Penicillin Allergy Testing

Why It Matters for Your Dermatology Patients

Boulder Medical Center

The Problem

- Approximately 10% of patients report penicillin allergies, but **less than 5% are truly allergic**[1]
- **Over 95% of patients labeled as "penicillin allergic" can safely tolerate penicillin** antibiotics[1]
- Penicillin allergies fade over time—**80% of patients lose sensitivity after 10 years**[1]
- Many penicillin allergy labels originate from **childhood rashes that were likely viral exanthems**, not true allergies[1]
- These labels persist for decades, creating **significant consequences for dermatologic care**

Impact on Skin and Soft Tissue Infections

Beta-lactam antibiotics are first-line therapy for the most common skin infections you treat.

Cellulitis and Erysipelas

- **Penicillin, amoxicillin, amoxicillin-clavulanate, dicloxacillin, and cephalexin are first-line agents** per IDSA guidelines[2]
- Erysipelas, caused by streptococci, **responds reliably to penicillin**—98.3% of patients respond within 2 days[3]
- Penicillin allergy labels force use of clindamycin, which carries **higher risk of C. difficile infection**[1]
- Non-β-lactam alternatives have **increased discontinuation rates due to adverse events** compared to β-lactams[4]

Impetigo and Ecthyma

- When cultures yield streptococci alone, **oral penicillin is the recommended agent** per IDSA guidelines[2]
- For MSSA infections, **dicloxacillin or cephalexin are recommended**[2]
- Penicillin allergy labels limit access to these first-line oral therapies

Infected Eczema/Atopic Dermatitis

- Secondary skin infections in atopic dermatitis often require systemic antibiotics[5,6]
- **Oral cephalexin** is commonly used following bleach bath protocols for moderate-to-severe AD with impetiginization[7]
- Penicillin allergy labels may unnecessarily restrict access to beta-lactam options

Lyme Disease (Erythema Migrans)

- **Amoxicillin and cefuroxime axetil are first-line oral agents** alongside doxycycline per IDSA/AAN/ACR guidelines[8]
- For patients who cannot tolerate doxycycline (children <8, pregnant women, photosensitivity concerns), **amoxicillin is the preferred alternative**[8]

- Penicillin allergy labels force reliance on azithromycin, which has **lower efficacy** and is considered a second-line agent[8]

Surgical Prophylaxis for Dermatologic Procedures

- **Cefazolin is the recommended first-line prophylactic antibiotic** for most surgical procedures[1]
- Patients with penicillin allergy labels receive alternatives like clindamycin or vancomycin
- Non-β-lactam prophylaxis is associated with **50% increased odds of surgical site infections**[1]

Consequences of Using Alternative Antibiotics

When dermatology patients with unverified penicillin allergies receive alternative antibiotics, they face:[1]

- **Increased risk of C. difficile infection** with clindamycin and fluoroquinolones
- **Increased antimicrobial resistance** (MRSA, VRE)
- **More adverse drug events** from vancomycin, clindamycin, and fluoroquinolones
- **Higher treatment discontinuation rates** due to adverse effects
- **Suboptimal treatment** for streptococcal skin infections
- **Limited options** for Lyme disease in doxycycline-intolerant patients

Benefits of Penicillin Allergy Testing

- Enables use of **first-line beta-lactam antibiotics** for cellulitis, erysipelas, and impetigo
- Provides **amoxicillin as an alternative** for Lyme disease when doxycycline is contraindicated
- Allows **optimal cefazolin prophylaxis** for dermatologic surgical procedures
- Reduces C. difficile infections and antimicrobial resistance
- Decreases adverse drug events from alternative antibiotics
- **Over 95% of tested patients can be safely "de-labeled"**[1]

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BOULDER MEDICAL CENTER

PENICILLIN ALLERGY CLINIC

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

WHO TO REFER

Patients with Recurrent Skin Infections with

- Recurrent cellulitis or erysipelas who would benefit from first-line beta-lactam therapy
- Chronic wounds or ulcers at risk for infection
- Atopic dermatitis prone to secondary bacterial infections

Lyme Disease Patients

- Erythema migrans who cannot tolerate doxycycline
- Pregnant or children younger than 8 years requiring Lyme treatment
- Photosensitivity concerns limiting doxycycline use

Surgical Patients who

- Are scheduled for Mohs surgery or other dermatologic procedures
- Would benefit from optimal cefazolin prophylaxis

General Dermatology Patients with

- Penicillin allergy labels acquired in childhood or more than 10 years ago
- Remote reactions or unknown reaction details
- Low-risk histories (isolated GI symptoms, family history only, pruritus without rash)

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Safe, Evidence-Based Testing

We use validated, internationally recognized protocols:

- Direct oral amoxicillin challenge for low-risk patients (most patients)
- Risk stratification using validated clinical decision rules (PEN-FAST)
- Skin testing available for higher-risk histories when indicated
- Severe reactions are exceedingly rare (<1%)
- Cross-reactivity between penicillin and cephalosporins occurs in only about 2% of cases

Success Rates

Published studies demonstrate:

- Over 95% of patients can be successfully delabeled
- Direct oral challenge is safe and effective in both adults and children
- Most delabeled patients tolerate subsequent penicillin courses without problems
- Delabeling leads to increased use of guideline-concordant antibiotics

Clinic capacity can expand based on demand.

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