Pediatric Treatment Recommendations

Antibiotic prescribing guidelines establish standards of care, focus quality improvement efforts, and improve patient outcomes. The table below summarizes the most recent principles of appropriate antibiotic prescribing for children obtaining care in an outpatient setting for the following six diagnoses: acute rhinosinusitis, acute otitis media, bronchiolitis, pharyngitis, common cold, and urinary tract infection.

Download a Quick Reference Table[5 pages](http://www.cdc.gov/getsmart/community/for-hcp/outpatient-hcp/pediatric-treatment-rec.pdf) of this information, as well as resources for your practice from Get Smart's Print Materials for Healthcare Professionals section.

Condition	Epidemiology	Diagnosis	Management
Acute sinusitis[1, 2]	Sinusitis may be caused by viruses or bacteria, 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: • Watchful waiting for up to 3 days may be offered for children with acute bacterial sinusitis with persistent symptoms. Antibiotic therapy should be prescribed for children with acute bacterial sinusitis with severe or worsening disease. • Amoxicillin or amoxicillin/clavulanate remain first-line therapy. • Recommendations for treatment of children with a history of type I hypersensitivity to penicillin vary.[1, 2] • 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] • For further recommendations on alternative antibiotic regimens, consult the American Academy of Pediatrics[1] or the Infectious Diseases Society of America[2] guidelines.
Acute otitis media (AOM)[3-5]	• AOM is the most common childhood infection for which antibiotics are prescribed. • 4-10% of children with AOM treated with antibiotics experience adverse effects.[4]	Definitive diagnosis requires either • Moderate or severe bulging of tympanic membrane (TM) or new onset otorrhea not due to otitis externa. • Mild bulging of the TM AND recent (<48h) onset of otalgia (holding, tugging, rubbing of the ear in a	• Mild cases with unilateral symptoms in children 6-23 months of age or unilateral or bilateral symptoms in children >2 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.

		nonverbal child) or intense erythema of the TM. AOM should not be diagnosed in children without middle ear effusion (based on pneumatic otoscopy and/or tympanometry).	• 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]
Pharyngitis[4, 6]	• 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 children < 3 years.	• 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 < 15 years • Testing should generally not be performed in children < 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: cephalexin, cefadroxil, clindamycin, clarithromycin, or azithromycin are recommended. • For children with an immediate type I hypersensitivity to penicillin: clindamycin, clarithyomycin, or azithroymycin are recommended. • Recommended treatment course for all oral beta lactams is 10 days.
Common cold or non-specific upper respiratory	• The course of most uncomplicated viral URIs is	• Viral URIs are often characterized by nasal discharge and congestion or cough. Usually nasal discharge begins	• Management of the common cold, nonspecific URI, and acute cough illness should focus on

tract infection (URI) [4,7]	5-7 days. Colds usually last around 10 days. • At least 200 viruses can cause the common cold.	as clear and changes throughout the course of the illness. • Fever, if present, occurs early in the illness.	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 < 6 years. These substances are among the top 20 substances leading to death in children <5 years .[7] • Low-dose inhaled corticosteroids and oral prednisolone do not improve outcomes in children without asthma.
Bronchiolitis[8]	• 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, 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 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.
Urinary tract infections (UTIs)[8,9]	• UTIs are common in children, affecting 8% of girls and 2% of boys by age 7. • The most common causative pathogen is *E. coli*, accounting for approximately 85% of cases.	• In infants, fever and or strong-smelling urine are common. • In school-aged children, dysuria, frequency, or urgency are common. • A definitive diagnosis requires both a urinalysis suggestive of infection and at least 50,000 CFUs/mL of a single uropathogen from urine obtained through catheterization or suprapubic aspiration (NOT urine collected in a bag) for children 2–24 months.	• Initial antibiotic treatment should be based on local antimicrobial susceptibility patterns. Suggested agents include TMP/SMX, amoxicillin/clavulanate, cefixime, cefpodoxime, cefprozil, or cephalexin in children 2-24 months. • Duration of therapy should be 7-14 days in children 2-24 months. • Antibiotic treatment of asymptomatic bacteriuria in children is not recommended. • Febrile infants with UTIs should undergo renal and bladder ultrasonography during or following

		• Urinalysis is suggestive of infection with the presence of pyuria (leukocyte esterase or ≥5 WBCs per high powered field), bacteriuria, or nitrites. • Nitrites are not a sensitive measure for UTI in children and cannot be used to rule out UTIs. • The decision to assess for UTI in children 2–24 months with unexplained fever should be based on the child's likelihood of UTI. Please see the American Academy of Pediatrics guidelines for further details of establishing the likelihood of UTI.[9]	their first UTI. Abnormal imaging results require further testing. • For further recommendations on diagnosis, treatment and follow-up of infants and children aged 2–24 months, consult the American Academy of Pediatrics guidelines.[9]

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