

Central New York
Emergency Medical Services
Program Agency

Epinephrine Auto-Injector Training Program

Developed in accordance with DOH training outline

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Objectives

After completing this training program, participants will be able to demonstrate the following:

- Identify the common causes of allergic reactions.
- Identify signs and symptoms of severe allergic reactions (anaphylaxis), and their differences from other medical emergencies.
- Identify the steps for administration of epinephrine by auto-injector.
- Methods for safely storing, handling, and disposing of the auto-injector.
- Steps for providing on going care of the patient.
- Understanding of the state regulations allowing individuals to possess and use the epinephrine auto injector.

Allergic Reactions

- An allergic reaction is defined as an exaggerated response of the body to a foreign substance, known as an allergen, by neutralizing or getting rid of that substance.
- Most allergic reactions are unpleasant, and relatively harmless, but others can be more serious, even life threatening. These more serious reactions are referred to as *Anaphylaxis*.

Anaphylaxis

Anaphylaxis is a result of exposure to the allergen, which causes a rapid dilation of blood vessels, and cause hypotension. It will also cause swelling of respiratory tissues, causing constriction of airways, even full airway obstruction.

People do not have reactions the first time they are exposed to the allergen, as the body forms antibodies to fight the allergen. After subsequent exposures, when antibodies combine with the allergen to produce the allergic response.

Causes of Allergic Reactions

- Insects
- Foods
- Plants
- Medications
- Miscellaneous

Insects

- Most common reactions come from stings from bees, wasps, yellow jackets and hornets.
- Reaction can be rapid and severe, due to the sting being quickly absorbed into the bloodstream.

Food

- Most common allergies include nuts, eggs, milk and shellfish. Peanut allergies are commonly more rapid and severe than other food allergies. Usual food allergic reactions are slower onset than insect stings.

Plants

- Contact with the “poison” plants (ivy, oak, sumac), will cause allergic reactions, characterized by rashes. Plant pollen is also a cause of allergies in many people.
- Plant allergic reactions are rarely severe enough to be characterized as anaphylaxis.

Medications

- Common allergies are to antibiotics, such as penicillin. People with penicillin allergies are usually allergic to related antibiotics as well. Medication allergies are rarely severe enough to be classified as anaphylaxis.

Miscellaneous

Others are allergic to a vast number of different substances. Dust, chemicals, make-up and soaps are common. Many people, including EMS providers, are allergic to latex. While this rarely causes anaphylaxis, it is still important to know when treating such patients.

Signs and Symptoms

Allergic reactions can present in many different forms, and can range from watery eyes and runny nose, to severe respiratory problems and hypotension.

Physical Findings

- **HEENT:** Itchy and/or watery eyes, headache, runny nose.
- **Skin:** Swelling of face, lips, tongue, neck, or hands. Also itching, red, raised skin (hives), or cool, clammy skin and delayed cap refill (signs of hypoperfusion).
- **Breathing:** Coughing, rapid breathing, noisy breathing, change in voice, loss of voice, wheezing or stridor. Breathing changes are sure signs of anaphylaxis.

Physical Findings – Cont.

- Heart: Tachycardia, hypotension,
- Mentation: Altered Status, partial or full loss of consciousness.

The Epinephrine Auto-Injector

- Definition: Liquid Medication administered by an automatically injectable needle and syringe system.
- Medication Name
 - Generic: Epinephrine
 - Trade: Adrenalin TM
 - EpiPen[®] or EpiPen Jr. [®]

The Epinephrine Auto-Injector

- Indications
 - Signs and symptoms of severe allergic reaction.
 - Epinephrine Auto-Injector is prescribed to patient by a doctor.
 - Medical Direction has been notified if the patient does not have a prescription for an auto injector.
- Contraindications
 - None in a life threatening scenario.

The Epinephrine Auto-Injector

- Action:
 - Bronchodilation – Dilation of airways.
 - Vasoconstriction – constriction of blood vessels.

Epinephrine Auto-Injector

Side Effects

- Increase in heart rate
- Dizziness
- Headache
- Vomiting
- Pallor
- Chest Pain
- Nausea
- Anxiety, Excitement

When to use the Epi-Pen

The Epi-pen auto injector may be needed for a patient with a history of severe allergic reactions that comes in contact with substances that cause an allergic reaction. Also, it can be used for patients in severe respiratory distress, **and** have a **prescribed** auto-injector.

Administration of the Auto Injector

- Ensure of safety from allergen. Do not expose yourself to environment, especially if it could pose a threat to crew safety.
- Ensure that ALS is in route
- Sit the patient down, or ask them to lay down. If the patient is in anaphylactic shock, elevate the patient's feet.
- Check the patient's vital signs
- Administer a high concentration of oxygen.

Administration of the Auto Injector

- If **BOTH** cardiac and respiratory status are normal, then transport the patient, reassessing the patient's status at least every five minutes.
- If **EITHER** the cardiac or respiratory status of the patient is abnormal, then you will need to administer the auto-injector.

Administration of the Auto Injector

- If the patient has their own auto-injector, assist them in using it. If the patient's auto-injector is not available, or has expired, and the EMS agency is authorized to carry the auto-injector, then administer the auto-injector .
- If the patient has not been prescribed an auto-injector, begin transport, and contact medical control for authorization to administer the auto-injector.
- If medical control cannot be reached, and the patient is under 35 years of age, administer the auto-injector as indicated, and report the incident to Medical Control and the agency Medical Director as soon as possible.

Administration of the Auto-Injector

- Remove the safety cap from the injector, and check fluid for color and clarity. Fluid should be clear, and colorless. **Do not put fingers over the black tip when removing the safety cap, or after safety cap has been removed.**
- Prepare injection site with alcohol.
- Place the tip of the auto-injector against the patient's bare thigh, halfway between their waist, and knee.
- With a rapid motion, push the auto-injector firmly against the thigh until the spring loaded needle is activated. Hold the auto-injector in place for ten (10) seconds.

Administration of the Auto-Injector

- Remove the auto-injector from the thigh, and record the time of the injection.
- Dispose of injector in biohazard container.
- Document patient response to injection.

Continuation of Care

- After administration, continue to reassess the patient. Focus on ABC's.
- Transport patient, if not already enroute to hospital.
- If needed, contact medical control for a second dose of epinephrine via auto-injector.
- With any other deterioration of condition, refer to the appropriate protocol (respiratory distress, respiratory arrest, airway obstruction, shock)
- In the event of cardiac arrest, perform CPR as per ARC/AHA guidelines.

Epinephrine Auto Injector Quality Improvement Program

- After each time an Epinephrine Auto-Injector is used, a Epinephrine Auto-Injector Quality Improvement form must be completed promptly, and mailed to the CNYEMS office.

Storage of the Epinephrine Auto-Injector

- The Epinephrine Auto-Injector should be stored in an area where it can be accessed quickly in an emergency, and should be kept in the plastic tube that it comes in.
- The auto-injector should be kept at room temperature at all times. It should not be refrigerated, or exposed to extreme heat. Do not expose the auto-injector to direct sunlight. Light and heat can cause the epinephrine to turn brown, and lose its effectiveness.

Replacing the Epinephrine Auto-Injector

- As with any medication, the epinephrine auto-injector has an expiration date. It is very important to check the date on a regular basis, and replace the unit before it expires.
- Also regularly inspect for color and clarity, and replace if the liquid is discolored or cloudy.

Who can use the Auto-Injector?

- Physicians prescribe the epinephrine auto-injector to many people who suffer from allergic reactions to different allergens, these people have been trained self administration. EMT's may assist in this self administration process.
- In 1999, Governor Pataki signed into law a bill that authorizes possession and use of the epinephrine auto-injector.

Who can use the Auto-Injector?

- Summer camp staff can administer the auto-injector to patients with a history of allergies and/or allergic reactions who have a severe allergic reaction, even if the patient does not have their auto-injector with them.
- EMS agencies can possess and use the auto-injector on ambulances and first response vehicles. These agencies must apply for permission to possess and use the auto-injector.

Auto-Injector Application

- An application for possession and use of the auto-injector is available through CNYEMS. Each agency must complete all paperwork, and must have a collaborative agreement with a physician, who serves as Medical Director for the agency. The collaborative agreement is kept on file with the regional EMS council and the Department of Health.
- All participating providers must complete this or an equivalent training program.
- Auto-injectors can be obtained through medical suppliers, with a prescription from the Medical Director.