



Chapter 20

Allergic Reactions



U.S. DOT Objectives Directory

U.S. DOT Objectives are covered and/or supported by the PowerPoint™ Slide Program and Notes for Emergency Care, 11th Ed. Please see the Chapter 20 correlation below.

*KNOWLEDGE AND ATTITUDE

- **4-5.1** Recognize the patient experiencing an allergic reaction. Slides [5-9](#), [13-18](#)
- **4-5.2** Describe the emergency medical care of the patient with an allergic reaction. Slides [10-11](#), [19-30](#)
- **4-5.3** Establish the relationship between the patient with an allergic reaction and airway management. Slides [6](#), [9](#), [20](#), [28](#), [30](#)
- **4-5.4** Describe the mechanisms of allergic response and the implications for airway management. Slides [6-9](#), [12](#)
- **4-5.5** State the generic and trade names, medication forms, dose, administration, action, and contraindications for the epinephrine auto-injector. Slides [21-30](#)
- **4-5.6** Evaluate the need for medical direction in the emergency medical care of the patient with an allergic reaction. Slides [20](#), [23](#), [30](#)

(cont.)



U.S. DOT Objectives Directory

*KNOWLEDGE AND ATTITUDE

- **4-5.7** Differentiate between the general category of those patients having an allergic reaction and those patients having an allergic reaction and requiring immediate medical care, including immediate use of epinephrine auto-injector.
Slides [17-18](#)
- **4-5.8** Explain the rationale for administering epinephrine using an auto-injector.
Slides [21-30](#)

(cont.)



U.S. DOT Objectives Directory

*SKILLS

- **4-5.9** Demonstrate the emergency medical care of the patient experiencing an allergic reaction.
- **4-5.10** Demonstrate the use of epinephrine auto-injector.
- **4-5.11** Demonstrate the assessment and documentation of patient response to an epinephrine injection.
- **4-5.12** Demonstrate proper disposal of equipment.
- **4-5.13** Demonstrate completing a prehospital care report for patients with allergic emergencies.



Identification



Allergic Reaction

- * Identification of an allergic reaction**
- * Mild allergic reaction versus anaphylaxis**
- * Treatment of an allergic reaction**
- * Identification of candidates for epinephrine auto-injection**
- * Documentation of findings and treatment**

(cont.)



Allergic Reaction

* Definition:

- An exaggerated reaction of the human body's immune system to any foreign substance



Allergen

* Definition:

- **Something that causes an allergic reaction**



Anaphylaxis

* Definition:

- A life-threatening allergic reaction that causes shock (hypoperfusion) and airway swelling
- Referred to as “anaphylactic shock”



Auto-Injector

* Definition:

- Epinephrine carried by individuals who are subject to severe allergic reactions
- Spring-loaded needle and syringe with a single dose of epinephrine
- Automatically releases and injects the medication through the skin when the device is pressed firmly against the body



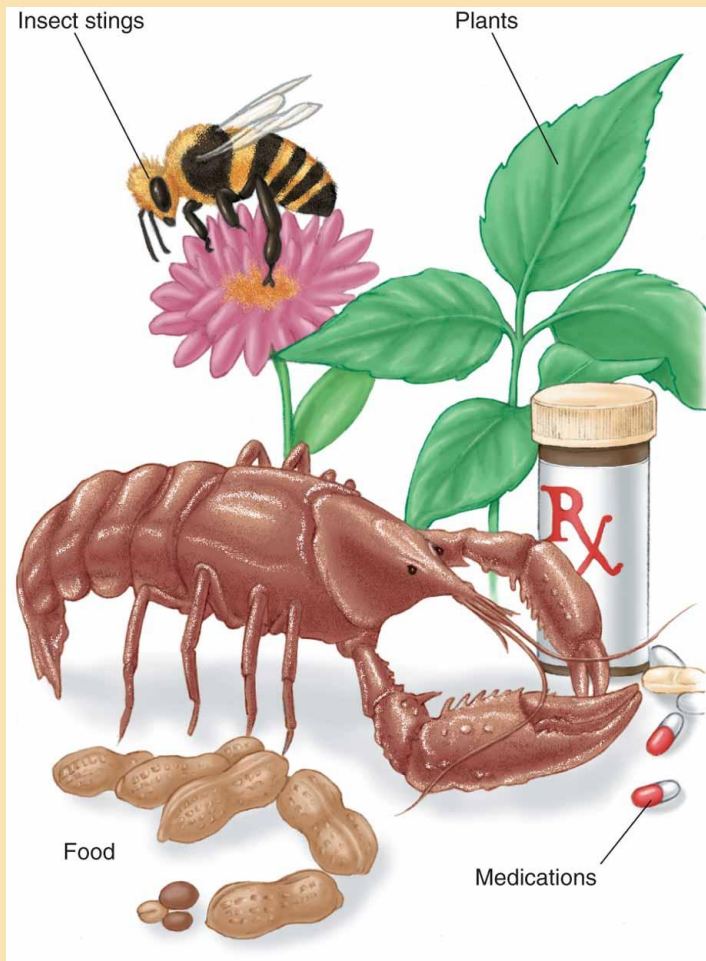
Epinephrine

* Definition:

- A hormone produced by the body that constricts blood vessels and dilates respiratory passages



Causes of Allergic Reaction





Signs and Symptoms

*Skin:

- Itching
- Hives
- Flushing
- Swelling
- Warm

(cont.)



Signs and Symptoms

*Respiratory:

- Tightness in throat
- Rapid breathing
- Cough
- Labored breathing
- Hoarseness
- Stridor



Generalized Findings

* Cardiac

- Increased heart rate
- Decreased heart rate

* Itchy, watery eyes

* Headache

* Runny nose

* Sense of impending doom



Signs and Symptoms of Shock

- ✱ Altered mental status
- ✱ Flushed, dry, clammy, or pale skin
- ✱ Nausea or vomiting
- ✱ Changes in vital signs (pulse, respirations, blood pressure)



Mild Allergic Reaction vs. Anaphylaxis



What Is the Difference?

* Allergic reaction or anaphylaxis

- Perform initial assessment.
- Perform focused history and physical exam.
 - * Look for itching, hives, respiratory distress, or signs of hypoperfusion.
- Assess baseline vitals and get **SAMPLE** history.



Treatment



General Care

- * Manage airway and breathing.**
 - High-concentration oxygen by NRB
 - Positive pressure ventilations
- * Consider assisting with epinephrine auto-injector IF:**
 - Signs and symptoms of shock are present.
 - Patient is prescribed auto-injector—consult medical direction.
 - No auto-injector available—rapid transport or call for ALS intercept.



Epinephrine Auto-injection



Self-administered Epinephrine

- * Prescribed by a physician**
- * Authorization**
 - Administer or help patient.**



When to Administer

- * Respiratory distress**
- * Signs and symptoms of shock (hypoperfusion)**
- * Signs of allergic reaction**
- * Physician has prescribed epinephrine to patient**
- * Medical direction authorizes epinephrine**



Dosage

- * Adult: one auto-injector**
- * Child: one pediatric auto-injector**



What to Look For

- * Injector prescribed for THIS patient?**
- * Expiration date**
- * Liquid cloudy or discolored?**
- * Give epinephrine ONLY to patients that have been prescribed auto-injectors**

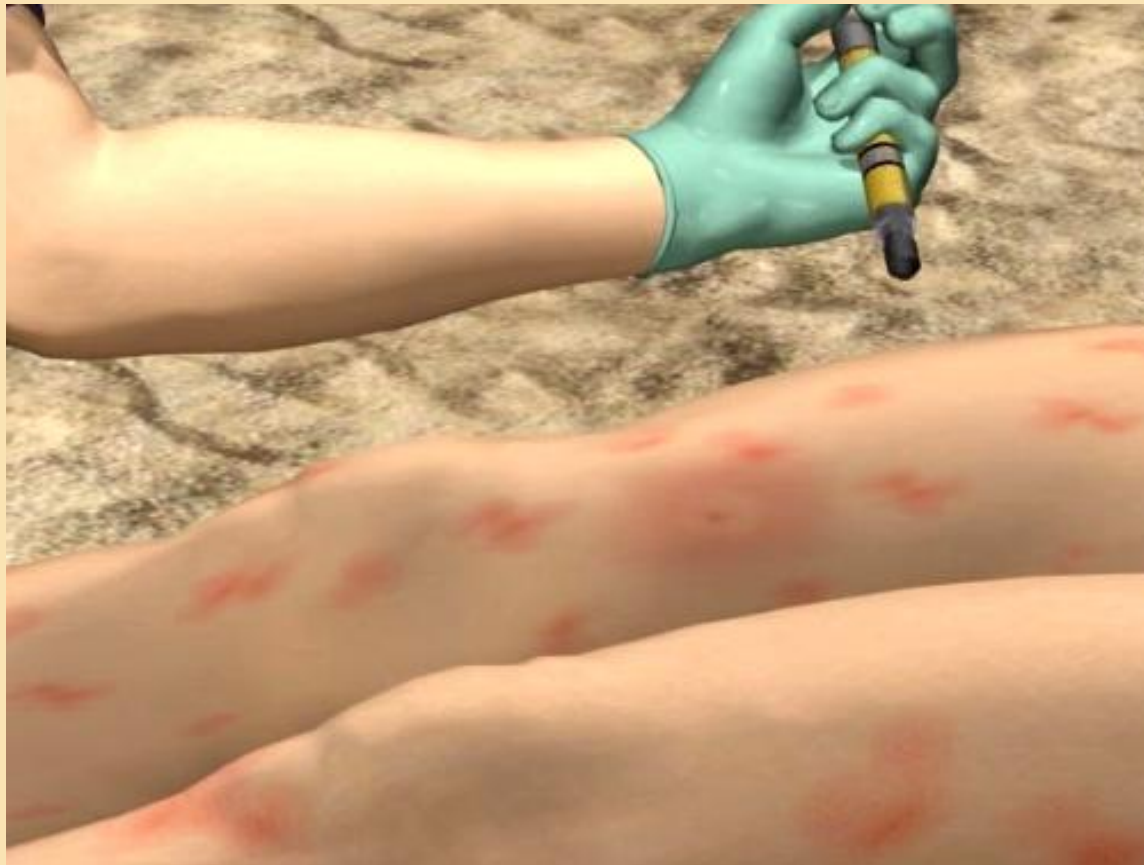


Procedure

- * Check liquid to make sure it is clear.**
- * Remove cap.**
- * Press injector firmly against patient's thigh (outside of thigh, midway between waist and knee).**
- * Not necessary to remove clothing prior to administration**
- * Follow your local protocols.**



EpiPen[®] Administration



Click [here](#) to view an animation on EpiPen[®] administration.



Action of Epinephrine

- * Dilates bronchioles
- * Constricts blood vessels



Side Effects

- * Increased heart rate**
- * Pallor and dizziness**
- * Chest pain**
- * Headache, excitability, and anxiety**
- * Nausea and vomiting**



Reassessment Strategies

*** If patient's condition WORSENS:**

- Consult medical direction.
- Treat for shock.
- Be prepared to use CPR/AED.

*** If patient's condition IMPROVES:**

- Continue oxygen.
- Treat for shock (hypoperfusion).



Review Questions

- 1. What are the indications for administration of an epinephrine auto-injector?**
- 2. List some of the more common causes of allergic reactions.**
- 3. List signs or symptoms of an anaphylactic reaction associated with each of the following:**
 - Skin**
 - Respiratory system**
 - Cardiovascular system**



Street Scenes

- ✱ What is your impression of Mr. Meeker's condition?
- ✱ What do you think might be happening to him?

(cont.)



Street Scenes

- * What do you suspect is beginning to happen to your patient?**
- * What further treatment should you render?**



Sample Documentation

PATIENT NAME: <i>Joshua Meeker</i>				PATIENT AGE: <i>78</i>					
CHIEF COMPLAINT		TIME	RESP	PULSE	B.P.	MENTAL STATUS	R PUPILS	L	SKIN
<i>Hornet sting. Possible allergic reaction.</i>		<i>1147</i>	Rate: <i>28</i> <input type="checkbox"/> Regular <input checked="" type="checkbox"/> Shallow <input type="checkbox"/> Labored	Rate: <i>136</i> <input type="checkbox"/> Regular <input type="checkbox"/> Irregular	<i>92</i> <i>60</i>	<input checked="" type="checkbox"/> Alert <input type="checkbox"/> Voice <input type="checkbox"/> Pain <input type="checkbox"/> Unresp.	<input checked="" type="checkbox"/> Normal <input type="checkbox"/> Dilated <input type="checkbox"/> Constricted <input type="checkbox"/> Sluggish <input type="checkbox"/> No-Reaction	<input checked="" type="checkbox"/>	<input type="checkbox"/> Unremarkable <input type="checkbox"/> Cool <input type="checkbox"/> Pale <input checked="" type="checkbox"/> Warm <input type="checkbox"/> Cyanotic <input type="checkbox"/> Moist <input checked="" type="checkbox"/> Flushed <input type="checkbox"/> Dry <input type="checkbox"/> Jaundiced
PAST MEDICAL HISTORY		VITAL SIGNS	Rate:	Rate:		<input type="checkbox"/> Alert <input type="checkbox"/> Voice <input type="checkbox"/> Pain <input type="checkbox"/> Unresp.	<input type="checkbox"/> Normal <input type="checkbox"/> Dilated <input type="checkbox"/> Constricted <input type="checkbox"/> Sluggish <input type="checkbox"/> No-Reaction	<input type="checkbox"/>	<input type="checkbox"/> Unremarkable <input type="checkbox"/> Cool <input type="checkbox"/> Pale <input type="checkbox"/> Warm <input type="checkbox"/> Cyanotic <input type="checkbox"/> Moist <input type="checkbox"/> Flushed <input type="checkbox"/> Dry <input type="checkbox"/> Jaundiced
<input type="checkbox"/> None <input checked="" type="checkbox"/> Allergy to <i>Hornet stings. NKMA</i> <input type="checkbox"/> Hypertension <input type="checkbox"/> Stroke <input type="checkbox"/> Seizures <input type="checkbox"/> Diabetes <input type="checkbox"/> COPD <input type="checkbox"/> Cardiac <input type="checkbox"/> Other (List) <input type="checkbox"/> Asthma			Rate:	Rate:		<input type="checkbox"/> Alert <input type="checkbox"/> Voice <input type="checkbox"/> Pain <input type="checkbox"/> Unresp.	<input type="checkbox"/> Normal <input type="checkbox"/> Dilated <input type="checkbox"/> Constricted <input type="checkbox"/> Sluggish <input type="checkbox"/> No-Reaction	<input type="checkbox"/>	<input type="checkbox"/> Unremarkable <input type="checkbox"/> Cool <input type="checkbox"/> Pale <input type="checkbox"/> Warm <input type="checkbox"/> Cyanotic <input type="checkbox"/> Moist <input type="checkbox"/> Flushed <input type="checkbox"/> Dry <input type="checkbox"/> Jaundiced
<i>Heart attack 9 yrs ago</i> Current Medications (List) <i>Aspirin</i>			Rate:	Rate:		<input type="checkbox"/> Alert <input type="checkbox"/> Voice <input type="checkbox"/> Pain <input type="checkbox"/> Unresp.	<input type="checkbox"/> Normal <input type="checkbox"/> Dilated <input type="checkbox"/> Constricted <input type="checkbox"/> Sluggish <input type="checkbox"/> No-Reaction	<input type="checkbox"/>	<input type="checkbox"/> Unremarkable <input type="checkbox"/> Cool <input type="checkbox"/> Pale <input type="checkbox"/> Warm <input type="checkbox"/> Cyanotic <input type="checkbox"/> Moist <input type="checkbox"/> Flushed <input type="checkbox"/> Dry <input type="checkbox"/> Jaundiced
NARRATIVE									
<i>Dispatched for possible allergic reaction. Upon arrival, found 78 y/o male sitting upright leaning forward outside on lawn chair. Per patient and wife, patient stung several times (unknown exact number) by hornets while working in storage shed. Patient unable to ambulate back to house and alert his wife. Initial assessment showed patient oriented x 3. Patient in obvious respiratory distress; using accessory muscles to breathe. Flushed and blotchy skin noted to patient's neck and face. Immediately administered 15 LPM O₂ via NRB and placed patient into unit and transported. En route, patient became too exhausted to breathe and BYM used to assist respirations. Vitals en route are stated above. Only one set of vitals obtained due to continuous airway management. ALS intercept requested but no paramedic units available. Upon arrival to Med-Valley General, updated that staff on patient's condition and transferred patient and care. No changes at the time.</i>									