Clinical Pathways

Penicillin Allergy Delabeling

Laura Kvenvold, MD

Jennifer Girotto, PharmD, BCPPS, BCIDP

Ian Michelow, MD

What is a Clinical Pathway?

An evidence-based guideline that decreases unnecessary variation and helps promote safe, effective, and consistent patient care.

Objectives of Pathway

- Standardize the process for identifying patients with low risk of true penicillin allergy
- Standardize the process for delabeling low-risk penicillin allergies in the inpatient setting

Why is Pathway Necessary?

- Inappropriate penicillin allergy labels are very common
- Carrying a penicillin allergy label can result in use of overly broad spectrum antibiotics which is associated with a variety of negative outcomes
- New practice parameters emphasize the need to proactively identify false labels and remove (delabel) them
  - A direct oral challenge with amoxicillin is safe and effective in testing patients who are at a low risk of having a true, IgE-mediated reaction
- There is limited access to allergists nationwide. This pathway empowers all healthcare providers to safely delabel penicillin, allowing more patients access to this important care

Background

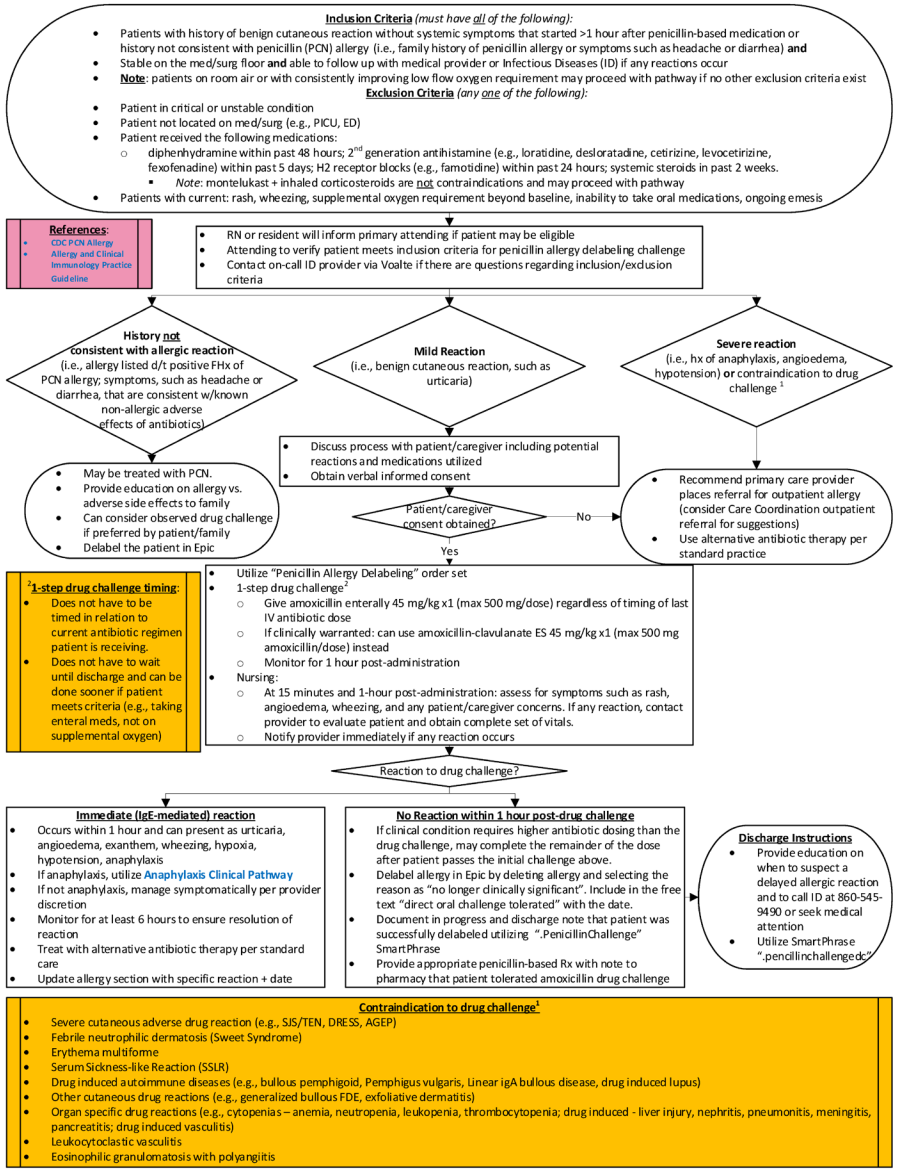
- About 10% of the US population carries a penicillin allergy label; however only 1% are actually real IgE-mediated (or severe delayed hypersensitivity reactions; 75% of these labels are given before the age of 3 years
- Avoidance of penicillins, which are often first line therapies, is associated with increased treatment failures, surgical site infections, adverse side effects, development of resistant infections, and healthcare costs
- Numerous studies indicate that people listed as having a “low risk” penicillin allergy are able to safely undergo a direct oral drug challenge rather than requiring specialized skin testing first
- Allergy specialty services are limited; enabling other non-allergy providers to delabel patients is necessary
- The most recent Drug Allergy Practice Parameters (2022) recommend pediatric patients be proactively delabeled as part of standard of care

This is the Penicillin Allergy Delabeling Clinical Pathway.

We will be reviewing each component in the following slides.

Penicillin (Amoxicillin) Allergy Delabeling Inpatient Clinical Pathway - Pilot

ATTENTION:
This pathway is a currently a pilot for **Pediatric Hospital Medicine** patients only. Please continue to check CT Children's Internet site for the most up-to-date version. [Last update: 2/2025]



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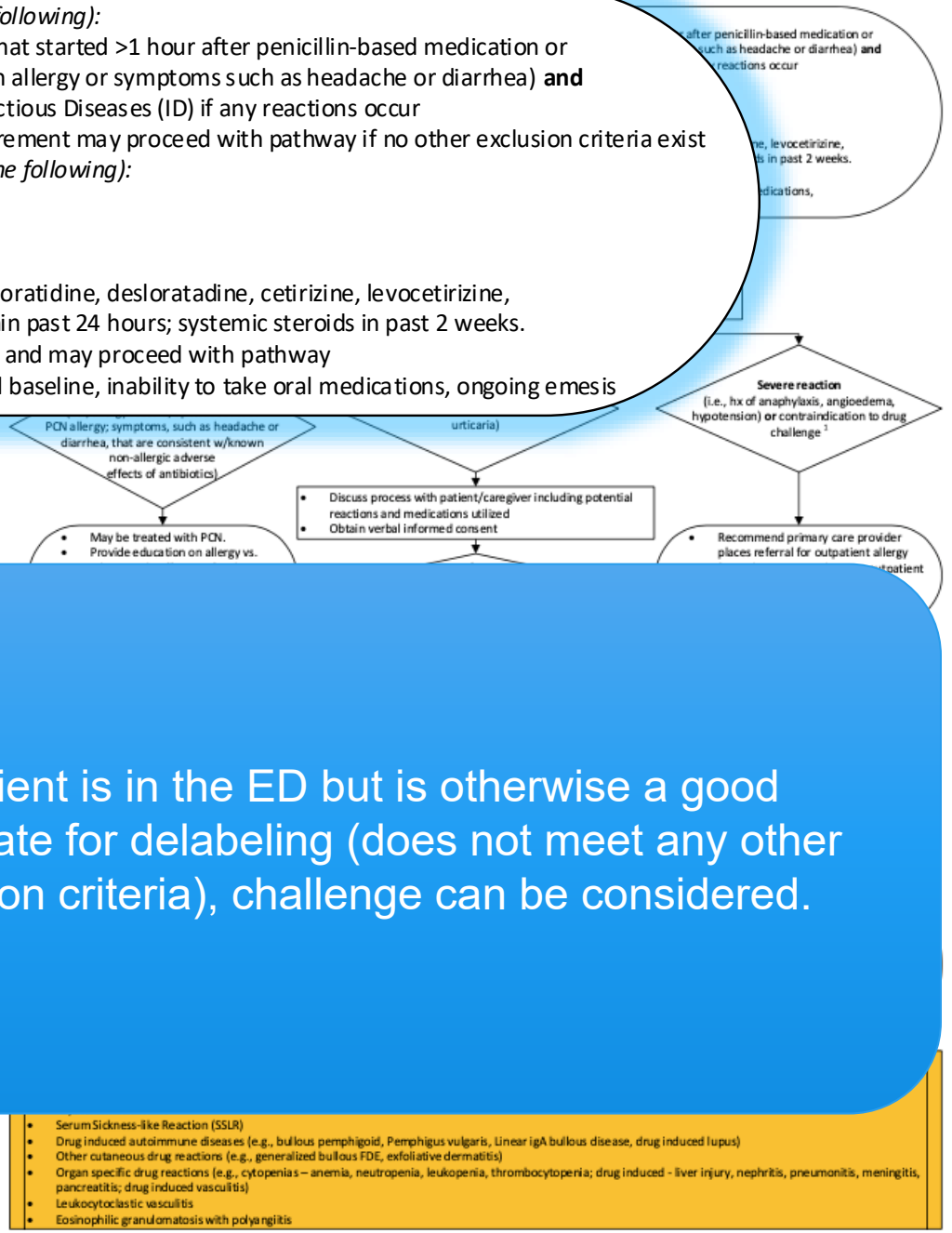
Inclusion Criteria *(must have all of the following):*

- Patients with history of benign cutaneous reaction without systemic symptoms that started >1 hour after penicillin-based medication or history not consistent with penicillin (PCN) allergy (i.e., family history of penicillin allergy or symptoms such as headache or diarrhea) **and**
- Stable on the med/surg floor **and** able to follow up with medical provider or Infectious Diseases (ID) if any reactions occur
- **Note**: patients on room air or with consistently improving low flow oxygen requirement may proceed with pathway if no other exclusion criteria exist

Exclusion Criteria *(any one of the following):*

- Patient in critical or unstable condition
- Patient not located on med/surg (e.g., PICU, ED)
- Patient received the following medications:
  - diphenhydramine within past 48 hours; 2nd generation antihistamine (e.g., loratidine, desloratadine, cetirizine, levocetirizine, fexofenadine) within past 5 days; H2 receptor blocks (e.g., famotidine) within past 24 hours; systemic steroids in past 2 weeks.
    - *Note*: montelukast + inhaled corticosteroids are not contraindications and may proceed with pathway
- Patients with current: rash, wheezing, supplemental oxygen requirement beyond baseline, inability to take oral medications, ongoing emesis



Exclusion criteria were developed so that IF the patient has a reaction, the provider will be able to tell from signs or symptoms. The listed medications and current symptoms could all mask an allergic reaction which could result in a false outcome.

Only stable patients should be challenged; otherwise the risk may outweigh the benefits of challenge

If a patient is in the ED but is otherwise a good candidate for delabeling (does not meet any other exclusion criteria), challenge can be considered.

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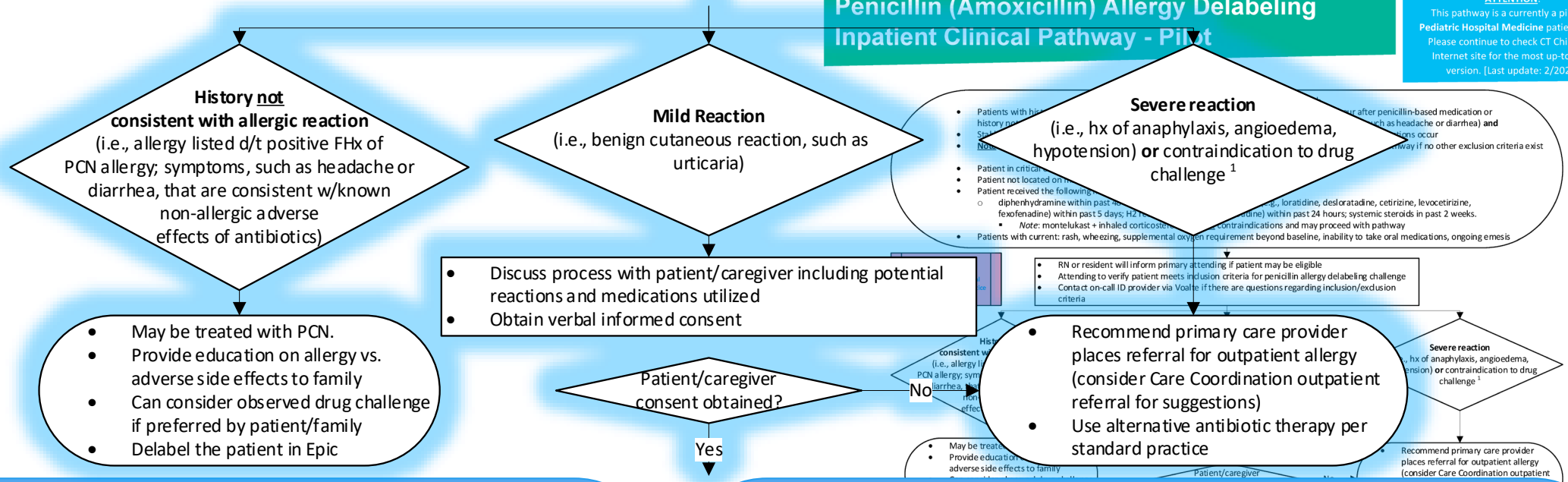

Getting an accurate allergy history is essential to determine the patient's risk level.

Tips:
-Did the patient have to go to the ED or hospital for the reaction?
-Were medications needed to stop the reaction?
-How long into antibiotics did the reaction occur?
-How old was the patient when they had the reaction?
-Have they had any penicillins since?
-Did they have any symptoms in addition to the rash?

Remember, common side effects (like diarrhea) or a positive family history are not reasons to avoid using a penicillin antibiotic.

Penicillin allergies do NOT run in families.

Most people grow out of penicillin allergies within 10 years.

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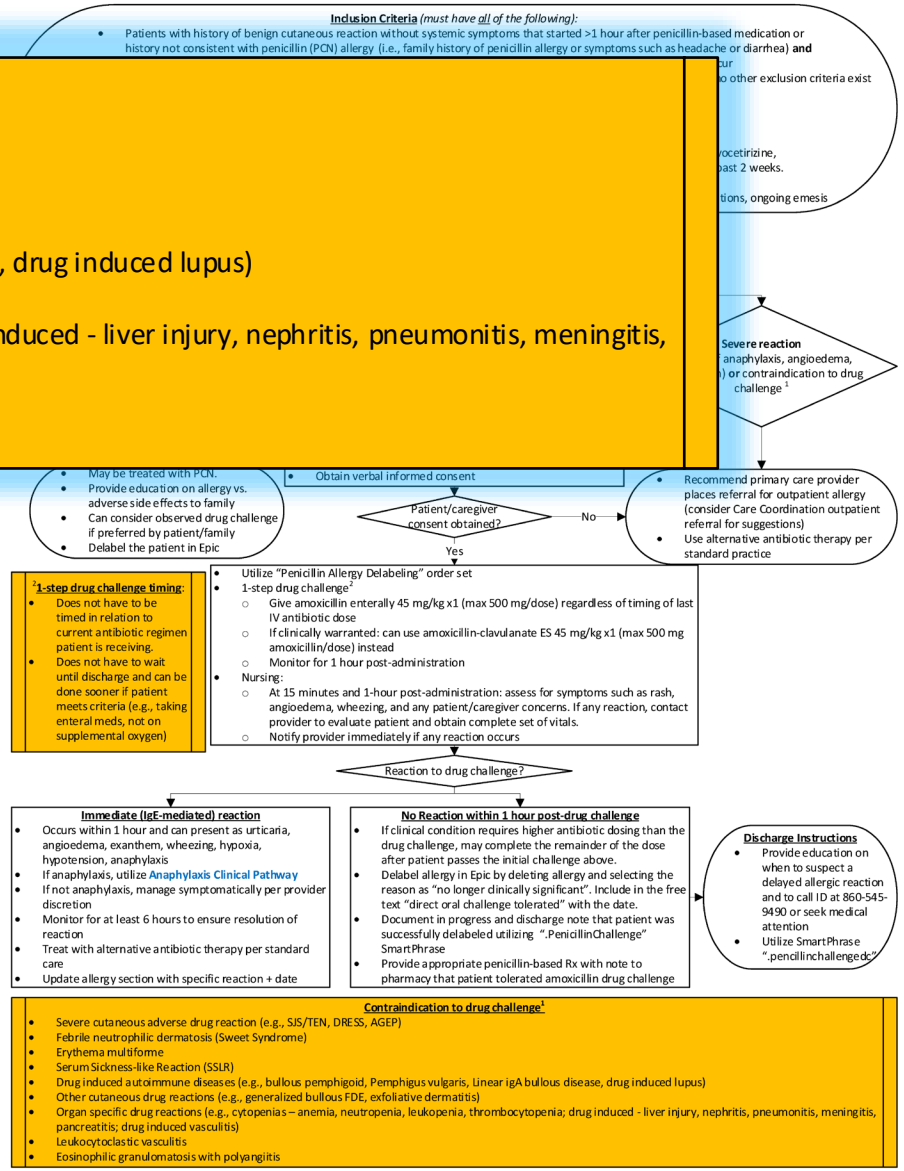
Contraindication to drug challenge[1]

- Severe cutaneous adverse drug reaction (e.g., SJS/TEN, DRESS, AGEP)
- Febrile neutrophilic dermatosis (Sweet Syndrome)
- Erythema multiforme
- Serum Sickness-like Reaction (SSLR)
- Drug induced autoimmune diseases (e.g., bullous pemphigoid, Pemphigus vulgaris, Linear igA bullous disease, drug induced lupus)
- Other cutaneous drug reactions (e.g., generalized bullous FDE, exfoliative dermatitis)
- Organ specific drug reactions (e.g., cytopenias – anemia, neutropenia, leukopenia, thrombocytopenia; drug induced - liver injury, nephritis, pneumonitis, meningitis, pancreatitis; drug induced vasculitis)
- Leukocytoclastic vasculitis
- Eosinophilic granulomatosis with polyangiitis

There are some reasons to avoid retrial of a penicillin that are NOT IgE-mediated. These reactions can be severe and are more likely to recur sooner with a retrial.

Luckily, these conditions are relatively uncommon in pediatric patients.



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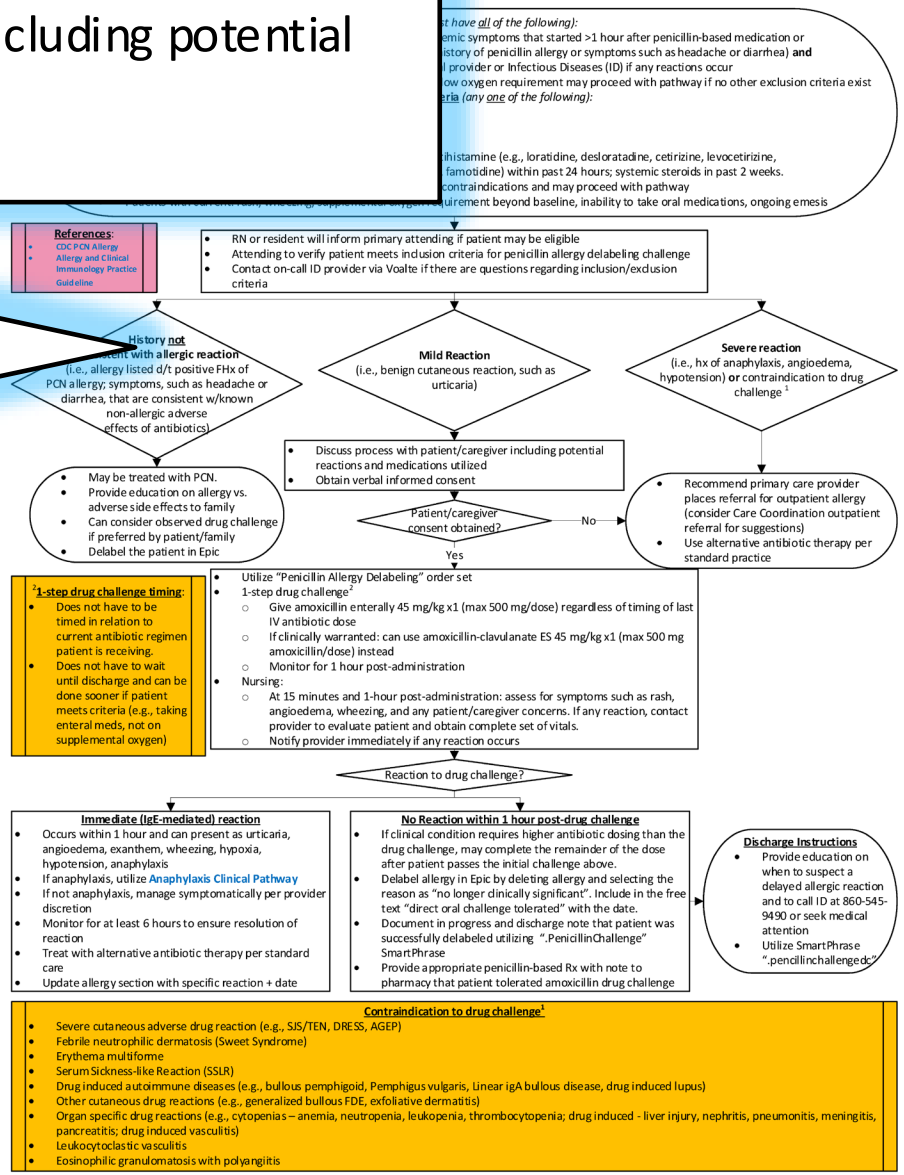
- Discuss process with patient/caregiver including potential reactions and medications utilized
- Obtain verbal informed consent

Patient/caregiver consent obtained?



While there is not a written consent form, you want to be sure the caregiver and patient are in agreement with the challenge and the potential for a reaction .

Please document using the SmartPhrase ".pencillinchallenge"

There is also a patient handout you can print from the pathway internet homepage for patients and caregivers

Most patients and caregivers are excited to be "cured" of their allergy.

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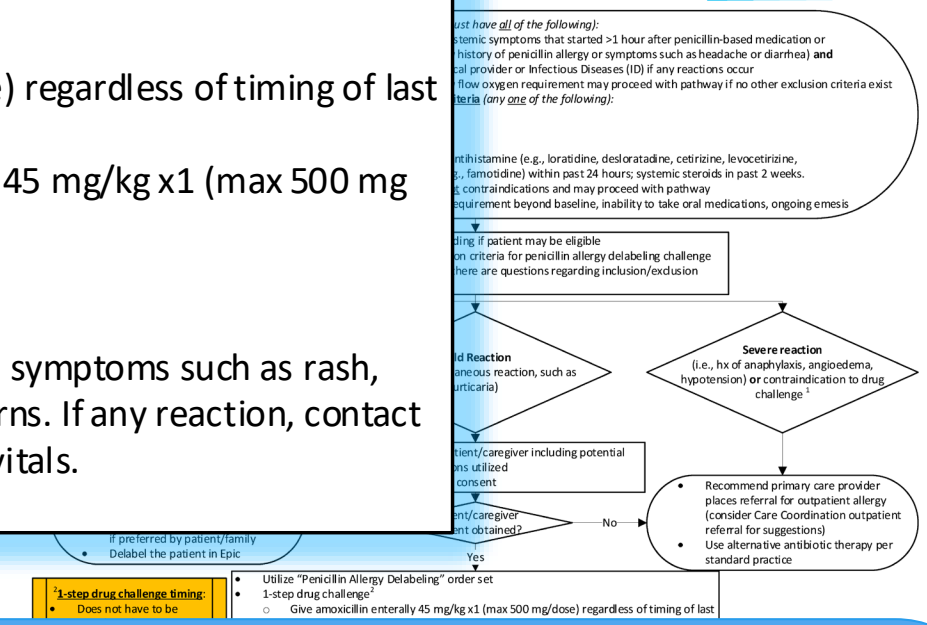
- Utilize "Penicillin Allergy Delabeling" order set
- 1-step drug challenge[2]
  - Give amoxicillin enterally 45 mg/kg x1 (max 500 mg/dose) regardless of timing of last IV antibiotic dose
  - If clinically warranted: can use amoxicillin-clavulanate ES 45 mg/kg x1 (max 500 mg amoxicillin/dose) instead
  - Monitor for 1 hour post-administration
- Nursing:
  - At 15 minutes and 1-hour post-administration: assess for symptoms such as rash, angioedema, wheezing, and any patient/caregiver concerns. If any reaction, contact provider to evaluate patient and obtain complete set of vitals.
  - Notify provider immediately if any reaction occurs



Please always **use the order set**. It is helpful for ordering the correct med/dose and the appropriate nursing orders.

Delabeling **does not** require cardiopulmonary monitoring.

Delabeling is NOT the same as desensitization. Delabeling is proving that a suspected false allergy is in fact false and safe to remove from the patient's chart.

Desensitization is the medical process of providing increasingly larger doses of a medication under intensive medical supervision to allow temporary safe administration of a penicillin (e.g. in a pregnant patient with syphilis). This is a much riskier endeavor.

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Immediate (IgE-mediated) reaction

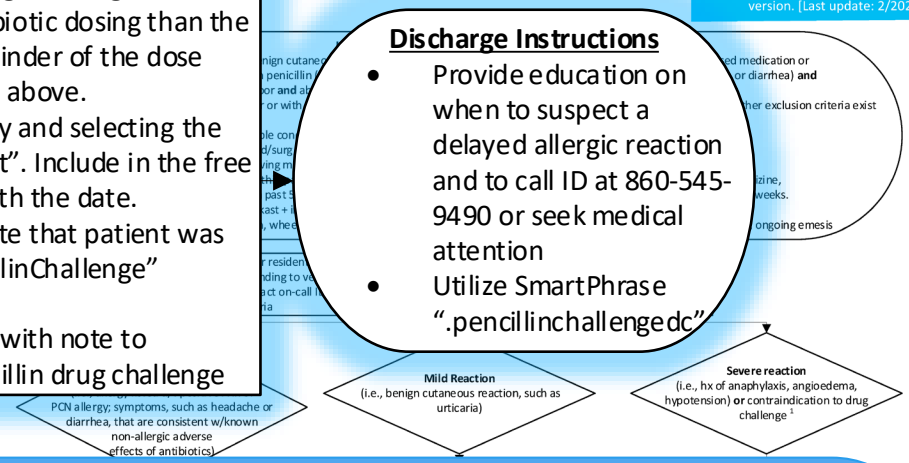
- Occurs within 1 hour and can present as urticaria, angioedema, exanthem, wheezing, hypoxia, hypotension, anaphylaxis
- If anaphylaxis, utilize **Anaphylaxis Clinical Pathway**
- If not anaphylaxis, manage symptomatically per provider discretion
- Monitor for at least 6 hours to ensure resolution of reaction
- Treat with alternative antibiotic therapy per standard care
- Update allergy section with specific reaction + date

No Reaction within 1 hour post-drug challenge

- If clinical condition requires higher antibiotic dosing than the drug challenge, may complete the remainder of the dose after patient passes the initial challenge above.
- Delabel allergy in Epic by deleting allergy and selecting the reason as "no longer clinically significant". Include in the free text "direct oral challenge tolerated" with the date.
- Document in progress and discharge note that patient was successfully delabeled utilizing ".PenicillinChallenge" SmartPhrase
- Provide appropriate penicillin-based Rx with note to pharmacy that patient tolerated amoxicillin drug challenge

Discharge Instructions

- Provide education on when to suspect a delayed allergic reaction and to call ID at 860-545-9490 or seek medical attention
- Utilize SmartPhrase ".pencillinchallengedc"



If the patient has ANY reaction, they should not not be delabeled.

There are not allergy reaction medications in the order set to have "just in case". If there is any concern for a reaction, the provider should promptly evaluate the patient and determine which medications, if any, are appropriate (see Anaphylaxis Clinical Pathway for guidance).

If there is no reaction to the drug challenge:
- Give the rest of the antibiotic dose for the clinical condition
- Remove the allergy in Epic with documentation that the patient tolerated the direct oral challenge.
- Document in the progress **and** discharge note by utilizing ".PenicillinChallenge" SmartPhrase.

- Febrile neutrophilic dermatosis (Sweet Syndrome)
- Erythema multiforme
- Serum Sickness-like Reaction (SSLR)
- Drug induced autoimmune diseases (e.g., bullous pemphigoid, Pemphigus vulgaris, Linear igA bullous disease, drug induced lupus)
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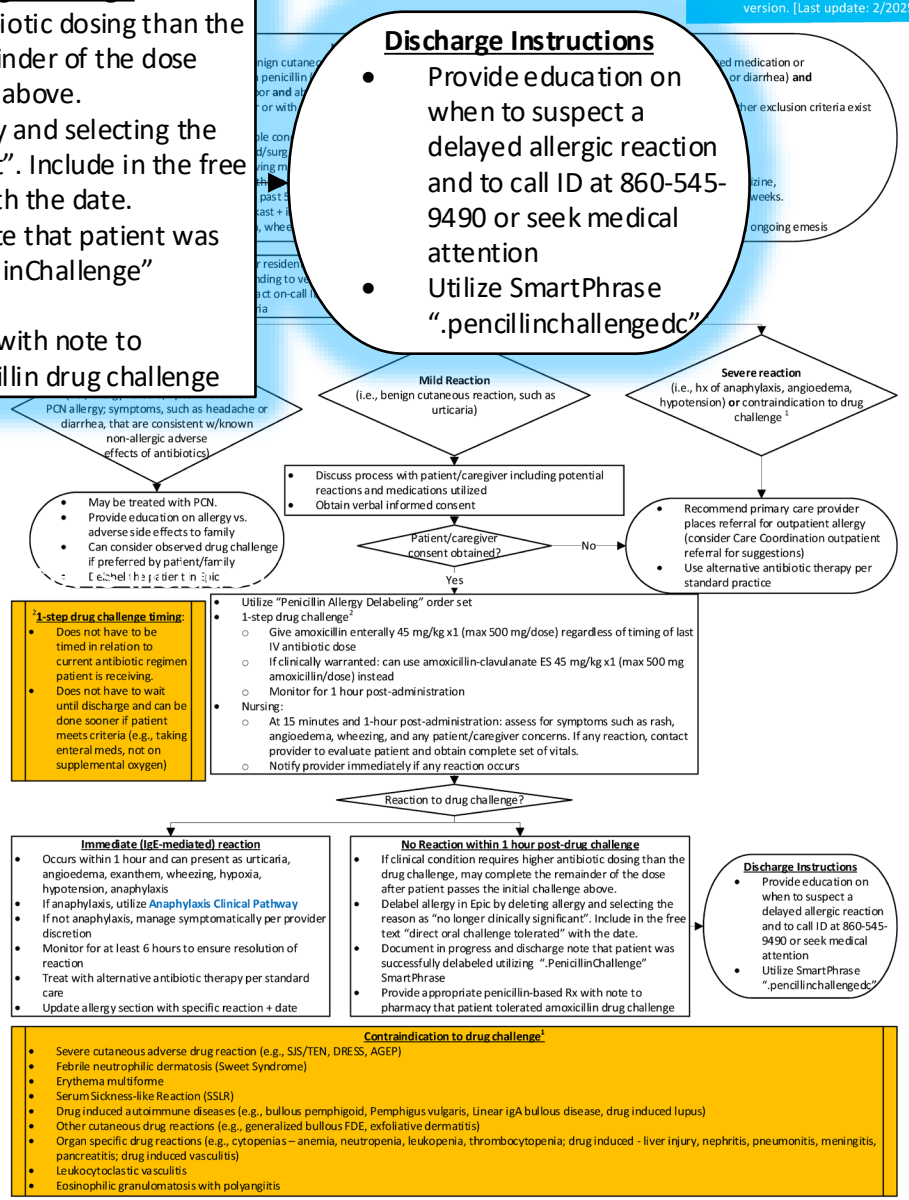
- Provide education on when to suspect a delayed allergic reaction and to call ID at 860-545-9490 or seek medical attention
- Utilize SmartPhrase ".pencillinchallengedc"

Rarely, late hypersensitivity reactions can occur after discharge. These are usually not severe.

Please be sure that the patient education is included in your discharge paperwork by using the SmartPhrase ".pencillinchallengedc"



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Use of Order Set and SmartPhrase

- In the pathway, there is guidance on the use of the Penicillin Allergy Delabeling order set for medication orders as well as nursing instructions for the trial. Use of this order set is encouraged to allow for standardization of dosing/monitoring.

- There is also a SmartPhrase to allow for easy documentation, "**.PenicillinChallenge"**. This contains drop down menus to ease documentation of infectious diagnosis, documented past reaction, medication used, caregiver/patient consent/assent, and challenge outcome. This SmartPhrase also allows for data gathering to monitor impact of the pathway for QI.

SmartPhrase Tips

- The SmartPhrase: .PenicillinChallenge includes drop down lists that aid in ease of documentation but also provides useful data to track the efficacy of the pathway

- Since the SmartPhrase includes a drop down list regarding **consent/assent**, it is ideal to utilize this SmartPhrase **even if caregiver/patients opt out** of a challenge after the delabeling conversation is had

- The SmartPhrase also includes a drop down list to document the **outcome** of the challenge; so it's best to use/complete AFTER the challenge is complete

Review of Key Points

- Inappropriate penicillin allergy labels are common and can be associated with negative patient outcomes and increased healthcare costs

- Direct oral challenge with amoxicillin is safe and effective in those patients with a low risk for true IgE-mediated reaction; proactive delabeling can be done by non-allergy providers

- Clear documentation of oral challenge when delabeling allergies is important to limit the chance that the patient will be relabeled as allergic in the future

Quality Metrics

- Percentage of order set usage
- Percentage of patients with an allergy with whom penicillin challenge is discussed
- Percentage of patients with discussion about delabeling that undergo challenge
- Percentage of patients challenged who are discharged on penicillin-class antibiotics
- Review of severity of reaction (if present)
- Percentage of challenged patients with documentation in the discharge note
- Percentage of patients with allergy appropriately delabeled in the allergy section of the chart
- Service that performed challenge

Pathway Contacts

- Laura Kvenvold, MD
  - Infectious Diseases and Immunology
- Ian Michelow, MD
  - Infectious Diseases and Immunology
  - Antimicrobial Stewardship Program
- Jennifer Girotto PharmD, BCPPS, BCIDP
  - Infectious Diseases and Immunology
  - Antimicrobial Stewardship Program

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Thank You!

About Connecticut Children's Pathways Program

Clinical pathways guide the management of patients to optimize consistent use of evidence-based practice. Clinical pathways have been shown to improve guideline adherence and quality outcomes, while decreasing length of stay and cost. Here at Connecticut Children's, our Clinical Pathways Program aims to deliver evidence-based, high value care to the greatest number of children in a diversity of patient settings. These pathways serve as a guide for providers and do not replace clinical judgment.