



Food Allergies: Reducing the Risks



Food allergies can range from merely irritating to life-threatening. Approximately 30,000 Americans go to the emergency room each year to get treated for severe food allergies, according to the Food Allergy and Anaphylaxis Network (FAAN). It is estimated that 150 to 200 Americans die each year because of allergic reactions to food.

Food allergies affect about two percent of adults and four to eight percent of children in the United States, and the number of young people with food allergies has increased over the last decade, according to a recent report by the Centers for Disease Control and Prevention (CDC). Children with food allergies are more likely to have asthma, eczema, and other types of allergies.

Some food allergies can be outgrown. Studies have shown that the severity of food allergies can change throughout a person's life.

"There is no cure for food allergies," says Nadine Lenciak, M.D., senior medical advisor to the Food and Drug Administration's (FDA) Office of Food Additive Safety (OFAS). "The best way for consumers to protect themselves is by avoiding food items that will cause a reaction." OFAS is part of FDA's Center for Food Safety and Applied Nutrition (CFSAN).

To reduce the risks from allergic reactions, FDA is working to ensure that major allergenic ingredients in food are accurately listed in accordance with the Food Allergen Labeling and Consumer Protection Act of 2004 (FALCPA). Allergenic ingredients are substances that are capable of causing an allergic reaction.

In addition, there has been widespread use of allergen advisory labels

on products that may have allergenic ingredients that were introduced by way of cross-contact during the manufacturing process. Cross-contact occurs when a smaller or other trace amount of an allergenic food is unintentionally incorporated into another food.

Because FALCPA does not require the declaration of allergenic ingredients introduced through cross-contact, FDA is developing a long-term strategy that will help manufacturers use voluntary allergen advisory labeling that:

- Is not misleading
- Conveys a clear and uniform message
- Adequately informs food-allergic consumers and their caregivers

What is a Food Allergy?

A food allergy is a specific type of adverse food reaction involving the immune system. The body produces what is called an allergen, or immunoglobulin E (IgE), antibody to a food. Once exposed to food, it responds and binds with the IgE antibody, an allergic response ensues.

A food allergy should not be confused with a food intolerance or other nonallergic food reactions. Various epidemiological surveys have indicated that almost 80 percent of people who are asked if they have a food allergy respond that they do

when, in fact, they do not have an allergic-mediated food allergy.

Food intolerance refers to an abnormal response to a food or additive, but it differs from an allergy in that it does not involve the immune system. For example, people who have recurring gastrointestinal problems when they drink milk may say they have a milk allergy, but they really may be lactose intolerant.

"One of the main differences between food allergies and food intolerances is that food allergies can result in an immediate, life-threatening response," says Lenciak. "Thus, compared to food intolerances, food allergic reactions pose a much greater health risk."

Signs and Symptoms

Symptoms of a food allergy usually develop within about an hour after eating the offending food. The most common signs and symptoms of a food allergy include:

- Hives, itching, or skin rash
- Swelling of the lips, face, tongue and throat, or other parts of the body
- Wheezing, nasal congestion, or trouble breathing
- Abdominal pain, diarrhea, nausea, or vomiting
- Dizziness, lightheadedness, or fainting

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Food Allergens

An increasing chemical hazard concern

An increasing health issue

Learning Objectives

- After the presentation the student will be able to:
- Explain why is it important to pay attention to allergens in food
- Distinguish between food sensitivity, food allergy, food intolerance and celiac disease
- Recognize the symptoms of food allergy
- Distinguish between symptoms of food allergy and food intolerance
- Distinguish between cross contact and cross contamination
- Apply good operation and personal hygiene practices to avoid cross contact

Why should we be concern about food allergies?

- ❑ FARE studies found that 15 Million Suffer from food allergies
- ❑ CDC Statistics show increase of 18% in ten years 1997-2008
- ❑ Estimated to cost U.S. families around \$25 Billion annually *

*FARE: Food Allergy Research & Education. Volume 24, No.2
CDC: Center of Disease Control and Prevention

CDC, FDA, FARE reports

Americans that suffer allergic reactions

- 4% General population (1/25 person)
- 5-8 % of children -→ 1/13 kids
 - 40% kids that suffer from allergy has had a severe reaction
- 1-2 % of adults are allergic to certain chemicals in food or food ingredient



Lets learn more and define
several terms

**Food Sensitivity, Food Allergy, Food
Allergen, Food Intolerance, and Celiac
Disease**

Food Sensitivity

- When an individual develops symptoms from eating a food that does not normally cause such symptoms in others, then that person is described as having a food sensitivity (or sometimes a food hypersensitivity).

Food Sensitivity

- Distinguished by how the food eaten affects the body
- A general term used that includes
 - Allergy
 - Intolerance
 - Some other adverse reactions to food

Food Sensitivity

Food Allergy

Food Intolerance

Other types of adverse reactions

IgE-mediated

Lactose, Gluten

Celiac Disease

You tube video link

To understand better the definitions go to the following links and watch these videos

- <http://youtu.be/AKVjKC3u9hk>
- <http://youtu.be/PXxZlcrGFP0>
- http://youtu.be/z7_Q7fI5uXA
- There are also a list of web resources to find more information

- Unlike other types of food disorders, such as intolerances, food allergies are “IgE mediated.” This means that your immune system produces abnormally large amounts of an antibody called immunoglobulin E — IgE for short.
- IgE antibodies fight the “enemy” food allergens by releasing histamine and other chemicals, which trigger the symptoms of an allergic reaction

Food Allergy

- Body reaction to a food allergen and the person immune system in response to a harmless food as if it were a threat. The body immune system mistakes a food allergen for a harmful invader and produces antibodies.
- Next time the person eat or touch the food, antibodies are ready to react with it. This causes the body to release chemicals, which leads to a range of symptoms called an allergic reaction.

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Food Allergen

- A protein in a food or food ingredient some people are sensitive to.
- These proteins occur naturally.
- 160 food items can cause allergic reactions.
- FDA has identified the following items that cause 90% of them and they are called as the big eight.

Most common allergens

The Big-8



Milk



Eggs



Fish



Crustacean
Shellfish



Tree Nuts



Peanuts



Wheat



Soya

3.3 millions of people are allergic to peanuts or tree nuts
6.9 millions are allergic to seafood

<http://far35c6bb52c49&groupId=2103626&t=1286202932140>

Most common allergens

Other Priority Allergens



Buckwheat



Celery



Lupin



Molluscan
Shellfish



Mustard



Sesame

- http://farrp.unl.edu/image/image_gallery?uuid=e67e18d6-6a5b-4619-8dd4-8402eedc881a&groupId=2103626&t=1286208292953

A person can be allergic to any food, not only to the ones mentioned

International Regulatory Chart

International Allergens	USA	Canada*	EU	Australia/ New Zealand	Hong Kong	Japan**
Crustacean Shellfish	X	X	X	X	X	X (Crab, Shrimp, Prawn, Lobster)
Egg	X	X	X	X	X	X
Fish	X	X	X	X	X	
Milk	X	X	X	X	X	X
Peanut	X	X	X	X	X	X
Soy	X	X	X	X	X	
Tree nuts	X	X	X	X	X	
Wheat	X	X	X	X		X
Cereals with Gluten		X	X	X	X	
Buckwheat						X
Celery			X			
Lupin			X			
Molluscan Shellfish		X	X	X		
Mustard		X	X			
Sesame		X	X	X		
Sulfites	≥10 mg/kg	Directly added or ≥10 mg/kg	≥10 mg/kg	≥10 mg/kg	≥10 mg/kg	
Bee Pollen/ Propolis				X		
Royal Jelly				X		
Peach						
Pork						
Tomato						

Cross-reactive Food Allergies

- This is best explain by an example
- If a person has a history of allergy to shrimp, allergy testing may show that he/she is also allergic to other shellfish, such as crab, lobster, and crayfish. This is called cross-reactivity.
- The same holds for tree-nuts, almonds, cashew, and walnuts
- Food Handlers should know about this cross reactivity so they are aware.

Common Food Allergens

- A list of Alternate Names Used in Ingredient Labels for the Big Eight Allergens was prepared by the National Restaurant Association as part of their Food Allergen course www.servsafe.org and is included in the additional material to review.
- Also in a previous slide there is Chart that list food allergens in different countries
- FDA has also an expanded list of what they consider tree nuts
- <http://www.fda.gov/forindustry/fdabasicsforindustry/ucm238807.htm>

Allergies vs. Intolerance

impact to body in a different way

Allergies

- Affects immune system
- Symptoms can show up immediately or after several hours
- Can cause death

Intolerance

- Affects person digestive system
- Symptoms show up gradually
- Usually not life threatening
 - Ex. Lactose or Gluten intolerance

Gluten intolerance vs Celiac disease

Gluten intolerance

- Gluten is a protein found in rye, wheat and barley, and crossbreeds of these grains- ie. triticale
- Food containing gluten includes bread, cakes, cereals, pasta, and other
- Hard to diagnose due to wide range of symptoms and causes

Celiac disease

- Autoimmune digestive disorder triggered by eating food containing gluten
- Affects 3 million Americans
- Symptoms vary from person to person
- Can affect digestive system, damages small intestine and affects adsorption of food nutrients

Celiac disease

- Celiac disease is a genetic disorder that affects at least 1 in 133 Americans. Symptoms of celiac disease can range from the classic features, such as diarrhea, weight loss, and malnutrition, to latent symptoms such as isolated nutrient deficiencies but no gastrointestinal symptoms.
- The disease mostly affects people of European (especially Northern European) descent, but recent studies show that it also affects Hispanic, Black and Asian populations as well.

Gluten, a substance in wheat and other grains, may be found in a variety of foods including breads, cakes, cereals, pasta, commercial dairy products and alcoholic beverages



ADAM.

<http://0.tqn.com/f/p/440/graphics/images/en/19292.jpg>

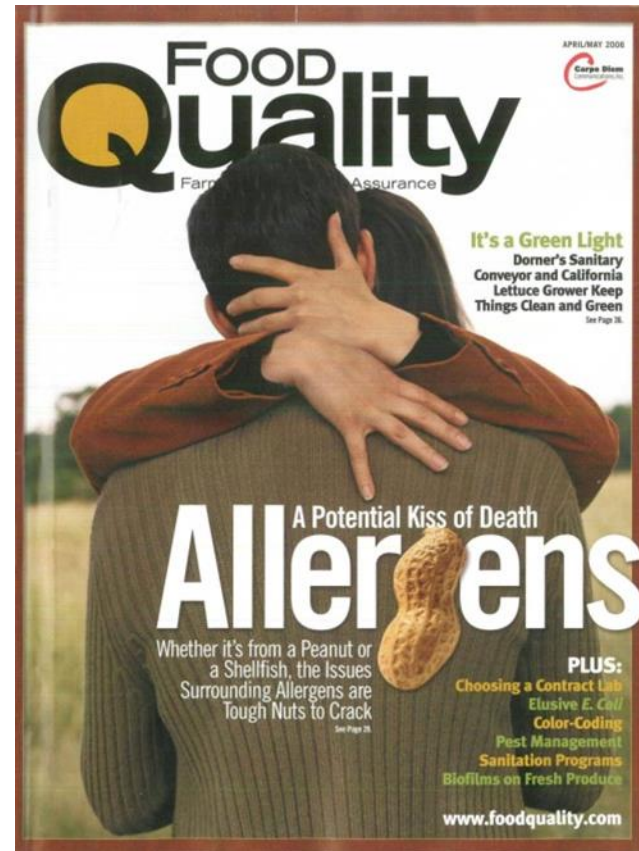
Celiac disease

- Those affected suffer damage to the villi (shortening and villous flattening) in the lamina propria and crypt regions of their intestines when they eat specific food-grain antigens (toxic amino acid sequences) that are found in grains such as wheat, rye, and barley and their crossbreed grain triptical

CDC and FDA Reports

Every year there are

- 175,000/200,000 visits to emergency room
 - 30,000 with anaphylaxis
- 2,000 hospitalizations
- 150- 200 deaths due to Allergic Reactions
- 50% occur in food service or restaurants operations



What might trigger an allergic reaction?

- The body respond by releasing chemicals such as histamine in different tissues.
- Depending on the tissue in which they are released, these chemicals will cause you to have various symptoms of food allergy. The symptoms can range from mild to severe. A severe allergic reaction can include a potentially life-threatening reaction called anaphylaxis.

Common Sites for Allergic Reactions

mouth
(swelling of the lips or tongue, itching lips)

airways
(wheezing or breathing problems)

digestive tract
(stomach cramps, vomiting, diarrhea)

skin
(hives, rashes or eczema)



- http://hort201.tamu.edu/HORT604/LectureSuppl/GeneticBasisOfLife/TransgenicCrops_files/image027.jpg

The food allergy reaction is a two step process*

- “The first time a person with food allergy is exposed to the food, no symptoms occur.
- But the body has been now been primed, and when the person eats the food again, an allergic response occurs.”

*<http://www.niaid.nih.gov/topics/foodallergy/understanding/pages/allergicrxn.aspx>

Allergy Symptoms

Can be classified as mild or severe:

- Mild symptoms include:
 - Nose - Rhinitis, runny or blocked nose, sore, red,
 - Eyes: itchy, red, sore
 - Body: swelling of the body, including the face, throat, lips, mouth, tongue, eyes, hands, or feet
 - Skin: Hives, flushed skin or itchy rashes
 - Gut: abdominal pain, swollen abdomen, vomiting and /or diarrhea, nausea, feeling bloated



FARE Food Allergy and Anaphylaxis Emergency Care Plan - See references

- Anaphylaxis - severe case of an allergic reaction, caused by two or more symptoms, affecting the respiratory tract and blood circulation,
- Can cause a drop in blood pressure,
- Occurs when IgE antibodies are involved, and areas of the body that are not in direct contact with the food become affected and show symptoms.

Severe symptoms:



Lung: Short of breath, wheezing and repetitive cough



Pale, blue, faint, weak pulse, dizzy



Mouth: Significant swelling of the tongue and/or lips

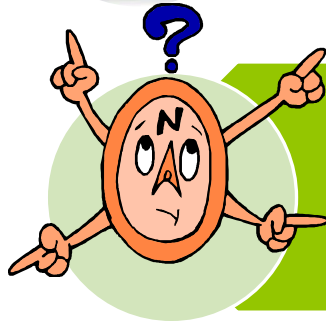
Other severe symptoms



Many hives over the body



Repetitive vomiting, severe diarrhea



Anxiety, confusion, loss of consciousness or combination of symptoms

Severe Symptoms

- Anaphylaxis
 - Serious allergic reaction that occurs rapidly
 - More than 2 organs of the body react
 - May can cause death due to constricted airways in the lungs
 - Severe lowering of blood pressure and shock ("anaphylactic shock" suffocation by swelling of the throat)
 - This need to be treated by the hormone called epinephrine which opens the airways and maintains blood pressure

Anaphylaxis shock

- This occurs because there are no nutrients are circulated throughout the body, causing the widening of blood vessels. This vasodilation causes blood pressure to decrease, which leads to the loss of consciousness. Those with asthma or an allergy to peanuts, tree nuts, or seafood are at greater risk for anaphylaxis

What must be done

- Mild symptoms stay with the person, provide antihistamine, call the emergency
- Symptoms worsen, give epinephrine
- Prompt administration of epinephrine by autoinjector (e.g., Epi-pen) during early symptoms of anaphylaxis may help prevent these serious consequences.
- Call emergency 911

What must be done

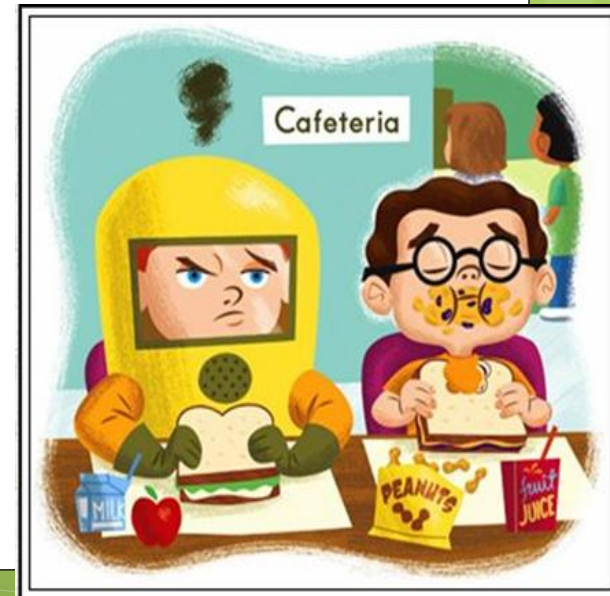
- Severe symptoms:
- Inject of epinephrine immediately by autoinjector
- (e.g., Epi-pen) during early symptoms of anaphylaxis may help prevent these serious consequences.
- Call emergency - 911
- Tell them the person is having Anaphylaxis and may need epinephrine*

* Look over reference FARE or details

Food Allergy -There is no cure

- How to avoid them
 - Not to eat the food
 - Treatments only reduce or alleviate the symptoms
 - Epinephrine is the most common medication
 - A person suffering with severe food allergy should always carry a shot of medication

<http://www.dropyourallergies.com/images/boys.jpg>



People can avoid most of the things they are sensitive to if they read food labels carefully



Calcium 0% • Iron 0%
Percent Daily Values (DV) are based on a 2000 Calorie diet

INGREDIENTS: SOYBEAN OIL, WATER, EGG YOLK, SALT, LEMON JUICE CONCENTRATE, WHITE WINE AND DISTILLED VINEGARS, SPICES (INCLUDING MUSTARD SEED), PARMESAN CHEESE (PART-SKIM MILK, CHEESE CULTURE, SALT, ENZYMES), GARLIC*, ONION*, OLIVE OIL, XANTHAN GUM, MOLASSES, CORN SYRUP, CARAMEL COLOR, SUGAR, ANCHOVIES, TAMARIND, NATURAL FLAVORS, *DEHYDRATED

Can you avoid food allergy reactions?

- Only way is to avoid the food
- Read food labels
- Learn how to identify food allergens
- Avoid cross contact
- Must ask the server in a restaurant or cafeteria about the ingredients included in the food item you will be eating
- Tell the server your any food sensitivity

What's on your plate

- In order to minimize the risk of a person having allergies, in 2006 the Food Label Laws where modified



Food Allergen “Advisory” Labeling

- FALCPA’s labeling requirements do not apply to the potential or unintentional presence of major food allergens in foods resulting from "cross-contact" situations during manufacturing, e.g., because of shared equipment or processing lines. In the context of food allergens, "cross-contact" occurs when a residue or trace amount of an allergenic food becomes incorporated into another food not intended to contain it. FDA guidance for the food industry states that food allergen advisory statements, e.g., "may contain [allergen]" or "produced in a facility that also uses [allergen]" should not be used as a substitute for adhering to current good manufacturing practices and must be truthful and not misleading. FDA is considering ways to best manage the use of these types of statements by manufacturers to better inform consumers

Cross contact

- Happens when a food contact another food and proteins mix
- Can be direct contact or indirect
- Direct
- Example: Putting the cheese on top of the hamburger meat or bread
- Indirect by using same utensils, cutting table,
- Using same fryer oil to cook different foods
- Once cross contact has occurred, cooking will not make food safe.



Avoid cross contact by....

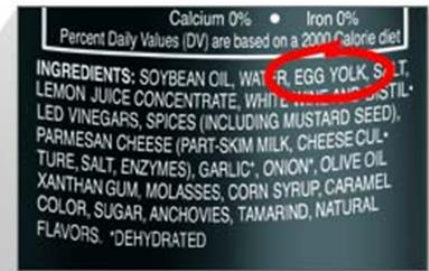
- Training of processing and supervisory personnel
- Segregation of food allergens during storage and handling
- Validated cleaning procedures for food contact equipment
- Prevention of cross contact during processing through measures such as:
 - scheduling of production runs;
 - control or rework; and
 - use of dedicated production lines
- Product label review and label usage and control; and
- Supplier control program for ingredients and labels

Cross contamination

- Pathogens are transferred from one surface or food to another food or surface
- This can happen in many ways:
 - Ingredients contaminated
 - Not properly cleaned and sanitized surfaces
 - Poor food handler hygiene practices
- Cooking to correct temperature can prevent a foodborne illness caused by cross contamination but does not eliminate allergens

People can avoid most of the things they are sensitive to if they read food labels carefully

FDA guidance



http://www.nlm.nih.gov/medlineplus/mobileimages/ency/fullsize/19347_xlfs.png

ADAM

- The law allows manufacturers a choice in how they identify the specific “food source names,” such as “milk,” “cod,” “shrimp,” or “walnuts,” of the major food allergens on the label. They must be declared either in:
 - the ingredient list, such as “casein (milk)” or “nonfat dry milk,” or
 - a separate “Contains” statement, such as “Contains milk,” placed immediately after or next to the ingredient list.
- Every time you purchase the product please read the label, a new ingredient might be added

Food Items that contain allergens and usually are overlooked:

- Salad dressings
- Barbeque sauce
- Breaded chicken
- Pancakes
- Pasta
- Honey
- Pie crust
- Almonds flavor products
Mortadella can contain pistachos

What is on
your
plate?

Preventing Food Allergies

- Communicate with clients or visitors that suffers from food allergies
- Prevent cross contact during preparation, storage and exhibition
- Be prepare to handle special dietary requests
- Train and be prepare to handle a allergy emergency situation

SOP/ Policy written for...

- How to communicate information
- How to accommodate for special food items requests
 - Substitutions of ingredients, or alternative
- How to store to prevent cross contact
- How to handle orders

Preventing Allergic Reactions

Service staff:

- Describe how the dish is prepared
- Identify ingredients or at minimum identify if the allergen in question is used in the recipe
- Manager and chef may decide how much information about the dish is revealed
- Suggest simple menu items
- Tell the chef that the food item is for a persons that suffers allergies and to what is allergic to
- Hand-deliver food to customers with food allergies



Preventing Allergic Reactions

Kitchen staff:

Prevent cross contact

- Do **NOT** cook different types of food in the same fryer oil since particles from one can stay in the oil and get into the other food item
- Do **NOT** put food on surfaces that have touched allergens
- Separate areas for preparation for food for persons with allergies
- Color code utensils
- Clean and sanitize with clean cloth
- Use spray bottles instead of cubes



Preventing Allergic Reactions

Kitchen staff:

- Avoid cross-contact
 - Wash, rinse, and sanitize cookware, utensils, and equipment after handling an allergen
 - Wash your hands and change gloves before preparing food
 - Prep food for customers with food allergies in a separate area from other food
 - Label food packaged on-site for retail use



Prevent cross contact in self service area

- Assign utensils for each product
- Identify food items that contains allergens
- Use dedicated cleaning and sanitizing
- Do not mix old items with new items
- Use new containers and utensils when new products are added

Other good practices

- Correct hand washing
- Follow instructions for work attire
- Change to clean apron when handling food for allergic customer
- Identify special orders by color coded of plates, Flags



- <http://www.achooallergy.com/allergy-consumer-report/2008-11/allergy-free-thanksgiving.jpg>

What's on your plate?



Some restaurant may have gluten free foods in the menu. They must review their menu and ingredients to ensure that the use of “gluten-free” labeling is consistent with the federal definition that started in August 2014.

Preventing food allergies in a food service

- Good practices when handling orders for guest with food allergies:
- Use spray bottles instead of buckets and new cloth when cleaning a table and utensils
- Use clean aprons when handling orders
- Be able to describe the ingredients present in the food item
- Kept track of the order
- Confirm at order pick up this is the correct order

Gluten Free” Terms

- “Gluten-free”
 - “Free of gluten”
 - “No gluten”
 - “Without gluten”
 - Less than 20 ppm gluten is present in the food
- FDA’s new regulation for gluten-free food labeling standardizes what “gluten-free” means on the food label. Gluten-free is a voluntary claim that manufacturers may elect to use in the labeling of their foods. However, manufacturers that label their foods gluten-free are accountable for using the claim in a truthful and not misleading manner, and for complying with all requirements established by the regulation and enforced by FDA.

Foods That Can Be Labeled As “Gluten-Free”

- Whether a food is manufactured to be free of gluten or by nature is free of gluten, it may bear a gluten-free labeling claim if it meets all FDA requirements for a gluten-free food. Foods/beverages like bottled spring water, fruits, vegetables, and eggs are naturally gluten free. However, because the “gluten free” claim isn’t required to be on a food package, it may not appear even if the food is, in fact, gluten-free.

Food Sensitive concern

In addition to the health issue related to all kind of food sensitivities, adverse physical reactions to food is a growing concern.

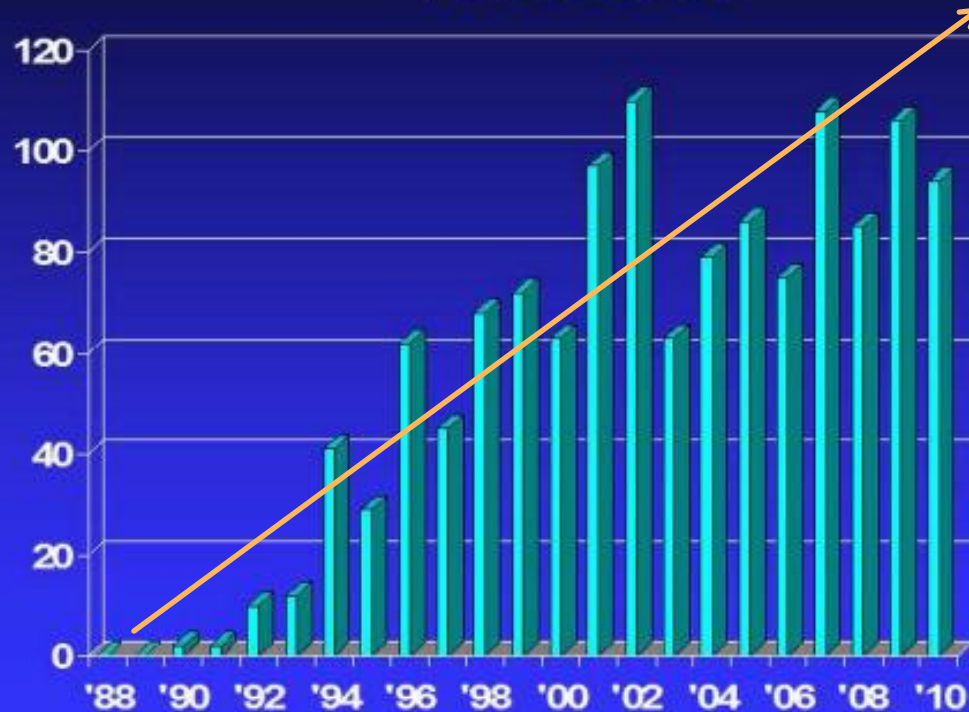
Undeclared ingredients is one of the causes, but cross contact is a big one.

There has been an increase in food recalls related to allergen and liability issues.

Recent new food labeling laws impact how the industry develop and process their food.

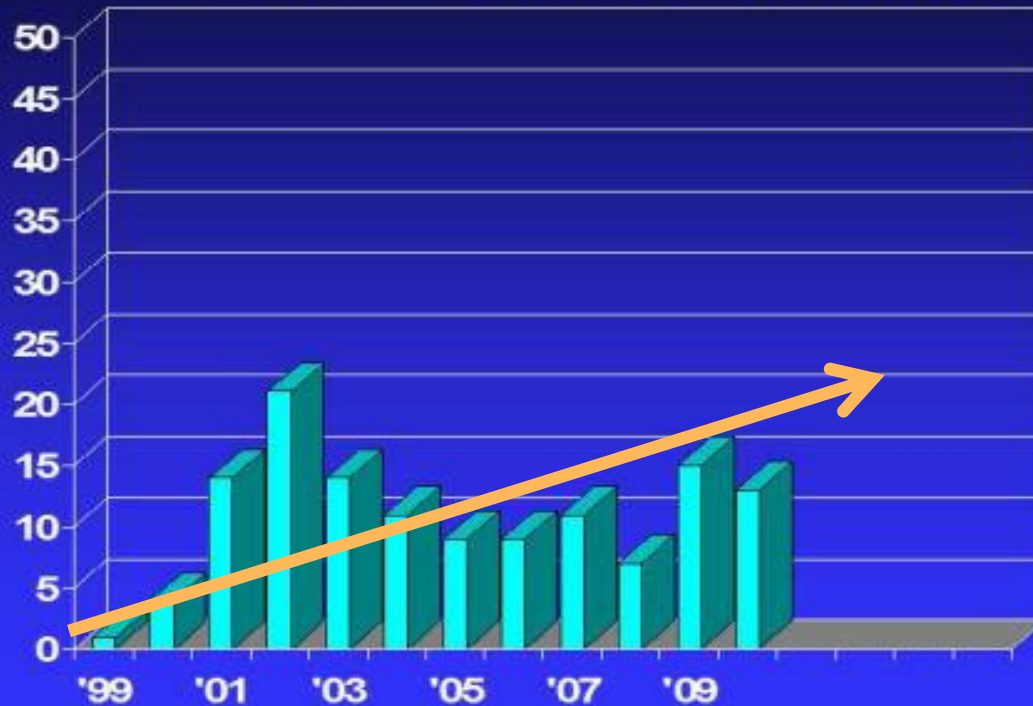
All of the above causes additional costs in health care, food availability and might increase food insecurity and food waste if not properly address.

U.S. FDA Food Allergen Recall Incidents 1988-2010



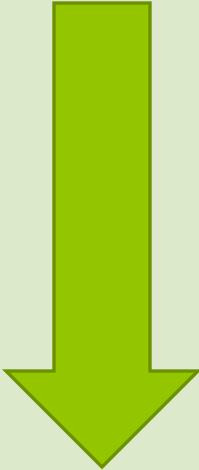
Food Allergy Research and Resource Program © 2010

FSIS/ USDA Food Allergen Recalls Calendar Years 1999-2010



Food Allergy Research and Resource Program © 2010

Recalls related to allergies

Recall causes	Relative incidence
Undeclared ingredients	
Food were mixed	
Inadequate cleaning and sanitation of equipment	

Summary:

- Identify which are the big eights
- Ingredients that contain them
- Which menu item should be avoided or not ordered by a person allergic to it.
- Know what to do in case of an emergency
- Avoid cross contact

What to do if a guest suffers an allergic reaction...

Identify the symptoms of anaphylaxis shock

Do not leave the guest alone

Provide assistance

Ask for emergency contact information

Call 911 immediately

Explain a guest had an allergic reaction and report if any epinephrine was used

The big 8 food represent this percentage of food allergies

- a) 20%
- b) 80%
- c) 90%
- d) 100 %

The big 8 food represent this percentage of food allergies

- a) 20%
- b) 80%
- c) 90%
- d) 100 %



What food component or ingredient may have a less risk to trigger allergic reactions:

1. Yogurt
2. Orange juice
3. Non dairy creamer



What food component or ingredient may have a less risk to trigger allergic reactions:

1. Yogurt
2. Orange juice
3. Non dairy creamer

Match menu items that should not be available to a person allergic to:

Allergen

1. Fish
2. Milk
3. Tree nuts
4. Soy
5. Wheat

Menu item

- a) Cheeseburger
- b) Tuna Sandwich
- c) Walnut cake.
- d) Chinese food
- e) Pizza with ham

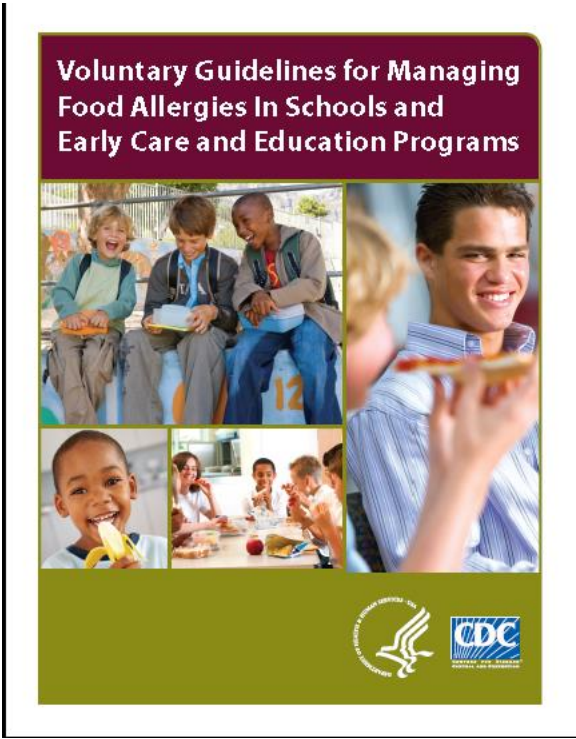
Match menu items that should not be available to a person allergic to:

Allergen

1. Fish b
2. Milk a,b,e
3. Tree nuts c
4. Soy d
5. Wheat a,b,c,e

Menu item

- a) Cheeseburger
- b) Tuna Sandwich
- c) Walnut cake.
- d) Chinese food
- e) Pizza with ham



List of references

- There are some files included in pdf form of some of the reference materials used in the presentation
- Also a list of web links to keep updating information