SAN JOAQUIN COUNTY
EMERGENCY MEDICAL SERVICES AGENCY
Course Curriculum

Disclaimer: Authorization - EMT Optional Skills
Only authorized Emergency Medical Technicians (EMT) who are on duty with a provider that has been authorized by the San Joaquin County EMS Agency may utilize EMT Optional Skills.

Administration of Epinephrine Auto-injector

Instructor Qualifications
Be qualified by education and experience with at least forty (40) hours of documented teaching methodology instruction in areas related to methods, materials, and evaluation of instruction and shall meet the following qualifications:
(1) Be a Physician, Registered Nurse, Physician Assistant, or Paramedic currently licensed in California; or,
(2) Be an Advanced EMT or EMT who is currently certified in California; or
(3) Have at least two (2) years of academic or clinical experience in the practice of emergency medicine or prehospital care in the last five (5) years.

Course length
Course will be no less than 150 min in length; however, additional time should be added based on the amount of time students need to master the material. If more than one EMT optional skills training course is taught in a single day, sections relating to policy, that are identical in each course can be combined, but minimum time shall not be reduced.

Student Ratio
The training programs shall assure that no more than eight (8) students/participants are assigned to one (1) principal instructor/teaching assistant during skills practice/laboratory sessions.

Course Equipment
- PowerPoint Presentation – Computer and Projector with Audio resources
- Handouts (Epinephrine Auto-injector Skills Competency Verification Form, PowerPoint presentation printout, Course Outline, EPI Pen User Guide, related EMS Policies)
- Epinephrine auto-injector 0.3 mg in 0.3 ml and epinephrine auto-injector 0.15 mg in 0.3 ml (Sample)
- Epinephrine auto-injector trainer (for use when practicing administration)
- Gloves
- Antiseptic wipes
- Adhesive bandages
- Simulated patient
- Sharps container
## Minutes | Content Outline | Master Teaching Notes
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I. Introduction, schedule, disclaimer, course objective. | The participant should be able to identify the need for use of epinephrine by auto-injector for suspected anaphylaxis. The participant should be able to:

1. List the common cause of suspected anaphylaxis;
2. Cite the signs and symptoms of suspected anaphylaxis;
3. Describe the need for personal protective equipment and scene safety;
4. Demonstrate the ability to implement the following policies:
   a. SJCEMSA Policy No. 5503, BLS Routine Medical Care
   b. SJCEMSA Policy No. 5504, BLS Patient Assessment – Primary Survey
   c. SJCEMSA Policy No. 5505, BLS Patient Assessment – Secondary Survey
   d. SJCEMSA Policy No. 5520, BLS Respiratory Distress
   e. SJCEMSA Policy No. 5551, BLS Allergic Reaction - Anaphylaxis
   f. SJCEMSA Policy No. 5552, BLS Bites and Stings
5. Define the indications, contraindications, side/adverse effects, dosages, and mechanisms of drug action of epinephrine;
6. Demonstrate the ability to administer epinephrine by auto-injector and dispose of contaminated items and sharps;
7. List the steps for providing on-going care of the patient until an advanced life support (ALS) provider arrives;
8. Demonstrate the ability to perform patient transfer of care to the arriving transport paramedic;
Review the course schedule.
Confirm they understand the course objectives and are familiar with the Disclaimer. Although all EMTs needs this course to maintain their EMT certification, they might not be authorized to use it.
Refer them to the EMS Agency if they have questions about maintaining their EMT certification.

<table>
<thead>
<tr>
<th>2 Minimum</th>
<th>II. Medical Control Philosophy, medical control</th>
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</table>
1. Online medical control is that medical direction provided to the prehospital care team while in direct voice contact with an MICN or Base Hospital physician at a designated San Joaquin Base Hospital.
2. Offline medical control is that medical direction provided when the prehospital care team is not directly involved in patient care, via policies, and medical record audits. | Describe online verses offline and the importance of knowing the difference.
Mention standing order for
San Joaquin County operates primarily on a standing orders system.

<table>
<thead>
<tr>
<th>2</th>
<th>III. Definitions of Anaphylaxis</th>
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<tbody>
<tr>
<td></td>
<td>Anaphylaxis is a severe, potentially life-threatening whole-body allergic reaction to a chemical that has become an allergen. An allergen is a substance that can cause an allergic reaction. It can occur within seconds or minutes of exposure to an allergen. Common allergens are peanuts and venom from a bee sting. The flood of chemicals released by the immune system during anaphylaxis can cause a patient to go into shock; the blood pressure drops suddenly and the airways narrow, blocking normal breathing.</td>
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<tr>
<th>2</th>
<th>IV. Common causes of suspected anaphylaxis</th>
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<tbody>
<tr>
<td></td>
<td>Some of the most common causes of severe allergic reactions (anaphylaxis) include:</td>
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<tr>
<td></td>
<td>1. Venom from insect bites and stings, especially those of bees, wasps, hornets, and yellow jackets;</td>
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<td></td>
<td>2. Foods, including nuts, shellfish / crustaceans, peanuts, chocolate, eggs, milk;</td>
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<tr>
<td></td>
<td>3. Plants, including contact with poison ivy, poison oak, and pollen from ragweed and grasses;</td>
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<td>4. Medications, including penicillin and other antibiotics, aspirin, seizure medication, muscle relaxants, etc.;</td>
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<tr>
<td></td>
<td>5. Other causes include dust, latex, glue, soaps, make-up, etc.</td>
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Epinephrine auto-injector are under EMS Policy No. 5551
Repeat the disclaimer.
Once an SJCEMSA accredited paramedic arrives on scene, that paramedic will provide all further ALS Patient care. No EMT Optional Skills will be performed or authorized in the presence of an SJCEMSA accredited paramedic.

Engage participants; have them give examples of items that may cause anaphylaxis.
<table>
<thead>
<tr>
<th>Column</th>
<th>Section</th>
<th>Content</th>
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</table>
| 3 | V. Identify the signs and symptoms of suspected anaphylaxis | Severe generalized hives or swelling to face, neck, hands, feet, tongue  
Respiratory distress  
Difficulty swallowing  
Difficulty breathing  
Hoarseness  
Stridor  
Wheezing  
Tightness in throat or chest  
Decreased mental status  
Assessment that reveals shock (hypoperfusion)  
Consider if any type of other illness would present this way. |
| 3 | VI. Anaphylaxis objective findings of signs and symptoms | Mild: Hives, rash  
Moderate: Hives, rash, bronchospasm, wheezing  
Severe: Altered mental status, signs of shock, respiratory distress, chest tightness, difficulty swallowing  
Review the different levels of allergic reactions. |
| 10 | VII. PPE, Scene Safety, EMS Policies | 1. SJCEMSA Policy No. 5503, BLS Routine Medical Care  
2. SJCEMSA Policy No. 5504, BLS Patient Assessment – Primary Survey  
3. SJCEMSA Policy No. 5505, BLS Patient Assessment – Secondary Survey  
4. SJCEMSA Policy No. 5520, BLS Respiratory Distress  
5. SJCEMSA Policy No. 5551, BLS Allergic Reaction – Anaphylaxis  
6. SJCEMSA Policy No. 5552, BLS Bites and Stings  
Wear personal protective equipment (PPE) and ensure scene safety for both the medical responders and the patient.  
Whenever on an EMS call, always have a heightened sense of situational awareness to ensure responder and patient safety. |
| 1 | VIII. Profile of Epinephrine | **Medication Name**  
Generic: Epinephrine  
Trade: Adrenalin  
Show samples. |
<table>
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<tr>
<th>Delivery system:</th>
<th>EpiPen or EpiPen Jr.</th>
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<tr>
<td><strong>IX. Epinephrine Overview</strong></td>
<td>Ask if the participants have any questions.</td>
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<tr>
<td>5</td>
<td>Epinephrine is a hormone produced by the body. Administered as a medication, it will constrict blood vessels (helping to raise the blood pressure and improve perfusion) and dilate the bronchioles (helping to open the airway and improve respiration).</td>
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<tr>
<td><strong>X. Contraindications</strong></td>
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<td>2</td>
<td>There are no absolute contraindications to the administration of epinephrine after a potentially life-threatening allergen exposure resulting in anaphylaxis.</td>
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<tr>
<td><strong>XI. Side/adverse effects</strong></td>
<td>Review procedure to follow administration of epinephrine.</td>
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</table>
| 5 | Increased heart rate  
  Palpitations (the heart is beating too fast, too hard or skipping a beat)  
  Pallor (lack of color) skin signs  
  Sweating  
  Nausea or vomiting  
  Nervousness or anxiety  
  Cardiac arrest |
| **XII. Routes of administration** | Show the area of the lateral aspect of the thigh. |
| 2 | Intramuscular injection (IM) to the lateral aspect of the thigh. |
| **XIII. Dosages** | Tip:  
The average 10 year old weighs 66 pounds. (50% of kids)  
A large 7 year old can weigh 66 pounds (5% of kids)  
A thin 12 year old can weigh 66 pounds (5% of kids) |
| 5 | EpiPen Auto-Injector 0.3mg in 0.3mL  
EpiPen Jr. Auto-injector 0.15mg in 0.3mL  
**Calculating medication dosages**  
If patient weighs **less than 30 Kg** (66 pounds) use **EpiPen Jr.**  
If patient weighs **more than 30 Kg** (66 pounds) use **EpiPen** |
### XIV. Mechanisms of medication action

1. Produces vasoconstriction to counteract the vasodilation and resulting hypotension associated with anaphylaxis;
2. Reduces mucosal edema to relieve bronchoconstriction (swelling in the lungs) and improves respiratory effort;
3. Down-regulates the release of histamine, and other inflammatory mediators from mast cells and basophils, improving respiratory function;
4. Relieves hives, swelling to the tongue and throat, and gastrointestinal symptoms which occur after allergen exposure.

### XV. Aseptic technique

**Definition:** A procedure used by medical staff to prevent the spread of infection. The goal is to reach asepsis, which means an environment that is free of harmful microorganisms.

Stress the importance of the use of proper PPE and sterile techniques when administering medication to a patient, in order to ensure asepsis.

Demonstrate the proper way to clean the area prior to administration.

### XVI. Prior to medication administration

ALWAYS ask the patient if they have any allergies to medications.

It is important to remove the allergen from the patient, if possible.

- To remove a bee sting, brush the surface of the patient’s skin with a flat edge (ex. plastic ID card, tongue depressor). The edge of the stinger will catch the edge of the flat surface and be pulled out. Do not squeeze the stinger (using tweezers) as it may squeeze more venom from the sac into the patient.

- Irrigate the patient if the allergen is a substance on the skin (ex. grass, pollen, dust, poison ivy). This can be accomplished by using a bottle of sterile water, or a hose.

Highlight the importance of always asking if they have allergies to medication.

Demonstrate how to remove a stinger.

5 Rights – Drug, Dose, Route, Time, Patient

### XVII. Indications for the administration of epinephrine for anaphylaxis

Describe with great emphasis on moderate worsening and
**Mild**
Epinephrine is **not indicated**

**Moderate**
Improving epinephrine is **not indicated** – Patient is able to speak full sentences, adequate blood pressure and heart rate.

Worsening epinephrine is **indicated** – Patient is only able to speak 1-2 word sentences, or increasing wheezing, or increased work of breathing

**Severe**
Epinephrine is **indicated**

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**XVIII. List the steps for administering epinephrine by auto-injector**

1. Take or verbalize universal body/substance isolation precautions;
2. Verbalize performing scene size-up;
3. Verbalize performing primary survey;
4. Verbalize performing decontamination by removing any allergy irritants e.g. bee stingers, latex dust;
5. State the indications for administration of epinephrine auto-injectors;
6. Ask the patient if they are allergic to any medications;
7. Check for correct medication, concentration, integrity of container, dosage, and expiration date;
8. Select and prepare injection site using aseptic technique;
9. Remove safety cap from the auto-injector;
10. Place tip of auto-injector against the patient’s lateral mid-thigh at a 90 degree angle;
11. Uses a quick motion, presses hard onto thigh until auto-injector mechanism functions, and holds in place for 10 seconds;
12. Withdraw auto-injector and using a dressing/bandage apply pressure to injection site and massage area for 10 seconds;
13. Verbalize disposing of auto-injector in sharps container;
14. Verbalize continued monitoring of patient and observing for improvement or worsening of the patient’s respiratory distress;
15. Verbalize completing the secondary survey and providing supplemental oxygen and respiratory support if necessary;
16. Documentation of injection site, patient response and side effects.

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**XIX. Disposal of contaminated items and sharps**

Demonstrate the proper way to dispose of a contaminated
| XX. List the steps for providing on-going care of the patient until an ALS transport unit arrives | Review of Minimally Interrupted Cardiac Resuscitation (MICR) and highlight that it is contraindicated for respiratory or trauma-induced cardiac arrest.  
Respiratory-induced cardiac arrests include:  
- Drowning  
- Hanging / asphyxiation  
- Severe asthma  
- Apnea (absent breathing) secondary to overdose |
| --- | --- |
| 1. Continue to support respirations as necessary which may include positive pressure ventilation via bag-valve mask (BVM) and supplemental oxygen;  
2. Monitor for signs and symptoms of shock (hypoperfusion);  
3. Complete BLS Secondary Survey  
For adult patients that suffer from respiratory-induced cardiac arrest, initiate CPR at 30:2.  
Minimally Interrupted Cardiac Resuscitation (MICR) is contraindicated for respiratory or trauma-induced cardiac arrest. |  
Highlight  
1. Found  
2. Did  
3. Have |
| XXI. Transfer of Care  
Upon arrival of the ALS transport unit, provide the transport paramedic with a complete report and history of care. This report should include:  
(1) Findings from the initial assessment,  
(2) History of the treatment provided to the patient by EMS, and  
(3) The current status of the patient. | Documentation review, “if it’s not documented it didn’t happen.” |
| XXII. Clearly document use on patient care report  
The patient care report (PCR) is a legal document that speaks for the patient when they are unable to do so. The PCR documentation must be clear, concise and accurate to ensure proper continuum of care once the patient arrives at the hospital. | Answer any questions and repeat disclaimer. |

Sharps disposal containers should be of sufficient thickness or construction design to be durable, leak resistant, and puncture resistant under normal use and stresses imposed during storage, handling, installation, use, closure, and transport by the user before final disposal.
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<table>
<thead>
<tr>
<th></th>
<th>XXIV. Skills Lab</th>
<th>Use 08/31/15 Epinephrine Auto-injector Skills Competency Auto-injector Skills Competency Verification Form</th>
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<tbody>
<tr>
<td>30</td>
<td>Case Scenarios</td>
<td></td>
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<tr>
<td>15</td>
<td>XXV. Skill Competency Test and Course Evaluation</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>Total Minimum Course Time</td>
<td></td>
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