Evaluating an Existing Penicillin Allergy
The Importance of Allergy Clarification

Penicillin is the most commonly reported drug allergy, but most patients who report a penicillin allergy can tolerate penicillin. **10% of patients will report a penicillin allergy when seeking medical care, but only 1% of patients have an IgE mediated penicillin allergy that puts them at risk for anaphylaxis.**¹

Even patients who have had reactions consistent with an IgE mediated allergy to penicillin can tolerate penicillin in the future as IgE levels wane over time.²

Reasons why a patient may have a penicillin allergy listed on their chart

**Immediate Drug Reactions**

Patient has a history of rapid onset symptoms following the first or second dose of an antibiotic course involving hives, itching, swelling, vomiting, difficulty breathing, or fainting.

**Delayed reactions**

About 5-10% of patients who are given amoxicillin or ampicillin will develop a delayed maculopapular rash.³ It is thought that underlying viral illness is necessary for the development of this rash, EBV is a known trigger. About 94-97% of pediatric patients with history of isolated delayed rash can tolerate penicillin in future even if the reaction was recent.⁴ ⁵ Much less commonly, a patient will have a history of more serious delayed reaction including SJS/TEN, DRESS, hemolytic anemia, or serum sickness.

**Parental Concern**

With 10% of the patient population reporting a history of penicillin reaction, lots of children are labeled as penicillin allergic due to a family history. Having a family history of penicillin reaction does not increase your risk of reaction.

**Medication Side Effects**

Patients will often have diarrhea or stomach pain with beta-lactam antibiotics and misinterpret these symptoms with allergic reaction.

Why it is so important to clarify the allergy

Studies have shown that patients who have a beta-lactam allergy listed on their chart are more likely to have a treatment failure and adverse events due to being treated with a non-beta-lactam antibiotic for an infection where a beta-lactam is the first line recommendation.⁶ ⁷ These patients are also at increased risk of infection with a resistant organism or *Clostridium difficile.*⁸

It is important to communicate to patients and families that may be hesitant to pursue evaluation or challenge that avoiding beta-lactam antibiotics is not a benign choice for them or their children.

For more information on a penicillin allergy evaluation, visit NationwideChildrens.org/Allergy-Immunology
Penicillin Allergy Evaluation

Does your patient have a penicillin allergy listed on their chart?

- **NO**
  - Does the patient have a history of reaction to penicillin?
    - **NO**
      - Patient does not have a penicillin allergy, this could be due to parental history of reaction. IgE mediated penicillin allergy is not inheritable; consider use of beta-lactam antibiotic or referral for evaluation if family is very concerned.
    - **YES**
      - Are the details of reaction known?
        - **NO**
          - Consider referral for penicillin evaluation 614-722-6200
        - **YES**
          - Was the reaction consistent with an IgE-mediated reaction (rapid onset after the first or second dose of hives, itching, swelling, vomiting, difficulty breathing, or fainting)?
            - **NO**
              - Was the reaction an itchy, maculopapular rash that developed 2-10 days into the course of antibiotics without any vomiting, respiratory distress, mucosal lesions, fever, anemia, joint swelling, or kidney dysfunction?
                - **NO**
                  - Patients with a history of Stevens-Johnson syndrome, Toxic Epidermal Necrolysis, Acute Interstitial nephritis, Drug Rash Eosinophilia Systemic Symptoms (DRESS), serum sickness, hemolytic anemia, and drug fever typically should not be given the offending class of medications in the future.
                - **YES**
                  - Consider use of penicillin or 1st/2nd generation cephalosporin antibiotic given with a test dose in the office.
            - **YES**
              - Consider referral for evaluation and consider giving a 3rd/4th/5th generation cephalosporin, with a test dose in the office for current infection if appropriate.
      - Consider referral for penicillin evaluation 614-722-6200
  - **YES**
    - Has patient been prescribed and tolerated a penicillin containing antibiotic since the allergy was listed on the chart?
      - **YES**
        - Patient is not allergic to penicillin and this can be removed from the chart.
      - **NO**
        - Are the details of reaction known?
          - **NO**
            - Consider referral for penicillin evaluation 614-722-6200
          - **YES**
            - Was the reaction consistent with an IgE-mediated reaction (rapid onset after the first or second dose of hives, itching, swelling, vomiting, difficulty breathing, or fainting)?
              - **NO**
                - Was the reaction an itchy, maculopapular rash that developed 2-10 days into the course of antibiotics without any vomiting, respiratory distress, mucosal lesions, fever, anemia, joint swelling, or kidney dysfunction?
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                - Consider referral for evaluation and consider giving a 3rd/4th/5th generation cephalosporin, with a test dose in the office for current infection if appropriate.
Citations


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Referrals and Consultations
Online: NationwideChildrens.org/GI
Phone: (614) 722-6200 or (877) 722-6220  |  Fax: (614) 722-4000
Physician Direct Connect Line for 24-hour urgent physician consultations:
(614) 355-0221 or (877) 355-0221.