Food Allergy: A Developmental Approach

Melinda Braskett, MD
Keck School of Medicine at USC
Children's Hospital Los Angeles
Gores Family Allergy Center

April 28, 2018

Case based discussion of FA across the ages

- Highlight age appropriate care
  - Immediate care
  - Prevention
  - Psychosocial Sequelae of food allergy
    - Developmental delay
    - Anxiety
- Anticipatory Guidance
  - Role for pediatrician

Infantile anaphylaxis is rare

- 9m FT infant w/ eczema that is breast feeding ingests yogurt for the first time and has swelling. Your office is called and advises benadryl. He worsens and parents call back because of emesis and report turning purple.
- Your office advises calling 911. They arrive and administer epinephrine.
- You are called by the ED attending.

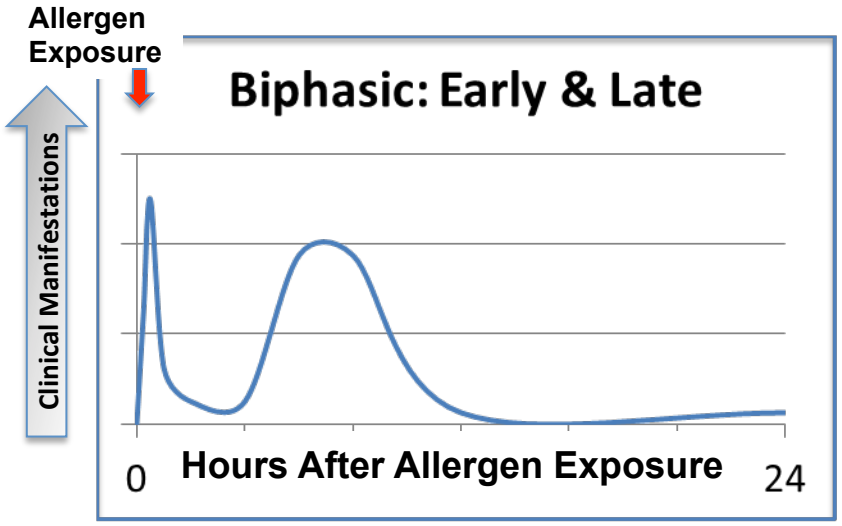
Now what?

- Admission?
- Medications?
- Follow up?

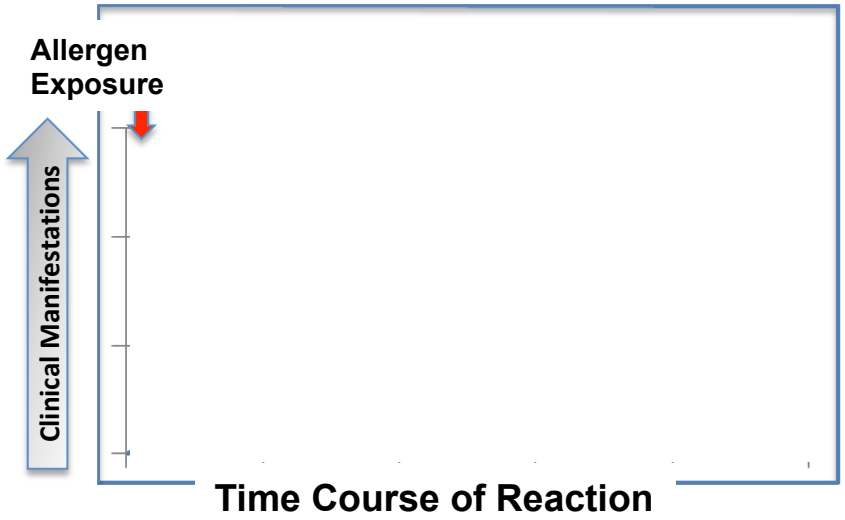
Anaphylaxis is unpredictable

- Acute course of anaphylaxis can follow any time/severity pattern
- Can not count on “warning” signs to predict severe reaction
- Have to give epinephrine as soon as anaphylaxis is suspected

Anaphylaxis can have late phase



Early phase can have various presentations



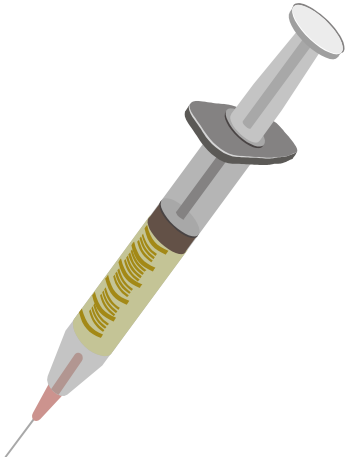
Late Phase also Unpredictable

- ~20-40% have late phase reactions
- Most late reactions occur <8 hours
- No reliable way to predict biphasic reactions
  - 10% were worse
  - 40% were life threatening
  - 20% needed more aggressive tx than 1st reaction
  - Most lasted longer than 1st reactions

- Asthma increases risk
- Steroids (probably) help prevent

Ellis AK. Ann Allergy Asthma Immunol 2007;98:64

Anaphylaxis responds to therapy



- Short-term treatment
  - Treatment of acute symptoms
- Long-term treatment
  - Prevention of and preparation for future reactions

Epinephrine treats anaphylaxis

- Recognize and acknowledge symptoms
- Always treat with epi
  - Antihistamines, steroids, albuterol are secondary

- ABC's
- IV Hydration for hypotension
- Assume a late phase reaction and treat accordingly
  - Observation & Steroids
- Arrange for follow-up

Prevention starts immediately

- Observe for late phase ~6h
- Oral steroids for 1-2 days
- Prescription for auto-injectable epinephrine
  - Best practice would “in hand” at discharge, if possible
- Education
  - Signs and symptoms of late phase reaction
  - Proper usage of epinephrine (when and how)
  - Trigger avoidance
- Follow up with Allergy!

Children's Hospital LOS ANGELES
We Treat Kids Better

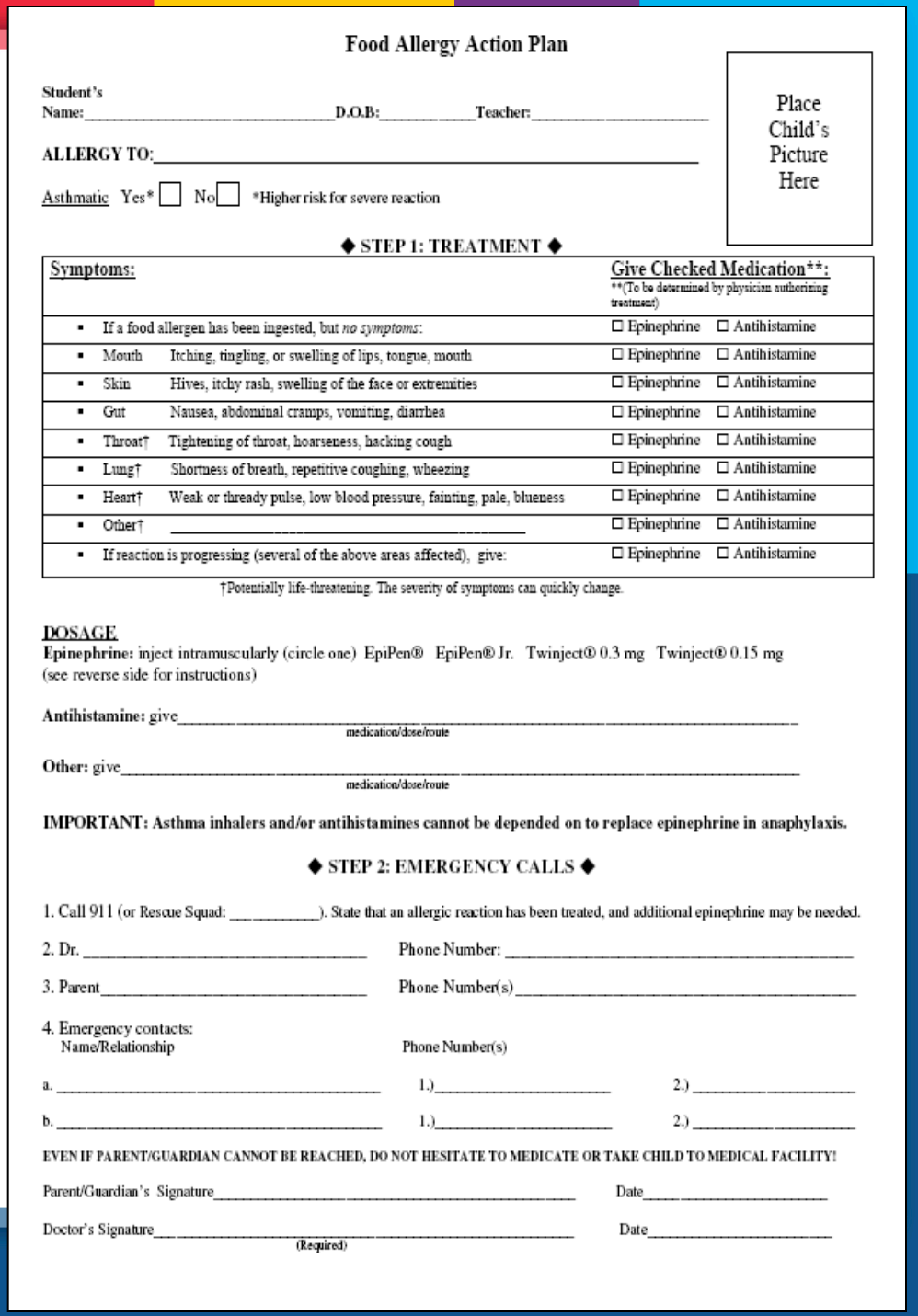
3 Steps to Long-Term Management of Anaphylaxis

1. Always be prepared
2. Always be prepared
3. Avoid the trigger

Children's Hospital LOS ANGELES
We Treat Kids Better

Anaphylaxis Emergency Plan

- Recommended by all guidelines
- Useful for schools, other caregivers
- Never proven to improve outcomes



Food Allergy Action Plan

Student's Name:_____ D.O.B:_____ Teacher:_____

Place Child's Picture Here

ALLERGY TO:_____

Asthmatic Yes* ☐ No ☐ *Higher risk for severe reaction

◆ STEP 1: TREATMENT ◆

Symptoms:		Give Checked Medication**: (**To be determined by physician authorizing treatment)
▪ If a food allergen has been ingested, but *no symptoms*:		☐ Epinephrine ☐ Antihistamine
▪ Mouth	Itching, tingling, or swelling of lips, tongue, mouth	☐ Epinephrine ☐ Antihistamine
▪ Skin	Hives, itchy rash, swelling of the face or extremities	☐ Epinephrine ☐ Antihistamine
▪ Gut	Nausea, abdominal cramps, vomiting, diarrhea	☐ Epinephrine ☐ Antihistamine
▪ Throat†	Tightening of throat, hoarseness, hacking cough	☐ Epinephrine ☐ Antihistamine
▪ Lung†	Shortness of breath, repetitive coughing, wheezing	☐ Epinephrine ☐ Antihistamine
▪ Heart†	Weak or thready pulse, low blood pressure, fainting, pale, blueness	☐ Epinephrine ☐ Antihistamine
▪ Other†	_____	☐ Epinephrine ☐ Antihistamine
▪ If reaction is progressing (several of the above areas affected), give:		☐ Epinephrine ☐ Antihistamine

†Potentially life-threatening. The severity of symptoms can quickly change.

DOSAGE

Epinephrine: inject intramuscularly (circle one) EpiPen® EpiPen® Jr. Twinject® 0.3 mg Twinject® 0.15 mg (see reverse side for instructions)

Antihistamine: give_____ (medication/dose/route)

Other: give_____ (medication/dose/route)

IMPORTANT: Asthma inhalers and/or antihistamines cannot be depended on to replace epinephrine in anaphylaxis.

◆ STEP 2: EMERGENCY CALLS ◆

1. Call 911 (or Rescue Squad: _____). State that an allergic reaction has been treated, and additional epinephrine may be needed.
2. Dr._____ Phone Number: _____
3. Parent_____ Phone Number(s)_____
4. Emergency contacts:

Name/Relationship	Phone Number(s)	
a._____	1.)_____	2.)_____
b._____	1.)_____	2.)_____

EVEN IF PARENT/GUARDIAN CANNOT BE REACHED, DO NOT HESITATE TO MEDICATE OR TAKE CHILD TO MEDICAL FACILITY!

Parent/Guardian's Signature_____ Date_____

Doctor's Signature_____ Date_____
(Required)

Reassurance to parents of infants and toddlers

- Children always supervised
  - Not the age group that gets in trouble
- Avoidance and Medications work
  - Sanity is in always being prepared
  - Don’t be afraid to use epi
- You are not alone
  - FARE https://www.foodallergy.org/
  - CHLA
  - Your awesome pediatrician

Feeding experience is traumatized

- Parental fear and anxiety loom
  - new foods
  - eating outside home

- Children often end up with feeding difficulties
  - Developmental delay
  - Oral aversions
  - Prolonged feeding times
  - Limited diet in variety and texture

You can help prevent developmental sequelae

- Make extra appointments
  - To address parental fear and anxiety
  - To ensure oral motor progressing
- Encourage families to offer “safe foods” in various forms
  - Raw, fried, mashed, frozen
- Refer
  - Allergy
  - OT, RD, therapy

The image cannot b
insert it again.

Children's Hospital LOS ANGELES
GORES FAMILY ALLERGY CENTER

Join our monthly workshop, coming June 2018:

"Feeding with Food Allergy"

*We are delighted to announce CHLA's first monthly **Feeding with Food Allergy Parent Workshop**, hosted by the Division of Clinical Immunology and Allergy and the Gores Family Allergy Center. The workshop is **free** for registered participants. Availability is limited so **please RSVP**.*

Description: 2-hour workshop, designed for parents and caregivers of children with food allergy

Our multidisciplinary team is composed of an occupational and feeding therapist, licensed psychologist, and registered dietitian, who will teach strategies to optimize nutrition, feeding and mealtimes – together we will promote behaviors and routines to promote happy, healthy eating experiences.

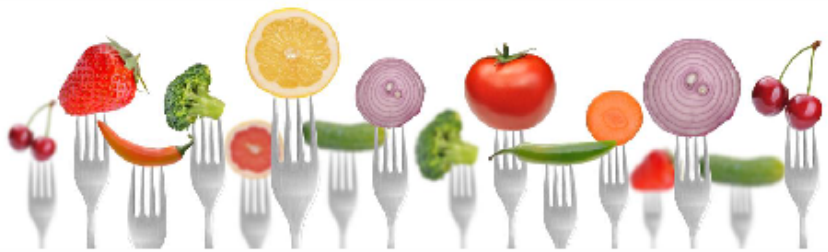
Instructors: Jennifer Hershfield, PhD
Adina Schwartz, MA, OTR/L, SWC, CBIS
Jill Madison, MS, RD/N, CLC

When: Beginning June 2018, will be offered monthly

Where: Children's Hospital Los Angeles
Marion and John E. Anderson Pavilion Conference Center (ground floor main hospital building)
4650 Sunset Blvd.
Los Angeles, CA 90027

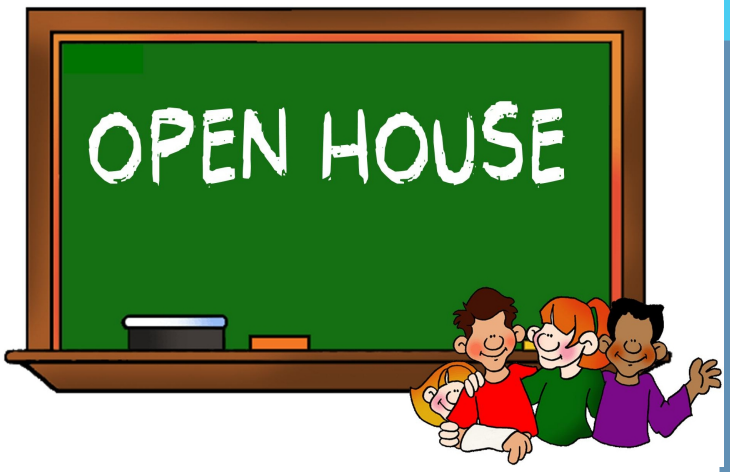
Sign up/RSVP: GoresFamilyAllergyCenter@chla.usc.edu / 323-361-8282

Parking: Available in the parking garage.



Starting school can be tough

- Meet with school
  - Ask parents to plan ahead
  - Meet nursing, administration
  - Review and possibly change policies
  - See where epi stored
- Epi available where there is food
- Nut free schools / tables
  - What about milk allergic patients?



Your practice is kind

Dear Doctor,

I am hoping you can help me. My 8y daughter is so terrified about her peanut allergy we don’ t know what to do. She lies awake at night worried that she is going to die in the lunch room. Can you help?

Sincerely,

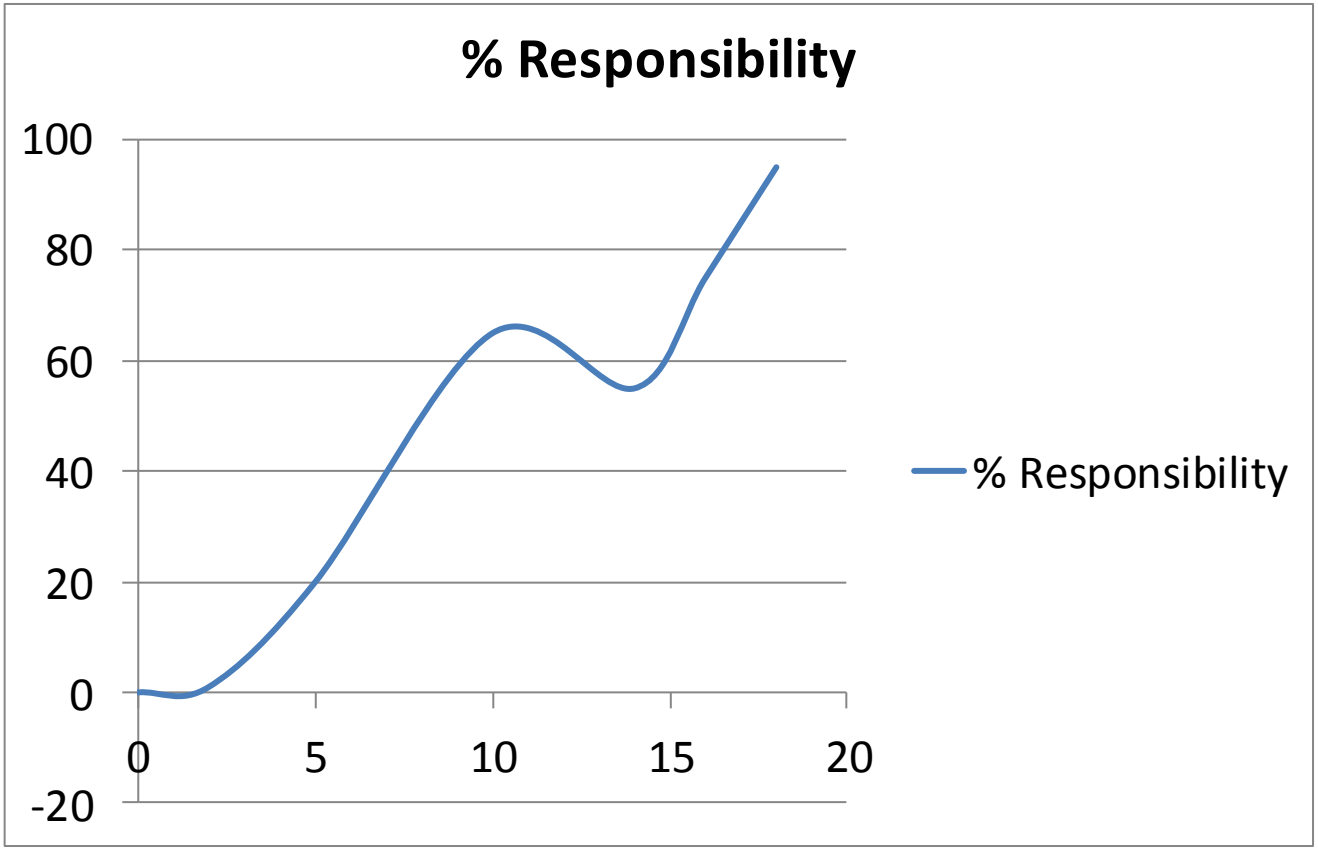
Worried mom

With increasing responsibility comes anxiety

- We see rise in anxiety and decline in QOL often ~8y
- Awareness of high rate of bullying and screen for it
  - Up to half the kids w/ FA are bullied
  - Half the time parents don't know

Pediatrics. 2013 Jan;131(1):e10-7
J Allergy Clin Immunol Pract. 2014 Sep-Oct;2(5):639-41.

Steep rise in responsibility



Empowering our kids to prevent anxiety

- Including children in process
  - Intake management
    - ASK
    - READ labels
    - Kiss, taste, try
  - When to Self carry
  - Food allergy table or not?
  - Food allergy buddy

- Awareness of high rate of bullying and screen for it

Teens & young adults are high risk for fatal food-induced anaphylaxis

- **Poorly controlled Asthma**
- **Delayed administration of epinephrine**
  - **Most did not have auto-injector on person**
  - **Most occurred while not at home**
- Nut Allergy (peanut and tree nut)
- Lack of cutaneous manifestations
- Prior anaphylaxis

Manivannan V. Ann Allergy Asthma Immunol 2009;103:395-400;
Lee JK. Clin Exp Allergy 2011;41:923-38;
Liew WK. J Allergy Clin Immunol 2009;123:434-42;
Bock SA. J Allergy Clin Immunol 2007;119:1016-8;
Pumphrey RS. J Allergy Clin Immunol 2007;119:1018-9;
Vadas P. N Engl J Med 2008;358:28-35;
Flinterman AE. J Allergy Clin Immunol 2008;121:737

Teens & young adults high risk fatality

- UK data

  ~15,000 admissions for FA

  124 fatalities (~1%)

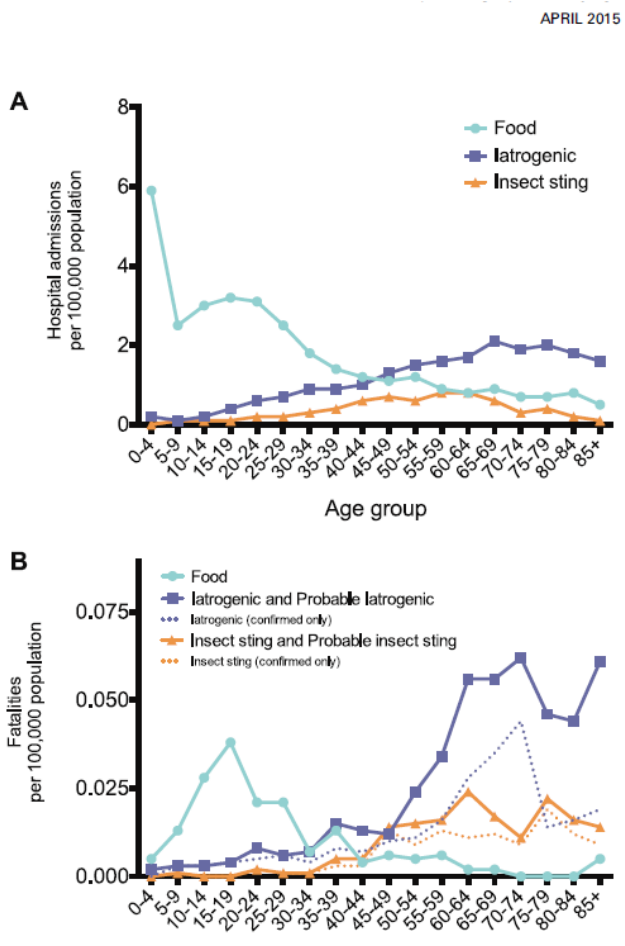
- Mean age of FA fatality

  25y (95% CI 22-28y)

  median lower

- Highest rate of fatality

  10-29y

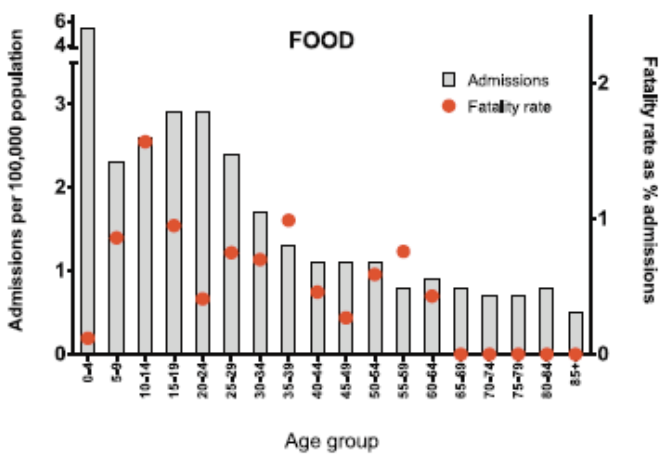


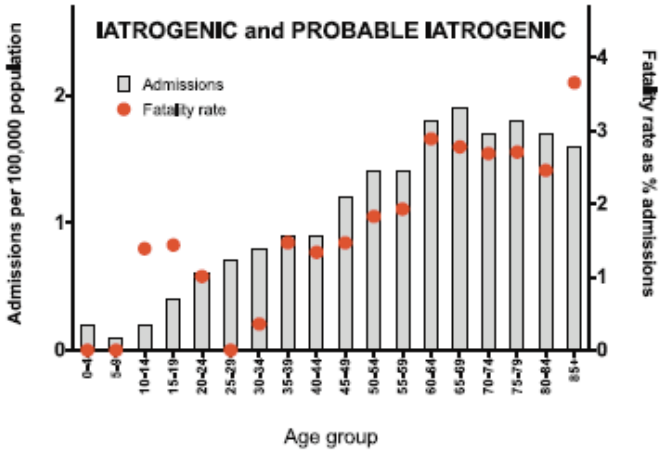
J Allergy Clin Immunol 2015;135:956-63

Proportion of Food Allergy Fatalities Highest at 10-14y

- Incidence of fatalities expressed as proportion of hospital admissions
- For all other causes of anaphylaxis highest >60y
- Food allergy proportion highest 10-14y

J ALLERGY CLIN IMMUNOL
VOLUME 135, NUMBER 4





Issues for Food Allergy Adolescents

- Highest rate of fatality –all PREVENTABLE
  - Delayed administration of epinephrine
  - Usually because not carrying it
- Types of Food Allergies changing
  - Outgrowing some allergies (milk, egg)
  - Others more severe (nut)
  - Developing new allergies (seafood)

- New Options for therapy
  - Oral Immune Therapy or Food Desensitizations
- Need to understand condition and take ownership

Food Challenge determines if allergic and delineates threshold

TIME	STEP	PERCENT OF TOTAL	WEIGHT FOOD (g)	PEANUT PROTEIN	PEANUT FLOUR
0	1	0.1	0.032	0.008	0.016
40	2	1	0.32	0.08	0.16
80	3	3	0.96	0.24	0.48
120	4	6	1.92	0.48	0.96
160	5	10	3.2	0.8	1.6
200	6	25	8	2	4
240	7	55	17.6	4.4	8.8
360	OBSERVE 2h				
		100	32	8	16

Children's Hospital LOS ANGELES
We Treat Kids Better

Special Programs are Emerging