Anaphylaxis

What is anaphylaxis?

- Anaphylaxis is a life-threatening allergic reaction that affects the whole body. It happens when the body intensely responds to an allergen. Symptoms can include
  - Drop in blood pressure
  - Flushing, sweating, or paleness of the skin
  - Swelling of the skin, lips, mouth, or throat
  - Raised red rash (hives) and itching
  - Nausea, stomach cramps, or sudden vomiting or diarrhea
  - Difficulty breathing, including wheezing
  - Fainting, light-headedness, or convulsions
  - Cardiopulmonary arrest
- These symptoms usually occur within minutes of contact with the allergen or allergy-causing substance; however, sometimes symptoms can be delayed a few hours.
- Anaphylaxis can be caused by many things, but insect stings, food, medications, and latex are some of the more common allergens.
- Anaphylaxis is the most frequently occurring and most immediately life-threatening event that teachers and caregivers are likely to encounter daily. Preparation and quick action are crucial.

PETE SMITH, MD

Swelling caused by an allergic reaction

How common is it?

- Anaphylaxis occurs in 30 out of 100,000 persons.
- Between 2% and 8% of children have a food allergy.

What are some common characteristics of children who have anaphylaxis or of anaphylaxis as children present with it?

- Anaphylaxis usually occurs with no warning, although it can happen more frequently in children with other known allergies.
- A child may come to the child care program or school with a diagnosis of being at risk for anaphylaxis, or the child may develop the condition while enrolled.

Who might be on the treatment team?

- The pediatrician/primary care provider in the medical home is the major point of contact.
- Allergists may also be important team members.
- Consider contacting local emergency medical services (EMS) (911) providers to discuss what they will do if the program staff calls 911 for an emergency and what the program staff can do to prepare for emergencies that require a call to 911.

What adaptations may be needed?

Medications

- Anaphylaxis is treated with an epinephrine automated injection device (eg, EpiPen, EpiPen Jr). The pen is pressed against the skin (usually the thigh) and activated as directed.
- Always call EMS (911) when injectable epinephrine is used.
- Always call parents/guardians and tell them where their child is being taken for emergency care.
- Injectable epinephrine is effective for 15 to 20 minutes. It may need to be used a second time if EMS first responders are not able to respond quickly.
- Side effects of epinephrine include pallor, vomiting, fast heart rate, and jitteriness.
- The child's Care Plan may have instructions to use other medications as well for allergies, such as diphenhydramine (eg, Benadryl).
- Side effects of diphenhydramine include sleepiness, but some children may experience excitement.

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- Albuterol or asthma medications might be required if wheezing is present. Check the child's Care Plan.
- All medications should be properly stored. Epinephrine automated injection devices are typically stored at room temperature. Procedures should be in place to check expiration dates and to obtain fresh medications as needed. Epinephrine automated injection devices are obtained with a prescription. Two automated injection devices should be available, so the dose can be repeated if the arrival of EMS first responders will take more than 15 minutes.
- All staff who will be administering medication should have medication administration training (see Chapter 6).
- Staff training on epinephrine automated injection devices and diphenhydramine use is very important.

Dietary Considerations

- Avoiding foods that cause anaphylaxis for the involved child is crucial. Some foods that are common allergens include peanuts, tree nuts, soy, eggs, and milk. It is not easy to avoid peanuts because peanut oil is in many products. Cross contamination can occur when foods are processed and packaged. Strategies include starting a table that has whatever food restriction is necessary or making the classroom and any other areas the child uses free of the allergen. In some cases, strict handwashing precautions after eating or avoiding the offending food must involve all the children who share the spaces that the child with an allergy uses. Doing so protects the child from exposure to the allergen while at the child care program or school. Even touching a surface touched by a child who has had contact with the allergen can be sufficient to cause a reaction for very sensitive children. Using specially marked place mats to remind caregivers which child has a food allergy can be helpful, but it does not stop children from sharing food.
- In some cases, it is best for parents/guardians to supply food for the child with the allergy. In other cases, the child care or school staff may be able to provide food, if they are fully educated about avoiding specific food allergens.
- A policy about accepting foods from parents/guardians should be maintained (see *Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs,* 3rd Edition [CFOC3], Standard 4.2.0.10, Care for Children With Food Allergies). Parents/guardians of all the children in the child's class should be advised to avoid making treats for the class with any known allergens.
- Store-bought or commercial products are acceptable if the package list of ingredients is provided. Parents/guardians of children with food allergies are usually very willing to take time to read these ingredients to ensure the safety of their children.
- Soap and warm water should be sufficient for handwashing (see CFOC3 Standards 3.2.2.1 and 3.2.2.2).
- A list of children with any known allergies should be posted where it can be easily seen by staff but not by the public and other children.

Physical Environment and Other Considerations

- The key adaptation to preventing anaphylaxis is to try to avoid the allergen. This adaptation may mean avoiding products that cause an allergic reaction. A plan to create allergy-free areas should be developed.

PedFACTs

How to administer an epinephrine automated injection device

Anaphylaxis (*continued*)

- Be extra cautious during outside play if stinging insects are around, and avoid eating outside. Encourage closed-toe shoes for children with known allergies.
- Avoid food allergens. In some cases, just physical contact with the food can cause a reaction, even if the child doesn't eat it.

Transportation Considerations

- Injectable epinephrine should be available as the child is transported to and from child care or school. For field trips, the injectable epinephrine and someone who can administer it should be available. A mobile phone and a copy of the child's Care Plan should be carried at all times.
- In emergency evacuation situations, injectable epinephrine should be carried.

What should be considered an emergency?

- Early symptoms of anaphylaxis can include hoarse voice, sore throat, and a feeling of the throat closing or tingling. Other common symptoms include skin or mouth swelling, a feeling of panic, and stomach cramps or vomiting. Difficulty breathing and wheezing are serious symptoms as well. The child may be pale or dizzy.
- Children who are stung by an insect should be monitored closely for symptoms of anaphylaxis.
- If symptoms of anaphylaxis are present, call EMS (911) immediately. Inject epinephrine if available, and keep the child relaxed and in the position of greatest comfort.
- If symptoms do not improve after 10 minutes or if symptoms return, a second dose of epinephrine can be given if EMS first responders have not yet arrived.
- Be prepared to start CPR if the child stops breathing.
- If the child has a symptom about which you are unsure, call the parents/guardians immediately and prepare to give injectable epinephrine if necessary.
- Parents/guardians should be notified of any possible exposure to an allergen, even if a reaction did not occur.

What types of training or policies are advised?

- All staff should be trained in recognizing the signs and symptoms of anaphylaxis and to call EMS (911) immediately.
- All staff should be trained in avoiding the allergens that cause anaphylaxis.
- Staff trained to respond with medication must always be present, as should backup staff. Staff should demonstrate competence in giving medication after receiving training and should know about storage conditions.
- A system should be developed to ensure that medications do not expire.
- The Care Plan should outline specific instructions.
- The Food Allergy Research & Education Web site (www.foodallergy.org) has great training information.
- Some pharmaceutical companies have good training materials.
- Consider having a health consultant give a training presentation.
- A policy on food allergies should be written.

What are some resources?

- American Academy of Pediatrics: https://shop.aap.org, 1-866-843-2271—*Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs,* 3rd Edition (book), http://cfoc.nrckids.org/CFOC
  - Standard 3.2.2.1, Situations That Require Hand Hygiene
  - Standard 3.2.2.2, Handwashing Procedure
  - Standard 4.2.0.8, Feeding Plans and Dietary Modifications
  - Standard 4.2.0.10, Care for Children With Food Allergies
- American Academy of Allergy, Asthma and Immunology: www.aaaai.org, 414/272-6071
- Asthma and Allergy Foundation of America Kids With Food Allergies: "Keeping Students With Food Allergies Safe at School" (Web page), www.kidswithfoodallergies.org/page/planning-for-school.aspx
- Centers for Disease Control and Prevention: *Voluntary Guidelines for Managing Food Allergies in Schools and Early Care and Education Programs* (booklet), www.cdc.gov/HealthyYouth/foodallergies/pdf/13_243135_A_Food_Allergy_Web_508.pdf
- Food Allergy Research and Education: www.foodallergy.org, 1-800-929-4040

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