

Allergic Reactions and Envenomations

Allergen- Substance that causes an allergic reaction

Allergic Reaction- Reaction that occurs when the body has an immune response to an agent that is introduced onto the skin or into the body

- Allergic reactions most often occur in response to one of the following stimuli
 - Insect bites or stings (envenomations)
 - Medications
 - Food
 - Plants
 - Chemicals

Anaphylaxis- an extreme allergic reaction. May be life threatening.

Histamine- Chemical in the body that is released in response to an allergic reaction.

- When released will cause: dilation of the peripheral capillaries, secretion of gastric juices. Constriction of the smooth muscles of the stomach.

Assessment Findings

Skin

Flushing, itching or burning of the skin

Urticaria- hives

Swelling in the hands, feet face and tongue

Cyanosis around the lips

Warm, tingling feeling in the face, mouth, feet or hands

Respiratory System

Sneezing

Itching running nose

Tightness in the chest and throat

Wheezing

Stridor-partial blockage of the upper airway

Extended exhalation

Hoarseness

Circulatory System

Initial rapid pulse rate

Drop in blood pressure as the peripheral blood vessels dilate

Other Findings

Abdominal pain

Headache

Watery itchy eyes

Decreased mental status

Emergency Medical Care

Scene safety

- BSI
- Airway
- Oxygen-high flow as indicated
- Vitals and SAMPLE history
- Epinephrine Auto Injector (only **if Prescribed** for the patient)
 - **See teaching sheet on medication usage**
- Consider ALS

Poison Control Center

- Usually located in the emergency room at large hospitals
- Local Poison Control Center **MCV** (804) 828-9123
- Nation wide number 1 -800-222-1222
- Poison Control can only give you recommendations
- Contact **Medical Control** for specific care instructions

Stings and Bites

Stings

Signs and Symptoms

- ✓ Pain at the site
- ✓ Swelling around the site
- ✓ Redness and warmth around the area
- ✓ **Wheal**- raised whitish elevation
- ✓ Itching
- ✓ **Cellulitis-redness** and swelling of the skin (may occur)



Treatment

- ✓ Ice at the site may help pain and swelling
- ✓ Remove Honeybee stinger with scraping motion
- ✓ Warm Moist packs for cellulites

Anaphylactic Shock-violent hypersensitivity reaction

- Sensitized to the agent
- Reactions develop in minutes or hours

Special Signs

Skin

- Urticaria-hives
- Edema-swelling



Respiratory

- Dyspnea -difficulty breathing
- Fluid and mucus secreted to combat the agent
- Wheezing
- Bronchioles constrict

Circulatory

- Peripheral vessels dilate

Treatment

- ✓ Scene safety
- ✓ BSI
- ✓ Airway
- ✓ High flow oxygen-as indicated
- ✓ Vitals and SAMPLE history
- ✓ Treat for shock
- ✓ Anaphylactic- drugs to combat
 - epinephrine-see **medications sheet-**
 - Benadryl- antihistamine (ALS protocol)

Scorpions- have a venom gland and a stinger at the end of the tail

- ❖ Arizona scorpions - produce sever systemic reactions

Signs

- Severs pain and discoloration at the site
- Circulatory collapse
- Severe muscle contractions
- Excessive salivation
- Hypertension
- Seizures
- Cardiac failure

Treatment

- Support ABS's
- Antivenin

Spider Bites

Black Widow Spider-small black spider with red or white hourglass on the abdomen

- Found in all states except Alaska
- Prefer dry, dim places
- Neurotoxin

Signs and symptoms

- Pain and numbness at site
- Severe cramps
- Board like rigidity of the abdominal muscles
- Tightness in the chest
- Difficulty breathing



Treatment

- Support ABC's
- Ice at the site to slow the absorption
- Identify the spider if possible
- Transport to the hospital
 - Antivenin

Brown Recluse Spider- small brown spider with black violin on back

- Found mostly in southern and central United States
- Prefer dark areas, corners, under rocks and wood piles
- Produce local skin necrosis

Signs and Symptoms

- Severe local tissue damage
- Red, swelling and tender
- Develop into pale, mottled skin that forms blister

Treatment

- Support ABC's
- Identify spider if possible
- Transport to the hospital
 - surgical exclusion of the area



Snake Bites

- ❖ Death from snake bites is extremely rare
- ❖ Serious Envenomation-only occurs in about 1/3 of snake bites
- ❖ Remember that where there is one snake there may be another

Pit Vipers

- Have triangular, flat heads with small pit behind the nostril and in front of the eye. The pupil of the eye is vertical and slit like.
- Pit Vipers inject the victim with venom from 2 fangs
- Envenomation causes localized destruction of tissue and interference with the bodies clotting mechanism.

Rattle Snake

- Identified by rattles (shredded skin) in the tail and diamond pattern on the skin markings

Copperheads

- Identified by (he reddish, coppery color with brown or red crossed bands
- Inhabit woodpiles and abandoned dwellings

Cottonmouth (water moccasins)

- Olive or brown in color with black bands and yellow under the surface

Signs of envenomation

- Local pain and swelling at the site
- Ecchymosis
- Weakness
- Fainting
- Sweating
- Shock

Coral snake

- Identified by bright red, yellow and black bands
- Red on yellow kills a fellow, red on black venom lack"
- Found in Florida and in the desert south west
- Injects its venom by chewing on it's victim
- Powerful neurotoxin

Treatment

- Support ABC's
- Treat for shock if appropriate
- Supine position
- Calm and reassure the patient (snake bites rarely cause death)
- Flush the area of the bite with soap and water
- Immobilize the extremity
- Nothing by mouth (NPO)
- Transport to hospital
- Identify the snake and bring to ED if possible
- Dress the wound
- Mark area of swelling with a marker
- Antivenin

Other bites

Dog bites and rabies

- Danger comes from infection and disease that the dog may carry
- Treat soft tissue injuries as appropriate
- Have animal control try and bring the animal in for testing

Rabies-an acute viral infection if the central nervous system

Human bites

- Danger results from infection or disease that may be transmitted
- Treat soft tissue injuries as appropriate

Injuries from Marine animals

- Treat soft tissue injuries as appropriate
 - Tentacle stings-rinse with alcohol, neutralize with meat tenderizer. Sprinkle with talcum powder
 - Spiny fish-soak the area in warm water to neutralize toxins.

VIRGINIA DEPARTMENT OF HEALTH - OFFICE OF EMERGENCY MEDICAL SERVICES
BASIC LIFE SUPPORT - PRACTICAL SKILL TEACHING SHEET

ADMINISTRATION OF ORAL GLUCOSE

SCENE SIZE-UP

Assess: Need for body substance isolation, Scene safety, Trauma (MOI) or Medical (NOI) nature, and Number of Patients

ASSESSMENT

Perform initial assessment and focused or detailed assessment as indicated.
Obtain history of present illness: **O-P-Q-R-S-T**
Obtain **S-A-M-P-L-E** history
Obtain base line vital signs

EMERGENCY MEDICAL CARE - EPINEPHERINE ADMINISTRATION (AUTO-INJECTION)

Actions:

- Dilates the bronchioles
- Constricts Blood Vessels

Side Effects:

- Increased heart rate
- Headache
- Palor
- Nausea
- Dizziness
- Vomiting
- Chest pain
- Excitability, anxiousness

Indications: (must meet the following three criteria)

- Assessment reveals patient exhibiting the assessment findings of an allergic reaction.
- Medication is prescribed for this patient by a physician
- Medical direction authorizes use for this patient

Contraindications:

- No contraindications when used in a life-threatening situation.

Standard Pre-filled Dosages are:

- Adult – one auto-injector (0.3 mg)
- Infant and child – one infant/child auto injector (0.15 mg)

Administration:

Obtain order from medical direction either on-line or off-line (Per local protocol)

Perform focused assessment for allergic reaction patient and record findings.

Obtain patient's prescribed auto-injector.

Ensure medication is not discolored (if liquid may not be visible inside all types of devices).

Remove safety cap from the auto-injector.

Place tip of auto-injector against the thigh and press firmly until the injector activates.

Hold injector firmly against thigh for a minimum of 10 seconds to allow for full dose delivery.

Record activity and time.

Dispose of injector in biohazard container.

Perform reassessment and record findings:

- Transport
- Continue focused assessment of airway, breathing and circulatory status.

If patient condition continues to worsen:

- Decreasing mental status
- Increasing breathing difficulty
- Decreasing blood pressure
- Obtain medical direction
 - Additional dose of epinephrine
 - Treat for shock
 - Prepare to initiate Basic Cardiac Life support measures (CPR/AED)

If patient condition improves, provide supportive care:

- Oxygen
- Treat for shock (hypoperfusion)

Possible Causes

✓ **Insect bites
/ stings –
bees, wasps,
etc**



✓ **Plants**

✓ **Others**

✓ **Food –
nuts,
crustaceans,
peanuts, etc.**



✓ **Medications**



PATIENT INSERT

(Pharmacist - Please dispense with product)

NDC 49502-500-01 (EPIPEN)
NDC 49502-500-02 (EPIPEN 2-PK)

EPIPEN® & EPIPEN® JR
(epinephrine) Auto-Injectors
For allergic emergencies (anaphylaxis)

NDC 49502-501-01 (EPIPEN JR)
NDC 49502-501-02 (EPIPEN JR 2-PK)

IMPORTANT INFORMATION

Both EPIPEN® & EPIPEN® JR

- are disposable, prefilled automatic injection devices
- are for allergic emergencies
- contain a single dose of epinephrine (intramuscular)
- are available by prescription only (Rx)
- contain **no latex**

Read both sides
before
an emergency occurs!

Amount of epinephrine delivered

EPIPEN® = one dose of **0.30mg** epinephrine (USP, 1:1000, 0.3mL)

EPIPEN® JR = one dose of **0.15 mg** epinephrine (USP, 1:2000, 0.3mL)

-- Note: most of the liquid (about 90%)

stays in the auto-injector after use and cannot be reused

When to Use

Use the **EPIPEN®/EPIPEN® JR** auto-injector *only* if you are a hypersensitive (allergic) person and your doctor has prescribed it for allergic emergencies. Such emergencies may occur from insect stings or bites, foods, drugs, latex, other allergens, exercise-induced anaphylaxis, or unknown causes (idiopathic).

Emergency Treatment of Allergic Reaction (Anaphylaxis)

- If you experience the signs and symptoms described by your physician:
 - Use the **EPIPEN®/EPIPEN® JR** auto-injector immediately, through **clothing if necessary**.
 - Repeat injection with an additional **EPIPEN®** or **EPIPEN® JR** may be necessary- consult your physician.
 - Follow "Directions for Use" section carefully.
 - Then follow steps in "Immediately After Use" section.
 - Avoid exertion.
- If you have been stung by an insect:
 - Remove insect stinger with your fingernails if possible.
 - Do **not** squeeze, pinch, or push it deeper into the skin.
 - If available, apply ice packs or sodium bicarbonate soaks to the stung area.

Care & Storage

- Keep the **EPIPEN®/EPIPEN® JR** auto-injector ready for use at all times.
- **Store:**
 - in a dark place at room temperature (59-86°F)
 - plastic carrying tube provides added UV light protection
 - do NOT refrigerate
 - do NOT expose to extreme cold or heat
- **Note expiration date on the unit** (month & year)
 - example: "Aug. 02" = Aug. 31, 2002
 - replace it before the expiration date
 - see below to enroll in the Expiration Reminder Program
 - always have at least one unexpired unit on hand
- **Examine contents in clear window of auto-injector periodically**
 - replace the unit if the solution is discolored or contains solid particles (precipitate)
 - the physician may recommend emergency use of an auto-injector with discolored contents rather than to postpone treatment

Directions for Use (See reverse side)

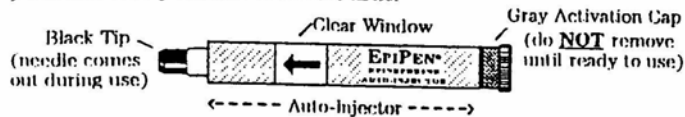
WARNING

- Never put thumb, fingers, or hand over black tip. Needle comes out of black tip. Accidental injection into hands or feet may result in loss of blood flow to these areas. If this happens, go immediately to the nearest emergency room.
- EpiPEN®/EpiPEN® JR should be injected *only* into the outer thigh (see "Directions for Use").
- Do **NOT** remove gray activation cap until ready to use.

DIRECTIONS FOR USE

- Follow these directions *only* when ready to use.
- Never put thumb, fingers, or hand over black tip.
- Do **NOT** remove gray activation cap until ready to use.

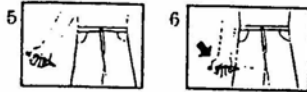
- 1) Familiarize yourself with the unit.



- 2) Grasp unit, with the black tip pointing downward.
3) Form a fist around the auto-injector (black tip down).
4) With your other hand, pull off the gray activation cap.



- 5) Hold black tip near outer thigh.
6) Swing and **jab firmly** into outer thigh so that auto-injector is perpendicular (at a 90° angle) to the thigh.



- 7) Hold **firmly in thigh** for several seconds.
8) Remove unit, massage injection area for several seconds.
9) Check black tip:
-- if needle is exposed, you received the dose
-- if not, repeat steps #5-8
10) *Note:* most of the liquid (about 90%) stays in the auto-injector and cannot be reused.
11) Bend the needle back against a hard surface.
12) Carefully put the unit (needle first) back into the carrying tube (*without* the gray activation cap)
13) Recap the carrying tube.
14) See "Immediately After Use" box on right side.

IMMEDIATELY AFTER USE

- Go immediately to the nearest hospital emergency room.
You may need further medical attention.
- Tell the physician that you have received an injection of epinephrine (show your thigh).
- Give your used **EpiPEN®/EpiPEN® JR** to the physician for inspection and proper disposal.



MANUFACTURED FOR DEY,
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U.S. Patent No. 4,031,893
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PRODUCT INFORMATION



DESCRIPTION: The EpiPen® Auto-Injectors contain 2 ml. Epinephrine Injection for emergency intramuscularly use. Each EpiPen® Auto-injector delivers a single dose of 0.3 mg epinephrine from Epinephrine Injection, USP, 1: 1000 (0.3 ml.) in a sterile solution. Each EpiPen® Jr. Auto-Injector delivers a dose of 0.15 mg epinephrine from Epinephrine Injection, USP, 1:2000 (0.3mL) in a sterile solution. Each 0.3 ml. also contains 1.8 mg sodium chloride, 0.5 mg sodium metabisulfite, hydrochloric acid to adjust pH, and Water for Injection. The pH range is 2.5-5.0.

CLINICAL PHARMACOLOGY: Epinephrine is a sympathomimetic drug, acting on both alpha and beta receptors. It is the drug of choice for the emergency treatment of severe allergic reactions (Type 1) to insect stings or bites, foods, drugs, and other allergens. It can also be used in the treatment of idiopathic or exercise-induced anaphylaxis. Epinephrine when given subcutaneously or intramuscularly has a rapid onset and short duration of action.

INDICATIONS AND USAGE: Epinephrine is indicated in the emergency treatment of allergic reactions (anaphylaxis) to insect stings or bites, foods, drugs and other allergens as well as idiopathic or exercise-induced anaphylaxis. The EpiPen® Auto-Injector is indented for immediate self administration by a person with a history of an anaphylactic reaction. EpiPen® is also indicated for temporary emergency treatment of severe life threatening asthma attacks. Reactions may occur within minutes after exposure and consist of flushing, apprehension, syncope, tachycardia, thready or unobtainable pulse associated with a fall in blood pressure, convulsions, vomiting, diarrhea and abdominal cramps, involuntary voiding, wheezing, dyspnea due to laryngeal spasm, pruritis, rashes, urticaria or angioedema. The EpiPen® is designed as emergency supportive therapy only and is not a replacement or substitute for immediate medical or hospital care.

CONTRAINDICATIONS: There are no absolute contraindications to the use of epinephrine in a life-threatening situation.

WARNINGS Epinephrine is light sensitive and should be stored in the tube provided. Store at room temperature (15 -30°C/59 -86°F). Do not refrigerate. Before using, check to make sure solution in Auto-Injector is not discolored. Replace the Auto-Injector if the solution is discolored or contains a precipitate. Avoid possible inadvertent intravascular administration. Select an appropriate injection site such as the thigh.

DO NOT INJECT INTO BUTTOCK. Large doses or accidental intravenous injection of epinephrine may result in cerebral hemorrhage due to sharp rise in blood pressure. **DO NOT INJECT INTRAVENOUSLY.** Rapidly acting vasodilators can counteract the marked pressor effects of epinephrine.

Epinephrine is the preferred treatment for serious allergic or other emergency situations even though this product contains sodium metabisulfite, a sulfite that may in other products cause

allergic-type reactions including anaphylactic symptoms of life-threatening or less severe asthmatic episodes in certain susceptible persons. The alternatives to using epinephrine in a life threatening situation may not be satisfactory. The presence of a sulfite in this product should not deter administration of the drug for treatment of serious allergic or other emergency situations.

Accidental injection into the hands or feet may result in loss of blood flow to the affected area and should be avoided. If there is an accidental injection into these areas, advise the patient to go immediately to the nearest emergency room for treatment. EpiPen® should ONLY be injected into the anterolateral aspect of the thigh.

PRECAUTIONS Epinephrine is ordinarily administered with extreme caution to patients who have heart disease. Use of epinephrine with drugs that may sensitize the heart to arrhythmias, e.g., digitalis, mercurial diuretics, or guanidine, ordinarily is not recommended. Anginal pain may be induced by epinephrine in patients with coronary insufficiency. The effects of epinephrine may be potentiated by tricyclic antidepressants and monoamine oxidase inhibitors. Hyperthyroid individuals, individuals with cardiovascular disease, hypertension or diabetes, elderly individuals, pregnant women, and children under 30 kg (66 lbs.) body weight may be theoretically at greater risk of developing adverse reactions after epinephrine administration.

Despite these concerns, epinephrine is essential for the treatment of anaphylaxis. Therefore, patients with these conditions, and/or any other person "who might be in a position to administer EpiPen® or EpiPen® Jr. to a patient experiencing anaphylaxis should be carefully instructed in regard to the circumstances under which this life-saving medication should be used.

CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY: Studies of epinephrine in animals to evaluate the carcinogenic and mutagenic potential or the effect on fertility have not been conducted.

USAGE IN PREGNANCY: Pregnancy Category C; Epinephrine has been shown to be teratogenic in rats when given in doses about 25 times the human dose. There are no adequate and well-controlled studies in pregnant women. Epinephrine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

PEDIATRIC USE: Epinephrine may be given safely to children at a dosage appropriate to body weight (see Dosage and Administration).

ADVERSE REACTIONS: Side effects of epinephrine may include palpitations, tachycardia, sweating, nausea and vomiting, respiratory difficulty, pallor, dizziness, weakness, tremor, headache, apprehension, nervousness and anxiety. Cardiac arrhythmias may follow administration of epinephrine

OVER DOSAGE: Over dosage or inadvertent intravascular injection of epinephrine may cause cerebral hemorrhage resulting from a sharp rise in blood pressure. Fatalities may also result from pulmonary edema because of peripheral vascular constriction together with cardiac stimulation.

DOSAGE AND ADMINISTRATION: Usual epinephrine adult dose for allergic emergencies is 0.3 mg. For pediatric use, the appropriate dosage may be 0.15 mg or 0.30 mg depending upon the body weight of the patient. However, the prescribing physician has the option of prescribing more or less than these amounts, based on careful assessment of each individual patient and recognizing the life-threatening nature of the reactions for which this drug is being prescribed. With severe persistent anaphylaxis, repeat injections with an additional EpiPen® may be necessary.