Fast Facts: Pediatric Antibiotics

ACUTE OTITIS MEDIA (AOM)

- **Watchful waiting (WW) / Safety-Net Antibiotic Prescription (SNAP):**

- Joint decision between provider and caregiver
- Must have close follow-up (within 48–72 hours) if SNAP not given
- Must be able to fill antibiotic prescription if signs/symptoms worsen or fail to improve in 48–72 hours from onset
- **Note:** If using WW/SNAP, place a comment in prescription instructions: "**Fill only upon patient/family request**"

- **Antibiotic Recommendations**
  - **Duration:**
    - <2 years or severe disease: 10 days
    - 2–5 years: 7 days
    - ≥6 years: 5 days
    - Recent data suggests 5 days may be sufficient for children >2 years with AOM of any severity
      - (Frost et al. J Pediatr. 2020 May; 220:109-115.e1).
  - **First-line therapy:**
    - **Amoxicillin** 40–50 mg/kg/dose BID (max 2000 mg/dose)
  - **If received amoxicillin within the past 30 days, in daycare, or with concomitant conjunctivitis:**
    - **Amoxicillin/clavulanate** 40–50 mg/kg/dose (amoxicillin component) PO BID (max 2000 mg amoxicillin/dose)
  - **Penicillin Allergy:**
    - **Mild/Moderate—Rashes, including hives:**
      - **Cefuroxime:** 250 mg PO BID (tablets only, not crushable)
      - **Cefdinir:** 7 mg/kg/dose PO BID (max 300 mg/dose)
      - **Cefpodoxime:** 5 mg/kg/dose PO BID (max 200 mg/dose)
      - **Cefprozil:** 15 mg/kg/dose PO BID (max 500 mg/dose)
      - **Ceftriaxone:** 50 mg/kg/dose IM/IV qDay x 1–3 days (max 1000 mg/dose)
    - **Severe—Anaphylaxis:**
      - **Clindamycin** 10 mg/kg/dose PO TID (max 600 mg/dose)
  - **Failure to improve after 48–72 hours of initial antibiotic therapy:**
    - **Treatment failure with amoxicillin:**
      - **Amoxicillin/clavulanate** 40–50 mg/kg/dose (amoxicillin component) PO BID (max 2000 mg amoxicillin/dose)
    - **Treatment failure with amoxicillin/clavulanate:**
      - **Ceftriaxone** 50 mg/kg/dose (max 1000 mg/dose) IM or IV daily x 3 days
      - **Clindamycin** 10 mg/kg/dose PO TID (max 600 mg/dose) PLUS:
        - **Cefuroxime** 250 mg PO BID
        - **Cefpodoxime** 5 mg/kg/dose PO BID (max 200 mg/dose)

OTORRHEA / OTITIS EXTERNA

- **Perforated Tympanic Membrane (+ Oral Antibiotics) OR AOM with Tubes:**

    - **Ciprodex (ciprofloxacin/dexamethasone):** 4 drops BID x 7 days for patients >6 months.
    - **Alternative (if Ciprodex is unavailable or cost-prohibitive):**
        - **Ciprofloxacin ophthalmic solution:** 2 drops +/- **dexamethasone ophthalmic solution:** 2 drops BID x 7 days for patients >6 months.
    - **Ofloxacin otic solution:** 5 drops BID x 10 days for patients >6 months.
- **Intact Tympanic Membrane (Non-complicated Otitis Externa):**
    - **Ciprodex (ciprofloxacin/dexamethasone):** 4 drops BID x 7 days.
    - **Ofloxacin otic solution:** 5 drops BID x 10 days.
    - **Cortisporin otic solution:** 3 drops TID x 7 days.
- **Additional Considerations:**
    - **Ear wick placement** may help deliver medication to the site of infection, especially in cases of significant canal swelling.
    - Pain management (e.g., acetaminophen or ibuprofen) is critical for patient comfort.
- **Notes:**
    - Ensure proper administration technique to maximize effectiveness (e.g., warming drops before application and keeping the ear tilted for several minutes post-application).
    - If symptoms persist or worsen after 48–72 hours, reassess for alternative diagnoses or complications.

GROUP A STREPTOCOCCAL PHARYNGITIS

- **First-line therapy:**
    - **Amoxicillin:** 50 mg/kg/dose PO BID (max 1000 mg/day) x 10 days
    - **Bicillin L-A (Penicillin G benzathine):** IM
        - <27 kg: 600,000 U x 1 dose
        - ≥27 kg: 1.2 million U x 1 dose
    - **Penicillin VK:** PO
        - <27 kg: 250 mg BID-TID x 10 days
        - ≥27 kg: 500 mg BID-TID x 10 days
- **Penicillin Allergy:**
    - **Mild—Rashes, including hives:**
        - **Cephalexin:** 20–25 mg/kg/dose PO BID (max 500 mg/dose) x 10 days
    - **Severe—Anaphylaxis:**
        - **Clindamycin:** 7 mg/kg/dose PO TID (max 300 mg/dose) x 10 days
        - **Azithromycin:** 12 mg/kg/dose PO qDay (max 500 mg/dose) x 5 days
- **Notes:**
    - Azithromycin is **not recommended** unless the patient has a severe allergy to both penicillins and cephalosporins. Resistance is well-known, and treatment failure may

occur.

UNCOMPLICATED PNEUMONIA

- **Duration:**
  - 5 days
  - **Note:** Shorter duration of 3–5 days may be sufficient for patients >6 months old (Kuitunen et al. Clin Infect Dis. 2023 Feb 8;76(3):e1123-e1128).
- **First-line therapy:**
  - **Amoxicillin:** 40–50 mg/kg/dose PO BID (max 2000 mg/dose)
  - **Note:** Amoxicillin/clavulanate provides no additional coverage for **Streptococcus pneumoniae** and is not recommended as a first-line agent.
- **Penicillin Allergy:**
  - **Mild/Moderate—Rashes, including hives:**
    - **Cefuroxime:** 250–500 mg PO BID (for children able to swallow pills; only available in tablets)
    - **Cefpodoxime:** 5 mg/kg/dose PO BID (max 200 mg/dose)
    - **Cefprozil:** 15 mg/kg/dose PO BID (max 500 mg/dose)
  - **Note:** Cefdinir is NOT recommended for empiric treatment of community-acquired pneumonia due to reduced effectiveness against **Streptococcus pneumoniae**. Clindamycin is preferred if above options are unavailable.
  - **Severe—Anaphylaxis ± Cephalosporin Allergy:**
    - **Clindamycin:** 10 mg/kg/dose PO TID (max 600 mg/dose)
  - **Severe—Anaphylaxis + Cephalosporin Allergy + Intolerance of Clindamycin:**
    - **Levofloxacin:**
      - Ages 6 months–5 years: 8–10 mg/kg/dose PO BID
      - ≥5 years: 16–20 mg/kg/dose PO QD (max 750 mg/day)

ATYPICAL PNEUMONIA

- **Duration:**
  - 5–7 days
- **First-line therapy:**
  - **Azithromycin:**
    - Day 1: 10 mg/kg/dose PO (max 500 mg/dose)
    - Days 2–5: 5 mg/kg/dose PO qDay (max 250 mg/dose)
  - **Note:** Resistance to azithromycin is significant among typical bacterial pathogens, especially **Streptococcus pneumoniae**.
- **Alternatives (without azithromycin):**

- **Levofloxacin:**
  - Ages 6 months–5 years: 8–10 mg/kg/dose PO BID
  - ≥5 years: 16–20 mg/kg/dose PO QD (max 750 mg/day)
- **Doxycycline (for children ≥8 years):**
  - 2 mg/kg/dose PO BID (max 100 mg/dose)

- **Notes:**
  - **Consider atypical pneumonia** in adolescents with bilateral or diffuse pulmonary involvement and/or prolonged symptoms such as persistent cough and fever.
  - Levofloxacin and doxycycline provide excellent atypical pathogen coverage and do not require additional macrolides.

ACUTE BACTERIAL RHINOSINUSITIS (ABRS)

- **Criteria for Diagnosis:**
  - Presumptive diagnosis of ABRS can be made if a patient with acute upper respiratory tract infection (URI) presents with ONE of the following:
    - **Persistent illness** (e.g., nasal discharge, daytime cough, or both) lasting >10 days without improvement.
    - **Worsening course after initial improvement** (e.g., new onset nasal discharge, daytime cough, or fever).
    - **Severe onset** (e.g., fever ≥102.2°F and purulent nasal discharge) lasting at least 3 consecutive days.
- **Duration:**
  - 5–7 days
- **First-line therapy:**
  - **Mild-moderate disease (≥2 years, no daycare, no antibiotics in past 30 days):**
    - **Amoxicillin:** 45–50 mg/kg PO BID (max 2000 mg/dose).
  - **Severe disease or mild-moderate disease with any of the following: <2 years, daycare attendance, or recent antibiotic use:**
    - **Amoxicillin-clavulanate:** 40–50 mg/kg/dose (amoxicillin component) PO BID (max 2000 mg/dose).
- **Penicillin Allergy:**
  - **Mild/Moderate—Rashes, including hives:**
    - **Cefpodoxime:** 5 mg/kg/dose PO BID (max 200 mg/dose).
    - **Cefuroxime:** 250 mg PO BID (for children able to swallow tablets; not available in liquid form).
    - **Cefixime:** 4 mg/kg/dose PO BID (max 200 mg/dose) PLUS **Clindamycin:** 10 mg/kg/dose PO TID (max 600 mg/dose).
  - **Severe—Anaphylaxis ± Cephalosporin Allergy:**

    - **Levofloxacin:**
        - Ages 6 months–5 years: 10 mg/kg/dose PO BID.
        - ≥5 years: 20 mg/kg/dose PO QD (max 500 mg/day).
- **Notes:**
    - If symptoms worsen or fail to improve after 48–72 hours, reassess for complications or switch to second-line therapy.
    - Consider consulting an infectious diseases physician for complex or recurrent cases.

CYSTITIS (UNCOMPLICATED UTI)

- **Duration:**
    - 3–5 days
- **First-line therapy:**
    - **Cephalexin:** 50 mg/kg/day PO divided TID (max 1500 mg/day).
    - **Cefixime:** 8 mg/kg/dose PO qDay (max 400 mg/day).
- **Severe Penicillin/Cephalosporin Allergy (e.g., Anaphylaxis):**
    - **Trimethoprim-Sulfamethoxazole (TMP/SMX):**
        - 3–6 mg TMP/kg/dose PO BID (max 160 mg TMP/dose).
    - **Nitrofurantoin** (for cystitis only):
        - **Macrocrystal (Macrodantin or Furadantin):** 1.25–1.75 mg/kg/dose PO Q6H x 5–7 days (max 100 mg/dose).
        - **Macrocrystal/monohydrate (Macrobid):** 100 mg PO BID x 5–7 days (**adolescents only**).
- **Notes:**
    - **Nitrofurantoin** should be used only for lower urinary tract infections and avoided in suspected pyelonephritis or febrile UTIs.
    - Avoid TMP/SMX in infants <2 months due to risk of kernicterus.
    - Consider urine culture and sensitivity for recurrent UTIs or treatment failures.

PYELONEPHRITIS (FEBRILE UTI)

- **Indications for Admission:**
    - Age <2 months.
    - Ill appearance or poor oral intake.
    - Inability to tolerate oral antibiotics.
    - Vomiting, immune compromise, or urinary tract obstruction.
    - Positive culture for bacteria resistant to oral antibiotics.

- **Duration:**
  - 7–10 days.
  - **Note:** Shorter duration of 5 days may be sufficient for patients >2 months (Zaoutis et al., JAMA Pediatr. 2023 Aug 1;177(8):782-789).
- **First-line therapy:**
  - **Cephalexin:** 25–33 mg/kg/dose PO TID (max 3000 mg/day).
  - **Cefixime:** 8 mg/kg/day PO qDay (max 400 mg/day).
- **Severe Penicillin/Cephalosporin Allergy (e.g., Anaphylaxis):**
  - **Trimethoprim-Sulfamethoxazole (TMP/SMX):**
    - 3–6 mg TMP/kg/dose PO BID (max 160 mg TMP/dose).
  - **Ciprofloxacin:**
    - 10–20 mg/kg/dose PO BID (max 750 mg/dose).
- **Notes:**
  - **Cefdinir** is not recommended for pediatric UTIs due to poor urine concentration in children.
  - Evaluate for potential complications, such as renal scarring or obstruction, especially in recurrent infections.
  - Obtain urine culture and sensitivity to guide therapy.

IMPETIGO

- **Treatment based on severity:**
  - **Mild (<5 lesions - topical therapy):**
    - **Mupirocin:** Apply TID x 5 days.
  - **Extensive (>5 lesions or lesions near the mouth - systemic therapy):**
    - **Cephalexin:** 17 mg/kg/dose PO TID (max 500 mg/dose) x 7 days.
  - **If MRSA is suspected or with severe penicillin/cephalosporin allergy:**
    - **Clindamycin:** 7 mg/kg/dose PO TID (max 450 mg/dose) x 7 days.
    - **Trimethoprim-Sulfamethoxazole (TMP/SMX):**
      - 4–6 mg TMP/kg/dose PO BID (max 160 mg TMP/dose) x 7 days.
- **Notes:**
  - Systemic antibiotics are preferred if lesions are numerous, involve the mouth or mucosal areas, or in cases with signs of systemic infection.
  - Educate caregivers about proper hygiene to prevent the spread, as impetigo is highly contagious.

CELLULITIS / ABSCESS

- **First-line therapy:**

    - **Cephalexin:** 17 mg/kg/dose PO TID (max 500 mg/dose) x 5 days.
    - **Amoxicillin-clavulanate:** 22.5 mg/kg/dose (amoxicillin component) PO BID (max 875 mg/dose).
- **If MRSA is suspected, abscess is present, or in cases of penicillin/cephalosporin allergy:**
    - **Clindamycin:** 10 mg/kg/dose PO TID (max 450 mg/dose) x 5 days.
    - **Trimethoprim-Sulfamethoxazole (TMP/SMX):**
        - 4–6 mg TMP/kg/dose PO BID (max 160 mg TMP/dose) x 5 days.
- **Notes:**
    - For **abscesses**, incision and drainage (I&D) is the primary treatment; antibiotics may be considered based on the severity or associated cellulitis.
    - Reassess therapy if no improvement is noted after 48–72 hours.
    - Obtain cultures in cases of recurrent abscesses, systemic symptoms, or immunocompromised patients to guide therapy.

ANIMAL / HUMAN BITES

- **First-line therapy:**
    - **Amoxicillin-clavulanate (Augmentin):** 22.5 mg/kg/dose (amoxicillin component) PO BID (max 875 mg amoxicillin/dose).
- **Duration:**
    - **Prophylaxis:** 3 days.
    - **Treatment:** 5–7 days.
- **Penicillin Allergy:**
    - **Clindamycin:** 10 mg/kg/dose PO TID (max 450 mg/dose) PLUS one of the following:
        - **Trimethoprim-Sulfamethoxazole (TMP/SMX):** 5 mg TMP/kg/dose PO BID (max 160 mg TMP/dose).
        - **Doxycycline:** 2.2 mg/kg/dose PO BID (max 100 mg/dose).
- **Additional Considerations:**
    - **Tetanus booster:** Ensure vaccination status is updated.
    - **Rabies prophylaxis:** Assess need based on the animal and circumstances of the bite.
- **Notes:**
    - Antibiotic prophylaxis is recommended for high-risk wounds, such as deep punctures, crush injuries, or bites on the hands, face, or genitals.
    - Monitor for signs of infection, including increasing redness, swelling, pain, or systemic symptoms.

DENTAL ABSCESS

- **First-line therapy:**
  - **Amoxicillin:** 17 mg/kg/dose PO TID (max 500 mg/dose) x 10 days.
  - **Amoxicillin-clavulanate (Augmentin):** 25 mg/kg/dose (amoxicillin component) PO BID (max 875 mg amoxicillin/dose) x 10 days.
- **If buccal involvement or penicillin allergy:**
  - **Clindamycin:** 10 mg/kg/dose PO TID (max 450 mg/dose) x 10 days.
- **Additional Considerations:**
  - Incision and drainage (I&D) is often necessary for definitive management.
  - Dental consultation is recommended to address the underlying cause and prevent recurrence.
- **Notes:**
  - For systemic symptoms (e.g., fever, swelling extending into facial spaces), hospitalization and IV antibiotics may be required.
  - Encourage dental hygiene and follow-up care to prevent complications or recurrence.

ACUTE LYMPHADENITIS

- **First-line therapy:**
  - **Cephalexin:** 17–25 mg/kg/dose PO TID (max 1000 mg/dose) x 7–10 days.
  - **Amoxicillin-clavulanate (Augmentin):** 22.5 mg/kg/dose (amoxicillin component) PO BID (max 875 mg amoxicillin/dose) x 7–10 days.
- **If MRSA is suspected or with severe penicillin/cephalosporin allergy:**
  - **Clindamycin:** 10 mg/kg/dose PO TID (max 450 mg/dose) x 7–10 days.
- **If Bartonella henselae (cat-scratch disease) is suspected:**
  - **Azithromycin:** 10 mg/kg/dose PO qDay (max 500 mg/dose) x 5 days.
- **Additional Considerations:**
  - Obtain cultures or imaging (e.g., ultrasound) if abscess formation is suspected.
  - Monitor closely for systemic symptoms such as fever, weight loss, or night sweats, which may warrant further investigation for atypical infections or malignancy.
- **Notes:**
  - Typical bacterial causes include **Staphylococcus aureus** and **Streptococcus pyogenes**.
  - For children with recurrent or persistent lymphadenitis, consider consultation with an infectious diseases specialist.

ACUTE BACTERIAL CONJUNCTIVITIS

- **Infants (especially <2 months):**
  - **Erythromycin ointment (5 mg/g):** Apply 1 cm to the affected eye QID for 5 days.
  - **Polymyxin B ointment:** Apply 1.25 cm to the affected eye QID for 5 days.
- **Children and adolescents:**
  - **Polymyxin B solution:** 1 drop in the affected eye QID for 7 days.
- **Alternative topical therapies:**
  - **Tobramycin (0.3%) ophthalmic solution:** Instill 1–2 drops into the affected eye every 4 hours.
  - **Azithromycin (1%) ophthalmic solution:**
    - Instill 1 drop into the affected eye BID (8–12 hours apart) on days 1–2.
    - Then, instill 1 drop daily into the affected eye on days 3–7.
    - **Note:** More expensive and harder to find than other alternatives.
- **If corneal involvement or patient wears contact lenses:**
  - Consider alternatives with broader gram-negative coverage:
    - **Ciprofloxacin (0.3%) ophthalmic drops:** Instill 1–2 drops in the affected eye 4 times daily.
    - **Ofloxacin (0.3%) ophthalmic drops:** Instill 1–2 drops in the affected eye 4 times daily.
- **Notes:**
  - Avoid ophthalmic solutions containing neomycin due to a high incidence of allergic reactions.
  - For severe cases or if no improvement after 48 hours, consider bacterial resistance or alternative diagnoses such as viral conjunctivitis.

PERTUSSIS

> **Reportable - Must Notify Louisiana Department of Health; Must stay home until completed antibiotics**

- **Indications for Treatment:**
  - Confirmed or suspected pertussis cases.
  - Prophylaxis for close contacts of pertussis cases, especially high-risk individuals (e.g., infants, pregnant women, or those with immunocompromised household members).
- **Duration:**
  - 5–7 days depending on the selected antibiotic.

- **First-line therapy (macrolides):**
  - **Azithromycin:**
    - Infants <6 months: 10 mg/kg/dose PO qDay x 5 days
    - ≥6 months:
      - Day 1: 10 mg/kg/dose PO (max 500 mg/dose)
      - Days 2–5: 5 mg/kg/dose PO qDay (max 250 mg/dose)
  - **Clarithromycin:**
    - 7.5 mg/kg/dose PO BID (max 500 mg/dose) x 7 days
- **Alternative therapy (if macrolides are contraindicated):**
  - **Trimethoprim-Sulfamethoxazole (TMP/SMX):**
    - 4–6 mg TMP/kg/dose PO BID (max 160 mg TMP/dose) x 14 days
- **Notes:**
  - **Azithromycin** is preferred for infants <1 month due to safety concerns with erythromycin (risk of hypertrophic pyloric stenosis).
  - **TMP/SMX** should be avoided in infants <2 months due to the risk of kernicterus.
  - Early treatment is critical to limit transmission, but treatment after the paroxysmal stage may not alter the course of symptoms.

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