Stamping Out Amoxicillin Allergy

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What You Need to Know

What You Can Do to Help

WHAT

- Want to eliminate incorrect Amoxicillin labeling and labels

WHY

- A large number of patient's amoxicillin allergy labels are incorrect.
- Amoxicillin and Augmentin are the BEST first line option for treating otitis media and pneumonia in children.
- Not being able to use amoxicillin drastically reduces the number and types of antibiotics that can be used for a patient.
- There are not many options for other good antibiotics in the village (want to avoid sending out Omnicef or using Ceftriaxone)
- Increased use of cephalosporins for unproven 'amoxiciilin allergic' patients will create resistance.

How Did These Patient Allergy Labels Get There??

- Imported from RPMS in EHR conversion
- Chart lore
- Lack of education about signs and symptoms of a true Amoxicillin allergy
- Improper labeling of patients as Amoxicillin allergic by providers, CHAs parents and caretakers

PENICILLIN ALLERGIC REACTIONS

The GOOD

The BAD

The UGLY

UGLY –Immediate Reaction

ANAPHYLLAXIS

Anaphylaxis is defined as a serious allergic or hypersensitivity reaction that is rapid in onset (minutes to several hours) and may cause death

There are three diagnostic criteria:

Criterion 1 — Acute onset of an illness (minutes to several hours) involving the skin, mucosal tissue, or both (e.g., generalized hives, pruritus or flushing, swollen lips-tongue-uvula) **and at least one of the following**:

●Respiratory compromise (e.g., dyspnea, wheeze-bronchospasm, stridor, reduced peak expiratory flow, hypoxemia).

OR

●Reduced blood pressure (BP) or associated symptoms and signs of end-organ dysfunction (e.g., hypotonia [collapse] syncope, incontinence).

Note: Skin symptoms and signs are present in up to 90 percent of anaphylactic episodes. This criterion will therefore frequently be helpful in making the diagnosis

Criterion 2 — Two or more of the following that occur rapidly after exposure **to a LIKELY allergen for that patient** (minutes to several hours):

●Involvement of the skin-mucosal tissue (e.g., generalized hives, itch-flush, swollen lips-tongue-uvula).

●Respiratory compromise (e.g., dyspnea, wheeze-bronchospasm, stridor, reduced peak expiratory flow, hypoxemia).

●Reduced BP or associated symptoms and signs (e.g., hypotonia [collapse], syncope, incontinence).

●Persistent gastrointestinal symptoms and signs (e.g., crampy abdominal pain, vomiting).

Criterion 3 — Reduced BP after exposure **to a KNOWN allergen for that patient** (minutes to several hours):

●Reduced BP in adults is defined as a systolic BP of less than 90 mmHg or greater than 30 percent decrease from that person's baseline

●In infants and children, reduced BP is defined as low systolic BP (age specific)* or greater than 30 percent decrease in systolic BP

STOP EXPOSURE----EPINEPHRINE----OXYGEN----FLUIDS----AIRWAY MANAGEMENT

BAD-Delayed Urticarial (Hive-like) Eruptions

- Delayed urticarial eruptions (+/- angioedema) are another common cutaneous penicillin reaction. These reactions are particularly prevalent in children.
- The symptoms begin more than an hour after the last administered dose. Usually 1-3 days into course.
- An evaluation for IgE-mediated allergy should be performed (after age five) before future use of penicillin and related drugs can be considered

Good(or OK…)

- The most common reactions to penicillins are delayed cutaneous eruptions-most likely mediated by T cells in the skin.
- Delayed cutaneous eruptions are usually maculopapular or morbilliform and often associated with a viral infection
- These drug eruptions do not involve fever, systemic symptoms, or evidence of specific organ involvement
- Pruritus may or may not be a feature
- These rashes are more prevalent in children (usually under 12 months)

KISS Allergic Reaction Overview

BAD = Immediate Type 1 IGE mediated reactions

Hives, +/- swelling of lips/tongue/uvula, +/-respiratory distress, +/- decreased blood pressure.

Don't ever give drug again without allergist evaluation

UGLY = Delayed cutaneous T cell mediated reactions

Hives/angioedema without evidence of anaphylaxis…

Probably need to refer to allergist after five years old to evaluate

GOOD = Delayed cutaneous reactions

Maculopapular/morbilliform rash without evidence of anaphylaxis.

Often associated with viral infections…This is what we mostly see.

Please try amoxicillin again!!!

True Penicillin Allergy is Rare

- Anaphylaxis occurs in 1-4/10,000 administrations
- In large studies of penicillin skin testing, approximately 85 to 90 percent of these individuals are found not to have positive skin tests and are able to tolerate penicillins
- The prevalence of IgE-mediated penicillin has declined over the last two decades
- Evidence is limited for genetic factors playing a role in the expression of penicillin and other antibiotic allergies
- Penicillin skin testing is the preferred method of evaluation and diagnosis of immediate reactions. In vitro studies are not helpful
- Referral — Referral to an allergy specialist for diagnostic testing should be considered for any patient with a history of penicillin allergy consistent with a possible IgE-mediated mechanism. Testing of children can be done after age five

Options for treatment with Penicillins in future: UTD

Cutaneous reactions — If a patient clearly describes a delayed-onset eruption that did not itch or involve urticaria, was not accompanied by any systemic symptoms, and did not involve blistering or exfoliation of the skin, then it can be reasonably assumed that the patient had a delayed maculopapular cutaneous reaction. Such patients can be treated with the same or other penicillins in the future, with the recognition that such reactions may recur.

Safe re-administration with the same or similar drugs is well documented in children, in whom delayed cutaneous eruptions regularly occur in the setting of viral infections. In a study of 88 children with delayed urticarial or maculopapular rashes on beta-lactam (mostly amoxicillin) antibiotics, only 6 of 88 (7 percent) reacted again when re-challenged with the same antibiotic two months after the original reaction.

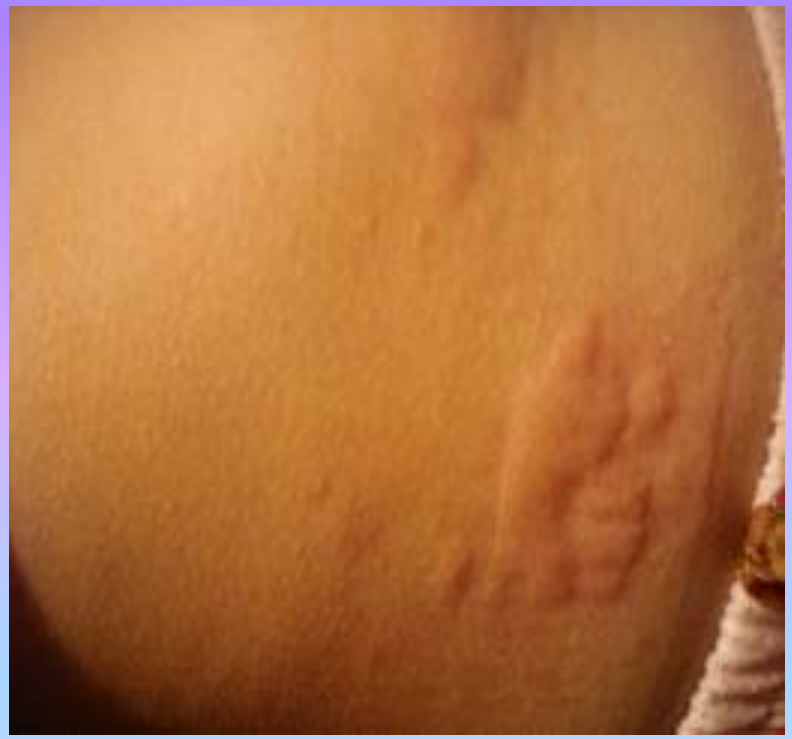
Options for treatment in future continued: UTD

Concomitant antihistamine therapy — For those with a history of pruritic rashes with prior antibiotics, there may be some value in administering an antihistamine during treatment with future antibiotic administration. This approach has not been studied formally, but there is a clinical impression that it may have some value in preventing mild, nonspecific cutaneous reactions.

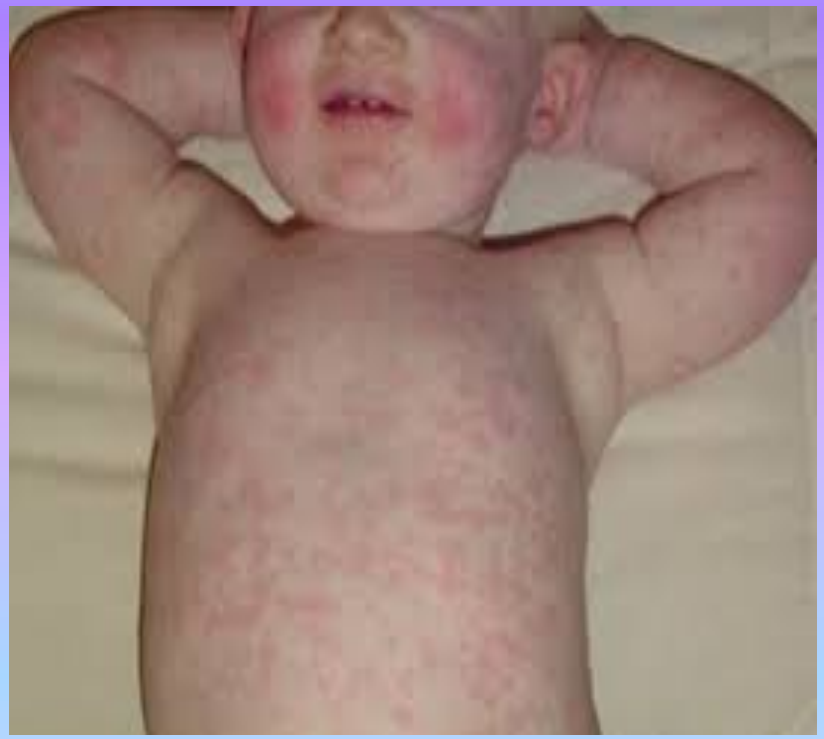
What Do the Rashes Look Like?

HIVES OR ???

Hives are raised and intensely pruritic



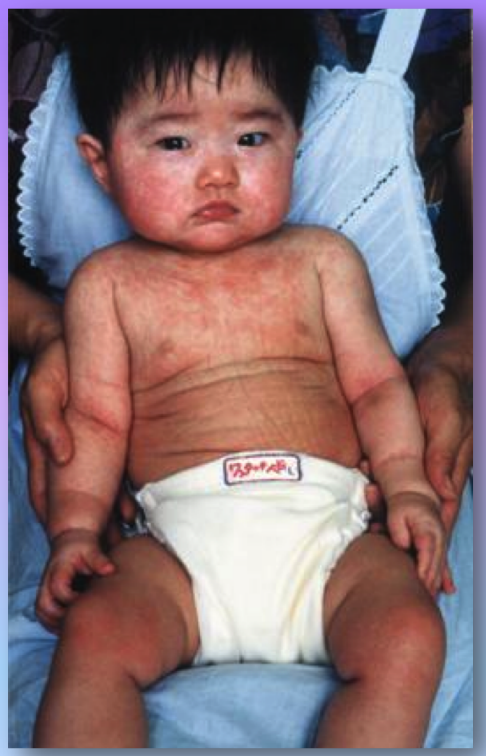
Viral or delayed cutaneous exanthem can be maculopapular or morbilliform



HIVES OR ???

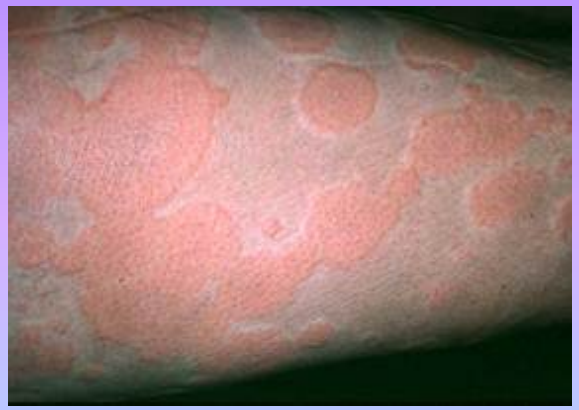
Hives come and go, move around and change shape

Viral or delayed cutaneous exanthems are fixed but can expand over body over several days



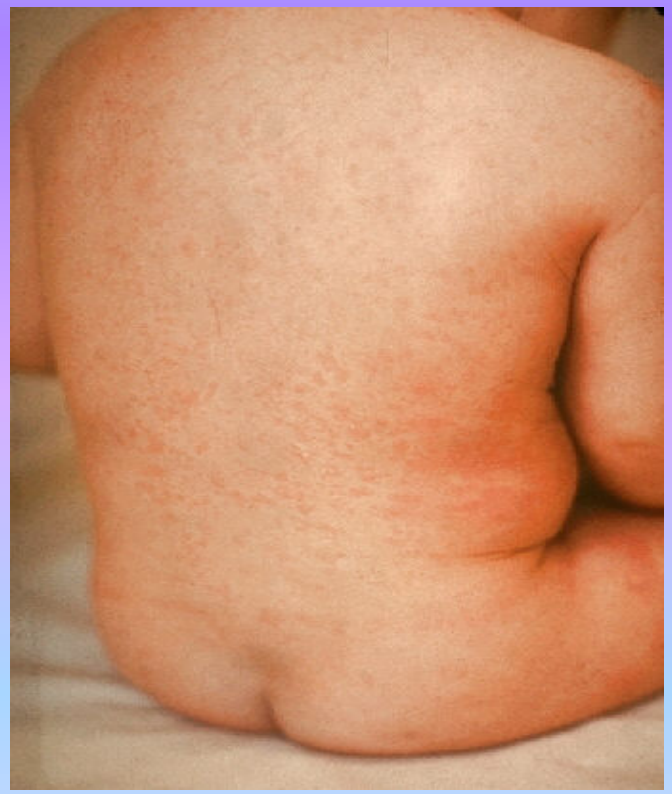
HIVES OR ???

Erythema Multiforma serpigenous,sometimes with central clearing

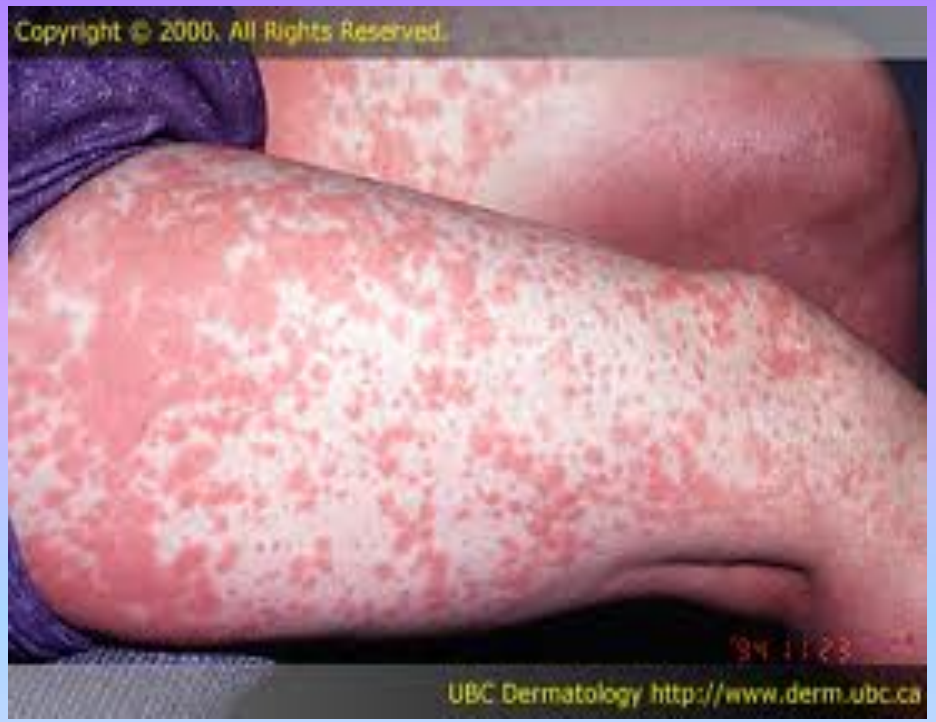


Roseola

Maculopapular=flat and bumpy



Morbilliform=measles like



Maculopapular and Morbilliform Rashes

- Nonpruritic, maculopapular rashes that develop during the course of therapy are reported in 3 to 7 percent of children given ampicillin.
- Pruritus may or may not be a feature.
- These rashes are believed to be mediated by T cells, are more prevalent in children and are commonly caused by amoxicillin
- The onset of the eruption is usually within two weeks of beginning therapy, and within days of re-exposure if the patient had taken the medication on previous occasions. Occasionally, an eruption to penicillins may begin as late as three weeks after beginning the antibiotic, or first appear up to two weeks after the therapy was completed.

WHAT CAN YOU DO??

STEP 1: Get more information

What type of reaction did the patient have?

1. Vomiting or diarrhea?
2. Rash?

-At what age did the rash occur?

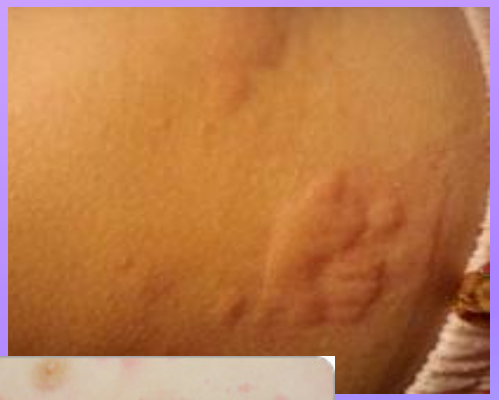
-Did the rash start shortly after taking the medicine or a number of days later?

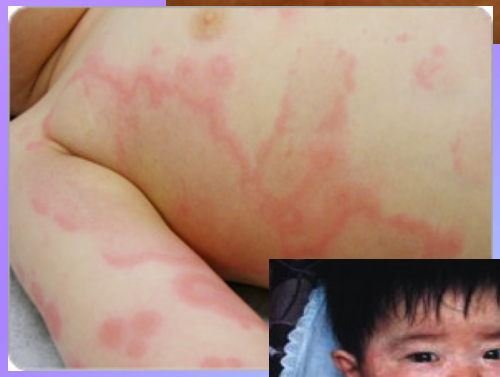
-Are there any pictures or documentation of what the rash looked like?

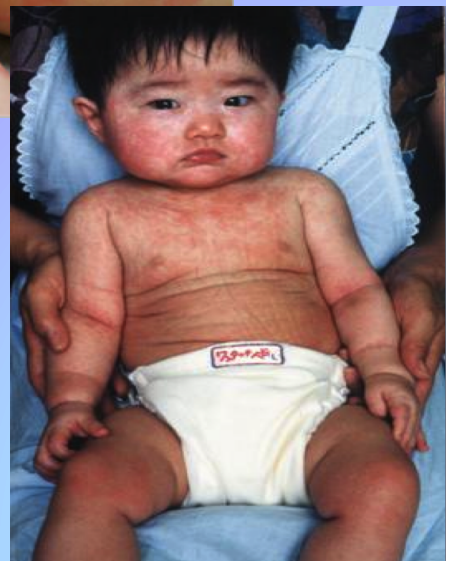
-Did the rash look like **HIVES** or **Erythema Multiforma** that are raised, itchy, bigger than dime size and move around the body and change shape and size?

-OR was the rash a fine red rash on the body that looked like this?

3. Swelling of the lips and/or trouble breathing?
4. Has the patient received any treatment with Penicillin, Amoxicillin or Augmentin since they had the first reaction?







STEP 2: Decide

WAS it a true allergy

-Hives or swelling of the face, lips, tongue and throat or difficulty breathing **ARE signs of an allergic reaction.** If the rash is intensely pruritic and hive like it is possibly an IGE mediated allergic response. True allergic IGE mediated responses are immediate i.e. occur within a few minutes to a few hours after the 1st or 2nd dose of medicine and will resolve in 12-24 hours after stopping the medicine.

OR not a true allergy

-A fine red rash on the body (especially in patients under a year of age) is usually a rash associated with a virus that often appears when a patient is given amoxicillin. Mild rashes to Amoxicillin usually occur 3-7 days after starting amoxicillin and may last up to a week or two even if the medicine is stopped.

-Vomiting and diarrhea are usually side effects of a medication…NOT an allergy

STEP 3: Now what?

If a patient had a red rash on the body when they were little, but no one remembers or has documented that the patient had true hives or swelling or difficulty breathing, then it is important to consider giving a trial of amoxicillin again.

If a patient had hives and/or lip swelling and trouble breathing or any serious concerns for an allergic reaction, then it is important to wait and have an allergist test the patient in Anchorage after they are five years of age.

Options for doing a trial of amoxicillin

If it is unlikely that a patient had a true allergic response in the past, the patient can be offered a triall of Amoxicillin if the caregiver, CHA and/or provider are comfortable with this option.

In the village: the patient can be given a dose of amoxicillin and be observed in the clinic area for an hour after taking the dose. The CHA's will have Benadryl and epinephrine on hand for the possibility of a reaction to the medicine. If there is no reaction, the patient can be sent home with a regular prescription of Amoxicillin. The patient will be given Benadryl to take home to give for any concerning rash. The caretaker's should be counseled to call the CHA or return to clinic for any significant reaction.

OR

In the ER or Bethel Clinic: the patient can be given a dose of amoxicillin and be observed in the adjacent waiting area for an hour after taking the dose and discharged to the Hostel or nearby housing with a regular prescription of Amoxicillin. If the patient has no significant reaction in 24 hours, then the patient can return to the village and finish the course of Amoxicillin. The caretaker's should be counseled to call the CHA or return to clinic/ER for any significant reaction.

OR

On the Inpatient Unit: the patient can be given the first 1-3 doses of amoxicillin prior to being discharged home. The caretaker's should be counseled to call the CHA or return to clinic/ER for any significant reaction.

NOTE:

If the patient has h/o hives, they can be sent to Anchorage Allergy and Immunology for skin testing after the age of five.

Patient Education Handout

Go To…Raven-Patient Education-PEDS-All-Amoxicillin

Amoxicillin Rash

What is an antibiotic rash?

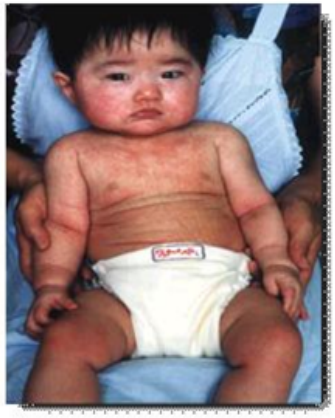
An Amoxicillin or Augmentin rash is a non-allergic rash that can occur when a child is taking one of these medicines. The rash usually appears on the 5th day after the child starts taking the medicine, but may appear earlier than or as late as the 16th day.

Symptoms of the rash include:

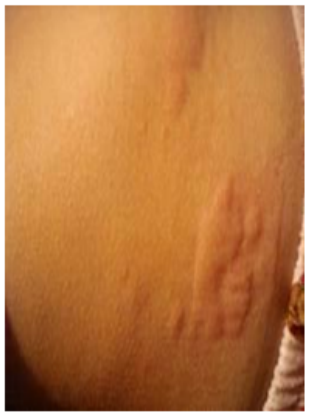
- pink or red spots
- small, flat, non itchy spots
- always on the main body (trunk)
- may spread to the face, arms and legs.

What is the cause?

5% to 10% of children taking Amoxicillin or Augmentin get a skin rash. This is a harmless rash and does not mean that your child has an allergy to Amoxicillin or other Penicillin drugs. An allergic reaction would cause hives or more severe symptoms than a rash. Often it is caused by a viral infection such as Roseola.



Viral Rash



Hives

How long does it last?

The rash usually lasts 3 days, with a range of 1 to 6 days.

How is it treated?

No treatment is necessary. Keep your child on the Amoxicillin or Augmentin until the medicine is gone. The rash will disappear just as quickly whether or not your child continues the medication. Your child can take Amoxicillin or Augmentin in the future when necessary.

When should I call my child's healthcare provider?

- The rash changes to hives.
- The rash becomes itchy.
- The rash becomes worse or lasts more than 6 days.
- You have other concerns or questions
- Your child is more ill appearing.

Example Auto text for RMT For Amoxicillin Trial

- ***Insert Addendum Here:**
- Review of the medical history does not indicate any evidence of allergy to amoxicillin
- CHA and family are OK with trial of Amoxicillin
- Recommend starting Amoxicillin per orders by weight and watching for one hour
- The first dose of Amoxicillin is to be given in the clinic with epinephrine available.
- Patient will stay in clinic for an hour afterwards for observation in waiting room
- If no problems with the first dose, then the patient can go home and continue medicine as prescribed.
- Benadryl by weight will be given to take home for any rash or swelling
- If a rash or any concerns develop, the patient should be brought back to clinic, a telemed picture taken and RMT sent in

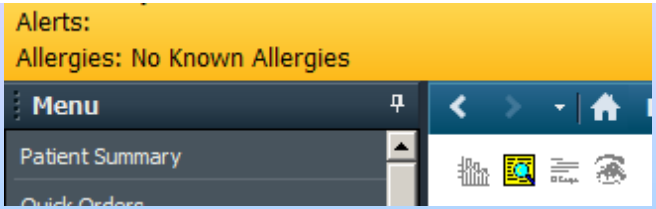
IN SUMMARY

When Looking Into a History of Amoxicillin Allergy

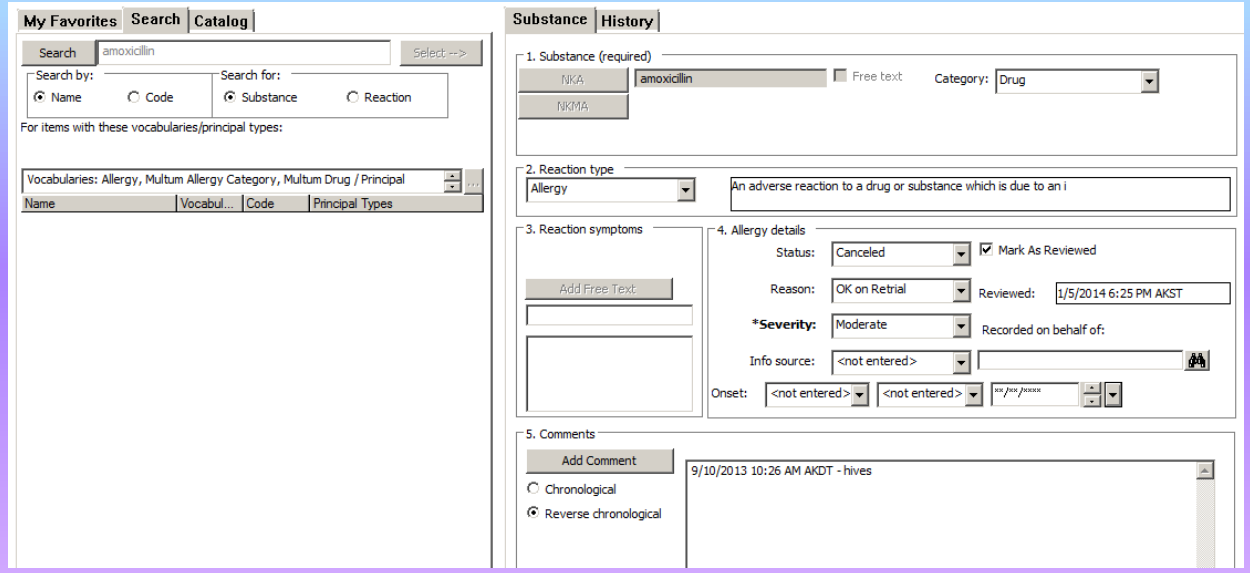
-Click on your Amoxicillin/Augmentin/PCN allergy alert at the top left side of a the patient's chart and look at the notes before you prescribe and/or send out an alternate drug.
AND
-Get as much information as possible about any reported 'allergy'
AND
-Educate the family that diarrhea or a fine red rash (not hives), especially in infants, is not an allergy.
Fine red rashes all over the body are usually due to an interaction with a virus and Amoxicillin that does not qualify as a true allergy
AND
-Document carefully and/or take a picture on telemed, of any true allergic reaction
AND
-Get a second (or third) opinion before you diagnose an Amoxicillin allergy
AND
-Consider a trial of amoxicillin in the village, ER or bethel clinic if there is no history of hives or difficulty breathing
AND
-Call a pediatrician for advice if needed.
AND
-For a history of a true Amoxicillin Allergy-refer patients 5 years or older to Allergy and Immunology in Anchorage for PCN skin testing before they get too old
AND
-Remove amoxicillin allergy banners whenever possible

How to change the allergy alert on the Raven banner

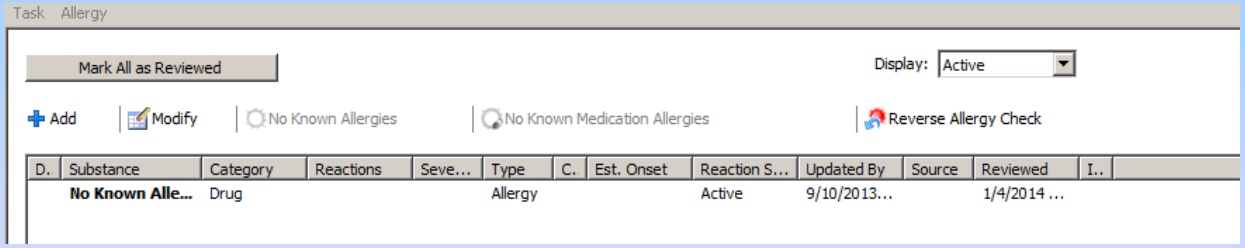
Go to Allergy Alerts and click on it



Double click on Allergy
Go to Allergy Details
Go to Status and change to canceled
Change Reason to OK on Retrial or ….
Click Apply



Make sure the Allergy has been changed to 'No Known Allergy' and Display says Active



Note: If a patient was once recorded as having no allergies and then recorded as having an allergy, and then you cancel the existing allergy, the Allergies status defaults to "Allergies not recorded," and if you go into the Allergies page, the "No Known Allergies" button will be dithered out. You actually have to change your view to "All Allergies" (it defaults to "Active Allergies") and then modify the originally-canceled "No Known Allergies" entry back to "Active" in order to make the banner display correctly.