

# **TREATMENT OF SEVERE ALLERGIC REACTION**

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## **Protocol for Training PowerPoint® Presentation**

**Based on “Treatment of Severe  
Allergic Reaction, A Protocol for  
Training” revised January 2008**

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⌘ The Oregon Department of Human Services and the Oregon Department of Education gratefully acknowledge Multnomah Education Service District Department of Health and Social Services for their assistance in the development of this training material.

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# Introduction



⌘ **Anaphylaxis** is a sudden severe allergic reaction

⌘ Sensitive individuals can experience reactions from:

- ☑ Food
- ☑ Medication
- ☑ Insect stings
- ☑ Exercise
- ☑ Other



# Introduction, cont'd.



⌘ **In the US each year there are:**

- ☒ Approximately 50 deaths due to insect stings
- ☒ Approximately 100 deaths related to food allergies



# **Introduction, cont'd.**

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Immediate injection of epinephrine is the single factor most likely to save a life during anaphylaxis!

# Introduction



- ⌘ Legislation passed in 1981- authorized trained individuals to administer epinephrine to people suffering severe reactions to insect stings.
- ⌘ Legislation expanded in 1989, to include reactions to other allergens.
- ⌘ Intended for situations where medical help is not immediately available:
  - ☑ schools
  - ☑ camps
  - ☑ forests
  - ☑ recreational areas

# Explanation of Laws

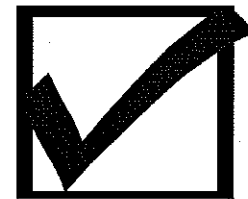
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⌘ Person must meet qualifications for training

Be 21 years of age or older

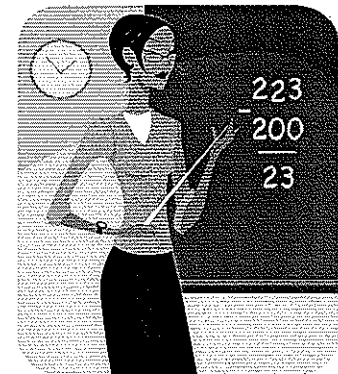
Reasonable expectation to come into contact with sensitive individuals

Complete approved training program



# Who Should Be Trained?

- ⌘ Public or private school employees
- ⌘ Camp counselors or employees
- ⌘ Youth organization staff or volunteers
- ⌘ Forest rangers
- ⌘ Foremen of forest workers
- ⌘ Any person with exposure to risk





# Who Should Be Trained?

## ⌘ Additional training

- ☑ These persons are strongly encouraged to obtain and maintain current training in approved First Aid and CPR course



# Once Training is Complete

- ⌘ Qualified individuals receive a signed certificate
- ⌘ The certificate can be used as a prescription for pre-measured doses of epinephrine (1 adult dose and 1 child dose)
- ⌘ Prescription can be filled up to four times
- ⌘ The prescription is issued in the name of the trained person (this is not a personal prescription)
- ⌘ Certificates expire 3 years after issuance
- ⌘ Use limited to situations where a licensed health care professional is not immediately available

# Training Overview

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⌘ What can trigger anaphylaxis?

☑ Insect stings, food, medication, other

⌘ For each allergen:

☑ Likely culprits

☑ Avoidance measures

⌘ Identifying the sensitive individual; steps to take ahead of time

# Training Overview, continued

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⌘ Recognizing Anaphylaxis

⌘ Treatment for Anaphylaxis

☐ Basic information about epinephrine

☐ How to give epinephrine

☐ Sequence of steps for responding to anaphylaxis

⌘ Quiz

# What is ANAPHYLAXIS?

⌘ Anaphylaxis is a generalized, immediate life-threatening reaction to a foreign protein or allergen

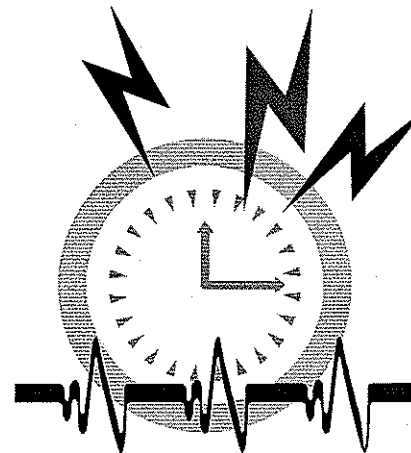
Insect's venom

Food

Medication

Pollen

Other



# **What is Anaphylaxis?**

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- ⌘ Severe life-threatening allergic reactions are rare
- ⌘ Immediate administration of epinephrine is vital
- ⌘ Person may be unable to self-administer
- ⌘ Person may have no history of allergic response

# What is Anaphylaxis?



The 2 key steps in saving a life are:

1. Recognition of anaphylaxis when it occurs;  
and
2. Swift administration of epinephrine

# Recognizing Anaphylaxis

- ⌘ There are many possible symptoms
- ⌘ There may be only one symptom, or there may be many!
- ⌘ What symptoms has the person experienced before
- ⌘ Reactions vary from person to person





# Recognizing Anaphylaxis

⌘ Anaphylaxis usually occurs quickly

☑ Reaction can start within seconds

☑ Death can occur within minutes

☑ Delayed reactions are also possible



# Symptoms Of Anaphylaxis

(slide 1 of 3)

- ⌘ Sneezing, wheezing, or coughing
- ⌘ Shortness of breath / Difficulty breathing
- ⌘ Tightness in chest
- ⌘ Difficulty swallowing
- ⌘ Hoarseness
- ⌘ Swelling of eyes, lips, face, tongue or elsewhere



# **Symptoms Of Anaphylaxis**

(slide 2 of 3)

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- ⌘ Sweating and anxiety
- ⌘ Nausea, abdominal pain, vomiting and diarrhea
- ⌘ Dizziness and/or fainting
- ⌘ Loss of bowel or bladder control
- ⌘ Sense of impending doom or death
- ⌘ Rapid or weak pulse



# Symptoms Of Anaphylaxis

(slide 3 of 3)

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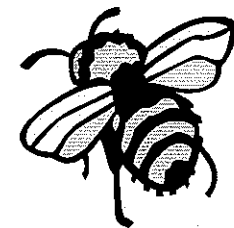
- ⌘ Flushed skin or extreme pallor
- ⌘ Itching, with or without hives
- ⌘ Raised red rash in any area of the body
- ⌘ Burning sensation, especially in face or chest
- ⌘ Blueness around lips, inside lips, or eyelids
- ⌘ Loss of consciousness



# Possible Allergens - Insects

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- ⌘ It is estimated that 8 in every 1,000 people are allergic to insect stings
- ⌘ Stinging insects account for 40 to 100 deaths per year in the U.S.



# Possible Allergens - Insects



- ⌘ Bees, wasps, hornets and yellow jackets cause most fatal reactions
- ⌘ Yellow jackets are most common in the Pacific Northwest
- ⌘ Insects are more likely to sting during the late summer and fall
- ⌘ Bees are more likely to sting on warm, bright days

# Insect Identification

⌘ If possible, it is important to identify stinging insects, **but this should never delay treatment!**

⌘ Only the honey bee leaves a “stinger”



# How to Avoid Insect Stings

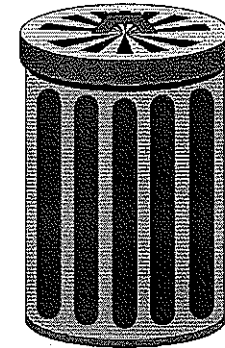
⌘ Stinging insects are attracted to:

- ☑ Light yellow and blue colors
- ☑ Sweet drinks (soft drinks, juice, beer)
- ☑ Cosmetics, lotions, perfumes, and hair spray
- ☑ Paint fumes
- ☑ Food odors
- ☑ Heat given off by dark colors



# Increased Risk of Insect Stings Associated With:

- ⌘ Picnics, cooking / eating outdoors
- ⌘ Areas of trash / garbage
- ⌘ Areas of insect habitat
- ⌘ Flowers
- ⌘ Bright colored clothing
- ⌘ Fragrant perfumes / cosmetics
- ⌘ Exposed skin
- ⌘ Becoming excited



# How To Avoid Insect Stings

⌘ Sensitive or suspected sensitive person should wear:

Smooth, hard finish white or tan clothing

Hats

Long sleeved shirts and slacks

Socks and shoes

⌘ Gently brush insects away - don't swat

# What is *not* an anaphylactic reaction to insect sting?

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## Normal Reactions

⌘ Produce localized, sharp pain at sting site

Redness, heat and swelling occur

Swelling about the size of a quarter

Usually lasts about 24 hours

⌘ Medical attention usually not needed

⌘ Stings around eyes, nose or throat may be more serious

Should seek medical care

# **Intervention Steps For** **Normal Reactions**

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- ⌘ Remove stinger as soon as possible
- ⌘ Cleanse sting site
- ⌘ Apply ice pack
- ⌘ Elevate limb
- ⌘ Reassure and calm the person
- ⌘ Observe for at least 30 minutes

# What is *not* an anaphylactic reaction to insect sting?

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## Localized Reactions To Insect Stings

- ⌘ Allergic reaction to allergen
- ⌘ Involves pain, itching and swelling
  - ☑ Larger area of swelling than normal reaction
  - ☑ Swelling extends and crosses major joint line
  - ☑ Swelling does not involve other areas of body
- ⌘ May be delayed
- ⌘ Symptoms may last up to one week or more

# **Intervention Steps For** **Localized Reactions**

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- ⌘ Remove stinger
- ⌘ Cleanse sting site
- ⌘ Apply ice pack
- ⌘ Elevate limb
- ⌘ Reassure and calm person
- ⌘ Give antihistamine (Follow school policies)
- ⌘ Keep person quiet
- ⌘ Observe for at least one hour

# Toxic Reactions To Stings

⌘ Systemic reaction results from multiple stings (usually 10 or more)

⌘ Symptoms may include:

- ⊞ Gastrointestinal, diarrhea, vomiting
- ⊞ Drowsiness, fainting, or unconsciousness
- ⊞ Generalized swelling
- ⊞ Headache and fever
- ⊞ Muscle spasms or convulsions

# Intervention Steps For Toxic Reactions

- ⌘ Stay with person - delegate call to 9-1-1
- ⌘ Observe for symptoms of anaphylaxis
- ⌘ Give epinephrine if necessary
- ⌘ Remove stingers promptly
- ⌘ Reassure and calm person
- ⌘ Have person transported for medical help





# Possible Allergens-Foods

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- ☒ 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 US children have a food allergy

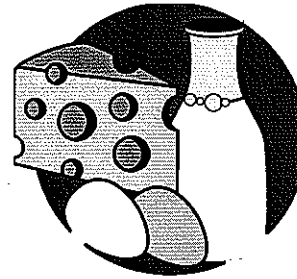


# Possible Allergens - Foods

## Foods most often associated with anaphylaxis:

### ⌘ Peanuts

- ☑ Most common cause of anaphylaxis in children
- ☑ The food most frequently causing **fatal** reactions



### ⌘ Fish and shellfish

- ☑ Shellfish are the food most frequently causing anaphylaxis in adults



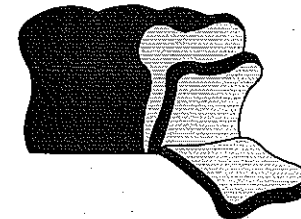
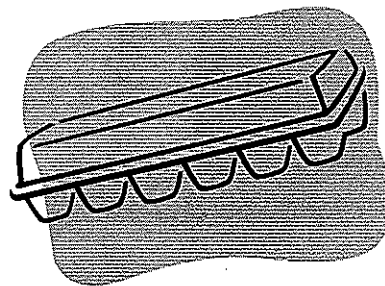
### ⌘ Tree Nuts

### ⌘ Eggs

### ⌘ Soy

### ⌘ Milk

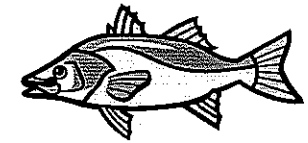
### ⌘ Wheat



# Food Avoidance



⌘ Avoid exposure to known allergens



⌘ Inform food preparation personnel of known allergies

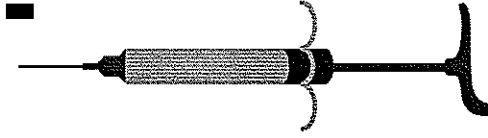
⌘ Lunch swapping or sharing should be avoided

⌘ Read labels on food & skin-care products

⌘ Avoid cross-contamination



# **Possible Allergens - Medications**



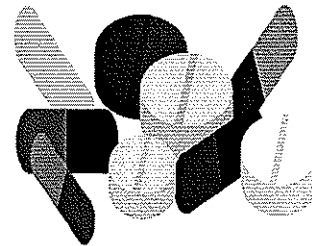
⌘ A person may experience reactions to any medication at any time

⌘ Most common medications to cause reactions:

Penicillin

Aspirin

Allergy injections



# Other Possible Allergens

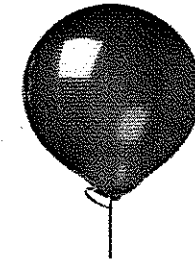
⌘ Pollens



⌘ Latex

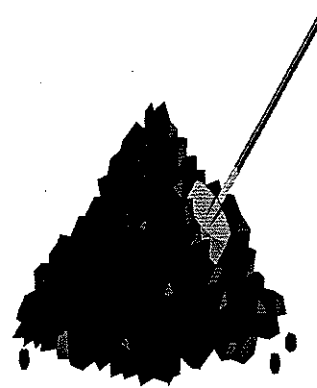
☑ Gloves, balloons, rubber bands,

☑ ace wraps, first aid tape, erasers, bungee  
cords, et cetera!



⌘ Exercise

⌘ Unknown substances



# Identifying the sensitive individual

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Steps to take BEFOREHAND:

- ⌘ Who in your group has a history of severe allergic reactions?
- ⌘ Get signed consent for emergency treatment-\*\*Do not delay treatment if not available!
- ⌘ Know how to get emergency help
  - ☑ Where is the nearest hospital? EMT unit?
  - ☑ Determine ahead of time how to call for help

# EMERGENCY PLAN

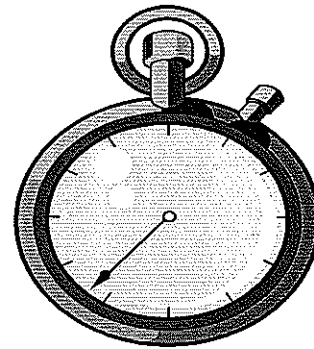
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- ⌘ Prepare for identified and unidentified individuals
- ⌘ Know where the epinephrine is kept
- ⌘ Who is trained to give epinephrine
- ⌘ Who is 1<sup>st</sup> aid/CPR trained
- ⌘ Review the plan yearly

# Treatment For Anaphylaxis

⌘ Administer epinephrine at the first sign of a systemic reaction

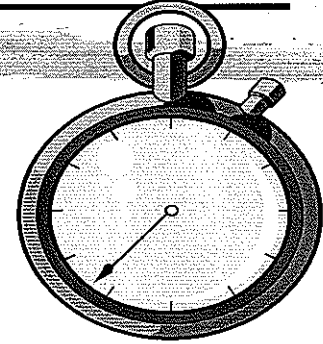
⌘ Timing is essential



⌘ The sooner that epinephrine is given, the greater the chance for survival

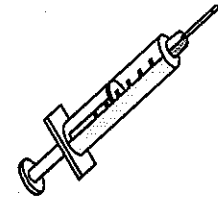


# Treatment For Anaphylaxis



- ⌘ We will first go over detailed information on epinephrine and how to give it;
- ⌘ Then we will go over the entire sequence of steps for responding to anaphylaxis.

# Epinephrine



- ⌘ Powerful drug used for treatment of anaphylaxis
- ⌘ Must be obtained by prescription
- ⌘ Most immediate and effective treatment available
- ⌘ Can only be injected into fatty area under the skin, usually the lateral thigh
- ⌘ May have side effects

# How Epinephrine Acts On The Body

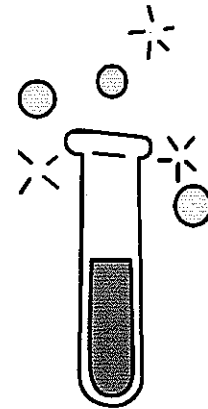
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⌘ Constricts blood vessels

⌘ Raises blood pressure

⌘ Relaxes bronchial muscles

⌘ Reduces tissue swelling



# Possible Side Effects/Risks Of Epinephrine

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⌘ Rapid heart rate

⌘ Sweating

⌘ Nervousness or  
anxiety

⌘ Pallor

⌘ Nausea

⌘ Tremors

⌘ Vomiting

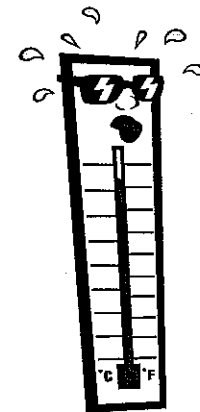
⌘ Headache



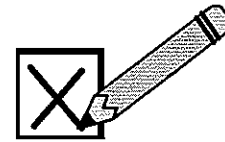
# Storage And Handling Of Epinephrine

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- ⌘ Store in dark place at room temperature
  - ☑ Do not allow syringe to freeze
- ⌘ Keep away from sunlight
- ⌘ Check medication for discoloration
  - ☑ Solution should be clear
- ⌘ Check expiration date



# EpiPen®



## ⌘ Advantages

- ☑ Auto-Injector system delivers pre-measured dose of epinephrine
- ☑ No preparation needed

## Note:

No other device may currently be used by persons completing this training.

# **EpiPen® Administration**

<b>Use</b>	<b>Dose</b>	<b>Weight (pounds)</b>	<b>Age (years)</b>
Older Child, or Adult	0.3 ml	> 60	> 10

**\*Don't delay to weigh!!!**

# **EpiPen JR® Administration**

<b>Use</b>	<b>Dose</b>	<b>Weight (pounds)</b>	<b>Age (years)</b>
Younger Child	0.15 ml	33 – 59	3 to 10

**\*\*** 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 risk for administering epinephrine to this age group.



# **Responding to Anaphylaxis: How to Give Epinephrine**

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- ⌘ Given via pre-measured injection
- ⌘ Injected into the subcutaneous tissue  
(fatty area under the skin)
- ⌘ Usually given in lateral thigh
- ⌘ Auto-injector can be given through  
clothing

# **Responding to Anaphylaxis: How to Give Epinephrine, cont'd.**

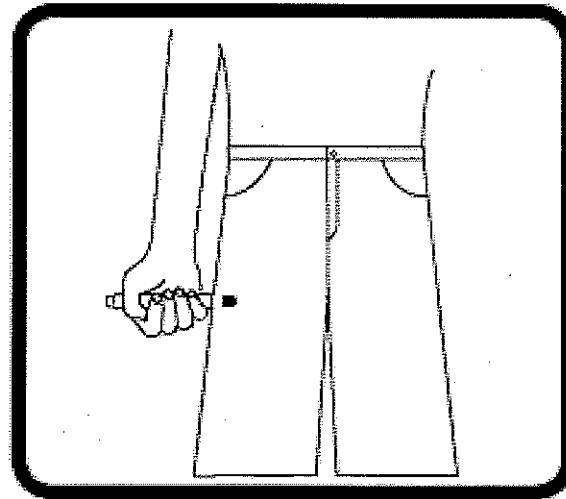
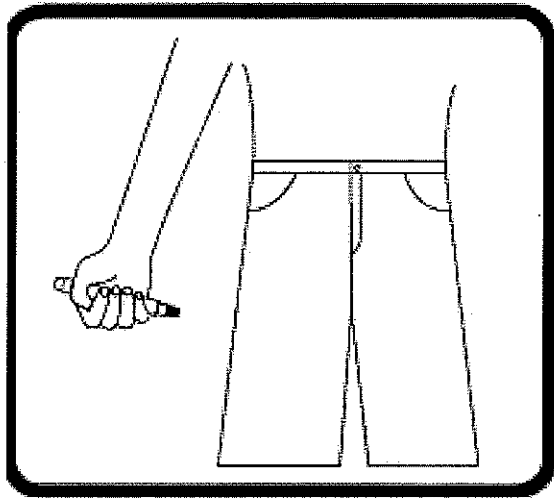
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- ⌘ Determine proper dosage
- ⌘ Unscrew the yellow or green cap off of the EPIPEN® carrying case and remove the auto-injector from its storage tube.
- ⌘ Grasp the unit with the black tip pointing downward.
- ⌘ With your other hand, pull off the gray safety cap.

# **Responding to Anaphylaxis: How to Give Epinephrine, cont'd.**

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



# **Responding to Anaphylaxis: How to Give Epinephrine, cont'd.**

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

# **Responding to Anaphylaxis: How to Give Epinephrine, cont'd.**

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- ⌘ Carefully place the used EPIPEN®, needle-end first, into the storage tube of the carrying case, using one hand only to avoid a needle stick.
- ⌘ Screw the cap of the storage tube back on completely.
- ⌘ If possible, write the time that the medication was given on the carrying case; this can be given to the emergency medical personnel when they arrive.

# Intervention Steps For Anaphylaxis

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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.

## **Intervention Steps For Anaphylaxis, cont'd.**

- 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
7. Reassure and calm person if possible.



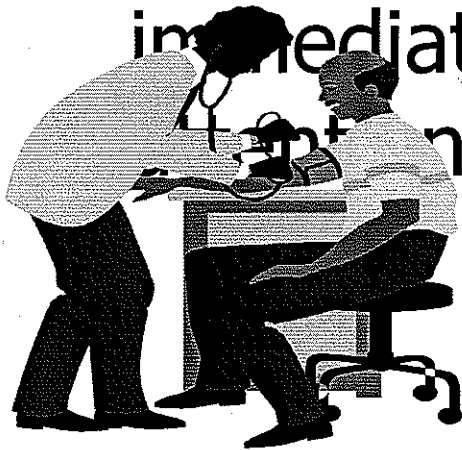
## **Intervention Steps For Anaphylaxis, cont'd.**

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.**

## **Intervention Steps For Anaphylaxis, cont'd.**

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**11. Always relinquish care to EMS/911 when they arrive on scene.** A person who has been given treatment for a severe allergic reaction must receive immediate and continuing medical





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