Clinician efforts to prescribe appropriately and to educate young patients and their parents/caregivers about antibiotics continue to play a vital role in decreasing resistance levels. Parents/caregivers want their children to feel better soon but often do not understand that sore throat is usually caused by a virus, will not resolve with antibiotics, and that these medications have the potential to do more harm than good.

**Confirm a Strepthroat Cause of Pharyngitis BEFORE Prescribing Antibiotics.**

Typical symptoms and signs (pharyngeal or tonsillar swelling, erythema and exudate, fever, and lymphadenopathy) increase the probability of Strep pharyngitis but cannot confirm it. The signs and symptoms of streptococcal and non-streptococcal pharyngitis overlap too broadly for diagnosis to be made on clinical grounds alone. Laboratory confirmation of the diagnosis is necessary.

If rapid testing is negative, strongly consider throat culture for children, but wait to prescribe antibiotics until the culture is positive. (For situations where testing is not available or follow-up is difficult, clinical evidence-based strategies exist but do result in over-prescription.)

**Prescribe a Narrow-Spectrum Antibiotic for Strep Pharyngitis.**

- Penicillin PO or IM is still the drug of choice for strep pharyngitis.
- If the PO route is chosen, amoxicillin may be substituted for improved palatability.
- If a child with Strep pharyngitis is allergic to penicillin, use a cephalosporin, clindamycin, azithromycin or clarithromycin.

**Educate, Advise and Assist Patients and Parents/Caregivers.**

**Viral cause:** If rapid strep testing is positive, educate patients and parents/caregivers that the cause (pending possible cultures) is not Strep but one of many different viruses, and antibiotics are not necessary. Even with typical symptoms, fewer than 30% of children have strep pharyngitis. Inform parents and caregivers that, repeated, or recent strep infection or exposure to someone with strep may increase the chance, but does not adequately confirm a current strep infection.

**Value of testing/potential harm of antibiotics:** Advise patients and parents/caregivers that rapid tests are highly reliable and allow providers to avoid using unnecessary antibiotics and the associated possible harm (medication side effects and increasing personal and societal antimicrobial resistance).

**Symptom management:** Whether caused by a virus or Strep pharyngitis, is painful, and pain control is important for maintaining patient comfort and hydration. Assist parents/caregivers in identifying safe home remedies and appropriate over-the-counter (OTC) medications (e.g., analgesics and/or antipyretics) that may offer symptom relief. Consider prescribing stronger medications if current use of adequate amounts of OTC medications is not helpful.

**Signs of worsening:** Educate parents/patients/caregivers that rapid tests are highly reliable and allow providers to avoid using unnecessary antibiotics and the associated possible harm (medication side effects and increasing personal and societal antimicrobial resistance).

**Illness prevention:** Review illness prevention, including good hand and respiratory hygiene. Offer influenza vaccination to children 6 months to 18 years of age.

**CPT Codes for Group A Streptococcus Tests**

Appropriate coding of Group A Streptococcus tests directly affects measures of appropriate therapy for pediatric pharyngitis, including the HEDIS measure. Appropriate Testing for Children with Pharyngitis. To aid efforts to code accurately, CPT codes for Group A Streptococcus tests are provided below for office coders’ use.

- **Throat culture**
  - culture with isolation and identification of isolates (screening)
  - 87070, 87071, 87081
- **Throat culture, Streptococcus Group A**
  - direct probe technique
  - amplified probe technique
  - 87650, 87651, 87652, 87430
- **Rapid Group A Strep Test**
  - 87880

For more information or additional materials, visit www.aware.md.

**Supporting Organizations**

- Alameda Alliance for Health
- Anthem Blue Cross
- Blue Shield of California
- CareFirst Health Plan
- CenCal Health
- Health Net of California
- Health Plan of San Joaquin
- Inland Empire Health Plan
- Kaiser Permanente
- Kern Family Health Care
- L.A. Care Health Plan
- Molina Healthcare of California

**Endorsing Organizations**

- American Academy of Pediatrics
- California Academy of Nurse Practitioners
- California Academy of Family Physicians
- California Academy of Physician Assistants
- California Academy of Physicians
- California Pharmacists Association
- California Society of Health System Pharmacists
- Urgent Care Association of America
- Urgent Care College of Physicians
- CMA Foundation
- CenCal Health
- CareFirst Health Plan
- California Academy of Physician Assistants
- California Academy of Pediatricians
- California Academy of Family Physicians
- California Academy of Nurse Practitioners
- California Academy of Physicians
- California Pharmacists Association
- California Society of Health System Pharmacists
- Urgent Care Association of America
- Urgent Care College of Physicians
- Molina Healthcare of California

**Reference Articles**

**Otitis Media:**


**Acute Bacterial Sinusitis:**


**Pharyngitis:**


**Nonspecific Cough Illness/Bronchitis/Pertussis:**


**Bronchiolitis/Nonspecific URI:**


**For more information visit our website:**

www.aware.md

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## Acute Bacterial Sinusitis

**When to Treat with an Antibiotic:** Diagnosis of acute bacterial sinusitis may be made with symptoms of viral URI (nasal discharge or daytime cough not improved after 10 days or worse after 5-7 days). Diagnosis may include some or all of the following symptoms or signs: Nasal drainage, nasal congestion, facial pressure/pain (especially when unilateral and focused in the region of a particular sinus), postnasal discharge, anosmia, fever, cough, maxillary dental pain, ear pressure/fullness. Less frequent signs and symptoms include hyposmia and fatigue, in conjunction with some or all of the above.

**When NOT to Treat with an Antibiotic:** Otis Media with Effusion

**Pathogen**
- *Streptococcus pneumoniae*  
- Nontypeable *Haemophilus influenzae*  
- *Moraxella catarrhalis*

**Antibiotic Duration:** 7-10 days (5 days for azithromycin)

**Antibiotics**
- **1st Line:**  
  - High dose amoxicillin (80-90 mg/kg/day)
  - High dose amoxicillin/clavulanate (80-90 mg/kg/day of amoxicillin component)
- **Alternatives:**  
  - Non-anaphylactic penicillin allergy
  - Cefditoren, cefpodoxime, or cefuroxime

**Severe penicillin allergy**
- Azithromycin or clarithromycin

**Unable to tolerate oral antibiotic**
- Ceftriaxone

### Guidelines
- American Academy of Pediatrics (AAP)
- Centers for Disease Control and Prevention (CDC)
- American Academy of Family Physicians (AAFP)

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## Pharyngitis

**When to Treat with an Antibiotic:** Streptococcus pyogenes (Group A Strep) Symptoms and signs: sore throat, fever, headache, tonsillar pharyngeal erythema, exudates, palatal petechiae, tender enlarged anterior cervical lymph nodes. Confirm diagnosis with throat culture or rapid antigen detection.

**When NOT to Treat with an Antibiotic:** Nearly all cases of acute sinusitis resolve without antibiotic use should be reserved for moderate symptoms not improving after 10 days, or that are worsening after 5-7 days, and severe symptoms.

**Pathogen**
- *Streptococcus pyogenes*

**Antibiotic Duration:** Generally 10 days

**Antibiotics**
- **1st Line:**  
  - Penicillin V
  - Benzathine penicillin G
  - Benzolactam

**For ß-Lactam Allergy:**
- Trimethoprim-sulfamethoxazole
- Azithromycin, clarithromycin
- Clindamycin

**Guidelines**
- AAP, AAFP, CDC
- Infectious Diseases Society of America (IDSA)
- Institute for Clinical Systems Improvement (ICSI)

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## Nonspecific Cough Illness / Bronchitis / Pertussis

**When to Treat with an Antibiotic:** Presents with prolonged, unimproving cough (14 days). Clinically differentiate from pneumonia. If pertussis is suspected, appropriate laboratory diagnosis encouraged (culture, PCR). Pertussis should be reported to public health authorities. *Chlamydia pneumoniae* or *Mycoplasma pneumoniae* may occur in older children (unusual < 5 years of age).

<table>
<thead>
<tr>
<th>Illness</th>
<th>Indications for Antibiotic Treatment</th>
<th>Pathogen</th>
<th>Antimicrobial Therapy</th>
<th>Antibiotic</th>
<th>Guidelines Reviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-specific cough illness</td>
<td>&gt; 90% of cases caused by routine respiratory viruses.</td>
<td></td>
<td></td>
<td></td>
<td>AAP, AAFP, CDC</td>
</tr>
</tbody>
</table>

**Antibiotics not indicated.**
- Azithromycin, clarithromycin
- Tetracyclines for children > 8 years of age

**For ß-Lactam Allergy:**
- Azithromycin, clarithromycin
- Clindamycin

**Guidelines**
- AAP, AAFP, CDC
- Infectious Diseases Society of America (IDSA)
- Institute for Clinical Systems Improvement (ICSI)

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## Bronchiolitis / Non-specific URI

**When to Treat with an Antibiotic:** Sore throat, sneezing, mild cough, fever (generally < 102°F / 38.3°C, < 3 days), rhinorrhea, nasal congestion; self-limited (typically 5-14 days).

<table>
<thead>
<tr>
<th>Illness</th>
<th>Indications for Antibiotic Treatment</th>
<th>Pathogen</th>
<th>Antimicrobial Therapy</th>
<th>Antibiotic</th>
<th>Guidelines Reviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronchiolitis</td>
<td>&gt; 200 viruses, including rhinoviruses, coronaviruses, adenoviruses, respiratory syncytial virus, enteroviruses (coxsackieviruses and echoviruses), influenza viruses and parainfluenza viruses.</td>
<td></td>
<td></td>
<td></td>
<td>AAP, AAFP, CDC</td>
</tr>
</tbody>
</table>

**Antibiotics not indicated.**
- Azithromycin, clarithromycin
- Clindamycin
- Tetracyclines for children > 8 years of age

**For ß-Lactam Allergy:**
- Azithromycin, clarithromycin
- Clindamycin

**Guidelines**
- AAP, AAFP, CDC
- Infectious Diseases Society of America (IDSA)
- Institute for Clinical Systems Improvement (ICSI)

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## Otitis Media

**When to Treat with an Antibiotic:** Acute Otitis Media

**Indications for Antibiotic Treatment**
- Pathogen
- Antimicrobial Therapy
- Antibiotic Guidelines

### Positive Eustachian Tube Obstruction
- **When NOT to Treat with an Antibiotic:** Respiratory Viral Causes
  - When symptoms persist after 5-7 days, severe symptoms.

### Which Ear?
- **When NOT to Treat with an Antibiotic:** Otitis Media with Effusion
  - Nearly all cases of acute sinusitis resolve without antibiotic therapy.

**Symptoms**
- Nasal drainage, nasal congestion, facial pain, maxillary dental pain, ear pressure/fullness. Less frequent signs and symptoms include hyposmia and fatigue, in conjunction with some or all of the above.

**Antibiotic Duration:**
- 7 to 10 days

**Antibiotics**
- **1st Line:**  
  - Amoxicillin (80-90 mg/kg/day)
  - Azithromycin or clarithromycin
  - High dose amoxicillin (80-90 mg/kg/day)

**For ß-Lactam Allergy:**
- Trimethoprim-sulfamethoxazole
- Azithromycin, clarithromycin
- Clindamycin

**Guidelines**
- AAP, AAFP, CDC
- Infectious Diseases Society of America (IDSA)
- Institute for Clinical Systems Improvement (ICSI)

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## Pertussis

**Recent, usually abrupt, onset of signs and symptoms of middle-ear inflammation and effusion**

**Signs or symptoms of middle-ear inflammation as indicated by either:**
- Bulging of the tympanic membrane
- Limited or absent mobility of tympanic membrane
- Air fluid level behind the tympanic membrane
- Presence of middle-ear effusion that is indicated by any of the following:
  - Bulging of the tympanic membrane
  - Limited or absent mobility of tympanic membrane
  - Air fluid level behind the tympanic membrane

**Antibiotic Duration:**
- For patients not previously treated: 10 days
- For patients previously treated: 7 days

**Antibiotics**
- Benzathine penicillin G
- Ceftriaxone
- Cefuroxime
- Cefpodoxime
- Amoxicillin (80-90 mg/kg/day)
- Azithromycin or clarithromycin

**For ß-Lactam Allergy:**
- Benzathine penicillin G
- Tetracyclines for children > 8 years of age

**Guidelines**
- AAP, AAFP, CDC
- Infectious Diseases Society of America (IDSA)
- Institute for Clinical Systems Improvement (ICSI)

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## Additional Notes

- Appendicitis
- Acute Postnatal and Neonatal Pertussis
- Viral Bronchitis
- Viral Sinusitis
- Bacterial Sinusitis
- Cystic Fibrosis
- Pediatric Influenza

**When NOT to Treat with an Antibiotic:**
- Respiratory Viral Causes

**Guidelines**
- AAP, AAFP, CDC
- Infectious Diseases Society of America (IDSA)
- Institute for Clinical Systems Improvement (ICSI)

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## Pediatric Clinical Practice Guideline Summary

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**References:**

- AAP, AAFP, CDC
- Infectious Diseases Society of America (IDSA)
- Institute for Clinical Systems Improvement (ICSI)