Respiratory Tract Infections Pediatric Treatment Recommendations

A partnership for advanced pediatric care

Children's Health University Health System

UT kids UT MEDICINE SAN ANTONIO

Condition	Epidemiology	Diagnosis	Management
Common cold or non-specific upper respiratory tract infection (URI)	• The course of most uncomplicated viral URIs is 5 to 7 days. Colds usually last around 10 days. • At least 200 viruses can cause the common cold	• 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 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 younger than 6 years. These substances are among the top 20 substances leading to death in children <5 years old. • Low-dose inhaled corticosteroids and oral prednisolone do not improve outcomes in non-asthmatic children.
Acute rhinosinusitis	• 90–98% of rhinosinusitis cases are viral, and antibiotics are not guaranteed to help even if the causative agent is bacterial.	• Halitosis, fatigue, headache, decreased appetite, but most physical exam findings are non-specific and do not distinguish bacterial from viral causes. • A bacterial diagnosis may be established based on the presence of one of the following criteria: ○ Persistent symptoms without improvement: nasal discharge or daytime cough >10 days. ○ Worsening symptoms: worsening or new onset fever, daytime cough, or nasal discharge after initial improvement of a viral URI. ○ Severe symptoms: fever ≥39°C, purulent nasal discharge for at least 3 consecutive days. • Imaging tests are no longer recommended for uncomplicated cases.	If a bacterial infection is established: • *Haemophilus influenzae* (nontypeable), *Streptococcus pneumoniae,* and *Moraxella catarrhalis* are the predominant causes of acute bacterial rhinosinusitis (ABRS) • Amoxicillin remains first-line therapy. • For children with a non-type I hypersensitivity to penicillin, a third-generation cephalosporin (cefdinir or cefpodoxime) may be appropriate. • Recommendations for treatment of children with a history of type I hypersensitivity to penicillin vary. Levofloxacin should be reserved for cases in which there are no alternatives. • In children who are vomiting or who cannot tolerate oral medication, a single dose of ceftriaxone can be used. • For further recommendations on alternative antibiotic regimens, consult the American Academy of Pediatrics or the Infectious Diseases Society of America guidelines.
Bronchiolitis	• 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.	• 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, and lack of improvement).	• Usually patients worsen between 3-5 days, followed by improvement. • Antibiotics are not helpful and should not be used. • Nasal suctioning is symptomatic treatment. • Albuterol can be trialed but should only be dispensed if there is a documented improvement. Only 1 in 4 children with bronchiolitis will have any response to albuterol. • Nebulized racemic epinephrine has also shown some benefit in bronchiolitis. • 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.
Pharyngitis	• Recent guidelines aim to minimize unnecessary antibiotic exposure by emphasizing appropriate use of rapid antigen detection test (RADT) testing and subsequent treatment. • During the winter and spring, up to 20% 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. • Streptococcal pharyngitis is primarily a disease of children 5-15 years old and is rare in preschool children.	• Clinical features alone do not distinguish between GAS and viral pharyngitis. • Children with sore throat plus 2 or more of the following features should undergo a RADT test: ○ absence of cough ○ presence of tonsillar exudates or swelling ○ history of fever ○ presence of swollen and tender anterior cervical lymph nodes ○ age younger than 15 years • Testing should generally not be performed in children younger than 3 years in whom GAS rarely causes pharyngitis and rheumatic fever is uncommon. • In children and adolescents, negative RADT tests should be backed up by a throat culture; positive RADTs do not require a back-up culture.	• Amoxicillin and penicillin V remain first-line therapy. • For children with a non-type I hypersensitivity to penicillin, a third-generation cephalosporin (cefdinir or cefpodoxime) may be appropriate. • Intramuscular penicillin G benzathine (single dose) may be administered to patients who cannot complete a 10-day course of oral beta-lactams or to patients at enhanced risk for rheumatic fever. • For children with an immediate type I hypersensitivity to penicillin; clarithromycin or azithromycin are recommended. However, GAS antibiotic resistance to macrolides and to clindamycin is increasing. Susceptibility tests should be used to guide therapy. • Recommended treatment course for all oral beta lactams is 10 days.

References:

1. Kimberlin, D., Brady, M., & Jackson, M. (2015). Group A Streptococcal Infections. In Red book: 2015 report of the Committee on Infectious Diseases (30th ed., pp. 732-744). American Academy of Pediatrics.
2. Ralston, S. L., Lieberthal, A. S., Meissner, H. C., Alverson, B. K., Baley, J. E., Gadomski, A. M., ... & Phelan, K. J. (2014). Clinical practice guideline: the diagnosis, management, and prevention of bronchiolitis. Pediatrics, 134(5), e1474-e1502. doi:10.1542/peds.2014-2742
3. Wald, E. R., Applegate, K. E., Bordley, C., Darrow, D. H., Glode, M. P., Marcy, S. M., ... & Williams, P. V. (2013). Clinical practice guideline for the diagnosis and management of acute bacterial sinusitis in children aged 1 to 18 years. Pediatrics, 132(1), e262-e280. doi:10.1542/peds.2013-1071