

Outpatient Beta-lactam Risk Assessment for the Non-allergist

Beta-lactams (penicillins and cephalosporins) continue to be the preferred agents for many of the most commonly prescribed outpatient infections. Unfortunately, unconfirmed beta-lactam allergies (penicillins and cephalosporins) have been associated with treatment failure, higher *C. difficile* infection rates, and increased costs. Any allergy risk assessment needs to balance the benefits of prescribing a preferred antibiotic against the potential harm of prescribing that drug or drug class. ADSP and NMH Allergy and Immunology recognize that providers in many outpatient settings may not be able to perform an extensive allergy history and likely are not able to observe a patient after a first antibiotic dose, thus the risk assessment below is more conservative than the most recently published practice guidelines¹. Guidance for a more complete assessment is available at [NM Allergy Considerations](#).

The risk assessment outlined below is primarily for non-allergists prescribers to help choose an optimal antibiotic for patients with history of a single beta-lactam class (penicillin or cephalosporin). The optimal choice depends upon the drug class involved in the allergy history, the indication for the antibiotic, and the risk assessment of the allergic response. Evaluation by Allergy or prior known recent history of tolerance to a drug may reassure a prescriber that the allergy history can be discounted.

Low Risk	<ul style="list-style-type: none"> ○ Family history only, no personal reaction history ○ Headache ○ Isolated Gastrointestinal Symptoms: Diarrhea, bloating ○ Minor/mild rash, without mucus membrane involvement* ○ Urticarial rash (hives/transient weals lasting < 24 hours) occurring > 10 years ago with all symptoms limited to the skin (no mucosal involvement*) 	Lowest Risk
Moderate Risk	<ul style="list-style-type: none"> ○ Urticarial rash (hives/transient weals lasting < 24 hours) between 1 to 10 years ago with all symptoms limited to the skin (no mucosal involvement*) 	
AVOID	<ul style="list-style-type: none"> ○ Anaphylaxis ○ Angioedema or laryngeal edema ○ Hypotension ○ Syncope ○ Wheezing ○ Shortness of breath ○ Mucocutaneous rash* ○ Blistering rash ○ Recurrent reaction with re-exposure ○ Stevens Johnson Syndrome (SJS)/ Toxic Epidermal Necrolysis (TEN) ○ Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) ○ Acute Generalized Exanthematous Pustulosis (AGEP) ○ Hemolytic anemia ○ Nephritis ○ Drug Induced Liver Injury (DILI)/Hepatitis ○ Serum sickness ○ Drug fevers ○ Both penicillin and cephalosporin allergy history 	

Foster, Watts. NM Allergy & Immunology, 2023.

*mucosal membrane = involving eyes, mouth, nose, genitourinary

- **Low risk:** This includes those with the lowest risk: family history only without personal reaction history or headache or isolated gastrointestinal symptoms.
 - For patients with low-risk history of penicillin allergy, prescribers may prescribe any cephalosporin.
 - Patients with low-risk cephalosporin allergy history may receive a prescription for any penicillin.
- **Moderate risk:**
 - For patients with moderate-risk history of penicillin allergy, clinicians may prescribe a cephalosporin with non-similar side chain(s).
 - For patients with moderate-risk cephalosporin history, clinicians may prescribe a penicillin with a non-similar side chain.
- **High risk:**
 - For patients with high-risk history of penicillin allergy, clinicians should prescribe a non-beta-lactam.
 - For patients with high-risk history of cephalosporin allergy, a non-beta-lactam.

References

1. David A. Khan. Drug allergy: A [2022 practice parameter update](#), Journal of Allergy and Clinical Immunology. Volume 150(6);2022:1333-1393