Upon completion of this unit of instruction, the student will be able to:

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| 1. Explain the rationale for an EMT to assist the patient or allowing the patient to self-administer specific medications prior to the arrival of ALS. | **Rationale for an EMT to assist or allowing patient to administer medications prior to ALS arrival:**  
- Administration of a specific medication prior to the arrival of ALS may be a lifesaving measure. |  |
| 2. Discuss the risk associated with administration of medications. | **Risk associated with administration of medications:**  
- The risk of administration of any medication is that it may result in a life-threatening response if administered incorrectly. |  |
| 3. Discuss the criteria for EMTs to allow the patient to self-administer or assist the patient with a prescribed medication in Los Angeles County. | **Administration criteria:**  
- Medications are listed in the Los Angeles County EMT-I Expanded Scope of Practice  
- Medication is prescribed by a physician  
- Medication is prescribed for the patient  
- Meets indication for administration  
- No contraindications are present |  
- EMTs may only assist with administration of prescribed medications that are included in the Los Angeles County EMT-I Expanded Scope of Practice.  
- Administration must meet the specific parameters required for each medication (Nitroglycerin - patient has a systolic BP >100mg/Hg, and has not taken 3 doses prior to EMT arrival). |
| 4. Identify the medications that may be carried on BLS Units per the EMT-Basic National Standard Curriculum. | **The EMT-Basic National Standard Curriculum allows for:**  
- Oxygen  
- Oral glucose  
- Activated charcoal |  
- The EMT-Basic National Standard Curriculum was developed by the Department of Transportation for EMT-Basic training.  
- Activated Charcoal is not in the California or Los Angeles County Basic Scope of practice |
| 5. Identify which medications are carried on EMT Units in Los Angeles County. | **Medications carried on EMT Units in Los Angeles County:**  
- Oxygen  
- Oral glucose | |
| 6. Identify the medication that is not carried on EMT Units in Los Angeles County. | **The medication not carried on EMT Units in Los Angeles County:**  
- Activated Charcoal |  
- The medication not carried on EMT Units in Los Angeles County:
### LEARNING OBJECTIVES

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| 7. Identify the prescribed medications that the EMT may assist the patient with or allow the patient to self-administer in Los Angeles County. | *Prescribed medications EMTs may assist with in Los Angeles County:*  
- Bronchodilator inhaler and nebulizer  
- Epinephrine Auto-injection device  
- Nitroglycerin tablet or spray. | • Medications included in the Los Angeles County EMT-I Expanded Scope of Practice Reference No. 802 - Emergency Medical Technician-I Scope of Practice.  
• The administration criteria must be met for EMTs to be able to assist the patient with prescribed medications. |
| 8. Define the following pharmacology terms: | *Definition of pharmacology terms:*  
A. Pharmacology - the study of drugs and their effect on the body  
B. Drug/Medication - a chemical substance used to treat or prevent a disease or condition  
C. Administration route - method by which the medication is given or taken by the patient  
D. Generic name - the pharmacological name given to a drug when originally developed  
E. Trade/Brand name - the drug name used by the manufacturer for marketing purpose | D. The generic name is the name listed in the U.S. Pharmacopeias, a governmental publication listing all drugs in the United States. Generic names: albuterol sulfate, epinephrine hydrochloride, nitroglycerin  
E. Trade/Brand names: Proventil®, Adrenalin®, Nitrobid® |
| 9. Give the generic and trade names for the medications listed in the EMT-Basic National Standard Curriculum: | *Generic and Trade/Brand names:*  
A. Oxygen  
- Generic - Oxygen  
- Trade - None  
B. Oral glucose  
- Generic - Dextrose carbonate solution, glucose paste, glucose gel  
- Trade - Glucola®, Glucopaste®, etc. | • The trade names presented are the most common, but other trade names may exist. |

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<td><strong>9.</strong> Give the generic and trade names for the medications listed in the EMT-Basic National Standard Curriculum:</td>
<td>(Continued) <strong>Generic and Trade/Brand names:</strong> (Continued)</td>
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</table>
| C. Bronchodilators | C. **Bronchodilators**  
  - **Generic** - Albuterol sulfate, metaproteranol, isoetharine, etc.  
  - **Trade** - Proventil®, Ventolin®, Bronchometer®, Bronkosol®, Alupent®, Metaprel®, etc. | |
| D. Epinephrine | D. **Epinephrine**  
  - **Generic** - Epinephrine hydrochloride  
  - **Trade** - Adrenalin® | |
| E. Nitroglycerin | E. **Nitroglycerin**  
  - **Generic** - Nitroglycerin  
  - **Trade** - Nitrolingual® spray, Nitrobid®, Nitrostat®, etc. | |
| F. Activated Charcoal | F. **Activated Charcoal**  
  - **Generic** - Charcoal (activated)  
  - **Trade** - Acta-Char®, Actidose®, Charcoaid®, Insta-Char®, Liqui-Char®, etc. | F. Activated Charcoal is not in the California or Los Angeles County Basic Scope of practice |

<p>| <strong>10.</strong> Discuss the form in which the following medications are available: | <strong>Forms medications are available:</strong> | |
| A. Oxygen | A. <strong>Oxygen</strong> - gas | • Each drug is in a specific medication form to allow a controlled concentration to enter the blood stream. |
| B. Glucose | B. <strong>Glucose</strong> - paste, gel, solution | |
| C. Nitroglycerin | C. <strong>Nitroglycerin</strong> - compressed powder (tablets), spray | |
| D. Bronchodilators | D. <strong>Bronchodilators</strong> - inhalers containing fine powder or liquid that are aerosolized or vaporized in a nebulizer | |
| E. Epinephrine | E. <strong>Epinephrine</strong> - liquid for injection | E. Epinephrine is supplied in syringe kits such as an EpiPen, Ana-Kit, etc. |
| F. Activated Charcoal | F. <strong>Activated Charcoal</strong> - suspension | |</p>
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<tr>
<td>11. Define the following terms associated with medication administration:</td>
<td><strong>Definition of terms:</strong></td>
<td></td>
</tr>
<tr>
<td>A. Classification</td>
<td>A. <strong>Classification</strong> - general category for a medication which is determined by the drug's action on cells, organs, and body systems</td>
<td>B. Action of the medication is responsible for the therapeutic effect the medication has.</td>
</tr>
<tr>
<td>B. Action</td>
<td>B. <strong>Action</strong> - the medication's specific effect on cells, organs, and body systems</td>
<td>D. Allergy to any medication is always considered a contraindication for medication administration.</td>
</tr>
<tr>
<td>C. Indication</td>
<td>C. <strong>Indication</strong> - the specific condition for which the medication is recommended</td>
<td>E. Some side effects are predictable even when not desired; e.g. epinephrine increases heart rate.</td>
</tr>
<tr>
<td>D. Contraindication</td>
<td>D. <strong>Contraindication</strong> - the circumstances when a medication should not be administered</td>
<td></td>
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<td>E. Adverse/Side effect</td>
<td>E. <strong>Adverse/Side Effect</strong> - undesirable effect of the medication; may be due to the nature of the drug, dose and rate of administration</td>
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<td>F. Administration</td>
<td>F. <strong>Administration</strong> - includes: dose, route, rate of administration, repeat dose and time, and the maximum amount that can be administered</td>
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<tr>
<td>G. Dose</td>
<td>G. <strong>Dose</strong> - specific amount of medication administered that will provide a desired effect, but not be harmful</td>
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<tr>
<td>H. Route</td>
<td>H. <strong>Route</strong> - how the medication is given or taken by the patient</td>
<td>H. Medications are administered by various routes:</td>
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<tr>
<td></td>
<td></td>
<td>• <strong>Sublingual</strong> - nitroglycerine tablets and spray</td>
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<td></td>
<td></td>
<td>• <strong>Oral</strong> - dextrose(glucose) preparations; dextrose carbonate solution, glucose paste, glucose gel, glucose tablet</td>
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<td></td>
<td></td>
<td>• <strong>Inhalation</strong> - oxygen, metered dose inhaler, nebulizer</td>
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<tr>
<td></td>
<td></td>
<td>• <strong>Intramuscular</strong> - epinephrine</td>
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<tr>
<td>I. Onset</td>
<td>I. <strong>Onset</strong> - time required for the medication to begin its physiologic effect</td>
<td></td>
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<tr>
<td>J. Duration</td>
<td>J. <strong>Duration</strong> - the length of time the medication maintains its physiological effect</td>
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</table>
### LEARNING OBJECTIVES (Continued)

11. Define the following terms associated with medication administration:
   - **K. Precaution** - measures considered beforehand to avoid complications when administering medications

### LESSON CONTENT (Continued)

#### Definition of terms:

**K. Precaution** - measures considered beforehand to avoid complications when administering medications

### NOTES / RATIONALE (Continued)

12. Define the following terms that pertain to medications or intravenous infusions:

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>A. Bronchospasm</td>
<td>airways constrict; caused by irritants, foreign body, cold air, exercise or unknown factors</td>
</tr>
<tr>
<td>B. Euphoria</td>
<td>feeling of well being</td>
</tr>
<tr>
<td>C. Hypoxemia</td>
<td>decreased O₂ in arterial blood</td>
</tr>
<tr>
<td>D. Hypoxia</td>
<td>deceased O₂ at the cellular level</td>
</tr>
<tr>
<td>E. Intracellular</td>
<td>inside the cell</td>
</tr>
<tr>
<td>F. Necrosis</td>
<td>death of tissue or bone</td>
</tr>
<tr>
<td>G. Parenteral</td>
<td>route of administration by injection or absorption</td>
</tr>
<tr>
<td>H. Parenteral Nutrition</td>
<td>essential nutrients given intravenously</td>
</tr>
<tr>
<td>I. Pursed Lips</td>
<td>puckered lips; helps patients to breathe out slowly and aids in transporting medication across the alveolar membrane</td>
</tr>
<tr>
<td>J. Respiratory Insufficiency</td>
<td>is the inadequate elimination of CO₂ and oxygenation of the blood</td>
</tr>
<tr>
<td>K. Spacer Device</td>
<td>a hollow tube attached to an inhaler, allows for better inhalation of medication when patient has difficulty breathing</td>
</tr>
<tr>
<td>L. Therapeutic Range</td>
<td>a concentration between minimal effectiveness and a toxic level</td>
</tr>
<tr>
<td>M. Volume-Control Set</td>
<td>refers to either a volume-control pump or device that regulates the rate of IV infusion</td>
</tr>
</tbody>
</table>

**G. Parenteral routes:** intravenous, (IV), subcutaneous (SQ), intramuscular (IM), or transmucosal (TM)

**K. A spacer device holds the medication in the chamber making it easier for the patient to inhale the medication.**
### LEARNING OBJECTIVES

13. Explain the meaning of the following drug classifications:

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<tbody>
<tr>
<td>A.</td>
<td><strong>Bronchodilator</strong> - relaxes smooth muscles of the respiratory tract and dilates bronchioles</td>
<td>Examples of drugs in each classification:</td>
</tr>
<tr>
<td>B.</td>
<td><strong>Caloric Agent</strong> - provides essential amino acids and carbohydrates</td>
<td>A. <strong>Bronchodilator</strong> – Albuterol</td>
</tr>
<tr>
<td>C.</td>
<td><strong>Chemical Absorbent</strong> - absorbs certain ingested chemicals or substances in the GI tract</td>
<td>B. <strong>Caloric Agent</strong> – Total Parenteral Nutrition</td>
</tr>
<tr>
<td>D.</td>
<td><strong>Cytoxic Agent</strong> - destroys or controls rapidly reproducing cells</td>
<td>C. <strong>Chemical Absorbent</strong> – Charcoal</td>
</tr>
<tr>
<td>E.</td>
<td><strong>Electrolyte</strong> - a positive or negative charged element in the blood, tissue fluid, and cells</td>
<td>D. <strong>Cytoxic Agent</strong> – Chemotherapeutic Agent</td>
</tr>
<tr>
<td>F.</td>
<td><strong>Hyperglycemic Agent</strong> - elevates blood glucose levels</td>
<td>E. <strong>Electrolyte</strong> – Potassium Chloride (KCL). Sodium, potassium, and chloride are the major electrolytes that are administered through IV fluids.</td>
</tr>
<tr>
<td>G.</td>
<td><strong>Hypoglycemic Agent</strong> - reduces blood glucose levels</td>
<td>F. <strong>Hyperglycemic Agent</strong> – Dextrose Preparations (gel, paste, solution)</td>
</tr>
<tr>
<td>H.</td>
<td><strong>Hypotonic Solution</strong> - has less osmotic pressure than blood</td>
<td>G. <strong>Hypoglycemic Agent</strong> – Insulin</td>
</tr>
<tr>
<td>I.</td>
<td><strong>Isotonic Solution</strong> - has approximately the same osmotic pressure as blood</td>
<td>H. <strong>Hypotonic Solution</strong> – D5W. A hypotonic solution leaves the vascular space within 20-40 minutes and may result in fluid overload and cellular edema.</td>
</tr>
<tr>
<td>J.</td>
<td><strong>Narcotic Analgesic</strong> - depresses the central nervous system and is used to relieve pain</td>
<td>I. <strong>Isotonic Solution</strong> – Normal Saline, Lactated Ringer’s Solution. An isotonic solution is used for fluid replacement and remains in the vascular space less than 1 hour.</td>
</tr>
<tr>
<td>K.</td>
<td><strong>Vasodilator</strong> - dilates blood vessels</td>
<td>J. <strong>Narcotic Analgesic</strong> – Morphine, Meperidine HCl (Demerol)</td>
</tr>
<tr>
<td>L.</td>
<td><strong>Nutritional Supplement</strong> - provides or increases essential vitamins or minerals that may be insufficient</td>
<td>K. <strong>Vasodilator</strong> – Nitroglycerin</td>
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<tr>
<td>(Continued) 13. Explain the meaning of the following drug classifications: M. Sympathomimetic Agent</td>
<td>(Continued) Drug classifications: M. <strong>Sympathomimetic Agent</strong> - produces the same effect as when the sympathetic nervous system is stimulated</td>
<td>M. <strong>Sympathomimetic Agent</strong> – Epinephrine</td>
</tr>
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14. List the 2 medications that EMTs carry on a BLS Unit. Give all pertinent information regarding these medications.

**Medications carried on the BLS Unit:**
- Oxygen
- Dextrose preparations

**Medication information:**

**Oxygen:**
Normal metabolic function requires oxygen (aerobic metabolism).
Oxygen should never be withheld from a patient in respiratory distress. In some COPD (CO₂ retaining) patients, oxygen may decrease the respiratory drive. Observe patient for any changes in respiratory and mental status and be ready to assist ventilations if necessary. Oxygen that is not humidified may dry out or irritate mucus membranes. Do **not** give more than 6 L/min via nasal cannula.
Oxygen-powered breathing devices (demand valve) may cause gastric distention or a pneumothorax due to high pressures. Do **not** use in pediatric patients < 12 years of age or in conjunction with an ET tube.

**Oxygen Delivery Adjuncts in Los Angeles County:**
- nasal cannula
- face mask
- bag-valve-mask with O₂ reservoir
- endotracheal tube (ET)
- esophageal tracheal combitube (ETC)
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<td>(Continued) 14. List the 2 medications that EMTs carry on a BLS Unit. Give all pertinent information regarding these medications.</td>
<td>Medications carried on the BLS Unit: (Continued)</td>
<td>• <strong>Dextrose Preparations:</strong> There is a risk of vomiting and aspiration if a decrease in consciousness occurs. Do not administer if there is a potential for an altered level of consciousness. Administer solution only if the patient is able to hold the bottle and drink without assistance. The entire amount of solution does not need to be administered if improvement is noted in the patient's condition.</td>
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<tr>
<td>(Continued) 15. Discuss the medication that is found in the EMT-Basic National Standard Curriculum, but is not in the Los Angeles County EMT-I Scope of Practice.</td>
<td>Activated Charcoal is not in the Los Angeles County EMT-I Scope of practice. Medication information: Refer to the Basic Providers Section of the Drug Guide for Basic and Advanced Life Support Providers, 2nd Edition, January, 2000.</td>
<td>• <strong>Activated Charcoal:</strong> There is a major risk of vomiting and aspiration if a decrease in consciousness occurs. Should not administer if there is a potential for an altered level of consciousness. Charcoal is most effective if administered within 30 minutes of overdose or poison ingestion. Bottle must be vigorously shaken prior to administration to ensure that the charcoal is thoroughly suspended. Charcoal does not absorb cyanide, ethanol, methanol, ferrous sulfate, caustic alkali or mineral acids. Sorbitol acts as a potent cathartic. It should never be administered to patients &lt; 2 years of age due to potential fluid and electrolyte disturbances.</td>
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</table>
| 16. List the 3 medications that EMTs may assist a patient with or allow patient to self-administer. Give all pertinent information regarding these medications. | **Medications EMTs may assist a patient with or allow patient to self-administer:**  
- Bronchodilators (Albuterol)  
- Epinephrine  
- Nitroglycerine  

**Medication information:**  
EMT providers are not authorized to carry bronchodilators, but may assist a patient with their own physician prescribed inhaler or nebulizer.  
The patient's inhaler or nebulizer is for emergency supportive therapy only and is not a substitute for immediate medical care.  
An ALS unit must be enroute OR the patient must be transported immediately to the nearest emergency department if ALS response is not available.  
Patients with hypoxia may experience cardiac dysrhythmias; therefore, high flow oxygen should be administered.  
- **Epinephrine:**  
EMT providers are not authorized to carry Epinephrine Auto-Injectors, but may assist patients with their own physician prescribed device.  
The Epinephrine Auto Injector is for emergency supportive therapy only and is not a substitute for immediate medical care.  
An ALS unit must be enroute OR the patient must be transported immediately to the nearest emergency department if ALS response is not available.  
Injection into buttocks, hands or feet may result in loss of blood flow to the affected area and result in delayed absorption and tissue necrosis.  
Injection intravenously may result in an acute myocardial infarction or cerebral hemorrhage.  

(Continued)
LEARNING OBJECTIVES | LESSON CONTENT | NOTES / RATIONALE
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(Continued) 16. List the 3 medications that EMTs may assist a patient with or allow patient to self-administer. Give all pertinent information regarding these medications. (Continued) Medications EMTs may assist a patient with or allow patient to self-administer: (Continued)

- **Epinephrine:**
  A solution that is discolored, contains particles, or is outdated may be chemically altered and may lose its potency or result in muscle damage.

  The EpiPen contains 2ml (2mg) of epinephrine. The Auto-Injector delivers 0.3ml (0.3mg); approximately 1.7ml remains in the pen after activation.

  The Ana-Kit contains 2ml (2mg) of epinephrine. The syringe initially delivers 0.3ml (0.3mg); approximately 1.7ml remains in the syringe after activation. A twist of the plunger will allow for another dose, however only one dose can be given in the field.

  Anaphylaxis may be caused by insect stings or bites, foods, drugs, other allergens, exercise, or may even be spontaneous.

  **Signs/symptoms** of anaphylaxis are: flushed skin, nervousness, syncope, tachycardia, thready or unobtainable pulse, hypotension, convulsions, vomiting, diarrhea, abdominal cramps, urinary incontinence, wheezing, stridor, difficulty breathing, itching, rash, hives, and generalized edema.

- **Nitroglycerin:**
  EMTs are not authorized to carry nitroglycerin tablets or spray, but may assist patients with their own physician prescribed medication.

  Nitroglycerin administration is for emergency supportive therapy only and is not a substitute for immediate medical care.
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</table>
| 16. List the 3 medications that EMTs may assist a patient with or allow patient to self-administer. Give all pertinent information regarding these medications. | Medications EMTs may assist a patient with or allow patient to self-administer: | **Nitroglycerin:**
An ALS unit must be enroute OR the patient must be transported immediately to the nearest emergency department if ALS response is not available.
May cause hypotension due to vasodilation. Always take blood pressure before and 5 minutes after administration of Nitroglycerin.
One spray delivers 0.4mg of nitroglycerin; if the container is shaken it will alter the dose delivered. Do not shake container.
Inhaling the spray affects absorption rate. Instruct patient not to inhale spray. |
|                     | (Continued)     |                  |
| (Continued)         | (Continued)     |                  |
| 17. List the intravenous solutions (IV) that a patient may have infusing during an EMT transport. Give all pertinent information regarding these solutions. | Intravenous solutions that an EMT may transport: | EMTs may transport various combinations of glucose solutions (D$_5$ ⅛NS, D$_5$ ⅛NS).
EMTs may not transport patients with any other IV solutions that are not glucose solutions or isotonic salt solutions (e.g. 0.45NS).
Intravenous infusions may result in systemic fluid overload if not regulated. |
|                     | (Continued)     |                  |
|                     | (Continued)     |                  |
| (Continued)         | (Continued)     |                  |
|                     | (Continued)     |                  |

**IV Solution information:**
- Glucose Solutions (D$_5$W)
- Isotonic Salt Solutions
  - Sodium Chloride
  - Lactated Ringer’s Solution

- Signs of fluid overload may include: distended neck veins (JVD), rapid respirations, dyspnea, shallow tidal volume, fine auscultatory crackles, and peripheral edema.
Intravenous infusions may infiltrate.
- Signs of infiltration are swelling and pain around the IV site.
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| 18. List the 3 medications and the maximum concentration that may be added to an IV solution that may be transported by EMTs in Los Angeles County. Give all pertinent information regarding these medications. | **Medication additives:**  
- Folic Acid - 1mg/1000ml  
- Multi-vitamins - 1 vial/1000ml  
- Thiamine - 100mg/1000ml  

**Medication information:**  
• These solutions must be set at a TKO rate for transport. EMTs are not allowed to adjust IV solutions with medication additives except to discontinue drip if there are signs of infiltration.  
• EMTs in Los Angeles County may only transport patients with IV solution additives that do not exceed the maximum concentration.  
** Adult Administration:** Infusion must be adjusted to a TKO rate by hospital/home health personnel  
** Pediatric Administration:** Infusion must be on a volume-control set and adjusted to a TKO rate by hospital/home health personnel.  
• Folic acid, multi-vitamins, and thiamine all may be administered in conjunction with each other in one IV solution.  
• Multi-vitamins for infusion contain both water and fat soluble vitamins. When added to an IV infusion it gives a yellow color to the fluid |  
(Continued) |
| 19. List the 3 medication additives that require an infusion pump for transport. Give all pertinent information regarding these medications. | **Intravenous infusions or additives requiring an infusion pump:**  
- Potassium Chloride Infusion (KCl)  
- Total Parenteral Infusion (TPN)  
- Chemotherapeutic Agents  

**Medication information:**  
• Infusion rates must be preset by hospital/home health personnel prior to transport.  
• These medications are extremely dangerous if not administered at specific rates. EMTs are not allowed to adjust these infusion rates.  
• **Potassium Chloride (KCl) Infusion:**  
IV concentration higher than 20mEq/1000ml of IV solution, must be transported by an ALS Unit and patient placed on a cardiac monitor.  
To transport a patient with Potassium Chloride an infusion pump is required. EMTs may use their own, if provided by their agency, or use a pump provided by the transferring facility. |  
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<td>(Continued) 19. List the 3 medication additives that require an infusion pump for transport. Give all pertinent information regarding these medications.</td>
<td>Intravenous infusions or additives requiring an infusion pump:</td>
<td>(Continued)</td>
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<tr>
<td></td>
<td></td>
<td>• <strong>Potassium Chloride (KCl) Infusion</strong> (Continued)</td>
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<tr>
<td></td>
<td></td>
<td>• Adult Administration: The infusion rate must be adjusted by hospital personnel</td>
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<td></td>
<td></td>
<td>• Pediatric Administration: Infusion must be adjusted to a TKO rate by hospital personnel.</td>
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<td></td>
<td>• Potassium Chloride may cause cardiac dysrhythmias that can lead to cardiac arrest.</td>
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<td>• IV may infiltrate and cause tissue necrosis</td>
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<td>• <strong>Total Parenteral Nutrition (TPN):</strong> Must transport this solution with an infusion pump and rate preset by hospital/home health personnel.</td>
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<td>A break in the system may result in an air embolism which may be fatal. Therefore all connectors must be tight and patient must be moved carefully from bed and gurney.</td>
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<td>Interruption of the TPN infusion may result in hypoglycemia.</td>
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<td>• <strong>Chemotherapeutic Agents:</strong> <em><strong>All exposures must be reported and evaluated by a physician</strong></em></td>
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<td>• Must transport this IV solution with an infusion pump and rate preset by hospital/home health personnel.</td>
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<td>• Exposure to chemotherapeutic agents places the primary care provider at risk for developing cancer, genetic damage, and may cause birth defects.</td>
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<td><strong>Pregnant or nursing mothers should defer patient care to partner.</strong></td>
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<td>• Direct contact with some chemotherapeutic agents may cause irritation, burning and tissue destruction.</td>
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<td>• Chemotherapeutic agents are excreted in all body fluids.</td>
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<td>LEARNING OBJECTIVES</td>
<td>LESSON CONTENT</td>
<td>NOTES / RATIONALE</td>
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| **20.** List the contents of a Chemotherapeutic Agent Spill Kit. | **Chemotherapeutic Agent Spill Kit contains:**  
- 2 pairs of disposable gloves  
  - Inner - latex, powder free, at least .007 inch thick  
  - Outer -- utility strength  
- Gown - lint-free, low permeability fabric, closed front, long sleeves and tight-fitting cuffs  
- Shoe covers  
- Splash goggles  
- Respirator  
- Absorbent, plastic-backed sheets  
- Disposable toweling  
- 2 pre-labeled plastic, hazardous disposal bags  
- Plastic scoop for broken glass  
- Puncture-resistant container for glass | • Potential for IV leakage and spills can occur. All units must have a spill kit readily available.  
** First Aid for contamination with Chemotherapeutic agents:**  
Skin - wash immediately with soap and water.  
Eyes - flush with normal saline solution for a minimum of 5 minutes. |
| **21.** Name the 3 medication infusions that may be transported using a patient operated infusion pump. Give all pertinent information regarding these medications. | **Medication infusions that may be transported using a patient operated infusion pump:**  
- Insulin  
- Meperidine HCL (Demerol)  
- Morphine Sulfate  

**Medication information:**  
*Refer to the Basic Providers Section of the Drug Guide for Basic and Advanced Life Support Providers, 2nd Edition, January, 2000.* | • Infusion pumps may be either implanted or external.  
These pumps must be on a locked setting and may only be activated by the patient or caregiver.  
There are different PCA (Patient-Controlled Analgesic) pumps. Transferring personnel must provide EMTs with emergency shut off instructions regarding the specific pump used.  
** Insulin:**  
Insulin may cause hypoglycemia.  
** Signs/Symptoms of hypoglycemia:** nervousness, trembling, irritability, combative behavior, weakness, poor coordination, confusion, weak and rapid pulse, cold and clammy skin, drowsiness, seizures, and altered level of consciousness.  
** Meperidine HCL and Morphine Sulfate:**  
May cause hypotension and respiratory depression or arrest. EMTs must be prepared to monitor airway, breathing and circulation. |
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| 22. Discuss the key steps in administering medications. | **Key steps in administering medications:**  
- Verify the patient’s prescription (prescribed for the patient)  
- Check name of medication  
- Check dose of medication  
- Check administration order; form, dose, and route  
- Check the expiration date  
- Check integrity of container  
- Check the condition of the medication; clarity of solution, impurities, or intact tablet | • Administering medications that are outdated, different dosages than what is prescribed, impure, or prescribed for someone else can result in ineffective action or potentially harmful side effects. |
| 23. Describe what reassessment is required after a medication is administered. | **Reassessment after medication administration:**  
- Repeat initial assessment  
- Repeat vital signs  
- Assess response to medication  
- Assess for adverse/side effects | • Document reassessment and any improvement or deterioration in the patient's condition. |
| 24. Discuss the importance of documentation. | 24. Importance of documentation:  
- Patient record  
  - documents medication administered  
  - prevents overdose of medication  
  - allows for appropriate repeat intervals  
- Legal record  
  - documents standard of care  
- Operational record  
  - determines QI management  
  - provides data collection  
  - allows for better allocation of resources | |
| 25. Demonstrate proficiency in the skills related medication administration. | 25. Skills for medication administration:  
- Reading Medication Labels  
- Administration of Bronchodilator Inhaler  
- Administration of Epinephrine Auto-Injector  
- Administration of Nitroglycerin | |
GENERAL PHARMACOLOGY FOR EMT-Is

Prerequisite Modules:
Preparatory / Basic Sciences

Basic Equipment:
Medications: Bronchodilator Inhaler, Activated Charcoal, Oral Glucose Preparations (solution/paste/gel), Epinephrine Auto-injector, Nitroglycerin
IV solutions: Glucose Solution, Isotonic Solutions (e.g. Sodium Chloride, Ringer's Lactate)
IV bag with simulated additives/solutions: Chemotherapeutic Agent, Folic Acid, Insulin, Meperidine, Morphine, Multi-vitamin, Potassium Chloride
Other: Simulated infusion pumps, Chemo Spill Kit

Skills:
Reading Medication Labels
Administration of Nitroglycerin
Administration of Bronchodilator Inhaler
Administration of Epinephrine Auto-Injector

Required Student Handouts:
Pharmacology for Basic Life Support
Reference No. 802 - Emergency Medical Technician-I Scope of Practice

Resources:
California Code of Regulations: Title 22, Division 9, Chapter 2, Article 2, Section100063, (b) 1-5.
Department of Health Services: Prehospital Care Policy Manual. Los Angeles County Emergency Medical Services Agency.