Antibiotic-Associated Rashes

Cincinnati Children's
changing the outcome together

FAST FACTS

10%

of patients seen in ED/urgent care setting for AAR return within 24 hours for a repeat evaluation

10%

of children at Cincinnati Children's have been labeled with an amoxicillin allergy (approximately 50,000 patients)

95%

of children are found not to be allergic when allergy tested for amoxicillin

WHEN TO REFER

All patients who have experienced an AAR should be referred to the Penicillin Allergy Testing Service (PATS) for evaluation. Same-day in-person and telemedicine visits are available for those experiencing acute reactions and those who have an allergy label but need an antibiotic for a current infection.

To refer a patient, call PATS at 513-517-PATS or email PATS@cchmc.org.

Antibiotic-associated reactions (AARs) are commonly seen in children. Although antibiotics are blamed for the constellation of symptoms of AAR, subsequent allergy testing typically reveals these are not true allergic reactions. Antibiotic allergy "labels" may lead to the use of non-ideal antibiotics in the future.

The majority of AAR are self-limited and benign rashes. The subsequent appearance of fever, joint pain and GI symptoms may be quite concerning to the family and may lead to repeat visits to the pediatrician office, urgent care or emergency department.

ASSESSMENT

Perform a standard health history and physical exam, including taking vital signs and assessing hydration status and level of activity/awareness. Pay special attention to the following.

- Blisters in the mouth or genital area
- Difficulty breathing
- Eye irritation
- Fever
- GI symptoms (abdominal pain, vomiting, diarrhea)
- Joint swelling/tenderness or refusal to walk
- Rash (focal or generalized rash, including hives, macular, papular, morbilliform, desquamative, blistering, pustular)
- Swelling in the face, throat, hands or feet

Note progression of symptoms. Most AARs occur after about a week of antibiotic treatment. At first, AAR may appear like typical hives and then persist with a bruised appearance. They may initially respond to antihistamines and then respond poorly. The constellation of acute symptoms may take 7–10 days to resolve, even with supportive care. Additionally, the rash itself may progress over several days; occasionally cutaneous symptoms may persist for 2–3 weeks.

HPE (HISTORY AND PHYSICAL EXAM) RED FLAGS

- Blisters in the mouth or genital area
- Drooling
- Eye redness/irritation
- Stridor, wheezing, difficulty breathing

MANAGEMENT/TREATMENT

If there is a rash that is not bothersome to the child, no treatment is necessary. Consider continuing the antibiotic.

If the child is experiencing bothersome itching, rash or swelling, the combined use of long-acting H1 and H2 antihistamines may lessen the symptoms.

- H1 antihistamines: cetirizine, fexofenadine, or loratadine twice daily; prefer higher dose
- H2 antihistamines: famotidine, if angioedema/recalcitrant urticaria

Topical hydrocortisone for rash may be helpful. Ibuprofen is preferred for children with fever and/or joint pain. Steroids are rarely indicated and cause untoward side effects. Diphenhydramine makes children sleepy and wears off quickly (4 hours).

Treatments may not lead to immediate resolution of the rash. Counsel the family that symptoms may worsen before improving. Additional symptoms may appear over the next few days despite treatment: fever, facial swelling, hand/foot swelling, or joint pain. These are bothersome but not dangerous.

If you would like additional copies of this tool, or would like more information, please contact the Physician Outreach and Engagement team at Cincinnati Children's.

Tool developed by Cincinnati Children's physician-hospital organization (known as Tri-State Child Health Services, Inc.) and staff in the James M. Anderson Center for Health Systems Excellence. Developed using expert consensus and informed by Best Evidence Statements, Care Practice Guidelines, and other evidence-based documents as available. For Evidence-Based Care Guidelines and references, see www.cincinnatichildrens.org/evidence.

Antibiotic-Associated Rashes

Patient Presents

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Standard Workup

Do standard HPE and physical exam, including taking vital signs and assessing hydration status and level of activity/awareness. Pay special attention to:

- Blisters in the mouth or genital area
- Difficulty breathing
- Eye irritation
- Fever
- Facial or hand/foot swelling
- GI symptoms (abdominal pain, vomiting, diarrhea)
- Joint swelling or pain
- Rash (focal or generalized)

Any progression of symptoms? For example, new facial swelling or rash started as hives and now looks "bruised."

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HPE Red Flags

- Blisters in the mouth or genital area
- Drooling
- Eye redness/irritation
- Stridor, wheezing, difficulty breathing

Yes → **Refer to emergency department**

No → **Are the current symptoms explained readily by the primary infection, a known side effect of the antibiotic, or another factor unrelated to antibiotic allergy?**

- **Yes** → Provide reassurance/explanation to the family and continue antibiotic as tolerated. Examples could include:
  - Abdominal pain from azithromycin
  - Diarrhea from amoxicillin/clavulonic acid
  - Fever and sandpaper rash from streptococcal pharyngitis
  - Focal pustules on face and/or blistering lesions of the lips and oral mucosa from herpes simplex virus infection
  - Hives occurring in a child who has history of chronic idiopathic urticaria or physical urticaria
  - Rash/fever from MMR vaccination a week ago
- **No** → Is rash bothersome to the child?
  - **Yes** → Provide supportive care:
    - Combine long-acting H1 and H2 antihistamines to lessen symptoms
    - Topical hydrocortisone may ease itching or swelling
    - Ibuprofen for pain, fever
    - Provide caution: "This may get worse before it gets better," "This may last a week," "This is not dangerous but looks scary." Avoid statements such as "We should never give that antibiotic again."
    - Non-preferred treatments: steroids and diphenhydramine
  - **No** → No treatment is necessary.

Follow Up

Follow up next day in office or same day/next day. Consider a referral to Penicillin Allergy Testing Services (PATS) for evaluation of current AAR. Same-day and telehealth appointments are available for those experiencing acute reactions and those who have an allergy label but need a penicillin for a current infection.

Call 513-517-PATS or email PATS@cchmc.org.

For urgent issues, or to speak with the specialist on call 24/7, call the Physician Priority Link at 1-888-987-7997.

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