Getting Ready For School:
Food Allergy Emergency Action Plans
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This fall many children will be returning to school. For children with food allergies, healthcare providers often need to complete forms indicating what food(s) the child must avoid and what the emergency action plan will be if accidental ingestion occurs. Though forms vary somewhat across the country and even between school districts locally, they all ask the same type of questions. Some of these questions include the following:

1. **What is the food the child must avoid?**
2. **What symptoms are most likely to be seen during an allergic reaction?**
3. **What medication(s) should be given if an allergic reaction occurs?**
4. **Where should you keep the epinephrine auto-injector and who should administer the epinephrine?**

How would you answer these questions for Aiden, a 5-year-old boy with a peanut allergy who is entering school this fall? This situation requires consideration of multiple factors. At age 1, Aiden experienced facial swelling, throat tightening, and hives on his face and neck immediately after eating a peanut butter cracker. His allergy skin prick testing revealed high IgE reactivity to peanut. His ImmunoCAP IgE to peanut was >100kU/L (>95% predictive of clinical reactivity).

Considerations When Answering Questions for a Food Allergy Action Plan

1. **What is the food the child must avoid?**
   The child should avoid the food that caused the allergic reaction. In Aiden’s case, he must avoid peanuts. He is 5 years old now and it is highly unlikely he has “outgrown” his peanut allergy. Children are less likely to “outgrow” allergies to problematic foods such as peanuts, tree nuts, and seafood. This is particularly true if the initial level of allergen-specific IgE to a food is high, as was Aiden’s testing. Upon recheck, Aiden has continued to have a high level of allergen-specific IgE to peanuts and therefore needs to continue strict avoidance of them. Whether or not he should avoid all nuts is individualized and determined by the healthcare provider; prudent practice is to avoid all nut ingestion in order to avoid accidental allergen ingestion or contamination.

2. **What symptoms are most likely to be seen during an allergic reaction?**
Mouth itching, swelling of lips and/or tongue
Throat* itching, tightness/closure, hoarseness, change in voice
Skin itching, hives, redness, swelling of the face or extremities
Stomach vomiting, diarrhea, abdominal cramps
Lung* shortness of breath, coughing, wheezing
Heart* weak pulse, dizziness, passing out
* Symptoms can be life-threatening. ACT FAST!

Remember:
- Only a few symptoms can be present
- Severity can change quickly
- All of the symptoms can potentially progress to a life-threatening situation.

Aiden had facial swelling, throat tightening, and hives after eating peanut butter. To provide more detailed information to the school personnel regarding his allergic reaction, these symptoms can be highlighted. However, all symptoms can be chosen since he, like other children, may have different symptoms with future reactions.

3. **What medication(s) should be given if an allergic reaction occurs?**

Remember the most important medication in an anaphylactic reaction is epinephrine!

**Epinephrine Auto Injector: Examples and Dose**

<table>
<thead>
<tr>
<th>Product</th>
<th>Dose</th>
<th>Weight Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>EpiPen Jr®</td>
<td>0.15 mg IM or SC</td>
<td>33-66 lbs (~15-30 kg)</td>
</tr>
<tr>
<td>EpiPen®</td>
<td>0.30 mg IM or SC</td>
<td>&gt;66 lbs (~ 30 kg)</td>
</tr>
<tr>
<td>TwinJect®</td>
<td>0.15 mg IM or SC</td>
<td>33-66 lbs (~15-30 kg)</td>
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<tr>
<td></td>
<td>0.30 mg IM or SC</td>
<td>&gt;66 lbs (~ 30 kg)</td>
</tr>
<tr>
<td>Adrenaclink®</td>
<td>0.15 mg IM or SC</td>
<td>33-66 lbs (~15-30 kg)</td>
</tr>
<tr>
<td></td>
<td>0.30 mg IM or SC</td>
<td>&gt;66 lbs (~ 30 kg)</td>
</tr>
<tr>
<td>Epinephrine auto-injector (generic)</td>
<td>0.15 mg IM or SC</td>
<td>33-66 lbs (~15-30 kg)</td>
</tr>
<tr>
<td></td>
<td>0.30 mg IM or SC</td>
<td>&gt;66 lbs (~ 30 kg)</td>
</tr>
</tbody>
</table>

*IM preferred over SC
*Can repeat in 5-10 minutes if needed

**Antihistamine:** Diphenhydramine (Benadryl) 1-2 mg/kg orally (maximum dose= 50 mg)

**Other:**
Albuterol MDI 2 puffs; repeat every 20 minutes x 3 if difficulty breathing, chest tightness, wheezing, and/or cough is present

**For Aiden, his plan of care includes:**

1. Epinephrine via auto-injector (EpiPen®), 0.30 mg IM to the outer thigh (may repeat in 5 to 10 minutes if needed)
2. Diphenhydramine (Benadryl) 12.5 mg/5ml; 10 ml
(3) Albuterol (ProAir) MDI 2 puffs and may repeat every 20 minutes x 3 if he is having difficulty breathing, has chest tightness, wheezing, and/or cough

**Action**

If the child is exhibiting any signs of anaphylaxis do not hesitate to give epinephrine and call 911!

Notify school personnel trained in CPR/first aid

Notify parent(s)

4. **Where should you keep the epinephrine auto-injector and who should administer it?**

The location depends on who is going to administer the injection. If the student is going to self-administer the epinephrine, then the student must be responsible enough to be in possession of the medication during the school day, field trips, and all extracurricular activities. Obtaining parental input is important to determine if the child can do this. In addition to being responsible and having the skills to administer the injection, the child’s emotional maturity needs to be considered. How likely is it the child will panic during an emergency and be too scared to self-administer the injection, or do it incorrectly? The parents can provide this needed information. Another consideration is legislation regarding the management of food allergies in schools in your area (for more information visit: www.foodallergy.org/page/legislation). Virtually every state has passed legislation allowing students, with appropriate consent, to carry their epinephrine. But these laws vary in terms of whether this permission extends to school activities outside of the school building.

If school personnel will be administering emergency medication, then it will be kept either in the classroom, with an adult (usually a teacher) and carried throughout the day, or in the school office. Regardless of the location, the emergency medication must be close and easily accessible. The personnel administering the medication must be trained to recognize signs and symptoms of an acute allergic reaction/anaphylaxis, and must know the proper use of epinephrine auto-injectors. Getting the parents’ input is also important.

As consistent with many 5-year-old children, Aiden was not yet ready to self-administer and/or keep track of the epinephrine injector at school. Therefore, the best choice for Aiden was to keep the injector in the classroom. When he changes rooms, and when he goes to lunch and plays outside or in the gym, the auto-injector is easily accessible. The teacher is well educated on food allergies and has demonstrated proper technique of the epinephrine auto-injector. There is no certain age in which a child can self-administer the injection. Most children can use it properly and responsibly in middle-school, but it is highly variable and dependent on many factors.

**Epinephrine Auto-injector Clinical Pearls**

Using a demonstrator, teach children, parents, and school personnel how to use the auto-injectors. Have them return the demonstration so they feel comfortable with the device. Ask hypothetical questions to children to assess their level of understanding regarding
emergencies, epinephrine use, and to assess their emotional readiness to handle emergencies.

Examples of questions include:
- If you were outside playing at school and had just eaten lunch, and you started itching, your throat was getting tight and you were having trouble breathing, what would you do?
- What do you think made you feel this way?
- Would you be nervous about giving yourself a shot (or someone else giving it to you)?
- Where is your epinephrine shot now?
- Show me how you would use it if you would need it (use a demonstrator).

Check the expiration date; often the child’s epinephrine auto-injector has expired. The expiration date is usually one year from purchase. Do not change the type of auto-injector without making sure the patient, parent(s), and/or school personnel know how to use the different brand. These devices differ a bit. If you demonstrated how to use one type of injector, and the child receives a different type at the pharmacy, the child, family, and caregivers might not know how to use it. With the recent release of the generic epinephrine auto-injector, a pharmacy could give the patient a different version than was written on the prescription.

**Being Proactive: Clinical Pearls for Parents of a Child with Food Allergy**

- Communicate to teachers and other school personnel that your child has a food allergy and the emergency plan.
- Encourage your child to take on more age-appropriate responsibility for their safety.
- Have your child wear a medical alert bracelet.
- Encourage epinephrine auto-injectors be kept in classrooms, the school office, and the cafeteria.
- Consider prescribing two-pack epinephrine auto-injectors in order to have an additional injection in case it is needed and/or to have the second injector at home. The two-pack prescription is usually available for the same co-pay as the single auto-injector. Investigate coverage for a two-pack, dispense #2 prescription for four auto-injectors if a child goes to multiple locations. As always, consider the child’s risk and individualize the plan.
- Purchase a hard plastic, puncture-proof case for the auto-injector to avoid accidental exposure and injection. The Food Allergy & Anaphylaxis Network (FAAN) (available at: [www.foodallergy.org](http://www.foodallergy.org)) provides resources for the many styles available on the market.
- Utilize resources, such as the Food Allergy and Anaphylaxis Network.

**Food Allergy Facts**

The prevalence of food allergies as perceived by the public is 12-13%, with some studies reporting as high as 25%. The prevalence as confirmed by healthcare providers in children is 6%. Eight foods account for 90% of all food-allergic reactions in the U.S: milk, eggs, peanuts, tree nuts, wheat, soy, fish and shellfish. Peanuts, tree nuts, fish and shellfish are responsible for the
majority of severe allergic reactions/anaphylaxis.

**Fatal Food-Induced Anaphylaxis**

<table>
<thead>
<tr>
<th>Prevalence:</th>
<th>100 to 200 deaths per year in the U.S.</th>
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<tbody>
<tr>
<td>Risk factors:</td>
<td>Symptom denial</td>
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<tr>
<td></td>
<td>Delayed epinephrine administration</td>
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<tr>
<td></td>
<td>Underlying asthma</td>
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<tr>
<td></td>
<td>Previous severe reaction</td>
</tr>
<tr>
<td></td>
<td>Adolescents</td>
</tr>
<tr>
<td>History:</td>
<td>Ingestion of a known allergen</td>
</tr>
<tr>
<td>Key foods:</td>
<td>Peanut and tree nuts (approximately 90% fatalities), fish, and shellfish</td>
</tr>
<tr>
<td>Location:</td>
<td>Most occurred away from home</td>
</tr>
<tr>
<td>Clinical features:</td>
<td>Respiratory symptoms were prominent</td>
</tr>
<tr>
<td></td>
<td>Cutaneous symptoms may be absent</td>
</tr>
<tr>
<td></td>
<td>Biphasic reaction may contribute to the problem</td>
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For additional resources and examples of food allergy action plans, visit the links below:

http://www.foodallergy.org/files/FAAP.pdf

References:


Additional information available at:


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