





Nurses Take Antibiotic Stewardship Action Initiative

Penicillin Allergy 101 For Nurses



Slide Title and Commentary	Slide Number and Image
<p>Penicillin Allergy 101 For Nurses</p> <p>SAY:</p> <p>Penicillin Allergy 101 for nurses. This presentation will cover topics such as documenting penicillin allergies as well as allergic reactions to antibiotics. This material was supported in part by a U.S. Centers for Disease Control and Prevention (CDC) contract to Johns Hopkins University.</p> <p><u>Disclaimer:</u> The conclusions in this presentation are the JHU's authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.</p>	<p>Slide 1</p>  <p><u>Penicillin Allergy 101 For Nurses</u></p> <p>Nurses Take Antibiotic Stewardship Action Initiative</p> <p>This material was supported in part by a U.S. Centers for Disease Control and Prevention (CDC) contract to Johns Hopkins University.</p> <p>The Department of Antimicrobial Stewardship, The Johns Hopkins Hospital:</p> <ul style="list-style-type: none"> • Valeria Fabre, MD • Sara E. Cosgrove, MD, MS • Lauren Rosales, BA, BSN-RN <p>The Office of Antibiotic Stewardship, Centers for Disease Control and Prevention:</p> <ul style="list-style-type: none"> • Arjun Srinivasan, MD • Lauri Hicks, DO • Melinda Neuhausser, PharmD  <p><small>Disclaimer: The conclusions in this presentation are those of the JHU authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.</small></p> <p style="text-align: right;">1</p>
<p>Important Points About Penicillin Allergies</p> <p>SAY:</p> <ul style="list-style-type: none"> • About 10% of the US population reports a penicillin (PCN) allergy <ul style="list-style-type: none"> – Most PCN allergies are not true allergies (>95%) – The most common reaction is a delayed (usually after a few days of taking the antibiotic) rash that does not preclude subsequent receipt of PCN or other antibiotics in the PCN family – Anaphylaxis is rare (<0.1%) • Patients with a penicillin allergy label (whether true or not) have worse clinical outcomes <ul style="list-style-type: none"> – Increased risk of developing surgical site infections – Increased risk of failing therapy for an infection – Increased length of stay 	<p>Slide 2</p>  <p>Important Points About Penicillin Allergies</p> <ul style="list-style-type: none"> • About 10% of the US population reports a penicillin (PCN) allergy <ul style="list-style-type: none"> – 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 <ul style="list-style-type: none"> – Increased risk of developing surgical site infections – Increased risk of failing therapy for an infection – Increased length of stay  <p style="text-align: right;">2</p>

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Common Reasons For Incorrect PCN Allergy Entries

SAY:

Sometimes, patients may report a penicillin allergy incorrectly. This can occur because the patient had a rash associated with a viral infection but received antibiotics at the same time, giving the false impression that the rash was related to antibiotics. Another common reason for incorrect penicillin allergy label is that a patient may have a family member with a PCN allergy and feel that they might have it as well; however, penicillin allergies are not inherited. Another reason is that a patient may experience side effects to antibiotics that are not allergies. Isolated headaches, nausea, vomiting, or diarrhea, as well as itching without a rash, are not indicative of an antibiotic allergy.

Slide 3



Common Reasons For Incorrect PCN Allergy

- Viral rash occurring at the same time antibiotics are taken (e.g., amoxicillin and 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 (likely due to yeast infection)



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

SAY:

There are steps nurses can take to help ensure that patients receive optimal antibiotic therapy. These steps include documenting antibiotic allergies accurately, knowing when it happened, what was the reaction, what was the timing in relation to antibiotic administration, how to distinguish hives from the more benign maculopapular rash, and educating patients about the importance of accurate PCN allergy documentation.

Slide 4



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 happen?
 - **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









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<p>Hives</p> <p>SAY:</p> <p>Hives, or urticaria, is an immediate allergic skin reaction. This reaction can be identified by itchy bumps that are pink/red with white centers. The lesions may look like early mosquito bites. With time, the bumps do disappear, though new ones may appear later. Hives can be predicted by a skin test, and if hives were triggered by an antibiotic, an allergy evaluation is warranted before the same or a closely related antibiotic is used.</p>	<p>Slide 5</p>  <p>Hives</p> <ul style="list-style-type: none"> • 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   <p>5</p>
<p>Maculopapular Rash</p> <p>SAY:</p> <p>A maculopapular rash is the most common reaction to PCN and antibiotics within the PCN family. This rash may involve large areas of the body, and it usually feels like sandpaper to the touch. This rash tends to occur after at least 72 hours of antibiotic administration. It is not predicted by skin tests. Note that, in most cases, this reaction will not recur. Therefore, it is acceptable to give an antibiotic that triggered a patient to develop maculopapular rash to this patient in the future.</p>	<p>Slide 6</p>  <p>Maculopapular rash</p> <ul style="list-style-type: none"> • 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   <p>6</p>
<p>Anaphylaxis</p>	<p>Slide 7</p>

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<p>SAY:</p> <p>Anaphylaxis is a severe allergic reaction that occurs within hours of antibiotic administration. Patients may develop laryngeal edema, facial swelling, and urticarial also known as hives. Note that anaphylaxis can be predicted by skin tests. If a skin test is negative, a patient will not be at risk for anaphylaxis.</p> <p>Also note that some people will lose hypersensitivity to penicillin over time; however, it is best to not assume this has occurred and consult allergy for skin testing.</p>	 <h3>Anaphylaxis</h3>  <ul style="list-style-type: none">• Immediate allergic reaction<ul style="list-style-type: none">• Within few hours of antibiotic administration• Presents with laryngeal edema, facial swelling, urticaria, wheezing/shortness of breath, hypotension• Can be predicted by skin tests<ul style="list-style-type: none">• If skin test is negative, the patient is not at risk for anaphylaxis• People can overcome this type of allergy over time<ul style="list-style-type: none">• 80% of patients will no longer be allergic after 10 years, s important to have an evaluation by Allergy to determine status  <p>7</p>
<h3>Late Severe Reactions Involving The Skin</h3> <p>SAY:</p> <p>Late-onset severe skin reactions include Stevens-Johnson syndrome, Toxic Epidermal Necrolysis, and drug rash with eosinophilia and systemic symptoms.</p> <p>Stevens-Johnson syndrome and Toxic Epidermal Necrolysis reactions cause exfoliative dermatitis (peeling or blistering of the skin) with mucous membrane involvement (eyes, mouth, genitals) occurring after a patient has been on 5-7 days of antibiotics.</p> <p>Another late reaction, Drug Rash with Eosinophilia and Systemic Symptoms, can present as a fever, rash, and eosinophilia developing after a patient has been on antibiotics for 2-6 weeks.</p> <p>In contrast to anaphylaxis, late severe skin reactions are not predicted by skin tests.</p> <p>Patients should not be exposed the same antibiotic that caused the reactions.</p>	<h3>Slide 8</h3>  <h3>Late Severe Reactions Involving The Skin</h3> <ul style="list-style-type: none">• Includes: 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   <p>8</p>
<h3>Other Severe Reactions</h3>	<h3>Slide 9</h3>

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<p>SAY:</p> <p>Antibiotics can also cause severe reactions that do not manifest as a rash at all such as inflammation of internal organs (hepatitis, nephritis, pneumonitis), hemolytic anemia, other blood abnormalities (neutropenia) and tendon rupture.</p>	 <h3>Other Severe Reactions</h3> <ul style="list-style-type: none">• Inflammation of the liver, kidneys or lungs (hepatitis/nephritis/pneumonitis)• Hemolytic anemia/cytopenias• Tendon rupture 
<h3>Key Elements For Accurate Documentation Of PCN Allergy</h3> <p>SAY:</p> <p>Here are three key elements of accurately documenting a penicillin allergy. First, record an exact description of the reaction. Rather than documenting “rash,” differentiate between hives, a maculopapular rash or another skin reaction. Second, record when the reaction occurred, both in terms of the patient’s age and in terms of how much time had passed since the start of antibiotic administration. Third, ask the patient and/or check in the electronic health record what antibiotics the patient has received since the reported reaction and record this in the medical record.</p>	<h3>Slide 10</h3>  <h4>Key Elements For Accurate Documentation Of PCN Allergy</h4> <ul style="list-style-type: none">• 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<ul style="list-style-type: none">• 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 

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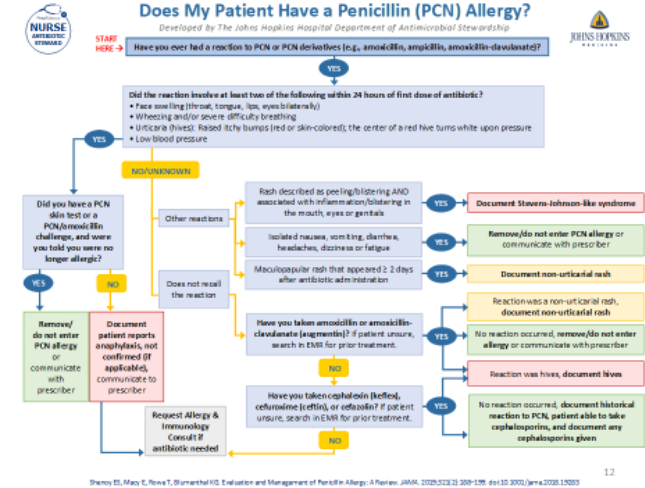


Does My Patient Have A Penicillin (PCN) Allergy?

SAY:

This algorithm is a tool to aid in judging whether or not a patient has a penicillin allergy. Gather information from the patient and/or the electronic health record, navigate through the algorithm, and be a nurse antibiotic steward.

Slide 11



References

Slide 12

References

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