



INDIAN HEALTH SERVICE
National Pharmacy and Therapeutics Committee
Formulary Brief: Pediatric Antibiotic Stewardship
-November 2025-



Background:

The Indian Health Service (IHS) National Pharmacy and Therapeutics Committee (NPTC) provided a clinical review of Pediatric Antibiotic Stewardship at the Fall 2025 meeting. Medication(s) listed on the National Core Formulary (NCF) relevant to this condition include(s) [amoxicillin](#), [amoxicillin-clavulanate](#), [azithromycin](#), [benzathine penicillin G](#), [cefdinir](#), [cefixime](#), [ceftriaxone](#), [cephalexin](#), [clindamycin](#), [doxycycline](#), [mupirocin](#), [nitrofurantoin](#), [penicillin V potassium](#), and [trimethoprim-sulfamethoxazole](#). Following clinical review and analysis, the NPTC made **no modifications** to the NCF.

Discussion:

Antimicrobial resistance (AMR) occurs when infectious microorganisms no longer respond to antimicrobial medicines. This is a natural process that is accelerated by the misuse and overuse of antimicrobials to treat, prevent, or control infections in humans and animals. AMR is considered a top global health threat.^{1,2} In the United States, antibiotic-resistant bacteria and fungi cause >2.8 million infections and >35,000 deaths annually.³ For pediatric patients, 20% of outpatient visits and 60% of inpatient visits result in an antibiotic medication being prescribed. There has been an increase in multidrug-resistant bacterial infections in pediatric populations over the past several decades. There are differences among the need and use of antibiotics for pediatric populations compared to adults with unique considerations and dosing, increased risk of adverse effects, and increased vulnerability to resistance due to a lifetime of antibiotic exposure.⁴

Both the United States Centers for Disease Control and Prevention (CDC) Core Elements of Antibiotic Stewardship Programs and The Joint Commission Antibiotic Stewardship Standards recommend leadership commitment, accountability, pharmacy expertise, action, tracking, reporting, and education as key components and requirements of successful antibiotic stewardship programs (ASPs).⁵⁻⁷

The American Academy of Pediatrics (AAP) recommends the following actions:⁸

- 1) Establishing antibiotic stewardship programs
- 2) Including specialists with pediatric expertise
- 3) Composing inpatient ASPs of a medical director and clinical pharmacist with expertise in pediatric infectious diseases and/or antibiotic stewardship
- 4) Inpatient ASP consider using clinical guidelines, prior approval, and post-prescription review and feedback as core interventions
- 5) Inpatient ASP consider including pharmacy-driven interventions such as dose optimization, therapeutic drug monitoring, automatic conversion of IV to oral antibiotic therapy, or dose adjustments in cases of organ dysfunction
- 6) Inpatient ASP consider auditing, analyzing, and reporting local unit-specific antibiotic prescribing data to stakeholders
- 7) Outpatient primary care, urgent care, and emergency departments consider establishing standardized approaches for antibiotic prescribing including clinical guidelines and/or decision support
- 8) Outpatient stewardship consider focusing on judicious use of antibiotics for acute respiratory tract infections (avoidance of antibiotic prescribing for upper respiratory tract infections, bronchiolitis, acute bronchitis, and non-streptococcal pharyngitis); refraining from prescribing antibiotics for urinary tract infections in the absence of urinalysis and urine cultures; and judicious diagnosis of acute otitis media, acute sinusitis, and group A streptococcal pharyngitis
- 9) Outpatient stewardship efforts can emphasize use of the narrowest-spectrum antibiotics for the shortest duration of therapy that will adequately treat bacterial infections

In a 2024 cross-sectional study of medical claims data, for pediatric encounters that resulted in an antibiotic being prescribed, 39% of antibiotics were prescribed for a diagnosis that *never* requires an antibiotic, 57% of antibiotics were prescribed for a diagnosis that *may* require an antibiotic, and 4% of antibiotics were prescribed for a diagnosis that *always* requires an antibiotic.⁹ Of the diagnoses that may require or always require an antibiotic, 39% were optimal for antibiotic choice, 51% were optimal for duration, and only 31% were optimal for antibiotic choice and duration. Based on this data, stewardship interventions that target reducing the number of antibiotics prescribed for diagnoses that never require antibiotics, increasing optimal prescribing for common diagnoses that may or always require antibiotics (i.e., acute otitis media, group A strep pharyngitis), and promoting optimal prescribing in resource-limited settings are excellent aims for ASPs.

Providers have numerous justifications for deviating from antibiotic prescribing guidelines including complex conditions, immunocompromised patients, pressure from parents, travel, prolonged or atypical symptoms, exposure history, and/or concern for poor follow-up. By far the most common perceived barrier to appropriate antibiotic prescribing is patient/parent expectation followed by psychosocial barriers. Interventions such as shared decision making and communication training can support appropriate antibiotic prescribing.¹⁰

One of the reasons that broad-spectrum antibiotics are used in patients is due to antibiotic allergy labels (AAL). Approximately 6-15% of the pediatric population report a beta-lactam antibiotic allergy, but up to 90% of patients with a reported allergy are not truly allergic. AAL can lead to alternative antimicrobial prescribing; ~50% of patients with AAL may not receive preferred therapy with a higher use of fluoroquinolone, macrolide, and carbapenem antibiotics. It is common to see prescribers avoiding use of other beta-lactam antibiotics in patients with AAL (such as avoiding cephalexin for patients reporting amoxicillin allergy in cases of group A strep pharyngitis), but this is unnecessary in patients without anaphylactic reactions and can actually accelerate antibiotic resistance. De-labeling allergies through either skin testing or risk stratification may be a consideration.^{11,12}

Findings:

Antibiotic stewardship is an important tool to combat AMR. Pediatric populations benefit from ASPs due to dosing challenges, increased risk of adverse effects, and potential lifetime exposure to antibiotics. Antibiotic stewardship programs at facilities who offer pediatric care should address pediatric populations and include team members with pediatric expertise. Programs can focus on avoiding prescribing antibiotics for non-indicated diagnoses (e.g., upper respiratory infection, bronchitis, non-streptococcal pharyngitis) or prescribing appropriate therapy for indicated diagnoses (i.e., amoxicillin for otitis media or group A strep pharyngitis). Prescribers should strive to choose the narrowest-spectrum antibiotic, at the correct dose, for the shortest duration effective against a suspected or targeted pathogen.

If you have any questions regarding this document, please contact the NPTC at IHSNPTC1@ihs.gov . For more information about the NPTC, please visit the [NPTC website](#).

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