Penicillin Allergy 101 For Nurses

Nurses Take Antibiotic Stewardship Action Initiative

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Important Points About Penicillin Allergies

- About 10% of the US population reports a penicillin (PCN) allergy
  - Most PCN allergies are not true allergies (>95%)
  - The most common reaction is a delayed-type rash that does not preclude subsequent receipt of PCN or other antibiotics in the PCN family
  - Anaphylaxis is extremely rare (0.001%)

- Patients with a penicillin allergy label (whether true or not) have worse clinical outcomes
  - Increased risk of developing surgical site infections
  - Increased risk of failing therapy for an infection
  - Increased length of stay

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Common Reasons For Incorrect PCN Allergy

- Viral rash occurring at the same time antibiotics are taken (e.g., amoxicillin and viral infectious mononucleosis)
- Patients have a family member with a PCN allergy and feel they may have it as well
- Adverse events related to antibiotics:
  - Isolated headaches, nausea, vomiting or diarrhea
  - Itching without rash
  - Vaginal burning

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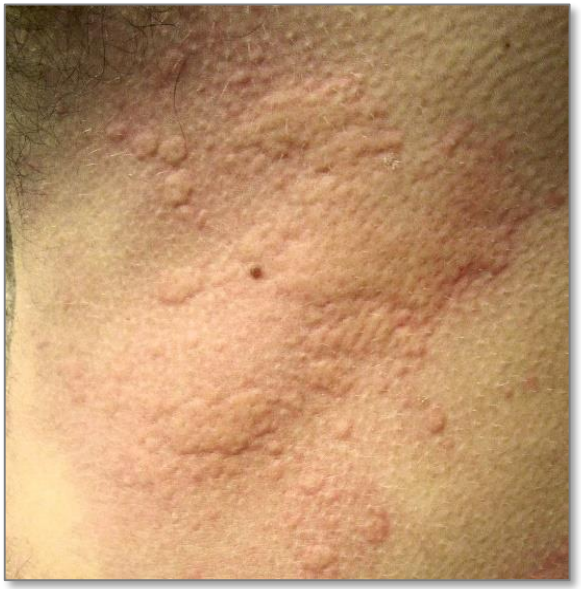
How Can Nurses Help Ensure Patients Are Not Incorrectly Labeled With A PCN allergy and Receive Optimal Antibiotic Therapy?

- Document antibiotic allergies accurately
  - **When** did it happened?
  - **What** happened? *And* **How soon** after the antibiotic?
  - **What** antibiotic?
- Learn the differences between hives and a delayed maculopapular rash
- Educate patients about PCN allergy

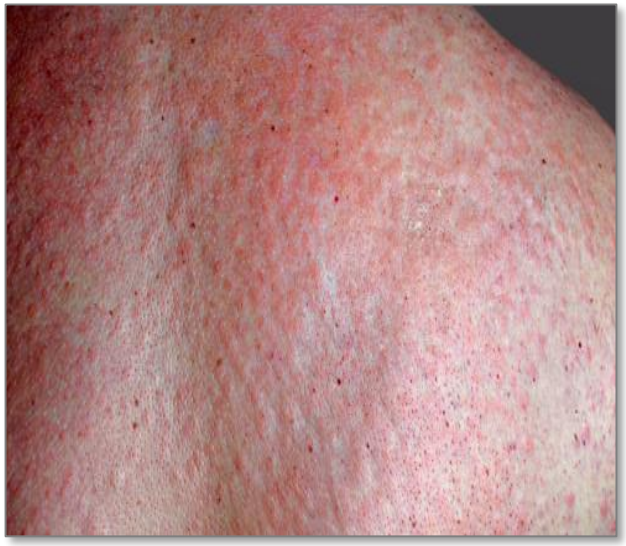
Hives

- Itchy, red bumps with white centers ("mosquito bite" appearance)
- **Usually occurs within 6 hours of antibiotic administration**
- Bumps disappear after a few hours and new ones may appear
- Predicted by skin test
- Allergy evaluation required before use of same drug or closely related antibiotic

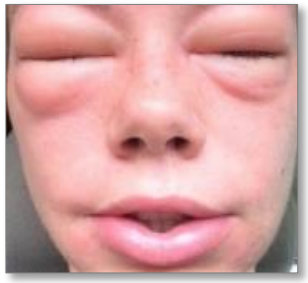


Maculopapular rash

- This is the most common rash patients experience with PCN, amoxicillin, ampicillin, cephalosporins
- **Usually occurs after ≥72 hours of antibiotic exposure**
- NOT predicted by skin tests
- Feels rough to touch
- Most often the reaction will not recur, and patient may receive same antibiotic again if needed



Anaphylaxis

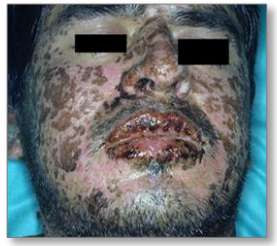


- Immediate allergic reaction
  - Within few hours of antibiotic administration
- Presents with laryngeal edema, facial swelling, urticaria, wheezing/shortness of breath, hypotension
- Can be predicted by skin tests
  - If skin test is negative, the patient is not at risk for anaphylaxis
- People can overcome this type of allergy over time
  - 80% of patients will no longer be allergic after 10 years, s… important to have an evaluation by Allergy to determine status

Late Severe Reactions Involving The Skin

- Incudes: Stevens-Johnson syndrome (SJS), Toxic Epidermal Necrolysis (TEN), Drug Rash with Eosinophilia and Systemic Symptoms (DRESS)

- SJS/TEN: Exfoliative (skin peeling) dermatitis with mucous membrane involvement (mouth, eyes, genitals) usually occurring after a patients has been on antibiotics for ~7 days



- DRESS: Fever, rash, eosinophilia that develops 2-6 weeks into an antibiotic course

- NOT predicted by skin tests

- Patients are ill and require hospitalization

Other Severe Reactions

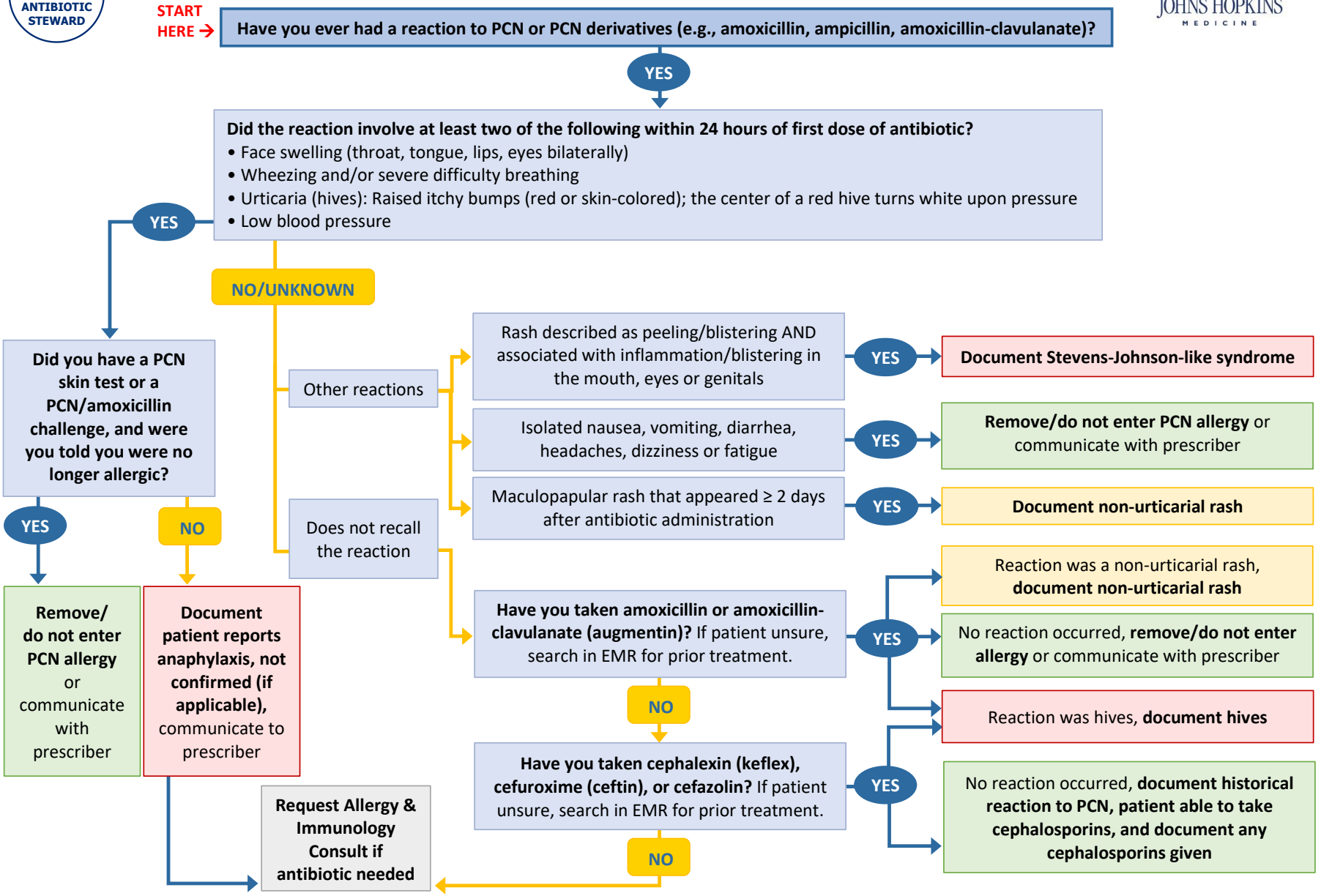
- Inflammation of the liver, kidneys or lungs (hepatitis/nephritis/pneumonitis)
- Hemolytic anemia/cytopenias
- Tendon rupture

Key Elements For Accurate Documentation Of PCN Allergy

- **Document precise reaction** (e.g., if the reaction was a rash, distinguish hives from maculopapular rash from late blistering rash with lesions in the mouth)
- **Document when the reaction occurred**
  - Age of patient at time of reaction
  - Timing of reaction in relation to antibiotic administration (e.g., within 3 hours vs. after 72 hours of antibiotic administration)
- **Ask the patient and/or check in the electronic health record what antibiotics** the patient has received since the reported reaction, and document this

Does My Patient Have a Penicillin (PCN) Allergy?

Developed by The Johns Hopkins Hospital Department of Antimicrobial Stewardship



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