

Penicillin Allergy Testing

Why It Matters for Your Pediatric Patients

The Problem

- Up to 10% of children carry penicillin allergy labels, but **less than 5% are truly allergic**^{1,2}
- **Over 90% of children labeled as "penicillin allergic" can safely tolerate penicillin antibiotics**^{1,2}
- Most pediatric penicillin allergy labels are placed in the **first 2 years of life**—often representing viral rashes or drug-virus interactions, not true allergies^{3,4}
- **Nearly 40% of children are labeled after their first penicillin prescription**, making true IgE-mediated allergy unlikely (which typically requires repeated exposure)³
- Penicillin allergy labels acquired in childhood are **carried into adulthood**, creating lifelong health risks⁴

Impact on Common Pediatric Infections

When children with unverified penicillin allergies receive alternative antibiotics instead of amoxicillin, they face:

Acute Otitis Media

- **Higher treatment failure rates:** Amoxicillin has the lowest failure and recurrence rates (1.7%) compared to alternatives like cefdinir (10.0%) and azithromycin (9.8%)⁵
- Amoxicillin remains the **gold standard first-line treatment** recommended by the American Academy of Pediatrics^{6,7}
- Cephalosporins are 70-80% effective against *S. pneumoniae* compared to 84-92% for amoxicillin⁶

Pharyngitis and Other Respiratory Infections

- Broad-spectrum antibiotics provide **no additional benefit** but increase adverse events⁸
- Higher rates of gastrointestinal symptoms and allergic reactions with non-guideline antibiotics⁸

All Infections

- **Increased *C. difficile* infection risk** with alternative antibiotics¹
- Higher rates of antimicrobial resistance (MRSA, VRE)¹
- More adverse drug events overall⁸

The Reality About Pediatric Rashes

Most rashes in children taking amoxicillin are **NOT drug allergies**:^{1,4}

- Viral exanthems (rashes from the infection itself)
- Drug-virus interactions (especially with Epstein-Barr virus)
- Non-immunologic reactions that don't recur with re-exposure

Benefits of Penicillin Allergy Testing

- Enables use of **first-line, most effective antibiotics** (amoxicillin) for otitis media, pharyngitis, and other infections
- Reduces treatment failures and need for second-line antibiotics

- Decreases adverse drug events and *C. difficile* infections
- Prevents lifelong mislabeling that follows children into adulthood
- Improves antibiotic stewardship and reduces resistance
- **Over 95% of tested children can be safely "de-labeled"**^{9,10,11}

References

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11. [Reaction Risk to Direct Penicillin Challenges: A Systematic Review and Meta-Analysis](#). Blumenthal KG, Smith LR, Mann JTS, et al. JAMA Internal Medicine. 2024;184(11):1374-1383. doi:10.1001/jamainternmed.2024.4606.
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BOULDER MEDICAL CENTER

PENICILLIN ALLERGY CLINIC

Help us give your pediatric patients access to optimal GBS prophylaxis and first-line antibiotic therapy.

WHEN: Mornings on 2ND Friday of each month

WHERE : BMC Louisville, 80 Health Park Drive

APPOINTMENTS: Call (303) 440-3083

WHO TO REFER

- Children with penicillin allergy labels acquired in early childhood (especially age 5 years)
- Children labeled after only 1-2 penicillin exposures
- Children with history of "rash" to amoxicillin during illness
- Children with remote reactions (more than 1 year ago) or unknown reaction details
- Children with recurrent ear infections, pharyngitis, or other infections requiring frequent antibiotics
- Any child where first-line amoxicillin therapy would be beneficial

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- Reduces treatment failures and need for second-line antibiotics
- Decreases adverse drug events and C. difficile infections
- Improves antibiotic stewardship and reduces resistance

2ND FRIDAY
**EACH
MONTH**
IN A.M.

BMC LOUISVILLE

80 HEALTH PARK DR.
SUITE 200, LOUISVILLE
(303) 440-3083

Safe, Evidence-Based Testing

We use validated protocols proven safe in children:

- Direct oral amoxicillin challenge for low-risk patients (most children)
- Graded dosing with appropriate observation periods
- Skin testing available for higher-risk histories when indicated
- Severe reactions are exceedingly rare (anaphylaxis 0.1%)
- Most reactions during testing are mild and easily managed

Success Rates

Published studies in children demonstrate:

- 94-100% of children tolerate direct amoxicillin challenge
- Over 90% can be successfully delabeled
- 93-98% of delabeled children tolerate subsequent penicillin courses without problems
- Testing is safe even in children with recent reactions

Clinic capacity can expand based on demand.



Boulder Medical Center