

# Medical Protocols for RMERT



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# **Advanced RMERT Medical Protocols**

**Updated June 11, 2014**

The following Protocols are intended to guide treatment for the **Region 2 Medical Emergency Response Team (RMERT)** in addition to the Peoria Area EMS Adult and Pediatric Patient Care Manuals. RMERT members may perform the following procedures after successfully completing training, testing and certification. Physicians will perform some of the advanced procedures. The procedures are discussed in detail to allow for materials and supplies planning/stocking, and to provide a description for non-physicians to provide assistance on scene.

## **Technical Rescue/Urban Search and Rescue (USAR):**

One of the indications for Region 2 RMERT activation is to provide assistance at the site of a collapsed building or other structure entrapping victims. Medical responders who work inside or near a USAR site must have proper protection and training. Not all RMERT members are trained in technical rescue. In most situations, the local fire department rescue team extricates the victim(s) and transports them to the RMERT medical treatment area. Rarely, RMERT medical personnel (who have been trained in USAR/technical rescue) may be asked accompany the fire department technical rescue members to the scene or inside the structure to provide direct patient care and support. The types of technical rescue may include the following:

- USAR/building collapse/confined space
- High angle/rope rescue
- Trench collapse and deep well rescue

Region 2 RMERT team leaders will discuss each rescue situation and decide which RMERT members will participate and their extent of involvement in technical rescue operations. If RMERT members are uncomfortable or feel their safety is unnecessary at risk, immediately inform RMERT team leaders. **Safety is our number one priority.**

### **Overview:**

Responding to a scene where the injured victim cannot be immediately rescued can be dangerous. This may include a prehospital situation where victims are entrapped in a damaged or collapsed building, grain elevator, trench collapse, deep well, steep terrain, or other environmental/structural hazard. Prolonged care in the field is sometimes unavoidable if unable to extricate the victim in a timely manner. The priority in these situations is scene safety for the involved rescue/medical team members. All rescues involve risk. Take steps to minimize risk, making the scene as safe as possible or to an acceptable level where the benefits outweigh the risks.

Before entering a dangerous scene, RMERT personnel will wear and utilize appropriate personal protective equipment (PPE), take steps to maximize scene safety and work as a team to approach the patient in a safe manner.

## **Technical Rescue/Urban Search and Rescue (USAR):**

In general, the following guidelines and principles should be followed:

1. Only properly trained and appropriately protected RMERT rescue team members should enter the inner perimeter of a potentially dangerous incident location (e.g., building collapse). Scene safety takes priority. Rescuers must assess, communicate, prepare and execute a plan to stabilize the scene in an efficient and practical manner. Taking unnecessary risks is highly discouraged.
2. Work with on-scene technical rescue personnel to stabilize the immediate surroundings of the victim to prevent further injury. When approaching the patient(s), be aware that the scene may deteriorate and rescue personnel may be ordered to back out immediately. Take only medical equipment necessary to the situation. Utilize other personnel to bring additional medical supplies.
3. Assess rapidly whether the patient is dead or alive. If death is certain, notify the rescue crew discretely (maintaining professionalism and respect for patients and families). On determination that the victim is dead, the rescue becomes a body recovery operation with different tactics, urgency and approach.
4. In patient(s) found alive, stabilize the airway, breathing, and circulation as best as the situation allows. Treat bleeding and shock appropriately. Reassure the conscious patient and provide ongoing psychological support. Initiate care according to the PAEMS Routine Patient Care and Trauma Care Protocols. IV access should not be attempted in an injured extremity unless no other alternative exists.
  - **OXYGEN: Warning**—some rescue situations require use of metal cutting tools, torches, grinders, and saws, which produce sparks and can cause an explosion. Do NOT use oxygen unless it is absolutely certain there are no risks of a spark or fire. If critically ill, use 15 L/min by NRB mask. If the patient does not tolerate a NRB mask, administer 6 L/min by nasal cannula.
5. Control external bleeding:
  - a. If there is significant extremity hemorrhage, apply a tourniquet properly and confirm that bleeding has stopped. Note the time of tourniquet placement, and lock the tourniquet securely in place.
    - Do NOT waste time applying local pressure in cases of moderate or severe bleeding.
  - b. If there is mild bleeding and the site can be visualized and monitored, apply direct pressure and secure an appropriate pressure dressing.
    - Do NOT use pressure points in rescue situations.
6. If a victim has sustained a crushed or compressed extremity for >10–15 minutes, the circulation to that extremity should be occluded to prevent the release of toxic chemicals and potassium into the central circulation after heavy item removal. Tourniquets should be strongly considered for use in crush injuries and entrapment.

# Advanced Airway Procedures:

## Oral Endotracheal Intubation

Oral endotracheal intubation is the best method of securing an airway and ventilating a patient in situations that warrant aggressive airway and respiratory management.

### Indications:

1. Apnea
2. Agonal respirations
3. Potential for airway compromise
4. Low SaO<sub>2</sub>
5. Head injuries with GCS < 8

### Relative Contraindications:

1. Epiglottitis
2. Laryngeal trauma
3. Significant oral maxillofacial trauma

### Equipment:

Personal protective equipment	Suction equipment
Laryngoscope handle and blades	End tidal CO <sub>2</sub> detector/waveform capnography
Endotracheal tube/stylet/lubricant	Ambu bag
10 mL syringe	Tape or commercial tube holder

### Procedure:

1. Pre-oxygenate while assembling equipment. Maintain C-spine immobilization.
2. Apply cardiac monitor, pulse oximetry, and establish IV access.
3. Select proper size ET tube {tube size = [(age/4) + 4]}. Use 10 mL syringe to check for air leaks in the cuff. If patient is <8 years old, use uncuffed tube.
4. Insert stylet into tube if desired. Conform tube to fit natural curvature of pharynx.
5. Insert laryngoscope blade into right side of mouth moving tongue to the left until the glottic opening is visualized.
  - a. **Straight blade**—Insert until the epiglottis is in view. With the tip of the blade, lift the epiglottis until the vocal cords are visualized.
  - b. **Curved blade**—Insert into the vallecula and lift to facilitate visualization of the vocal cords.
  - c. Time limit is no more than 30 seconds.
6. Insert ET tube through the vocal cords. Tube depth is determined by [(12+age)/2] and generally men=23 cm, women=21 cm. Remove stylet. Inflate cuff with 10 mL air. Ventilate the patient.
7. Confirm tube placement. If sounds are auscultated over the epigastrium, deflate cuff and remove the tube. If lung sounds are auscultated over the right chest, withdraw tube 1 cm at a time until lung sounds are equal bilaterally.
8. Secure tube with tape or commercially available tube holder noting location of tube (# in cm) at upper lip.
9. If intubation is unsuccessful after 2 attempts, use King LTS-D.
10. Documentation of the procedure should include:
  - a. Indication for intubation
  - b. Number of attempts and by whom
  - c. Size of tube, # cm at lip, end tidal CO<sub>2</sub> color change or CO<sub>2</sub> value on waveform capnography, lung sounds, chest expansion
  - d. Any complications encountered during the procedure.

## **Advanced Airway Procedures:**

### **RSI – Rapid Sequence Intubation (RSI)**

Endotracheal intubation may be used to establish a patent, secure airway to prevent aspiration, provide adequate ventilation, or improve oxygenation.

#### **Indications:**

1. Inability to maintain airway patency.
2. Inability to protect the airway against aspiration.
3. Ventilatory compromise.
4. Failure to adequately oxygenate pulmonary capillary blood.
5. Risk of impending airway edema and/or need for airway protection.

#### **Contraindications:**

1. Total upper airway obstruction, which requires a surgical airway.
2. Total loss of facial/oropharyngeal landmarks, which requires a surgical airway.

#### **Equipment:**

- Laryngoscope and blades
- Endotracheal (ET) tube
- Stylet
- Syringe, 10 mL (to inflate ET tube balloon)
- Suction catheter (e.g., Yankauer)
- Carbon dioxide detector (e.g., Easycap) or Waveform Capnography
- Oral and nasal airways
- Ambu bag and mask attached to oxygen source

#### **Procedure:**

1. **PRE-OXYGENATE:** Position the patient and pre-oxygenate with high flow oxygen by NRB mask or BVM for 2-5 minutes. Do not manually ventilate the patient unless ventilatory assistance is needed.
2. **PREPARE:** Assemble the required equipment and medications, including labeling the contents of the syringes. Ensure patency of IV access. Continuously monitor the cardiac rhythm, pulse oximetry, and waveform capnography.
3. **PLAN:** Plan for a failed endotracheal intubation attempt. Ensure alternate airway equipment is immediately available (i.e. King LTS-D airway, emergency cricothyrotomy kit, translaryngeal jet ventilation equipment).
4. **PRE-MEDICATION:** Give in the following order over 1-3 minutes.
  - a. **Atropine:** 0.02 mg/kg IV (used for all children age <5 or pulse <120, or in bradycardic adults; minimum dose 0.1 mg and maximum dose 0.5 mg)
  - b. **Pre-paralytic dose:**
    - i. **Succinylcholine:** 0.15 mg/kg pre-paralytic IV
      - Contraindications to Succinylcholine: >5 days after major trauma or burn, history of paralysis, malignant hyperthermia, known pseudocholinesterase deficiency, or neuromuscular disorder (i.e., multiple sclerosis).
    - ii. **Vecuronium (Norcuron):** 0.01 mg/kg pre-paralytic IV
    - iii. **Rocuronium (Zemuron):** 0.1 mg/kg pre-paralytic IV (omit <5 y/o)
  - c. **SEDATION:** Consider the following:
    - i. **Midazolam:** 0.1 mg/kg IV
    - ii. **Ketamine:** 1-2 mg/kg IV (status asthmaticus in infants, children and young adults only)
    - iii. **Fentanyl:** 1-2 mcg/kg IV over several minutes

- iv. **Etomidate:** 0.2-0.4 mg/kg (will not increase ICP, minimal CV effect) may not be used in patients <12 y/o.
  - d. **NOTE:** Continue pre-oxygenation for 2-3 minutes. Consider removing the C-collar (if present) while maintaining in-line manual stabilization of the head and neck.
- 5. **PARALYTIC MEDICATION ADMINISTRATION, then INTUBATE:**
  - a. **Succinylcholine:** 1.5-2 mg/kg IV
    - i. Apnea, jaw relaxation, and decreased resistance to BVM ventilations indicate the patient is ready to proceed with intubation.
  - b. Intubate, check tube placement, secure tube, and continue to assist ventilations.
- 6. **CONTINUED NEUROMUSCULAR BLOCKADE:** After intubation, administer:
  - a. **Norcuron:** 0.1 mg/kg IVP
  - b. **Zemuron:** 0.5-1 mg/kg IVP
- 7. **CONTINUED SEDATION:** Administer:
  - a. **Versed:** 0.05 mg/kg (3-5 mg in adult) every 15-30 min as needed.
  - b. **Fentanyl:** 1-2 mcg/kg IV over 2 minutes as needed.
  - c. **Ketamine:** 0.5-1.0 mg/kg every 5-10 minutes as needed.
- 8. **UNSUCCESSFUL PLACEMENT:** If endotracheal intubation fails after 2 attempts, and the patient is unable to be ventilated with BVM, consider attempting to gain airway control using one of the following techniques:
  - a. King LTS-D Supraglottic Airway
  - b. Surgical Airway

**NOTE:** If intubation is unsuccessful and additional paralytics are needed, Succinylcholine should **NOT** be repeated in children <5 y/o due to potential for marked bradycardia. A non-depolarizing agent should be considered only after confirming ease of bagging and airway back up is readily available.

## **Advanced Airway Procedures:**

### **Chest Decompression/Needle Thoracostomy**

Needle chest decompression is an emergent, life-saving procedure utilized when air has entered the pleural space and becomes trapped without means of escape. Needle decompression converts a tension pneumothorax into an open pneumothorax allowing the pleural space to equilibrate with the atmosphere.

#### **Signs and Symptoms:**

1. Severe respiratory distress (in the presence of chest trauma)
2. Restlessness and agitation (in the presence of chest trauma)
3. Increased airway resistance on ventilated patients
4. JVD
5. Subcutaneous emphysema
6. Unequal breath sounds, absent on the affected side
7. Hypotension
8. Cyanosis
9. Tracheal deviation

#### **Equipment:**

- #14 gauge IV catheter
- Appropriate skin cleansing prep
- 10 mL syringe
- Heimlich valve with connecting tubing

#### **Procedure:**

1. Observe universal precautions.
2. Apply oxygen at 15 L/min via NRB mask, or ventilate via BVM.
3. Identify the 2<sup>nd</sup> intercostal space, midclavicular line on the affected side.
4. Cleanse site with appropriate skin prep.
5. Attach 10 mL syringe to IV catheter.
6. Puncture the skin perpendicularly just **superior** to the 3<sup>rd</sup> rib in the 2<sup>nd</sup> intercostal space. Direct the needle over the rib into the thoracic cavity.
7. Puncture the pleura noting the “pop” and air pushing syringe plunger outward.
8. Advance catheter while removing the needle.
9. Attach the Heimlich flutter valve and secure the catheter in place.
10. Reassess patient to verify improved breath sounds and ease of ventilation.
11. Documentation should include:
  - a. Indications for procedure
  - b. Number of attempts and by whom
  - c. Verification of proper placement of catheter
  - d. Patient’s condition following procedure
  - e. Any complications

## **Advanced Airway Procedures:**

### **Percutaneous Translaryngeal Jet Ventilation (PTJV)/Needle Cricothyrotomy**

An alternative method of temporarily securing an airway in patients with acute respiratory distress needing immediate intervention. An over-the-needle plastic catheter is inserted through the cricothyroid membrane puncture. The catheter is attached to special tubing that supplies 100% oxygen allowing for adequate ventilation of the patient.

#### **Indications:**

PTJV is indicated when intubation is contraindicated or cannot be performed.

1. Obstructions at or above the vocal cords
2. Massive facial trauma
3. Acute respiratory distress and need for immediate airway management and advanced airway control was not achieved after multiple attempts.
4. Pediatric patient <8 y/o not able to be orotracheally intubated.

#### **Absolute contraindications:**

1. The ability to accomplish endotracheal intubation easily and rapidly.
2. Retraction of the distal trachea into the mediastinum after tracheal transection.
3. Occurrence of known significant damage to the cricoid cartilage or larynx.

#### **Relative contraindications:**

1. Patients with known coagulopathy
2. Tumor/pathologic condition of larynx

#### **Equipment:**

- 12 mL syringe
- Transtracheal catheter kit or 14 gauge over-the-needle catheter
- Manual transtracheal jet ventilation device (air hose and valve)
- Oxygen source: adjustable 50 psi for adults, 30 psi for children <12 years
- Appropriate skin cleansing prep
- Gauze pad

#### **Procedure:**

1. Preoxygenate while assembling equipment. Follow universal standard precautions (upper airway secretions may be blown out of the nose and mouth during insufflation). Maintain C-spine immobilization.
2. Cleanse the anterior neck with appropriate skin prep.
3. Connect transtracheal jet ventilation device to 50 psi oxygen source. Adjust oxygen flow to 30 psi for pediatric (<12 years) patients.
4. Initiate several bursts of oxygen into the air prior to connecting to the catheter.
5. Select transtracheal catheter (14g for children and 13g for adults). Attach catheter to 12 mL syringe.
6. No anesthetic is needed in unconscious patient. If conscious, 1% Lidocaine anesthetic injected locally, and 1-2 mL may be injected into the larynx to prevent coughing when the needle/cannula enters the larynx.
7. Locate the cricothyroid membrane below the prominence of the thyroid cartilage and above the cricoid cartilage.
8. Firmly grasp the larynx with the non-operating hand.
9. Puncture cricothyroid membrane with the needle pointed 45° caudally. A small nick in the skin may facilitate passage of the catheter.
10. Advance the needle while withdrawing the syringe plunger until air is seen and felt coming back freely into the syringe, signifying intratracheal location.
11. Advance the catheter off the needle into the trachea, until the tabs are level with the skin.

12. Secure the proximal end of the cannula firmly against the skin to minimize localized subcutaneous emphysema and to prevent dislodgment.
13. Reattach the syringe to the catheter device and aspirate air to verify correct placement. If air is not freely aspirated, remove the catheter and re-attempt.
14. Attach leur-lock end of the manual transtracheal jet ventilation device to the catheter hub and initiate ventilation by depressing the manual valve button. Airflow should be continued until the chest rises adequately.
  - a. Inhalation: initiate ventilation for 1-2 seconds.
  - b. Exhalation: release the valve, and allow the patient to exhale completely, which may take 4 to 9 seconds.
15. Continued ventilation is performed with a 1:4 ratio of inhalation to exhalation. Inhalation should last one second and exhalation three to four seconds.
16. Auscultate lung sounds during inhalation to confirm adequate ventilation.
17. Attach pulse oximetry and measure O<sub>2</sub> saturation.
18. Place the patient on waveform capnography, if available.
19. Monitor for high inflation pressures or massive subcutaneous air build up, which may indicate malposition of the catheter.
20. Documentation of the procedure should include:
  - a. Indication for the procedure
  - b. Number of attempts and by whom
  - c. Verification of placement to include aspiration of air, absence of subcutaneous emphysema, bilateral chest expansion, and pulse oximetry

## **Advanced Airway Procedures:**

### **Surgical Cricothyrotomy—Melker Cricothyrotomy Catheter**

An emergent procedure for patients >12 y/o in acute respiratory distress with upper airway obstruction or in whom oral intubation was unsuccessful or contraindicated.

#### Indications:

1. Upper airway obstruction due to edema, infection, caustic ingestion, allergic reaction, inhalation injuries or foreign body.
2. Maxillofacial trauma
3. Oral tracheal intubation unsuccessful after multiple attempts
4. Impending respiratory failure

#### Absolute Contraindications:

1. Crush injury to the larynx
2. Penetrating neck trauma

#### Relative Contraindications:

1. Known coagulopathy

#### Equipment:

#15 Scalpel	18 g introducer needle (finder)
Appropriate skin cleansing prep	18 g TFE catheter introducer needle
4x4 gauze pads	.038 inch stiff guidewire
Syringe	Curved dilator
Airway catheter securing device	Airway catheter (4mm I.D.)

#### Procedure:

1. Preoxygenate while equipment is assembled. Maintain C-spine immobilization.
2. Identify the cricothyroid membrane just below the thyroid cartilage. Make a vertical skin incision over this area.
3. Stabilize the larynx with the non-dominant hand.
4. With 18g TFE catheter introducer needle on syringe, advance through incision at 45° angle in caudal direction into the airway.
5. When advancing the needle, aspirate with syringe; proper placement is confirmed with return of air.
6. Remove syringed needle, leaving TFE catheter in place. Advance guide wire through catheter and into airway.
7. Remove catheter, leaving guide wire in place.
8. Insert tapered end of dilator through airway catheter until the handle stops against connector.
9. Advance the dilator/airway over guide wire until it is clearly visible at distal end of dilator. Once the guide is visible, advance the dilator/airway into the trachea. Maintain control of the guide wire at all times.
10. Hold catheter firmly against skin, remove guide wire and dilator simultaneously.
11. Secure airway with cloth tape.
12. Ventilate the patient with Ambu bag and 100% oxygen.
13. Documentation of the procedure should include:
  - a. Indications for the procedure
  - b. Number of attempts and by whom
  - c. Pulse oximetry, chest expansion, breath sounds, skin color, vital signs
  - d. Complications may include asphyxia, subglottic stenosis/edema, hemorrhage, subcutaneous/mediastinal emphysema, creating a false lumen, laryngeal stenosis, or laceration of the esophagus or trachea.

## **Advanced Airway Procedures:**

### **Surgical Open Cricothyrotomy (all RMERT 2 paramedics, nurses, physicians)**

An emergent procedure for patients **>10 y/o** in acute respiratory distress with upper airway obstruction or in whom oral intubation was unsuccessful or contraindicated.

The most experienced provider, preferably a physician, will perform this procedure. If a physician is unavailable, properly trained RMERT team members may contact Medical Control for permission to perform the procedure. If hazardous or extreme conditions preclude communications or mandate immediate airway provision, good judgment by the RMERT team will determine optimal airway management or intervention.

#### Indications:

1. Unable to orally intubate
2. BVM cannot maintain adequate oxygen saturation.

#### Relative contraindications:

1. Distorted neck anatomy
2. Pre-existing infection
3. Coagulopathy

#### Equipment:

Personal protection equipment	#6 or #6.5 endotracheal tube
#10 blade scalpel	Tape or commercial tube holder
Appropriate skin cleansing prep	BVM and oxygen source

#### Procedure:

1. Place the patient in a supine position with the neck in a neutral position. Palpate the thyroid notch, cricothyroid interval, and the sternal notch for orientation. Assemble the necessary equipment.
2. Cleanse the skin and anesthetize the area locally in a conscious patient.
3. Stabilize the thyroid cartilage with the non-dominant hand and maintain stabilization until the trachea is intubated.
4. Use the scalpel to incise a horizontal incision 2-3 cm. In obese patients, a vertical 4-5 cm incision should be made, using several light strokes of the scalpel to cut down to the level of the trachea/cricoid cartilage. Do not incise too deeply.
5. Using a finger, locate the cricothyroid membrane, and incise this with the scalpel horizontally, perforating this membrane (blade goes in approximately half its length). Remove and reverse the scalpel and place the scalpel handle into the incision to widen the opening to accept the endotracheal tube.
6. In obese patients, consider using the tracheal hook to grasp the inferior portion of the cricoid cartilage and maintain control of the trachea structures.
7. Place the endotracheal tube into the trachea directed towards the lungs approximately 2 cm. Inflate the cuff of the ET tube.
8. Secure the tube and connect to BVM for ventilation. Confirm ET tube placement.
9. Dressing and stabilization: Cut a slit down a 4x4 dressing and place it under the tracheostomy tube. Secure with tape. Transport with caution as the tube is easily displaced.
10. Document the procedure.
11. The PAEMS Medical Director must be notified  $\leq 12$  hrs of surgical airway.

**Note:** Bleeding is often profuse, and the procedure should be performed without relying on direct visualization of deep structures (i.e. significant bleeding or low-light conditions).

## **Advanced Airway Procedures:**

### **Chest Tube Thoracostomy: (physicians, assisted by RMERT members)**

Physicians will perform this procedure; although it is helpful to have RMERT members pass instruments and assist during placement of a chest tube.

#### Indications:

1. Pneumothorax (tension, open or simple)
2. Hemothorax
3. Traumatic Arrest (bilateral)

#### Relative Indications:

1. Rib fractures and positive pressure ventilation
2. Profound hypoxia/hypotension and blunt or penetrating chest injury

#### Contraindications:

1. Infection over insertion site
2. Uncontrolled bleeding diathesis
3. Coagulopathy
4. Pulmonary bullae
5. Pulmonary, pleural, or thoracic adhesions
6. Loculated pleural effusion or empyema

#### Equipment:

PPE, local anesthetic, sterile gloves, appropriate skin cleansing prep, scalpel, large hemostats, 4x4 gauze, appropriate chest tube, rubber tubing and Pleurevac, 2-0 silk suture on a straight needle, suction device, tape and dressing.

#### Procedure:

1. Obtain and prepare all PPE, instruments, and supplies needed.
2. Anesthetize the skin by injection of local anesthetic and possible nerve block
3. Apply appropriate skin cleansing prep.
4. Use a scalpel (#10 blade) to make an incision over the mid-axillary 5<sup>th</sup> rib.
5. Use the hemostats to spread and enlarge the passageway into the chest.
6. Pierce gently inside the thoracic wall, spread hemostats, and remove.
7. Use index finger to probe inside chest wall to ensure proper entry into chest cavity.
8. Use finger or hemostats to guide chest tube inside chest wall, guiding upwards towards the apex of the lung.
9. Insert chest tube so that the drainage holes are completely below the surface of the skin.
10. Attach the rubber hose from the Pleurevac, and begin continuous suction at 30mmHg.
11. Secure the chest tube in place with silk 2-0 or larger suture.
12. Place Vaseline gauze around the chest tube at insertion site.
13. Secure the chest tube and place additional dressings around the tube.
14. Consider placing long-acting anesthetic—perform rib nerve block.
15. Transport to hospital as soon as practical, and obtain confirmatory chest X-ray.

## **Alternate Airway Procedures:**

### **Digital Intubation:**

Securing the airway using blind insertion to direct the ET tube into the larynx. This technique should only be performed in a deeply unconscious patient.

### **Indications:**

1. Secretions, vomitus or blood cannot be removed with suction (vision obscured).
2. When equipment, such as the laryngoscope, is lacking or has failed.
3. Situation makes it difficult or impossible to intubate via the normal methods.

### **Contraindications:**

1. Digital intubation should not be attempted on any patient with risk of biting.

### **Equipment:**

- See oral endotracheal intubation equipment list

### **Procedure:**

1. Pre-oxygenate while assembling equipment. Maintain C-spine immobilization.
2. Apply cardiac monitor, pulse oximetry and establish IV access.
3. Select proper size ET tube. Attach 10 mL syringe and inflate cuff observing for any air leaks. Deflate cuff. Place a stylet inside the tube, and bend it in the shape of an "L", or hockey stick, with a 90° angle ~8 cm from distal end.
4. Face the patient and re-assess mental status. If bite injury is **unlikely**, proceed with the digital intubation. Insert middle and index fingers of the non-dominant hand along the patient's tongue, drawing the tongue forward as the fingers "walk down" the tongue to palpate the epiglottis with the middle finger. The epiglottis should feel like a "wet earlobe" at the base of the tongue; if unable to palpate the epiglottis, pull forward on the tongue and jaw, which usually corrects the problem.
5. Insert the lubricated ET tube along the side of the mouth and place alongside the middle finger that remains in contact with the epiglottis. The index finger directs the tube from the top, keeping the tube tip in contact with the middle finger and directing it toward the epiglottis.
6. Advance the ET tube between these two fingers, keeping it against the epiglottis with the index finger. When the tip of the tube reaches the end of the middle finger, lift the middle finger and press the tube tip against the tongue in this position. Anterior pressure is applied against the epiglottis as the tube is advanced further and directed toward the vocal cords. The index finger supports the tube from behind. Keep the tube tip or side-hole in constant contact with the middle finger in order to identify the position of the tip. Resistance is common as the tube enters the larynx. As the resistance increases, hold tube firmly in place.
7. Advance ET tube through vocal cords and remove the stylet. Inflate cuff with 10 mL of air. Ventilate the patient. Confirm tube placement. If sounds are auscultated over the epigastrium, deflate cuff and remove the tube. If lung sounds are auscultated greater over the right side of the chest, withdraw the tube 1 cm at a time until lung sounds are equal bilaterally.
8. Secure the tube with tape or commercially available tube holder noting location of the tube (# of cm) at the upper lip.
9. Documentation of the procedure should include:
  - a. Indication for digital intubation
  - b. Number of attempts and by whom
  - c. Size of tube, # cm at lip, end tidal CO<sub>2</sub> detector color change or waveform capnography, lung sounds, chest expansion
  - d. Any complications encountered during the procedure

## **Advanced Cardiac/Vascular Access:**

Advanced IV access techniques are available for use by RMERT physicians and include central venous catheterization and rapid infusion large-bore IV catheter exchange kit.

### **Central Venous Catheter (CVC) Placement**

**Physicians only:** The triple-lumen CVC kit is available in the RMERT crash cart. If a seriously injured or ill patient has poor peripheral vein IV access, an alternate vascular access device is indicated. Intraosseous (IO) access should be considered before placing a CVC if no contraindications to IO placement.

The location of the CVC placement includes the following: internal jugular (IJ) vein, subclavian (SC) vein or femoral vein. A trauma patient sustaining a pelvic fracture or penetrating trauma to the abdomen or lower back will likely have compromised venous return to the heart which warrants CVC placement in the IJ or SC vein. In this situation, avoid using the femoral vein.

**Indications:** A need for IV access in a patient with multiple failed peripheral vein cannulation attempts.

**Contraindications:** If significant pelvis trauma/fracture or penetrating trauma to the abdomen or lower back is identified, the CVC should preferentially be placed in the IJ or SC vein.

**Materials:** Triple-lumen CVC kit, local anesthetic, sterile towels, sterile gloves, gown, mask, goggles (standard PPE), and sterile saline flushes. Consider preparing IV fluids/necessary medications planned for use after successful placement of the CVC. Ultrasound guidance may be utilized to assist placement of the CVC if available.

#### **Procedure:**

1. Inform the patient/family of the risk/benefits/alternatives of the procedure and obtain verbal consent from the patient/family if possible.
2. Use antiseptic skin prep and assemble the material and supplies necessary.
3. Wash hands thoroughly and don the sterile PPE.
4. Use syringe and needle to inject local anesthetic at the site of the central line to maximize patient comfort.
5. Place the patient body in Trendelenburg position (head down) for IJ and SC vein lines, or reverse Trendelenburg (feet down) for femoral vein access. Use towels or other materials to position the patient.
6. Proceed using the Seldinger technique to place the central line.
  - a. Insert the large hollow needle to find the central vein, place the guidewire into the needle and thread the wire into the vein 6-10 cm.
  - b. Use the scalpel to incise the skin where the wire enters the skin.
  - c. Insert the plastic dilator.
  - d. Following dilation of skin and tissues, remove the dilator, and place the central line over the guidewire and advance into the vein.
  - e. Remove the guidewire while holding the central line in the place.
7. Aspirate all ports with saline flushes to verify blood return and flush line.
8. Suture the CVC in place, place an occlusive dressing, and check X-ray placement as soon as available. Use once placement has been confirmed.

**Complications:** Bleeding, hematoma, accidental placement into an artery with subsequent loss of limb, infection, pneumothorax, intra-abdominal puncture injury, pseudoaneurysm formation, and extravasation of medication/fluid in an improperly placed CVC.

## **Advanced Cardiac/Vascular Access:**

### **Rapid Infusion IV Catheter Exchange:**

The Rapid Infusion Large-bore (7 French) IV exchange kit can be used to replace a smaller gauge IV.

**Indications:** The rapid exchange catheter is utilized in patients displaying hypovolemic shock who require rapid volume of crystalloid or blood product infusion. This technique exchanges a 20g or larger peripheral IV catheter to a 7 French IV for rapid volume infusion.

**Contraindications:** Do not perform if patient has only one peripheral IV access site.

**Equipment:** Commercial Rapid Infusion Large-bore (7 French) IV exchange kit with large gauge catheter, dilator, guidewire and scalpel.

#### **Procedure:**

1. Maintain sterile technique.
2. Cleanse IV indwelling catheter and tubing connector with antiseptic skin prep.
3. Disconnect the tubing from the indwelling catheter.
4. Place the exchange kit guide wire into the small gauge IV catheter using Seldinger technique.  
**CAUTION:** Maintain a firm grip on the guidewire at all times. If resistance is encountered while advancing the guidewire, hold the catheter in place and carefully withdraw the guide wire. Attempt to reinsert the guide wire. If resistance is encountered again, abort the procedure.
5. Leave the guide wire in place and remove the IV catheter in sterile fashion.
6. Incise the cutaneous puncture site with a scalpel to advance the dilator and 7F rapid bore infuser. Do NOT cut the guidewire.
7. Remove the clear plastic guard from the sheath dilator assembly.
8. Thread tapered tip of dilator over the guidewire. Grasping near skin, advance the dilator and sheath into the vessel with a slight twisting motion.
9. Once the 7F IV is in place, remove the IV dilator and guidewire.
10. Secure the 7F catheter, and aspirate to ensure blood return and flush, prior to infusing fluids and medications.
11. To avoid disconnection, use only luer-lock connecting tubing.

**CAUTION:** Vessel rupture is possible if the diameter of the sheath used is too large in comparison to the vessel diameter at the peripheral exchange site. Discretion must be used in choosing the size of a sheath appropriate for the intended exchange site.

## **Advanced Cardiac/Vascular Access:**

### **Pericardiocentesis:**

An emergent procedure to relieve acute cardiac tamponade by evacuating fluid accumulated in the pericardial space. A pericardial effusion is a fairly large collection of fluid outside the heart—inside the pericardial sac. As pericardial fluid increases, the increased pressure compresses the myocardial wall and can collapse the atria, vena cava and pulmonary veins. This decreases right ventricular filling in diastole, resulting in lower stroke volume and cardiac output. Cardiac tamponade can be rapidly fatal. It is difficult to diagnose by physical exam. Maintain a high index of suspicion in chest trauma and utilize ultrasound, if available.

### **Signs and symptoms:**

1. Muffled heart sounds
2. Distended neck veins
3. Hypotension
4. Pulsus Paradoxus
5. Narrowed pulse pressure

### **Equipment:**

- 35-50 mL syringe
- Appropriate skin cleansing prep
- #18 or #20 gauge spinal needle or a central line/introducer kit
- Cardiac monitor and defibrillator

### **Procedure:**

1. Assemble equipment including a crash-cart with ACLS medications, cardiac monitor and pacing patches. Monitor closely throughout the procedure.
2. Prep the xyphoid and subxyphoid areas with appropriate skin prep.
3. Insert the spinal needle with 50 mL syringe through the subxyphoid space. Direct the needle at a 45° angle to the chest aiming toward the left shoulder.
4. Maintain traction on the plunger as the needle is advanced.
5. Stop needle advancement when blood appears in the syringe.
6. The needle may touch the myocardium and cause v. tach or v. fib. In event of dysrhythmia, remove as much fluid as possible within 10 seconds and remove the needle. Proceed with standard ACLS care as indicated.
7. In the absence of cardiac dysrhythmia or arrest, withdraw 50 mL of blood/fluid.
8. Withdraw the needle at the same angle as it was introduced (save blood/fluid).
9. Reassess often for the redevelopment of cardiac tamponade or pneumothorax.
10. Attach Luer-lock administration tubing to sheath hub. Use large diameter trauma fluid administration tubing. To avoid disconnection, only Luer-lock connecting tubing is used. Secure sheath to the patient.
11. Apply antibiotic ointment and cover site with dressing.
12. Document of the procedure should include:
  - a. Indication for the procedure
  - b. Number of attempts and by whom
  - c. Amount of fluid aspirated
  - d. Presence of non-clotting blood in syringe
  - e. Patient's tolerance to the procedure
  - f. Any complications encountered during the procedure
  - g. Assessment of site before and after procedure.

## **Intraosseous Access:**

### **Intraosseous Placement:**

Intraosseous (IO) access is a reliable method of achieving a route for administration of drugs and fluids by placing a needle into the medullary cavity of bone. This procedure is performed on critically ill patients in whom intravascular access is not rapidly accessible or feasible.

### **Indications:**

Multi-system trauma, severe dehydration with vascular collapse, loss of consciousness, and cardiac arrest; it may be utilized in any pediatric patient who is unresponsive and in need of immediate drug or fluid administration.

### **Contraindications:**

Fracture above the access site, infection at the access site, and prior attempt at IO access at same location.

### **Equipment:**

- #16 or #18 gauge intraosseous needles (or commercial IO kit)
- 10 mL syringe
- IV fluid with attached tubing
- Pressure infusion bag
- Appropriate skin cleansing prep
- Tape

### **Procedure:**

1. Assemble and prepare all equipment.
2. Locate the landmarks of the insertion site. Palpate the tibial tuberosity. The insertion site is 1-3 cm below this and slightly medial. Avoid the joint itself as well as the epiphyseal plate.
3. Cleanse the area with appropriate skin prep.
4. Stabilize the leg and place the IO while maintaining a 90° angle during the insertion process.
5. Remove the inner stylet and attach the 10mL syringe.
6. Aspirate for bone marrow contents and flush.
7. Observe for signs of infiltration or leakage. If observed, discontinue the line.
8. Connect IV line with pressure bag attached.
9. Secure line with tape and/or dressing.
10. Administer fluids and/or drugs per protocol.
11. Document the procedure:
  - a. Number of attempts, by whom and location
  - b. Successful insertion location, gauge IO placed and verification procedure
  - c. Fluid and drugs administered
  - d. Complications

## **Extremity Injuries and Management:**

### **Crush Injury:**

Result from objects that have fallen on the patient or from the patient's own body weight.

### **Crush Injury Treatment:**

1. Before any weight is lifted off the victim's extremity, a secure tourniquet or inflated blood pressure cuff should be placed to occlude arterial and venous flow to the victim's crushed/entrapped extremity.
  - a. The goal on limiting circulation, including the amount of time the extremity is entrapped and time the tourniquet is in place is <2 hours.
    - i. Check that no pulses are detected distal to the tourniquet.
  - b. If >2 hours total of entrapment plus tourniquet time occurs, the victim should be moved to a safe place where the victim can be managed using a cardiac monitor, pulse oximetry, and IV access.
    - i. Supervision of this ideally would include trained physicians.
    - ii. ALS medications (including sodium bicarbonate and calcium gluconate) need to be immediately available before the tourniquet is released.
    - iii. When released, the tourniquet or blood pressure cuff should be loosened slightly, allowing for brief blood flow to the extremity for 15 seconds.
    - iv. The tourniquet/blood pressure cuff is tightened again, while observing the cardiac monitor rhythm for elevated or peaked "T" waves, which may represent hyperkalemia or other tissue toxic factors.
    - v. If lethal arrhythmias or hyperkalemia occurs, treat as per ACLS guidelines and ensure the tourniquet remains tightly in place until the patient is stabilized.
2. Proceed with extrication and rapid transportation to a hospital.
3. If there is severe tissue damage or near-amputation with bleeding blood vessels exposed, do **NOT** use clamps or hemostats to stop bleeding. These cause unnecessary nerve and tissue damage.

## **Extremity Injuries and Management:**

### **Extremity Injuries—General Considerations:**

1. Examine and document the presence or absence of distal pulses, motor and sensory function.
2. Splint injured extremities (musculoskeletal joint injuries)
  - a. Use a rigid splint for long bones, immobilizing the joints above and below the deformity.
  - b. If using a soft splint/pillow, ensure the extremity is sufficiently stabilized.
  - c. If no distal pulse is present and the extremity is angulated, consider administering pain medication and reducing the fracture by applying manual traction until pulses return.
  - d. Splint in position to maintain distal pulse.
3. Frequently recheck and record distal pulse, motor and sensory functions.

### **Muscle Strains:**

1. Use standard RICE treatment for the first 24-48 hours: Rest, Ice, Compression (elastic bandage) and Elevation.
2. Remove elastic bandages at night; swelling can turn them into tourniquets.
3. After 36-48 hours, apply heat, to bring more blood to the area and speed healing.
4. For spasms, cramps or stiffness, use gentle stretching after applying heat.

### **Sprains:**

1. Minor injuries that appear to be sprains, and do not interfere with use of the extremity, should be treated with RICE treatment for the first 24-48 hours: Rest, Ice, Compression (elastic bandage) and Elevation.
2. Remove elastic bandages at night; swelling can turn them into tourniquets.
3. After 36-48 hours, apply heat, to bring more blood to the area and speed healing.
4. For more significant sprains, consider splinting and evacuating.

### **Closed Fractures:**

1. Indications to reduce a deformed long bone fracture (including open fractures):
  - a. To correct or improve a sensory or vascular deficit secondary to the fracture (if numbness, tingling, weakness, or lack of pulse beyond fracture).
  - b. To align severely deformed long bone fractures to allow splinting with adequate immobilization.
2. Grasp the extremity distal to the fracture firmly. Pull traction along the normal axis of the injured extremity. **Do not release** traction until the limb is splinted.
3. Have an assistant apply countertraction, holding the extremity proximal to the fracture. Use the least amount of force needed to align the extremity. The initial pull will usually cause discomfort as the fragments move, but quickly subside. If the patient strongly resists traction, or if it causes markedly increased pain, stop, and splint in the deformed position.
4. Attempt realignment of a long bone fracture only twice, unless there is a sensory or vascular deficit. If unsuccessful after two attempts, or resistance during realignment, splint the extremity as is. In these circumstances there is a greater risk of making the injury worse.

## **Extremity Injuries and Management:**

### **Open Fractures:**

1. Realign open fractures for the same reasons as for long bone fractures as described above.
2. Open fractures deserve special consideration. Arrange immediate evacuation for any patient with an open fracture. These fractures require irrigation, debridement, and open surgical reduction in the operating room, ideally within 2–4 hours. Assume that any fracture (or suspected fracture) with a nearby laceration or wound is an open fracture. Care of open fractures in the wilderness environment depends upon evacuation time.
3. If evacuation can be completed within six hours, limit cleansing to brushing off dirt and other contaminants with clean gauze or a cloth and apply a moistened saline, sterile dressing, leaving the protruding bone fracture in place (as long as there is a good pulse distally). Control hemorrhage by carefully applying a pressure dressing and immobilize the extremity by splinting.
4. If evacuation time will exceed 6 hours, clean the wound, perform limited debridement (trim away any obviously dead tissue), and irrigate before applying a sterile dressing. Control hemorrhage with a pressure dressing, and immobilize. If evidence of nerve or vascular compromise in a deformed extremity, clean bone fragments and local tissue as best possible. Realign the fracture and reevaluate before and after splinting and frequently during evacuation.

### **Femur Fractures:**

For the initial management of a femur fracture, use a traction splint. Even with the best-padded ankle hitches, traction splints tend to cause pressure necrosis when used for a long period of time. Monitor carefully for signs of pressure necrosis, and readjust or remove the traction splint if the ankle shows signs of skin breakdown.

### **Dislocations:**

Attempt reduction of all dislocations if numbness or no pulse is palpated distal to the dislocation. Attempt reduction of the following dislocations: jaw, finger or toe, elbow, shoulder, patella, knee, ankle. Attempt hip dislocation reduction only if needed to evacuate patient.

## **Extremity Injuries and Management:**

### **Amputation injuries:**

Amputation injuries may occur as a result of trauma. Alternatively, field amputation may need to be performed in the event of patient entrapment in which all resources have failed to successfully extricate the patient, or the patient's life is in immediate danger with prolonged extrication.

**Note:** The most skilled medical person on scene, *preferably a physician*, will perform this procedure. If a physician is unavailable, the RMERT technical rescue paramedic or nurse should perform this procedure **only if absolutely indicated**. If no other practical alternative is available, and emergent extrication is warranted, proceed with the field amputation procedure.

### **Field Amputation Procedure:**

1. Stabilize the site as best possible and wear appropriate PPE.
2. Control external bleeding. Use appropriate bandage or tourniquet to stop bleeding. Place a second tourniquet if bleeding continues. As a last resort, direct clamping of the bleeding artery should be considered (**physician level**).
3. Obtain IV access if possible and practical. Apply oxygen by NRB mask.
4. Inform the patient of the situation and the need for amputation. If the patient is alert and able to make a decision, get verbal consent before the procedure.
5. If vital signs are stable, administer narcotic pain medication.
6. Determine the incision/amputation site, and irrigate the wound to remove mud and debris.
7. Apply an appropriate tourniquet above the amputation site.
8. If time and conditions allow, inject 1% Lidocaine or other local anesthetic via into the subcutaneous, deeper muscle and periosteal tissues in a circumferential manner at the amputation site. Consider a proximal nerve block.
9. Use a scalpel, knife, saw, or other appropriate tool(s) to perform the amputation.
10. Work rapidly, optimize hemorrhage control, place a sterile or clean dressing over the amputation site, and extricate the patient quickly and safely.
11. If the severed body part is retrieved, irrigate it briefly, place it in a cool, appropriate container, and transport to the patient's destination hospital.
12. Provide psychological support to the conscious patient.

### **Care of Severed / Amputated Body Part:**

It is important to properly cleanse and transport an amputated body part for possible reimplantation.

1. Use saline or tap water to irrigate the body part of debris and other contaminants.
2. Wrap the body part in sterile gauze, a clean towel or sheet dampened with sterile water or lactated ringers.
3. Place part in waterproof bag or container and seal. Do NOT immerse amputated part in any solutions.
4. Place this container into a larger container filled with ice and enough water to almost cover the ice. Do NOT place the extremity in direct contact with ice, as it may cause freezing injury/frostbite.
5. Transport the body part with the patient, discretely out of sight of the patient.
6. Provide pain medication.
7. Contact MedComm to discuss the specific amputation. Certain amputations may warrant diversion to an appropriate regional surgical specialty center.

## **Extremity Injuries and Management:**

### **Compartment Syndrome:**

Thick layers of tissue, called fascia, separate groups of muscles in the arms and legs. Inside each layer of fascia is a confined space, called a compartment that includes muscle tissue, nerves, and blood vessels. Fascia surrounds these compartments, similar to the way insulation covers wires.

Fascia does not expand. Any swelling in a compartment will lead to increased pressure in that area, which compresses the muscles, blood vessels, and nerves. With accumulating pressure, blood flow to the compartment will be blocked and can permanently injure the muscle and nerves. In prolonged compartment syndrome, the muscles may die and the limb may need amputation. Swelling that leads to compartment syndrome occurs from trauma such as a motor vehicle crash, crush injury, significant fracture or soft tissue injuries. Compartment syndrome is most common in the lower leg and forearm, although it can occur in the hand, foot, thigh, and upper arm.

### **Signs and Symptoms:**

1. Pain is almost universal and described as severe, deep, constant, poorly localized, and may be out of proportion for the extent of injury. The pain is aggravated by stretching the muscle and not relieved by narcotic medication.
2. Paresthesia (e.g., "pins and needles") in the nerves of the affected compartment.
3. Paralysis of the limb is a late finding and the compartment feels tense and firm.
4. Pulselessness **rarely** occurs, as pressures that cause compartment syndrome are below arterial pressures and pulse is affected only if the artery travels through the affected compartment.

If compartment syndrome is suspected and an extended evacuation situation is expected, attempt to have a surgeon brought in to operate on the leg.

### **Treatment:**

Minimizing the lethal effect of compartment syndrome includes:

1. Ensure scene safety prior to initiating patient care.
2. Place the patient on a portable cardiac monitor, observe the cardiac rhythm for T-wave size and perform frequent ongoing exams.
3. Initiate oxygen therapy and IV access.
4. Infuse IV normal saline and sodium bicarbonate. Consider calcium gluconate in severe cases or if hyperacute T-waves are seen.
5. Prior to removing the heavy object off the extremity, place a tourniquet just proximal to the crush site (as far distally on the extremity as possible). This will minimize the sudden release of acids and potassium from the injured extremity. The tourniquet should remain in place until the patient arrives at the hospital, provided the transport time is <1 hour.
6. Observe the patient for signs of compartment syndrome after compression injury of an extremity or prolonged position lying on a hard surface.

## **Wound Care Management:**

### **Contusions:**

Use standard RICE treatment for first 24-48 hours: rest, ice, compression (elastic bandage) and elevation. Do not let people sleep with elastic bandages; swelling may turn them into tourniquets overnight. After 36-48 hours, apply heat, to bring more blood to the area and speed healing.

### **Subungual Hematoma (blood trapped under fingernail):**

Clean the nail with appropriate cleansing prep and trephine the nail (make a hole in it). The preferred method is to heat tip of a safety pin in a flame to sterilize and make it red-hot, then apply firmly to nail. An alternative is to use a #11 scalpel blade or 18g needle to drill a hole in the nail.

### **Open Soft-Tissue Wounds:**

Examine the wound and classify it as either **low-risk** or **high-risk** for complications.

**High-risk** wounds include: open fractures, (bone or tendons exposed), human or animal bites, deep punctures, grossly contaminated wound or severe crush injuries.

**Note:** Never put alcohol, Merthiolate, mercurochrome, or peroxide into an open wound. Povidone-iodine may be used **around** but not in wounds; the only exception is diluted povidone-iodine for high-risk wounds as described below.

### **High-Risk Wounds**

1. Control bleeding.
2. Irrigate the wound (see below).
3. Leave the wound open, and pack and cover it with gauze soaked in povidone-iodine (e.g., Betadine®) diluted with 10 parts water.
4. Change the dressing every six hours; wash hands and wear gloves before changing dressings.
5. Evacuate the patient.

### **Low-Risk Wounds**

1. Control bleeding.
2. Irrigate the wound if deep enough to require it.
3. Apply antibiotic ointment and a clean dry dressing.
4. Clean the wound with drinking water and soap twice a day.

### **Irrigation:**

1. Use a 30 mL syringe and 18 gauge plastic intravenous catheters, or a zipper plastic bag with small hole to provide a small forceful stream.
2. Use 100 mL of irrigation fluid per inch of wound.
3. Aim the irrigation fluid away, wear glasses/goggles and keep mouth closed to prevent splashing into eyes or mouth.
4. Check Tetanus Status—if no tetanus immunization within the past 10 years, have the team member return to Base to obtain tetanus immunization.

### **Friction Blisters:**

1. Leave the blister intact unless it is in a place where it will obviously rupture (e.g., the sole of the foot).
2. If in area that it is likely to rupture, make a small hole at the edge of the blister with a sterilized pin, needle, or #11 scalpel blade. Press gently to remove the fluid.
3. If the top of the blister is partially ripped off, trim it away neatly; clean the area and cover it with some povidone-iodine or antibiotic ointment and a self-adhesive dressing (e.g., a Band-Aid®) or other dressing.
4. Instruct the person to keep the blister clean, since it is susceptible to infection.

### **Splinters:**

Attempt removal with a #18 gauge needle, or a #11 scalpel blade.

### **Fishhooks:**

The barbs make removing them backwards difficult. Push the hook through and clip off the barbed tip, allowing easy removal. If the tip is deeply embedded, it may be better to clip off the external part of the hook, and stabilize it in place for removal by a physician on-scene, or in the Emergency Department once the person reaches civilization.

### **Impaled Objects:**

Whenever possible, discuss this with a Medical Control Physician; the most experienced medic at the scene must decide whether to attempt to stabilize or to remove the object. Most large impaled objects cannot be "stabilized" during an evacuation, so remove an impaled object before transport.

- When removing an impaled object, remove it slowly and gently but firmly, pulling out along the line the object entered. Stop the attempt if any significant resistance is encountered or causes the patient significant pain.

## **Environmental Illness Management:**

### **Heat Illness:**

It is important for RMERT staff to stay well hydrated and cool to prevent heat-related illness. In addition, rescuers, victims and others at the disaster site are at risk in moderate to high temperatures and should be monitored.

### **Heat Cramps:**

Brief, intermittent and often severe muscular cramps occurring in muscles that are fatigued by heavy work. Heat cramps appear to be related to salt deficiency and commonly occur during the first days of work in a hot environment in persons who produce large amounts of sweat and drink copious amounts of hypotonic fluid (water).

### **Treatment:**

Provide oral rehydration of salt and electrolyte fluids.

### **Heat Syncope (Fainting, Passing Out):**

Syncope may be a sign of serious medical problems (i.e., seizure disorder, heart valve problem, arrhythmia, or stroke). Fainting may also be due to minor problems, such as dehydration, a sudden psychological shock, prolonged standing, or forgetting to eat breakfast. People who are exposed to hot conditions are at increased risk for heat syncope.

### **Signs and Symptoms:**

- Visual scotomata, tunnel vision, vertigo, nausea, diaphoresis and weakness

### **Treatment:**

Check for orthostatic changes in blood pressure or pulse, and continue rehydration and sugar replenishment until the person is no longer orthostatic.

When assessing a team member after a syncopal or near-syncopal episode (passing out or nearly passing out), allow the team member who meets the following criteria to resume duties after rest, rehydration and electrolyte replenishment.

1. Lightheadedness or nausea prior to the episode
2. Loss of consciousness for only a few seconds
3. No history of heart disease, no chest pain/pressure associated with the episode
4. No focal neurological symptoms
5. No seizure activity/sign of seizure (tongue biting, bowel or bladder incontinence)
6. No significant injury from falling
7. No heart murmur, no rapid/slow/irregular pulse

**Note:** Use the above protocol with caution; anything about the episode that is suspicious for an etiology other than heat syncope (even if the team member meets all the above criteria), should be cause to terminate the task and head back to Base. A physician should examine any team member with syncope when the team returns to Base, even if initially cleared to continue with the duties.

### **Prevention:**

Encourage team members to move often, flex leg muscles repeatedly when standing stationary, avoid protracted standing in hot environments and encourage them to sit or lie down if symptoms start.

## **Environmental Illness Management:**

### **Heat Exhaustion:**

A clinical syndrome characterized by volume depletion that occurs under conditions of heat stress. Two types of heat exhaustion are described:

- Water depletion—inadequate fluid replacement by individuals working in hot environment and limited access to free water (“voluntary dehydration”).
- Salt depletion—takes longer to develop and occurs when large volumes of thermal sweat are replaced by water with too little salt/electrolytes. In contrast to heat cramps, systemic symptoms are present in heat exhaustion.

### **Signs and Symptoms:**

Weakness, fatigue, frontal headache, impaired judgment, vertigo, nausea and vomiting, and occasionally muscle cramps. Orthostatic dizziness or syncope can occur. Sweating persists and may be profuse. The core temperature is only moderately elevated (<104°F or 40°C) and signs of severe CNS dysfunction are **NOT** present.

### **Treatment:**

1. Provide oral and IV fluids, since heat exhaustion is primarily a volume depletion problem.
  - a. Young, otherwise healthy individuals who respond rapidly to hydration do not require transport to a hospital, but should not participate in duties for 24-48 hours.
  - b. Older individuals, especially those with cardiovascular disease, require more cautious fluid and electrolyte replacement, frequent serum electrolyte measurements and should be urgently transported to an appropriate hospital for management.

### **Heat Stroke:**

A catastrophic, life-threatening emergency occurring when thermoregulatory mechanisms fail. This results in elevation of body temperature to extreme levels, usually >105°F (40.5°C) producing multisystem tissue damage and organ dysfunction. Patients who present to the hospital with heat stroke have mortality rates ranging from 21-63%.

### **Signs and Symptoms:**

The onset of heat stroke is sudden with altered level of consciousness. Prodromal symptoms lasting minutes to hours occur in ~20% of cases. These are nonspecific and may include weakness, dizziness, nausea, vomiting, anorexia, frontal headache, confusion, drowsiness, disorientation, muscle twitching, ataxia and psychiatric symptoms ranging from anxiety and irritability to psychosis.

### **Treatment:**

1. Immediate cooling is the priority. Mortality increases when cooling is delayed.
2. Remove from the hot environment and place in cool area.
3. Dampen the patient's clothes with water (preferably tepid or mildly warm fluid) and use a fan to facilitate evaporative heat loss.
4. Place cold packs at sides of the neck, in armpits, and in groin.
5. Place the patient on a cardiac monitor for identification of arrhythmias.
6. Aspiration and seizures are common in heat stroke and airway control is essential. Fluid requirements are modest and pulmonary edema can occur with overzealous fluid administration.
7. Emergent evacuation and transport to appropriate hospital with ICU capability.

## **Environmental Illness Management:**

### **Cold Illness and Injuries:**

#### **Superficial Frostbite (Frostnip):**

Frostnip commonly affects fingers, toes, ear lobes, and noses; it can be recognized by a sudden blanching of the nose, ear, or fingertip. Although the body part is pale or yellowish, it is soft to the touch. Numbness is not a useful symptom for diagnosing frostnip.

#### **Treatment:**

Re-warm by placing a warm hand over the nose or ear, or by placing a frostnipped finger in the mouth, armpit, or in a warm pocket. On re-warming, the affected part turns red, painful, and swollen, although no permanent damage results.

#### **Deep Frostbite:**

In deep frostbite, the subcutaneous tissues are frozen solid, and the affected part feels hard—like a piece of wood. Check for life-threatening hypothermia before treating frostbite. Treat frostbite and hypothermia at the same time.

#### **Treatment:**

Arrange for emergent transport to a hospital where definitive re-warming can occur. However, for delayed transport capabilities, or long transport times (>1 hour), re-warming should be initiated on scene and continued en route.

1. If hypothermic, re-warm the core and protect the patient from further cold exposure before worrying about frostbite. However, there is no justification for keeping the frostbitten part cold during transportation.
2. Rapid re-warming is the gold standard for deep frostbite, but slow re-warming (e.g., room temperature air or a warm sleeping bag) is preferable to alleviate more extensive damage of an area kept cold.
3. The best practice is **rapid re-warming in 105-110°F (41-43°C) water**. Water can be quickly heated on a stove while preparing for evacuation.
4. Avoid smoking, due to the vasoconstricting effect of tobacco. Caffeine also has a vasoconstrictor effect, and should be avoided (coffee, tea, or cola drinks).
5. **Frostbitten limbs are numb**, so avoid submersion in hot water and avoid thermal burns re-warming near a fire. If no thermometer is available, place an elbow in the water. It should feel very warm but not painful.
6. Frostbite in Litter Patients: Wrap the frostbitten extremities in towels or thick pieces of clothing soaked with warm 105-110°F (41-43°C) water. Wrap waterproof plastic and pieces of closed-cell foam around the towel-wrapped extremity, and place the patient in the litter.
7. Discontinue warming measures once the frostbitten part is thawed. Remove wet towels after several hours and allow the skin to dry.
8. Heat packs and heating pads cause burns during re-warming, even to areas not frostbitten. Heat packs can be used to prevent wet towels from cooling.
9. Treating frostbite in a patient who is also hypothermic is controversial. Re-warming of the periphery should be avoided in hypothermia, but the hands and feet (not the arms and legs) have direct venous connections to the core.

# **Environmental Illness Management:**

## **Hypothermia:**

<b>Severity</b>	<b>Core Temperature</b>	<b>Physiologic Response</b>
Mild	90°F to 95°F (32.2°C to 35°C)	Tachypnea, tachycardia, shivering
Moderate	82.4°F to 90°F (28°C to 32.2°C)	Loss of shivering, altered LOC
Severe	<82.4°F (28°C)	Loss of reflexes, coma, v. fib

- Mild hypothermia:
  - Patients with mild hypothermia and no medical problems can be re-warmed using any method, as the ability to ‘shiver’ is intact and will increase body temperature.
  - Patients and team members with mild hypothermia may return to duty or be discharged after re-warming, ensuring adequate food and drink and documenting a normal physical exam.
- Moderate and severe hypothermia: <90°F (32.2°C)
  - These patients will need extensive medical care due to risk for significant complications including death.

### Treatment:

**Add as much heat as possible, using any method available.** Attempt to re-warm the core first. Acceptable methods include warm IV fluid infusion, warm fluids by mouth if tolerated, hot packs at lateral neck, armpits, and groin, warm humidified air or oxygen, and re-warming devices (i.e., charcoal vest). Evacuation should NOT be delayed to re-warm the patient. Provide fluids and food if tolerated.

### Handling Hypothermic Patients:

1. Do not let hypothermic patients exert themselves during rescue.
2. Transport hypothermic patients flat or in a slightly head-down position.
3. Subacute hypothermic patients (exhaustion, mountain, or cave) are often fluid depleted and require fluid resuscitation.
4. Patients who have been hypothermic for days may not tolerate large fluid loads, because of "stiffness" of the heart. In these cases, monitor frequently for signs of fluid overload when giving fluids (lung congestion, ankle or lower back swelling).

### Hypothermia and Cardiac Arrest:

1. If rescue personnel find a cold and unresponsive person with no signs of life, start artificial ventilation.
  - a. Do NOT start external cardiac compression if there are any signs of life.
2. Evaluate the patient for three (3) minutes to detect a pulse, heartbeat, and spontaneous respiration.
  - a. Use normal rates for artificial ventilation and external cardiac compression (if asystole and pulseless after 3 minutes).
3. Check for a rhythm with a cardiac monitor. If there is any organized rhythm, even if 20bpm, start artificial ventilation WITHOUT external cardiac compression.
4. Provide oxygen.

Severely hypothermic patients in cardiac arrest may survive long periods without cardiopulmonary resuscitation, if necessary for extrication and rescue. If CPR must be interrupted during rescue (e.g., during evacuation through a small crawlway in a cave), resume CPR when the situation permits.

For hypothermic patients without detectable signs of life, consider transport to a facility that can perform bypass re-warming. Call ahead to alert the facility.

### Special Hypothermia ACLS Notes

- 1) ACLS management of a cardiac arrest due to hypothermia focuses on aggressive active core re-warming techniques as the primary therapeutic intervention.
  - a. The hypothermic heart may be unresponsive to cardiovascular drugs, transcutaneous cardiac pacing, and defibrillation.
  - b. Drug metabolism is reduced. In a severely hypothermic victim, cardioactive medications can accumulate to toxic levels in the peripheral circulation.
    - i. IV drugs are often withheld if victim's core body temperature is  $<30^{\circ}\text{C}$  ( $86^{\circ}\text{F}$ ).
    - ii. If core temperature is  $>30^{\circ}\text{C}$ , IV medications may be administered with increased time intervals between doses.
- 2) The criteria for endotracheal intubation are the same for normothermic and hypothermic patients. Intubation does not put hypothermic patients at any more risk of ventricular fibrillation than normothermic patients.
- 3) Do NOT treat atrial fibrillation, atrial flutter, PVCs, or atrioventricular block in a hypothermic patient. Specifically, avoid atropine and avoid transcutaneous pacing.

### Submersion (Near-Drowning):

Cold-water submersion (near-drowning) is **not** the same as acute (immersion) hypothermia. **Do NOT re-warm victims of cold water submersion—keep them cold.**

## **Environmental Illness Management:**

### **Lightning Strikes:**

A particularly important point about lightning strikes is the patient may have **respiratory paralysis, unconsciousness, and vasospasm with undetectable pulses; even in this scenario, prolonged artificial respiration may allow the patient to recover with no neurological deficit.** (Vasospasm is a "cramp" of blood vessel muscles that may make a pulse impossible to feel.) Coma may last for days or weeks, but patients may still make a full recovery.

1. Each lightning strike victim needs immediate ABC's, with careful attention to protecting the C-spine. Lightning strike victims have an excellent chance of full recovery through basic life support.
2. If a patient is found in or near a thunderstorm with confusion or coma, dendritic burns, or ruptured eardrums, lightning strike treatment should be initiated.
3. Check for a pulse (remember the possibility of vasospasm) and measure the BP. Perform a trauma exam. If an otoscope is available, check for tympanic membrane/eardrum perforations. Although these patients are generally stable and recover without incident, evacuate the patient after placing on a cardiac monitor (if available).
4. When triaging a group of people hit by lightning, the rule is "**resuscitate the dead**," since those showing some signs of life are likely to recover.

### **Bee Stings:**

1. Apply ice to the sting to reduce pain.
2. Ensure the stinger is removed.
3. Patient may use Tylenol and Benadryl to treat local symptoms, but use caution when administering Benedryl as it causes drowsiness.
4. If patient is unstable or having severe symptoms, treat accordingly with PAEMS Anaphylactic/Allergic Reaction protocol.

### **Animal Bites/Rabies:**

For any person who sustains a bite by a mammal (other than rodents, squirrels, or rabbits) that may have rabies virus-contaminated saliva, attempt to capture or kill the mammal **without risking additional bites.** Do not damage the brain since it is tested for rabies. Arrange for the head to be taken to a public health service laboratory.

1. Reduce the amount of virus in a bite wound, and decrease the possibility of infection, by scrubbing the wound briskly with a scrub brush. Use alcohol and soap if available. Traditionally strong antiseptics or alcohol are avoided in wound care—mammal bites are an exception. Alcohol has been shown to kill the virus, and soaps help remove the virus.
2. After scrubbing the wound, immediately evacuate the patient for possible post exposure vaccination. If the patient has already been vaccinated for rabies, the need for evacuation depends on the wound severity and need for treatment.
3. For high-risk bites, the patient should be given the rabies antigen vaccine series and rabies immune globulin (RIG). Inject half of the RIG at the bite site (infiltrated locally subcutaneously) and the other half intramuscularly. Further rabies antigen vaccine shots will need to be given on a fixed schedule during the next 4 weeks. Arrange for follow up wound care and vaccine administration.

## **Management of Common Complaints – Rehab Station:**

The following is general description of common medical complaints that may be seen at a rehab or first aid station. It is important to differentiate minor versus serious causes of symptoms, and exam findings that may represent a serious or potentially life-threatening problem. Concerns for serious illness or injury warrant transport and evaluation at an appropriate hospital.

### **Over the Counter (OTC) Medicines:**

During activation of RMERT, it is intended the paramedics, nurses, and physicians may allow patients and fellow rescue workers at the rehab station to utilize these medicines for common complaints. Prior to dispersing medicines, the patient must have an appropriate screening history and limited physical exam. If the complaint is straightforward and the history and physical suggest a benign cause, the medicine may be dispersed per protocol. If a patient presents with a potentially serious complaint, a thorough history, physical, and advanced treatment may be required (e.g., chest pain, lower abdomen pain, or severe headache).

#### **OTC Medications:**

1. Tylenol/acetaminophen
  - a. Adult dose: 1000 mg oral dose every 6 hrs as needed for pain or fever.
  - b. Pediatric dose: 15 mg/kg oral or rectal dose every 6 hrs as needed for pain or fever.
2. Motrin/ibuprofen
  - a. Adult dose: 600mg every 6 hrs as needed for pain or fever.
  - b. Pediatric dose: 10 mg/kg oral every 6 hrs as needed for pain or fever.
3. Pseudoephedrine/cold tablets: use as per box label (for adults).
4. Robitussin or Mucinex/guaifenesin: use as per box label (for adults and children).
5. Antacids: Maalox or Mylanta 30-60 mL oral every 6 hrs as needed.
6. Benadryl/diphenhydramine (**caution**: sedation and decreased reflexes)
  - a. Adult dose: 50 mg oral every 6 hrs as needed
  - b. Pediatric dose: 1 mg/kg oral every 6 hrs as needed
7. Imodium/loperamide: use for mild diarrhea without fever or abdominal pain.  
Dosing as per box label.
8. Dramamine/Meclizine: for treatment of nausea or vertigo/motion sickness.  
Dosing as per box label.

## **Management of Common Complaints – Rehab Station:**

### **HEENT**

#### **Headache:**

For patients complaining of a severe headache, obtain a detailed history and exam including the head and neck, and neurologic exam. In the presence of neurological symptoms (confusion, visual disturbances, weakness, numbness, or tingling in an arm or a leg, stiff neck, or fever), or complaints of the worst headache of their life, arrange for urgent transport to a hospital.

#### **Eye Irritation:**

1. Obtain visual acuity.
2. Examine the eye, by inverting the eyelid (if trained), and gently removing any foreign bodies seen on the eyelid or conjunctiva (white part of the eye) with a cotton-tipped applicator or improvised equivalent.
3. Irrigate with clean water to remove foreign bodies from the cornea (clear part of eye).
4. Arrange transport at a pace determined by the patient's discomfort level.

#### **Epistaxis/Nosebleed:**

1. Use direct pressure to pinch the nostrils together firmly (proximally on the bridge of the nose).
2. Apply uninterrupted pressure for 10 minutes then recheck. Hold for another 10 minutes if still bleeding. Have the patient sit forward during pressure.
3. For persistent bleeding, **pack** the nose with gauze. Roll up a small gauze pad (**not** tissue or paper towel that will partially dissolve) and place it inside the affected nostril to aid in applying pressure. Double-compressed nasal tampons or commercial epistaxis products may be used instead of gauze. To avoid infections, leave gauze pads in place for no more than 1-2 days. Examine the posterior pharynx to ensure no persistent bleeding behind the packing.

#### **Dental Injury:**

For an avulsed tooth (completely out of the socket), rinse the dirt off. Do NOT scrub the tooth. It destroys the delicate layer of cells that will allow for reattachment. Further treatment depends on the time until transport to a dentist or oral surgeon.

1. Within 1-2 hours of a dentist or oral surgeon, keep the tooth moist so for re-implantation. Keeping the tooth in the patient's cheek is ideal, since the patient's own saliva is the best fluid medium.
2. If evacuation will exceed 1-2 hours, promptly replace the tooth in the socket. Apply dental splinting material to keep the tooth in place. Chewing gum works well. Ensure the patient doesn't aspirate the tooth. If the evacuation route involves difficult climbing, or if the patient has altered level of consciousness, do NOT replace the tooth in the mouth. Instead, place it in a gauze pad moistened with the patient's saliva and clean water or saline, then place it in a plastic bag.

## **Management of Common Complaints – Rehab Station:**

### **Chest/Abdomen**

#### **Chest Pain:**

Chest pain warrants a detailed history and physical exam, taking into consideration the person's medical history, vital signs and appearance.

1. If an episode of chest pain is clearly identified to result from the following etiologies, the person may choose to be evaluated at a hospital or to continue performing duties.
  - a. Minor trauma or muscle strain
  - b. Gastroesophageal reflux/heartburn
  - c. Bronchitis
2. If there is any concern for more serious etiology, initiate cardiac monitoring, oxygen, IV access and arrange for evacuation. Any team member with chest pain in the field, who was not transported to a hospital, should be evaluated by a physician on return to civilization.

#### **Vomiting and Diarrhea:**

History should focus on identifying the possible etiology. In most cases it is viral, but could also be food poisoning, bacterial diarrhea (recent trip to Mexico or known outbreak), intestine obstruction, migraine headache, or other cause.

#### **Treatment:**

1. Determine severity of the illness.
  - a. If the illness is thought to be benign and the patient does not appear ill, ensure his/her hydration status is adequate (give oral and/or IV fluids) and monitor.
  - b. The most serious consequence of vomiting and diarrhea is dehydration, which may progress to hypovolemic shock. If the patient is unstable or appears ill, arrange for evacuation and transport to appropriate hospital.
2. After infectious diarrhea, advance diet as tolerated.
  - a. Start with clear fluids, which are rapidly absorbed and leave no residue to form stool and prompt an unwanted bowel movement.
  - b. Once clear liquids are tolerated, eating food will stimulate regeneration of intestinal enzymes, and will increase water absorption. Easy-to-digest starches will decrease the diarrhea. Bread, toast, crackers, rice, potatoes, and cooked vegetables are preferred.

#### **Urinary Tract Infection:**

##### **Signs and symptoms:**

- Dysuria (burning on urination)
- Frequency of urination
- Urgency of urination (having to go **right now**)
- Incontinence of urine (dribbling of urine, especially with coughing or sneezing)
- Blood in the urine ("hemorrhagic cystitis")

##### **Treatment:**

1. Encourage oral hydration with plenty of fluids.
2. Consider cranberry/cranberry juice, which prevents adherence of bacteria to the ureter and urinary epithelium.
3. Evacuation is not necessary unless the patient has significant discomfort. In cases of fever or significant back pain, evacuate immediately.

## **Management of Common Complaints – Rehab Station:** **Miscellaneous Complaints**

### **Motion Sickness:**

Instruct person to fix vision on the horizon or a distant object. For significant symptoms, consider OTC anti-nausea or anti-vertigo medications such as Dramamine or meclizine.

### **Diabetic Complaints:**

Standard first aid training teaches that any sick diabetic should be given sugar, because it will make insulin shock better and will not harm someone who is hyperosmolar or in ketoacidosis.

- If a diabetic does not improve with sugar, start oral rehydration, preferably with WHO Oral Rehydration Solution.

### **Deep Venous Thrombosis:**

A deep venous thrombosis (DVT) or blood clot in the leg is characterized by swelling in one leg, with mild redness and warmth. The calf is swollen compared to the unaffected side and is tender to deep palpation. If the foot is forcibly dorsiflexed (pushed up), the resulting traction on the calf may cause pain. Sometimes the tense, clotted veins can be palpated behind the knee or in the upper calf or posterior thigh ("cords").

1. If there is any suggestion the patient might have a deep venous thrombosis, **don't allow the to patient walk**. Walking could lead to embolism of a clot and resultant pulmonary embolism. Evacuate with the leg elevated and keep it warm with heat packs.
2. Prevention of deep venous thrombosis in litter patients (who are at risk due to trauma, immobilization, and/or dehydration) is important.
  - a. If the patient is conscious, prompt him/her to alternately tighten and relax the legs. If the rigging isn't ready, and the patient doesn't have a suspected spine injury, untie the patient and let him/her move around.
3. Hydrate the patient.
4. **Be careful of the leg tie-in**—anything tight around the leg or ankle will decrease venous flow and promote clotting. Leave room for the patient to wiggle his/her legs.

## **Disaster Stress Management:**

### **Pain Management:**

Pain has a significant impact on patient's psychological well-being. Studies have shown that failure to recognize and appropriately treat acute pain may result in increased incidence of chronic pain and post-traumatic stress disorder (PTSD). The degree to which a person experiences pain is a complex and subjective interaction between the physical stimulus and the patient's cognitive and emotional state. The degree of pain a patient perceives is not directly determined by the degree of the physiologic injury.

### **Communication Strategies:**

1. Apprehension and uncertainty of the extent of injuries may accentuate pain. A clear statement of the patient's injuries may dispel fear and reduce apprehension and pain.
2. Distraction can greatly diminish the perception of pain, and engaging interest in a discussion may help.
3. Invoke imagination to distance a patient from his/her pain. Ask the patient to imagine a favorite place or event and describe it in detail. Imagery in this way can provide powerful pain relief.
4. If appropriately trained and the patient has the ability, a light state of hypnosis may serve as outstanding pain control.

### **Critical Incident Stress Management:**

A **critical incident** is any crisis situation or event with sufficient impact to overwhelm the usual coping skills of an individual or group. In general, the longer the delay between exposure to the critical incident and subsequent psychological intervention, the smaller the chance for a successful outcome.

Examples of critical incidents:

- Serious injury or death of an emergency services worker in the line of duty
- Serious injury or death of a bystander from an emergency services operation
- Multiple deaths or serious injuries
- Serious injury or death of a child or infant
- Any situation that attracts an unusual amount of attention from the media
- Any loss of life after extraordinary and prolonged search and rescue efforts
- Any situation that is charged with emotion and that causes an emotional response that is beyond the normal coping mechanisms of emergency services workers.

The **immediate stress reaction** may include physical, emotional, cognitive, and behavioral components. Any of these signs and symptoms may be present. It generally occurs at the time of the incident or within 24 hours.

**Note:** An immediate stress reaction is the response of a normal person to an abnormal situation, and NOT a sign of any psychological weakness or chronic psychiatric problems.

## **Disaster Stress Management:**

### Physical symptoms include:

1. Profound fatigue and weakness
2. Fine tremor or muscle twitches
3. Diaphoresis
4. Orthostatic hypotension or vasovagal syncope (simple fainting)
5. Lightheadedness
6. Headache
7. Difficulty focusing one's eyes
8. Difficulty hearing
9. Palpitations
10. Dyspnea and chest pain with or without hyperventilation
11. Nausea, vomiting, diarrhea, or abdominal pain
12. Sensation of a lump in the throat (globus hystericus)

### Emotional symptoms include:

1. Anticipatory or generalized anxiety (anxiety about the future, or unconnected with any present danger or fear)
2. Strong fear or even panic reactions
3. Psychological shock (described later)
4. Survivor guilt uncertainty (guilt over surviving when others have died)
5. Acute grief reactions
6. Depression
7. Intensified or inappropriate emotional reactions to normal occurrences

### Cognitive symptoms include:

1. Blaming others (even those who are logically blameless) for the critical incident
2. Generalized confusion
3. Inability to concentrate
4. Inability to perform simple calculations
5. Poor attention span
6. Memory lapses
7. Anomia (inability to find the right words)
8. Inability to distinguish the difference between serious and trivial concerns
9. Inability to make decisions
10. Greatly increased (or greatly decreased) alertness and awareness of surroundings

Behavioral symptoms are relative to normal behavior patterns, which vary between individuals and include:

1. Changes in speech patterns
2. Withdrawal
3. Angry outbursts
4. Hypervigilance (increased suspicion and attention to one's environment or outright paranoia)
5. Changes in interactions with others (i.e., wife, friends, team members)
6. Increase or decrease in appetite or alcohol consumption
7. Sleep disturbances including early morning awakening, insomnia, hypersomnia, and generalized fatigue
8. Visits to health professionals for seemingly minor or nonexistent problems.

## **Disaster Stress Management:**

Be vigilant in identifying individuals exhibiting signs of stress and, once identified, initiate psychological support and management. On-scene psychological support should be conducted one-on-one. Groups of people may overwhelm the individual. The goal is to assist the individual in regaining emotional control by facilitating communication of feelings and reactions through listening and support.

1. Arrange for frequent breaks to rest from duties.
2. If possible, remove the individual from the sights, sounds and smells of the incident.
  - a. Face away from the incident
  - b. Get into a vehicle in a position away from the incident
  - c. Move upwind of the smells of the incident
  - d. If the individual cannot be moved, place an object to block the person's view
3. Engage the person in discussion, starting with factual information.
4. Once rapport has been established, emotions and feelings can be discussed.
5. Validate the person's feelings
6. Stay with the individual or arrange for someone to stay and continue to provide psychological support.

## **Extended Field Patient Care Protocols:**

These protocols discuss those circumstances when RMERT medical providers provide extended field medical care. In most circumstances, any criticality ill or injured patient will be assessed, triaged, stabilized as best possible, and rapidly transported to an appropriate hospital for further care. However, this may not always be possible or indicated. Severe weather conditions, overwhelming numbers of patients (either in the field or at nearby hospitals) may preclude or delay patient transportation. Some patients may be treated and released on-scene after providing care. Since Region 2 RMERT is capable of functioning for 4 days, these protocols will discuss the first 96 hours of in-field prehospital medical care.

### General patient care considerations:

RMERT administrators and medical professionals will determine patient care decisions after considering the following variables:

Weather	Patient's condition
Personnel	Transportation limitations
Medical supplies	Status of nearby hospitals
Projected needs	Other identified issues

### Emergent evacuations:

1. Seriously ill or injured patient will receive triage and stabilizing medical care appropriate for circumstances.
2. Arrange safe and appropriate transportation, including appropriately trained and equipped medical staff to care for the patient during transportation.

**Note:** RMERT does not have vehicles for transport but will arrange and provide personnel for transport if needed.

### Patient categorization:

Patients who arrive at the RMERT medical facility will be categorized after evaluation.

- 1. Ambulatory:**
  - Treatment is provided  $\leq 3$  hours, resulting in a stable patient and released.
- 2. Transport by private vehicle:**
  - Treatment is provided, resulting in a stable patient, and referred to a nearby hospital or specialist's office (i.e., plastic surgeon, orthopedic surgeon).
- 3. Transport by EMS:**
  - Treatment is provided in seriously ill or injured patient requiring transfer to appropriate hospital by ambulance or helicopter.
- 4. Patient expired** (DOA or died in field).
- 5. Delayed Transport:**
  - Treatment is provided in seriously ill or injured patient requiring transfer to appropriate hospital, but no transportation is available.
- 6. Extended Treatment and Release:**
  - Treatment provided to exceed 3 hours and expected to result in a stable patient within 24 hours of treatment and/or observation.

## **Extended Field Patient Care Protocols:**

### **Transportation Decisions:**

RMERT administrators and medical professionals will determine transportation priorities after considering the patients' condition, and resources available for transport (vehicles, equipment, personnel and hospital capacity to receive patients). These decisions consider the risks and benefits of transport versus the risks and benefits of keeping the patient at the RMERT facility.

1. In general, any criticality ill or injured patient should be transferred to a hospital with the capacity and capability of providing the medical care needed.
2. In a disaster or mass casualty incident (MCI), the designated medical transportation officer maintains contact with the vehicle-staging officer in order to maximize the availability of ambulances or other modes of transportation (e.g., buses).
3. In other scenarios, a designated RMERT administrator will be responsible for arranging appropriate transportation and communication with the accepting hospital or emergency department.

### **Medical Discharge Decisions:**

Patient care provided in the RMERT facility >3 hours warrants a discussion regarding the anticipated course of treatment.

The physician and/or nurse caring for the patient will determine whether

- The patient warrants further medical care and transport to a hospital
- The patient needs further outpatient medical follow up
- The patient is expected to be stable for discharge (released to the care of family/friends)

The RMERT medical team will make the appropriate arrangements as indicated.

**Note:** Patients DOA or dying at the RMERT medical facility are coroner cases and will be processed in a coordinated fashion.

### **Documentation:**

It is important to accurately and thoroughly document the history, physical exam, vital signs, care provided, medications administered, interventions performed and instructions given in each patient care encounter. The provider caring for the patient is responsible for completion of the documentation.

### **Examples of appropriate documentation:**

1. Simple patient treat and release—Simple patient encounter registration form, which is a single page with space to document treatment and disposition.
2. Complex patient/seriously ill or injured—Document on the appropriate T-sheet. These will be completed and copied, and accompany the patient or be faxed to the destination hospital or emergency department.
3. Extended patient care chart—Document for patient care exceeding 3 hours to include serial vitals sign measurements, fluids in and out, medication and treatments rendered, response to treatment, and medical decision-making.
4. Peoria Area EMS (PAEMS) Short Form—Document for patient care provided during transport to the hospital. These documents should eventually be transferred electronically into the IDPH EMS database.

## **Extended Field Patient Care Protocols:**

### **Vital Sign Measurements:**

1. The patients who arrive at the RMERT tent or medical facility will have a complete set of vital signs taken including:
  - a. Heart rate
  - b. Blood pressure
  - c. Respiratory rate
  - d. Temperature (oral-rectal)
  - e. Pulse oximetry.
2. Depending on the seriousness of the injury or illness, the physician or nurse in charge of the patient's care will then direct the medical support staff to check the patient's vital signs on a routine basis according to appropriate time scale to detect any significant change in patient's status.
3. On initial evaluation, the patient's vital signs should be measured every 15 minutes, and if stable and demonstrate a positive response to resuscitation efforts, the time interval may be extended to hourly or other appropriate time interval.
4. No patient with abnormal vital signs should be released until after specific risks and benefits of release are discussed with the patient and on-scene or Medical Control physician approves patient release.

### **Fluid intake and Output:**

Document fluid intake and output on every extended care patient chart.

1. Water/fluid intake (amount, type)
2. Intravenous fluid administration (type of IV fluid, rate, total amount infused)
3. Urine output
4. Bowel movement—in cases of diarrhea, the fluid amount should be approximated, recorded, and considered for replacement with IV or oral fluids.

### **Food/Nutrition:**

RMERT responses are equipped to provide adequate food and water for staff for the first 96 hours. Additional resources for food and water will be needed if the RMERT field hospital is providing care for multiple patients. Options for additional resources include the following:

- American Red Cross
- Local restaurants
- Local grocery stores
- Local community members

If these sources are not available or exhausted, RMERT has pre-packaged Heater Meals which are stored at RMERT headquarters. Once these are consumed the team will need to be resourceful and obtain the food and water from other sources.

### **Water/Oral Hydration:**

RMERT will bring or arrange for water provisions for staff and patients. Water filtration is an option from nearby water resources, in the event the community does not or cannot supply reliable potable drinking water. Nearby grocery stores will be a source of juices, soda, and other non-water hydration.

## **Extended Field Patient Care Protocols:**

### **Wound care and dressing changes:**

RMERT members will provide wound care according to general guidelines. Wound care ranges from simple wound cleansing and dressing to extensive tissue debridement, and multi-level sutured wound closure. All wounds will be promptly inspected, receive gross decontamination/cleansing (taking into account pain tolerance) and dressed. For delayed transport (>3 hours) of significant wounds, open fractures, or high-risk wounds, consider administration of IV or oral antibiotics.

### **Respiratory Care:**

The liquid oxygen dispenser can provide oxygen for multiple patients, and distribution lines allow for utilization in the field hospital. For stable patients with normal respirations and adequate room air pulse oximetry, oxygen therapy will not be necessary.

Critically ill and mechanical ventilator-dependent patients will be provided oxygen therapy. The medical staff caring for the patient will determine the concentration of oxygen and delivery modality.

### **Pain Control:**

All patients will have their pain assessed and treated as deemed appropriate by RMERT staff. Pain scores will be documented prior to and after pain medications are given to demonstrate effect. The on-scene physician or Medical Control physician will be consulted on narcotic pain management decisions. If a painful condition is readily apparent and easily diagnosed (e.g., ankle sprain, contusion), RMERT staff can administer OTC medications.

1. Stable patient with mild to moderate pain and able to tolerate oral medications
  - a. Tylenol (acetaminophen)
  - b. Ibuprofen
  - c. Hydrocodone/acetaminophen
  - d. Other available oral pain medications
2. Stable patient with acute injury or severe pain
  - a. Consider initial dose of IV narcotic pain medication
  - b. Continued pain control with oral pain medications
3. Stable/Unstable patient without the ability to swallow
  - a. IV narcotic pain medication

### **Medication Administration:**

All other medications, including antibiotics, will be administered at the direction of the on-scene nurse or physician or via telephone contact with a Medical Control physician. Prior to medication administration, all patients will have their identity/name verified, and medication allergies verified.

### **Patient privacy and sleep considerations:**

Extended care patients will have their personal privacy maintained. Privacy curtains will be utilized between beds to provide the most privacy possible given the conditions. Patients will be given time and conditions to sleep/rest with as few interruptions as their condition warrants. For patients with stable medical conditions and vital signs, the vital sign measurements can be extended to every 4 hours.

## **Mechanical Ventilation Set-up and Management:**

### **Basics of Mechanical Ventilation Modes**

There are several modes available for use in mechanical ventilation of patients.

1. **Continuous mandatory ventilation “CMV”**—Ventilators set to CMV will cause breaths (ventilations) to be delivered at preset intervals, regardless of the patient effort. This mode is used most often in the paralyzed or apneic patient. A person receiving CMV can neither trigger a breath nor inspire gas spontaneously through the ventilator circuit, which makes this mode only appropriate for apneic, pharmacologically paralyzed, deeply sedated patients.
2. **Assist-control ventilation**—The assist control (A/C) mode on the ventilator delivers a minimum number of preset breaths in coordination with the respiratory effort of the patient. With each inspiratory effort, the ventilator assists by delivering the full tidal volume. If an A/C ventilator is set to deliver 12 breaths per minute, a breath is provided every 5 seconds. Should the patient initiate a breath, an additional breath is provided and the ventilator’s timer resets for another 5 seconds. This mode is well tolerated by patients.
3. **Intermittent mandatory ventilation (IMV)**—Like CMV and A/C ventilation, IMV can be either pressure or volume-controlled. In this mode the ventilator delivers a preset rate, tidal volume (or inspiratory pressure) and FiO<sub>2</sub>. The patient may also draw spontaneous breaths in-between mandatory breaths. Unlike A/C, breaths that the patient takes spontaneously do NOT trigger or cycle the ventilator. Patient-initiated breaths are completely spontaneous, neither assisted nor supported by the ventilator.
4. **Synchronous intermittent mandatory ventilation (SIMV)**—This mode delivers a preset number of breaths in coordination with the respiratory effort of the patient. Spontaneous breathing is allowed between breaths. This is well tolerated, and the synchronization limits barotrauma.

### **Choosing the Mechanical Ventilation Mode:**

The initial choice of the ventilation mode (e.g., SIMV, A/C) is institution and practitioner dependent. A/C ventilation, as in CMV, is a full support mode where the ventilator performs most, if not all, the work of breathing. Both modes are beneficial for patients who require high minute ventilation. Full support reduces the patient’s oxygen consumption and CO<sub>2</sub> production of the respiratory muscles. A potential drawback of A/C ventilation in the patient with obstructive airway disease or asthma is worsening of air trapping and breath stacking.

When full respiratory support is necessary for the paralyzed patient following neuromuscular blockade, no difference exists in minute ventilation or airway pressures with any of the above modes of ventilation. In the apneic patient, A/C with a respiratory rate (RR) of 10 and a TV of 500 mL deliver the same minute ventilation as SIMV with the same parameters.

## **Mechanical Ventilation Set-up and Management:**

### **Ventilator Settings for Spontaneously Breathing Patients:**

1. **Pressure support ventilation**—Pressure support ventilation (PSV) has been advocated to limit barotrauma and to decrease the work of breathing. Breathing is controlled by the patient and peak pressures are controlled by the ventilator. The primary goal of PSV is to support the patient's spontaneous breathing effort while providing satisfactory oxygenation. Airway pressure support is maintained until the patient's inspiratory flow falls below a certain cutoff (e.g., 25% of peak flow). With some ventilators, there is the ability to set a back-up IMV rate should spontaneous respirations cease. PSV is the mode of choice in patients whose respiratory failure is not severe and who have an adequate respiratory drive. It can result in improved patient comfort, reduced cardiovascular effects, reduced risk of barotrauma, and improved distribution of gas.
2. **Noninvasive positive pressure ventilation (NPPV)**—Includes Continuous Positive Airway Pressure (CPAP) or Biphasic Positive Airway Pressure (BiPAP) and is applied with a facemask instead of an endotracheal tube. Consider this mode for patients with mild to moderate respiratory failure. The patient must be alert enough to follow commands. Clinical situations in which it has proven useful include:
  - a. Acute exacerbation of chronic obstructive pulmonary disease (COPD)
  - b. Acute exacerbation of asthma
  - c. Decompensated congestive heart failure (CHF)
  - d. Pulmonary edema from hypervolemia.

BiPAP is commonly misunderstood to be a form of pressure support ventilation triggered by patient breaths; in actuality, BiPAP is a form of CPAP that alternates between high and low positive airway pressures, permitting inspiration (and expiration) throughout.

### **Indications for Mechanical Ventilation**

The principal indications for mechanical ventilation are airway protection and respiratory failure. The decision to intubate and mechanically ventilate or to institute noninvasive ventilation support is generally made on clinical grounds without delay for laboratory evaluation. Obtaining a PaCO<sub>2</sub> is useful to confirm respiratory failure when broader differential diagnoses exist (e.g., hypercarbic obtunded patient might have a reversible metabolic or toxicological etiology), but adequate stabilization and ventilation of these patients should not be delayed.

#### **Laboratory Criteria:**

1. Blood gases:
  - a. PaO<sub>2</sub> <55 mmHg
  - b. PaCO<sub>2</sub> >50 mmHg and pH < 7.32
2. Pulmonary function tests
  - a. Vital capacity < 10 ml/kg
  - b. Negative inspiratory force <25 cm H<sub>2</sub>O
  - c. FEV<sub>1</sub> <10 ml/kg

#### **Clinical Criteria:**

- Apnea or lack of adequate respirations or effective ventilations
- Respiratory distress with altered mentation
- Clinically apparent increasing work of breathing unrelieved by other interventions
- Obtundation (altered mental status) and need for airway protection

## **Mechanical Ventilation Set-up and Management:**

### **Mechanical Ventilator Setting Guidelines:**

1. **Mode of ventilation:** The mode of ventilation should be tailored to the needs of the patient. In the emergent situation, the RMERT member may need to order initial setting quickly. SIMV and A/C are versatile modes that can be used for initial management. In patients with a good respiratory drive and mild-to-moderate respiratory failure, PSV is a good initial choice.
2. **Tidal Volume (TV):** An initial tidal volume of 5-8 ml/kg of ideal body weight is generally indicated, with the lower values recommended in the presence of obstructive airway disease and ARDS. The goal is to adjust the TV so that plateau pressures are <35 cm H<sub>2</sub>O.
3. **Respiratory rate:** 10-12 breaths per minute is recommended initially for adult patients not requiring hyperventilation for management of toxic or metabolic acidosis, or intracranial injury. High respiratory rates allow less time for exhalation, which increases mean airway pressure, and causes air trapping in patients with obstructive airway disease. The initial rate for COPD/Asthma/ARDS may be as low 5-6 breaths per minute.
4. **Supplemental oxygen therapy:** Initial setting should provide 100% oxygen delivery and transitioning quickly to provide the lowest FiO<sub>2</sub> that produces arterial oxygen saturation (SaO<sub>2</sub>) >90% and PaO<sub>2</sub> >60 mmHg.
5. **Inspiration/Expiration Ratio:** The normal inspiration/expiration (I/E) ratio to start is 1:2. This ratio reflects the duration of machine insufflation and the rest periods between them.
  - a. If atelectasis is a problem, Positive End-Expiratory Pressure (PEEP) should be added. This may permit the use of more physiologic FiO<sub>2</sub> levels.
  - b. In COPD patients, the I/E ratio is reduced to 1:3 or 1:4 to avoid air-trapping (breath stacking) and auto-PEEP or intrinsic PEEP (iPEEP).
  - c. Use of inverse I/E ratio may be appropriate in certain patients with complex compliance problems (e.g., ARDS).
6. **Inspiratory flow rates:** Inspiratory flow rate is a function of the TV, I/E ratio, and RR and may be controlled internally by the ventilator. If flow rates are set manually, 60 L/min is typically used. This may be increased to 100 L/min to deliver tidal volumes quickly and allow for prolonged expiration in the presence of obstructive airway disease.

## **Mechanical Ventilation Set-up and Management:**

7. **Positive End-Expiratory Pressure (PEEP):** PEEP has several beneficial effects and may be clinically underutilized. Applying physiologic PEEP of 3-5 cm H<sub>2</sub>O is common to prevent decreases in functional residual capacity in those with normal lungs. The reasoning for increasing levels of PEEP in critically ill patients is to provide acceptable oxygenation and to reduce the FiO<sub>2</sub> to nontoxic levels (FiO<sub>2</sub> < 0.5). The level of PEEP must be balanced such that excessive intrathoracic pressure (with a resultant decrease in venous return and risk of barotrauma) does not occur.
  - a. PEEP has been found to reduce the risk of atelectasis and increase the number of “open” alveoli participating in ventilation, thus minimizing V/Q mismatches.
  - b. In ARDS, the degree to which alveoli function is compromised varies tremendously and there is no single “ideal” PEEP appropriate for all alveoli. ARDS can occur from inhalation injury from fires, blast lung (primary blast injury) from explosions, inhalation of ammonia or chlorine or other toxic chemicals from a Hazmat scene. If high levels of PEEP are required, the lungs have a greater tendency to “pop”. Therefore, the patient must be closely monitored for pneumothorax or tension pneumothorax. Chest decompression needles and chest tube kits with Pleurevac must be kept nearby and ready for immediate use.
  - c. PEEP shifts fluid from the alveoli to the perivascular interstitial space, and therefore beneficial in cardiogenic and noncardiogenic pulmonary edema. Additionally it causes decreased venous return to the right side of the heart by increasing intrathoracic pressure.
  
8. **Sensitivity:** Sensitivity adjusts the level of negative pressure required to trigger the ventilator. A typical setting is -1 to -2 cm H<sub>2</sub>O. Too high a setting causes weak patients to be unable to trigger a breath. Too low a setting may lead to overventilation by causing the machine to auto-cycle. Patients with high levels of autoPEEP may have difficulty inhaling deeply enough to achieve a sufficiently negative intra-airway pressure.

### **Monitoring during Mechanical Ventilation:**

Peak inspiratory and plateau pressure be assessed frequently, although recognize these will increase in the presence of extrapulmonary pressure (e.g., stiff chest wall or distended abdomen), and do not reflect the true risk of barotrauma. Parameters may be adjusted to limit pressure to <35 cm H<sub>2</sub>O.

Expiratory volume is checked initially and periodically (continuously if ventilator is capable) to ensure the set tidal volume is delivered.

Any indication of an air leak must prompt a search for underinflated ET tube cuff, open tubing port, or worsening pneumothorax.

In patients with airway obstruction, monitor auto-PEEP.

## **Mechanical Ventilation Set-up and Management:**

### **Mechanical Ventilator Troubleshooting:**

1. High-pressure alarms are triggered when resistance to ventilation is high. This may occur secondary to reduced lung elasticity or airway obstruction, or extrinsic compression. Patients should be evaluated for pneumothorax, bronchospasm, elevated abdominal pressure, mainstem intubation, ETT obstruction, tube biting, dynamic hyperinflation/air trapping, psychomotor agitation, and worsening pulmonary compliance secondary to progressive pulmonary disease.
  - a. Tube suctioning and adequate patient sedation are recommended after other causes of obstruction are ruled out.
  - b. Comparison of peak pressure with plateau pressures may be helpful in indentifying the location of resistance, especially if graphical representation of airway pressure is available. Plateau pressure can be measured by applying a brief inspiratory pause after ventilation. It better reflects the risk of barotrauma than peak inspiratory pressure. If pleural pressure is elevated secondary to a stiff chest wall or high abdominal pressure, transpulmonary pressure (plateau pressure-pleural pressure) will be low, minimizing the risk of bleb or alveolar rupture.
2. Low exhaled volume alarms are triggered by air leaks. These are most frequently secondary to ventilatory tubing disconnect from the patient's tracheal tube but may also occur in the event of balloon deflation or tracheal tube dislodgement. Tube placement, balloon inflation, and connection to the ventilator should be verified.
3. Hypoxia after intubation may occur secondary to hypoventilation, worsening cardiac shunting, mainstem intubation, aspiration, tube dislodgement, pulmonary edema, or inadequate FiO<sub>2</sub>. High airway pressures and low exhaled volumes described above can result in hypoxia if they cause hypoventilation. Despite the use of numerous safety precautions, cases are occasionally documented of ventilators being connected to compressed air or nitrous oxide rather than oxygen. Increasing FiO<sub>2</sub> and adjusting ventilatory settings to increase PEEP or respiratory rate are useful first steps after excluding equipment failure and mechanical cause of hypoxia.
4. Hypotension after intubation is usually attributable to diminished central venous blood return to be the heart secondary to elevated intrathoracic pressure. This can be treated with fluid infusions and/or adjustment of ventilatory settings to lower intrathoracic pressure (reduce PEEP, tidal volume, and, if air trapping is suspected, respiratory rate). Hypotension may also be secondary to vasovagal reaction to intubation, rapid sequence induction, sedation, and tension pneumothorax.

## **Pre-Hospital Patient Care Protocols:**

# *Peoria Area EMS System*



## *Prehospital Care Manual*

*Revised: July 11, 2016*

PEORIA AREA EMS SYSTEM  
PREHOSPITAL CARE MANUAL

**FOREWORD**

The format of the Peoria Area EMS System (PAEMS System) Prehospital care manuals has changed several times throughout the history of the System. The initial protocol manual (June 1983) consisted of ALS field treatment protocols. Changes in IDPH rules and regulations resulted in the addition of ILS protocols (July 1990), BLS protocols (November 1992) and First Responder protocols (April 1998). In 1994 the PAEMS System Policy Manual was developed to address medical-legal issues and concerns and, in 1995, procedures were formatted into a Standard Operating Procedure Manual.

With the complexity of a tiered response system and with the growing demand that health care services are both effective and efficient, the format for providing medical direction and patient care guidelines changed again in 2002. The separate manuals outlining field treatment guidelines, policies and procedures were all combined into one manual, the *Prehospital Care Manual*. This manual has become the focal point for patient care for Peoria Area EMS System providers in the Prehospital setting.

In 2006, dramatic changes were made to the protocols to reflect changing national trends in an effort to provide optimal patient care. This current update reflects changes in AHA guidelines as well as some other evidence-based information (from local and national research) that dictates some needed changes to improve patient care.

The intent of this manual is to create a *team approach* to Prehospital care, resulting in optimum patient care that is both efficient and effective. The focus of this manual is on providing safe, well-planned care for the patients we serve as well as maintaining a safe environment for the Prehospital care provider. This manual is also meant to be used as a study guide and helpful reference when necessary.

***All information contained herein is intended for use within the Peoria Area EMS System. No other system's protocols, policies, or procedures shall supersede the guidelines set forth in this manual or be utilized in place of this manual by a provider in the Peoria Area EMS System without the approval of the Peoria Area EMS System Medical Director.***

PEORIA AREA EMS SYSTEM  
PREHOSPITAL CARE MANUAL

*From the EMS Medical Director*

The mission of the Peoria Area EMS System is to deliver the highest quality health care that can be achieved with available resources. A uniform application of the protocols will ensure that competent and efficient care is provided to our patients. Our mission is accomplished by pursuing the goals of providing strong Prehospital education and training. The protocols will help resolve potential problems that may jeopardize the health and safety of the patient, prehospital healthcare provider or the community.

As your EMS Medical Director, I welcome your input and encourage your suggestions by promoting an “open door” atmosphere. The EMS Office is a resource to assist you in accomplishing the mission of providing emergency medical services to your community. Please do not hesitate to contact us if we may be of any assistance to you or your agency.

It is my sincere wish that your experience with and service to the Peoria Area EMS System is both enjoyable and rewarding for you.

Respectfully,

Matt Jackson, MD  
EMS Medical Director  
Peoria Area EMS System

PEORIA AREA EMS SYSTEM  
PREHOSPITAL CARE MANUAL

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## Hospitals of the PAEMS System

### Resource Hospital

#### **OSF Saint Francis Medical Center**

**530 Northeast Glen Oak Avenue**

**Peoria, Illinois 61637**

MEDCOM 309-655-2564

Medical Control 309-655-6770

Emergency Department 309-655-2109

Regional Service 800-252-5433

*Comprehensive Medical Center*

*EMS Medical Control*

*Level 1 Trauma Center*

*Pediatric and Neonatal Services*

*Disaster Medical Services*

### Associate Hospitals

#### **UnityPoint Health – Methodist**

**221 Northeast Glen Oak Avenue**

**Peoria, Illinois 61636**

Medical Center 309-672-5522

Emergency Department 309-672-5500

*Comprehensive Medical Center*

*Level 2 Trauma Center*

#### **UnityPoint Health - Proctor**

**5409 North Knoxville Avenue**

**Peoria, Illinois 61614**

Hospital Services 309-691-1000

Emergency Department 309-691-1069

*Hospital Services*

#### **Pekin Hospital**

**600 South 13<sup>th</sup> Street**

**Pekin, Illinois 61554**

Hospital Services 309-347-1151

Emergency Department 309-353-0530

*Hospital Services*

#### **Graham Hospital**

**210 West Walnut Avenue**

**Canton, Illinois 61520**

Hospital Services

Emergency Department

*Hospital Services*

### Participating Hospital

#### **Hopedale Medical Complex**

**107 Tremont Street**

**Hopedale, Illinois 61747**

Hospital Services 309-449-3321

Emergency Department

## Levels of Prehospital Care *EMS Services*

**First Responder Services** defines a preliminary level of prehospital emergency care as outlined in the First Responder National Curriculum of the National Highway Transportation Safety Administration and any modification to that curriculum specified in rules adopted by IDPH pursuant to the EMS Act. First Responder care includes: *CPR, AED services, monitoring vital signs, administration of oxygen and bleeding control.*

**Basic Life Support (BLS) Services** defines a level of prehospital and inter-hospital medical services as outlined in the Basic Life Support National Curriculum of the National Highway Transportation Safety Administration and any modification to that curriculum specified in rules adopted by IDPH pursuant to the EMS Act. BLS emergency and non-emergency care includes: *Basic airway management, CPR, AED services, control of shock & bleeding and splinting of fractures.* BLS services may be enhanced with the administration of System-approved medications and the KING LTS-D Airway.

**Intermediate Life Support (ILS) Services** defines a level of prehospital and inter-hospital medical services as outlined in the Intermediate Life Support National Curriculum of the National Highway Transportation Safety Administration and any modifications to that curriculum specified in rules adopted by IDPH pursuant to the EMS Act. ILS emergency and non-emergency care includes: *Basic life support care, intravenous fluid therapy, oral intubation, EKG interpretation, 12-lead acquisition, defibrillation procedures and administration of System-approved medications.*

**Advanced Life Support (ALS) Services** defines a level of prehospital and inter-hospital medical services as outlined in the Paramedic Life Support National Curriculum of the National Highway Transportation Safety Administration and any modifications to that curriculum specified in the EMS Act. ALS emergency and non-emergency care includes: *Basic and intermediate life support care, ACLS electrocardiography and resuscitation techniques, administration of medications, drugs & solutions, use of adjunctive medical devices, CPAP, chest decompression and intraosseous access.*

## Levels of Prehospital Care *Prehospital Personnel*

1. A currently licensed FR-D, EMT-B, EMT-I, EMT-P or PHRN may perform emergency and non-emergency medical services as defined in the EMS Act and in accordance with his or her level of education, training and licensure. Prehospital personnel must uphold the standards of performance and conduct prescribed by the Department (IDPH) in rules adopted pursuant to the Act and the requirements of the EMS System in which he or she practices, as contained in the approved System Program Plan.
2. A person currently licensed as an EMT-B, EMT-I or EMT-P may only use their EMT license in prehospital/inter-hospital emergency care settings or non-emergency medical transport situations under the written directions of the EMS Medical Director.
3. **First Responder - Defibrillator (FR-D):** Provides care consistent with the definition of a First Responder service and within the context of Standing Medical Orders (SMOs) or Standard Operating Procedures (SOPs). First Responder care should be focused on assessing the situation and establishing initial care.

First Responders who provide medical care in the Peoria Area EMS System must be trained in the use of an AED and hold a *First Responder/Defibrillator (FR-D)* recognition card from the Illinois Department of Public Health (IDPH). Each agency is responsible for downloading a code summary and forwarding that information to the receiving hospital (along with the PCR).

4. **Emergency Medical Technician – Basic (EMT-B):** Provides care consistent with the definition of a BLS service and within the context of SMOs or SOPs. This may include interventions involving airway access/maintenance, ventilatory support, oxygen delivery, bleeding control, spinal immobilization and splinting isolated fractures.

EMT-B attention is directed at conducting a thorough patient assessment, providing appropriate care and preparing or providing patient transportation. In addition, EMT-Bs may assist the patient in self-administering prescribed Nitroglycerin (NTG), Proventil (Albuterol) or an Epi-Pen pending an ALS response. EMT-Bs who are System-certified and functioning with an approved B-Med agency may carry and administer various approved medications and the KING LTS-D Airway.

AEDs are required on BLS vehicles officially incorporated into the EMS System Plan. Each agency is responsible for downloading a code summary and forwarding that information to the receiving hospital (along with the PCR).

## Levels of Prehospital Care *Prehospital Personnel*

5. **Emergency Medical Technician – Intermediate (EMT-I):** Provides care consistent with the definition of an ILS service and within the context of SMOs or SOPs. This may include all BLS skills, along with intravenous fluid therapy, oral intubation, EKG interpretation, 12-lead acquisition, defibrillation procedures and administration of System-approved medications. EMT-I attention is directed at conducting a thorough patient assessment, providing appropriate care and preparing or providing patient transportation.
6. **Emergency Medical Technician – Paramedic (EMT-P):** Provides care consistent with the definition of an ALS service and within the context of SMOs or SOPs. This includes all BLS and ILS skills, advanced EKG skills with prompt intervention using Advanced Cardiac Life Support (ACLS), administration of System-approved medications & IV solutions, proper use of System-approved adjunctive medical devices (*e.g.* CPAP) and performance of advanced medical procedures (*e.g.* needle chest decompression and intraosseous access). The patient's condition and chief complaint determine the necessity and extent of ALS care rendered. Consideration should be given to the proximity of the receiving hospital. The EMT-P level may be enhanced to include selected critical care medications and skills for inter-facility transfers.
7. **Prehospital RN (PHRN):** The Illinois EMS Act (1995) defines a PHRN as “a registered professional nurse licensed under the Illinois Nursing Act of 1987 who has successfully completed supplemental education in accordance with rules adopted by the Department (IDPH) pursuant to the Act, and who is approved by an EMS Medical Director to practice within an EMS System as emergency medical services personnel for Prehospital and inter-hospital emergency care and non-emergency medical transports”.

**NOTE:** Prehospital personnel are required to provide copies of their IDPH license and all certifications to both the agency and the EMS System. A new copy must be submitted to the EMS Office and to any agency with whom the provider is currently functioning when the license or certification is renewed.

It is the agency's responsibility to track expiration dates, to ensure that the appropriate documentation is in the agency personnel file and to ensure that copies have been provided to the EMS Office prior to the license or certification expiration. If the appropriate documents are not on file, the provider will not be allowed to function in the System.

## **Provider Responsibilities**

### **Provider Status**

## Agency Responsibilities Policy

Listed below is a summary of the important responsibilities of the provider agencies that are in the Peoria Area EMS System. This list is based on the System manuals and IDPH rules and regulations. These responsibilities are categorized into four major areas: ***Operational Requirements, Notification Requirements, Training & Education Requirements*** and ***Additional Reports and Records Requirements***. Some items have been repeated to stress the importance of compliance.

### Operational Responsibilities

1. A provider agency must comply with minimum staffing requirements for the level and type of vehicle. Staffing patterns must be in accordance with the provider's approved system plan and in compliance with Section 515.830(f).
2. No agency shall employ or permit any member or employee to perform services for which he or she is not licensed, certified or otherwise authorized to perform (Section 515.170).
3. Agencies that utilize First Responders and Emergency Medical Dispatchers shall cooperate with the System and the Department in developing and implementing the program (Section 515.170).
4. A provider agency must comply with the Ambulance Report Form Requirements Policy, including Prehospital patient care reports, refusal forms and any other required documentation.
5. Agencies with controlled substances must abide by all provisions of the Controlled Substance Policy including: *maintaining a security log, maintaining a Controlled Substance Usage Form and reporting any discrepancies to the EMS Office.*
6. Notify the EMS Office of any incident or unusual occurrence which could or did adversely affect the patient, co-worker or the System within 24 hours via incident report form.

## Agency Responsibilities Policy

### Notification Requirements

An agency participating as an EMS provider in the Peoria Area EMS System must notify the Resource Hospital, OSF Saint Francis Medical Center, of the following:

1. Notify the System in **any** instance when the agency lacks the appropriately licensed and System-certified personnel to provide 24-hour coverage. Transporting agencies must apply for an ambulance staffing waiver if the agency is aware a staffing shortage is interfering with the ability to provide such coverage.
2. Notify the System of agency personnel changes and updates **within 10 days**. This includes addition of new personnel and resignations of existing personnel.

Rosters must include: *Name/level of provider, license number, expiration date, current address, phone number, date of birth, and B-med certification status.*

3. Notify the System anytime an agency is not able to respond to an emergency call due to lack of staffing. The report should also include the name of the agency that was called for mutual aid and responded to the call.
4. Notify the System of **any** incident, via incident report within 24 hours, which could or did adversely affect the patient, co-worker or the System.
5. Provide the EMS Office with updated copies of FCC Licenses and Mutual Aid Agreements upon expiration.
6. Notify the System of any changes in medical equipment or supplies.
7. Notify the System of any changes in vehicles. Vehicles must be inspected by the System and the appropriate paperwork must be completed **prior** to the vehicle being placed into service.
8. Notify the System if the agency's role changes in providing EMS.
9. Notify the System if the agency's response area changes.
10. Notify the System if changes occur in communication capacities or equipment.

## Agency Responsibilities Policy

### Training and Education Responsibilities

1. Twenty-five percent (25%) of all EMT continuing education must be obtained through classes taught or sponsored by the Resource Hospital, OSF Saint Francis Medical Center.
2. Appoint a training officer. The EMS training officer should be an IDPH Lead Instructor. The training officer (or approved designee) will be required to attend mandatory training officer inservices.
3. Develop a training plan which meets the requirements for re-licensure and System certification as detailed in the *Continuing Education and Re-licensure Requirements Policy*.
4. Submit the agency's training plan (along with a current roster) annually to the EMS Office for System and Department (IDPH) approval. The applications are due by October 1<sup>st</sup> for the following training year.
5. Any changes made to an approved training application must be communicated to the EMS Office prior to the training.
6. Maintain sign-in rosters for all training conducted and provide participants with certification of attendance.
7. Conduct System mandatory training annually as per EMS Office notification.

### Additional Reports and Records Responsibilities

1. Comply with the Peoria Area EMS System Quality Assurance Plan, including agency self-review, submission of incident reports, submission of patient care reports, maintain controlled substance security logs and usage tracking forms. Logs must be made available upon request of EMS Office personnel.
2. Maintain glucometer logs. *Testing should be done a minimum of once per week, any time a new bottle of strips is put into service and any time the glucometer is dropped.* Glucometer logs should be kept in the ambulance (or other vehicle) and must be made available upon request of EMS Office personnel.

## Agency Responsibilities Policy

3. All agencies and agency personnel are to comply with all of the requirements outlined in HIPAA regulations with regard to protected health information.

**NOTE:** Prehospital personnel are required to provide copies of their IDPH license and all certifications to both the agency and the EMS System. A new copy must be submitted to the EMS Office and to any agency with whom the provider is currently functioning when the license or certification is renewed.

It is the agency's responsibility to track expiration dates, to ensure that the appropriate documentation is in the agency personnel file and to ensure that copies have been provided to the EMS Office prior to the license or certification expiration date. If the appropriate documents are not on file, the provider will not be allowed to function in the System.

## Professional Conduct & Code of Ethics Policy

*The following are guidelines for interaction with patients, other caregivers and the community:*

- **Respect for Human Dignity** – Respect all patients regardless of socio-economic status, financial status or background. Dignity includes greeting, conversing, respectful mannerisms, and protecting physical privacy.
- **Maintain Confidentiality** – Respect every person’s right to privacy. Sensitive information regarding a patient’s condition or history should only be provided to medical personnel with an immediate need-to-know. Sensitive information regarding our profession may only be provided to those with a right to know.
- **Professional Competency** – Provide the patient with the best possible care by continuously improving your understanding of the profession and maintaining continuing education and required certifications. Protect the patient from incompetent care by knowing the standard of care and being able to identify those who do not.
- **Safety Awareness & Practice** – Protect the health and well-being of the patient, yourself, your co-workers and the community by constantly following safety guidelines, principles and practices.
- **Accountability for Your Actions** – Act within your training, know your limitations, and accept responsibility for both satisfactory and unsatisfactory actions.
- **Loyalty & Cooperation** – Demonstrate devotion by maintaining confidentiality, assisting in improving morale and not publicly criticizing.
- **Personal Conduct** – Demonstrate professionalism by maintaining high moral, ethical and grooming standards. Do not participate in behavior that would discredit you, your co-workers and the profession.

## Professional Conduct & Code of Ethics Policy

### Code of Ethics

(Applies to ALL Prehospital providers)

Professional status as an Emergency Medical Technician is maintained and enriched by the willingness of the individual practitioner to accept and fulfill obligations to society, other medical professionals, and the profession of Emergency Medical Technician.

As an Emergency Medical Technician, I solemnly pledge myself to the following code of professional ethics:

- A fundamental responsibility of the EMT is to conserve life, to alleviate suffering, to promote health, to do no harm, and to encourage the quality and equal availability of emergency medical care.
- The EMT provides services based on human need, with respect for human dignity, unrestricted by consideration of nationality, race, creed, color or status.
- The EMT does not use professional knowledge and skills in any enterprise detrimental to the public well-being.
- The EMT respects and holds in confidence all information of a confidential nature obtained in the course of professional work unless required by law to divulge such information.
- The EMT, as a citizen, understands and upholds the law and performs the duties of citizenship; as a professional, the EMT has the never-ending responsibility to work with concerned citizens and other healthcare professionals in promoting a high standard of emergency medical care to all people.
- The EMT shall maintain professional competence and demonstrate concern for the competence of other members of the EMS healthcare team.
- An EMT assumes responsibility in defining and upholding standards of professional practice and education.

## Professional Conduct & Code of Ethics Policy

### Code of Ethics (continued)

- The EMT assumes responsibility for individual professional actions and judgment, both in all aspects of emergency functions, and knows and upholds the laws which affect the practice of the EMT.
- An EMT has the responsibility to be aware of and participate in matters of legislation affecting the EMS System.
- The EMT, or groups of EMTs, who advertise professional service, does so in conformity with the dignity of the profession.
- The EMT has an obligation to protect the public by not delegating to a person less qualified, any service which requires the professional competence of an EMT.
- The EMT will work harmoniously with and sustain confidence in EMT associates, the nurses, the physicians, and other members of the EMS healthcare team.
- The EMT refuses to participate in unethical procedures and assumes responsibility to expose incompetence or unethical conduct of others to the appropriate authority in a proper and professional manner.

## Agency Compliance Waiver Policy

If compliance with IDPH Rules and Regulations of the Peoria Area EMS System Policies results in unreasonable hardship, the EMS provider agency shall petition the PAEMS System and IDPH for a temporary rule waiver.

The format for waiver petition shall be as follows:

- |               |   |
|---------------|---|
| <b>Part 1</b> | Cover letter, to include: <i>agency name, IDPH agency number, agency official(s), agency designated contact person, telephone number, statement of the problem and proposed waiver.</i>   |
| <b>Part 2</b> | Explanation of why the waiver is necessary.   |
| <b>Part 3</b> | Explanation of how the modification will relieve problems that would be created by compliance with the rule or policy as written.   |
| <b>Part 4</b> | Statement of and justification for the time period (maximum one year) of which the modification will be necessary. This section must also include a chronological plan for meeting total compliance requirements.<br><br><ul style="list-style-type: none"><li>a) Staffing waivers require local newspaper advertisement explaining staffing shortage, mention that there will be “<i>no reduction in standard of care</i>”, and a request for new volunteers/ employees.</li><li>b) Submit a copy of 60-day staffing schedule.</li></ul> |

The petition should be submitted to the Peoria Area EMS System Medical Director for review and approval. The IDPH Regional EMS Coordinator will then review the petition. If needed, the Illinois Department of Public Health may request review of the petition by the State Advisory Board. These recommendations will be forwarded to the Director of IDPH for final action. **Waivers will be granted only if there is NO reduction in the standard of medical care.**

## Agency Advertising Policy

EMS agencies are expected to advertise in a responsible manner and in accordance with applicable legislation to assure the public is protected against misrepresentation.

**No agency** (public or private) shall advertise or identify their vehicle or agency as an EMS life support provider unless the agency does, in fact, provide service as defined in the EMS Act and has been approved by IDPH.

**No agency** (public or private) shall disseminate information leading the public to believe that the agency provides EMS life support services unless the agency does, in fact, provide services as defined in the EMS Act and has been approved by IDPH.

**Any person** (or persons) who violate the EMS Act, or any rule promulgated pursuant there to, is guilty of a Class C misdemeanor.

**A licensee** that advertises its service as operating a specific number of vehicles or more than one vehicle shall state in such advertisement the hours of operation for those vehicles, if individual vehicles are not available twenty-four (24) hours a day. Any advertised vehicle for which hours of operation are not stated shall be required to operate twenty-four (24) hours a day.

It is the responsibility of all Peoria Area EMS System personnel to report such infractions of this section to the EMS Medical Director.

## **Prohibited Hiring Policy**

### **Preamble**

EMS practitioners, by virtue of their state licensure, certification, or national registration, have unsupervised, intimate, physical and emotional contact with patients at a time of maximum physical and emotional vulnerability, as well as unsupervised access to personal property. In this capacity, they are placed in a position of the highest public trust, even above that granted to other public safety professionals and most other health care providers. While police officers require warrants to enter private property, and are subject to substantial oversight when engaging in “strip searches” or other intrusive practices, EMTs are afforded free access to the homes and intimate body parts of patients who are extremely vulnerable, and who may be unable to defend or protect themselves, voice objections to particular actions, or provide accurate accounts of events at a later time.

Citizens in need of out-of-hospital medical services rely on the EMS System and the existence of state licensure/certification or national certification to assure that those who respond to their calls for aid are worthy of this extraordinary trust. It is well accepted in the United States that persons who have been convicted of criminal conduct may not serve as police officers. In light of the high degree of trust conferred upon EMTs by virtue of licensure and certification, EMTs should be held to a similar, if not higher, standard. For these reasons, the EMS certifying/licensing agency has a duty to exclude individuals who pose a risk to public health and safety by virtue of conviction of certain crimes.

### **General Denial**

System Certification of individuals convicted of felonies present an unreasonable risk to public health and safety. Thus, applications for certification by individuals convicted of any felony crime will be denied in all cases. Examples of felonies, without limitation, are as follows:

1. Felonies involving sexual misconduct, assault or abuse.
2. Felonies involving the sexual or physical abuse of, or neglect of, children, the elderly or the physically or mentally disabled.
3. Any felony in which the victim is an out-of-hospital patient or a patient or resident of a health care facility including abuse, neglect, theft from, or financial exploitation of a person entrusted to the care or protection of the applicant.
4. Felonies of violence against persons, such as assault, or battery with a dangerous weapon, aggravated assault and battery, murder or attempted murder, manslaughter (except involuntary manslaughter), kidnapping, robbery of any degree, or arson.

## **Prohibited Hiring Policy**

### **General Denial (continued)**

5. Felonies involving controlled substances or synthetics, including unlawful possession or distribution, or intent to distribute unlawfully, Schedule I through V drugs as defined by the Uniform Controlled Dangerous Substances Act.
6. Felonies against property, such as grand larceny, burglary, embezzlement or insurance fraud.

### **Discretionary Approval**

Applications for certification by individuals convicted of any crimes which are not felonies may be accepted at PAEMS' sole discretion after consideration of the following factors:

1. The seriousness of the crime.
2. Whether the crime relates directly to the skills of out-of-hospital care service and the delivery of patient care.
3. How much time has elapsed since the crime was committed.
4. Whether the crime involved violence to, or abuse of, another person.
5. Whether the crime involved a minor or a person of diminished capacity.
6. Whether the applicant's actions and conduct since the crime occurred are consistent with the holding of a position of public trust.
7. The age of the applicant when committing the crime.
8. Any other relevant circumstances.

## System Certification Policy

It is the responsibility of the Resource Hospital to confirm the credentials of the System's EMS providers. System certification is a *privilege* granted by the EMS Medical Director in accordance with the rules and regulations of the Illinois Department of Public Health.

### System Certification Process

1. A System applicant must hold a State of Illinois license or be eligible for State licensure. EMS providers transferring in from another system or state must have all clinical and internship requirements completed prior to System certification. *Transferring into the Peoria Area EMS System to complete internship requirements of an EMT training program is prohibited.*
2. The System applicant must be a member of or in the process of applying for employment with a Peoria Area EMS System provider agency. The System agency must inform the EMS Office of the applicant's potential for hire or membership to their agency.
3. A *Pre-Certification Application* must be completed and submitted to the EMS Office.
4. The System applicant must also submit copies of the following:
  - IDPH license (FR-D, EMT, Intermediate, Paramedic, or PHRN)
  - National Registry certification (if applicable)
  - AHA ACLS (Intermediate, Paramedic)
  - ITLS (Intermediate, Paramedic)
  - PEPP or AHA PALS (Intermediate, Paramedic)
  - CPR {AHA Healthcare Provider OR American Red Cross} (FR-D, EMT, Intermediate, Paramedic or PHRN)
  - Letter of reference from current EMS Medical Director
  - Resume (education and employment history)
5. Upon System review of the *Pre-Certification Application*, EMS Office personnel will conduct a pre-interview with qualified applicants.
6. The System applicant must pass the appropriate Peoria Area EMS System Protocol Exam with a score of **80% or higher**. The applicant may retake the exam with the approval of the EMS Medical Director.
7. Successfully complete any practical skills evaluations required by the EMS Medical Director.

## System Certification Policy

### System Certification Process (continued)

8. Upon successful completion of the above requirements, the System applicant must meet with the EMS Medical Director for final approval. Once approval is granted, the applicant will receive a letter of System certification.
9. Satisfactory completion of a **90-day** probationary period is required once System-certification is granted.
10. The EMS Medical Director reserves the right to deny System provider status or to place internship & field skill evaluation requirements on any candidate requesting System certification at any level.

**Note:** Peoria Area EMS System applicants from another system or state have a “grace period” of *6 months* to obtain certification in PEPP or AHA PALS. **All other certifications must be current** in order to enter the System.

### Maintaining System Certification

In addition to minimum continuing education requirements for re-licensure, EMS providers in the Peoria Area EMS System must maintain the following:

#### **First Responder / Defibrillator (FR-D)**

ALL First Responders providing EMS care must upgrade to and maintain FR-D status.

*Current* AHA BLS for Healthcare Provider or ARC Basic Life Support for Healthcare Providers card

#### **EMT-Basic (EMT-B)**

*Current* AHA BLS for Healthcare Provider or ARC Basic Life Support for Healthcare Providers card

Successfully complete periodic System protocol testing and skills evaluation

## System Certification Policy

### Maintaining System Certification

**EMT-Intermediate, EMT-Paramedic,  
(EMT-I) (EMT-P)**

*Current* AHA BLS for Healthcare  
Provider or ARC Basic Life Support for  
Healthcare Providers card

**Prehospital RN  
(PHRN)**

ITLS

PEPP or AHA PALS

AHA ACLS

Active member of PAEMS System  
agency

Successfully complete periodic System  
protocol testing and skills evaluation

Maintaining of current certifications and tracking of expiration dates is ultimately the responsibility of the individual provider. Agency training officers will be *assisting* with monitoring these certifications and reporting to the EMS Office. However, these individuals are not *responsible* for any certifications other than their own.

Failure to maintain *current* certification in ACLS, ITLS, PEPP/PALS, CPR or any other System certification may result in **suspension** of the individual in violation if an extension has not been applied for and granted through the EMS Office. In either case, **the individual will be required to take a full provider course in the lapsed certification and will NOT be allowed to simply take a refresher course for certification**. Suspended individuals will remain on suspension until proof of current certification is presented to the EMS Office.

## System Certification Policy

### System Resignation / Termination

A System participant may resign from the System by submitting a written resignation to the EMS Medical Director.

A System participant who resigns from or is terminated by a System provider agency has a 60-day grace period to re-establish membership/active status with another System provider agency. If the participant does not do this within the 60-day time period, then the individual's System certification will be re-categorized or terminated.

An EMS provider requesting to re-certify in the PAEMS System will be required to repeat the process for initial certification.

### Provider Status

**Active Provider** – A FR-D, EMT or PHRN is considered an active provider if he/she:

- Is System-certified at the level of his/her IDPH licensure level.
- Is active and functions at his/her certification level with a PAEMS System agency providing the same level of service.
- Maintains all continuing education requirements, certifications, and testing requirements in accordance with System policy for his/her level of System certification.

**Sub-certified Provider** – An EMT is considered to be a sub-certified provider if he/she:

- Is System-certified at a level other than his/her IDPH licensure level.
- Is active and functions as a provider with a PAEMS System agency at a level of service other than his/her IDPH licensure level.
- Maintains all continuing education requirements, certifications, and testing requirements in accordance with System policy for his/her level of System certification.

## System Certification Policy

### Provider Status

#### Sub-certified Provider (continued)

- RESTRICTIONS:
  - A sub-certified EMS provider may only function within the scope of practice of the individual's System certification and the provider level of the EMS agency.
  - A sub-certified EMS provider is **prohibited** from performing skills the individual is not System-certified to perform regardless of the IDPH licensure level.
  - A sub-certified provider is restricted to identifying himself/herself as a provider at his/her level of System certification when functioning with a PAEMS System agency (this includes uniform patches and name tags).
  - A sub-certified provider shall apply for *independent* re-licensure if System certifications are not met for the IDPH licensure level.

**Inactive (Non-participating) Provider** – An EMT is considered to be inactive if he/she:

- Was System-certified but has not functioned with a PAEMS System agency for greater than 60 days.
- Maintains IDPH continuing education requirements.
- RESTRICTIONS:
  - An inactive provider is **prohibited** from identifying himself/herself as an EMS provider in the Peoria Area EMS System.
  - An inactive provider is **prohibited** from performing skills or providing care that he/she is not System-certified to perform.
  - An inactive provider must apply for independent re-licensure with IDPH.

## Re-Licensure Requirements Policy

### Re-Licensure Process

1. To be re-licensed as an EMS provider, the licensee shall submit the required documentation for renewal with the Resource Hospital (EMS Office) at least **60 days** prior to the license expiration date. **Failure to complete continuing education requirements and/or failure to submit the appropriate documentation to the EMS Office at least 60 days prior to the license expiration date may result in delay or denial of re-licensure. The licensee will be responsible for any late fees or class fees incurred as a result.**
2. The EMS Office will review the re-licensure applicant's continuing education records. If the individual has met all requirements for re-licensure and approval is given by the EMS Medical Director, the EMS Office will submit a renewal request to IDPH.
3. A licensee who has not been recommended for re-licensure by the EMS Medical Director will be instructed to submit a request for independent renewal directly to IDPH. The EMS Office will assist the licensee in securing the appropriate renewal form.
4. IDPH requires the licensee to certify on the renewal application form (Child Support Statement), **under penalty of perjury**, that he or she is not more than 30 days delinquent in complying with a child support order (Section 10-65(c) of the Illinois Administrative Procedure Act [5 ILCS 100/10-65(c)]). The provider's social security number must be provided as well.
5. The license of an EMS provider shall terminate on the day following the expiration date shown on the license. **An EMS provider may NOT function in the Peoria Area EMS System until a copy of a current license is on file in the EMS Office.**
6. An EMS provider whose license has expired may, **within 60 days after license expiration**, submit all re-licensure material and a fee of \$50.00 in the form of a *certified check or money order* made payable to IDPH (Note: personal checks, cash or credit cards will **NOT** be accepted). If all continuing education and System requirements have been met and there is no disciplinary action pending against the EMS provider, the Department may re-license the EMS provider.

## Re-Licensure Requirements Policy

### Re-Licensure Process (continued)

7. Any EMS provider whose license has expired for a period of more than **60 days** will **NOT** be re-licensed and must complete all aspects of the initial training program required for licensure, pay the fees required for initial licensure and pass the State (or National Registry) exam.

**\*\*NOTE:** Failure to re-license at any level does not “automatically” drop a provider to a lower level of certification (e.g. An EMT does not automatically become a First Responder, etc.). Once a provider’s license has expired, he or she is no longer an EMS provider at ANY level and cannot provide medical care in the System or the State.

8. Requests for extensions or inactive status must be submitted on the proper IDPH form and forwarded to the EMS Office at least 60 days prior to expiration. Extensions are granted only in very limited circumstances and are handled on a case by case basis. NOTE: The EMS Medical Director may mandate additional CEU requirements during the extension period.
9. At any time **prior to the expiration of the current license**, an EMT-I or EMT-P may revert to the EMT-B status for the remainder of the license period. The EMT-I or EMT-P must make this request in writing to the EMS Medical Director & the Department and must submit their original **current** EMT-I or EMT-P license to the Department. To re-license at the EMT-B level, the provider must meet all of the EMT-B requirements for re-licensure.
10. At any time **prior to the expiration of the current license**, an EMT-B may revert to the First Responder/Defibrillator (FR-D) status for the remainder of the license period. The EMT-B must make this request in writing to the EMS Medical Director & the Department and must submit their original **current** EMT-B license to the Department. To re-license at the FR-D level, the provider must meet all of the FR-D requirements for re-licensure.
11. The provider must submit a copy of their new IDPH license to their agency(s) and to the EMS Office. Failure to do so will result in ineligibility to function in the System.

## Re-Licensure Requirements Policy

### General Continuing Education Requirements

In conjunction with the Region 2 EMS/Trauma Plan, the Peoria Area EMS System requires:

1. Twenty-five percent (25%) of the didactic continuing education hours required for re-licensure (as an EMS provider, at any level in the PAEMS System) must be earned through attendance at System-taught courses, courses sponsored by the Peoria Area EMS Office or courses taught by a System-approved instructor.
2. No more than seventy-five percent (75%) of the continuing education hours required for re-licensure will consist of hours obtained from the same site code.
3. No more than twenty-five percent (25%) of the continuing education hours required for re-licensure will consist of any single subject area (*i.e.* shock, diabetic emergencies, etc.).
4. EMS providers (all levels) must attend at least one (1) continuing education program that reviews PAEMS System and Regional Policies, Standing Medical Orders and Operating Procedures as part of the four-year, 25% PAEMS System continuing education requirements.
5. No more than thirty percent (30%) of on-line CE will be accepted for re-licensure.
6. EMS continuing education credits must have an *approved* IDPH site code or be approved by the PAEMS Medical Director.
7. Continuing education credits approved for EMS Systems within IDPH EMS Region 2 will be accepted by the Peoria Area EMS System.
8. Prior approval must be obtained from the EMS Medical Director for continuing education programs from other IDPH regions or from other states, including national symposiums.

## Re-Licensure Requirements Policy

### Summary of Re-licensure Requirements

#### Emergency Medical Dispatcher (EMD)

IDPH has no specific continuing education requirements for dispatchers. However, the dispatch certification-training program recognized by the local Emergency Telephone System Board (ETSB) may have specific requirements for re-certification. Dispatch personnel should consult the local ETSB for re-certification. Dispatch personnel should consult the local ETSB for specific guidelines.

#### First Responder/Defibrillator (FR-D)

A minimum of twenty-four (24) hours of continuing education that review the core First Responder curriculum and includes review of PAEMS System protocols

Current CPR/AED certification  
{ American Heart Association (AHA)  
Healthcare Provider or ARC  
Professional Rescuer CPR card }

Functioning within a “State approved EMS System providing the licensed level of life support services as verified by the PAEMS System Medical Director”

## Re-Licensure Requirements Policy

### Summary of Re-licensure Requirements

#### **EMT-Basic (EMT-B)**

A minimum of sixty (60) hours of continuing education, seminars and workshops addressing both adult & pediatric care and at least one (1) continuing education program which addresses PAEMS System Protocols

Current CPR/AED certification {AHA Healthcare Provider or ARC Professional Rescuer CPR card}

Functioning with a “State approved EMS System providing the licensed level of life support services as verified by the PAEMS System Medical Director”

Must meet PAEMS System certification (provider status) requirements to be recommended for re-licensure by the EMS Medical Director

## Re-Licensure Requirements Policy

### Summary of Re-licensure Requirements

#### **EMT-Intermediate (EMT-I)**

A minimum of eighty (80) hours of continuing education, seminars and workshops addressing both adult & pediatric care and at least one (1) continuing education program which addresses PAEMS System Protocols

Current CPR/AED certification {AHA Healthcare Provider or ARC Professional Rescuer CPR card}

Current certification in International Trauma Life Support (ITLS).

Current certification in AHA Advanced Cardiac Life Support (ACLS)

Current certification in Pediatric Education for Prehospital Providers (PEPP) or AHA Pediatric Advanced Life Support (PALS)

Functioning with a “State approved EMS System providing the licensed level of life support services as verified by the PAEMS System Medical Director”

Must meet PAEMS System certification (provider status) requirements to be recommended for re-licensure by the EMS Medical Director

## Re-Licensure Requirements Policy

### Summary of Re-licensure Requirements

#### **EMT-Paramedic (EMT-P)**

A minimum of one-hundred (100) hours of continuing education, seminars and workshops addressing both adult & pediatric care and at least one (1) continuing education program which addresses PAEMS System Protocols

Current CPR/AED certification {AHA Healthcare Provider or ARC Professional Rescuer CPR card}

Current certification in International Trauma Life Support (ITLS)

Current certification in AHA Advanced Cardiac Life Support (ACLS)

Current certification in Pediatric Education for Prehospital Providers (PEPP) or AHA Pediatric Advanced Life Support (PALS)

Functioning with a “State approved EMS System providing the licensed level of life support services as verified by the PAEMS System Medical Director”

Must meet PAEMS System certification (provider status) requirements to be recommended for re-licensure by the EMS Medical Director

## Re-Licensure Requirements Policy

### Summary of Re-licensure Requirements

#### Prehospital RN (PHRN)

A minimum of one-hundred (100) hours of continuing education, seminars and workshops addressing both adult & pediatric care and at least one (1) continuing education program which addresses PAEMS System Protocols

Current CPR/AED certification {AHA Healthcare Provider or ARC Professional Rescuer CPR card}

Current certification in International Trauma Life Support (ITLS)

Current certification in AHA Advanced Cardiac Life Support (ACLS)

Current certification in Pediatric Education for Prehospital Providers (PEPP) or AHA Pediatric Advanced Life Support (PALS)

Functioning with a “State approved EMS System providing the licensed level of life support services as verified by the PAEMS System Medical Director”

Must meet PAEMS System certification (provider status) requirements to be recommended for re-licensure by the EMS Medical Director

**EMS**  
**Communications & Documentation**

## Off-Line Medical Control, Standing Medical Orders & Protocols Policy

The Prehospital Care Manual, developed by the EMS Medical Director reflects nationally recommended treatment modalities for providing patient care in the prehospital setting. This Prehospital Care Manual, containing Standing Medical Orders, Protocols, Policies & Procedures, is intended to establish the standard of care which is expected of the Peoria Area EMS System provider.

1. Standing Medical Orders, Protocols, Policies & Procedures contained in this Prehospital Care Manual are the written, established standard of care to be followed by all members of the Peoria Area EMS System for treatment of the acutely ill or injured patient.
2. The EMS provider will initiate patient care under these guidelines and contact Base Station Medical Control in a timely manner for those treatments which require on-line physician's order. Diligent effort must be made to contact Medical Control in a timely manner via cellular telemetry, landline phone or VHF MERCI radio. Delay or failure to contact Medical Control for required on-line orders is a quality assurance indicator.
3. These Standing Medical Orders will be utilized as Off-Line Medical Control under the following circumstances:
  - In the event communication cannot be established or is disrupted between the Prehospital provider and Medical Control (or the receiving hospital).
  - In the event that establishing communications would cause an inadvisable delay in care that would increase life threat to the patient.
  - In the event the Medical Control physician is not immediately available for communication.
  - In the event of a disaster situation, where an immediate action to preserve and save lives supersedes the need to communicate with hospital-based personnel, or where such communication is not required by the disaster protocol.
4. Inability to contact Medical Control should not delay patient transport or the provision of life-saving therapies. Patient destination and transport decisions are set forth in these Standing Medical Orders / Protocols.

## On-Line Medical Control Policy

### On-Line Medical Control

Base Station Medical Control is designed to provide immediate medical direction and consultation to the Prehospital EMS provider in accordance with established patient treatment guidelines.

On-line Medical Control is utilized to involve the expertise of an Emergency Medical Physician in the treatment plans and decisions involving patient care in the Prehospital setting.

1. Voice communications shall be categorized as “**MERCI**” for calls that do not require medical orders and “**Telemetry**” for *medical or trauma calls* requiring medical orders or base station physician contact and/or consultation.
2. EMS communications requiring on-line contact with a base station physician shall be conducted using cellular telemetry (309)655-6770.
3. Use of **telemetry** is required for patient care requiring interventions beyond the *Universal BLS, ILS or ALS* standing medical orders. Situations requiring Medical Control contact include, but are not limited to:
  - Anytime an order is required for BLS, ILS or ALS medications.
  - Anytime orders are needed for *procedures*.
  - Any instance an EMS provider desires *physician involvement*.
  - Any situation that involves *bypassing* a closer hospital.
  - Anytime an EMS provider feels a *deferral* is warranted.
  - Anytime a Field Training Instructor (FTI) feels a student needs to further develop communication skills.
  - **When a pre-hospital 12-Lead EKG is acquired that shows wide-complex tachycardia or consultation is needed.**
  - Suspected stroke patients.
  - Circumstances involving a Death at Scene (**DAS**) or cases involving advanced directives (**DNR** et al).

## On-Line Medical Control Policy

### On-Line Medical Control (Continued)

- **High risk refusals** (*see next page*).
  - **First Responder low risk refusals** (*see item #10 of this policy*).
  - Use of **restraints** (including handcuffs).
  - **Trauma** cases or **potential trauma cases** (based on mechanism of injury).
4. **“Telemetry” calls** include all medical complaints requiring Medical Control contact, refusals, traumas and consultations.
  5. **“Trauma Traffic”** includes calls that are related to injuries or mechanisms of injury that meet (or potentially meet) *Minimum Trauma Field Triage Criteria* (see *Critical Trauma Procedure*). Trauma traffic **does not include refusals** (including accident refusals).
  6. **“MERCİ” calls** are made via MERCİ radio and called directly to the receiving hospital (or in cases where telemetry communication is not possible and consult with a physician is necessary). MERCİ communication is adequate for patient care that does not require interventions beyond *Universal BLS, ILS or ALS Care*. Specifically, patients that have received only oxygen, monitor, IV and/or medications without the need for additional orders or in cases where Medical Control contact is not required.
    - If MERCİ traffic prevents contact with the receiving hospital, Medical Communications (MEDCOM) should be contacted at the Resource Hospital (OSF Saint Francis Medical Center) for assistance in proper routing of communications.
    - If the receiving hospital deems that further care is necessary or requests additional interventions be performed, the EMS provider should contact Medical Control.
    - If the receiving hospital requests discontinuation of treatment established by the prehospital provider, Medical Control contact should be established.

## On-Line Medical Control Policy

### On-Line Medical Control (Continued)

7. **High Risk Refusals** require Medical Control consultation prior to securing and accepting the refusal and terminating patient contact. High risk refusals involve cases where the patient's condition may warrant delivery of care in accordance with implied consent of the *Emergency Doctrine* or other statutory provision. **High risk refusals** include, but are not limited to:

- Head injury (based on mechanism or signs & symptoms)
- Presence of alcohol and/or drugs
- Anytime medications are given and patient refuses transport
- Significant mechanism of injury (*e.g.* rollover MVA)
- Altered level of consciousness or impaired judgment
- Minors (17 years old or younger, regardless of injury)
- Situations that involve bypassing a closer hospital

8. **Low Risk Refusals** do not require Medical Control consultation (for BLS, ILS & ALS levels) if the prehospital provider determines that the patient meets the *Low Risk Criteria* and there is no doubt that the patient understands the risk of refusal. The patient cannot be impaired and must be able to consent to the refusal. Medical Control should be contacted if there are any concerns about the patient's ability to refuse. **Low risk** refusals may include:

- Slow speed auto accidents *without* injury
- Isolated injuries not related to an auto accident or other significant mechanism of injury
- False calls or "third party" calls where no illness, injury or mechanism of injury is apparent.
- Lifting assistance or "public assist" calls (for which EMS is called for assistance in moving a patient from chair to bed, floor to bed, car to home, etc.). This assumes the EMS agency is routinely called to assist this patient, the patient is assessed to ensure there is no complaint or injury and there has been no significant change in the patient's condition. EMS crews must complete a patient care report indicating all assessment findings and assistance rendered.

## On-Line Medical Control Policy

### On-Line Medical Control (Continued)

9. **If the EMS provider has not been able to contact Medical Control** via cellular telemetry, telephone or MERCI radio, the EMS provider will initiate the appropriate protocol(s). Upon arrival at the receiving hospital, an incident report must be completed and forwarded to the EMS Office within 24 hours of the occurrence. This report should document all aspects of the run with specific details of the radio/communications failure and initiation of the Peoria Area EMS System *Standing Medical Orders and Standard Operating Procedures*.
10. First Responders may handle **low risk** refusals only (as defined above). However, First Responders must contact Medical Control via cellular telemetry at (309)655-6770. **Under no circumstance should a First Responder obtain a high risk refusal.**

## Radio Communications Protocol

Radio communications is a vital component of prehospital care. Information reported should be concise and provide an accurate description of the patient's condition as well as treatment rendered. Therefore, **a complete patient assessment and set of vital signs should be completed prior to contacting Medical Control or the receiving hospital.**

Regardless of the destination, **early** and **timely** notification of Medical Control or the receiving hospital is essential for prompt care to be delivered by all involved.

### Components of the Patient Report

- Unit identification
- Destination & ETA
- **Age/sex**
- **Chief complaint**
- **Assessment (General appearance, degree of distress & level of consciousness)**
- **Vital signs:**
  1. Blood pressure (**auscultated** {or palpated if unable to auscultate})
  2. Pulse (rate, quality, regularity)
  3. Respirations (rate, pattern, depth)
  4. Pulse oximetry, if indicated
  5. Pupils (size & reactivity)
  6. Skin (color, temperature, moisture)
- Pertinent physical examination findings
- SAMPLE History
- Treatment rendered and patient response to treatment

NOTE: Items listed in **red** should be transmitted without delay.

If Medical Control contact is necessary to obtain physician orders (where indicated by protocol), diligent attempts must be made to establish base station contact via:

1. Cellular telemetry (309) 655-6770
2. Telephone landline direct to MEDCOM (309) 655-6770
3. MERCI radio

If unable to establish contact, then initiate protocol. If Medical Control contact is not necessary, contact the receiving hospital via MERCI.

## Patient Right of Refusal Policy

A patient may refuse medical help and/or transportation. Once the patient has received treatment, he/she may refuse to be transported if he/she does not appear to be a threat to themselves or others. ***Any person refusing treatment must be informed of the risks of not receiving emergency medical care and/or transportation.*** NOTE: Family members cannot refuse transportation of a patient to a hospital unless they can produce a copy of a *Durable Power of Attorney for Healthcare*.

### Refusal Process

1. Assure an accurate patient assessment has been conducted to include the patient's chief complaint, history, objective findings and the patient's ability to make **sound** decisions.
2. Explain to the patient the risk associated with his/her decision to refuse treatment and transportation.
3. Secure Medical Control approval of **high risk refusals** (low risk refusals for First Responders) in accordance with the *Online Medical Control Policy*.
4. Complete the *Against Medical Advice/Refusal Form* and have the patient sign the form. If the patient is a minor, this form should be signed by a legal guardian or *Durable Power of Attorney for Healthcare*. **NOTE:** Parental refusals may be accepted by voice contact with the parent (i.e. by telephone) if the EMS provider has made reasonable effort to confirm the identity of the parent and the form may be signed by an adult witness on scene. This should be clearly documented on the refusal form and in the patient care report.
5. If available, it is preferable to have a police officer at the scene act as the witness. If a police officer is not present, any other bystander may act as a witness. However, his/her name, address & telephone number should be obtained and written on the back of the report.
6. If the patient refuses medical help and/or transportation after having been informed of the risks of not receiving emergency medical care and refuses to sign the release, clearly document the patient's refusal to sign the report. Also, have the entire crew witness the statement and have an additional witness sign your statement, preferably a police officer. Include the officer's badge number and contact Medical Control.

## Patient Right of Refusal Policy

### Refusal Process (continued)

7. The top (white) original of the *AMA/Refusal Form* is maintained by the agency securing the refusal. The yellow copy is forwarded to the EMS Office with the appropriate copies of the patient care report.

PEORIA AREA EMS SYSTEM  
PREHOSPITAL CARE MANUAL

**INSERT AMA/REFUSAL FORM**

## Incident Reporting Policy

Prehospital care providers shall complete a Peoria Area EMS System (or the individual agency) *Incident Report Form* whenever a System related issue occurs. In order to properly assess the situation and determine a solution to the issue, the following information needs to be provided on the form:

1. Date of occurrence
2. Time the incident occurred
3. Location of the incident
4. Description of the events
5. Personnel involved
6. Agency and/or institution involved
7. Copy of the patient care record and/or any other related documents

### Incident Report Process

1. All incident report forms shall be given to the EMS provider's immediate supervisor, training officer, or quality assurance coordinator who will assess the incident and will forward the report to the Peoria Area EMS System Quality Assurance Coordinator.
2. The EMS QA Coordinator will review the incident and notify the EMS Medical Director and the appropriate course of action will be determined.
3. The EMS provider originating the report will be notified of the resolution.

### Incident Report Indicators

Situations requiring EMS Office notification include:

- *“Any situation which is not consistent with routine operations, System procedures or routine care of a particular patient. It may be any situation, condition or event that could adversely affect the patient, co-worker or the System.”*
- Any deviation from Peoria Area EMS System policies, procedures or protocols.
- **Medication errors**
- **Treatment errors**
- Delays in patient care or scene response
- Operating on protocol when Medical Control contact was indicated but unavailable
- Violence toward EMS providers that results in injury or prevents the provider from delivering appropriate patient care
- Equipment failure (e.g. cardiac monitor, glucometer)
- Inappropriate Medical Control orders

## **Incident Reporting Policy**

### **Incident Report Indicators (continued)**

- Repeated concerns/conflicts between agencies, provider/physician or provider/hospital conflicts
- Patterns of job performance that indicate skill decay or knowledge deficiencies affecting patient care

Situations subject to review and resolution at the agency level include:

- Conflicts between employees
- Conflicts between agencies (that do not impact patient care)
- Operational errors (that do not impact patient care)
- Behavioral issues (that do not impact patient care)

## EMS Patient Care Reports Policy

Documentation of patient contacts and care is a vital aspect of assuring continuity of care, providing a means of quality assurance and historical documentation of the event. It is just as important as the care itself and should be an accurate reflection of the events that transpired. **It is imperative that written documentation is left with the patient at the receiving facility.**

### Patient Care Reports

1. All EMS providers must complete a patient care report for each patient contact or *request* for response (*e.g.* agency is cancelled en route to a call then a “cancelled call” chart must be completed).
2. Ideally, a patient care report will be completed in its entirety and provided to the receiving hospital’s Emergency Department immediately after transferring care to the ED staff and **prior to** departing the hospital.
3. If the patient care report cannot be completed prior to departing the ED, then a Peoria Area EMS System *Preliminary Field Medical Report Form* **must** be completed and left with the ED staff. The patient care report should then be completed and faxed to the ED as soon as possible after the call (within the shift).
4. Documentation must be completed on System approved forms and/or System approved electronic reporting systems.
5. Failure to leave written documentation will be reported to the EMS Office by ED personnel. Agencies and/or personnel failing to comply with documentation requirements will be reported to the EMS Medical Director and corrective action may be taken to assure documentation policies and procedures are followed.
6. Non-transport agencies must complete patient care documentation immediately following the call.
7. Copies of all patient care reports must be provided to the EMS Office.

## Patient Confidentiality & Release of Information Policy

All Peoria Area EMS System personnel are exposed to or engaged in the collection, handling, documentation or distribution of patient information. Therefore, all EMS personnel are responsible for the protection of this information.

Unnecessary sharing of confidential information will not be tolerated. Peoria Area EMS System personnel must understand that breach of confidentiality is a serious infraction and violation of HIPAA with legal implications. Corrective action will be taken including System suspension or termination.

### Confidential Information Guidelines

#### 1. Written and Electronic Documentation

- a) Confidentiality is governed by the “*need to know*” concept.
- b) Only Peoria Area EMS System personnel and hospital medical staff directly involved in a patient’s care or personnel involved in the quality assurance process are allowed access to the patient’s medical records and reports. Authorized medical records and billing personnel are allowed access to the patient’s medical records and reports in accordance with hospital and EMS provider policies.
- c) Requests for release of patient care related information (from third party payers, law enforcement personnel, the coroner, fire department or other agencies) should be directed to the EMS agency’s medical records department.

#### 2. Verbal Reports

- a) Peoria Area EMS System personnel are **not** to discuss specific patients in public areas.
- b) EMS providers should not discuss any confidential information regarding patient care with friends and relatives or friends and relatives of the patient. This includes hospitalization of a patient and/or the patient’s condition.
- c) Information gained from chart or case reviews is considered confidential.

## Patient Confidentiality & Release of Information Policy

### Confidential Information Guidelines (continued)

#### 3. Radio Communications

- a) No patient name will be mentioned in the process of prehospital radio transmissions utilizing MERCI radio.
- b) Customarily, when calling in a “direct admit” the patient’s initials can be included in the radio report. This is necessary for identification and is acceptable to transmit.
- c) Sensitive patient information regarding diagnosis or prognosis should not be discussed during radio transmissions.

#### 4. Communication at the Scene

- a) Every effort should be made to maintain the patient’s auditory and visual privacy during treatment at the scene and en route.
- b) EMS personnel should limit bystanders at the scene of an emergency. Law enforcement personnel may be called upon to assist in maintaining bystanders at a reasonable distance.

**GENERAL PATIENT ASSESSMENT & MANAGEMENT**  
**EMS OPERATIONS**

## Patient Destination Policy

Patients should be transported to the closest appropriate hospital. A patient (or the patient's *Power of Attorney for Healthcare*) does have the right to make an informed decision to be transported to a hospital of choice. This decision should be respected unless the risk of transporting to a more distant hospital outweighs the medical benefits of transporting to the closest hospital. *A trauma patient may benefit from transport directly to the closest appropriate **Trauma Center** rather than the closest geographically located hospital.*

### Patient Hospital Preference Guidelines

Bypassing the nearest hospital to respect the patient's hospital choice is a decision based on medical benefits and associated risks and should be made in accordance with:

1. Urgency of care and risk factors based on:
  - Mechanism of injury (physiologic factors)
  - Perfusion status and assessment findings (anatomical factors)
  - Transport distance and time (environmental factors)
2. Medical Control consultation
3. Capacity of the nearest facility or facility of choice
4. Available resources of the transporting agency
5. Traffic and weather conditions

The patient's hospital preference may be honored if:

- There are no identifiable risk factors.
- The patient has a secure airway.
- The patient is hemodynamically stable.
- The patient has been advised of the closer hospital.
- Medical Control approves.

The EMS provider will explain the benefits versus the risks of transport to a more distant hospital and contact Medical Control for approval. The patient (or representative) must sign a Peoria Area EMS System *AMA/Refusal Form* documenting that the patient understands the risks. **No transporting service shall bypass a hospital in order to meet an ALS intercept (including Life Flight) unless approved by Medical Control.**

Patients may be transported to the hospital of choice within the city limits of Peoria without contacting Medical Control for approval as differences in transport times is negligible.

## Patient Destination Policy

### Trauma Patient Guidelines

All **trauma patients** fall under the American College of Surgeons *Field Triage Decision Scheme*. Any trauma patient who meets the ACS Field Triage Guidelines shall be transported to the Level 1 Trauma Center unless otherwise directed by Medical Control.

- If a patient is unconscious and meets ACS Field Triage guidelines for trauma, the patient will be taken to the highest level trauma center available.
- If a patient has an altered level of consciousness and meets ACS Field Triage guidelines for trauma, the patient will be taken to the highest level trauma center available.
- If a patient is alert and oriented to person, place & time with stable vital signs, the patient may be taken to the hospital of his/her choice in accordance with *Patient Hospital Preference Guidelines*.
- If a family member or any other person is at the scene of an emergency and can readily prove *Durable Power of Attorney for Healthcare*, he/she can request that the patient be transported to a specific hospital in accordance with *Patient Hospital Preference Guidelines*.
- If a parent requests that a child (less than 18 years of age) who meets ACS Field Triage guidelines be taken to a specific hospital, Medical Control must be contacted for the final decision.

## Transfer and Termination of Patient Care Policy

Patient abandonment occurs when there is termination of the caregiver/patient relationship without consent of the patient and without allowing sufficient time and resources for the patient to find equivalent care. This is assuming, and unless proven otherwise, there exists a need for continuing medical care and the patient is accepting the treatment.

EMS personnel must not leave or terminate care of a patient if a need exists for continuing medical care that must be provided by a knowledgeable, skilled and licensed EMS provider **unless** one or more of the following conditions exist:

1. Appropriate receiving hospital personnel assume medical care and responsibility for the patient.
2. The patient or legal guardian refuses EMS care and transportation (In this instance, follow the procedure as outlined in the *Patient Right of Refusal Policy*).
3. EMS personnel are physically unable to continue care of the patient due to exhaustion or injury.
4. When law enforcement personnel, fire officials or the EMS crew determine the scene to be unsafe and immediate threat to life or injury hazards exist.
5. The patient has been determined to be dead and all policies and procedures related to death cases have been followed.
6. If Medical Control concurs with a DNR order.
7. Whenever specifically requested to leave the scene due to an overbearing need (*e.g.* disasters, triage prioritization).
8. Medical care and responsibility for the patient is assumed by comparably trained, certified and licensed personnel in accordance with applicable policies.

If EMS personnel arrive on scene, establish contact and evaluate a patient who then refuses care, the EMS crew shall conduct termination of the patient contact in accordance with the *Patient Right of Refusal Policy* and *On-Line Medical Control Policy*.

EMS personnel may leave the scene of an illness or injury incident, where initial care has been provided to the patient and the **only** responsibility remaining for the EMS crew is transportation of the patient or securing a signed refusal, if the following conditions exist:

1. Delay in transportation of another patient (i.e. trauma patient) from the same incident would threaten life or limb.
2. An occurrence of a more serious nature elsewhere necessitates life-saving intervention that could be provided by the EMS crew (and without consequence to the original patient).
3. More appropriate or prudent transportation is available.

## **Transfer and Termination of Patient Care Policy**

4. Definitive arrangement for the transfer of care and transportation of the initial patient to other appropriate EMS personnel must be made prior to the departure of the EMS crew. The alternate arrangements should, in no way, jeopardize the well-being of the initial patient.

During the transport of a patient by ambulance, should the EMS crew come across an emergency requiring ambulance assistance; the local EMS system will be activated. Crews involved in the treatment and transportation of an emergency patient are not to stop and render care. The priority is to the patient onboard the ambulance.

In the event you are transporting the patient with more than two (2) appropriately trained prehospital personnel, you may elect to leave one medical attendant at the scene to render care and the other personnel will continue to transport the patient to the receiving facility.

In the event there is not a patient onboard the ambulance and an emergency situation is encountered requiring ambulance assistance; the crew may stop and render care. However, the local EMS agency should be activated and their jurisdiction respected.

## Transition of Care Policy

A smooth transition of care between EMS providers is essential for optimum patient care. First Responder and BLS non-transport crews routinely transfer care to transporting EMS providers. The transfer of advanced procedures presents unique concerns for both the EMS provider relinquishing patient care as well as the EMS provider assuming patient care. A smooth transition between providers is essential for good patient care. Cooperation between all EMS personnel is encouraged and expected.

### Patient Care Transition Procedure

1. EMS providers arriving at the scene of a call shall initiate care in accordance with the guidelines provided in this manual. The EMS provider must maintain a constant awareness as to what would be the best course of action for optimum and compassionate patient care. *Focus should be placed on conducting a thorough patient assessment and providing adequate BLS care.* The benefit of remaining on scene to establish specific treatments versus prompt transport to a definitive care facility should be a consideration of each patient contact.
2. Once on scene, the EMS transporting agency shall, in conjunction with Medical Control, be the on-scene authority having jurisdiction in the determination of the patient care plan. The rank or seniority of a non-transport provider shall not supersede the authority vested in the transporting EMS provider by the EMS Medical Director.
3. Upon the arrival of the transporting agency, the non-transport provider should provide a detailed verbal report to the transporting provider and then **immediately transfer care to the transporting provider.** The non-transport provider may continue the establishment of BLS/ILS/ALS procedures with the concurrence of the transporting provider.
4. The transport provider should obtain report from the non-transport provider and conduct a thorough patient assessment. Treatment initiated by the non-transport provider should be taken into consideration in determining subsequent patient care steps.
5. If the provider has initiated advanced procedures, then the transport provider should verify the integrity of the procedure prior to utilizing it for further treatment (*e.g.* verify patency of peripheral IVs and ETTs should be checked for proper placement). *Transporting crews shall not arbitrarily avoid the use of (or discontinue) an advanced procedure established by non-transport personnel.* Rationale for discontinuing an established procedure should be documented on the patient care report.
6. Properly licensed and System-certified providers may be utilized to establish ILS/ALS procedures with the concurrence of the transporting provider. EMS personnel are encouraged to use all responders for efficiency in coordinating patient care.

## Intercept Policy

When a patient's condition warrants the highest level of available care, in-field service level upgrades shall be utilized to optimize patient care. "*In-field service level upgrades*" as referred to in this policy implies services above the level of care provided by the initial responding agency. If a patient's condition warrants a higher level of care and an advanced level is available, then the more advanced agency will be called for immediate assistance. Conditions warranting advanced assistance include:

- Trauma patients entrapped with extrication required.
- Patients with compromised or obstructed airways.
- Full arrests.
- Patients exhibiting signs of hypoxemia (*e.g.* respiratory distress, restlessness, cyanosis) unrelieved by oxygen.
- Patients with altered mental status/altered level of consciousness.
- Chest pain of cardiac nature unresolved with rest, oxygen and/or nitroglycerin.
- Patients exhibiting signs of decompensated shock (BP<100mmHg, pallor, diaphoresis, altered LOC, tachypnea).
- Unconscious or unresponsive patients (other than a behavioral episode).
- Any case in which the responding agency or Medical Control deems that advanced care would be beneficial to patient outcome.
- Pediatric cases with any of the conditions listed above.

If the primary response area is covered by any combination of BLS, ILS or ALS, the highest level of service available shall be utilized for any patient whose condition warrants advanced level care as indicated. ILS may be utilized if, and only if ALS is unavailable.

When determining the need for advanced assistance, consideration should be given to the following:

- Transport time to the hospital – Units with less than a 10 minute transport time to the hospital may complete transport without an intercept.
- **Early activation** - Diligent efforts should be made to request an intercept as early as possible. This could include simultaneous dispatch of an advanced unit to the scene of the emergency.
- Rendezvous site – Intercepts should be done in a safe area, away from traffic.
- Availability of resources – Units used for intercept should be in direct travel to the receiving hospital. Transportation shall not be delayed due to an intercept not being available. Patients should not be transported via a longer route in order to obtain an intercept.
- Decisions for or against requesting an intercept should be in the best interest of the patient based on his/her *current* medical condition, not past medical history.

## Intercept Policy

Regardless of the response jurisdiction, if two (2) different agencies with different levels of care are dispatched to and arrive on the scene of an emergency, *the agency with the highest certification level shall assume control of the patient.*

Safety will be emphasized throughout the intercept and during the transfer of care. Intercepts should not take place on heavily traveled roadways if at all possible. Rendezvous sites should be predetermined by operating procedures or unit-to-radio contact. Sites that should be considered include parking lots, safe shoulders or on side streets.

The following guidelines also apply:

- Pertinent patient information should be transmitted to the intercepting personnel prior to rendezvous (*i.e.* nature of the problem, vitals).
- Patients should not be transferred from ambulance-to-ambulance. The higher-level personnel, along with proper portable equipment, shall board the requesting agency's ambulance.
- The higher level personnel will oversee patient care with the assistance of the requesting agency's personnel.
- Once the higher level personnel have boarded the requesting agency's ambulance, the higher level provider will determine the transport code for the remainder of transport:
  - Code 1 (Signal 1) = Emergency transport with lights and sirens in operation.
  - Code 2 (Signal 2) = Transport without lights and sirens and obeying all normal traffic laws.

**NOTE:** Transport should never be done using lights only or sirens only (follow the “*all or nothing*” rule).

## In-Field Service Level Upgrades

### Policy Statement:

In the event that a PAEMS System approved ALS or ILS Provider is used to assist a BLS Provider an in-field service level upgrade\* can be utilized to optimize patient outcome.

### Purpose:

To provide guidelines for in-field upgrades of ambulances to higher level of care.

### Policy:

In certain circumstances, it may become necessary to upgrade BLS vehicles to the EMT-Intermediate or Advanced Life Support level. In the event that it becomes necessary to upgrade a BLS ambulance, the following steps will be followed.

- ALS or ILS personnel may board a BLS vehicle to render a higher level of prehospital emergency care thereby temporarily upgrading that BLS vehicle to the status of an ALS or ILS vehicle.
- All portable ALS or ILS equipment as listed in the PAEMS Ambulance Supply List (airway kit, monitoring equipment, drug box, and controlled substance container) must be transferred to the BLS ambulance.
- The BLS ambulance will be approved by the PAEMS System to function as an ALS or ILS ambulance for the duration of this staffing arrangement.
- The ALS or ILS personnel will assume responsibility for the treatment and transport of patients while on the up graded BLS ambulance. BLS providers may assist with patient care on scene and during transport if requested.
- Once the patient has been transported to the hospital and the call terminated, the ALS or ILS equipment will be removed from the EMS unit it will return to its BLS certification level.

\*\* “In-Field Service Level Upgrades” as referred to in this policy imply services above the level of care provided by the initial responding agency. This may include a higher level ambulance or higher level alternate response vehicle.

## Patient Assessment Process & Goals of Patient Care

The goal of the patient assessment process is to measure the status of the patient's perfusion, identify life-threatening conditions, determine the patient's chief complaint and/or mechanism of injury, evaluate the complaint (OPQRST) and obtain a (SAMPLE) history.

The components of the patient assessment process include the scene survey, initial assessment (ABCs) and rapid trauma assessment or detailed physical exam. A focused physical exam may be conducted if the general impression of the patient's condition appears to be of a specific nature.

The EMS provider must constantly monitor the patient's perfusion status. Perfusion is defined as the adequate flow of blood through the body's tissues. For perfusion to be adequate the patient must have an adequate blood volume (with adequate supplies of oxygen and glucose), a properly functioning cardiovascular system and an intact neurological system for regulation of vascular dilation. Failure of the body to maintain adequate perfusion will result in signs and symptoms of shock.

Signs and symptoms of shock vary depending on the degree and cause of shock. Level of consciousness is an important assessment of the patient's vital organ perfusion status. A patient with an altered level of consciousness must be considered at risk of shock. Peripheral tissue condition is another important indicator of perfusion status. A patient with cool, clammy, pale or cyanotic skin should be considered at risk for shock.

If the patient is found to be in shock, the assessment process should be directed at finding the cause of shock, immediate interventions to support perfusion and prompt transport. Conversely, if the mechanism of injury or assessment findings suggests that the patient may have a condition that could result in shock, EMS personnel should carefully assess the patient's perfusion status and prepare to treat shock.

**The goal of patient care is to identify patients in shock or at risk of shock, initiating care that will directly assist maintaining the patient's perfusion and safely transporting the patient to an emergency department or trauma center in a timely manner.**

The EMS provider must maintain a constant awareness as to what would be the best course of action for optimum and compassionate patient care. The benefit of remaining on scene to establish specific treatments verses prompt transport to a definitive care facility should be a consideration of each patient contact.

## General Patient Assessment & Initial Care Procedure

### Scene Size-Up

1. Initiate body substance isolation (BSI) precautions prior to arrival at the scene for all patient contacts. Apply appropriate personal protective equipment (PPE). Use special care in the handling of sharps, contaminated objects, linens, etc.
2. Assure the well-being of the EMS crew by assessing **scene safety**. If the scene is not safe, do not enter until appropriate authorities have secured the area (i.e. violent crime calls, domestic violence calls, hazardous materials, etc.).
3. Determine the mechanism of injury, number of patients and need for additional resources.

### General Patient Assessment

1. Initial Assessment (Primary Survey)
  - a) Airway: Assess airway patency and assess for possible spinal injury.
  - b) Breathing: Assess for respiratory distress, bilateral chest expansion, rate, pattern & depth of ventilations, adequacy of gas exchange, use of accessory muscles and lung sounds.
  - c) Circulation: Assess rate, quality & regularity of pulses, skin condition, hemodynamic status, and neck veins. Evaluate and record cardiac rhythm if indicated.
  - d) Disability: Mini-neuro exam to include brief pupil check and assessment of mental status:
    - A – Alert
    - V – Not alert but responds to verbal stimuli
    - P – Not alert but responds to painful stimuli
    - U – Unresponsive to all stimuli
  - e) Expose: Examine patient as indicated.
2. Focused History and Physical Exam (Secondary Survey)  
or Detailed Physical Exam
  - a) Vitals signs and Glasgow Coma Score
  - b) Chief complaint and history of present illness
  - c) Past medical history, current medications and allergies
  - d) Systematic head-to-toe assessment (detailed exam/secondary survey)

## General Patient Assessment & Initial Care Procedure

### Initial Medical Care

1. **Airway:** Establish and maintain a patient's airway by using appropriate patient positioning, airway adjuncts, suctioning and advanced airway control (intubation).
2. **Breathing:** Evaluate adequacy of respirations by assessing chest movement, lung sounds and skin condition. Initiate oxygen therapy if indicated and provide or assist ventilations as necessary.
3. **Circulation:** Evaluate perfusion status by assessing carotid and peripheral pulses and skin condition. Initiate CPR and early defibrillation if indicated. Control any external hemorrhage and establish IV access of .9% Normal Saline if indicated. No more than two (2) attempts should be made to establish an IV on scene unless requested by Medical Control.
4. Loosen tight clothing and reassure patient; keep NPO (nothing by mouth) unless specified by SOP or Medical Control.
5. BLS/ILS Units: Initiate ALS intercept if indicated (Refer to *Requesting Advanced Assistance for Optimal Patient Care*).
6. Place the patient in a semi-Fowler's (45°) position of comfort unless contraindicated. Patients with altered mental status should be placed on their side. The backboard should be tilted for immobilized patients with altered mental status to prevent aspiration.
7. Evaluate pain. Ask the patient to rate any pain on a scale of "0-10" with "0" indicating a pain-free state and "10" being the worst pain imaginable.
8. Recheck and record vital signs and patient responses at least every **15 minutes** for stable patients, every **5 minutes** for critical patients and after each intervention. Be sure to accurately document the times the vitals were obtained.
9. Establish Medical Control contact as indicated.
10. Transport to the closest appropriate hospital. NOTE: Follow System-specific policies regarding patient destination and bypass procedures.

## Universal Patient Care Protocol

### First Responder Care

First Responder Care should be focused on assessing the situation and establishing initial care to treat and prevent shock:

1. Open and/or maintain an open airway.
2. Loosen all tight clothing and be prepared to expose vital body regions if necessary.
3. Reassure patient by identifying yourself, explaining how you will help them and inform the patient that additional help is en route.
4. Place patient in a position of comfort. Sit patient upright unless the patient is hypotensive (BP<100mmHg systolic) or has a potential for cervical spine injury.
5. Administer Oxygen, preferably 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min by nasal cannula.
6. Ensure that EMS has been activated for further care and transport. Provide responding units with pertinent patient information.
7. Monitor the patient's level of consciousness, vital signs, etc. for any acute changes.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, providing care to treat for shock and preparing or providing patient transportation.

1. BLS Care includes the components of First Responder Care.
2. Attach pulse oximeter and obtain analysis, if indicated.
3. Attach cardiac monitor, obtain 12-lead ECG and print rhythm strip for documentation, if indicated by symptoms **\*Cardiac Monitoring is not in the EMT-Basic scope of practice.**
4. Initiate ALS intercept, if indicated (or ILS intercept **if** ALS is unavailable).
5. Simultaneously with above, perform physical exam/assessment, obtain baseline vital signs and obtain patient history.
6. Continue to reassess patient en route to the hospital.
7. Transport should be initiated at the earliest possible opportunity.

## Universal Patient Care Protocol

### ILS Care

ILS Care should be directed at conducting a thorough patient assessment, providing care to treat for shock and preparing or providing patient transportation. The necessity of establishing IV access is determined by the patient's condition and chief complaint. Consideration should also be given to the proximity of the receiving facility.

1. ILS Care includes all of the components of BLS Care.
2. Attach cardiac monitor and print rhythm strip for documentation, if indicated.
3. Obtain a 12-Lead EKG, if indicated and transmit to receiving hospital. Contact Medical Control if wide complex tachycardia or consultation is needed. Provide the receiving nurse/physician with a copy of the 12-Lead upon arrival in the ED with request for physician review of the EKG as soon as possible.
4. If indicated, establish IV access using a 1000mL solution of .9% Normal Saline with macro drip or blood tubing. No more than two (2) attempts should be made on scene. Infuse at a rate to keep the vein open (TKO) – approximately 8 to 15 drops (gtts) per minute.
5. Dependent upon patient condition, consider initiating IV access en route to the hospital.

### ALS Care

ALS Care should be directed at conducting a thorough patient assessment, providing care to treat for shock and preparing or providing patient transportation. The necessity of establishing IV access is determined by the patient's condition and chief complaint. Consideration should also be given to the proximity of the receiving facility.

1. ALS Care includes all of the components of ILS Care.

#### Critical Thinking Elements

- When determining the extent of care needed to stabilize the patient, the EMS provider should take into consideration the patient's presentation, chief complaint, risk of shock and proximity to the receiving facility.
- Saline locks may be used as a drug administration route if fluid replacement is not indicated.
- IV access should not be attempted on scene with a trauma patient.
- Obtain a 12-Lead EKG as soon as possible if indicated. See *12-Lead EKG Procedure* for indications.

## Pain Control Protocol

Pain, and the lack of relief from the pain, is one of the most common complaints among patients. Pain control can reduce the patient's anxiety and discomfort, making patient care easier. The patient's severity of pain must be properly assessed in order to provide appropriate relief. Managing pain clinically in the prehospital setting will provide greater patient care.

### First Responder Care

First Responder Care should focus on the reduction of the patient's anxiety due to the pain.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Assess level of pain using the *Pain Assessment Scale* (0-10) or the *Wong-Baker Faces Pain Rating Scale*.
3. Place patient in a position of comfort.
4. Reassure the patient.
5. Consider ice or splinting.
6. Reassess level of pain using the approved pain scale.

### BLS Care

BLS Care should focus on the reduction of the patient's anxiety due to the pain.

1. BLS Care includes all of the components of First Responder Care.
2. Initiate ALS intercept, if indicated.

### ILS Care

ILS Care should focus on the reduction of the patient's anxiety due to the pain.

1. ILS Care includes all of the components of BLS Care.
2. **Fentanyl:** 50mcg IV, over 2 minutes for pain. Fentanyl 50mcg IV may be repeated every **5 minutes** to a total of 200mcg.  
**Fentanyl:** 50mcg IM, if unable to initiate IV access. May be repeated as needed to a total of 200mcg.  
**Fentanyl:** IN (See Intranasal Fentanyl Dosing Chart)
3. Initiate ALS intercept, if indicated.

## Pain Control Protocol

### ALS Care

ALS Care should focus on the pharmaceutical management of pain.

1. Universal ALS Patient Care Protocol.
2. Patient care according to Protocol based on specific complaint.
3. Pain severity  $\geq 6$  out of 10 or indication for IV/IM/IN pain medication.
4. Manage patient's pain by using one of the following medications.

<b>Morphine Sulfate</b>	2-5 mg IV every <b>5 minutes</b> to reduce the patient's anxiety and severity of pain. If unable to establish IV access, may administer Morphine 2-5 mg IM every <b>15 minutes</b> .
<b>Fentanyl</b>	50 mcg IV, over <u>2 minutes</u> for pain. Fentanyl 50 mcg IV may be repeated every <b>5 minutes</b> to a total of 200 mcg.
	<b>If unable to establish IV access</b> , may administer Fentanyl 50 mcg IM or IN. May be repeated as needed to a total of 200 mcg. (See dosing sheets for IN)



## Pain Control Protocol

### Critical Thinking Elements

- If respiratory depression or hypotension occurs after administration of Dilaudid or Fentanyl, ventilate the patient as necessary and administer Narcan.
- Monitor respiratory status, SPO2 and or Waveform Capnography if available.
- Blood pressure should be monitored closely – check 5 minutes after narcotic administration (and prior to administering repeat doses).
- Verify that the patient is not allergic to the pharmaceutical agent prior to administration.
- Patients with a head injury / ALOC or patients with unstable vital signs **should not receive pain medications.**
- **In patients with known renal failure, the Fentanyl dose must be reduced to 25mcg. The dose may be repeated one time to a maximum dose of 50mcg.**
- Pain medication may be given IO to conscious patients experiencing discomfort from IO infusion.

## Oxygen Therapy Protocol

Traditional EMS education emphasizes utilization of oxygen therapy on most patients. Current research on supplemental oxygen use in prehospital care has identified certain conditions in which supplemental oxygen use may be HARMFUL.

The American Heart Association recommended in the 2010 CPR Guidelines that:

- Supplemental oxygen should no longer be administered to patients with uncomplicated cardiac chest pain, and stroke patients with an oxygen saturation  $\geq 94\%$ .
- Rapid weaning of oxygen after Return of Spontaneous Circulation (ROSC) in cardiac arrest.

### Delivery Devices

Device	Flow Rate	Oxygen Percentage
Nasal Cannula	1-6 L per minute	21 – 44%
Nonrebreather Mask	6-15 L per minute	60-100%
Bag-Valve-Mask	15 L per minute	100%

**Ventilation rates for BVM or Advanced Airway: 1 breath every 6-8 seconds (8-10 breaths/min)**

### Indications

- Initiate during stabilization of all seriously ill or injured patients with respiratory insufficiency, suspected ischemic pain, shock, or trauma even if oxygen saturation is normal. Once patient is stabilized the oxygen may be weaned to maintain an oxygen saturation  $\geq 94\%$ .
- Acute Coronary Syndrome (ACS): May administer to all patients until stable. Continue oxygen for pulmonary congestion, ongoing ischemia, or oxygen saturation  $< 94\%$ .
- Suspected stroke and hypoxia (oxygen saturation  $< 94\%$ ).
- ROSC following resuscitation: Use the MINIMUM inspired oxygen concentration to achieve oxygen saturation  $\geq 94\%$ .

### Precautions

- Pulse oximetry may be inaccurate in low cardiac output states, with vasoconstriction, or with exposure to carbon monoxide.
- (*Very Rare*) Observe closely when using with pulmonary patients known to be dependent on hypoxic respiratory drive.

## Oxygen Therapy Protocol

### Critical Thinking Elements

- Oxygen directly affects most tissues it travels through by acting as a vasoconstrictor. The harmful effects of oxygen are thought to be caused by oxygen reducing coronary artery flow, and increasing coronary vascular resistance, further reducing stroke volume and cardiac output. Other adverse hemodynamic consequences of oxygen therapy through increased vascular resistance from hyperoxia, and reperfusion injury from increased oxygen free radicals.

## Basic Airway Control Procedure

Establishing and maintaining an open airway and assuring adequate ventilation is a treatment priority with all patients. Proper techniques must be used to assure treatment maneuvers do not inadvertently complicate the patient's condition.

### Basic Airway Control

1. Assure an open airway by utilizing either the head tilt/chin lift maneuver, the modified jaw thrust maneuver or the tongue-jaw lift maneuver. The head tilt/chin lift maneuver is NOT to be used if there is any possibility of cervical spine injury.
2. Expose the chest and visualize for chest rise and movement, simultaneously listen and feel for air movement at the mouth and nose. This procedure will need to be done initially and after correcting an obstruction and securing the airway.
3. If the chest is not rising and air exchange cannot be heard or felt:
  - a) Deliver two positive-pressure ventilations. If resistance continues, follow AHA sequences for obstructed airway rescue.
  - b) Reassess breathing and check for a carotid pulse.
  - c) If spontaneous respirations return and a pulse is present, provide supplemental Oxygen by non-rebreather mask or assist respirations with bag-valve mask (BVM) at 15 L/min.
  - d) If the patient remains breathless and a pulse is present, initiate ventilations with a BVM at 15 L/min at a rate of 12 breaths per minute.
  - e) If the patient remains breathless and a pulse is not present, initiate CPR and institute the appropriate cardiac protocol.
4. If the patient presents with stridor, "noisy breathing" or snoring respirations, render treatment for partial airway obstruction in accordance with AHA guidelines.
  - a) Reassess effectiveness of the airway maneuver.
  - b) If initially unable to resolve partial airway obstruction, suction the airway and visualize the pharynx for any evidence of foreign objects. Perform a finger sweep if a foreign object can be seen.
  - c) If partial airway obstruction persists, treat according to AHA guidelines for resolving a complete airway obstruction.
5. Once the obstruction has been corrected:
  - a) Insert an oropharyngeal airway in the unconscious patient (without a gag reflex).

## Basic Airway Control Procedure

### Basic Airway Control (continued)

- b) Insert a nasopharyngeal airway in the conscious patient or an unconscious patient with a gag reflex. *Note:* Do not use if the possibility of head injury exists.
6. Establish the presence and adequacy of breathing by observing the frequency, depth and consistency of respirations. Also, observe the chest wall for any indications of injuries which may contribute to respiratory compromise.
7. Supplemental oxygen should be delivered to any patient who exhibits signs of difficulty breathing, sensation of shortness of breath, respiratory rate  $> 20$  breaths per minute, use of accessory muscles, altered level of consciousness/altered mental status, cyanosis, cardiac symptoms, head injury or any indications of shock.
  - a) Supplemental oxygen should be provided by a non-rebreather mask (NRM) at a rate of 15 L/min (assuring reservoir bag is inflated).
  - b) If patient is unable to tolerate the NRM, administer oxygen via nasal cannula at a rate of 6 L/min.
8. Bag-valve mask ventilation with supplemental oxygen at 15 L/min should be initiated at the rate of 12/min if respirations are absent, there is evidence of inadequate ventilation, respiratory rate is  $< 8$ /min, absent or diminished breath sounds or wounds to the chest wall.

### Critical Thinking Elements

- Inadequate maintenance of the patient's airway, inappropriate airway maneuvers, using inappropriately sized airway equipment and/or failure to recognize an obstructed airway will complicate the patient's condition.
- Do NOT use the head tilt/chin lift maneuver on a patient with a suspected cervical spine injury.
- Proper facemask seal during artificial ventilations is imperative to assure adequate ventilation.

## Airway Obstruction Procedure

An airway obstruction is life threatening and must be corrected immediately upon discovery.

1. If the patient has an obstructed airway and is still conscious:
  - a) Encourage the patient to cough.
  - b) Perform 5 abdominal thrusts or chest thrusts if the cough is unsuccessful.
  - c) Repeat until the obstruction is relieved or the patient becomes unconscious.
  - d) Administer oxygen at 15 L/min if the patient has a partial airway obstruction and is still able to breathe.
  
2. If the patient becomes unconscious:
  - a) Open the patient's airway and attempt to ventilate.
  - b) Reposition the head and reattempt to ventilate if initial attempt is unsuccessful.
  - c) Perform 30 chest compressions
  - d) Attempt to removed object if visualized in the airway following compressions
  - e) Repeat steps (c) and (d) if obstruction persists.
  - f) **BLS** & **ILS** immediately initiate ALS intercept.
  - g) **ILS** & **ALS** attempt direct extraction via laryngoscope and Magill forceps.
    1. Use the laryngoscope and examine the upper airway for foreign matter and suction as needed.
    2. Remove any foreign objects with forceps and suction.
    3. Re-establish an open airway and attempt to ventilate.
    4. If the obstruction is relieved, continue with airway control, ventilations, assessment and care.
  - h) Continue chest compressions if unable to relieve obstruction and expedite transport.

### Critical Thinking Elements

- Maintain in-line c-spine stabilization using 2 EMTs in patients with suspected cervical spine injury.
- Poor abdominal thrust technique, inappropriate airway maneuvers, and/or failure to recognize an obstructed airway will complicate the patient's condition.

## KING LTS-D Airway Procedure

The KING Airway is an effective airway adjunct when intubation is not available or difficult to perform. Insertion is rapid & easy and does not require specialized equipment or visualization of the larynx. It's latex-free and should be considered safe to use on latex-sensitive patients.

### Indication

- The King LTS-D is an airway device designed for emergency or difficult intubation in the apneic or unresponsive patient without a gag reflex.

### Contraindications

- Active gag reflex
- Patient under four (4) feet tall
- Patient less than 16 years old
- Ingestion of a caustic substance (e.g. gasoline, drain cleaner, etc.)
- Known or suspected esophageal disease (e.g. esophageal varices)
- Tracheostomy (ETC will be ineffective with esophageal placement)

### KING Airway Insertion Procedure

1. Pre-oxygenate/ventilate utilizing a bag-valve mask (BVM) at 15 L/min according to the *Basic Airway Control Procedure*.
2. Choose the correct size:



Size	Description	Connector Color	OD	ID*	Gastric Tube Size	Inflation Volume
3	4-5 feet (122-155 cm) in height	Yellow	18 mm	10 mm	≤18 Fr	45-60 ml
4	5-6 feet (155-180 cm) in height	Red	18 mm	10 mm	≤18 Fr	60-80 ml
5	greater than 6 feet (180 cm) in height	Purple	18 mm	10 mm	≤18 Fr	70-90 ml

\*Equivalent ID of Ventilation Lumen

## KING LTS-D Airway Procedure

### KING Airway Insertion Procedure (continued)

3. Test cuff inflation system by injecting the maximum recommended volume of air into the cuffs. Remove all air from both cuffs prior to insertion.
4. Apply a water-based lubricant (*e.g.* K-Y or Surgilube) to the beveled distal tip and posterior aspect of the tube. Avoid introducing lubricant in or near the ventilatory openings.
5. Position the head in the “sniffing position” if possible. It can also be inserted with the head in the neutral position if following c-spine precautions/c-collar in place.
6. Hold the KING LTS-D at the connector with the dominant hand. With the non-dominant hand, hold mouth open and apply chin lift.
7. With the KING LTS-D rotated laterally 45-90° (such that the blue orientation line is touching the corner of the mouth), introduce tip into the mouth and advance behind the base of the tongue. **Never force the tube into position** and do not take longer than **20 seconds** for the attempt!

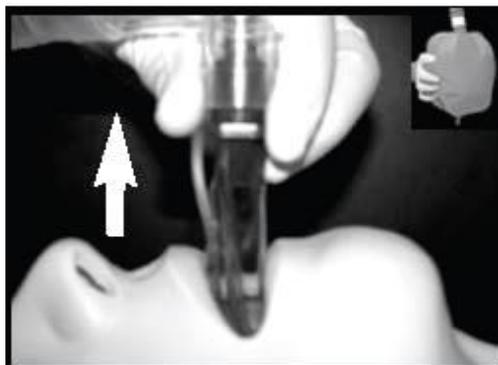


8. As the tube tip passes under the tongue, rotate the tube back to midline (blue orientation line faces chin).
9. Without exerting excessive force, advance the KING LTS-D until the proximal opening of gastric access lumen is aligned with teeth or gums.

## KING LTS-D Airway Procedure

### KING Airway Insertion Procedure (continued)

10. Inflate the cuffs with the minimum volume necessary to seal the airway (see chart).
11. Attach BVM. Gently bag the patient while assessing ventilations. Simultaneously withdraw the airway **very slowly** until ventilation is easy & free-flowing.



12. Use multiple confirmation techniques:
  - Confirm presence of breath sounds
  - Visualize rise and fall of the chest
  - Monitor for clinical improvement
  - Colormetric ETCO<sub>2</sub> (e.g. EasyCap)\*\*
  - Capnography (if available)

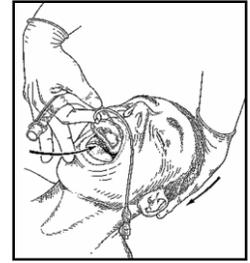
**\*\*NOTE:** Ventilate the patient at least six (6) times prior to attaching a colormetric device (EasyCap).

13. The gastric access lumen allows the insertion of up to an 18 Fr diameter gastric tube into the esophagus & stomach. Lubricate the gastric tube prior to insertion.

### Critical Thinking Elements

- If unsuccessful in one (1) attempt, refer to the *Basic Airway Control Procedure*.
- **ILS/ALS** should immediately defer to the King LTS-D Airway if the pre-intubation assessment is GRADE 3 or GRADE 4 on the *Cormack-Lehane* scale (refer to the *Advanced Airway Control Policy*).
- Do NOT administer medications via the King LTS-D Airway. It is designed as an airway adjunct only and cannot be utilized as a medication route.

## LMA Airway Procedure (ILS & ALS ONLY)



The Laryngeal Mask Airway is an adjunctive airway device composed of a tube with a cuffed mask-like projection at the distal end. The LMA has proven to be very effective in the management of airway crisis. Insertion is rapid & easy and does not require specialized equipment or visualization of the larynx.

### Indication

The LMA is an airway device designed for emergency or difficult intubation in the apneic or unresponsive patient without a gag reflex.

### Contraindications

- Active gag reflex
- Ingestion of a caustic substance (e.g. gasoline, drain cleaner, etc.)
- Use caution with pregnant patients.
- Morbidly obese
- Tracheostomy (ETC will be ineffective with esophageal placement)

### LMA Insertion Procedure

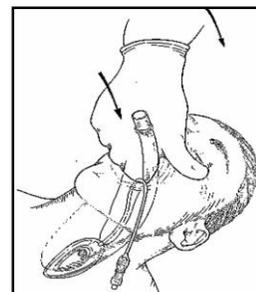
1. Pre-oxygenate/ventilate utilizing a bag-valve mask (BVM) at 15 L/min according to the *Basic Airway Control Procedure*.
2. Choose the correct size:

LMA Size	3	4	5	6
Patient Criteria	30 - 50 kg	50 - 70 kg	70 - 100 kg	Greater than 100 kg
Cuff Size	20mL	30mL	40mL	50mL

3. Visually inspect the LMA cuff for tears or other abnormalities.
4. Deflate the cuff to form a smooth flat wedge shape which will pass easily around the back of the tongue and behind the epiglottis.
5. Use a water soluble lubricant to lubricate the LMA
  - Avoid excessive amounts of lubricant
    - on the anterior surface of the cuff or
    - in the bowl of the mask
    - in the bowl of the mask.
6. Grasp the LMA by the tube, holding it like a pen as near as possible to the mask end. Place the tip of the LMA against the inner surface of the patient's upper teeth.

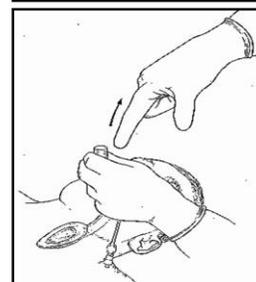
## LMA Airway Procedure (ILS & ALS ONLY)

7. With neck flexed and head extended, press the laryngeal mask airway into the posterior pharyngeal wall using the index finger.



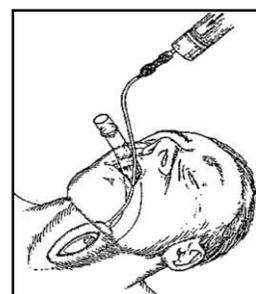
8. Withdraw your index finger from the pharynx while grasping the tube firmly with the other hand.

- Press gently downward to ensure the mask is fully inserted.



9. Inflate the mask with the recommended volume of air.

- Do not over-inflate the LMA
- Allow the mask to rise up slightly out of the hypopharynx as it is inflated to find its correct position.



10. Connect the LMA to a Bag-Valve Mask and use multiple confirmation techniques:

- Confirm presence of breath sounds
- Visualize rise and fall of the chest
- Monitor for clinical improvement
- Colormetric ETCO<sub>2</sub> (e.g. EasyCap)\*\*
- Capnography (if available)

**\*\*NOTE:** Ventilate the patient at least six (6) times prior to attaching a colormetric device (EasyCap).

11. Secure the LMA utilizing the same techniques as those employed in the securing of an endotracheal tube or King LTS-D.

### Critical Thinking Elements

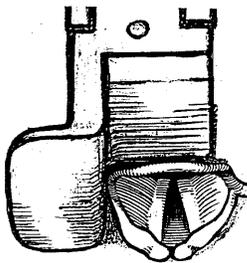
- Failure to press the deflated mask up against the hard palate, inadequate lubrication or deflation can cause the mask tip to fold back on itself, pushing the epiglottis into a down-folded position causing airway obstruction.
- If unsuccessful in one (1) attempt, refer to the *Basic Airway Control Procedure*.
- Do **NOT** administer medications via the Laryngeal Mask Airway. It is designed as an airway adjunct only and cannot be utilized as a medication route.

## Advanced Airway Control Policy (ILS & ALS Only)

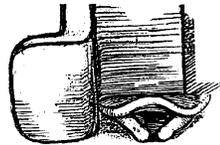
Endotracheal intubation is an effective method of securing the airway. However, if endotracheal intubation is difficult or unsuccessful, the King LTS-D Airway should be used or basic airway control measures re-established without delay.

### Advanced Airway Control Procedure

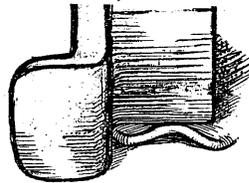
1. Implement basic airway measures in accordance with the *Basic Airway Control Procedure*.
2. **Conduct a pre-intubation assessment** using the *Cormack-Lehane* scale:



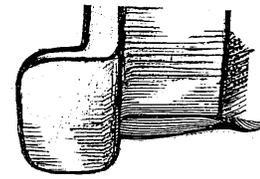
GRADE 1



GRADE 2



GRADE 3



GRADE 4

If the pre-intubation assessment is **GRADE 3** or **GRADE 4**, do not attempt intubation. Proceed to insertion of King LTS-D Airway or return to basic airway control measures using a BVM with OPA or NPA.

3. Consider using a Bougie (See Endotracheal Tube Introducer Procedure)
4. Select the proper tube size (based on patient size) and attach a 10mL syringe. Inflate the cuff to be sure it does not leak (the cuff must be deflated prior to insertion).
5. Insert stylet and bend to the approximate configuration of the pharynx.
6. Lubricate the ETT with a water-soluble lubricant.
7. Have suction, BVM, stethoscope, colormetric end-tidal CO<sub>2</sub> detector/capnography and commercial ETT holder readily available.
8. Pick up the laryngoscope handle with your left hand and the appropriate blade with your right hand.

**Advanced Airway Control Policy**  
(**ILS & ALS** Only)

**Advanced Airway Control Procedure (continued)**

9. Holding the blade parallel to the handle, attach the blade to the handle by inserting the U-shaped indentation of the blade into the small bar at the end of the handle. When the indentation is aligned with the bar, press the blade forward and snap into place.
10. Lower the blade until it is at a right angle to the handle. The light should come on. If it does not, see if the bulb is tight and/or the batteries need to be replaced (This should be done on a daily basis so you do not have to spend valuable time fixing it at the scene of a call).
11. Suction the pharynx as needed.
12. Pre-oxygenate the patient with high concentration oxygen prior to intubation attempt.
13. Insert the blade into the mouth on the right side, moving the tongue to the left. Follow the natural contour of the pharynx, lifting the tongue (not prying) until you can see the glottic opening.
  - a) If you are using a **straight blade** (Miller), insert it until you can see the epiglottis. With the tip of the blade, lift up on the epiglottis so that you can visualize the vocal cords and glottic opening. If needed, have someone gently press down on the cricoid cartilage (Sellick Maneuver) so that you can see the cords well.
  - b) If you are using a **curved blade** (Macintosh), insert the tip into the vallecula and lift up. This will lift the epiglottis and expose the vocal cords and glottic opening. If needed, have someone gently press down on the cricoid cartilage (Sellick Maneuver) so that you can see the cords well.
14. After visualizing the glottic opening, grasp the ETT with your right hand and advance the tube from the right corner of the mouth. Insert the tube into the glottic opening between the vocal cords, just far enough to pass the cuff of the tube past the opening.
15. Verify proper position by ventilating the patient through the tube with a bag-valve device while listening to each side of the chest with a stethoscope to be sure air is entering both lungs. Also, check for inadvertent esophageal intubation by listening for air movement in the epigastric area during ventilations.

## Advanced Airway Control Policy (ILS & ALS Only)

### Advanced Airway Control Procedure (continued)

16. Utilize a colormetric end-tidal CO<sub>2</sub> (ETCO<sub>2</sub>) detector or capnography.
17. If breath sounds are heard on both sides of the chest, no epigastric sounds are heard colormetric ETCO<sub>2</sub> detector/capnography indicate proper placement, inflate the cuff with 10mL of air and secure the tube with a commercial ETT holder.
  - a) If you have inserted the ETT too far, it will usually go into the right main stem bronchus. Therefore, if you hear breath sounds only on the right, you should pull the tube back ½ inch at a time until you hear bilateral breath sounds. Inflate the cuff with 10mL of air and secure the ETT with a commercial holder.
  - b) If you hear no breath sounds, you are in the esophagus and must remove the ETT immediately. Ventilate patient and proceed to King LTS-D Airway insertion or continue basic airway control measures.
18. Frequently reassess breath sounds to be sure that the ETT is still in place.
19. Ventilate the patient at a rate of 12 times per minute.
20. If intubation is unsuccessful after one (1) attempt, refer to the *KING LTS-D Airway Procedure* or *Basic Airway Control Procedure*.

### Airway Control in the Trauma Patient

Any type of airway manipulation may be dangerous during airway control of the suspected spinal injury patient. Maintain in-line stabilization and refer to the *KING LTS-D Airway Procedure*. **Do not attempt to intubate.**

1. A minimum of two (2) trained rescuers is needed to assure special attention to spinal precautions.
2. One rescuer will apply manual in-line stabilization by placing the rescuers hands about the patient's ears with the little fingers under the occipital skull and the thumbs on the face over the maxillary sinuses.
3. The rescuer performing airway placement should be at the head.
4. Maintain the patient's head in a neutral position and place the KING LTS-D without cervical manipulation.

## Advanced Airway Control Policy (ILS & ALS Only)

### Prohibited Advanced Airway Procedures in the PAEMS System

Attempting difficult and unfamiliar procedures poses a danger to the patients those procedures are being performed on. Certain procedures that are used in the hospital setting are **not approved** for prehospital personnel in the Peoria Area EMS System. These include:

- Extubation
- Nasotracheal Intubation
- Percutaneous Transtracheal Ventilation
- Cricothyrotomy/Surgical Airway

### Critical Thinking Elements

- Intubation may be attempted if the pre-intubation assessment is GRADE 1 or GRADE 2. If intubation attempt fails (1 attempt), switch to the King LTS-D airway or basic airway control.
- The definition of an “attempt” is actually trying to pass the ET tube through the vocal chords.
- Verification of proper ETT placement is of vital importance. Utilize multiple methods of verifying placement including direct visualization of the ETT passing through the cords, auscultation of bilateral breath sounds, absence of epigastric sounds during ventilation, and positive color change (purple to yellow) with ETCO<sub>2</sub> or capnography levels between 35-45mmHg. Document findings.

## Endotracheal Tube Introducer (Bougie) (ILS & ALS ONLY)

### Indication

Patient meets clinical indications for endotracheal intubation.  
Pre-intubation assessment predicts a difficult intubation.

### Contraindication

Introducer larger than the endotracheal tube internal diameter.

### ETI Procedure

1. Prepare, position and oxygenate the patient with 100% oxygen.
2. Select proper ET tube without stylet, test cuff and prepare suction.
3. Lubricate the distal end and cuff of the endotracheal tube (ETT) and the distal ½ of the Endotracheal Tube Introducer (Bougie) - (note: Failure to lubricate the Bougie and the ETT may result in being unable to pass the ETT).
4. Using laryngoscopic techniques, visualize the vocal cords if possible using the BURP method as needed.
5. Introduce the Bougie with curved tip anteriorly and visualize the tip passing the vocal cords or above the arytenoids if the cords cannot be visualized.
6. Once inserted, gently advance the Bougie until you meet resistance or “hold-up” (if you do not meet resistance you have a probable esophageal intubation and insertion should be reattempted or manage the airway using a BIAD).
7. Withdraw the Bougie ONLY to a depth sufficient to allow passage of the ETT while maintaining proximal control of the Bougie.
8. Maintain a firm grasp on the proximal Bougie, introduce the ET tube over the Bougie.
9. Gently advance the Bougie and loaded ET tube until you have hold-up again, thereby assuring tracheal placement and minimizing the risk of accidental displacement of the Bougie.
10. If you are unable to advance the ETT into the trachea and the Bougie and ETT are adequately lubricated, withdraw the ETT slightly and rotate the ETT 90 degrees COUNTER clockwise to turn the bevel of the ETT posteriorly. If this technique fails to facilitate passing of the ETT you may attempt direct laryngoscopy while advancing the ETT (this will require an assistant to maintain the position of the Bougie and, once the vocal cords are visualized, advance the ETT).
11. Once the ETT is correctly placed, hold the ET tube securely and remove the Bougie.
12. Confirm tracheal placement according to the intubation protocol, inflate the cuff with 3 to 10 cc of air, auscultate for equal breath sounds and reposition accordingly.

**Endotracheal Tube Introducer (Bougie)**  
**(ILS & ALS ONLY)**

13. When final position is determined secure the ET tube, reassess breath sounds, apply end tidal CO<sub>2</sub> monitor, and record and monitor readings to assure continued tracheal intubation.

**Medication Facilitated Intubation**  
**(ALS with Medical Control Order Only)**

This protocol is for use in patients that are experiencing extreme respiratory distress or who are in danger of impending respiratory failure. Patients who qualify for treatment under this protocol must be  $\geq 15$  years of age, GCS  $< 8$ , pulse oximetry  $< 90\%$  and receiving BVM ventilations with supplemental oxygen. This is a chemically assisted procedure and should not be mistaken for a paralytic Rapid Sequence Induction process.

Indications	Contraindications
Trauma patient with a GCS $\leq 8$ with an intact gag reflex	Pediatric patients $< 15$ years of age
Trauma patient with significant facial trauma and poor airway control	Patient is maintaining their own airway
Closed head injury or hemorrhagic CVA needing mild hyperventilation	High Risk airways: <ul style="list-style-type: none"> <li>• Extremely anterior, large neck</li> <li>• Limited neck extension or mobility</li> </ul>
Burn patient with airway involvement and inevitable airway loss	
Severe respiratory distress with hypoxia plus exhaustion, when CPAP is ineffective	
Overdoses, where loss of airway is inevitable and Narcan is ineffective	
Any other patient approved by a Medical Control Physician	

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Pre-oxygenate**
  - **Oxygen:** Administer oxygen utilizing the *Oxygen Therapy Protocol*.
  - Establish IV utilizing the appropriate *Venous Access Procedure*.
  - Connect patient to ECG monitor, pulse oximeter, and waveform capnography.
3. **Prepare – Assemble required equipment and personnel**
  - **Suction unit, Gum Elastic Bougie, Endotracheal intubation kit, and King Airways**
  - Pretreatment medications
  - Have adequate personnel present before proceeding with sedation.

## Medication Facilitated Intubation (ALS with Medical Control Order Only)

### 4. Pretreatment

- **For head-injured patients only**, administer **Lidocaine**: 1mg/kg to decrease the rise in intracranial pressure.

### 5. Sedate (**Choose One**)

- **Midazolam** 0.2mg/kg IV push. May repeat once to obtain necessary sedation.  
*Total amount of Midazolam must not exceed 8mg.*
- **Fentanyl** 2mcg/kg slow IV push (over 1-2 minutes). May repeat once to obtain necessary sedation.  
*Total amount of Fentanyl must not exceed 150mcg.*

### 6. Perform intubation

- Intubation should be attempted in accordance with the **Advanced Airway Control Policy**
- Confirm placement with physical exam techniques and waveform capnography
  - ETCO<sub>2</sub> readings should be maintained at a level of 35-45mmHg
- Secure tube
- Acquire vital signs, ECG rhythm strip, and capnography waveform
- **In the event the provider is unable to secure the airway with an ETT, the default rescue airway will be the King Airway.**

### 7. Post intubation

- Patient shall remain on cardiac monitor, pulse oximeter, and waveform capnography until care is transferred to the emergency department staff.
- If patient exhibits movement that may lead to extubation, administer **one** of the following:
  - **Midazolam** 0.2mg/kg IV push. May repeat once to obtain necessary sedation.  
*Total amount of Midazolam must not exceed 8mg.*
  - **Fentanyl** 2mcg/kg slow IV push (over 1-2 minutes). May repeat once to obtain necessary sedation.  
*Total amount of Fentanyl must not exceed 150mcg.*

## Orogastric (OG) Tube Insertion Procedure

### Indication

Indication for orogastric (OG) tube placement in the Peoria Area EMS System is:

- Gastric decompression of an adult cardiac arrest patient after endotracheal intubation has been performed and placement verified; OR with use of the KING LTS-D Airway.

### Contraindications

- Known esophageal varices
- Esophageal stricture
- Esophageal or stomach cancer
- Esophagectomy or partial gastrectomy
- Gastric bypass
- Penetrating neck trauma

### OG Insertion Procedure

1. Estimate the length of the tube needed to reach the stomach by measuring the tube from the corner of the mouth to the earlobe and down to the xiphoid process. Mark the length with tape.
2. Lubricate the Salem sump tube (18F) with a water soluble lubricant (*e.g.* K Y Jelly).
3. Insert the tube through the oropharynx or through the gastric access lumen on the KING LTS-D Airway until the marked depth is reached.
4. If the tube coils in the posterior pharynx, direct laryngoscopy can be utilized to place the tube in the esophagus.
5. Verify placement (see *OG Placement Verification*).

## Orogastric (OG) Tube Insertion Procedure

### OG Placement Verification

1. Using a 60mL catheter tip syringe, instill 30mL of air into tube and auscultate over epigastrium for air sounds.
2. Aspirate for gastric contents and assess for cloudy, green, tan, brown, bloody or off-white color contents consistent with gastric contents.
3. Secure tube with tape.

### Gastric Decompression

Once placement of the Salem sump tube has been verified, begin gastric decompression in one of the following manners:

1. Attach the tube to portable suction (and suction intermittently as needed).
2. Attach the tube to the onboard suction (and suction intermittently as needed).
3. Attach the tube to continual low suction (approximately 60 mmHg) using the onboard suction.
4. If suction is not readily available, connect the 60mL syringe to the tube while keeping the (blue) air vent patent. This will allow the sump function of the tube to work until suction can be applied and will also prevent gastric contents from leaking from the tube.

### Critical Thinking Elements

- If you cannot place the OG tube quickly (no more than 2 attempts), forego the procedure – do not delay transport.
- The **blue** air vent must remain patent to ensure proper sump function and to prevent damage to the gastric lining during suctioning.

## Intravenous Cannulation Procedure

Intravenous cannulation is used in the Prehospital setting to establish a route for drug administration and/or to provide fluid replacement. Intravenous cannulation should not significantly delay scene times or be attempted while on scene with a trauma patient who meets load-and-go criteria.

1. Explain to the patient the need for and a brief description of the procedure.
2. Observe the universal precautions for body substance exposure.
3. Obtain an appropriately sized catheter:
  - a) 14 or 16 gauge for trauma patients.
  - b) 14, 16 or 18 gauge for fluid replacement.
  - c) 20 gauge for elderly patients, pediatric patients or for difficult IV cannulations.
4. Check the fluid (1000mL .9% Normal Saline):
  - a) Is it the right fluid?
  - b) Check the expiration date.
  - c) Check for color and clarity (NS should be clear with no particles).
5. Connect the administration set to the IV fluid. Make sure that air bubbles are expelled from the tubing and that all chambers have the appropriate fluid levels.
6. Maintain a clean environment and protect the administration set from contamination.
7. Apply a venous tourniquet just proximal to the antecubital area.
8. Select (by palpation) a prominent vein. Choose a distal vein on the forearm or back of the hand. The antecubital space may be used if needed for drug administration, fluid replacement, the patient condition requires a more proximal site, or in cases where no other vein is accessible.
9. Cleanse the site with an alcohol prep pad using a circular motion moving outward from the site.
10. Stabilize the vein by applying traction below the puncture site.
11. Inform the patient of your intent to puncture the site.
12. Enter the vein directly from above or from the side of the site. With the bevel of the needle upward, puncture the skin at a 30 to 45 degree angle.
13. If blood returns through the catheter, proceed with insertion. If you do not see blood return, release the tourniquet and discontinue the attempt. If time and patient condition allows, you may attempt another site with a new catheter (do not exceed more than two (2) attempts).
14. Insert the catheter. Carefully lower the catheter and advance the needle and catheter just enough to stabilize the needle in the vein. Slide the catheter off of the needle into the vein.
15. Slightly occlude the vein proximal to the catheter with gentle finger pressure. Remove the needle and immediately dispose of it in an approved sharps container.
16. Release the tourniquet and connect the administration set to the catheter.
17. Open the flow regulator on the administration set and briefly allow IV fluid to run freely to assure a patent line (less than 20mL). If the line is patent, adjust flow rate as indicated by protocol or Medical Control order.
18. Secure the catheter and tubing using a veniguard or tape. Loop the IV tubing and secure to the patient's arm. Do not apply tape circumferentially to the extremity.

## Intravenous Cannulation Procedure

### Saline Locks

Saline locks may be used if fluid replacement is not indicated:

1. Assemble the pre-filled saline and tubex syringe or draw up 2-3mL of sterile saline.
2. Obtain and inspect an injection site link. Inject saline and expel air from the injection site chamber leaving the syringe attached.
3. After successful venipuncture, connect the saline lock to the catheter.
4. Pull back (aspirate) on the syringe to confirm placement by observing for blood return. If blood is aspirated, continue by injecting 3mL of saline into the chamber. If no blood is aspirated, discontinue the attempt and prepare to repeat the procedure at a new site.
5. If fluid replacement becomes necessary, attach an administration set to the injection port by needleless device or Luer adapter.
6. Secure the catheter and link using a veniguard or tape.

### External Jugular Vein Cannulation (ALS Only)

External Jugular (EJ) access can be utilized only if traditional extremity cannulation cannot be established and the patient requires immediate stabilizing fluid replacement and/or drug administration route.

1. Position the patient supine with feet elevated.
2. Turn the patient's head in the direction away from the side to be cannulated.
3. Cleanse the site with a prep pad using a circular motion moving away from the site.
4. Stabilize the vein by applying traction just above the clavicle.
5. Attach a 10mL syringe to the IV catheter. Align the catheter and point the tip of it toward the patient's feet.
6. Enter the vein midway between the angle of the jaw and the clavicle. With the bevel of the needle upward, puncture the skin using a 30 degree angle and aim toward the shoulder on the same side.
7. As you enter the vein, apply gentle aspiration by pulling on the syringe plunger. If blood returns through the flash chamber and syringe, proceed with insertion. Slightly occlude the vein proximal to the catheter with gentle finger pressure. Connect the administration set to the catheter and secure the site.

If you do not see blood return through the flash chamber and syringe, discontinue the attempt. Only one (1) attempt at EJ vein cannulation may be made in the Prehospital setting.

## Intravenous Cannulation Procedure

### Critical Thinking Elements

- If blood begins to back-flow in the IV tubing, check the location of the bag to assure it is in a gravity flow position and check to assure all valves are properly set. If the IV equipment is properly set and blood continues to back-flow, re-examine the vessel to assure arterial cannulation has not occurred.
- Edema, pain and lack of fluid flow at the site indicates infiltration and the IV must be discontinued.
- Do not partially withdraw a needle and reinsert into the catheter. This can cause catheter shear.
- Do not substitute a saline lock for IV fluids in trauma patients, patients who are in shock, patients with unstable vital signs or patients requiring multiple drug administrations.
- External jugular vein cannulation is contraindicated in patients with suspected cervical spine injury.

## Adult Intraosseous Cannulation Procedure (ALS Only)

It may be impossible to find an accessible vein in patients presenting with conditions such as shock from any cause, cardiac arrest, overdose with airway compromise, impairment in mentation or hemodynamic parameters, severe dehydration associated with unresponsiveness or shock and multi-system trauma. This is a challenge commonly faced by prehospital providers, which hinders optimal patient care by limiting treatment options and increasing scene time trying to obtain vascular access.

The intraosseous space may be viewed as a non-collapsible, easily accessed space for any fluid or medication. Intraosseous infusion is preferred over endotracheal routes of medication administration and is a viable alternative when IV therapy is not available or not accessible. Intraosseous infusion is immediately available, safe and effective.

### Indications

1. Intravenous fluids and medications are emergently needed, a peripheral IV cannot be established in two (2) attempts AND the patient demonstrates one of the following:
  - An altered mental status (GCS of 8 or less) with loss of protective airway reflexes (with notable exception of known diabetic with symptomatic hypoglycemia)
  - Clinical signs of shock from any cause (hypovolemia from severe dehydration or trauma, cardiogenic, anaphylactic, septic or Neurogenic) with a systolic BP less than 80mmHg
  - Patients in extremis (at risk of death or disability) with immediate need for delivery of medications and fluids (e.g. multi-system trauma, anaphylaxis, status asthmaticus, status epilepticus, life-threatening dysrhythmia or bradycardia, severe respiratory distress with hypoxia and/or alteration in consciousness, respiratory arrest, and overdose associated with alteration in vital signs, mental status and/or dysrhythmia)
  - If a patient is assessed to be in need of intraosseous access and does not fit any of the above, **contact Medical Control** for further guidance and orders.
2. EZ-IO insertion may be considered *PRIOR* to peripheral IV attempts if the patient is in cardiac arrest (medical or traumatic).

### Contraindications

1. Fracture of the bone selected for IO infusion (consider another approved site of insertion)
2. Excessive tissue at insertion site with absence of anatomical landmarks (consider another approved site of insertion)
3. Previous significant orthopedic procedures (i.e. prosthesis or hardware placement) (consider another approved site of insertion).
4. Infection at the site selected for insertion (consider another approved site of insertion)

## Adult Intraosseous Cannulation Procedure (ALS Only)

### Considerations

- Flow rates will be slower than achieved with intravenous (IV) access. To improve continuous infusion rates, use a pressure infusion bag (or BP cuff).
- Insertion of the EZ-IO in conscious patients or patients responsive to pain has been noted to cause mild to moderate discomfort comparable to the insertion of a large bore IV catheter. IO infusion, however, has been noted to cause severe discomfort.

### EZ-IO Procedure

1. Observe universal precautions.
2. Prepare the EZ-IO driver and needle set:
  - a) 15ga, 15mm long needle for patients weighing between 3kg and 39kg.
  - b) 15ga, 25mm long needle for patients weighing greater than 40kg.
  - c) 15ga, 45mm long needle for patients with excess tissue (optional).
3. Locate an appropriate insertion site. Approved sites include:
  - Proximal Tibia
  - Distal Tibia
  - Proximal Humerus
4. Prep the site with Betadine and set up infusion solution as for regular IV.
5. Stabilize site and insert appropriate needle set.
6. Remove EZ-IO driver from needle set while stabilizing catheter hub.
7. Remove stylet from the catheter; place stylet in EZ-IO shuttle or approved sharps container.
8. Attach 5-10mL syringe and aspirate bone marrow to confirm placement.
  - a) IO catheter should be at a 90 degree angle and firmly seated in the tibial bone.
  - b) Blood may be visible at the tip of the stylet.
  - c) The IO catheter should flush freely without difficulty or extravasation.
9. Connect the luer-lock equipped IV administration set.
10. For **conscious** patients (or for previously unresponsive patients who become conscious): **Lidocaine:** 30mg IO (slowly) to reduce discomfort from infusion.
11. Flush the IO catheter with 10mL of normal saline.
12. Utilize a pressure bag for continuous infusions where applicable. If a pressure bag is not available, wrap a BP cuff around the bag of normal saline and inflate the cuff until desired flow rate is achieved.
13. Dress site, secure tubing and apply wristband as directed.

## Adult Intraosseous Cannulation Procedure (ALS Only)

### EZ-IO Procedure (continued)

14. If needed, further manage the patient's pain by using one of the following medications.

<b>Morphine Sulfate</b>	2-5 mg IV every <b>5 minutes</b> to reduce the patient's anxiety and severity of pain. If unable to establish IV access, may administer Morphine 2-5 mg IM every <b>15 minutes</b> .
<b>Fentanyl</b>	50 mcg IV, over <u>2 minutes</u> for pain. Fentanyl 50 mcg IV may be repeated every <b>5 minutes</b> to a total of 200 mcg.
	<b>If unable to establish IV access</b> , may administer Fentanyl 50 mcg IM or IN. May be repeated as needed to a total of 200 mcg. (See dosing sheets for IN)

15. Closely monitor EZ-IO site en route.

### Critical Thinking Elements

- If respiratory depression or hypotension occurs after administration of Dilaudid or Fentanyl, ventilate the patient as necessary and administer Narcan.
- Monitor respiratory status, SPO2 and or Waveform Capnography if available.
- Do not use an area previously used for IO attempts.
- **Sometimes marrow cannot be aspirated and does not necessarily indicate improper placement.**
- Excessive movement of the IO needle may result in leakage.
- Do not place more than one IO unless absolutely necessary.

## Medication Administration Procedure

Medication administration is accomplished by specific routes as indicated by the protocols. This procedure describes the traditional medication routes for use in the prehospital setting.

### Preparation Steps

1. Observe universal precautions for body substance exposures.
2. Confirm the drug order, amount to be given and route.
3. Confirm that the patient is not allergic to the medication.
4. Check the medication:
  - Is it the right medication?
  - Expiration date?
  - Color and clarity?
5. Explain to the patient *what* medication you are giving them and *why* you are giving it.
6. Assemble the necessary equipment.
7. Calculate and draw up the desired volume of the drug or confirm the concentration of the drug if administering from a pre-filled syringe.
8. Eject any air from the syringe.
9. Confirm the medication again:
  - Is it the **right medication**?
  - Is it the **right patient**?
  - Is it the **right dose**?
  - Is it the **right route**?
  - Is it the **right time**?
  - Is it the **right documentation** in the chart?

### Intravenous Medication Administration

This procedure utilizes an IV that has previously been established and patency has been confirmed.

1. Cleanse the injection port or luer port with an alcohol prep pad.
2. Insert the needle into the inlet port or attach the syringe to the luer port.
3. Stop the flow of the IV by pinching off the IV tubing above the port.
4. Inject the desired amount of drug at the rate indicated by protocol.
5. Release the IV tubing and flush with approximately 20mL of fluid to assure delivery of the drug.
6. Properly dispose of the contaminated equipment.
7. Document the name of the medication, the dose, the route of administration and the time that the drug was administered.
8. Monitor and document the patient's response to the medication.

### EZ-IO Medication Administration

Refer to *Intravenous Medication Administration* steps.

## Medication Administration Procedure

### Endotracheal Medication Administration

This procedure utilizes an ETT which has previously been established and proper placement has been confirmed. Only certain medications may be given via the ETT as specified by protocol.

1. Hyperventilate the patient.
2. Disconnect the BVM if needed.
3. If CPR is being performed, stop chest compressions.
4. Dilute the medication and/or double the dose of the medication.
5. Place the needle or syringe into the lumen of the ETT (or attach to MADett™) and forcefully inject the desired amount of the drug into the lumen.
6. If it was disconnected, re-connect the BVM and resume ventilations (while withholding chest compressions for 5 seconds) and then resume chest compressions if indicated.
7. Document the name of the medication, the dose of the medication, the route of administration and the time that the drug was administered.
8. Properly dispose of the contaminated equipment.
9. Monitor and document the patient's response to the medication.

## Medication Administration Procedure

### Intramuscular Medication Administration

Intramuscular (IM) injections in the prehospital setting are relatively uncommon. IM injections are administered into the muscle tissue and require adequate perfusion for absorption.

1. Identify an injection site (the deltoid muscle of the upper arm and the upper outside quadrant of the gluteus muscle are commonly used). **Note:** The only approved site for the EMT-Basic & Intermediate level agencies is the left or right deltoid.
2. Clean the injection site with an alcohol prep.
3. Stretch or “flatten” the skin overlying the site with your fingers.
4. Advise the patient to expect a “stick” and to try to relax.
5. Insert the needle (preferably a 2-inch, 22g needle) at a 90 degree angle into the muscle tissue.
6. Pull back (aspirate) on the syringe to confirm that the needle is not in a vessel by observing for blood return.
  - If blood is aspirated into the syringe, discontinue the injection and start the procedure over.
  - If blood is not aspirated into the syringe, slowly inject the drug into the muscle tissue.
7. Withdraw the needle and apply pressure to the site with a gauze pad.
8. Document the name of the medication, the dose of the medication, the route of administration and the time that the drug was administered.
9. Properly dispose of the contaminated equipment.
10. Monitor and document the patient’s response to the medication.

## Medication Administration Procedure

### Intranasal Medication Administration

#### Indication

Intranasal medication administration may be considered when IV access is unavailable and/or when a needleless delivery system is desired because of patient agitation, combativeness, or similar conditions that may pose a safety risk to personnel.

#### Contraindications

Nasal trauma  
Epistaxis, nasal congestion, (significant) nasal discharge

#### Equipment

Medication indicated by treatment protocol  
1 or 3mL syringe with appropriate transfer device  
Mucosal Atomizer Device (MAD)

#### Procedure

1. Select desired medication and determine dose.
2. Draw up appropriate dose (volume) of medication. Allow an additional 0.1 ml in the syringe to account for the device “dead space”.
3. Attach the MAD to the end of the syringe
4. Prepare and position the patient in a supine or recumbent position. If the patient is sitting, compress the nares after administration.
5. Place tip of the MAD snugly against nostril aiming slightly up and outward (toward the top of the ear on the same side of the head)
6. Rapidly administer one half of the dose of medication, briskly pushing the plunger
7. Repeat with the other nostril delivering the remaining volume of medication
  - **Do NOT administer more than 1mL per nostril.**
8. Evaluate medication effectiveness and continue with treatment protocol.

#### Notes

- Severe hypotension may prevent adequate medication absorption
- Nasal administration is less likely to be effective if the patient has been abusing inhaled vasoconstrictors such as cocaine.

## **CARDIAC CARE**

## Universal Cardiac Care Protocol

Patients experiencing chest pain with a suspected cardiac origin may present with signs and symptoms which include:

- Substernal chest pain / pressure
- Heaviness, tightness or discomfort in the chest
- Radiation and/or pain/discomfort to the neck or jaw
- Pain/discomfort/weakness in the shoulders/arms
- Nausea/vomiting
- Diaphoresis
- Dyspnea

Priorities in the care of chest pain patients include:

- Assessing and securing ABCs.
- Determining the quality and severity of the patient's distress.
- Identifying contributing factors of the event.
- Obtaining a medical history (including medications & allergies).

Timely transportation to the emergency department is an important factor in patient outcome.

\*\*Strongly encourage transport to a hospital with an interventional catheterization lab when STEMI is present on 12-Lead ECG.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating care to reassure the patient, reducing the patient's discomfort and beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, providing care to reassure the patient, reducing the patient's discomfort, beginning treatment for shock and preparing or providing patient transportation.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.

## Universal Cardiac Care Protocol

### BLS Care (continued)

3. **Aspirin (ASA):** 324mg PO (4 tablets of 81mg chewable aspirin by mouth).
  - **Ask the patient specifically about any history of hypersensitivity to ASA.**
  - **Do not give ASA to patients with active ulcer disease, asthma or known allergy to ASA.**
4. **Nitroglycerin (NTG):** 0.4mg SL (1 metered spray dose sublingually). May repeat every **3-5 minutes** to a total of 3 doses (if systolic BP remains > 100mmHg).
  - NTG (& ASA) may be administered without contacting Medical Control if the patient is age 30 or older, has chest pain consistent with acute myocardial infarction (AMI) and has a systolic BP > 100mmHg. *If the patient does not meet criteria, consult Medical Control prior to administering NTG.*
5. Obtain **12-Lead EKG** and transmit to Medical Control as soon as possible.  
\*\*3-Lead monitoring is not within the scope of practice of the EMT-B\*\*
6. Initiate ALS (or ILS) intercept if necessary and transport as soon as possible.
7. **Contact Medical Control** as soon as possible.

### ILS Care

ILS Care should be directed at conducting a thorough patient assessment, providing care to reassure the patient, reducing the patient's discomfort, beginning treatment for shock and preparing or providing patient transportation.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.
3. **Aspirin (ASA):** 324mg PO (4 tablets of 81mg chewable aspirin by mouth).
  - **Ask the patient specifically about any history of hypersensitivity to ASA.**
  - **Do not give ASA to patients with active ulcer disease, asthma or known allergy to ASA.**

## Universal Cardiac Care Protocol

### ILS Care (continued)

4. **Nitroglycerin (NTG):** 0.4mg SL (1 metered spray dose sublingually). May repeat every **3-5 minutes** to a total of 3 doses (if systolic BP remains > 100mmHg).

NTG (& ASA) may be administered without contacting Medical Control if the patient is age 30 or older, has chest pain consistent with acute myocardial infarction (AMI) and has a systolic BP > 100mmHg.

5. Initiate ALS intercept if necessary and transport as soon as possible (transport can be initiated at any time during this sequence).
6. Obtain **12-Lead EKG** and transmit to receiving hospital. Contact Medical Control if wide complex tachycardia or consultation is needed.
7. **Ondansetron (Zofran):** 4mg PO orally disintegrating tablet for nausea and vomiting
8. **Fentanyl:** 50mcg IV, over 2 minutes for pain. Fentanyl 50mcg IV may be repeated every **5 minutes** to a total of 200mcg.

**Fentanyl:** 50mcg IM, if unable to initiate IV access. May be repeated as needed to a total of 200mcg.

**Fentanyl:** IN (See Intranasal Fentanyl Dosing Chart)

9. **Contact Medical Control** as soon as possible, regardless of EKG transmission.

### ALS Care

ALS Care should be directed at conducting a thorough patient assessment, providing care to reassure the patient, reducing the patient's discomfort, beginning treatment for shock and preparing or providing patient transportation.

1. Render initial care in accordance with the *Universal Patient Care Protocol*. If time permits, establish a 2<sup>nd</sup> line (preferably an 18g saline lock) en route.
2. **Oxygen:** 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.
3. **Aspirin (ASA):** 324mg PO (4 tablets of 81mg chewable aspirin by mouth).
  - **Ask the patient specifically about any history of hypersensitivity to ASA.**
  - **Do not give ASA to patients with active ulcer disease, asthma or known allergy to ASA.**

## Universal Cardiac Care Protocol

### ALS Care (continued)

4. **Nitroglycerin (NTG):** 0.4mg SL (1 metered spray dose sublingually). May repeat every **3-5 minutes** to a total of 3 doses (if systolic BP remains > 100mmHg).
  - NTG (& ASA) may be administered without contacting Medical Control if the patient is age 30 or older, has chest pain consistent with acute myocardial infarction (AMI) and has a systolic BP > 100mmHg.
5. Obtain **12-Lead EKG** and transmit to receiving hospital. Contact Medical Control if wide complex tachycardia or consultation is needed.
6. **Nitropaste (Nitro-Bid):** 1 inch to anterior chest wall if patient's systolic BP is greater than 100mmHg.
7. **Ondansetron (Zofran):** 4mg IV over 2 minutes **for nausea and/or vomiting.**  
  
**Ondansetron (Zofran):** 4mg IM  
  
**Ondansetron (Zofran):** 4mg PO orally disintegrating tablet
8. **Fentanyl:** 50mcg IV, over 2 minutes for pain. Fentanyl 50mcg IV may be repeated every **5 minutes** to a total of 200mcg.  
  
**Fentanyl:** 50mcg IM, if unable to initiate IV access. May be repeated as needed to a total of 200mcg.  
  
**Fentanyl:** IN (See Intranasal Fentanyl Dosing Chart)
9. Transport as soon as possible (transport can be initiated at any time during this sequence).
10. **Contact Medical Control** as soon as possible, regardless of EKG transmission.

## Universal Cardiac Care Protocol

### Critical Thinking Elements

- ILS & ALS may administer Nitroglycerin when the patient's systolic blood pressure is between 90-100mmHg **if IV access has been established**.
- Use caution with acute inferior wall MI (II, III, aVF) – Place IV and administer 20ml/kg Normal Saline as needed following Nitroglycerin
- Use caution with acute septal wall MI (V1, V2) – Watch for AV blocks and consider pacing.
- Initiate ALS intercept if the patient's chest pain is not eliminated with Oxygen or NTG.
- Consider the patient to be in cardiogenic shock if the patient has dyspnea, diaphoresis, a systolic BP < 100mmHg, and signs of congestive heart failure.
- Obtaining a 12-Lead EKG should not significantly delay initiation of transport.
- EKG limb leads should actually be placed on the patient's limbs!
- A pulse oximeter is a tool to aid in determining the degree of patient distress and the effectiveness of EMS interventions. A high pulse oximeter reading should not result in oxygen therapy being withheld.
- NTG that the patient self administers prior to EMS arrival should be reported to Medical Control. Subsequent doses should be provided by the EMS unit's stock.
- **Medications should not be administered IM to a suspected AMI patient.**
- Nitro paste can be placed on the patient's upper back instead of the anterior chest if needed (*e.g.* if the patient has excessive chest hair).
- If the patient's systolic BP drops **below 90mmHg**, wipe the Nitropaste off.
- The goal of the EMT-B is to obtain a 12-Lead EKG and send it to the receiving hospital as soon as possible
- 10 minutes is the goal for EKG's to be performed at all levels.
- Avoid use of Zofran in patients with congenital long QT syndrome as these patients are at particular risk for Torsades de Pointes

## Cardiogenic Shock Protocol

Cardiogenic shock occurs when the “pump” component of perfusion (the heart) begins to fail. The signs and symptoms of cardiogenic shock include:

- Pain, heaviness, tightness or discomfort in the chest with hypotension (systolic BP < 100mmHg)
- Rales or crackles (“wet” lung sounds)
- Pedal edema
- Dyspnea
- Diaphoresis
- Nausea/vomiting

Patients with a history of AMI or CHF have increased risk factors. Priorities in the care of the Cardiogenic shock patient include:

- Assessing and securing ABCs.
- Determining the quality and severity of the patient’s distress.
- Identifying contributing factors of the event.
- Obtaining a medical history (including medications and allergies).

Timely transportation to the emergency department is an important factor in patient outcome.

### First Responder Care

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.

### BLS Care

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.
3. Initiate ALS (or ILS) intercept and transport as soon as possible.

## Cardiogenic Shock Protocol

### ILS Care

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.
3. **IV Fluid Therapy:** 20mL/kg fluid bolus.
4. Obtain **12-Lead EKG** and transmit to receiving hospital. Contact Medical Control if wide complex tachycardia or consultation is needed.
5. Initiate ALS intercept and transport as soon as possible.
6. **Contact Medical Control** as soon as possible.

### ALS Care

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.
3. **IV Fluid Therapy:** 20mL/kg fluid bolus.
4. **Dopamine:** Begin infusion at 24gtts/min. Increase by 12gtts/min every **2 minutes** to achieve and maintain a systolic BP of at least 100mmHg. Closely monitor vital signs.
  - *Dopamine is provided premixed (400mg in 250mL D<sub>5</sub>W). This yields a concentration of 1600mcg/mL. The initial rate of infusion is 1-10mcg/kg/min which can be achieved with a 24gtts/min infusion rate.*
5. If the patient has a cardiac dysrhythmia, treat the underlying rhythm disturbance according to the appropriate SMO.
6. Obtain **12-Lead EKG** and transmit to receiving hospital. Contact Medical Control if wide complex tachycardia or consultation is needed.
7. Transport as soon as possible (transport can be initiated at any time during this sequence) and **Contact Medical Control** as soon as possible.

## Cardiac Arrest Protocol

The successful resuscitation of patients in cardiac arrest is dependent on a systematic approach of initiating life-saving CPR and early defibrillation and transferring care to advanced life support providers in a timely manner. The majority of adults who survive non-traumatic cardiac arrest are resuscitated from ventricular fibrillation with defibrillation. The primary factor for successful defibrillation and resuscitation is decreasing the time interval from onset of cardiac arrest to effective CPR, defibrillation and advanced life support.

### First Responder Care

First Responder Care should be focused on confirming that the patient is in full arrest and in need of CPR. Resuscitative efforts should be initiated by opening the airway and initiating ventilations & chest compressions while attaching a defibrillator. It is important to assure that CPR is being performed correctly following AHA guidelines.

1. Determine unresponsiveness. Confirm that a transporting unit (and ALS intercept) has been activated.
2. Check for pulse (10 seconds). If pulseless, **begin CPR**. CPR should start with compressions at a rate of 100/min with a ratio of 30 compressions to 2 ventilations for 5 cycles (2 minutes)
3. Apply an AED **after 2 minutes of CPR** to determine if defibrillation is needed.
4. Continue CPR until the AED is attached and turned on. Stop CPR when the AED is analyzing:
  - a) If the AED indicates “SHOCK ADVISED”, call out “**CLEAR!**” check for the safety of others, and push the SHOCK button (or stand clear if the AED device does not require shock activation).
  - b) Immediately **resume CPR (starting with compressions) for 5 cycles (2 minutes)**.
  - c) Reassess the patient and allow the AED to analyze.
  - d) If the AED indicates “SHOCK ADVISED”, call out “**CLEAR!**” check for the safety of others, and push the SHOCK button (or stand clear if the AED device does not require shock activation).
  - e) Check for a pulse if the AED states “NO SHOCK ADVISED”.
  - f) **Continue CPR if pulse is absent**.
  - g) **Reassess every 2 minutes**. Shock if indicated.
  - h) If the patient regains a pulse at any time during resuscitation, then maintain the airway and assist ventilations.
  - i) Re-analyze the patient’s rhythm with the AED if the patient returns to a pulseless state. Shock if indicated.
5. **Narcan**: 2mg IN (1mg per nostril) for suspected or known narcotic overdose.
6. Immediately turn patient care over to the transporting provider or ALS intercept crew upon their arrival.
7. Complete all necessary cardiac arrest documentation.

## Cardiac Arrest Protocol

### BLS Care

BLS Care should focus on maintaining the continuity of care by confirming the patient is in cardiac arrest and continuing resuscitative efforts initiated by the First Responders. Transporting BLS units should initiate an ALS intercept as soon as possible.

1. BLS care includes all of the components of First Responder Care.
2. Shocks delivered to the patient prior to the transporting unit arriving on scene should be taken into consideration during the transition of care. Transporting crews may want to utilize the AED used by the non-transporting First Responders if circumstances allow for exchange of equipment or personnel ride-along.
3. **Place KING LTS-D Airway (if possible) and continue ventilations.**
4. Call for ALS intercept and initiate transport as soon as possible.
5. Contact the receiving hospital as soon as possible.
6. Place Orogastic Tube (OG) if time permits to relieve gastric distention (**if King LTS-D Airway is in place**).

### ILS Care

ILS Care should focus on maintaining the continuity of care by confirming that the patient is in cardiac arrest and beginning resuscitative efforts or continuing resuscitative efforts initiated by the First Responders.

1. Determine unresponsiveness.
2. Check for pulse (10 seconds). If pulseless, **begin CPR**. CPR should start with compressions at a rate of 100/min with a ratio of 30 compressions to 2 ventilations.
3. Apply Quick-Combo pads (or Fast Patches).
4. Evaluate the rhythm.
5. If V-fib or pulseless V-tach, immediately **defibrillate per manufacturer's recommendations for biphasic monitors (or 360J for monophasic defibrillators)**.
6. **Immediately resume CPR (starting with compressions) for 2 minutes.**
7. Evaluate the patient/rhythm and defibrillate if needed. **Continue CPR and re-evaluate patient/rhythm every 2 minutes.**
7. **Intubate** the patient and provide ventilation at 12 breaths/minute.
8. If intubation is unsuccessful, **place KING LTS-D Airway (if possible) and continue ventilations.**
9. Obtain **peripheral IV** access.
10. Identify and treat cardiac dysrhythmias according to the appropriate protocol.
11. Place Orogastic Tube (OG) if time permits to relieve gastric distention (**if King LTS-D Airway is in place**).

## Cardiac Arrest Protocol

### ALS Care

ALS Care should focus on maintaining the continuity of care by confirming that the patient is in cardiac arrest and beginning resuscitative efforts or continuing resuscitative efforts initiated by the First Responders.

1. Determine unresponsiveness.
2. Check for pulse (10 seconds). If pulseless, **begin CPR**. CPR should start with compressions at a rate of 100/min with a ratio of 30 compressions to 2 ventilations
3. Apply Quick-Combo pads (or Fast Patches).
4. Evaluate the rhythm.
5. If V-fib or pulseless V-tach, immediately **defibrillate per manufacturer's recommendations for biphasic monitors (or 360J for monophasic defibrillators)**.
6. **Immediately resume CPR (starting with compressions) for 2 minutes.**
7. Evaluate the patient/rhythm and defibrillate if needed. **Continue CPR and re-evaluate patient/rhythm every 2 minutes.**
8. **Intubate** the patient and provide ventilation at 12 breaths/minute.
9. If intubation is unsuccessful, **place KING LTS-D Airway (if possible) and continue ventilations.**
10. Obtain **peripheral IV or IO** access.
11. Identify and treat cardiac dysrhythmias according to the appropriate protocol.
12. Place **OG tube** if time permits to relieve gastric distention (**if patient is intubated or KING LTS-D Airway is in place**).

## Cardiac Arrest Protocol

### Critical Thinking Elements

- If the cardiac arrest is witnessed by EMS personnel, start CPR and defibrillate immediately after Fast Patches or Quick Combos are placed.
- Do not touch, ventilate or move the patient while the AED is analyzing.
- Do not exceed three (3) shocks on scene without contacting Medical Control.
- Patients with implanted pacemakers or implanted defibrillators (AICDs) are treated the same way as any other patient; however do not place the electrodes, Quick Combo pads or Fast Patches over the top of the pacemaker or AICD site.
- Treat the patient – not the monitor. **A rhythm present on the monitor screen should NOT be used to determine pulse.** If the monitor shows a rhythm and the patient has no pulse, begin CPR (the patient is in PEA – *pulseless electrical activity*).
- Trauma patients in cardiac arrest should be evaluated for viability. If the patient is to be resuscitated, begin CPR and LOAD & GO.
- When changing to ALS monitoring equipment, attach defibrillation cables prior to disconnecting the AED.
- Resuscitation and treatment decisions are based on the duration of the arrest, physical exam and the patient's medical history. Consider cease-effort orders if indicated.
- Consider underlying etiologies and treat according to appropriate protocols.
- The 2010 American Heart Association (AHA) ACLS Guidelines **do not** recommend transcutaneous pacing for agonal rhythms or cardiac arrest

## Resuscitation of Pulseless Rhythms Protocol

The successful resuscitation of patients in cardiac arrest is dependent on a systematic approach to resuscitation. ACLS medications are an important factor in successful resuscitation of the pulseless patient when the initial rhythm is not ventricular fibrillation (V-fib) or in cases where defibrillation has been unsuccessful. It is important that BLS providers understand the value of effective CPR and an ALS intercept in providing the patient with ACLS therapy.

### First Responder Care

Not applicable. First Responders are not equipped with ACLS medications and shall treat the patient in accordance with the *Cardiac Arrest Protocol*.

### BLS Care

1. **Narcan:** 2mg IM or 2mg IN (1mg per nostril) may be given for suspected or known narcotic overdose.

### Ventricular Fibrillation (V-fib) or Pulseless Ventricular Tachycardia (V-tach)

### ILS Care

1. Initiate *Cardiac Arrest Protocol*.
2. Evaluate rhythm after 2 minutes of CPR. If V-fib or pulseless V-tach: **Defibrillate per manufacturer's recommendations for biphasic monitors (or 360J for monophasic defibrillators)**.
3. **Immediately resume CPR for 2 minutes** and re-evaluate the patient/rhythm.
4. **Epinephrine 1:10,000:** 1mg IV or 2mg ETT if patient is pulseless and repeat every **3-5 minutes** as needed.
5. If pulseless V-fib/V-tach persists: **Defibrillate per manufacturer's recommendations for biphasic monitors (or 360J for monophasic defibrillators)**.
6. **Immediately resume CPR for 2 minutes** and re-evaluate the patient/rhythm.
7. **Lidocaine:** 1.5mg/kg IV or 3.0mg/kg ETT for persistent V-fib or V-tach. Repeat bolus: 1.5mg/kg IV in **3-5 minutes** to a total of 3mg/kg if patient remains in V-fib or V-tach.

## Resuscitation of Pulseless Rhythms Protocol

### Ventricular Fibrillation (V-fib) or Pulseless Ventricular Tachycardia (V-tach) (continued)

#### ILS Care (continued)

8. If pulseless V-fib/V-tach persists: **Defibrillate per manufacturer's recommendations for biphasic monitors (or 360J for monophasic defibrillators).**
9. **Immediately resume CPR** and re-evaluate patient/rhythm every 2 minutes.
10. **Dextrose 50%:** 25g IV if blood sugar is < 60mg/dL.
11. **Narcan:** 2mg IV/IN or 4mg ETT if suspected narcotic overdose.
12. Transport as soon as possible.
13. Contact the receiving hospital as soon as possible.

#### ALS Care

1. Initiate *Cardiac Arrest Protocol*.
2. Evaluate rhythm after 2 minutes of CPR. If V-fib or pulseless V-tach: **Defibrillate per manufacturer's recommendations for biphasic monitors (or 360J for monophasic defibrillators).**
3. **Immediately resume CPR for 2 minutes** and re-evaluate the patient/rhythm.
4. **Epinephrine 1:10,000:** 1mg IV/IO or 2mg ETT if patient is pulseless and repeat every *3-5 minutes* as needed.
5. If pulseless V-fib/V-tach persists: **Defibrillate per manufacturer's recommendations for biphasic monitors (or 360J for monophasic defibrillators).**
6. **Immediately resume CPR for 2 minutes** and re-evaluate patient/rhythm.
7. **Lidocaine:** 1.5mg/kg IV/IO or 3.0mg/kg ETT for persistent V-fib or pulseless V-tach. Repeat bolus: 1.5mg/kg IV/IO in *3-5 minutes* to a total of 3mg/kg if patient remains in V-fib or pulseless V-tach.

Or

## Resuscitation of Pulseless Rhythms Protocol

### ALS Care (continued)

**Amiodarone:** Initial dose 300mg bolus IV/IO for persistent V-fib or pulseless V-tach. Repeat dose: 150mg bolus IV/IO if patient remains in V-fib or pulseless V-tach following at least 2 minutes of CPR.

8. If V-fib/ Pulseless V-tach persists: **Defibrillate per manufacturer's recommendations for biphasic monitors (or 360J for monophasic defibrillators).**
9. **Immediately resume CPR** and re-evaluate patient/rhythm every 2 minutes.
10. **Dextrose 50%:** 25g IV/IO if blood sugar is < 60mg/dL.
11. **Narcan:** 2mg IV/IO/IN or 4mg ETT if suspected narcotic overdose.
12. Transport as soon as possible.
13. Contact the receiving hospital as soon as possible.

### Pulseless Electrical Activity

### BLS Care

1. **Narcan:** 2mg IM or 2mg IN (1mg per nostril) may be given for suspected or known narcotic overdose.

### ILS Care

1. Initiate *Cardiac Arrest Protocol*.
2. Evaluate rhythm after 2 minutes of CPR.
3. **Epinephrine 1:10,000:** 1mg IV or 2mg ETT every *3-5 minutes*.
4. **Continue CPR** and re-evaluate patient/rhythm every 2 minutes.
5. **IV Fluid Therapy:** 20mL/kg fluid bolus for suspected hypovolemia.
6. **Dextrose 50%:** 25g IV if blood sugar is < 60mg/dL.

## Resuscitation of Pulseless Rhythms Protocol

### ILS Care (continued)

7. **Narcan**: 2mg IV/IN or 4mg ETT if suspected narcotic overdose.
8. Initiate ALS intercept and transport as soon as possible.
9. Contact the receiving hospital as soon as possible.

### ALS Care

1. Initiate *Cardiac Arrest Protocol*.
2. Evaluate rhythm after 2 minutes of CPR.
3. **Epinephrine 1:10,000**: 1mg IV/IO or 2mg ETT every *3-5 minutes*.
4. **Continue CPR** and re-evaluate patient/rhythm every 2 minutes.
5. **IV Fluid Therapy**: 20mL/kg fluid bolus for suspected hypovolemia.
6. **Dextrose 50%**: 25g IV/IO if blood sugar is < 60mg/dL.
7. **Narcan**: 2mg IV/IO/IN or 4mg ETT if suspected narcotic overdose.
8. **Sodium Bicarbonate**: 50meq IV/IO if known tricyclic antidepressant (TCA) overdose, known Aspirin (ASA) overdose or patient suffers from chronic renal failure.
9. **Needle chest decompression** for a patient in *traumatic* cardiac arrest with suspected tension pneumothorax.
10. Transport as soon as possible and contact the receiving hospital as soon as possible.

## Resuscitation of Pulseless Rhythms Protocol

### Asystole

#### BLS Care

1. **Narcan:** 2mg IM or 2mg IN (1mg per nostril) may be given for suspected or known narcotic overdose.

#### ILS Care

1. Initiate *Cardiac Arrest Protocol*.
2. Evaluate rhythm after 2 minutes of CPR.
3. **Epinephrine 1:10,000:** 1mg IV or 2mg ETT every *3-5 minutes*.
4. **Continue CPR** and re-evaluate patient/rhythm every 2 minutes.
5. **IV Fluid Therapy:** 20mL/kg fluid bolus for suspected hypovolemia.
6. **Dextrose 50%:** 25g IV if blood sugar is < 60mg/dL.
7. **Narcan:** 2mg IV/IN or 4mg ETT if suspected narcotic overdose.
8. Consider “cease efforts” order (see *Resuscitation vs. Cease Efforts Policy*).
9. If transporting, call for ALS intercept and transport as soon as possible.
10. Contact the receiving hospital as soon as possible.

#### ALS Care

1. Initiate *Cardiac Arrest Protocol*.
2. Evaluate rhythm after 2 minutes of CPR.
3. **Epinephrine 1:10,000:** 1mg IV/IO or 2mg ETT every *3-5 minutes*.

## Resuscitation of Pulseless Rhythms Protocol

### ALS Care (continued)

4. **Continue CPR** and re-evaluate patient rhythm every 2 minutes
5. **IV Fluid Therapy:** 20mL/kg fluid bolus for suspected hypovolemia
6. **Dextrose 50%:** 25g IV/IO if blood sugar is <60mg/dL.
7. **Narcan:** 2mg IV/IO/IN or 4mg ETT if suspected narcotic overdose.
8. **Sodium Bicarbonate:** 50meq IV/IO if known tricyclic antidepressant (TCA) overdose, known Aspirin (ASA) overdose or patient suffers from chronic renal failure.
9. Consider “cease efforts” order (see *Termination of Resuscitation Policy*).
10. If transporting, transport as soon as possible.
11. Contact the receiving hospital as soon as possible.

## Resuscitation of Pulseless Rhythms Protocol

### Pulseless Electrical Activity / Asystole

#### Possible Causes of Pulseless Electrical Activity (PEA) / Asystole

- Hypovolemia
- Hypoxia
- Hydrogen Ions (Acidosis)
- Hypokalemia/Hyperkalemia
- Hypothermia
- Hypoglycemia
- Toxins / Tablets (Drug Overdose)
- Tamponade (Pericardial Tamponade)
- Tension Pneumothorax
- Thrombosis (Acute Coronary Syndrome or Pulmonary Embolism)
- Trauma

#### Critical Thinking Elements

- Treat the patient – not the monitor. **A rhythm present on the monitor screen should NOT be used to determine pulse.** If the monitor shows a rhythm and the patient has no pulse, begin CPR (the patient is in PEA).
- Trauma patients in cardiac arrest should be evaluated for viability. If the patient is to be resuscitated, begin CPR and LOAD & GO.
- Resuscitation and treatment decisions are based on the duration of the arrest, physical exam and the patient's medical history. Consider cease-effort orders if indicated.
- Consider underlying etiologies and treat according to appropriate protocols (e.g. airway obstruction, metabolic shock, hypovolemia, central nervous system injury, respiratory failure, anaphylaxis, drowning, overdose, poisoning, etc.).
- A 20mL fluid bolus should be given after each drug administration to flush the IV line.
- **If the cardiac arrest is witnessed by EMS personnel, start CPR and defibrillate immediately after Fast Patches or Quick Combos are placed for V-fib/pulseless V-tach.**

## Termination of Resuscitation

### Policy:

Unsuccessful cardiopulmonary resuscitation (CPR) and other interventions may be discontinued prior to transport when this procedure is followed.

### Purpose:

Allow for the discontinuation of pre-hospital resuscitation after the delivery of adequate and appropriate resuscitation efforts to minimize the use of emergency transport for a patient who has extremely limited to no chance of meaningful, neurologically intact recovery.

### Procedure:

During resuscitation efforts if any of the following circumstances arise PAEMS providers may terminate the resuscitation process following consultation with Medical Control.

- Prolonged resuscitation efforts (either BLS alone or combined BLS and ALS) beyond 15 minutes without a return of spontaneous circulation or shockable rhythm are usually futile, unless cardiac arrest is compounded by hypothermia, submersion in cold water.
- Full ACLS has been instituted (ALS/ILS) to include rhythm analysis and defibrillation if indicated, appropriate airway management, and three rounds of the appropriate ACLS medications are given without return of spontaneous circulation.
- Extrication is prolonged (>15 minutes) in a pulseless, apneic patient, with no resuscitation possible during extrication (hypothermia is an exception).
- Patient has a valid DNR where resuscitation efforts were initiated prior to knowledge of resuscitation status.
- Correctable causes or special resuscitation circumstances have been considered and addressed.
- Per family request.

### Notes:

Document all elements of patient care and interactions with the patient's family, personal physician, medical examiner, law enforcement and medical control in the EMS patient care report (PCR).

## Unstable/Stable Bradycardia Protocol

Bradycardia is defined as a heart rate less than sixty beats per minute (< 60 bpm). Determining the stability of the patient with bradycardia is an important factor in patient care decisions. The assessment of the patient with bradycardia should include evaluation for signs and symptoms of hypoperfusion.

The patient is considered **stable** if the patient is asymptomatic (i.e. alert and oriented with warm, dry skin and a systolic BP > 100mmHg).

The patient is considered **unstable** if he/she presents with:

- An altered level of consciousness (ALOC).
- Diaphoresis.
- Dizziness.
- Chest pain or discomfort.
- Ventricular ectopy.
- Hypotension (systolic BP < 100mmHg).

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating Universal patient care to treat for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Obtain 12-Lead EKG and transmit to the receiving hospital as soon as possible  
\*\*3-Lead monitoring is not in the scope of the EMT-B\*\*
4. Initiate ALS intercept and transport as soon as possible.

## Unstable/Stable Bradycardia Protocol

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Obtain **12-Lead EKG** and transmit to receiving hospital as soon as possible.
4. **IV Fluid Therapy:** 20mL/kg fluid bolus for systolic BP less than 100mmHg.
5. Initiate ALS intercept and transport as soon as possible. (*Transport can be initiated at any time during this sequence*).
6. **Atropine:** 0.5mg IV if the patient's perfusion does not improve after the fluid bolus, if the patient is hemodynamically unstable or if the cardiac rhythm is an AV block (other than a 3<sup>rd</sup> degree block). May repeat 0.5mg IV every **5 minutes (with Medical Control order)** up to a total of 3mg.
7. Contact receiving hospital (or Medical Control if needed) as soon as possible.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

## Unstable/Stable Bradycardia Protocol

### ALS Care (continued)

3. Obtain **12-Lead EKG** and transmit to receiving hospital as soon as possible.
4. **IV Fluid Therapy**: 20mL/kg fluid bolus for systolic BP less than 100mmHg.
5. **Atropine**: 0.5mg IV/IO if the patient's perfusion does not improve after the fluid bolus, if the patient is hemodynamically unstable or if the cardiac rhythm is an AV block (other than a 3<sup>rd</sup> degree block). May repeat 0.5mg IV/IO every **5 minutes (with Medical Control order)** up to a total of 3mg.
6. **Immediate Transcutaneous Pacing**: If the patient is in a **3<sup>rd</sup> degree AV blocks** (or in a **Type II 2<sup>nd</sup> degree AV block** unresponsive to Atropine).
  - Target heart rate should be set at **70 bpm**.
  - Current should be set at minimum to start and increased until capture is achieved.
  - Refer to the *Transcutaneous Pacing Procedure* for additional information.
7. **Midazolam (Versed)**: 2mg IV/IO for patient comfort after pacing is initiated. Re-check vital signs 5 minutes after administration. May repeat dose one time if systolic BP > 100mmHg and respiratory rate is > 10 rpm. Additional doses require Medical Control order.

**Midazolam (Versed)**: Intranasal if unable to obtain IV access. (See intranasal dosing sheet).

8. **Dopamine**: If the patient remains hypotensive. Begin infusion at 24gtts/min. Increase by 12gtts/min every **2 minutes** to achieve and maintain a systolic BP of at least 100mmHg. Closely monitor vital signs.
  - *Dopamine is provided premixed (400mg in 250mL D<sub>5</sub>W). This yields a concentration of 1600mcg/mL. The initial rate of infusion is 1-10mcg/kg/min which can be achieved with a 24gtts/min infusion rate.*

## Unstable/Stable Bradycardia Protocol

### ALS Care (continued)

9. Transport as soon as possible (*Transport can be initiated at any time during this sequence*).
10. Contact receiving hospital as soon as possible.

### Critical Thinking Elements

- Monitor respiratory status, SPO2 and or Waveform Capnography if available if Versed or Ativan is given.
- Treat the patient – not the monitor. Bradycardia does not necessarily mean that the patient is unstable or requires intervention.
- Treat underlying etiologies according to protocol.
- Atropine is NOT to be given if the patient's blood pressure is normal or elevated.
- *Bradycardia may be present due to increased intracranial pressure from a stroke or head injury.* Contact Medical Control.
- Factors to consider during the assessment of the patient who presents with bradycardia include: patient health & physical condition (*e.g.* an athlete), current medications (*e.g.* beta blockers), trauma or injury related to the event (*e.g.* a head trauma patient exhibiting signs of herniation or *Cushing's response*), and other medical history.
- Assess for underlying causes (*e.g.* hypoxia, hypovolemic shock, cardiogenic shock, or overdose).
- Fluid bolus should not delay Atropine administration or TCP if the patient is unstable.
- If the patient's presenting rhythm is a 3<sup>rd</sup> degree block, immediately prepare to pace. If the patient is symptomatic, pacing should be started without delay.
- The goal of the EMT-B is to obtain a 12-Lead EKG and transmit it to the receiving hospital as soon as possible
- 10 minutes is the goal for EKG's to be performed at all levels.

## Narrow Complex Tachycardia Protocol

Tachycardia is defined as a heart rate > 100 bpm. Once the heart rate reaches 150 bpm, the patient is at risk for shock. A narrow QRS complex indicates that the rhythm may be originating in the atrium. Determining the stability of the patient with tachycardia is an important factor in patient care decisions. The assessment of the patient with tachycardia should include evaluation for signs and symptoms of hypoperfusion.

The patient is considered **stable** if the patient is alert and oriented with warm & dry skin and has a systolic BP > 100mmHg.

The patient is considered **unstable** if the patient has an altered level of consciousness, diaphoresis, dizziness, chest pain or discomfort, ventricular ectopy and/or is hypotensive.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to treat for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating Universal patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Obtain **12-Lead EKG** and transmit to the receiving hospital as soon as possible.  
\*\*3-Lead monitoring is not in the scope of the EMT-B\*\*
3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
4. If patient is stable, regular or irregular attempt vagal maneuver (**NO carotid massage**)
5. Initiate ALS intercept and transport as soon as possible.

## Narrow Complex Tachycardia Protocol

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Obtain **12-Lead EKG** and transmit to receiving hospital as soon as possible.
3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
4. If patient is stable attempt vagal maneuver. (**NO carotid massage**)
5. Consider 20mL/kg fluid bolus to rule out hypovolemia/dehydration as cause of tachycardia.
6. Initiate ALS intercept and transport as soon as possible. (*Transport can be initiated at any time during this sequence*).
7. Contact receiving hospital (or Medical Control if needed) as soon as possible.
8. **Adenosine (Adenocard)**: 6mg IV {rapid IV push} if the patient is alert and oriented, has a systolic BP greater than 100mmHg, has a HR greater than 150bpm and is *obviously* not in atrial fib or atrial flutter. If no response after **2 minutes**, administer 12mg IV {rapid IV push}

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Obtain **12-Lead EKG** and transmit to receiving hospital as soon as possible.
3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
4. If patient is stable attempt vagal maneuver. (**NO carotid massage**)

## Narrow Complex Tachycardia Protocol

### ALS Care (continued)

5. Consider 20mL/kg fluid bolus to rule out hypovolemia/dehydration as cause of tachycardia.
6. **Adenosine (Adenocard)**: 6mg IV {rapid IV push} if the patient is alert and oriented, has a systolic BP greater than 100mmHg, has a HR greater than 150bpm and is *obviously* not in atrial fib or atrial flutter.  
If no response after 1-2 *minutes*, administer 12mg IV {rapid IV push}.  
If no response after 1-2 *additional minutes*, administer a repeat dose of 12mg IV {rapid IV push}
7. **Midazolam (Versed)**: 2mg IV/IO for patient comfort during synchronized cardioversion. Re-check vital signs 5 minutes after administration. May repeat dose one time if systolic BP > 100mmHg and respiratory rate is > 10 rpm. Additional doses require Medical Control order.  
  
**Midazolam (Versed)**: Intranasal if unable to obtain IV access. (See intranasal dosing sheet).
8. **Synchronized Cardioversion**: If the patient has an altered level of consciousness, diaphoresis, dizziness, chest pain or discomfort, ventricular ectopy and/or is hypotensive:
  - a) Synchronized cardioversion at **100 Joules\*\*** if tachycardia persists.
  - b) Synchronized cardioversion at **200 Joules\*\*** if tachycardia persists.
  - c) Synchronized cardioversion at **300 Joules\*\*** if tachycardia persists.
  - d) Synchronized cardioversion at **360 Joules\*\*** if tachycardia persists.

Contact the receiving hospital as soon as possible.

\*\*Or biphasic equivalent

## Narrow Complex Tachycardia Protocol

### Critical Thinking Elements

- Monitor the patient for respiratory depression when administering sedatives.
- Monitor respiratory status, SPO2 and or Waveform Capnography if available.
- Treat the patient – not the monitor. Tachycardia does not necessarily mean that the patient is unstable or requires intervention.
- Factors to consider during the assessment of the patient with tachycardia include: patient health & physical condition, trauma or injury related to the event, current medications and medical history.
- Assess for underlying causes (e.g. hypovolemic shock) and treat according to protocol.
- When administering Adenocard, be prepared for immediate defibrillation if the rhythm converts to v-fib.
- **DO NOT administer Adenocard if the heart rate is < 150 bpm** without consulting Medical Control.
- 20mL Normal Saline bolus following administration
- Adenosine not to be used for rapid Atrial Fibrillation or WPW
- Examples of vagal maneuvers include valsalva maneuver, or coughing. **DO NOT** perform carotid massage.
- The Goal of the EMT/B is to obtain a 12 lead EKG and send it to the receiving hospital as soon as possible.
- 10 minutes is the goal for EKG's to be performed at all levels.

## Wide Complex Tachycardia Protocol

A patient with tachycardia is an important factor in patient care decisions. The assessment of the patient with tachycardia should include evaluation for signs and symptoms of hypoperfusion.

The patient is considered **stable** if the patient is alert & oriented with warm & dry skin and a systolic BP > 100mmHg.

The patient is considered **unstable** if the patient has an altered level of consciousness, diaphoresis, dizziness, chest pain or discomfort, ventricular ectopy and/or hypotension.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating Universal patient care to treat for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Obtain **12-Lead EKG** and transmit to receiving hospital as soon as possible.  
\*\*3-Lead monitoring is not in the scope of the EMT-B\*\*
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
4. Initiate ALS intercept and transport as soon as possible.

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

## Wide Complex Tachycardia Protocol

### ILS Care (continued)

2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Consider 20mL/kg fluid bolus to rule out hypovolemia/dehydration as cause of tachycardia.
4. Initiate ALS intercept and transport as soon as possible. (*Transport can be initiated at any time during this sequence*).
5. Obtain **12-Lead EKG**, transmit EKG and **Contact Medical Control** as soon as possible.
6. If the patient becomes pulseless at any time, refer to the *Resuscitation of Pulseless Rhythms Protocol (V-fib or Pulseless V-tach)*.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Consider 20mL/kg fluid bolus to rule out hypovolemia/dehydration as cause of tachycardia.
4. Obtain **12-Lead EKG**, transmit EKG and **Contact Medical Control** as soon as possible.

## Wide Complex Tachycardia Protocol

### ALS Care (continued)

5. **Adenosine (Adenocard): Only for regular and monomorphic**  
6mg IV {rapid IV push} if the patient is alert and oriented, has a systolic BP greater than 100mmHg, has a HR greater than 150bpm and is *obviously* not in atrial fibrillation or atrial flutter.
  - If no response after 1-2 *minutes*, administer 12mg IV {rapid IV push}.
  - If no response after 1-2*additional minutes*, administer a repeat dose of 12mg IV {rapid IV push}.
6. **Amiodarone:** 150mg IV **administered over 10 minutes** if the rhythm is regular and monomorphic. Administration may be repeated as needed if rhythm recurs.
7. **Midazolam (Versed):** 2mg IV/IO for patient comfort during synchronized cardioversion. Re-check vital signs 5 minutes after administration. May repeat dose one time if systolic BP > 100mmHg and respiratory rate is > 10 rpm. Additional doses require Medical Control order.  
  
**Midazolam (Versed):** Intranasal if unable to obtain IV access. (See intranasal dosing sheet).
8. **Synchronized Cardioversion:** If the patient has an altered level of consciousness, diaphoresis, chest pain or discomfort, pulmonary edema and/or is hypotensive:
  - a) Synchronized cardioversion at **100 Joules\*\*** if tachycardia persists.
  - b) Synchronized cardioversion at **200 Joules\*\*** if tachycardia persists.
  - c) Synchronized cardioversion at **300 Joules\*\*** if tachycardia persists.
  - d) Synchronized cardioversion at **360 Joules\*\*** if tachycardia persists.
9. **Contact Medical Control** as soon as possible.
10. If the patient becomes pulseless at any time, refer to the *Resuscitation of Pulseless Rhythms Protocol (V-fib or Pulseless V-tach)*.

\*\*Or biphasic equivalent

## Wide Complex Tachycardia Protocol

### Critical Thinking Elements

- Monitor the patient for respiratory depression when administering sedatives.
- Monitor respiratory status, SPO2 and or Waveform Capnography if available.
- Factors to consider during the assessment of the patient with tachycardia include: patient health & physical condition, trauma or injury related to the event, current medications and medical history.
- Assess for underlying causes (*e.g.* hypovolemic shock) and treat according to protocol.
- If the patient becomes pulseless at any time, refer to the “V-fib and Pulseless V-tach” section of the *Resuscitation of Pulseless Rhythms Protocol*.
- The goal of the EMT-B is to obtain a 12-Lead EKG and transmit it to the receiving hospital as soon as possible.
- 10 minutes is the goal for EKG to be performed at all levels.
- Monomorphic Ventricular Tachycardia means the appearance of all beats match each other.

## Implanted Cardiac Defibrillator (AICD) Protocol

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to treat for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Initiate ALS intercept and transport as soon as possible.

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. **Ondansetron (Zofran):** 4mg PO orally disintegrating tablet for nausea and vomiting
4. **Fentanyl:** 50mcg IV, over 2 minutes for pain. Fentanyl 50mcg IV may be repeated every **5 minutes** to a total of 200mcg.

**Fentanyl:** 50mcg IM if unable to establish IV access

**Fentanyl:** IN (See Intranasal Fentanyl Dosing Chart)

## Implanted Cardiac Defibrillator (AICD) Protocol

### ILS Care (continued)

5. Initiate ALS intercept and transport as soon as possible (*transport can be initiated at any time during this sequence*) and contact the receiving hospital as soon as possible.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Treat arrhythmias per applicable protocol and transport as soon as possible.
4. **Ondansetron (Zofran):** 4mg IV over 2 minutes for nausea and /or vomiting.

**Ondansetron (Zofran):** 4mg IM

**Ondansetron (Zofran):** 4mg PO orally disintegrating tablet

5. **Fentanyl:** 50mcg IV, over 2 minutes for pain. Fentanyl 50mcg IV may be repeated every *5 minutes* to a total of 200mcg.

**Fentanyl:** 50mcg IM if unable to establish IV access

**Fentanyl:** IN (See Intranasal Fentanyl Dosing Chart)

6. Contact the receiving hospital as soon as possible.
7. If the patient becomes pulseless at any time, refer to the *Resuscitation of Pulseless Rhythms Protocol*.

## Implanted Cardiac Defibrillator (AICD) Protocol

### Critical Thinking Elements

- Any patient who has been shocked by an AICD should be strongly encouraged to seek medical attention and closely monitored en route regardless of patient condition.
- If the AICD is malfunctioning, alert Medical Control as early as possible so that a round magnet can be available upon arrival.
- If a patient is unresponsive and pulseless, CPR must be initiated. If the AED recognizes a shockable rhythm, the shock should be delivered (even though the patient has an AICD).
- Avoid placing the Quick Combo pad or Fast Patches directly over the AICD unit as this could damage the device and reduce the efficacy of external defibrillation.
- Slightly alter pad placement if initial defibrillation is unsuccessful.
- **In patients with known renal failure, the Fentanyl dose must be reduced to 25mcg. The dose may be repeated one time to a maximum dose of 50mcg.**
- An implanted cardiac defibrillator (AICD) is a device that delivers an internal defibrillation (shock) whenever the patient's heart rate exceeds defined limits for > 10 seconds. Persons in contact with the patient at the time the device delivers the defibrillation will receive a shock of approximately 3 Joules. This energy level constitutes **NO DANGER** to EMS personnel.
- Avoid use of Zofran in patients with congenital long QT syndrome as these patients are at particular risk for Torsades de Pointes

## Manual Defibrillation Procedure

Electrical defibrillation is recognized as the most effective method of terminating ventricular fibrillation. It is a vital link in the chain of survival in the case of sudden death. Defibrillation is accomplished by passage of an appropriate electrical current through the heart, sufficient to depolarize a critical mass of the left ventricle.

1. **Two (2) minutes of CPR** should be performed prior to defibrillation attempts.
2. Turn on the monitor/defibrillator.
3. Apply the Quick Combo pads or Fast Patches with cables as soon as possible. The pads must be attached to the defibrillator cables prior to placement on the patient's chest.
4. The negative electrode should be placed to the right of the upper sternum just below the right clavicle and the positive electrode should be placed laterally to the left nipple in the midaxillary line (approximately 2-3 inches below the left armpit).
5. For adults, **defibrillate per manufacturer's recommendations** for biphasic monitors (or **360 Joules** for monophasic monitors). *If using paddles instead of pads, 25 pounds of pressure must be applied to each paddle when defibrillating.*
6. Make sure no personnel are directly or indirectly in contact with the patient. Emphasize your intention to defibrillate by loudly stating "CLEAR!" and then deliver the shock.
7. **Immediately perform 2 minutes of CPR** and re-evaluate patient/rhythm.
8. If patient remains in V-fib or pulseless V-tach, **defibrillate per manufacturer's recommendations** for biphasic monitors (or **360 Joules** for monophasic monitors).
9. **Immediately perform 2 minutes of CPR** and re-evaluate patient/rhythm every 2 minutes.
10. Follow appropriate protocols for rhythm changes.

### Critical Thinking Elements

- Patients with AICDs or pacemakers are treated the same as any other patient. However, do not place the electrodes (defibrillation pads) over the AICD or pacemaker site.
- Adjust the pads as necessary. Anterior-posterior placement may be necessary. Position the positive pad on the anterior chest just to the left of the sternum and place the negative pad posteriorly just to the left of the spinal column.
- Shocks delivered to the patient prior to arrival should be taken into consideration during the transition of care. Crews may want to utilize the AED equipment and personnel for subsequent defibrillation.
- **If the cardiac arrest is witnessed by EMS personnel, start CPR and defibrillate immediately after Fast Patches or Quick Combos are placed.**

## Automated Defibrillation Procedure

Electrical defibrillation is recognized as the most effective method of terminating ventricular fibrillation. It is a vital link in the chain of survival in the case of sudden death. Defibrillation is accomplished by passage of an appropriate electrical current through the heart, sufficient to depolarize a critical mass of the left ventricle.

1. **Two (2) minutes of CPR** should be performed prior to defibrillation attempts.
2. The AED should be applied using adult pads if the patient has no pulse and is breathless. *Pediatric pads should be used on children between **ages 1-8** (or adult pads in the anterior/posterior position if pediatric pads are unavailable).*
3. Turn the AED on.
4. Apply the Quick Combo pads or Fast Patches with cables as soon as possible. The pads must be attached to the defibrillator cables prior to placement on the patient's chest.
5. The negative electrode should be placed to the right of the upper sternum just below the right clavicle and the positive electrode should be placed laterally to the left nipple in the midaxillary line (approximately 2-3 inches below the left armpit).
6. Make sure no personnel are directly or indirectly in contact with the patient when the AED is analyzing. Emphasize your intention to analyze by loudly stating, "CLEAR! ANAYLYZING!" and analyze in accordance with product specifications.
7. If the AED indicates "*SHOCK ADVISED*", call out "CLEAR!" check for the safety of others and push the shock button.
8. **Immediately perform 2 minutes of CPR** and re-evaluate patient/rhythm.
9. If patient remains in V-fib or pulseless V-tach, **defibrillate per manufacturer's recommendations** for a biphasic AED (or **360 Joules** for a monophasic AED).
10. **Immediately perform 2 minutes of CPR** and re-evaluate patient/rhythm every 2 minutes.
11. If the patient regains a pulse at any time during resuscitation, then maintain the airway and assist ventilations.
12. Re-analyze the patient's rhythm with the AED if the patient returns to a pulseless state. Shock if indicated.
13. Immediately turn care over to the transporting provider or ALS intercept crew upon their arrival.
14. Complete all necessary documentation.

## Automated Defibrillation Procedure

### Critical Thinking Elements

- **If the cardiac arrest is witnessed by EMS personnel, start CPR and defibrillate immediately after Fast Patches or Quick Combos are placed.**
- If a pulse is felt at any time, transport the patient without delay.
- Maintain frequent pulse checks. If at any time you cannot find a pulse, push “ANALYZE” and/or repeat the AED procedure for analyzing.
- If only 1 rescuer is available with an AED: verify unresponsiveness, open the airway, give 2 breaths & check pulse. If cardiac arrest is confirmed, attach the AED and proceed with the algorithm.
- **DO NOT analyze or shock in a moving ambulance!**

## Transition of AED Care Procedure

It is recognized that early defibrillation is a very important treatment for the cardiac arrest patient. A smooth transition of care between providers is both encouraged & expected and is essential for optimum patient care.

1. Arriving EMS personnel should ask for a quick report from the AED user and perform a rapid assessment.
2. AED personnel can be utilized to provide defibrillation during the arrest. However, if the manual mode is activated, ILS/ALS personnel must then operate the defibrillator. *Arriving EMS personnel are encouraged to utilize AED responders for efficiency in coordinating patient care.*
3. Situations when the AED may need to be removed immediately (and ALS monitor applied) include: patients needing transcutaneous pacing, patients needing synchronized cardioversion or in the event a spontaneous pulse returns.
4. When changing to manual defibrillation, attach cables to the patient prior to disconnecting the AED.

## Cardioversion Procedure

Electrical cardioversion is the therapy of choice for hemodynamically unstable ventricular or supraventricular tachydysrhythmias with a pulse. Synchronization of the delivered energy reduces the potential for induction of V-fib that can occur when electrical energy impinges on the relative refractory period of the cardiac cycle.

1. Apply Quick Combo pads or Fast Patches according to protocol and apply regular limb leads.
2. Push the synchronize sensor button on the defibrillator.
3. Confirm that the monitor is sensing “R” waves on the monitor screen (this is denoted by the darker mark on the screen with each complex).
4. Select the appropriate energy setting: 100J, 200J, 300J, 360J (or biphasic equivalent).
5. Press the charge button.
6. Depress the discharge buttons simultaneously and wait for the shock to be delivered.
7. Note the rhythm and treat according to the appropriate protocol.
8. If the patient becomes pulseless at any time, turn off the synchronizer circuit and refer to the *Resuscitation of Pulseless Rhythms Protocol*.

### Critical Thinking Elements

- The energy levels vary in accordance with protocol for the presenting rhythm.
- Administration of **Versed** IV/IO or IN may be necessary.
- The synchronizer circuit **MUST** be activated.
- There may be a delay between pressing the discharge buttons and delivery of the countershock due to the synchronization process.
- You must apply the limb leads so the monitor can sense the rhythm and deliver the shock at the same time.

## Transcutaneous Pacing (TCP) Procedure

Transcutaneous pacing (TCP) is used to deliver an electrical stimulus to the heart that acts as a substitute for the heart's conduction system and is intended to result in cardiac depolarization and myocardial contraction.

TCP should be utilized for patients with symptomatic bradycardia, namely Type II 2<sup>nd</sup> Degree AV Block and 3<sup>rd</sup> Degree AV Block (Complete Heart Block).

1. Confirm the presence of the arrhythmia and the patient's hypoperfusion status.
2. Initiate *Routine ALS Care*, including application of the cardiac monitor using the regular limb leads.
3. Apply the pacing pads to the patient using anterior-posterior placement. Place the negative electrode on the anterior chest between the sternum and left nipple (the upper edge of the pad should be below the nipple line). Place the positive electrode on the left posteriorly to the left of the spine beneath the scapula.
4. Activate the pacer mode and observe a marker on each QRS wave. If the marker is not present, adjust the EKG size.
5. Set the target rate at **70 bpm**.
6. Set the current at **minimum** to start.
7. Activate the pacer and observe pacer spikes.
8. Increase the current slowly until there is evidence of electrical and mechanical capture.
9. Palpate patient's pulse and check BP.
10. If the patient is conscious, you may administer **Versed** 2mg IV/IO for patient comfort.
11. **Midazolam (Versed)**: Versed Intranasal may also be used if unable to give IV Versed. (See intranasal dosing sheet).
12. Document the patient's rhythm, vitals & tolerance of pacing and report the results to Medical Control.

### Critical Thinking Elements

- Monitor the patient for respiratory depression when administering narcotics.
- Consider the use of Waveform Capnography if available.
- Oxygenate and monitor Pulse OX.
- Remember to evaluate the effectiveness of external pacing by assessing the electrical capture (presence of pacer spikes on the EKG) and mechanical capture (presence of a pulse).
- The 2010 American Heart Association (AHA) ACLS Guidelines **do not** recommend transcutaneous pacing for agonal rhythms or cardiac arrest

## 12-Lead EKG Procedure

Early identification of cardiac infarction is crucial. The benefits of thrombolytic therapy are time-dependent and the 12-Lead EKG may provide early recognition of acute myocardial infarction (AMI).

dd

Indications for a 12-Lead EKG include (but are not limited to):

- Chest pain / discomfort
- Epigastric pain
- Shortness of breath
- Syncope (or near-syncope)
- Pulmonary edema / Cardiogenic shock
- Wide complex tachycardia
- Symptomatic bradycardia
- Stroke
- Altered level of consciousness (ALOC)
- Vague “unwell” symptoms in diabetic and elderly patients.

Upon determining that a patient has a complaint or symptoms that indicate performing a 12-Lead:

1. Initiate *Routine ALS Care* and **obtain 12-Lead EKG as soon as possible**.
2. Transmit the EKG and **contact the receiving hospital** as soon as possible.
3. **Contact Medical Control** if patient is in a **wide complex tachycardia** or for consultation/orders when needed.
4. Upon arrival at the emergency department, a copy of the 12-Lead EKG should be given to the accepting nurse with request for physician review as soon as possible.
5. Copies of the 12-Lead EKG must be included with the patient care record.

### Critical Thinking Elements

- Communicate ST elevation MI (STEMI) early in radio transmission to the receiving hospital or Medical Control. (STEMI Alert).
- Communicate acute stroke / suspected stroke early in radio transmission to the receiving hospital or Medical Control (Stroke code = 333).

## **MEDICAL & RESPIRATORY PROTOCOLS**

## Respiratory Distress Protocol

Correct management of the patient in respiratory distress is dependent on identifying the etiology of the distress and recognizing the degree of the patient's distress. Signs and symptoms of respiratory distress may include:

- Shortness of breath
- Difficulty speaking
- Altered mental status
- Diaphoresis
- Use of accessory muscles
- Retractions
- Respiratory rate less than 8 or greater than 24

**If the etiology is questionable or your assessment does not provide a clear etiology, consult Medical Control for direction in patient care.**

### Asthma and COPD

In addition to general signs & symptoms of respiratory distress, patients may present with inspiratory & expiratory wheezing and/or “tight” lung sounds with decreased air movement.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to treat for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support with BVM if necessary.

## Respiratory Distress Protocol

### Asthma and COPD (continued)

#### BLS Care (continued)

- Proventil (Albuterol):** 2.5mg in 3mL normal saline **mixed with Ipratropium (Atrovent):** 0.5mg via nebulizer over 15 minutes. May repeat Albuterol 2.5mg with Atrovent 0.5mg every **15 minutes** as needed (**with Medical Control order**).
- Consider waveform capnography
- CPAP:** If the systolic BP > 100mmHg
  - If the systolic BP is between 90-100mmHg, **contact Medical Control** prior to initiating CPAP
  - Do Not** initiate CPAP if the systolic BP is less than 90mmHg
  - See CPAP protocol**
- Initiate ALS intercept if needed and transport as soon as possible.
- Contact receiving hospital as soon as possible or Medical Control if necessary.

#### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

- Render initial care in accordance with the *Universal Patient Care Protocol*.
- Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
- Proventil (Albuterol):** 2.5mg in 3mL normal saline **mixed with Ipratropium (Atrovent):** 0.5mg via nebulizer over 15 minutes. May repeat Albuterol 2.5mg with Atrovent 0.5mg in **15 minutes (with Medical Control order)**. In-line nebulizer may be utilized if patient is unresponsive or in respiratory arrest.
- Consider waveform capnography

## Respiratory Distress Protocol

### Asthma and COPD (continued)

### ILS Care (continued)

5. **CPAP:** If the systolic BP > 100mmHg
  - a. If the systolic BP is between 90-100mmHg, **contact Medical Control** prior to initiating CPAP
  - b. **Do Not** initiate CPAP if the systolic BP is less than 90mmHg
  - c. **See CPAP protocol**
6. Contact the receiving hospital as soon as possible or Medical Control if necessary.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. **Proventil (Albuterol):** 2.5mg in 3mL normal saline **mixed with Ipratropium (Atrovent):** 0.5mg via nebulizer over 15 minutes. Repeat Albuterol 2.5mg with Atrovent 0.5mg every **15 minutes** as needed. In-line nebulizer may be utilized if patient is unresponsive or in respiratory arrest.
4. Consider waveform capnography
5. **CPAP:** If the systolic BP > 100mmHg.
  - If the systolic BP is between 90-100mmHg, **contact Medical Control** prior to initiating CPAP.
  - **Do not** initiate CPAP if the systolic BP is less than 90mmHg.
  - **See CPAP protocol**
6. Patients with persistent respiratory distress consider **Solu-Medrol:** 125mg IV push

## Respiratory Distress Protocol

### Asthma and COPD (continued)

#### ALS Care (continued)

- Epinephrine 1:1000:** 0.3mg IM if the patient is suffering status asthmaticus and does not improve with Albuterol/Atrovent treatment.
  - Special consideration should be given to administering Epinephrine if the patient is > 40 years old, has an irregular heart rate, has a heart rate > 150bpm or has a history of heart disease or hypertension. *Consult Medical Control prior to administration if the patient meets any of these criteria.*
- Transport as soon as possible.
- Contact the receiving hospital as soon as possible.

### CHF / Pulmonary Edema

In addition to general signs & symptoms of respiratory distress, patients may present with rales (or “crackles”), pedal edema, distended neck veins (JVD), orthopnea and tripod positioning.

#### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to treat for shock.

- Render initial care in accordance with the *Universal Patient Care Protocol*.
- Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.

#### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to treat for shock and preparing the patient for or providing transport.

- Render initial care in accordance with the *Universal Patient Care Protocol*.
- Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

## Respiratory Distress Protocol

### CHF / Pulmonary Edema (continued)

#### BLS Care (continued)

3. **Nitroglycerin (NTG)**: 0.4mg SL. May repeat every **3-5 minutes** to a total of 3 doses (if systolic BP remains > 100mmHg).
4. Consider waveform capnography
5. **CPAP**: If systolic BP > 100mmHg
  - If the systolic BP is between 90-100mmHg, **contact Medical Control** prior to initiating CPAP
  - **Do not** initiate CPAP if the systolic BP is < 90mmHg
6. Obtain **12-Lead EKG** and transmit to the receiving hospital as soon as possible.
7. Initiate ALS intercept and transport as soon as possible.

#### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. **Nitroglycerin (NTG)**: 0.4mg SL (1 metered spray dose sublingually). May repeat every **3-5 minutes** to a total of 3 doses (if systolic BP remains > 100mmHg).
4. Consider waveform capnography
5. **CPAP**: If systolic BP > 100mmHg
  - If the systolic BP is between 90-100mmHg, **contact Medical Control** prior to initiating CPAP
  - **Do not** initiate CPAP if the systolic BP is < 90mmHg
6. Obtain **12-Lead EKG** and transmit to the receiving hospital as soon as possible.

## Respiratory Distress Protocol

### CHF / Pulmonary Edema (continued)

#### ILS Care (continued)

7. **Nitropaste (Nitro-Bid)**: 1 inch to anterior chest wall if the patient's systolic BP is > 100mmHg.
8. Contact receiving hospital as soon as possible.
9. Initiate ALS intercept if needed and transport as soon as possible.

#### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. **Nitroglycerin (NTG)**: 0.4mg SL (1 metered spray dose sublingually). May repeat every **3-5 minutes** to a total of 3 doses (if systolic BP remains > 100mmHg).
4. Consider waveform capnography
5. **CPAP**: If systolic BP > 100mmHg
  - If the systolic BP is between 90-100mmHg, **contact Medical Control** prior to initiating CPAP
  - **Do not** initiate CPAP if the systolic BP is < 90mmHg
6. Obtain **12-Lead EKG** and transmit to the receiving hospital as soon as possible.
7. **Nitropaste (Nitro-Bid)**: 1 inch to anterior chest wall if patient's systolic BP is greater than 100mmHg.
8. Transport as soon as possible.
9. Contact receiving hospital as soon as possible.

## Respiratory Distress Protocol

### Critical Thinking Elements

- Solu-Medrol should **NOT** be administered to patients with fever, hyperglycemia, and who have the signs and symptoms of sepsis.
- Constant reassessment of the respiratory distress patient is imperative to assure that the patient has adequate ventilation and oxygenation. Closely monitor the patient's response to treatment rendered.
- Patients in respiratory distress should be transported in an upright position to assist their respiratory effort.
- CPAP is very effective in the treatment of CHF / Pulmonary Edema and should be applied as soon as possible unless contraindicated.
- CPAP should not be initiated on patients with a systolic BP < 90mmHg. CPAP increases intrathoracic pressure and can decrease venous return to the heart (compromising the patient's perfusion). Consult with Medical Control and use CPAP cautiously if the systolic BP is between 90-100mmHg for the same reason.

## CPAP Procedure

CPAP (Continuous Positive Airway Pressure) can be applied to achieve PEEP (Peak End Expiratory Pressure) for any adult patient presenting with respiratory distress. The patient cannot have stridor, airway obstruction, and must be alert and able to adequately ventilate spontaneously in order for CPAP to be initiated.

1. Assess vital signs.
2. If the systolic BP is between 90-100mmHg, **contact Medical Control** prior to initiating treatment.
3. Connect generator to oxygen outlet and adjust flow rate to desired PEEP
4. Apply and secure mask to the patient's face
5. Treat continuously while en route to the receiving facility.
6. Obtain and record vital signs every 5 minutes.
7. In case of life-threatening complications:
  - a) Stop CPAP treatment.
  - b) Offer reassurance.
  - c) Institute appropriate BLS & ALS support per protocol.
  - d) Adverse reactions to CPAP are to be documented on an Incident Report and forwarded to the PAEMS Quality Assurance Coordinator within 24 hours of occurrence.
  - e) On arrival at the receiving hospital, immediately communicate any adverse reactions to emergency department staff.
8. Documentation in the patient care record should include:
  - a) Detailed description of initial assessment findings.
  - b) Vitals, including pulse oximetry, prior to initiating CPAP.
  - c) Vitals (& pulse oximetry) every 5 minutes.
  - d) Patient response to treatment (positive effects, no change or adverse reaction).

### CONTRAINDICATIONS FOR CPAP

Systolic BP < 90mmHg  
Severe cardiorespiratory instability and impending arrest  
Respiratory or cardiac arrest  
Patients with stridor or airway obstruction  
Upper airway abnormalities or trauma  
Penetrating chest trauma  
Compromised thoracic organs  
Persistent nausea & vomiting  
Gastric distention  
Obtunded patient / Questionable ability to protect airway

## Altered Level of Consciousness (ALOC) Protocol

A patient with an altered level of consciousness (ALOC) may present with a variety of symptoms from minor thought disturbances & confusion to complete unresponsiveness. The causes of ALOC include cardiac emergencies, hypoxia, hypoglycemia/diabetic emergencies, epilepsy/seizures, alcohol/drug related emergencies, trauma, sepsis, stroke or any other condition which disrupts brain perfusion.

ALOC can be the presenting symptom for many disease processes. Syncope is another type of ALOC and is characterized as an acute, temporary suspension of consciousness. Near-syncope (feeling faint) is a sensation of impending loss of consciousness that may rapidly progress to unconsciousness.

A patient who has experienced syncope or ALOC of any type should receive a thorough evaluation for secondary injuries (*e.g.* fall injuries associated with the ALOC) and for possible underlying causes. Although a patient's ALOC may be resolved in the field, the patient should still be strongly encouraged to accept EMS care and ambulance transport to the hospital for further evaluation.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.
3. Perform **blood glucose test**.
4. **Oral Glucose:** 15g PO if the patient's blood sugar is <60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
5. **Narcan:** 2mg IN (1mg per nostril) if suspected narcotic overdose with respiratory depression ( $\leq 8$  breaths per minute).

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

## Altered Level of Consciousness (ALOC) Protocol

### BLS Care (continued)

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Perform **blood glucose level test**.
4. **Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
5. Perform a 2<sup>nd</sup> **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Oral Glucose. If blood sugar remains < 60mg/dL, administer a 2<sup>nd</sup> dose of Oral Glucose (15g).
6. **Glucagon:** 1mg IM or 2mg IN (1mg per nostril) if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.
7. **Narcan:** 2mg IN (1mg per nostril) if suspected narcotic overdose with respiratory depression ( $\leq$  8 breaths per minute). May repeat 2mg IN if no response in 10 minutes.
8. Initiate ALS intercept if needed and transport as soon as possible.
9. Contact the receiving hospital as soon as possible.

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Perform **blood glucose level test**.
4. **Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

## Altered Level of Consciousness (ALOC) Protocol

### ILS Care (continued)

**Dextrose 50%:** 25g IV if blood sugar is < 60mg/dL **or** 60-80mg/dL & patient is symptomatic.

**Glucagon:** 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

5. Perform a 2<sup>nd</sup> **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if BS is still < 60mg/dL.
6. **Narcan:** 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes. May repeat 2mg IV or IM if no response in **5 minutes**.

**Narcan:** 2mg IN if unable to establish IV access.

7. Obtain **12-Lead EKG** and transmit to receiving hospital if non-opiate overdose (or opiate overdose unresponsive to Narcan) or if cause of ALOC is uncertain.
8. Initiate ALS intercept if needed and transport as soon as possible.
9. Contact the receiving hospital as soon as possible or Medical Control if necessary.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Perform **blood glucose level test**.
4. **Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

**Dextrose 50%:** 25g IV if blood sugar is < 60mg/dL **or** 60-80mg/dL & patient is symptomatic.

## Altered Level of Consciousness (ALOC) Protocol

### ALS Care (continued)

**Glucagon:** 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

5. Perform a 2<sup>nd</sup> **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if BS is < 60mg/dL.
6. **Narcan:** 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes. May repeat 2mg IV or IM if no response in **5 minutes**.

**Narcan:** 2mg IN if unable to establish IV access.

7. Obtain **12-Lead EKG** and transmit to receiving hospital if non-opiate overdose (or opiate overdose unresponsive to Narcan) or if cause of ALOC is uncertain.
8. Transport and contact receiving hospital as soon as possible.

### Critical Thinking Elements

- Look for Medic Alert tags.
- Consider possible C-spine injury and follow C-spine precautions as necessary.
- Be prepared for possible vomiting after administration of Glucagon.
- Vitals and GCS should be recorded every 5 minutes.
- After administration of Dextrose, allow 2 minutes before administration of Narcan.
- No intercept is required if the patient becomes alert/oriented after the administration of Oral Glucose or Glucagon unless the patient has a condition that warrants intercept.
- Signs/symptoms of hypoglycemia include: Weakness/shakiness, tachycardia, cold/clammy skin, headache, irritability, ALOC/bizarre behavior or unresponsive.
- No 12-Lead EKG is necessary for known etiologies such as hypoglycemia, opiate overdose responsive to Narcan or febrile illness.
- **ILS / ALS:** If a patient refuses transport after administration of D<sub>50</sub> (& is CA+Ox3), the call may be treated as a low risk refusal as long as the following criteria are met (and documented in the PCR):
  - The cause of the patient's hypoglycemia can be easily explained (*e.g.* patient took insulin but did not eat).
  - The patient has no other complaints and no other issues are identified after a thorough evaluation (including a full assessment, vitals and repeat blood sugar).
  - EMS advises patient/family that the patient needs to consume foods containing complex carbohydrates & protein within the next 15 minutes (assist patient if needed prior to departing the scene).

## Suspected Stroke Protocol

A stroke or “brain attack” is a sudden interruption in blood flow to the brain resulting in neurological deficit. It affects 750,000 Americans each year, is the 3<sup>rd</sup> leading cause of death and is the leading cause of adult disability. With new treatment options available, EMS personnel should alert Medical Control as quickly as possible whenever a potential stroke patient is identified.

The most common causes of a stroke are:

- Cerebral thrombosis (a blood clot obstructing the artery).
- Cerebral embolus (a mass or air bubble obstructing the artery).
- Cerebral hemorrhage (ruptured artery / ruptured aneurysm).

Signs & symptoms of a stroke include:

- Hemiplegia (paralysis on one side of the body)
- Hemiparesis (weakness on one side of the body)
- Decreased sensation or numbness without trauma
- Facial droop
- Unequal grips
- Dizziness, vertigo or syncope
- Aphasia or slurred speech
- ALOC or seizures
- Sudden, severe headache with no known cause
- Visual disturbances (e.g. blurred vision, double vision)
- Generalized weakness
- Frequent or unexplained falls

Risk factors that increase the likelihood of stroke are:

- Hypertension
- Atherosclerosis / coronary artery disease
- Atrial fibrillation
- Hyperlipidemia
- Diabetes
- Vasculitis
- Lupus

To facilitate accuracy in diagnosing stroke and to expedite transport, an easy-to-use neurological examination tool is recommended. Although there are several different types available, the most “user-friendly” is the *Cincinnati Prehospital Stroke Scale*.

## Suspected Stroke Protocol

### Cincinnati Prehospital Stroke Scale / FAST

#### Cincinnati Prehospital Stroke Scale

**Facial Droop** (*ask the patient to show their teeth or smile*):

- Normal – Both sides of the face move equally.
- Abnormal – One side of the face does not move as well as the other.

**Arm Drift** (*ask the patient to close their eyes and hold both arms out straight for 10 seconds*):

- Normal – Both arms move the same or do not move at all.
- Abnormal – One arm does not move or one arm drifts downward compared to the other.

**Speech** (*ask the patient to say, "The sky is blue in Cincinnati"*):

- Normal – The patient says the phrase correctly with no slurring of words.
- Abnormal – The patient slurs words, uses the wrong words or is unable to speak.

## FAST Test

Facial Droop

Arm Drift

Speech Abnormalities

Time of Onset

## Suspected Stroke Protocol

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Perform **blood glucose test**.
4. **Oral Glucose:** 15g PO if the patient's blood sugar is <60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
5. Check and record vital signs every **5 minutes** until the transporting unit arrives.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 6 L/min via nasal cannula if the patient has a patent airway and SpO<sub>2</sub> is >95%. If SpO<sub>2</sub> is <95%, administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
3. Perform **blood glucose level test**.
4. **Oral Glucose:** 15g PO if the patient's blood sugar is <60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
5. **Glucagon:** 1mg IM or 2mg IN (1mg per nostril) if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.
6. Initiate ALS intercept if needed and **transport without delay**.

## Suspected Stroke Protocol

### BLS Care (continued)

7. Check and record vital signs and GCS every **5 minutes**.
8. Contact receiving hospital as soon as possible to notify of possible stroke if **FAST** exam is positive (based on 1 or more elements of the exam) and communicate the **time of onset**.

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen**: 6 L/min via nasal cannula if the patient has a patent airway and SpO<sub>2</sub> is >95%. If SpO<sub>2</sub> is <95%, administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
3. Obtain **12-Lead EKG** and transmit to receiving hospital.
4. Perform **blood glucose level test**.
5. **Oral Glucose**: 15g PO if the patient's blood sugar is <60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

**Dextrose 50%**: 25g IV if blood sugar is <60mg/dL.

**Glucagon**: 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

6. Perform a 2<sup>nd</sup> **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if BS is still < 60mg/dL.
7. **Midazolam (Versed)**: 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every **5 minutes** as needed to a total of 10mg.

**Midazolam (Versed)**: 5mg IM if the patient is seizing and attempts at IV access have been unsuccessful. May repeat dose one time in **15 minutes** if the patient is still seizing.

## Suspected Stroke Protocol

### ILS Care (continued)

**Midazolam (Versed):** Intranasal if unable to obtain IV access. (See intranasal dosing sheet).

8. Initiate ALS intercept if needed and **transport without delay**.
9. Check and record vital signs and GCS every 5 minutes.
10. Contact receiving hospital as soon as possible to notify of possible stroke if **FAST** exam is positive (based on 1 or more elements of the exam) and communicate the **time of onset**.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 6 L/min via nasal cannula if the patient has a patent airway and SpO<sub>2</sub> is >95%. If SpO<sub>2</sub> is <95%, administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient's respirations with BVM (and intubate) if necessary and have suction readily available.
3. Obtain **12-Lead EKG** and transmit to receiving hospital.
4. Perform **blood glucose level test**.
5. **Oral Glucose:** 15g PO if the patient's blood sugar is <60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

**Dextrose 50%:** 25g IV if blood sugar is <60mg/dL.

**Glucagon:** 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

6. Perform a 2<sup>nd</sup> **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if BS is still < 60mg/dL.

## Suspected Stroke Protocol

### ALS Care (continued)

7. **Narcan:** 2mg IV/IM/IN if no response to Dextrose or Glucagon within 2 and narcotic overdose is suspected. May repeat if no response in **5 minutes**.

8. **Midazolam (Versed):** 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every **5 minutes** as needed to a total of 10mg.

**Midazolam (Versed):** 5mg IM *if the patient is seizing and attempts at IV access have been unsuccessful*. May repeat dose one time in **15 minutes** if the patient is still seizing to a total of 10mg.

**Midazolam (Versed):** Intranasal if unable to obtain IV access. (See **Versed Intranasal Dosing Sheet**).

9. Transport without delay.

10. Check and record vital signs and GCS every **5 minutes**.

11. Contact receiving hospital as soon as possible to notify of possible stroke if **FAST** exam is positive (based on 1 or more elements of the exam) and communicate the **time of onset**.

## Suspected Stroke Protocol

### Critical Thinking Elements

- Stroke onset time (defined as the last time the person was known to be normal) is key in determining the eligibility of IV TPA. EMS personnel should ask family members or bystanders the stroke onset time if the patient is unable to provide that information.
- IV TPA must be given within **180 minutes** of the onset of ischemic stroke so do not delay transport. **TIME IS BRAIN!!**
- Interventional angiography can be performed up to **6 hours** after onset of symptoms.
- Maintain the head/neck in neutral alignment. Elevate the head of the cot 30 degrees if the systolic BP is > 100mmHg (*this will facilitate venous drainage and help reduce ICP without reducing cerebral perfusion pressure*).
- Bradycardia may be present in a suspected stroke patient due to increased ICP. **Do NOT give Atropine if the patient's BP is normal or elevated.** Contact Medical Control for consultation.
- Spinal immobilization should be provided if the patient sustained a fall or other trauma.
- Monitor and maintain the patient's airway. Have suction readily available.
- Communicate acute stroke/suspected stroke early in radio transmission to the receiving hospital or Medical Control (Stroke code = 333).
- Document in the PCR whether the FAST exam is negative or positive. If positive, document "FAST exam positive" along with what components make it such (*e.g.* left-sided facial droop, slurred speech, positive arm drift, etc).
- Do **NOT** administer Nitroglycerin (NTG) to a suspected stroke patient with elevated blood pressure in attempt to lower blood pressure. NTG may lower cerebral perfusion pressure (CPP) too much and actually increase ischemia to the brain tissue.

## Seizure Protocol

A seizure is a temporary, abnormal electrical activity of the brain that results in loss of consciousness, loss of organized muscle tone and presence of convulsions. The patient will usually regain consciousness within 1 to 3 minutes followed by a period of confusion and fatigue (*post-ictal state*).

Multiple seizures in a brief time span or seizures lasting more than 5 minutes may constitute status epilepticus and require EMS intervention to stop the seizure. Causes of seizures include: epilepsy, stroke, head trauma, hypoglycemia, hypoxia, infection, a rapid change in core body temperature (*e.g.* febrile seizure), eclampsia, alcohol withdraw and overdose.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.
3. Perform **blood glucose level test**.
4. **Oral Glucose:** 15g PO if the patient's blood sugar is  $<60\text{mg/dL}$ , the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
3. Perform **blood glucose level test**.

## Seizure Protocol

### BLS Care (continued)

4. **Oral Glucose:** 15g PO if the patient's blood sugar is <60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
3. **Glucagon:** 1mg IM or 2mg IN (1mg per nostril) if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.
4. Initiate ALS intercept and **transport without delay.**

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

6. Render initial care in accordance with the *Universal Patient Care Protocol*.
7. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
8. Perform **blood glucose level test**.
9. **Oral Glucose:** 15g PO if the patient's blood sugar is <60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.  
**Dextrose 50%:** 25g IV if blood sugar is <60mg/dL.  
**Glucagon:** 1mg IM or 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.
5. Perform a 2<sup>nd</sup> **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if blood sugar is <60mg/dL.
6. **Narcan:** 2mg IV/IM/IN if no response to Dextrose or Glucagon within 2 minutes and narcotic overdose is suspected. May repeat if no response in 5 minutes (**with Medical Control order**)
7. **Midazolam (Versed):** 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every 5 *minutes* as needed to a total of 10mg.

## Seizure Protocol

### ILS Care (continued)

**Midazolam (Versed):** 5mg IM *if the patient is seizing and attempts at IV access have been unsuccessful*. May repeat dose one time in **15 minutes** if the patient is still seizing.

**Midazolam (Versed):** Intranasal if unable to obtain IV access. (See intranasal dosing sheet).

8. Initiate ALS intercept if needed and transport as soon as possible.
9. **Contact Medical Control** as soon as possible.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM (and intubate) if necessary and have suction readily available.
3. Perform **blood glucose level test**.
4. **Oral Glucose:** 15g PO if the patient's blood sugar is <60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.  
  
**Dextrose 50%:** 25g IV if blood sugar is <60mg/dL.  
  
**Glucagon:** 1mg IM or 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.
5. Perform a 2<sup>nd</sup> **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if blood sugar is <60mg/dL.
6. **Narcan:** 2mg IV/IM/IN if no response to Dextrose or Glucagon within 2 minutes and narcotic overdose is suspected. May repeat if no response in 5 minutes (**with Medical Control order**)

## Seizure Protocol

### ALS Care (continued)

7. **Midazolam (Versed)**: 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every **5 minutes** as needed to a total of 10mg.

**Midazolam (Versed)**: 5mg IM *if the patient is seizing and attempts at IV access have been unsuccessful*. May repeat dose one time in **15 minutes** if the patient is still seizing to a total of 10mg.

**Midazolam (Versed)**: Intranasal if unable to obtain IV access. (See **Versed Intranasal Dosing Sheet**).

8. Transport as soon as possible
9. Contact the receiving hospital as soon as possible

## Hypertensive Crisis Protocol

A hypertensive emergency is an elevation of the BP that may result in organ damage or dysfunction. The organs most likely damaged by a hypertensive emergency are the brain, heart and kidneys. Hypertension is also an indication that an underlying condition may exist which is causing the brain to demand more blood from the cardiovascular system. It can also be an indication of head injury with increased ICP, hypoxia or endocrine dysfunction. The goal of treatment is a slow, gradual reduction in BP rather than an abrupt lowering of BP that may cause further neurological complications.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing, has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Check and record vital signs every *5 minutes* until the transporting unit arrives.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 6 L/min via nasal cannula if the patient has a patent airway and SpO<sub>2</sub> is >95%. If SpO<sub>2</sub> is <95%, administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
3. Initiate ALS intercept if needed and **transport suspected stroke patients without delay**.
4. Check and record vital signs and GCS every *5 minutes*.
5. Contact the receiving hospital as soon as possible.

## Hypertensive Crisis Protocol

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 6 L/min via nasal cannula if the patient has a patent airway and SpO<sub>2</sub> is >95%. If SpO<sub>2</sub> is <95%, administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
3. **Midazolam (Versed):** 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every **5 minutes** as needed to a total of 10mg.

**Midazolam (Versed):** 5mg IM *if the patient is seizing and attempts at IV access have been unsuccessful*. May repeat dose one time in **15 minutes** if the patient is still seizing.

**Midazolam (Versed):** Intranasal if unable to obtain IV access. (See intranasal dosing sheet).

4. Initiate ALS intercept if needed and **transport suspected stroke patients without delay**.
5. Check and record vital signs and GCS every **5 minutes**.
6. Contact the receiving hospital as soon as possible or Medical Control if necessary.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 6 L/min via nasal cannula if the patient has a patent airway and SpO<sub>2</sub> is >95%. If SpO<sub>2</sub> is <95%, administer oxygen at 15 L/min via non-rebreather mask.

## Hypertensive Crisis Protocol

### ALS Care (continued)

3. Be prepared to support the patient's respirations with BVM (and intubate) if necessary and have suction readily available.

4. **Midazolam (Versed)**: 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every **5 minutes** as needed to a total of 10mg.

**Midazolam (Versed)**: 5mg IM *if the patient is seizing and attempts at IV access have been unsuccessful*. May repeat dose one time in **15 minutes** if the patient is still seizing to a total of 10mg.

**Midazolam (Versed)**: Intranasal if unable to obtain IV access. (See **Versed Intranasal Dosing Sheet**).

5. **Transport suspected stroke patients without delay.**

6. Check and record vital signs and GCS every **5 minutes**.

7. Contact the receiving hospital as soon as possible.

### Critical Thinking Elements

- Monitor the patient for respiratory depression when administering sedatives.
- Monitor respiratory status, SPO2 and or Waveform Capnography if available.
- A patient with a systolic BP > 150mmHg and/or diastolic BP > 90mmHg without neurological deficit should be considered stable.
- A patient with a diastolic BP > 130mmHg with non-traumatic neurological deficits (e.g. visual disturbances, seizure activity, paralysis, ALOC) and/or chest pain/discomfort and/or pulmonary edema should be considered an acute hypertensive crisis.
- Assess for **chest pain/discomfort and/or pulmonary edema**. If present, treat per appropriate protocol.

## Acute Abdominal Pain Protocol

Abdominal pain may vary from minor discomfort to acute pain. Abdominal pain may indicate inflammation, hemorrhage, perforation, obstruction and/or ischemia of an internal organ. Correct management of the patient in abdominal pain depends on recognizing the degree of distress the patient is suffering and identifying the possible etiology of the distress.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Allow the patient to remain in a position that is most comfortable.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock & preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Allow the patient to remain in a position that is most comfortable.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
4. Initiate ALS intercept if needed and transport as soon as possible.

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Allow the patient to remain in a position that is most comfortable.

## Acute Abdominal Pain Protocol

### ILS Care (continued)

3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
4. **Ondansetron (Zofran):** 4mg PO orally disintegrating tablet for nausea and vomiting
5. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP of at least 100mmHg.
6. **Fentanyl:** 50mcg IV, over 2 minutes for pain. Fentanyl 50mcg IV may be repeated every *5 minutes* to a total of 200mcg.

**Fentanyl:** 50mcg IM, if unable to initiate IV access. May be repeated as needed to a total of 200mcg.

**Fentanyl:** IN (See [Intranasal Fentanyl Dosing Chart](#))

7. Initiate ALS intercept if needed and transport as soon as possible.
8. Contact the receiving hospital as soon as possible.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Allow the patient to remain in a position that is most comfortable.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
4. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP of at least 100mmHg.

## Acute Abdominal Pain Protocol

### ALS Care (continued)

5. **Ondansetron (Zofran):** 4mg IV over 2 minutes for nausea and/or vomiting.

**Ondansetron (Zofran):** 4mg IM

**Ondansetron (Zofran):** 4mg PO orally disintegrating tablet

6. Manage the patient's pain by using one of the following medications

<b>Morphine Sulfate</b>	2-5 mg IV every <b>5 minutes</b> to reduce the patient's anxiety and severity of pain. If unable to establish IV access, may administer Morphine 2-5 mg IM every <b>15 minutes</b> .
<b>Fentanyl</b>	50 mcg IV, over <u>2 minutes</u> for pain. Fentanyl 50 mcg IV may be repeated every <b>5 minutes</b> to a total of 200 mcg.
	<b>If unable to establish IV access</b> , may administer Fentanyl 50 mcg IM or IN. May be repeated as needed to a total of 200 mcg. (See dosing sheets for IN)

## Acute Abdominal Pain Protocol

### Critical Thinking Elements

- Monitor the patient for respiratory depression when administering narcotics.
- If respiratory depression or hypotension occurs after administration of Dilaudid or Fentanyl, ventilate the patient as necessary and administer Narcan.
- Monitor respiratory status, SPO2 and or Waveform Capnography if available.
- Assess for thoracic aortic (aneurysm) rupture or trauma in addition to GI etiologies.
- Assess for leaking or ruptured abdominal aortic aneurysm (AAA). Common signs and symptoms may include previous history un-repaired AAA, abdominal distention, pulsating masses, lower extremity mottling, diaphoresis, anxiety/restlessness and/or sharp “tearing” pain between the shoulder blades or in the lower back.
- Give special attention to female patients of childbearing years. Acute abdominal pain should be considered to be an ectopic pregnancy until proven otherwise.
- Consider possible etiologies and obtain a detailed history & physical exam:
  - Inflammation = slow onset of discomfort, malaise, anorexia, fever & chills.
  - Hemorrhage = steady pain, pain radiating to the shoulders, signs & symptoms of hypovolemia.
  - Perforation = acute onset of severe symptoms and steady pain with fever.
  - Obstruction = cramping pain, nausea, vomiting, decreased bowel activity and upper quadrant pain.
  - Ischemia = acute onset of steady pain (usually no fever noted).
- Do not allow the patient to eat or drink.
- Signs & symptoms of renal calculi (i.e. kidney stone) include: acute & severe flank pain that starts in the back and radiates to the groin, extreme restlessness, hematuria and previous history of kidney stones.
- **In patients with known renal failure, the Fentanyl dose must be reduced to 25mcg. The dose may be repeated one time to a maximum dose of 50mcg.**
- Avoid use of Zofran in patients with congenital long QT syndrome as these patients are at particular risk for Torsades de Pointes

## Acute Nausea & Vomiting Protocol

Acute nausea and vomiting may occur from a variety of illness including, but not limited to:

- Adverse medication effects
- Bowel obstruction
- Increased intracranial pressure
- Intraabdominal emergencies
- Myocardial infarction
- Other cardiac events such as tachydysrhythmias

An attempt at determining potential causes of isolated nausea or vomiting must be made in order to identify potential life threatening conditions.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

6. Render initial care in accordance with the *Universal Patient Care Protocol*.
7. Place the patient in an upright or lateral recumbent position as tolerated.
8. Monitor airway status in vomiting patients as aspiration may occur. Reposition the patient as necessary to maintain a patent airway.
9. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. **Note:** Oxygen by mask may trap secretions and compromise the airway if the patient is actively vomiting.
10. Perform **blood glucose test**.
11. **Oral Glucose:** 15g PO if the patient's blood sugar is <60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock & preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Place the patient in an upright or lateral recumbent position as tolerated.

## Acute Nausea & Vomiting Protocol

### BLS Care (continued)

3. Monitor airway status in vomiting patients as aspiration may occur. Reposition the patient as necessary to maintain a patent airway.
4. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. **Note:** Oxygen by mask may trap secretions and compromise the airway if the patient is actively vomiting
5. Perform **blood glucose level test**.
6. **Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
7. Perform a 2<sup>nd</sup> **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Oral Glucose. If blood sugar remains <60mg/dL, administer a 2<sup>nd</sup> dose of Oral Glucose (15g).
8. **Glucagon:** 1mg IM or 2mg IN (1mg per nostril) if blood sugar is < 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.
9. Initiate ALS intercept if needed and transport as soon as possible.
10. Contact the receiving hospital as soon as possible.

### ILS Care

ILS Care should be focused on continuing or initiating an advanced level of care, identifying potential serious conditions and stabilizing airway and circulation where appropriate.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Place the patient in an upright or lateral recumbent position as tolerated.
3. Monitor airway status in vomiting patients as aspiration may occur. Reposition the patient as necessary to maintain a patent airway.
4. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. **Note:** Oxygen by mask may trap secretions and compromise the airway if the patient is actively vomiting.
5. **Ondansetron (Zofran):** 4mg PO orally disintegrating tablet

## Acute Nausea & Vomiting Protocol

### ILS Care (continued)

5. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP greater than 100mmHg.
6. Perform **blood glucose level test**.
7. **Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

**Dextrose 50%:** 25g IV if blood sugar is < 60mg/dL.

**Glucagon:** 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

8. Perform a 2<sup>nd</sup> **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if BS is < 60mg/dL.
9. Initiate ALS intercept if needed and transport as soon as possible.
10. Contact the receiving hospital as soon as possible.

### ALS Care

ALS Care should be directed at continuing or establishing a more advanced level of care, identifying potential serious conditions, stabilizing airway and circulation where appropriate and providing pharmacological relief from symptoms of nausea and vomiting.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Place the patient in an upright or lateral recumbent position as tolerated.
3. Monitor airway status in vomiting patients as aspiration may occur. Reposition the patient as necessary to maintain a patent airway.
4. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. **Note:** Oxygen by mask may trap secretions and compromise the airway if the patient is actively vomiting.

## Acute Nausea & Vomiting Protocol

### ALS Care (continued)

5. **Ondansetron (Zofran):** 4mg IV over 2 minutes  
**Ondansetron (Zofran):** 4mg IM  
**Ondansetron (Zofran):** 4mg PO orally disintegrating tablet
6. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP greater than 100mmHg.
7. Perform **blood glucose level test**.
8. **Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.  
**Dextrose 50%:** 25g IV if blood sugar is < 60mg/dL.  
**Glucagon:** 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.
9. Perform a 2<sup>nd</sup> **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if BS is < 60mg/dL.
10. Initiate transport as soon as possible.
11. Contact the receiving hospital as soon as possible.

### Critical Thinking Elements

- Avoid use of Zofran in patients with congenital long QT syndrome as these patients are at particular risk for Torsades de Pointes

## Sepsis Protocol

### History

- Age: (Must be  $\geq 18$ )
- Duration/Severity of Fever
- Past Medical History: (Pneumonia, Urinary Tract Infection, Meningitis, Cellulitis, Decubitus Ulcers, recent hospitalization/surgical procedures)
- Medications
- Immunocompromised: (transplant, HIV/AIDS, diabetes, cancer)

### Signs & Symptoms

- Heart Rate  $> 90$
- Respiratory Rate  $> 22$   
Or PaCO<sub>2</sub>  $< 32$ mmHG  
Or Mechanical Ventilation
- Systolic Blood Pressure  $\leq 90$ mmHg
- Hyperthermia or Hypothermia  
Thermometer:  $> 100.4^{\circ}\text{F}/38^{\circ}\text{C}$  or  $< 96.8^{\circ}\text{F}/36^{\circ}\text{C}$   
No Thermometer: Is the skin Hot or Cold?
- Hyperglycemia / Hypoglycemia
- Altered Mental Status / Decreased Level of Consciousness
- Already treating infection

### Differential Diagnosis

- Cancer/Tumors/Lymphomas
- Medication or Drug Reaction
- Hyperthyroid
- Meningitis
- Hyperglycemia

Universal Patient Care Protocol

Contact, Droplet and Airborne Precautions

### $\geq 2$ Criteria

- Heart rate  $> 90$  beats per minute
- Respiratory rate  $> 22$  or PaCO<sub>2</sub>  $< 32$  or mechanical ventilation
- Hyperthermia or Hypothermia ( $>100.4^{\circ}\text{F}$  or  $<96.8^{\circ}\text{F}$ )
- Systolic blood pressure  $\leq 90$ mmHg

+1

Chief complaint suggestive of infection and/or Altered Mental Status (AMS)?

- Yes
- AMS or decreased Level of Consciousness (LOC)
- Already treating infection

Respiratory / Ventilatory Insufficiency?

If Available measure End-Tidal CO<sub>2</sub>

**Oxygen:** 15L via non-rebreather mask or 6L via nasal cannula if the patient cannot tolerate the mask.

**IV:** Initiate 20ml/kg normal saline bolus  
(May repeat to maintain systolic blood pressure  $> 90$ mmHg)

**Blood Glucose Analysis:**

(If  $< 60$  mg/dL → ALOC Protocol)

### Critical Thinking Elements

- Recommended exam: mental status, HEENT, skin, neck, heart, lungs, abdomen, extremities, neuro
- Check and record vital signs every **5 minutes**
- Keep patient warm if skin feels cold or (if thermometer is available) temp is  $<96.8$  F/36 C
- Contact receiving hospital as soon as possible to notify of possible adult sepsis patient
- Systolic blood pressure  $<90$ mmHg or Mean Arterial Pressure (MAP)  $<65$ mmHg  $\text{MAP} = \text{SBP} + (\text{DBP} \times 2) / 3$
- Increased suspicion in an immunocompromised patient with Hyperglycemia without history of Diabetes or Hypoglycemia without history of Diabetes.
- Organ dysfunction can be defined as: respiratory failure, acute renal failure, acute liver failure, altered mental status

## Allergic Reaction / Anaphylaxis Protocol

Allergic reactions can be triggered by virtually any allergen. An allergen is a substance (usually protein-based) which produces a hypersensitive reaction. Drugs, blood products, foods and envenomations are examples of substances which may produce hypersensitive reactions.

Signs & symptoms of a hypersensitive reaction may range from isolated hives to wheezing, shock and cardiac arrest. Anaphylaxis is a life threatening reaction that requires prompt recognition and intervention. An anaphylactic reaction may result in airway compromise and circulatory collapse within minutes.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. **Epi-Pen:** If the patient has a history of allergic reactions and has in their possession a prescribed Epi-Pen, is suffering from hives, wheezing, hoarseness, hypotension, ALOC or indicates a history of anaphylaxis, assist the patient with administering the Epi-Pen or **contact Medical Control for orders to administer the Epi-Pen**.
  - This also applies to non-transporting BLS agencies **without** field medications. All other BLS agencies should refer to the **BLS Care** section.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Initiate ALS intercept and transport as soon as possible.

## Allergic Reaction / Anaphylaxis Protocol

### BLS Care (continued)

4. **Epinephrine: Epi-Pen** 0.3mg IM or **1:1000** 0.3mg IM if the patient has a history of allergic reactions and/or is suffering from hives, wheezing, hoarseness, hypotension, ALOC or indicates a history of anaphylaxis.
5. **Proventil (Albuterol):** 2.5mg in 3mL normal saline **mixed with Ipratropium (Atrovent):** 0.5mg via nebulizer over 15 minutes. May repeat Albuterol 2.5mg with Atrovent every *15 minutes* as needed (**with Medical Control order**).
6. **Contact Medical Control** as soon as possible.

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Initiate ALS intercept and transport as soon as possible.
4. **Epinephrine: Epi-Pen** 0.3mg IM or **1:1000** 0.3mg IM if the patient has a history of allergic reactions and/or is suffering from hives, wheezing, hoarseness, hypotension, ALOC or indicates a history of anaphylaxis.
5. **Benadryl:** 50mg IV or IM for severe itching and/or hives.
6. **Proventil (Albuterol):** 2.5mg in 3mL normal saline **mixed with Ipratropium (Atrovent):** 0.5mg via nebulizer over 15 minutes. May repeat Albuterol 2.5mg with Atrovent 0.5mg in *15 minutes* (**with Medical Control order**). In-line nebulizer may be utilized if patient is unresponsive or in respiratory arrest.
7. **IV Fluid Therapy:** 20mL/kg fluid bolus if patient is hypotensive to achieve a systolic BP of at least 100mmHg.
8. **Contact Medical Control** as soon as possible.

## Allergic Reaction / Anaphylaxis Protocol

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM (or intubate) if necessary.
3. **Epinephrine 1:1000:** 0.3-0.5mg IM if the patient has respiratory distress (inspiratory & expiratory wheezing, stridor and/or laryngeal edema), hypotension and/or ALOC.
4. **Benadryl:** 50mg IV or IM for severe itching and/or hives.
5. **Proventil (Albuterol):** 2.5mg in 3mL normal saline mixed with **Ipratropium (Atrovent):** 0.5mg via nebulizer over 15 minutes. May repeat Albuterol 2.5mg with Atrovent 0.5mg every **15 minutes**. In-line nebulizer may be utilized if patient is unresponsive or in respiratory arrest.
6. **Solu-Medrol:** 125mg IV
7. **IV Fluid Therapy:** 20mL/kg fluid bolus if patient is hypotensive to achieve a systolic BP of at least 100mmHg.
8. Transport as soon as possible.
9. Contact the receiving hospital as soon as possible.

## Drug Overdose and Poisoning Protocol

Poisoning may occur by ingesting, injecting, inhaling or absorbing a harmful substance or a substance in harmful quantities. Due to the magnitude and multiplicity of agents that are toxic or could be used as toxins, this protocol focuses on a general approach to the patient who has taken an overdose or has been exposed to a toxic agent. The substance container may have vital information for resuscitation of a poisoned patient. Communication with Medical Control is the best way to obtain rapid and accurate advice on treatment guidelines for specific substances.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Consider possible scene & patient contamination and follow agency safety procedures.
2. Render initial care in accordance with the *Universal Patient Care Protocol*.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. **Narcan:** 2mg IN (1mg per nostril) if suspected narcotic overdose with respiratory depression ( $\leq 8$  breaths per minute)

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Consider possible scene & patient contamination and follow agency safety procedures.
2. Render initial care in accordance with the *Universal Patient Care Protocol*.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. **Narcan:** 2mg IM or 2mg IN (1mg per nostril) if suspected narcotic overdose with respiratory depression ( $\leq 8$  breaths per minute). May repeat 2mg IN if no response in 10 minutes.

## Drug Overdose and Poisoning Protocol

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Consider possible scene & patient contamination and follow agency safety procedures.
2. Render initial care in accordance with the *Universal Patient Care Protocol*.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
4. **Narcan:** 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes and narcotic overdose is suspected. May repeat 2mg IV or IM if no response in **5 minutes (with Medical Control order)**.

**Narcan:** 2mg IN if unable to obtain IV access.

5. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP of at least 100mmHg.
6. Initiate ALS intercept if needed and transport as soon as possible.
7. Contact the receiving hospital as soon as possible or Medical Control if necessary.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM (or intubate) if necessary.
3. Consider possible scene & patient contamination and follow agency safety procedures.
4. **Narcan:** 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes and narcotic overdose is suspected. May repeat 2mg IV or IM if no response in **5 minutes (with Medical Control order)**.

## Drug Overdose and Poisoning Protocol

### ALS Care Continued

**Narcan:** 2mg IN if unable to obtain IV access.

- Sodium Bicarbonate:** 50meq IV/IO if known tricyclic antidepressant (TCA) or known Aspirin (ASA) overdose.
- IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP of at least 100mmHg.
- Transport as soon as possible and contact the receiving hospital as soon as possible.

### Critical Thinking Elements

- Overdose patients should not be allowed to refuse treatment and transport.
- DO NOT** give a suspected poisoning patient anything by mouth.
- Caustic substances are those which have strong acid or alkali properties and usually cause intra-oral burns, painful swallowing or burning/painful regurgitation.
  - Common Acids:** Hydrochloric Acid (swimming pool and toilet bowl cleaners), Sulfuric Acid (battery acid), Acetic Acid and Phenol.
  - Common Bases (Alkali):** Lye (washing powders and paint removers), drain pipe cleaners (Drano), disk batteries, bleach, ammonia, polishes, dyes and jewelry cleaners.
- Patients who overdose on TCAs may initially appear well but may rapidly deteriorate. Monitor closely for ALOC and cardiovascular instability. Tachycardia and a widened QRS complex are generally signs of a life-threatening ingestion.
  - Common TCAs:** Amitriptyline, Elavil, Doxepin, Imipramine, Clomipramine, etc.
- Narcotic and benzodiazepine overdoses do not generally cause abrupt changes in consciousness except when combined with alcohol use.
  - Common Benzodiazepines:** Valium, Diazepam, Ativan, Lorazepam, Xanax, etc.

## Central Lines and Fistulas Procedure & Protocol (ALS Only)

A pre-existing vascular access device is an indwelling catheter placed into a central vein to provide vascular access for those patients requiring long term intravenous therapy or hemodialysis.

### Central Lines

A central line is an indwelling catheter that provides access to large central veins:

1. **May be used if unable to establish a peripheral IV in patients with a systolic BP < 80mmHg.**
2. **May be used if the patient is in cardiac arrest.**
3. **Do NOT administer benzodiazepines (i.e. Versed) via central line.**
4. **A 10mL syringe or larger must be used** when accessing any central line to prevent excess infusion pressure that could damage the internal wall of the catheter.
5. Always aspirate 5mL of blood from the central line and discard **prior to** administration of medications or IV fluids to remove Heparin from the line.
6. Strictly adhere to aseptic technique when handling a central line:
  - Cleanse injection port **twice** with an alcohol prep (using a new alcohol prep each time) prior to accessing.
7. Do not remove the injection cap.
8. Do not allow IV fluids to run dry.
9. Always expel **all** air from syringes and IV tubing prior to administration.
10. Should damage occur to the external catheter, immediately clamp the catheter between the skin and the damaged area.

## Central Lines and Fistulas Procedure & Protocol (ALS Only)

### Fistulas (“Shunts”)

A fistula (“shunt”) is a surgically created subcutaneous arterio-venous vessel *anastomosis* used for patients requiring hemodialysis and should **NOT** be routinely accessed by prehospital personnel.

1. **May only be used if the patient is in cardiac arrest and peripheral IV, IO or external jugular access cannot be established.**
2. Access must be made using a 14g or 16g IV catheter. Do not use anything smaller.
3. **Do not** use an arm with a fistula, shunt or arterio-venous (AV) graft to obtain a blood pressure.
4. **Do not** use an arm with a fistula, shunt or AV graft to establish peripheral IV access.
5. In the event the shunt tubing is pulled out of the entrance site: apply direct pressure, elevate the arm and transport immediately to the hospital.

### Internal Medi-Ports

Access requires a specialized needle and **cannot be used** by prehospital personnel.

### Critical Thinking Elements

- Patients with advanced renal disease requiring dialysis have special medical needs that may require specific attention in the prehospital setting. These patients are prone to complications such as fluid overload & electrolyte imbalances, especially if they miss a scheduled dialysis treatment.
- Fluid overload may lead to pulmonary edema.
- Hyperkalemia may lead to arrhythmias and cardiac arrest. Monitor dialysis patients closely.
- *Anastomosis* is the surgical connection of two tubular structures.
- Use of the EZ-IO is strongly encouraged over accessing a fistula / shunt.

## **ENVIRONMENTAL EMERGENCIES PROTOCOLS**

## Hazardous Materials Exposure Protocol

Injuries from hazardous materials incidents vary depending on the *manner* of exposure (inhalation, ingestion, injection or absorption), the *type* of material involved (acids, ammonia, chlorine, hydrocarbon solvents, sulfides, organophosphates) and the *amount* of exposure (time & concentration).

Harmful products are widely used in home gardening and cleaning, commercial agriculture and cleaning & industrial operations. Civil defense agencies have indicated the increasing threat concerning the use of *Weapons of Mass Destruction* (WMD) as a foreign and domestic terrorist tool. WMD represent an intentional hazardous materials incident.

Due to the magnitude and multiplicity of hazardous materials, this protocol focuses on a general approach to the patient involved in a hazardous materials incident. The substance container may have vital information for resuscitation of an exposed patient. Communication with Medical Control is the best way to obtain rapid and accurate advice on treatment guidelines for specific materials.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock. Remain uphill, upwind, upstream and upgradient of the incident. Stay out of the “**Hot Zone**” unless trained, equipped and authorized to enter.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Look for possible scene and patient contamination. Follow agency safety procedures.
3. Notify IEMA if needed at 1-800-782-7860.
4. The patient's clothing should be completely removed to prevent continued exposure and the patient decontaminated **prior to** being placed in the ambulance for transport.
5. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.

## Hazardous Materials Exposure Protocol

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport. Remain uphill, upwind, upstream and upgrade of the incident. Stay out of the “Hot Zone” unless trained, equipped and authorized to enter.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Look for possible scene and patient contamination. Follow agency safety procedures.
3. Notify IEMA if needed at 1-800-782-7860.
4. The patient’s clothing should be completely removed to prevent continued exposure and the patient decontaminated **prior to** being placed in the ambulance for transport.
5. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.
6. **Proventil (Albuterol):** 2.5mg in 3mL of normal saline via nebulizer over 15 minutes if the patient has been exposed to an irritant gas (acids, ammonia, chlorine, carbon monoxide). May repeat Albuterol 2.5mg every **15 minutes** as needed (**with Medical Control order**).
7. Initiate ALS intercept if needed and transport as soon as possible. Be alert for suspected organophosphate poisoning (OPP). Signs & symptoms include “SLUDGE” (salivation, lacrimation, urination, defecation, gastroenteritis & emesis). Early indications of OPP include: headache, dizziness, weakness & nausea.
8. **Contact Medical Control** and make sure the receiving hospital is aware of (**prior to arrival at the facility**) the patient’s exposure to hazardous materials and what decontamination procedures were followed at the scene.

## Hazardous Materials Exposure Protocol

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport. Remain uphill, upwind, upstream and upgrade of the incident. Stay out of the "Hot Zone" unless trained, equipped and authorized to enter.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Look for possible scene and patient contamination. Follow agency safety procedures.
3. Notify IEMA if needed at 1-800-782-7860.
4. The patient's clothing should be completely removed to prevent continued exposure and the patient decontaminated **prior to** being placed in the ambulance for transport.
5. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
1. **Proventil (Albuterol):** 2.5mg in 3mL normal saline **mixed with Ipratropium (Atrovent):** 0.5mg via nebulizer over 15 minutes if the patient has been exposed to an irritant gas (acids, ammonia, chlorine, carbon monoxide). Repeat Albuterol 2.5mg with Atrovent 0.5mg in **15 minutes** as needed. (**With Medical Control Order**).
6. **Atropine:** 2mg IV or IM (**with Medical Control order only**) if suspected organophosphate poisoning (OPP) and signs & symptoms of "SLUDGE" are present (salivation, lacrimation, urination, defecation, gastroenteritis & emesis). Early indications of OPP include: headache, dizziness, weakness & nausea. Repeat Atropine 2mg IV or IM every **5 minutes (with Medical Control order)** or until signs & symptoms of "SLUDGE" subside.
7. Initiate ALS intercept and transport as soon as possible.
8. **Contact Medical Control** and make sure the receiving hospital is aware of the patient's exposure to hazardous materials (**prior to arrival at the facility**) and what decontamination procedures were followed at the scene.

## Hazardous Materials Exposure Protocol

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport. Remain uphill, upwind, upstream and upgrade of the incident. Stay out of the "Hot Zone" unless trained, equipped and authorized to enter.

2. Render initial care in accordance with the *Universal Patient Care Protocol*.
3. Look for possible scene and patient contamination. Follow agency safety procedures.
4. Notify IEMA if needed at 1-800-782-7860.
5. The patient's clothing should be completely removed to prevent continued exposure and the patient decontaminated **prior to** being placed in the ambulance for transport.
6. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM (or intubate) if necessary.
7. **Proventil (Albuterol):** 2.5mg in 3mL normal saline **mixed with Ipratropium (Atrovent):** 0.5mg via nebulizer over 15 minutes if the patient has been exposed to an irritant gas (acids, ammonia, chlorine, carbon monoxide). Repeat Albuterol 2.5mg with Atrovent 0.5mg every **15 minutes** as needed.
8. **Atropine:** 2mg IV or IM if suspected organophosphate poisoning (OPP) and signs & symptoms of "SLUDGE" are present (salivation, lacrimation, urination, defecation, gastroenteritis and emesis). Early indications of OPP include: headache, dizziness, weakness & nausea. Repeat Atropine 2mg IV or IM every **5 minutes (with Medical Control order)** or until signs & symptoms of "SLUDGE" subside.
9. Transport as soon as possible.
10. **Contact Medical Control** if needed and make sure the receiving hospital is aware of the patient's exposure to hazardous materials (**prior to arrival at the facility**) and what decontamination procedures were followed at the scene.

## Hypothermic Emergencies Protocol

Injury and illness from environmental exposure varies depending on the *manner* of exposure (wet or dry) and the *amount* of exposure (time, temperature, wind chill factor, and ambient air). Cold weather emergencies range from localized frostbite to severe hypothermia with unresponsiveness and unconsciousness.

The patient's health and predisposing factors may increase the likelihood of environmental illness and injury. Patients suffering from trauma, shock, hypoglycemia and stroke are at greater risk of developing hypothermia. Newborns, infants, drug & alcohol abuse patients and the elderly have increased predisposition to hypothermia. The primary goal in the treatment of the patient at risk for hypothermia is to insulate the patient and prevent further heat loss.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Handle the patient as *gently* as possible.
3. Create a warm environment for the patient. Remove wet or frozen clothing and cover the patient with warm blankets. Prevent re-exposure to cold. Warm packs may be utilized for the neck (posterior), armpits, groin and along the thorax.
4. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
5. Do not rub frostbitten or frozen body parts. Protect injured parts (*e.g.* blisters) with light, sterile dressings and avoid pressure to the area.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Handle the patient as *gently* as possible.

## Hypothermic Emergencies Protocol

### BLS Care (continued)

3. Create a warm environment for the patient. Remove wet or frozen clothing and cover the patient with warm blankets. Prevent re-exposure to cold. Warm packs may be utilized for the neck (posterior), armpits, groin and along the thorax.
4. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
5. Do not rub frostbitten or frozen body parts. Protect injured parts (*e.g.* blisters) with light, sterile dressings and avoid pressure to the area.
6. Treat other symptoms per the appropriate protocol.
7. Initiate ALS intercept if needed and transport as soon as possible.

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Handle the patient as *gently* as possible.
3. Create a warm environment for the patient. Remove wet or frozen clothing and cover the patient with warm blankets. Prevent re-exposure to cold. Warm packs may be utilized for the neck (posterior), armpits, groin and along the thorax.
4. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
5. **IV Fluid Therapy:** 20mL/kg fluid bolus of **warmed** .9% Normal Saline.
6. Do not rub frostbitten or frozen body parts. Protect injured parts (*e.g.* blisters) with light, sterile dressings and avoid pressure to the area.
7. Treat other symptoms per the appropriate protocol.
8. Initiate ALS intercept if needed and transport as soon as possible.

## Hypothermic Emergencies Protocol

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Handle the patient as *gently* as possible.
3. Create a warm environment for the patient. Remove wet or frozen clothing and cover the patient with warm blankets. Prevent re-exposure to cold. Warm packs may be utilized for the neck (posterior), armpits, groin and along the thorax.
4. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
5. **IV Fluid Therapy:** 20mL/kg fluid bolus of **warmed** .9% Normal Saline.
6. Do not rub frostbitten or frozen body parts. Protect injured parts (*e.g.* blisters) with light, sterile dressings and avoid pressure to the area.
7. Treat other symptoms per the appropriate protocol.
8. Transport as soon as possible.

### Critical Thinking Elements

- Do not thaw frozen parts in the field if there is a chance of refreezing. Protect frostbitten areas from refreezing.
- Patients with hypothermia should be considered at high risk for ventricular fibrillation. **It is imperative that these patients be handled gently** and not re-warmed aggressively.
- The presence of delirium, bradycardia, hypotension and/or cyanosis is usually indicative of severe hypothermia (core body temperature of less than 90 degrees Fahrenheit).

## Heat-Related Emergencies Protocol

Injury and illness from heat exposure varies depending on the *manner* of exposure (sun, humidity, exertion) and the *amount* of exposure (time, temperature & ambient air). Heat exposure emergencies range from localized cramping to severe hyperthermia (heat stroke) with unresponsiveness and unconsciousness. The patient's health, predisposing factors and medications may increase the likelihood of heat-related illness. The primary goal in the treatment of the patient at risk for hyperthermia is to cool the patient and restore body fluids.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Move the patient to a cool environment. Remove clothing as necessary to make the patient comfortable. Cold packs may be utilized for the neck (posterior), armpits, groin and along the thorax. Do not cool the patient to a temperature that causes shivering.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Move the patient to a cool environment. Remove clothing as necessary to make the patient comfortable. Cold packs may be utilized for the neck (posterior), armpits, groin and along the thorax. Do not cool the patient to a temperature that causes shivering.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. Treat other symptoms per the appropriate protocol.
5. Initiate ALS intercept if needed and transport as soon as possible.

## Heat-Related Emergencies Protocol

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Move the patient to a cool environment. Remove clothing as necessary to make the patient comfortable. Cold packs may be utilized for the neck (posterior), armpits, groin and along the thorax. Do not cool the patient to a temperature that causes shivering.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP of at least 100mmHg.
5. Treat other symptoms per the appropriate protocol.
6. Initiate ALS intercept if needed and transport as soon as possible.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Move the patient to a cool environment. Remove clothing as necessary to make the patient comfortable. Cold packs may be utilized for the neck (posterior), armpits, groin and along the thorax. Do not cool the patient to a temperature that will cause them to shiver.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP of at least 100mmHg.
5. Treat other symptoms per the appropriate protocol.

## Heat-Related Emergencies Protocol

6. Transport as soon as possible.

### Heat Disorders

**Heat (Muscle) Cramps** – Heat cramps are muscle cramps caused by overexertion and dehydration in the presence of high temperatures. Signs & symptoms include: *Normal or slightly elevated body temperature; generalized weakness; dizziness; warm, moist skin and cramps in the fingers, arms, legs or abdominal muscles.*

**Heat Exhaustion** – Heat exhaustion is an acute reaction to heat exposure and the most common heat-related illness a prehospital provider will encounter. Signs & symptoms include: *Increased body temperature; generalized weakness; cool, diaphoretic skin; rapid, shallow breathing; weak pulse; diarrhea; anxiety; headache and possible loss of consciousness .*

**Heatstroke** – Heatstroke occurs when the body's hypothalamic temperature regulation is lost. Cell death and damage to the brain, liver and kidneys can occur. Signs & symptoms include: *Cessation of sweating; very high core body temperature; hot, usually dry skin; deep, rapid, shallow respirations (which later slow); rapid, full pulse (which later slows); hypotension; confusion, disorientation or unconsciousness and possible seizures.*

**Fever (Pyrexia)** – A fever is the elevation of the body temperature above the normal temperature for that person (~ 98.6° F +/- 2 degrees). Fever is sometimes difficult to differentiate from heatstroke; however, there is usually a history of infection or illness with a fever.

## Burn Protocol

Burn injuries vary depending on the *type* of burn (thermal, electrical, chemical) and the *amount* of exposure (time and depth). Burn injuries range from localized redness to deep tissue destruction and airway compromise. Signs of burn injury include: blisters, pain, tissue destruction, charred tissue and singed hair.

The primary goal in the treatment of the burn patient is to stop the acute burning process by removing the patient from direct contact with the source of the burn and maintaining the patient's body fluids. Special attention should be given to limit further pain and damage of the burn to the patient. However, burn care should not interfere with lifesaving measures.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Make sure the scene is safe to enter.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. **THERMAL BURN TREATMENT:**
  - a) If the burn occurred within the last 20 minutes, reverse the burning process and cool the area by flushing the area with **1 Liter of sterile saline** (or sterile water if sterile saline is not available). The goal of cooling is to extinguish the burning process – not to systemically cool the patient. Fluid application should be held to a minimum and discontinued if the patient begins shivering.
  - b) Remove jewelry and loose clothing. Do not pull away clothing that is stuck to the burn.
  - c) Cover the wound with sterile dressings\*\*\*
  - d) Place a sterile burn sheet on the stretcher. If the patient's posterior is burned, place a sterile burn pad on top of the sheet with the absorbent side toward the patient.
  - e) Place patient on the stretcher.
  - f) Cover the patient with additional sterile burn sheets and blanket to conserve body heat.

## Burn Protocol

### First Responder Care (continued)

#### 5. ELECTRICAL BURN TREATMENT:

- a) Assure that the power service has been cut off and remove the patient from the source of electricity.
- b) Fully immobilize the patient due to forces of electrical current and possible trauma.
- c) Assess for entry and exit wounds. No cooling or flushing is necessary due to the type of burn.
- d) Cover the burn with dry, sterile dressings.
- e) Closely monitor the patient.

#### 6. CHEMICAL BURN TREATMENT:

- a) Consider possible scene and patient contamination and follow agency safety procedures.
- b) Note which chemical agent caused the burn and obtain the MSDS for that chemical (if possible).
- c) The patient's clothing should be completely removed to prevent continued exposure and the patient decontaminated **prior to** being placed in the ambulance for transport.
- d) **Dry chemical powder** should be brushed off before applying water.
- e) Irrigate the patient with sterile water and if the MSDS indicates use of water will not cause an adverse reaction. Body parts should be flushed for at least 1-2 minutes. Do not use sterile saline on chemical burns.
- f) Irrigate burns to the eye with sterile water for at least 20 minutes. Alkaline burns should receive continuous irrigation throughout transport.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Includes all components of *First Responder Care*.
2. Initiate ALS intercept and transport as soon as possible.
3. **Contact Medical Control** as soon as possible for significant burns.

## Burn Protocol

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Includes all components of *First Responder Care*.
2. **IV Fluid Therapy:** 20mL/kg fluid bolus. Repeat if necessary.
3. **Fentanyl:** 50mcg IV, over 2 minutes for pain. Fentanyl 50mcg IV may be repeated every *5 minutes* to a total of 200mcg.

**Fentanyl:** 50mcg IM, if unable to initiate IV access. May be repeated as needed to a total of 200mcg.

**Fentanyl:** IN (See Intranasal Fentanyl Dosing Chart)

4. Initiate ALS intercept and transport as soon as possible.
5. **Contact Medical Control** as soon as possible for significant burns.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Includes all components of *First Responder Care*.
2. Be prepared to intubate if necessary.
3. **IV Fluid Therapy:** 20mL/kg fluid bolus. Repeat if necessary.

## Burn Protocol

### ALS Care (continued)

4. Manage the patient's pain by using one of the following medications.

<b>Morphine Sulfate</b>	2-5 mg IV every <b>5 minutes</b> to reduce the patient's anxiety and severity of pain. If unable to establish IV access, may administer Morphine 2-5 mg IM every <b>15 minutes</b> .
<b>Fentanyl</b>	50 mcg IV, over <u>2 minutes</u> for pain. Fentanyl 50 mcg IV may be repeated every <b>5 minutes</b> to a total of 200 mcg.
	<b>If unable to establish IV access</b> , may administer Fentanyl 50 mcg IM or IN. May be repeated as needed to a total of 200 mcg. (See dosing sheets for IN)

5. Transport and **Contact Medical Control** as soon as possible for significant burns.

## Burn Protocol

### Critical Thinking Elements

- Monitor the patient for respiratory depression when administering narcotics.
- If respiratory depression or hypotension occurs after administration of Dilaudid or Fentanyl, ventilate the patient as necessary and administer Narcan.
- Monitor respiratory status, SPO2 and or Waveform Capnography if available.
- \*\*\*WaterJel<sup>®</sup> may be used for **THERMAL BURNS** (after the burn has been irrigated according to protocol) if it is available:
  1. Open the foil package, unfold dressing and apply to burn. NOTE: Do not remove burned clothing - apply gel-soaked dressing directly on top.
  2. Pour excess gel from the foil package directly onto the burn dressing or surrounding skin.
  3. Loosely wrap sterile gauze over the dressing to hold it in place.
- WaterJel<sup>®</sup> helps reduce pain from burns and cools the skin to help prevent burn progression and helps protect the burn against airborne contamination. It is the only approved commercial burn care product in the Peoria Area EMS System.
- BurnJel<sup>®</sup> contains Lidocaine and may **NOT** be used in the Peoria Area EMS System.
- Treat other symptoms or trauma per the appropriate protocol (*e.g.* if someone suffers from smoke inhalation along with being burned, refer to the *Smoke Inhalation Protocol*).
- IV access should not be obtained through burned tissue unless no other site is available.
- Closely monitor the patient's response to IV fluids and assess for pulmonary edema.
- Closely monitor the patient's airway – have BVM, suction and/or intubation equipment readily available.
- Do not delay transport of a “Load and Go” trauma patient to care for burns.
- For chemical/powder burns, be aware of inhalation hazards and closely monitor for changes in respiratory status.
- **In patients with known renal failure, the Fentanyl dose must be reduced to 25mcg. The dose may be repeated one time to a maximum dose of 50mcg.**

## Smoke Inhalation/Cyanide Poisoning Protocol

Smoke inhalation injury is the result of various inhaled components of combustion and direct thermal injury to the airway. Signs and symptoms include: evidence of exposure to fire, stridor, wheezing, acute upper airway obstruction, chemical pneumonia and non-cardiac pulmonary edema. Effects of the exposure may be immediate or delayed several hours.

Carbon monoxide (CO) poisoning is a common secondary complication to smoke inhalation. Direct exposure to the gas is also common (especially in winter months). Signs and symptoms include: evidence of exposure to fire or natural gases produced by incomplete combustion, headache, dizziness, tinnitus, nausea, weakness, chest pain and ALOC.

Suspect cyanide toxicity in patients who were in enclosed spaces during a fire and have soot in the nares or oropharynx and exhibit altered mental status.

- Disorientation, confusion, and severe headache are potential indications of cyanide poisoning **IN THE SETTING** of smoke inhalation.
- Hypotension without other obvious cause **IN THE SETTING** of smoke inhalation increases the likelihood of cyanide poisoning.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. **Consider intercept.**

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

## Smoke Inhalation/Cyanide Poisoning Protocol

### BLS Care (continued)

2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Initiate ALS intercept and transport as soon as possible.
4. **Proventil (Albuterol):** 2.5mg in 3mL of normal saline via nebulizer over 15 minutes. May repeat Albuterol 2.5mg every **15 minutes** as needed (**with Medical Control order**).
5. Contact the receiving hospital as soon as possible or Medical Control if necessary and consider intercept.

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
7. **Proventil (Albuterol):** 2.5mg in 3mL normal saline **mixed with** **Ipratropium (Atrovent):** 0.5mg via nebulizer over 15 minutes. May repeat Albuterol 2.5mg with Atrovent 0.5mg in **15 minutes (with Medical Control order)**. In-line nebulizer may be utilized if patient is unresponsive or in respiratory arrest.
3. Initiate ALS intercept if needed and transport as soon as possible.
4. Contact the receiving hospital as soon as possible or Medical Control if necessary and consider intercept.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

## Smoke Inhalation/Cyanide Poisoning Protocol

### ALS Care (continued)

2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM (or intubate) if necessary.
3. **If respiratory distress with wheezing or stridor present consider CPAP.** (See CPAP Protocol)
4. **Proventil (Albuterol):** 2.5mg in 3mL normal saline mixed with Ipratropium (Atrovent): 0.5mg via nebulizer over **15 minutes**. Repeat Albuterol 2.5mg with Atrovent 0.5mg every 15 minutes as needed. In-line nebulizer may be utilized if the patient is unresponsive or in respiratory arrest.
5. **If cardiac or respiratory arrest, seizing, or SBP <80 with signs of hypoperfusion after exposure to smoke in an enclosed space:**
  - CyanoKit (Hydroxycobalamin) 5grams IV over 15 minutes. If signs and symptoms persist, a repeat dose can be administered. The infusion rate for the second dose is usually 15 minutes to 2 hours. (Depending on clinical condition). See medication sheet for questions.
6. Transport as soon as possible.
7. Contact the receiving hospital as soon as possible.

## Near Drowning Protocol

Near drowning results from submersion in water or other liquid for a period of time that does not result in irreversible death. The time interval of submersion that causes irreversible death is dependent on several factors such as: temperature of the water, the health of the victim and any trauma suffered during the event. All persons submerged 1 hour or less should be vigorously resuscitated in spite of apparent death. Initial care of the near drowning victim should begin in the water.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.
2. Make sure the scene is safe. Use appropriate personnel and equipment for rescue.
3. Establish and maintain spinal immobilization.
4. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to clear the airway and support the patient's respirations with BVM if necessary.
5. Initiate **CPR** if indicated.
6. Treat respiratory and/or cardiac symptoms per the appropriate protocol.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Includes all components of *First Responder Care*.
2. Consider Proventil (Albuterol) for respiratory distress: Proventil (Albuterol): 2.5 mg in 3mL of normal saline via nebulizer over 15 min. May repeat Albuterol 2.5 mg every 15 minutes as needed. (If wheezes still present)
3. Consider Pulse Oximetry if available.
4. Initiate ALS intercept and transport as soon as possible.

## Near Drowning Protocol

### BLS Care (continued)

5. Contact the receiving hospital as soon as possible.

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Includes all components of *First Responder Care*.
2. Consider Proventil (Albuterol) for respiratory distress: Proventil (Albuterol): 2.5 mg in 3mL of normal saline via nebulizer over 15 min. May repeat Albuterol 2.5 mg every 15 minutes as needed. (If wheezes still present). In-line nebulizer maybe utilized if patient is unresponsive or in respiratory arrest.
3. Consider Pulse Oximetry or Capnography if available.
4. Consider 12 lead EKG.
5. Initiate ALS intercept and transport as soon as possible.
6. Contact the receiving hospital as soon as possible.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Includes all components of *First Responder Care*.
2. Consider Proventil (Albuterol) for respiratory distress: Proventil (Albuterol): 2.5 mg in 3mL of normal saline via nebulizer over 15 min. May repeat Albuterol 2.5 mg every 15 minutes as needed. (If wheezes still present). In-line nebulizer maybe utilized if patient is unresponsive or in respiratory arrest.

## Near Drowning Protocol

### ALS Care (continued)

3. Consider CPAP if available for respiratory distress: If the systolic BP > 100 mmHg.
  - a. If systolic B/P is between 90-100 mmHg, contact Medical Control prior to initiating CPAP.
  - b. **Do not** initiate CPAP if the systolic B/P is less than 90 mmHg.
4. Consider Pulse Oximetry or Capnography if available.
5. Consider 12 lead EKG.
6. Transport as soon as possible.
7. Contact the receiving hospital as soon as possible.

### Critical Thinking Elements:

- Recommended exam: Trauma Survey, Head, Neck, Chest, Abdomen, Pelvis, Back Extremities, Skin, Neuro.
- ***Have a high index of suspicion for possible spinal injuries. All Drowning/Near Drowning patients should be immobilized.***
- With Cold water no time limit (resuscitate all). These patients have an increased chance of survival.
- Some patients may develop delayed respiratory distress.
- All victims should be transported for evaluation due to potential for worsening over the next several hours.

## **TRAUMA PROTOCOLS**

## Universal Trauma Care Protocol

Assessment and management of patients with injury or suspected injury shall be conducted in accordance with ITLS guidelines. Time from injury to definitive trauma center care is a critical factor in the morbidity and mortality of the injured patient. Scene times should be kept to a minimum and the patient should be promptly transported to the trauma center. ***Trauma notification should be made via telemetry as soon as possible.***

### First Responder Care, BLS Care, ILS Care, ALS Care

#### 1. Scene Assessment (Scene Size-Up)

- Ensure scene safety – identify any hazards (e.g. fire, downed power lines, unstable vehicle, leaking fuel, weapons).
- Determine the number of patients.
- Identify the **mechanism of injury** (gunshot wound, vehicle rollover, high speed crash, ejection from the vehicle).
- Identify special extrication needs, if any.
- Call for additional resources if needed.

#### 2. Primary Survey (Initial Assessment)

*The purpose of the primary assessment is for the prehospital provider to rapidly identify and manage life-threatening conditions:*

- Obtain a general impression of the patient's condition.
- Assess, secure and maintain a patent airway while simultaneously using C-spine precautions.
- Assess breathing and respiratory effort:
  - Approximate respiratory rate.
  - Assess quality of respiratory effort (depth of ventilation and movement of air).
  - **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared suction the airway and support the patient's respirations with BVM if necessary.
  - **Needle Chest Decompression (ALS only):** if patient is in severe respiratory distress or cardiac arrest with s/s of tension pneumothorax.
- Assess circulation:
  - Evaluate carotid and radial pulses.
  - Evaluate skin color, temperature and condition.
  - Immediately control major external bleeding.
- **Critical Decision** (based on mechanism of injury & initial exam):
  - Limit scene time to 10 minutes or less if the patient has a significant mechanism of injury or meets "Load & Go" criteria.

## Universal Trauma Care Protocol

### First Responder Care, BLS Care, ILS Care, ALS Care

#### 2. Primary Survey (Initial Assessment) (continued)

- Determine disability (level of consciousness):
  - **A – Alert**
  - **V – Responds to verbal stimuli**
  - **P – Responds to painful stimuli**
  - **U – Unresponsive**
- Expose the patient:
  - Cut the patient's clothing away quickly to adequately assess for the presence (or absence) of injuries.

#### 3. Secondary Survey (Focused History & Physical Exam)

*The secondary survey is a head-to-toe evaluation of the patient. The object of this survey is to identify injuries or problems that were not identified during the primary survey.*

- Examine the head:
  - Search for any soft tissue injuries.
  - Palpate the bones of the face & skull to identify deformity, depression, crepitus or other injury.
  - Check pupils for size, reactivity to light, equality, accommodation, roundness and shape.
- Examine the neck:
  - Examine for contusions, abrasions, lacerations or other injury.
  - Check for JVD, tracheal deviation, deformity.
  - Palpate the c-spine for deformity & tenderness.
- Examine the chest:
  - Closely examine for deformity, contusions, redness, abrasions, lacerations, penetrating trauma or other injury.
  - Look for flail segments, paradoxical movement & crepitus.
  - Auscultate breath sounds.
  - Watch for supraclavicular and intercostals retractions.
- Examine the abdomen:
  - Examine for contusions, redness, abrasions, lacerations, penetrating trauma or other injury.
  - Palpate the abdomen and examine for tenderness, rigidity and distention.
- Examine the pelvis:
  - Examine for contusions, redness, abrasions, lacerations, deformity or other injury.
  - Palpate for instability and crepitus

## Universal Trauma Care Protocol

### First Responder Care, BLS Care, ILS Care, ALS Care

#### 3. Secondary Survey (Focused History & Physical Exam) (continued)

- Examine the back:
  - Log roll with a minimum of 2 rescuers protecting the spine.
  - Look for contusions, abrasions, lacerations, penetrating trauma, deformity or any other injury.
  - Log roll onto long spine board and immobilize.
- Examine the extremities:
  - Examine for contusions abrasions, lacerations, penetrating trauma, deformity or any other injury.
  - Manage injuries en route to the hospital.
- Neurological exam:
  - Calculate Glasgow Coma Scale (GCS)
  - Reassess pupils
  - Assess grip strength & equality and sensation.
  - Calculate Revised Trauma Score (RTS)
- Vital signs:
  - Blood pressure
  - Pulse
  - Respirations
  - Pulse Oximetry
- History:
  - Obtain a SAMPLE history if possible.
  - Signs & symptoms
  - Allergies
  - Medications
  - Past medical history
  - Last oral intake
  - Events of the incident
- **Interventions (en route)**
  - Cardiac monitor
  - Blood glucose level
  - IV access / fluid bolus
  - Wound care
  - Splinting

#### 4. Monitoring and Reassessment (Ongoing Assessment)

- Evaluate effectiveness of interventions
- Vital signs every *5 minutes*
- Reassess mental status (GCS) every *5 minutes*

## Universal Trauma Care Protocol

### First Responder Care, BLS Care, ILS Care, ALS Care

#### 5. CONTACT MEDICAL CONTROL VIA TELEMETRY AS SOON AS POSSIBLE

#### Critical Thinking Elements

- Prompt transport with **early** Medical Control contact & receiving hospital notification will expedite the care of the trauma patient.
- IVs should be established en route to the hospital thereby not delaying transport of critical trauma patients (unless scene time is extended due to prolonged extrication).
- Trauma patients should be transported to the closest **most appropriate** trauma center. Medical Control should be contacted immediately if there is ANY question as to which trauma center the patient should be transported to.

## Universal Trauma Care Protocol

### Glasgow Coma Scale

<b>Eye Opening</b>	<b>Spontaneous</b>	<b>4</b>
	<b>To Voice</b>	<b>3</b>
	<b>To Pain</b>	<b>2</b>
	<b>None</b>	<b>1</b>
<b>Verbal Response</b>	<b>Oriented</b>	<b>5</b>
	<b>Confused</b>	<b>4</b>
	<b>Inappropriate Words</b>	<b>3</b>
	<b>Incomprehensible Words</b>	<b>2</b>
	<b>None</b>	<b>1</b>
<b>Motor Response</b>	<b>Obeys Commands</b>	<b>6</b>
	<b>Localizes Pain</b>	<b>5</b>
	<b>Withdraw (pain)</b>	<b>4</b>
	<b>Flexion (pain)</b>	<b>3</b>
	<b>Extension (pain)</b>	<b>2</b>
	<b>None</b>	<b>1</b>
<b>TOTAL</b>		

### Revised Trauma Score

		<u>Score</u>
<b>A. Ventilatory Rate</b>	<b>10-29/min</b>	<b>4</b>
	<b>&gt; 29/min</b>	<b>3</b>
	<b>6-9/min</b>	<b>2</b>
	<b>1-5/min</b>	<b>1</b>
	<b>0</b>	<b>0</b>
<b>B. Systolic Blood Pressure</b>	<b>&gt; 89 mmHg</b>	<b>4</b>
	<b>76-89 mmHg</b>	<b>3</b>
	<b>50-75 mmHg</b>	<b>2</b>
	<b>01-49 mmHg</b>	<b>1</b>
	<b>No pulse</b>	<b>0</b>
<b>C. Glasgow Coma Scale Score</b>	<b>13-15</b>	<b>4</b>
	<b>9-12</b>	<b>3</b>
	<b>6-8</b>	<b>2</b>
	<b>4-5</b>	<b>1</b>
	<b>&lt; 4</b>	<b>0</b>

RTS Total = A+B+C

## Shock Protocol

Common signs and symptoms of shock include:

- Confusion
- Restlessness
- Combativeness
- ALOC
- Pallor
- Diaphoresis
- Tachycardia
- Tachypnea
- Hypotension

Conditions that may indicate impending shock include:

- Significant mechanism of injury
- Tender and/or distended abdomen
- Pelvic instability
- Bilateral femur fractures

“Load & Go” with any trauma patient with signs and symptoms of shock – on scene treatment should be minimal. Conduct a *Primary Survey*, manage the airway, take C-spine precautions & immobilize and control any life-threatening hemorrhage. Contact Medical Control as early as possible.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.
3. Control bleeding using direct pressure, pressure dressings and pressure points.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

## Shock Protocol

### BLS Care (continued)

1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Control bleeding using direct pressure, pressure dressings and pressure points.
4. Initiate ALS intercept and transport as soon as possible.
5. Contact Medical Control as soon as possible.

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Control bleeding using direct pressure, pressure dressings and pressure points.
4. **IV Fluid Therapy:** 20mL/kg fluid bolus if needed to obtain a systolic BP of at least 100mmHg.
5. Initiate ALS intercept if needed and transport as soon as possible.
6. **Contact Medical Control** as soon as possible.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

## Shock Protocol

### ALS Care

1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Control bleeding using direct pressure, pressure dressings and pressure points.
4. **IV Fluid Therapy:** 20mL/kg fluid bolus if needed to obtain a systolic BP of at least 100mmHg.
5. Transport as soon as possible.
6. **Contact Medical Control** as soon as possible.

### Critical Thinking Elements

- Hypotension may not occur in the early stages of shock. However, aggressive therapy is indicated if there is a significant mechanism of injury and/or shock is suspected.
- IV access should be obtained en route and should not delay transport time.
- IV fluid bolus/flow rate should be regulated and patient response to fluid monitored closely.
- If intubation is required, refer to *KING LTS-D Airway Procedure*. Do not attempt to intubate.

## Tranexamic Acid Protocol

### ALS ONLY

Tranexamic Acid (TXA) is a synthetic amino acid (lysine) that blocks plasminogen from being converted to the enzyme plasmin. Plasmin works to break down already-formed blood clots in the human body by attacking and breaking down fibrin destroying clots in a process known as fibrinolysis. TXA is now being used to treat severely injured trauma patients who have or are at risk for severe hemorrhage.

#### Indications:

Any trauma patient  $\geq 14$  years of age, at high risk for ongoing internal hemorrhage and meeting one or more of the following criteria:

- Systolic BP  $< 90$ mmHg
- Patients  $\geq 65$  years of age with systolic BP  $< 110$ mmHg.
- Tachycardia  $> 120$  beats per minute with signs of hypoperfusion (confusion, altered mental status, cool extremities, etc.)

#### Contraindications:

- Injuries  $> 3$  hours old.
- Evidence of Disseminated Intravascular Coagulation (DIC)
- Patients  $< 14$  years of age.
- Hypersensitivity to the drug.

1. **How Supplied:** 10mL vial containing 1000mg
2. **Preparation:** Mix 1000mg of TXA in 250 mL of 0.9% Normal Saline.
3. **Administration:** Infuse over 10 minutes
  - 10 gtts/mL tubing at a drip rate of 4 gtts/second.
  - Infusion pump (if available) at 1500mL/hr.
4. Notify receiving hospital of TXA administration.
5. Clearly document mechanism of injury, time injury/incident occurred, indications for use and time TXA was administered.

**Tranexamic Acid Protocol**  
**ALS ONLY**

**Critical Thinking Elements**

- **TXA should never be administered at a “wide open” rate**
- **Female patients taking or using any form of birth control containing estrogen and progestin are at increased risk for blood clots and this medication significantly increases that risk.**
- Hypotension has been observed when TXA is administered too rapidly.
- Use with caution in patients with a history of DVT, PE, known clotting disorders or severe renal failure
- In patients with DIC, blood clots form throughout the body's small blood vessels reducing or blocking blood flow which may cause a variety of signs/symptoms:
  - **Brain:** Signs of stroke such as speech and movement problems
  - **Legs:** Swelling, redness and warmth
  - **Lungs:** Shortness of breath
  - **Heart:** Chest pain or Myocardial Infarction
  - **Skin:** Petechiae (red spots on the skin that appear like a series of tiny bruises)

## Head Trauma Protocol

Injuries to the head may cause underlying brain tissue damage. Increased intracranial pressure from bleeding or swelling tissue is a common threat after head trauma.

Common signs and symptoms of increased intracranial pressure include:

- Confusion
- ALOC
- Dilated or unequal pupils
- Markedly increased systolic blood pressure
- Decreased pulse (bradycardia)
- Abnormal respiratory patterns

Priorities for the treatment of head injury patients include airway management, maintenance of adequate oxygenation & blood pressure as well as appropriate C-spine control & immobilization.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Be prepared for vomiting and have suction readily available.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. Control bleeding using direct pressure, pressure dressings and pressure points.
5. If patient has an alerted mental status, perform **blood glucose level test**.
6. **Oral Glucose:** 15g PO if the patient's blood sugar is <60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

## Head Trauma Protocol

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.
2. Be prepared for vomiting and have suction readily available.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. Control bleeding using direct pressure, pressure dressings and pressure points.
5. Repeat vital signs, GCS & RTS every *5 minutes*.
6. If patient has an altered mental status, perform **blood glucose level test**.
7. **Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
8. **Glucagon:** 1mg IM or 2mg IN (1mg per nostril) if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.
9. Initiate ALS intercept and transport as soon as possible.
10. **Contact Medical Control** as soon as possible.

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.
2. Be prepared for vomiting and have suction readily available.

## Head Trauma Protocol

### ILS Care (continued)

- Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
- Control bleeding using direct pressure, pressure dressings and pressure points.
- Repeat vital signs, GCS & RTS every *5 minutes*.
- IV Fluid Therapy:** 20mL/kg fluid bolus if needed to obtain a systolic BP of 100mmHg.

If signs of increased ICP are not present and the patient has an altered mental status:

- Perform **blood glucose level test**.
- Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

**Dextrose 50%:** 25g IV if blood sugar is < 60mg/dL.

**Glucagon:** 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

- Narcan:** 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes and narcotic overdose is suspected. May repeat 2mg IV or IM if no response in *5 minutes* (**with Medical Control order**).

**Narcan:** 2mg IN if unable to obtain IV access.

- Initiate ALS intercept if needed and transport as soon as possible.
- Contact Medical Control** as soon as possible.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

## Head Trauma Protocol

### ALS Care (continued)

1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.
2. Be prepared for vomiting and have suction readily available.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. Control bleeding using direct pressure, pressure dressings and pressure points.
5. Repeat vital signs, GCS & RTS every **5 minutes**.
6. **IV Fluid Therapy:** 20mL/kg fluid bolus if needed to obtain a systolic BP of 100mmHg.

If signs of increased ICP are not present and the patient has an altered mental status:

7. Perform **blood glucose level test**.
8. **Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

**Dextrose 50%:** 25g IV if blood sugar is < 60mg/dL.

**Glucagon:** 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

9. **Narcan:** 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes and narcotic overdose is suspected. May repeat 2mg IV or IM if no response in **5 minutes**

**Narcan:** 2mg IN if unable to obtain IV access.

10. **Contact Medical Control** as soon as possible.

## Head Trauma Protocol

### Critical Thinking Elements

- Head trauma patients should receive oxygen to keep SpO<sub>2</sub> > 95%, preferably via NRM. Patients with poor respiratory effort may require ventilation with a BVM at 8-10 breaths/min.
- *Cushing's response* refers to the ominous combination of markedly increased arterial blood pressure and resultant bradycardia indicating cerebral herniation.
- Avoid prophylactic hyperventilation of a head trauma patient as this can cause cerebral vasoconstriction. However, if s/s of increased ICP are present, then controlled hyperventilation may be needed (with Medical Control order) until s/s of increased ICP have subsided:
  - 20 breaths/min for adults
  - 25 breaths/min for children
  - 30 breaths/min for infants
- Deeply comatose patients may require advanced airway placement (GCS < 8). Refer to the King LTS-D *Airway Procedure*.
- Treat for hemorrhagic shock if the patient's systolic BP is < 100mmHg. Hypotension decreases cerebral perfusion and worsens brain injury and must be corrected.

## Spinal Trauma Protocol

Injuries to the spine commonly result from mechanism of injury involving high kinetic energy. Any neurovascular impairment or spinal deformities are indicative of possible spinal trauma.

Mechanisms of injury suggesting possible spinal injury include:

- Falls
- Motor vehicle crashes (MVCs)
- Gunshot wounds to the head, neck or back
- Forceful blows to the head and neck

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Frequently reassess the patient's airway & ventilatory status.
4. Assess and record any pain on palpation of the spine, any motor/sensory deficits of the extremities, abnormal arm position, ptosis and/or priapism.
5. Assess skin for temperature which will initially be warm, flushed and dry (below the point of injury). Cover the patient and keep him/her warm.
6. Assess for neurogenic shock: decreased BP, decreased pulse, & decreased respiratory rate.
7. Fully immobilize the patient and protect paralyzed limbs by securing the patient to the backboard.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

## Spinal Trauma Protocol

### BLS Care (continued)

2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Frequently reassess the patient's airway & ventilatory status.
4. Assess and record any pain on palpation of the spine, any motor/sensory deficits of the extremities, abnormal arm position, ptosis and/or priapism.
5. Assess skin for temperature which will initially be warm, flushed and dry (below the point of injury). Cover the patient and keep him/her warm.
6. Assess for neurogenic shock: decreased BP, decreased pulse, & decreased respiratory rate.
7. Fully immobilize the patient and protect paralyzed limbs by securing the patient to the backboard.
8. Repeat vital signs, GCS & RTS every *5 minutes*.
9. Initiate ALS intercept and transport as soon as possible.
10. **Contact Medical Control** as soon as possible.

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Frequently reassess the patient's airway & ventilatory status.
4. Assess and record any pain on palpation of the spine, any motor/sensory deficits of the extremities, abnormal arm position, ptosis and/or priapism.

## Spinal Trauma Protocol

### ILS Care (continued)

5. Assess skin for temperature which will initially be warm, flushed and dry (below the point of injury). Cover the patient and keep him/her warm.
6. Assess for neurogenic shock: decreased BP, decreased pulse, & decreased respiratory rate.
7. Fully immobilize the patient and protect paralyzed limbs by securing the patient to the backboard.
8. Repeat vital signs, GCS & RTS every *5 minutes*.
9. **IV Fluid Therapy:** 20mL/kg fluid bolus if needed to obtain a systolic BP of at least 100mmHg.
10. Initiate ALS intercept if needed and transport as soon as possible.
11. **Contact Medical Control** as soon as possible.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Frequently reassess the patient's airway & ventilatory status.
4. Assess and record any pain on palpation of the spine, any motor/sensory deficits of the extremities, abnormal arm position, ptosis and/or priapism.
5. Assess skin for temperature which will initially be warm, flushed and dry (below the point of injury). Cover the patient and keep him/her warm.
6. Assess for neurogenic shock: decreased BP, decreased pulse, & decreased respiratory rate.

## Spinal Trauma Protocol

### ALS Care (continued)

7. Fully immobilize the patient and protect paralyzed limbs by securing the patient to the backboard.
8. Repeat vital signs, GCS & RTS every *5 minutes*.
9. **IV Fluid Therapy:** 20mL/kg fluid bolus if needed to obtain a systolic BP of at least 100mmHg.
10. **Dopamine:** If the patient remains hypotensive. Begin infusion at 24gtts/min. Increase by 12gtts/min every *2 minutes* to achieve and maintain a systolic BP of at least 100mmHg. Closely monitor vital signs.
  - *Dopamine is provided premixed (400mg in 250mL D<sub>5</sub>W). This yields a concentration of 1600mcg/mL. The initial rate of infusion is 1-10mcg/kg/min which can be achieved with a 24gtts/min infusion rate.*
11. Transport as soon as possible.
12. **Contact Medical Control** as soon as possible.

## Spinal Care Guidelines

### Purpose:

Spinal motion restriction can prevent spinal cord damage and subsequent paralysis in patients with traumatic injuries. However, spinal motion restriction is not without risks and potential complications such as occipital headaches, pressure sores, and tissue ischemia. The intent of these guidelines is to decrease the injury and discomfort to patients caused by arbitrary spinal motion restriction while ensuring that no spinal injuries are missed.

### Policy:

- Any patient meeting or potentially meeting trauma triage criteria based on the *Field Triage Decision Scheme* and transfers to a trauma center require full spine motion restriction.
- All patients with a definite potential or questionable mechanism of injury (MOI) for head injury or spine injury will be assessed using the *Spine Assessment Procedure*.
- Spine motion restriction may be deferred for patients meeting all exclusion criteria listed in the *Spine Assessment Procedure*.
- Only cervical spine splinting with an appropriate sized C-collar is required for patients who do not fall into trauma triage criteria, but are unable to meet all exclusionary criteria of the *PAEMS Spine Assessment*
  - Long spine board, straps, and head blocks may be used for these patients with the EMS provider's discretion.
- Patients, for whom spinal restriction is deferred, **must meet all** exclusionary criteria as indicated in the *Spine Assessment Procedure*.
- Victims of isolated penetrating trauma to the head, neck, and/or torso **SHOULD NOT** have spine motion restriction applied **unless** there is an obvious neurologic deficit to the extremities or if there is a significant secondary blunt MOI (e.g., falling down stairs after getting shot).
- Pediatric patients will be assessed by the EMS Provider to determine the most appropriate method of spinal immobilization (car seat, towel rolls, cervical collar, KED, or specialized pediatric device).
- If there is any doubt of potential spine injury, initiate spine motion restriction.

### Documentation:

- Prehospital personnel must clearly document all pertinent findings consistent with the assessment of the patient's need, or lack of need, for spine motion restriction.

## Spinal Care Guidelines

### Requirements:

- All EMS providers must successfully complete the didactic & skills training prior to performing the *Spine Assessment Procedure* in the field.
- Documentation of annual competency training for EMS providers and current personnel roster must be submitted to the PAEMS office by all agencies.

## Spinal Assessment Procedure

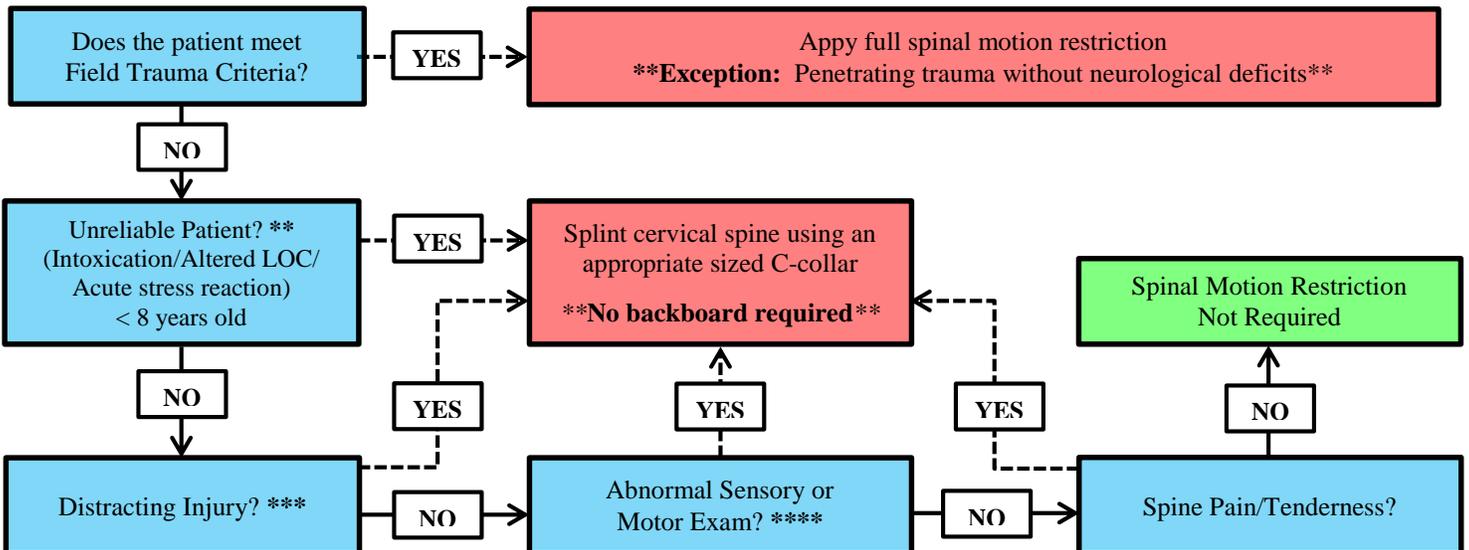
### Indication:

The spine assessment procedure evaluates the risk of spine injury in patients with definite or potential/questionable mechanism of injury. Using evidence-based medicine, this procedure is utilized to balance the risks and benefits of spine motion restriction.

### Procedure:

1. Explain the procedure to the patient. Ensure the patient expresses understanding of the procedure being performed. Patient must be sober and reliable with no distracting injuries.
2. Ask the patient to **verbally** report any pain or tenderness. Emphasize to the patient to not shake or nod their head during questioning.
3. Hold the spine in a neutral position to limit movement.
4. Palpate the midline spine starting at the base of the skull for tenderness and proceed inferiorly along each individual vertebra along the cervical spine. If any evidence of tenderness to palpation, crepitus, or step-off sign is noted, immediately place a cervical splinting device.
5. If no tenderness to palpation, crepitus or step-off sign is present, ask the patient to rotate their head to one side, and if no pain, rotate their head to the other side. For any evidence of pain, immediately place a cervical splinting device.
6. Once the cervical spine has been assessed, the patient may be log rolled to assess the thoracic, lumbar, and sacral spine by palpating each individual vertebra for tenderness, crepitus, or step-off sign.
7. If a C-collar is applied, the patient needs to remain supine. If patient comfort is a factor, the head can be elevated to a maximum of 30 degrees.

Clinical indications: patients with traumatic neck/back pain, head injury or facial trauma, or with a significant or uncertain MOI or high index of suspicion for spinal trauma (e.g. axial load (diving), MVC\* or bicycle, falls...). In high-risk patients (e.g. elderly, osteoporotic, degenerative disorders) less forceful mechanisms can cause significant injuries.



## Spinal Assessment Procedure

### Critical Thinking Elements

- MVC applies to crashes of all motorized vehicles; e.g. automobile, motorcycle, snowmobile, etc.
- Proper assessment of the spine requires the patient to be calm, cooperative, sober, able to understand questioning, and alert without language barrier
- Distracting injury includes any injury that produces clinically apparent pain that might distract the patient from the pain of a spine injury – pain would include medical as well as traumatic etiologies of pain
- Motor: Can the patient move fingers and toes? Can the patient dorsiflex and plantar flex the feet? Are grips strong and equal?
- Sensory: Can the patient feel you touch fingers and toes? Does the unconscious patient respond when you pinch fingers and toes?

## Spinal Motion Restriction Procedure

### Indication:

Spinal injury should be suspected in all patients presenting with

- Head, neck, or facial trauma (i.e., injury above the clavicles)
- ALOC with unknown history of events
- Physical findings suggesting neck or back pain/injury
- High mechanism of injury despite complaints
- Complaints of neck or back pain unrelated to the patient's past medical history
- Complaint of head pain related to trauma
- Unknown mechanism of injury
- Suspected deceleration injuries

### Procedure:

#### Spinal management of patients in a supine position.

1. Immediately establish manual stabilization of the cervical spine.
  - Stabilize the patient's head & neck in a neutral, in-line position by grasping the patient's head along the lateral aspects (and perform a modified jaw thrust if indicated)
2. Apply a rigid C-collar after airway, breathing, and circulatory status have been assessed.
3. Log roll the patient onto a long spine backboard. Assess and document neurovascular status *before and after* immobilization.
4. Secure the patient's torso and extremities to the backboard using spider straps or belts.
5. Reassess (perform ongoing assessment).

#### Spinal management of the patients in a sitting position.

1. Patients found in a sitting position that have a suspected spinal injury should be secured to an extrication device (i.e. KED) prior to being moved. Assess and document neurovascular status *before and after immobilization*.
2. Patients who meet "Load & Go" criteria should be moved using the rapid extrication technique. Proper manual stabilization must be maintained throughout the extrication. Assess and document neurovascular status *before and after* immobilization.
  - Secure neutral, in-line stabilization of the head & neck (as per General Spinal Management).
  - Keeping the patient's spine in a neutral position, pivot the patient in order to place and long backboard under the patient's buttocks and behind his/her back.
  - Lower the patient to the long backboard and secure (as per General Spinal Management).

## Traumatic Arrest Protocol

Resuscitation success rates of trauma patients in cardiac arrest are extremely poor, usually due to prolonged hypoxia. Efforts to resuscitate are more likely to be successful if EMS arrives early in the arrest, understands the differences between traumatic cardiac arrest patients & medical cardiac arrest patients and treatment is directed at identifying & treating the underlying cause. Traumatic arrest is usually caused by airway problems (unmanaged airway during unconsciousness), breathing problems (from chest trauma) and/or circulatory problems (internal or external hemorrhaging).

Patients who are found in **asystole** after massive blunt trauma or penetrating trauma of a vital organ are dead and may be pronounced dead at scene with the concurrence of Medical Control.

### First Responder Care, BLS Care, ILS Care, ALS Care

**First Responder, BLS, ILS & ALS Care** should be focused on rapid assessment confirming that the patient is in cardiac arrest and determine if resuscitation will be attempted. Medical Control must be consulted for death determination on scene. If resuscitative efforts are going to be attempted, begin resuscitation *immediately* and “Load & Go” with the patient.

1. Rapidly assess to determine possible causes of the arrest and determine if resuscitation will be attempted.
2. Initiate cardiac arrest protocols and procedures.
3. Rapidly extricate, fully immobilize and “Load & Go”.
4. “Load & Go” with any type of penetrating trauma.
5. **BLS Care, ILS Care and ALS Care:** Place a **KING LTS-D Airway** using in-line stabilization of the cervical spine or use basic airway control measures.
6. **ILS Care and ALS Care:** Obtain IV access en route to the hospital with a 14g or 16g IV catheter (if possible). A 2<sup>nd</sup> line may be established if time permits.
7. **ILS Care and ALS Care: IV Fluid Therapy:** 20mL/kg fluid bolus to achieve and maintain a systolic BP of at least 100mmHg.
8. **ALS Only: Needle chest decompression** if chest trauma is present and/or the patient is in PEA and tension pneumothorax is suspected.

PEORIA AREA EMS SYSTEM  
PREHOSPITAL CARE MANUAL

**Field Triage Scheme**

Measure vital signs and level of consciousness

**Step One**

- Loss of Consciousness with a persistent altered mental status and/or GCS < 14
- Glasgow Coma Scale < 10
- Systolic Blood Pressure (mmHg) < 90 mmHg
- Respiratory Rate < 10 or > 29 breaths per minute (< 20 in infant aged < 1 year)

Yes

No

Transport to a trauma center. Steps 1 and 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to the highest level of care within the trauma system.

Assess anatomy of injury.

**Step Two**

- All penetrating injuries to head, neck, torso, and extremities proximal to elbow and knee
- Flail chest
- Two or more proximal long-bone fractures
- Crushed, degloved, or mangled extremity
- Amputation proximal to wrist and ankle
- Pelvic fracture
- Open or depressed skull fracture
- Paralysis

Yes

No

Transport to a trauma center. Steps 1 and 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to the highest level of care within the trauma system.

Assess mechanism of injury and evidence of high energy impact.

**Step Three**

- Falls
  - Adults: >20 feet (one story is equal to 10 feet)
  - Children: >10 feet or two or three times the height of the child.
- High-risk Auto Crash
  - Intrusion: >12 inches occupant site; >18 inches any site
  - Ejection (partial or complete) from automobile
  - Death in same passenger compartment
  - Vehicle telemetry data consistent with risk of injury
- Auto vs. pedestrian/bicyclist thrown, run over, or significant (>20 mph) impact
- Motorcycle crash >20 mph

Yes

No

Transport to closest appropriate Trauma Center which, depending on the trauma system, need not be the highest level trauma center.

Assess special patient or system considerations

**Step Four**

- Age
  - Older adults: Risk of injury/death increases after age 55 years
  - Children: Should be triaged preferentially to pediatric-capable trauma centers
- Anticoagulation and bleeding disorders
- Burns
  - Without other trauma mechanism: triage to burn facility
  - With trauma mechanism: triage to trauma center
- Time sensitive extremity injury
- End-stage renal disease requiring dialysis
- Pregnancy >20 weeks
- EMS provider judgment

Yes

No

Contact medical control and consider transport to a trauma center or a specific resource hospital

Transport according to protocol.

## Extremity Injury Protocol

Attention should be given to extremity injuries to limit further damage and discomfort for the patient. However, extremity care should never interfere with lifesaving decisions or interventions and should not delay transport of trauma patients.

Signs of extremity injury include:

- Pain
- Deformity
- Contusion
- Tenderness
- Swelling
- Instability
- Crepitus
- Absence of distal pulses

### First Responder Care, BLS Care, ILS Care, ALS Care

Care should be focused on assessing the situation and initiating care to assure the patient is maintaining an airway, is breathing, has a perfusing pulse and beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Control any external bleeding:
  - a) Apply direct pressure and pressure dressing.
  - b) Elevate the extremity if possible.
  - c) Use pressure points.
  - d) Assess distal pulse, motor & sensation.
4. Splint musculoskeletal injuries:
  - a) Immobilize the joints with a rigid splint above and below the injury for long bone injuries.
  - b) Immobilize the long bones with a rigid splint above and below the injured site for joint injuries.
  - c) Assure the joints and bones are immobilized sufficiently to stabilize the injured structures (especially when using a soft splint or pillow).
  - d) Assess distal pulse, motor & sensation.
5. If the extremity is angulated and no distal pulse is present, reduce by gently applying manual traction until the pulse returns.
  - a) Reassess distal pulse, motor and sensation.

## Extremity Injury Protocol

### First Responder Care, BLS Care, ILS Care, ALS Care

6. Amputation cases:
  - a) Control external bleeding.
  - b) Dress, bandage and/or splint the injured extremity.
  - c) Attempt to recover the severed part:
    - Wrap in sterile gauze, towel or sheet.
    - Wet dressing with sterile water or .9% Normal Saline.
    - Place severed part in waterproof bag or container and seal.
    - Place the bag/container in another container filled with ice or cold water.
    - DO NOT immerse the amputated part in any solutions.
    - DO NOT allow the tissue to freeze.
    - Transport the container with the patient.
7. Initiate ALS intercept if needed and transport as soon as possible.
8. Contact the receiving hospital as soon as possible or Medical Control if necessary.

### ILS Care

1. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to obtain a systolic BP of at least 100mmHg.
2. **Fentanyl:** 50mcg IV, over 2 minutes for pain. Fentanyl 50mcg IV may be repeated every *5 minutes* to a total of 200mcg.  
  
**Fentanyl:** 50mcg IM, if unable to initiate IV access. May be repeated as needed to a total of 200mcg.  
  
**Fentanyl:** IN (**See Intranasal Fentanyl Dosing Chart**)
3. **Ondansetron (Zofran):** 4mg PO orally disintegrating tablet for nausea and vomiting
4. Initiate ALS intercept if needed and transport as soon as possible.
5. Contact the receiving hospital as soon as possible or Medical Control if necessary.

### ALS Care

6. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to obtain a systolic BP of at least 100mmHg.

## Extremity Injury Protocol

### ALS Care (continued)

7. **Ondansetron (Zofran):** 4mg IV over 2 minutes for nausea and/or vomiting.

**Ondansetron (Zofran):** 4mg IM

**Ondansetron (Zofran):** 4mg PO orally disintegrating tablet

3. Manage the patient's pain by using one of the following medications.

<b>Morphine Sulfate</b>	2-5 mg IV every <b>5 minutes</b> to reduce the patient's anxiety and severity of pain. If unable to establish IV access, may administer Morphine 2-5 mg IM every <b>15 minutes</b> .
<b>Fentanyl</b>	50 mcg IV, over <u>2 minutes</u> for pain. Fentanyl 50 mcg IV may be repeated every <b>5 minutes</b> to a total of 200 mcg.
	<b>If unable to establish IV access</b> , may administer Fentanyl 50 mcg IM or IN. May be repeated as needed to a total of 200 mcg. (See dosing sheets for IN)

4. Contact the receiving hospital as soon as possible or Medical Control if necessary.

### Critical Thinking Elements

- **In patients with known renal failure, the Fentanyl dose must be reduced to 25mcg. The dose may be repeated one time to a maximum dose of 50mcg.**
- Avoid use of Zofran in patients with congenital long QT syndrome as these patients are at particular risk for Torsades de Pointes

## Tourniquet Application

Use of tourniquets does not require on-line medical direction however; there may be situations in which medical direction consultation is advised. The goal of tourniquet application is to control hemorrhage. Overall morbidity and mortality, however, is affected by multiple factors related to type of device, application technique, and duration of application. Fortunately, civilian extremity exsanguination is exceedingly rare.

### Indications:

- To control potentially fatal hemorrhage from wounds or traumatic amputations when significant extremity bleeding cannot be stopped using simpler methods.
- Tourniquets may also be indicated in tactical or safety situations, those involving prolonged extrication, remote locations, multiple casualties
- Tourniquets may be considered when treating patients who have had prolonged compression of an entrapped extremity in order to decrease the life-threatening release of Potassium and acids from the ischemic limb.

### Contraindications:

- Venous, bony and small vessel bleeding.
- Tourniquet application is generally unnecessary when wound bleeding is adequately controlled using direct pressure, pressure dressings, elevation, or any other simpler method.
- Non-extremity hemorrhage

### Procedure:

8. Commercially made tourniquets are preferred over improvised devices with the exception of pediatric patients (as there exists no effective commercial device designed for a pediatric patient).\*
9. Apply device approximately 3 inches proximal to wound. If the wound is on a joint, or just distal to the joint, apply the tourniquet above the joint.
10. Tighten until bleeding stops (venous oozing is acceptable) and/or distal pulse is absent.
11. If one tourniquet is not sufficient a second should be applied just proximal to the first.
12. Do not cover the tourniquet with a dressing.
13. Once a tourniquet has been applied, do not remove or loosen it unless ordered by medical direction.
14. Note time of tourniquet application and communicate this to the receiving care providers.
15. Dress wounds per general wound care procedure.
16. Document application time, location, and patient response on the Patient Care Report (PCR)

**\* The commercially made tourniquets recommended in the PAEMS System include the Combat Application Tourniquet (CAT) and the Special Operations Forces Tourniquet (SOFT-T).**

## Tourniquet Application

### Critical Thinking Elements

#### PRECAUTIONS

- A tourniquet applied incorrectly can increase blood loss and lead to death.
- If loosely applied, a tourniquet will obstruct venous outflow from the extremity while not stopping arterial inflow, thus paradoxically increasing bleeding.
- Although unlikely if applied correctly and removed within 1-2 hours, tourniquets may cause nerve and tissue damage.
- Application of a tourniquet in the conscious patient will cause tremendous pain.

#### COMPLICATIONS

- Complications generally occur with applications greater than two hours duration and may be irreversible by six hours.
- Tourniquets may result in local tissue damage (worse with narrow or improvised tourniquets): blisters, nerve damage and gangrene are possible.
- Systemic complications can also occur with prolonged applications from byproducts of ischemia distal to the site: pulmonary emboli, rhabdomyolysis, lactic and respiratory acidosis, dysrhythmias, shock, circulatory overload (in cardiac patients).
- Patients who were in shock before the application of the tourniquet have a much lower survival and the degree of tissue loss will be greater, especially with tourniquet times beyond two hours.

## Needle Thoracentesis Procedure (Needle Chest Decompression **ALS** Only)

Thoracic decompression involves placement of a needle through the chest wall of a critical patient who has a life-threatening tension pneumothorax and is rapidly deteriorating due to intrathoracic pressure.

Signs and symptoms of tension pneumothorax include:

- Restlessness and agitation
- Severe respiratory distress
- Increased airway resistance with ventilations
- JVD
- Tracheal deviation
- Subcutaneous emphysema
- Unequal breath sounds
- Absent lung sounds on the affected side
- Hyper resonance to percussion on the affected side
- Hypotension
- Cyanosis
- Respiratory arrest
- Traumatic cardiac arrest

Initiate *Universal Trauma Care*. If a tension pneumothorax is identified:

1. Locate the 2<sup>nd</sup> intercostal space in the midclavicular line on the side of the pneumothorax.
2. Cleanse the site with providone-iodine preps and maintain as much of a sterile field as possible.
3. Attach a 10-20mL syringe to a 2 inch, 14g IV catheter.
4. Puncture the skin perpendicularly, just superior to the 3<sup>rd</sup> rib (in the 2<sup>nd</sup> intercostal space). Direct the needle just over the 3<sup>rd</sup> rib and into the thoracic cavity. A “pop” should be felt as well as a “rush of air” along with the plunger of the syringe moving outward.
5. Advance the catheter while removing the needle and syringe.
6. Secure the catheter in the chest with a dressing and tape.
7. Monitor the patient **closely** and continue to reassess.

### Critical Thinking Elements

- Nerve bundles and blood vessels are located under the ribs and puncturing them could cause nerve damage and extensive bleeding. Ensure that the puncture is being made over the top of the 3<sup>rd</sup> rib.

## **OB/GYN PROTOCOLS**

## Childbirth Protocol

Childbirth is a natural process. EMS providers called to a woman in labor should determine whether there is enough time to transport the expected mother to the hospital or if delivery is imminent. If childbirth appears imminent, immediately prepare to assist with the delivery.

### First Responder Care, BLS Care, ILS Care, ALS Care

First Responder, BLS, ILS & ALS Care should be focused on assessing the situation, initiating routine patient care and preparing for or providing patient transport. Special attention should be given to the privacy of the mother and concerns of immediate family members should be addressed.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.
3. Obtain a history on the patient including:
  - Gravida (# of pregnancies)
  - PARA (# of live births)
  - Expected delivery date
  - Length of previous labor
  - Complications of previous pregnancies
  - Onset of contractions
  - Prenatal care (if any)
4. Allow the expectant mother to remain in a position that is most comfortable.
5. If delivery is not imminent, transport the patient on her left side.
6. Determine if there is adequate time to transport:
  - a) Assess the nature, extent and time of contractions.
  - b) Assess the patient for high-risk factors.
  - c) Assess the status of the membranes and any discharge.
  - d) Assess for pushing with contractions.
  - e) Take into consideration the length of previous labor.
7. If delivery is imminent:
  - a) DO NOT ATTEMPT TO RESTRAIN OR DELAY DELIVERY
  - b) Position the mother supine on a flat surface if possible.
  - c) Use full PPE – gloves, gown & goggles.
8. **(ILS & ALS) IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to obtain a systolic BP of at least 100mmHg.

## Childbirth Protocol

### First Responder Care, BLS Care, ILS Care, ALS Care

9. Prepare for delivery:
  - a) Control delivery of the head so that it does not emerge too quickly. Support the infant's head as it emerges and protect the perineum with gentle hand pressure.
  - b) Puncture the amniotic membrane with gentle finger pressure if it is still intact and visible outside the vagina.
  - c) Assess for nuchal cord and, if present, gently remove the cord from around the newborn's neck.
  - d) Suction the mouth, then nose of the newborn with a bulb syringe as soon as the head is delivered.
  - e) As the shoulders emerge, guide the head & neck downward to deliver the anterior shoulder. Support and lift the head & neck slightly to deliver the posterior shoulder.
  - f) Ensure a firm hold on the baby as the rest of the newborn's body delivers.
  - g) Keep the newborn level with the mother's vagina until the cord stops pulsating and is double clamped.

### Infant Post Partum Care

1. Begin the *Emergency Childbirth Record*.
2. Continue to suction the nose and mouth. Spontaneous respirations should begin within *15 seconds*.
  - If spontaneous respirations are not present, begin artificial ventilations with BVM & 100% O<sub>2</sub> at 30-40 vpm.
  - If no brachial pulse is present **OR** the pulse is less than 100 bpm, begin CPR.
3. Dry the newborn and wrap in a warm blanket, keeping the baby at the level of the mother's vagina until the cord is clamped and cut.
4. After the umbilical cord stops pulsating, clamp the cord at 3" & at 4" from the newborn's abdomen and cut between the clamps with the sterile scalpel found in the OB kit.
5. Assess the cord for bleeding and note the number of vessels present.
6. Obtain an APGAR score at *1 minute* and again at *5 minutes* after delivery.
7. Place ID tags on the mother and infant with the following information:
  - Name of the mother
  - Sex of the infant
  - Date and time of delivery

## Childbirth Protocol

### Infant Post Partum Care (continued)

8. **DO NOT** separate the mother and infant unless both have ID tags.

### Post Partum Care of the Mother

1. The placenta should deliver within 5-20 minutes. Collect the placenta in a plastic bag and bring it to the hospital with the mother. **DO NOT** pull on the cord to facilitate delivery of the placenta.
2. Do not delay transport for delivery of the placenta.
3. If the perineum is torn and bleeding, apply direct pressure with a 5x9 dressing or trauma dressing and have the patient bring her legs together.
4. Massage the uterus until firm.  
*To massage the uterus, place one hand with fingers fully extended just above the mother's pubic bone and use the other hand to press down into the abdomen and gently massage the uterus approximately 3 to 5 minutes until it becomes firm.*

### Documentation Requirements

1. Completed *Emergency Childbirth Record*
2. Document the date, time and place of delivery
3. Presence or absence of a nuchal cord
  - *If nuchal cord is present, document how many times the cord was wrapped around the baby's neck.*
4. Appearance of the amniotic fluid
5. Time the placenta was delivered and its condition
6. APGAR score at **1 minute** and **5 minutes**
7. Any resuscitation / treatment rendered and newborn response to treatment

## Childbirth Protocol

### High-Risk Pregnancy Factors

- Lack of prenatal care
- Drug abuse
- Teenage pregnancy
- Diabetes
- Hypertension
- Cardiac disease
- Previous breech or C-section delivery
- Pre-eclampsia / Toxemia / Eclampsia
- Twins / Multiple birth pregnancy

### Critical Thinking Elements

- Lower than normal blood pressure and higher than usual heart rate are normal vital sign changes with pregnancy.
- Signs & symptoms of shock in the pregnant patient include a systolic BP less than 90mmHg, lightheadedness and ALOC.
- Average labor lasts 8-12 hours but can be as short as 5 minutes.
- The desire to push during contractions is an indicator that delivery is imminent.
- Be respectful of the expected mother's privacy.
- Assess the patient for peripheral edema. This may indicate Pre-eclampsia / Eclampsia. Monitor patient closely and watch for seizure activity.
- Tag the mother and baby with the same information by wrapping tape around their wrists.
- Green or brown amniotic fluid indicates the presence of Meconium (fetal stool) and should be reported immediately to the receiving facility staff.

## Obstetrical Complications Protocol

Obstetrical complications can rapidly lead to hypovolemic shock and threaten the life of the mother and child. Care should be focused on assessing the situation, initiating routine patient care and beginning treatment for shock. Monitor vitals closely.

### First Responder Care, BLS Care, ILS Care, ALS Care

#### General Guidelines

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Frequently reassess the patient's airway & ventilatory status.

#### Placenta Previa

*Placenta previa* occurs as a result of abnormal implantation of the placenta on the lower half of the uterine wall. Bleeding occurs when the lower uterus begins to contract and dilate in preparation for labor and pulls the placenta away from the uterine wall. The hallmark of *placenta previa* is the onset of painless bright red vaginal bleeding, usually in the 3<sup>rd</sup> trimester of pregnancy.

1. Note the amount of bleeding.
2. Place the patient on her left side.
3. Load and transport as soon as possible.
4. **(ILS & ALS) IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to obtain a systolic BP of at least 100mmHg.
5. **Contact Medical Control** as soon as possible.

## Obstetrical Complications Protocol

### First Responder Care, BLS Care, ILS Care, ALS Care

#### Abruptio Placentae

*Abruptio placentae* is the premature separation of a normally implanted placenta from the uterine wall. Signs and symptoms can vary depending on the extent and character of the abruption.

Central Abruptio (partial abruption): Characterized by a sudden sharp, tearing pain and development of a stiff, board like abdomen but no vaginal bleeding (blood is trapped between the placenta and the uterine wall).

Complete Abruptio Placentae: Characterized by massive vaginal bleeding and profound maternal hypotension.

1. Note the amount of bleeding.
2. Place the patient on her left side.
3. Load and transport as soon as possible.
4. **(BLS)** Initiate ALS intercept.
5. **(ILS & ALS) IV Fluid Therapy**: 20mL/kg fluid bolus if the patient is hypotensive to obtain a systolic BP of at least 100mmHg.
6. Establish a 2<sup>nd</sup> IV en route if time permits.
7. **Contact Medical Control** as soon as possible.

#### Pre-Eclampsia and Eclampsia

*Pre-eclampsia* is defined as an increase in systolic blood pressure by 30mmHg and/or a diastolic increase of 15mmHg over baseline on at least two occasions at least 6 hours apart. *Pre-eclampsia* is most commonly seen in the last 10 weeks of gestation and is thought to be caused by abnormal vasospasm.

Pre-Eclampsia: Characterized by hypertension and edema to the hands and face (and protein in the urine).

## Obstetrical Complications Protocol

### First Responder Care, BLS Care, ILS Care, ALS Care

#### Pre-Eclampsia and Eclampsia (continued)

*Severe Pre-Eclampsia:* Characterized by marked hypertension (160/100 or higher), generalized edema, headache, visual disturbances, pulmonary edema and a dramatic decrease in urine output (along with a significant increase of protein in the urine).

*Eclampsia:* Characterized by generalized tonic-clonic seizure activity often preceded by flashing lights or spots before the eyes. The development of right upper quadrant pain or epigastric pain can also indicate impending seizure.

**Note:** The risk of fetal mortality increases by 10% with each maternal seizure.

1. Assure minimal CNS stimulation to prevent seizures (*i.e.* do not check papillary light reflex).
2. Place the patient on her left side.
3. Load and transport as soon as possible.
4. **(BLS)** Initiate ALS intercept.
5. **(ILS & ALS) IV Fluid Therapy:** TKO.
6. **(ILS & ALS) Midazolam (Versed):** 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every **5 minutes** as needed to a total of 10mg.
  - **Midazolam (Versed):** Versed Intranasal may also be used if unable to give IV Versed. (**See intranasal dosing sheet**).
7. **Contact Medical Control** as soon as possible.

## Obstetrical Complications Protocol

### Ectopic Pregnancy

*Ectopic Pregnancy* refers to the abnormal implantation of the fertilized egg outside of the uterus, usually in the fallopian tube. It can be a life-threatening condition and accounts for approximately 10% of maternal mortality.

### First Responder Care, BLS Care, ILS Care, ALS Care

### Ectopic Pregnancy (continued)

Ectopic pregnancy presents as abdominal pain which starts out as diffuse tenderness and then localizes as a sharp pain in the lower abdomen on the effected side. Assume that any female of childbearing age with lower abdominal pain is experiencing an ectopic pregnancy.

1. Place the patient on her left side.
2. Load and transport as soon as possible.
3. **(BLS)** Initiate ALS intercept.
4. **(ILS & ALS) IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to obtain a systolic BP of at least 100mmHg.
5. **Contact Medical Control** as soon as possible.

## Abnormal Delivery Protocol

### First Responder Care, BLS Care, ILS Care, ALS Care

Abnormal delivery situations can be especially challenging in the pre-hospital setting. Care should be focused on initiating *Routine Patient Care* to treat for shock and rapid transport to the hospital.

#### Breech Presentation

A *breech* presentation is the term used to describe a situation in which either the buttocks or both feet present first.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Load and transport as soon as possible.
4. **(BLS)** Initiate ALS intercept.
5. Never attempt to pull the baby from the vagina by the trunk or legs.
6. As soon as the legs are delivered, support the baby's body (wrapped in a towel).
7. After the shoulders are delivered, gently elevate the trunk and legs to aid in the delivery of the head.
8. The head should deliver in 30 seconds. If it does not – reach 2 fingers into the vagina to locate the infant's mouth. Press the vaginal wall away from the baby's mouth to provide unrestricted respirations.
9. **Contact Medical Control** as soon as possible.

#### Prolapsed Cord

A *prolapsed cord* occurs when the umbilical cord precedes the fetal presenting part. This causes the cord to be compressed between the fetus and the pelvis and blocks fetal circulation. Fetal death will occur quickly without prompt intervention.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.

## Abnormal Delivery Protocol

### First Responder Care, BLS Care, ILS Care, ALS Care

#### Prolapsed Cord (continued)

3. **(BLS)** Initiate ALS intercept.
4. Elevate the mother's hips.
5. **Do not pull on the cord and do not attempt to push the cord back into the vagina.**
6. Place a gloved finger/hand in the vagina between the pubic bone and the presenting part with the cord between the fingers and exert counter pressure against the presenting part.
7. Palpate the cord for pulsations.
8. Keep the exposed cord warm and moist.
9. Keep the hand in position and transport immediately.
10. **Contact Medical Control** as soon as possible.

#### Limb Presentation

Although relatively uncommon, the baby may be lying transverse across the uterus. In these cases, an arm or leg is the presenting part protruding from the vagina and will require delivery by cesarean section. **Under no circumstances should you attempt a field delivery** with a limb presentation.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. **(BLS)** Initiate ALS intercept.
4. Elevate the mother's hips.
5. Avoid touching the limb (doing so may stimulate the infant to gasp). **Do not pull on the extremity and do not attempt to push the limb back into the vagina.**
6. **Contact Medical Control** as soon as possible.

## Rape/Sexual Assault Protocol

Rape and sexual assault are acts of violence and may be associated with traumatic injuries, both external and internal. A thorough assessment of the patient's condition should be done and special attention should be given to the patient's mental health needs as well.

### First Responder Care, BLS Care, ILS Care, ALS Care

Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Treat injuries according to the appropriate protocol.
4. Survey the scene and give special consideration to preserving any articles of evidence on or around the patient.
  - Strongly discourage the patient from urinating, washing/showering or changing clothes.
  - Collaborate with police to determine what articles (*i.e.* clothing) will be transported with the patient.
  - **Do not** physically examine the genital area unless there are obvious injuries that require treatment.
  - All linen used by the patient should be left with the patient in the Emergency Department.
5. Transport the patient and notify law enforcement of patient destination.
6. The following information / telephone numbers regarding services available to victims of abuse shall be offered to all victims of abuse, whether they are treated & transported or if they refuse treatment & transport to the hospital:
  - Center for Prevention of Abuse (309) 691-0551
  - Crime Victims Compensation Program (312) 814-2581

## Rape/Sexual Assault Protocol

The use of drugs to facilitate a sexual assault is occurring with increasing frequency. These drugs can render a person unconscious or weaken the person to the point that they cannot resist their attacker. Some of the drugs can also cause amnesia and the patient will have no memory of the assault. Date rape drugs have a rapid onset and varying duration of effect. It is important for prehospital personnel to be aware of these agents as well as their effects.

### Date Rape Drugs

**Rohypnol** – A potent benzodiazepine that produces a sedative effect, amnesia, muscle relaxation and slowing of psychomotor response. It is colorless, odorless & tasteless and can be dissolved in a drink without being detected. Street names include: *Ruffies, R2, Roofies, Forget-Pill and Roche.*

**GHB** – An odorless, colorless liquid depressant with anesthetic-type qualities. It causes relaxation, tranquility, sensuality and loss of inhibitions. Street names include: *Liquid Ecstasy and Liquid X.*

**Ketamine** – A potent anesthetic agent that is chemically similar to LSD. It causes hallucinations, amnesia and dissociation. Street names include: *K, Special K, Jet and Super Acid.*

**Ecstasy** – Causes psychological difficulties including confusion, depression, sleep problems, severe anxiety and paranoia. It can also cause physical symptoms including muscle tension, involuntary teeth clenching, nausea, blurred vision, faintness, chills and sweating. Street names include: *Beans, Adam, XTC, Roll, E, M and X.*

## **ABERRANT SITUATIONS**

## Domestic and Elder Abuse / Neglect Protocol

Illinois law establishes requirements that any person licensed, certified or otherwise authorized to provide healthcare shall offer immediate and adequate information regarding services available to abuse and neglect victims.

Abuse is defined as physical, mental or sexual injury to (a child or) eligible adult. An eligible domestic partner is defined as a spouse or person who resides in a domestic living situation with another individual suspected of abuse. EMS personnel should not rely on another mandated reporter to file a report on the victim's behalf.

### First Responder Care, BLS Care, ILS Care, ALS Care

Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Maintain control of the scene and request law enforcement if they have not already been called.
3. Survey the scene for evidence of factors that could adversely affect the patient's welfare:
  - Environmental
  - Interaction with family members
  - Discrepancies in history of events
  - Injury patterns that do not correlate with the history of patient use and mobility
  - Signs of intentional injury or emotional harm
4. Treat injuries and/or illness according to protocol.
5. Initiate transport as soon as possible.

### Reporting Methods

The following telephone numbers regarding services available to victims of abuse shall be offered to all victims of abuse whether they are treated & transported or if they refuse treatment & transport to the hospital:

Elderly Abuse Hotline	(800)559-7233
Center for Prevention of Abuse	(309)691-0551
Crime Victims Compensation Program	(800)228-3368

## Behavioral Emergencies / Chemical Restraint Protocol

Behavioral episodes may range from despondent and withdrawn behavior to aggressive and violent behavior. Behavioral changes may be a symptom of a number of medical conditions including head injury, trauma, substance abuse, metabolic disorders, stress and psychiatric disorders. Patient assessment and evaluation of the situation is crucial in differentiating medical intervention needs from psychological support needs.

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as assuring personal safety.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Maintain control of the scene and request law enforcement if needed.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as assuring personal safety and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Maintain control of the scene and request law enforcement if needed.
3. Determine if the patient is a threat to self or others.
4. **Contact Medical Control** as early as possible if **restraints** are needed. An order for restraints is a must.
5. Initiate transport as soon as possible.

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, ensuring personal safety and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Maintain control of the scene and request law enforcement if needed.

## Behavioral Emergencies / Chemical Restraint Protocol

### ILS Care (continued)

3. Determine if the patient is a threat to self or others.
4. If the patient is a threat to self or others, restrain the patient and contact Medical Control as soon as possible. An order for restraints is a must.
  - If after physical restraint the patient is still a risk to self or others consider chemical restraint.
5. **Midazolam (Versed)**: Intranasal Versed may be used for sedation **if absolutely necessary**. (See **intranasal dosing sheet**) **Contact Medical Control** for further orders.
6. Initiate transport as soon as possible.

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, ensuring personal safety and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Maintain control of the scene and request law enforcement if needed.
3. Determine if the patient is a threat to self or others.
4. If the patient is a threat to self or others, **restrain the patient** and **contact Medical Control as soon as possible**. An order for restraints is a must.
  - If after physical restraint the patient is still a risk to self or others, consider chemical restraint
5. **Midazolam (Versed)**: 2mg IV for sedation **if absolutely necessary**. **Contact Medical Control** for further orders.

**Midazolam (Versed)**: 5mg IM for sedation **if absolutely necessary and attempts at IV access have been unsuccessful**. **Contact Medical Control** for further orders.

**Midazolam (Versed)**: Versed Intranasal if unable to obtain IV access. (See **intranasal dosing sheet**).

6. Initiate transport as soon as possible

## Behavioral Emergencies / Chemical Restraint Protocol

### Critical Thinking Elements

- Document the patient's behavior, statements, actions and surroundings.
- Verbally attempt to calm and/or re-orient the patient to reality.
- If restraints are used, thoroughly document the reasons for applying restraints, time of application, condition of the patient before and after application, method of restraint and any law enforcement involvement, including any use of law enforcement equipment (e.g. handcuffs) and the time Medical Control was contacted.
- Consider medical etiologies of apparent behavioral disorders such as **hypoxia**, stroke/head bleed, substance abuse/overdose, and hypoglycemia.

## Excited Delirium Protocol

Excited delirium is a condition in which a person is in a psychotic state and extremely agitated. Mentally the subject is unable to focus and process any rational thought or direct his/her attention to any one thing. Physically, the organs with the subject are functioning at such an excited rate that they begin to shut down. These two factors occurring at the same time cause a person to act erratically enough that they become a danger to themselves and to the public.

Common Signs	Possible Causes
Aggressive, bizarre behavior	Overdose (stimulant or hallucinogenic drugs)
Nakedness	Hypoglycemia
Hyperthermia	Drug withdrawal
Dilated pupils	Head Trauma
Incoherent speech	Illness
Fear and panic	Psychosis
Profuse Sweating	Other Metabolic Conditions
Shivering	Psychiatric patient on/off medications
Inconsistent breathing patterns	
High pain tolerance	

### First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Ensure Scene Safety – Responder safety is the top priority.
2. Render initial care in accordance with the **Universal Patient Care Protocol**.
3. **Oxygen**: Administer utilizing the **Oxygen Therapy Procedure**.
4. Maintain control of the scene and request law enforcement if needed.

## Excited Delirium Protocol

### First Responder Care (continued)

5. Demonstrate Professionalism and Courtesy

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine care to assure a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing for or providing transport.

1. Ensure Scene Safety – Responder safety is the top priority.
2. Render initial care in accordance with the **Universal Patient Care Protocol**.
3. **Oxygen**: Administer utilizing the **Oxygen Therapy Procedure**.
4. Maintain control of the scene and request law enforcement if needed.
5. Demonstrate Professionalism and Courtesy
6. If restraints are needed, apply them in accordance with the **Behavioral Emergencies/Chemical Restraints Protocol**.
7. Obtain blood glucose level, if  $< 60\text{mg/dL}$ , treat hypoglycemia according to the **Altered Level of Consciousness Protocol**.
8. If patient exhibits signs of excited delirium (above) call for an intercept with higher level of care.

### ILS Care

ILS care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing perfusion and preparing for or providing transport.

1. Ensure Scene Safety – Responder safety is the top priority.
2. Render initial care in accordance with the **Universal Patient Care Protocol**.
3. **Oxygen**: Administer utilizing the **Oxygen Therapy Procedure**.

## Excited Delirium Protocol

### ILS Care (continued)

4. Maintain control of the scene and request law enforcement if needed.
5. Demonstrate Professionalism and Courtesy
6. If restraints are needed, apply them in accordance with the **Behavioral Emergencies/Chemical Restraints Protocol**.
7. Obtain blood glucose level, if  $< 60\text{mg/dL}$ , treat hypoglycemia according to the **Altered Level of Consciousness Protocol**.
8. If patient exhibits signs of excited delirium, provide sedation using **Midazolam (Versed)**: 5mg IM or via the Mucosal Atomizing Device®. This can be repeated once to a maximum dose of 10mg. Larger doses may be required – this is by **Medical Control order only**.
9. If the patient is hyperthermic, actively cool by placing cold packs to the posterior neck, armpits, groin and along the thorax.

### ALS Care

ALS care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing perfusion and preparing for or providing transport.

1. Ensure Scene Safety – Responder safety is the top priority.
2. Render initial care in accordance with the **Universal Patient Care Protocol**.
3. **Oxygen**: Administer utilizing the **Oxygen Therapy Procedure**.
4. Maintain control of the scene and request law enforcement if needed.
5. Demonstrate Professionalism and Courtesy
6. If restraints are needed, apply them in accordance with the **Behavioral Emergencies/Chemical Restraints Protocol**.
7. Obtain blood glucose level, if  $< 60\text{mg/dL}$ , treat hypoglycemia according to the **Altered Level of Consciousness Protocol**.

## Excited Delirium Protocol

### ALS Care (continued)

8. If patient exhibits signs of excited delirium, provide sedation using either;
  - **Midazolam (Versed)**: 5mg IVP every 5 minutes up to a maximum dose of 10mg. Larger doses may be required – this is **by Medical Control order only**.
  - **Midazolam (Versed)**: 5mg IM or via the Mucosal Atomizing Device®. This can be repeated once to a maximum dose of 10mg. Larger doses may be required – this is by **Medical Control order only**.
  
9. If the patient is hyperthermic;
  - Mix **Sodium Bicarbonate** 50mEq with 1L of Normal Saline and infuse at a wide open rate.

### And

- Actively cool the patient by placing cold packs to the posterior neck, armpits, groin and along the thorax.

### Critical Thinking Elements

- High body temperature is a key finding in predicting a high risk of sudden death. Another key symptom to the onset of death while experiencing excited delirium is “instant tranquility”. This is when the person has been very violent and vocal then suddenly becomes quiet and docile.
- It is paramount that patients exhibiting symptoms of this syndrome be effectively and quickly physically restrained, and then calmed using Versed and verbal coaching. *The likelihood of sudden apnea and death increases the longer these patients are allowed to struggle against restraint.* Managing these patients therefore requires a coordinated effort among all responders and Law Enforcement personnel.

## Petitioning an Emotionally Disturbed Patient Policy

EMS providers should consider the mental health needs of a patient who appears emotionally or mentally incapacitated. This involves cases that the EMS provider has reasonable cause or evidence to suspect a patient may intentionally or unintentionally physically injure himself/herself or others, is unable to care for his/her own physical needs, or is in need of mental health treatment against his/her will.

This does not include a person whose mental processes have merely been weakened or impaired by reason of advanced years and the patient is under the supervision of family or another healthcare provider, unless the family or healthcare provider has activated EMS for a specific behavioral emergency.

1. Attempt to persuade the patient that there is a need for evaluation and compel him/her to be transported to the hospital.
2. If persuasion is unsuccessful, contact Medical Control and relay the history of the event. Clearly indicate your suspicions and/or evidence and have the base station physician discuss the patient's needs with the parties involved in the situation.
3. The EMS crew will then follow the direction of the base station physician in determining the disposition of the patient or termination of patient contact. Another agency's or party's opinion should not influence the EMS provider's assistance to a mental health need.
4. Under no circumstances does transport of the patient, whether voluntarily or against his/her will, commit the patient to a hospital admission. It simply enables the EMS providers to transport a person suspected to be in need of mental health treatment.
5. If a patient is combative or may harm self or others, call law enforcement for assistance and follow the *Patient Restraint Policy*.

## Patient Restraint Policy

Patients will only be restrained if clinically justified. The use of restraints is only utilized if the patient is violent and may cause harm to themselves or others. Physical and/or chemical restraints are a last resort in caring for the emotionally disturbed patient.

1. To safely restrain the patient, use a minimum of 4 people.
2. **Contact Medical Control** as soon as possible for an order / guidance.
3. If available, may use police protective custody.
4. Explain the procedure to the patient (and family) if possible. The team leader should be the person communicating with the patient.
5. If attempts at verbally calming the patient have failed and the decision is made to use restraints, do not waste time bargaining with the patient.
6. Remember to remove any equipment from your person which can be used as a weapon against you (*e.g.* trauma shears).
7. Assess the patient and surroundings for potential weapons.
8. Approach the patient, keeping the team leader near the head to continue communications and at least one person on each side of the patient.
9. Move the patient to a backboard or the stretcher.
10. Place the patient **supine** and place **soft, disposable restraints** on 2-4 limbs and fasten to the backboard or stretcher. Avoid restraining the patient prone if at all possible.
11. Transport as soon as possible.
12. Document **circulation checks** every *15 minutes* (of all restrained limbs) and **thoroughly document the reasons for applying restraints, time of application, condition of the patient before and after application, method of restraint and any law enforcement involvement, including any use of law enforcement equipment (e.g. handcuffs) and the time Medical Control was contacted.**
13. Do not remove restraints until released by medical personnel at the receiving hospital.

## Concealed Weapons Policy

Effective January 1<sup>st</sup> 2014, Illinois citizens can obtain a permit to legally carry a concealed weapon. The purpose of this policy is to outline common expected procedures for intervening with patients and/or their families who under the law may be carrying a concealed deadly weapon.

The intent is to reduce the potential risk of injury to emergency responders, healthcare personnel and the public. This policy aims to mutually respect the rights of citizens who lawfully carry a concealed weapon as well as to provide safety for emergency responders and healthcare providers.

**This policy pertains to all weapons, including, but not limited to firearms, hunting knives, and electronic weapons.**

1. No weapon will ever be transported unsecured inside the ambulance whether belonging to the patient or family member. The only exception to this rule will be for on duty law enforcement personnel.
2. **Assume all weapons are loaded. Never attempt to unload a firearm, or engage the safety.**
3. Upon arrival, EMS personnel should directly ask the patient, “Do you have any weapons or needles that could poke or harm me?” prior to performing a physical assessment. If patient is unable to answer, proceed with caution.
4. If EMS personnel are threatened or feel threatened by a patient, family member or bystanders, even if a weapon is not displayed, personnel should move to a safe location, notify law enforcement, and wait for the scene to be secured until returning to the scene.
5. If a patient refuses to remove or allow removal of the weapon, that patient is considered to be refusing medical care and the scene now unsafe. EMS personnel should leave and wait for Law Enforcement to secure the scene.
6. Optimally, a patient with a concealed weapon away from their residence should have it taken control of by local law enforcement. The goal is for the EMS provider to minimally handle any weapon
7. If patient has a weapon, and is able, ask them to lock up their weapon at home or in the trunk of their vehicle.
8. The weapon may be removed by properly trained EMS personnel, tagged with patients name and secured in a lockbox and placed in an exterior compartment of the ambulance.
9. If weapon is located while transporting a patient, the ambulance should be stopped, weapon tagged with patient’s name, secured in lockbox, and placed in an exterior compartment of the ambulance.
10. If a weapon is found in a holster, the weapon should remain in the holster while it is secured. If you cannot remove the holster from the patient, cut away any restraining belts or clothes and secure the holstered weapon.
11. Weapons **will not** be taken via helicopter, if a patient is to be transported by helicopter from the scene, make sure their weapon is secured by a Law Enforcement official.
12. When a weapon is encountered on a call, the patient care report should include documentation that a weapon was located, type of weapon, how it was recovered, where it was located, what the disposition was, and any actions or comments made to or by the patient.

## Concealed Weapons Policy

### Transfer of Weapon:

1. Each hospital will have its own procedure when it comes to dealing with secured weapons that arrive by EMS. If you are unsure of the receiving hospital's policy, please inquire with their staff on your arrival.
2. When transporting a patient to St. Francis notify Medcom that security will need to meet you to take control of the patient's personal property.
3. Cased weapons will be turned over to St. Francis security staff and locked in their designated safe location. Your safety case will then be returned to you by the security officer.
4. A "Transfer of Personal Property" form must be completed and signed by all parties.
  - *One copy left with hospital, one copy left with patient, and original left with the patient's PCR.*

## Concealed Carry – Prohibited Firearm Locations Policy

The purpose of this policy is to educate and inform our EMS providers concerning the designated areas where carrying firearms is prohibited according to **Section (65.) of the Firearm Concealed Carry Act.**

### Prohibited Areas:

1. Any building, real property, and parking area under the control of a public or private hospital or hospital affiliate, mental health facility, or nursing home.
2. Any building, real property, and parking area under the control of a public or private elementary or secondary school.
3. Any building, real property, and parking area under the control of a pre-school or child care facility, including any room or portion of a building under the control of a pre-school or child care facility.
4. Any building, parking area, or portion of a building under the control of an officer of the executive or legislative branch of government.
5. Any building designated for matters before a circuit court, appellate court, or the Supreme Court, or any building or portion of a building under the control of the Supreme Court.
6. Any building or portion of a building under the control of a unit of local government.
7. Any building, real property, and parking area under the control of an adult or juvenile detention or correctional institution, prison, or jail.
8. Any bus, train, or form of transportation paid for in whole or in part with public funds, and any building, real property, and parking area under the control of a public transportation facility paid for in whole or in part with public funds.
9. Any building, real property, and parking area under the control of an establishment that serves alcohol on its premises
10. Any public gathering or special event conducted on property open to the public that requires the issuance of a permit from the unit of local government
11. Any building or real property that has been issued a Special Event Retailer's license during the time designated for the sale of alcohol by the Special Event Retailer's license
12. Any public playground.
13. Any public park, athletic area, or athletic facility under the control of a municipality or park district
14. Any building, classroom, laboratory, medical clinic, hospital, artistic venue, athletic venue, entertainment venue, officially recognized university-related organization property, whether owned or leased, and any real property, including parking areas, sidewalks, and common areas under the control of a public or private community college, college, or university.
15. Any building, real property, or parking area under the control of a gaming facility licensed under the Riverboat Gambling Act or the Illinois Horse Racing Act of 1975, including an inter-track wagering location licensee.

## Concealed Carry – Prohibited Firearm Locations Policy

### Prohibited Areas (continued):

16. Any stadium, arena, or the real property or parking area under the control of a stadium, arena, or any collegiate or professional sporting event.
17. Any building, real property, or parking area under the control of a public library.
18. Any building, real property, or parking area under the control of an airport.
19. Any building, real property, or parking area under the control of an amusement park.
20. Any building, real property, or parking area under the control of a zoo or museum.
21. Any street, driveway, parking area, property, building, or facility, owned, leased, controlled, or used by a nuclear energy, storage, weapons, or development site or facility regulated by the federal Nuclear Regulatory Commission.
22. Any area where firearms are prohibited under federal law.

## Less than Lethal Weapons Protocol

As law enforcement agencies look for alternative means of subduing dangerous subjects and bringing individuals into custody, they have begun using a set of devices known as “*less than lethal*” weapons. These include but are not limited to:

- Bean bag guns
- Teargas / Oleoresin capsicum sprays (*i.e.* pepper spray)
- Tasers

All levels of providers in the System should do the following when encountering these patients:

1. Ensure that the scene has been secured by law enforcement personnel and that the scene is safe to enter.
2. Ensure no cross contamination occurs to providers or equipment.
3. Ensure that the patient is subdued and is no longer a threat to EMS personnel.

### Teargas / Oleoresin Capsicum (Pepper Spray) Exposure

#### First Responder Care

First Responder Care should be focused on assessing the airway and breathing.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** For agitation, shortness of breath or chest pain: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.
3. **Flush eyes (if affected) with sterile water** to get rid of gross contamination and to aid in recovery.

#### BLS Care

BLS Care should be directed at conducting a thorough patient assessment and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** For agitation, shortness of breath or chest pain: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. **Proventil (Albuterol):** 2.5mg in 3mL of normal saline via nebulizer over 15 minutes ***if the patient is short of breath and wheezing***. May repeat Albuterol 2.5mg every **15 minutes** as needed (**with Medical Control order**).

## Less than Lethal Weapons Protocol

### Teargas / Oleoresin Capsicum (Pepper Spray) Exposure (continued)

#### BLS Care (continued)

4. **Flush eyes (if affected) with sterile water** to get rid of gross contamination and to aid in recovery.
5. Assess for secondary trauma that may be present and treat appropriately per trauma protocols.
6. Assess for any secondary causes of patient behavior which lead to law enforcement subduing the patient. These secondary causes include:
  - Alcohol intoxication
  - Drug abuse
  - Hypoglycemia or other medical disorder
  - Psychotic disorder
7. **Contact Medical Control** if restraints are needed. An order for restraint is a **MUST**.
8. If the patient has an altered mental status, then the patient must be assumed incompetent to refuse care. **Contact Medical Control** for ALL refusal issues.
9. Initiate ALS intercept if needed and transport as soon as possible.
10. Contact receiving hospital as soon as possible or Medical Control if necessary.

#### ILS Care

ILS Care should be directed at conducting a thorough patient assessment and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen**: For agitation, shortness of breath or chest pain: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

## Less than Lethal Weapons Protocol

### Teargas / Oleoresin Capsicum (Pepper Spray) Exposure (continued)

#### ILS Care (continued)

2. **Proventil (Albuterol)**: 2.5mg in 3mL normal saline mixed with Ipratropium (Atrovent): 0.5mg via nebulizer over **15 minutes** if the patient is short of breath and wheezing. Repeat Albuterol 2.5mg with Atrovent 0.5mg every 15 minutes as needed.
3. **Flush eyes (if affected) with sterile water** to get rid of gross contamination and to aid in recovery.
4. Assess for secondary trauma that may be present and treat appropriately per trauma protocols.
5. Assess for any secondary causes of patient behavior which lead to law enforcement subduing the patient. These secondary causes include:
  - Alcohol intoxication
  - Drug abuse
  - Hypoglycemia or other medical disorder
  - Psychotic disorder
6. **Contact Medical Control** if restraints are needed. An order for restraint is a **MUST**.
7. **IV Fluid Therapy**: 20mL/kg fluid bolus if the patient is cooperative and if the vital signs reflect tachycardia or hypotension to achieve a systolic BP of at least 100mmHg.
8. Initiate cardiac monitoring per *Routine Care* or if the patient appears agitated.
9. If the patient has an altered mental status, then the patient must be assumed incompetent to refuse care. **Contact Medical Control** for ALL refusal issues.
10. Initiate ALS intercept if needed and transport as soon as possible.
11. Contact receiving hospital as soon as possible or Medical Control if necessary.

#### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

## Less than Lethal Weapons Protocol

### Teargas / Oleoresin Capsicum (Pepper Spray) Exposure (continued)

#### ALS Care (continued)

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** For agitation, shortness of breath or chest pain: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. **Proventil (Albuterol):** 2.5mg in 3mL normal saline **mixed with Ipratropium (Atrovent):** 0.5mg via nebulizer over **15 minutes** if the patient is short of breath and wheezing. Repeat Albuterol 2.5mg with Atrovent 0.5mg every 15 minutes as needed.
4. **Flush eyes (if affected) with sterile water** to get rid of gross contamination and to aid in recovery.
5. Assess for secondary trauma that may be present and treat appropriately per trauma protocols.
6. Assess for any secondary causes of patient behavior which lead to law enforcement subduing the patient. These secondary causes include:
  - Alcohol intoxication
  - Drug abuse
  - Hypoglycemia or other medical disorder
  - Psychotic disorder
7. **Restrain the patient** if needed and **contact Medical Control**. An order for restraint is a MUST.
8. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is cooperative and if the vital signs reflect tachycardia or hypotension to achieve a systolic BP of at least 100mmHg.
9. Initiate cardiac monitoring per *Routine Care* or if the patient appears agitated.
10. If the patient has an altered mental status, then the patient must be assumed incompetent to refuse care. **Contact Medical Control** for ALL refusal issues.
11. Initiate transport as soon as possible and **contact Medical Control** if needed.

## Less than Lethal Weapons Protocol

### Taser-Related Injuries

A taser is an electrical device that is capable of shooting out two small barbed probes that are designed to pierce a subject's skin for the purpose of delivering a subduing pulse of electricity that causes the subject to lose voluntary muscular control. Anecdotal and theoretical consequences of taser use include *cardiac arrhythmias* and *seizures* (especially if the subject is under the influence of alcohol and/or illegal drugs).

### First Responder Care

First Responder Care should be focused on assessing the airway, breathing and circulation.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** For agitation, shortness of breath or chest pain: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Ask law enforcement to remove taser probes. **EMS personnel are not to remove the probes unless** specifically trained and are comfortable doing so.
4. If the probes are in a sensitive area such as the *face, eye, neck, genitalia* or a *female's breast*, leave the probes in place and bandage.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Ask law enforcement to remove taser probes. **EMS personnel are not to remove the probes unless** specifically trained and are comfortable doing so.
4. If the probes are in a sensitive area such as the *face, eye, neck, genitalia* or a *female's breast*, leave the probes in place and bandage.

## Less than Lethal Weapons Protocol

### Taser-Related Injuries (continued)

#### BLS Care (continued)

5. Assess for any secondary causes of patient behavior which lead to law enforcement subduing the patient. These secondary causes include:
  - Alcohol intoxication
  - Drug abuse
  - Hypoglycemia or other medical disorder
  - Psychotic disorder
6. **Contact Medical Control** if restraints are needed. An order for restraint is a **MUST**.
7. If the patient has an altered mental status, then the patient must be assumed incompetent to refuse care. **Contact Medical Control** for ALL refusal issues.
8. Initiate ALS intercept if needed and transport as soon as possible.
9. Contact receiving hospital as soon as possible or Medical Control if necessary.

#### ILS Care

ILS Care should be directed at conducting a thorough patient assessment and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Ask law enforcement to remove taser probes. **EMS personnel are not to remove the probes unless** specifically trained and are comfortable doing so.
4. If the probes are in a sensitive area such as the *face, eye, neck, genitalia* or a *female's breast*, leave the probes in place and bandage.

## Less than Lethal Weapons Protocol

### Taser-Related Injuries (continued)

#### ILS Care (continued)

5. Assess for any secondary causes of patient behavior which lead to law enforcement subduing the patient. These secondary causes include:
  - Alcohol intoxication
  - Drug abuse
  - Hypoglycemia or other medical disorder
  - Psychotic disorder
6. **Contact Medical Control** if restraints are needed. An order for restraint is a **MUST**.
7. Initiate cardiac monitoring.
8. **IV Fluid Therapy**: 20mL/kg fluid bolus if the patient is cooperative and if the vital signs reflect tachycardia or hypotension to achieve a systolic BP of at least 100mmHg.
9. **Midazolam (Versed)**: 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every 5 minutes as needed to a total of 10mg.  
  
**Midazolam (Versed)**: 5mg IM if the patient is seizing and attempts at IV access have been unsuccessful. May repeat dose one time in 15 minutes if needed  
  
**Midazolam (Versed)**: Intranasal if unable to obtain IV access. (See intranasal dosing sheet).
10. If the patient has an altered mental status, then the patient must be assumed incompetent to refuse care. **Contact Medical Control** for ALL refusal issues.
11. Initiate ALS intercept if needed and transport as soon as possible.
12. Contact receiving hospital as soon as possible or Medical Control if necessary.

#### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

## Less than Lethal Weapons Protocol

### Taser-Related Injuries (continued)

#### ALS Care (continued)

- Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
- Ask law enforcement to remove taser probes. **EMS personnel are NOT to remove the probes** unless specifically trained and are comfortable doing so.
- If the probes are in a sensitive area such as the *face, eye, neck, genitalia* or a *female's breast*, leave the probes in place and bandage.
- Assess for any secondary causes of patient behavior which lead to law enforcement subduing the patient. These secondary causes include:
  - Alcohol intoxication
  - Drug abuse
  - Hypoglycemia or other medical disorder
  - Psychotic disorder
- Restrain the patient** if needed and **contact Medical Control**. An order for restraint is a **MUST**.
- Initiate cardiac monitoring.
- IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is cooperative and if the vital signs reflect tachycardia or hypotension to achieve a systolic BP of at least 100mmHg.
- Midazolam (Versed):** 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every 5 minutes as needed to a total of 10mg.

**Midazolam (Versed):** 5mg IM if the patient is seizing and attempts at IV access have been unsuccessful. May repeat dose one time in 15 minutes if needed

**Midazolam (Versed):** Intranasal if unable to obtain IV access. (See [intranasal dosing sheet](#)).

## Less than Lethal Weapons Protocol

### Taser-Related Injuries (continued)

#### ALS Care (continued)

12. If the patient has an altered mental status, then the patient must be assumed incompetent to refuse care. **Contact Medical Control** for ALL refusal issues.

13. Initiate transport as soon as possible and **contact Medical Control** if needed.

### Critical Thinking Elements

- Refer to Behavioral Emergencies/Chemical Restraint Protocol for continued aggressiveness or violent behavior.
- Chemical defense sprays such as oleoresin capsicum (pepper spray) leave residue that may be contacted and transferred to providers. Care must be taken to ensure cross contamination does not occur. Avoid touching your own face, eyes or any other mucous membrane.
- Patients who have been subdued using *less than lethal* weapons are commonly agitated and may be combative. Safety of the EMS crew is of utmost importance.
- Many of these patients fit into a syndrome known as “excited delirium” that has been associated with adverse medical outcomes, including SUDDEN DEATH, especially when restraints are utilized. Careful monitoring should be exercised when dealing with these patients.
- Contaminated clothing should be removed and sealed in a plastic bag to prevent further irritation and to reduce cross contamination.
- Monitor the patient for respiratory depression when administering narcotics.
- If respiratory depression or hypotension occurs after administration of Dilaudid or Fentanyl, ventilate the patient as necessary and administer Narcan.
- Monitor respiratory status, SPO2 and or Waveform Capnography if available.
- If law enforcement has removed the probes, treat the probes as biohazards. Exercise caution to prevent accidental needlestick-like injuries.
- Ask law enforcement to eject the cartridge from the taser prior to patient contact.
- Patients who have been subdued using *less than lethal* weapons are commonly agitated and may be combative. If the patient is not yet subdued and/or is violent, do not initiate contact. Safety of the EMS crew is of utmost importance.

## Do Not Resuscitate (DNR) Policy

A *Do Not Resuscitate (DNR)* policy is a tool to be used in the prehospital setting to set forth guidelines for providing CPR or for withholding resuscitative efforts. The purpose of this policy is to specify requirements for valid DNR orders and to establish a procedure for field management of these situations.

A *DNR* policy shall be implemented only after it has been reviewed and approved by the Illinois Department of Public Health in accordance with the requirements of Section 515.380 of the Illinois Administrative Code.

1. Any FR-D, EMT-B, EMT-I, EMT-P or PHRN who is actively participating in a Department approved EMS system may honor, follow and respect a valid DNR. **Medical Control will be contacted in all cases involving a DNR.**
2. *DNR* refers to the withholding of life-sustaining treatment such as CPR, electrical therapy (e.g. pacing, cardioversion & defibrillation), endotracheal intubation and/or manually/mechanically assisted ventilation, unless otherwise stated on the DNR order.
3. By itself, a DNR order does not mean that any other life-prolonging therapy, hospitalization or use of EMS is to be withheld. DNR orders **do not affect treatment of patients who are not in full arrest (pulseless and breathless).**
4. **On-line Medical Control** must be consulted in cases involving DNR orders. A DNR order may be invalidated if the immediate cause of a respiratory or cardiac arrest is related to trauma or mechanical airway obstruction.
5. When EMS personnel arrive on scene and discover the patient is pulseless and breathless and CPR is not in progress, resuscitation (at minimum CPR) must be initiated unless one or more of the following conditions exist:
  - Obvious signs of biological death are present:
    - Decapitation
    - Rigor mortis **without** profound hypothermia
    - Dependent lividity
    - Obvious mortal wounds with no signs of life
    - Decomposition
  - Death has been declared by the patient's physician or the coroner.
  - A valid DNR order is present and the EMS provider has made reasonable effort to verify the identity of the patient named in the order (i.e. identification by another person, ID band, photo ID or facility, home-care or hospice nursing staff).

## Do Not Resuscitate (DNR) Policy

- If the above signs of death are recognized, EMS personnel **must contact Medical Control** to confirm the decision not to attempt resuscitation prior to contacting the coroner.
  - The EMS provider should immediately institute BLS measures and contact Medical Control for further direction if he or she has concerns regarding the validity of the DNR orders, the degree of life-sustaining treatment to be withheld or the status of the patient's condition.
6. When EMS personnel arrive on scene and discover that CPR is in progress, the EMS provider should:
    - Determine if signs of death are present or a valid DNR exists.
    - If signs of death are present and/or the patient does not have a pulse, has no respirations and a valid DNR does exist, **contact Medical Control** for orders, including possible cease efforts order.
    - If no valid DNR exists, continue CPR (refer to cardiac resuscitation policy).
  7. If the patient's primary care physician is at the scene of (or on the phone) and requesting specific resuscitation or DNR procedures, EMS personnel should verify the physician's identity (if not known to the EMT) and notify Medical Control of the request of the on-scene physician. Follow Medical Control orders.
  8. The only recognized DNR form EMS providers are obligated to honor, follow & respect is the standardized **State of Illinois Do Not Resuscitate (DNR) Order** form which has the *Seal of the State of Illinois* in the upper left corner. All signature lines must be completed in order for the DNR to be valid.
  9. Any other advance directives or "living will" **cannot be honored, followed and respected by pre-hospital care providers**. EMS personnel must contact Medical Control for direction regarding any other type of advanced directive. Resuscitation should not be withheld during the process of contacting or discussing the situation with the on-line Medical Control physician.

## Do Not Resuscitate (DNR) Policy

10. A *Durable Power of Attorney for Healthcare* is an agent who has been delegated by the patient to make any healthcare decisions (including the withholding or withdrawal of life-sustaining treatment) which the patient is unable to make. When a patient's surrogate decision-maker is present or has been contacted by prehospital personnel and they direct that resuscitative efforts not be instituted:
- Ask the *Durable Power of Attorney for Healthcare* agent to provide positive identification (i.e. driver's license, photo ID, etc.), see the document and ask the agent to point out the language that confirms that the "power" is in effect and that it covers the situation at hand (i.e. assure the scope of authority the *Durable Power of Attorney for Healthcare* has and that the patient's medical or mental condition complies with the document designating the *Durable Power of Attorney for Healthcare*).
  - The *Durable Power of Attorney for Healthcare* agent or a surrogate decision-maker can provide consent to a DNR order, but the order itself must be written by a physician.
  - An EMS Provider cannot honor a verbal or written DNR request/order made directly by a *Durable Power of Attorney for Healthcare* agent, surrogate decision-maker or any person other than a physician. If such a situation is encountered, contact Medical Control for direction.
11. Revocation of a written DNR order is accomplished when the DNR order is physically destroyed or verbally rescinded by the physician who signed the order and/or the person who gave consent to the order.
12. Prehospital care providers have a duty to act and provide care in the best interest of the patient. This requires the provision of full medical and resuscitative interventions when medically indicated and not contraindicated by the wishes of the patient.
13. When managing a patient that is apparently non-viable, but desired and/or approved medical measures appear unclear (i.e. upset family members, disagreement regarding DNR order, etc.), EMS personnel should provide assessment, initiate resuscitative measures and contact Medical Control for further direction.
14. If EMS personnel encounter a patient with a valid DNR from a **long-term care facilities, hospice, during an inter-hospital transfer or when transporting to or from home** and the patient arrests enroute, do not initiate resuscitative measures and contract Medical Control for orders.

## Do Not Resuscitate (DNR) Policy

15. If EMS personnel arrive at the scene and the family states that the patient is a hospice patient with a valid DNR order, do not initiate resuscitative measures and contact Medical Control for orders.
16. On occasion, EMS personnel may encounter an out-of-town patient with a valid DNR order visiting in the Peoria Area EMS System. If the DNR order appears to be valid (signed by the patient and physician), contact Medical Control for orders.
17. The coroner will be notified of any patient or family wishes that there is to be tissue donation in cases where the patient is not transported to the hospital.
18. The Medical Control physician's responsibility is to make reasonable effort to confirm the DNR order is valid and order resuscitative measures within the directives of the DNR order.
19. Appropriate patient care reports will be completed on all patients who are not resuscitated in the prehospital setting. A copy of the DNR form should be retained and attached as supporting documentation to the prehospital care report form.
20. All Peoria Area EMS System personnel are to submit an incident report to the Quality Assurance Coordinator in the EMS Office regarding any difficulties experienced with DNR situations. These cases will be evaluated on an individual basis. Any issues identified will be reported to the EMS Medical Director for further review.
21. Follow the System's *Coroner Notification Policy*.

### Critical Thinking Elements

- Ask the patient's family to produce an actual copy of the DNR / Advanced Directives. Family members will often identify themselves as "Power of Attorney" when in fact, they are solely "Power of Attorney for Finance".
- "Power of Attorney for Finance" does NOT convey authority for healthcare decisions. Only a valid "Durable Power of Attorney for Healthcare" conveys authority for healthcare decisions.

## Withholding Resuscitation / Criteria for Death

### Policy:

It is the policy of the Peoria Area EMS System that CPR need not be initiated when death has been determined based on the criteria outlined below. Peoria Area EMS providers are required to contact Medical Control for determination of death covered in this policy.

### Purpose:

A person is presumed dead on arrival when all five signs of death are present and at least one associated "Factor of Death" is present.

Signs of Death (All must be present)	Factors of Death (At least one must be present)
<b>Medical</b> <ul style="list-style-type: none"><li>• Unresponsiveness</li><li>• Apnea</li><li>• Pulselessness</li><li>• Non-reactive pupils</li></ul>	<ul style="list-style-type: none"><li>• Lividity and/or any degree of generalized cyanosis</li><li>• Rigor mortis</li><li>• Presence of venous pooling in the body</li><li>• Decomposition</li><li>• Decapitation</li><li>• Incineration or extensive full thickness burns</li><li>• Transection of head or trunk</li><li>• Major blunt or penetrating trauma</li><li>• Separation of heart and/or brain</li><li>• Deforming brain injury</li></ul>
<b>Trauma</b> <ul style="list-style-type: none"><li>• Unresponsiveness</li><li>• Absence of vital signs in a trauma victim upon arrival of EMS personnel despite a patent airway.</li></ul>	

### Procedure:

**Do not initiate resuscitation in the following:**

**Do Not Resuscitate orders:** No resuscitation efforts should be initiated when the person or family has evidence of a valid Do Not Resuscitate (DNR) order in hand.

**Scene safety:** The physical environment is not safe for the EMS providers to enter.

**Infant death (SIDS):** An infant who is apneic, and meets the above criteria may be presumed dead.

**Neonatal death:** A neonate who is apneic, pulseless, and exhibits neonatal maceration (softening or degeneration of the tissues after death in utero), anencephaly (absence of a major portion of the brain, skull, and scalp), or if the gestational age is less than 22 weeks and neonate shows signs of obvious immaturity (translucent and gelatinous skin, lack of fingernails, fused eyelids) may be presumed dead.

## Withholding Resuscitation / Criteria for Death

### Notes:

- Resuscitation may be initiated if the condition of the scene indicates that withholding resuscitation could cause a potential unsafe condition for the ambulance crew.
- If the EMS providers determine the situation warrants removal of the patient from the scene, resuscitation efforts must be initiated, continued throughout transportation to the hospital and circumstances documented in a patient care report.

2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation*. 2010; 122:S665-S675

### Critical Thinking Elements

- Pediatric patients and patient with hypothermia may have no signs of life but still be viable. Prolonged resuscitative efforts are indicated in these cases.

## Coroner Notification Policy

In accordance with Section 10.6, Chapter 31 of the Illinois Revised Statutes – Coroners:

1. Every law enforcement official, funeral director, **ambulance attendant**, hospital director of administration or person having custody of the body of a deceased person, where the death is one subjected to investigation under Section 10 of this Act, and any physician in attendance upon such a decedent at the time of his death, shall notify the coroner promptly. Any such person failing to notify the coroner promptly shall be guilty of a Class A misdemeanor, unless such person has reasonable cause to believe that the coroner had already been notified.
2. Deaths that are subject to coroner investigation include:
  - Accidental deaths of any type or cause
  - Homicidal deaths
  - Suicidal deaths
  - Abortions – criminal or self-induced maternal or fetal deaths
  - Sudden deaths – when in apparent good health or in any suspicious or unusual manner including sudden death on the street, at home, in a public place, at a place of employment, or any deaths under unknown circumstances may ultimately be the subject of investigation.
3. The coroner (or his/her designee) should be provided the following information:
  - Your name
  - Your EMS service
  - Location of the body or death
  - Phone number and/or radio frequency you are available on
  - Brief explanation of the situation
4. Once this information has been provided, wait for the coroner (or his/her designee) to arrive for further instructions. EMS crews may clear the scene if law enforcement is on the scene and no other emergency exists.
5. Law enforcement personnel are responsible for death scenes once the determination of death is established with Medical Control and the coroner has been notified.
6. If a patient is determined to be dead during transport, note the time & location and record this information on the patient care report. Immediately contact the coroner to discuss death jurisdiction. **Do not cross county lines with a patient that has been determined to be dead.**

## Reporting and Control of Suspected Crime Scenes Policy

EMS providers should be aware of law enforcement's concern for preserving, collecting and using evidence. Anything at the scene may provide clues and evidence for the police.

1. Immediately notify law enforcement of any suspected crime scene (this does not necessarily include petty crimes or traffic violations).
2. If the victim is obviously dead, then he or she should remain undisturbed if at all possible.
3. Do not touch, move or relocate any item at the scene unless absolutely necessary to provide treatment to an injured, viable victim. Mark the location of any item that must be moved so the police can determine its original position.
4. Restrict access to the scene of onlookers or other unauthorized personnel on the premises of the crime.
5. Observe and note anything unusual (*e.g.* smoke, odors, or weapons), especially if the evidence may not be present when law enforcement arrives.
6. Give immediate care to the patient. The fact that the patient is a probable crime victim should not delay prompt care to the patient. Remember that your role is to provide emergency care, not law enforcement.
7. Keep detailed records of the incident, including your observations of the victim and the scene of the crime. Lack of records about the case can be professionally embarrassing if called to testify.

## Physician (or Other Medical Professional) On Scene Policy

Only personnel licensed to perform care in the prehospital setting and certified in the Peoria Area EMS System are allowed to provide advanced patient care (*e.g.* intubation, IV access, medication administration, pacing, etc.) at the scene unless approved by Medical Control.

An on-scene physician (or other medical professional) does **not** automatically supersede the EMS provider's authority. Patient care shall not be relinquished to another person or provider unless approved by the EMS Medical Director or Medical Control.

1. If a professed, duly licensed medical professional (*e.g.* physician, nurse, or dentist) wishes to participate in and/or direct patient care on scene, the EMS provider should contact Medical Control and inform the base station physician of the situation.
2. If the medical professional on scene (including the patient's primary care physician) has properly identified himself/herself and wishes to direct patient care, the base station physician must grant approval prior to acting on the on-scene medical professional's request. If care is relinquished to the professional on scene, he/she **must** accompany the patient to the hospital. This procedure should be explained to the provider prior to contacting Medical Control.
3. If an on-scene physician orders procedures or treatments that the EMS provider believes to be unreasonable, medically inaccurate, and/or outside the EMS provider's standard of care, the EMT should refuse to follow such orders and re-establish contact with Medical Control. In all circumstances, the EMS provider shall avoid any order or procedure that would be harmful to the patient.
4. If an on-scene medical professional (or any person *claiming* to be a healthcare provider) is obstructing EMS efforts or is substantially compromising patient care, the EMS provider should distract or redirect the interfering person, request law enforcement assistance and communicate the situation to Medical Control.
5. If EMS personnel or nursing staff from another system or jurisdiction (other than a requested intercept or mutual aid) are at the scene and request to provide or assist with patient care, excuse them from the scene if their assistance is not needed. If assistance is needed, these personnel may provide assistance with the supervision of the agency having jurisdiction of the scene. Peoria Area EMS System policies, procedures and protocols must be followed regardless of the assisting EMS personnel's authorized level of care.

## Region 2 School Bus Policy

Incidents involving school buses pose unique challenges to the EMS provider in assuring proper release of uninjured children. Once Medical Control confirms that the minor children are not injured, the custody and responsibility for these children will remain with the responding EMS provider until the children are transferred to parents, legal guardians, school officials or the hospital. If no procedure exists to have children transferred to a parent, legal guardian or school official, then these children will need to be transported to the hospital.

On arrival at the scene, EMS personnel shall determine the category of the incident and request appropriate resources. EMS must also accomplish a complete assessment of the scene to include at least:

- Mechanism of injury
- Number of patients
- Damage to the vehicle
- Triage as outlined in the System Plan

Once this has been accomplished, then the patients may be assigned to one of the following categories:

**CATEGORY A:** Significant mechanism of injury (*i.e.* rollover, high-speed impact, intrusion into the bus, etc.) – school bus occupancy indicates that at least one child may reasonably be expected to have significant injuries or significant injury is present in one or more children. *All children in this category must be transferred to an appropriate hospital unless a Peoria Area EMS System refusal form is signed by a parent or legal guardian.*

**CATEGORY B:** Suspicious mechanism of injury (*i.e.* speed of impact, some intrusion into the bus, etc.) – school bus occupancy indicates that at least one child may reasonably be expected to have minor injuries or minor injury in one or more children exists with no obvious mechanism of injury that could reasonably be expected to cause significant injuries. *EMS personnel must complete the EMS Multiple Casualty Release Form and secure a signature of an appropriate school official.*

**CATEGORY C:** No obvious mechanism of injury – school bus occupancy indicates no injuries may be present and that the release of uninjured children may be the only EMS need. No injuries are found to be present in any of the children. *EMS personnel must complete the EMS Multiple Casualty Release Form and secure a signature of an appropriate school official.*

**CATEGORY D:** If the pediatric patient(s) have special healthcare needs and/or communication difficulties, then all of these patients must be transported to the hospital for evaluation unless approval for release is received from Medical Control or a parent/legal guardian has signed the approved refusal form.

## Region 2 School Bus Policy

1. After determining the category of the incident, EMS personnel shall determine the extent of EMS involvement and **contact Medical Control**.
2. Adults, victims 18 years and older, and occupants of other vehicles will be treated or released in accordance with routine System operating procedures.
3. If Medical Control has approved usage of this policy/plan, then each provider will implement their procedure for contacting parents, legal guardians or appropriate school officials to receive custody of uninjured children.
4. The approved system *Multiple Casualty Release Form* for school bus incidents must be utilized for all children who will not be transported.
5. Each child transported must have a completed run report.
6. One run report indicating the nature of the incident, etc. shall be completed and must include all information regarding the incident including the number of patients released. Keep a copy of this report with the release form or with refusal forms signed by the parents.
7. A parent, legal guardian or appropriate school official must be given a copy of the refusal/release form.
8. Any parent or legal guardian who arrives on scene to remove and assume responsibility for their child will be requested to sign an individual refusal form.
9. EMS providers shall use reasonable means to contact the parents or school officials. This could include use of telephone, cellular phone or direct contact by law enforcement. If contacted by phone, EMS providers shall take reasonable means to confirm the identity and authority of the parent, legal guardian or school official.
10. Once the identity and authority of the parent, legal guardian or school official has been established, the EMS provider may release the child to that individual or alternate transport source. School officials will follow their established program for informing parents or legal guardians regarding the incident.
11. The health and safety of the child is the primary concern. It is the responsibility of the EMS provider to assure that the child is returned to the parent or placed on the school's alternate transport vehicle. If the EMS provider on scene determines a child should receive a physician evaluation or be offered medical care, the child **will be transported** to the hospital unless a parent or legal guardian is on scene and consents to refusal.

## **Region 2 School Bus Policy**

12. Each prehospital provider agency in the Peoria Area EMS System who may likely respond to a school bus incident must contact the school superintendents in their district to obtain the name and title of the “appropriate school official” who may take responsibility for the child on the bus involved in the incident.
13. Copies of documentation must be forwarded to the EMS Office (Quality Assurance Coordinator) for review within 24 hours of utilization of this policy.

PEORIA AREA EMS SYSTEM  
PREHOSPITAL CARE MANUAL

***Insert EMS Multiple Casualty Release Form***

## **WELL-BEING OF THE EMS PROVIDER**

## Infectious Disease Control Policy

The following procedure has been established in accordance with the Illinois State Statutes, Centers for Disease Control recommendations and OSHA standards. All Peoria Area EMS System agencies should have a specific exposure control program and post exposure plan.

### Protective Measures

1. Utilization of body substance isolation gear during all patient contacts is an effective means of avoiding exposure to body fluids. EMS personnel should don protective gear prior to entering a scene or situation that may increase the risk of exposure to body fluids or other infectious agents.
2. Thorough hand washing should be accomplished immediately after each patient contact or handling of potential infectious vectors.
3. EMS personnel should consult their agency's exposure control program for specific guidelines in the type of protective gear.

### Exposure

1. An exposure incident has occurred when, as a result of the performance of an EMS provider's duty, the provider's eyes, mouth, mucous membrane or area of non-intact skin has come in contact with body fluids or other potentially infectious vector. This includes parenteral contact with blood or other potentially infectious materials.
2. If EMS personnel treating and/or transporting a patient are directly exposed to a patient's body fluids or infectious vector, the provider(s) should immediately report the incident. This includes notifying the EMS provider's supervisor, obtaining the *Peoria Hospitals Communicable Disease Incident Form* and following post exposure procedures.

### Post Exposure Management

After an exposure has occurred:

1. Thoroughly cleanse the exposed area with soap and water immediately.
2. The eyes and/or mouth of the provider should be thoroughly rinsed with water if exposed.
3. Immediately seek treatment at the emergency department where the source patient was transported. If the source patient was not transported to an emergency department, treatment should be sought at a local hospital (emergency department).

## Infectious Disease Control Policy

4. Complete the *Peoria Hospitals Communicable Disease Incident Form*. The completed form should be sealed in an envelope addressed with the words “Attention Infection Control” and be left with the emergency department charge nurse. The charge nurse will forward the envelope to the infection control department. The EMS provider should also provide a copy to his/her supervisor and to the EMS Office within 24 hours.
5. A request should be made for consent to test the source patient’s blood for HBV/HCV/HIV infectivity. If consent is granted, a blood sample shall be drawn and results of testing documented. Testing is not necessary if the source patient is known to be infected with HBV or HIV.
6. Results of tests performed on the source patient shall be made available to the exposed EMS provider’s private or occupational physician while maintaining confidentiality of all persons involved.
7. The exposed EMS provider will be given the opportunity for a blood specimen collection and testing to determine baseline assessment for HBSAB/HIV. If the EMS provider does not wish to be tested, the blood sample must be maintained for 90 days. The EMS provider may consent to testing at any time within that period.
8. The EMS provider should follow-up with his/her private or occupational physician and the provider should be advised of available post-exposure counseling.
9. All findings or diagnosis shall remain confidential.

Questions concerning exposure control program requirements or post exposure procedures should be directed to the EMS provider’s supervisor, training officer or infection control department.

### Notification of Ambulance Personnel Exposed to Communicable Disease

1. If a patient is suspected to have, or is diagnosed with a reportable communicable disease, a copy of the ambulance patient care report will be forwarded to Infection Control Department as soon as possible by the receiving hospital emergency department supervisor.
2. The Infection Control Department will maintain a log and file. If any patients treated and/or transported by EMS providers are diagnosed as having one of the specified diseases, the designated EMS provider(s) will be notified by the Infection Control Department within seventy-two (72) hours after the confirmed diagnosis is known.

## Infectious Disease Control Policy

3. Specified diseases requiring notification of EMS personnel by the Infection Control Department include:

- Acquired Immunodeficiency Syndrome (AIDS)\*
- AIDS-Related Complex (ARC)\*
- Anthrax
- Chickenpox
- Cholera
- Diphtheria
- Hepatitis B
- Hepatitis non-A, non-B
- Herpes simplex
- Human Immunodeficiency Virus (HIV) infection\*
- Measles
- Meningococcal infections
- Mumps
- Plague
- Polio
- Rabies (human)
- Rubella
- Severe Acute Respiratory Syndrome (SARS)
- Smallpox
- Tuberculosis (TB)
- Typhus

**\*For confirmed diagnosis of AIDS or HIV, the letter of notification will not be sent unless emergency personnel indicate that they may have had blood or body substance exposure.**

4. When a hospital patient with a listed communicable disease is to be transported by ambulance personnel, the hospital staff sending the patient shall inform the ambulance personnel of any precautions to be taken to protect against exposure to disease. If a significant exposure occurs, the ambulance personnel shall immediately report the incident as indicated above.
5. The *Hospital Licensing Act* requires any information received in the notification process be handled in accordance with confidentiality policies and procedures.

**Infectious Disease Control Policy**

**PEORIA HOSPITALS  
COMMUNICABLE DISEASE INCIDENT FORM**

Exposed emergency personnel providing care:

Police       Firefighter/First Responder       EMT/Paramedic/PHRN

Other: \_\_\_\_\_

Name of EMS Provider Exposed: \_\_\_\_\_

Home Address: \_\_\_\_\_

City/State/Zip Code: \_\_\_\_\_

Home Phone #: \_\_\_\_\_ Cell Phone #: \_\_\_\_\_ Work Phone #: \_\_\_\_\_

Name of Agency: \_\_\_\_\_ Run #: \_\_\_\_\_

Name of Supervisor: \_\_\_\_\_ Phone #: \_\_\_\_\_

Patient's Name: \_\_\_\_\_ Date/Time of Transport: \_\_\_\_\_

**Type of Significant Exposure (Circle):**

Parenteral (e.g. needlestick)

Mucous membranes (e.g. eyes, mouth)

Significant skin exposure to blood, urine, saliva, bile, semen, vomit (e.g. open sores, cuts)

Other (explain): \_\_\_\_\_

Additional Comments:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Post Exposure Procedure**

1. Immediately notify your supervisor.
2. Notify the emergency department charge nurse when you arrive at the hospital with the patient.
3. Register and be seen as a patient at the receiving hospital.
4. Complete this form and make two (2) copies.
5. **Place the original in an envelope, seal and write "Attention Infection Control" on the front of the envelope.**
6. Give the sealed envelope to the emergency department charge nurse that the patient was transported to.
7. Provide your supervisor with a copy.
8. Forward a copy to the EMS Office within 24 hours.

## Latex Allergy Policy

A latex allergy is recognized as a significant problem for specific patients and healthcare workers. There are two (2) types:

- **Systemic** – Immediate reaction (within 15 minutes). Symptoms include generalized rash, wheezing, dyspnea, laryngeal edema, bronchospasm, tachycardia, angioedema, hypotension and cardiac arrest.
- **Delayed** – Delayed reaction (6 to 48 hours). Symptoms include contact dermatitis such as local itching, edema, erythema (redness), blisters, drying patches, crushing & thickening of the skin, and dermatitis that spreads beyond the skin initially exposed to the latex.

Persons at risk include patients with spina bifida, patients with urogenital abnormalities, workers with industrial exposures to latex, healthcare workers, persons with multiple surgeries, persons with frequent urinary procedures and persons with a history of predisposition to allergies.

### Suspected Latex Allergy

1. Assess for suspected latex sensitivity by asking the following:

*“Do you react to rubber bands or balloons? Describe.”*

2. Initiate interventions for *Known Latex Sensitivity* if the latex sensitivity screen response suggests a latex hypersensitivity.
3. Notify the receiving hospital of suspected latex hypersensitivity.
4. Follow orders as per the *Allergic/Anaphylactic Reaction Protocol*.

### Known Latex Allergy

1. Obtain a patient history and ask the patient to describe their symptoms of latex hypersensitivity.
2. Monitor the following signs and symptoms:
  - Itching eyes
  - Feeling of faintness
  - Hypotension
  - Bronchospasm/Wheezing
  - Nausea/Vomiting
  - Abdominal cramping
  - Facial edema

## Latex Allergy Policy

### Known Latex Allergy (continued)

- Flushing
  - Urticaria
  - Shortness of breath
  - Generalized itching
  - Tachycardia
  - Feeling of impending doom
3. Notify the receiving hospital of known latex sensitivity.
  4. Follow orders as per the *Allergic/Anaphylactic Reaction Protocol*.
  5. Remove all loose latex items (*e.g.* gloves, tourniquets, etc.) and place in a closed compartment or exterior storage panel.
  6. Utilize available latex-free supplies when preparing to care for or transport the latex-sensitive patient. The latex-free supplies must be on the ambulance (or other apparatus) and readily available.
  7. Cover the mattress of the cot with a sheet so that no areas of the mattress are exposed.
  8. DO NOT administer any medications through latex IV ports.
  9. Wrap all tubing containing latex in kling before coming into contact with the patient (*e.g.* stethoscope tubing, BP cuff tubing, etc.).

## Substance Abuse Policy

### Purpose

The Peoria Area EMS System considers substance abuse (drug and/or alcohol dependency) to be a health problem and will assist any System provider who becomes dependent on drugs and/or alcohol. The System, and ultimately our patients, will suffer the adverse effects of having a provider whose work performance is below acceptable standards. Any EMS provider whose substance abuse problems jeopardize the safety of patients, co-workers or bystanders shall be deemed “unfit to work”. Any EMS provider involved in the PAEMS System who voluntarily requests assistance with a personal substance abuse problem may contact their agency or the EMS Office for resources.

### Policy:

*The Peoria Area EMS System does not require EMS Providers to submit to blood and/or urine testing for drugs and/or alcohol as a routine part of their employment physical examination. However, individual agencies may require testing as part of the application process.*

Any prehospital provider may contact the EMS Medical Director (or his/her designee) if he/she has reasonable cause to suspect that a co-worker or student is under the influence of drugs and/or alcohol while on duty. The EMS Medical Director may choose to require the System provider to submit to a blood alcohol test and/or blood/urine toxicology screening. The cost of this testing procedure may be billed to the provider’s agency, or in the case of a student, the student. Disputes related to billing of drug testing should not delay the procedure(s).

1. If a System provider who is required to submit to testing for drugs and/or alcohol refuses to cooperate, or anyone caught tampering with, or attempting to tamper with his/her test specimen (or the specimen of any other prehospital care provider) he/she will be subject to disciplinary action for insubordination (up to and including permanent suspension/decertification from the System).
2. If any of the test results are positive, the EMS Medical Director will interview the provider. The EMS Medical Director will consult with the provider’s agency to determine if referral to an assistance program shall occur.
  - **First Occurrence** - results in a referral of the prehospital care provider to the appropriate assistance program and the provider will be subject to disciplinary action as determined by the EMS Medical Director in consultation with the provider’s agency/employer.
  - **Second Occurrence** - will result in disciplinary action as determined by the EMS Medical Director in consultation with the provider’s agency/employer and may result in license decertification in the PAEMS System.

## Substance Abuse Policy

### Testing for Drugs & Alcohol (continued)

- **Depending on the situation the EMS Medical Director may remove a student from a program with the first occurrence.**
3. The progress of employees with substance abuse problems who have been referred to an assistance program will be closely monitored by their agency/employer and the EMS Medical Director. The provider must successfully complete the entire required rehabilitative program and maintain the preventative course of conduct prescribed by the assistance program. He/she must attend the appropriate after-care program(s) and provide verification of compliance with the program requirements, including additional drug testing as determined by the EMS Medical Director and the agency/employer.
  4. If the prehospital care provider refuses to correct his/her health problems, he/she shall be subject to disciplinary action that pertains to all System providers who cannot, or are not, performing their job duties and responsibilities at acceptable levels.
  5. The PAEMS Office can require random drug testing of any provider at any time.

The use, sale, purchase, transfer, theft or possession of an illegal drug is a violation of the law. *Illegal drug* means any drug which is (a) not legally obtainable or (b) legally obtainable but has not been legally obtained. The term *illegal drug* includes prescription drugs not legally obtained and prescription drugs legally obtained but not being used for prescribed purposes. Anyone in violation will be referred to law enforcement, licensing and/or credentialing agencies when appropriate.

## Critical Incident Stress Management (CISM) Team Procedure

There are certain emergencies that may have a lasting emotional effect on EMS personnel. These include emergencies involving children, co-worker, familiar or particularly close persons, multiple death situations and disaster incidents. The *Heart of Illinois Critical Incident Stress Management Team* is an important resource in assisting EMS personnel in coping with stressful experiences.

1. EMS providers of the Peoria Area EMS System involved in an unusually stressful incident can contact the *Heart of Illinois Critical Incident Stress Management Team*.
2. The CISM Team members have specialized training in providing pre-incident education, on-scene support services, defusing, demobilization, formal debriefings, one-on-one debriefings, follow-up services and specialty briefings.
3. Debriefings and stress management services are most effective when conducted within 72 hours of the incident.
4. The CISM Team Coordinator may be reached by contacting Medical Communications at OSF Saint Francis Medical Center at (309) 655-2564.

## **VEHICLE SUPPLIES**

## Equipment & Supplies Policy

Peoria Area EMS System providers must maintain response vehicles in a manner that will limit mechanical breakdown, provide a clean environment and be engineered for compliance with OSHA standards. Providers must also have minimum equipment and supplies specified by IDPH and the EMS Medical Director.

1. EMS providers shall notify the EMS Office and IDPH of any new or replacement vehicles (including temporary loaner vehicles).
2. Initial response vehicles (First Responder and BLS Non-transport units) shall be equipped and stocked in accordance with the IDPH *Non-Transport Vehicle Inspection Form*.
3. Ambulance (transporting) vehicles must meet general standards as specified on the IDPH *Ambulance Inspection Form* and be in compliance with DOT Standard KKK-A-1822D.
4. BLS transporting vehicles shall be equipped and supplied in accordance with the IDPH *Ambulance Inspection Form* and in accordance with Section 515.830 of IDPH Rules and Regulations. Additional requirements have been set forth by the EMS Medical Director as well. Refer to the *Peoria Area EMS System Agency Supply List*.
5. ILS providers shall be equipped and supplied in accordance with the IDPH *Ambulance Inspection Form* and in accordance with Section 515.830 of IDPH Rules and Regulations. Additional requirements have been set forth by the EMS Medical Director as well. Refer to the *Peoria Area EMS System Agency Supply List* and *Additional ILS Equipment List*.
6. ALS providers shall be equipped and supplied in accordance with the IDPH *Ambulance Inspection Form* and in accordance with Section 515.830 of IDPH Rules and Regulations. Additional requirements have been set forth by the EMS Medical Director as well. Refer to the *Peoria Area EMS System Agency Supply List* and *Additional ALS Equipment List*.
7. The addition of new equipment not listed on a specific EMS provider level checklist **requires approval by the EMS Medical Director**. In addition, the EMS Medical Director must be notified of and approve any change in AEDs or cardiac monitoring equipment as well as any changes in communications equipment that may affect Base Station communications.

PEORIA AREA EMS SYSTEM  
PREHOSPITAL CARE MANUAL

INSERT IDPH NON-TRANSPORT VEHICLE INSPECTION FORM

PEORIA AREA EMS SYSTEM  
PREHOSPITAL CARE MANUAL

**PAEMS First Responder Supply List**

(Use in conjunction with IDPH Non-Transport Vehicle Inspection Form)

- 5 Triangular bandages/Arm slings
- 10 Rolls kling/Self-adhering roller bandages
- 6 Trauma dressings
- 20 Sterile 4x4s
- 2 Vaseline gauze
- 1 Pair trauma shears
- 2 Rolls of adhesive tape
- 2 Blankets
- 1 Isolation bag
- 2 Sets of protective gowns, goggles & face/eye shields (OSHA requirements)
- 2 Long adult extremity splints/Sam splints
- 2 Short adult extremity splints/Sam splints
- 2 Long pediatric extremity splints/Sam splints
- 2 Short pediatric extremity splints/Sam splints
- 1 Full primary oxygen cylinder (minimum "D" size)
- Oxygen flow meter/regulator for 15 L/min
- 2 Adult non-rebreather masks
- 2 Child non-rebreather masks
- 1 Infant mask
- 2 Nasal cannulas
- 1 Box large gloves
- 1 Box medium gloves
- 1 Box small gloves
- 1 Adult BVM
- 1 Child BVM
- 1 Infant BVM
- 1 Complete set oropharyngeal airways
- 1 Adult BP cuff
- 1 Child BP cuff
- 1 Stethoscope
- 1 Long backboard
- 1 CID/Head blocks or towel rolls
- 1 Set of spider straps
- 2 Cervical collars (Adult adjustable)
- 1 Burn sheet
- 1000mL Sterile saline/sterile water (exp. \_\_\_\_\_)
  
- 1 AED
- 2 Sets of adult defibrillation pads (exp. \_\_\_\_\_)
- 1 Set of pediatric defibrillation pads (exp. \_\_\_\_\_)
- Battery charger or spare battery
- 1 Razor
  
- 1 Glucometer
- 1 Bottle of glucometer strips (exp. \_\_\_\_\_)
- 10 Alcohol preps
- 10 Lancets (safety lancets with a retracting needle)
- 1 Bottle testing solution (exp. \_\_\_\_\_)
- Glucometer log (minimum of 1 time/week testing)

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

PEORIA AREA EMS SYSTEM  
PREHOSPITAL CARE MANUAL

**PAEMS BLS Non-Transport Supply List**

(Use in conjunction with IDPH Non-Transport Vehicle Inspection Form)

- |   |  |
|---|--|
| <input type="checkbox"/> 5 Triangular bandages                              | <input type="checkbox"/> Provider to hospital communication equipment                            |
| <input type="checkbox"/> 10 Rolls kling/Self-adhering roller bandages       | <input type="checkbox"/> 10 <i>PAEMS Non-Transport Forms</i>                                     |
| <input type="checkbox"/> 6 Trauma dressings                                 | <input type="checkbox"/> 1 Sterile OB Kit  |
| <input type="checkbox"/> 20 Sterile 4x4s                                    | <input type="checkbox"/> 1 Roll of aluminum foil or silver swaddler                              |
| <input type="checkbox"/> 2 Vaseline gauze                                   | <input type="checkbox"/> 1 Complete set of oropharyngeal airways                                 |
| <input type="checkbox"/> 2 Rolls of adhesive tape                           | <input type="checkbox"/> 1 Complete set of nasopharyngeal airways<br>(sizes 12-30F w/ lubricant) |
| <input type="checkbox"/> 2 Blankets   | <input type="checkbox"/> 1 Adult BP cuff   |
| <input type="checkbox"/> 1 Isolation bag                                    | <input type="checkbox"/> 1 Child BP cuff   |
| <input type="checkbox"/> 2 Sets of protective gowns, goggles & face shields | <input type="checkbox"/> 1 Infant BP cuff  |
| <input type="checkbox"/> 2 Long adult extremity splints/Sam splints         | <input type="checkbox"/> 1 Stethoscope   |
| <input type="checkbox"/> 2 Short adult extremity splints/Sam splints        | <input type="checkbox"/> 2 Long backboards (only 1 required for SEMSV)                           |
| <input type="checkbox"/> 2 Long pediatric extremity splints/Sam splints     | <input type="checkbox"/> 2 CIDs w/ head blocks or towel rolls                                    |
| <input type="checkbox"/> 2 Short pediatric extremity splints/Sam splints    | <input type="checkbox"/> 2 Sets of spider straps   |
| <input type="checkbox"/> 1 Box small gloves                                 | <input type="checkbox"/> 2 Rigid <i>No-neck</i> c-collars (or adjustable adult)                  |
| <input type="checkbox"/> 1 Box medium gloves                                | <input type="checkbox"/> 1 Rigid <i>Tall</i> c-collar (or adjustable adult)                      |
| <input type="checkbox"/> 1 Box large gloves                                 | <input type="checkbox"/> 1 Rigid <i>Short</i> c-collar (or adjustable adult)                     |
| <input type="checkbox"/> 1 Full primary oxygen cylinder (min. "D" size)     | <input type="checkbox"/> 1 Rigid <i>Pediatric</i> c-collar (or adjustable peds)                  |
| <input type="checkbox"/> Oxygen flow meter/regulator for 15 L/min           | <input type="checkbox"/> 1 Rigid <i>Baby No-neck</i> c-collar (or adjustable peds)               |
| <input type="checkbox"/> 2 Adult non-rebreather masks                       | <input type="checkbox"/> 2 Individually wrapped burn sheets                                      |
| <input type="checkbox"/> 2 Child non-rebreather masks                       | <input type="checkbox"/> 1 Flashlight  |
| <input type="checkbox"/> 1 Infant mask                                      |  |
| <input type="checkbox"/> 1 Adult BVM  |  |
| <input type="checkbox"/> 1 Child BVM  |  |
| <input type="checkbox"/> 1 Infant BVM                                       |  |
| <input type="checkbox"/> 2 Nasal cannulas                                   |  |
| <input type="checkbox"/> Suction unit (or manually operated suction unit)   |  |
| <input type="checkbox"/> 1000mL Sterile saline/water (exp. _____)           | <input type="checkbox"/> 1 AED (Not required for ILS & ALS)                                      |
| <input type="checkbox"/> 6 Cold packs                                       | <input type="checkbox"/> 2 Sets of adult defibrillation pads (exp. _____)                        |
| <input type="checkbox"/> 6 Hot packs  | <input type="checkbox"/> 1 Set of pediatric defibrillation pads<br>(exp. _____)                  |

- 1 Glucometer
- 1 Bottle of glucometer strips (exp. \_\_\_\_\_)
- 10 Alcohol preps
- 10 Lancets (safety lancets with a retracting needle)
- 1 Bottle testing solution (exp. \_\_\_\_\_)
- Glucometer log (minimum of 1 time/week testing)

- 2 Adult nebulizer masks
- 1 Pediatric nebulizer mask
- 3 King LTS-D Airway Device (one each of size 3, 4 and 5)
- 1 Salem Sump Tube (18F)
- 2 Nebulizer kits

**Medications**

(See BLS Medication List)

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

## ILS Non-Transport Additional Supply List

(Use in conjunction with PAEMS BLS Non-Transport Supply List)

### Airway Bag

- 1 Pair Magill forceps
- 1 Laryngoscope handle
- 1 (Each size 1-4) laryngoscope blade – straight
- 1 (Each size 1-4) laryngoscope blade – curved
- 1 (Each size 6.0-8.5) Cuffed endotracheal tubes
- Spare laryngoscope handle batteries  
(stored in a plastic container)
- 1 Adult end-tidal CO<sub>2</sub> detector
- 1 Commercial ETT holder
- 1 10mL syringe
- 1 Adapter for ETT Albuterol administration
- 3 Sterile semi-rigid pharyngeal suction tips
- 1 Sterile 6-8F suction catheter
- 1 Sterile 10-12F suction catheter
- 1 Sterile 14-18F suction catheter
- 1 Suction tubing
- 1 Salem Sump Tube (18F)
- \*King LTS-D size 3, 4 and 5, must be in the airway bag

### IV Therapy Equipment – Drug Box

- 2 (Each size 22g – 14g) IV catheters
- 2 Saline locks
- 5 (2-3mL) Pre-filled saline flushes
- 1 Tubex syringe
- 5 (18g & 25g) Hypodermic needles
- 10 Alcohol preps
- 5 Veniguards
- 2 (10gtts) IV tubing
- 2 (1000mL Bags) .9% Normal Saline
- 10 2x2s (or 4x4s)
- 4 Tourniquets
- 1 Roll of tape

### Monitoring Equipment

- Cardiac monitor/defibrillator w/ screen and printing capability; 12-Lead acquisition and transmission capabilities (in place of AED)
- 1 Set of pediatric defibrillation pads (required)  
(exp. \_\_\_\_\_)

### Other Equipment

- 3 (1mL) syringes
- 3 (3mL) syringes
- 3 (10mL) syringes
- 1 (30mL) syringe
- 1 (60mL) syringe
- 2 Sets **soft** restraints

### Medications

(See ILS Medication List)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## ALS Non-Transport Additional Supply List

(Use in conjunction with PAEMS BLS Non-Transport Supply List)

### Airway Bag

- 1 Pair adult Magill forceps
- 1 Pair pediatric Magill forceps
- 1 Large laryngoscope handle
- 1 Small laryngoscope handle
- 1 (Each size 1-4) laryngoscope blade – straight
- 1 (Each size 1-4) laryngoscope blade – curved
- 1 (Each size 6.0-8.5) cuffed endotracheal tubes
- Spare laryngoscope handle batteries  
(stored in a plastic container)
- 1 Adult end-tidal CO<sub>2</sub> detector
- 1 Pediatric end-tidal CO<sub>2</sub> detector
- 1 Commercial adult ETT holder
- 1 Commercial pediatric ETT holder
- 1 10mL syringe
- 1 Adapter for ETT Albuterol administration
- 2 CPAP circuits (1 can be stored in vehicle)
- 1 CPAP flow generator
- 1 Salem sump tube (18F)
- 1 Catheter tip syringe (60mL)
- 3 Sterile semi-rigid pharyngeal suction tips
- 1 Sterile 6-8F suction catheter
- 1 Sterile 10-12F suction catheter
- 1 Sterile 14-18F suction catheter
- 1 Suction tubing

\*King LTS-D Device size 3, 4 and 5 must be in the airway bag

### IV Therapy Equipment – Drug Box

- 2 (Each size 22g – 14g) IV catheters
- 2 Saline locks
- 5 (2-3mL) Pre-filled saline flushes
- 1 Tubex syringe
- 5 (18g & 25g) Hypodermic needles
- 10 Alcohol preps
- 5 Veniguards
- 2 (10gtts) IV tubing
- 2 (1000mL Bags) .9% Normal Saline
- 1 (250mL Bag) .9% Normal Saline
- 10 2x2s (or 4x4s)
- 4 Tourniquets
- 1 Roll of tape

### Monitoring Equipment

Cardiac monitor/defibrillator w/ screen and printing capability; 12-Lead acquisition and transmission capabilities; pacing capability; Synchronized cardioversion capability (in place of AED)

1 Set of pediatric defibrillation pads (required)  
(exp. \_\_\_\_\_)

### Other Equipment

- 3 (1mL) syringes
- 3 (3mL) syringes
- 3 (10mL) syringes
- 1 (30mL) syringe
- 1 (60mL) syringe
- 1 (60gtts) IV tubing
- 1 Chest decompression kit with valve device
- 1 Jamshidi IO needle
- 1 EZ-IO drill
- 2 Adult (15g, 25mm) EZ-IO needles
- 2 Pediatric (15g, 15mm) EZ-IO needles
- 5 NTG papers for Nitro-Bid application
- 2 Sets **soft** restraints

### Medications

(See ALS Medication List)

Signature: \_\_\_\_\_  
Date: \_\_\_\_\_

PEORIA AREA EMS SYSTEM  
PREHOSPITAL CARE MANUAL

INSERT IDPH AMBULANCE INSPECTION FORM

PEORIA AREA EMS SYSTEM  
PREHOSPITAL CARE MANUAL

**PAEMS Ambulance Supply List**  
(Use in conjunction with IDPH Ambulance Inspection Form)

**On-Board Equipment (at minimum)**

- Wheeled cot w/ 3 sets of straps + over-the-shoulder straps along w/ 3 point fastener for the cot
- 1 stair chair
- Full primary oxygen cylinder (minimum "M" size)
- 3 Nasal cannulas
- 2 Adult non-rebreather masks
- 2 Child non-rebreather masks
- 3 Child nasal cannulas
- 2 Infant masks
- Suction (obtains 300mm within 4 seconds)
- Suction canister (1000mL)
- 3 sterile semi-rigid pharyngeal suction tips
- 1 sterile 6, 8, 10, 12, 14, 16, 18F suction catheters
- 2 Suction tubing
- 1 Adult BVM
- 1 Child BVM
- 1 Infant BVM w/infant & newborn masks
- 1 Large adult BP cuff
- 1 Adult BP cuff
- 1 Child BP cuff
- 1 Infant BP cuff
- 2 Stethoscopes
- 1 Complete oropharyngeal airway kit
- 1 Complete nasopharyngeal airway kit (12-36F)
- 5 Packets water-soluble lubricant
- 1 Pair trauma shears
- 2 Long adult extremity splints/Sam splints
- 2 Short adult extremity splints/Sam splints
- 2 Long pediatric extremity splints/Sam splints
- 2 Short pediatric extremity splints/Sam splints
- 1 Adult traction splint
- 1 Pediatric traction splint
- 1 KED
- 2 Rigid *No-neck* c-collars (or adjustable adult)
- 1 Rigid *Tall* c-collar (or adjustable adult)
- 1 Rigid *Regular* c-collar (or adjustable adult)
- 1 Rigid *Short* c-collar (or adjustable adult)
- 1 Rigid *Pediatric* c-collar (or adjustable peds)
- 1 Rigid *Baby No-neck* c-collar (or adjustable peds)
- 2 Long spine boards
- 2 Sets of spider straps
- 2 Sets CIDs w/ head blocks or towel rolls
- 6 Trauma dressings (12" x 30")
- 20 Sterile 4x4s
- 10 Rolls (4" x 5 yards) self-adhering bandages
- 2 Vaseline gauze (3" x 8")
- 2 Rolls of tape
- 5 Triangular bandages
- 2 Individually wrapped burn sheets
- 2000mL Sterile saline/water (exp. \_\_\_\_\_)
- 1 Quart drinking water (may sub sterile water)
- 2 Emesis basins
- 1 CPR mask w/ safety valve
- 6 Cold packs
- 6 Hot packs
- 1 Disposable urinal
- 1 Disposable bed pan
- 2 *Emergency Childbirth Record* Forms
- 1 Sterile OB kit
- 1 Thermal absorbent blanket and head cover or aluminum foil or appropriate heat reflective material
- 1 Child/infant car seat or convertible car seat
- 1 Pediatric equipment/drug dosing sizing tape, current or Pediatric equipment/drug age/weight chart
- Pediatric trauma score reference
- Poison control number displayed
- 2 Sets of **soft** restraints
- 2 Pillows
- 2 Pillowcases
- 2 Sheets
- 2 Blankets
- 4 Towels
- 1 Box small gloves
- 1 Box medium gloves
- 1 Box large gloves
- 1 Facemask per crew member
- 2 Sets of protective gowns, goggles & face shields
- 1 Latex allergy kit (non-latex gloves, BP cuff sleeve, stethoscope w/ non-latex tubing)
- 10 *PAEMS Preliminary Run Report* forms
- 10 IDPH ambulance run report forms or electronic documentation with paper backup
- 1 Large red biohazard bag
- 1 Sharps container
- 1 Flashlight
- 2 – 5lb *ABC* fire extinguishers
- 1 Cell phone
- Ambulance to hospital radio equipment
- 24" Minimum wrecking bar & goggles
- 1 Box *Zip lock* bags
- 1 Box Kleenexes or toilet tissue

PEORIA AREA EMS SYSTEM  
PREHOSPITAL CARE MANUAL

**PAEMS Ambulance Supply List**  
(Use in conjunction with IDPH Ambulance Inspection Form)

**Portable Equipment (at minimum)**

- 1 Full primary oxygen cylinder (minimum "D" size) w/ dial flow meter/regulator for 15 L/min
- 1 Full spare oxygen cylinder (Minimum "D" size)
- 1 Adult non-rebreather mask
- 1 Child non-rebreather mask
- 1 Infant mask
- 1 Adult nasal cannula
- 1 Child nasal cannula
- 1 Adult BVM
- 1 Child BVM
- 1 Infant BVM w/infant & newborn masks
- Pulse oximeter w/ both adult and pediatric probes
- 1 Portable suction unit
- 1 Sterile semi-rigid pharyngeal suction tip
- 1 sterile 6, 8, 10, 12, 14, 16, 18F suction catheters
- 1 Suction tubing
- 1 Complete oropharyngeal airway kit
- 1 Complete nasopharyngeal airway kit (12-36F)
- 5 Packets water-soluble lubricant
  
- 3 King Airway LTS-D (one of each size 3, 4, 5)  
(must be in the airway kit)
- 1 Salem Sump Tube (18F)
- 2 Nebulizer kits
- 2 Adult nebulizer masks
- 1 Pediatric nebulizer mask
  
- 1 AED (Not required for ILS & ALS)
- 2 Sets of adult defibrillation pads (exp. \_\_\_\_\_)
- 1 Set of pediatric defibrillation pads  
(exp. \_\_\_\_\_)
- Battery charger or spare battery
- 1 Razor

- 1 Glucometer
- 1 Bottle of glucometer strips (exp. \_\_\_\_\_)
- 10 Alcohol preps
- 10 Lancets (safety lancets with a retracting needle)
- 1 Bottle testing solution (exp. \_\_\_\_\_)
- Glucometer Log (minimum of 1 time/week testing)

**Medications**

(See medication list for the appropriate level)

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

## First Responder Medication List

### First Responder Medications – *Minimum Requirements*

<i>Unit Stock</i>	<i>Medication</i>	<i>Supplied</i>	<i>Expiration Date(s)</i>
3	Oral Glucose	15g tube	1. 2. 3.
1	Narcan	2mg/2mL	

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PREHOSPITAL CARE MANUAL

**BLS Medication List**

**BLS Medications – *Minimum Requirements***

<i>Unit Stock</i>	<i>Medication</i>	<i>Supplied</i>	<i>Expiration Date(s)</i>
5	Albuterol (Proventil)	2.5mg/3mL unit dose	1. 2. 3. 4. 5.
1	Aspirin (ASA)	1 bottle – 81mg chewable tablets	
5	Atrovent (Ipratropium)	0.5mg/2.5mL unit dose	
1	Epi-Pen Auto-injector	0.3mg pre-filled injector	
1	Epi-Pen Jr Auto-Injector	0.15mg pre-filled injector	
2	Glucagon (Optional)	1mg & diluent unit dose	
1	Nitroglycerin (NTG) Tablets	1 bottle – 0.4mg per tablet	
3	Oral Glucose	15g tube	1. 2. 3.
1	Narcan	2mg/2mL	

## PAEMS ILS Ambulance Additional Supply List

(Use in conjunction with IDPH Ambulance Inspection Form  
& PAEMS Ambulance Supply List)

### Airway Bag

- 1 Pair Magill forceps
- 1 Laryngoscope handle
- 1 (each size 1-4) Laryngoscope blade – straight
- 1 (each size 1-4) Laryngoscope blade – curved
- 1 (each size 6.0-8.5) Cuffed endotracheal tubes
- Spare laryngoscope handle batteries
- 1 10mL syringe
- 1 Adult end-tidal CO<sub>2</sub> detector
- 1 Adult commercial ETT holder
- 1 Adapter for ETT Albuterol administration
- \*King LTS-D device size 3, 4 and 5, must be in the airway bag
- 1 Salem Sump Tube (18F)

### IV Therapy Equipment – Drug Box

- 2 (Each size 22g – 14g) IV catheters
- 2 Saline locks
- 5 (2-3mL) Pre-filled saline flushes
- 1 Tubex syringe
- 5 (18g & 25g) Hypodermic needles
- 10 Alcohol preps
- 5 Veniguards
- 2 (10gtts) IV tubing
- 2 (1000mL Bags) .9% Normal Saline
- 10 2x2s (or 4x4s)
- 4 Tourniquets
- 1 Roll of tape

### IV Therapy Equipment – Vehicle

- 2 (Each size 22g – 14g) IV catheters
- 2 Saline locks
- 5 (2-3mL) Pre-filled saline flushes
- 1 Tubex syringe
- 5 (18g & 25g) Hypodermic needles
- 10 Alcohol preps
- 10 Veniguards
- 4 (10gtts) IV tubing
- 4 (1000mL Bags) .9% Normal Saline
- 10 2x2s (or 4x4s)
- 4 Tourniquets

### Monitoring Equipment

- Cardiac monitor/defibrillator w/ screen and printing capability; 12-Lead acquisition and transmission capabilities (in place of AED)
- 1 Set of pediatric defibrillation pads (required)  
(exp. \_\_\_\_\_)

### Other Equipment

- 2 (1mL) syringes (in vehicle & drug box)
- 2 (3mL) syringes (in vehicle & drug box)
- 2 (10mL) syringes (in vehicle & drug box)
- 1 (30mL) syringe (vehicle)
- 1 (60mL) syringe (vehicle)

### Medications

(See ILS Medication List)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

PEORIA AREA EMS SYSTEM  
PREHOSPITAL CARE MANUAL

**ILS Medication List**

**ILS Medications – *Minimum Requirements***

<i>Unit Stock</i>	<i>Medication</i>	<i>Supplied</i>
3	Adenocard (Adenosine)	6mg/2mL vial
5	Albuterol (Proventil)	2.5mg/3mL unit dose
1	Aspirin (ASA)	1 bottle – 81mg chewable tablets
3	Atropine	1mg/10mL pre-filled syringe
5	Atrovent (Ipratropium)	0.5mg/2.5mL unit dose
2	Dextrose 50% (D50)	25g/50mL pre-filled syringe
6	Epinephrine 1:10,000	1mg/10mL pre-filled syringe
1	Epi-Pen Auto-Injector	0.3mg pre-filled injector
1	Epi-Pen Jr Auto-Injector	0.15mg pre-filled injector
1	Glucagon	1mg & diluent unit dose
3	Oral Glucose	15g Tube
4	Lidocaine	100mg/5mL pre-filled syringe
2	Ondansetron (Zofran)	4mg Orally Disintegrating Tablet
2	Narcan (Naloxone)	2mg/2mL ampule
1	Nitroglycerin (NTG) tablets	1 bottle – 0.4mg per tablet
5	Nitropaste (Nitro-Bid)	1 inch pre-measured foil packet
<b><i>Controlled Substance Container</i></b>		
2	Fentanyl	100mcg/2mL vial
2	Versed (Midazolam)	5mg/5mL vial
2	Versed (Midazolam)	10mg/2mL vial

## PAEMS ALS Ambulance Additional Supply List

(Use in conjunction with IDPH Ambulance Inspection Form  
& PAEMS Ambulance Supply List)

### Airway Bag

- 1 Pair adult Magill forceps
- 1 Pair pediatric Magill forceps
- 1 Large laryngoscope handle
- 1 Small (pediatric) laryngoscope handle
- 1 (Each size 1-4) laryngoscope blade – straight
- 1 (Each size 1-4) laryngoscope blade – curved
- 1 (Each size 6.0-8.5) cuffed endotracheal tubes
- 1 (each size 2.5-5.5) un-cuffed ET tubes
- Spare laryngoscope handle batteries
- 1 10mL syringe
- 1 Adult end-tidal CO<sub>2</sub> detector
- 1 Pediatric end-tidal CO<sub>2</sub> detector
- 1 Commercial adult ETT holder
- 1 Commercial pediatric ETT holder
- 1 Adapter for ETT Albuterol administration
- 1 CPAP circuit
- 1 CPAP flow generator
- 1 Salem sump tube (18F)
- 1 Catheter tip syringe (60mL)

\*King LTS-D device size 3, 4 and 5, must be in the airway bag

### IV Therapy Equipment – Drug Box

- 2 (Each size 22g – 14g) IV catheters
- 2 Saline locks
- 5 (2-3mL) Pre-filled saline flushes
- 1 Tubex syringe
- 5 (18g & 25g) Hypodermic needles
- 10 Alcohol preps
- 5 Veniguards
- 2 (10gts) IV tubing
- 2 (1000mL bags) .9% Normal Saline
- 1 (250mL bag) .9% Normal Saline
- 1 (60gts) IV tubing
- 10 2x2s (or 4x4s)
- 4 Tourniquets
- 1 Roll of tape

### IV Therapy Equipment – Vehicle

- 4 (Each size 22g – 14g) IV catheters
- 2 Saline locks
- 5 (2-3mL) Saline flushes
- 2 Tubex syringes
- 5 (18g & 25g) Hypodermic needles
- 10 Alcohol preps
- 10 Veniguards
- 4 (10gts) IV tubing
- 4 (1000mL Bags) .9% Normal Saline
- 1 (250mL Bag) .9% Normal Saline
- 1 (60 gts) IV tubing
- 10 2x2s (or 4x4s)

### Monitoring Equipment

Cardiac monitor/defibrillator w/ screen and printing capability; 12-Lead acquisition and transmission capabilities; Pacing capability; Synchronized cardioversion capability (in place of AED)

### Other Equipment

- 2 (1mL) syringes (in vehicle & drug box)
- 2 (3mL) syringes (in vehicle & drug box)
- 2 (10mL) syringes (in vehicle & drug box)
- 1 (30mL) syringe (vehicle)
- 1 (60mL) syringe (vehicle)
- 1 Chest decompression kit with valve device
- 1 Jamshidi IO needle (drug box)
- 1 EZ-IO drill
- 2 Adult (15g, 25mm) EZ-IO needles
- 2 Pediatric (15g, 15mm) EZ-IO needles
- 1 Spare CPAP circuit (vehicle)
- 1 Spare Salem sump tube (18F) (vehicle)
- 5 NTG papers for Nitro-Bid application

### Medications

See ALS Medication List)

Signature /

Date: \_\_\_\_\_

## ALS Medication List

### ALS Medications – Minimum Requirements

<i>Unit Stock</i>	<i>Medication</i>	<i>Supplied</i>
3	Adenocard (Adenosine)	6mg/2mL vial
5	Albuterol (Proventil)	2.5mg/3mL unit dose
3	Amiodarone	150mg/3mL vial
1	Aspirin (ASA)	1 bottle – 81mg chewable tablets
3	Atropine	1mg/10mL pre-filled syringe
5	Atrovent (Ipratropium)	0.5mg/2.5mL unit dose
2	Benadryl (Diphenhydramine)	50mg/1mL pre-filled syringe
2	Dextrose 50% (D50)	25g/50mL pre-filled syringe
1	Dopamine	400mg/250mL in D5W
2	Epinephrine 1:1000	1mg/1mL ampule
6	Epinephrine 1:10,000	1mg/10mL pre-filled syringe
1	Glucagon	1mg & diluent unit dose
3	Oral Glucose	15g Tube
4	Lidocaine	100mg/5mL pre-filled syringe
2	Narcan (Naloxone)	2mg/2mL ampule
1	Nitroglycerin (NTG) Tablets	1 bottle – 0.4mg per tablet
5	Nitropaste (Nitro-Bid)	1 inch pre-measured foil packet
2	Ondansetron (Zofran)	4mg/2mL vial
2	Ondansetron (Zofran)	4mg Orally Disintegrating Tablet
2	Sodium Bicarbonate	50 mEq/50mL pre-filled syringe
2	Solu-Medrol	125mg/2mL vial
1	Tranexamic Acid	1000mg/10mL
<b><i>Controlled Substance Container</i></b>		
2	Fentanyl	100mcg/2mL vial
2	Versed (Midazolam)	5mg/5mL vial
2	Versed (Midazolam)	10mg/2mL vial
1	Morphine Sulfate	10mg/1mL

## Controlled Substances Policy

### Purpose

The Peoria Area EMS System recognizes that EMS agencies must stock medications, including controlled substances, on site and on each licensed EMS vehicle to provide optimal patient care. An understanding of the risks associated with such practices, including the potential for abuse and diversion of such medications, is critically important, as are the development and maintenance of tracking mechanisms to prevent such events. This policy and procedure creates a mechanism for tracking controlled substances and identifying the personnel responsible for the inspection and accountability of these medications.

### Policy

- Controlled substances will be kept on site in a designated locked cabinet and inside each licensed EMS vehicle in a drug box/cabinet with a numbered lock intact. When the EMS vehicle is not in use it will be locked.
- At the beginning of each shift, two EMS providers will count the controlled substances in the designated locked cabinet on site, verify the count is accurate, document the levels on the Narcotic Par Level Sheet, and both will sign the sheet.
- At the beginning of each shift, two EMS providers will verify the controlled substance tags on the vehicle drug box are secure and the tag numbers match the Controlled Substance Usage Form. Upon verification, both providers will sign the form.
- If the tag is not intact or the number is not verifiable, an inventory will be taken immediately, a supervisor will be notified, and an incident report will be submitted to the PAEMS Quality Assurance Coordinator within 24 hours of the finding.
- Each usage of a controlled substance will be documented on the Controlled Substance Usage Form. All items on the form must be completed.
- Any controlled substance that was opened, but was not administered must be properly disposed and witnessed by the other provider on the vehicle. The amount wasted must be noted on the Controlled Substance Usage Form, signed by the provider wasting the substance and the provider who witnessed the wastage.
- Controlled substances on the vehicle will be inspected each shift by an EMS provider. The inspection will be documented with previous and current tag numbers. Any discrepancies will be reported to supervisor immediately. If no discrepancies are found the Controlled Substance Usage Form will be signed by the EMS provider that administered medications during the call and witnessed by the other EMS provider on the vehicle during the call.

## Controlled Substances Policy

### Policy (continued)

- When restock is needed, two EMS providers will restock the vehicle drug box from the designated locked cabinet on site, document the transaction on the Narcotic Par Level Sheet and the Controlled Substance Usage Form, and sign both.
- By signing the Narcotic Par Level Sheet and the Controlled Substance Usage Form, the EMS providers are confirming all of the controlled substances are secure, the counts are accurate, and the tag on the vehicle drug box is intact.
- At the end of each shift, the EMS provider will verify the tag on the controlled substances box on the vehicle is secure and the tag number matches the Controlled Substances Usage Form. New tag numbers must be documented on the form.
- The Narcotic Par Level Sheet, kept on site, will be changed at the end of each month. Thus, a new sheet will be started on the first day of each month.
- The individual agency will maintain the Narcotic Par Level Sheet and Controlled Substance Usage Forms and ensure all forms are available for inspection by IDPH, PAEMS Quality Assurance Coordinator, or any other authorized individual.
- The narcotic Par Level Substance Sheets and Controlled Substance Usage Forms will be kept on file for 7 years.
- If any agency is using an electronic locking/tracking device, an electronic report will be utilized to track the daily usage in the cabinet. A copy of the log may be requested by the Peoria Area EMS Office at any time.



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Intranasal Fentanyl Dosing Chart		
Patient Weight	Dosage (2mcg/kg)	Dead Space Volume
3-5kg (6-11 Lbs)	10 mcg (0.2 ml)	(+ 0.1 ml)
6-10kg (13-22 Lbs)	20 mcg (0.4 ml)	(+ 0.1 ml)
11-15kg (24-33 Lbs)	30 mcg (0.6 ml)	(+ 0.1 ml)
16-20kg (35-44 Lbs)	40 mcg (0.8 ml)	(+ 0.1 ml)
21-25kg (46-55 Lbs)	50 mcg (1.0 ml)	(+ 0.1 ml)
26-30kg (57-66 Lbs)	60 mcg (1.2 ml)	(+ 0.1 ml)
31-35kg (68-77 Lbs)	70 mcg (1.4 ml)	(+ 0.1 ml)
36-40kg (79-88 Lbs)	80 mcg (1.6 ml)	(+ 0.1 ml)
41-45kg (90-99 Lbs)	90 mcg (1.8 ml)	(+ 0.1 ml)
46-50kg (101-110 Lbs)	100 mcg (2.0 ml)	No Extra
51-55kg (112-121 Lbs)	110 mcg (2.2 ml)	**(+ 0.1 ml)**
56-60kg (123-132 Lbs)	120 mcg (2.4 ml)	**(+ 0.1 ml)**
61-70kg (134-154 Lbs)	140 mcg (2.8 ml)	**(+ 0.1 ml)**
71-80kg (156-176 Lbs)	160 mcg (3.2 ml)	**(+ 0.1 ml)**
81-90kg (178-198 Lbs)	180 mcg (3.6 ml)	**(+ 0.1 ml)**
91-100kg (200-220 Lbs)	200 mcg (4.0 ml)	No Extra
		**Divide dose in 1/2 and administer 10 minutes apart to reduce runoff**

PEORIA AREA EMS SYSTEM  
PREHOSPITAL CARE MANUAL

Intranasal Versed (Midazolam) Dosing Chart					
Patient Age (years)	Weight	5mg/5mL Concentration		10mg/2mL Concentration	
		Dose (mg)	Dose (mL)	Dose (mg)	Dose (mL)
Neonate	3kg (6)Lbs	0.6 mg	0.7 ml	0.6 mg	0.3 mL
<1 yr	6kg (13) Lbs	1.2 mg	1.3 ml	1.2 mg	0.4 mL
1	10kg (22) Lbs	2.0 mg	2.1 ml	2.0 mg	0.5 mL
2	14kg (30) Lbs	2.8 mg	2.9 ml	2.8 mg	0.7 mL
3	16kg (35) Lbs	3.2 mg	3.3 ml	3.2 mg	0.8 mL
4	18kg (40) Lbs	3.6 mg	3.8 ml	3.6 mg	0.9 mL
5	20kg (44) Lbs	4.0 mg	4.1 ml	4.0 mg	1.0 mL
6	22kg (48) Lbs	4.4 mg	4.5 ml	4.4 mg	1.0 mL
7	24kg (53) Lbs	4.8 mg	4.9 ml	4.8 mg	1.1 mL
8	26kg (57) Lbs	5.2 mg	5.3 ml	5.2 mg	1.2 mL
9	28kg (62) Lbs	5.6 mg	5.7 ml	5.6 mg	1.3 mL
10	30kg (66) Lbs	6.0 mg	6.1 ml	6.0 mg	1.4 mL
11	32kg (70) Lbs	6.4 mg	6.5 ml	6.4 mg	1.4 mL
12	34kg (75) Lbs	6.8 mg	6.9 ml	6.8 mg	1.5 mL
Small Teenager	40kg (88) Lbs	8.0 mg	8.1 ml	8.0 mg	1.8 mL
Full Grown Teen or Adult	>50kg (>110) Lbs	10.0 mg	10.1 ml	10.0 mg	2.0 mL

For Children: Total weight (kg) X 0.2 mg = total mg dose of Midazolam, maximum dose of 10 mg

\*Volume is based on the calculated dose PLUS 0.10 mL dead space in the device. The total volume is then rounded off to the next highest 0.1 mL. In some children a higher dose may be needed (0.3 mg/kg).



# *Peoria Area EMS System*



## *Pediatric Prehospital Care Manual*

*Revised July 11, 2016*

**PEORIA AREA EMS SYSTEM  
PEDIATRIC PREHOSPITAL CARE MANUAL**

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**Pediatric Assessment Process and Management**

A patient **under the age of sixteen (16)** is considered to be a pediatric patient. Utilization of pediatric treatment guidelines and the extent of care rendered is based on the general impression of the pediatric patient's condition, physical examination findings and the history of the event. *Patients 16 years or older will be treated with adult protocols.*

The goal of the pediatric patient assessment process is similar to that of the adult patient. However, children are **not** "little adults". The causes of catastrophic events, such as cardiac arrest, are most often related to respiratory failure, shock or central nervous system injuries. Early recognition and treatment of the pediatric patient's injuries or illness is important to ensure the best outcome.

Special attention and awareness must be given to the pediatric patient's exceptional ability to compensate for respiratory failure and shock. Vital signs are valuable in the assessment of the pediatric patient but do have significant limitations and be dangerously misleading. For example, hypotension is a late and often sudden sign of cardiovascular decompensation. Tachycardia (which varies by age group) will persist until cardiac reserve is depleted. Bradycardia is an ominous sign of impending cardiac arrest.

Infants and children are able to maintain their blood pressure by increasing peripheral vascular resistance (shunting) and heart rate. **The pediatric patient can be in compensated shock and exhibit a normal blood pressure and skin condition.** This increases the importance of the EMS provider understanding of pediatric vital signs and behavior patterns.

The EMS provider must establish a general impression of the pediatric patient. This impression, which is critical, should be done from the doorway of the room. Therefore, the pediatric patient will not be disturbed by a "hands-on" assessment. A simple question to ask yourself is, "How sick is this child?"

**Three (3) key areas of importance of a general impression are:**

- 1. Appearance**
- 2. Work of breathing**
- 3. Circulation to skin**

The three components are known as the *Pediatric Assessment Triangle (PAT)* established by the American Academy of Pediatrics (2000).

**PEORIA AREA EMS SYSTEM  
PEDIATRIC PREHOSPITAL CARE MANUAL**

**Pediatric Assessment Process and Management**

**Pediatric Assessment Triangle (PAT)**

**Appearance**

The appearance of the pediatric patient should be assessed from the doorway. This is the most important aspect to consider when determining how sick or injured the child is. *Appearance* will give the EMS provider insight on oxygenation, neurological status and ventilation. Remember, the sick child may be alert on the conventional AVPU scale, but still have an abnormal appearance. Children need a more subtle assessment tool so that life-threatening injuries can be identified earlier. A good mnemonic to remember when assessing appearance is “tickles” (TICLS):

<i>Characteristic</i>	<i>Features to look for:</i>
<b>Tone</b>	Is he/she moving or resisting examination vigorously? Does he/she have good muscle tone? Or, is he/she limp, listless or flaccid?
<b>Interactiveness</b>	How alert is the child? How readily does a person, object, or sound distract him/her or draw his/her attention? Will he/she reach for, grasp and play with a toy or exam instrument such as a penlight or tongue blade? Or, is he/she uninterested in playing or interacting with the caregiver or prehospital professional?
<b>Consolability</b>	Can he/she be consoled or comforted by the caregiver or by the prehospital professional? Or, is his/her crying or agitation unrelieved by gentle assurance?
<b>Look/Gaze</b>	Does he/she fix his/her gaze on a face? Or, is there a “nobody home,” glassy-eyed stare?
<b>Speech/Cry</b>	Is his/her cry strong and spontaneous, or weak or high-pitched? Is the content of speech age-appropriate, or confused or garbled?

The *TICLS* Mnemonic (PEPP/AAP 2<sup>nd</sup> Edition 2006)

**PEORIA AREA EMS SYSTEM  
PEDIATRIC PREHOSPITAL CARE MANUAL**

**Pediatric Assessment Process and Management**

**Pediatric Assessment Triangle (PAT)**

**Work of Breathing**

Assessing work of breathing must go beyond the rate and quality of respirations that is used for adult patients. Work of breathing is an accurate indicator of the oxygenation and ventilation status of the pediatric patient. This is another “hands off” evaluation method in order to avoid disturbing the pediatric patient and causing anymore respiratory distress (other than what is already present).

<i>Characteristic</i>	<i>Features to look for:</i>
<b>Abnormal Airway Sounds</b>	Snoring, muffled or hoarse speech; stridor; grunting; wheezing
<b>Abnormal Positioning</b>	Sniffing position, tripodding, refusing to lie down
<b>Retractions</b>	Supraclavicular, intercostal, or substernal retractions of the chest wall; “head bobbing” in infants
<b>Flaring</b>	Flaring of the nares on inspiration

**Characteristics of Work of Breathing (PEPP/AAP 2<sup>nd</sup> Edition 2006)**

**PEORIA AREA EMS SYSTEM  
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**Pediatric Assessment Process and Management**

**Pediatric Assessment Triangle (PAT)**

**Circulation to Skin**

A rapid circulatory assessment is needed to determine the perfusion status of the pediatric patient. The key is to assess the core perfusion status of the child. Assessing the skin and mucous membranes can do this. Circulation to the skin reflects the overall status of core circulation.

<i>Characteristic</i>	<i>Features to look for:</i>
<b>Pallor</b>	White or pale skin/mucous membrane coloration from inadequate blood flow
<b>Mottling</b>	Patchy skin discoloration due to vasoconstriction/vasodilation
<b>Cyanosis</b>	Bluish discoloration of skin and mucous membranes

**Characteristics of Circulation to Skin (PEPP/AAP 2<sup>nd</sup> Edition 2006)**

**PEORIA AREA EMS SYSTEM  
PEDIATRIC PREHOSPITAL CARE MANUAL**

**Pediatric Assessment Process and Management**

**Pediatric Assessment Triangle (PAT)**

**Putting it all Together**

The goal of pediatric patient care is to identify patients in shock or at risk of shock, initiating care that will directly assist maintaining the patient’s perfusion and safely transporting the patient to an emergency department or trauma center in a timely manner. The benefit of remaining on scene to establish specific treatments versus prompt transport to a definitive care facility should be a consideration of each patient contact. Requesting advanced assistance is another important resource that BLS & ILS providers should consider.

**Notes on Pediatric Shock:**

<i>Mechanism</i>	<i>Medical</i>	<i>Traumatic</i>
<b>Hypovolemia</b>	Blood Loss – Internal Bleeding Fluid Loss – Dehydration	Blood Loss – Trauma Fluid Loss – Burns
<b>Cardiogenic (Pump Failure)</b>	Respiratory Failure Airway Obstruction Dysrhythmia	Chest Trauma Pneumothorax Pericardial Tamponade
<b>Vessel Failure</b>	Sepsis Anaphylaxis Chemical/Poisoning Endocrine Dysfunction	Spinal Cord Injury (Neurogenic)

Peoria Area EMS System *Notes on Pediatric Shock*

**PEORIA AREA EMS SYSTEM  
PEDIATRIC PREHOSPITAL CARE MANUAL**

**Pediatric Assessment Process and Management**

**Pediatric Age Definitions & Assessment Considerations**

**Neonate (0-1 Month):**

- Utilization of APGAR Scoring is helpful in assessing the neonate patient.

**Infant (1-12 Months):**

- Approach the infant slowly and calmly. Fast motion and loud noises may startle or agitate the infant.
- Use warm hands and assessment tools.
- Avoid doing anything potentially painful or distressing until after the assessment is completed.
- Have the caregiver assist in care – this is less threatening to the infant.
- Children over six (6) months of age are usually best examined in the arms of a parent. “Stranger anxiety” may be present and could eliminate other assessment options.
- If needed, calm the infant with a pacifier, blanket or favorite toy.

**Toddler (1-3 Years):**

- Approach the toddler slowly. Keep physical contact at a minimum until he/she feels familiar with you.
- Perform the assessment at the level of the toddler by sitting or squatting next to them and **allow the toddler to remain in the caregiver’s lap** whenever possible.
- Assessment should be **toe to head**. This is less threatening to the toddler.
- Give limited choices such as “Do you want me to listen to your chest or feel your wrist first?”

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**Pediatric Assessment Process and Management**

**Pediatric Age Definitions & Assessment Considerations**

**Toddler (1-3 Years) {Continued}:**

- Use simple, concrete terms and continually reassure the toddler.
- Do not expect the toddler to sit still and cooperate – be flexible.

**Preschooler (3-5 Years):**

- A preschool aged child is a “magical thinker.” Concrete concepts must be described in short, simple terms.
- A preschooler is often very cooperative during the assessment process and may be able to provide a history.
- Questions should be simple and direct.
- Allow the child to handle equipment.
- Use distractions.
- **Do not lie to the child. If the procedure is going to hurt, tell them.**
- Set limits on behavior (*e.g.* “You can cry or scream, but don’t bite or kick.”).
- Focus on one thing at a time.
- Play games with immobilized preschoolers to distract him/her and prevent them from squirming.

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**Pediatric Assessment Process and Management**

**Pediatric Age Definitions & Assessment Considerations**

**School Age (5-13 Years):**

- The school aged child is usually cooperative and can be the primary sources for the patient history.
- Explain all procedures simply and completely and respect the patient's modesty.
- Substance abuse issues may be present in this age group and should be considered during the care of altered level of consciousness cases.
- Children at this age are afraid of losing control, so let him/her be involved in the care. However, do not negotiate patient care unless the child really has a choice.
- Reassure the child that being ill or injured is not a punishment and praise them for cooperating.

**Adolescent (13-16 Years):**

- **The adolescent is more of an adult than a child and should be treated as such.** Depending on the nature of the problem, an accurate history may not be possible with parents observing. It may be necessary to separate the parent and child during the assessment.
- Regardless of who is present, respect the patient's modesty. Avoid exposing the adolescent unnecessarily.
- Explain what you are doing and *why* you are doing it!
- Show respect – speak to the adolescent directly. Do not turn to the caregiver for the initial information.

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**Pediatric Assessment Process and Management**

**Assessment of the Pediatric Patient**

**1. Scene Size-Up**

- Note anything suspicious at the scene (*e.g.* medications, household chemicals, other ill family members, etc.).
- Assess for any discrepancies between the history and the patient presentation (*e.g.* infant fell on hard floor but there is carpet throughout the house).

**2. General Approach to the Stable/Conscious Pediatric Patient**

- Utilize the *PAT (Pediatric Assessment Triangle)* to gain a general impression of the child.
- Assessments and interventions must be tailored to each child in terms of age, size and development.
- Smile, if appropriate to the situation.
- Keep voice at an even, quiet tone – do not yell.
- Speak slowly. Use simple, age appropriate terms.
- Keep small children with their caregiver(s) whenever possible and complete assessment while the caregiver is holding the child.
- Kneel down to the level of the child if possible.
- Be cautious in the use of touch. In the stable child, make as many observations as possible before touching (and potentially upsetting) the child.
- Adolescents may need to be interviewed without their caregivers present if accurate information is to be obtained regarding drug use, alcohol use, LMP, sexual activity or child abuse.
- ❖ Observe general appearance and determine if behavior is age appropriate.
- ❖ Observe for respiratory distress or extreme pain.
- ❖ Look at the position of the child.
- ❖ What is the level of consciousness?
- ❖ Muscle tone: good vs. limp.
- ❖ Movement: spontaneous, purposeful or symmetrical.
- ❖ Color: pink, pale, flushed, cyanotic or mottled.
- ❖ Obvious injuries: bleeding, bruising, gross deformities, etc.
- ❖ **Determine weight** – ask patient, caregiver(s) or use Broselow tape.

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**Pediatric Assessment Process and Management**

**Assessment of the Pediatric Patient**

**3. Initial Assessment**

- Airway access/maintenance with c-spine control
  - Maintain with assistance: positioning
  - Maintain with adjuncts: oral airway, nasal airway
  - Listen for any audible airway noises (*e.g.* stridor, snoring, gurgling, wheezing)
  - Patency: suction secretions as necessary
  
- Breathing
  - Rate & rhythm of respirations – compare to normal rate for age and situation
  - Chest expansion – symmetrical?
  - Breath sounds – compare both sides and listen for sounds (present, absent, normal, abnormal)
  - Positioning – sniffing position, tripod position
  - Work of breathing – retractions, nasal flaring, accessory muscle use, head bobbing, grunting
  
- Circulation
  - Heart rate – compare to normal rate for age and situation
  - Central pulses (*e.g.* brachial, carotid, femoral) – strong, weak or absent
  - Distal/Peripheral pulses (*e.g.* radial) – present/absent, thready, weak or strong
  - Color – pink, pale, flushed, cyanotic, mottled
  - Skin temperature – hot, warm, cool, or cold
  - Blood pressure – use appropriately sized cuff and compare to normal for the age of the child
  - Hydration status – observe anterior fontanel in infants, mucous membranes, skin turgor, crying tears, urine output, history to determine

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**Pediatric Assessment Process and Management**

**Assessment of the Pediatric Patient**

- Disability – Brief Neurological Examination:
  - Assess responsiveness – APGAR or TICLS
  - Assess pupils
  - Assess for transient numbness/tingling
- Expose and Examine:
  - Expose the patient as appropriate based on age and severity of illness.
  - Initiate measures to prevent heat loss and keep the child from becoming hypothermic.

**4. Rapid Assessment vs. Focused History & Physical Assessment**

- Tailor assessment to the needs and age of the patient.
- Rapidly examine areas specific to the chief complaint.
- *Responsive medical patients:* Perform focused assessment based on chief complaint. A full review of systems may not be necessary. If the chief complaint is vague, examine all systems and proceed to detailed exam.
- *Unresponsive medical patients:* Perform rapid assessment (*i.e.* ABCs & a quick head-to-toe exam). Render emergency care based on signs & symptoms, initial impression and standard operating procedures. Proceed to detailed exam.
- *Trauma patients with NO significant mechanism of injury:* Focused assessment is based on specific injury site.
- *Trauma patients with significant mechanism of injury:* Perform rapid assessment of all body systems and then proceed to detailed exam.

**5. Detailed Assessment**

- SAMPLE history – acquire/incorporate into physical exam.
- Vital signs (*i.e.* pulse, BP, respirations, skin condition, pulse ox)
- Assessment performed (usually en route) to detect non life-threatening conditions and to provide care for those conditions or injuries

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**Pediatric Assessment Process and Management**

**Assessment of the Pediatric Patient**

**6. Ongoing Assessment**

- To effectively maintain awareness of changes in the patient's condition, repeated assessments are essential and should be performed **at least every 5 minutes on the unstable patient** and **at least every 15 minutes on the stable patient**.

<i>Normal Pediatric Vital Sign Ranges</i>			
	<b>Heart Rate</b>	<b>Respiratory Rate</b>	<b>Blood Pressure</b>
<b>Infant</b>	100-160 bpm	30-60 rpm	> 60mmHg systolic
<b>Toddler</b>	90-150 bpm	24-40 rpm	> 70mmHg systolic
<b>Preschooler</b>	80-140 bpm	22-34 rpm	> 75mmHg systolic
<b>School Age</b>	70-120 bpm	18-30 rpm	> 80mmHg systolic
<b>Adolescent</b>	60-100 bpm	12-16 rpm	> 90mmHg systolic

**Critical Thinking Elements**

- Remember: Pediatric patients have extraordinary ability to compensate and may show normal vital signs even though they are in shock.

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**Pediatric Destination Determination Protocol**

**First Responder Care, BLS Care, ILS Care, ALS Care**

1. There are circumstances in pediatric emergency care as determined by local medical control where it would be appropriate to transport directly to an emergency department of a Pediatric Critical Care Center, "PCCC" (OSF St. Francis). Examples of such circumstances include, but are not limited to the following:
  - Prolonged seizures or status seizure activity
  - A lethargic infant or child
  - Cardiac arrest or Respiratory arrest
  - Significant toxic ingestion history
  - Severe respiratory distress (cyanosis or moderate to severe hypoxia)
  - Massive gastrointestinal (GI) bleed
  - Life threatening dysrhythmias
  - Compromised airway
  - Signs or symptoms of shock or sepsis
  - Trauma based on EMSC Pediatric Trauma guidelines.
2. If the pediatric patient's condition becomes unmanageable or exceeds the capability of the transporting unit (i.e. cardiac arrest, respiratory arrest) the patient should be treated at the closest most appropriate facility.
3. Call medical control for physician decision regarding destination determination. If the transport time is going to be greater than 30 minutes to the Pediatric Critical Care Center (PCCC), Medical control may consider having the transporting unit stop at the closest hospital for stabilization.
4. Pediatric emergency air ambulance transports should go directly to a Pediatric Critical Care Center (PCCC).

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**Routine Pediatric Care Protocol**

**First Responder Care**

First Responder Care should be focused on assessing the situation and establishing initial care to treat and prevent shock:

1. Open and/or maintain an open airway. Have suction equipment readily available to suction nose and mouth as needed.
2. Protect the child from environmental exposure. Give special consideration to the warmth of the infant (*e.g.* cover the head to prevent heat loss).
3. Reassure the patient and caregiver(s). Speak softly and calmly, maintaining conversation and explanation of exam and treatment. Use age-appropriate communication techniques.
4. Patient positioning will be based on assessment / patient condition, age / development and safety. Both the patient and caregiver should have the appropriate safety restraint devices / seat belts in place for transport.
5. Administer oxygen, preferably 10-15 L/min via non-rebreather mask (either on the child's face or holding the mask close to the face). If the patient does not tolerate a mask, then administer 4-6 L/min by nasal cannula.
6. Ensure that EMS has been activated for further care and transport. Provide responding units with pertinent patient information.
7. Monitor the patient's level of consciousness, vital signs, etc. for any acute changes.

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**Routine Pediatric Care Protocol**

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, providing care to treat for shock and preparing or providing patient transportation.

1. BLS Care includes the components of *First Responder Care*.
2. Attach pulse oximeter and obtain analysis, if indicated.
3. Attach cardiac monitor and print rhythm strip for documentation, if indicated.
4. Initiate ALS intercept, if indicated (or ILS intercept **if** ALS is unavailable).
5. Simultaneously with above, perform physical exam/assessment, obtain baseline vital signs and obtain patient history.
6. Establish on-line Medical Control as indicated.
7. Continue to reassess patient en route to the hospital.
8. Transport should be initiated at the earliest possible opportunity.

**ILS Care**

ILS Care should be directed at conducting a thorough patient assessment, providing care to treat for shock and preparing or providing patient transportation. The necessity of establishing IV access is determined by the patient's condition and chief complaint. Consideration should also be given to the proximity of the receiving facility.

1. ILS Care includes all of the components of *BLS Care*.
2. If indicated, establish IV access using a 1000mL solution of .9% Normal Saline with macro drip or blood tubing. No more than one (1) attempt should be made on scene. Infuse at a rate to keep the vein open (TKO) – approximately 8 to 15 drops (gtts) per minute. Dependent upon patient condition, consider initiating IV access en route to the hospital.

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**Routine Pediatric Care Protocol**

**ALS Care**

ALS Care should be directed at conducting a thorough patient assessment, providing care to treat for shock and preparing or providing patient transportation. The necessity of establishing IV access is determined by the patient's condition and chief complaint. Consideration should also be given to the proximity of the receiving facility.

1. ALS Care includes all of the components of *ILS Care*.

**Critical Thinking Elements**

- When determining the extent of care needed to stabilize the pediatric patient, the EMS provider should take into consideration the patient's presentation, chief complaint, risk of shock and proximity to the receiving facility.
- IV access in pediatric patients is difficult and may complicate the situation. Indications and benefits vs. patient disturbance and complications should be considered.
- If the patient exhibits signs of shock, administer fluid bolus (.9% Normal Saline) at 20mL/kg over 2 minutes.
- If the pediatric patient is in emergent need of fluids and/or medications (*i.e.* cardiac arrest, trauma, decompensated shock or severe burns) and peripheral IV access is unobtainable, proceed with intraosseous infusion (**ALS only**).
- Saline locks may be used as a drug administration route if fluid replacement is not indicated.
- IV access should not significantly delay initiation of transportation or be attempted on scene with a trauma patient meeting load-and-go criteria.

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**Basic Airway Management of the Pediatric Patient**

Establishing and maintaining an open airway and assuring adequate ventilation is a treatment priority with all patients. Proper techniques must be used to assure treatment maneuvers do not inadvertently complicate the patient's condition. Special consideration needs to be given when caring for the pediatric airway due to anatomical differences from the adult.

**Basic Airway Control**

1. Assure an open airway by utilizing either the head tilt/chin lift maneuver or the modified jaw thrust maneuver (without head-tilt). The head tilt/chin lift maneuver is NOT to be used if there is any possibility of cervical spine injury.
2. Expose the chest and visualize for chest rise and movement, simultaneously listen and feel for air movement at the mouth and nose. This procedure will need to be done initially and after correcting an obstruction and securing the airway.
3. If the chest is not rising and air exchange cannot be heard or felt:
  - a) Deliver two positive-pressure ventilations. If resistance continues, follow AHA sequences for obstructed airway rescue.
  - b) Reassess breathing and check for a brachial or carotid pulse.
  - c) If spontaneous respirations return and a pulse is present, provide supplemental oxygen by non-rebreather mask or assist respirations with bag-valve mask (BVM) at 15 L/min.
  - d) If the patient remains breathless and a pulse is present, initiate ventilations with a BVM at 15 L/min at a rate of 20-30 breaths per minute.
  - e) If the patient remains breathless and a pulse is not present, initiate CPR and institute the appropriate cardiac protocol.
4. If the patient presents with stridor, "noisy breathing" or snoring respirations, render treatment for partial airway obstruction in accordance with AHA guidelines:
  - a) Reassess effectiveness of the airway maneuver.
  - b) If initially unable to resolve partial airway obstruction, suction the airway and visualize the pharynx for any evidence of foreign objects. Perform a finger sweep if a foreign object can be seen. **Do not perform a blind finger sweep.**
  - c) If partial airway obstruction persists, treat according to AHA guidelines for resolving a complete airway obstruction.

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**Basic Airway Management of the Pediatric Patient**

**Basic Airway Control (continued)**

5. Once the obstruction has been corrected:
  - a) Insert an oropharyngeal airway in the unconscious patient (without a gag reflex).
  - b) Insert a nasopharyngeal airway in the conscious patient or an unconscious patient with a gag reflex. *Note:* Do not use a nasopharyngeal airway if the possibility of head injury exists.
6. Establish the presence and adequacy of breathing by observing the frequency, depth and consistency of respirations. Also, observe the chest wall for any indications of injuries which may contribute to respiratory compromise.
7. Supplemental oxygen should be delivered to any patient who exhibits signs of difficulty breathing, sensation of shortness of breath, tachypnea, use of accessory muscles, altered level of consciousness/altered mental status, cyanosis, cardiac symptoms, head injury or any indications of shock.
  - a) Supplemental oxygen should be provided by a non-rebreather mask (NRM) at a rate of 10-15 L/min (assuring reservoir bag is inflated).
  - b) If patient is unable to tolerate the NRM, administer oxygen via nasal cannula at a rate of 4-6 L/min.
8. Bag-valve mask ventilation with supplemental oxygen at 15 L/min should be initiated at the rate of 20-30/min if respirations are absent, there is evidence of inadequate ventilation, absent or diminished breath sounds or wounds to the chest wall.

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**Basic Airway Management of the Pediatric Patient**

**Critical Thinking Elements**

- The pediatric airway varies anatomically from the adult airway. The airway is smaller and more flexible, the tongue is relatively larger and the glottis is higher. These differences must be taken into consideration when positioning the head to maintain the airway (*i.e.* less hyperextension is needed to open the pediatric airway than the adult).
- Mucous, blood and vomit may easily block the pediatric airway. Therefore, careful attention must be given to clear the airway and appropriate pediatric suction equipment should be available.
- Inadequate maintenance of the patient's airway, inappropriate airway maneuvers, using inappropriately sized airway equipment and/or failure to recognize an obstructed airway will complicate the patient's condition and can lead to bradyarrhythmias / cardiac arrest.
- Do NOT use the head tilt/chin lift maneuver on a patient with a suspected cervical spine injury.
- Proper facemask seal during artificial ventilations is imperative to assure adequate ventilation.
- Inadequate oxygen delivery settings (*i.e.* too low) will complicate the patient's condition.

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**Pediatric Airway Obstruction Procedure**

An airway obstruction is life threatening and must be corrected immediately upon discovery.

1. If the patient has an obstructed airway and is still conscious:
  - a) Encourage the patient to cough.
  - b) Perform 5 abdominal thrusts (5 back blows & 5 chest thrusts in the infant) if the cough is unsuccessful.
  - c) Repeat until the obstruction is relieved or the patient becomes unconscious.
  - d) Administer oxygen at 15 L/min if the patient has a partial airway obstruction and is still able to breathe.
  
2. If the patient is unconscious:
  - a) Open the patient's airway and attempt to ventilate.
  - b) Reposition the head and reattempt to ventilate if initial attempt is unsuccessful.
  - c) Perform 5 abdominal thrusts (5 back blows/chest thrusts in the infant).
  - d) Remove object if visualized. **Do not perform a blind finger sweep of the patient's mouth.** Reattempt to ventilate.
  - e) Repeat step (c) if obstruction persists.
  - f) **BLS & ILS** immediately initiate ALS intercept.
  - g) **ILS & ALS** attempt direct extraction via laryngoscope and Magill forceps.
    1. Use the laryngoscope and examine the upper airway for foreign matter and suction as needed.
    2. Remove any foreign objects with forceps and suction.
    3. Re-establish an open airway and attempt to ventilate.
    4. If the obstruction is relieved, continue with airway control, ventilations, assessment and care.
  - h) Continue abdominal thrusts (or back blows/chest thrusts) sequence if unable to relieve obstruction and expedite transport.

**Critical Thinking Elements**

- Maintain in-line c-spine stabilization using 2 EMTs in patients with suspected cervical spine injury.
- Poor abdominal/chest thrust technique, inappropriate airway maneuvers, and/or failure to recognize an obstructed airway will complicate the patient's condition.

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**King LTD Airway Procedure  
(ILS & ALS ONLY)**

The KING Airway is an effective airway adjunct when basic airway control is difficult or ineffective. Insertion is rapid & easy and does not require specialized equipment or visualization of the larynx. It is latex-free and should be considered safe to use on latex-sensitive patients.

**Indication**

- The King LTD is an airway device designed for emergency or difficult intubation in the apneic or unresponsive patient without a gag reflex.

**Contraindications**

- Active gag reflex
- Ingestion of a caustic substance (*e.g.* gasoline, drain cleaner, etc.)
- Known or suspected esophageal disease (*e.g.* esophageal varices)
- Tracheostomy (ETCO<sub>2</sub> monitoring will be ineffective with esophageal placement)

**KING Airway Insertion Procedure**

1. Pre-oxygenate/ventilate utilizing a bag-valve mask (BVM) at 15 L/min according to the *Basic Airway Control Procedure*.
2. Choose the correct size:

King LTD Size	2	2.5
Connector Color	Green	Orange
Patient Criteria	35-45 inches or 12-25 kg	41-51 inches or 25-35 kg
Cuff Volume	25-35 mL	30-40 mL

3. Test cuff inflation system by injecting the maximum recommended volume of air into the cuffs. Remove all air from both cuffs prior to insertion.
4. Apply a water-based lubricant (*e.g.* K-Y or Surgilube) to the beveled distal tip and posterior aspect of the tube. Avoid introducing lubricant in or near the ventilatory openings.

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**King LTD Airway Procedure**  
(**ILS & ALS ONLY**)

5. Position the head in the “sniffing position” if possible. It can also be inserted with the head in the neutral position if following c-spine precautions/c-collar in place.
6. Hold the KING LTD at the connector with the dominant hand. With the non-dominant hand, hold mouth open and apply chin lift.
7. With the KING LTD rotated laterally 45-90° (such that the blue orientation line is touching the corner of the mouth), introduce tip into the mouth and advance behind the base of the tongue. **Never force the tube into position** and do not take longer than **20 seconds** for the attempt!

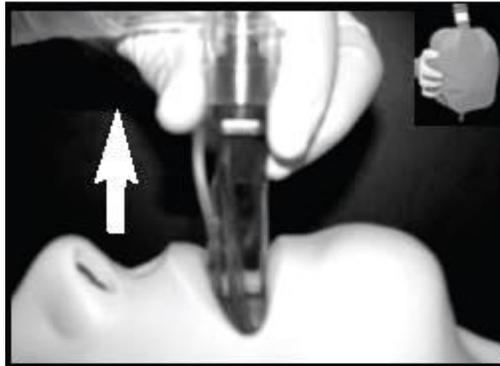


8. As the tube tip passes under the tongue, rotate the tube back to midline (blue orientation line faces chin).
9. Without exerting excessive force, advance the KING LTD until the proximal opening of gastric access lumen is aligned with teeth or gums.
10. Inflate the cuffs with the minimum volume necessary to seal the airway (see chart).

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**King LTD Airway Procedure**  
(**ILS & ALS ONLY**)

11. Attach BVM. Gently bag the patient while assessing ventilations. Simultaneously withdraw the airway **very slowly** until ventilation is easy & free-flowing.



12. Use multiple confirmation techniques:
- Confirm presence of breath sounds
  - Visualize rise and fall of the chest
  - Monitor for clinical improvement
  - Colormetric ET $\text{CO}_2$  (e.g. EasyCap)\*\*
  - Capnography (if available)

**\*\*NOTE:** Ventilate the patient at least six (6) times prior to attaching a colormetric device (EasyCap).

**Critical Thinking Elements**

- If unsuccessful in one (1) attempt, refer to the *Basic Airway Control Procedure*.
- The King LTD is for use on pediatric patients **ONLY**. If the patient is greater than 4 feet in height a King LTS-D should be used.
- Do NOT administer medications via the King LTD Airway. It is designed as an airway adjunct only and cannot be utilized as a medication route.

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**LMA Airway Procedure  
(ALS ONLY)**

The Laryngeal Mask Airway is an adjunctive airway device composed of a tube with a cuffed mask-like projection at the distal end. The LMA has proven to be very effective in the management of airway crisis. Insertion is rapid & easy and does not require specialized equipment or visualization of the larynx.

**Indication**

- The LMA is an airway device designed for emergency or difficult intubation in the apneic or unresponsive patient without a gag reflex.

**Contraindications**

- Active gag reflex
- Ingestion of a caustic substance (e.g. gasoline, drain cleaner, etc.)
- Morbidly obese
- Tracheostomy (ETCO<sub>2</sub> will be ineffective with esophageal placement)

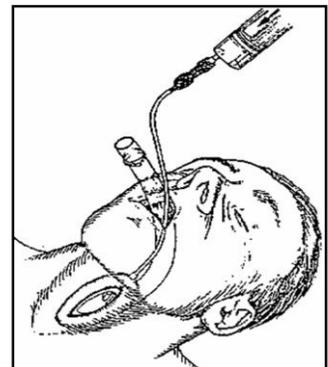
**LMA Insertion Procedure**

1. Pre-oxygenate/ventilate utilizing a bag-valve mask (BVM) at 15 L/min according to the *Basic Airway Control Procedure*.

2. Choose the correct size:

LMA Size	1	1.5	2	2.5	3
Patient Criteria	Under 5kg	5 to 10 kg	10 to 20 kg	20 to 30 kg	30 kg to small adult
Cuff Size	4mL	7mL	10mL	14mL	20mL

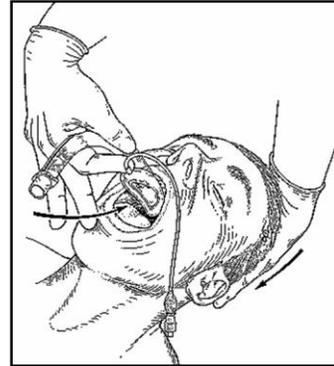
3. Visually inspect the LMA cuff for tears or other abnormalities.
4. Deflate the cuff to form a smooth flat wedge shape which will pass easily around the back of the tongue and behind the epiglottis.
5. Use a water soluble lubricant to lubricate the LMA
  - Avoid excessive amounts of lubricant
    - on the anterior surface of the cuff or
    - in the bowl of the mask.



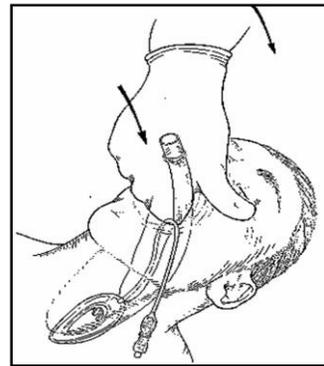
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**LMA Airway Procedure**  
**(ALS ONLY)**

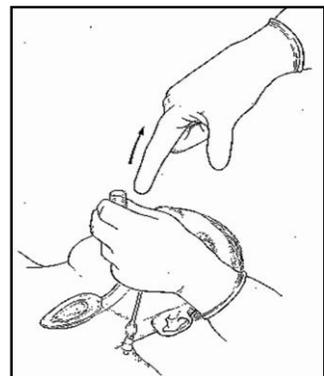
6. Grasp the LMA by the tube, holding it like a pen as near as possible to the mask end. Place the tip of the LMA against the inner surface of the patient's upper teeth.



7. With neck flexed and head extended, press the laryngeal mask airway into the posterior pharyngeal wall using the index finger.



8. Withdraw your index finger from the pharynx while grasping the tube firmly with the other hand.
- Press gently downward to ensure the mask is fully inserted.



9. Inflate the mask with the recommended volume of air.
- Do not over-inflate the LMA
  - Allow the mask to rise up slightly out of the hypopharynx as it is inflated to find its correct position.

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**LMA Airway Procedure  
(ALS ONLY)**

10. Connect the LMA to a Bag-Valve Mask and ventilate the patient while confirming equal breath sounds over both lungs in all fields and the absence of ventilatory sounds over the epigastrium.
  
11. Secure the LMA utilizing the same techniques as those employed in the securing of an endotracheal tube or King LTS-D.
  
13. Use multiple confirmation techniques:
  - Confirm presence of breath sounds
  - Visualize rise and fall of the chest
  - Monitor for clinical improvement
  - Colormetric ETCO<sub>2</sub> (e.g. EasyCap)\*\*
  - Capnography (if available)

**\*\*NOTE:** Ventilate the patient at least six (6) times prior to attaching a colormetric device (EasyCap).

**Critical Thinking Elements**

- Failure to press the deflated mask up against the hard palate, inadequate lubrication or deflation can cause the mask tip to fold back on itself, pushing the epiglottis into a down-folded position causing airway obstruction.
- If unsuccessful in one (1) attempt, refer to the *Basic Airway Control Procedure*.
- Do NOT administer medications via the Laryngeal Mask Airway. It is designed as an airway adjunct only and cannot be utilized as a medication route.

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**Pediatric Intravenous Cannulation Procedure**

Intravenous cannulation is used in the prehospital setting to establish a route for drug administration and/or to provide fluid replacement. Intravenous cannulation should not significantly delay scene times or be attempted while on scene with a trauma patient who meets load-and-go criteria.

1. Explain to the patient the need for and a brief description of the procedure. Use distraction therapy to put the pediatric patient more at ease.
2. Observe the universal precautions for body substance exposure.
3. Obtain an appropriately sized catheter:
  - a) 18 or 20 gauge for trauma patients.
  - b) 20 or 22 gauge for fluid replacement.
4. Check the fluid (1000mL .9% Normal Saline):
  - a) Is it the right fluid?
  - b) Check the expiration date.
  - c) Check for color and clarity (NS should be clear with no particles).
5. Connect the administration set to the IV fluid. Make sure that air bubbles are expelled from the tubing and that all chambers have the appropriate fluid levels.
6. Prepare veniguard (or tape).
7. Maintain a clean environment and protect the administration set from contamination. *Any IV supplies that become contaminated (e.g. an uncapped administration set dropped on the floor) should be discarded and replaced with clean equipment.*
8. Apply a venous tourniquet just proximal to the antecubital area.
9. Select (by palpation) a prominent vein. Choose a distal vein on the forearm or back of the hand. The antecubital space may be used if needed for drug administration, fluid replacement, the patient condition requires a more proximal site, or in cases where no other vein is accessible.
10. Cleanse the site with an alcohol prep pad using a circular motion moving outward from the site.

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PEDIATRIC PREHOSPITAL CARE MANUAL**

**Pediatric Intravenous Cannulation Procedure**

- 11.** Stabilize the vein by applying traction below the puncture site.
- 12.** Inform the patient of your intent to puncture the site.
- 13.** Enter the vein directly from above or from the side of the site. With the bevel of the needle upward, puncture the skin at a 30 to 45 degree angle.
- 14.** If you blood returns through the catheter, proceed with insertion. If you do not see blood return, release the tourniquet and discontinue the attempt. If time and patient condition allows, you may attempt another site with a new catheter (do not exceed more than two (2) attempts).
- 15.** Insert the catheter. Carefully lower the catheter and advance the needle and catheter just enough to stabilize the needle in the vein. Slide the catheter off of the needle into the vein.
- 16.** Slightly occlude the vein proximal to the catheter with gentle finger pressure. Remove the needle and immediately dispose of it in an approved sharps container.
- 17.** Release the tourniquet.
- 18.** Connect the administration set to the catheter.
- 19.** Open the flow regulator on the administration set and briefly allow IV fluid to run freely to assure a patent line (less than 20mL). If the line is patent, adjust flow rate as indicated by protocol or Medical Control order.
- 20.** Secure the catheter and tubing using a veniguard or tape. Loop the IV tubing and secure to the patient's arm. Do not apply tape circumferentially to the extremity.

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**Pediatric Intravenous Cannulation Procedure**

**Saline Locks**

Saline locks may be used if fluid replacement is not indicated:

1. Assemble the pre-filled saline and tubex syringe or draw up 2-3mL of normal saline.
2. Obtain and inspect an injection site link. Inject saline and expel air from the injection site chamber leaving the syringe attached.
3. After successful venipuncture, connect the saline lock to the catheter.
4. Pull back (aspirate) on the syringe to confirm placement by observing for blood return. If blood is aspirated, continue by injecting 2-3mL of saline into the chamber. If no blood is aspirated, discontinue the attempt and prepare to repeat the procedure at a new site.
5. If fluid replacement becomes necessary, attach an administration set to the injection port by needleless device or Luer adapter.
6. Secure the catheter and link using a veniguard or tape.

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**Pediatric Intraosseous Infusion (IO) Procedure  
(ALS Only)**

Intraosseous infusion is defined as a puncture into the medullary cavity of a bone that provides a rapid access route for fluids and medications. Obtaining emergency intravenous access in critically ill pediatric patients (especially those less than 3 years old) can be extremely difficult, time consuming and, at times, impossible. Intraosseous access is performed on critically ill children in whom fluid and/or drug treatment is paramount and intravascular access is not rapidly accessible or feasible.

**Indications for IO**

- Cardiac arrest
- Multi-system trauma with associated shock and/or severe hypovolemia
- Severe dehydration associated with vascular collapse and/or loss of consciousness
- Any child who is unresponsive and in need of immediate drug administration or fluid resuscitation (and vascular access is not available)

**EZ-IO**

**NOTE:** The EZ-IO System is the preferred device. However, this device can only be used on children **greater than 3kg**. For children < 3kg, refer to the Jamshidi procedure.

1. Observe universal precautions.
2. Prepare the EZ-IO driver and *pediatric* needle set:
  - a) 15ga, 15mm long needle for patients weighing **between 3kg and 39kg**
  - b) 15ga, 25mm long needle for patients weighing **greater than 40kg**
3. Locate landmark of insertion site by palpating the anterior surface of the tibial bone 1-3 cm below the tibial tuberosity and slightly medial. Landmark for insertion must avoid the joint and epiphyseal plate.
4. Prep the site with Betadine and set up infusion solution as for regular IV.
5. Stabilize site and insert appropriate needle set.
6. Remove EZ-IO driver from needle set while stabilizing catheter hub.

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**Pediatric Intraosseous Infusion (IO) Procedure**  
(ALS Only)

**EZ-IO Procedure (continued)**

7. Remove stylet from the catheter; place stylet in EZ-IO shuttle or approved sharps container.
8. Attach 5-10mL syringe and aspirate bone marrow to confirm placement.
  - a) IO catheter should be at a 90 degree angle and firmly seated in the tibial bone.
  - b) Blood may be visible at the tip of the stylet.
  - c) The IO catheter should flush freely without difficulty or evidence of extravasation.
9. Connect the luer-lock equipped IV administration set.
10. For conscious patients: **Lidocaine:** 0.5mg/kg IO (*maximum dose: 30mg*).
11. Flush the IO catheter with 5mL of normal saline.
12. Utilize a pressure bag for continuous infusions where applicable. If a pressure bag is not available, wrap a BP cuff around the bag of normal saline and inflate the cuff until desired flow rate is achieved.
13. Dress site, secure tubing and apply wristband as directed.
14. Closely monitor EZ-IO site en route.

**Critical Thinking Elements**

- Do not access a site that is fractured at or above the insertion site or has obvious indications of infection.
- Do not use an area previously used for IO attempts.
- **Sometimes marrow cannot be aspirated and does not necessarily indicate improper placement.**
- Excessive movement of the IO needle may result in leakage.
- The volume of pediatric fluid resuscitation is based on weight and clinical response. Pediatric fluid administration must be carefully regulated.

**PEORIA AREA EMS SYSTEM  
PEDIATRIC PREHOSPITAL CARE MANUAL**

**Pediatric Intraosseous Infusion (IO) Procedure  
(ALS Only)**

**Jamshidi Style IO Procedure**

**NOTE:** The EZ-IO System is the preferred device for children weighing greater than 3kg. The Jamshidi IO should be used in children weighing less than 3kg.

1. Observe universal precautions.
2. Assemble and prepare equipment.
3. Locate landmarks of insertion site by palpating the anterior surface of the tibial bone 1-3 cm below the tibial tuberosity and slightly medial. Landmark for insertion must avoid the joint and epiphyseal plate.
4. Prep the site with Betadine and set up infusion solution as for regular IV.
5. With sterile technique, using a commercial IO (Jamshidi) needle, insert needle at a 90 degree angle and slightly 10-15 degrees inferior through the bone using firm downward pressure with a twisting motion. You should feel a “pop” when the needle goes into the medullary space.
6. Remove the inner stylet and attach a 5-10mL syringe. Aspirate for bone marrow contents, and then connect a conventional IV line with pressure infuser (or BP cuff).
7. Secure the line with tape and or dressing.
8. Administer drugs and fluids as needed.
9. Assess sight for signs of infiltration or leakage. Discontinue IO line if either of these occurs.

**Critical Thinking Elements**

- Do not access a site that is fractured at or above the insertion site or has obvious indications of infection.
- Do not use an area previously used for IO attempts.
- **Sometimes marrow cannot be aspirated and does not necessarily indicate improper placement.**
- **Remember:** Jamshidi needles can only be used on children 3 years of age and under.

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PEDIATRIC PREHOSPITAL CARE MANUAL**

**Pediatric Medication Administration Procedure**

Medication administration is accomplished by specific routes as indicated by the protocols. Pediatric medication routes and procedures are analogous to the adult patient with the exception of the intraosseous (IO) and rectal routes.

Special consideration needs to be given to patient age and weight when administering medications. Resources for medication dosages include:

- Specific treatment protocol
- Medical Control
- Broselow Tape\*\*

\*\*Per PAEMS System protocol, **do not exceed the adult dose when administering pediatric medications.**

Approximate weight based on age:

<u>Age</u>	<u>Weight</u>
Newborn	3 kg / 7 lbs
2 months	5 kg / 8 lbs
6 months	7 kg / 15 lbs
1 year	10 kg / 22 lbs
5 years	20 kg / 44 lbs
10 years	30 kg / 66 lbs
15 years	Adult values

**PEORIA AREA EMS SYSTEM  
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**Pediatric Pain Control Protocol**

Pain, and the lack of relief from the pain, is one of the most common complaints among patients. Pediatric pain must not be ignored and must be identified and treated if appropriate. The prehospital provider must use clinical observations and a pain scale to rate the pain of the child.

**First Responder Care**

First Responder Care should focus on the reduction of the patient's anxiety due to the pain.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. Assess level of pain using the *Pain Assessment Scale (0-10)* or the *Wong-Baker Faces Pain Rating Scale*.
3. Place patient in a position of comfort.
4. Reassure the patient.
5. Use distraction therapy to help reduce the patient's anxiety (*e.g.* stuffed animals, discussing favorite foods, toys, etc.)
6. Consider ice or splinting.
7. Reassess level of pain using the approved pain scale.

**BLS Care**

BLS Care should focus on the reduction of the patient's anxiety due to the pain.

1. BLS Care includes all of the components of *First Responder Care*.
2. Initiate ALS intercept, if indicated.

**ILS Care**

ILS Care should focus on the reduction of the patient's anxiety due to the pain.

1. ILS Care includes all of the components of *BLS Care*.

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**Pediatric Pain Control Protocol**

**ILS Care Continued**

2. **Fentanyl:** 1mcg/kg IV over 2 minutes for pain (**Max single dose: 50mcg**). Fentanyl 1mcg/kg. May be repeated every **5 minutes**. (Total of 100 mcg).
3. **Fentanyl:** Fentanyl Intranasal may also be used if unable to give IV Fentanyl. (See intranasal dosing sheet).
4. Initiate ALS intercept, if indicated.

**ALS Care**

ALS Care should focus on the pharmaceutical management of pain.

1. ALS Care includes all of the components of *ILS Care*.
2. Manage the patient's pain by using one of the following medications:

<b>Morphine Sulfate</b>	0.1mg/kg IV/IM ( <b>max single dose: 2mg</b> ) every 5 minutes to reduce the patient's anxiety and severity of pain.
<b>Fentanyl</b>	1mcg/kg IV over 2 minutes for pain (max single dose: 50mcg). Fentanyl 1mcg/kg may be repeated every 5 minutes. (Total of 100 mcg). <b>If unable to establish IV access</b> , may administer Intranasal Fentanyl. (See intranasal dosing sheet).

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**Pediatric Pain Control Protocol**

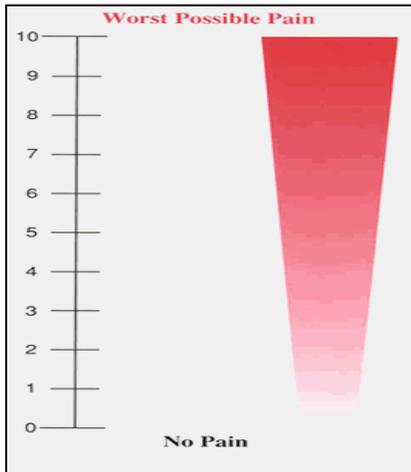
**Critical Thinking Elements**

- Consider sucrose for infants from birth to 4 months for minor procedural pain, or for additional pain control when used with other pharmacologic agents.
    - Apply directly onto the infant's anterior tongue and immediately provide the infant with a pacifier for non-nutritive sucking, OR
    - Dip the tip of a pacifier into the sucrose solution and provide to the infant.
    - If pacifier not available, may use tip of a gloved finger to apply.
    - A maximum of 3 doses may be given in one hour.
- Note:** Do not administer sucrose solution by bottle or through a nipple. Sucrose solution must be absorbed via the mucous membranes and not swallowed.
- Closely monitor the patient's airway – have BVM and suction readily available.

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**Pediatric Pain Control Protocol**

**Pain Assessment Scales**



**0-10 Numeric Pain Scale**

**Wong-Baker Faces Pain Rating Scale**



**PEORIA AREA EMS SYSTEM  
PEDIATRIC PREHOSPITAL CARE MANUAL**

**Pediatric Cardiac Arrest Protocol**

The successful resuscitation of a child in cardiac arrest is dependent on a systematic approach of initiating life-saving CPR, recognition of any airway obstructions, adequate oxygenation & ventilation, early defibrillation and transferring care to advanced life support providers in a timely manner. The majority of pediatric patients found in non-traumatic cardiac arrest are found to have some form of airway obstruction or respiratory failure. Providing good BLS care with regards to relieving foreign body airway obstructions and/or initiating CPR, pediatric patients have a better chance at a positive outcome. Adequate ventilation is the most important step in pediatric resuscitation.

**First Responder Care**

First Responder Care should be focused on confirming that the patient is in full arrest and in need of CPR. Resuscitative efforts should be initiated by opening the airway and initiating ventilations & chest compressions while attaching a defibrillator. It is important to assure that CPR is being performed correctly following AHA guidelines.

1. Determine unresponsiveness. Confirm that a transporting unit (and ALS intercept) has been activated.
2. Maintain patent airway and assess breathing. If breathing is absent or inadequate, give two (2) rescue breaths with a barrier device.
3. Check for pulse (10 seconds). If pulseless, **begin CPR**. The patient should be ventilated at 20-30 breaths/min using **oxygen at 15 L/min via BVM**.
4. Apply an AED **after 2 minutes of CPR** to determine if defibrillation is needed.
  - a) *If PEDIATRIC PADS are available* – apply as pictured on each of the AED electrodes with proper contact and without any overlap of the pads. If overlap of the pads occurs, use anterior (front) / posterior (back) placement with cervical spine precautions if neck/back injury is suspected.
  - b) *If ADULT PADS only* – apply anterior (front) / posterior (back) with cervical spine precautions if neck/back injury is suspected (see diagram at the end of this protocol).
5. Continue CPR until the AED is attached and turned on. Stop CPR when the AED is analyzing:
  - a) If the AED indicates “SHOCK ADVISED”, call out “*CLEAR!*” check for the safety of others, and push the SHOCK button (or stand clear if the AED device does not require shock activation).
  - b) Immediately **resume CPR for 2 minutes**.

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**Pediatric Cardiac Arrest Protocol**

**First Responder Care (continued)**

- c) Reassess the patient and allow the AED to analyze.
  - d) If the AED indicates “SHOCK ADVISED”, call out “CLEAR!” check for the safety of others and push the SHOCK button (or stand clear if the AED device does not require shock activation).
  - e) Check for a pulse if the AED states “NO SHOCK ADVISED”.
  - f) **Continue CPR if pulse is absent.**
  - g) **Reassess every 2 minutes.** Shock if indicated.
  - h) If the patient regains a pulse at any time during resuscitation, then maintain the airway and assist ventilations.
  - i) Re-analyze the patient’s rhythm with the AED if the patient returns to a pulseless state. Shock if indicated.
6. Immediately turn patient care over to the transporting provider or ALS intercept crew upon their arrival.
7. Complete all necessary cardiac arrest documentation.

**BLS Care**

BLS Care should focus on maintaining the continuity of care by confirming the patient is in cardiac arrest and continuing resuscitative efforts initiated by the First Responders. Transporting BLS units should initiate an ALS intercept as soon as possible.

1. BLS transport care includes all of the components of *First Responder Care*.
2. Shocks delivered to the patient prior to the transporting unit arriving on scene should be taken into consideration during the transition of care. Transporting crews may want to utilize the AED used by the non-transporting First Responders if circumstances allow for exchange of equipment or personnel ride-along.
3. Call for ALS intercept and initiate transport as soon as possible.
4. **Contact Medical Control.**

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**Pediatric Cardiac Arrest Protocol**

**ILS Care**

ILS Care should focus on maintaining the continuity of care by confirming that the patient is in cardiac arrest and beginning resuscitative efforts or continuing resuscitative efforts initiated by the First Responders.

1. Determine unresponsiveness.
2. Maintain patent airway and assess breathing. If the patient is not breathing, give two (2) rescue breaths with a barrier device.
3. Check for pulse (10 seconds). If pulseless, **begin CPR and continue for 2 minutes.**
4. Apply Quick-Combo pads (or Fast Patches).
5. Evaluate the rhythm.
6. If V-fib or pulseless V-tach, immediately **defibrillate at 2 J/kg.**
7. **Immediately resume CPR for 2 minutes.**
8. Evaluate the patient/rhythm and **defibrillate if needed at 4 J/kg. Continue CPR and re-evaluate patient/rhythm every 2 minutes.**
9. Obtain **peripheral IV** access.

**ALS Care**

ALS Care should focus on maintaining the continuity of care by confirming that the patient is in cardiac arrest and beginning resuscitative efforts or continuing resuscitative efforts initiated by the First Responders.

1. Determine unresponsiveness.
2. Maintain patent airway and assess breathing. If the patient is not breathing, give two (2) rescue breaths with a barrier device.

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**Pediatric Cardiac Arrest Protocol**

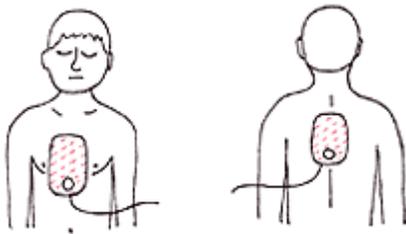
**ALS Care (continued)**

3. Check for pulse (10 seconds). If pulseless, **begin CPR and continue for 2 minutes.**
4. Apply Quick-Combo pads (or Fast Patches).
5. Evaluate the rhythm.
6. If V-fib or pulseless V-tach, immediately **defibrillate at 2 J/kg.**
7. **Immediately resume CPR for 2 minutes.** Provide ventilation at 20-30 breaths/minute.
8. Evaluate the patient/rhythm and **defibrillate if needed at 4 J/kg. Continue CPR and re-evaluate patient/rhythm every 2 minutes.**
9. Obtain **peripheral IV or IO** access.
10. Identify and treat cardiac dysrhythmias according to the appropriate protocol.

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**Pediatric Cardiac Arrest Protocol**

**Anterior/posterior pad placement:** Placement of the anterior AED pad (electrode) on the front of the patient mid-chest and the posterior pad on the back of the patient mid-chest. (Always follow manufacturer's recommendations and diagrams for pad placement). - see following diagram \*\*



\*\*Use the anterior/posterior pad placement if no pediatric pads are available and adult Quick Combos or Fast Patches are being utilized for a pediatric patient.

**Critical Thinking Elements**

- If the cardiac arrest is witnessed by EMS personnel, start CPR and defibrillate immediately after the Fast Patches or Quick Combos are placed.
- Treat the patient – not the monitor. A rhythm present on the monitor screen should NOT be used to determine pulse. If the monitor shows a rhythm and the patient has no pulse, begin CPR (the patient is in PEA – *pulseless electrical activity*).

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**Resuscitation of Pediatric Pulseless Rhythms Protocol**

The successful resuscitation of patients in cardiac arrest is dependent on a systematic approach to resuscitation. ACLS medications are an important factor in successful resuscitation of the pulseless patient when the initial rhythm is not ventricular fibrillation (V-fib) or in cases where defibrillation has been unsuccessful. It is important that BLS providers understand the value of effective CPR and an ALS intercept in providing the patient with ACLS therapy.

**First Responder Care**

Not applicable. First Responders are not equipped with ACLS medications and shall treat the patient in accordance with the *Pediatric Cardiac Arrest Protocol*.

**BLS Care**

Not applicable. BLS providers are not equipped with ACLS medications and shall treat the patient in accordance with the *Pediatric Cardiac Arrest Protocol*.

**Ventricular Fibrillation (V-fib) or Pulseless Ventricular Tachycardia (V-tach)**

**ILS Care**

1. Initiate *Pediatric Cardiac Arrest Protocol*.
2. Evaluate the rhythm after 2 minutes of CPR. If V-fib or pulseless V-tach:  
**Defibrillate at 2 Joules / kg. \*\***
  - **\*\*If the patient converts to a perfusing rhythm** (with a heart rate > 80 bpm), administer **Lidocaine**: 1mg/kg IV (**with Medical Control order only**).
3. **Immediately resume CPR for 2 minutes** and re-evaluate the patient/rhythm.

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**Resuscitation of Pediatric Pulseless Rhythms Protocol**

**Ventricular Fibrillation (V-fib) or Pulseless Ventricular Tachycardia (V-tach) (continued)**

**ILS Care (continued)**

4. **Epinephrine 1:10,000**: 0.01mg/kg IV. *Minimum dose 0.1mg (Max single dose: 1mg)* and repeat every **3 to 5 minutes** as needed.
5. If pulseless V-fib/V-tach persists: **Defibrillate at 4 Joules / kg**.
6. **Immediately resume CPR for 2 minutes** and re-evaluate the patient/rhythm.
7. **Lidocaine**: 1mg/kg IV. Repeat bolus: 1mg/kg IV in **3-5 minutes** to a total of 3mg/kg for refractory V-fib/V-tach.
8. If pulseless V-fib/V-tach persists: **Defibrillate at 4 Joules/kg**.
9. **Immediately resume CPR** and re-evaluate patient/rhythm every 2 minutes.
10. **Dextrose**: if blood sugar is < 60mg/dL:
  - a) *0-1 month*: **D10**: 2mL/kg IV
  - b) *1 month – 2 years*: **D25**: 2mL/kg IV
  - c) *>2 years*: **D50**: 2mL/kg IV
11. **Narcan**: 0.1mg/kg IV/IO (**Max single dose: 2mg**) if suspected narcotic overdose.
12. Initiate ALS intercept and transport as soon as possible.
13. **Contact Medical Control** as soon as possible.

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**Resuscitation of Pediatric Pulseless Rhythms Protocol**

**Ventricular Fibrillation (V-fib) or Pulseless Ventricular Tachycardia (V-tach) (continued)**

**ALS Care**

1. Initiate *Pediatric Cardiac Arrest Protocol*.
2. Evaluate the rhythm after 2 minutes of CPR. If V-fib or pulseless V-tach:  
**Defibrillate at 2 Joules / kg. \*\***
  - **\*\*If the patient converts to a perfusing rhythm** (with a heart rate > 80 bpm), administer **Lidocaine**: 1.0mg/kg IV/IO.
3. **Immediately resume CPR for 2 minutes** and re-evaluate the patient/rhythm.
4. **Epinephrine 1:10,000**: 0.01mg/kg IV/IO. (*Minimum dose 0.1mg*) (**Max single dose: 1mg**) and repeat every **3 to 5 minutes** as needed.
5. If pulseless V-fib/V-tach persists: **Defibrillate at 4 J/kg**.
6. **Immediately resume CPR for 2 minutes** and re-evaluate the patient/rhythm.
7. **Lidocaine**: 1mg/kg IV/IO. Repeat bolus: 1mg/kg IV/IO in **3-5 minutes** to a total of 3mg/kg for refractory V-fib/V-tach.

**OR**

**Amiodarone**: 5mg/kg IV/IO bolus (300mg maximum single dose) for persistent V-fib or pulseless V-tach. May repeat 5mg/kg bolus up to 2 times for refractory V-fib and pulseless V-tach to a total of 15mg/kg.
8. If pulseless V-fib/V-tach persists: **Defibrillate at 4 J/kg**.
9. **Immediately resume CPR** and re-evaluate the patient/rhythm every 2 minutes.
10. **Dextrose**: if blood sugar is < 60mg/dL:
  - a) *0-1 month*: **D10**: 2mL/kg IV/IO
  - b) *1 month – 2 years*: **D25**: 2mL/kg IV/IO
  - c) *>2 years*: **D50**: 2mL/kg IV/IO

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**Resuscitation of Pediatric Pulseless Rhythms Protocol**

**Ventricular Fibrillation (V-fib) or Pulseless Ventricular Tachycardia (V-tach) (continued)**

**ALS Care (continued)**

11. **Narcan:** 0.1mg/kg IV/IO (*Max single dose: 2mg*) if suspected narcotic overdose.
12. **Contact Medical Control** as soon as possible.
12. Transport as soon as possible.

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**Resuscitation of Pediatric Pulseless Rhythms Protocol**

**Pulseless Electrical Activity & Asystole**

**ILS Care**

1. Initiate *Cardiac Arrest Protocol*.
2. Evaluate rhythm after 2 minutes of CPR.
3. **Epinephrine 1:10,000**: 0.01mg/kg IV (*Minimum dose 0.1mg*) (*Max single dose: 1mg*) every 3 to 5 minutes as needed.
4. **Continue CPR** and re-evaluate patient/rhythm every 2 minutes.
5. **IV Fluid Therapy**: 20mL/kg fluid bolus for suspected hypovolemia.
6. **Dextrose**: if blood sugar is < 60mg/dL:
  - a) *0-1 month*: **D10**: 2mL/kg IV
  - b) *1 month – 2 years*: **D25**: 2mL/kg IV
  - c) *>2 years*: **D50**: 2mL/kg IV
7. **Narcan**: 0.1mg/kg IV/IO (*Max single dose: 2mg*) if suspected narcotic overdose.
8. Initiate ALS intercept and transport as soon as possible.
9. **Contact Medical Control** as soon as possible.

**ALS Care**

1. Initiate *Cardiac Arrest Protocol*.
2. Evaluate rhythm after 2 minutes of CPR.

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**Resuscitation of Pediatric Pulseless Rhythms Protocol**

**Pulseless Electrical Activity & Asystole (continued)**

**ALS Care (continued)**

3. **Epinephrine 1:10,000**: 0.01mg/kg IV/IO (*Minimum dose* 0.1mg) (*Max single dose*: 1mg) and repeat every **3 to 5 minutes** as needed.
4. **Continue CPR** and re-evaluate patient/rhythm every 2 minutes.
5. **IV Fluid Therapy**: 20mL/kg fluid bolus for suspected hypovolemia.
6. **Dextrose**: if blood sugar is < 60mg/dL:
  - a) *0-1 month*: **D10**: 2mL/kg IV/IO
  - b) *1 month – 2 years*: **D25**: 2mL/kg IV/IO
  - c) *>2 years*: **D50**: 2mL/kg IV/IO
7. **Narcan**: 0.1mg/kg IV/IO (*Max single dose*: 2mg) if suspected narcotic overdose.
8. **Needle chest decompression** for a patient in *traumatic* cardiac arrest with suspected tension pneumothorax.
9. **Contact Medical Control** as soon as possible.
10. Transport as soon as possible.

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**Resuscitation of Pediatric Pulseless Rhythms Protocol**

**Critical Thinking Elements**

- Pediatric cardiac arrest is often related to hypoxia and poor ventilation. Ensure proper oxygenation and ventilation.
- Prompt transport of the pediatric patient is an important aspect of successful resuscitation. *Do not spend time at the scene attempting to do procedures you may not feel confident in or experienced in doing.* CPR and good BVM ventilation are the only procedures needed initially.
- Broselow tapes are an effective means to estimate weight. Refer to PAEMS protocols for medication doses.

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**Pediatric Bradycardia Protocol**

Pediatric bradycardia is defined as a heart rate less than the normal beats per minute for a given age group. Determining the stability of the pediatric patient with bradycardia is an important factor in patient care decisions. The assessment of the patient with bradycardia should include evaluation for signs and symptoms of hypoperfusion and hypoventilation.

**First Responder Care**

First Responder Care should be focused on assessing the situation and initiating routine patient care to treat for shock.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. Assess the pediatric patient for signs and symptoms of hypoperfusion and possible causes, including:
  - Respiratory difficulty
  - Cyanosis
  - Cool/Cold skin
  - Hypotension/Lack of palpable blood pressure
  - Decreasing level of consciousness
3. **Oxygen:** 15 L/min via BVM if the child is in respiratory distress. If the child is alert, 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the child will not tolerate a mask.
4. For children <12 months of age: If, despite oxygen and ventilation the child continues to appear hypoperfused and has a pulse <60 beats per minute, **initiate chest compressions**.
5. *Immediately* turn patient care over to the transporting provider or ALS intercept upon their arrival.

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**Pediatric Bradycardia Protocol**

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. Assess the pediatric patient for signs and symptoms of hypoperfusion and possible causes, including:
  - Respiratory difficulty
  - Cyanosis
  - Cool/Cold skin
  - Hypotension/Lack of palpable blood pressure
  - Decreasing level of consciousness
3. If spontaneous respirations are not present after 30 seconds of HR <100, begin Positive Pressure Ventilations BVM & 100% O<sub>2</sub> at 30-40 vpm
4. **Oxygen:** 15 L/min via BVM positive-pressure ventilation. If the child is alert, 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the child will not tolerate a mask.
5. **If after 30 seconds** of continuous ventilation the child continues to appear hypoperfused and has a pulse **< 60 beats per minute**, **Initiate Chest Compressions**.
6. For children **<12 months of age**: If, despite oxygen and ventilation the child continues to appear hypoperfused and has a pulse **<60 beats per minute**, **initiate chest compressions**.
7. *Immediately* turn patient care over to the transporting provider or ALS intercept upon their arrival.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. ILS Care includes all components of *First Responder & BLS Care*.
2. Render initial care in accordance with the *Routine Pediatric Care Protocol*.

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**Pediatric Bradycardia Protocol**

**ILS Care (continued)**

- 2a. If spontaneous respirations are not present after 30 seconds or HR <100, begin Positive Pressure Ventilations BVM & 100% O<sub>2</sub> at 30-40 vpm.
3. **Oxygen:** 15 L/min via BVM positive-pressure ventilation. If the child is alert, 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the child will not tolerate a mask.
4. **If after 30 seconds** of continuous ventilation the child continues to appear hypoperfused and has a pulse < 60 beats per minute, **Initiate Chest Compressions.**
5. **IV(NS) Fluid Therapy:** 20mL/kg bolus if hypovolemia is suspected.
6. Initiate ALS intercept and transport as soon as possible. (*Transport can be initiated at any time during this sequence*).
7. **Contact Medical Control** as soon as possible.
8. **Epinephrine 1:10,000:** 0.01mg/kg IV (*Minimum dose 0.1mg*) (**Max single dose: 1mg**) (with Medical Control order only) and repeat every *3 to 5 minutes* as needed.
9. **Atropine:** 0.02mg/kg IV (with Medical Control order only) (*Minimum dose: 0.1mg*) (**Max single dose: 1mg**) for children who are greater than 6 months of age.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. ILS Care includes all components of *First Responder & BLS Care*.

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**Pediatric Bradycardia Protocol**

**ALS Care (continued)**

2. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
3. If spontaneous respirations are not present after 30 seconds or HR <100, begin Positive Pressure Ventilations BVM & 100% O<sub>2</sub> at 30-40 vpm
4. **Oxygen:** 15 L/min via BVM positive-pressure ventilation. If the child is alert, 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the child will not tolerate a mask.
5. **If after 30 seconds** of continuous ventilation the child continues to appear hypoperfused and has a pulse < 60 beats per minute, **Initiate Chest Compressions**.
6. **IV (NS) Fluid Therapy:** 20mL/kg bolus if hypovolemia is suspected.
7. **Contact Medical Control** as soon as possible.
8. **Epinephrine 1:10,000:** 0.01mg/kg IV/IO (*Minimum dose* 0.1mg) (*Max single dose: 1mg*) and repeat every *3 to 5 minutes* as needed.
9. **Atropine:** 0.02mg/kg IV/IO (*Minimum dose:* 0.1mg) (*Max single dose: 1 mg*) for children who are greater than 6 months of age.
10. **Immediate Transcutaneous Pacing:** If the patient remains bradycardic with continued signs of hypoperfusion.
  - **Contact Medical Control** for specific rate.
  - Current should be set at minimum to start and increased until capture is achieved.
11. **Midazolam (Versed):** 0.1mg/kg IV/IO (*Max single dose: 2mg*) for patient comfort after pacing is initiated. Re-check vital signs 5 minutes after administration. May repeat dose one time if systolic BP > 100mmHg and respiratory rate is > 10 rpm. Additional doses require **Medical Control order**.

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**Pediatric Bradycardia Protocol**

**ALS Care (continued)**

12. **Midazolam (Versed):** Versed Intranasal may also be used if unable to give IV Versed. (See intranasal dosing sheet).
13. Transport as soon as possible (*Transport can be initiated at any time during this sequence*).

**Critical Thinking Elements**

- Monitor the child's respiratory status, SPO2 and or Waveform Capnography if available.
- Assess for the possibility of foreign body
- Hypothermia-warm the patient
- Assess for mechanical problems with oxygen delivery
- Hypoxemia
- Hypoglycemia, severe dehydration and narcotic effects may produce bradycardia
- Most maternal medications pass through breast milk in the infant

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**Pediatric Narrow Complex Tachycardia Protocol**

Tachycardia may be a nonspecific sign of fear, anxiety, pain, fever, or shock in the pediatric patient. The heart rate needs to be assessed in conjunction with the PAT & ABCDEs. As with all cardiac dysrhythmias, assess the heart rate and EKG with knowledge based on ACLS principles and normal ranges for children. Always ask the child/caregiver about history of illness, congenital heart disease or cardiac surgery. Pediatric Supraventricular Tachycardia is defined as a narrow QRS (<0.08 seconds) and a heart rate greater than 220 bpm.

**First Responder Care**

First Responder Care should be focused on assessing the situation and initiating routine patient care to treat for shock.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient cannot tolerate a mask.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Initiate ALS intercept and transport as soon as possible.

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**Pediatric Narrow Complex Tachycardia Protocol**

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient does not tolerate a mask.
3. **IV Fluid Therapy:** 20mL/kg bolus of .9% Normal Saline.
4. Initiate ALS intercept and transport as soon as possible. (*Transport can be initiated at any time during this sequence*).
5. **Contact Medical Control** as soon as possible.
6. **Adenosine (Adenocard):** 0.1mg/kg IV {rapid IV push} (**Max single dose: 6mg**) (**with Medical Control order only**) if the child is alert and still has a HR greater than 220 bpm. If no response after **2 minutes**, administer 0.2mg/kg IV {rapid IV push} (**Max single dose: 12mg**) (**with Medical Control order only**).

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient does not tolerate a mask.
3. **IV Fluid Therapy:** 20mL/kg bolus of .9% Normal Saline.

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**Pediatric Narrow Complex Tachycardia Protocol**

**ALS Care (continued)**

4. **Contact Medical Control** as soon as possible.
5. **Adenosine (Adenocard)**: 0.1mg/kg IV {rapid IV push} (*Max single dose: 6mg*) (with Medical Control order only) if the child is alert and still has a HR greater than 220 bpm. If no response after **2 minutes**, administer 0.2mg/kg IV {rapid IV push} (*Max single dose: 12mg*) (with Medical Control order only).
6. **Midazolam (Versed)**: 0.1mg/kg IV (*Max single dose: 2mg*) **in preparation for synchronized cardioversion** if the patient has a respiratory rate > 10 rpm. If the patient's respiratory rate is < 10 rpm, proceed to immediate synchronized cardioversion without sedation.
  - **Midazolam (Versed)**: Versed Intranasal may also be used if unable to give IV Versed. (*See intranasal dosing sheet*).
7. **Synchronized Cardioversion**: If the patient has an altered level of consciousness, diaphoresis, pale/mottled skin and/or is hypotensive:
  - a) Synchronized cardioversion at **1 Joule/kg** if tachycardia persists.
  - b) Synchronized cardioversion at **2 Joules/kg** if tachycardia persists.

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**Pediatric Wide Complex Tachycardia Protocol**

Tachycardia should be assessed in conjunction with the PAT & ABCDEs. Pediatric ventricular tachycardia is defined as a wide complex QRS and a heart rate >180 bpm. The child may have a history of serious systemic illness/congenital heart defects.

**First Responder Care**

First Responder Care should be focused on assessing the situation and initiating routine patient care to treat for shock.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient cannot tolerate a mask.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Initiate ALS intercept and transport as soon as possible.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient does not tolerate a mask.

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**Pediatric Wide Complex Tachycardia Protocol**

**ILS Care (continued)**

3. Initiate ALS intercept and transport as soon as possible. (*Transport can be initiated at any time during this sequence*).
4. **Contact Medical Control** as soon as possible.
5. **IV Fluid Therapy:** 20mL/kg bolus of .9% Normal Saline.
6. If the patient becomes pulseless at any time, refer to the *Resuscitation of Pediatric Pulseless Rhythms Protocol (V-fib or Pulseless V-tach)*.
7. **Lidocaine:** 1mg/kg IV slowly over 2 minutes if the child is alert (**with Medical Control order only**). If no response, administer Lidocaine 0.5mg/kg every 5 *minutes* as needed to a total of 3mg/kg (**with Medical Control order only**).

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Transport as soon as possible. (*Transport can be initiated at any time during this sequence*).
4. **IV Fluid Therapy:** 20mL/kg bolus of .9% Normal Saline.
5. **Contact Medical Control** as soon as possible.
6. If the patient becomes pulseless at any time, refer to the *Resuscitation of Pediatric Pulseless Rhythms Protocol (V-fib or Pulseless V-tach)*.

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**Pediatric Wide Complex Tachycardia Protocol**

**ALS Care (continued)**

7. **Lidocaine:** 1mg/kg IV/IO slowly over 2 minutes if the child is alert (**with Medical Control order only**). If no response, administer Lidocaine 0.5mg/kg every *5 minutes* as needed to a total of 3mg/kg.
8. **Midazolam (Versed):** 0.1mg/kg IV/IO (***Max single dose: 2mg***) for patient comfort prior to cardioversion (**with Medical Control order**). Re-check vital signs 5 minutes after administration. Additional doses also require **Medical Control order**.
  - **Midazolam (Versed):** Versed Intranasal may also be used if unable to give IV Versed. (See **intranasal dosing sheet**).
9. **Synchronized Cardioversion:** If the patient has an altered level of consciousness, is in shock and is in V-tach with a heart rate >180 bpm:
  - a) Synchronized cardioversion at **1 Joule/kg** if tachycardia persists.
  - b) Synchronized cardioversion at **2 Joules/kg** if tachycardia persists.

**Critical Thinking Elements**

- Monitor the child's SPO2 and or Waveform Capnography if available.
- Cardiac dysrhythmias such as V-tach are rare in children. Ask the caregiver if the child has chronic or genetic cardiac condition.
- V-tach with a pulse could be from a serious system illness, hypoxia or dehydration.

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**Pediatric Respiratory Distress Protocol**

Respiratory distress is common in the pediatric patient. The small airways of children are compromised more quickly during medical and traumatic problems. Identifying the degree of respiratory distress is crucial for stopping a process that can lead into respiratory failure. At that point, the child has lost ability to compensate for the lack of oxygen. If not treated immediately, respiratory failure will lead to arrest.

**First Responder Care**

First Responder Care should be focused on assessing the situation and initiating routine patient care to treat for shock.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.
3. Utilize the *Pediatric Assessment Triangle* to gain a general impression.
4. Assess abnormal airway sounds.
5. Place patient in a position of comfort.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support with BVM if necessary.
3. **Proventil (Albuterol):** 2.5mg in 3mL normal saline mixed with **Ipratropium (Atrovent):** 0.5mg via nebulizer over 15 minutes for wheezing or absent/diminished breath sounds. May repeat Albuterol 2.5mg with Atrovent 0.5mg every *15 minutes* as needed (**with Medical Control order**).
4. Consider waveform capnography.
5. Initiate ALS intercept and transport as soon as possible.

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**Pediatric Respiratory Distress Protocol**

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. **Proventil (Albuterol):** 2.5mg in 3mL normal saline mixed with Ipratropium (Atrovent): 0.5mg via nebulizer over 15 minutes. May repeat Albuterol 2.5mg with Atrovent 0.5mg in **15 minutes (with Medical Control order)**. In-line nebulizer may be utilized if patient is unresponsive or in respiratory arrest.
4. Consider waveform capnography.
5. Initiate ALS intercept and transport as soon as possible.
6. **Contact Medical Control** as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. **Proventil (Albuterol):** 2.5mg in 3mL normal saline mixed with Ipratropium (Atrovent): 0.5mg via nebulizer over 15 minutes. Repeat Albuterol 2.5mg with Atrovent 0.5mg every **15 minutes** as needed. In-line nebulizer may be utilized if patient is unresponsive or in respiratory arrest.

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**Pediatric Respiratory Distress Protocol**

**ALS Care (continued)**

4. Consider waveform capnography
5. Patients with persistent respiratory distress consider **Solu-Medrol**: 1mg/kg IV (**Maximum single dose 125mg**)
6. **Epinephrine 1:1000**: 0.01mg/kg IM (**Max single dose: 0.3mg**) if the patient is suffering status asthmaticus and does not improve with nebulizer treatment. May repeat every **20 minutes**.
7. Transport as soon as possible.
8. Contact the receiving hospital as soon as possible or Medical Control if necessary.

**Epiglottitis**

Symptoms of Epiglottitis may include:

- ALOC
- Fever
- Hoarseness
- Brassy cough
- Inspiratory stridor
- Drooling
- Tripod position

**If Epiglottitis is suspected:**

**First Responder Care, BLS Care, ILS Care, ALS Care**

1. Initiate *Routine Pediatric Care Protocol*.
2. **Do not look in the child's mouth or attempt to visualize the interior of the throat.**
3. **Do not agitate the child.** He/she should be kept as calm as possible – do not attempt to obtain IV access.

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**Pediatric Respiratory Distress Protocol**

**Epiglottitis (continued)**

**First Responder Care, BLS Care, ILS Care, ALS Care**  
**(continued)**

4. **Oxygen:** 10-15 L/min via non-rebreather mask or by best means tolerated by the patient (*e.g.* blow-by or 4-6 L/min via nasal cannula).
5. Transport the child sitting up.

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**Pediatric Tracheostomy Protocol**

With today's technology and improving home health care, more critical care patients are being sent home early. Home health care professionals and family members can duplicate the care the child receives in the hospital. This allows the patient to return home, spending less time in the hospital. EMS is activated when there is a problem with complex medical equipment, or the patient relapses into a more critical condition. EMS providers need to gain knowledge of critical care medicine not previously needed.

**First Responder Care**

First Responder Care should be focused on ensuring a patent airway.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 15 L/min via tracheostomy collar.
3. Assess work of breathing.
4. Assess abnormal airway sounds.
5. Place patient in a position of comfort.
6. If tracheostomy tube is obstructed with secretions:
  - a. Suction with whistle-tip catheter.
  - b. Repeat suction after removing inner catheter of tracheostomy tube.
  - c. Have caregiver change tracheostomy tube.
7. If the airway continues to be obstructed or if ventilatory effort is inadequate, **ventilate with 100% oxygen** by attaching a BVM to the tracheostomy tube.
8. If the tracheostomy tube is still not patent, ventilate **mask to mouth** while covering the stoma.
  - The balloon on the trach must be deflated prior to attempting mask to mouth ventilation.
9. Initiate ALS intercept as soon as possible.

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**Pediatric Tracheostomy Protocol**

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment and ensuring that the child has a patent airway.

1. BLS Care includes all components of *First Responder Care*.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment and ensuring a patent airway.

1. ILS Care includes all components of *First Responder Care/BLS Care*.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment and ensuring a patent airway.

1. ALS Care includes all components of *FR/BLS/ILS Care*.
2. If the airway is still obstructed:
  - a. Reassess patency of the airway.
  - b. Suction as needed.

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**Pediatric Respiratory Arrest Protocol**

When the pediatric patient enters respiratory arrest, cardiac arrest (and poor outcome) is sure to follow. Assisted ventilations with a BVM can be the most useful skill in resuscitation of the child in respiratory arrest. Remember – the pediatric patient responds to oxygenation very favorably. Therefore, it is important to try to identify the cause of the respiratory arrest after securing a patent airway and providing proper ventilation.

**First Responder Care**

First Responder Care should be focused on ensuring a patent airway and proper ventilation.

1. Assess airway. If agonal respirations are present or the child is not breathing at all:
  - a. Perform jaw thrust
  - b. Suction airway
  - c. Oropharyngeal or nasopharyngeal
2. Administer **100% oxygen** using appropriately sized BVM.
3. If chest rise is inadequate:
  - a. Relieve upper airway obstruction.
  - b. Reposition airway.
  - c. Refer to *Basic Airway Management of the Pediatric Patient Protocol*.
4. Refer to *Pediatric Respiratory Distress Protocol* if breathing resumes.
5. If hypoperfusion is present, refer to *Pediatric Shock Protocol*.
6. *Routine Pediatric Care Protocol*.
7. Initiate transport as soon as possible.

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**Pediatric Respiratory Arrest Protocol**

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, ensuring that the child has a patent airway and proper ventilation.

1. BLS Care includes all components of *First Responder Care*.
2. Apply pulse oximetry and document oxygen saturation.
3. Initiate ALS intercept and transport as soon as possible.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, ensuring a patent airway and proper ventilation.

1. ILS Care includes all components of *First Responder Care/BLS Care*.
2. If an advanced airway is needed and you are comfortable with the procedure, you may attempt airway control by endotracheal intubation.  
**\*Patient must be greater than 8 years of age for procedure to be attempted\***
3. Consider underlying etiologies and treat according to the appropriate protocol:
  - Airway obstruction
  - Cardiac dysrhythmias
  - CNS injury
  - Anaphylaxis
  - Poisoning/Overdose
  - Suffocation
  - Metabolic (refer to *Pediatric ALOC Protocol*)
  - Hypovolemia (refer to *Pediatric Shock Protocol*)
  - Near drowning
  - Carbon monoxide exposure

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**Pediatric Respiratory Arrest Protocol**

**ILS Care (continued)**

3. If an advanced airway is need and you are comfortable with the procedure you can attempt to control the airway using endotracheal intubation. (**Patient MUST be greater than 8 years old**)
  - if not, consider controlling the airway using a BIAD (refer to King LTD procedure)
4. Initiate IV access, if possible.
5. Initiate ALS intercept and transport as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, ensuring a patent airway and proper ventilation.

1. ALS Care includes all components of *FR/BLS/ILS Care*.
2. If an advanced airway is needed and you are comfortable with the procedure, you can attempt to control the airway using endotracheal intubation. (**Patient MUST be greater than 8 years old.**)
  - If not, consider controlling the airway using a BIAD. (Refer to King LTD or LMA procedure.)
3. **Needle chest decompression** on the affected side with a 14g, 16g, or 18g IV catheter if tension pneumothorax is suspected. (**with Medical Control order only**).
4. Transport as soon as possible.

**Critical Thinking Elements**

- Gastric distention is very common in pediatric patients and may cause poor compliance. Ventilating too fast or giving too much tidal volume is the top two reasons for distention. Use proper ventilation techniques and an appropriately sized BVM for the pediatric patient.

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**Pediatric Altered Level of Consciousness Protocol**

The EMS Professional needs to consider *all causes* of a child's altered level of consciousness. A good assessment is paramount to identify life-threatening injuries. Focus should also be on causes for the event and the child's past medical history.

**First Responder Care**

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient cannot tolerate a mask.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Perform **blood glucose level test**.
4. **Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
5. Perform a 2<sup>nd</sup> **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Oral Glucose. If blood sugar remains <60mg/dL, administer a 2<sup>nd</sup> dose of Oral Glucose (15g).

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**Pediatric Altered Level of Consciousness Protocol**

**BLS Care (continued)**

6. Initiate ALS intercept if needed and transport as soon as possible.
7. Contact the receiving hospital as soon as possible.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Perform **blood glucose level test**.
4. **Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
5. **Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
6. **Dextrose:** if blood sugar is < 60mg/dL:
  - a) 0-1 month: **D10:** 2mL/kg IV
  - b) 1 month – 2 years: **D25:** 2mL/kg IV
  - c) >2 years: **D50:** 2mL/kg IV
7. Perform a 2<sup>nd</sup> **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat dose of Dextrose if BS is still < 60mg/dL.
8. **Glucagon:** 1mg IM if the patient's blood sugar is < 60mg/dL and unable to establish an IV.

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**Pediatric Altered Level of Consciousness Protocol**

9. **Narcan:** 0.1mg/kg IV/IM/IO (*Max single dose: 2mg*) if suspected narcotic overdose.
10. Initiate ALS intercept if needed and transport as soon as possible.
11. **Contact Medical Control** as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Perform **blood glucose level test**.
4. **Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
5. **Dextrose:** if blood sugar is < 60mg/dL:
  - d) *0-1 month:* **D10:** 2mL/kg IV
  - e) *1 month – 2 years:* **D25:** 2mL/kg IV
  - f) *>2 years:* **D50:** 2mL/kg IV
6. **Glucagon:** 1mg IM if the patient's blood sugar is < 60mg/dL and unable to establish an IV.
7. Perform a 2<sup>nd</sup> **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat dose of Dextrose if BS is still < 60mg/dL.

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**Pediatric Altered Level of Consciousness Protocol**

**ALS Care (continued)**

8. **Narcan:** 0.1mg/kg IV/IM/IO (*Max single dose: 2mg*) if suspected narcotic overdose.
9. **Contact Medical Control** if needed. Medical Control contact is not required if the patient becomes alert & oriented and has no other complaints.

**Critical Thinking Elements**

- ALOC in a child can range from trauma to a systemic infection (sepsis). A good medical history might provide clues as to the reason for the ALOC.
- Accidental overdose/ingestion of medications can be a cause of the ALOC.

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**Pediatric Seizure Protocol**

Seizures are common in childhood. About 5% of all children will have at least one seizure by the age of three (febrile seizures account for the largest percentage of pediatric seizures). This condition can cause much concern and anxiety in the caregiver and EMS is called. Pediatric seizures are usually short-lived and stop before the arrival of EMS. Since there are many causes of pediatric seizures, treatment and transport to an appropriately equipped emergency department is necessary.

<i>Classification of Seizures (PEPP 2001)</i>	
<b>Generalized Seizure</b>	<b>Description</b>
<b>Tonic-Clonic (Grand Mal Seizure)</b>	Trunk rigidity and loss of consciousness with sudden, jerking movements of both arms and/or both legs; may be only tonic (rigidity) or clonic (jerking) seizure activity.
<b>Absence (Petit Mal Seizure)</b>	Brief loss of awareness without any abnormal movements; child may appear to be staring.
<b>Partial (Focal) Seizure</b>	<b>Description</b>
<b>Simple Seizure</b>	Focal motor jerking without loss of consciousness; may be sensory, autonomic or psychic without jerking.
<b>Complex Seizure</b>	Focal motor jerking with loss of consciousness; secondary generalization to a tonic-clonic seizure.

*Common causes of Seizures in Pediatric Patients:*

- Fever
- Trauma
- Hypoxia
- Hypoglycemia
- Infection/Sepsis
- Ingestion of toxins
- Cerebral hemorrhage
- Metabolic disorders
- Congenital neurological problems

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**Pediatric Seizure Protocol**

**First Responder Care**

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
3. Perform **blood glucose level test**.
4. Initiate ALS intercept and **transport without delay**.
5. Check and record vital signs and GCS every **5 minutes**.

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**Pediatric Seizure Protocol**

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
3. Perform **blood glucose level test**.
4. **Dextrose:** if blood sugar is  $< 60\text{mg/dL}$ :
  - g) 0-1 month: **D10:** 2mL/kg IV
  - h) 1 month – 2 years: **D25:** 2mL/kg IV
  - i)  $>2$  years: **D50:** 2mL/kg IV
5. **Glucagon:** 1mg IM if the patient's blood sugar is  $< 60\text{mg/dL}$  and unable to establish an IV.
6. Perform a 2<sup>nd</sup> **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat dose of Dextrose if BS is still  $< 60\text{mg/dL}$ .
7. **Contact Medical Control** as soon as possible.
8. **Midazolam (Versed):** 0.1mg/kg IV (**Max single dose: 2mg**) over 1 minute for seizure activity. May repeat Midazolam (Versed) 0.1mg/kg IV every **5 minutes** as needed to a total of 10mg.
9. **Midazolam (Versed):** 0.2mg/kg IM (**Max single dose: 5mg**) if the patient is seizing and attempts at IV access have been unsuccessful. May repeat dose one time in **15 minutes** if the patient is still seizing.
10. **Midazolam (Versed):** Versed Intranasal may also be used if unable to give IV Versed. (See **intranasal dosing sheet**).
11. Initiate ALS intercept if needed and transport as soon as possible.

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**Pediatric Seizure Protocol**

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
3. Perform **blood glucose level test**.
4. **Dextrose:** if blood sugar is < 60mg/dL:
  - j) 0-1 month: **D10:** 2mL/kg IV
  - k) 1 month – 2 years: **D25:** 2mL/kg IV
  - l) >2 years: **D50:** 2mL/kg IV
5. **Glucagon:** 1mg IM if the patient's blood sugar is < 60mg/dL and unable to establish an IV.
6. Perform a 2<sup>nd</sup> **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat dose of Dextrose if BS is still < 60mg/dL.
7. **Midazolam (Versed):** 0.1mg/kg IV (**Max single dose: 2mg**) over 1 minute for seizure activity. May repeat Midazolam (Versed) 0.1mg/kg IV every **5 minutes** as needed to a total of 10mg.
8. **Midazolam (Versed):** 0.2mg/kg IM (**Max single dose: 5mg**) if the patient is seizing and attempts at IV access have been unsuccessful. May repeat dose one time in **15 minutes** if the patient is still seizing.
  - **Midazolam (Versed):** Versed Intranasal may also be used if unable to give IV Versed. (See **intranasal dosing sheet**).

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**Pediatric Seizure Protocol**

**ALS Care Continued**

9. Transport as soon as possible.
10. Contact the receiving hospital as soon as possible.

**Critical Thinking Elements**

- Benzodiazepines can cause severe respiratory depression. Monitor the child's respiratory status, SPO2 and or Wave Form Capnography if available. Ventilate if needed.
- 30% of all pediatric seizures are febrile in nature. However, the presence of a fever may not necessarily be the cause of the seizure. The child needs to be transported to the hospital for further evaluation.
- Seizure activity usually indicates a serious underlying problem. Check the oxygenation and perfusion of the child along with the blood glucose level and temperature. Treat accordingly.

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**Pediatric Allergic Reaction / Anaphylaxis Protocol**

Allergic reactions or anaphylaxis in children can cause respiratory distress very quickly in pediatric patients due to the small size of the airway. Bee stings and nuts are the primary reason of anaphylaxis in children.

**First Responder Care**

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. **Epi-Pen:** If the patient has a history of allergic reactions and has in their possession a prescribed Epi-Pen, is suffering from hives, wheezing, hoarseness, hypotension, ALOC or indicates a history of anaphylaxis, assist the patient with administering the Epi-Pen or **contact Medical Control for orders to administer the Epi-Pen.**
  - This also applies to non-transporting BLS agencies **without** field medications. All other BLS agencies should refer to the **BLS Care** section.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.

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**Pediatric Allergic Reaction / Anaphylaxis Protocol**

**BLS Care (continued)**

3. **Epi-Pen Jr.:** 0.15mg IM if the patient has a history of allergic reactions and/or is suffering from hives, wheezing, hoarseness, hypotension, ALOC or indicates a history of anaphylaxis.
4. Initiate ALS intercept and transport as soon as possible.
5. **Proventil (Albuterol):** 2.5mg in 3mL normal saline mixed with **Ipratropium (Atrovent):** 0.5mg via nebulizer over 15 minutes. May repeat Albuterol 2.5mg with Atrovent 0.5mg every **15 minutes** as needed (**with Medical Control order**).
6. **Contact Medical Control** as soon as possible.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. **Epi-Pen Jr.:** 0.15mg IM if the patient has a history of allergic reactions and/or is suffering from hives, wheezing, hoarseness, hypotension, ALOC or indicates a history of anaphylaxis.
4. Initiate ALS intercept and transport as soon as possible.
7. **Proventil (Albuterol):** 2.5mg in 3mL normal saline **mixed with Ipratropium (Atrovent):** 0.5mg via nebulizer over 15 minutes. May repeat Albuterol 2.5mg with Atrovent 0.5mg in **15 minutes (with Medical Control order)**. In-line nebulizer may be utilized if patient is unresponsive or in respiratory arrest.

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**Pediatric Allergic Reaction / Anaphylaxis Protocol**

**ILS Care (continued)**

5. **IV Fluid Therapy:** 20mL/kg fluid bolus if patient is hypotensive. May repeat x2 to a maximum of 60mL/kg (**Note:** Exceeding 40mL/kg requires **Medical Control order**).
6. **Contact Medical Control** as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. **Epinephrine 1:1000:** 0.01mg/kg IM (**Max single dose: 0.3mg**) if the patient has respiratory distress (inspiratory & expiratory wheezing, stridor and/or laryngeal edema), hypotension and/or ALOC.
4. **Benadryl:** 1mg/kg IV or IM (**Max single dose: 50mg**) for severe itching and/or hives.
8. **Proventil (Albuterol):** 2.5mg in 3mL normal saline **mixed with Ipratropium (Atrovent):** 0.5mg via nebulizer over 15 minutes. May repeat Albuterol 2.5mg with Atrovent 0.5mg every **15 minutes** as needed. In-line nebulizer may be utilized if patient is unresponsive or in respiratory arrest.
5. **Solu-Medrol:** 1mg/kg IV (**Max single dose 125mg**)
6. **IV Fluid Therapy:** 20mL/kg fluid bolus if patient is hypotensive. May repeat x2 to a maximum of 60mL/kg (**Note:** Exceeding 40mL/kg requires **Medical Control order**).
7. Transport as soon as possible

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**Pediatric Allergic Reaction / Anaphylaxis Protocol**

**ALS Care (continued)**

8. Contact the receiving hospital as soon as possible

**Critical Thinking Elements**

- Patients who have an allergic reaction can develop anaphylaxis over time. Monitor patients very closely.
- Avoid establishing an IV in the same extremity as a bee sting / allergy site.
- Both an allergic reaction & anaphylaxis can present with hives.
- **Remember:** An allergic reaction is localized while anaphylaxis is a systemic reaction.
- Do not waste time on scene – begin transport as soon as possible and treat en route.

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**Pediatric Ingestion / Overdose / Toxic Exposure Protocol**

This protocol focuses on two problems. First, exposure to a chemical substance that causes adverse medical effects. Secondly, the protocol covers accidental or intentional ingestion of harmful substances into the body. Toddlers explore their environment with all five senses and ingestion of toxic substances is common for this age group. The adolescent age group deals mainly with intentional overdoses due to attempted suicide or recreational pharmaceuticals & alcohol use.

**First Responder Care, BLS Care, ILS Care, ALS Care (General Approach)**

1. If the scene is considered a *Hazardous Materials* incident, do not treat patients unless they are decontaminated or proper precautions have been implemented to protect EMS personnel.
2. In the event that the patient has not been decontaminated when EMS makes patient contact, removing all of patient's clothing takes away 80-90% of the contaminated materials. Get patient to decontamination area as soon as possible.
3. If there is no patient contact but EMS has determined this to be a *Hazardous Materials* incident, **do not enter the scene under any circumstances**. Refer to *PAEMS Disaster Protocols*.

**First Responder Care**

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Consider possible scene & patient contamination and follow agency safety procedures.
2. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
3. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.

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**Pediatric Ingestion / Overdose / Toxic Exposure Protocol**

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Consider possible scene & patient contamination and follow agency safety procedures.
2. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
3. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Consider possible scene & patient contamination and follow agency safety procedures.
2. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
3. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
4. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive. May repeat bolus x 2 to a maximum of 60mL/kg (**Note:** Exceeding 40mL/kg requires **Medical Control order**).
5. If patient is seizing, follow the *Pediatric Seizure Protocol*.

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**Pediatric Ingestion / Overdose / Toxic Exposure Protocol**

**ILS Care (continued)**

6. **Narcan:** 0.1mg/kg IV/IM//IN (*Max single dose: 2mg*) if suspected narcotic overdose.
7. Initiate ALS intercept if needed and transport as soon as possible.
8. **Contact Medical Control** as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Consider possible scene & patient contamination and follow agency safety procedures.
2. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive. May repeat bolus x 2 to a maximum of 60mL/kg (*Note:* Exceeding 40mL/kg requires **Medical Control order**).
5. If patient is seizing, follow *Pediatric Seizure Protocol*.
6. **Narcan:** 0.1mg/kg IV/IM/IO/IN (*Max single dose: 2mg*) if suspected narcotic overdose.
7. **Contact Medical Control** as soon as possible.

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**Pediatric Ingestion / Overdose / Toxic Exposure Protocol**

**ALS Care (continued)**

8. **Sodium Bicarbonate:** 1mEq/kg IV (*Max single dose: 50meq*) (with Medical Control order only) if known tricyclic antidepressant (TCA) or Aspirin (ASA) overdose.
9. If the patient has signs & symptoms of *organophosphate poisoning* or *nerve agent* exposure, **contact Medical Control:**
  - a) Ensure that the patient has been decontaminated prior to transport.
  - b) **Atropine:** 0.02mg/kg IV (*Max single dose: 2mg*) every 5 minutes until symptoms are suppressed.  
**OR**  
**Atropine:** 0.05mg/kg IM (*Max single dose: 2mg*) every 5 minutes until symptoms are suppressed.
  - c) If patient is actively seizing due to nerve agent exposure, refer to *Pediatric Seizure Protocol*.
10. Transport as soon as possible.

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**Routine Pediatric Trauma Care Protocol**

The majority of pediatric contacts the prehospital professional will face involve traumatic injuries. Trauma care in the pediatric patient must be aggressive, due to the child's ability to compensate and mask otherwise obvious signs and symptoms of shock. Early recognition of potential life-threatening injuries due to trauma will help save the pediatric patient.

In addition, pediatric patients may not always have obvious injuries. The anatomical position and size of internal organs are drastically different compared to the adult trauma patient. Children may not bruise or show marks of impact, thus disguising underlying life-threatening problems. When the pediatric patient presents as a possible trauma patient, treat them as such. Stay within the "*platinum 10 minutes*" of scene time, effectively immobilize the spine, keep the child warm and treat pain and anxiety.

**First Responder Care, BLS Care, ILS Care, ALS Care**

**1. Scene Assessment (Scene Size-Up)**

- Ensure scene safety – identify any hazards (e.g. fire, downed power lines, unstable vehicle, leaking fuel, weapons).
- Determine the number of patients.
- Identify the **mechanism of injury** (gunshot wound, vehicle rollover, high speed crash, ejection from the vehicle).
- Identify special extrication needs, if any.
- Call for additional resources if needed.

**2. Primary Survey (Initial Assessment)**

*The purpose of the primary assessment is for the prehospital provider to rapidly identify and manage life-threatening conditions:*

- Obtain a general impression of the patient's condition.
- Assess, secure and maintain a patent airway while simultaneously using C-spine precautions.
- Assess breathing and respiratory effort:
  - Approximate respiratory rate.
  - Assess quality of respiratory effort (depth of ventilation and movement of air).
  - **Oxygen:** 15 L/min via non-rebreather mask. Be prepared to suction the airway and support the patient's respirations with BVM if necessary.

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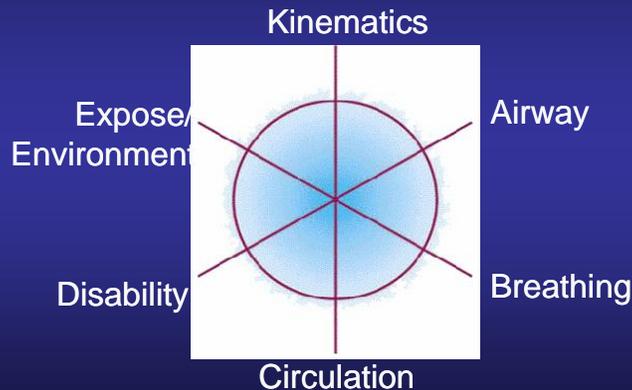
**Routine Pediatric Trauma Care Protocol**

First Responder Care, BLS Care, ILS Care, ALS Care

2. Primary Survey (Initial Assessment) (continued)

- Assess circulation:
  - Evaluate carotid and radial pulses.
  - Evaluate skin color, temperature and condition.
  - Immediately control major external bleeding.
- **Critical Decision** (based on mechanism of injury & initial exam):
  - Limit scene time to 10 minutes or < if the patient has a significant mechanism of injury or meets “Load & Go” criteria.
- Determine disability:
  - **T – Tone**
  - **I – Interactiveness**
  - **C – Consolability**
  - **L – Look/Gaze**
  - **S – Speech/Cry**
- Expose the patient:
  - Cut the patient’s clothing away quickly to adequately assess for the presence (or absence) of injuries.

**Scene Assessment & Primary Survey**



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**Routine Pediatric Trauma Care Protocol**

**First Responder Care, BLS Care, ILS Care, ALS Care**

**3. Secondary Survey (Focused History & Physical Exam)**

*The secondary survey is a head-to-toe evaluation of the patient performed in a toe-to-head method. The object of this survey is to identify injuries or problems that were not identified during the primary survey.*

- Examine the head:
  - Search for any soft tissue injuries.
  - Palpate the bones of the face & skull to identify deformity, depression, crepitus or other injury.
  - Check pupils for size, reactivity to light, equality, accommodation, roundness and shape.
  
- Examine the neck:
  - Examine for contusions, abrasions, lacerations or other injury.
  - Check for JVD, tracheal deviation, deformity.
  - Palpate the c-spine for deformity & tenderness.
  
- Examine the chest:
  - Closely examine for deformity, contusions, redness, abrasions, lacerations, penetrating trauma or other injury.
  - Look for flail segments, paradoxical movement & crepitus.
  - Auscultate breath sounds.
  - Watch for supraclavicular and intercostal retractions.
  
- Examine the abdomen:
  - Examine for contusions, redness, abrasions, lacerations, penetrating trauma or other injury.
  - Palpate the abdomen and examine for tenderness, rigidity and distention.
  
- Examine the pelvis:
  - Examine for contusions, redness, abrasions, lacerations, deformity or other injury.
  - Palpate for instability and crepitus.

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**Routine Pediatric Trauma Care Protocol**

**First Responder Care, BLS Care, ILS Care, ALS Care**

**3. Secondary Survey (Focused History & Physical Exam) (continued)**

- Examine the back:
  - Log roll with a minimum of 2 rescuers protecting the spine.
  - Look for contusions, abrasions, lacerations, penetrating trauma, deformity or any other injury.
  - Log roll onto long spine board with padding or approved pediatric spinal immobilization device.
  
- Examine the extremities:
  - Examine for contusions abrasions, lacerations, penetrating trauma, deformity or any other injury.
  - Manage injuries en route to the hospital.
  
- Neurological exam:
  - Calculate Glasgow Coma Scale (GCS)
  - Reassess pupils
  - Assess grip strength & equality and sensation.
  - Calculate Revised Trauma Score (RTS)
  
- Vital signs:
  - Blood pressure
  - Pulse
  - Respirations
  - Pulse Oximetry
  
- History:
  - Obtain a SAMPLE history if possible.
  - Signs & symptoms
  - Allergies
  - Medications
  - Past medical history
  - Last oral intake
  - Events of the incident

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**Routine Pediatric Trauma Care Protocol**

**First Responder Care, BLS Care, ILS Care, ALS Care**

**3. Secondary Survey (Focused History & Physical Exam) (continued)**

- **Interventions (en route)**
  - Cardiac monitor
  - Blood glucose level
  - IV access / fluid bolus
  - Wound care
  - Splinting

**4. Monitoring and Reassessment (Ongoing Assessment)**

- **Evaluate effectiveness of interventions**
- **Vital signs every 5 minutes**
- **Reassess mental status (GCS) every 5 minutes**

**5. CONTACT MEDICAL CONTROL AS SOON AS POSSIBLE**

**Critical Thinking Elements**

- Prompt transport with EARLY Medical Control contact & receiving hospital notification will expedite the care of the trauma patient.
- IVs should be established en route to the hospital thereby not delaying transport of critical trauma patients (unless scene time is extended due to prolonged extrication).
- Trauma patients should be transported to the closest most appropriate Trauma Center. Medical Control should be contacted immediately if there is ANY question as to which Trauma Center the patient should be transported to.
- Children are prone to hypothermia in traumatic situations – keep the patient warm!!!!

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**Pediatric Shock Protocol**

The pediatric patient in shock can pose a challenge to the prehospital professional. Since pediatric patients have young, strong cardiovascular systems, they can compensate extremely well. This can mask the signs and symptoms of shock until the child's cardiovascular system tires and begins to decompensate. Once the pediatric patient enters into a state of decompensated shock, prognosis for a full recovery is poor.

Conditions that may indicate impending shock include:

- Significant mechanism of injury
- Tender and/or distended abdomen
- Pelvic instability
- Bilateral femur fractures

“Load & Go” with any trauma patient with signs and symptoms of shock – on scene treatment should be minimal. Conduct a *Primary Survey*, manage the airway, take C-spine precautions & immobilize and control any life-threatening hemorrhage. Contact Medical Control as early as possible.

**First Responder Care**

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol* and *Routine Pediatric Trauma Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Control bleeding using direct pressure, pressure dressings and pressure points.

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**Pediatric Shock Protocol**

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol* and *Routine Pediatric Trauma Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Control bleeding using direct pressure, pressure dressings and pressure points.
4. Initiate ALS intercept and transport as soon as possible.
5. Contact Medical Control as soon as possible.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol* and *Routine Pediatric Trauma Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Control bleeding using direct pressure, pressure dressings and pressure points.
4. **IV Fluid Therapy:** 20mL/kg fluid bolus. May repeat x 2 to a maximum of 60mL/kg (*Note:* Exceeding 40mL/kg requires **Medical Control order**).
5. **Contact Medical Control** and transport as soon as possible.

PEORIA AREA EMS SYSTEM  
PEDIATRIC PREHOSPITAL CARE MANUAL

**Pediatric Shock Protocol**

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol* and *Routine Pediatric Trauma Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
3. Control bleeding using direct pressure, pressure dressings and pressure points.
4. **IV Fluid Therapy:** 20mL/kg fluid bolus. May repeat x 2 to a maximum of 60mL/kg (**Note:** Exceeding 40mL/kg requires **Medical Control order**).
5. Transport as soon as possible.
6. **Contact Medical Control** as soon as possible.

**Critical Thinking Elements**

- Pediatric patients will compensate for shock as long as they have the energy to do so. Once pediatric patients start to decompensate due to shock, it is exceedingly difficult to reverse the process. Therefore, it is **imperative** that shock is identified and treated early!

**PEORIA AREA EMS SYSTEM  
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**Pediatric Closed Head Injury Protocol**

The causes of closed head injuries in pediatric patients are numerous. Injuries resulting from vehicular accidents or failure to wear proper safety gear (e.g. helmets) are common. The most effective way of determining the extent of closed head injury is mechanism of injury and level of consciousness.

The head is the largest body part of a pediatric patient which makes him/her “top heavy” and to fall head first during a trauma. The head is usually more seriously injured than any other area of the body in pediatric trauma. Proper management of a closed head injury patient can impact long term damage.

Priorities for the treatment of head injury patients include airway management, maintenance of adequate oxygenation & blood pressure as well as appropriate C-spine control & immobilization.

**First Responder Care**

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol and Routine Pediatric Trauma Care Protocol*.
2. Be prepared for vomiting and have suction readily available.
3. **Oxygen:** 15 L/min via non-rebreather mask. Be prepared to support the patient’s respirations with BVM if necessary.
4. Control bleeding using direct pressure, pressure dressings and pressure points.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

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**Pediatric Closed Head Injury Protocol**

**BLS Care (continued)**

1. Render initial care in accordance with the *Routine Pediatric Care Protocol* and *Routine Trauma Care Protocol*.
2. Be prepared for vomiting and have suction readily available.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. Control bleeding using direct pressure, pressure dressings and pressure points.
5. Repeat vital signs, GCS & RTS every *5 minutes*.
6. Initiate ALS intercept and transport as soon as possible.
7. Contact Medical Control as soon as possible.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol* and *Routine Trauma Care Protocol*.
2. Be prepared for vomiting and have suction readily available.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. Control bleeding using direct pressure, pressure dressings and pressure points.

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**Pediatric Closed Head Injury Protocol**

**ILS Care (continued)**

5. Repeat vital signs, GCS & RTS every *5 minutes*.
6. **IV Fluid Therapy:** 20mL/kg fluid bolus if needed to a maximum of 60mL/kg (*Note:* Exceeding 40mL/kg requires **Medical Control order**).
7. Initiate ALS intercept if needed and transport as soon as possible.
8. **Contact Medical Control** as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol* and *Routine Trauma Care Protocol*.
2. Be prepared for vomiting and have suction readily available.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. Control bleeding using direct pressure, pressure dressings and pressure points.
5. Repeat vital signs, GCS & RTS every *5 minutes*.
6. **IV Fluid Therapy:** 20mL/kg fluid bolus if needed to a maximum of 60mL/kg (*Note:* Exceeding 40mL/kg requires **Medical Control order**).
7. **Contact Medical Control** as soon as possible.

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**Pediatric Closed Head Injury Protocol**

**Pediatric Glasgow Coma Scale**

<b>ACTIVITY</b>	<b>SCORE</b>	<b>INFANTS</b>	<b>CHILDREN</b>
<b>Eye Opening</b>	<b>4</b>	<b>Spontaneous</b>	<b>Spontaneous</b>
	<b>3</b>	<b>To speech or sound</b>	<b>To speech</b>
	<b>2</b>	<b>To painful stimuli</b>	<b>To painful stimuli</b>
	<b>1</b>	<b>None</b>	<b>None</b>
<b>Verbal</b>	<b>5</b>	<b>Appropriate words or sounds, social smile, fixes and follows</b>	<b>Oriented</b>
	<b>4</b>	<b>Cries, but consolable</b>	<b>Confused</b>
	<b>3</b>	<b>Persistently irritable</b>	<b>Inappropriate words</b>
	<b>2</b>	<b>Restless, agitated</b>	<b>Incomprehensible sounds</b>
	<b>1</b>	<b>None</b>	<b>None</b>
<b>Motor</b>	<b>6</b>	<b>Spontaneous movement</b>	<b>Obeys commands</b>
	<b>5</b>	<b>Localizes to pain</b>	<b>Localizes to pain</b>
	<b>4</b>	<b>Withdraws to pain</b>	<b>Withdraws to pain</b>
	<b>3</b>	<b>Abnormal flexion (decorticate)</b>	<b>Abnormal flexion (decorticate)</b>
	<b>2</b>	<b>Abnormal extension (decerebrate)</b>	<b>Abnormal extension (decerebrate)</b>
	<b>1</b>	<b>None</b>	<b>None</b>
<b>13-15 Minor head injury</b> <b>9-15 Moderate head injury</b> <b>≤ 8 Severe head injury / Coma</b>			

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**Pediatric Closed Head Injury Protocol**

**Pediatric Trauma Score**

<b>Components</b>	<b>+2</b>	<b>+1</b>	<b>-1</b>	<b>SCORE</b>
<b>Weight</b>	>20 kg (44 lbs)	10-20 kg (22-44 lbs)	<10 kg (22 lbs)	
<b>Airway</b>	Patent	Maintainable	Un-maintainable	
<b>Systolic BP Pulses</b>	> 90 Radial	50 – 90 Carotid	< 50 Non-palpable	
<b>CNS</b>	Awake	+LOC (responsive)	Unresponsive	
<b>Fractures</b>	None	Closed or suspected	Multiple closed or open	
<b>Wounds</b>	None	Minor	Major, penetrating or Burns > 10%	
<b>TOTAL SCORE</b>				
9 - 12	Minor Trauma (Use local guidelines/protocols)			
6 - 8	Potentially Life Threatening (Suggests need for Trauma Center)			
0 - 5	Life Threatening (Need for Trauma Center)			
<0	Usually Fatal (Transport to Nearest Facility)			

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**Pediatric Burn Protocol**

The primary goal in the treatment of the pediatric burn patient is the same as when caring for an adult – to stop the acute burning process by removing the patient from direct contact with the source of the burn and maintaining the patient’s body fluids. Special attention should be given to limit further pain and damage of the burn to the patient. However, burn care should not interfere with lifesaving measures.

One aspect of pediatric burn care is different and prehospital providers need to be aware of it – **suspicious burns**. Suspicious burns include burns that have a familiar pattern (e.g. circumferential burns, burns from a cigarette lighter, etc.) or a story that does not fit the injury sustained. Pediatric burns carry a high index of suspicion for abuse and neglect. Follow local protocol for reporting abuse and neglect if suspected.

**First Responder Care**

First Responder Care should be focused on assessing the situation, removing the child from harm and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. Make sure the scene is safe to enter.
3. **Oxygen:** 15 L/min via non-rebreather mask. Be prepared to support the patient’s respirations with BVM if necessary.
4. **THERMAL BURN TREATMENT:**
  - a) If the burn occurred within the last 20 minutes, reverse the burning process and cool the area by flushing the area with **1 Liter of Sterile Saline** (or Sterile Water if Sterile Saline is not available). The goal of cooling is to extinguish the burning process – not to systemically cool the patient. Fluid application should be held to a minimum and discontinued if the patient begins shivering.
  - b) Remove jewelry and loose clothing. Do not pull away clothing that is stuck to the burn.
  - c) Cover the wound with sterile dressings\*\*\*
  - d) Place a sterile burn sheet on the stretcher. If the patient’s posterior is burned, place a sterile burn pad on top of the sheet with the absorbent side toward the patient.

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**Pediatric Burn Protocol**

**First Responder Care (continued)**

- e) Place patient on the stretcher.
- f) Cover the patient with additional sterile burn sheets and blanket to conserve body heat.

**5. ELECTRICAL BURN TREATMENT:**

- a) Assure that the power service has been cut off and remove the patient from the source of electricity.
- b) Fully immobilize the patient due to forces of electrical current and possible trauma.
- c) Assess for entry and exit wounds. No cooling or flushing is necessary due to the type of burn.
- d) Cover the burn with dry, sterile dressings.
- e) Closely monitor the patient.

**6. CHEMICAL BURN TREATMENT:**

- a) Consider possible scene and patient contamination and follow agency safety procedures.
- b) Note which chemical agent caused the burn and obtain the MSDS for that chemical (if possible).
- c) The patient's clothing should be completely removed to prevent continued exposure and the patient decontaminated **prior to** being placed in the ambulance for transport.
- d) **Dry chemical powder** should be brushed off before applying water.
- e) Irrigate the patient with Sterile Water and if the MSDS indicates use of water will not cause an adverse reaction. Body parts should be flushed for at least 1-2 minutes. Do not use Sterile Saline on chemical burns.
- f) Irrigate burns to the eye with Sterile Water for at least 20 minutes. Alkaline burns should receive continuous irrigation throughout transport.

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**Pediatric Burn Protocol**

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Includes all components of *First Responder Care*.
2. Initiate ALS intercept and transport as soon as possible.
3. **Contact Medical Control** as soon as possible.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Includes all components of *First Responder Care*.
2. **IV Fluid Therapy:** 20mL/kg fluid bolus to a maximum of 60mL/kg (*Note:* Exceeding 40mL/kg requires **Medical Control order**).
3. **Fentanyl:** 1mcg/kg IV over 2 minutes for pain (*Max single dose: 50mcg*). Fentanyl 1mcg/kg may be repeated every 5 **minutes**. (Total of 100 mcg)
4. **Fentanyl:** Fentanyl Intranasal may also be used if unable to give IV Fentanyl. (*See intranasal dosing sheet*).
5. Initiate ALS intercept and transport as soon as possible.
6. **Contact Medical Control** as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

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**Pediatric Burn Protocol**

**ALS Care (continued)**

1. Includes all components of *First Responder Care*.
2. **IV Fluid Therapy:** 20mL/kg fluid bolus to a maximum of 60mL/kg (*Note:* Exceeding 40mL/kg requires **Medical Control order**).
3. **Fentanyl:** 1mcg/kg IV over 2 minutes for pain (*Max single dose: 50mcg*). Fentanyl 1mcg/kg may be repeated every **5 minutes**. (Total of 100 mcg).
4. **Fentanyl:** Fentanyl Intranasal may also be used if unable to give IV Fentanyl. (*See intranasal dosing sheet*).
5. Transport and **Contact Medical Control** as soon as possible.

**Critical Thinking Elements**

- \*\*\*WaterJel<sup>®</sup> may be used for **THERMAL BURNS** (after the burn has been irrigated according to protocol) if it is available.
- BurnJel<sup>®</sup> contains Lidocaine and may NOT be used in the Peoria Area EMS System.
- Treat other symptoms or trauma per the appropriate protocol.
- IV access should not be obtained through burned tissue unless no other site is available.
- Closely monitor the patient's response to IV fluids and assess for pulmonary edema.
- Closely monitor the patient's airway – have BVM and suction readily available.
- Do not delay transport of a "Load and Go" trauma patient to care for burns.
- For chemical/powder burns, be aware of inhalation hazards and closely monitor for changes in respiratory status.
- **In patients with known renal failure, the Fentanyl dose must be reduced to 0.5mcg/kg (*Max single dose: 25mcg*). The dose may be repeated one time.**

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**Pediatric Heat-Related Emergencies Protocol**

Heat-related emergencies can often be seen in the pediatric population involved in intense sporting activities. When the body loses the ability to cool itself off, the body will retain heat, elevating core body temperature. If the core body temperature rises above normal, physiological consequences can develop. These can range from muscle cramps up to loss of consciousness and death. The treatment of hyperthermic injuries is basic if caught early.

**First Responder Care**

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. Move the patient to a cool environment. Remove clothing as necessary to make the patient comfortable. Cold packs may be utilized for the neck (posterior), armpits, groin and along the thorax. Do not cool the patient to a temperature that will cause them to shiver.
3. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. Move the patient to a cool environment. Remove clothing as necessary to make the patient comfortable. Cold packs may be utilized for the neck (posterior), armpits, groin and along the thorax. Do not cool the patient to a temperature that will cause them to shiver.

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**Pediatric Heat-Related Emergencies Protocol**

**BLS Care (continued)**

3. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. Treat other symptoms per the appropriate protocol.
5. Initiate ALS intercept if needed and transport as soon as possible.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. Move the patient to a cool environment. Remove clothing as necessary to make the patient comfortable. Cold packs may be utilized for the neck (posterior), armpits, groin and along the thorax. Do not cool the patient to a temperature that will cause them to shiver.
3. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive. May repeat x 2 to a maximum of 60mL/kg (**Note:** Exceeding 40mL/kg requires **Medical Control order**).
5. Treat other symptoms per the appropriate protocol.
6. Initiate ALS intercept if needed and transport as soon as possible.

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**Pediatric Heat-Related Emergencies Protocol**

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. Move the patient to a cool environment. Remove clothing as necessary to make the patient comfortable. Cold packs may be utilized for the neck (posterior), armpits, groin and along the thorax. Do not cool the patient to a temperature that will cause them to shiver.
3. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive. May repeat bolus x 2 to a maximum of 60mL/kg (**Note:** Exceeding 40mL/kg requires **Medical Control order**).
5. Treat other symptoms per the appropriate protocol.
6. Transport as soon as possible.

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**Pediatric Heat-Related Emergencies Protocol**

**Heat Disorders**

**Heat (Muscle) Cramps** – Heat cramps are muscle cramps caused by overexertion and dehydration in the presence of high temperatures. Signs & symptoms include: *Normal or slightly elevated body temperature; generalized weakness; dizziness; warm, moist skin and cramps in the fingers, arms, legs or abdominal muscles.*

**Heat Exhaustion** – Heat exhaustion is an acute reaction to heat exposure and the most common heat-related illness a prehospital provider will encounter. Signs & symptoms include: *Increased body temperature; generalized weakness; cool, diaphoretic skin; rapid, shallow breathing; weak pulse; diarrhea; anxiety; headache and possible loss of consciousness.*

**Heatstroke** – Heatstroke occurs when the body's hypothalamic temperature regulation is lost. Cell death and damage to the brain, liver and kidneys can occur. Signs & symptoms include: *Cessation of sweating; very high core body temperature; hot, usually dry skin; deep, rapid, shallow respirations (which later slow); rapid, full pulse (which later slows); hypotension; confusion, disorientation or unconsciousness and possible seizures.*

**Fever (Pyrexia)** – A fever is the elevation of the body temperature above the normal temperature for that person (~ 98.6° F +/- 2 degrees). Fever is sometimes difficult to differentiate from heatstroke; however, there is usually a history of infection or illness with a fever.

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**Pediatric Hypothermia Protocol**

Hypothermia in children is common at any time of the year. Children dissipate heat faster than adults due to their body mass compared to the surface area of skin. EMS providers must suspect an onset of hypothermia in all cold environmental emergencies, child neglect and trauma. Rapid identification and treatment of hypothermia can have a significant effect on the outcome of the pediatric patient.

**First Responder Care**

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. Handle the patient as *gently* as possible.
3. Create a warm environment for the patient. Remove wet or frozen clothing and cover the patient with warm blankets. Prevent re-exposure to cold. Warm packs may be utilized for the neck (posterior), armpits, groin and along the thorax.
4. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
5. Do not rub frostbitten or frozen body parts. Protect injured parts (e.g. blisters) with light, sterile dressings and avoid pressure to the area.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. Handle the patient as *gently* as possible.

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**Pediatric Hypothermia Protocol**

**BLS Care (continued)**

3. Create a warm environment for the patient. Remove wet or frozen clothing and cover the patient with warm blankets. Prevent re-exposure to cold. Warm packs may be utilized for the neck (posterior), armpits, groin and along the thorax.
4. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
5. Do not rub frostbitten or frozen body parts. Protect injured parts (e.g. blisters) with light, sterile dressings and avoid pressure to the area.
6. Treat other symptoms per the appropriate protocol.
7. Initiate ALS intercept if needed and transport as soon as possible.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. Handle the patient as *gently* as possible.
3. Create a warm environment for the patient. Remove wet or frozen clothing and cover the patient with warm blankets. Prevent re-exposure to cold. Warm packs may be utilized for the neck (posterior), armpits, groin and along the thorax.
4. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
5. **IV Fluid Therapy:** 20mL/kg fluid bolus of **warmed** .9% Normal Saline.
6. Do not rub frostbitten or frozen body parts. Protect injured parts (e.g. blisters) with light, sterile dressings and avoid pressure to the area.

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**Pediatric Hypothermia Protocol**

**ILS Care (continued)**

7. Treat other symptoms per the appropriate protocol.
8. Initiate ALS intercept if needed and transport as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. Handle the patient as *gently* as possible.
3. Create a warm environment for the patient. Remove wet or frozen clothing and cover the patient with warm blankets. Prevent re-exposure to cold. Warm packs may be utilized for the neck (posterior), armpits, groin and along the thorax.
4. **Oxygen:** 10-15 L/min via non-rebreather mask or 4-6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
5. **IV Fluid Therapy:** 20mL/kg fluid bolus of **warmed** .9% Normal Saline.
6. Do not rub frostbitten or frozen body parts. Protect injured parts (*e.g.* blisters) with light, sterile dressings and avoid pressure to the area.
7. Treat other symptoms per the appropriate protocol.
8. Transport as soon as possible.

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**Pediatric Hypothermia Protocol**

**Critical Thinking Elements**

- Do not thaw frozen parts in the field if there is a chance of refreezing. Protect frostbitten areas from refreezing.
- Patients with hypothermia should be considered at high risk for ventricular fibrillation. It is imperative that these patients be handled gently and not re-warmed aggressively.
- The presence of delirium, bradycardia, hypotension and/or cyanosis is usually indicative of severe hypothermia (core body temperature of < 90 degrees Fahrenheit).

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**Pediatric Near Drowning Protocol**

Drowning remains one of the top five reasons pediatric patients are killed each year. EMS efforts need to focus on airway control and hypothermia management. Complications may arise from the fluid the child has drowned in. Remember – children can drown in as little as two inches of fluid. Children not only drown in rivers or pools but also mop buckets and bathtubs.

**First Responder Care**

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Patient Care Protocol* and *Routine Trauma Care Protocol*.
2. Make sure the scene is safe. Use appropriate personnel and equipment for rescue.
3. Establish and maintain spinal immobilization.
4. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to clear the airway and support the patient's respirations with BVM if necessary.
5. Initiate **CPR** if indicated.
6. Treat respiratory and/or cardiac symptoms per the appropriate protocol.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Includes all components of *First Responder Care*.
2. Initiate ALS intercept and transport as soon as possible.
3. **Contact Medical Control** as soon as possible.

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**Pediatric Near Drowning Protocol**

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Includes all components of *First Responder Care*.
2. Initiate ALS intercept and transport as soon as possible.
3. **Contact Medical Control** as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Includes all components of *First Responder Care*.
2. Transport as soon as possible.
3. **Contact Medical Control** as soon as possible.

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**Suspected Child Maltreatment Protocol**

Illinois state law mandates that EMS providers report any suspicious acts of suspected maltreatment. There is no profile of the “typical” family in which abuse is taking place. Maltreatment of children affects all socio-economic classes. As EMS professionals, we need to be aware of the warning signs, treat the injuries of the child and report accordingly.

**First Responder Care, BLS Care, ILS Care, ALS Care**

1. Consider scene safety issues:
  - a) If the offender is present and interferes with transportation of the patient, or is influencing the patient’s acceptance of medical care, contact law enforcement and Medical Control for consultation on the appropriate action to take.
  - b) If the parent/guardian refuses to allow transportation of the child, contact law enforcement and Medical Control for consultation on the appropriate action to take.
2. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
3. Treat obvious injuries or illnesses.
4. Survey the scene for evidence of factors that could adversely affect the child’s welfare:
  - a) Environmental
  - b) Interaction with parents/guardians
  - c) Discrepancies in the history of events
  - d) Injury patterns inconsistent with history of events or anticipated motor skills based on the child’s growth and development stage.
  - e) Signs of intentional injury or emotional harm.
5. Transport regardless of extent of injuries.
6. Upon arrival at the ED, notify the receiving physician or nurse of the suspected maltreatment. **Remember** – healthcare workers (including EMTs/Paramedics) are mandated by Illinois state law to report cases of suspected abuse or neglect to the Department of Children and Family Services (DCFS) by calling 1-800-252-2873.

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PEDIATRIC PREHOSPITAL CARE MANUAL

**Suspected Child Maltreatment Protocol**

**First Responder Care, BLS Care, ILS Care, ALS Care**  
**(continued)**

7. **Thoroughly document** the child's history & physical exam findings.
8. The following information / telephone numbers regarding services available to victims of abuse shall be offered to all victims of abuse:
  - ***Center for Prevention of Abuse***  
Phone (309)691-0551
  - ***Crime Victims Compensation Program***  
Phone (312)814-2581  
Phone (800)228-3368  
TTY (312)814-3374
  - ***Illinois Child Abuse Hotline***  
Phone (800)252-2873  
TTY (800)358-5117

**Critical Thinking Elements**

- At no time should EMS confront the caregivers about the abuse.
- Do not make accusations on the PCR. Document objective physical findings, not opinion.
- A copy of the *Manual for Mandated Reporters* can be downloaded at [www.state.il.us/dcfs](http://www.state.il.us/dcfs).
- Willful failure to report suspected incidents of child abuse/neglect is a misdemeanor (1<sup>st</sup> violation) or a class 4 felony (2<sup>nd</sup> or subsequent violations).
- Reports must be confirmed in writing to the local investigation unit within 48 hours of the Hotline call.

**PEORIA AREA EMS SYSTEM  
PEDIATRIC PREHOSPITAL CARE MANUAL**

**Sudden Infant Death Syndrome (SIDS) Protocol**

*Sudden Infant Death Syndrome (SIDS)* and the death of a child are among the most difficult patient care experiences for the prehospital professional. SIDS is the leading cause of infant mortality in the United States and the causes are not known.

The death of a child is a horrible event and creates difficult emotional issues for the caregivers as well as for the prehospital professional. The infant may be in the care of a parent/caregiver or babysitter at the time of death and may not be at home. Absence of one or both parents may complicate field management and interactions at the scene (PEPP 2001).

**First Responder Care, BLS Care, ILS Care, ALS Care**

1. Render initial care in accordance with the *Routine Pediatric Care Protocol*.
2. **If obvious signs of biological death are present** (*pulseless, apneic, cold skin, frothy/blood tinged fluid in the mouth, lividity, dark red mottling on the body, rigor mortis*):
  - a) Confirm absence of breathing and pulse.
  - b) Confirm asystole in two (2) or more leads.
  - c) **Contact Medical Control** and follow procedures for death at scene.
  - d) Provide for the needs of the family:
    - Have at least one prehospital professional stay with the family until a support network is established.
    - Contact support personnel:
      - ❖ Clergy
      - ❖ Other family members
      - ❖ Friends
      - ❖ Professional counselors
3. Consider the possibility of child maltreatment:
  - a) Refer to *Suspected Child Maltreatment Protocol*.
  - b) Obtain past medical history and the history of events.
    - Refrain from asking judgmental or leading questions.
    - Do not place blame or accusations.
4. Consider CISM for prehospital personnel.

**PEORIA AREA EMS SYSTEM  
PEDIATRIC PREHOSPITAL CARE MANUAL**

**Sudden Infant Death Syndrome (SIDS) Protocol**

**Critical Thinking Elements**

- The decision of staying on scene or transporting a dead infant to the ED is a difficult one. Consider these factors:
  - a) Could this be a crime scene?
  - b) Am I giving false hope to the family?
- The prehospital caregiver cannot determine the true cause of death in an infant. Therefore, do not rush to judgment. Treat every caregiver as a grieving parent regardless of the situation.
- There are nearly 3000 SIDS cases per year in the United States:
  - a) 90-95% of SIDS cases are less than 6 months old.
  - b) Premature infants are at higher risk for SIDS
  - c) SIDS cases occur more frequently in males & during the winter months.
  - d) 5% of SIDS cases are actually due to child neglect.

**PEORIA AREA EMS SYSTEM  
PEDIATRIC PREHOSPITAL CARE MANUAL**

<b>Intranasal Fentanyl Dosing Chart</b>		
<b>Patient Weight</b>	<b>Dosage (2mcg/kg)</b>	<b>Dead Space Volume</b>
3-5kg (6-11 Lbs)	10 mcg (0.2 ml)	(+ 0.1 ml)
6-10kg (13-22 Lbs)	20 mcg (0.4 ml)	(+ 0.1 ml)
11-15kg (24-33 Lbs)	30 mcg (0.6 ml)	(+ 0.1 ml)
16-20kg (35-44 Lbs)	40 mcg (0.8 ml)	(+ 0.1 ml)
21-25kg (46-55 Lbs)	50 mcg (1.0 ml)	(+ 0.1 ml)
26-30kg (57-66 Lbs)	60 mcg (1.2 ml)	(+ 0.1 ml)
31-35kg (68-77 Lbs)	70 mcg (1.4 ml)	(+ 0.1 ml)
36-40kg (79-88 Lbs)	80 mcg (1.6 ml)	(+ 0.1 ml)
41-45kg (90-99 Lbs)	90 mcg (1.8 ml)	(+ 0.1 ml)
46-50kg (101-110 Lbs)	100 mcg (2.0 ml)	No Extra
51-55kg (112-121 Lbs)	110 mcg (2.2 ml)	**(+ 0.1 ml)**
56-60kg (123-132 Lbs)	120 mcg (2.4 ml)	**(+ 0.1 ml)**
61-70kg (134-154 Lbs)	140 mcg (2.8 ml)	**(+ 0.1 ml)**
71-80kg (156-176 Lbs)	160 mcg (3.2 ml)	**(+ 0.1 ml)**
81-90kg (178-198 Lbs)	180 mcg (3.6 ml)	**(+ 0.1 ml)**
91-100kg (200-220 Lbs)	200 mcg (4.0 ml)	No Extra
		**Divide dose in 1/2 and administer 10 minutes apart to reduce runoff**

**PEORIA AREA EMS SYSTEM  
PEDIATRIC PREHOSPITAL CARE MANUAL**

Intranasal Versed (Midazolam) Dosing Chart					
Patient Age	Weight	5mg/5mL Concentration		10mg/2mL Concentration	
		Dose (mg)	Dose (mL)	Dose (mg)	Dose (mL)
(years)					
Neonate	3kg (6)Lbs	0.6 mg	0.7 ml	0.6 mg	0.3 mL
<1 yr	6kg (13) Lbs	1.2 mg	1.3 ml	1.2 mg	0.4 mL
1	10kg (22) Lbs	2.0 mg	2.1 ml	2.0 mg	0.5 mL
2	14kg (30) Lbs	2.8 mg	2.9 ml	2.8 mg	0.7 mL
3	16kg (35) Lbs	3.2 mg	3.3 ml	3.2 mg	0.8 mL
4	18kg (40) Lbs	3.6 mg	3.8 ml	3.6 mg	0.9 mL
5	20kg (44) Lbs	4.0 mg	4.1 ml	4.0 mg	1.0 mL
6	22kg (48) Lbs	4.4 mg	4.5 ml	4.4 mg	1.0 mL
7	24kg (53) Lbs	4.8 mg	4.9 ml	4.8 mg	1.1 mL
8	26kg (57) Lbs	5.2 mg	5.3 ml	5.2 mg	1.2 mL
9	28kg (62) Lbs	5.6 mg	5.7 ml	5.6 mg	1.3 mL
10	30kg (66) Lbs	6.0 mg	6.1 ml	6.0 mg	1.4 mL
11	32kg (70) Lbs	6.4 mg	6.5 ml	6.4 mg	1.4 mL
12	34kg (75) Lbs	6.8 mg	6.9 ml	6.8 mg	1.5 mL
Small Teenager	40kg (88) Lbs	8.0 mg	8.1 ml	8.0 mg	1.8 mL
Full Grown Teen or Adult	>50kg (>110) Lbs	10.0 mg	10.1 ml	10.0 mg	2.0 mL

For Children: Total weight (kg) x 0.2 mg = total mg dose of Midazolam, maximum dose of 10 mg

\*Volume is based on the calculated dose PLUS 0.10 mL dead space in the device. The total volume is then rounded off to the next highest 0.1 mL. In some children a higher dose may be needed (0.3 mg/kg).



# *Peoria Area EMS System*



## *Prehospital Disaster Care Manual*

*Revised: January 1, 2016*

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

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**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Notification of a Medical Disaster Policy**

EMS agencies are expected to notify Medical Communications in the event of a potential or actual medical disaster.

1. During a medical disaster, it is imperative that the **first arriving EMS Agency on scene notifies OSF Medical Communications of the disaster** by calling (309)655-5714. In turn, medical communications will initiate communications among System hospitals for notification and bed status. In addition, medical communications will notify *Disaster Medical Services*.
  
2. A *medical disaster* is defined as:
  - A mass casualty incident involving more than 10 patients.
  - A prolonged rescue where the victim will be entrapped 60 minutes or more.
  - A Hazardous Materials release (***a chemical that is a direct life-threat to a population***) with multiple patients or incident of 1 or more contaminated patients being transported to a hospital.
  - A weapon of mass destruction (WMD) release.
  - Any natural or man-made event (*e.g.* tornado) with multiple patients (or the potential for multiple patients) that will have a prolonged EMS scene time of greater than 2 hours.
  
3. When contacting OSF Medical Communications, the following information will be needed:
  - ◆ Type of disaster (*i.e.* what caused it?)
  - ◆ Location of the disaster
  - ◆ Staging area or route of entry into the disaster
  - ◆ Operational frequency (*i.e.* what channel is incident command on?)
  - ◆ Number of injured
  - ◆ Name of agency making notification as well as a call-back number

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Crush Syndrome Protocol**

A condition known as *crush syndrome* occurs in prolonged entrapments where the victim's body tissue is crushed and circulation to the tissue is restricted. Because the blood flow is reduced or absent, lactic acid builds up causing the affected tissue to become acidotic. When the crushed tissue is released and circulation restored, the acidotic blood dumping into the central circulation causes such problems as cardiac arrhythmias and electrolyte imbalances.

**First Responder Care**

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as assuring personal safety.

1. **Responder safety is paramount.** If you are unsure on how to access the patient safely, wait until technical rescue teams arrive.
2. Render initial care in accordance with the *Routine Patient Care Protocol*.
3. Obtain core body temperature (or minimally – axillary temperature). Treat for hypothermia if indicated.
4. **Place tourniquets on the affected extremity (extremities).** The tourniquet should be placed proximally, as close to the crushed tissue as possible.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as assuring personal safety and preparing the patient for or providing transport.

1. **Responder safety is paramount.** If you are unsure on how to access the patient safely, wait until technical rescue teams arrive.
2. Render initial care in accordance with the *Routine Patient Care Protocol*.

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Crush Syndrome Protocol**

**BLS Care (continued)**

3. Obtain core body temperature (or minimally – axillary temperature). Treat for hypothermia if indicated.
4. **Place tourniquets on the affected extremity (extremities).** The tourniquet should be placed proximally, as close to the crushed tissue as possible.
5. Initiate ALS intercept, transport as soon as possible.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, ensuring personal safety and preparing for or providing patient transport. Care should also be given to preventing the flush of toxins back into the patient's core.

1. **Responder safety is paramount.** If you are unsure on how to access the patient safely, wait until technical rescue teams arrive.
2. Render initial care in accordance with the *Routine Patient Care Protocol*.
3. Obtain core body temperature (or minimally – axillary temperature). Treat for hypothermia if indicated.
4. **Place tourniquets on the affected extremity (extremities).** The tourniquet should be placed proximally, as close to the crushed tissue as possible.
5. Initiate 2 large bore IVs.
6. **IV Fluid Therapy:** 500cc bolus of .9% Normal Saline to maintain a blood pressure of at least 90mmHg systolic.
7. Initiate ALS intercept as soon as possible.
8. **Contact Medical Control** as soon as possible.

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Crush Syndrome Protocol**

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, ensuring personal safety and preparing for or providing patient transport. Care should also be given to preventing the flush of toxins back into the patient's core.

1. **Responder safety is paramount.** If you are unsure on how to access the patient safely, wait until technical rescue teams arrive.
2. Render initial care in accordance with the *Routine Patient Care Protocol*.
3. Obtain core body temperature (or minimally – axillary temperature). Treat for hypothermia if indicated.
4. **Place tourniquets on the affected extremity (extremities).** The tourniquet should be placed proximally, as close to the crushed tissue as possible.
5. Initiate 2 large bore IVs.
6. **Sodium Bicarbonate:** Mix 50 mEq in 1000mL of .9% Normal Saline. Administer the entire 1000mL bolus at a wide open rate (using 10gts tubing).
7. Listen to lung sounds, checking for pulmonary edema.
8. Closely monitor BP – administer additional .9% Normal Saline prn to maintain a systolic BP of at least 100mmHg.
9. Lift object slowly off of the patient.
10. **Contact Medical Control** as soon as possible.

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Crush Syndrome Protocol**

**Critical Thinking Elements**

- Expect sudden shifts in BP and/or cardiac arrhythmias. Treat per the appropriate protocol.
- Patient's who are trapped under debris can appear hemodynamically stable until the debris is moved, at which point, toxins enter the core circulation. When the debris is lifted off of the patient, he/she can become very unstable.
- Monitor vitals every 5 minutes.
- Have airway equipment ready.

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Simple Triage and Rapid Transport (START) Protocol**

Prehospital and hospital personnel may find themselves in a situation where the number of injured patients exceeds the available healthcare providers and resources to care for the injured. In these situations, the patients must be triaged in order to do the most good for the greatest number of patients. Triage assessments are based on the severity of the injury, resources available and existence of any hazardous substance contamination to the patient. If everyone “speaks the same language” during a mass casualty event, confusion will decrease and more patients will be saved. Therefore, the START method of triage will be implemented.

1. Prioritize patients according to the START system.
2. Establish treatment areas for all four (4) categories of patients:
  - Immediate/Critical (**Red** treatment area)
  - Delayed (**Yellow** treatment area)
  - Minor/Walking Wounded (**Green** treatment area)
  - Deceased (**Black** treatment area)
3. Move through the entire scene, rapidly assessing each patient, stopping only to open an airway or to stop profuse bleeding. As you move through the scene, affix a triage tag to each patient according to their priority.
4. Treat and transport those patients who are viable and have life-threatening injuries first, according to the resources available. Any trauma patient who meets the *Minimum Trauma Field Triage Criteria* shall be transported to the highest level Trauma Center available, unless transport time is greater than 30 minutes to that hospital.
5. Treat and transport those patients who have impending or potential life-threats next. In some major incidents, these patients may even be transported by means other than an ambulance.
6. Walking wounded (*i.e.* those patients without life-threatening injuries) should be transported last. In some major incidents, these patients may even be transported by means other than an ambulance.

PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS

**Simple Triage and Rapid Transport (START) Protocol**

7. Non-viable patients (*i.e.* those in cardiac arrest or with obvious mortal wounds) should not be treated and transported unless adequate resources/personnel are available.
8. **Documentation:** The mass casualty tag is considered patient documentation and must be attached to the run report or submitted as the run report to the Resource Hospital. The mass casualty tag is considered to be confidential patient information.

**START Triage System**

**Step 1:** Clear the scene of any walking wounded (These patients are considered to be in the *MINOR* category (**Green**)).

**Step 2:** Assess ventilations in the remaining patients:

- No respiratory effort after opening airway: Deceased (**Black**)
- Respirations > 30: Immediate (**Red**)
- Respirations < 30: Delayed (**Yellow**)

**Step 3:** Assess perfusion:

- No radial pulse present: Immediate (**Red**)
- Radial pulse present: Delayed (**Yellow**)

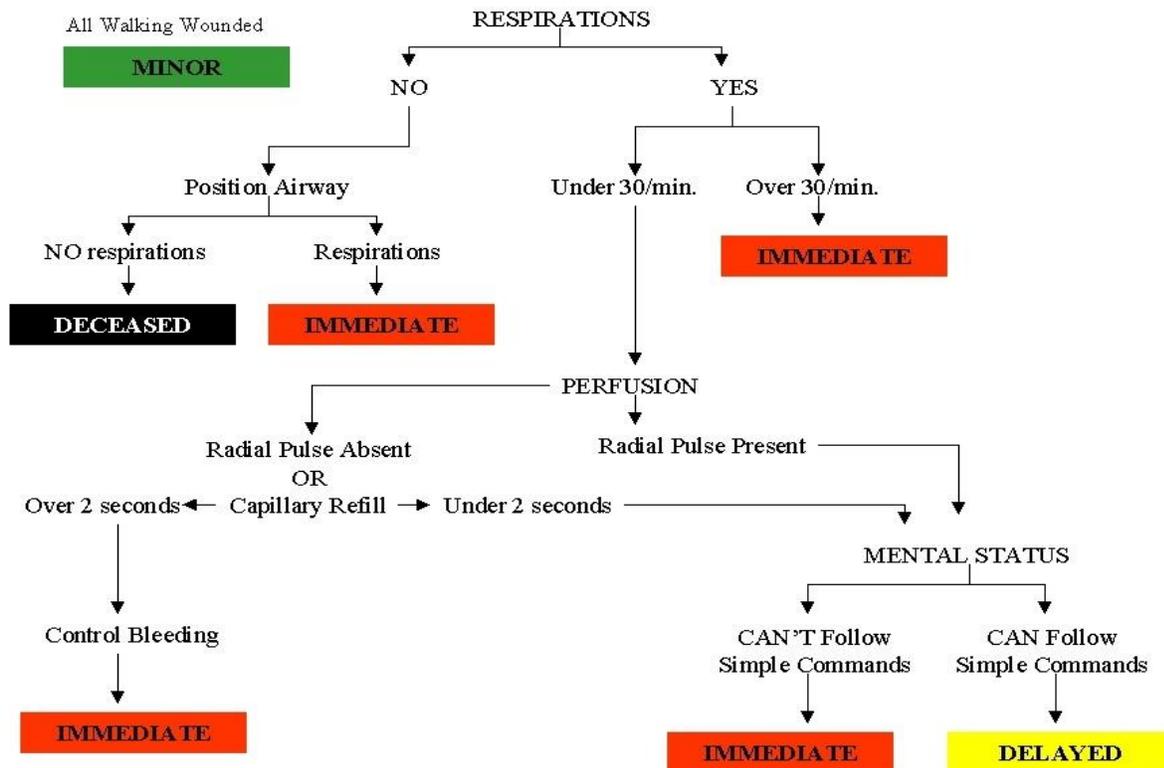
**Step 4:** Assess neurological status:

- Unconscious: Immediate (**Red**)
- Cannot follow simple commands: Immediate (**Red**)
- Can follow simple commands: Delayed (**Yellow**)

PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS

**Simple Triage and Rapid Transport (START) Protocol**

*START Triage System*



PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS

**Pediatric Triage (JumpSTART) Protocol**

**JumpSTART**

**Pediatric Multiple Casualty Incident Triage**

A standardized triage system provides guidance for personnel making life and death decisions that otherwise may be influenced by emotional issues when triaging children.

*JumpSTART Pediatric Multiple Casualty Incident Triage* is an objective triage system that addresses the needs of children and can be a resource tool when planning a triage process for pediatric patients. Although the JumpSTART system parallels the START system, it takes into consideration the developmental and physiological differences of children by using breathing as the cornerstone for triage decisions. Adding a respiratory component to the triage system may increase triage time by 15-25 seconds, however, since the number of patients requiring a ventilatory trial would most likely be small, it is not thought to significantly affect overall triage time for an incident.

Additionally, since the physiologic indicators specified for START are not generally applicable to the pediatric victim, different criteria are needed to assess young patients. For example, neurological status under START depends on the patient's ability to obey commands. This index is clearly not applicable to young children who lack the developmental ability to respond appropriately to commands.

The **JumpSTART** Pediatric MCI triage system is designed for triaging infants and young children. Determining the appropriate system to use in the pre-adolescent and young teen population can be sometimes challenging, so the current recommendation is: If a victim appears to be a child, use **JumpSTART**; if a victim appears to be a young adult, use **START**.

In children, because of mechanical reasons such as weak intercostal muscles or mechanical airway obstruction, apnea may occur rapidly. **Thus circulatory failure usually follows respiratory failure.** There may be a period of time when the child is apneic but continues to maintain a pulse. It is during this time that airway clearance and a ventilatory trial may stimulate spontaneous breathing.

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Pediatric Triage (JumpSTART) Protocol**

If spontaneous breathing begins, the child is categorized as **RED** for further treatment. If spontaneous breathing does not follow the initial ventilatory trial, the child is categorized as **BLACK** or non-salvageable.

**JumpSTART** uses the same color-coding as **START**: **RED** (Immediate); **YELLOW** (Delayed); **GREEN** (Minor/Ambulatory); **BLACK** (Deceased/non-salvageable).

The triage steps of the JumpSTART Pediatric MCI triage system are as follows:

• **Step 1:**

All children who are able to walk are directed to an area designated for minor (**GREEN**) injuries where they will undergo a secondary and more involved triage. Infants carried to this area or other non-ambulatory children taken to this area must undergo a complete medical and primary evaluation using modifications for non-ambulatory children to ascertain triage status. (Please refer to the Modifications for Non-Ambulatory Children\* section on the following page).

• **Step 2:**

a) All remaining non-ambulatory children are assessed for the presence/absence of spontaneous breathing. If spontaneous breathing is present, the rate is assessed and the triage officer moves on to step three.

b) If spontaneous breathing is not present and is not triggered by conventional positional techniques to open the airway, palpate for a pulse (peripheral preferred). If no pulse is present, patient is tagged **BLACK** and the triage officer moves on.

c) If there is a palpable pulse, the rescuer gives five breaths (approximately 15 sec.) using mouth to mask barrier technique. If the ventilatory trial fails to trigger spontaneous respirations, the patient is tagged **BLACK** and the triage officer moves on.

However, if respirations resume, the patient is tagged **RED** and the triage officer moves on **without** providing any further ventilation.

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Pediatric Triage (JumpSTART) Protocol**

• **Step 3:**

If the respiratory rate is 15-45/minute, proceed to check perfusion.

If the respiratory rate is less than 15 (less than 1/every 4 seconds) or faster than 45/minute or irregular, tag as **RED** and move on.

• **Step 4:**

Assess perfusion by palpating pulses on a (seemingly) uninjured limb. If pulses are palpable, proceed to Step 5.

If there are no palpable pulses, the patient is tagged **RED** and the triage officer moves on.

• **Step 5:**

At this point all patients have “adequate” ABCs. The triage officer performs a rapid APVU assessment of mental status. If the patient is Alert, responds to Voice, or responds appropriately to Pain (withdraws from stimulus or pushes away), the patient is tagged **YELLOW** and the triage officer moves on.

If the patient does not respond to voice and responds inappropriately to pain (moans or moves in a non-localizing fashion) or is Unresponsive, a **RED** tag is applied and the triage officer moves on to the next patient.

**NOTE:** All patients tagged **BLACK**, unless clearly suffering from injuries incompatible with life, should be reassessed once critical interventions for **RED** and **YELLOW** victims are completed.

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Pediatric Triage (JumpSTART) Protocol**

**\*Modifications for Non-Ambulatory Children**

Children in which this modification would be used include:

- Infants who normally can't walk yet
- Children with developmental delay
- Children with acute injuries which prevented them from walking **before** the incident occurred
- Children with chronic disabilities

Non-ambulatory children who meet the above criteria are evaluated using the **JumpSTART** algorithm beginning with Step 2. If the child meets any **RED** criteria, the child is tagged **RED**. A quick survey is then conducted to determine whether there are any significant external signs of injury (*i.e.* deep penetrating wounds, severe bleeding, severe burns, amputations, distended tender abdomen, or multiple bruises). If any significant external signs of injury are present, the child is tagged **YELLOW**. Non-ambulatory children without any significant external injury, with all other aspects of the **JumpSTART** algorithm normal, are tagged **GREEN**.

**NOTE:** Final disposition (transport destination) depends on local and regional resources.

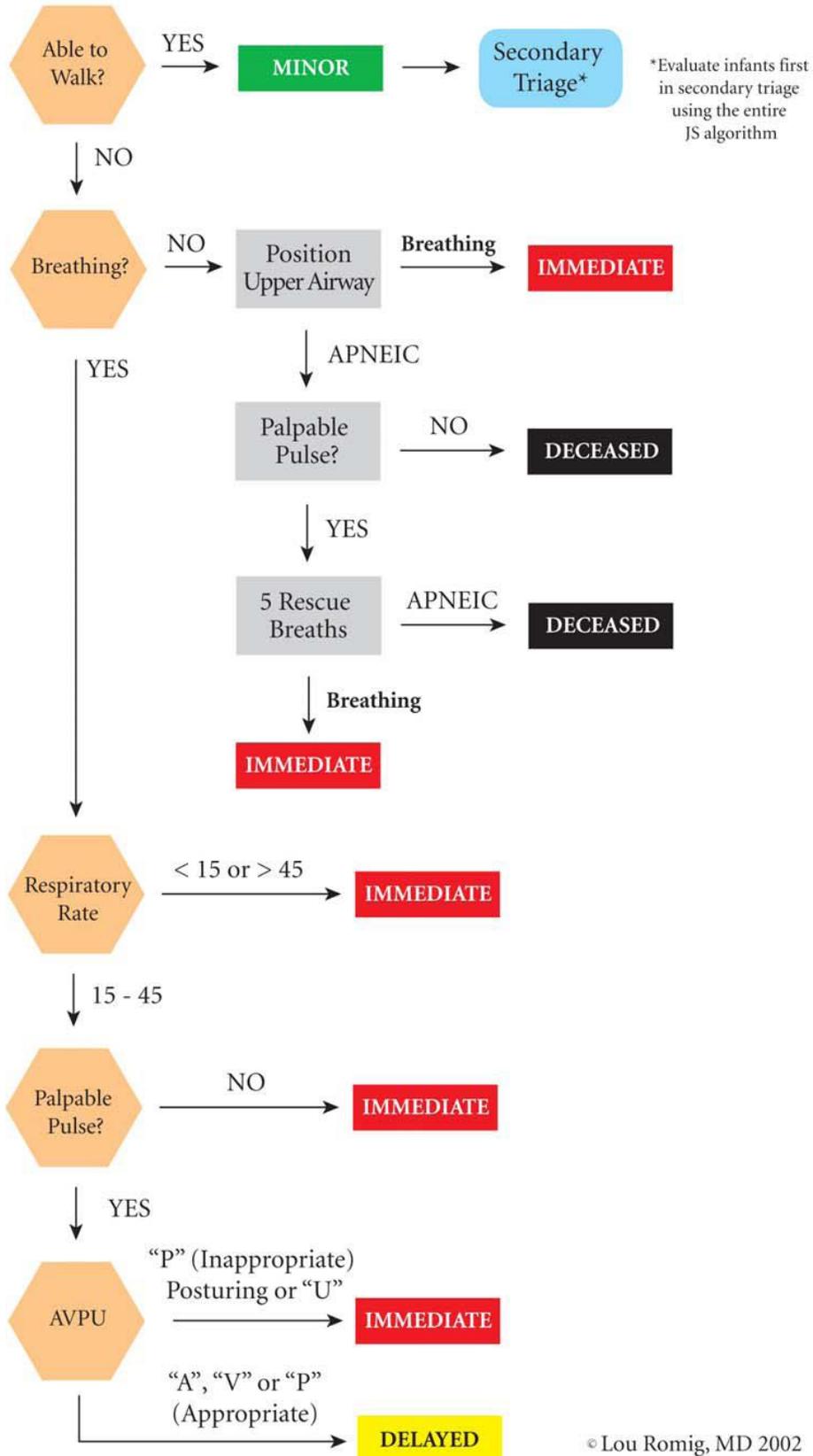
This information was obtained from the JumpSTART Pediatric MCI Triage Tool website.

The **JumpSTART** pediatric MCI field triage tool was developed by Lou Romig, M.D. Pediatric Emergency Medicine at Miami Children's Hospital in Miami, FL in 1995 and modified in 2002.

For additional information go to: [www.jumpstarttriage.com](http://www.jumpstarttriage.com).



## JumpSTART Pediatric MCI Triage<sup>®</sup>



**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Patient Isolation Protocol**

Rapid identification of possible infectious patients is very important in limiting the spread of infection. EMS providers play a key role in the mitigation of infection. Patient assessment and background information should key an EMS provider in on the possibility that the patient is either infectious or had a possible infectious exposure. Early notification to the receiving hospital will allow the hospital to prepare to place the patient in isolation.

Care should focus on personal protective equipment for all responders (to include an N-95 respirator). The *Routine Patient Care Protocol* should be followed and actual treatment of the patient should not deviate from protocol. The patient should receive the same type of medical care and respect as a non-infectious patient.

**First Responder Care, BLS Care, ILS Care, ALS Care**

**1. Assess for possible *Sudden Acute Respiratory Syndrome (SARS)*:**

- Travel (including transit in an airport) within 10 days of onset of symptoms to an area with current or previously documented or suspected community transmission of *SARS*.
- OR**
- Close contact within 10 days of onset of symptoms with a person known or suspected to have *SARS*.
- Temperature of >100.4°F or one or more clinical findings of cough, shortness of breath, difficulty breathing or hypoxia.

**2. Assess for possible **infectious biological agent**:**

- Unidentifiable rash or large amounts of bruised/necrotic skin tissue.
- Temperature of >100.4°F or one or more clinical findings of cough, shortness of breath, difficulty breathing or hypoxia.

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Patient Isolation Protocol**

**First Responder Care, BLS Care, ILS Care, ALS Care**  
**(continued)**

3. Isolate the patient. Only a minimum number of EMS providers should take care of the patient:
  - Place the patient in a *Tyvek* or hospital gown.
  - If possible, have the patient wash their hands with anti-microbial soap. The soap is to kill any infectious organisms on the patient's hands (*Note*: waterless soap / alcohol gel is acceptable).
  - If possible, place a surgical mask on the patient. The surgical mask prohibits the respiratory spread of the infectious organism. **Do not place an N-95 on the patient and do not withhold oxygen therapy if needed.**
  
4. EMS providers should follow their agency's SOP for personal protection equipment. The SOP should include at least:
  - N-95 HEPA mask for the EMS provider
  - Double gloves
  - Eye protection
  - *Tyvek* protection gown
  
5. Notification to OSF Medical Communications should be made as soon as possible:
  - Notify Medical Communications of a possible infectious patient, what facility the patient is being transported to and an ETA to the facility.
  - Notify the receiving medical facility by MERCI radio when the transporting ambulance is at the emergency department entrance.

PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS

**Patient Isolation Protocol**

First Responder Care, BLS Care, ILS Care, ALS Care  
(continued)

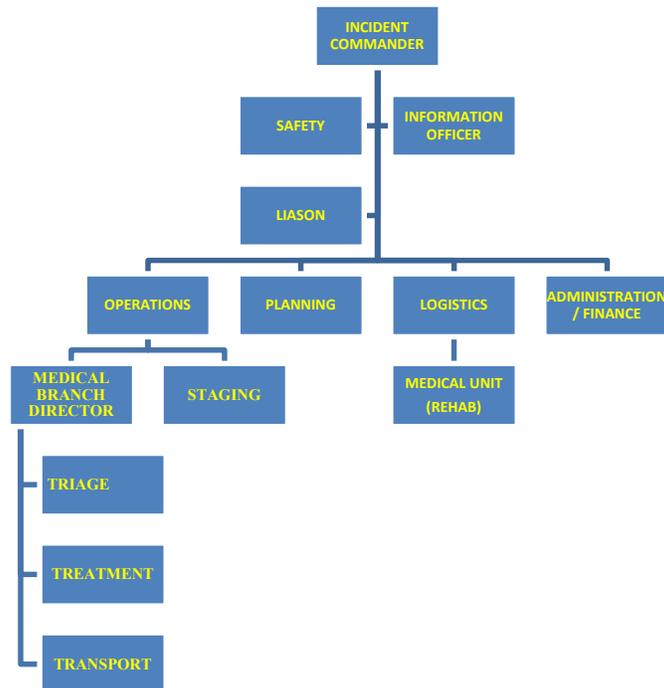
6. Do not take the patient into the emergency department (or into the hospital at all):
  - Wait for an emergency physician to examine the patient in the back of the ambulance and determine if isolation precautions should be continued.
  - When transporting the patient into the hospital, ensure that the patient is wearing a surgical mask. Or, if the patient is being manually ventilated, have a BVM with an attached HEPA filter (if available).
7. Follow the EMS agency's policy on decontamination of the ambulance and equipment.
8. Complete a *Peoria Hospitals Communicable Disease Incident Form*.

## PEORIA AREA EMS SYSTEM PREHOSPITAL DISASTER PROTOCOLS

### Command and Control of the EMS Branch Policy

With the advent of the *National Incident Management System (NIMS)* under Presidential Directive #5, all critical response agencies must follow the Incident Command System (ICS). EMS has a defined role within the ICS – the medical branch. The medical branch needs to be run effectively to establish proper care and save lives during a medical disaster.

1. Have pre-established job functions. One person cannot manage a Mass Casualty Incident (MCI) alone. Pre-defined roles and responsibilities will help reduce the stress and confusion of a mass casualty event. EMS has very specific roles during an MCI. The roles and responsibilities of EMS will be scalable – not all roles will be needed at all times. The Incident Commander (IC) and the Medical Branch Director during the MCI will determine what is needed.
2. During a declared medical disaster or MCI, the Peoria Area EMS Office/Disaster Medical Services staff may be used as a resource and can assist in moving patients to local or regional hospitals.
3. Following is a brief description of roles and responsibilities of EMS during an MCI as well as an organizational chart:



**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Command and Control of the EMS Branch Policy**

**Medical Branch Director** – This person is responsible for the implementation of the Incident Action Plan within the Medical Branch. He/she reports to the Operations Section Chief and supervises the Medical Group(s) and Patient Transportation.

**Triage** – This branch is responsible for the identification and triage of all victims and reports to the Medical Branch Director. At times, a patient transport team will be assigned to this area to help move patients from the scene into treatment areas.

**Treatment** – This branch reports to the Medical Branch Director and is responsible for treatment (usually sub-divided into the corresponding triage categories), preparation for transport and directs movement of patients to loading locations. On-scene treatment is usually limited to the stabilization of patients.

**Transport** – This branch reports to the Medical Branch Director and is responsible for the coordination of patient transportation and maintenance of records relating to the patient's identification, condition and destination. The transport branch has the responsibility of not overloading one specific hospital. As soon as possible, the Transportation Unit Leader should coordinate with the POD Hospital (OSF Saint Francis Medical Center)/EMS Office staff regarding patient destination.

**Staging** – This branch reports to the Operations Section Chief and is responsible for organizing incoming EMS resources into one central location. This could include vehicles, personnel or equipment. The Staging Director will deploy the resources as needed via the request of the Medical Branch Director.

**Medical Unit (Rehabilitation)** – This branch reports to the Logistics Section Chief and is responsible for establishing an area for on-scene providers to rest and receive medical care if needed. In addition, the Rehabilitation Branch will identify those individuals too fatigued to continue with the mission. This is a very important role in any prolonged or high-risk MCI operation.

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Requesting the EMS ChemPack Policy**

A special cache of pharmaceuticals has been stockpiled in order to deal with an organophosphate (nerve agent) poisoning. This stockpile is designed for rapid deployment to the scene of the incident. The ChemPack is designed to treat up to one thousand (1,000) people using MARK I auto-injectors and Benzodiazepines.

If the EMS provider on scene determines an organophosphate (nerve agent) release affecting more than two (2) people:

1. Call Medical Communications at (309)655-5714.
2. **Request the ChemPack.**
3. Give the Medical Communication Dispatcher:
  - Location where the ChemPack is to be delivered
  - Signs & symptoms patients are exhibiting
  - Total number of patients involved
  - Contact phone number
  - Contact frequency

**Note:** The ChemPack will take approximately 30-45 minutes plus drive time to arrive on scene.

**Critical Thinking Elements**

- Agencies who already have Mark I kits should utilize those auto-injectors. The ChemPack can still be requested if needed (*i.e.* for large-scale events).

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Requesting the Region 2 Medical Response Team Policy**

The Region 2 Medical Response Team is a deployable 20-bed (critical) and 100-bed+ (non-critical) emergency treatment facility. The team consists of doctors, nurses and paramedics and can be used for any type of medical disaster.

1. Determine if a medical disaster has occurred. Criteria for activation of the medical response team includes, but is not limited to:
  - Man-made disasters (*e.g.* terrorism-related events, Hazardous Materials spills, building collapse, urban search & rescue, mass casualties, etc.)
  - Natural disasters (*e.g.* tornadoes, floods, forest fires, public health emergencies, etc.)
2. Contact OSF Medical Communications (309)655-5714.
3. Give the Medical Communications Dispatcher the following information:
  - Type of event
  - **Exact location** of where the team should set up (minimum: 100x100 area)
    - **Provide GPS coordinates if available**
  - Number of casualties
  - Name and phone number of the contact person

**Note:** In most cases, the Region 2 Medical Response Team can be deployed within an hour. This will be a tiered response and drive time must be taken into consideration.

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Preparedness to a System-Wide Crisis Policy**

Natural and technological crises may place an intense demand for EMS and emergency department resources on one or more the EMS systems in Illinois. The potential exists for these crises to occur or evolve without adequate warning or notification.

Such crises may include:

- Environmental emergencies
- Communicable diseases
- Influenza epidemic
- Terrorist acts (involving chemical, biological or nuclear agents)

As a result, EMS and emergency department personnel must be cognizant of evolving trends of the influx of patients with similar signs & symptoms. Recognition of an impending or active system-wide crisis will better prepare hospitals and local ambulance providers to handle any type of situation.

The following outlines how and when recognition / notification may occur:

**1. Recognition**

- a) ED physician, emergency communicator, registered nurse or other MERCI/telemetry personnel may be notified of a system-wide crisis by:
- Communication from the local ambulance provider (*e.g.* mass casualty incident)
  - Increase in ED census due to patients complaining of similar signs & symptoms
  - Noted increase in the number of emergency departments requesting bypass

The MERCI/telemetry personnel should report these occurrences to the attending physician or charge nurse and the POD Coordinator.

- b) When ambulance providers of their personnel notice that they have an increased number of calls/transport with patients complaining of similar signs & symptoms, this information should be reported to OSF Medical Communications at (309)655-5714 who will notify the POD Coordinator.

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Preparedness to a System-Wide Crisis Policy**

**2. Notification of Personnel**

- a) Notification of a system-wide crisis can be made to OSF Saint Francis Medical Center Medical Communications at **(309)655-5714**. Do not call directly to the ED.
- b) The reporting medical provider will tell the medical communicator in which **county** the crisis is occurring.
- c) OSF Saint Francis Medical Communications personnel will activate that county's System-Wide Crisis call personnel.
- d) System-Wide Crisis call personnel will include:
  - ▶ POD Coordinator
  - ▶ Local Public Health Infectious Disease (or Emergency) Coordinator
  - ▶ EMS System Coordinator
- e) The reporting hospital or EMS agency will fill out the *Region 2 System-Wide Crisis Form*. This form will be faxed to minimally the above mentioned personnel.
- f) If there appears to be a trend (either prehospital or hospital) of an increase in frequency of similar signs & symptoms, the POD Coordinator shall contact the IEMA (Illinois Emergency Management Agency) Command Center at **1-800-782-7860**.

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Preparedness to a System-Wide Crisis Policy**

**3. Plan of Action**

- a) The EMS Coordinator of the affected system and POD Coordinator will contact the involved hospitals and local ambulance providers within the EMS System to inform them of the crisis.

The EMS Coordinator will request that each involved hospital take steps to avoid ambulance diversion and alert them to the possible need of having to mobilize additional staff and resources or activate their emergency management plans.

- b) Hospitals needing to go on bypass will follow the Region 2 Bypass Policy.
- c) The EMS Coordinator and POD Coordinator will assist local public health departments in their needs during the system-wide crisis.

**4. ALL CLEAR**

The POD Coordinator or designee will contact all hospitals, EMS Systems and ambulance providers with an “all clear” when the system-wide crisis is over.

**Region 2 EMS System Policy  
1a System-Wide Crisis Form**

Date: \_\_\_\_\_ Time: \_\_\_\_\_

\_\_\_\_\_  
Name of Resource Hospital

\_\_\_\_\_  
Name of person filling in report / Title

\_\_\_\_\_  
Name of EMS Agency or Hospital

\_\_\_\_\_  
Telephone Number

\_\_\_\_\_  
Name(s) of hospital(s) requesting bypass or who have seen an increase in ED visits:

<b>Hospital</b>	<b>Contact Name</b>	<b>Contact Number</b>	<b>Contact Fax</b>
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EMS provider(s) who have seen an increase in ambulance calls:

<b>Name</b>	<b>Agency</b>	<b>Contact Number</b>	<b>Contact Fax</b>
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Time OSF Saint Francis Medical Center was notified: \_\_\_\_\_

\_\_\_\_\_  
Name of medical communicator

\_\_\_\_\_  
Date/Time



PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS

**DuoDote Nerve Agent Antidote Protocol**

The Illinois Department of Public Health requires that every EMS system adopts the *DuoDote Nerve Agent Antidote Protocol*. This protocol is for all levels of EMS providers. In addition, this protocol is to be used if any agency carries DuoDote kits, or if the DuoDote kits arrive on scene to be used.

**DuoDote**



600mg in 2cc's

The DuoDote kit consists of one autoinjector containing:

- Atropine Sulfate (Atropine) 2mg in .7cc's
- Pralidoxime Chloride (2PAM)

**DuoDote Use**

DuoDote kits are not to be used prophylaxis. injectors are antidotes, not a preventative device. The auto-injectors are to be used only if patient presents with signs and symptoms consistent with exposure to nerve or organophosphate agents.

<p><b>Mnemonic got Nerve Agent Exposure</b></p> <p><b>D</b>efecation (uncontrolled bowel movements) <b>U</b>rination (uncontrolled urine production) <b>M</b>yosis (pinpoint pupils) <b>B</b>reathing Difficulty <b>E</b>mesis (excessive vomiting) <b>L</b>acrimation (excessive tearing) <b>S</b>alivation (excessive production of saliva)</p>
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**Procedure**

Prior to rendering medical care, follow routine procedures for:

1. **Scene safety**
2. Having an appropriately trained HazMat team present for decontamination, if necessary.
3. Routine medical/trauma care, as indicated.

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**DuoDote Nerve Agent Antidote Protocol**

**Dosage**

	No signs/ Symptoms	Mild Exposure	Moderate Exposure	Severe Exposure
<b>Clinical Signs</b>	None	Visual disturbances, miosis, rhinorrhea, shortness of breath, wheezing	<b>Worsening of symptoms:</b> Visual disturbances, miosis, rhinorrhea vomiting/diarrhea	<b>Above symptoms plus unconsciousness, flaccid paralysis, respiratory distress, cyanosis, apnea, seizures; severe effects in two or more organ systems</b>
<b>Age</b>	<b>Antidotes</b>			
<b>Infant (0-6 months) &lt;7 kg</b>	Observe for <b>1 hour</b> for vapor exposure or <b>18 hours</b> for liquid exposure	Atropine 0.25 mg IM (2.5cc) 2-PAM Cl: 15mg/kg IM	Atropine 0.25 mg IM (2.5cc) 2-PAM Cl: 15mg/kg IM	Atropine 0.5 mg IM (5cc) 2-PAM Cl: 25mg/kg IM
<b>Infant (7mths-2yrs) 7-13 kg</b>		Atropine 0.5 mg IM (5cc) 2-PAM Cl: 15mg/kg IM	Atropine 0.5 mg IM (5cc) 2-PAM Cl: 15mg/kg IM	Atropine 1 mg IM 2-PAM Cl: 300 mg IM
<b>Child (3-7 yrs) 14-25 kg</b>		Atropine 1 mg IM 2-PAM Cl: 300 mg IM	Atropine 1 mg IM 2-PAM Cl: 300 mg IM	Atropine 2 mg IM 2-PAM Cl: 600 mg IM
<b>Child (8-14 yrs) 26-50 kg</b>		Atropine 2 mg IM 2-PAM Cl: 600 mg IM	Atropine 2 mg IM 2-PAM Cl: 600 mg IM	Atropine 4 mg IM 2-PAM Cl: 1200 mg IM
<b>Adolescent (&gt;14 yrs) &gt;51 kg</b>		<b>1 DuoDote Kit <u>or</u></b> Atropine 2 mg IM 2-PAM Cl: 600 mg IM	<b>2 DuoDote Kits <u>or</u></b> Atropine 4 mg IM 2-PAM Cl: 1200 mg IM	<b>3 DuoDote Kits <u>or</u></b> Atropine 6 mg IM 2-PAM Cl: 1800 mg IM
<b>Adult</b>		<b>1 DuoDote Kit <u>or</u></b> Atropine 2 mg IM 2-PAM Cl: 600 mg IM	<b>2 DuoDote Kits <u>or</u></b> Atropine 4 mg IM 2-PAM Cl: 1200 mg IM	<b>3 DuoDote Kits <u>or</u></b> Atropine 6 mg IM 2-PAM Cl: 1800 mg IM
<b>Elderly (frail)</b>		Atropine 1 mg IM 2-PAM Cl: 10mg/kg IM	Atropine 1 mg IM 2-PAM Cl: 10mg/kg IM	Atropine 2 mg IM 2-PAM Cl: 25mg/kg IM

\*\* Repeat Atropine at 5-10 min. intervals until secretions diminished, breathing comfortable or airway resistance near normal

\*\* 2-PAM Cl solution needs to be prepared from the ampule containing 1 gram of desiccated 2-PAM Cl: Inject 3ml of saline, 5% distilled or sterile water into ampule and shake well. Resulting solution is 3.3 ml of 300 mg/ml.

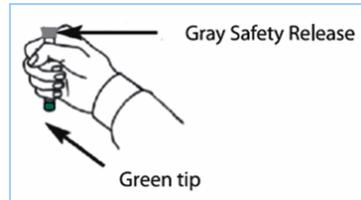
\*\* Assisted ventilations should be started after administration of antidotes for severe exposure.

PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS

**DuoDote Nerve Agent Antidote Protocol**

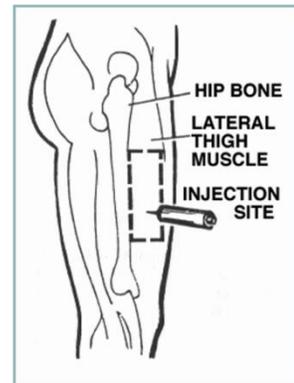
**Administration**

1. Place the DuoDote Auto-Injector in your dominant hand. Firmly grasp the injector with the Green Tip (needle pointing down).



your  
center of the  
end)

2. With your other hand, pull off the Gray Safety release. The DuoDote Auto-Injector is now ready to be administered.
3. The injection site is the mid-outer thigh area.
  - The DuoDote Auto-Injector can be injected through clothing; however, make sure pockets at the injection site are empty.



4. Swing and firmly push the Green Tip straight down (a 90° angle) against the mid-outer thigh.
  - Continue to firmly push until you feel the DuoDote Auto-Injector trigger.
  - **IMPORTANT:** After the auto-injector triggers, hold the DuoDote firmly in place against the injection site for ~ 10 seconds.

5. Remove the DuoDote injector from the thigh and look at the Green Tip.

- If the needle is visible, the drug has been administered.
- If the needle is not visible, check to be sure the Gray Safety Release has been removed, and then repeat above steps beginning with Step #3, but push harder in step #4.



6. After the drug has been administered, push the needle against a hard surface to bend the needle back against the DuoDote Auto-Injector.
7. Put the used DuoDote Auto-Injector back into the plastic pouch, if available.
8. Leave the DuoDote Injector(s) with the patient to allow other medical personnel to see the number of injectors administered.



**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**MEDICATION INFORMATION**

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Cyanokit®**

Pronunciation: [\(hye droks oh koe BAL a min\)](#)

Brand Names: U.S.: Cyanokit®

Pharmacologic Category: [Antidote](#); [Vitamin, Water Soluble](#)

Dosing: Adult

Labeled Indications Cyanokit®: Treatment of cyanide poisoning (known or suspected)

Administration: I.V.

Cyanokit®: Administer by I.V. infusion over 15 minutes; if repeat dose needed, administer second dose over 15 minutes to 2 hours

IV. Infusion (Cyanokit®): Prior to reconstitution, store at 25°C (77°F): excursions permitted to 15°C to 30°C (59°F to 86°F).

Temperature variation exposure allowed for transport of lyophilized form:

Usual transport: ≤15 days at 5°C to 40°C (41°F to 104°F)

Desert transport: ≤4 days at 5°C to 60°C (41°F to 140°F)

Freezing/defrosting cycles: ≤15 days at -20°C to 40°C (-4°F to 104°F)

Following reconstitution, store up to 6 hours at ≤40°C (104°F); do not freeze. Discard any remaining solution after 6 hours.

Reconstitution: I.V. infusion (Cyanokit®): Reconstitute each 2.5 g vial with 100 mL of NS or 5 g vial with 200 mL of NS using provided sterile transfer spike. If NS is unavailable, may use LR or D5W. Invert or rock each 2.5 g vial for at least 30 seconds or 5 g vial for 60 seconds prior to infusion; do not shake. Do not use if solution is not dark red.

Compatibility Stable in NS (preferred), LR, D5W

Incompatible with: diazepam, dopamine, dobutamine, fentanyl, nitroglycerin, pentobarbital, propofol, thiopental.

Contraindications:

Hypersensitivity to hydroxocobalamin, cyanocobalamin, cobalt, or any component of the formulation.

Warnings/Precautions:

Concerns related to adverse effects:

- Hypertension: Cyanide poisoning: Increased blood pressure (≥180 mm Hg systolic or ≥110 mm Hg diastolic) is associated with infusion; elevations usually noted at beginning of infusion, peak toward the end of infusion and return to baseline within 4 hours of infusion.
- Photosensitivity: May cause photosensitivity; avoid direct sunlight while skin remains discolored.

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Cyanokit®**

**Disease-related concerns:**

- **Anemia:** Appropriate use: Neurologic manifestations of vitamin B12 deficiency will not be prevented with folic acid unless vitamin B12 is also given; spinal cord degeneration might also occur when folic acid is used as a substitute for vitamin B12 in anemia prevention.
- **Polycythemia vera:** Vitamin B12 deficiency masks signs of polycythemia vera; vitamin B12 administration may unmask this condition.

**Dosage form specific concerns:**

- **Cyanokit®:** Use caution or consider alternatives in patients with known allergic reactions, including anaphylaxis to hydroxocobalamin or cyanocobalamin. Collection of pretreatment blood cyanide concentrations does not preclude administration and should not delay administration in the emergency management of highly suspected or confirmed cyanide toxicity. Pretreatment levels may be useful as post infusion levels may be inaccurate. Treatment of cyanide poisoning should include decontamination and supportive therapy. Use caution with concurrent use of other cyanide antidotes; safety has not been established.

**Pregnancy Risk Factor:** C

**Lactation:** Excretion in breast milk unknown/use caution

**IV. infusion (Cyanokit®):**

>10%: Cardiovascular: Blood pressure increased (18% to 28%; systolic  $\geq$ 180 mm Hg or diastolic  $\geq$ 110 mm Hg)

Central nervous system: Headache (6% to 33%)

Dermatologic: Erythema (94% to 100%; may last up to 2 weeks), rash (predominantly acneiform; 20% to 44%; can appear 7-28 days after administration and usually resolves within a few weeks)

Gastrointestinal: Nausea (6% to 11%)

Genitourinary: Chromaturia (100%; may last up to 5 weeks after administration)

Hematologic: Lymphocytes decreased (8% to 17%)

Local: Infusion site reaction (6% to 39%)

Frequency not defined:

Cardiovascular: Chest discomfort, hot flashes, peripheral edema

Central nervous system: Dizziness, memory impairment, restlessness

Dermatologic: Pruritus, urticaria

Gastrointestinal: Abdominal discomfort, diarrhea, dyspepsia, dysphagia, hematochezia, vomiting

Ocular: Irritation, redness, swelling

Respiratory: Dry throat, dyspnea, throat tightness

Miscellaneous: Allergic reaction (including anaphylaxis)

Postmarketing and/or case reports: Angioneurotic edema

**Dosage Forms:**

Excipient information presented when available (limited, particularly for generics); consult specific product labeling. [DSC] = Discontinued product

Injection, powder for reconstitution: Cyanokit®: 2.5 g [DSC], 5 g

**PEORIA AREA EMS SYSTEM  
PREHOSPITAL DISASTER PROTOCOLS**

**Cyanokit®**

Pharmacodynamics/Kinetics :

Following I.V. administration of Cyanokit®:

Protein binding: Significant; forms various cobalamin-(III) complexes

Half-life elimination: 26-31 hours

Excretion: Urine (50% to 60% within initial 72 hours)

Pharmacotherapy Pearls:

Expert advice from a regional poison control center for appropriate use may be obtained (1-800-222-1222). Cyanide is a clear colorless gas or liquid with a faint bitter almond odor. Cyanide reacts with trivalent ions in cytochrome oxidase in the mitochondria leading to histotoxic hypoxia and lactic acidosis. Signs and symptoms of cyanide toxicity include headache, altered mental status, dyspnea, mydriasis, chest tightness, nausea, vomiting, tachycardia/hypertension (initially), bradycardia/hypotension (later), seizures, cardiovascular collapse, or coma.