




Understanding Food Allergens and Safe Food Practices in Institutional Settings

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OBJECTIVES

- Attendees will be knowledgeable of the most common food allergens and adverse reactions from consumption.
- Attendees will understand the differences between food allergies and intolerances.
- Attendees will understand the differences between cross-contact and cross-contamination, and be able to apply safe food practices in their institutions.


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Food Allergies on the Rise

- 2013 CDC Study - Food allergies among children <18 yrs increased between 1997 and 2011
- Food allergies result in more than 300,000 ambulatory-care visits a year among youth <18 yrs
- Food allergy is the leading cause of anaphylaxis outside the hospital setting
- Approximately 30% of children with food allergies are allergic to more than one food
- ½ fatalities from food allergens occur outside the home
- Food allergen training for employees required by food operators in Rhode Island and Massachusetts

*Sources cdc.gov.gov, fda.gov, foodallergy.org, fsis.usda.gov

- Food allergies are on the rise in developed countries worldwide
 - >17 million Europeans have a food allergy

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**Food Allergies
vs.
Food Intolerances**

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What is a Food Allergy?

- **Body's response to a particular protein in food**
- Allergen attacks the **immune system** which releases histamine causing reaction
 - Immune system makes too much of an antibody called immunoglobulin E (IgE)
 - IgE antibodies fight the "threatening" food allergens by releasing histamine and other chemicals
 - Chemical release causes the symptoms of an allergic reaction
- Reaction can be immediate or within a few hours of food consumption
- Most common treatment → Epinephrine (adrenaline)
 - 1st line of defense
 - Seek emergency medical attention; call 911
 - Failure to treat may result in fatality
- **No cure** for a food allergy
- Some outgrown
- **Prevention** an allergic reaction is to avoid the food causing reaction

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Symptoms of Allergic Reactions

- Swelling and/or itching: face, eyes, mouth, throat, scalp, hands or feet
- Wheezing, shortness of breath
- Hives or itchy rashes
- Gastrointestinal problems
 - Nausea
 - Vomiting and/or diarrhea
 - Abdominal pain
- Tightening of the throat
- Loss of consciousness and death

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Food Allergy – Risk Factors and Related Diseases


- Food allergies do not discriminate
 - affect children and adults of all races and ethnicity
 - can begin at any age
- Teenagers and young adults with food allergies = highest risk of fatal food-induced anaphylaxis
- Risk=higher if parent has any allergic disease (asthma, eczema, food allergies, or environmental allergies, i.e., hay fever)
- Children with food allergy are 2-4 times more likely to have other related conditions such as asthma and other allergies
- Food allergies may be a trigger for, or associated with, other allergic conditions, such as atopic dermatitis (eczema) and gastrointestinal diseases

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What is a Food Intolerance?


Reaction that affects digestive system or not immune- based in nature

- Illness or discomfort attributed to a food or various foods
 - Enzyme deficiencies that interfere with digestion of certain foods e.g., lactose intolerance = #1
- Symptoms gradual
 - Sensitivity to gluten, sulfites or other food additives can trigger asthma attack or headache or other symptoms
- May only occur when eating a lot of the food
- Not life threatening
- May be misinterpreted as a self-reported food allergy not medically confirmed

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Symptoms – Allergy vs Intolerance

<ul style="list-style-type: none"> Shared symptoms <ul style="list-style-type: none"> Nausea Stomach pain Diarrhea Vomiting 	<ul style="list-style-type: none"> Different symptoms Intolerance <ul style="list-style-type: none"> Gas or bloating Cramps Heartburn Headaches Irritability or nervousness
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Food Allergens

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Food Allergens

- Foods that cause allergic reactions
 - >160 foods have been reported to cause allergic reactions
 - 8 major food sources responsible for most food allergy reactions in US
- Even trace amounts of a food allergen can cause a reaction
- Common food allergens can contaminate food for those persons that are allergic to them
- Management, staff and residents/patients must be knowledgeable if and what allergens are in a recipe/ingredient on the menu

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Major Food Allergens – The ‘Big 8’

Account for 90 % of all reactions:


- Milk(dairy)
- Wheat(celiac)
- Fish(with fins)
- Shellfish
 - Crustaceans (shrimp, crab, lobster, crawfish)
- Soy
- Eggs
- Peanuts/Legumes
- Tree nuts
 - Hickory nuts, macadamia nuts, pecans, almonds, brazil nuts, cashews, hazel nuts, pine nuts, pistachios, walnuts

(M-W-F-Sat)

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Less Common Allergens for Adults

- Rice
 - Rice flour, rice starch, rice syrup, rice noodles, rice bran
- Corn
 - Corn sweeteners, corn starch, commercially prepared foods
 - In many processed foods and must be listed on the labels
 - Alternative sweeteners, thickeners and leavening agents for this diet include fruit juices, beet or cane sugar, maple syrup, honey, aspartame, wheat starch, potato starch, rice starch, tapioca, baking soda and cream of tartar

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Less Common Allergens for Adults

- Soy and bean “allergies” are commonly reported and often resulting in inappropriate diet orders in corrections
- Soy and beans are popular menu/food ingredients.
 - Soy allergies are common in children, but rarely occur in adults
- Legume (bean) allergies - very rare but do exist

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Can You Outgrow a Food Allergy?

- Peanut and tree nut allergies develop in childhood → usually lifelong
- Fish and shellfish allergies → lifelong
 - >6.5 million adults are allergic to finned fish and shellfish
- The earlier a child’s first reaction, the more likely that child was to outgrow the allergy
- Cow’s milk, egg, wheat and soy allergies → typically begin in childhood eventually may be outgrown
 - In the past, most children outgrew these allergies by school age
 - More children are taking longer to outgrow milk and egg allergies - majority are allergy-free by age 16

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The 'Big 8' Foods







Milk and Dairy

<ul style="list-style-type: none"> ■ Food Sources <ul style="list-style-type: none"> ■ Milk ■ Half n half ■ Cream ■ Cheese ■ Yogurt ■ Ice cream 	<ul style="list-style-type: none"> ■ Ingredient Label ID <ul style="list-style-type: none"> ■ Casein ■ Whey ■ Rennet ■ Caseinates ■ Ghee ■ Lactalbumin ■ Lactoferrin ■ Lactulose rennet casein
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Wheat

<ul style="list-style-type: none"> ■ Food Sources <ul style="list-style-type: none"> ■ Bread ■ Bread crumbs ■ Cereals ■ Wheat Flour(all types) ■ Wheat berries ■ Pasta ■ Crackers ■ Pancakes/Waffles 	<ul style="list-style-type: none"> ■ Ingredient Label ID <ul style="list-style-type: none"> ■ Bran ■ Bulgur ■ Couscous ■ Cracker meal ■ Durum ■ Farina ■ Gluten ■ Kamut ■ Matzo/Matzoh ■ Seitan ■ Semolina ■ Spelt ■ Triticale ■ Wheat (bran, germ, gluten, grass, malt, starch)
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Gluten Intolerance and Celiac Disease

- Gluten is the protein found in wheat, rye and barley
- Can develop intolerance to gluten
- Hard to diagnose d/t varying symptoms; More common than past

- Celiac Disease
 - Triggered by gluten consumption
 - Autoimmune disease that damages small intestine
 - Interferes with absorption of food
 - Symptoms and tolerances vary in digestive tract or
 - Treatment strict gluten-free diet

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Shellfish

- Food Sources
 - Sushi
 - Calamari/Squid
 - Crab
 - Crawfish/Crayfish
 - Escargot/Snails*
 - Langouste/Langoustine
 - Lobster
 - Mussels
 - Octopus*
 - Oysters*/Clams*
 - Scallops*
 - Prawns/Scampi/Shrimp
- Bouillabaisse
- Cuttlefish* ink
- Glucosamine
- Fish stock
- Surimi

- Ingredient Label ID
 - Abalone
 - Caracoles
 - Cockle
 - Crevette
 - Mollusk(mollusc)*
 - Seafood flavoring (e.g., crab or clam extract)
- It is important to note that mollusks are not considered major allergens under **FALCPA** and may not be fully disclosed on a product label.

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Fish

- Food Sources
 - Fin fish
 - Bass
 - Catfish
 - Cod
 - Herring
 - Haddock
 - Grouper
 - Mahi mahi
 - Pangasius
 - Pollock
 - Salmon
 - Scrod
 - Snapper
 - Sole
 - Swordfish
 - Tilapia
 - Trout
 - Tuna
 - Worcestershire sauce (may contain anchovies)
 - Cesar Salad Dressing
 - Sushi


- Ingredient Label ID
 - Anchovies
 - Caviar
 - Hake
 - Roe
 - Surimi*

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Soy

- Food Sources
 - Edamame
 - Miso
 - Tofu
 - Shoyu sauce
 - Soybean
 - Soy sauce
 - Tamari
 - Tempeh
 - Asian cuisine
- Ingredient Label ID
 - Hydrolyzed soy protein
 - Natto
 - Shoyu sauce
 - Soy protein
 - Textured vegetable protein (TVP)
 - Vegetable gum
 - Vegetable starch
 - Vegetable broth

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Eggs

- Food Sources
 - Egg (dried, powdered, solids, white, yolk)
 - Mayonnaise
 - Eggnog
 - Meringue
 - Egg noodles
 - Marshmallows
 - Lecithin
 - Marzipan
 - Nougat
 - Toppings on drinks
 - Baked goods
 - Cake
 - Cookies
 - Brownies
- Ingredient Label ID
 - Egg (dried, powdered, solids, white, yolk)
 - Ovalbumin
 - Ovomuroid
 - Ovalbumin
 - Albumin/Albumen
 - Lysozyme
 - Surimi (imitation crab/lobster) – also listed in fish allergen


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Peanuts

- Food Sources
 - Whole peanuts
 - Peanut butter
 - Peanut flour
 - Cold pressed, expeller pressed or extruded peanut oil
- Ingredient Label ID
 - Nuts
 - Arachis
 - Arachis oil
 - Peanut protein hydrolysate
 - Mandelonas (peanuts soaked in almond flavoring)
 - Marzipan
 - Nougat

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Peanuts

- Peanuts  tree nuts
- Legume family – lentils, peas, beans and soybeans
- Grow underground
- Trace amounts can cause allergic reaction
- If allergic to peanuts, no greater chance of being allergic to another legume, including soy than any other food
- Approx 25 – 40% who are allergic to peanuts are allergic to tree nuts

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Tree Nuts

- Food Sources
 - Almonds
 - Brazil nuts
 - Cashews
 - Chestnuts
 - Filbert
 - Hazelnut
 - Hickory nuts
 - Macadamia nuts
 - Pecans
 - Pine nuts
 - Pistachios
 - Walnuts
- Ingredient Label ID
 - Caponata
 - Gianduja
 - Marzipan
 - Almond paste
 - Nougat
 - Nut butter
 - Nut meal
 - Nutmeat
 - Nut oil
 - Nut paste
 - Nut pieces
 - Pesto
 - Pralines

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Question: Food Allergies that may not be outgrown are:

- a) Nuts and fish
- b) Milk and nuts
- c) Eggs and soy
- d) Fish and milk


Labeling Laws







Food Allergen Labeling Law Requirements

- Food labeling law requires that food labels identify the food source names of all major food allergens used to make the food
- Requirement is met if the common or usual name of an ingredient (e.g., buttermilk) that is a major food allergen already identifies that allergen's food source name (i.e., milk)
- If not part of common name, the major food allergen's source name must be declared at least once on the food label in one of two ways:
 - In parentheses following the name of the ingredient.**
 Examples: "lecithin (soy)," "flour (wheat)," and "whey (milk)"
 - Immediately after or next to the list of ingredients in a "contains" statement.**
 Example: "Contains Wheat, Milk, and Soy."

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Food Allergen Labeling Voluntary

- Manufacturers may voluntarily place an advisory or precautionary allergen labeling, statement on food products to notify consumers about the possible presence of food allergen(s), such as 'produced in, packages at...
- FDA guidance for the food industry states that food allergen advisory statements, e.g., "may contain [allergen]" "produced in a facility that also uses [allergen]", etc. should not be used as a substitute for 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.

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The Food Allergen Labeling and Consumer Protection Act of 2004 (FALCPA)

- FALCPA addresses the labeling of all packaged foods regulated by the FDA
- Allergens other than the 8 Major food allergens are not subject to FALCPA labeling requirements.

Source:
www.fda.gov/Food/GuidanceRegulation/GuidanceDocuments/RegulatoryInformation/Labeling/Nutrition/ucm064880.htm

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Question – Artificial coloring is required on a food label as an allergen?

True or False

Cross-Contact vs. Cross-Contamination: Safe Food Handling Practices

Cross-Contact


- Occurs when residue or trace amount of an allergenic food is unintentionally incorporated into, or comes in contact with, another food
- People** can be the source of cross-contact
- Can be **direct or indirect**
 - Placing cheese on a sandwich with meat (direct)
 - Touching a muffin containing nuts, then picking up a nut-free muffin (indirect)
 - A trace amount of allergen may be enough to cause an allergic reaction
- Personal hygiene practices** can lead to cross-contact
 - Always wash hands correctly and then maintain them properly
 - Use of gloves
 - Follow work attire guidelines per your facility procedures as clothes can be a source of cross-contact

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Cross-Contact in the Kitchen


- Cooking oils, splatter
- Steam from cooking foods
- Airborne dust
- Flour
- Contaminated utensils, pans and equipment
 - spoons, knives, spatulas, tongs, whips. etc.
 - cutting boards, bowls and hotel pans
 - Sheet pans, pots, pans, fryers and grills

When any of these items come into contact with food allergens, all must be washed thoroughly in hot, soapy water and sanitized

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Cross-Contact Awareness and Prevention

- Protect residents/customers:**
 - Food service employees must know menu item contents/allergen ingredients → **ASK**, if unsure
 - Suggest alternate food choices, if unsure
 - Monitor that tableware and utensils are allergen-free including latex-based products

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Communication – Restaurant/Dining Setting

- **Always let the guest make their own informed decision**
- When a guest alerts that someone in their group has a food allergy, follow the **four R's**:
 - **Refer** the food allergy concern to the chef/cook, FS manager or person in charge.
 - **Review** the food allergy with the guest and check ingredient labels.
 - **Remember** to check the preparation procedure for potential cross-contact.
 - **Respond** to the guest and inform them of your findings.

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General -Tips to Avoid Cross-Contact

- Wash hands, change gloves and work with clean/sanitized surface
- Check package labels and ingredients
- Consider using separate/special utensils for making and serving safe foods
- Keep safe foods covered and away from potential allergenic foods that may splatter
- Never remove allergen food and re-serve food
- Never use cooking oil, utensils or equipment that were used to prepare other foods
- **Cooking does not make an allergen food safe for someone with a food allergy**

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Tips to Avoid Cross-Contact - Storage

- Store food in separate containers and label accordingly
- Confirm storage containers are sealed (lid, plastic wrap, foil)
- Store allergen-free/special items in designated area separate from other potential allergen foods.
- Clean storage areas regularly
- Label and store utensils and equipment as being safe for allergen-free/special items once cleaned


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Tips to Avoid Cross-Contact – Cleaning and Sanitizing

- Minimize potential food allergen contact surfaces:
 - Change cleaning cloths and properly wash buckets as needed to avoid spreading allergen proteins through the cloth or the bucket.
 - Use separate spray bottles for cleaner/soap, rinse water and sanitizer solution.
 - Use disposable paper towels.
 - Wipe/clean tables, seating and anything on tables including condiments, menus, drink menus when notified that guest has a food allergy.


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Cross-Contamination

Transfer of disease-causing organisms (pathogens), i.e., bacteria or viruses, from one surface or food, to another


Examples:

- Washing chicken in sink then washing lettuce in the same sink area
- Dicing beef for stew, then cutting cabbage for cole slaw on same cutting board and/or with same knife


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Cross-Contact/Contamination Reactions

- Cross-Contact
 - Allergic reaction and associated symptoms
 - Anaphylaxis
 - Death
- Cross-Contamination
 - Foodborne illness and associated symptoms
 - Death

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Question – Croutons on a salad is an example of:
a) cross-contact
b) cross-contamination




Managing Allergies in the Food Service Department



Definitions

- **Allergen**
Any substance that causes an allergic reaction.
- **Allergic reaction**
An immune system response to a substance—in the case of food allergies, the proteins from allergenic foods—that the body mistakenly interprets as harmful.
- **Anaphylaxis**
A severe allergic reaction that occurs rapidly and may cause death.
- **Cross-contact**
The transfer of an allergen from a food or surface containing an allergen to a food or surface that does not contain the allergen.
- **Cross-contamination**
When microorganisms are transferred from one food or surface to another.
- **Epinephrine**
Another name for adrenaline; a common medicine for controlling severe or anaphylactic reactions.
- **Food allergy**
The immune system's reaction to a certain food. The immune system mistakenly considers the food to be harmful and creates antibodies to that food. When the food is eaten again, the immune system releases histamine and other chemicals, causing the symptoms of an allergic reaction.
- **Gluten intolerance (non-celiac wheat sensitivity)**
Intolerance to the protein "gluten" found in grains such as wheat, rye and barley.
- **Histamine**
One of several chemicals released by the body during an allergic reaction. It is the cause of many of the symptoms of an allergic reaction.
- **Lactose intolerance**
A reaction to a food that does not involve the immune system. Lactose-intolerant people lack an enzyme that is needed to digest milk sugar. When they eat milk products, symptoms such as gas, bloating, and abdominal pain may occur. Lactose intolerance is more common in adults than in young children.

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Resources 2017

- <https://celiac.org/ceciac-disease/understanding-ceciac-disease-2/non-ceciac-gluten-sensitivity-2/>
- www.cdc.gov
- www.fda.gov
- <https://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/LabelingNutrition/ucm064880.htm>
- <https://www.foodallergy.org/file/field-guide.pdf>
- <https://www.foodallergy.org/file/hospital-food-training-faan.pdf>
- <https://www.foodallergy.org/file/facts-stats.pdf>
- <https://www.foodallergy.org/allergens/peanut-allergy>
- www.fsis.usda.gov
- <http://blog.foodallergy.org/2013/09/13/who-is-likely-to-outgrow-a-food-allergy/>

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