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Images of Allergy: A Collage of Pictures, Topics and Special Cases

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* Permanent Member US FDA Pulmonary, Allergy Drug Advisory Committee (PADAC)
* Stock Holdings in Johnson and Johnson
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Is 60 the new 40?

What does that change?

Do I have the right plan?

For some of life's questions, you're not alone.
Together we can find an answer.

Find out more >

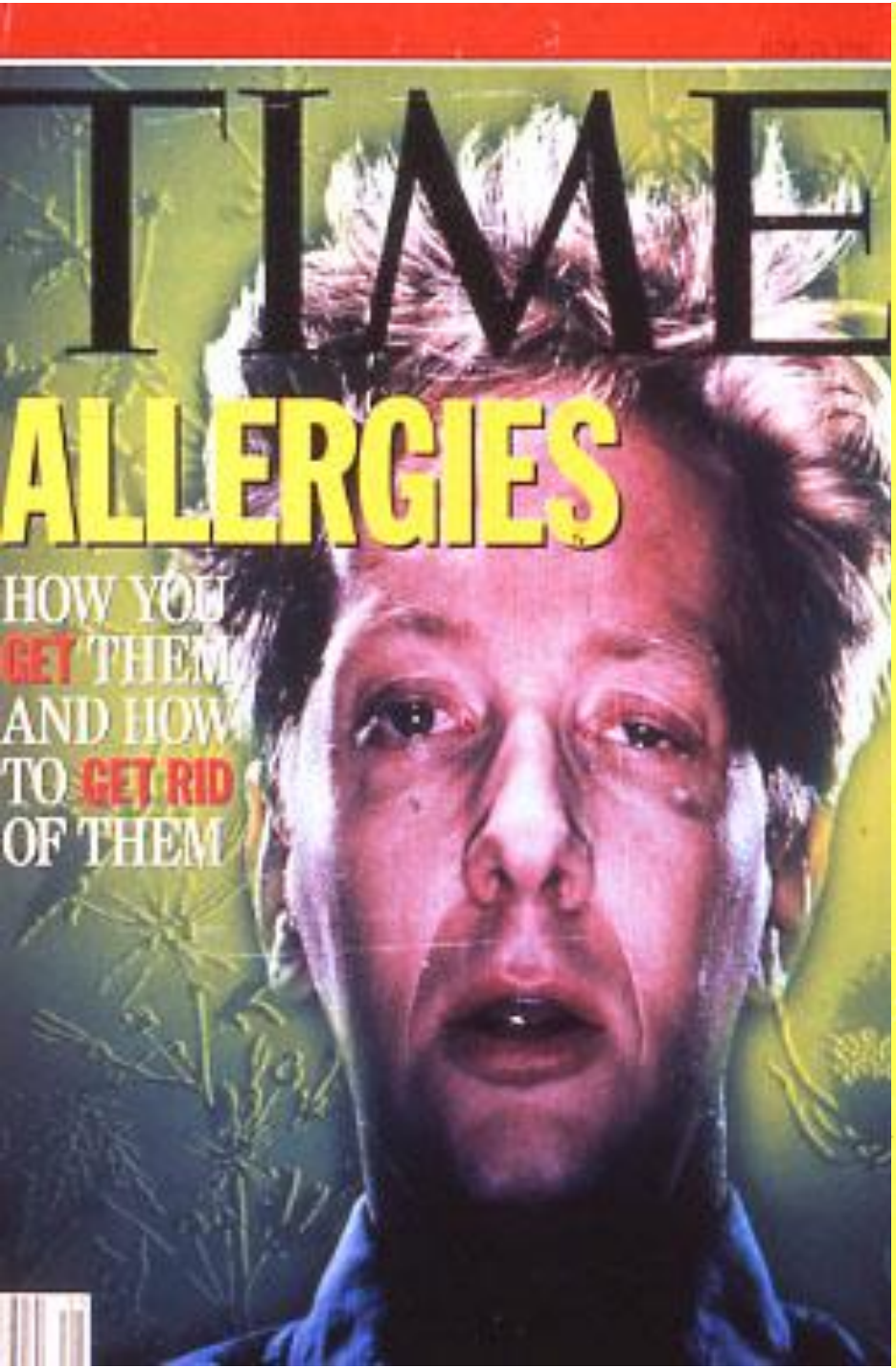
UBS

*Brevity is the Soul of Wit….

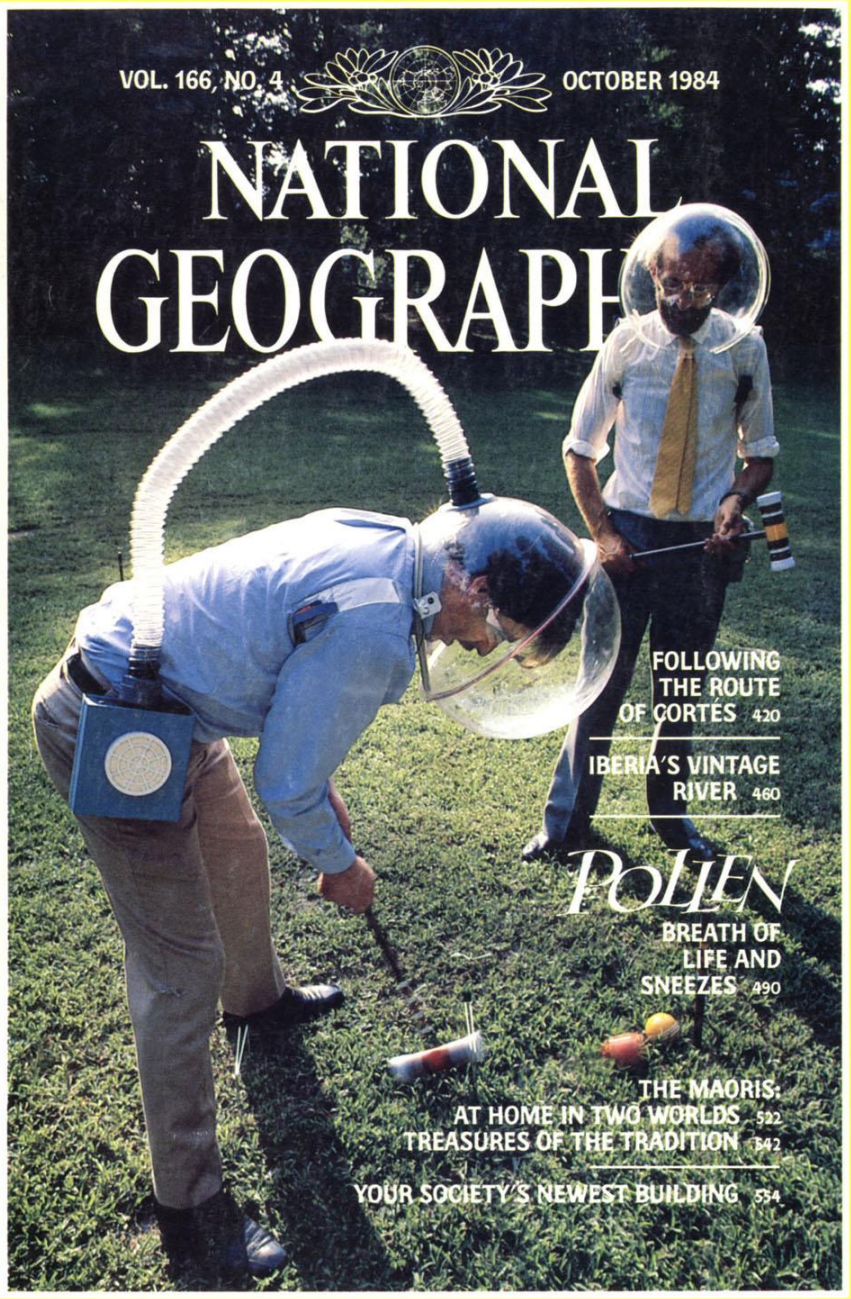
* Hamlet, Act 1, Scene II

Objectives

* Discuss cases and review common images of unexpected diagnosis
* Discuss common cases
* Review common questions about allergic disease encountered in the primary care setting
* Touch on timely allergy topics – drugs, foods, etc
* Epinephrine use in the setting of anaphylaxis



TRAVELER'S MAP OF SPAIN AND PORTUGAL



OFFICIAL JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D.C.

Allergic Rhinitis – Economic Burden

* It accounts for at least 2.5 percent of all clinician visits, 2 million lost school days, 6 million lost work days, and 28 million restricted work days per year.
* The average number of annual prescriptions for patients with allergic rhinitis is nearly double that for patients without allergic rhinitis (19 versus 10).
* Studies performed in the years around 2000 reported USD $2.4 billion spent on prescription and over-the-counter medications and USD $1.1 billion in clinician billings, causing a total indirect and direct cost of several billion dollars per year.

Classification of allergic rhinitis

"Intermittent" means that the symptoms are present: ▪ Less than four days a week ▪ Or for less than four weeks
"Persistent" means that the symptoms are present: ▪ More than four days a week ▪ And for more than four weeks
"Mild" means that none of the following items are present: ▪ Sleep disturbance ▪ Impairment of daily activities, leisure, and/or sport ▪ Impairment of school or work ▪ Troublesome symptoms
"Moderate-severe" means that one or more of the following items are present: ▪ Sleep disturbance ▪ Impairment of daily activities, leisure, and/or sport ▪ Impairment of school or work ▪ Troublesome symptoms

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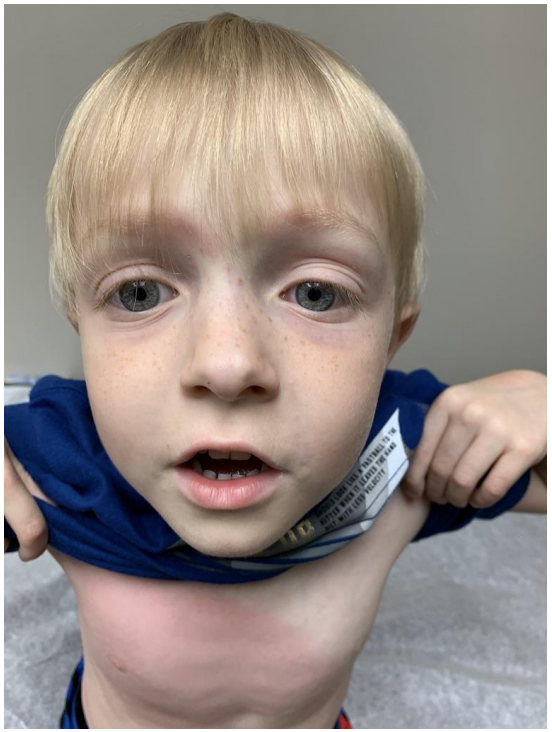
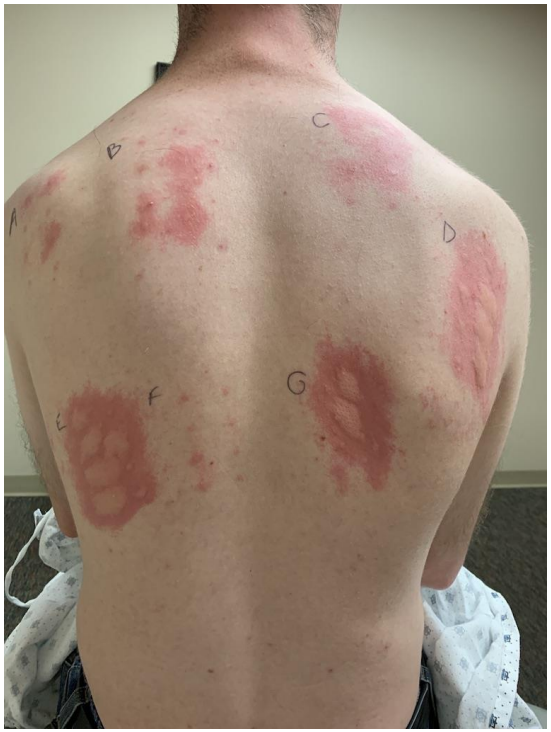
The Images of Allergic Rhinitis

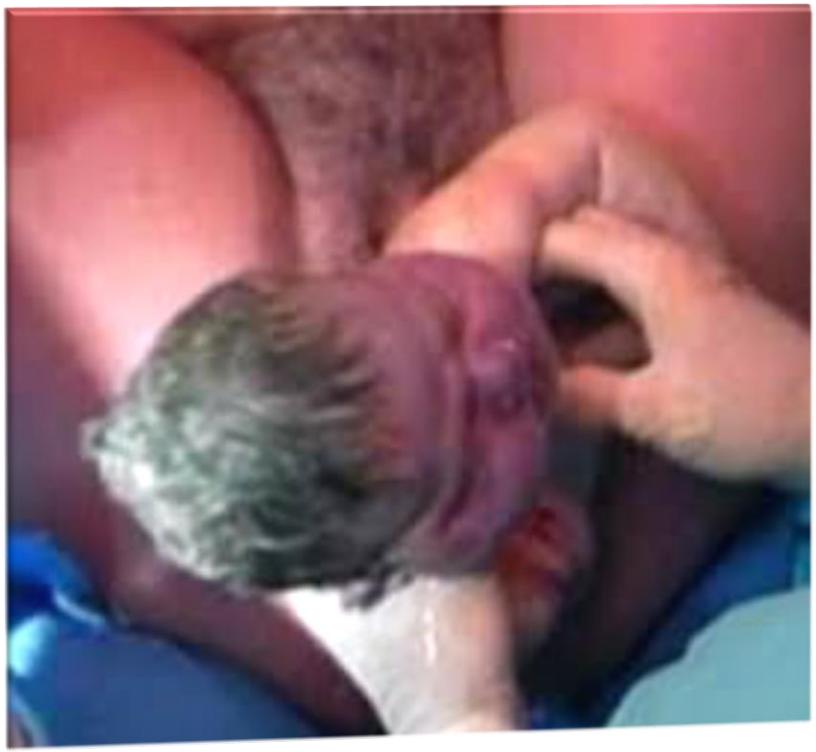




So how old can we skin test?

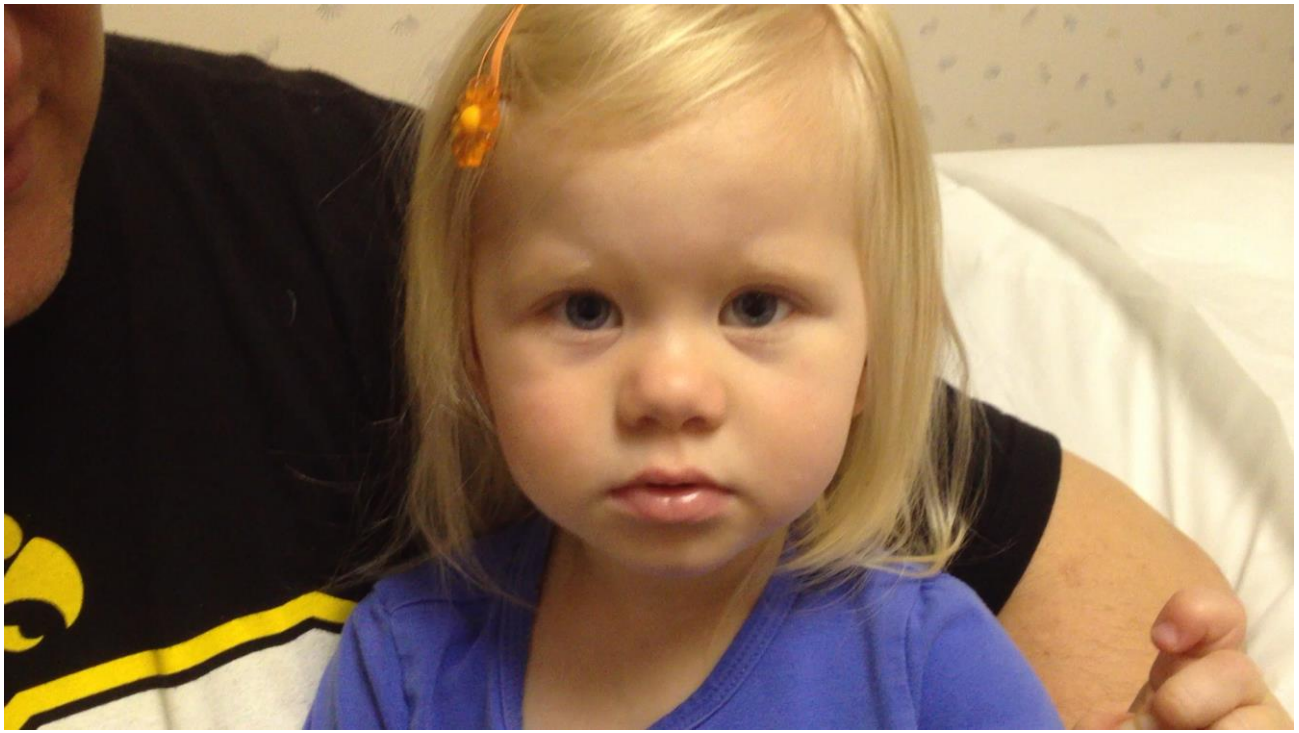
A. At one year of age?
B. At 2 year of age?
C. 5 years of age?
D. When the child can understand?
E. None of the above.

Normal Delivery



* As soon as there is available skin, skin testing is a possibility
* Obviously there are other consideration and indications
* There is no absolute age to do skin testing
* For me the youngest was at 2 months of age

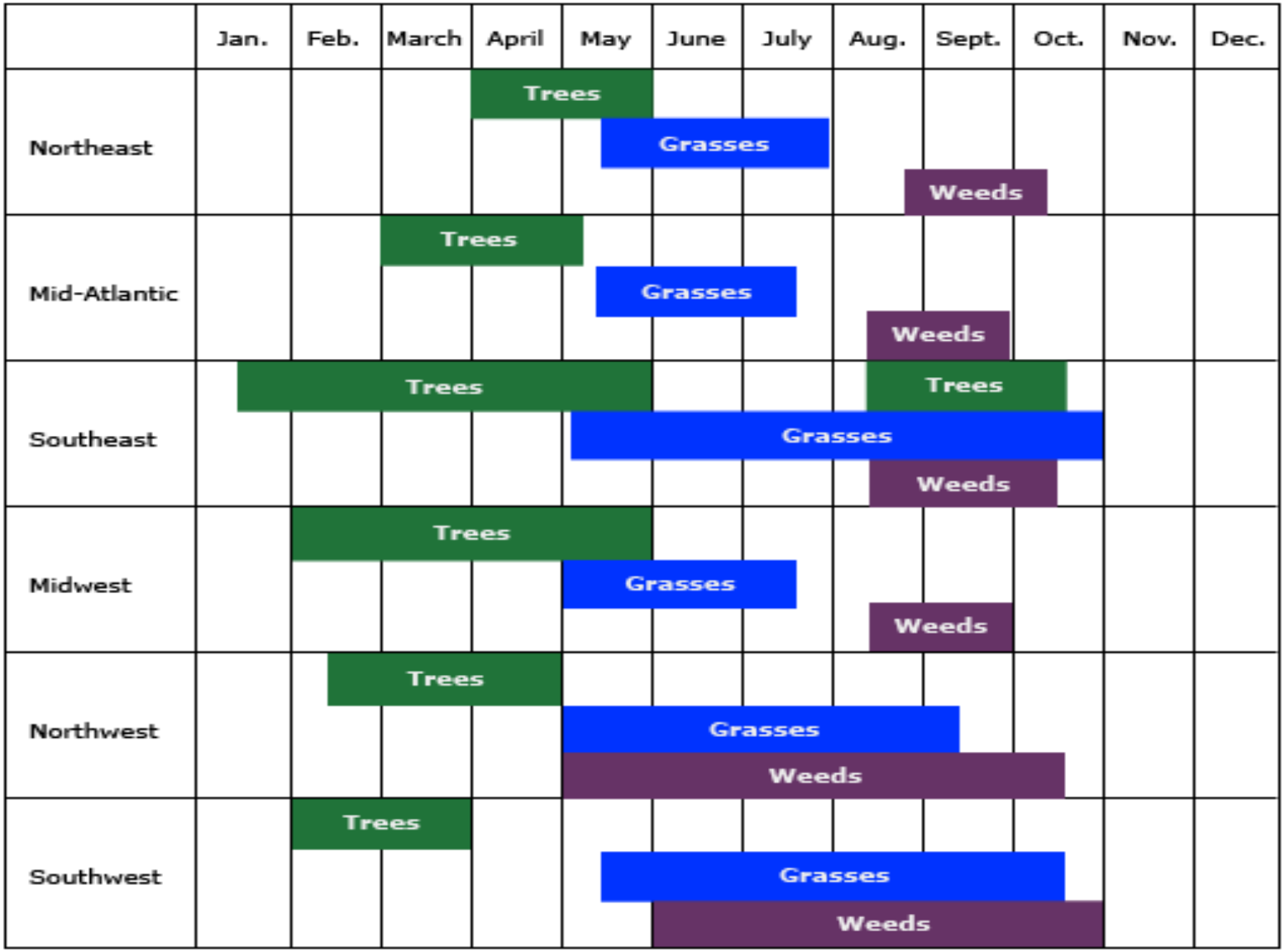
You don't have to 5 years to have allergies and be tested…



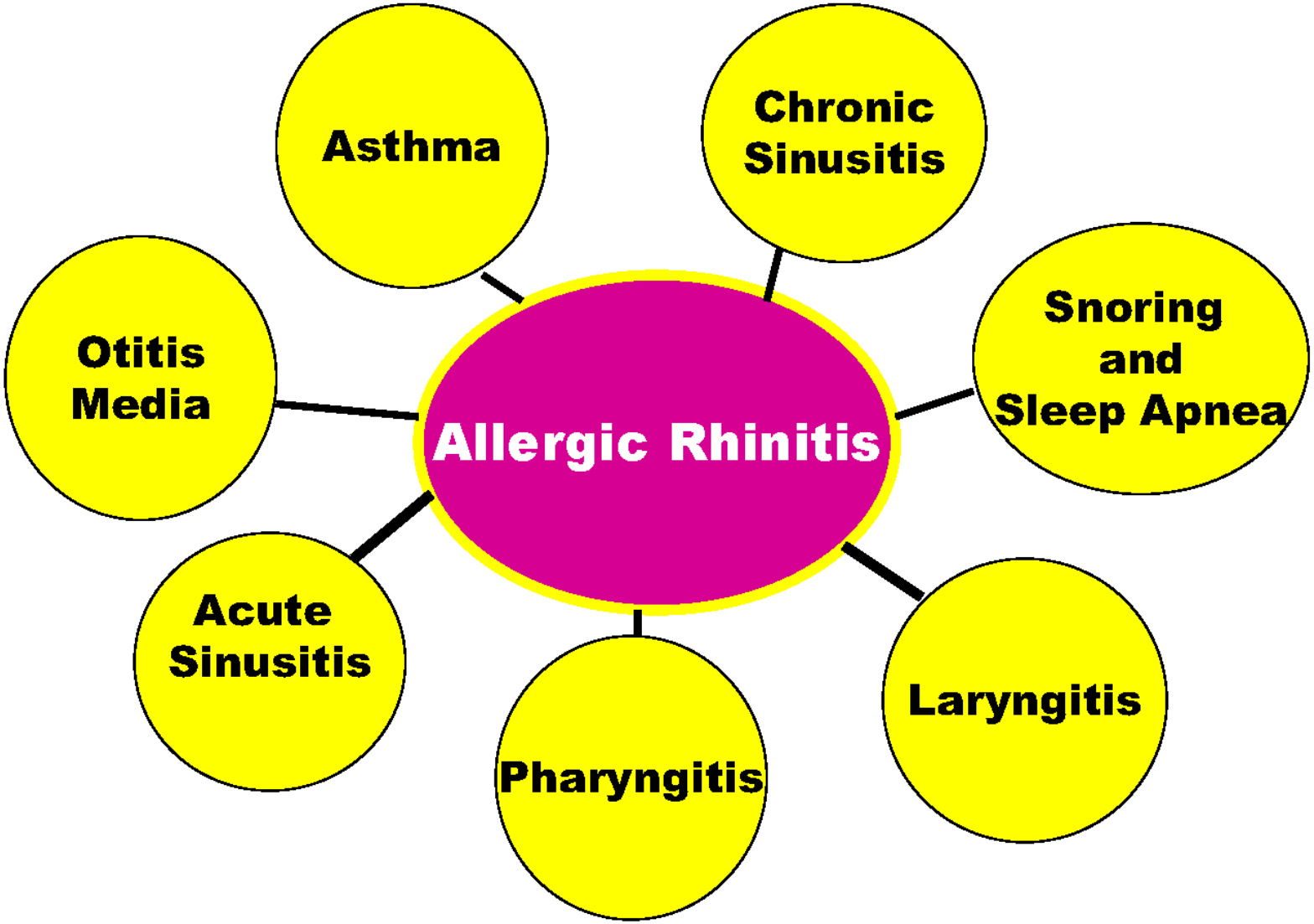
So Why do testing in the Pediatric Age Group?

* Answers the question: Are these symptoms allergic or not allergic?
* Many children are placed erroneously on allergy medication by provider or family member
* These medications have side effect
* If symptoms are allergic, provides guidance on when best to start and stop allergy medication.

Peak pollen periods in the United States

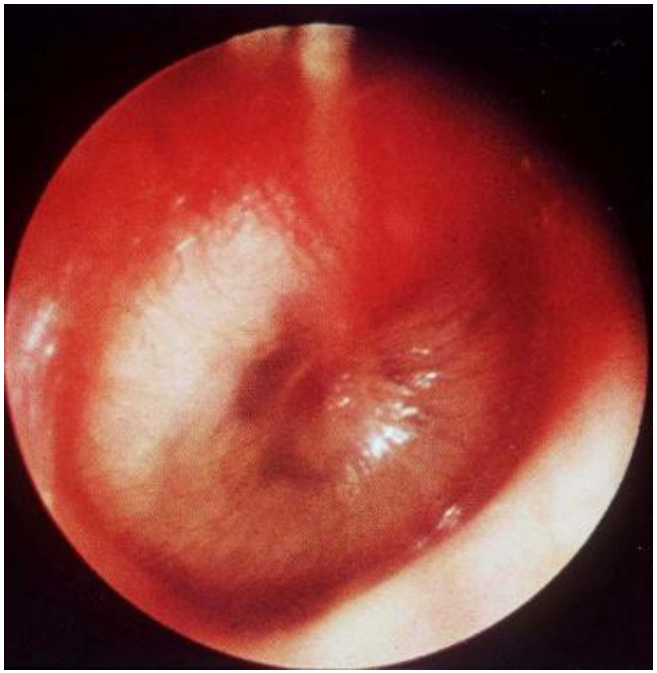


Diseases Often Associated With Allergic Rhinitis



What is this a picture of?

Common Variable Immune Deficiency

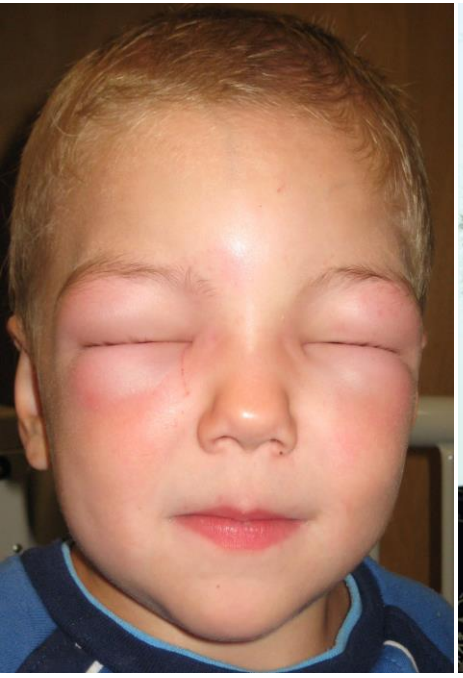
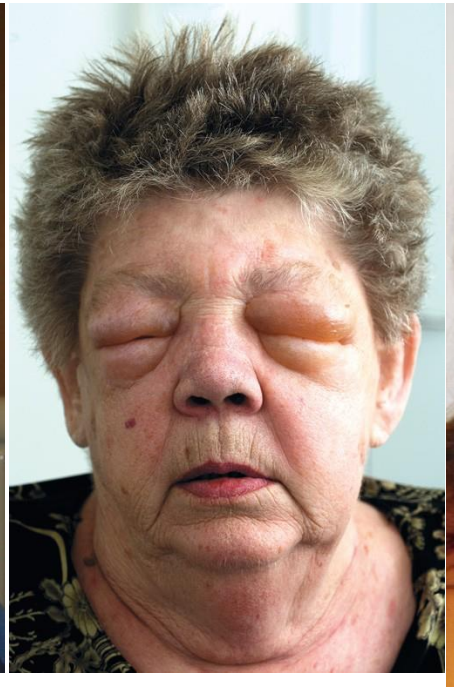
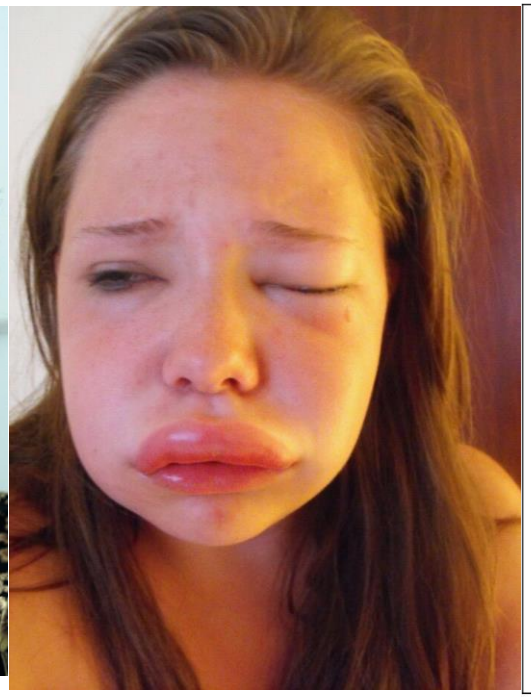
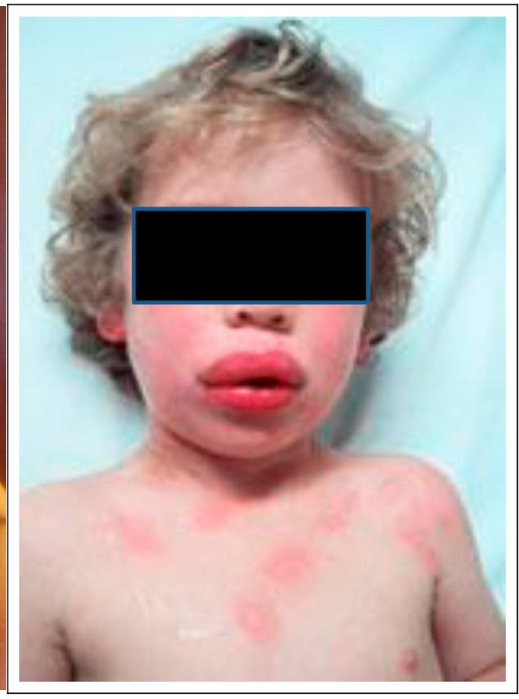


* Might want some additional history…
* 34 year old male
* History of chronic sinusitis
* ENT referral of allergy evaluation
* > 2 years cough
* IgG 190; IgA <5; IgM 35

What Are These Images of?

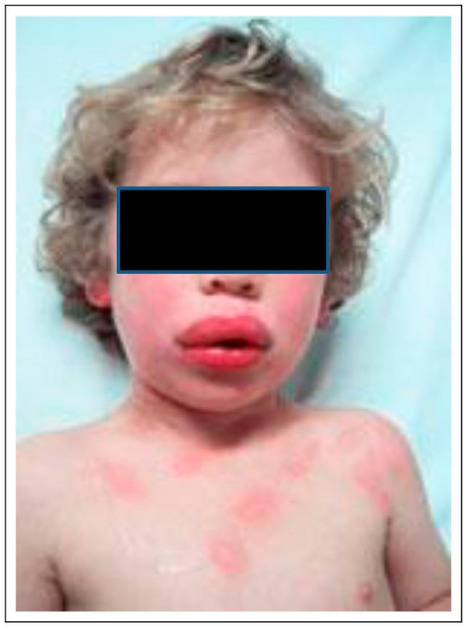
Answer: Angioedema

All Four with facial angioedema, but all different.

What is this Images of?...
All with facial angioedema, all referred for an allergy evaluation

Allergic Angioedema
(with hives)

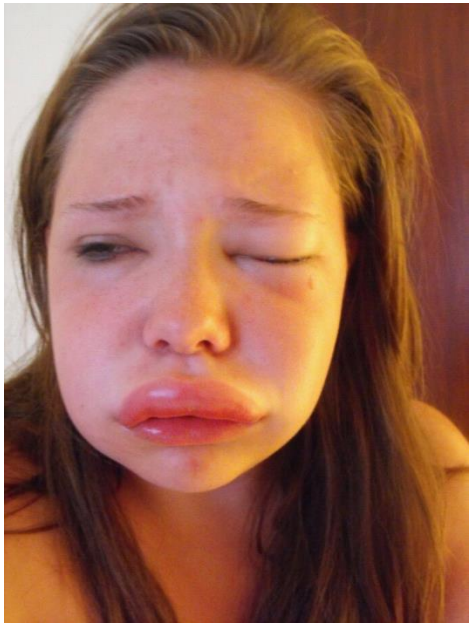


The story

* 4 year old otherwise health male, afebrile, normal activity
* 36 hrs of eye and lip swelling
* Itchy, uncomfortable, but otherwise doing fine
* Similar, but without lip swelling the same time last spring
* Exam otherwise normal

What is this Images of?...
All with facial angioedema, all referred for an allergy evaluation

Hereditary Angioedema
Type 1

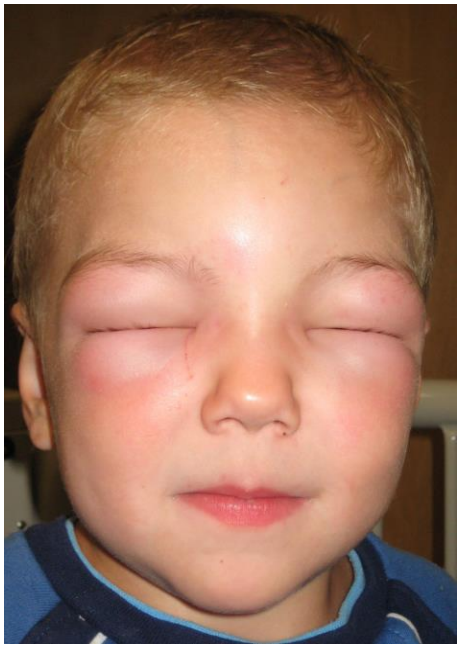


The story

* 16 year old previously healthy female, afebrile, normal activity
* 3 days of URI, 6 hrs of eye and lip swelling, 3 yr hx of intermittent abdominal pain
* Not Itchy, uncomfortable, but otherwise doing fine
* Exam otherwise normal
* Lab: C4 5; C1est Inhibitor 6 (12-36)

What is this Images of?...
All with facial angioedema, all referred for an allergy evaluation

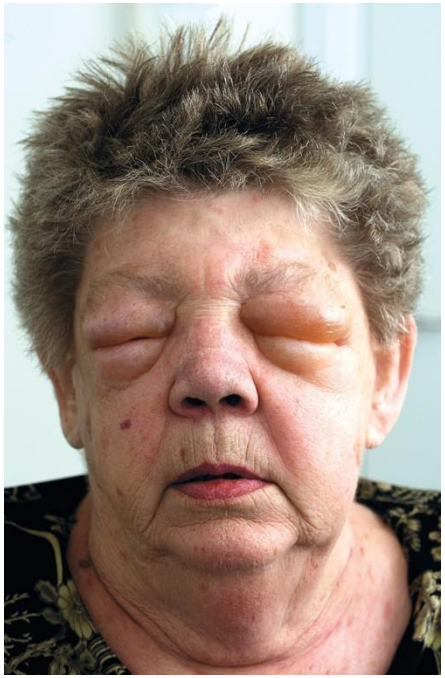
Poststreptococcal Glomerulonephritis



The story

* 8 year old previously healthy male, afebrile, normal activity
* 3 days of AM eye swelling, "viral syndrome" with ST last week
* Not Itchy, uncomfortable, BP 140/85, T 101.2, HR 110
* Exam: Lg red tonsils, otherwise normal
* Lab: Hematuria, brown urine, +4 protein, Creatinine 1.4, Elevated TG's and ASO

What is this Images of?...
All with facial angioedema, all referred for an allergy evaluation

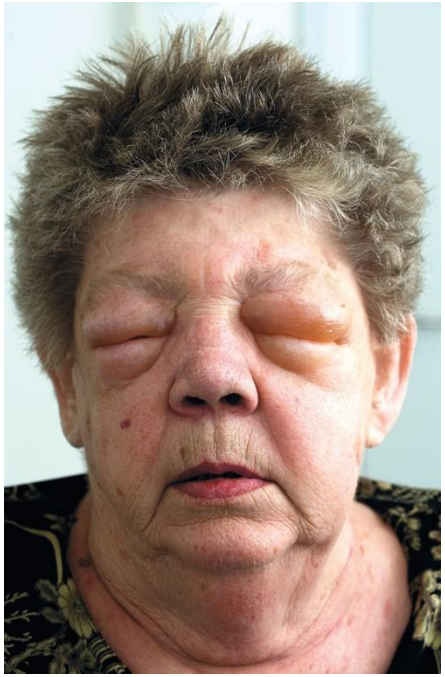


The story

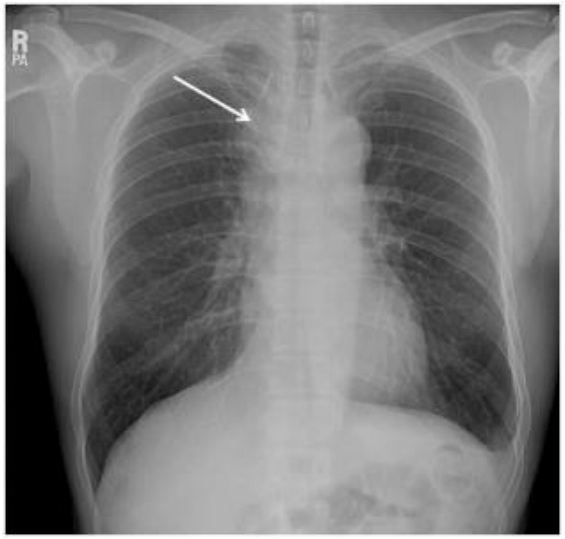
* 72 year old female, previous patient with severe SAR, PAR and Pen/Sulfa allergy. Referred for reevaluation of her allergies
* 3 days of eye and facial swelling, severe nasal congestion and decreased hearing
* Not Itchy or uncomfortable, BP 140/85, VSS
* Exam: Obvious face edema, Complete nasal obstruction, b/v MEE
* Allergy testing: Negative
* Plan: Return in 2 days for additional testing

What is this Images of?...
All with facial angioedema, all referred for an allergy evaluation

Superior Vena Cava Syndrome



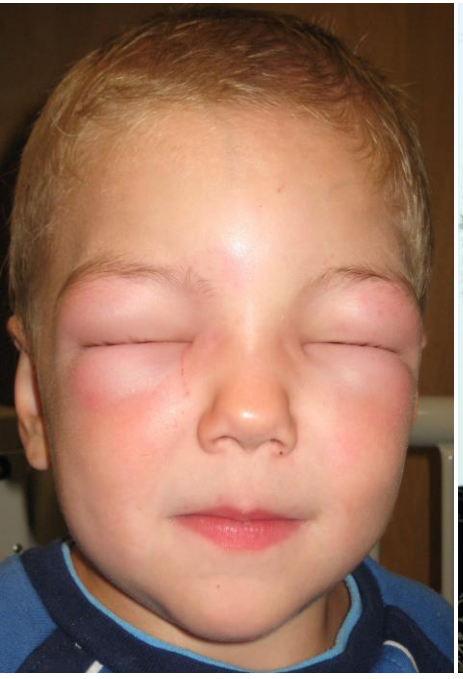
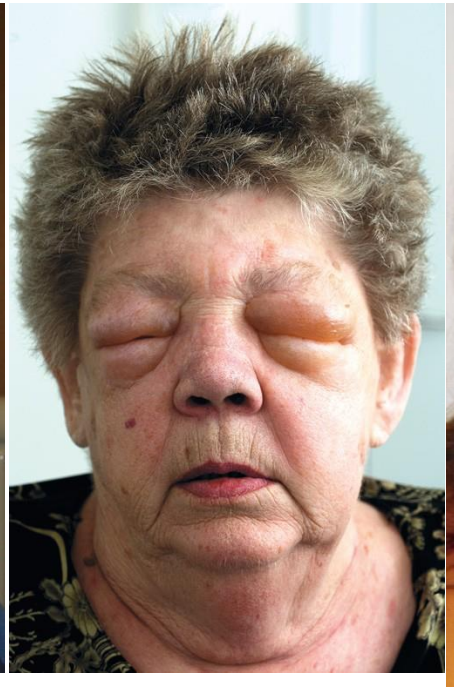
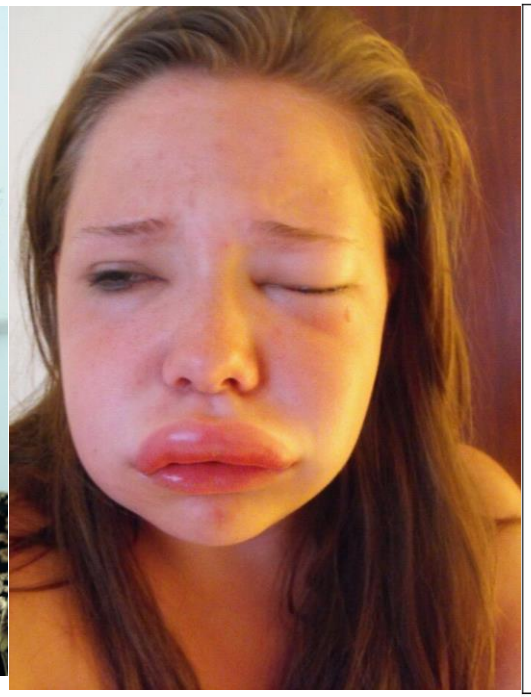
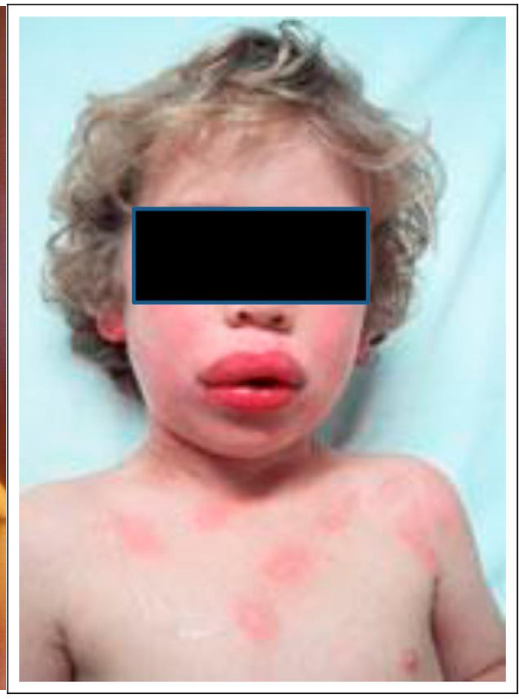
The rest of the story…



What Are These Images of?

What were the outcome?

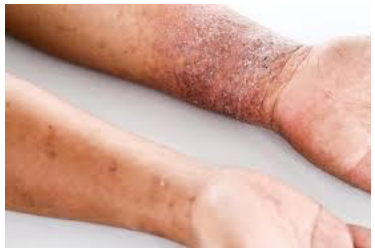
All Four with facial angioedema, but all different.

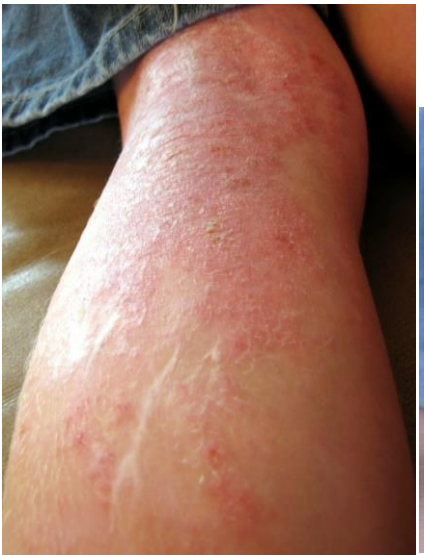





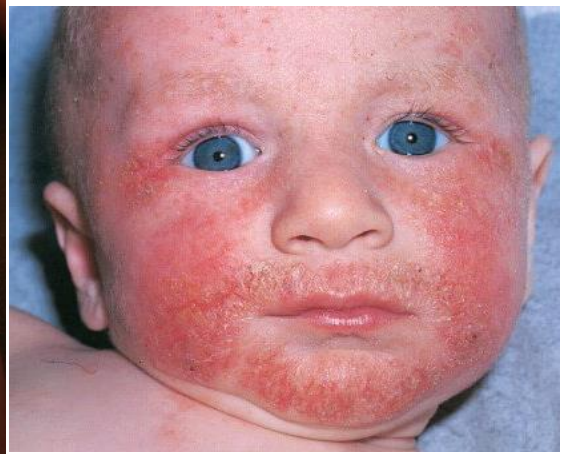
What Are These Images of?

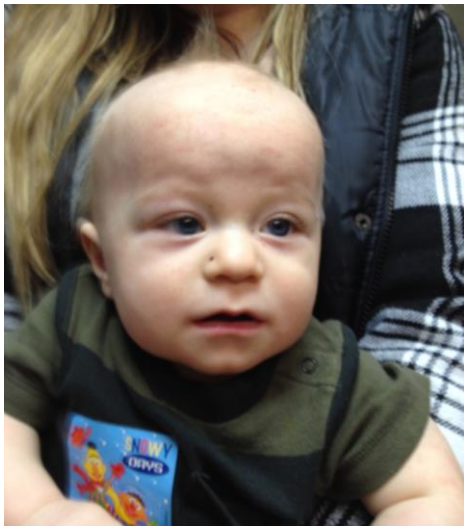
Atopic Dermatitis

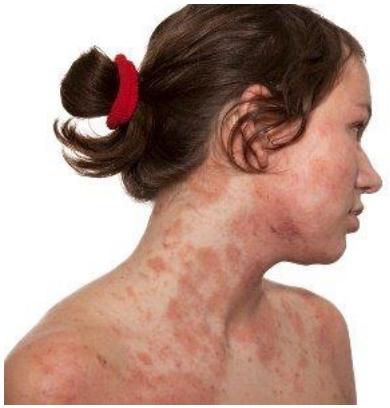
All Four with atopic dermatitis, but all different.



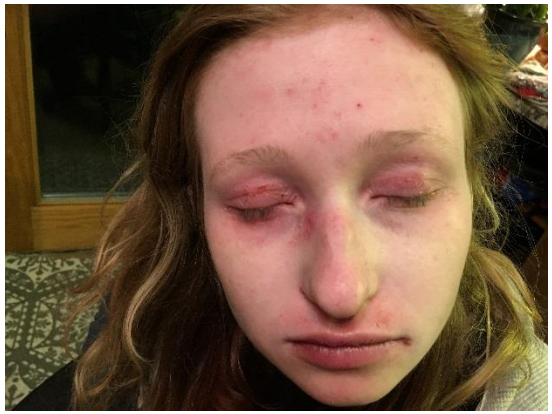


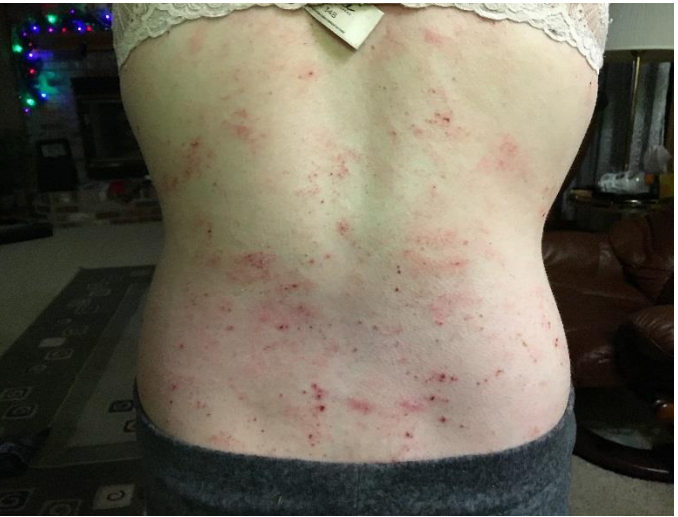


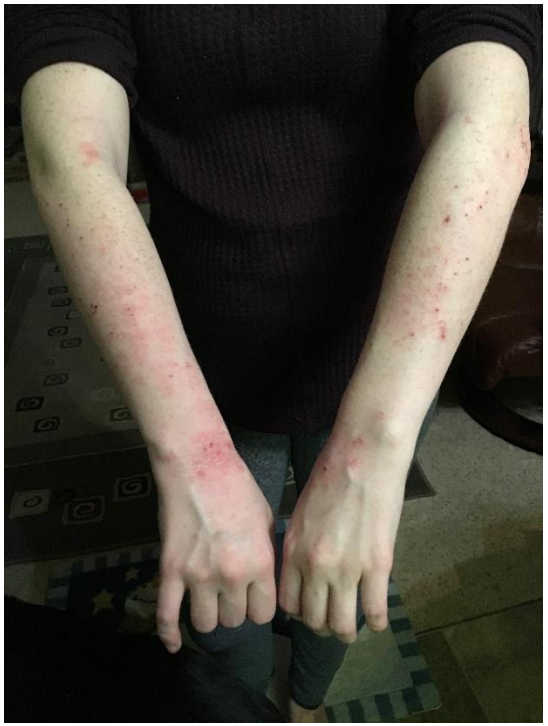


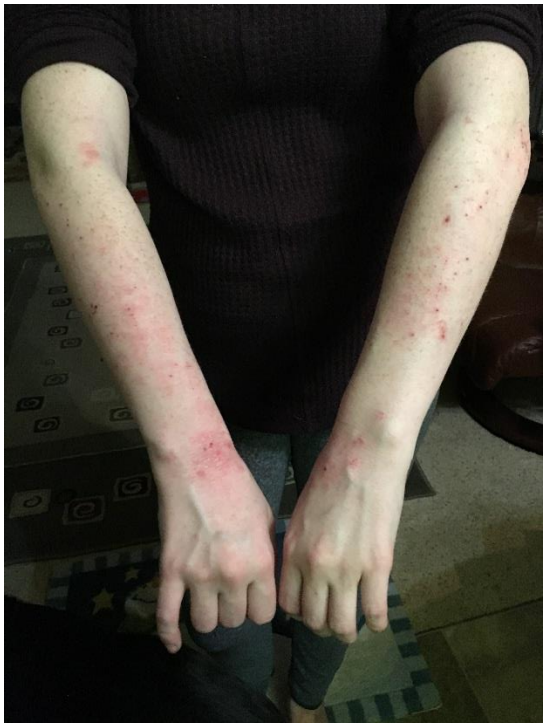


Atopic Dermatitis



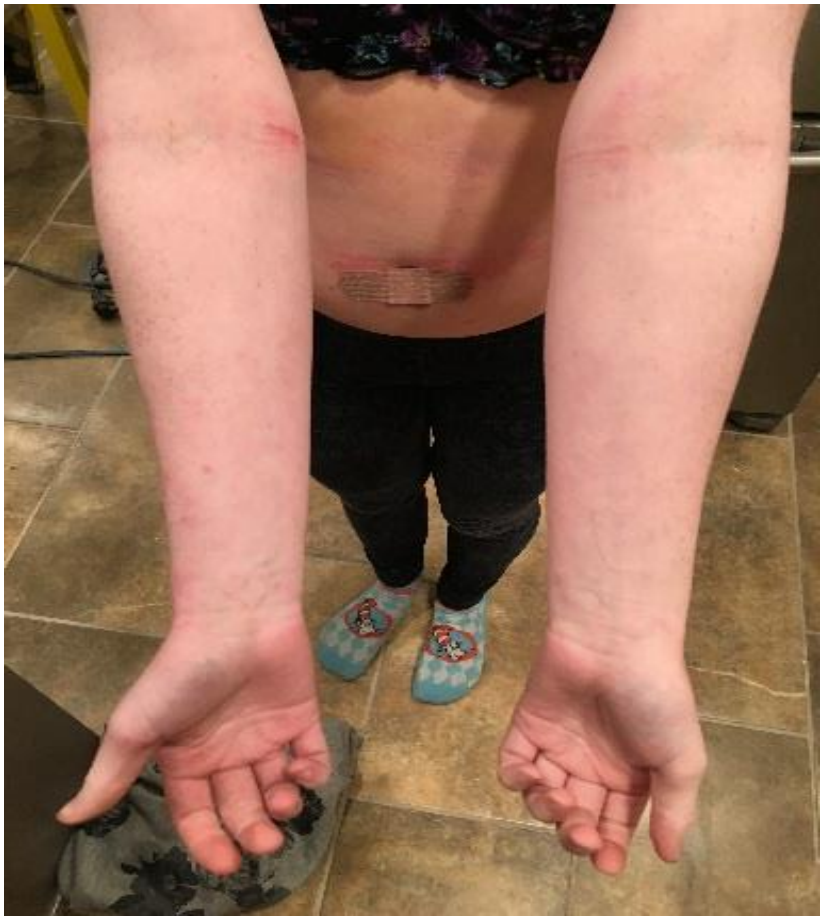


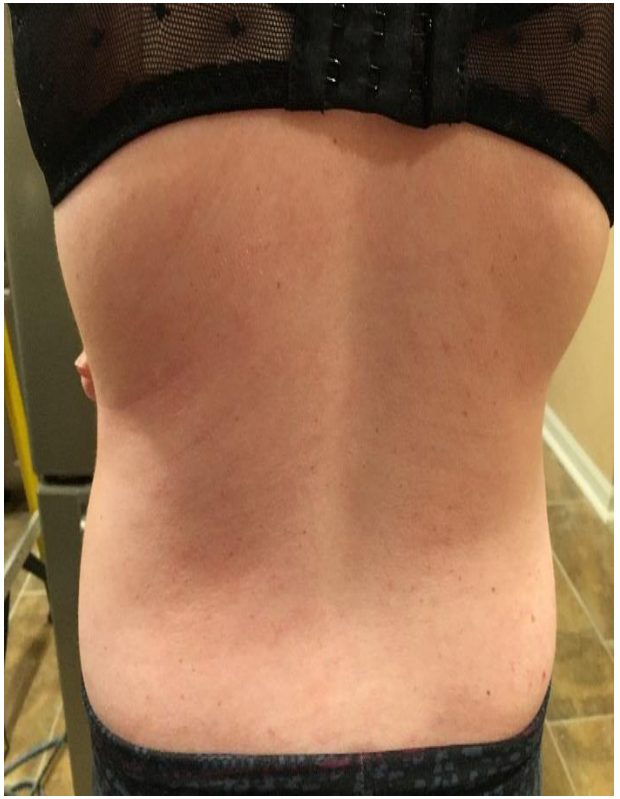




Atopic Dermatitis

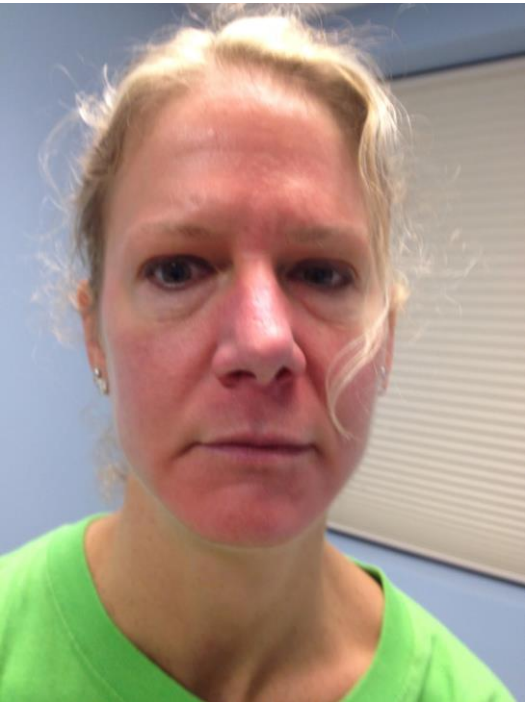
Atopic Dermatitis

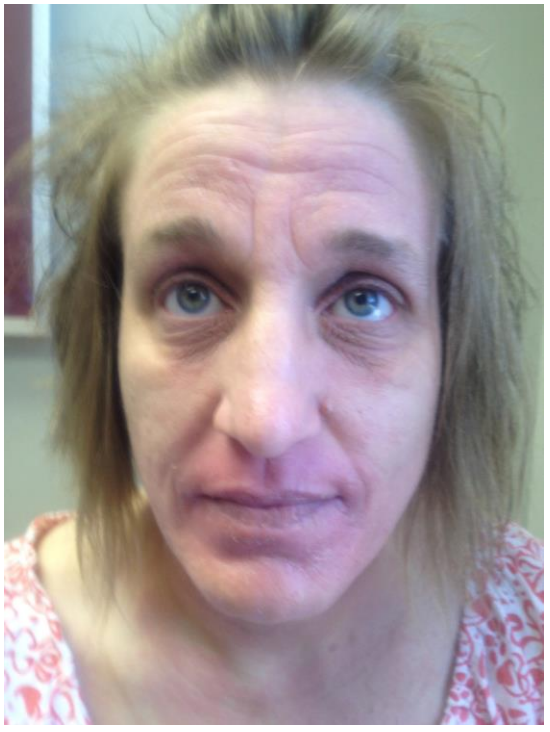




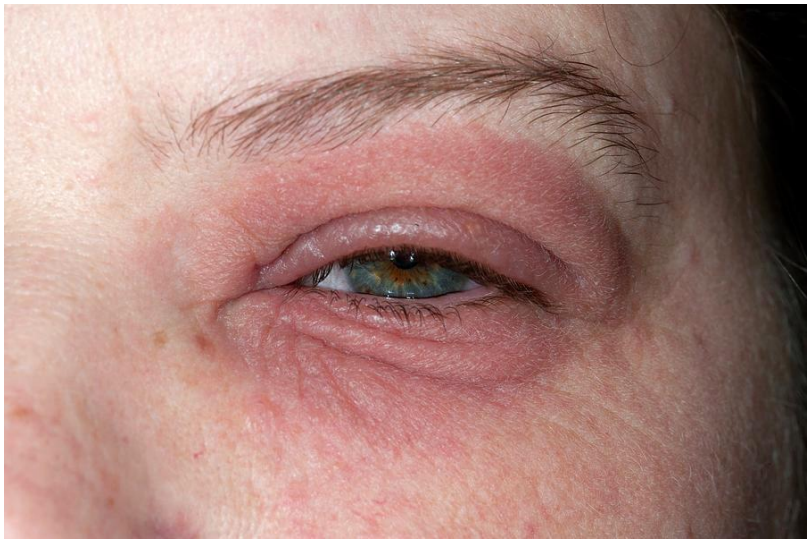
What Are These Images of?

Allergic Contact Dermatitis



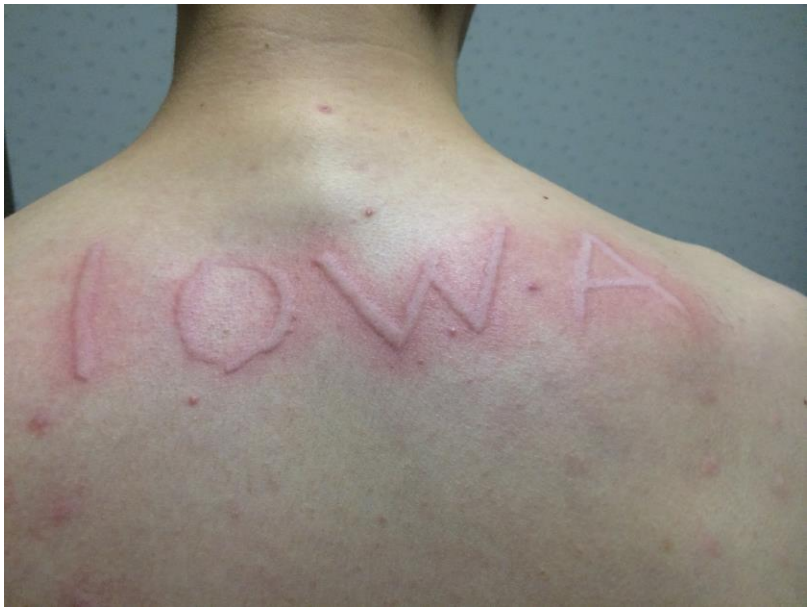


Allergic Contact Dermatitis



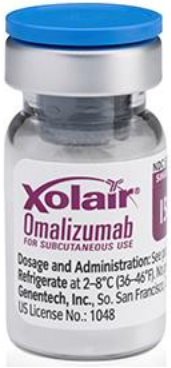
* Orbital Dermatitis
  * Contact – Gold/Metal
  * Non-contact
    * HDM
    * Mold
* Why the eyes and eyelids?

Urticaria – Acute and Chronic

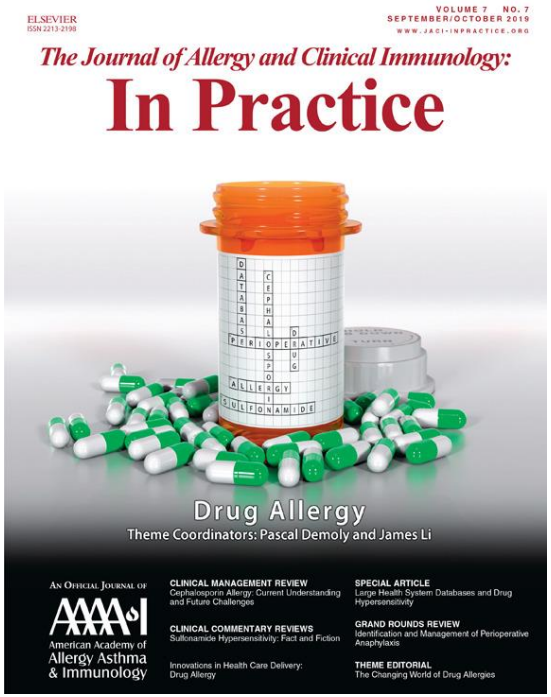


* Acute Urticaria < 6 wks
  * Allergic – inhalant/food
* Chronic Urticaria >6 wks
  * Idiopathic
  * Autoimmune
  * Physical
    * e. g. Dermatographism

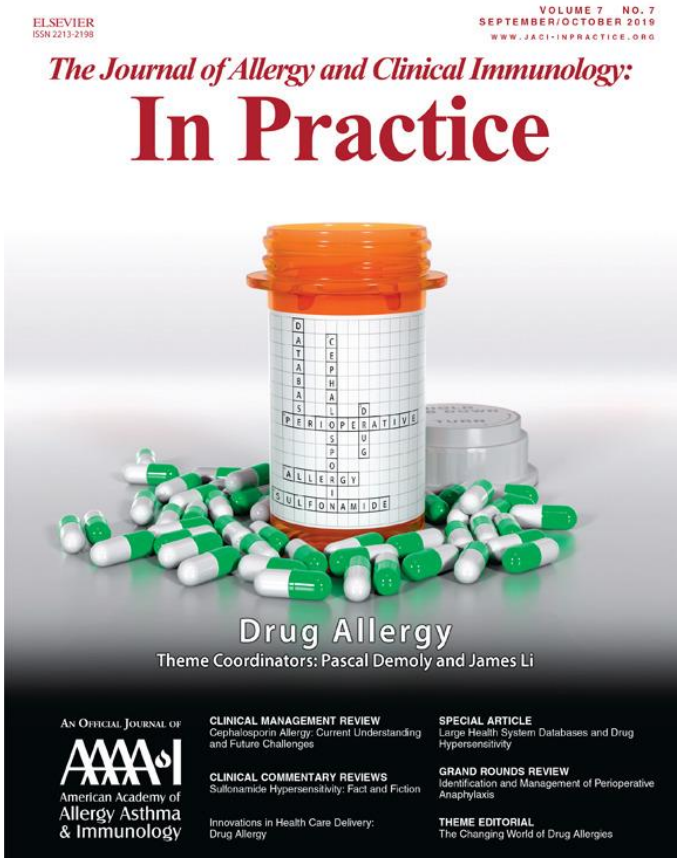
Chronic Urticaria



Drug Allergy and Penicillin

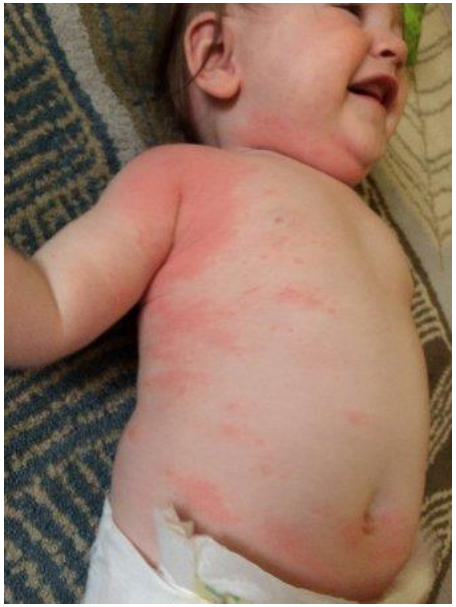


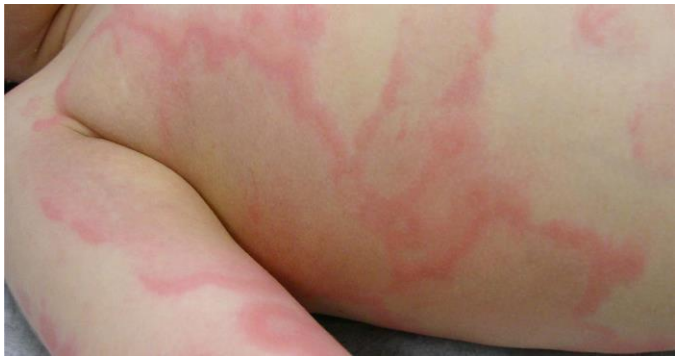
The Changing World of Drug Allergies

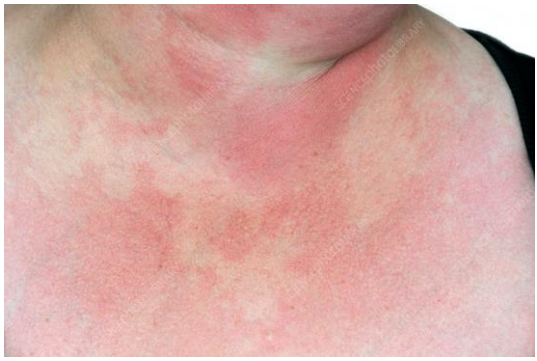


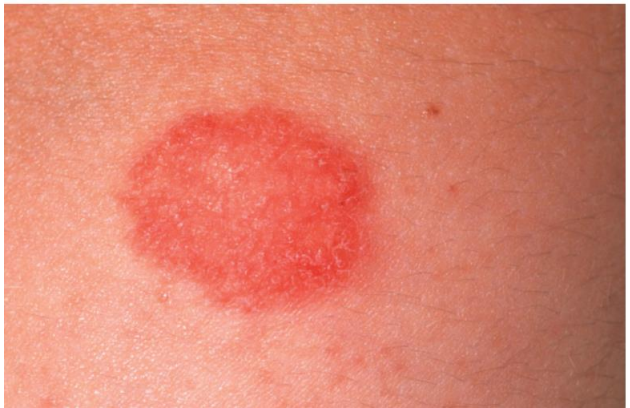
* The field of drug allergy and hypersensitivity has improved a lot over the past decade
* validating or challenging previous knowledge
* new collaborative work
* standardization through consensuses some immunologic
* the use of bigger databases analyzed with modern mathematic tools
* drug allergy workup is less detrimental than simple avoidance because of the clear consequences of the latter attitude and the potential “loss of chance” of patients not getting the first-line treatment because of a possible drug

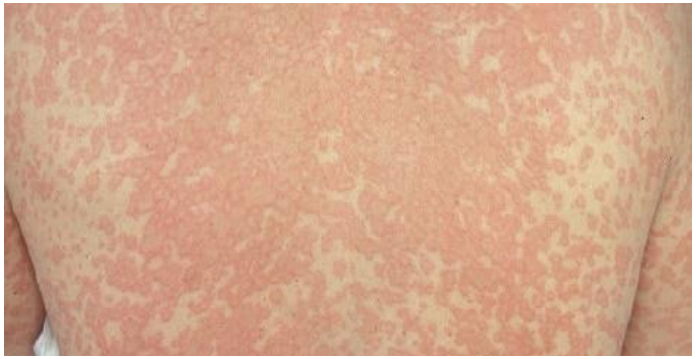
Drug Allergy and Penicillin

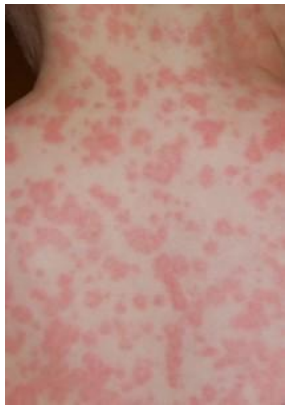








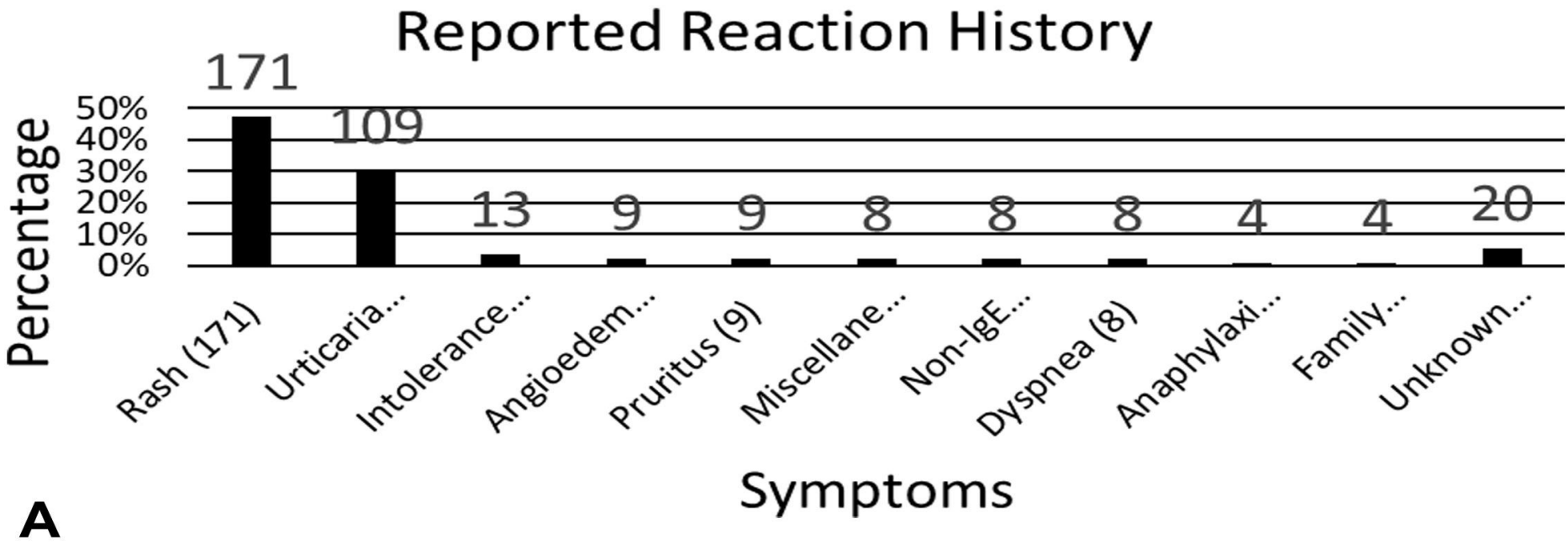




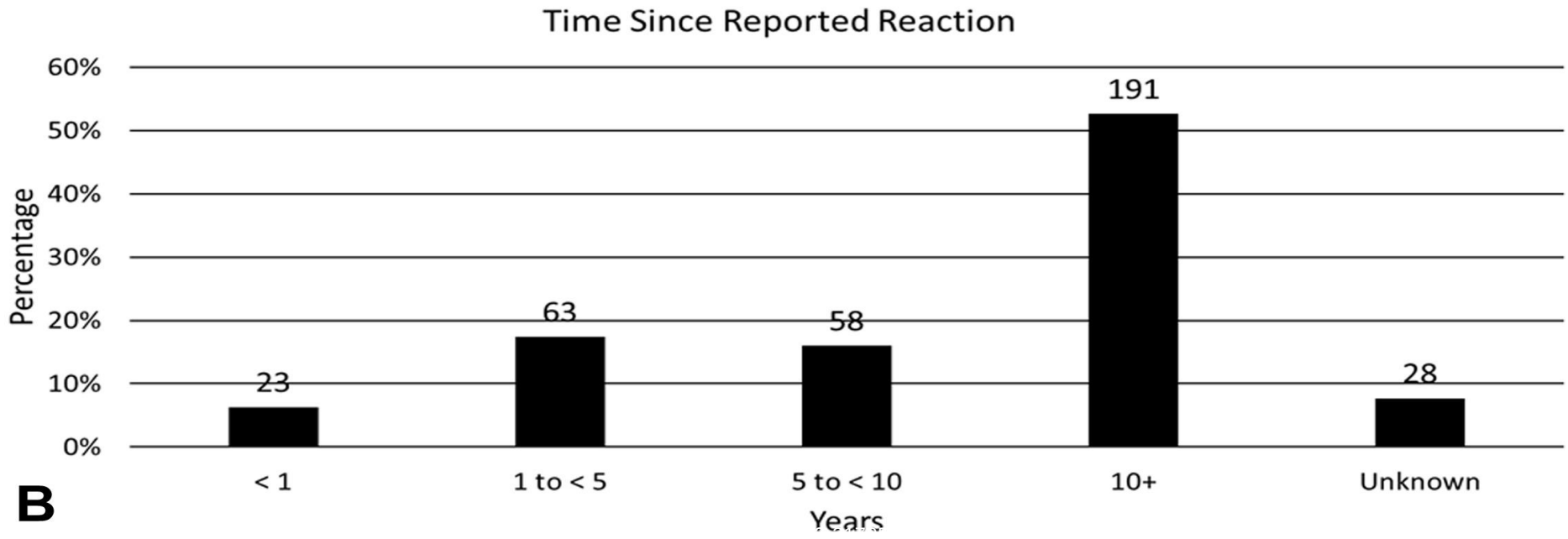
Comparing Direct Challenge to Penicillin Skin Testing for the Outpatient Evaluation of Penicillin Allergy: A Randomized Controlled Trial

* Direct challenge (DC) may be a safe and effective alternative to penicillin skin testing (PST) in low-risk patients.
* To complete a prospective, randomized, controlled trial comparing PST followed by a challenge to amoxicillin versus a 2-step DC to amoxicillin without preceding skin testing in a predefined low-risk patient population.

S. Shahzad Mustafa, MD, Kelly Conn, PhD, MPH, Allison Ramsey, MD JACI*: In Practice* Volume 7, Issue 7, Pages 2163-2170 (September 2019)


Reported Reaction History
Percentage
50%
40%
30%
20%
10%
0%
171
109
13
9
9
8
8
8
4
4
20
Rash (171)
Urticaria...
Intolerance...
Angioedem...
Pruritus (9)
Miscellane...
Non-IgE...
Dyspnea (8)
Anaphylaxi...
Family...
Unknown...
Symptoms

A


Time Since Reported Reaction
Percentage
60%
50%
40%
30%
20%
10%
0%
23
63
58
191
28
< 1
1 to < 5
5 to < 10
10+
Unknown
Years

B

Comparing Direct Challenge to Penicillin Skin Testing for the Outpatient Evaluation of Penicillin Allergy: A Randomized Controlled Trial

* Penicillin allergy histories were reviewed in patients presenting to an outpatient AI practice from 4/18-8/18.
* Patients 5 years or older with a cutaneous-only or unknown reaction (>1 year ago for those aged 5-17 years, >10 years ago for those 18 years or older)
* Randomized 1:1 to PST or 2-step DC.
* All children younger than 5 years underwent DC, and patients with extracutaneous reaction histories underwent PST.
* All groups were monitored 30 minutes after administration of amoxicillin.

S. Shahzad Mustafa, MD, Kelly Conn, PhD, MPH, Allison Ramsey, MD JACI: *In Practice* Volume 7, Issue 7, Pages 2163-2170 (September 2019)

Total Patents Evaluated (2465)

Patients with Reported PCN Allergy (363)

Patients not Evaluated (178)

Patients Undergoing PCN Allergy Evaluation (185)

PCN SPT (13)
(extra-cutaneous symptoms)

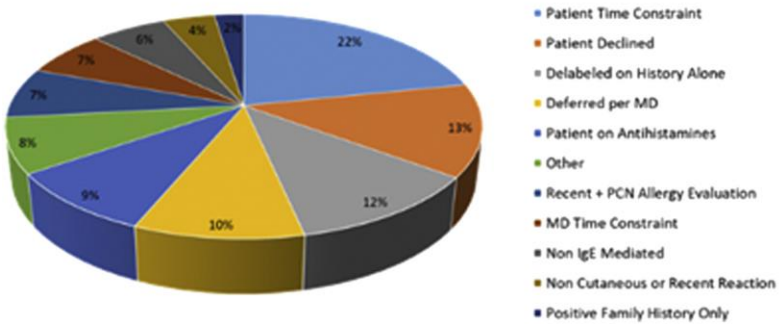
Graded Challenge (13)
(< 5 y/o)

Randomized (159)

PCN SPT (80)

Graded Challenge (79)

Reasons PCN Allergy Evaluation Not Completed



Conclusions - In Delabeling Penicillin Allergy

* In low-risk patients, DC provided a safe and effective alternative to PST in delabeling penicillin allergy.
* Compared with PST, DC may also take less time, cost less money, and lead to fewer penicillin allergy evaluations with false-positive results.


OSEM
Bamba
peanut snack
All Natural Ingredients
New Allergen Information
Net Wt. 1oz (28g e)
OSEM
Bamba
peanut snack
All Natural Ingredients
New Allergen Information
Net Wt. 1oz (28g e)
OSEM
Bamba
peanut snack
All Natural Ingredients
New Allergen Information
Net Wt. 1oz (28g e)

LEAP STUDY
”Learning Early About Peanut allergy”

* Landmark study in NEJM in 2015
* Regularly feeding peanut to young infants aged 4-11 months who were at risk of peanut allergy (because of eczema and/or history of egg allergy) reduces the odds that a peanut allergy will develop by **70 to 80 percent.**
* Children with a positive skin test to peanut (>4 mm) were **excluded, so this is not a treatment for patients already clinically allergic to peanut**
* Follow up study one year later showed sustained effects

New Guidelines - January 2017

American Academy of Pediatrics

* **Guideline #1** High risk infants - those with severe eczema and/or egg allergy be introduced to peanut as early as **4-6 months of age,** following successful feeding of other solid food(s) to ensure the infant is developmentally ready.
  * **Allergy skin testing** is strongly advised prior to peanut introduction for this group.

* **Guideline #2** Infants with mild to moderate eczema, a group also at increased risk of peanut allergy, should be introduced to peanut "around 6 months of age, to reduce the risk of peanut allergy."
  * May have peanut introduced at home without an in-office evaluation, although an evaluation can be considered.

* **Guideline #3** Infants without eczema or food allergy who are not at increased risk, suggesting that peanut be introduced "freely" into the diet together with other solid foods and in accordance with family preferences and cultural practices.

Immunotherapy for Food Allergy

* Over the past 5-7 years, several novel treatment approaches have been explored. None are FDA-approved for treatment of food allergies
* Oral Immunotherapy (OIT)
* Sublingual immunotherapy (SLIT)
* Epicutaneous Immunotherapy (EPIT

The Future of Peanut Allergy


FDA
U.S. Department of Health and Human Services
Food and Drug Administration

September 13, 2019 FDA APAC Meeting

Agenda

On September 13, 2019, the Center for Biologics Evaluation and Research's (CBER) Allergenic Products Advisory Committee (APAC) will meet in open session to discuss and make recommendations on the safety and efficacy of Peanut [*Arachis hypogaea*] Allergen Powder manufactured by Aimmune Therapeutics, Inc, indicated for treatment to reduce the risk of anaphylaxis after accidental exposure to peanut in patients aged 4 to 17 years with a confirmed diagnosis of peanut allergy.

Aimmune Therapeutics®

"8 a.m.: The FDA advisory panel will be a pivotal moment for Aimmune Therapeutics (AIMT), the biopharma company that developed the new treatment. If approved, Palforzia (formerly AR101) will be the first protective therapy for peanut allergy and the start of what Aimmune hopes will be a family of products with blockbuster commercial potential — all designed to benefit the millions of people who suffer with life-threatening food allergies."

Aimmune Therapeutics®

* Controversial
* Expensive
* Limited Protection
* High risk profile

September 27, 2019 PAC Meeting

Agenda

On September 27, 2019, the Pediatric Advisory Committee (PAC) and the Drug Safety and Risk Management (DSaRM) Advisory Committee will meet to discuss a pediatric-focused safety review of neuropsychiatric events with use of Singulair (montelukast).

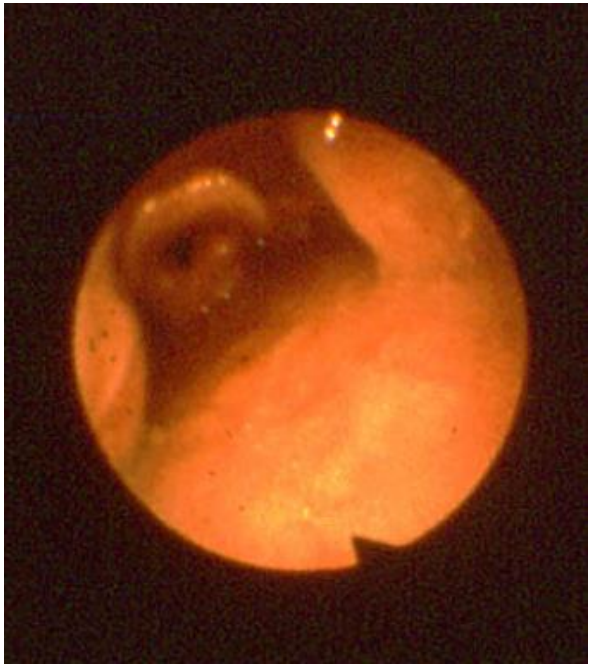
North American Hymenoptera

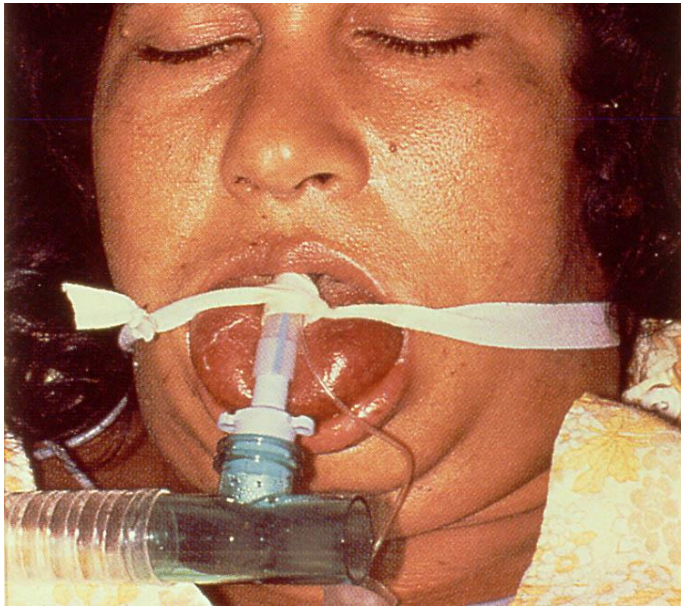

OH MY GOD!
CARL! DON'T MOVE!
You've got a man
on your back!

Therapy - Immediate action

1. ***Assessment***
   Check airway and secure if needed
   Rapid assessment of level of consciousness
   Vital signs
2. ***Treatment***
   Epinephrine
   Supine position, legs elevated
   Oxygen
3. ***Dependent on evaluation***
   peripheral intravenous fluids
   H_1 and H_2 antagonist
   Corticosteroids
   Transfer to hospital

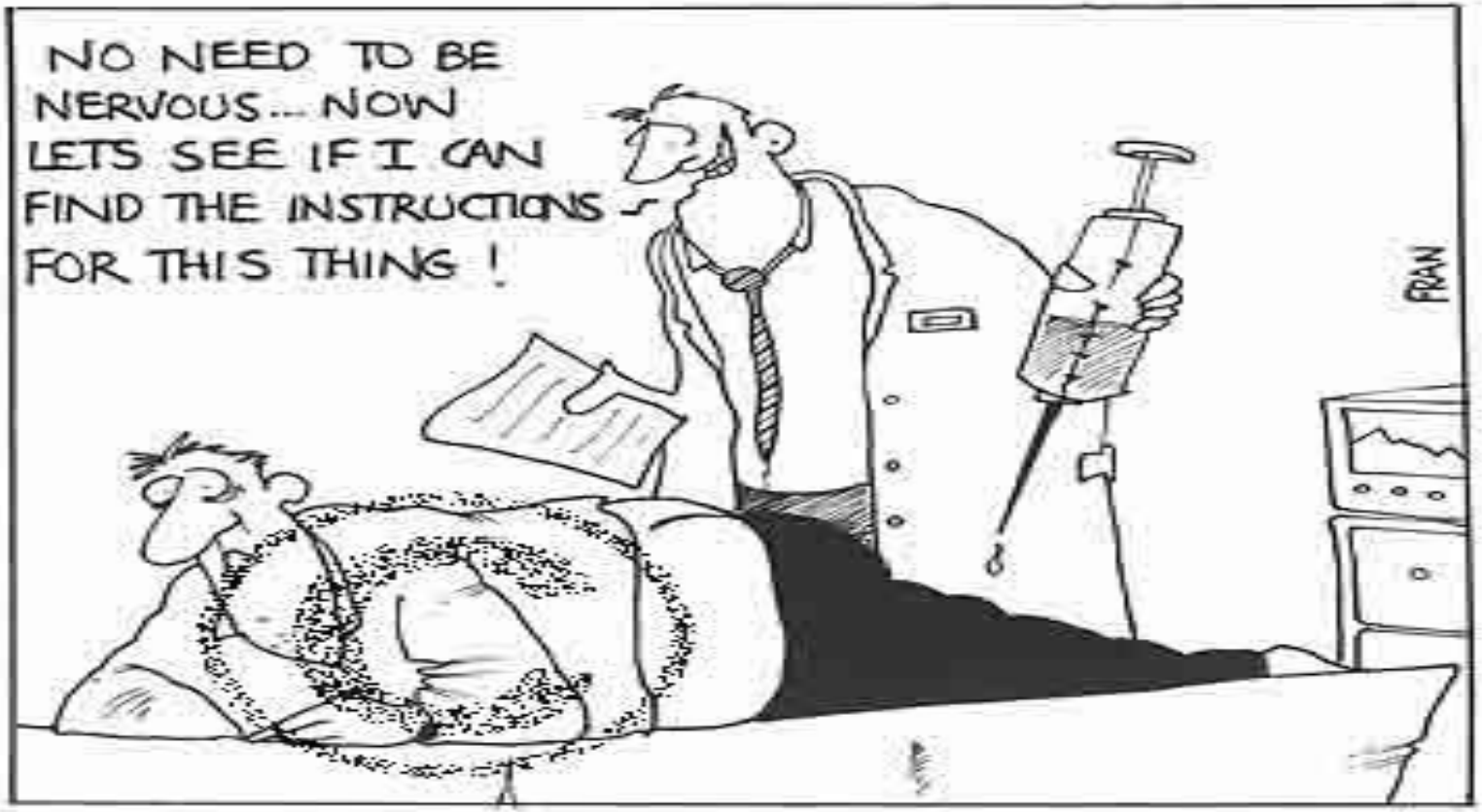
Delayed Epinephrine





Epinephrine: Why are we afraid?

Am I Being Cared for Optimally?



Epinephrine as Treatment

Physiologic Manifestations of Human Anaphylaxis

PHILIP L. SMITH, ANNE KAGEY-SOBOTKA, EUGENE R. BLEECKER, RICHARD TRAYSTMAN, ALLEN P. KAPLAN, HARVEY GRALNICK, MARTIN D. VALENTINE, SOLBERT PERMUTT, and LAWRENCE M. LICHTENSTEIN,
Respiratory and Clinical Immunology Divisions, Department of Medicine, Johns Hopkins University School of Medicine, Baltimore City Hospitals, Good Samaritan Hospital, Department of Environmental Health Sciences, School of Hygiene, Johns Hopkins University, Baltimore, Maryland 21205; Allergic Disease Section, Laboratory of Clinical Investigation, National Institutes of Allergy and Infectious Diseases and Clinical Center, National Institutes of Health, Bethesda, Maryland 20014

Epinephrine as Treatment

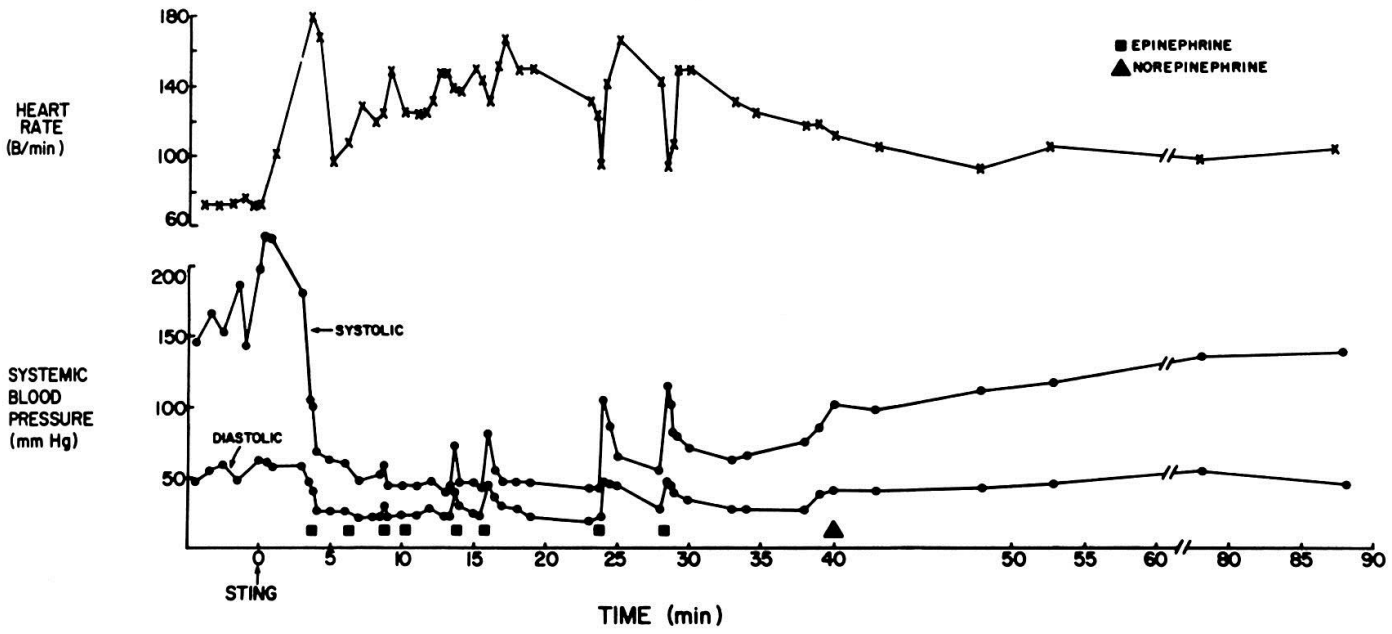
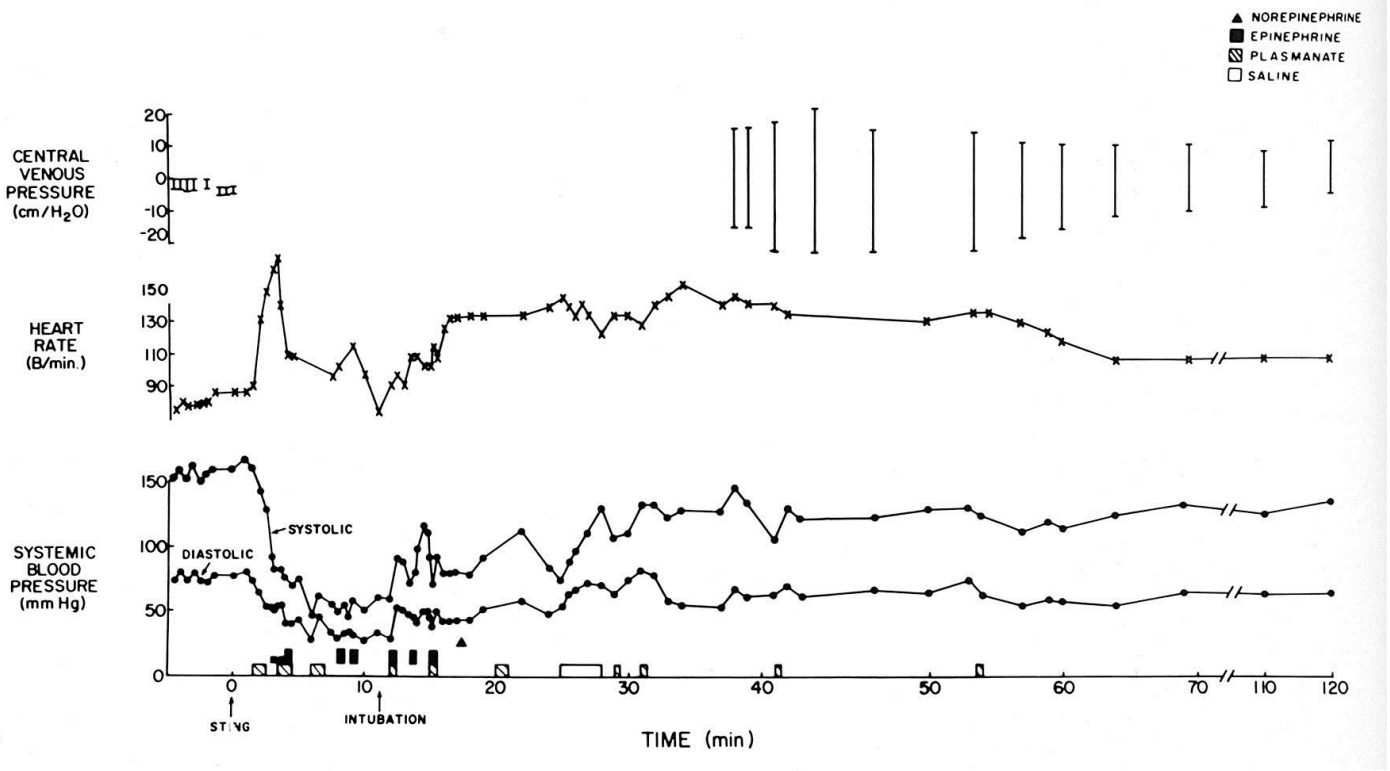


FIGURE 2 The course of blood pressure (●) and pulse rate (×) of the second patient who developed severe anaphylaxis. Each solid black square represents 4–5 ml of 1:10,000 epinephrine (0.5 mg) given as an intravenous bolus over 10–15 s. LEVO represents the start of a 2-min infusion of norepinephrine (see text).

Smith PL, Kagy-Sobotka A, et al Physiologic Manifestations of Anaphylaxis. J All Clin Imm. 66: 1072-1080

Epinephrine as Treatment



Smith PL, Kagy-Sobotka A, et al Physiologic Manifestations of Anaphylaxis. J All Clin Imm. 66: 1072-1080

Closing Comments


JOHN DEERE

Cause, presentation, and clinical course of patients presenting to the ED with a food-related acute allergic reaction

	n = 678	95% CI
Etiology of current allergic reaction		
Documentation of specific food (%), total	92	90-94
Crustaceans (%)	19	16-22
Peanuts (%)	12	9-14
Fruits and vegetables (%)	12	10-15
Fish (%)	10	8-12
Tree nuts (%)	9	7-11
Milk (%)	6	4-8
Eggs (%)	2	1-4
Additives (%)	1	0.5-2
Other foods (%)	36	33-40
Presentation and clinical course		
Arrived by ambulance (%)	18	16-22
Duration of symptoms < 1 h (%)	37	33-41
Severe reaction, ie, anaphylaxis (%)*	51	47-55
Treatments received in ED		
Antihistamines (%)	72	68-75
Systemic steroids (%)	48	45-52
Respiratory treatments (%)†	33	29-37
Epinephrine (%)	16	13-19
Discharged to home (%)	97	95-98

*Involvement of 2 or more organ systems or hypotension alone (see Methods section).
†Respiratory treatments include inhaled β-agonists and inhaled anticholinergics.

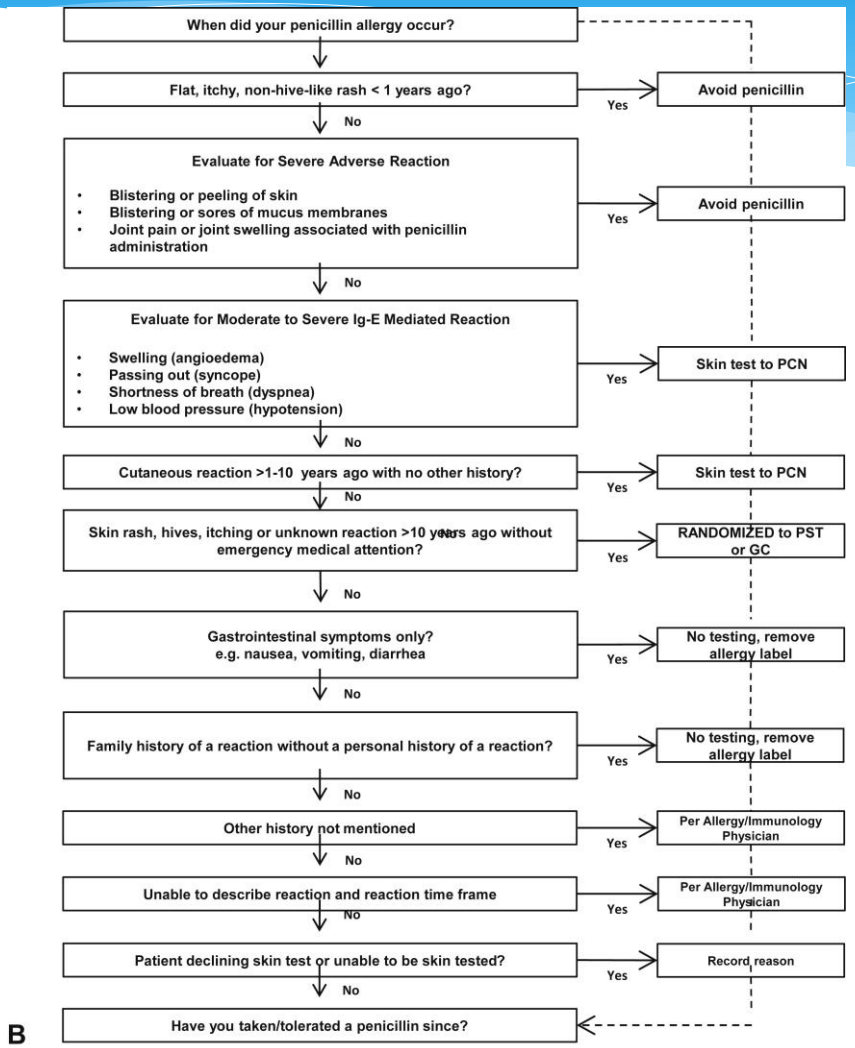
Clark S, Bock SA, Gaeta TJ, et al. Multicenter Study of emergency department visits for 503 food allergies. J Allergy Clin Immunol 2004; 113:347-52.

Why Patients Don't Use the Device…

* Members of a support group for patients of children with anaphylaxis responded to a survey regarding experiences with EpiPen®
* Only 11 of 41 patients administered EpiPen® during event
* Reasons why patients did not administer the device
  * Attack was mild
  * Hospital was close by
  * Concern regarding side effects
  * Pain
  * EpiPen® not available
  * Frightened child
  * Confusion (uncertainty whether symptoms were allergic)
  * Hard to carry

Dilay DJ, Roberts JR. *J Allergy Clin Immunol.* 2003;111:s101.

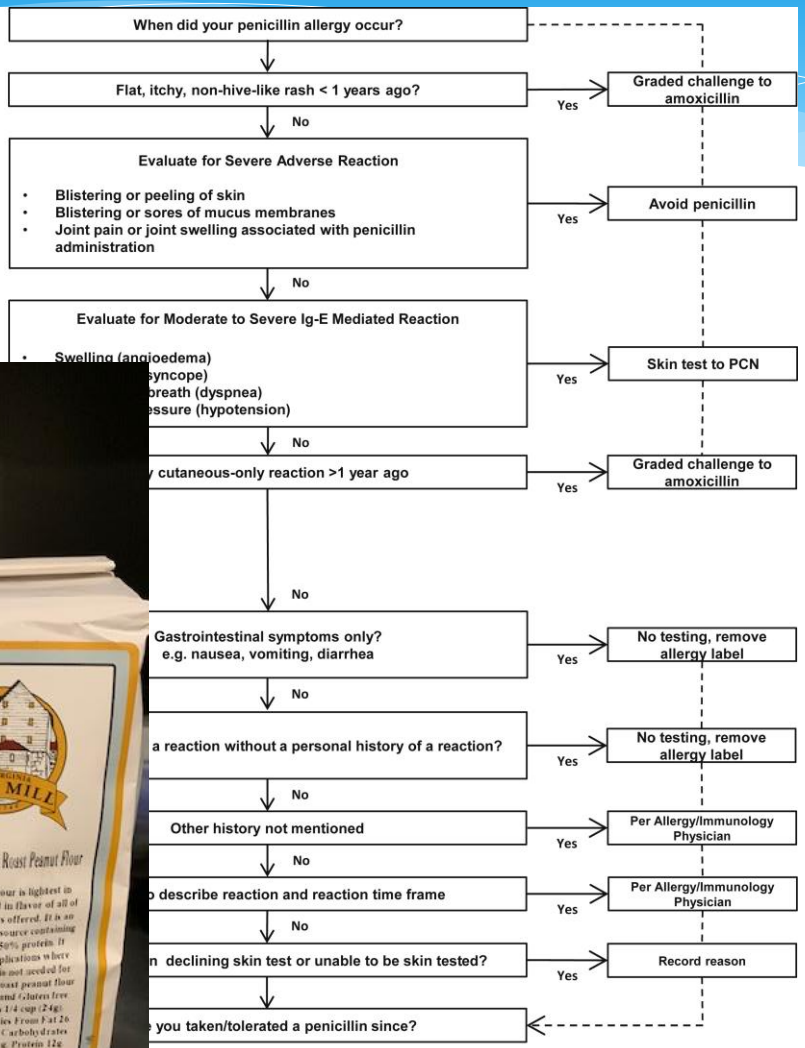
Figure 1



B


OLD VIRGINIA
BYRD MILL
VIRGINIA
25 % Fat - Light Peanut Flour
This is a high protein, low in fat peanut flour. It has a light roast and is all natural and Gluten free. It can be used in many low fat, high protein recipes. The serving size is 1/4 cup (22g) Total Calories 120. Calories from fat 60. Total fat 6g. Total Carbohydrates 5g. Dietary Fiber 2g. Protein 9g.
1lb
OLD VIRGINIA
BYRD MILL
VIRGINIA
12 % Fat - Light Roast Peanut Flour
This Peanut Flour is lightest in roast, aroma and in flavor of all of the peanut flours offered. It is an excellent protein source containing a minimum of 50% protein. It works well in applications where the peanut flour is not needed for flavor. This light roast peanut flour and is all natural and Gluten free the serving size is 1/4 cup (24g) Calories 100 Calories From Fat 26 Total Fat 3g Total Carbohydrates 7g Dietary Fiber 3g Protein 12g
(454 g) Net Wt. 16oz.

Figure 1



Hymenoptera Allergy Diagnosis

* Reliable history of a systemic reaction to a hymenoptera sting
* Evidence of venom-specific IgE by skin test or in vitro methods
* BOTH CRITERIA ARE REQUIRED
* If both criteria are met, venom immunotherapy should be offered

Hymenoptera Biology and Habitat

Common Names	Taxonomic Classification	Nesting Habits	Feeding Habit	Avoidance Strategies
Honeybee[1]	Family Apidae	Commercial hives	Herbivorous. Nectar and pollen flowering trees and plants	Avoid dark or flower-print clothing &wearing floral scents; wear shoes and socks
Yellow jacket	Family Vespidae Vespula species	Multilayered, usually underground, (*Vespula vulgaris*); although there is also an aerial yellowjacket, (*Dolichovespula arenaria*)[2]	Scavengers, aggressive. Carnivorous	Avoid open food sources, picnic areas, garbage; destroy in-ground nests
Paper Wasp[3]	Family Vespidae Polistes species	Hangs from eaves and porches	Nectar and arthropods	Avoid flower-print clothing & wearing floral scents; remove nests when possible
White-faced Hornet	Family Vespidae Dolichovespula species	Multilayered, open areas	Nectar and arthropods	Avoid flower-print clothing & wearing floral scents; remove nests when possible
Fire Ant	Family Formicidae	Earthen mounds in Southern United States	Omnivorous	Avoid mounds; wear shoes, sock and gloves.

1. A subspecies of honeybee exists in South Texas, Central and South America called "Africanized". It is more aggressive than local species and is clinically relevant in regions of infestation.
2. European species include P. dominulus, P. gallicus, P. nimphus
3. Paper wasp are not seen in United Kingdom

13-year-old dies at Sacramento camp from peanut allergy despite receiving medicine

* A 13-year-old with a peanut allergy died at a popular summer camp in Sacramento after taking a bite of a Rice Krispies® treat containing peanuts.
* Spit out the treat right away after tasting peanuts.
* Immediately found her mother, who gave her Benadryl and monitored her. For a short time the girl seemed fine, but 20 minutes later she had trouble breathing.
* Her physician father, administered an EpiPen® three times before she stopped breathing.
* The sheriff's office cited laryngeal edema, or a swelling in the throat, as the cause of death.