

PEDIATRIC ANTIBIOTIC PRESCRIBING GUIDELINES

Pediatric Outpatient Treatment Recommendations: Summary of Guidelines¹

Acute rhinosinusitis²⁻³

90–98% of cases are viral

Antibiotics may NOT help even if cause is bacterial

| Diagnosis | Management |
|---|--|
| <p>Symptoms of acute bacterial rhinosinusitis are:</p> <ul style="list-style-type: none">• Severe (>3-4 days), such as a fever $\geq 39^{\circ}\text{C}$ (102.2°F) and purulent nasal discharge or facial pain;• Persistent without improvement, such as nasal discharge or daytime cough, headache for at least 10 days beyond the onset of viral upper respiratory symptoms; or• “Double worsening”, such as worsening or new onset fever, daytime cough, headache, or nasal discharge within 10 days after initial improvement of a viral URI <p>Halitosis, fatigue, headache, decreased appetite, but most physical exam findings are non-specific and do NOT distinguish bacterial from viral causes.</p> <p>Imaging tests are no longer recommended for uncomplicated cases.</p> | <p>If bacterial, consider watchful waiting for up to 3 days if NOT severe or worsening and with reliable follow up.</p> <p>If mild/moderate and no risk factors for resistance:</p> <ul style="list-style-type: none">• amoxicillin/clavulanate 45 mg/kg/day PO of the amoxicillin component in 2 divided doses (max 1.75 g/day) x10-14 days. (Some experts recommend amoxicillin.) <p>If severe or risk factors for resistance (age <2yo, daycare, antibiotics within 30 days, recent hosp, under immunized with PCV, $\geq 10\%$ penicillin non-susceptible <i>S. pneumoniae</i>, immunocompromised):</p> <ul style="list-style-type: none">• amoxicillin/clavulanate 90 mg/kg/day PO of the amoxicillin component in 2 divided doses (max 4g/day) x10-14 days. <p>Non-type I penicillin allergy:</p> <ul style="list-style-type: none">• clindamycin 30-40 mg/kg/day PO in 3 divided doses plus (cefixime 8 mg/kg/day PO in 2 divided doses or cefpodoxime 10 mg/kg/day PO in 2 divided doses) x10-14 days. <p>Cannot tolerate oral medication:</p> <ul style="list-style-type: none">• ceftriaxone 50 mg/kg IM x1 dose then oral antibiotics if improving. <p>Macrolides (such as azithromycin) are NOT recommended due to high levels of <i>S. pneumoniae</i> antibiotic resistance (~40%).</p> <p>See references for more details, additional treatment options, including re-treatment after initial treatment failure, supportive care, and other important information.</p> |

Acute otitis media (AOM)^{4,5}

4-10% of children with AOM treated with antibiotics experience adverse effects.

| Diagnosis | Management |
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| <p>Definitive diagnosis requires either:</p> <ul style="list-style-type: none">• 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 nonverbal child) or intense erythema of the TM. <p>AOM should NOT be diagnosed in children without middle ear effusion (based on pneumatic otoscopy and/or tympanometry).</p> <p>Severe AOM: moderate or severe otalgia or otalgia for ≥ 48 hours, or temperature $\geq 39^{\circ}\text{C}$ (102.2°F).</p> | <p>Treat with antibiotics:</p> <ul style="list-style-type: none">• AOM in <6 mo• Age 6-23 mo with bilateral AOM• Severe AOM, regardless of age <p>Consider watchful waiting (if reliable follow-up):</p> <ul style="list-style-type: none">• Age 6-23 mo with unilateral AOM• ≥ 2 yo with unilateral or bilateral AOM <p>If mild/moderate and no risk factors for resistance:</p> <ul style="list-style-type: none">• amoxicillin 80-90 mg/kg/day PO in 2 divided doses (max 2 g/dose) <p>If severe or risk factors for resistance (recent beta-lactam therapy, purulent conjunctivitis, or history of recurrent AOM unresponsive to amoxicillin):</p> <ul style="list-style-type: none">• amoxicillin/clavulanate 80-90 mg/kg/day and 6.4 mg/kg/day PO, in 2 divided doses (max 2 g/dose) <p>Non-type I penicillin allergy:</p> <ul style="list-style-type: none">• cefdinir 14 mg/kg/day IM daily or in 2 divided doses• cefuroxime 30 mg/kg/day PO in 2 divided doses• cefpodoxime 10 mg/kg/day PO in 2 divided dose <p>Duration of treatment:</p> <ul style="list-style-type: none"><2 yo or severe symptoms: 10 days2-5 yo, mild-moderate symptoms: 7 days≥ 6 yo, mild-moderate symptoms: 5-7 days <p>See references for more details, additional treatment options, and other important</p> |

Pharyngitis^{6,7}

During winter and spring, up to 20% of **asymptomatic** children can be colonized with GAS, leading to false positives from rapid-testing and increases in unnecessary antibiotic exposure.

Streptococcal pharyngitis is primarily a disease of children 5-15 yo and is rare in preschool children.

| Diagnosis | Management |
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| <p>Clinical features alone do NOT distinguish between GAS and viral pharyngitis.</p> <p>Children with sore throat plus 2 or more of the following features should undergo a rapid test:</p> <ol style="list-style-type: none">1. Lack of cough2. Tonsillar exudates3. History of fever4. Swollen and tender anterior cervical lymphadenopathy5. Age younger than 15 yo <p>Testing should generally NOT be performed in children younger than 3 yo in whom GAS rarely causes pharyngitis and rheumatic fever is uncommon.</p> <p>In children and adolescents, negative rapid tests should be confirmed with a throat culture; positives do NOT require a follow up culture.</p> | <p>First-line therapy:</p> <ul style="list-style-type: none">• amoxicillin 50 mg/kg/day PO (max 1 g/day) daily or in 2 divided doses x 10 days• penicillin V 250 mg PO 2-3x/day (adolescents and adults: 250 mg 4x/day or 500 mg 2x/day) x 10 days <p>Non-type I penicillin allergy:</p> <ul style="list-style-type: none">• cephalexin 40 mg/kg/day PO (max 1 g) in 2 divided doses x 10 days• cefadroxil 30 mg/kg/day PO (max 1 g) daily x 10 days• clindamycin 21 mg/kg/day PO (max 900 mg) in 3 divided doses x 10 days• azithromycin 12 mg/kg/day PO (max 500 mg) daily x 5 days• clarithromycin 15 mg/kg/day PO (max 500 mg) in 2 divided doses x 10 days <p>Immediate type I penicillin allergy:</p> <ul style="list-style-type: none">• clindamycin, clarithromycin, or azithromycin dosed as above <p>See references for more details, additional treatment options, and other important information.</p> |

Common cold or non-specific upper respiratory tract infection (URI)^{6,8}

Colds usually last around 10 days.

| Diagnosis | Management |
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| <p>Usually nasal discharge begins as clear and changes throughout the course of the illness.</p> <p>Fever, if present, occurs early in the illness.</p> | <p>Antibiotics are NOT helpful and should NOT be used. Focus on symptomatic relief.</p> <p>OTC cough and cold medications are NOT recommended for use in children younger than 6 yo. These substances are among the top 20 substances leading to death in children <5 yo.</p> <p>Low-dose inhaled corticosteroids and oral prednisolone do NOT improve outcomes in non-asthmatic children.</p> <p>See references for more details, additional treatment options, and other important information.</p> |

Bronchiolitis⁹

| Diagnosis | Management |
|---|---|
| <p>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).</p> | <p>Antibiotics are NOT helpful and should NOT be used.</p> <p>Usually patients worsen between 3-5 days, followed by improvement.</p> <p>Nasal suctioning is mainstay of therapy.</p> <p>Unless hospitalized, neither albuterol nor nebulized racemic epinephrine should be administered to infants and children with bronchiolitis.</p> <p>There is no role for corticosteroids, ribavirin, or chest physiotherapy in the management of bronchiolitis.</p> <p>See references for more details, additional treatment options, and other important information.</p> |

Urinary tract infections (UTIs)^{10,11}

| Diagnosis | Management |
|---|--|
| <p>In infants, fever and or strong-smelling urine 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. Diagnosis cannot be made from urine collected in a bag.</p> <p>Urine testing for all children 2-24 mo with unexplained fever is no longer recommended.</p> <p>Urinalysis is suggestive of infection with the presence of pyuria (leukocyte esterase or ≥ 5 WBCs per high powered field), bacteriuria, or nitrites.</p> <p>Nitrites are NOT a sensitive measure for UTI in children and cannot be used to rule out UTIs.</p> | <p>Initial antibiotic treatment should be based on local antimicrobial susceptibility patterns.</p> <p>Suggested agents:</p> <ul style="list-style-type: none">• TMP/SMX 6-12 mg/kg/day of TMP component PO in 2 divided doses• amoxicillin/clavulanate 20-40 mg/kg/day PO of amoxicillin component in 3 divided doses• cefixime 8 mg/kg/day PO daily• cefpodoxime 10 mg/kg/day PO in 2 divided doses• cefprozil 30 mg/kg/day PO in 2 divided doses• cephalexin 50-100 mg/kg/day PO in 4 divided doses <p>Duration of treatment: 7-14 days</p> <p>Antibiotic treatment of asymptomatic bacteriuria in children is NOT recommended.</p> <p>Antibiotic prophylaxis to prevent recurrent UTIs is NOT recommended.</p> <p>See references for more details, additional treatment options, and other important information.</p> |