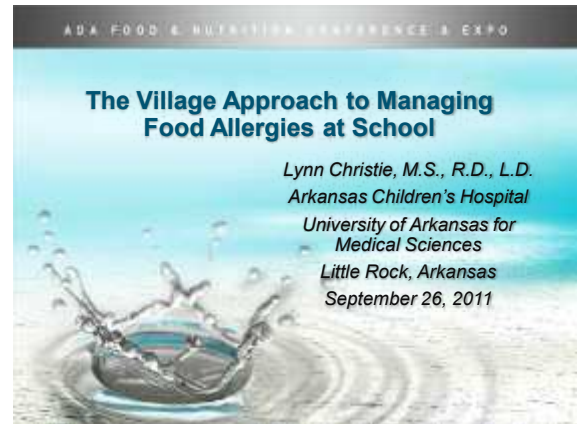




Disclosure

Lynn Christie, MS, RD, LD

- Board Member/Advisory Panel
 - American Academy of Allergy and Immunology – Adverse Reactions to Foods)
 - The Food Allergy and Anaphylaxis Network - Member Advisory Committee's Program Group
 - National Peanut Board - Scientific Advisory Board (2001-present)
- Consultant
 - Example: Nutricia
- Employee
 - Example: Arkansas Children's Hospital
- Research Support
 - Example: none
- Speaker's Bureau
 - Example: none
- Stock/Shareholder
 - Example: none
- Other
 - 2010 FNCE speaker expenses and honorarium underwritten National Peanut Board.

Objectives

- Define food allergy
- Explain 2010 Guidelines for diagnosis and management of food allergy
- Education family needs to manage food allergies at home and at school
- Update on food allergy research

Definitions – Adverse Food Reactions

- Food allergy/hypersensitivity
 - An adverse response to food antigen that is mediated by immunologic mechanisms
 - Examples: hives after ingestion of egg, throat tightness after ingestion of shellfish, severe vomiting after milk ingestion
- Food intolerance
 - An untoward response to food substance that is not immunologically mediated
 - Examples: MSG, food poisoning, lactose intolerance

Immune-Mediated Reactions to Food

IgE-Mediated

- Anaphylaxis
- Pollen-food allergy syndrome
- Urticaria

- Eosinophilic esophagitis
- Eosinophilic gastritis
- Eosinophilic proctitis/colitis
- Atopic dermatitis
- Asthma

Non-IgE Mediated

- Food Protein-Induced Enterocolitis Syndrome (FPIES)
- Protein-Induced Enteropathy

adapted from AAAAI Adv Food Comm

Epidemiology of Food Allergy

- Public perception: 20-25%
Confirmed allergy (oral challenge)
 - Adults: 2-4%; Infants/Children: 6-8%
- Major allergenic foods (~90% of allergy)
 - Children: milk, egg, soy, wheat, peanut, nuts, fish, shellfish
 - Adults: peanut, nuts, shellfish, fish
- Increase incidence in children under 18 years of age
 - Peanut ~1.6% in US (~3 million Americans)
 - UK peanut sensitization 1.3% to 3.2% (1989-1995)
 - US (children) allergy 0.4% to 1.4% (1997-2008)



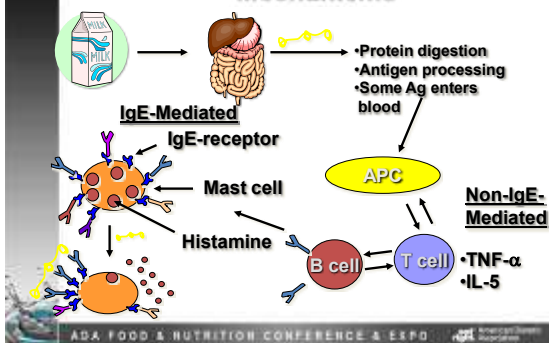
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Dietary Factors that May Influence Development of Atopy

- Dietary lipids, antioxidants, vitamins
 - Omega-3 oils, Vit C and β -carotene, Vit D
- Antacids in diet of infants (reduced allergen breakdown)
- Diet of neonate – age of host
- Oral tolerance of proteins - early avoidance may “bypass” tolerance or may influence GALT
- Food processing may influence allergen (e.g., roasted vs. boiled peanuts)
- Topical exposure (e.g., oils in sunscreen; surfaces)
- Hygiene Hypothesis (diet and environment)

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Pathophysiology: Immune Mechanisms



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Symptoms of Food Allergy



“Real Life” Allergic Reactions



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Guidelines for the Diagnosis and Management of Food Allergy in the United States: Report of the NIAID-Sponsored Expert Panel

JACI. 2010; 1105

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Diagnosis: History/Physical

- History: symptoms, timing, reproducibility
 - Acute reactions vs chronic disease
(IgE mediated reaction may occur immediately (within 1 hour))
- Diet details/symptom diary
 - Specific causal food(s)
 - "Hidden" ingredient(s)
- Physical examination: evaluate disease severity
- Identify general approach
 - Allergy vs. intolerance

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Laboratory Test:

Skin Prick Test (SPT) – Serum IgE (sIgE)

The expert panel (EP) recommends performing SPT and or sIgE to assist in identifying foods that may provoke IgE-mediated allergic reactions

- Positive prick test or Serum IgE to the specific food
 - Identify foods that *potentially* provoke an IgE-mediated food-induced allergic reaction NOT diagnostic of FA
- Negative prick test or Serum IgE to the specific food
 - Essentially excludes IgE food allergy (>95% NPV)
- The EP recommends using Food Elimination Diets and Oral Food Challenges for diagnosing FA

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Test to Assess Likelihood of Clinical Reactivity

Foods	Serum IgE (kIU/L) ~95% Positive	Serum IgE ~50% Negative	SPT* Wheal (mm) ~95% Positive	SPT ~50% Negative
Milk	≥15 ≥ 5 if younger than 1 year	≤ 2	≥8	
Egg	≥7 ≥2 if younger than 2 years	≤ 2	≥7	≤ 3
Peanut	≥14	≤ 2, ≤5 with no history of rxn	≥8	≤ 3
Fish	≥ 20			

Węgrzyn A et al. JACI 2009; 123:S365-383
* Skin Prick Test

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I Have a Child With A Food Allergy!

What Do I Need To Know?

What do I Do?



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Medical Nutrition Therapy

- Complete avoidance of specific food trigger
- Education on living with food allergies (food labels, cross contact, preparing safe foods, nutrient dense alternative foods, eating out, schools)
- Ensure nutritional needs are being met

CoFAR Food Allergy Educational
Program

<http://www.cofargroup.org/>

This frozen dessert could
have peanut, tree nut,
cow's milk, egg, wheat



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CoFAR Food Allergy Educational Program

- Reading labels
- Handouts on each major allergen (egg, milk, peanut, tree nuts, soy, wheat, fish, shellfish, sesame)
- Cross contact
- Preparing safe meals
- Restaurants, child care, schools, summer camp
- Nutritional issues
- How to introduce new foods

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Food Allergen Labeling

- The presence of a major food allergen (milk, egg, fish, crustacean shellfish, tree nuts, wheat, peanuts, soybeans) must be declared in its ingredient list or via:
 - The word "Contains" followed by the name of the major food allergen (milk, wheat, egg, etc.)
 - A parenthetical statement in the list of ingredients for major food allergens, e.g., "whey (milk)"
- Major food allergens declared in flavorings, colorings, and incidental additives.

INGREDIENTS: ENRICHED FLOUR BLEACHED (WHEAT FLOUR, NIACIN, IRON, THIAMIN MONONITRATE, RIBOFLAVIN, FOLIC ACID), VEGETABLE SHORTENING (CONTAINS PARTIALLY HYDROGENATED SOYBEAN AND/OR COTTONSEED OIL), LEAVENING (BAKING SODA, SODIUM ALUMINUM PHOSPHATE, MONOCALCIUM PHOSPHATE), LACTOSE, SALT, BUTTERMILK.

CONTAINS WHEAT AND MILK INGREDIENTS.

INGREDIENTS: FOOD STARCH-MODIFIED, HYDROLYZED VEGETABLE PROTEIN, WHEAT FLOUR, DRY YEAST, SALT, SOY FLOUR, PAPRIKA, MONO- AND DIGLYCERIDES, SPICES, PARTIALLY HYDROGENATED VEGETABLE OIL (SOYBEAN AND/OR COTTONSEED).

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Labels - continued

Other food allergies - sesame, chicken

- Contacting individual food companies is the only way to clarify if a food is safe (especially with spices and flavorings listed).
- When in doubt, avoid the food.

Food labels must be read every time a food is purchased!

This is the only way a food manufacturer can communicate what is in the product.

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Cross - Contact

When safe foods come in contact with an allergen, causing the safe food to contain small amounts of unintentional allergenic ingredients

- Food manufacturers
- Grocery stores
- Food service industry
- Home



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Advisory Labeling

- Declares potential cross contact
 - "May contain (allergen)"
 - "Produced in a facility that also produces (allergen)"
 - "Manufactured on shared equipment"
- Voluntary and unregulated

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Food Products Tested for Contamination

		May contain, % positive	No allergen declared, % positive	All labels, % positive
Egg	Small companies	2.4% (n=41)	3.1% (n=65)	2.8% (n=106)
	Large companies	0% (n=16)	1.9% (n=52)	1.5% (n=68)
Milk	Small companies	14% (n=43)	5.9% (n=68)	9% (n=111)
	Large companies	0% (n=16)	0% (n=66)	0% (n=82)*
Peanut	Small companies	7.7% (n=52)	0% (n=62)	3.5% (n=114)
	Large companies	1.7% (n=60)	0% (n=58)	0.8% (n=118)
All 3 foods	Small companies	8.1% (n=136)	3.1% (n=195)	5.1% (n=331)
	Large companies	1.1% (n=92)*	0.57% (n=176)	0.75 (n=268)*
	All companies	5.3% (N=228)	1.9% (n=371)	3.2% (n=599)

*P< .05 for differences between small and large companies in this column
Ford JACI 2010

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Restaurants

- Cross contact - Results of spills, shared kitchen equipment, and shared utensils
 - Meat sliced on cheese slicer in deli
 - Cookie sheets in bakeries
 - Serving utensils on salad bar, ice cream shops, cafeteria lines
 - Grills used for eggs, cheese, or fish
 - Fryers used for multiple allergens



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Restaurants

- Hidden ingredients – may not be noticeable
 - Nuts and nut oils in salad dressings and sauces
 - Milk, egg, wheat, or peanut butter in sauces or marinades
 - Butter added at end of grilling
 - Eggs in casseroles or to bind ground meats
 - Fish used in sauces



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Eating in Restaurants

- Call ahead or go during off hours
- Investigate on the internet
- Inform staff about food allergies and ask to speak to manager or chef
- Carry "Chef Cards" (www.foodallergy.org)
- Discuss ingredients and cross contact risk



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Living Smart with Food Allergies

- Important for parent to understand food allergies, how to avoid an accidental ingestion and how to treat an allergic reaction
- Parent's responsibility to make child's needs known to relatives, restaurant personnel, school, etc.
- Emergency medication must be carried at all times

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Living Smart with Food Allergies

- Parent's responsibility to educate child on:
 - Safe and unsafe foods
 - No food sharing or trading with others
 - Importance of reading labels
 - Do not eat anything with unknown ingredients
 - Strategies for avoiding exposure to unsafe foods
 - Symptoms of allergic reactions
 - How and when to tell an adult about a possible allergic response (and if they are being picked on)

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SCHOOLS



Cleaning for Food Allergens

- Low risk of significant exposure when table surfaces and hands are washed using common cleaning solutions and techniques
 - Best: soaps and detergents
 - Plain water and hand sanitizer less effective for hands
- Low risk for exposure from school surfaces, such as water fountains, equipment
- Unable to determine significance of airborne exposure
- Encourage hand-washing after meals

Perry JACI 2004;113:973-6

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Inhalation or Contact Exposures:

- Airborne allergens
 - Smelling peanut butter, sitting next to a cheese sandwich doesn't cause an allergic reaction.
 - High risk – shelling peanuts in close proximity, fish being fried on an open stove, milk steamed in coffee shop – may cause hives, itchy eyes, asthma like symptoms
- Dermal Contact
 - Amount and location determine severity of the dermal reaction.
 - Allergen has to become systemic (through the eyes, mouth, nose) to involve other systems.

Simonte, JACI 2003

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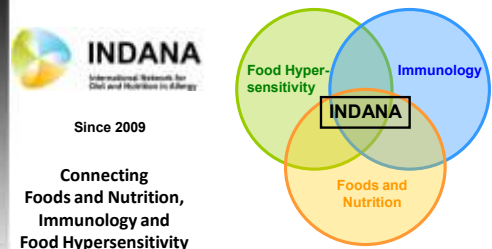
Ongoing Research:

- Oral Immunotherapy for Peanut, Milk, Egg Allergy
- Sublingual Immunotherapy for Peanut Allergy
- Epicutaneous Immunotherapy for Peanut Allergy
- LEAP (Learning Early About Peanut Allergy), EAT (Enquiring About Tolerance)
- Chinese Herbal Study
- Consortium for Food Allergy Research (CoFAR)
 - Peanut patch delivery system, Genetics of eosinophilic esophagitis, Natural history of food allergy, Vaccine for peanut allergy, Extensively heated baked egg

clinicaltrials.gov

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INDANA – International Network for Diet and Nutrition in Allergy



www.indana-allergy-network.org

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Resources

- CoFAR Food Allergy Educational Program
www.cofargroup.org
- Food Allergy & Anaphylaxis Network
www.foodallergy.org
- Kids With Food Allergies
www.kidswithfoodallergies.org
- Food Allergy Initiative
www.faiusa.org

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Conclusion

- Food allergy and anaphylaxis are prevalent diseases that are life-threatening, life-altering.
- Alleviate fear by educating families on what a food allergy is, how to identify the allergen(s), avoid sources of hidden allergen(s) and cross contact, and how to educate those involved.
- Longitudinal studies are underway to help us better understand the role of early food introduction, impact of diet, and natural history of food allergy
- New therapies are on the horizon!

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The Key To Excellent School Food Allergy Systems

Doug Wordell, RD
Director of Nutrition Services
Spokane Public Schools



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Outline For Today...

- Spokane Allergy History
- Lessons Learned
- Allergy Systems in Schools
- Best Practices Review
- School System Challenges
- Your ONE Action Step

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LOOSE PARTS



Of all the cafeteria ladies, it was Matilda who carried the top secret lunch codes.

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May 18, 2001
NATHAN WALTERS
LOST TO SEVERE FOOD ALLERGY



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Major Lessons Learned

- Complex systems issue (not just NS)
- Standardization (SOP's)
- Emergency... CALL 911
- Risk can be minimized, but not eliminated
- Monitor/Improve system Regularly
- Need district Champion
- Major risks: outside school day/campus
- Parents want: Heard, feel Trust, Safety



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Allergy System Key Pieces

- **Awareness:** Education & Teaching
- **Prevention:** (System design, limit risks @ CCP's)
- **Emergency Readiness:** Be ready. There is NO perfect system

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Food is Everywhere in Schools

- Reactions primarily caused by food used in class projects and celebrations
- Where did reactions occur:
 - 79% Classroom
 - 12% Lunchroom
- 25% of reactions in people who had no known allergy

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Bans do NOT work...

- Create false sense of security
- Create precedence you may have to follow with all allergens
- Are often used as a band-aid to cover the real issue/work

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Food Allergies - Disability

- Disability if severe and life-threatening (anaphylactic reaction) can be 504
- Physician's statement required
- Schools must make substitutions in meals
- Life Threatening Allergy (LTA)
- No attendance w/out medications
- Give Epi Pen FIRST, new law in WA

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Food Allergies – Non-Disability

- School option to provide substitutions
- NON- Life Threatening
- Supporting statement from recognized medical authority:
 - Condition that restricts the diet
 - Food(s) to be omitted
 - Food(s) to be substituted

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Care Team Parent Meeting:

- Classroom
- Parties/celebrations
- EAP & Medication
- Bus
- Afterschool/off campus... CCP!
- Playground
- Lunchroom
- Field trip check list

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ACCOMMODATIONS / DISCUSSION ITEMS (check all that apply)

- Emergency Action:**
 - ☐ Completed Emergency Action Plan (EAP) w/ need orders on file. Discuss distribution.
 - ☐ Medication/Equipment at school
 - ☐ Emergency "X" (medication, EAP and DFR orders) located
 - ☐ Additional emergency medication is located
 - ☐ Medical Alert for Substitute Teachers given to _____ for placement in sub folder
 - ☐ Student has proper health codes entered (F,LP)
 - ☐ Other: _____
- Training:**
 - ☐ Covered at staff training and epi-pen training (on-line)
 - ☐ Epi-Pen practice station available in room _____
 - ☐ EAP review with staff working closely with student (by nurse) _____
 - ☐ Nurse meets with student who self carries/administers, to assess capabilities
 - ☐ Other: _____
- Classroom Management:**
 - ☐ "Severe Food Allergies: Teacher Recommendations" given to teacher (from District Guidelines)
 - ☐ Parent notification letter for classrooms. Given to _____
 - ☐ Teacher will contact parent regarding any questions about suspect school supplies that may contain food/allergens (science kits, manipulatives, food projects, etc.)
 - ☐ Education of classmates is requested
 - ☐ (Recess information available for varying grade levels from Nutrition Service or School Nurse)
 - ☐ Hand washing after meals and high risk classroom activities (science kits, working with food)
 - ☐ Cleaning of surfaces reached after activities involving food products
 - ☐ "Allergy Zone" notices will be posted in classroom. Given to _____
- Snacks/Parties/Events:**
 - ☐ The child will only consume food that is provided by the food allergic child's parents.
 - ☐ Parent will provide supply of safe snack/food to be kept on hand at school for their child.
 - ☐ Parent will supply enough safe snacks for the entire classroom.
 - ☐ Student will provide and keep current list of specific safe "snack" foods that can be distributed in the classroom.
 - ☐ To avoid cross contamination, safe snacks will be located _____
 - ☐ Parents and teacher will be encouraged to communicate openly and in advance about any activities involving food.
 - ☐ Birthdays, parties, celebrations will be non-food events.
 - ☐ Food allergic student will not participate in classroom clean up activities involving food products.
- Cafeteria/School Lunches:**
 - ☐ Student will not eat school prepared lunches (only food brought from home).
 - ☐ Parent will monitor school menus and student will eat cafeteria prepared meals.
 - ☐ Food substitution section of EAP must be completed if student eats cafeteria prepared meals.
 - ☐ Student will eat at "allergy zone" or "Thru-LP" lunch table.
 - ☐ Staff assigned to monitor no food sharing, and no trading of food items or utensils.
 - ☐ Adult identified who is responsible for lunch table cleaning _____
 - ☐ Other: _____

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Trends For Life Threatening Allergies

School Year	Severe Food Allergy Incidents	Food Allergy EACs	Tree Nut/Other Major Allergies	Other Health Care Plans/EACs	Total Health Care Plans/EACs	Total Life-Threatening Allergy Incidents	# of Schools with no known students with severe EACs
2001-02	883	94	76	3	218	495	4
2002-03	816	102	104	7	230	519	
2003-04	889	188	150	6	470	823	4
2004-05	1008	175	169	14	666	1003	2
2005-06	488	220	197	17	898	1083	0
2006-07	588	245	197	22	910	1044	0
2007-08	777	264	168	63	961	1105	2
2008-09	281	282	119	11	545	1212	2
2009-10	272	293	114	11	546	1387	3

Based on Approx. 30,000 Students @ 50 schools

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School System Challenges

- Disengaged Parents
- System flow chart: Like herding cats
- Politics and system constraints
- Fear & lack of expertise
- System communication and integration
- Limited resources (time & money)
- Variances district to district
- Don't put in procedure what can't be done

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Resources

- USDA: <http://schoolmeals.nal.usda.gov/Resource/specialdiets.html>
- USDA: Special dietary guidance: http://www.fns.usda.gov/cnd/Guidance/special_dietary_needs.pdf
- Spokane: <http://www.spokaneschools.org/NutritionServices/>
- IFIC: <http://ific.org/>
- NFSMI: <http://www.nfsmi.org>
- Vendors:
- Local Dietitian/Hospital
- School Nurse
- Peers: Borrow what you can!
- Food Allergy & Anaphylaxis Network (FAAN): <http://www.foodallergy.org>

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