Allergy and Anaphylaxis in the School Setting

Prevention and Response
Pre-Test Questions

1. Name 6 of the 8 most common food allergens.
2. Name 10 common signs and symptoms of an allergic reaction.
3. What is the immediate step that must be taken in treating a life-threatening allergy?
4. Is a willing staff member (who is not a nurse) able to give epinephrine if a nurse is not available?
5. What is the key to preventing an allergic reaction?
6. Can parents be notified that a child with an allergy is in their child’s class or classes?
7. What should be taken on a field trip for a student with a known allergy who may be at risk for anaphylaxis?
8. What are the steps to take in the event that a student experiences an allergic reaction?
9. Name three steps important to Prevention/Recognition/Response to Food Emergencies.
Every allergic reaction has the possibility of developing into a life-threatening and potentially fatal anaphylactic reaction. This can occur within minutes of exposure to the allergen.
Allergy Information

- Food Allergy in children has risen 18% in 10 years.

- Hospitalization due to food allergies has tripled in 10 years.

- Individuals with asthma in addition to food allergies may be at increased risk for having a life-threatening anaphylactic reaction.

- Teens with food allergy and asthma appear to be at the highest risk for a reaction, because they are more likely to take risks when away from home, are less likely to carry medications, and may ignore or not recognize symptoms.

- 16% to 18% of children with food allergy experience a reaction at school with 79% of these reactions having occurred in the classroom, only 12% in the cafeteria.

Missouri Allergy Prevalence

2006-2007:
466 Districts, 823,293 Students

- Students with life-threatening insect sting allergies: 2,561
- Students with life-threatening latex allergies: 430
- Students with life-threatening food allergies: 4,617

2008-2009:
478 Districts, 863,943 Students

- Students with life-threatening insect sting allergies: 3,303
- Students with life-threatening latex allergies: 653
- Students with life-threatening food allergies: 8,872
Allergic Reactions

Common Allergens
Latex Allergies

- Latex products are a common source of allergic type reactions.
- Two common types of reactions include:
  - Contact dermatitis (skin rash) - can occur on any part of the body that has contact with latex products, usually after 12-36 hours.
  - Immediate allergic reactions - are potentially the most serious form of allergic reactions to latex products. Rarely, exposure can lead to anaphylaxis depending on the amount of latex allergen that they are exposed to and their degree of sensitivity.
- Latex exposure should be avoided by students and staff at risk for anaphylaxis. Since the reactions caused by latex vary, each student at risk should be evaluated by a trained medical provider, preferably an allergist.
Insect Sting Allergies

- Insect allergy is an underreported event that occurs every year to many adults and children.
- Most stings are caused by yellow jackets, paper wasps, and hornets.
- Some students have true allergies to insect stings that can lead to life-threatening systemic reactions.
- Prompt identification of the insect and timely management of the reaction are needed.
- Insect avoidance is advised for students and staff at risk for anaphylaxis.
- Some precautions schools should follow include:
  1) insect nests should be removed on or near school property,
  2) garbage should be properly stored in well-covered containers, and
  3) eating areas should be restricted to inside school buildings for students and staff at risk.
Food Allergy Overview

- Approximately five to six percent of the pediatric population has had an occurrence of food allergy with eight foods accounting for 90% of allergic reactions.

- Currently there is no cure for food allergies and strict avoidance is the only way to prevent a reaction.

Most common food allergens:
- Peanuts
- Shellfish
- Fish
- Tree nuts (e.g. walnuts, cashews, pecans, etc.)
- Eggs
- Milk
- Soy
- Wheat
Food Allergy

- Food allergy is an exaggerated response by the immune system to a food that the body mistakenly identifies as being harmful.
- Once the immune system decides that a particular food is harmful, it produces specific antibodies to that particular food.
- The next time the individual eats that food, the immune system releases moderate to massive amounts of chemicals, including histamine, to protect the body.
- These chemicals trigger a cascade of allergic symptoms that can affect the respiratory system, gastrointestinal tract, skin, and cardiovascular system.
- A reaction can occur within minutes to hours after ingestion.
- Symptoms can be mild to life-threatening (anaphylaxis).
- The specific symptoms that the student will experience depend on the location in the body in which the histamine is released.
An Allergic Reaction

Signs and Symptoms
Signs and Symptoms

- Symptoms usually appear within minutes and can occur within hours after exposure to the food allergen.
- The student can also face a “rebound effect” of the symptoms. This means that they may respond initially to treatment but experience a resurgence of symptoms hours later - this is called a biphasic reaction.
- It is vital to observe students who have been exposed to an allergen over a period of time to ensure their safety in the event of a rebound.
- A recent study of adolescents showed that students with peanut and nut allergies who also have asthma may experience a more severe reaction to the allergen.
Signs and Symptoms

- Hives
- Itching (of any part of body)
- Swelling (of any body parts)
- Red, watery eyes
- Runny nose
- Vomiting
- Diarrhea
- Stomach cramps
- Change of voice

- Coughing
- Wheezing
- Throat tightness or closing
- Difficulty swallowing
- Difficulty breathing
- Sense of doom
- Dizziness
- Fainting or loss of consciousness
- Change of skin color
Careful planning and prevention can greatly reduce the risk of students experiencing anaphylaxis, or a life-threatening allergic reaction at school.
What We Can Do

- There is no cure for allergies or anaphylaxis.

- But there are steps we can take:
  - To prevent exposure,
  - To recognize when an exposure has occurred, and
  - To respond quickly and effectively.
Prevention

- Avoidance of exposure to allergens is the key to preventing an allergic reaction.
- The school nurse will develop an Individualized Healthcare Plan (IHP) based on each child’s unique needs and treatment.
- The school nurse will develop an Emergency Action Plan (EAP).
- The IHP will provide specific prevention steps for the individual child and the EAP will provide student specific symptoms to observe.
- Students with food allergies and anaphylaxis must not be excluded from school activities and the IHP and EAP will provide steps to keep the student safe.
Prevention

- Do not allow food in instructional areas unless approved by parent of child with food allergy.
- Consider art and science materials, including pet foods.
- Promote hand washing before and after eating.
- Read food labels every time food is served.
- Always contact the parent of a child with an allergy if there is any question about safety - take no chances!
- Consider talking with the parent of the child with an allergy to send home a letter to parents in the class.
- Be sure to take Emergency Action Plan and Medication on field trips.
Recognition

- Know the signs and symptoms specific to each child as listed on their Emergency Action Plan (EAP).
- Do not ignore odd symptoms or behaviors that may indicate an allergic reaction.
- Always consider possible allergy if any different symptoms appear in a child with allergies.
- Food is the leading cause of anaphylaxis in children.
- Children who have asthma and food allergies are at a greater risk for anaphylaxis and may often react more quickly requiring aggressive and prompt treatment.
Response to an Allergic Reaction

The Emergency Action Plan
# Food Allergy Action Plan

**Student’s Name:**
**D.O.B.:**
**Teacher:**
**Allergy to:**
**Asthmatic:**
- Yes*  
- No  
- Higher risk for severe reaction

**STEP 1: TREATMENT**

<table>
<thead>
<tr>
<th>Symptoms:</th>
<th>Give Check Medication**:**</th>
</tr>
</thead>
<tbody>
<tr>
<td>If a food allergen has been ingested, but no symptoms:</td>
<td>☐ Epinephrine  ☐ Antihistamine</td>
</tr>
<tr>
<td>Mouth Itching, tingling, or swelling of lips, tongue, mouth</td>
<td>☐ Epinephrine  ☐ Antihistamine</td>
</tr>
<tr>
<td>Skin Hives, itchy rash, swelling of the face or extremities</td>
<td>☐ Epinephrine  ☐ Antihistamine</td>
</tr>
<tr>
<td>Gut Nausea, abdominal cramps, vomiting, diarrhea</td>
<td>☐ Epinephrine  ☐ Antihistamine</td>
</tr>
<tr>
<td>Throat† Tightening of throat, hoarseness, hacking cough</td>
<td>☐ Epinephrine  ☐ Antihistamine</td>
</tr>
<tr>
<td>Lung† Shortness of breath, repetitive coughing, wheezing</td>
<td>☐ Epinephrine  ☐ Antihistamine</td>
</tr>
<tr>
<td>Heart† Weak or thready pulse, low blood pressure, fainting, pale, blueness</td>
<td>☐ Epinephrine  ☐ Antihistamine</td>
</tr>
<tr>
<td>Other†</td>
<td>☐ Epinephrine  ☐ Antihistamine</td>
</tr>
</tbody>
</table>

If reaction is progressing (several of the above areas affected), give:
- Epinephrine  
- Antihistamine

**DOSAGE**

**Epinephrine:** inject intramuscularly (circle one, and see reverse side for instructions)
- EpiPen®  
- EpiPen® Jr.  
- Twinject® 0.3 mg  
- Twinject® 0.15 mg  
- Adrenaclick™ 0.3 mg  
- Adrenaclick™ 0.15 mg

**Antihistamine:** give (medication/dose/route)

**Other:** give (medication/dose/route)

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

**STEP 2: EMERGENCY CALLS**

1. Call 911 (or Rescue Squad: __________). State that an allergic reaction has been treated, and additional epinephrine may be needed.
2. Dr. Phone Number: 
3. Parent Phone Number(s): 
4. Emergency contacts:
   - a. Name/Relationship Phone Number: 
   - b. Name/Relationship Phone Number:

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

**Parent/Guardian’s Signature**
**Date**

**Doctor’s Signature**
**Date**

(Required)

**Staff Members Trained in Epinephrine Administration:**
Steps to Take

- If a student displays signs and symptoms of an allergic reaction and/or reports an exposure to their allergen, school personnel should immediately implement the school’s policy on allergy anaphylaxis which should require that immediate action be taken:
  - Notify the school nurse (if available) and initiate the Emergency Action Plan;
  - Locate the student’s epinephrine immediately;
  - Implement the student’s Emergency Action Plan; including timely administration of epinephrine if needed, and
  - Call 911 if epinephrine has been administered.
Emergency Medication

- **Epinephrine or Epi Pen**

  - Many ambulances don’t carry epinephrine – the school may need to request “Advanced Life Support” for EMS to respond with epinephrine.
  - All students will require assistance with the EpiPen administration - symptoms of anaphylaxis will affect the ability of the child to self administer.
Act Quickly! Do Not Delay!

- Epinephrine is the medication of choice for the treatment of acute anaphylaxis.
- Delay of or failure to administer Epinephrine may contribute to a fatal outcome.
- **When in doubt, use the EpiPen.**
- The side effects of the EpiPen could include fast heart beat, jittery feeling, and other cardiovascular symptoms.
- The life-saving benefit of Epinephrine outweighs the risks of side effects in an anaphylactic reaction.
- Call 911 anytime Epinephrine is administered.
Other Medication for use with Allergic Reactions

- **Antihistamine** –
  - Diphenhydramine hydrochloride - Brand name includes: Benadryl
  - Cetirizine – Brand name includes: Zyrtec
    - May cause drowsiness, nausea, and dryness of the mouth.
- **NOTE**: Antihistamines should not be the only medication given in anaphylaxis since epinephrine is the drug of choice. There is no contraindication to give epinephrine for anaphylaxis along with an oral antihistamine.
Allergy and Anaphylaxis in the School Setting

Post Test Questions and Answers
Question # 1

Name 6 of the 8 most common food allergens.
Answer Question #1

1. Peanut
2. Tree Nut
3. Egg
4. Milk
5. Shellfish
6. Fish
7. Soy
8. Wheat
Question # 2

Name 10 common signs and symptoms of an allergic reaction.
Answer Question 2

- Hives
- Itching (of any part of body)
- Swelling (of any body parts)
- Coughing
- Wheezing

- Throat tightening or closing
- Difficulty swallowing
- Difficulty breathing
- Sense of doom
- Dizziness
- Fainting or loss of consciousness
Question 3

What is the immediate step that must be taken in treating a life-threatening allergy?
Emergency medications should be given immediately upon concern that the student might be experiencing an anaphylactic allergic reaction.

911 or Emergency Medical Services (ambulance with Advanced Life Support) should be called according to local district policy.
Question 4

Is a willing volunteer staff member (who is not a nurse) able to give epinephrine if a nurse is not available?
Yes - The auto injector is designed for use by a lay individual, and the school nurse can train unlicensed school personnel to administer epinephrine by an auto-injector to a student with a patient-specific order in an emergency (training devices are available for both the EpiPen® and Twinject®).
Question 5

What is the key to preventing an allergic reaction?
Answer Question # 5

Avoidance of exposure to allergens is the key to preventing a reaction.
Question 6

Can parents be notified that a child with an allergy is in their child’s class or classes?
Answer Question 6

- If the student’s parent/guardian requests, a letter can be sent home alerting all parent(s)/guardian(s) to the fact that there is a student with significant allergies in their child’s classroom.
- The student’s name should not be shared in the letter to protect the student’s right to confidentiality.
- The school must have parental permission to share the information.
Question 7

What should be taken on a field trip for a student with a known allergy who may be at risk for anaphylaxis?
Answer Question 7

- **Emergency Care Plan and Medications**

  - can be given to a designated individual (parent/guardian or an employee designated by the school district) who is familiar with the student’s health needs and will be directly available to the student.
Question 8

What are the steps to take in the event that a student experiences an allergic reaction?
Answer Question # 8

- Notify the school nurse (if available) and initiate the Emergency Care Plan;
- Locate student’s epinephrine immediately;
- Implement the student’s Emergency Care Plan; including timely administration of epinephrine, if needed; and
- Call 911 or EMS according to local district policy if epinephrine has been administered.
Question 9

Name three steps important to Prevention/Recognition/Response to Food Emergencies.
Question 9 Answer

1. Prevent exposure
2. Recognize when an exposure has occurred
3. Know how to respond quickly and effectively
Online Resources

- FAAN Back to School Tool Kit: http://www.foodallergy.org/section/back-to-school-tool-kit
- CDC National Center for Chronic Disease Prevention and Health Promotion: http://www.cdc.gov/healthyyouth/foodallergies/
- American Academy of Allergy, Asthma and Immunology. (AAAAI). http://www.aaaaai.org
References

• Liberty Public School District Life Threatening Allergy Policy and Guidelines:

• Spokane Public School District:

• New York State School Health Services:

• School Nutrition Association Webinar Series:
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