

# The Dreaded PCN Allergy

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## Penicillin Allergy

- Adverse reactions to medications are frequently observed.
- Among the drugs associated with IgE-mediated allergic reactions, Penicillins are most commonly implicated.
- Penicillin allergy is estimated to affect 7% to 10% (1 in 10) of community populations and up to 20% of hospitalized patients.
- Many lose allergy over time

## Used PCN Allergy Guidelines from Allergy and Immunology Literature

### **Penicillin Allergy Testing Should Be Performed Routinely in Patients with Self-Reported Penicillin Allergy**

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For reference only.

## Penicillin Allergy

- When penicillin allergy testing is performed in individuals who report a history of penicillin allergy: the majority don't exhibit reaction
- The rate of positive skin test results to penicillin in recent studies is only 1% to 8%.

## Penicillin Allergy

- The reasons for the low rate of confirmed penicillin allergy include mislabeling of a:
  - side effect (eg, gastrointestinal upset) or
  - a coincidental event (eg, headache or cutaneous eruption due to underlying infection) as an allergic reaction,
  - reduced rates of exposure to parenteral penicillins, and
  - loss of IgE-mediated allergy with avoidance of penicillins over time

## PCN Skin Testing

- Patients with negative skin testing to penicillin reagents, followed by an oral challenge that is well tolerated, are able to receive penicillins
  - without increased risk of IgE-mediated allergic reaction.
- The negative predictive value of penicillin allergy testing exceeds 99%
- Studies show that 9/10 people with reported PCN allergy can receive PCN without adverse reaction

## Why improve documentation?

- Improving documentation of all antimicrobial allergies leads more appropriate antimicrobial choices
- The National Quality Partners' Antibiotic Stewardship Action Team recommends penicillin allergy skin testing as a component of a comprehensive antibiotic stewardship program.

## Why do we care?

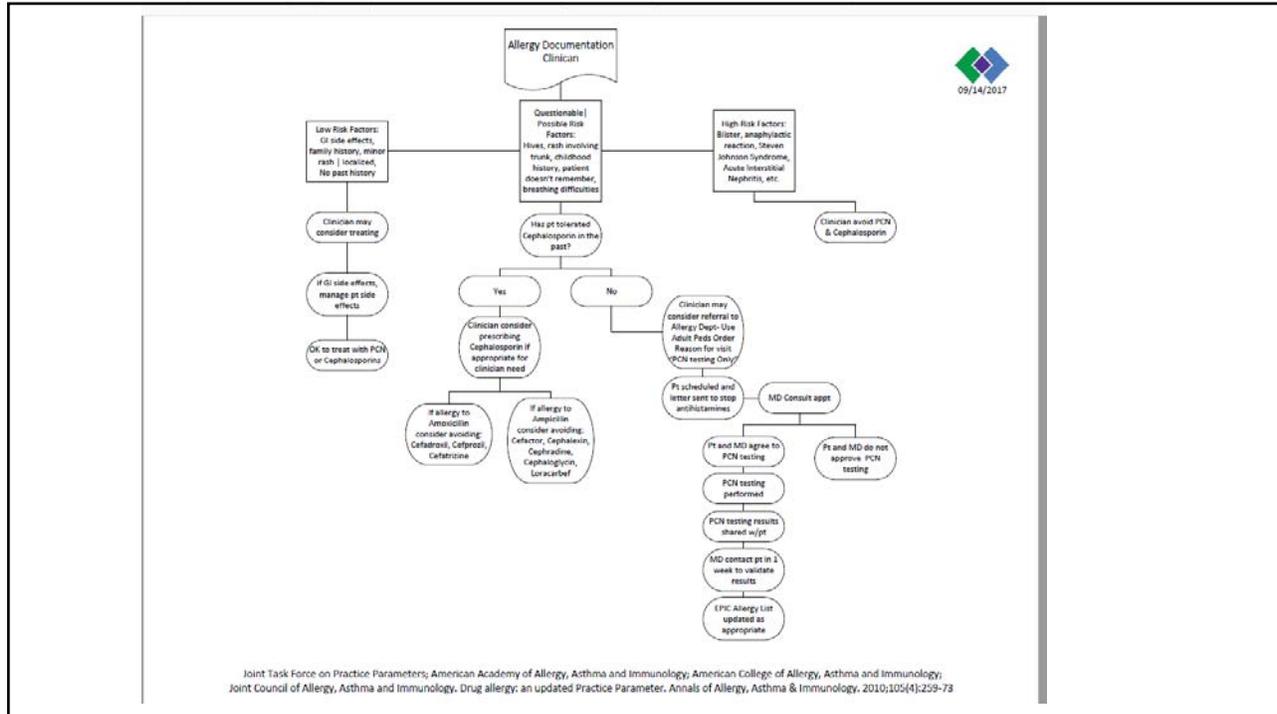
- Unverified penicillin allergy in hospitalized patients associated with:
  - longer hospital stays
  - increased rates of serious drug resistant infections including C Difficile
- Fluoroquinolone over use
- Inadequate treatment of infection
- Unnecessary use of IV Antibiotics for simple to treat infections
  - For example, using carbapenem because documented PCN and Cephalosporin allergy

## What Did we do?

- Formed a work group
- Already had an organizational wide AMS committee
  - Asked Allergy and Immunology specialists to join
  - Had Primary Care representation along with PharmD and ID
  - IT/EMR support
- Primary Care driven project
  - Asked Primary Care what they saw and focused on the problem at hand.

## Steps

- Develop a Smart Set in our EMR (we used EPIC)
- Educate the clinicians and support staff
  - Ask about allergies, document what reaction was,
  - specific antimicrobial documentation
  - Place food allergies in Problem List and only leave severe allergies (Nuts for example) in the Allergy documentation Tab
  - Allergy vs Intolerance?
    - GI upset is not an allergy
    - Document True IGE Mediated reactions



# Smart Set

## ▼ PENICILLIN ALLERGY SMARTSET

Resources	<a href="#">Collapse</a>
▼ PCN ALLERGY RESOURCES - Summary article	
Very low risk reaction	<a href="#">Collapse</a>
▼ PCN ALLERGY VERY LOW RISK REACTION  For a very low risk reaction such as GI side effects, family history of a reaction, minor localized rash, okay to consider prescribing penicillin or cephalosporin. Please update the Allergy/Intolerance List as appropriate.	
Questionable or Possible Risk	<a href="#">Collapse</a>
▼ PCN ALLERGY QUESTIONABLE OR POSSIBLE RISK  For a questionable or possible risk such as hives, more diffuse rash particularly involving the trunk, childhood history of penicillin allergy, breathing difficulties, or patient unable to recall reaction, consider referral to Allergy for testing. If patient has tolerated a cephalosporin in the past, consider prescribing cephalosporin.	
<input type="checkbox"/> Allergy And Immunology Consult Adult/Peds <small>In order to obtain valid and useful penicillin allergy skin testing results, you will need to discontinue the use of antihistamines prior to your appointment. The Allergy Department will provide you with specific details when your appointment is scheduled. Please consult with the Allergy Department if you have any questions about this.</small>	
<input type="checkbox"/> Allergy to penicillin [Z88.0] <a href="#">Details</a>	

**Questionable or Possible Risk** Collapse

**PCN ALLERGY QUESTIONABLE OR POSSIBLE RISK**

For a questionable or possible risk such as hives, more diffuse rash particularly involving the trunk, childhood history of penicillin allergy, breathing difficulties, or patient unable to recall reaction, consider referral to Allergy for testing, if patient has tolerated a cephalosporin in the past, consider prescribing cephalosporin.

**Allergy And Immunology Consult Adult/Peds**

**PCN Allergy Consult** - In order to obtain valid and useful penicillin allergy skin testing results, you will need to discontinue the use of antihistamines prior to your appointment. The Allergy Department will provide you with specific details when your appointment is scheduled. Please consult with the Allergy Department if you have any questions about this.  Accept  Cancel

Process With:

DOC: **Park Nicolai** | Allergy (location) | IRMG (location) | Harbor (location) | **Park Nicolai (location)** | Wellstar (location) | Chobok (location)

Appointment Urgency? **Non Urgent** | Urgent | Emergent

Reason for visit?

Reference Links:  
Comments (PS): **1. Park Nicolai Consult Page**  
In order to obtain valid and useful penicillin allergy skin testing results, you will need to discontinue the use of antihistamines prior to your appointment. The Allergy Department will provide you with specific details when your appointment is scheduled. Please consult with the Allergy Department if you have any questions about this.

School Info: **Your provider has recommended an appointment with Park Nicolai Asthma & Allergy. You may call 852-893-3090 to schedule your appointment. If you do not schedule an appointment within the next 1 to 3 business days, we will call...**

Additional Order Details  Accept  Cancel

**Details**

as anaphylaxis, Steven-Johnson syndrome, or acute interstitial nephritis, AVOID penicillin and cephalosporins. If patient has tolerated a cephalosporin in the past, consider prescribing cephalosporin. Contact Allergy Department for further testing or advice.

Search) Coll

*by typing in the header of this section*

**Diagnosis Details** X

Diagnosis: **Allergy to penicillin**

Dx code(s): **Z88.0**

Annotation: **Allergy to penicillin**

Qualifier:

Comment:

Set this as primary diagnosis

**PCN Allergy High Risk** Collapse

**PCN ALLERGY HIGH RISK**

A high risk reaction such as anaphylaxis, Steven-Johnson syndrome, or acute interstitial nephritis, AVOID penicillin and cephalosporins. If patient has tolerated a cephalosporin in the past, consider prescribing cephalosporin. Contact Allergy Department for further testing or advice.

**Ad-hoc Orders** (Type to search) Collapse

You can search for an order by typing in the header of this section.

## Patient Education

### Penicillin Allergy Testing

What you should know

Use this information to learn about allergy testing and when you should get tested.

#### Why do I need penicillin allergy testing?

About 1 out of 10 patients report that they have a penicillin allergy. However, many of these patients may not be truly allergic to penicillin. Others lose their allergy to penicillin over time. If you were told that you have a penicillin allergy, testing can help you and your doctor know if you still have that allergy.

#### What happens during my appointment?

- Your allergist will talk with you about your previous reactions to penicillin to find out if you should have skin testing.
- There are many different types of skin testing. If skin testing is recommended, you and your allergist will discuss which test is best for you.
- Most skin tests have 2 parts. During the 1st part of the skin test, your allergist pricks your skin with 2 types of penicillin. During the 2nd part, a small amount of penicillin is injected into the skin.
- If the test is positive, your skin will react by getting itchy, red or swollen at the injection site. Here's together more serious reactions can occur, but this is rare.
- If your test is negative, your allergist may give you a dose of penicillin or amoxicillin to make sure you can take these antibiotics safely. Your doctor will watch closely for reactions to the medicine. If you have a reaction, your allergy

team is ready to treat it. If you have no reaction to the dose of penicillin, it means you do not have an allergy to that type of penicillin.

Skin testing usually lasts 2 to 3 hours.

#### What happens after the test?

If the tests show that you are not allergic to a type of penicillin, you can take that medication safely when prescribed. Be sure to let your primary care clinician know about your test results so they can change the information in your medical record.

If the tests confirm a penicillin allergy, your doctor can talk with you about what antibiotics you can take safely. If you have an allergy to penicillin, it is best to avoid medications in the penicillin family, including the following:

- Amoxicillin
- Ampicillin
- Amoxicillin-clavulanate
- Dicloxacillin
- Nafcillin
- Piperacillin-tazobactam
- Certain in the cephalosporin class

**[I would avoid talking about desensitization procedures in this handout. This can be a separate education piece if needed.]**

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## The Future Plans

- Disseminate this to clinicians
- Expand to inpatient
- Improve education to community and clinicians
- Desensitization protocol for inpatient use

## Other Ideas

- Some institutions are training ID clinicians or pharmacists to do PCN Skin testing on inpatients or in outpatient setting