CLINICAL GUIDELINE

Penicillin Allergy Delabeling Guideline

Age: 3 months to < 18 years of age

Children's MINNESOTA

Aim: To identify and delabel patients who are incorrectly labeled as penicillin-allergic

Patient admitted to hospital and has documented penicillin, amoxicillin, or amoxicillin-clavulanate allergy in EMR

Evaluate:
- Reaction history using Penicillin Allergy Questionnaire (**Nurse**)
- Previously tolerated penicillins in EMR (**Pharmacist**)

- Review questionnaire responses with HCP (**Nurse**)
- Document reaction history in Allergies tab in EMR (**HCP**)
- Document previously tolerated penicillins in Allergies tab (**Pharmacist**)
- Scan completed questionnaire in Allergies in EMR (**HUC**)

What is patient's risk level on Penicillin Allergy Questionnaire?

EXCLUSION CRITERIA

Patients **excluded from oral amoxicillin challenge:**
- Infants <3 months of age
- Critically ill, NPO, or vomiting >1 time in last 24 hrs
- Current infection, asthma attack, or rash
- Currently on antihistamines for allergies or gastric acid suppression (**Table 1**)
- Previously evaluated for penicillin allergy with skin test or IV/PO antibiotic challenge and determined to be penicillin allergic
- Conditions listed in **Red section** of Penicillin Allergy Questionnaire **and** in **Note 1**.

Green

- Offer delabeling based on history alone (**HCP**)
- Provide handout on penicillin allergy (**Nurse**)

Patient/caregiver in agreement

No → Yellow

Yes

- Cross out penicillin allergy from Allergies tab in EMR (**HCP**)
- Document allergy delabeling in EMR *(dotphrase: .penicillinDelabelNoChallenge)* (**HCP**)
- Provide letters for family and PCP/pharmacy *(dotphrase: .penicillinChallengePatientLetter)* (**HCP**)

Yellow

- Screen for **Exclusion Criteria**
- Offer oral amoxicillin challenge (**HCP**)
- Provide handouts on penicillin allergy AND oral amoxicillin challenge (**Nurse**)
- If patient does not qualify for oral amoxicillin challenge due to a temporary condition under Exclusion Criteria, document in EMR (*dot phrase*: *.penicillinAllergyScreenNotEligible*)

Patient/caregiver in agreement

Yes

Proceed with oral amoxicillin challenge (see page 2)

No

- Refer to allergist (**HCP**)
- Off pathway

Red

- Not eligible for oral challenge
- Refer to allergist
- Off pathway

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Patient eligible for amoxicillin oral challenge

- No → Off guideline
- Yes ↓

Oral challenge only performed when the following criteria are met:

- During day shift
- Parent/guardian is present
- Adequate RN staffing to support oral challenge
- A provider aware of timing of oral challenge
- Rescue medications are ordered and immediately available

- No → Reschedule for when criteria can be met
- Yes ↓

- Use **"Amoxicillin Oral Challenge" powerplan** in Cerner. (**HCP, Nurse**)
- Educate patient/caregiver about signs/symptoms of allergic reaction to watch for and to notify the nurse immediately if there are symptoms. (**Nurse**) (**Note 3**)
- Obtain baseline vital signs and perform baseline assessment. (**Nurse**)
- Give oral amoxicillin dose as ordered (45 mg/kg, max 1000 mg) once. (**Nurse**)
- Stay with patient and observe for signs/symptoms of allergic reaction for first 15 min. Reassess patient and obtain vital signs at 15 min after dose. (**Nurse**)
- Reassess patient and obtain vital signs at 60 min after dose. (**Nurse**)

↓

Positive reaction at any time during the oral amoxicillin challenge (Note 2)

- No →
  - Cross out penicillin allergy label from Allergies tab in EMR and document "Patient passed oral amoxicillin challenge [date, time]" (**HCP**)
  - Document delabeling in EMR (*dotphrase: .penicillinChallengePass*) and in discharge summary *(dotphrase: . pencillinChallengePassDischargeSummary*) (**HCP**)
  - Provide letters for family and PCP/pharmacy *(dotphrase: .penicillinChallengePatientLetter)*. (**HCP**)
- Yes →
  - Manage per **"Amoxicillin Oral Challenge"** powerplan. (**Nurse**, **HCP**)
  - Do not remove allergy label from EMR.
  - Document specific reaction(s) in Allergies tab in EMR (**HCP**)
  - Document patient did NOT pass oral amoxicillin challenge in EMR (*dotphrase: .penicillinAllergyNoPass*) **and** in discharge summary *(dotphrase: .penicillinChallengeFailedDischargeSummary*) (**HCP**)
  - Refer to allergist for further assessment and potential delabeling (**HCP**)

EXCLUSION CRITERIA

Patients **excluded from oral amoxicillin challenge:**

- Infants <3 months of age
- Critically ill, NPO, or vomiting >1 time in last 24 hrs
- Current infection, asthma attack, or rash
- Currently on antihistamines for allergies or gastric acid suppression (**Table 1**)
- Previously evaluated for penicillin allergy with skin test or IV/PO antibiotic challenge and determined to be penicillin allergic
- Conditions listed in **Red section** of Penicillin Allergy Questionnaire **and** in **Note 1**.

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Table 1. Patients are excluded if they received any of the following antihistamines within the specified timeframe prior to the anticipated oral amoxicillin challenge.

Cetirizine (Zyrtec™)	Hydroxyzine (Atarax™)	5 days
Chlorpheniramine (Chlortimeton™)	Levocetirizine (Xyzal™)	
Desloratadine (Clarinex™)	Loratadine (Claritin™)	
Diphenhydramine (Benadryl™)	Promethazine (Phenergan™)	
Fexofenadine (Allegra™)	Over the counter cold & cough medications	
Cimetidine (Tagamet™)	Ranitidine (Zantac™)	2 days
Famotidine (Pepcid™)	Nizatidine (Axid™)	

Note 1: Other contraindications to oral amoxicillin challenge that should be excluded prior to oral challenge **in addition to** the **Red category criteria** are (**HCP**):

- Drug-induced neutrophilic dermatosis (Sweet's syndrome)
- Drug-induced autoimmune diseases (bullous pemphigoid, pemphigus vulgaris, linear IgA bullous disease, drug-induced lupus)
- Organ-specific drug-induced reactions (cytopenias, drug-induced liver injury, nephritis, pneumonitis, meningitis, pancreatitis)
- Drug-induced vasculitis (leukocytoclastic vasculitis, eosinophilic granulomatosis with polyangitis)

Note 2. Positive reactions that are **consistent** with allergy include:
Anaphylaxis (**Table 2**) OR any of the following reactions by organ system:

- **Skin**: Urticaria (hives), flushing, exanthem, angioedema, mouth or eye soreness, persistent pruritus (≥ 3 min)
- **Cardiovascular**: Hypotension, syncope
- **Gastrointestinal**: Repetitive vomiting, abdominal cramping
- **Musculoskeletal**: Hypotonia
- **Respiratory**: Dyspnea, wheezing, hypoxia, repetitive coughing, stridor, vocal changes (dysphonia, aphonia)

Positive reactions that are **doubtful** for presence of allergy and/or require **further assessment** by an allergist include: headache, diarrhea, nausea, single episode of vomiting, transient pruritus without rash, mild self-limited rash (not hives), persistent rhinorrhea (≥ 3 min), persistent rubbing of nose or eyes (≥ 3 min).

Table 2. Anaphylaxis is highly likely when any one of the following 2 criteria are fulfilled:

1. **Acute onset* of an illness with involvement of the skin, mucosal tissue, or both (e.g. generalized hives, pruritus or flushing, swollen lips-tongue-uvula) AND ≥1 of the following:**
   a. Respiratory compromise (e.g. dyspnea, wheeze-bronchospasm, stridor, reduced peak respiratory flow (PEF), hypoxemia)
   b. Reduced blood pressure** or associated symptoms of end-organ dysfunction (e.g. hypotonia [collapse], syncope, incontinence)
   c. Severe gastrointestinal symptoms (e.g. severe crampy abdominal pain, repetitive vomiting)
2. **Acute onset of hypotension* or bronchospasm or laryngeal involvement (stridor, vocal changes, odynophagia) even in the absence of typical skin involvement**

*Minutes to several hours from exposure. Most immediate reactions occur within the 1st hour following drug administration.
**Hypotension defined as systolic blood pressure (mm Hg):

- < 12 months of age: < 70
- 1-10 years of age: <70 + (2 × age in years)
- > 10 years of age: < 90

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References

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Rev 11/22, Exp 11/25