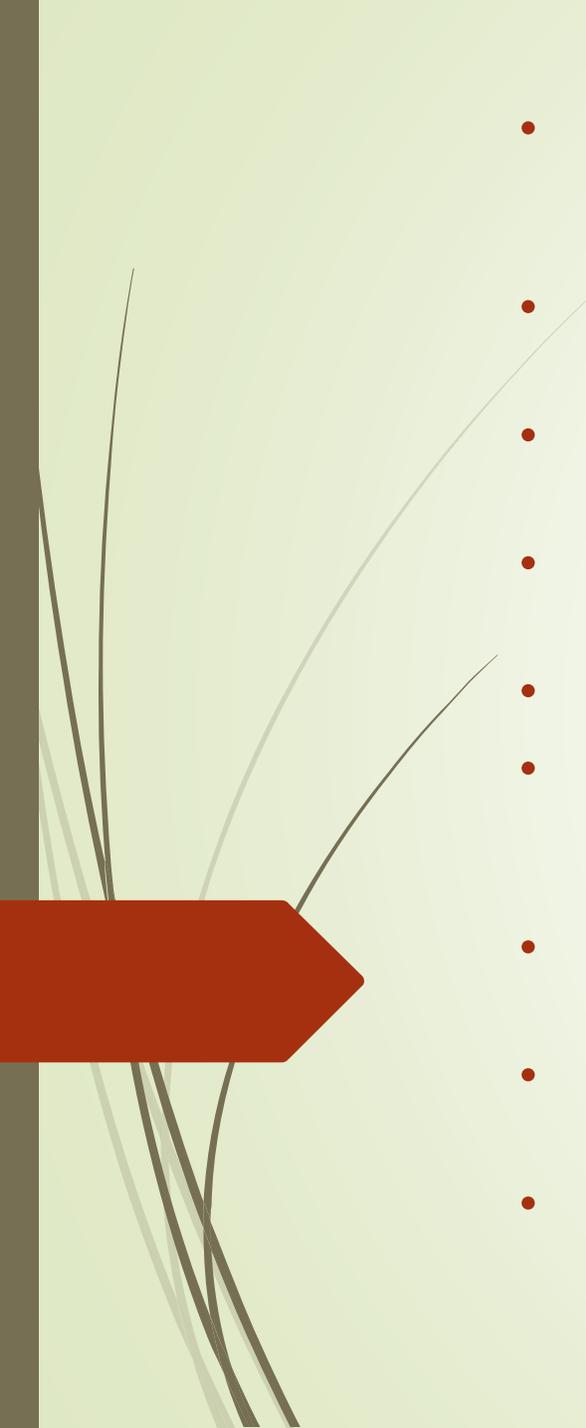
- acute localized otitis externa
- acute diffuse otitis externa
- chronic otitis externa
- and malignant otitis externa

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- Acute localized otitis externa may occur as a pustule or furuncle associated with hair follicles; the external ear canal is erythematous, edematous, and may be filled with pus and flakes of skin debris.
 - *S. aureus* is the most frequent pathogen.
 - Local heat and systemic antibiotics are usually curative. Incision and drainage may be necessary to relieve severe pain.

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- Acute diffuse otitis externa (swimmer's ear) occurs mainly in hot humid weather.
 - The ear itches and becomes increasingly painful.
 - The skin of the canal is edematous and red.
 - Gram-negative bacilli, mainly *P. aeruginosa* , may play a significant role.
 - Gentle cleansing to remove debris, including irrigation with warm tap water should reduce symptoms.

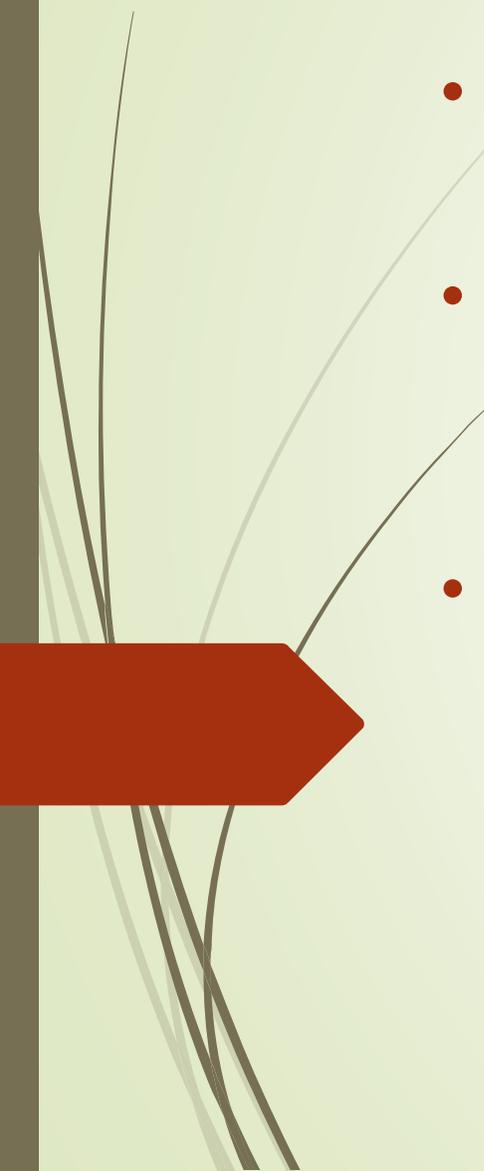
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- Gentle cleansing to remove debris, including irrigation with warm tap water should reduce symptoms
 - alternatively, hypertonic saline (3%) and cleansing with mixtures of alcohol (70% to 95%) and acetic acid may be used.
 - A 10-day regimen of a fluoroquinolone otic solution, such as ofloxacin or ciprofloxacin-dexamethasone otic or eardrops of neomycin alone or with polymyxin combined with hydrocortisone, are effective in reducing local inflammation and infection.

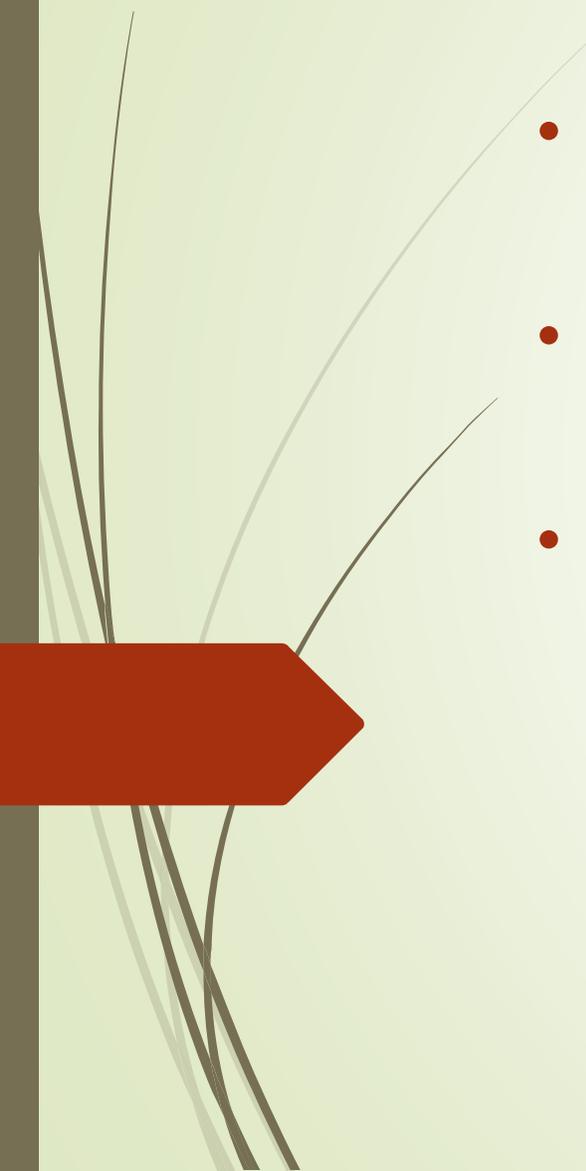
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- Chronic otitis externa is caused by irritation from drainage through a perforated tympanic membrane.
 - The underlying cause is chronic suppurative otitis media.
 - Itching may be severe.
 - Management is directed to treatment of the middle ear disorder.
 - Rare causes of chronic otitis externa include tuberculosis, syphilis, yaws, leprosy, and sarcoidosis.

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- Invasive (“malignant”) otitis externa is a severe, necrotizing infection that spreads from the squamous epithelium of the ear canal to adjacent areas of soft tissue, blood vessels, cartilage, and bone.
 - Severe pain and tenderness of the tissues around the ear and mastoid are accompanied by the drainage of pus from the canal.
 - Older, diabetic, immunocompromised, and debilitated patients are at particular risk.
 - Permanent facial paralysis is frequent, and cranial nerves 9, 10, and 12 may also be affected.
 - *P. aeruginosa* is almost always the causative agent.
 - The canal should be cleansed, devitalized tissue removed, and eardrops with antipseudomonal antibiotics combined with steroid instilled into the external auditory canal.
 - Systemic therapy with regimens including activity for *Pseudomonas* spp. should be used for 4 to 6 weeks.
 - The combination of ceftazidime, cefepime, or piperacillin with an aminoglycoside should be considered.
 - Oral quinolones with activity against *Pseudomonas* spp., such as ciprofloxacin, have been effective therapy early in the course of invasive external otitis.

Acute otitis media

- Acute otitis media (AOM) is defined as an acute illness marked by the presence of middle ear fluid and inflammation of the mucosa that lines the middle ear space.
- Otitis media with effusion (OME) is defined by the presence of middle ear fluid without acute signs of illness or inflammation of the middle ear mucosa. It usually follows AOM but may also occur as a result of barotrauma or allergy.

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- The peak incidence occurs in the first 3 years of life.
 - The disease is less common in the school-aged child, adolescents, and adults.
 - Nevertheless, infection of the middle ear may be the cause of fever, significant pain, and impaired hearing in all age groups.
 - In addition, adults suffer from the sequelae of otitis media of childhood: hearing loss, cholesteatoma, adhesive otitis media, and chronic perforation of the tympanic membrane.

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- The preferred antimicrobial agent for the patient with AOM must be active against:
 - *S. pneumoniae*, *H. influenzae* , and *M. catarrhalis*.
 - Group A streptococci and *S. aureus* are infrequent causes of AOM and need not be considered in initial therapeutic decisions.

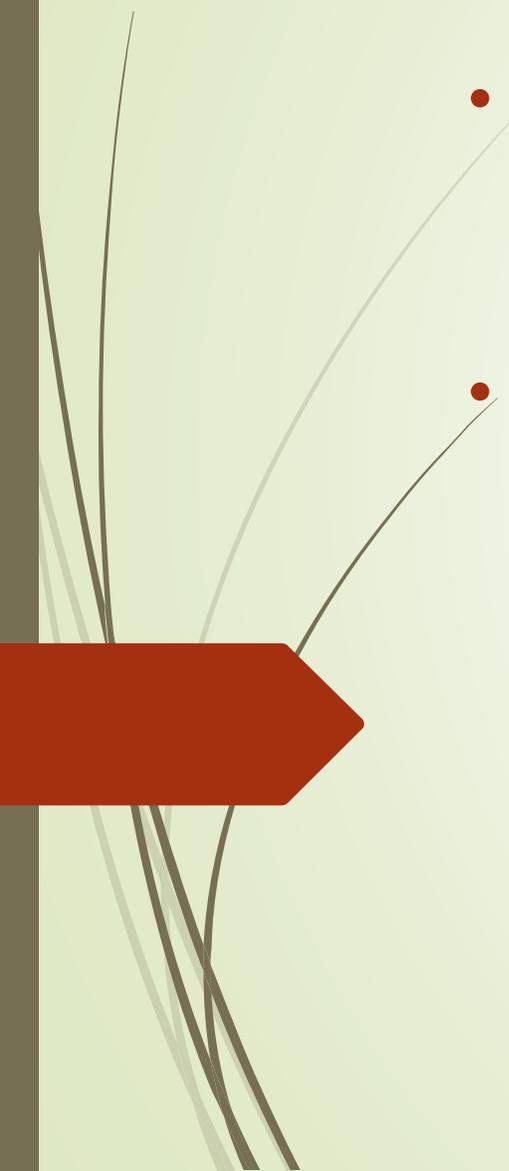
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- There are now 19 antimicrobial agents approved by the U.S. Food and Drug Administration (FDA) for AOM.
 - Amoxicillin remains the drug of choice for initial treatment because of its 25-year record of clinical success, acceptability, limited side effects, and relatively low cost.
 - The drug is ineffective against β -lactamase-producing strains of *H. influenzae* and *M. catarrhalis*.
 - The current incidence of amoxicillin-resistant *H. influenzae* and *M. catarrhalis* is not high enough to require a change in the initial therapy.

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- The recent recommendation of increasing the dosage of amoxicillin to 90 mg/kg/day achieves higher concentrations in middle ear fluid and further reduces the number of children in whom amoxicillin therapy will fail because of resistant pneumococci.

Alternatives to amoxicillin include :

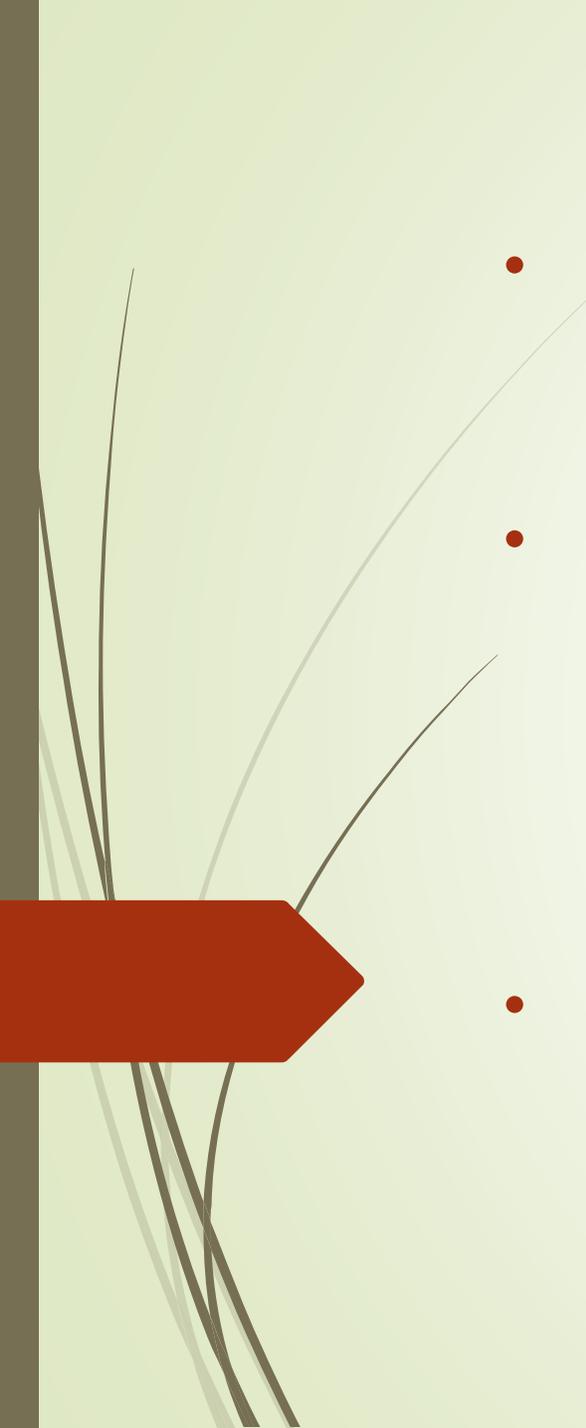
- amoxicillin-clavulanate
- three sulfa-containing or trimethoprim-containing preparations (erythromycin plus sulfisoxazole, trimethoprim, and trimethoprim-sulfamethoxazole)
- two macrolides (azithromycin and clarithromycin)
- nine oral cephalosporins (cephalexin, cefaclor, cefixime, ceftibuten, cefprozil, cefpodoxime, cefuroxime axetil, loracarbef, and cefdinir)
- one parenteral cephalosporin (ceftriaxone)
- Two topical fluoroquinolones, ofloxacin and ciprofloxacin-dexamethasone otic, are effective in children who have tympanostomy tubes and suffer acute otorrhea.

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- AOM may be painful due to pressure of the expanding abscess on the tympanic membrane.
 - If pain is present, analgesic treatment should be considered.
 - Acetaminophen or ibuprofen is effective analgesia for mild to moderate pain.
 - Narcotic analgesia with codeine or its analogues is effective for severe pain.
 - Incision and drainage of the middle ear abscess by means of tympanostomy or myringotomy usually requires otolaryngologic support but provides immediate relief.

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- Nasal and oral decongestants, administered alone or in combination with an antihistamine, are used extensively for the treatment of OME.
 - The use of these drugs is based on the consideration that they reduce congestion of the respiratory mucosa and relieve the obstruction of the eustachian tube.

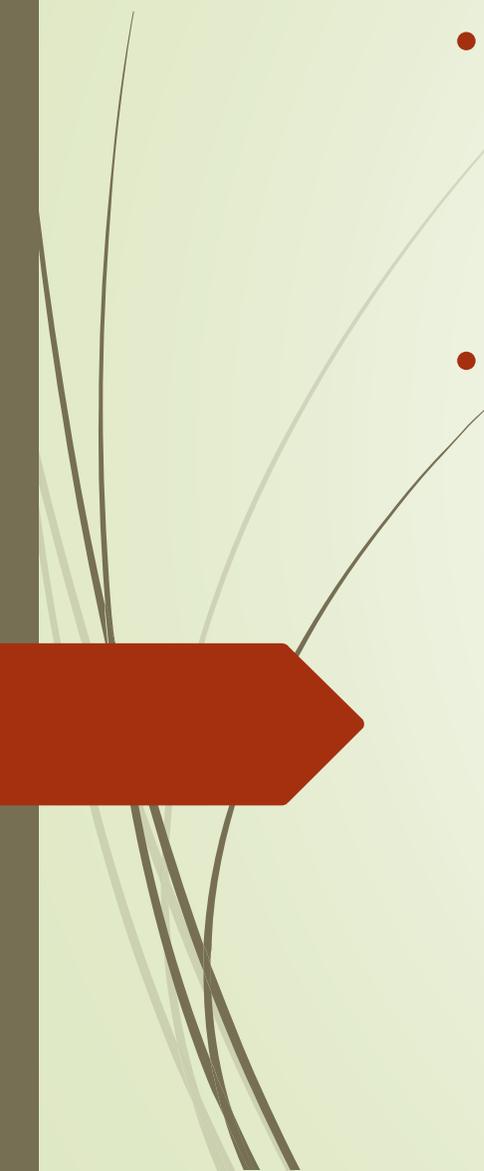
Acute mastoiditis

- septic thrombosis of the late Acute mastoiditis is usually accompanied by acute infection in the middle ear.
- During early stages, the signs are those of AOM with hearing loss, otalgia, and fever.
- Subsequently, swelling, redness, and tenderness are present over the mastoid bone.
- The pinna is displaced outward and downward. A purulent discharge may emerge through a perforation in the tympanic membrane.

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- The antimicrobial drugs of choice for acute infection are similar to those for AOM—antibiotics with activity against *S. pneumoniae* and *H. influenzae*.
 - If the disease in the mastoid has had a prolonged course, coverage for *S. aureus* and gram-negative enteric bacilli may be considered for initial therapy until the results of cultures become available.
 - A mastoidectomy is performed when an abscess has formed in the mastoid bone. The procedure should be performed when antimicrobial agents have controlled sepsis.

Sinusitis

- The clinical presentation of acute community-acquired bacterial sinusitis falls into one of three predictable patterns:
- The first is that of persistent symptoms characterized by nasal discharge and/or cough that lasts more than 10 days without improvement.
- The second presentation is characterized by the onset of severe symptoms
- Worsening symptoms, referred to as “double sickening” in the Scandinavian literature, characterize the third presentation. These patients experience an initial improvement of symptoms of cough, nasal discharge, and congestion, but then worsen again within the first 10 days of illness

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- Most patients with a clinical diagnosis of acute rhinosinusitis improve without antibiotic therapy.
 - The preferred initial approach in patients with mild to moderate symptoms of short duration is therapy aimed at symptom relief and facilitation of sinus drainage, such as with oral and topical decongestants, nasal saline lavage, and—at least in patients with a history of chronic sinusitis or allergies—nasal glucocorticoids.

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- Empirical antibiotic therapy for community-acquired sinusitis in adults should consist of the narrowest-spectrum agent active against the most common bacterial pathogens, including *S. pneumoniae* and *H. influenzae*.
 - For those patients who do not respond to initial antimicrobial therapy, sinus aspiration and/or lavage by an otolaryngologist should be considered.
 - Antibiotic prophylaxis to prevent episodes of recurrent acute bacterial sinusitis is not recommended.

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- For most adults and children amoxicillin with or without clavulanate remains an excellent first-line agent.
 - High-dose amoxicillin or amoxicillin-clavulanate should be used when the patient is at high risk for penicillin-nonsusceptible *S. pneumoniae*.
 - Alternative agents in adults include a respiratory fluoroquinolone, such as levofloxacin or moxifloxacin, or doxycycline.

Guidelines for the Diagnosis and Treatment of Acute Bacterial Sinusitis in Adults

Diagnostic Criteria	Treatment Recommendations ^a
<p>Moderate symptoms (e.g., nasal purulence/congestion or cough) for > 10 d or</p> <p>Severe symptoms of any duration, including unilateral/focal facial swelling or tooth pain</p>	<p><i>Initial therapy:</i></p> <p>Amoxicillin/clavulanate, 500/125 mg PO tid or 875/125 mg PO bid^b</p> <p><i>Penicillin allergy:</i></p> <p>Doxycycline, 100 mg PO bid; or</p> <p>An antipneumococcal fluoroquinolone (e.g., moxifloxacin, 400 mg/d PO daily)^c</p> <p><i>Exposure to antibiotics within 30 d or >30% prevalence of penicillin-resistant Streptococcus pneumoniae:</i></p> <p>Amoxicillin/clavulanate (extended release), 2000/125 mg PO bid; or</p> <p>Doxycycline, 100 mg PO bid; or</p> <p>An antipneumococcal fluoroquinolone (e.g., moxifloxacin, 400 mg PO daily)^c</p> <p><i>Recent treatment failure:</i></p> <p>Amoxicillin/clavulanate (extended release), 2000 mg PO bid; or</p> <p>An antipneumococcal fluoroquinolone (e.g., moxifloxacin, 400 mg PO daily)^c</p>

^aThe duration of therapy is 5–7 days if symptoms improve within the first few days of treatment but can be up to 7–10 days, with appropriate follow-up. Severe disease may warrant IV antibiotics and consideration of hospital admission. ^bIn areas where the prevalence of antibiotic resistance is low, amoxicillin can be considered as initial therapy in patients without recent antibiotic exposure. ^cFluoroquinolones carry a risk of tendinitis and neuropathy and should be used only if other options are not reasonable, with consideration of risks and benefits.

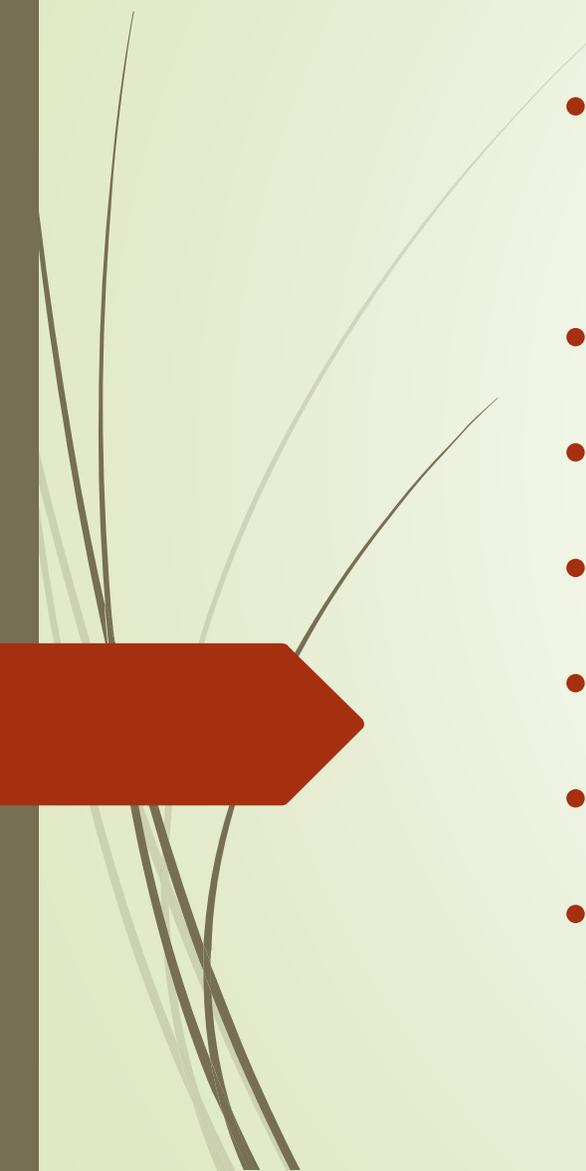
Oral Antimicrobial Agents for Acute Bacterial Sinusitis

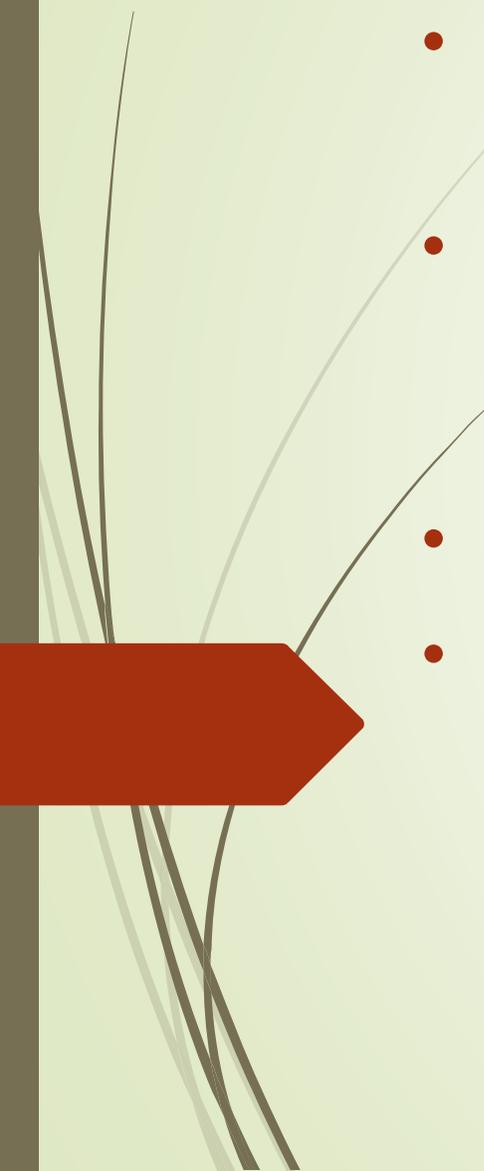
ANTIMICROBIAL	ADULT DOSAGE	PEDIATRIC DOSAGE
Amoxicillin	500–875 mg q12h	40–80 mg/kg/day divided q12h
Amoxicillin/clavulanate ^a	875 or 2000 mg 12h	40–80 mg/kg/day divided q12h
Cefpodoxime proxetil	200 mg 12h	10 mg/kg/day divided 12h
Cefixime ^b	400 mg q12–24h	8 mg/kg/day divided q12–24h
Cefdinir	300 mg q12h or 600 mg q24h	14 mg/kg/day divided 12–24h
Azithromycin ^c	500 mg daily for 3 days	10 mg/kg daily for 3 days
Clarithromycin ^c	500 mg q12h for 14 days 1000 mg daily for 14 days	15 mg/kg/day divided q12h
Levofloxacin	500 mg daily	16–20 mg/kg/day divided every 12h ^b
Moxifloxacin	400 mg daily	400 mg daily for adolescents ^b

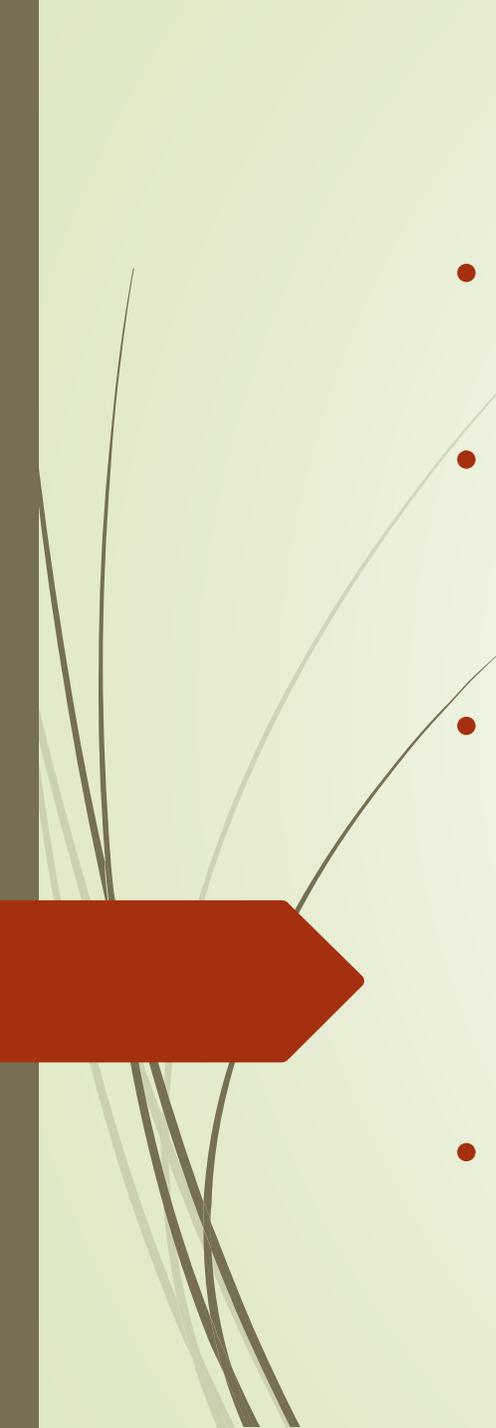
a Dosages specify amoxicillin component.

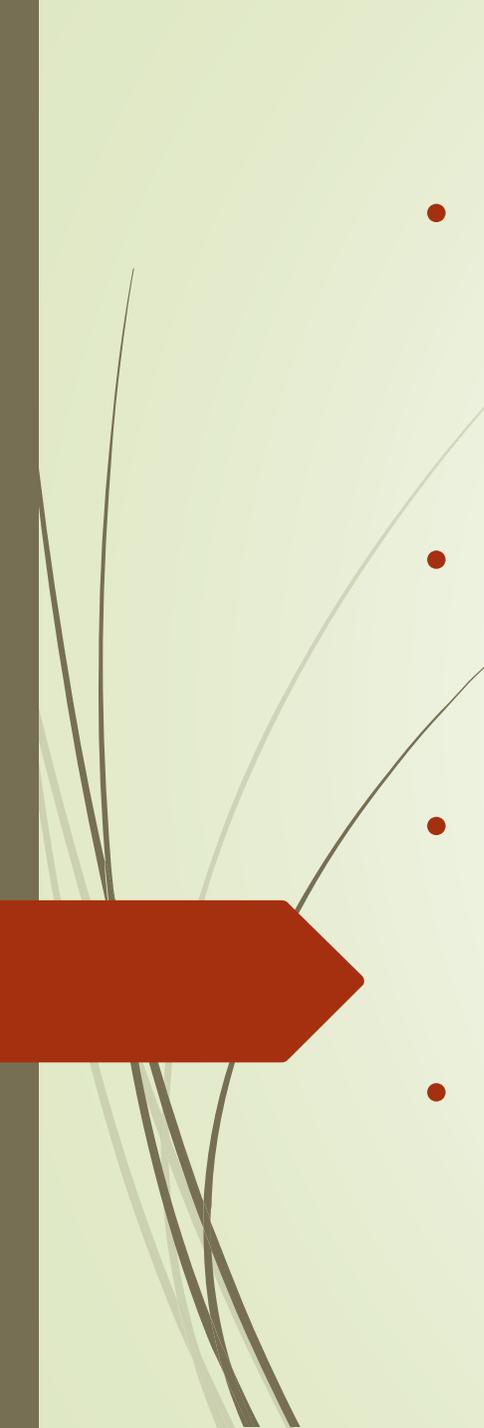
b Not US Food and Drug Administration approved for this indication.

c Macrolides not preferred because of poor activity against *Haemophilus influenzae*.

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- High risk:
 - $\geq 10\%$ nonsusceptible pneumococci,
 - severe infection,
 - attend day care,
 - age < 2 years or > 65 years,
 - recent hospitalization,
 - antibiotics in the past month.

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- The exact duration required for the treatment of sinusitis is unknown.
 - Recommendations based on clinical observations have varied widely, from 10 to 28 days of treatment.
 - A treatment course of 10 days is typical.
 - Some guidelines suggest that therapy be continued for 7 days after the patient becomes free of signs and symptoms.

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- Chronic sinusitis is characterized by symptoms of sinus inflammation lasting >12 weeks.
 - This illness is most commonly associated with either bacteria or fungi, and clinical cure in most cases is very difficult.
 - Many patients have undergone treatment with repeated courses of antibacterial agents and multiple sinus surgeries, increasing their risk of colonization with antibiotic-resistant pathogens and of surgical complications.
 - These patients often have high rates of morbidity, sometimes over many years.

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- Treatment of chronic bacterial sinusitis can be challenging and consists primarily of repeated culture-guided courses of antibiotics, sometimes for 3–4 weeks or longer at a time;
 - administration of intranasal glucocorticoids; and mechanical irrigation of the sinus with sterile saline solution.
 - When this management approach fails, sinus surgery may be indicated and sometimes provides significant, albeit short-term, alleviation.
 - Treatment of chronic fungal sinusitis consists of surgical removal of impacted mucus. Recurrence, unfortunately, is common.

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thank
you