

Definition of Anaphylaxis:

Anaphylaxis is a severe and potentially life-threatening allergic reaction which can occur within seconds or minutes of encountering an allergic trigger, such as food, medicine, an insect bite, latex or exercise. Symptoms include narrowing of the airways, difficulty breathing, hoarseness, swelling of the face, lips, tongue and or other parts of the body, rashes or hives, nausea or vomiting, a weak pulse and dizziness. Individuals may experience anaphylaxis and not show any skin symptoms. Many individuals may have had only a previously mild reaction to an allergen, but subsequent exposure can trigger anaphylaxis. It is estimated that approximately 25% of the anaphylactic reactions occur during school hours to students who had not previously been diagnosed with a food or other allergy. Without immediate administration of epinephrine followed by activation of emergency medical services, death can occur. Being able to recognize and treat it quickly can save lives!

Techniques for recognizing symptoms of anaphylaxis:

The signs and symptoms of anaphylaxis usually appear rapidly, within seconds or minutes after allergen exposure, although in some cases the reaction can be delayed for up to several hours. Sometimes anaphylaxis is accompanied by a feeling of “impending doom.”

Anaphylaxis is highly likely to be occurring when any ONE of the following happens within minutes to hours after exposure to an allergen:

1. A person has symptoms that involve the skin, nose, mouth or gastrointestinal tract
 - Itching, wheezing, swelling, throat tightening, vomiting or diarrhea

AND either:

- Difficulty breathing, or
- Reduced blood pressure (e.g., pale, weak pulse, confusion, loss of consciousness)

2. A person was exposed to a suspected (known allergy) allergen, and TWO or more of the following occur:

- Skin symptoms such as hives (which are itchy, reddened areas of skin that can be very small spots or larger blotches) or swollen lips or tongue
- Difficulty breathing, throat feels tight, clearing throat often, high pitched sound with breathing
- Reduced blood pressure (person is pale, weak pulse, decreased consciousness or confusion)
- Gastrointestinal symptoms (e.g., vomiting, diarrhea, or cramping)

Once anaphylaxis symptoms are present, the 1st line of treatment of choice is an immediate intramuscular injection of epinephrine (epinephrine auto-injector), which is effective for 5 to 15 minutes (according to the manufacturer of epinephrine auto-injectors), Once epinephrine is administered, 911 must be immediately called followed by prompt transfer of the individual to the nearest emergency department via ambulance for additional evaluation, monitoring and treatment by physicians and nurses. Remain on the phone with the 911 operator until EMS arrives. Sometimes a person experiencing anaphylaxis will require a second injection or other intervention.

Common causes of anaphylaxis include:

- Food
- Insect stings
- Medication (e.g. antibiotics, aspirin, and non-steroidal anti-inflammatory drugs)
- Latex

Less common causes of anaphylaxis include:

- Exercise induced anaphylaxis
- Idiopathic anaphylaxis (Unknown cause)
- Certain individuals may have an anaphylactic reaction to extreme heat or cold.

Standards and procedures:

An epinephrine auto-injector is a disposable drug delivery system that contains the proper dose of epinephrine and is used to treat anaphylaxis. It is supplied as a spring-loaded, ready to use delivery system that can be easily transported. The disposable system is designed to treat a single anaphylactic episode. After the EpiPen is used, it should be provided to the emergency medical responders when they arrive.

Storage:

EpiPens are kept in the main office or health office of your school. They are usually stored in a bright yellow cabinet mounted on the wall and secured with a zip tie. Break or cut the zip tie and retrieve the medication.

Steps in the Emergency Use of an Epinephrine Auto-Injector

1. Determine if anaphylaxis is suspected. Anaphylaxis usually, but not always, occurs right after exposure to an allergen. Frequently, anaphylaxis occurs in individuals who have a history of a previous reaction. If there is uncertainty about the diagnosis, but there is a reasonable probability that it is anaphylaxis, then treat as anaphylaxis.
2. If anaphylaxis symptoms occur, administer the epinephrine auto-injector then call 911 or activate the emergency medical system (EMS). Stay with the victim. Have others notify the paramedics, school nurse, parents and school administrator immediately. The school nurse will contact the student's physician.
3. Dosage:
 - For students in second grade or below (around 7 years of age or younger), or if less than 66 lbs, administer 0.15 mg epinephrine auto-injector (Junior) (**when in doubt-give the higher dose**)
 - For adults and students in third grade or above (around 8 years of age or older), or if more than 66 lbs, administer 0.3 mg epinephrine auto-injector (Adult)
4. Stay with the individual and reassure them. Do not raise him/her to an upright position. Have the individual lie down if tolerated with lower extremities elevated. Roll the individual to their side if vomiting. Have him/her sit up if having difficulty breathing.
5. Epinephrine auto-injector Administration Procedure:
Read the manufacturers instruction regarding administration of epinephrine auto-injector.
 - a. Remove safety cap or cover of epinephrine auto-injector
 - b. Place 'tip' ("active side of device") on outside of thigh-midway between hip and knee (follow instructions-may require pressure while placing on thigh)
 - c. Position device perpendicular (90 degree angle) to the thigh
 - d. It can be administered through clothing
 - e. Wait for click or other sound indicating medication is being administered
 - f. Hold in place for approximately 10 seconds
 - g. Many have a shield that covers the exposed needle
 - h. Keep epinephrine auto-injector until emergency personnel arrive. Per their direction, either give to them or place expended injector in sharps container.
6. If the anaphylactic reaction is due to an insect sting, remove the stinger as soon as possible after administering the epinephrine auto-injector. Remove stinger quickly by scraping with a fingernail, plastic card or piece of cardboard. Apply an ice pack to sting area. Do NOT push, pinch, or squeeze, or further imbed the stinger into the skin because such action may cause more venom to be injected into the victim.
7. Observe the victim for signs of shock. Cover the victim with a blanket, as necessary, to maintain body temperature and help to prevent shock. Raise legs, if possible.
8. Monitor the victim's airway and breathing. If trained, begin CPR immediately if the victim stops breathing.
 - Remain on the line with the 911 operator, if possible. If symptoms continue or worsen and paramedics have not arrived, use a second epinephrine auto-injector and re-inject 5-15 minutes after initial injection. Continue to monitor the victim's airway and breathing.
9. After epinephrine is given, the individual should be promptly taken to the nearest emergency department by ambulance for evaluation and monitoring by physicians and nurses. A second delayed reaction may occur after the initial anaphylaxis and this second set of symptoms can also be severe and life-threatening. After evaluation and treatment in the emergency department, parents/guardians should be advised to monitor student according to recommendations of the treating healthcare provider(s).
10. Document the incident, complete and submit any required reporting forms to the appropriate staff. Include in the documentation the date and time epinephrine auto-injector was administered, the victim's response, and additional pertinent information. Notify the school nurse of the incident, the school nurse will order replacement EpiPens.

It is recommended that individuals who may be administering epinephrine should receive CPR instruction and certification.