

# Black People Like Me Virtual Conference Series

Session 6: A Closer Look at Food Allergies in the Black Community

Carla M. Davis, MD  
June 4, 2025

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**Thank you, Genentech for  
providing funding support to  
make this webinar possible.**

**Genentech**



Moderator and Patient  
**Sherrina Gibson**



Physician Speaker  
**Dr. Carla Davis**

# Patient Story

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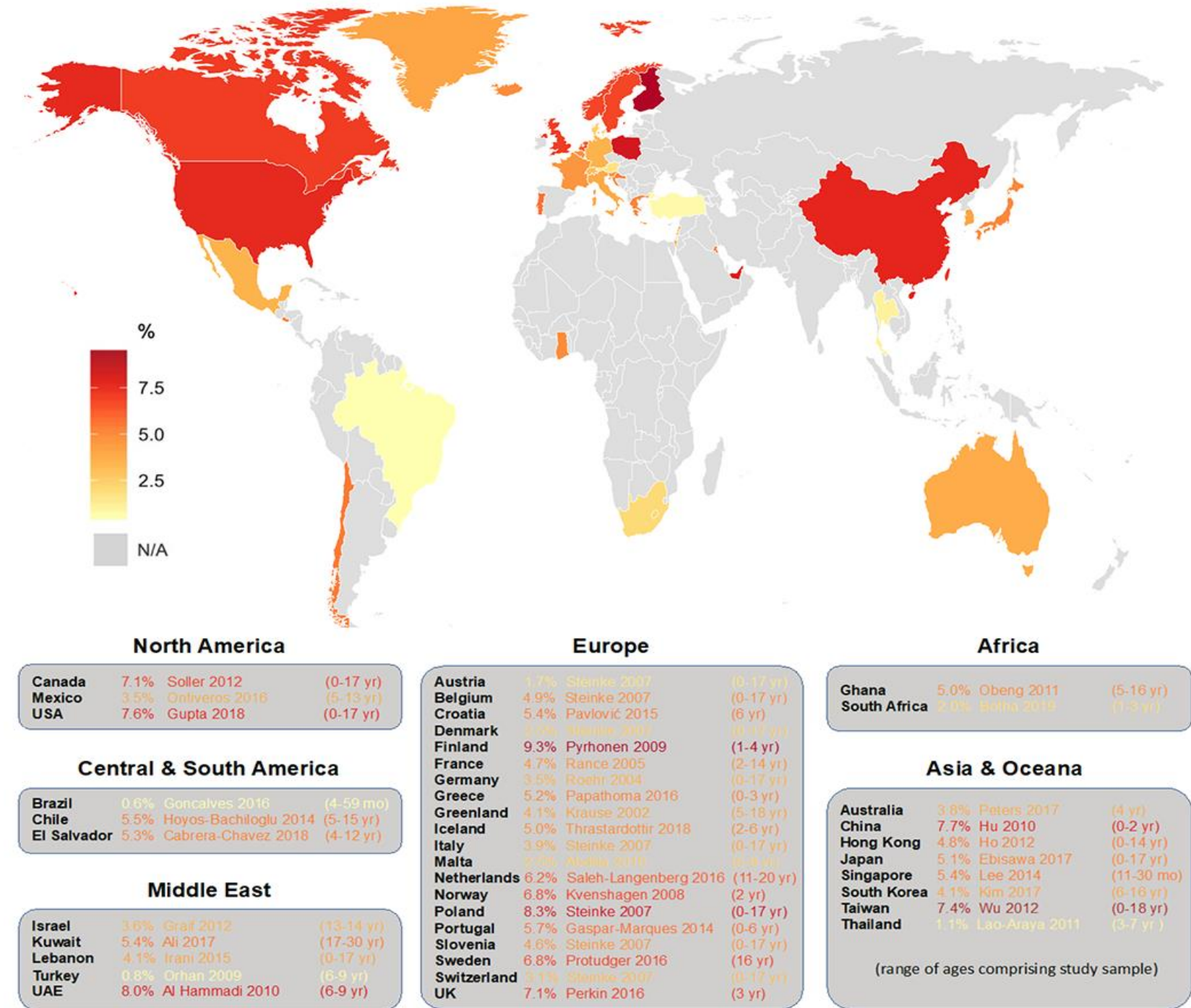
# Agenda

In this session, we will:

- Examine the underlying mechanisms of food allergies
- Learn how to identify all symptoms of life-threatening food allergy reactions.
- Provide effective strategies for symptom management
- Explore how food allergy conditions appear on various skin tones
- Find out why identifying the root cause of food allergies is just as important as treating the symptoms
- Learn about the newer treatments for food allergy

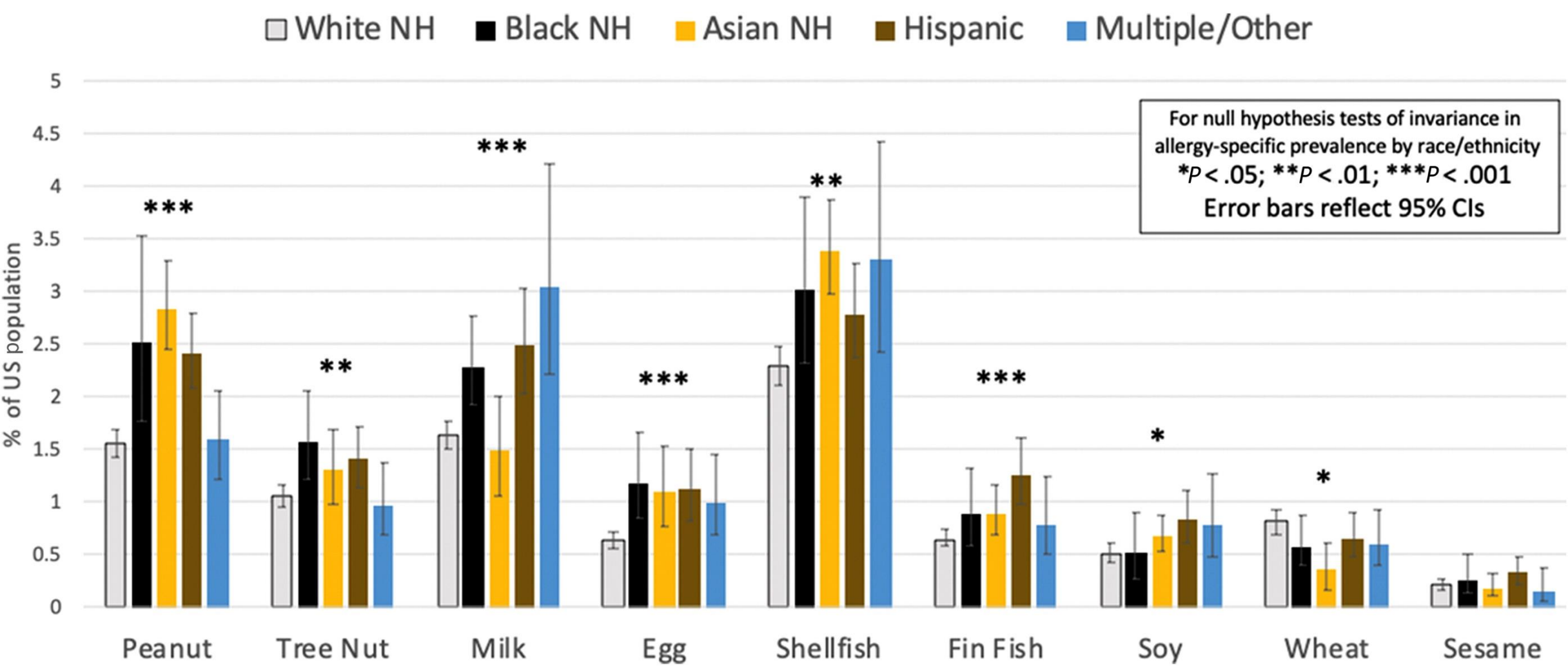


Data suggest increasing prevalence, with rates up to 8-10% depending on age, geography, and criteria used for definition



Warren CM, Jiang J, Gupta RS.  
Curr Allergy Asthma Rep. 2020  
Feb 14;20(2):6. doi:  
10.1007/s11882-020-0898-7.

# Black, Asian, and Hispanic people have a more significant burden of food allergies compared to White people in the US



Gupta RS, Warren CM, Smith BM, Blumenstock JA, Jiang J, Davis MM, Nadeau KC. The public health impact of parent-reported childhood food allergies in the United States. Pediatrics. 2018 Dec 1;142(6):e20181235.

# Physician Documentation, Testing, and Anticipatory Guidance is Lower in Minoritized Patients

- Black and Hispanic patients have higher rates of FA-related anaphylaxis and emergency department visits ( $P < .01$ ).
- Black children had increased odds of more severe reactions (odds ratio, 1.7; 95% CI, 1.2-2.3) and higher odds of going to the ER (odds ratio, 2.8; 95% CI, 1.4-5.4) compared to White children.
- Both non-Hispanic Black and Hispanic/Latino children had lower rates of total lifetime epinephrine use.
- In low income, urban minority patients with a physician-documented food allergy, fewer than half had confirmatory testing or evaluation by an allergy specialist.
- Although most had epinephrine autoinjectors prescribed, most were not given food allergy action plans.
- Significantly more Black children were affected.

Taylor-Black S et al. Ann Allergy Asthma Immunol. 2012;109(6):431-7  
Bilaver LA et al. Pediatrics. 2016;137(5)  
Mahdavinia M et al. JACI in Practice, 2017  
Kay-Green S et al. J Allergy Clin Immunol Pract. 2024 Mar;12(3):681-685

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# Food Allergy Diagnosis and Follow Up

Formal food allergy diagnosis is lower among black children despite higher sensitization rates and higher odds of reported severe reactions due to food allergy

Black and Hispanic children have a shorter duration of follow-up for FA with an allergy specialist (~ 2 years vs. 3 years in White children)

# Food Allergy Parental Knowledge

Black, Hispanic, and Asian parents were:

Less likely to correctly identify signs of a FA reaction

Less likely to identify triggers

More likely to recognize the need to avoid food allergens

Characteristic	Able to identify 2 signs of a milk allergy reaction	Able to identify 3 triggers of food allergy	Recognize necessity of allergenic food avoidance	Aware that daily medicine cannot treat food allergy
Aged ≥65 y	0.81 (0.69–0.96) <sup>b</sup>	0.72 (0.52–0.99) <sup>b</sup>	1.28 (1.14–1.43) <sup>b</sup>	1.16 (0.95–1.42)
Female sex	1.26 (1.14–1.39) <sup>b</sup>	1.02 (0.86–1.22)	1.07 (0.99–1.16)	1.14 (1.00–1.31) <sup>b</sup>
Race				
Black	0.83 (0.73–0.95) <sup>b</sup>	0.64 (0.48–0.84) <sup>b</sup>	1.13 (1.02–1.25) <sup>b</sup>	1.02 (0.85–1.22)
Hispanic	0.80 (0.71–0.91) <sup>b</sup>	0.68 (0.53–0.89) <sup>b</sup>	1.15 (1.04–1.26) <sup>b</sup>	1.01 (0.85–1.21)
Asian	0.84 (0.72–0.97) <sup>b</sup>	0.97 (0.76–1.25)	1.06 (0.94–1.20)	1.04 (0.86–1.26)
College graduate	0.96 (0.86–1.07)	1.05 (0.86–1.28)	0.99 (0.90–1.09)	1.23 (1.06–1.42) <sup>b</sup>
Annual income <\$75,000	1.03 (0.94–1.12)	0.86 (0.72–1.02)	1.09 (1.00–1.18)	0.92 (0.81–1.05)
Parent of child <18 y	1.03 (0.94–1.13)	1.01 (0.85–1.21)	1.11 (1.02–1.20) <sup>b</sup>	1.07 (0.93–1.23)
Prior training in food allergy	1.12 (1.00–1.25) <sup>b</sup>	1.42 (1.15–1.74) <sup>b</sup>	1.04 (0.93–1.15)	1.11 (0.94–1.31)
Food-allergic acquaintance	1.22 (1.11–1.35) <sup>b</sup>	1.03 (0.86–1.30)	0.93 (0.86–1.01)	1.03 (0.90–1.18)

\* Data are given as relative risk ratio (95% confidence interval).

<sup>b</sup>  $P < .05$ .

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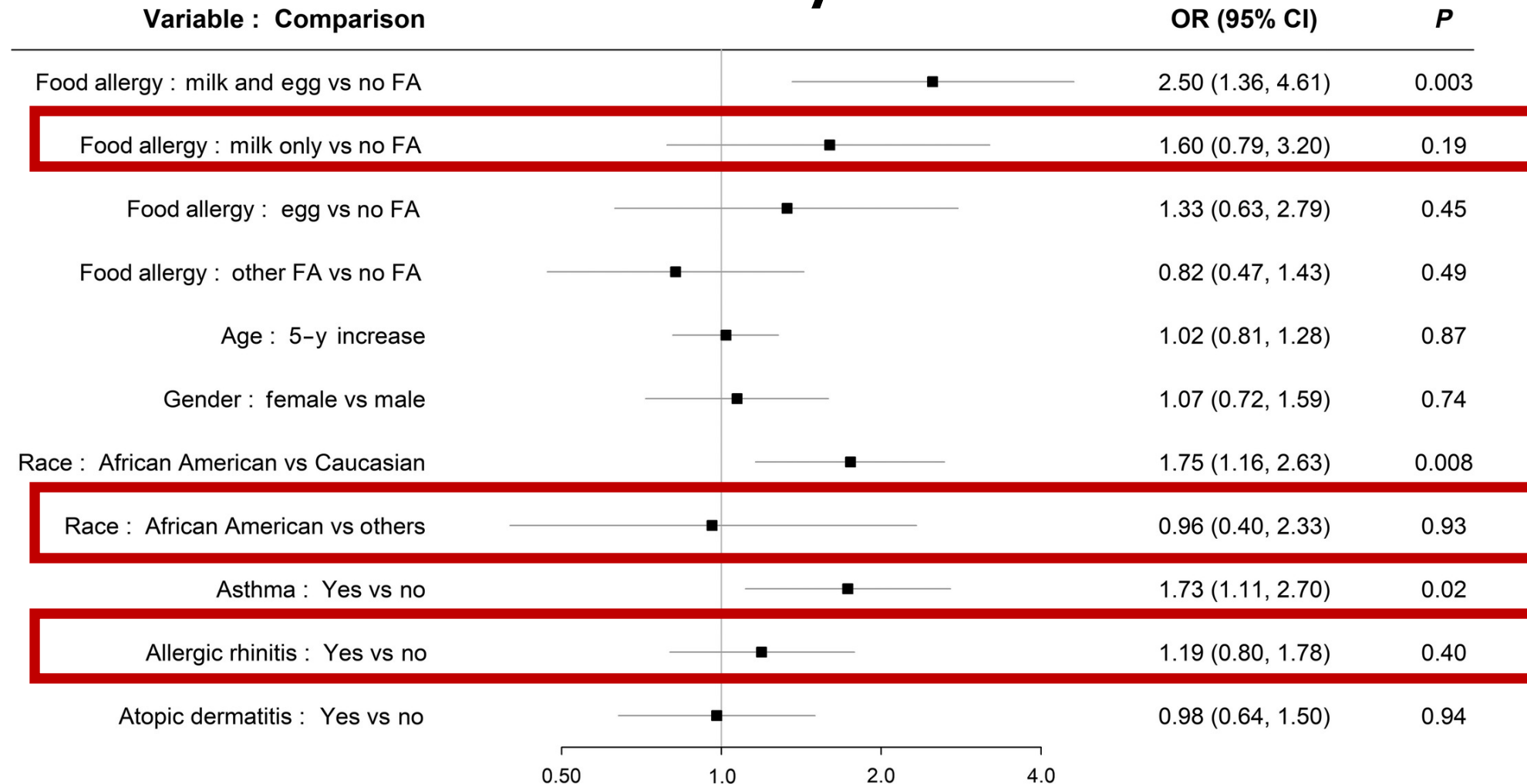
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## Lower health literacy in caregivers is associated with :

- 1) Lower demonstration of correct use of an epinephrine autoinjector
- 2) Increased reactions to foods in the past 12 months
- 3) Knowledge gaps on treatment of allergic reactions.

Egan M, Yin HS, Greenhawt M, Wang J. J Allergy Clin Immunol Pract. 2019 Feb;7(2):655-658.

# Food Insecurity Risk Factors



Food insecurity is associated with poorer quality of life.

Dilley MA et al. Pediatr Allergy Immunol. 2019 May;30(3):363-369.

# FOOD ALLERGY BASICS

- What is a food allergy?
- How are food allergies diagnosed?
- How are food allergies treated?

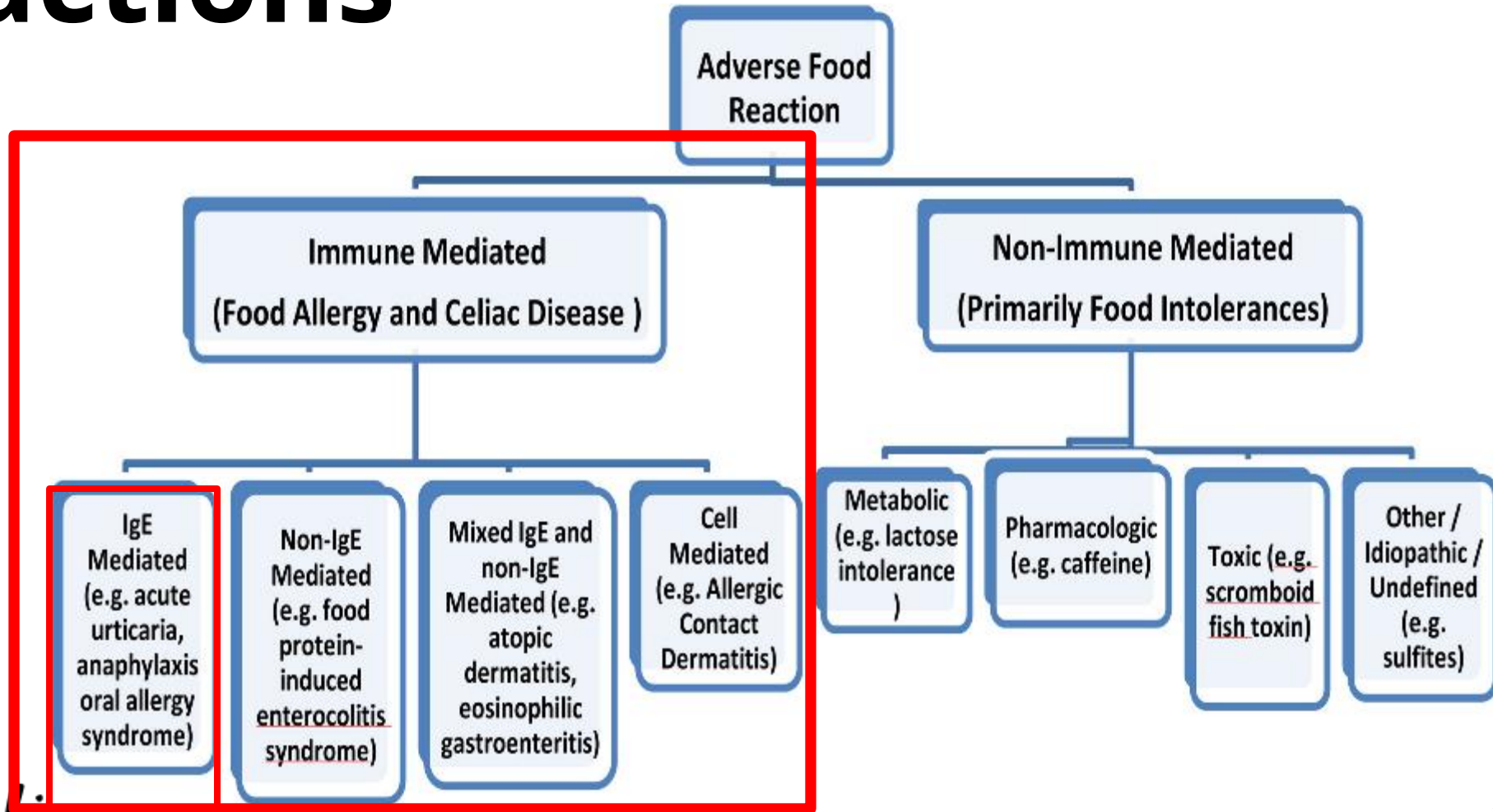




# What is a food allergy?

- An abnormal response by the immune system to a food protein that is recognized as harmful
  - The immune system normally protects the body from germs and disease
  - In individuals with food allergies, the immune system recognizes the food as harmful and causes a reaction
  - Symptoms can range from mild to SEVERE!

# Overview of Adverse Food Reactions

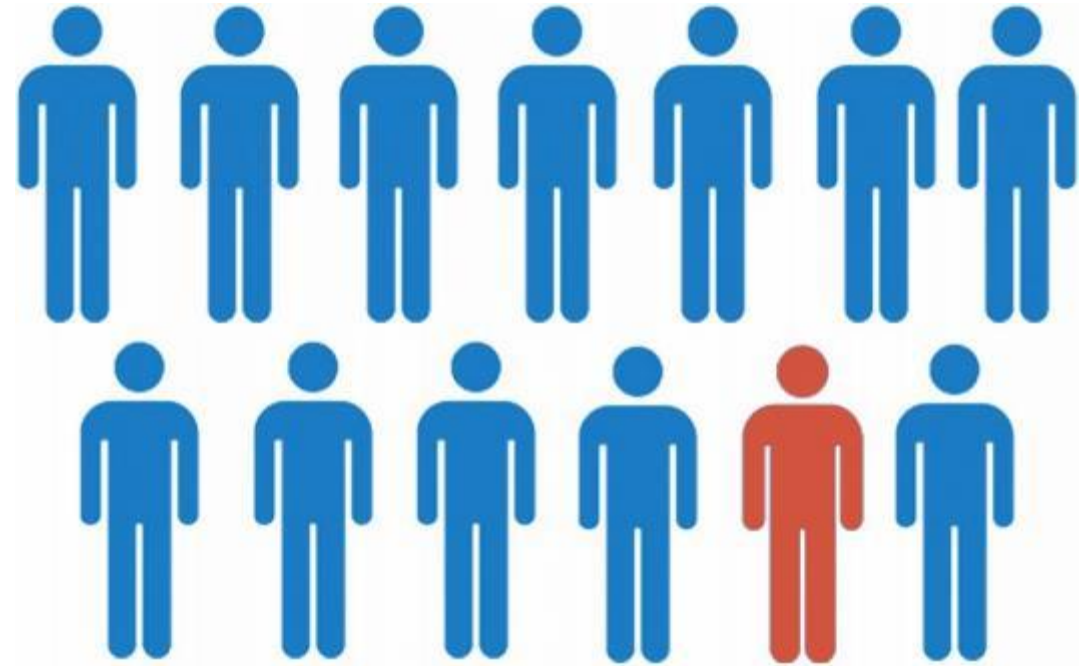


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**Did you know?**

- 1-2 in 13 kids have a food allergy



# Food allergy vs. food intolerance

- Food allergy is a potentially serious immune response to eating certain foods
- Food intolerance is an adverse reaction to food that does not involve the immune system and is not life-threatening
  - Example: Lactose Intolerance

# What are the 8 most common foods that cause an allergic reaction?





Peanut  
25.2%

## TOP 9 FOODS

Milk  
21.1%

Shellfish  
17.2%

Tree Nut  
13.1%

Egg  
9.8%

Fin Fish  
6.2%

Wheat  
5.0%

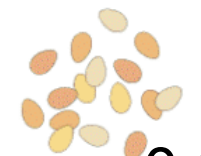
Soy  
4.6%

0.23%

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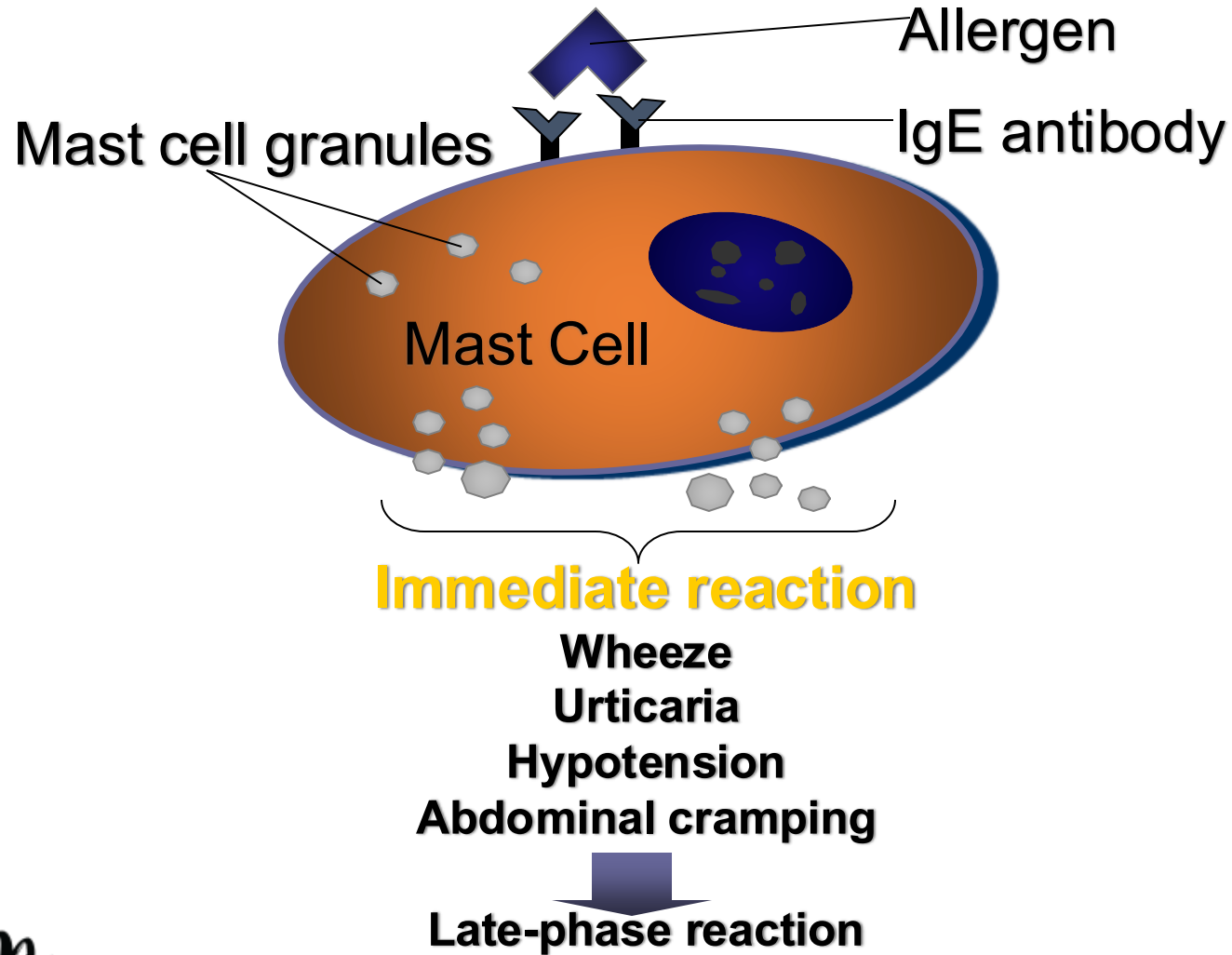
Gupta RS et al. The public health impact of parent-reported childhood food allergies in the United States. *Pediatrics*. 2018 Dec 1;142(6):e20181235.

Courtesy: R Gupta, Northwestern University



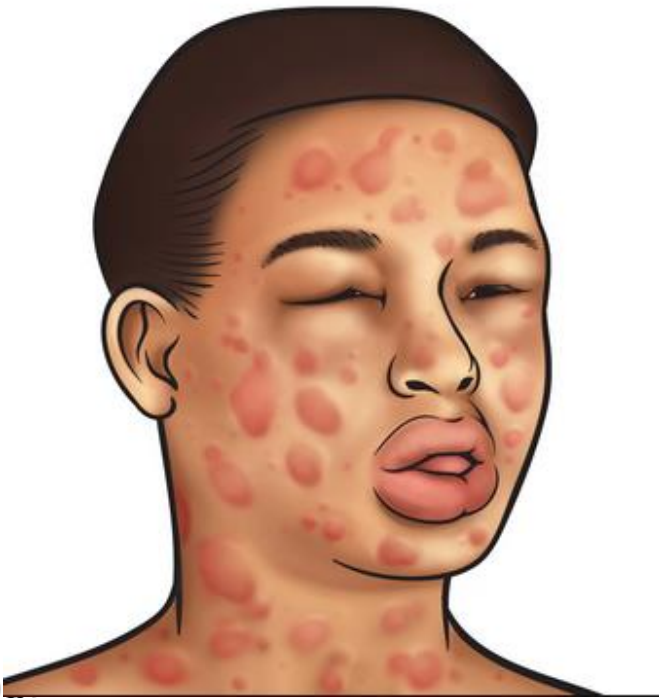
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# Anaphylaxis: Mechanism

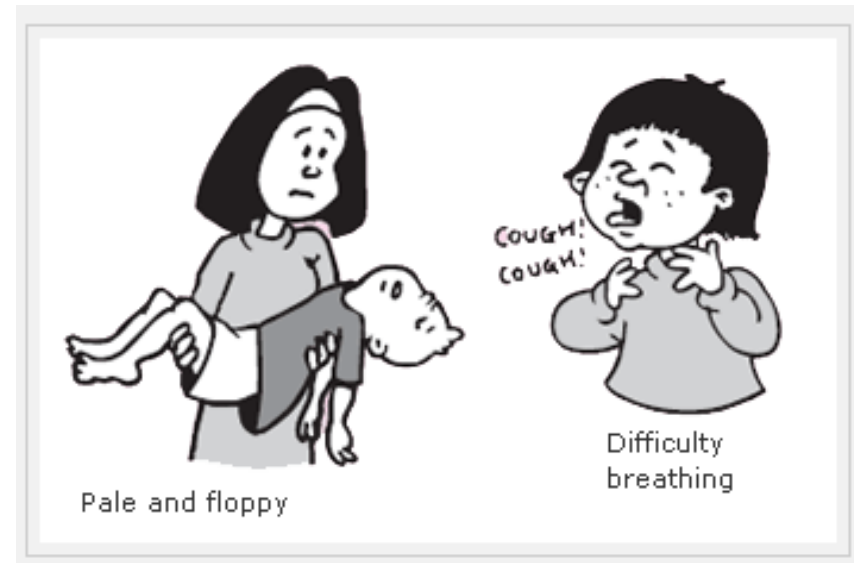


# Food allergy onset of symptoms

Usually, symptoms occur within 2 hours after ingestion, but can start within MINUTES!

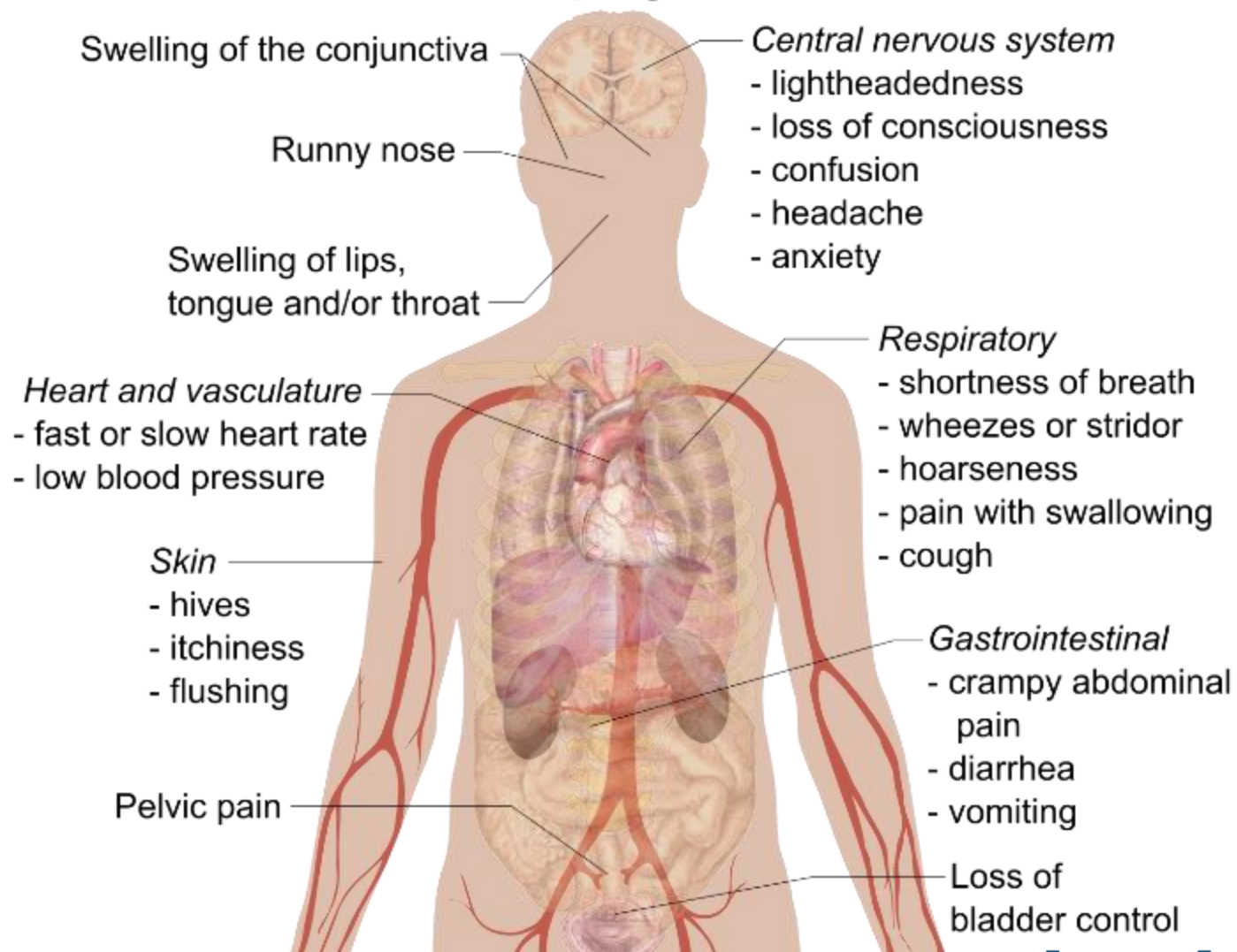


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Symptoms –  
one or more  
may occur  
shortly after  
eating a food

## Signs and symptoms of **Anaphylaxis**









# Fatal food anaphylaxis

- Frequency: ~ 150 deaths / year
- Clinical features of severe reactions:
  - Biphasic reactions – symptoms improve but can reoccur 2-4hrs later
  - History of asthma increases the severity of reactions
- History: known food allergen
- Most events occur away from home

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# How are food allergies diagnosed?

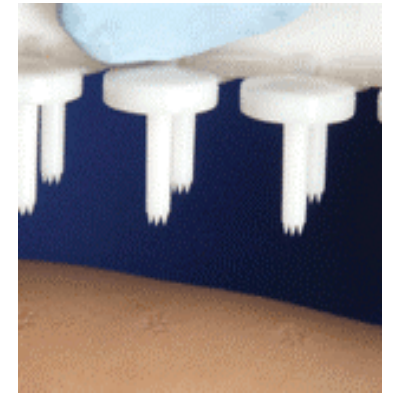


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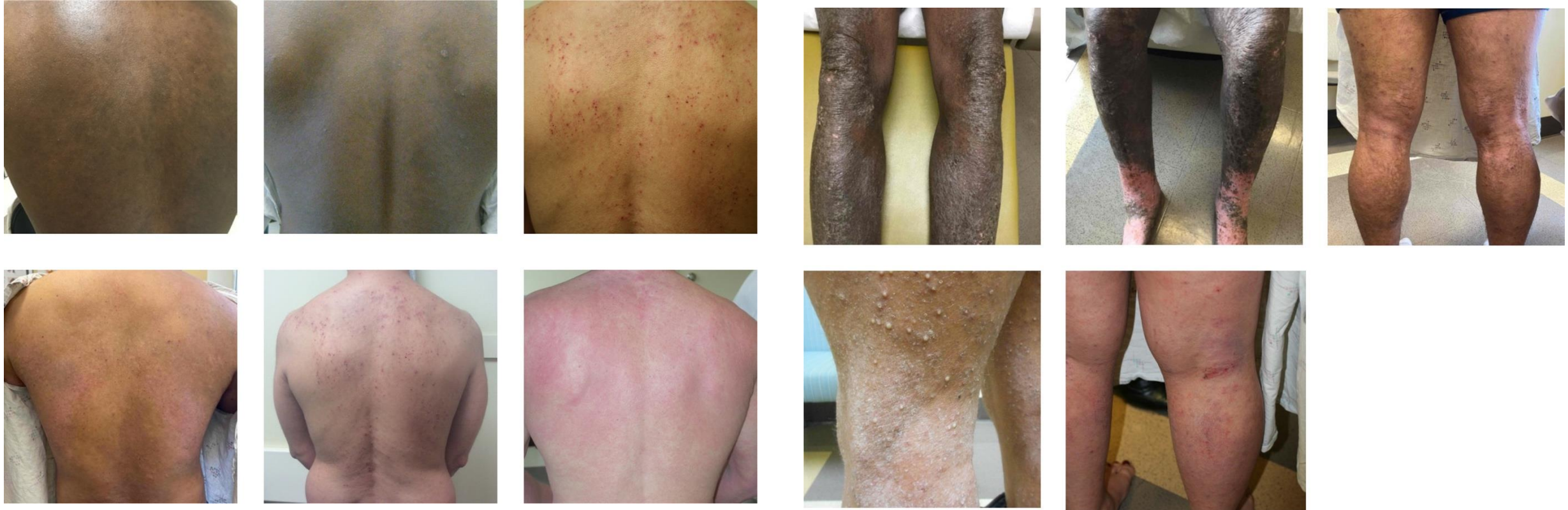
# IMMEDIATE HYPERSENSITIVITY SKIN TEST

- Allergen extract placed on skin and read 20 minutes later
- Positive reaction = wheal 3mm greater than the negative control





# Eczema in Different Skin Tones



Kamp et al. Eczema Severity Scoring in Skin of Color: A Review of Current Best Practice and Need for Future Improvement. J Invest Dermatol. 2025 Apr;145(4):735-748.

# Eczema Inflammation on the Legs and Feet



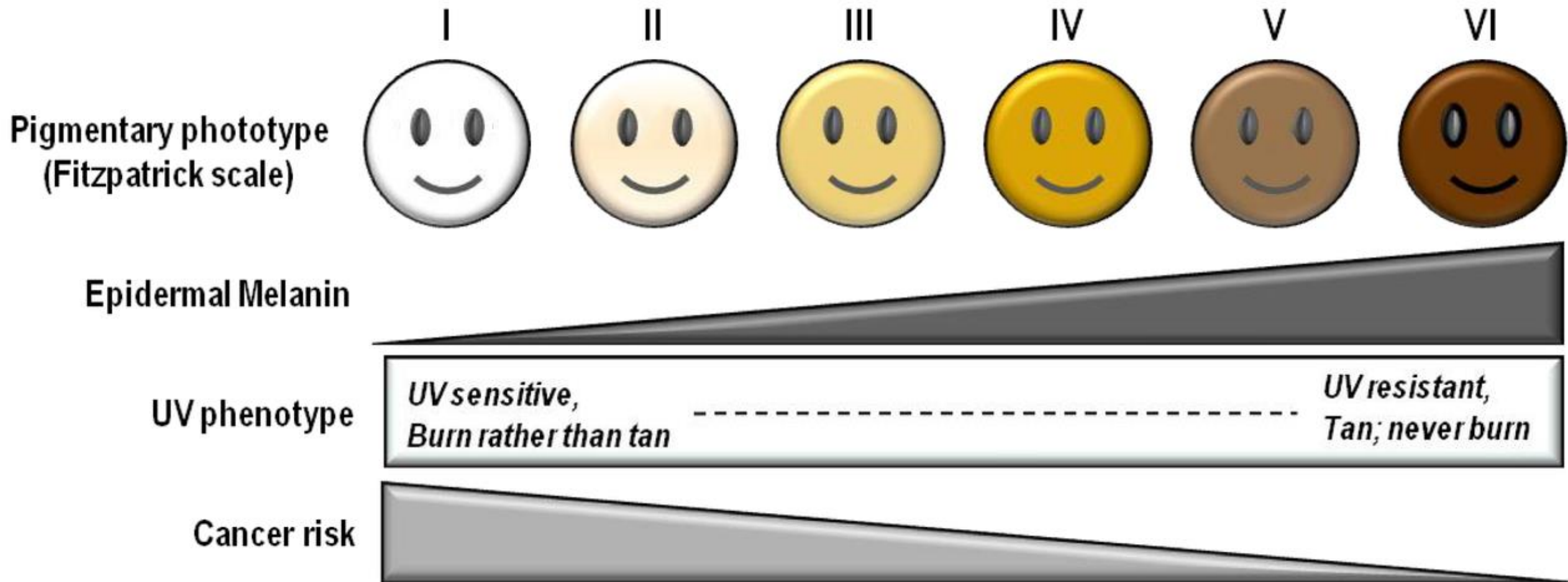
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Kamp et al. Eczema Severity Scoring in Skin of Color: A Review of Current Best Practice and Need for Future Improvement. J Invest Dermatol. 2025 Apr;145(4):735-748.

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# Fitzpatrick Skin Color Scale



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# Serum ige test

Measures the specific food IgE level produced in the blood



class	specific IgE (kU/ L)	specific IgE ( $\mu$ g/ L) <sup>a</sup>	level of specific IgE <sup>b</sup>
0	<0.35	<0.84	absent or undetectable
1	0.35–0.70	0.84–1.68	low
2	0.70–3.5	1.68–8.4	moderate
3	3.5–17.5	8.4–42	high
4	17.5–50	42–120	very high
5	50–100	120–240	very high
6	>100	>240	very high

<sup>a</sup> 1 kU equals 2.4  $\mu$ g of IgE. <sup>b</sup> Tentative assignment of clinical relevance.

Patients whole blood  
Separated by gradient  
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# Oral food challenge

- Tiny amounts of the suspected trigger food is ingested in increasing doses then observed
- Done under medical supervision



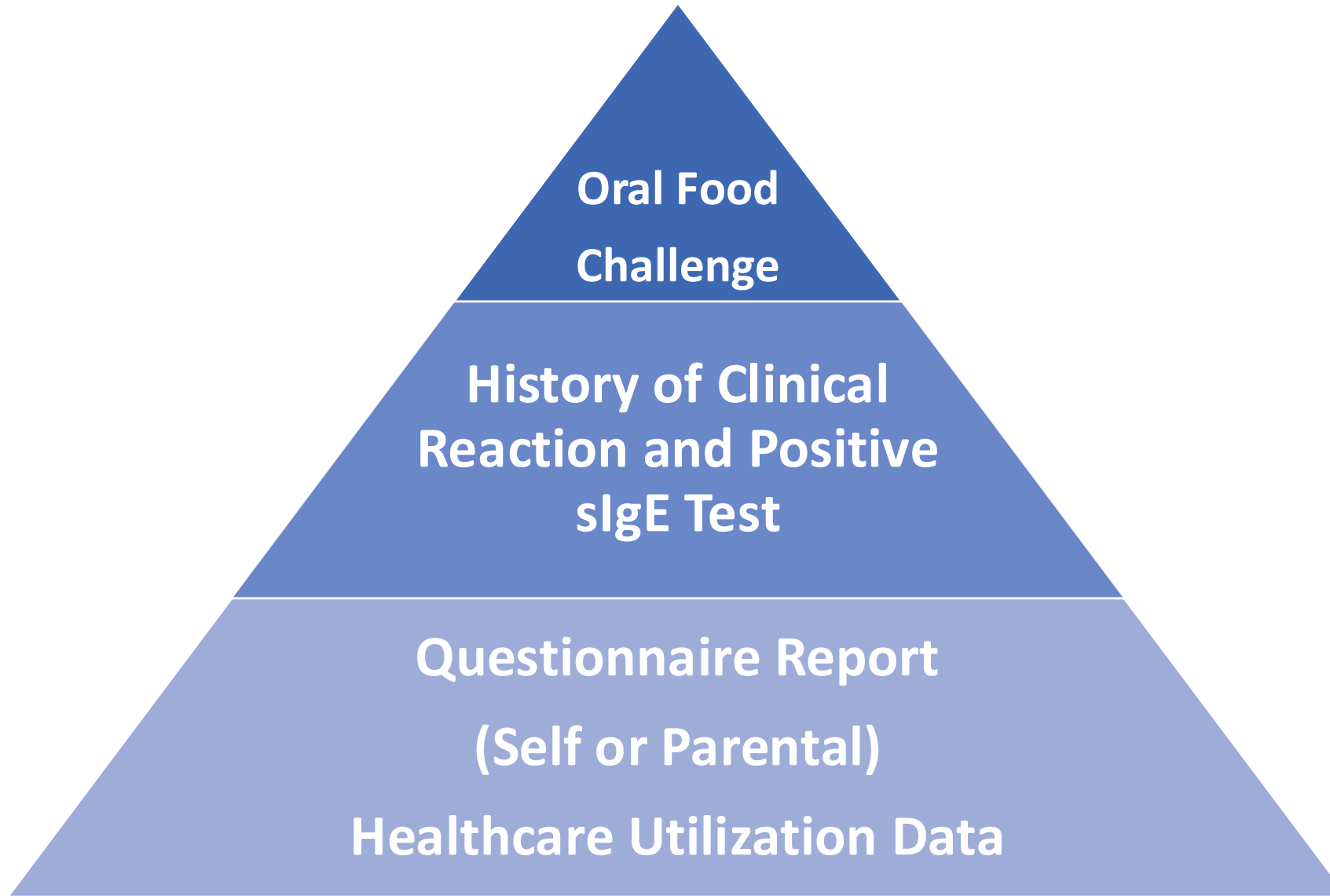
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## GOLD STANDARD



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# Levels of Evidence for Food Allergy



# How are food allergies treated?



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# Management of food allergies

- There is no cure for food allergies!
- Complete avoidance of the food
- Recognizing signs and symptoms of a reaction
- Knowing how to treat reactions
- Education on how to prevent future exposure and reactions
- New Treatments – Oral immunotherapy and Biologic shots
- Prevention with early introduction of food (4-6 months)



# Epinephrine (adrenaline)

- Prompt administration of epinephrine is key to surviving anaphylaxis
- Prescribed as auto-injectors (such as EpiPen®, Auvi-Q®, SYnjepi), Neffy (IN) or generic epinephrine
- Recommend that epinephrine be readily accessible in a **secure, but unlocked area**



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# epinephrine

- First-line drug of choice in anaphylaxis
- Intramuscular administration in thigh
- May repeat in 5-15 min if no relief of symptoms
- Do not withhold epinephrine because of cardiac history or other concerns

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# Diphenhydramine (Benadryl)

- For every 10 kilograms of a child's weight (22 pounds), give 1 teaspoon
- 1 teaspoon = 12.5 mg of diphenhydramine
- Only for SKIN reactions



**BEYOND THE SKIN, EPI GOES IN!**

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# Epinephrine Administration



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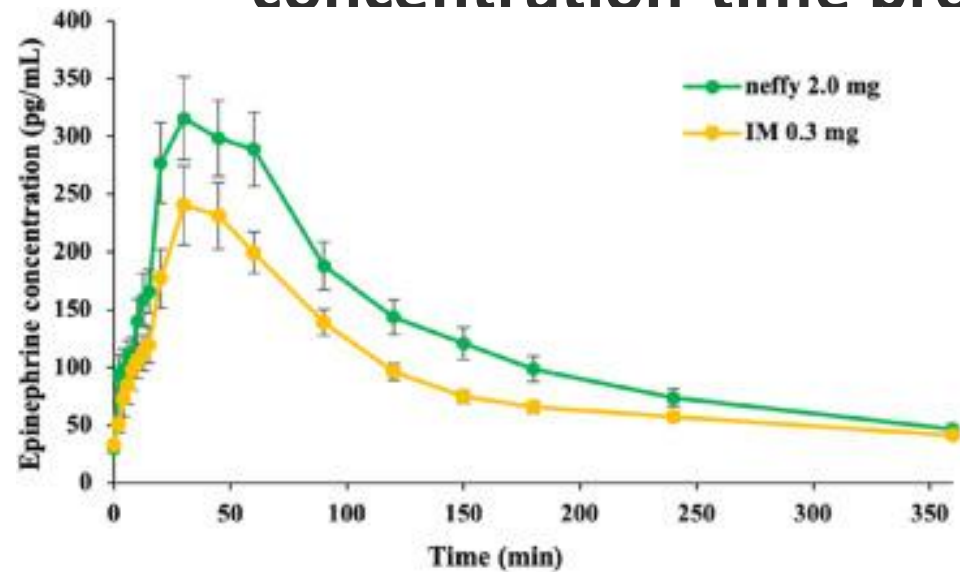
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# Intranasal Epinephrine is FDA Approved

- Self-administration of intranasal epinephrine (Neffy) resulted in pharmacokinetic and pharmacodynamic responses that were comparable or better than IM epinephrine in 41 of 45 patients (91.1%) enrolled.
- The availability of a needle-free alternative may reduce apprehension and decrease delay in dosing of epinephrine.



- **Mean epinephrine concentration-time profile**



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Name: \_\_\_\_\_ D.O.B.: \_\_\_\_\_

Allergic to: \_\_\_\_\_

Weight: \_\_\_\_\_ lbs. Asthma: ☐ Yes (higher risk for a severe reaction) ☐ No

PLACE  
PICTURE  
HERE

NOTE: Do not depend on antihistamines or inhalers (bronchodilators) to treat a severe reaction. USE EPINEPHRINE.

Extremely reactive to the following allergens: \_\_\_\_\_

THEREFORE:

- ☐ If checked, give epinephrine immediately if the allergen was **LIKELY** eaten, for **ANY** symptoms.
- ☐ If checked, give epinephrine immediately if the allergen was **DEFINITELY** eaten, even if no symptoms are apparent.

FOR ANY OF THE FOLLOWING:

## SEVERE SYMPTOMS



### LUNG

Shortness of breath, wheezing, repetitive cough



### HEART

Pale or bluish skin, faintness, weak pulse, dizziness



### THROAT

Tight or hoarse throat, trouble breathing or swallowing



### MOUTH

Significant swelling of the tongue or lips



### SKIN

Many hives over body, widespread redness



### GUT

Repetitive vomiting, severe diarrhea



### OTHER

Feeling something bad is about to happen, anxiety, confusion

OR A  
COMBINATION  
of symptoms  
from different  
body areas.

1. **ADMINISTER EPINEPHRINE IMMEDIATELY.**
2. **Call 911.** Tell emergency dispatcher the person is having anaphylaxis and may need epinephrine when emergency responders arrive.
- Consider giving additional medications following epinephrine:
  - » Antihistamine
  - » Inhaler (bronchodilator) if wheezing
- Lay the person flat, raise legs and keep warm. If breathing is difficult or they are vomiting, let them sit up or lie on their side.
- If symptoms do not improve, or symptoms return, more doses of epinephrine can be given about 5 minutes or more after the last dose.
- Alert emergency contacts.
- Transport patient to ER, even if symptoms resolve. Patient should remain in ER for at least 4 hours because symptoms may return.

## MILD SYMPTOMS



### NOSE

Itchy or runny nose, sneezing



### MOUTH

Itchy mouth



### SKIN

A few hives, mild itch



### GUT

Mild nausea or discomfort

FOR MILD SYMPTOMS FROM MORE THAN ONE  
SYSTEM AREA, GIVE EPINEPHRINE.

FOR MILD SYMPTOMS FROM A SINGLE SYSTEM  
AREA, FOLLOW THE DIRECTIONS BELOW:

1. Antihistamines may be given, if ordered by a healthcare provider.
2. Stay with the person; alert emergency contacts.
3. Watch closely for changes. If symptoms worsen, give epinephrine.

## MEDICATIONS/DOSES

Epinephrine Brand or Generic: \_\_\_\_\_

Epinephrine Dose: ☐ 0.1 mg IM (intramuscular) ☐ 0.15 mg IM  
☐ 0.3 mg IM ☐ 1 mg IN (intranasal) ☐ 2 mg IN

Antihistamine Dose: \_\_\_\_\_

Other (e.g., inhaler-bronchodilator if wheezing): \_\_\_\_\_

☐ Patient may self-carry ☐ Patient may self-administer

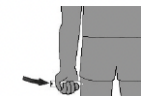
### HOW TO USE AUVI-Q® (EPINEPHRINE INJECTION, USP), KALEO

1. Remove Auvi-Q from the outer case. Pull off red safety guard.
2. Place black end of Auvi-Q against the middle of the outer thigh.
3. Press firmly until you hear a click and hiss sound, and hold in place for 2 seconds.
4. Call 911 and get emergency medical help right away.



### HOW TO USE EPIPEN®, EPIPEN JR® (EPINEPHRINE) AUTO-INJECTOR AND EPINEPHRINE INJECTION (AUTHORIZED GENERIC OF EPIPEN®), USP AUTO-INJECTOR, VIATRIS AUTO-INJECTOR, VIATRIS

1. Remove the EpiPen® or EpiPen Jr® Auto-Injector from the clear carrier tube.
2. Grasp the auto-injector in your fist with the orange tip (needle end) pointing downward. With your other hand, remove the blue safety release by pulling straight up.
3. Swing and push the auto-injector firmly into the middle of the outer thigh until it 'clicks'. Hold firmly in place for 3 seconds (count slowly 1, 2, 3).
4. Remove and massage the injection area for 10 seconds. Call 911 and get emergency medical help right away.



### HOW TO USE IMPAX EPINEPHRINE INJECTION (AUTHORIZED GENERIC OF ADRENALCLICK®), USP AUTO-INJECTOR, AMNEAL PHARMACEUTICALS

1. Remove epinephrine auto-injector from its protective carrying case.
2. Pull off both blue end caps: you will now see a red tip. Grasp the auto-injector in your fist with the red tip pointing downward.
3. Put the red tip against the middle of the outer thigh at a 90-degree angle, perpendicular to the thigh. Press down hard and hold firmly against the thigh for approximately 10 seconds.
4. Remove and massage the area for 10 seconds. Call 911 and get emergency medical help right away.



### HOW TO USE TEVA'S GENERIC EPIPEN® (EPINEPHRINE INJECTION, USP) AUTO-INJECTOR, TEVA PHARMACEUTICAL INDUSTRIES

1. Quickly twist the yellow or green cap off of the auto-injector in the direction of the "twist arrow" to remove it.
2. Grasp the auto-injector in your fist with the orange tip (needle end) pointing downward. With your other hand, pull off the blue safety release.
3. Place the orange tip against the middle of the outer thigh at a right angle to the thigh.
4. Swing and push the auto-injector firmly into the middle of the outer thigh until it 'clicks'. Hold firmly in place for 3 seconds (count slowly 1, 2, 3).
5. Remove and massage the injection area for 10 seconds. Call 911 and get emergency medical help right away.



### ADMINISTRATION AND SAFETY INFORMATION FOR ALL AUTO-INJECTORS:

1. Do not put your thumb, fingers or hand over the tip of the auto-injector or inject into any body part other than mid-outer thigh. In case of accidental injection, go immediately to the nearest emergency room.
2. If administering to a young child, hold their leg firmly in place before and during injection to prevent injuries.
3. Epinephrine can be injected through clothing if needed.
4. Call 911 immediately after injection.

### HOW TO USE NEFFY® (EPINEPHRINE NASAL SPRAY)

1. Remove neffy from packaging. Pull open the packaging to remove the neffy nasal spray device.
2. Hold device as shown. Hold the device with your thumb on the bottom of the plunger and a finger on either side of the nozzle. Do not pull or push on the plunger. Do not test or prime (pre-spray). Each device has only 1 spray.
3. Insert the nozzle into a nostril until your fingers touch your nose. Keep the nozzle straight into the nose pointed toward your forehead. Do not point (angle) the nozzle to the nasal septum (wall between your 2 nostrils) or outer wall of the nose.
4. Press plunger up firmly until it snaps up and sprays liquid into the nostril. Do not sniff during or after the dose is given. If any liquid drips out of the nose, you may need to give a second dose of neffy after checking for symptoms.
5. If symptoms don't improve or worsen within 5 minutes of initial dose, administer a second dose into the same nostril with a new neffy device.



Treat the person before calling emergency contacts. The first signs of a reaction can be mild, but symptoms can worsen quickly.

### EMERGENCY CONTACTS — CALL 911

RESCUE SQUAD: \_\_\_\_\_

DOCTOR: \_\_\_\_\_

PARENT/GUARDIAN: \_\_\_\_\_

PHONE: \_\_\_\_\_

PHONE: \_\_\_\_\_

### OTHER EMERGENCY CONTACTS

NAME/RELATIONSHIP: \_\_\_\_\_

NAME/RELATIONSHIP: \_\_\_\_\_

NAME/RELATIONSHIP: \_\_\_\_\_

PHONE: \_\_\_\_\_

PHONE: \_\_\_\_\_








PHONE: \_\_\_\_\_

PATIENT OR PARENT/GUARDIAN AUTHORIZATION SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

PHYSICIAN/HCP AUTHORIZATION SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

Alergia a: _____		FOTO AQUÍ	
Peso: _____	Ib Asma: <input type="checkbox"/> Sí (mayor riesgo de una reacción grave) <input type="checkbox"/> No		
NOTA: No use antihistamínicos o inhaladores (broncodilatadores) para tratar una reacción grave. USE EPINEFRINA.			
<b>Extremadamente reactivo a los siguientes</b>			
POR LO TANTO: <input type="checkbox"/> Si está marcado, administre epinefrina de inmediato si es PROBABLE que haya habido contacto con el alérgeno, ante la presencia de CUALQUIER síntoma. <input type="checkbox"/> Si está marcado, administre epinefrina de inmediato si hubo INDUDABLEMENTE contacto con el alérgeno, incluso si no hay síntomas aparentes.			
PARA CUALQUIERA LOS SIGUIENTES: <b>SÍNTOMAS GRAVES</b>		<b>SÍNTOMAS LEVES</b>	
 <b>PULMONES</b> Falta de aire, sibilancias, tos recurrente	 <b>CORAZÓN</b> Piel pálida o azulada, desmayos, pulso débil, mareos	 <b>GARGANTA</b> Garganta tensa o ronca, problemas para respirar o tragar	 <b>BOCA</b> Hinchazón significativa de la lengua o los labios
 <b>PIEL</b> Urticaria extendida en todo el cuerpo, enrojecimiento generalizado	 <b>INTESTINO</b> Vómitos recurrentes, diarrea grave	 <b>OTROS</b> Sensación de que algo malo está a punto de suceder, ansiedad, confusión	
O UNA COMBINACIÓN de síntomas de diferentes áreas del cuerpo.			
PARA LOS SÍNTOMAS LEVES EN MÁS DE UN ÁREA DEL CUERPO, ADMINISTRE EPINEFRINA.			
PARA LOS SÍNTOMAS LEVES EN UNA SOLA ÁREA DEL CUERPO, SIGA ESTAS INDICACIONES:			
1. Se podrían administrar antihistamínicos si un proveedor de atención médica los receta. 2. Quélese con la persona; comuníquese con los contactos de emergencia. 3. Observe de cerca los cambios. Si los síntomas empeoran, administre epinefrina.			
<b>MEDICAMENTOS/DOSIS</b>			
Marca o versión genérica de la epinefrina: _____			
Dosis de epinefrina: <input type="checkbox"/> 0.1 mg IM (intramuscular) <input type="checkbox"/> 0.15 mg IM <input type="checkbox"/> 0.3 mg IM <input type="checkbox"/> 1 mg IN (intranasal) <input type="checkbox"/> 2 mg IN			
Marca o versión genérica del antihistamínico: _____			
Dosis de antihistamínico: _____			
Otros (por ejemplo, inhalador broncodilatador si hay sibilancias): _____			
<input type="checkbox"/> El paciente puede llevar consigo el medicamento <input type="checkbox"/> El paciente puede autoadministrarse el medicamento			
FIRMA DE AUTORIZACIÓN DE LOS PADRES/TUTORES		FIRMA DE AUTORIZACIÓN DEL MÉDICO/PROVEEDOR DE ATENCIÓN MÉDICA	
FECHA		FECHA	



# Medical Alert Jewelry



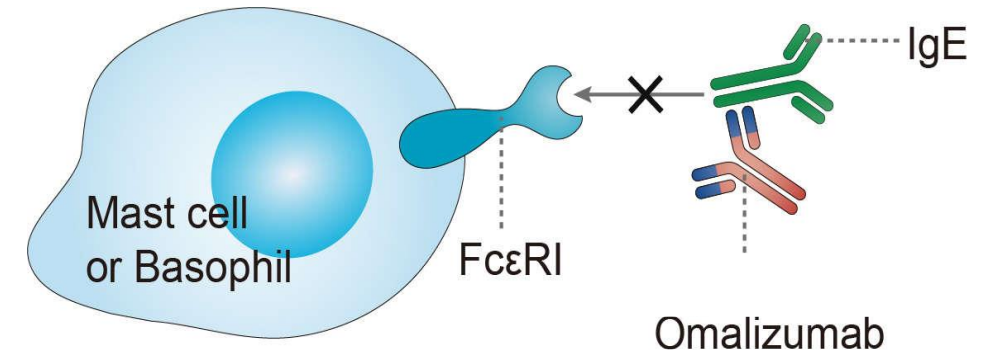
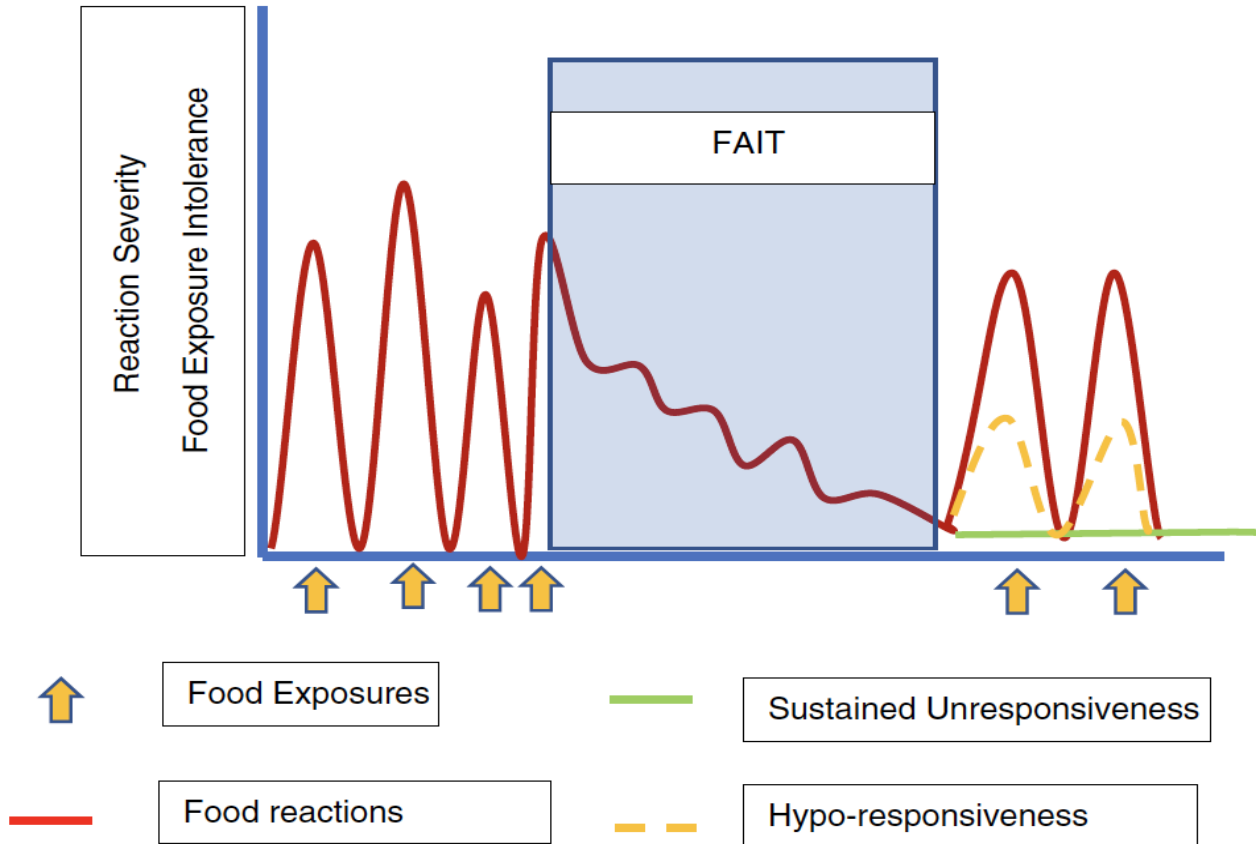
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[www.medicalert.org](http://www.medicalert.org)



# Effect of Food Allergen Immunotherapy (FAIT) and Biologic Treatment on Responses

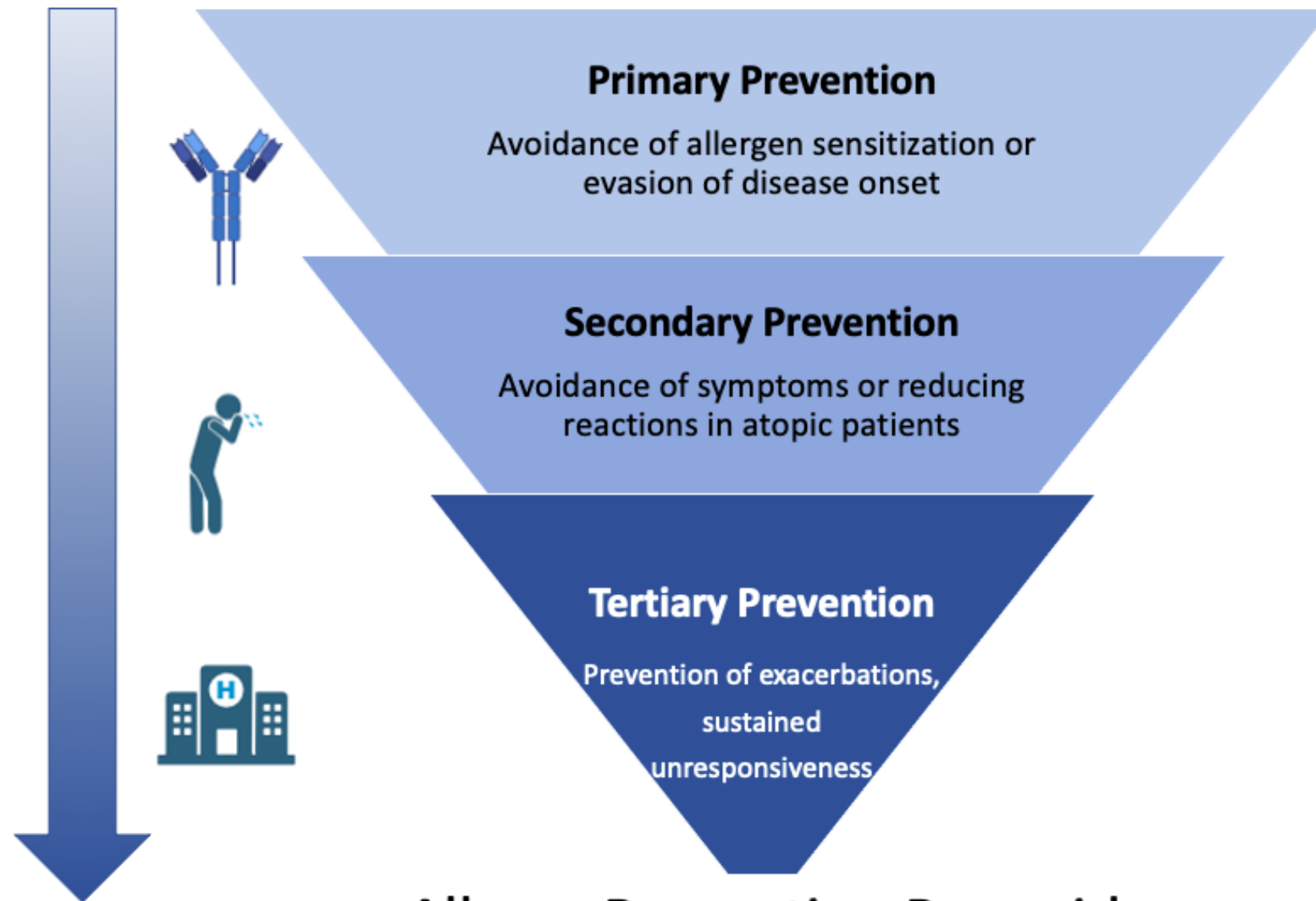


<https://www.creativebiolabs.net/omalizumab-overview.htm>

Spergel et al. Curr Allergy and Asthma Reports. 2018

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Allergy Prevention Pyramid

# Conclusions

- Food allergies occur and reactions are more severe in a higher proportion of Black people compared to other races.
- Black people with food allergy have increased risks for anaphylaxis and ER visits and lack of access to subspecialty care.
- Understanding the key features to recognize anaphylaxis and give prompt treatment, especially with epinephrine when appropriate.

# Conclusions

- Patients should carry epinephrine at all times and use it if more systems than the skin are involved.
- All IgE (allergy antibody) mediated reactions can be life threatening, so preparedness is critical.
- Skin of color can cause allergic rashes and hives to appear differently to food allergy physicians or other providers.
- Education regarding the need for epinephrine is important.
- New therapies have emerged for patients who are eligible and should be discussed with a physician.

# Strategies to Help Treat Food Allergy in the Black Community



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- Culturally sensitive patient education efforts and collaborative patient-clinician decision-making processes.
- Improved access to specialty care in underserved communities.
- Develop relationships with community primary care physicians and other healthcare providers or organizations
- Commit resources to to treat patients who have public insurance
- Increased research studies addressing diagnosis, management and outcomes for underserved populations.

Ali A et al. Can Respir J. 2019: 5165189. Apter AJ et al. J Allergy Clin Immunol. 2019;144(3):846-853.e11. George M et al. J Adv Nurs. 2019;75(4):876-887. Delaigue S et al. Frontiers in Public Health 2014; 2: 1-9.

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# Back to School with Food Allergies



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