TREATMENT OF SEVERE ALLERGIC REACTION

A Protocol for Training

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Authorized for use by the Oregon Department of Human Services, Public Health Division

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I. INTRODUCTION

Anaphylaxis is a severe, potentially fatal allergic reaction. It is characteristically unexpected and rapid in onset. Immediate injection of epinephrine is the single factor most likely to save a life under these circumstances. It is estimated that between one and two in every 100 people is at risk for a severe allergic reaction to food, insect stings, medications or latex. Approximately 50 deaths caused by insect stings and 100 food-related deaths are recognized each year in the United States.

In 1981 legislation was passed by the state of Oregon to provide a means of authorizing certain individuals to administer lifesaving treatment to people suffering severe insect sting reactions when a physician is not immediately available. In 1989 the Legislature expanded the scope of the original statute by providing for the availability of the same assistance to people having a severe allergic response to other allergens. The statute underwent minor revisions again in 1997.

These bills were introduced at the request of the Oregon Medical Association. This legislation is intended to address situations where medical help often is not immediately available: school settings, camps, forests, recreational areas, etc. The following protocol for training is intended as an administrative document outlining the specific applications of the law, describing the scope of the statute, people to be trained, and proposing the content of that training.

II. BACKGROUND

A. An explanation of the law and rules

According to the law **(ORS 433.805-830)**, a person who meets the prescribed qualifications may obtain a prescription for pre-measured doses of epinephrine (adrenaline) and the necessary paraphernalia for administration, such administration being "limited to an emergency situation when a physician is not immediately available." The person to be treated is defined as a "person suffering severe allergic response to an insect sting or other allergens as defined by the Oregon Department of Human Services, Public Health Division."

The Oregon Administrative Rules supporting this law **(OAR 333-055-000 to 333-055-0035)** stipulate that people who complete the prescribed Oregon Department of Human Services, Public Health Division, training can receive a certificate, signed by the licensed health care professional responsible for the training program. This certificate can be used as a prescription to obtain an emergency supply of epinephrine, including the equivalent of one child dose and one adult dose in prefilled syringes. This prescription may be filled up to four times. These certificates expire three years after issuance, after which the individual must complete retraining in order to receive a new certificate.

B. The training program

The training program must be conducted by either:

1. A physician licensed to practice in Oregon; or
2. A nurse practitioner licensed to practice in Oregon; or
3. A registered nurse, as delegated by a licensed physician or nurse practitioner.

No other personnel are qualified to conduct these trainings under this law.

The training must include the following subjects:

1. Recognition of the symptoms of systemic allergic response (anaphylactic reaction) to insect stings and other allergens;
2. Familiarity with factors likely to cause systemic allergic response;
3. Proper administration of an injection of epinephrine; and
4. Necessary follow-up treatment.

The Department of Human Services Public Health Division is responsible for approving this training program as well as adopting the rules necessary for administering the law.

C. Who can be trained

In order to qualify for this training, a person must be 21 years of age or older and must "have, or reasonably expect to have, responsibility for or contact with at least one other person as a result of the eligible person's occupational or volunteer status."

Individuals who are likely to fall under the definition of the law include public or private school employees, camp counselors or camp employees, youth organization staff or volunteers, forest rangers and foremen of forest workers, public or private employers/employees with demonstrated exposure to risk, or any additional people who are approved by a physician.

In addition to taking the required training course described above, **trainees are strongly encouraged to obtain and maintain current training in approved first aid and CPR courses** that are offered through organizations such as Medic First Aid, the American Heart Association or the American Red Cross.

III. WHAT IS ANAPHYLAXIS?

Anaphylaxis is a sudden severe allergic reaction. It is often life-threatening, and almost always unexpected. It can start within minutes of exposure to the allergy-causing trigger, or the reaction may be delayed by several hours.

Once someone is having an anaphylactic reaction, the most important factor in whether they live or die is how quickly they receive an injection of epinephrine.

Because epinephrine must be given promptly at the first signs of systemic (anaphylactic) reaction, the decision to treat must be based on recognition of the symptoms of severe allergic response.

IV. WHAT CAN TRIGGER ANAPHYLAXIS?

A. Overview of the causes of anaphylaxis

The most common identifiable causes of anaphylaxis are:

- Insect stings or bites (e.g., yellow jackets, fire ants);
- Foods (e.g., nuts, shellfish);
- Medications (e.g., antibiotics like penicillin, or anti-inflammatories, like aspirin or ibuprofen);
- Latex; and
- Physical exercise.

It is important to know that frequently, no specific cause of anaphylaxis is found.

Drugs and insect stings are the most common cause of anaphylaxis in adults, while food allergies are the most common cause in children.

Severe reactions can occur in someone with no history of previous allergic reaction. While anyone may experience anaphylaxis, individuals with a history of previous severe reaction, and those with asthma are most at risk for life-threatening anaphylaxis. (Note that not

all people with asthma will have an anaphylactic reaction if stung by a bee, etc.).

Severe life-threatening allergic response to various allergens occurs in only a small percentage of the general population. It is estimated that between 0.5 percent and 2 percent of people will experience a severe allergic reaction in their lifetimes (Lieberman 2006). However, when severe allergic responses occur, immediate administration of injectable epinephrine is vital. Often the person suffering the response is unable to self-administer his or her injection or has no previous history of allergic responses and is unequipped for the situation. Many people, especially children, are unable to identify which stinging insect is involved, and the source of food allergen is not always obvious.

B. Insect stings

1. Epidemiology/likely culprits

- Fatal or serious reactions to insect stings are confined almost entirely to bees, wasps, hornets and yellow jackets.
- Insects are more likely to sting during late summer and fall when it is dry and few flowers are still in bloom. Venom is more powerful during this time of the year and stinging insects are easier to arouse.
- Bees are more likely to sting on warm bright days, particularly following a rain.
- The yellow jacket is the most frequent cause of an allergic reaction in the Pacific Northwest.
- Patients are seldom able to identify the offending insect. When possible, an attempt at identification should be made so the sensitive person can avoid future exposure and his or her doctor can be informed.

2. Avoiding insect stings

Avoid as much as possible:

- Flowers, flowering trees/shrubs;
- Certain colors and types of clothing (especially blue, yellow or dark brown), or rough fabrics (e.g., smooth, hard finish white or tan clothing is safest);
- Fragrant cosmetics, perfumes, lotions;
- Walking outside without shoes;
- Exposed skin (hats, long sleeved shirts, slacks, socks and shoes are recommended);
- Picnics, cooking or eating outdoors;
- Areas of trash or garbage;
- Known areas of insect habitat; and
- Becoming excited, swatting or hitting at the insect (to remove the insect, a gentle brushing motion is recommended).

3. What is *not* an anaphylactic reaction to insect sting?

a. Normal reactions to stings

A sting in a nonallergic person produces localized, sharp pain that varies in duration following the insertion of the stinger. Within minutes, a small reddened area appears at the sting site and may enlarge to about the size of a quarter with hardening and redness. Varying levels of pain and itching may accompany the redness, heat and swelling. This response usually lasts about 24 hours, although a sting on the hand or foot may produce swelling that lasts for several days. This reaction does not generally require medical attention. The individual with no history of allergic reactions should be observed for one-half hour after the sting.

If the sting occurs around the eye, nose, or throat the reaction may be more severe because even minimal swelling may cause obstruction. These types of stings need immediate medical

attention. Stings around eyes are particularly serious and should be evaluated by a physician because long-term eye damage is a possibility.

b. Localized allergic reaction to stings

As distinguished from a normal reaction, a localized reaction may involve pain, itching and swelling that extends over an area larger than a quarter. When there is extensive swelling of an extremity that crosses a major joint line, but does not involve other areas of the body, it is still a local allergic response. The local response, in some cases, may be delayed.

The person with a history of extensive local reaction should be observed for at least one hour after the sting. A delayed reaction may occur in a matter of hours following the sting. Symptoms may include prolonged and intensified swelling, pain and redness. Depending on the sting site, the entire arm, leg or head may be involved. It is not unusual for these symptoms to persist for up to a week or more.

c. Toxic reactions to stings

Toxic reactions are the result of multiple stings (usually 10 or more) — for instance when a person steps on a yellow jacket nest. If you are with a person who experiences multiple stings, you should evaluate and treat that person the same way you would someone having an anaphylactic reaction (see Section VII, page 14).

C. Foods

1. Epidemiology/likely culprits

Nearly any food can trigger an allergic reaction at any age. Food allergies are most common in children, and appear to be increasing in frequency. Approximately 4 percent of children in the U.S. have a food allergy (CDC, March 2007).

Foods commonly associated with severe allergic reactions

- Peanuts*
- Milk
- Eggs
- Wheat
- Soy
- Tree nuts (walnuts, pecans, hazelnuts, etc.)
- Fish
- Shellfish**

* Peanuts are the most common cause of anaphylaxis in children, and are the food most frequently causing fatal reactions.

** Shellfish are the most frequent food causing anaphylaxis in adults.

2. Avoiding food allergens

- Avoid exposure to known allergens;
- Inform food preparation personnel of individuals with known food allergies;
- Lunch "swapping" or sharing (for instance, among children in a school setting) may be hazardous, and should be avoided;
- Read labels on food and skin care products for hidden ingredients (e.g., nut oils in lotions);
- Avoid cross-contamination of food via utensils, cutting surfaces, etc.; and
- Encourage hand washing to prevent secondary exposure to allergens.

There are multiple case histories of individuals unknowingly eating foods to which they are allergic and suffering serious or fatal responses. For example, an 11-year-old boy severely allergic to peanut products accidentally ate one bite of a cake containing peanuts in the school lunchroom, became suddenly and acutely ill and died four days later.

No one recognized signs of his early severe allergic response and no epinephrine was administered at their onset. In addition, there have been reports of severe responses to "secondhand" exposures.

For example, a second-grader suffered a serious but nonfatal reaction after touching the handlebars on a bicycle previously ridden by another child who was eating a peanut butter sandwich.

Exposure may occur through contact with the saliva of someone who has recently ingested the food. This could happen through kissing, sharing straws, glasses or utensils. In one study of patients with known nut allergies, more than 5 percent reported reactions from kissing (Eriksson, et al.).

D. Medications

- People can experience severe allergic reactions to medications even if they have previously taken the medication without incident.
- Of all drugs, penicillin is the most frequent cause of anaphylactic reactions
- Aspirin is another common drug to which many people are allergic
- Allergy injections may precipitate an allergic reaction.

E. Other allergens

- Pollens and some foods (for example, wheat, celery, seafood) can cause anaphylaxis in certain sensitive individuals who exercise after being exposed to these substances.
- Latex allergy has become increasingly common, especially among people whose work requires latex gloves, or who undergo frequent medical procedures (e.g., people with chronic medical conditions). Latex is present in many common items, such as balloons, ace wraps or first-aid tape, rubber bands, erasers and bungee cords.
- An increasing number of patients also are being recognized as having anaphylaxis to unknown substances.

V. IDENTIFYING THE SENSITIVE INDIVIDUAL

If your staff, students or clients will be facing possible exposure to insect stings (in school settings, camps, tour groups, or outdoor settings such as forests, etc.), and/or may be remote from medical assistance, you should:

- Make EVERY EFFORT to identify beforehand who in the group has a history of allergic reactions (to insects, foods, etc.). This information should be obtained from the student, parent and/or physician as appropriate.
- Obtain signed forms allowing emergency treatment.
- Know how to access emergency medical help, including:
  - Location of nearest hospital;
  - Location of nearest Emergency Medical Technician (EMT) response unit; and
  - Determine ahead of time how you will call for help (e.g., cell phone, radio).

If a person has had an anaphylactic reaction in the past, it is possible that his or her next exposure to the allergen (for instance to bee stings or peanuts) may cause a more severe reaction.

VI. RECOGNIZING ANAPHYLAXIS

Anaphylaxis is a generalized immediate life-threatening reaction to a foreign protein or allergen (insect venom, food, medication, pollen) evidenced by the following symptoms, **ANY OR ALL OF WHICH MAY BE PRESENT:**

- Shortness of breath or tightness of chest; difficulty in or absence of breathing
- Itching, with or without hives; raised red rash in any area of the body
- Sneezing, wheezing or coughing
- Skin flushing or extreme pallor
- Difficulty swallowing
- Hoarseness
- Swelling of eyes, lips, face, tongue, throat or elsewhere
- Sense of impending disaster or approaching death
- Low blood pressure, dizziness and/or fainting
- Involuntary bowel or bladder action
- Rapid or weak pulse
- Nausea, abdominal pain, vomiting and diarrhea
- Blueness around lips, inside lips, eyelids
- Burning sensation, especially face or chest
- Sweating and anxiety
- Loss of consciousness

The presence of only one of these symptoms does not, of itself, mean anaphylaxis is present. However, only one symptom may be present (e.g., very low blood pressure). Although anaphylactic reactions typically result in multiple symptoms (e.g., hives, difficulty breathing and loss of normal blood pressure), reactions may vary substantially from person to person.

Previous history of anaphylactic reactions and known exposure to potential allergens should increase the suspicion that the above signs or symptoms represent an anaphylactic reaction. Because reactions vary little from time to time in the same individual, obtain a description of previous reactions, if possible.

A systemic (or anaphylactic) reaction to an insect sting or other allergen usually occurs quickly; death has been reported to occur within minutes after a sting. Highly food-sensitive individuals may react within seconds to several minutes after exposure to allergens. An anaphylactic reaction occasionally can occur from up to one to two hours after exposure (e.g., penicillin, food, allergy shot).

It is common for people who are having an anaphylactic reaction to be in an increased state of anxiety. This is especially so if they have a history of a previous severe reaction.

VII. TREATMENT FOR ANAPHYLAXIS

A. Information about epinephrine

1. What it is

Epinephrine (also known as adrenaline) is a powerful drug, used for the treatment of anaphylactic reactions. It is obtained by prescription only. In the case of a life-threatening allergic reaction, it is the most immediate and effective treatment available. Epinephrine acts on the body by constricting blood vessels and raising the blood pressure, relaxing the bronchial muscles and reducing tissue swelling.

The **most important** aspect of intervention for severe allergic response is **timing**. Because of the dangers involved, **you should always be ready to treat the affected person immediately. Epinephrine should be administered promptly at the first sign of systemic reaction. It is safer to give the epinephrine than to delay treatment for anaphylaxis. The sooner that anaphylaxis is treated, the greater the person's chance for surviving the reaction.**

Although epinephrine is very fast acting, its beneficial effects are short-lived (approximately 15 – 20 minutes), so it is vitally important to call 9-1-1 early and arrange follow-up medical care.

2. Possible side effects of epinephrine

Temporary and minor side effects of epinephrine include:

- Rapid heart rate
- Nervousness
- Anxiety
- Nausea, vomiting
- Sweating
- Pallor
- Tremor
- Headache

These effects are temporary and will subside with rest and reassurance. Some of the possible side effects of epinephrine may resemble symptoms of anaphylactic shock; however, symptoms related to injection of epinephrine are temporary. Reassurance and a calm demeanor by the caregiver are important.

3. How epinephrine is supplied and stored

Currently, the EPIPEN® and EPIPEN® JR auto-injectors are most commonly used in a school setting. A second product, the TWINJECT® is manufactured, but is subject to restrictions when used in schools, under Occupational Health and Safety Administration (OSHA) regulations. Under current law, only a single dose of adult and a single dose of child epinephrine can be provided for an individual who has gone through this training. Since the Twinject® product contains two doses, it is not currently covered under the current law.

It is important to know which epinephrine auto-injector you will be using, since the method for administration differs between manufacturers. In a school setting, the school nurse will be able to give you this information.

Epinephrine should be stored in a dark place at room temperature (between 59 – 86 degrees F). Do not store it in a refrigerator. The epinephrine syringe must be protected from freezing, or from exposure to extreme heat or cold (for example, do not store it in your car's glove box).

Exposure to sunlight will hasten deterioration of epinephrine more rapidly than exposure to room temperatures. The expiration date of epinephrine solutions should be periodically checked; the drug should be replaced if it is past the prescription expiration date. However, if the only epinephrine available during an emergency has expired, it is better to use the expired drug than none at all.

The contents should periodically be inspected through the clear window of the auto-injector. The solution should be clear; if it is discolored or contains solid particles, replace the unit.

In school settings, check with the school nurse to learn the rules and policies that apply in a specific school.

4. How epinephrine is administered

Epinephrine should only be administered by pre-measured injection in the subcutaneous tissue (fatty area under the skin), usually in the lateral thigh area. The lateral thigh area is a safe location for injection and avoids accidental injection into a vein or artery. The auto-injector is designed to work through clothing.

The following table gives guidelines for choosing the adult versus the pediatric version of EpiPen® based on weight. However, it must be emphasized: **DON'T DELAY BY WEIGHING!!** Use your best guess, but do not spend time trying to ascertain the person's actual weight (e.g., weighing the person, looking up records, etc.).

Device	USE	Approximate WEIGHT	Dose automatically delivered by device
EPIPEN®	Older child or adult (> 10 years old)	> 60 lbs	0.3 ml
EPIPEN® JR	Younger child (3 to 10 years old) **	33– 59 lbs	0.15 ml

** Although the EpiPen® JR is not recommended for use with small children (infants and toddlers), the risks of death from true anaphylaxis are greater than the risks for administering epinephrine to this age group.

B. Responding to anaphylaxis: Basic sequence of steps

1. Determine if the person is suffering an anaphylactic reaction. **It is safer to give the epinephrine than to delay treatment. This is a life-and-death decision.**
2. Do not move the person, unless the location poses a safety threat.
3. Have the person sit or lie down.
4. **Determine proper dosage and administer epinephrine from pre-measured syringe.**
5. **Have someone call for emergency medical assistance (9-1-1).**
6. Remove stinger if one is present (a gentle brushing motion is recommended).
7. Reassure and calm person if possible.
8. Check for and maintain open airway by listening and observing person's breathing.
9. *Administer CPR if needed.
10. If the person experiencing an anaphylactic reaction is also asthmatic, you can assist the person in the use of his or her own inhaler if desired, **after epinephrine is given.**
11. Any person who has been given emergency treatment for generalized reaction to an insect sting or other allergen should seek medical care as soon as possible.

*All people meeting the criteria for severe allergic reaction training are strongly encouraged to take an approved First Aid / CPR training course.

C. Responding to anaphylaxis: Detailed information

1. Determine if the person is suffering an anaphylactic reaction. Remember, only epinephrine works for the true anaphylactic reaction. Local treatment, oral treatment or inhalation treatment may be helpful but should not be relied upon. It is safer to give the epinephrine than to delay treatment. This is a life-and-death decision.

2. Do not move the person who is exhibiting symptoms of a possible serious reaction to a different location. Bring equipment and rescue personnel to him or her. The only exception is if the location poses a safety threat.

3. Have the victim sit or lie down. If light-headed or dizzy, encourage the victim to lie on his or her back with legs elevated. However, if the victim is having difficulty breathing, allow him or her to remain in the preferred position of comfort; do not attempt to force the person to lie down.

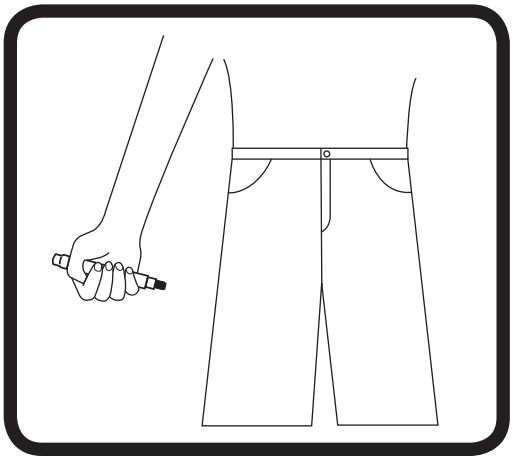
4. Determine proper dosage (EpiPen® adult vs. EpiPen® Jr) and administer epinephrine from pre-measured syringe. If available, it is recommended that caregivers use non-latex gloves to administer epinephrine; however, administration **<u>should not</u>** be delayed for the purpose of finding gloves

   e. Unscrew the yellow or green cap off of the EPIPEN® carrying case and remove the EPIPEN® auto-injector from its storage tube.

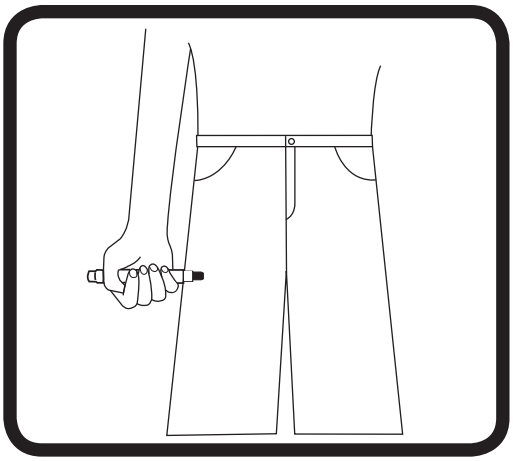
   f. Grasp the unit with the black tip pointing downward.

   g. With your other hand, pull off the gray safety cap.

   h. Place black tip of EPIPEN® near outer thigh, at right angle to leg. If thigh cannot be used, use thickest part of upper arm. The injection can be given through clothing if necessary.



i. Swing and jab firmly at 90 degree angle into outer thigh until the auto-injector clicks.



j. Hold the EPIPEN® firmly against the thigh for approximately 10 seconds. (The injection is now complete, and the window on the EPIPEN® will show red.)

k. The EPIPEN® auto-injector may then be removed; massage the injection area for 10 seconds.

l. Carefully place the used EPIPEN®, needle-end first, into the storage tube of the carrying case. Then screw the cap of the storage tube back on completely. If possible, have someone write the time that the medication was given on the carrying case; this can be given to the emergency medical personnel when they arrive, as documentation of the dose given.

13. Have someone call for emergency medical assistance (9-1-1). Ideally this could happen as soon as the emergency situation is recognized, but doing so should not delay administration of the epinephrine. Do not move the person or leave the person unattended.

14. Remove stinger if one is present. Do this by scraping with a plastic card or fingernail. Do not pinch or squeeze the stinger, because this can cause more venom to be released.

15. Reassure and calm person if possible.

16. Check for and maintain open airway by listening and observing person's breathing.

17. *Administer CPR if required and trained. (Recruit a CPR trained person if necessary to assist in this step.) If the person has stopped breathing and does not respond to rescue breathing he/she may have severe swelling of the throat, which closes the airway, making CPR ineffective.

18. If the person experiencing an anaphylactic reaction is also an asthmatic, you should first give the epinephrine. After he or she has received the epinephrine, you can assist the person in the use of the person's own inhaler.

19. Any person who has been given emergency treatment for generalized reaction to an insect sting or other allergen should seek medical care as soon as possible. Epinephrine is short acting and the person needs evaluation for longer-term, more intensive treatment by a physician.

*All people meeting the criteria for severe allergic reaction training are strongly encouraged to take an approved First Aid / CPR training course.

D. Follow up

The person who has recovered from a severe allergic reaction must receive immediate and continuing medical attention. Additionally, he or she should be made aware of the previously mentioned measures to avoid allergens, as prevention is assuredly preferable to treatment.

As a final note, people who experience severe allergic reactions should carry their own emergency epinephrine devices and some identification of their medical conditions. MedicAlert® is an organization that maintains pertinent medical information on file which is available 24 hours a day in case of emergencies. MedicAlert® identification jewelry also can be ordered by the patient. Most pharmacies or physicians' offices have information about this organization.

VIII. REVIEW

A. Definition of anaphylaxis:

- Anaphylaxis is a severe, potentially fatal allergic reaction. It is characteristically unexpected and rapid in onset.
- Immediate injection of epinephrine is the single action most likely to save a life under these circumstances.
- Therefore the two key steps in saving a life are:

  1. Recognition of anaphylaxis when it occurs; and

  2. Swift administration of epinephrine.

Remember, if unsure, it is safer to give the epinephrine than to delay treatment while waiting for more severe symptoms!

B. Causes of anaphylaxis and reactions

- The most common causes of anaphylaxis are insect stings, foods and medications.
- Severe reactions can occur in someone with no history of previous allergic reaction.
- Onset of anaphylaxis may be from minutes to hours after contact with the allergy-causing substance.
- If allergic reaction is delayed, the trigger may not be obvious, and recognizing anaphylaxis will depend solely on recognizing symptoms.
- While anyone may experience anaphylaxis, individuals with asthma are those most at risk for life-threatening anaphylaxis.

C. The signs of anaphylaxis (ANY or ALL of which may be present):

- Shortness of breath or tightness of chest; difficulty in or absence of breathing
- Sneezing, wheezing or coughing
- Difficulty swallowing
- Swelling of eyes, lips, face, tongue, throat or elsewhere
- Low blood pressure, dizziness and/or fainting
- Sense of impending disaster or approaching death
- Blueness around lips, inside lips, eyelids
- Rapid or weak pulse
- Itching, with or without hives; raised red rash in any area of the body
- Burning sensation, especially face or chest
- Hoarseness
- Skin flushing or extreme pallor
- Involuntary bowel or bladder action
- Nausea, abdominal pain, vomiting and diarrhea
- Sweating and anxiety
- Loss of consciousness

D. Responding to anaphylaxis: Basic sequence of steps

1. Determine if the person is suffering an anaphylactic reaction. **It is safer to give the epinephrine than to delay treatment. This is a life-and-death decision.**
2. Do not move the person, unless the location poses a safety threat.
3. Have the victim sit or lie down.
4. **Determine proper dosage and administer epinephrine from pre-measured syringe.**
5. **Have someone call for emergency medical assistance (9-1-1).**
6. Remove stinger if one is present (a gentle brushing motion is recommended).
7. Reassure and calm person if possible.
8. Check for and maintain open airway by listening and observing person's breathing.
9. *Administer CPR if needed.
10. If the person experiencing an anaphylactic reaction is also asthmatic, you can assist the person in the use of his or her own inhaler if desired, **after epinephrine is given.**
11. Any person who has been given emergency treatment for generalized reaction to an insect sting or other allergen should seek medical care as soon as possible.

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X. APPENDICES

A. OAR/ORS

433.800 Definitions for ORS 433.800 to 433.830. As used in ORS 433.800 to 433.830, unless the context requires otherwise:

(1) "Allergen" means a substance, usually a protein, which evokes a particular adverse response in a sensitive individual.

(2) "Allergic response" means a medical condition caused by exposure to an allergen, with physical symptoms that may be life threatening, ranging from localized itching to severe anaphylactic shock and death.

(3) "Hypoglycemia" means a condition in which a person experiences low blood sugar, producing symptoms that may range from drowsiness to loss of muscle control so that chewing or swallowing is impaired, to irrational behavior in which food intake is resisted, or to convulsions, fainting or coma.

(4) "Other treatment" means oral administration of food containing glucose or other forms of carbohydrate, such as jelly or candy.

(5) "Other treatment has failed" means the hypoglycemic student's symptoms have worsened or the student has become incoherent, unconscious or unresponsive. [1989 c.299 s.2; 1997 c.345 s.1]

433.805 Policy. It is the purpose of ORS 433.800 to 433.830 to provide a means of authorizing certain individuals when a licensed health care professional is not immediately available to administer lifesaving treatment to persons who have severe allergic responses to insect stings and other specific allergens and to persons who are experiencing severe hypoglycemia when other treatment has failed or cannot be initiated. [1981 c.367 s.1; 1989 c.299 s.3; 1997 c.345 s.2]

433.810 Duties of Health Division. The Health Division shall:

(1) Adopt rules necessary for the administration of ORS 433.800 to 433.830 including defining circumstances under which 433.800 to 433.815 and 433.825 shall apply. The division shall include input from the educational system, health care provider organizations and other interested parties when adopting rules or amending those rules.

(2) Develop or approve protocols for educational training as described in ORS 433.815, including the use of mechanisms for periodic retraining of individuals, and provide the protocols for educational training upon request to schools, health care professionals, parents or guardians of students or other interested parties. [1981 c.367 s.2; 1989 c.299 s.4; 1997 c.345 s.3]

433.815 Educational training. Educational training required by ORS 433.800 to 433.830 shall be conducted under the supervision of a physician licensed under ORS chapter 677 or a nurse practitioner licensed under ORS chapter 678 to practice in this state. The training may be conducted by a health care professional licensed under ORS chapter 678 as delegated by a supervising professional. The curricula shall minimally include the following subjects:

(1) Recognition of the symptoms of systemic allergic responses to insect stings and other allergens;

(2) Recognition of the symptoms of hypoglycemia;

(3) Familiarity with common factors that are likely to elicit systemic allergic responses and common factors that may induce hypoglycemia;

(4) Proper administration of a subcutaneous injection of epinephrine for severe allergic responses to insect stings and other specific allergens;

(5) Proper administration of a subcutaneous injection of glucagon for severe hypoglycemia when other treatment has failed or cannot be initiated; and

(6) Necessary follow-up treatment. [1981 c.367 s.3; 1989 c.299 s.5; 1997 c.345 s.4]

433.820 Eligibility for training. A person eligible to receive the training described in ORS 433.815 must meet the following requirements:

(1) Be 21 years of age or older; and

(2) Have, or reasonably expect to have, responsibility for or contact with at least one other person as a result of the eligible person's occupational or volunteer status, such as camp counselors, scout leaders, school personnel, forest rangers, tour guides or chaperones. [1981 c.367 s.4; 1997 c.345 s.5]

433.825 Availability of doses of epinephrine and glucagon to trained persons.

(1) A person who has successfully completed educational training described in ORS 433.815 for severe allergic responses may receive from any health care professional with appropriate prescriptive privileges licensed under ORS chapter 677 or 678 in this state a prescription for pre-measured doses of epinephrine and the necessary paraphernalia for administration. The person may possess and administer in an emergency situation when a licensed health care professional is not immediately available such prescribed epinephrine to any person suffering a severe allergic response.

(2) A person who has successfully completed educational training in the administration of glucagon as described in ORS 433.815 for hypoglycemia may receive from the parent or guardian of a student doses of glucagon prescribed by a health care professional with appropriate prescriptive privileges licensed under ORS chapter 677 or 678 in this state, as well as the necessary paraphernalia for administration. The person may possess and administer glucagon to the student for whom

the glucagon is prescribed, if the student is suffering a severe hypoglycemic reaction in an emergency situation when a licensed health care professional is not immediately available and other treatment has failed or cannot be initiated. [1981 c.367 s.5; 1989 c.299 s.6; 1997 c.345 s.6]

433.830 Immunity of trained person and institution rendering emergency assistance.

(1) No cause of action shall arise against a person who has successfully completed an educational training program described in ORS 433.815 for any act or omission of the person when acting in good faith while rendering emergency treatment pursuant to the authority granted by ORS 433.800 to 433.830, except where such conduct can be described as wanton misconduct.

(2) No cause of action shall arise against an institution, facility, agency or organization when acting in good faith to allow for the rendering of emergency treatment pursuant to the authority granted by ORS 433.800 to 433.830, except where such conduct can be described as wanton misconduct. [1981 c.367 s.6; 1997 c.345 s.7]

B. Quiz

Date _____

Name _____

Affiliation _____

Evaluation Tool (Open book — you may use your class notes.)

1. **The three most common types of substances that cause anaphylaxis are:**
   (a)
   (b)
   (c)

2. **If a person exhibits symptoms of anaphylaxis, one should wait until a complete history has been obtained before giving epinephrine.**
   _____ True _____ False

3. **List two protective actions that should be taken by a person who knows he or she has previously had a severe allergic reaction to insects, foods, or other allergens:**
   (a)
   (b)

4. **If an insect sting causes swelling of an extremity beyond a major joint, this should be considered an anaphylactic reaction, and epinephrine should be administered.**
   _____ True _____ False

5. **If someone is having symptoms of a severe allergic reaction to food, it is generally safe to wait for 10 to 15 minutes before treating them.**
   _____ True _____ False

6. **Multiple sting sites or a sting site in the mouth or on the face may cause a serious reaction in a person not allergic to insect stings.**
   _____ True _____ False

7. **If a person has been exposed to a particular allergen in the past (e.g., a particular food, or a sting by a particular insect), but demonstrated no serious symptoms, it is safe to assume he/she will never develop a serious reaction to that same allergen.**

   _____ True _____ False

8. **What is anaphylaxis?**

   _____

   _____

   _____

9. **List 12 symptoms of anaphylaxis:**

   _____ _____

   _____ _____

   _____ _____

   _____ _____

   _____ _____

   _____ _____

10. **What is epinephrine and how does it act on the body? (List four answers.)**

    _____

    _____

    _____

    _____

11. **List three possible side effects of epinephrine.**

    _____

    _____

    _____

12. **If the person's physician does not otherwise order it, the recommended ages for the following epinephrine products are:**

    EpiPen® JR: _____

    EpiPen®: _____

13. If a stinger is present at the site of a bee sting, it should be removed as soon as possible.

_____ True _____ False

14. Number the following steps in their correct sequence:

____If the person experiencing an anaphylactic reaction is also asthmatic, you can assist the person in the use of his or her own inhaler if desired.

____Have the victim seek medical care/evaluation

____Remove stinger if one is present.

____Determine if the person is suffering an anaphylactic reaction.

____Have the victim sit or lie down.

____Check for and maintain open airway by listening and observing person's breathing.

____Determine proper dosage and administer epinephrine from pre-measured syringe.

____Have someone call for emergency medical assistance (9-1-1).

____Reassure and calm person if possible.

____Administer CPR if needed.

15. After administering the epinephrine, which of the following should you do: (choose all that apply)

a. Continue to observe the person for increased signs of anaphylaxis.

b. Cover person with blanket, place alone in quiet dark room and let him/her sleep.

c. Administer hot stimulant drinks such as tea or coffee.

d. Reassure and calm victim

e. Administer rescue breathing if person stops breathing.

This person participated in the class on Treatment of Severe Allergic Reactions, safely demonstrated the steps in giving an injection as recommended by the manufacturers of the EpiPen® / EpiPen® JR, and completed the evaluation successfully.

Instructor _____

Date _____

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