ALBUTEROL SULFATE (Proventil®, Ventolin®)

Classification: Bronchodilator

Actions: Dilates bronchioles
Reduces airway resistance

Indications: Bronchospasm caused by:
- Acute asthma
- COPD
- Bronchitis
- Toxic gas inhalation
- Crush syndrome
  • Suspected hyperkalemia
  • Crush force > 4 hours

Contraindications: Maximum prescribed inhalation dose taken by patient
Inhaler not prescribed for patient

Adverse Effects: Cardiovascular
  - Tachycardia
  - Hypertension
Neurological
  - Tremors
  - Nervousness
  - Headache
Respiratory
  - Cough
  - Wheezing
Gastrointestinal
  - Nausea

Administration: EMT-Basic providers are not authorized to carry bronchodilators, but may assist patient with their own physician prescribed albuterol inhaler.
1 spray inhaled by using either the metered dose inhaler with or without a spacer device. May repeat 1 spray in 3-5 minutes one time.

Pediatric:
< 12 years Not recommended for prehospital use
> 12 years Same as adult

Onset: Within 5 minutes

Duration: 4-6 hours

Precautions: The albuterol inhaler 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.
Hypoxic patients may experience dysrhythmias. Monitor pulse periodically for irregularity. Administer supplemental $O_2$ before and after treatment to decrease hypoxemia.

**Note:**

**Directions for Using Metered Dose Inhaler Without a Spacer Device**
1. Shake container vigorously several times.
2. Instruct patient to exhale deeply.
3. Instruct patient to place lips around mouthpiece.
4. Instruct patient to take a slow, deep breath and depress the medication canister while patient inhales.
5. Instruct patient to remove mouthpiece and hold breath for as long as possible.
6. Instruct patient to exhale slowly through pursed lips.
7. Replace patient $O_2$ and reevaluate breath sounds.
8. Repeat procedure one time if needed.

**Directions for Using Metered Dose Inhaler With a Spacer Device**
1. Shake container vigorously several times.
2. Remove cap from spacer.
3. Attach spacer to inhaler.
4. Instruct patient to exhale deeply.
5. Instruct patient to place lips around mouthpiece.
6. Depress the medication canister to fill the spacer chamber.
7. Instruct patient to take several slow, deep breaths to inhale medication in spacer. (There may be a whistling sound if the patient inhales too rapidly.)
8. Instruct patient to remove mouthpiece and hold breath for as long as possible.
9. Instruct patient to exhale slowly through pursed lips.
10. Replace patient $O_2$ and reevaluate breath sounds.
11. Repeat procedure one time if needed.

*Included in Los Angeles County "Expanded" Scope of Practice*
CHARCOAL (ACTIVATED)
(Acta-Char®, Actidose®, Charcoaid®, Insta-Char®, Liqui-Char®)

Classification: Chemical absorbent

Actions: Absorbs ingested drugs and chemicals

Indications: Suspected drug overdose or ingestion of poisons

Contraindications: Altered level of consciousness or risk of decreased consciousness in the field

Absent gag reflex

Adverse effects: Gastrointestinal vomiting Respiratory aspiration

Administration: Use preparations without Sorbitol

25-50g PO as tolerated

Pediatric:

0-2 years Not recommended for prehospital use.

≥ 2 years Same as adult.

Onset: Immediate

Duration: 24 hours

Precautions:

DO NOT ADMINISTER IF THERE IS A POTENTIAL FOR ALTERED LEVEL OF CONSCIOUSNESS. There is a risk of vomiting and aspiration if a decrease in consciousness occurs. Patient must be able to drink without assistance.

DO NOT ADMINISTER CHARCOAL WITH SORBITOL TO PATIENTS LESS THAN 2 YEARS OLD. Sorbitol acts as a potent cathartic and may cause fluid and electrolyte disturbances.

Note:

Shake bottle vigorously prior to administration to ensure that charcoal is thoroughly suspended.

Charcoal is most effective if administered within 30 minutes of overdose or poison ingestion.

Charcoal does not absorb cyanide, ethanol, methanol, ferrous sulfate, caustic alkali or mineral acids.

1/00

Not included in Los Angeles County Scope of Practice
CHEMOTHERAPEUTIC AGENT

Classification: Cytotoxic agent

Actions: Eradicates or controls rapidly reproducing cells such as cancer cells

Indications: Cancer treatment

Contraindications: Not significant during interfacility transport

Adverse effects: Not significant during interfacility transport

Administration: Infusion pump is required. Rate must be adjusted by hospital/home health personnel.

Pediatric: Same as adult

Onset: Determined by specific medication

Duration: 48 hours - 7 days

Precautions:

Pregnant or nursing mothers should defer patient care to partner. Exposure to chemotherapeutic agents places the primary care provider at risk for developing cancer, genetic damage, and may cause birth defects. Health care professionals must wear protective clothing when caring for patient.

Immediate first aid treatment is required for exposure. Direct contact with some chemotherapeutic agents may cause irritation, burning and tissue destruction.

Spills must be immediately cleaned up. All units must have a spill kit readily available since IV leakage and spills can occur. IV tubing should have luerlock connections and a plastic-backed absorbent liner should be placed under the IV tubing.

All soiled linens, dressings and absorbent padding must be disposed of separately and not placed in regular waste containers. Chemotherapeutic agents are excreted in body fluids.

Notes:

Protective Clothing

- Latex gloves at least .007 inch thick
- Gown; lint-free, low permeability fabric, closed front, long sleeves and tight-fitting cuffs
CHEMOTHERAPEUTIC AGENT
(Continued)

Spill Kit

h 2 pairs of disposable gloves:
   • inner -- latex, powder free, at least .007 inch thick
   • outer -- utility strength
h Gown: lint-free, low permeability fabric, closed front,
   long sleeves and tight-fitting cuffs
h Shoe covers
h Splash goggles
h Respirator (special mask)
h Absorbent, plastic-backed sheets
h Disposable toweling
h 2 prelabeled plastic hazardous disposal bags
h Plastic scoop for broken glass
h Puncture-resistant container for glass fragments

First Aid

h Skin -- wash immediately with soap and water.

h Eyes-- flush with normal saline solution for 5 minutes

***All exposures must be reported and
 evaluated by a physician***
DEXTROSE PREPARATIONS (ORAL)

DEXTROSE CARBONATE SOLUTION

and

GLUCOSE PASTE / GLUCOSE GEL

Classification: Hyperglycemic agent (carbohydrate)

Actions: Immediate source of glucose which is needed for cellular metabolism

Indications: Conscious diabetic patient who has signs/symptoms of hypoglycemia

Contraindications: Unresponsive patients

- Patients who are unable to swallow or have a diminished gag reflex
- Patients complaining of nausea

Adverse Effects: Gastrointestinal vomiting

Respiratory aspiration obstructed airway

Administration:

Solution 75-100g (10g/oz) PO, sipped slowly.

Paste/Gel 1 tube of paste/gel swallowed or 1 inch placed between cheek and gum.

Pediatric:

Solution 1g/kg PO, sipped slowly

Paste/Gel Not recommended for prehospital use

Onset: Within 20 minutes

Duration: Depends on the degree and cause of hypoglycemia

Precautions

Administer solution only to patients who can hold the bottle and drink without assistance or administer paste/gel if the patient has the ability to swallow. There is a risk of airway obstruction, vomiting, and aspiration if the patient is unable to swallow or has a diminished gag reflex.

Note:
The entire amount does not need to be administered if the patient's condition improves.

Signs/Symptoms of hypoglycemia: rapid onset, cool, moist skin, hunger, bizarre/combative behavior, anxiety, restlessness, weakness, appearance of intoxication or stroke such as slurred speech and staggering gait, and seizures.

Included in Los Angeles County "Expanded" Scope of Practice
DEXTROSE 5% IN WATER (D\textsubscript{5}W) SOLUTION

Classification:  Isotonic/hypotonic solution (5g dextrose/100ml water)

Actions:  Provides some sugar for cellular metabolism
  Supplies body water

Indications:  Intravenous access for drug administration

Contraindications:  Not significant during interfacility transport

Adverse Effects:  Increases free water and may cause intracellular edema

Administration:  May transport with infusion adjusted to a TKO rate by hospital personnel.

Pediatric:  Must transport with a volume-control set and rate adjusted to a TKO rate by hospital personnel.

Onset:  Immediate

Duration:  20-40 minutes

Precautions:
  Monitor infusion rate frequently; if signs of fluid overload, turn off IV drip. Infusion may result in fluid overload.
  Check IV site frequently and if infiltration is noted, turn off IV drip. IV may infiltrate during transport.

Note:
  **Signs of fluid overload:** distended neck veins (JVD), rapid respirations, shallow tidal volume, fine auscultatory crackles, dyspnea, and peripheral edema.

  **Signs of infiltration:** swelling and pain around IV site.

(1/00)
EPINEPHRINE HYDROCHLORIDE (Adrenalin®)

EPIPEN AUTO-INJECTOR

Classification:  i  Sympathomimetic agent (catecholamine)

Actions:  i  Dilates bronchioles
          i  Constricts blood vessels

Indications:  i  Anaphylaxis (severe allergic reaction)

Contraindications:  i  Not significant in above indication

Adverse effects:  
   Cardiovascular  Neurological
   tachycardia  seizures
   hypertension  cerebral hemorrhage
   chest pain  headache
   ventricular fibrillation  tremors
   Gastrointestinal  dizziness
   nausea/vomiting  anxiety

Administration: EMT-Basic providers are not authorized to carry the EpiPen Auto-Injector, but may assist patients with their own physician prescribed device.
   EpiPen Auto-Injector (0.3mg) IM in the upper-outer thigh. No repeat.

Pediatric: EpiPen Jr. Auto-Injector (0.15mg) IM in the upper-outer thigh. No repeat.

Onset: 5-10 minutes

Duration: 20 minutes

Precautions:
The EpiPen 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.

DO NOT INJECT INTO BUTTOCKS, HANDS, FEET, OR ADMINISTER INTRAVENOUSLY. 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. Intravenous injection may result in an acute myocardial infarction or cerebral hemorrhage.
EPINEPHRINE HYDROCHLORIDE (Adrenalin®)
EPIPEN AUTO-INJECTOR
(Continued)

Only administer if solution is clear and not expired. A solution that is discolored, contains particles, or if outdated may be chemically altered and may lose its potency or result in muscle damage.

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

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

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

Directions for Using EpiPen Auto-Injector

1. Pull off gray safety cap.
2. Cleanse injection site with alcohol swab.**
3. Place black tip on the upper-outer thigh, at right angle to the leg.
4. Press EpiPen hard into thigh until Auto-Injector activates and hold in place for several seconds.
5. Remove EpiPen and place in needle container.
6. Massage the injection site for 10 seconds with alcohol swab.

** Patient's may have been instructed that they can use EpiPen through clothing. This is not recommended for basic life support providers.

Included in Los Angeles County "Expanded" Scope of Practice.
FOLIC ACID (Vitamin B₉) INFUSION

Classification:  í Nutritional supplement (water soluble vitamin)

Action:  í Aids in the development of red and white blood cells and formation of platelets

Indication:  í Suspected malnutrition, especially in the presence of chronic alcohol abuse, poor diet, and impaired food absorption

Contraindications:  í Not significant during interfacility transport

Adverse Effects:  í Not significant during interfacility transport

Administration:  May transport a maximum IV solution concentration of 1mg/1000ml IV solution. Infusion must be adjusted to a TKO rate by hospital personnel.

Pediatric:  Concentration same as adult. Infusion must be on a volume-control set and adjusted to a TKO rate by hospital personnel.

Precautions:  
Check IV site frequently and if infiltration is noted, turn off IV drip. IV may infiltrate during transport.

Note:  
Folic acid may be administered in conjunction with multi-vitamin infusion.

Included in Los Angeles County "Expanded" Scope of Practice
INSULIN via PATIENT-CONTROLLED PUMP

Classification:  
- Hypoglycemic agent

Action:  
- Decreases blood sugar

Indication:  
- Insulin dependent diabetes

Contraindications:  
- Not significant during interfacility transport

Adverse Effects:  
- Hypoglycemia

Administration:  
**EMT-Basic providers may not activate or adjust infusion pump.**
May transport patients with either an internal or external administration pump. Medication infusion is programmed for the individual patient and may only be activated by patient or caregiver.

Pediatric:  
Same as adult

Precautions:
Evaluate level of consciousness and behavior frequently. Patients may experience hypoglycemia; if mild signs/symptoms develop, administer oral hyperglycemic agent.

Note:
**Signs/symptoms of hypoglycemia:** nervousness, trembling, irritability, combative behavior, weakness, incoordination, confusion, weak and rapid pulse, cold and clammy skin, drowsiness, seizures, and altered level of consciousness.

(1/00)

*Included in Los Angeles County “Expanded” Scope of Practice*
LACTATED RINGER’S SOLUTION

Classification: Isotonic solution (crystalloid)

Action: Replaces fluid and electrolytes lost from the intravascular and intracellular spaces

Indications: Initial fluid replacement for hypovolemia and dehydration, IV access for drug administration

Contraindications: Not significant during interfacility transport

Adverse effects: Circulatory fluid volume overload

Administration: May transport with infusion adjusted to a TKO rate by hospital personnel.

Pediatrics: Must transport with a volume-control set and rate must be adjusted to a TKO rate by hospital personnel.

Onset: Immediate

Duration: < 1 hour

Precautions:
Monitor infusion rate frequently. Infusion may result in fluid overload.

Check IV site frequently and if infiltration is noted, turn off IV drip. IV may infiltrate during transport.

Note:
Signs of fluid overload: distended neck veins (JVD), rapid respirations, shallow tidal volume, fine auscultatory crackles, dyspnea, and peripheral edema.

Signs of infiltration: swelling and pain around IV site.
MEPERIDINE HYDROCHLORIDE (DEMEROL®) 
via 
PATIENT-CONTROLLED ANALGESIC PUMP

Classification:  
Narcotic analgesic

Actions:  
Alters pain perception and produces euphoria

Indications:  
Moderate to severe pain

Contraindications:  
Not significant during interfacility transport

Adverse effects:  
Cardiovascular  
tachycardia  
bradycardia 
hypotension  
hypertension
Neurological  
sedation  
dizziness  
headache  
confusion  
tremors
Respiratory  
seizures
Depression
hallucinations
Arrest

Gastrointestinal  
nausea/vomiting

Administration:  
EMT-Basic providers may not activate or adjust infusion pump.
May transport with locked settings. Medication infusion is programmed for individual patient and may only be activated by patient or caregiver.

Pediatric:  
Same as adult

Onset:  
2-5 minutes

Duration:  
Individual per patient program

Precautions:  
Monitor pulse quality and blood pressure. Infusion may cause hypotension. If hypotension persists, place patient in shock position.
Monitor respiratory status frequently and ventilate with bag-valve mask device if necessary. Infusion may cause respiratory depression or arrest.

Note:  
There are different Patient-Controlled Analgesic pumps. Transferring personnel must provide the EMT-B provider with emergency shut off instructions regarding the specific pump used.

Included in Los Angeles County "Expanded" Scope of Practice

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MORPHINE SULFATE
via
PATIENT-CONTROLLED ANALGESIC PUMP

Classification: Narcotic analgesic

Actions: Alters pain perception and produces euphoria

Indications: Moderate to severe pain

Contraindications: Not significant during interfacility transport

Adverse effects: 
- Cardiovascular: tachycardia, bradycardia, hypotension, hypertension
- Neurological: sedation, dizziness, headache, confusion, tremors
- Respiratory: seizures, depression, arrest
- Gastrointestinal: nausea/vomiting

Administration: EMT-Basic providers may not activate or adjust infusion pump.
May transport with locked settings. Medication infusion is programmed for individual patient and may only be activated by patient or caregiver.

Pediatric: Same as adult
Onset: 2-5 minutes
Duration: Individual per patient program

Precautions:
- Monitor pulse quality and blood pressure. Infusion may cause hypotension. If hypotension persists, place patient in shock position.
- Monitor respiratory status frequently and ventilate with bag-valve mask device if necessary. Infusion may cause respiratory depression or arrest.

Note:
- There are different types of Patient-Control Analgesic pumps. Transferring personnel must provide the EMT-B provider with emergency shut off instructions regarding the specific pump used.

Included in Los Angeles County "Expanded" Scope of Practice
MULTI-VITAMIN INFUSION

Classification: Nutritional supplement

Action: Vitamins are organic compounds needed for growth, resistance to infection, and normal metabolism

Indication: Suspected malnutrition

Contraindications: Not significant during interfacility transport

Adverse Effects: Not significant during interfacility transport

Administration: May transport a maximum concentration of 1 vial/1000ml IV solution. Infusion must be adjusted to a TKO rate by hospital personnel/home health personnel.

Pediatrics: Concentration same as adult. Infusion must be on a volume-control set and adjusted to a TKO rate by hospital/home health personnel.

Precautions:
Check IV site frequently; if infiltration is noted, turn off IV drip. IV may infiltrate during transport.

Note:
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.

Included in Los Angeles County "Expanded" Scope of Practice
NITROGLYCERIN
TABLETS or LINGUAL AEROSOL (Nitrolingual® Spray)

Classification:  i Vasodilator

Actions:  i Dilates blood vessels
          i Dilates coronary arteries
          i Decreases the workload of the heart

Indications:  i Chest pain

Contraindications:  i Blood pressure below 100 systolic
          i Patient has taken three doses prior to the arrival of
            EMT-B providers
          i Sildenafil citrate (Viagra®) taken within 24 hours

Adverse effects:  Cardiovascular
          hypotension
          bradycardia
          reflex tachycardia
          rebound hypertension

          Neurological
          throbbing headache
          dizziness/faintness
          confusion
          blurred vision

          Gastrointestinal
          nausea/vomiting
          dry mouth

          General
          flushed skin

          Sublingual burning

Administration:  EMT-Basic providers are not authorized to carry
                 nitroglycerin tablets or aerosol, but may assist
                 patients with their own physician prescribed
                 medication.

                 Tablet  1 tablet (1/150gr or 0.4mg) SL
                 Spray  1 spray (0.4mg) SL or TM (transmucosal)

Pediatric:  Not recommended for prehospital use

Onset:  1-3 minutes

Duration:  30-60 minutes

Precautions:
Nitroglycerin administration 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.

DO NOT ADMINISTER IF BLOOD PRESSURE IS BELOW 100 SYSTOLIC. May cause hypotension
due to vasodilation. Always take blood pressure before and 5 minutes after administration of Nitroglycerin.
NITROGLYCERIN
TABLETS OR LINGUAL AEROSOL (Nitrolingual® Spray)
(Continued)

DO NOT SHAKE CONTAINER. One spray delivers 0.4mg of nitroglycerin. If the container is shaken it will alter the dose delivered. INSTRUCT PATIENT NOT TO INHALE SPRAY. Inhaling spray affects absorption rate.

Note:

Directions for Administering Nitroglycerin Tablets

1. DO NOT ADMINISTER IF B/P IS BELOW 100 SYSTOLIC. Take blood pressure before administration.
2. Place tablet under tongue and instruct patient not to swallow, but to allow tablet to dissolve under tongue.
3. Retake blood pressure and pulse after 5 minutes. If hypotension develops, place patient in shock position.

Directions for Administering Nitroglycerin Aerosol

1. DO NOT ADMINISTER IF B/P IS BELOW 100 SYSTOLIC. Take blood pressure before administration.
2. Instruct patient not to inhale spray and do not shake container.
3. Administer spray on or under the tongue.
4. Retake blood pressure and pulse after 5 minutes. If hypotension develops, place patient in shock position.

Included in Los Angeles County "Expanded" Scope of Practice
**OXYGEN**

**Classification:**
- Gaseous element (21% of room air)

**Actions:**
- Essential element for normal metabolic function (aerobic metabolism)
- Assists in the breakdown of glucose into a usable energy form

**Indications:**
- Hypoxemia
- Increased oxygen demand
- Chest pain of myocardial origin
- Respiratory insufficiency
- Cardiopulmonary arrest

**Contraindications:**
- Not significant in above indications

**Adverse effects:**
- Not significant in above indications

**Administration:**
Oxygen percentage may vary slightly depending on technique and equipment.

<table>
<thead>
<tr>
<th>Delivery Device</th>
<th>Flow Rate</th>
<th>Delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasal Cannula</td>
<td>2-6 L/min</td>
<td>23-44%</td>
</tr>
<tr>
<td>Face Mask</td>
<td>8-15 L/min</td>
<td>40-60%</td>
</tr>
<tr>
<td>Face Mask with O₂ Reservoir</td>
<td>6-10 L/min</td>
<td>60-95%</td>
</tr>
<tr>
<td>Bag-Valve-Mask with O₂ Reservoir</td>
<td>10-15 L/min</td>
<td>40-90%</td>
</tr>
<tr>
<td>ET -- Bag-Valve Device with O₂ Reservoir</td>
<td>10-15 L/min</td>
<td>100%</td>
</tr>
<tr>
<td>ET -- T-tube</td>
<td>10-15 L/min</td>
<td>60-70%</td>
</tr>
<tr>
<td>ETC (combitube) -- Bag-Valve Device with O₂ Reservoir</td>
<td>10-15 L/min</td>
<td>40-90%</td>
</tr>
</tbody>
</table>

**Pediatric:** Same as adult except the ETC (combitube) is contraindicated in pediatric patients less than 4 feet tall.
Onset: 1-2 minutes

Duration: Up to 30 minutes

Precautions:
Observe the patient closely for changes in respiratory and mental status. Be prepared to assist ventilations if necessary. In some CO₂ retaining COPD patients, administration of oxygen may decrease their respiratory drive.

DO NOT ADMINISTER MORE THAN 6 L/MIN VIA NASAL CANNULA. Oxygen is not humidified and may dry out or irritate mucus membranes.

DO NOT USE HIGH FLOW OXYGEN-POWERED-BREATHING-DEVICES IN PEDIATRIC PATIENTS LESS THAN 12 YEARS OF AGE OR IN CONJUNCTION WITH AN ET TUBE. These devices may result in gastric distention or pneumothorax due to high pressures.

Note:
Oxygen should never be withheld from a patient in respiratory distress.

High flow oxygen-powered-breathing-devices are manually triggered, or demand valves which have a flow rate of 100 liters/minute.
POTASSIUM CHLORIDE (KCl) INFUSION

Classification: Electrolyte

Actions: Regulates nerve conduction and muscle contraction

Indications: Potassium deficiency

Contraindications: Not significant during interfacility transport

Adverse effects:
- Cardiovascular: dysrhythmias, arrest
- Neurological: paresthesia, muscular paralysis, confusion
- Respiratory: depression, arrest
- General: hyperkalemia, venous thrombosis
- Gastrointestinal: nausea/vomiting, abdominal pain

Administration:
- Infusion pump is required. Rate must be adjusted by hospital personnel.
- May transport a maximum IV solution concentration of 20mEq/1000ml IV solution.

Pediatric:
- Same as adult. Infusion must be on a volume-control set and adjusted to a TKO rate by hospital personnel.

Precautions:
- Monitor pulse periodically for irregularity; if change in regularity occurs, turn off IV drip. KCl may cause dysrhythmias.
- Check IV site frequently for infiltration; if present, turn off IV drip. IV may infiltrate during transport, and cause tissue necrosis.

Note:
- If concentration is greater than 20mEq/1000ml of IV solution, patient must be transported by ALS unit and patient placed on an ECG monitor.

Included in Los Angeles County "Expanded" Scope of Practice
SODIUM CHLORIDE 0.9% (Normal Saline) SOLUTION

Classification:  
- Isotonic solution

Actions:  
- Replaces fluid and sodium lost from the intravascular and intracellular spaces

Indications:  
- Initial fluid replacement for hypovolemia, dehydration, and crush syndrome
- Intravenous access for drug administration

Contraindications:  
- Not significant during interfacility transport

Adverse effects:  
- Circulatory fluid volume overload

Administration:  
- May transport with infusion adjusted to a TKO rate by hospital personnel.
- Must transport with a volume-control set and the rate adjusted to a TKO rate by hospital personnel or field paramedic in a multiple casualty situation.

Onset:  
- Immediate

Duration:  
- < 1 hour

Precautions:
- Infusion may result in fluid overload. Monitor infusion rate frequently; if signs/symptoms of fluid overload, turn off IV drip
- IV may infiltrate during transport. Check IV site frequently; if infiltration noted, turn off IV drip.

Note:
- Signs of fluid overload: distended neck veins (JVD), rapid respirations, shallow tidal volume, fine auscultatory crackles, dyspnea, and peripheral edema.
- Signs of infiltration: swelling and pain around IV site.
THIAMINE (Vitamin B₁) INFUSION

Classification:  i  Nutritional supplement (water soluble vitamin)

Action:  i  Aids in metabolizing carbohydrates, fats and amino acids and detoxifying alcohol

Indication:  i  Suspected malnutrition, especially in the presence of chronic alcohol abuse

Contraindications:  i  Not significant during interfacility transport

Adverse Effects:  i  Not significant during interfacility transport

Administration:  May transport a maximum IV solution concentration of 100mg/1000ml IV solution. Infusion must be adjusted to a TKO rate by hospital/home health personnel.

Pediatric:  Concentration same as adult. Infusion must be on a volume-control set and rate adjusted to a TKO rate by hospital/home health personnel.

Precautions:
Check IV site frequently; if infiltration noted, turn off IV drip. There is a potential for IV to infiltrate during transport.

Note:
Thiamine may be administered in conjunction with multi-vitamin infusion.

Included in Los Angeles County "Expanded" Scope of Practice
TOTAL PARENTERAL NUTRITION (TPN)

Classification:  
- Caloric agent

Actions:  
- Provides total nutritional needs to sustain life

Indications:  
- Patients unable to take food orally or absorb adequate nutrition through the gastrointestinal tract

Contraindications:  
- Not significant during interfacility transport

Adverse effects:  
- Not significant during interfacility transport

Administration:  
- Must transport with an infusion pump. The infusion is adjusted for the individual patient and the rate may only be adjusted by hospital or home health personnel.

Pediatric:  
- Same as adult

Precautions:
- Prevent separation of IV tubing. A break in the system may result in an air embolism which may be fatal.
- Prevent disruption of infusion and insure that an adequate amount of TPN solution is available throughout transport. Interruption of TPN infusions may result in hypoglycemia.

Included in Los Angeles County "Expanded" Scope of Practice