

Allergic Reactions

- Immune system naturally responds to foreign substances in body.
- Allergic reaction
 - Exaggerated response to foreign substance
- Allergen
 - Substance causing exaggerated effect

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Allergic Reactions

- Inside
 - First exposure
 - Immune system forms antibodies.
 - Antibodies identify and attempt to attack particular foreign substance.
 - Antibodies combine only with allergen they were formed in response to.

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Allergic Reactions

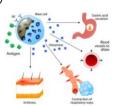
- Inside
 - Second (and subsequent) exposures
 - Antibodies exist.
 - Antibody combines with allergen, leading to release of histamine and other chemicals into bloodstream.
 - · Chemicals cause harmful effects.

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Allergic Reactions

- Outside
 - Effects of histamine and other chemicals
 - Inflammation (swelling)
 - Bronchoconstriction
 - Vasodilation



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Allergic Reactions

- Anaphylaxis
 - Severe, life-threatening allergic reaction
 - Can cause:
 - Rapid dilation of blood vessels (hypotension)
 - Airway swelling (airway obstruction)
 - Bronchoconstriction (respiratory failure)

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Allergic Reactions

- Common allergens
 - Insects
 - Foods
 - Plants
 - Medications
 - Others
 - Dust, makeup, soap, etc.



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Allergic Reactions

- · Latex allergy
 - · Common concern in EMS
 - Many patients have latex sensitivity
 - Providers can develop latex allergy from prolonged exposure



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Allergic Reactions

- No way to predict exact course of an allergic reaction.
- Severe reaction often takes place immediately, but can be delayed 30 minutes or more.
- Mild allergic reaction can rapidly progress to anaphylaxis.

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Allergic Reactions

- Signs and symptoms
 - Skin
 - Itching
 - Hives
 - · Flushing (red skin)
 - Swelling of the face
 - Warm, tingling feeling in face, mouth, chest, feet, or hands

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Facial Swelling and Hives



Allergic Reactions

- Signs and symptoms
 - Respiratory
 - Tightness in throat or chest
 - Cough
 - Rapid, labored, and/or noisy breathing
 - · Hoarseness, muffled voice, loss of voice
 - Stridor
 - Wheezing

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Allergic Reactions

- Signs and symptoms
 - Cardiac
 - · Increased heart rate
 - · Decreased blood pressure

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Allergic Reactions

- Signs and symptoms
 - Generalized findings
 - Itchy, watery eyes
 - Headache
 - Runny nose
 - Sense of impending doom

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Allergic Reactions

- · Signs and symptoms of shock
 - Altered mental status
 - Flushed, dry skin or pale, cool, clammy skin
 - Nausea or vomiting
 - Changes in vital signs
 - Increased pulse, respirations
 - Decreased blood pressure

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Distinguishing Anaphylaxis from Mild Allergic Reaction

- Any of previous signs and symptoms can be associated with an allergic reaction.
- Anaphylaxis
 - Patient has either respiratory distress or signs and symptoms of shock.

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Patient Assessment

- · Primary assessment
 - Identify and treat life-threatening problems.
 - Airway
 - Breathing
 - Circulation

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Patient Assessment

- Secondary assessment
 - History of allergies
 - Exposure
 - · What was the patient exposed to?
 - How (what method/route) was the patient exposed?
 - Signs and symptoms
 - Progression
 - Interventions

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Patient Assessment

- · Assess baseline vital signs.
- Obtain remainder of past medical history.

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Patient Care

- · Manage patient's airway and breathing.
- Apply high-concentration oxygen if patient is in distress or appears to be having an anaphylactic reaction.
 - Mild allergic reactions do not require oxygen.
- If not breathing, adequately provide artificial ventilations.

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Patient Care

- Consider assisting patient with epinephrine auto-injector.
- If patient is <u>not</u> wheezing or showing signs of respiratory distress or shock:
 - Continue with assessment.
 - Consult medical direction regarding use of auto-injector.

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Patient Care

- When use of auto-injector may be appropriate
 - If patient has come in contact with substance that caused allergic reaction in the past
 - If patient also has respiratory distress or exhibits signs and symptoms of shock

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Patient Care

- After using auto-injector
 - Record administration of auto-injector
 - Transport patient
 - Reassess after 2 minutes



Think About It

- Should you administer an auto-injector for a simple allergic reaction?
- What assessment findings would indicate the need for epinephrine?

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Self-Administered Epinephrine

Self-Administered Epinephrine

- Commonly prescribed to patients with a history of allergy
- Auto-injectors are common for people to carry or have at home.
- Hormone produced by body
- · Constricts blood vessels
- Dilates bronchioles

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Self-Administered Epinephrine

- · Administration of Epi Auto Injector
 - Authorized by medical direction
 - Indirect (protocols)
 - Online
- You can assist with administration of a patient's own epinephrine auto injector

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Self-Administered Epinephrine

- Side effects
 - Increased heart rate
 - Increased cardiac workload

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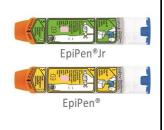
Self-Administered Epinephrine

- Spring-loaded needle and syringe with a single dose of epinephrine
- Upon administration, medication automatically releases and injects.





- Two sizes of auto-injectors
 - Adult dose
 - 0.3 mg
 - Children's dose (<66 pounds)
 - 0.15 mg



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Self-Administered Epinephrine

- Administering auto-injector
 - Obtain patient's prescribed auto-injector and ensure:
 - Prescription is written for patient.
 - Medication is not discolored.
 - Medication has not expired.
 - Obtain order from medical direction.
 - Remove safety cap.

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Self-Administered Epinephrine

- Administering auto-injector
 - Press tip of auto-injector firmly against patient's thigh (outside of thigh midway between the knee and waist).
 - Hold injector in place until medication is injected.



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Self-Administered Epinephrine

- Administering auto-injector
 - Record administration and time.
 - Carefully dispose of single-dose injector in biohazard container
 - Save two-dose injector

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Additional Doses of Epinephrine

- Reassessment may show patient condition deteriorating.
 - Additional doses of epinephrine may be necessary.
- Requires on-line medical control
- Requires bringing patient's additional auto-injectors in ambulance

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Additional Doses of Epinephrine

- · If no auto-injector available:
 - Request ALS intercept.
 - Treat for shock.

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Chapter Review

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Chapter Review

- · Allergic reactions are common.
- Anaphylaxis, a true life-threatening allergic reaction, is rare.

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Chapter Review

- The most common symptom in these cases is itching.
- Patients with anaphylaxis will also display life-threatening difficulty breathing and/or signs and symptoms of shock. Patients with anaphylaxis will be extremely anxious. Their bodies are in trouble and are letting them know it.

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Chapter Review

 The signs and symptoms of anaphylaxis result from physiological changes: vasodilation, bronchoconstriction, leaky capillaries, and thick mucus.

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Remember

- In an allergic reaction, the body's immune system overreacts to an allergen and causes potentially harmful side effects.
- Anaphylaxis is a severe, systemic form of allergic reaction; it is a lifethreatening emergency.

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Remember

- EMTs must use assessment to differentiate a localized allergic reaction from a systemic anaphylactic reaction.
- Epinephrine is useful in anaphylaxis because it constricts dilated blood vessels and opens bronchial passages.
- Epinephrine has potentially dangerous side effects and should be used only in the event of anaphylaxis.

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Questions to Consider

- What are the indications for administration of an epinephrine autoinjector?
- List some of the more common causes of allergic reactions.

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Questions to Consider

- List signs or symptoms of an anaphylactic reaction associated with each of the following:
 - Skin
 - Respiratory system
 - Cardiovascular system

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Critical Thinking

 A 24-year-old male ate a meal that he believes contained shellfish. He is allergic to shrimp. He is sweating and nervous. He appears to be breathing adequately. You do not note any wheezing or stridor.

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Critical Thinking

 His face is slightly red. His pulse is 88 strong and regular, respirations 24, blood pressure 108/74, and skin warm and moist. Should you administer epinephrine?

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