Pediatric Upper Respiratory Infection Management

<table>
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<tr>
<th>Epidemiology</th>
<th>Diagnosis</th>
<th>Management</th>
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<tr>
<td>• Recent guidelines aim to minimize unnecessary antibiotic exposure by emphasizing appropriate use of rapid antigen detection test (RADT) testing and subsequent treatment.</td>
<td>• Clinical features alone do not distinguish between GAS and viral pharyngitis.</td>
<td>• Amoxicillin and penicillin V remain first-line therapy.</td>
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<td>• During the winter and spring, up to 20 percent of asymptomatic children can be colonized with group A beta-hemolytic streptococci (GAS), leading to more false positives from RADT-testing and increases in unnecessary antibiotic exposure.</td>
<td>• Children with sore throat plus two or more of the following features should undergo a RADT test:</td>
<td>• For children with a non-type I hypersensitivity to penicillin: cephalaxin, cefadroxil, clindamycin, clarithromycin, or azithromycin are recommended.</td>
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<tr>
<td>• Streptococcal pharyngitis is primarily a disease of children 5-15 years old and is rare in children &lt; three years.</td>
<td>• Absence of cough</td>
<td>• For children with an immediate type I hypersensitivity to penicillin: clindamycin, clarithromycin, or azithromycin are recommended.</td>
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<td>Testing should generally not be performed in children &lt; three years in whom GAS rarely causes pharyngitis and rheumatic fever is uncommon.</td>
<td>• Presence of tonsillar exudates or swelling</td>
<td>• Recommended treatment course for all oral beta lactams is 10 days.</td>
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<td>In children and adolescents, negative RADT tests should be backed up by a throat culture; positive RADTs do not require a back-up culture.</td>
<td>• History of fever</td>
<td></td>
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<td>• Age &lt; 15 years</td>
<td>• Presence of swollen and tender anterior cervical lymph nodes</td>
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Source: https://www.cdc.gov/antibiotic-use/community/for-hcp/outpatient-hcp/pediatric-treatment-rec.html

Acute Acute sinusitis

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<td>Sinusitis may be caused by viruses or bacteria, and antibiotics are not guaranteed to help even if the causative agent is bacterial.</td>
<td>Halitosis, fatigue, headache, decreased appetite, but most physical exam findings are non-specific and do not distinguish bacterial from viral causes.</td>
<td>If a bacterial infection is established:</td>
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<td>A bacterial diagnosis may be established based on the presence of one of the following criteria:</td>
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<td>• Watchful waiting for up to three days may be offered for children with acute bacterial sinusitis with persistent symptoms.</td>
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<tr>
<td>• Persistent symptoms without improvement: nasal discharge or day-time cough &gt; 10 days.</td>
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<td>Antibiotic therapy should be prescribed for children with acute bacterial sinusitis with severe or worsening disease.</td>
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<td>• Worsening symptoms: worsening or new onset fever, daytime cough, or nasal discharge after initial improvement of a viral URI.</td>
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<td>• Amoxicillin or amoxicillin/clavulanate remain first-line therapy.</td>
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<tr>
<td>• Severe symptoms: fever ≥ 39°C, purulent nasal discharge for at least three consecutive days.</td>
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<td>• Recommendations for treatment of children with a history of type I hypersensitivity to penicillin vary.1,2</td>
</tr>
<tr>
<td>Imaging tests are no longer recommended for uncomplicated cases.</td>
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<td>• In children who are vomiting or who cannot tolerate oral medication, a single dose of ceftriaxone can be used and then can be switched to oral antibiotics if improving.1</td>
</tr>
</tbody>
</table>

For further recommendations on alternative antibiotic regimens, consult the American Academy of Pediatrics’ or the Infectious Diseases Society of America2 guidelines.

Lake Superior Quality Innovation Network serves Michigan, Minnesota, and Wisconsin, under the Centers for Medicare & Medicaid Services Quality Improvement Organization Program.

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Antibiotic Stewardship includes prescribing only when necessary, and when it is needed, using the preferred agent, dose and duration. Adapted from the Center for Disease Control, this resource includes recommendations related to upper respiratory infection (URI) as this diagnostic classification is often the greatest opportunity to use antibiotics appropriately.
### Acute otitis media (AOM)\(^3-5\)

**Epidemiology**
- AOM is the most common childhood infection for which antibiotics are prescribed.
- 4-10 percent of children with AOM treated with antibiotics experience adverse effects.\(^4\)

**Diagnosis**
- Definitive diagnosis requires either
  - Mild cases with unilateral symptoms in children 6-23 months of age or unilateral or bilateral symptoms in children > two years may be appropriate for watchful waiting based on shared decision-making.
  - Amoxicillin remains first line therapy for children who have not received amoxicillin within the past 30 days.
  - Amoxicillin/clavulanate is recommended if amoxicillin has been taken within the past 30 days, if concurrent purulent conjunctivitis is present, or if the child has a history of recurrent AOM unresponsive to amoxicillin.
  
  - For children with a non-type I hypersensitivity to penicillin: cefdinir, cefuroxime, cefpodoxime, or ceftriaxone may be appropriate choices.
  - Prophylactic antibiotics are not recommended to reduce the frequency of recurrent AOM.
  - For further recommendations on alternative antibiotic regimens, consult the American Academy of Pediatrics guidelines.\(^3\)

**Management**
- Bronchiolitis is the most common lower respiratory tract infection in infants.
- It is most often caused by respiratory syncytial virus but can be caused by many other respiratory viruses.

### Common cold or non-specific upper respiratory tract infection (URI)\(^4,7\)

**Epidemiology**
- The course of most uncomplicated viral URIs is five-to-seven days. Colds usually last around 10 days.
- At least 200 viruses can cause the common cold.

**Diagnosis**
- Viral URIs are often characterized by nasal discharge and congestion or cough. Usually nasal discharge begins as clear and changes throughout the course of the illness.
- Fever, if present, occurs early in the illness

**Management**
- Management of the common cold, nonspecific URI, and acute cough illness should focus on symptomatic relief. Antibiotics should not be prescribed for these conditions.
- There is potential for harm and no proven benefit from over-the-counter cough and cold medications in children < six years. These substances are among the top 20 substances leading to death in children < five years.
- Low-dose inhaled corticosteroids and oral prednisolone do not improve outcomes in children without asthma.

### Bronchiolitis\(^8\)

**Epidemiology**
- Bronchiolitis occurs in children < 24 months and is characterized by rhinorrhea, cough, wheezing, tachypnea, and/ or increased respiratory effort.
- Routine laboratory tests and radiologic studies are not recommended, but a chest x-ray may be warranted in atypical disease (absence of viral symptoms, severe distress, frequent recurrences, lack of improvement).

**Diagnosis**
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**Management**
- Usually patients worsen between three-to-five days, followed by improvement.
- Antibiotics are not helpful and should not be used.
- Nasal suctioning is mainstay of therapy.
- Neither albuterol nor nebulized racemic epinephrine should be administered to infants and children with bronchiolitis who are not hospitalized.
- There is no evidence to support routine suctioning of the lower pharynx or larynx (deep suctioning).
- There is no role for corticosteroids, ribavirin, or chest physiotherapy in the management of bronchiolitis.

### References