

# Chesapeake Fire Department

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TIDEWATER EMERGENCY MEDICAL SERVICES COUNCIL, INC.  
REGIONAL MEDICAL PROTOCOLS, 12th EDITION (October 2016)

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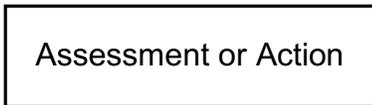
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A teddy bear in the upper corner of the protocol indicates a corresponding pediatric protocol.



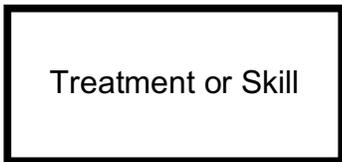
An assessment/decision box asks a question. The answer to the question determines which arrow you follow out of the decision shape.



An assessment/action box states an act/procedure that needs to be completed.



A delivery box indicates a live birth has taken place.



EMT  
A  
I  
P

A treatment (bolded box) indicates a treatment/skill that needs to be completed.

|       |     |                |
|-------|-----|----------------|
| [EMT] | EMT | = EMT          |
| [A]   | A   | = Advanced EMT |
| [I]   | I   | = Intermediate |
| [P]   | P   | = Paramedic    |

NOTE: Bracketed letter indicates PHYSICIAN ORDER needed.  
Non-Bracketed letter indicates STANDING ORDER.



A single arrow shows the direction that the protocol is heading for further treatment options.



A double arrow indicates a decision point which can occur independently of other actions in the protocol or at the same time.



Double lined box denotes a skill or decision pathway that is unique to Chesapeake Fire Department.



The following skills are authorized for technicians functioning in the Tidewater EMS region *with the approval* of their agency's Operational Medical Director and in accordance with the Regional Medical Protocols.

X – Procedure is approved

O - Optional Skill, Agency OMD Approval Needed

| Skill                                | EMT         | Advanced | Intermediate | Paramedic |
|--------------------------------------|-------------|----------|--------------|-----------|
| <b>Airway</b>                        |             |          |              |           |
| L.M.A. or Combi-tube or King Airway  | O           | X        | X            | X         |
| <b>Endotracheal Intubation</b>       |             |          |              |           |
| • Oral >12 y/o of age                |             |          | X            | X         |
| • Oral <12 y/o of age                |             |          |              | X         |
| • Nasal                              |             |          |              | X         |
| • Magills use                        |             | X        | X            | X         |
| CPAP/BiPAP                           | O           | O        | X            | X         |
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| • Manual                             |             |          | X            | X         |
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| PO (Prescript Orally) Medication     | X           | X        | X            | X         |
| Transdermal Medication               |             | X        | X            | X         |
| Intramuscular Medication             | X           | X        | X            | X         |
| Rectal Medication                    |             |          | X            | X         |
| Intranasal Medication                | X           | X        | X            | X         |

# Adult

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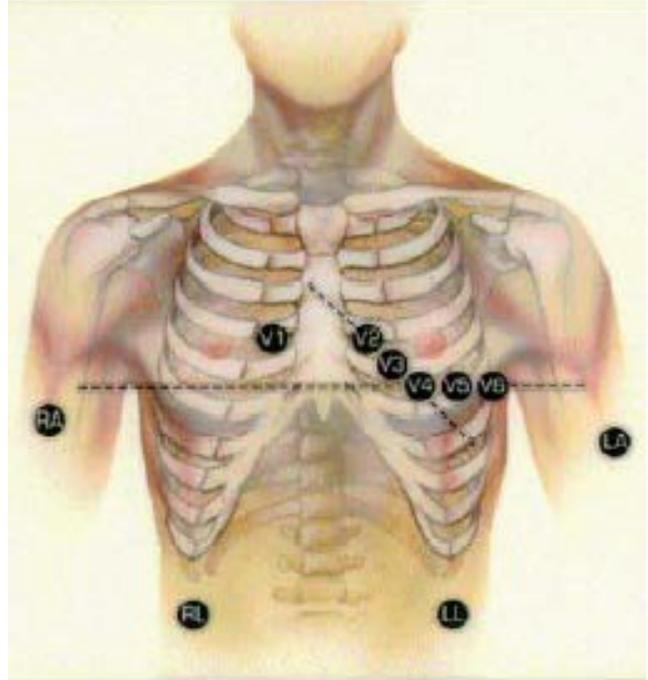
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## 12-Lead ECG

### INDICATIONS (EMT, A, I, P)

- Suspected cardiac patient
- Suspected overdose
- Electrical injuries
- Syncope/Near-Syncope
- CHF
- Nausea/Vomiting
- Chest Pain
- Shortness of Breath
- Abdominal Pain
- Upper back pain (non-muscular)
- Weakness
- Toxic exposures
- Atypical presentations



### PROCEDURE

#### Standard

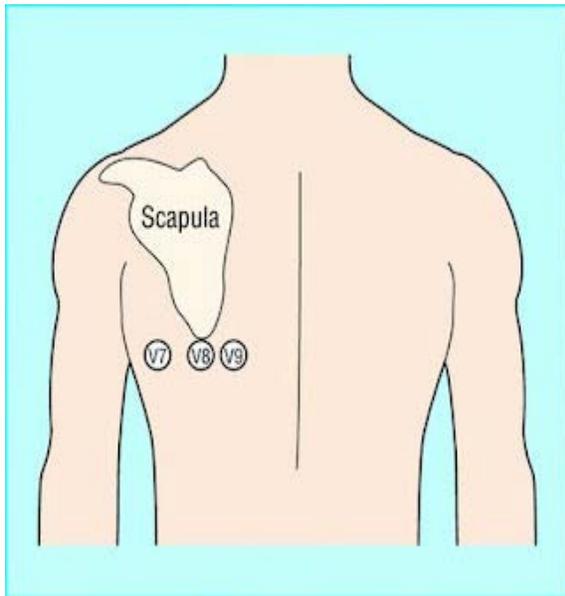
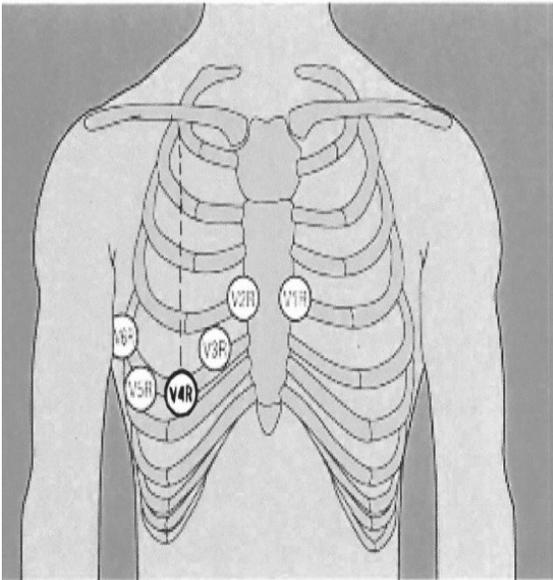
1. Prepare 12-Lead ECG monitor and connect patient cable with electrodes
2. Expose chest and prep as necessary. Modesty of the patient should be respected
3. Apply chest leads and extremity leads using the following landmarks:
  - RA- Right arm
  - LA- Left arm
  - RL- Right Leg
  - LL- Left Leg
  - V1- 4<sup>th</sup> intercostal space at right sternal border
  - V2- 4<sup>th</sup> intercostal space at left sternal border
  - V3- Directly between V2 and V4
  - V4- 5<sup>th</sup> intercostal space at midclavicular line
  - V5- Level with V4 at left anterior axillary line
  - V6- Level with V5 at left mid-axillary line
4. Instruct patient to remain still
5. Press the appropriate button to acquire the 12-Lead ECG within 5 minutes of patient contact



## PROCEDURE FOR RIGHT-SIDED 12 LEAD

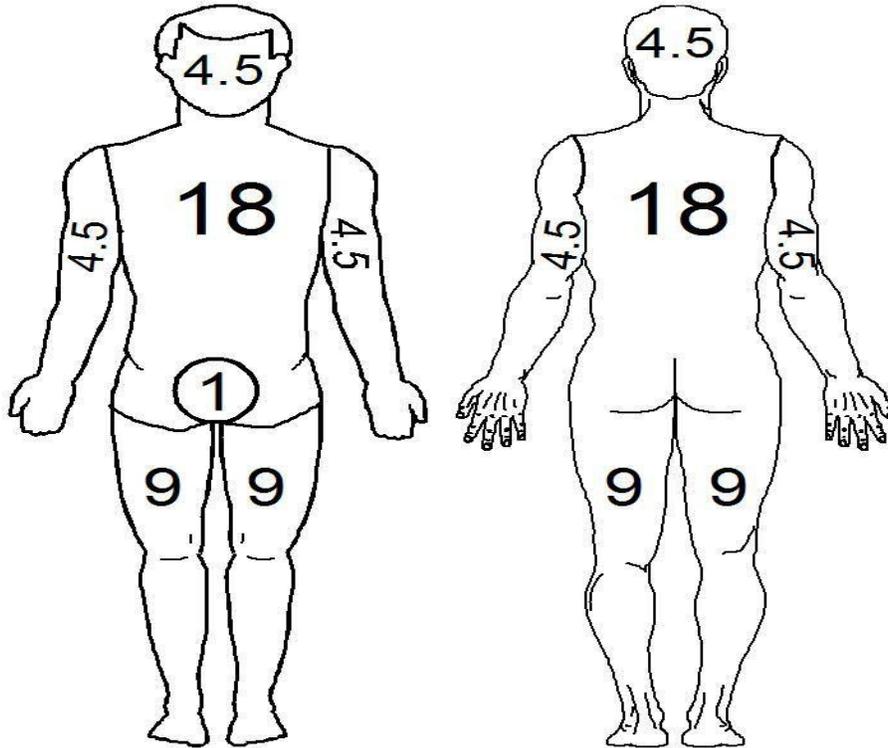
For Right-sided 12-Lead ECG (V4R) & Posterior 12-Lead ECG (V8 & V9), both together constitutes a 15-Lead ECG:

- V4R- (formerly V4) 5<sup>th</sup> intercostal space at midclavicular line on the patient's right side
  - V8 - (formerly V5) 6<sup>th</sup> intercostal space left posterior at midscapular line
  - V9 - (formerly V6) 6<sup>th</sup> intercostal space left at perispinal line
  - Label the second 12-Lead ECG to reflect the new leads: V4 as V4R, V5 as V8, and V6 as V9
1. Print data as per guidelines and place the name and age of the patient on the paper copy of the 12-Lead ECG
  2. STEMI suspected: notify and/or transmit to the closest Percutaneous Coronary Intervention (PCI) Center within 5 minutes
  3. Document the procedure, time, and results on/with the patient care report (PCR)





### Adult Burn Chart/Reference

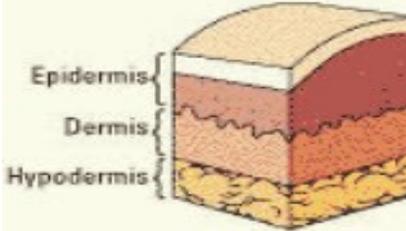
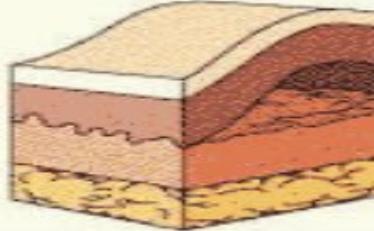
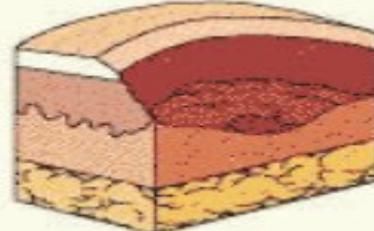


**Palm Method:**

The palm method is a tool whereby the size of the patients palm is used as an indicator for specific percentage of TBSA.

The surface area of a patients palm equals approximately 1% of TBSA.

This method is particularly useful where the burn has an irregular shape or has a scattered distribution.

| Superficial (First-Degree)  | Partial Thickness (Second-Degree)   | Full Thickness (Third-Degree)   |
|---|---|---|
|  |   |    |
| Damage to the outer layer of skin {epidermis}, causing pain, redness and swelling.  | Damage to both outer skin and underlying tissue layers {epidermis and dermis} causing pain, redness, swelling and blistering. | Damage extends deeper into tissues {epidermis, dermis and hypodermis} causing extensive tissue destruction. The skin may feel numb. |



## Burn Resources – Fluid Formula

### Formula for Fluid Resuscitation of the Burn Patient (Also known as the Parkland Formula)

Patients Weight in kg x %TBSA x 4.0cc NS infused over 24 hours with half given in the first 8 hours.

EMS focuses on the care given during the 1st hour or several hours following the event. Thus the formula as adapted for EMS and the first 8 hours is:

**Wt kg x TBSA x 0.25cc = total volume to be infused for each hour of the first 8 hours.**

Example, 80 kg patient with 50 %TBSA x 0.25 cc = 1000 cc/hr.

*Remember: Patient's Weight in kg (2.2 lbs = 1.0 kg) ex: 220 lbs = 100 kg*

### Criteria for direct transport to a regional burn/trauma center:

- >10% BSA full-thickness
- >20% BSA partial thickness
- > 15% BSA partial & full-thickness
- Burns to genitals, hands, feet, face or surface area over joints.
- Geriatric or pediatric patients
- Inhalation, electrical injury or chemical burns
- Associated traumatic injuries

### Remember – Field Medical Officers (FMO) carry:

- Cyano-Kit
- Water-Jel © Kits
- Video Guided Laryngoscopes

| Wt (kg) | %TBSA | Factor | mL/hr - 1st 8 hours | 10 gtt set (gtt/min) | 15 gtt set (gtt/min) |
|---------|-------|--------|---------------------|----------------------|----------------------|
|         |       |        |                     | <b>Drops per Min</b> |                      |
| 10      | 10    | 0.25   | 25                  | 4                    | 6                    |
| 10      | 20    | 0.25   | 50                  | 8                    | 13                   |
| 10      | 30    | 0.25   | 75                  | 13                   | 19                   |
| 10      | 40    | 0.25   | 100                 | 17                   | 25                   |
| 10      | 50    | 0.25   | 125                 | 21                   | 31                   |
| 20      | 10    | 0.25   | 50                  | 8                    | 13                   |
| 20      | 20    | 0.25   | 100                 | 17                   | 25                   |
| 20      | 30    | 0.25   | 150                 | 25                   | 38                   |
| 20      | 40    | 0.25   | 200                 | 33                   | 50                   |
| 20      | 50    | 0.25   | 250                 | 42                   | 63                   |
| 30      | 10    | 0.25   | 75                  | 13                   | 19                   |
| 30      | 20    | 0.25   | 150                 | 25                   | 38                   |
| 30      | 30    | 0.25   | 225                 | 38                   | 56                   |
| 30      | 40    | 0.25   | 300                 | 50                   | 75                   |
| 30      | 50    | 0.25   | 375                 | 63                   | 94                   |
| 40      | 10    | 0.25   | 100                 | 17                   | 25                   |
| 40      | 20    | 0.25   | 200                 | 33                   | 50                   |
| 40      | 30    | 0.25   | 300                 | 50                   | 75                   |
| 40      | 40    | 0.25   | 400                 | 67                   | 100                  |
| 40      | 50    | 0.25   | 500                 | 83                   | 125                  |
| 50      | 10    | 0.25   | 125                 | 21                   | 31                   |
| 50      | 20    | 0.25   | 250                 | 42                   | 63                   |
| 50      | 30    | 0.25   | 375                 | 63                   | 94                   |
| 50      | 40    | 0.25   | 500                 | 83                   | 125                  |
| 50      | 50    | 0.25   | 625                 | 104                  | 156                  |
| 60      | 10    | 0.25   | 150                 | 25                   | 38                   |
| 60      | 20    | 0.25   | 300                 | 50                   | 75                   |
| 60      | 30    | 0.25   | 450                 | 75                   | 113                  |
| 60      | 40    | 0.25   | 600                 | 100                  | 150                  |
| 60      | 50    | 0.25   | 750                 | 125                  | 188                  |
| 70      | 10    | 0.25   | 175                 | 29                   | 44                   |
| 70      | 20    | 0.25   | 350                 | 58                   | 88                   |
| 70      | 30    | 0.25   | 525                 | 88                   | 131                  |
| 70      | 40    | 0.25   | 700                 | 117                  | 175                  |
| 70      | 50    | 0.25   | 875                 | 146                  | 219                  |
| 80      | 10    | 0.25   | 200                 | 33                   | 50                   |
| 80      | 20    | 0.25   | 400                 | 67                   | 100                  |
| 80      | 30    | 0.25   | 600                 | 100                  | 150                  |
| 80      | 40    | 0.25   | 800                 | 133                  | 200                  |
| 80      | 50    | 0.25   | 1000                | 167                  | 250                  |
| 90      | 10    | 0.25   | 225                 | 38                   | 56                   |
| 90      | 20    | 0.25   | 450                 | 75                   | 113                  |
| 90      | 30    | 0.25   | 675                 | 113                  | 169                  |
| 90      | 40    | 0.25   | 900                 | 150                  | 225                  |
| 90      | 50    | 0.25   | 1125                | 188                  | 281                  |
| 100     | 10    | 0.25   | 250                 | 42                   | 63                   |
| 100     | 20    | 0.25   | 500                 | 83                   | 125                  |
| 100     | 30    | 0.25   | 750                 | 125                  | 188                  |
| 100     | 40    | 0.25   | 1000                | 167                  | 250                  |
| 100     | 50    | 0.25   | 1250                | 208                  | 313                  |



## Capnography

### INDICATIONS

- Altered mental status
- Cardiac arrest with return of spontaneous circulation (ROSC)
- Any serious trauma or medical condition
- Any use of Naloxone (Narcan)

### CONTRAINDICATIONS

None

### PROCEDURE

|  |
|--|
| Follow manufacturer's instructions for placement and use of device.  |
| Use on both adult and pediatric patients.  |
| Endotracheal tube (ETT)/blind insertion airway device (BIAD)/bag valve mask (BVM): <ul style="list-style-type: none"><li>• Turn on recording instrumentation.</li><li>• Place ETCO<sub>2</sub> sampling device in between ventilation device (BVM/ventilator) and the mask/endotracheal tube (ETT)/King Airway/Combitube/ Laryngeal Mask Airway (LMA)</li><li>• Attach sampling device to recording instrumentation and ventilate.</li><li>• The Capnometer shall remain in place with the airway and be monitored throughout</li></ul>          |
| Non-intubated spontaneously breathing patient: <ul style="list-style-type: none"><li>• Turn on recording instrumentation.</li><li>• Place the sampling nasal cannula on the patient.</li><li>• Attach sampling device to recording instrumentation. Observe and record results.</li><li>• The capnometer shall remain in place with the airway and be monitored throughout prehospital care and transport.</li></ul>   |
| Continuous positive airway pressure (CPAP)/ Bilevel positive airway pressure (BiPAP): <ul style="list-style-type: none"><li>• Follow manufacturer's recommendations for placement of ETCO<sub>2</sub> in conjunction with use of CPAP/BIPAP.</li><li>• Place sampling nasal cannula on the patient.</li><li>• Place CPAP/ BiPAP mask on patient ensuring a good seal.</li><li>• Observe and record results.</li><li>• The capnometer shall remain in place with the airway and be monitored throughout prehospital care and transport.</li></ul> |

### PEARLS

Normal range --- ETCO<sub>2</sub> in adult and pediatric patients is 35-45 mm

Hg. Cardiac arrest --- Attempt to keep ETCO<sub>2</sub> above 10 mm Hg.

Post-cardiac arrest --- Attempt to keep ETCO<sub>2</sub> between 34-40 mm Hg.



If  $\text{ETCO}_2$  levels remain above 45 mm Hg despite ventilatory assistance, bronchodilators, CPAP or BIPAP, intubation may be needed.

When  $\text{ETCO}_2$  is not detected, three factors must be addressed:

- Loss of airway/apnea --- Esophageal ETT placement or migration
- Circulatory collapse --- Cardiac arrest, pulmonary embolism, hypoperfusion
- Equipment failure --- Disconnected BVM or ventilator, obstruction in  $\text{ETCO}_2$  detector or sampling tube

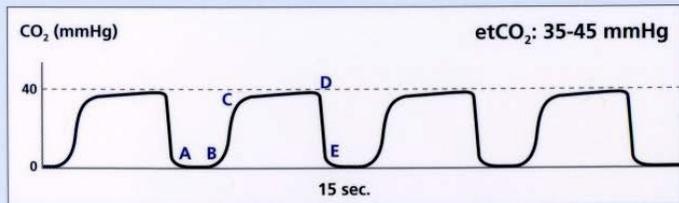
## Normal and Abnormal $\text{etCO}_2$ /Capnograph Waveforms

### Normal Capnogram

The normal capnogram is a waveform which represents the varying  $\text{CO}_2$  level throughout the breath cycle.

#### Waveform Characteristics:

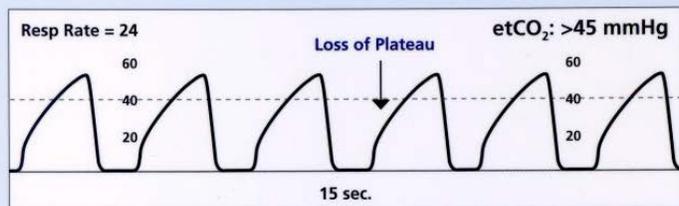
- A-B: Baseline                      D: End-Tidal Concentration  
B-C: Expiratory Upstroke        D-E: Inspiration  
C-D: Expiratory Plateau



### Bronchospasm/Asthma

#### Other Possible Causes:

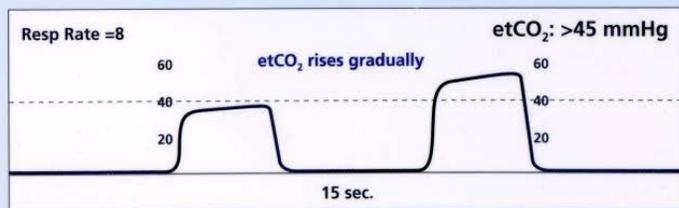
- Bronchospasm/COPD
- Obstruction in the expiratory limb of the breathing circuit
- Presence of a foreign body in the upper airway
- Partially kinked or occluded artificial airway



### \*Increasing $\text{etCO}_2$ (Hypoventilation)

#### Other Possible Causes:

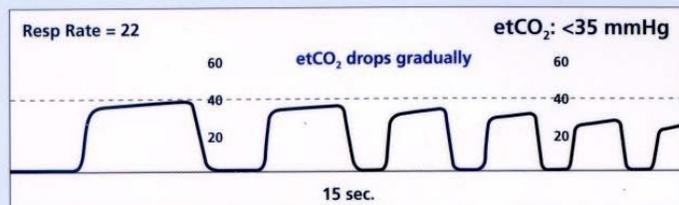
- Decrease in respiratory rate
- Decrease in tidal volume
- Increase in metabolic rate
- Rapid rise in body temperature (malignant hyperthermia)



### \*Decreasing $\text{etCO}_2$ (Hyperventilation)

#### Other Possible Causes:

- Increase in respiratory rate
- Increase in tidal volume
- Metabolic acidosis
- Fall in body temperature



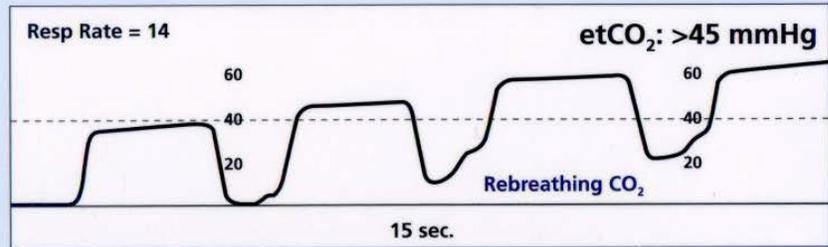
\*Assumes adequate circulation and alveolar gas exchange



## Rebreathing CO<sub>2</sub>

### Other Possible Causes:

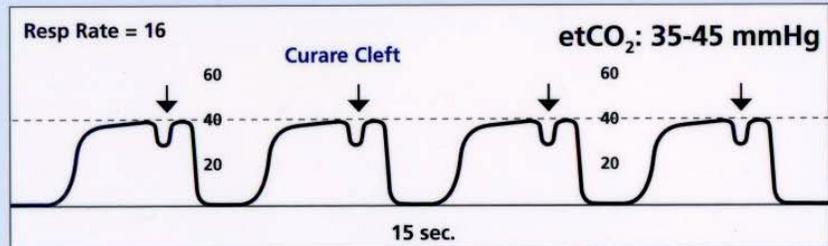
- Faulty expiratory valve
- Inadequate inspiratory flow
- Partial rebreathing
- Insufficient expiratory time



## Curare Cleft

### Other Possible Causes:

- Patient is mechanically ventilated
- Depth of cleft is proportional to degree of muscle relaxants



## Cardiac Arrest

### Other Possible Causes:

- Decreased or absent cardiac output
- Decreased or absent pulmonary blood flow
- Sudden decrease in CO<sub>2</sub> values



## Return of Spontaneous Circulation

### Other Possible Causes:

- Increase in cardiac output
- Increase in pulmonary blood flow
- Gradual increase in CO<sub>2</sub> production



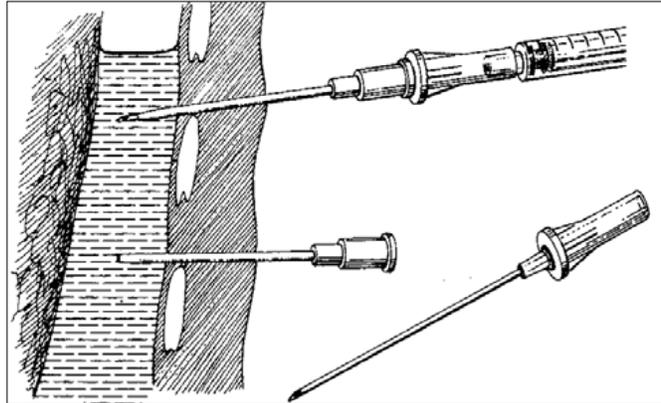


## CHEST DECOMPRESSION WITH NEEDLE

### INDICATIONS: (I, P)

Patients with hypotension (Systolic BP less than 90), clinical signs of shock, and at least one of the following signs:

- Jugular vein distention.
- Tracheal deviation away from the side of the injury (often a late sign).
- Increased resistance when ventilating a patient.



### PROCEDURE:

- Administer high flow oxygen
- Locate the second intercostal space in the mid-clavicular line on the same side as the pneumothorax. Cleanse the site. [Note: If unable to place anteriorly, lateral placement may be used at the fourth intercostal space, mid-axillary line.] Insert the 12-14 gauge x 2 ½ inch catheter with 10 cc syringe attached into the skin over the third rib and direct it just over the top of the rib (superior border) into the interspace
- Advance the catheter through the parietal pleura until a “pop” is felt and air or blood exits under pressure through the catheter, then advance catheter only to chest wall.
- Remove the needle, leaving the plastic catheter in place
- Secure the catheter hub to the chest wall with dressings and tape
- Evaluate the response in the patient. Assess breath sounds, oxygen saturation, and general appearance of the patient
- Monitor capnography, pulse oximetry, and cardiac status, observe closely for signs of complication
- Document time and response on the patient care report (PCR)

### NOTES:

- In the absence of clinical signs of shock, performing needle decompression is inappropriate
- In pediatric patients, it is generally preferred to use an 18g needle. Larger children/adolescents may require an adult-sized needle



## **CPAP**

### **INDICATIONS: (EMT, A, I, P)**

The CPAP device should be considered in patients with severe respiratory distress and inadequate ventilation.

Examples of conditions for which CPAP may be considered included, but are not limited to:

- Pulmonary edema
- Pneumonia
- Asthma
- COPD
- Near-drowning

### **CONTRAINDICATIONS:**

- Patients under 8 years of age
- Unable to maintain drive to breathe
- Decreased level of consciousness
- Apnea
- Pneumothorax
- Facial trauma/ burns
- Penetrating neck and chest trauma
- Recent facial surgery
- Patient unable to tolerate mask
- Active vomiting
- Precaution if systolic BP less than 90 mm/Hg

### **PROCEDURE:**

- Ensure adequate oxygen supply to ventilation device
- Explain the procedure to the patient
- Place the delivery mask over the mouth and nose. Oxygen should be flowing at this point
- Starting with the lower straps, secure the mask with provided straps until no air leak
- Evaluate the response in the patient.
- Monitor capnography, pulse oximetry & cardiac status.
- If patient condition does not improve, consider other methods of managing ventilation (i.e. BVM)
- Observe closely for signs of complication.



## Cricothyrotomy- Needle

### INDICATIONS: (P)

Pediatric and adult medical cases:

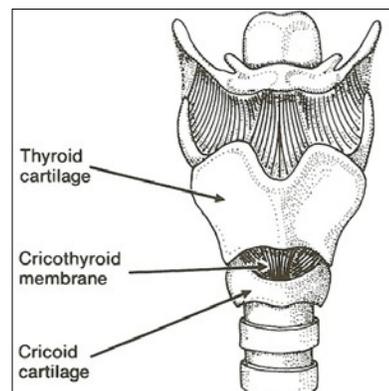
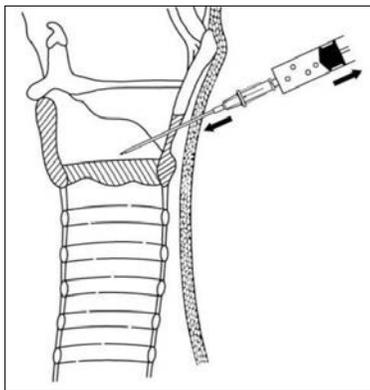
- Respiratory arrest or impending respiratory failure, especially in the setting of upper airway obstruction due to foreign body or infection and inability to ventilate by any means available.

Trauma:

- Advanced airway is required due to respiratory arrest or inability to maintain airway due to face, neck, or chest trauma, or; impending respiratory failure, inability to ventilate due to obstruction of airway, distortion of area, or inability to extend neck in cases of suspected C-spine injury.

### PROCEDURE:

- Palpate the cricothyroid membrane midline just below the thyroid cartilage and above the cricoid cartilage
- Cleanse the area
- Insert a 14-gauge catheter with a 10 cc syringe attached midline directed at a 45-degree angle towards the navel, while aspirating the syringe. When trachea is entered, air will be aspirated easily
- Attach the appropriate adapter and ventilate using high flow device
- Assess for adequacy of ventilation. Listen for breath sounds and observe for chest expansion
- Evaluate the response in the patient. Assess breath sounds, oxygen saturation, and general appearance of the patient
- Monitor capnography, pulse oximetry, and cardiac status. Observe closely for signs of complications
- Document time and response on the patient care report (PCR)
- Transport to the closest emergency department for definitive care
- Caution: Despite proper technique, ventilation may still be inadequate, especially of an adult.
- Possible complications include bleeding, perforation of the esophagus or perforation through the trachea, local cellulitis or hematoma and subcutaneous or mediastinal emphysema





## Cricothyrotomy - Surgical

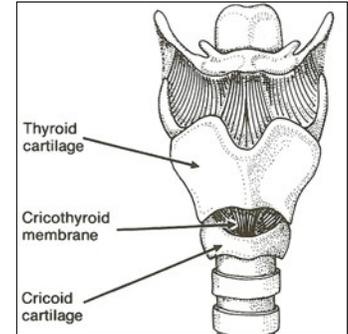
### INDICATIONS: (P)

Adult medical cases:

- Respiratory arrest or impending respiratory failure, especially in the setting of upper airway obstruction due to foreign body or infection, and inability to ventilate by any means available.

Trauma: Advanced airway is required due to:

- Respiratory arrest, inability to maintain airway due to face, neck, chest trauma, impending respiratory failure, with inability to ventilate by mask or intubate trachea whether due to obstruction of airway, distortion of area.



**CONTRAINDICATIONS:** Patients under 10 years of age

### PROCEDURE:

Use cricothyrotomy kit, if available, according to manufacturer's recommendations. Otherwise:

- Place patient in the supine position with the neck in a neutral position
- Palpate the cricothyroid membrane between the thyroid and cricoid membranes for orientation
- Cleanse the area
- Stabilize the thyroid cartilage with non-dominant hand
- Make a vertical incision until the membrane is exposed. Carry the incision in each direction until the total length is approximately 2 cm. Ensure vehicle is stopped during incision.
- Make horizontal incision through the membrane approximately 1 cm. Insert the scalpel handle and rotate 90° to the incision; open the airway
- Insert a size 5-6 cuffed ET tube or tracheostomy tube into the airway, directing the tube into the trachea in a manner similar to the insertion of a pediatric OPA: sideways and then rotating to avoid false passing the tube. ET tube should only be inserted until the bulb passes through the membrane. The use of a boujie is recommended.
- Ensure you have not false passed the endotracheal tube outside of the trachea
- Inflate cuff and ventilate the patient
- Observe lung inflations and auscultate chest for adequate ventilation
- Secure tube to prevent inadvertent dislodging
- Evaluate the response in the patient. Assess breath sounds, oxygen saturation, general appearance of the patient, monitor capnography, pulse oximetry, and cardiac status
- Observe closely for signs of complication.
- Transport to closest emergency department if difficulty is encountered with procedure. If successful, transport to closest appropriate facility.



## Dextrose (D10) – Hypoglycemia Resource

To prepare Dextrose (D10) solution:

Remove **50 mL** of NS from a **250 mL** bag of Normal Saline (NS)

Add **25 grams** of Dextrose to the **200 mL** bag of Normal Saline (NS)

25 grams is: **50 mL** of Dextrose 50%

(0.1 gram / mL Concentration)

| Newborn (0 - 28 Days)                     |         |                  |               |
|---|---------|------------------|---------------|
| Dextrose 25 grams in 250 mL (0.1 gm / mL) |         |                  |               |
| Wt (kg)                                   | Order   | Total Vol. in mL | Dose in Grams |
| 2   | 2 ml/kg | 4                | 0.4           |
| 2.5                                       | 2 ml/kg | 5                | 0.5           |
| 3   | 2 ml/kg | 6                | 0.6           |
| 3.5                                       | 2 ml/kg | 7                | 0.7           |
| 4   | 2 ml/kg | 8                | 0.8           |

| Pediatric (Less than 25 kg)               |         |                  |               |
|---|---------|------------------|---------------|
| Dextrose 25 grams in 250 mL (0.1 gm / mL) |         |                  |               |
| Wt (kg)                                   | Order   | Total Vol. in mL | Dose in Grams |
| 5   | 5 ml/kg | 25               | 2.5           |
| 6   | 5 ml/kg | 30               | 3             |
| 7   | 5 ml/kg | 35               | 3.5           |
| 8   | 5 ml/kg | 40               | 4             |
| 10  | 5 ml/kg | 50               | 5             |
| 12  | 5 ml/kg | 60               | 6             |
| 14  | 5 ml/kg | 70               | 7             |
| 16  | 5 ml/kg | 80               | 8             |
| 18  | 5 ml/kg | 90               | 9             |
| 20  | 5 ml/kg | 100              | 10            |
| 22  | 5 ml/kg | 110              | 11            |
| 24  | 5 ml/kg | 120              | 12            |
| 25  | 5 ml/kg | 125              | 12.5          |

*Adult patient or any patient weighing more than 25 kg will be administered 125cc or 12.5 grams via IV drip.*

*After D10 administration reassessment of the Blood Glucose Level, if below 70 mg/dL, repeat the above weight appropriate dose. For any patient over 25 kg infuse the remaining D10.*



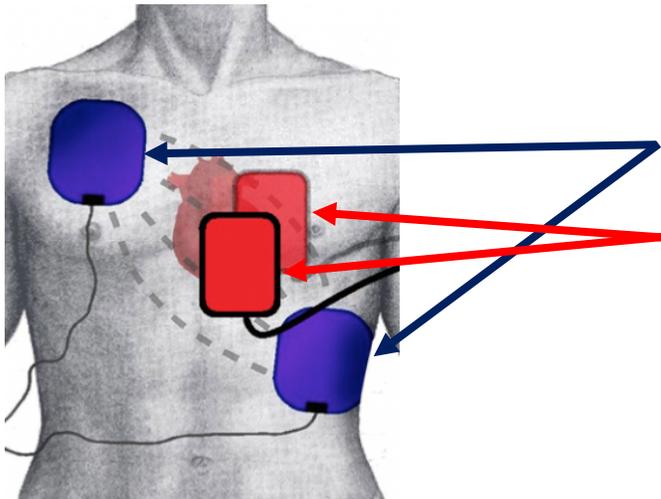
# Double Sequential External Defibrillation

## Clinical Indications:

- Any patient who has persisted in ventricular fibrillation/tachycardia, without even transient interruption of fibrillation, as per the persistent VF/VT protocol.
- At least one shock was delivered using different pads applied to produce a different current vector than the first set and all other indicated treatment modalities have been implemented.
- A paramedic has verified the persistence of the arrhythmia immediately post-shock

## Procedure:

1. Ensure quality of CPR is not compromised during prolonged efforts.
2. Prepare the sites for attachment of an additional set of external defibrillation pads by drying the sites and minimizing interference of hair or other obstacles to good pad adhesion.
3. Apply a new set of external defibrillation pads adjacent to, but not touching the pad set currently in use.
4. Assure that controls for the second cardiac monitor are accessible to the code commander
5. The lead paramedic level provider will verify that the resuscitation checklist has been fully executed
6. On rhythm check, the lead paramedic level provider will confirm the rhythm.
  - a. If a shockable rhythm is detected, CPR will resume immediately. The lead paramedic level provider will verify that both cardiac monitors/defibrillators are attached to the patient, that all pads are well adhered, and direct the simultaneous charging of both attached cardiac monitors. When both monitors are charged to maximum energy and all persons are clear, the code commander or other paramedic will push both shock buttons as synchronously as possible. A brief rhythm/pulse check will occur and CPR will resume as appropriate.
  - b. If a non-shockable rhythm is present care will resume according to the appropriate protocol.



### First Set of Defib Pads

### Second Set of Defib Pads

- One to the left of the sternum, between the nipple line
- Second pad on the posterior side of the thorax (back), just below the left scapula

## Certification Requirements:

Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Chesapeake Fire Department. Assessment should include direct observation at least once per certification cycle.



## Epinephrine and Levophed Drip

### Epinephrine Drip

To prepare an epinephrine drip solution:

Add 2 mg of Epinephrine to a 1000mL bag of Normal Saline (NS)

2 mg of Epinephrine is: 2 mL of Epinephrine 1:1000 or 20mL of Epinephrine 1:10,000

(2 mcg/mL Concentration)

| Epinephrine Drip | 2 mcg / min      | 4 mcg / min | 6 mcg / min | 8 mcg / min | 10 mcg / min |
|------------------|------------------|-------------|-------------|-------------|--------------|
|                  | Drops per Minute |             |             |             |              |
| 10 gtt Set       | 10               | 20          | 30          | 40          | 50           |
| 15 gtt Set       | 15               | 30          | 45          | 60          | 75           |

### Levophed (Norepinephrine) Drip

To prepare an Levophed drip solution:

Add 2 mg of Levophed to a 1000mL bag of Normal Saline (NS)

2 mg is: 2 mL of Levophed (4mg/4mL)

(2 mcg/mL Concentration)

| Levophed Drip | 2 mcg / min      | 4 mcg / min | 6 mcg / min | 8 mcg / min | 10 mcg / min |
|---------------|------------------|-------------|-------------|-------------|--------------|
|               | Drops per Minute |             |             |             |              |
| 10 gtt Set    | 10               | 20          | 30          | 40          | 50           |
| 15 gtt Set    | 15               | 30          | 45          | 60          | 75           |

***When using a pressor agent, the goal should be to maintain a mean arterial pressure (MAP) of 65. This is a much better indicator of perfusion than a systolic blood pressure.***

***Max dose is 0.5mcg/kg/min without physician order.***



## External Cardiac Pacing

### INDICATIONS: (I, P)

Monitored heart rate less than 60 per minute with signs and symptoms of inadequate cerebral or cardiac perfusion such as:

- Ischemic chest pain
- Hypotension
- Pulmonary edema
- Altered Mental Status, disorientation, confusion, etc.

### PROCEDURE:

- Attach standard monitor leads
- Apply defibrillation/pacing pads (per manufacturer's recommendation)
- Place device in pacing mode
- Adjust heart rate to 60 BPM for an adult and 100 BPM for a child
- Note pacer spikes on ECG screen
- Slowly increase output from 0 mA until capture of electrical rhythm on the monitor, then increase the mA by 10%
- If unable to capture while at maximum current output, stop pacing immediately
- If electrical capture observed on monitor, assess for mechanical capture by obtaining a radial or femoral pulse and blood pressure. Observe for other signs of adequate perfusion. Note: Palpation of the carotid pulse could give an inaccurate impression of the patient's perfusion status due to the provider confusing the muscular contractions for a carotid pulse
- Consider the use of sedation or analgesia for patient if time and condition permits



The GCS is scored between 3 and 15, 3 being the worst, and 15 the best. It is composed of three parameters: Best Eye Response, Best Verbal Response, and Best Motor Response, as given below:

Glasgow Coma Score:

Eye Opening (E) Verbal Response (V) Motor Response (M)

| Best Eye Response. (E)   | Best Verbal Response. (V)   | Best Motor Response. (M)   |
|--|---|--|
| <ol style="list-style-type: none"> <li>1. No eye opening.</li> <li>2. Eye opening to pain.</li> <li>3. Eye opening to verbal command.</li> <li>4. Eyes open spontaneously.</li> </ol>  | <ol style="list-style-type: none"> <li>1. No verbal response</li> <li>2. Incomprehensible sounds.</li> <li>3. Inappropriate words.</li> <li>4. Confused</li> <li>5. Orientated</li> </ol> | <ol style="list-style-type: none"> <li>1. No motor response.</li> <li>2. Extension to pain.</li> <li>3. Flexion to pain.</li> <li>4. Withdrawal from pain.</li> <li>5. Localizing pain.</li> <li>6. Obeys Commands.</li> </ol> |
| <p>Note that the phrase 'GCS of 11' is essentially meaningless, and it is important to break the figure down into its components, such as Total = E+V+M Displayed as = E3V3M5 = GCS 11.</p> <p>A Coma Score of 13 or higher correlates with a mild brain injury, 9 to 12 is a moderate injury and 8 or less a severe brain injury.</p> |   |  |

The Glasgow Coma Scale is the most widely used scoring system used in quantifying level of consciousness following traumatic brain injury. It is used primarily because it is simple, has a relatively high degree of inter observer reliability and because it correlates well with outcome following severe brain injury.

It is easy to use, particularly if a form is used with a table similar to the one above. One determines the best eye opening response, the best verbal response, and the best motor response. The score represents the sum of the numeric scores of each of the categories. There are limitations to its use. If the patient has an endotracheal tube in place, they cannot talk. For this reason, many prefer to document the score by its individual components; so a patient with a Glasgow Coma Score of 15 would be documented as follows: E4 V5 M6. An intubated patient would be scored as E4 V-intubated M6. Of these individual factors, the best motor response is probably the most significant.

Other factors which alter the patient's level of consciousness interfere with the scale's ability to accurately reflect the severity of a traumatic brain injury. So, shock, hypoxemia, drug use, alcohol intoxication, metabolic disturbances may alter the GCS independently of the brain injury. Obviously, a patient with a spinal cord injury will make the motor scale invalid, and severe orbital trauma may make eye opening impossible to assess. The GCS also has limited utility in children, particularly those less than 36 months. In spite of these limitations, it is quite useful and is far and away the most widely used scoring system used today to assess patients with traumatic brain injury.



## Intranasal Medication Delivery

### INDICATIONS: (EMT, A, I, P)

- Patients needing medication delivery where IN is the preferred route
- Patients needing medication delivery where IV may be difficult or delayed

### PRECAUTIONS:

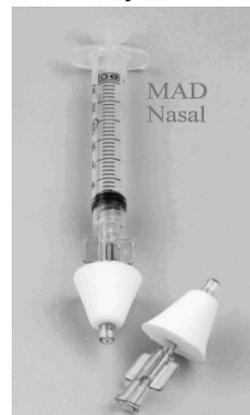
- **DO NOT** Administer more than 1mL of medication per nostril within a 10-15 minute period

### CONTRAINDICATIONS:

- **DO NOT** administer Intranasal (IN) medications with any nasal/nose trauma or bleeding from the nose

### PROCEDURE

- Identify the need for IN medication delivery
- Prepare the delivery device and medication according to the manufacturer's recommendation
- Explain the procedure to the patient
- Use a method that fragments the medication into fine particles so the maximal nasal mucosal surface is covered and minimal volume runs out the nose or into the throat
- Utilize both nostrils to double the surface area for absorption and halve the volume delivered per nostril
- Deliver medication in the nostril, **DO NOT** exceed more than 1mL per nostril in any 10-15 minute period
- Document time of medication delivery, which nostril(s) used to deliver medication and response
- Drugs which can be given by intranasal route (IN) in the TEMS Region:
- Midazolam (Versed), Naloxone (Narcan), Gulcagon, Fentanyl





## Intraosseous Access

### INDICATIONS: (A, I, P)

- Cardiac Arrest
- Patient in extremis with immediate need for delivery of medications and or fluids

### CONTRAINDICATIONS:

- Suspected narcotic overdose, seizure, and/or hypoglycemia are **relative contraindications** for the use of intraosseous access due to other less invasive alternatives
- Fracture of the bone selected for IO infusion (consider alternate site)
- Excessive tissue at insertion site with the absence of anatomical landmarks (consider alternate site)
- Previous significant orthopedic procedures, IO within 24 hours, prosthesis; (consider alternate site)
- Infection at the site selected for insertion (consider alternate site)
- Severe osteoporosis or other bone degenerative conditions
- Intraosseous access is not appropriate for prophylactic access

### PROCEDURE:

- Identify the need for IO access. Consider IV prior to IO
- Insert the IO device according to the manufacturer's recommendation
- Flush IO site with **10 mL of 0.9% Normal Saline** to ensure patency and clear IO pathway
- Initiate IO infusion. A pressure infuser may be necessary to maintain flow rates **ADULT ONLY. Pressure infuser is contraindicated in Pediatrics**
- **Lidocaine 1 mg/kg IO not to exceed 40 mg** titrated to pain effect may be administered. **NOTE: This dosing is not considered an antidysrhythmic dose**
- Apply wrist band provided with IO device
- Monitor for extravasation



## **Nasogastric / Orogastric Tube Insertion**

### **INDICATIONS: (A, I, P)**

- Gastric decompression in intubated patients

### **CONTRAINDICATIONS:**

- Sinusitis (for nasogastric)
- Esophageal Varices
- Recent nasal surgery (for nasogastric)
- Maxillofacial trauma (for nasogastric)

### **PROCEDURE:**

- Estimate insertion length by superimposing the tube over the body from the nose to ear to xiphoid process
- Liberally lubricate the distal end of the tube and pass through the patient's nostril along the floor of the nasal passage. Do not orient the tip upward into the turbinate's. This increases the difficulty of the insertion and may cause bleeding. The use of a tongue depressor may be helpful during insertion
- In the setting of an unconscious, intubated patient or a patient with facial trauma, oral insertion of the tube may be considered or preferred
- Continue to advance the tube gently until the measured distance is reached
- Confirm placement by injecting 30-50 cc of air with a Toomey Syringe (catheter tip) and auscultate for the swish or bubbling of the air over the stomach
- Secure the tube
- Decompress the stomach of air and food either by connecting the tube to suction or manually aspirating with the large catheter tip syringe. Set suction to the lowest setting that will effectively decompress the patient's stomach



## Pain Rating Scale

In assessing any patient complaining of pain, utilize the **Wong-Baker FACES Pain Rating Scale** as shown below. This is extremely useful in the pediatric population, as well as any patient that there may be a communication barrier.



**Brief Instructions:** Point to each face using the words to describe pain intensity. Ask the patient to choose face that best describes own pain and document the appropriate number on your PPCR.

**Original instructions:** Explain to the person that each face is for a person who feels happy because he has no pain (hurt) or sad because he has some or a lot of pain. **Face 0** is very happy because he doesn't hurt at all. **Face 1** hurts just a little bit. **Face 2** hurts a little more. **Face 3** hurts even more. **Face 4** hurts a whole lot. **Face 5** hurts more than you can imagine, although you don't have to be crying to feel this bad. Ask the person to choose which face that best describes how he is feeling.

From Hockenberry MJ, Wilson D, Winkelstein ML: Wong's Essentials of Pediatric Nursing, ed. 7, St. Louis, 2005, p. 1259. Used with permission. Copyright Mosby.



## Prehospital Stroke Exams

A variety of prehospital stroke exams are available to help providers evaluate whether or not a patient is having a stroke. It is important to remember that strokes can occur in a variety of locations in the brain and one limitation of the Cincinnati Prehospital Stroke Scale is that it can only identify cerebral strokes.

1. Cincinnati Prehospital Stroke Scale:
  - a. Facial Droop (ask patient to smile or show their teeth)
    - i. Abnormal: one side of face moves differently
    - ii. Facial droop can be caused by other disorders as well (such as Bell's Palsy); in the absence of arm drift or abnormal speech, stroke is less likely
  - b. Arm drift (ask patient to close eyes and hold both arms (palms up) straight out for 10 seconds)
    - i. Abnormal: one arm moves differently than the other
  - c. Abnormal speech (ask the patient to say "you can't teach an old dog new tricks")
    - i. Abnormal: speech is slurred or patient uses incorrect words
  - d. If any one of these 3 signs is abnormal, it is highly probable the patient is having a stroke
2. BE FAST:
  - a. Balance loss
    - i. Sudden loss of balance or coordination
  - b. Eyes blur
    - i. Sudden trouble seeing or blurred vision in one or both eyes
  - c. Facial drooping (ask patient to smile or show their teeth)
    - i. Abnormal: one side of the face droops or is numb
    - ii. Facial droop can be caused by other disorders as well (such as Bell's Palsy); in the absence of arm drift or abnormal speech, stroke is less likely
  - d. Arm drift (ask patient to close eyes and hold both arms (palms up) straight out for 10 seconds)
    - i. Sudden weakness or numbness of an arm or leg, especially on one side of the body
  - e. Speech difficulty (ask the patient to say "you can't teach an old dog new tricks")
    - i. Sudden confusion, trouble speaking or understanding speech
  - f. Time
    - i. Time patient was last seen or known to be normal
    - ii. Rapid transport to the hospital
3. MEND (Miami Emergency Neurologic Deficit);  
Exam (**bold = perform on scene; perform remainder during transport**)
  - a. Mental Status
    - i. Level of consciousness (AVPU)
    - ii. **Speech** ("You can't teach an old dog new tricks"; abnormal = slurred, wrong words or "mixing up" words)
    - iii. Questions (age, month; abnormal = doesn't know answer)
    - iv. Commands (open eyes wide, close them tightly; abnormal = doesn't follow commands)
  - b. Cranial nerves
    - i. **Facial droop** (show teeth or smile; abnormal = one side does not move as well as other)
    - ii. Visual fields (four quadrants – left upper and lower, right upper and lower; abnormal = doesn't recognize finger movement in all four quadrants) 1. Have patient look at your nose; hold hands about 18 inches in front of the patient
    - iii. Horizontal gaze (side-to-side; abnormal = not able to follow finger movement by moving eyes completely to left and right)
  - c. Limbs
    - i. Motor
      1. **Arm drift** (close eyes, hold out arms; abnormal = arm can't move or drifts down)
      2. Leg drift (open eyes, lift each leg separately; abnormal = leg can't move or drifts down)
    - ii. Sensory – arm, leg (close eyes and touch, pinch; abnormal = doesn't feel light touch, pinch)
    - iii. Coordination – arm, leg (finger to nose, heel to shin; abnormal = abnormal movements)



## Pre-Hospital Trauma Triage Criteria

**Indications:** Trauma patients who meet any of the following criteria shall be transported to the closest appropriate trauma center within a 30-minute ground transport time. Trauma patients who are not within 30 minutes ground transport time of a trauma center should be transported to the closest hospital if they cannot be delivered to an appropriate facility more rapidly by air ambulance.

### Physiologic Criteria

- Glasgow Coma Scale less than 14, or
- Systolic blood pressure of less than 90 mm/Hg, or
- Respiratory rate of less than 10 or greater than 29 breaths per minute (less than 20 breaths per minute in infants less than 1 year old)

### Anatomic Criteria

- Penetrating injuries to head, neck, torso and extremities proximal to elbow or knee
- Flail Chest
- 2 or more proximal long bone fractures
- Crushed, degloved or mangled extremity
- Amputation proximal to wrist or ankle
- Pelvic fractures
- Open or depressed skull fractures
- Paralysis

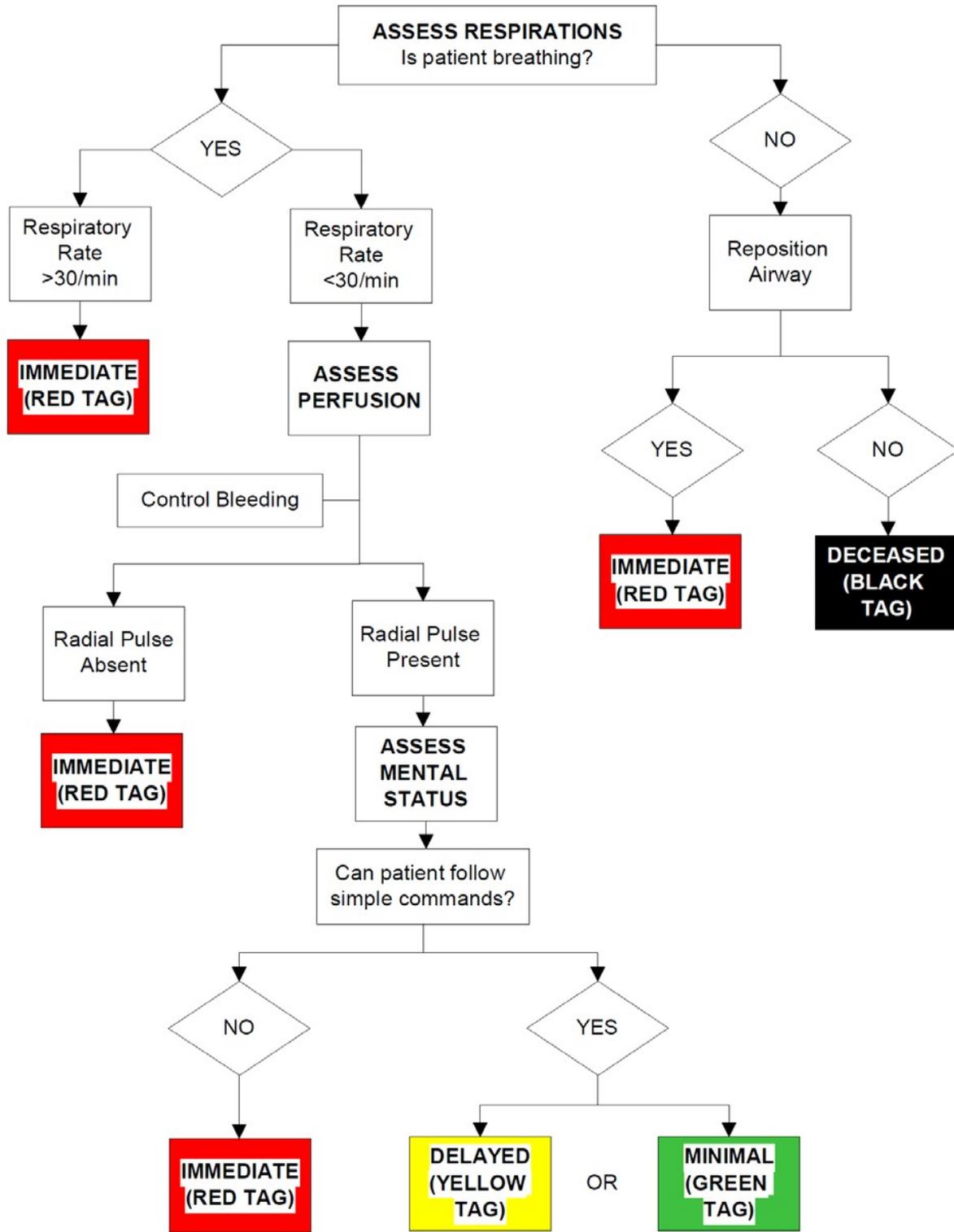
### Mechanism of Injury

- **Falls**
  - Adults – greater than 20 feet
  - Children less than 15 years old – greater than 10 feet, or 2-3 times the child's height
- **High-risk auto crash**
  - Intrusion- more than 12 inches to the occupant site or more than 18 inches to any site
  - Ejection (partial or complete) from automobile
  - Death in the same passenger compartment
  - Vehicle telemetry data consistent with high risk of injury
- **Auto versus pedestrian / bicyclists-** thrown, run over or with significant (greater than 20 mph) impact
- **Motorcycle crash** at speed greater than 20 mph
- **Special Considerations**
- **Burns** (with or without other trauma) – absent other trauma, burns that meet Burn Center criteria should be transported to a burn center
- **Pregnancy-** Injured women who are more than 20 weeks pregnant should be considered for transport to a trauma center or a hospital with obstetrical resources
- **Age** – greater than 55 years of age
- **Anticoagulation and Bleeding Disorders** – EMS should contact medical control and consider transport to trauma center
- **Time- Sensitive Extremity Injury** – open fracture(s) or fracture(s) with neurovascular compromise
- **EMS Provider Judgment** – EMS provides, based on experience and expertise, may always exercise clinical judgment regarding atypical patient presentations



S.T.A.R.T. - Simple Triage and Rapid Treatment  
Remember RPM: Respirations, Perfusion, Mental Status

### S.T.A.R.T. - Simple Triage and Rapid Treatment





## Tourniquet Application

Use commercial devices whenever possible. An inappropriate improvised device can cause more damage than assistance.

### INDICATIONS: (EMT, A, I, P)

- **LIFE THREATENING** hemorrhage from an extremity which cannot be controlled by direct pressure.

### PROCEDURE:

- Completely expose the injury
- Place the device just proximal of the injury. Do not place over a joint or open fracture site (preferably over a single bone structure).
- The band will be around the affected injury.
- Follow manufacturer's instructions for applying device
- Record the date and time of tourniquet both in documentation and with "TK (Date/Time)" on tape attached to the tourniquet.
- Leave the tourniquet site exposed: tourniquets should never be covered.
- Consider pain management
- Tourniquets removal only per medical control order
- Do not use a tourniquet for neck or facial wounds.

### IF ORDERED TO REMOVE THE TOURNIQUET:

- While the tourniquet is still engaged, dress the wound with a pressure dressing.
- Place the patient in supine position and elevate the extremity.
- Release the tourniquet slowly. If the bleeding restarts and is not controlled by the pressure dressing, reengage the tourniquet and expedite transfer to the hospital.
- Even if bleeding does not restart, leave the tourniquet unengaged but in place. Monitor wound closely as the bleeding may restart when the blood pressure normalizes.



## Ventricular Assist Devices

Ventricular Assist Devices (VAD) can be for left, right or bilateral assistance

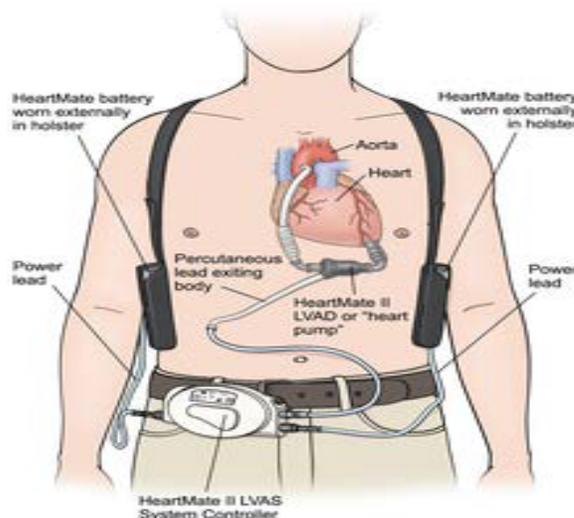
- VADs may be Pulsatile (First Generation) or nonpulsatile (mostly Left Ventricular Assist Device-LVAD)

### INDICATIONS: (EMT, A, I, P)

- Patient with an implanted VAD presenting with:
- Bleeding, thrombosis, infection, dysrhythmias or any other device caused issue

### PROCEDURE:

- Always consider and assess for non-VAD injuries, issues and complications.
- Assessment considerations:  
Overt and covert bleeding, thrombosis, infection, right ventricular dysfunction, left ventricular collapse, VAD overdrive, cavitation, device failure or malfunction, dysrhythmias, hypertension, hypotension, depression, anxiety, and portability
- First line therapy is volume replacement.
- DO NOT cardiovert, defibrillate, perform CPR or administer nitrates unless directed by a VAD coordinator, physician or online medical control. CPR may or may not be indicated based on manufacturer's recommendations. A VAD patient in Ventricular Fibrillation (VF) may still be conscious and talking to you as the pump is still forcing blood to the brain.
- DO NOT use mechanical CPR devices
- Pulse oximetry may be unreliable
- **DO NOT** get distracted by the VAD for non-VAD issues
- **DO NOT** disconnect both batteries at once
- **Your best resource in the event of a VAD issue is the VAD Coordinator or the patient's family/caregiver. Allow the caregiver to remain with the patient. Transport all VAD equipment with the patient.**
- **For known VAD patients it is beneficial to preplan**



# Adult Cardiac Protocols

**Cardiac Arrest**

**Asystole & Pulseless Electrical Activity**

**Medical - Bradycardia**

**Medical – Tachycardia**

**Termination of Resuscitation**

**ROSC – Return of Spontaneous Circulation**

**Adult Medication Reference**

**Main Menu**



**Objectives:**

- Early recognition and appropriate management of pulseless / apneic adult patients

**General Information:**

- During High-Quality CPR
  - Push hard and fast (At least 100/min at least 2 inches deep)
  - Ensure full chest recoil
  - Minimize interruptions in compressions
  - One cycle of CPR: 30 compressions: 2 breaths; 2 min = 5 cycles
  - Rotate compressors every 2 min
  - Avoid excessive ventilation
  - Check rhythm every 2 minutes
  - If BLS airway is adequate, priority is vascular access and medication administration. ALS airway should be secured when adequate resources are available
  - Humeral Head is preferred site for establishing IO access in cardiac arrest
  - In refractory ventricular fibrillation, the provider may consider double sequential defibrillation (DSD) after the 4<sup>th</sup> defibrillation and if a second defibrillator is available.
  - After an advanced airway is placed, rescuers no longer deliver “cycles” of CPR
    - Give continuous chest compressions without pauses for breaths
    - Give 8-10 breaths/min (1 breath every 6-8 seconds)
- AED use
  - Follow the voice prompts of the AED
  - Contraindications to AED
    - Rigor Mortis / Lividity
    - Injuries incompatible with life
    - No Code/DNR situations
- Search for and treat possible contributing factors:
 

|  |                                    |
|--|------------------------------------|
| ○ Hypovolemia                          | ○ Tension Pneumothorax             |
| ○ Hypoxia                              | ○ Toxins                           |
| ○ Hypokalemia / Hyperkalemia           | ○ Trauma                           |
| ○ Hypoglycemia (Verify via Glucometry) | ○ Tamponade Cardiac                |
| ○ Hypothermia / Hyperthermia           | ○ Thrombosis (coronary or pulmonar |
| ○ Hydrogen ion (Acidosis)              |                                    |



**Warnings/Alerts:**

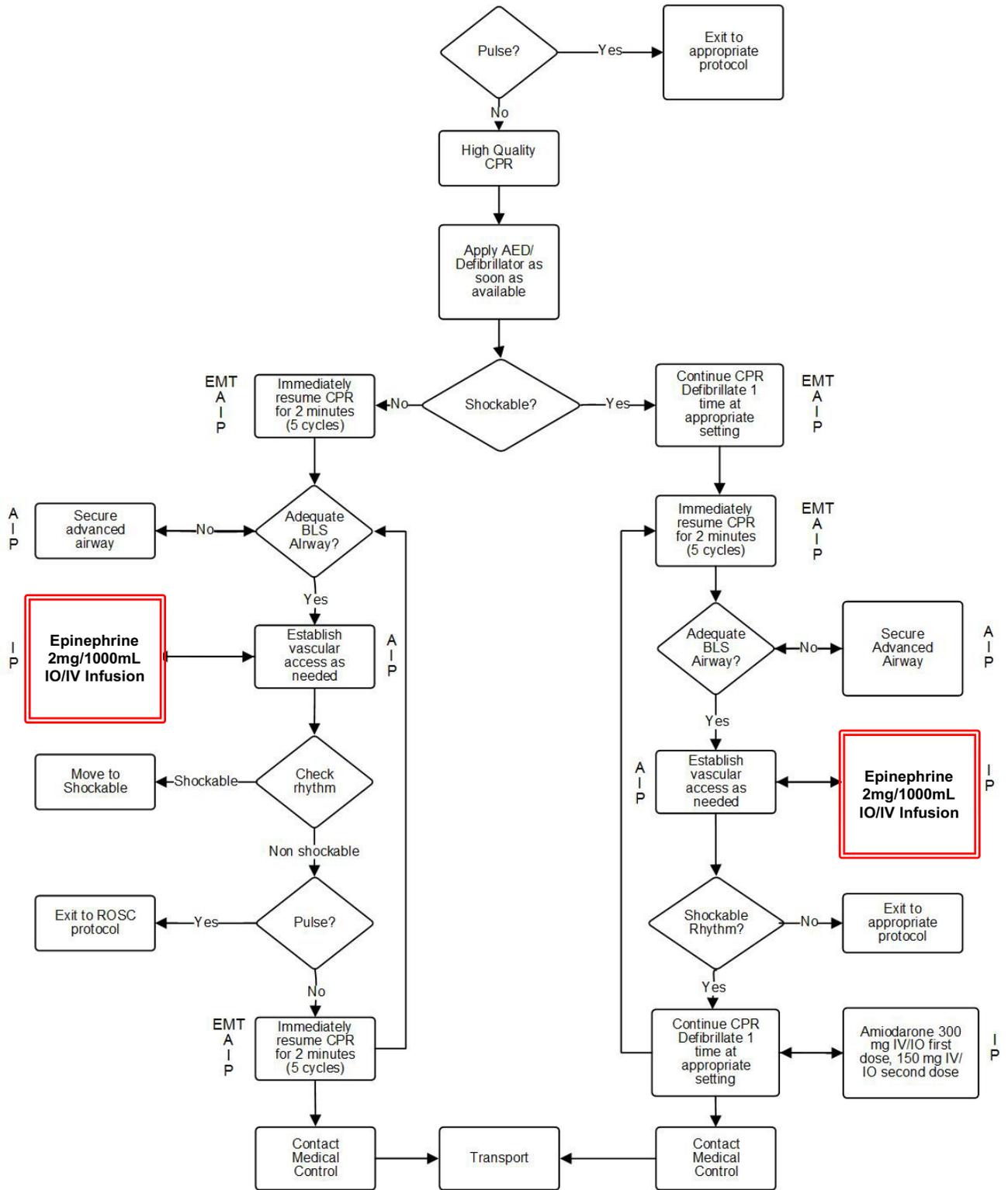
- CPR may still be required in the presence of an organized cardiac rhythm
- It is the responsibility of the provider delivering the shock to ensure that no one is touching the patient prior to shock delivery
- A moving vehicle may introduce artifact during AED analysis and may lead to inappropriate defibrillation
- The following conditions need to be addressed prior to defibrillation:
  - Patient in standing water
  - Patients with transdermal medications
  - AICD/Pacer/Medi-ports – Do not place pads over device

**OMD Notes:**

- Ventricular Assist Device Patients – Early contact with medical control should be made
- All efforts should be made to minimize time from last compression to defibrillation (Defibrillator can be charged while continuing compressions)
- Preference is to have a trained provider use a manual defibrillator rather than AED

**Performance Indicators:**

|                                |                     |                       |
|--------------------------------|---------------------|-----------------------|
| Onset of Arrest Time           | Initial Rhythm      | Bystander/FR CPR/AED  |
| Time of Initial Defibrillation | Consistency of CPR  | Changes in EKG Rhythm |
| Patient Packaging              | Patient Disposition |                       |





**Objectives:**

- Early recognition and appropriate management of bradycardic rhythms
- Recognition of a hemodynamically unstable patient due to a bradycardic rhythm

**General Information:**

- Signs and symptoms of a hemodynamically unstable patient can include:
  - Acute change in mental status
  - Hypotension
  - Ongoing Chest Pain and/or Breathing Difficulty
- Identify and treat underlying causes including H&Ts
  - Hypovolemia
  - Hypoxia
  - Hypokalemia / Hyperkalemia
  - Hypoglycemia (Verify via Glucometry)
  - Hypothermia / Hyperthermia
  - Hydrogen ion (Acidosis)
  - External Pacing
    - Atropine may be ineffective with 2nd degree Type II and 3rd degree AV Block. Prepare for immediate pacing
    - Contact Medical Control for pain management or sedation if needed
- Tension Pneumothorax
- Toxins
- Trauma
- Tamponade Cardiac
- Thrombosis (coronary or pulmonary)



**Warnings/Alerts:**

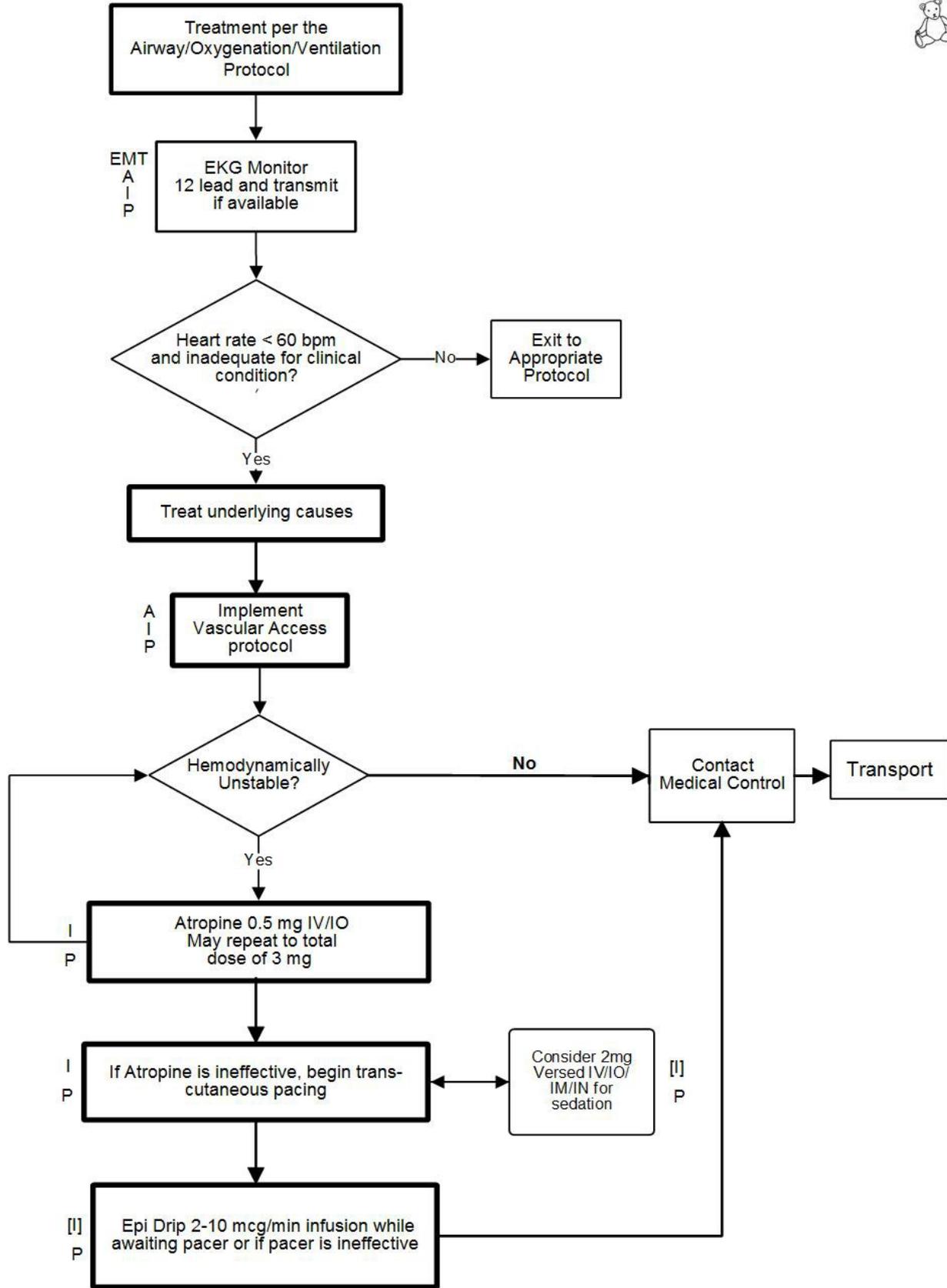
- Patient may deteriorate due to unnecessary delay in pacing
- Failure to recognize electrical and mechanical capture may lead to patient deterioration
- Assessment of a carotid pulse may be inaccurate due to muscle jerking which may mimic a carotid pulse
- Severely hypothermic patients should not be paced: contact medical control

**OMD Notes:**

- Medical Control may order an Epinephrine Drip
  - Add 2 mg of Epinephrine to 1000 ml NS for a concentration of 2mcg/ml
  - Dose 2-10 mcg/min

**Performance Indicators:**

|                          |                        |                             |
|--------------------------|------------------------|-----------------------------|
| Onset of Symptoms (time) | Treatment and Response | Vital Signs – 2 set minimum |
| LOC                      | Pacing Parameters      | Stable or Unstable Patient  |
| Initial Rhythm           | 12 Lead EKG            |                             |





**Objectives:**

- Early recognition and appropriate management of tachycardic rhythms
- Recognition of hemodynamically unstable patients due to unstable tachycardic rhythms

**General Information:**

- Signs and symptoms of a hemodynamically unstable patient can include:
  - o Acute change in mental status
  - o Hypotension
  - o Ongoing chest pain and/or breathing difficulty
  - o Signs and symptoms of shock
  - o Ischemic chest pain
  - o Acute heart failure
- For recurrent VT, medical control may order an Amiodarone drip
  - o 150 mg in 100 ml over 10 minutes
  - o Do not use in the same IV line with furosemide, heparin or sodium bicarbonate
- Follow manufacturer guidelines for biphasic settings for synchronized cardioversion
- Although not common, V-Tach can occur at rates less than 150; if unsure of treatment contact medical control
  - Underlying causes of sinus tachycardia which may cause a heart rate > 150 include hypovolemia, hypoxia, fever, pain, anxiety, or medications. DO NOT treat these patients with adenosine.



**Warnings/Alerts:**

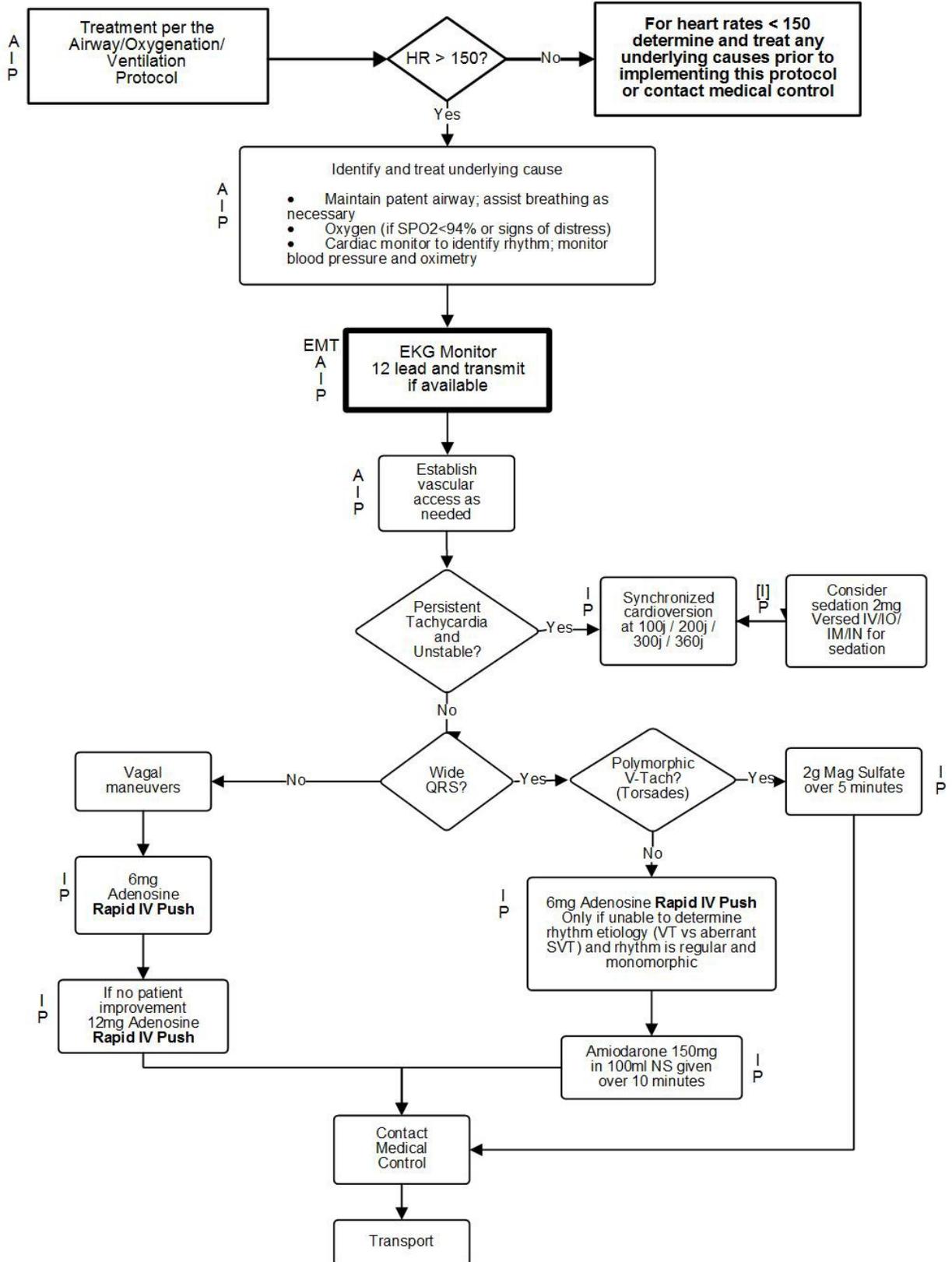
- DO NOT cardiovert sinus tachycardia
  - o Polymorphic VT can deteriorate quickly to VF - defibrillate ASAP with the highest energy setting based on manufacturer recommendations
  - o If unable to obtain synchronization, deliver unsynchronized shock at defibrillation energy (manufacturer recommendations)
  - o Do not delay cardioversion for administration of sedation to the unstable patient
  - o It is the responsibility of the provider delivering the shock to ensure that no one is touching the patient prior to shock delivery
  - o Address the following conditions prior to cardioversion:
    - Patients in standing water
    - Patients with transdermal medications
    - AICD/Pacer/Medi-ports - Do not place pads over device
  - o Other conditions may mimic wide complex tachycardia
    - Internal pacemakers
    - Aberrancy

**OMD Notes:**

- A-Fib may require higher synchronized cardioversion energy levels. Recommendations:
  - o Biphasic 120-200j
  - o Monophasic 200j
  - o Contact medical control for guidance
- Polymorphic VT (Torsades) should be defibrillated (NOT synchronized cardioverted) at highest defibrillation energy levels (manufacturer's recommendations)

**Performance Indicators:**

|                     |                                      |                |
|---------------------|--------------------------------------|----------------|
| Response to therapy | Onset of symptoms                    | Initial rhythm |
| Stable or unstable  | Vitals before and after intervention | LOC            |





**Objectives:**

- To provide criteria for pre-hospital termination of resuscitation

**General Information:**

- Contraindications to using the protocol include patients who are exhibiting neurological activity, or patients with suspected hypothermia
- Inappropriate initiation of CPR includes patients with dependent lividity, rigor mortis, injuries incompatible with life or a valid DDNR or POST form
- Resuscitation must continue while you are evaluating the patient
- Patients in cardiac arrest from environmental causes may warrant resuscitation efforts greater than 20 minutes (ie: hypothermia, submersion injuries etc.)
- Once resuscitation has been discontinued
  - Distribute bereavement booklet to family members, if available
  - Leave all expendable ALS supplies in place
- Search for and treat possible contributing factors:
 

|  |                                      |
|--|--------------------------------------|
| ○ Hypovolemia                          | ○ Tension Pneumothorax               |
| ○ Hypoxia                              | ○ Toxins                             |
| ○ Hypokalemia / Hyperkalemia           | ○ Trauma                             |
| ○ Hypoglycemia (Verify via Glucometry) | ○ Tamponade Cardiac                  |
| ○ Hypothermia / Hyperthermia           | ○ Thrombosis (coronary or pulmonary) |
| ○ Hydrogen ion (Acidosis)              |                                      |



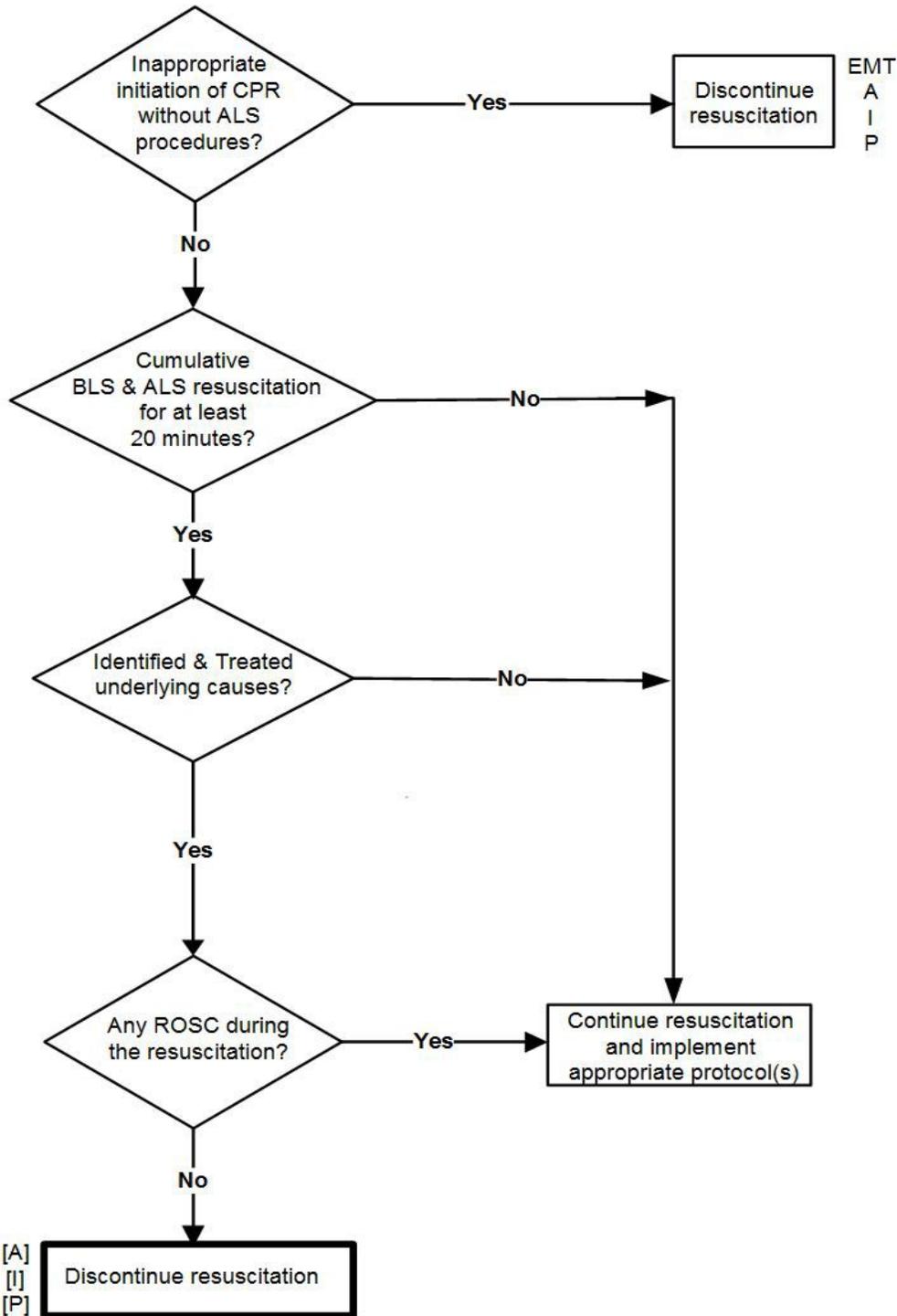
**Warnings/Alerts:**

- Contact Medical Control early to determine viability of patient
- Contact Medical Control for guidance regarding discontinuing resuscitation during transport

**OMD Notes:**

**Performance Indicators:**

|   |                           |                          |
|---|---------------------------|--------------------------|
| Onset of Arrest                         | Initial Rhythm            | Patient Age              |
| Neurological Exam                       | External Body Temperature |                          |
| Online Medical Control (Physician Name) |                           | Time Resuscitation ended |





**Objectives:**

- To appropriately treat patients who have return of spontaneous circulation
- To ensure adequate perfusion

**General Information:**

- Optimize ventilation and oxygenation
  - Utilize end tidal CO<sub>2</sub> with ventilation and oxygenation with 10-12 breaths/minute and titrate to a target PETCO<sub>2</sub> of 35-40 mm Hg
  - Maintain oxygen saturation > 94%
  - Do not hyperventilate – 1 breath every 5-6 seconds / 10-12 breaths a minute
- For recurrent VF/Pulseless VT, Medical Control may order an Amiodorone drip
  - 150 mg in 100 ml over 10 minutes
  - Do not use in the same IV line with furosemide, heparin or sodium bicarbonate
- Administer 250 mL boluses up to 1 liter of NS reassessing after each 250-mL bolus
- Consider transporting to a PCI Center for ROSC patients
- Search for and treat possible contributing factors:
  - Hypovolemia
  - Hypoxia
  - Hypokalemia / Hyperkalemia
  - Hypoglycemia (Verify via Glucometry)
  - Hypothermia / Hyperthermia
  - Hydrogen ion (Acidosis)
  - Tension Pneumothorax
  - Toxins
  - Trauma
  - Tamponade Cardiac
  - Thrombosis (coronary or pulmonary)



**Warnings/Alerts:**

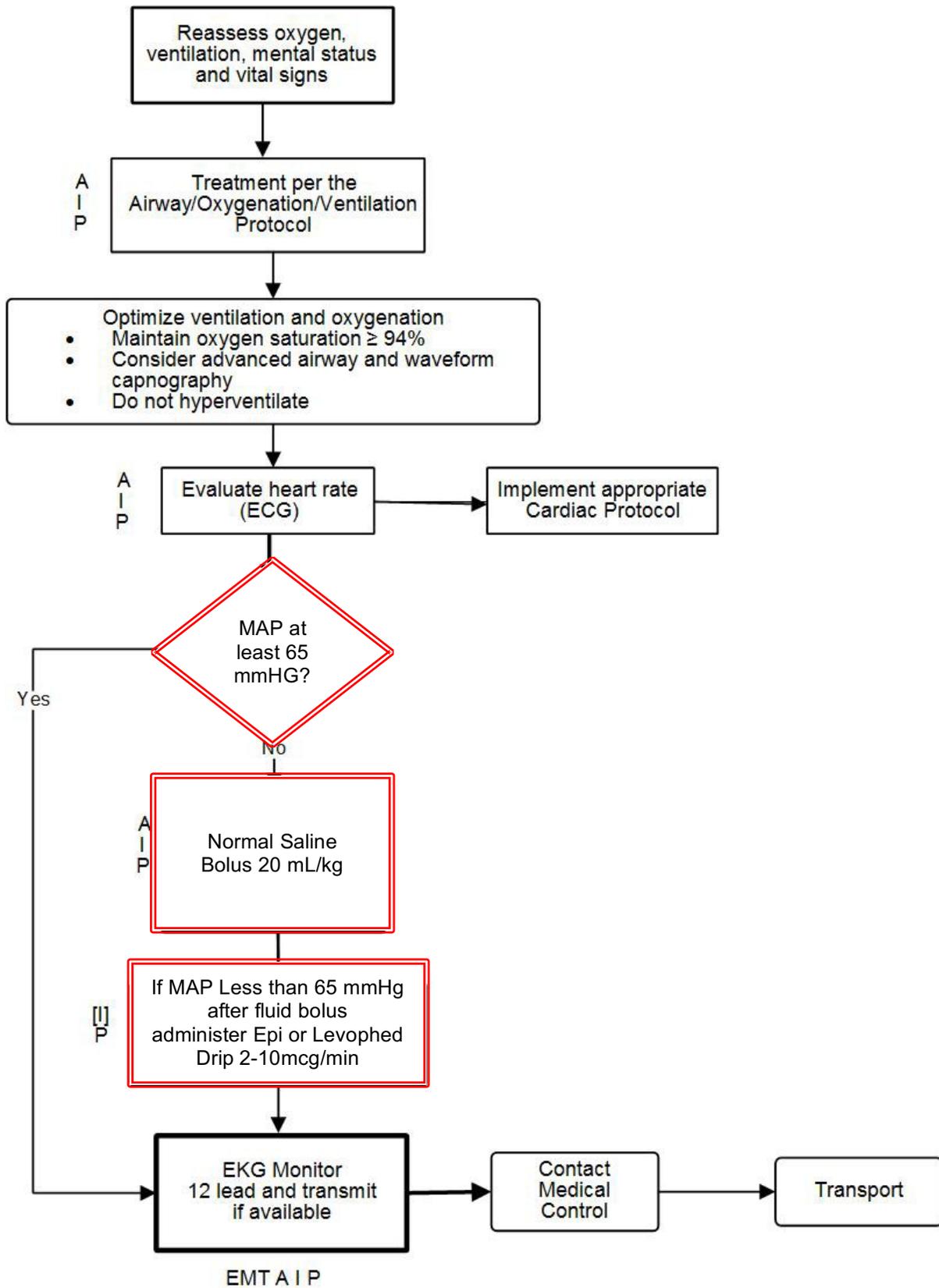
- Amiodorone is contraindicated in the following conditions:
  - Bradycardia
  - Heart block
  - Hypotension
  - Pulmonary edema
  - Cardiogenic shock

**OMD Notes:**

- 250 mL bolus is best accepted medical practice 09/09/08 OMD committee minutes
- STEMI – Contact Medical Control regarding transport decisions

**Performance Indicators:**

EKG Rhythm      Evaluation of Perfusion Treatment and Response to Treatment    12 Lead EKG



# Adult General Protocols

**Airway/Oxygenation/Ventilation**

**Allergic / Anaphylactic**

**Behavioral Emergencies**

**Bites / Stings**

**Breathing Difficulty**

**Burns**

**Cerebral Vascular Accident**

**Chemical Exposure (Poisoning)**

**Chest Pain / AMI**

**Combative Patient**

**Dialysis – Renal Failure**

**Diving Medical Disorders**

**Drowning / Near Drowning**

**Electrical / Lightning Injuries**

**Extraordinary Measures**

**Hyper – Hypoglycemia**

**Hyperthermia / Hypothermia**

**Nausea Vomiting**

**OB GYN – Delivery**

**OB GYN – Eclampsia**

**Pain Management (Non-Cardiac)**

**Rehabilitation**

**Seizures**

**Sepsis**

**Shock**

**Spinal Motion Restriction**

**Toxicological Emergencies (Overdose)**

**Trauma**

**Trauma Crush Syndrome**

**Vascular Access**

**Main Menu**



**Objectives:**

- When possible, a room air pulse oximetry reading should be obtained and documented
- The goal is to maintain SPO2 of 94%. Note: below 94% may be normal for patients with chronic hypoxia such as COPD
- Oxygen therapy should be considered for patients with altered mental status, hypoperfusion, smoke inhalation, or dyspnea regardless of spo2 reading
- Support the patient's breathing as needed

**General Information:**

- Oxygen therapy
  - SPO2 90 - 93% - nasal cannula at 1 to 6 liters per minute
  - SPO2 < 90% - Non-rebreather at 10 to 15 liters per minute or CPAP
- Assisted ventilations
  - BLS Airway
    - Attempt should be made to use to Providers to ensure adequate BVM ventilation using "E-C" Technique
  - ALS Airway (endotracheal intubation, supraglottic tube placement)
    - Cardiac monitor and pulse oximetry should be used
    - Verify tube placement with ETCO2, waveform capnography is preferred
    - Unconscious intubated patient
      - Verify tube placement
      - Secure with commercial device, package with c-collar and long board
      - Monitor for development of absent lung sounds and/or a hemodynamically unstable patient which may warrant needle decompression
    - Consider OG/NG tube when using BVM or after endotracheal intubation
  - Ventilatory rates
    - One breath every 6 seconds (10 breaths/min) after securing advanced airway
    - When using capnography, adjust rate to maintain 35-45 mmHg



**Warnings/Alerts:**

- Failure to use ETCO2 monitoring increases the risk of an unrecognized misplaced tube
- Failure to confirm tube placement prior to securing or following patient movement may lead to unrecognized tube displacement
- Apnea is an absolute contraindication to nasal intubation
- Intubated patients should be monitored for:
  - Displacement (also consider right main stem)
  - Obstruction
  - Pneumothorax
  - Equipment failure

**OMD Notes:**

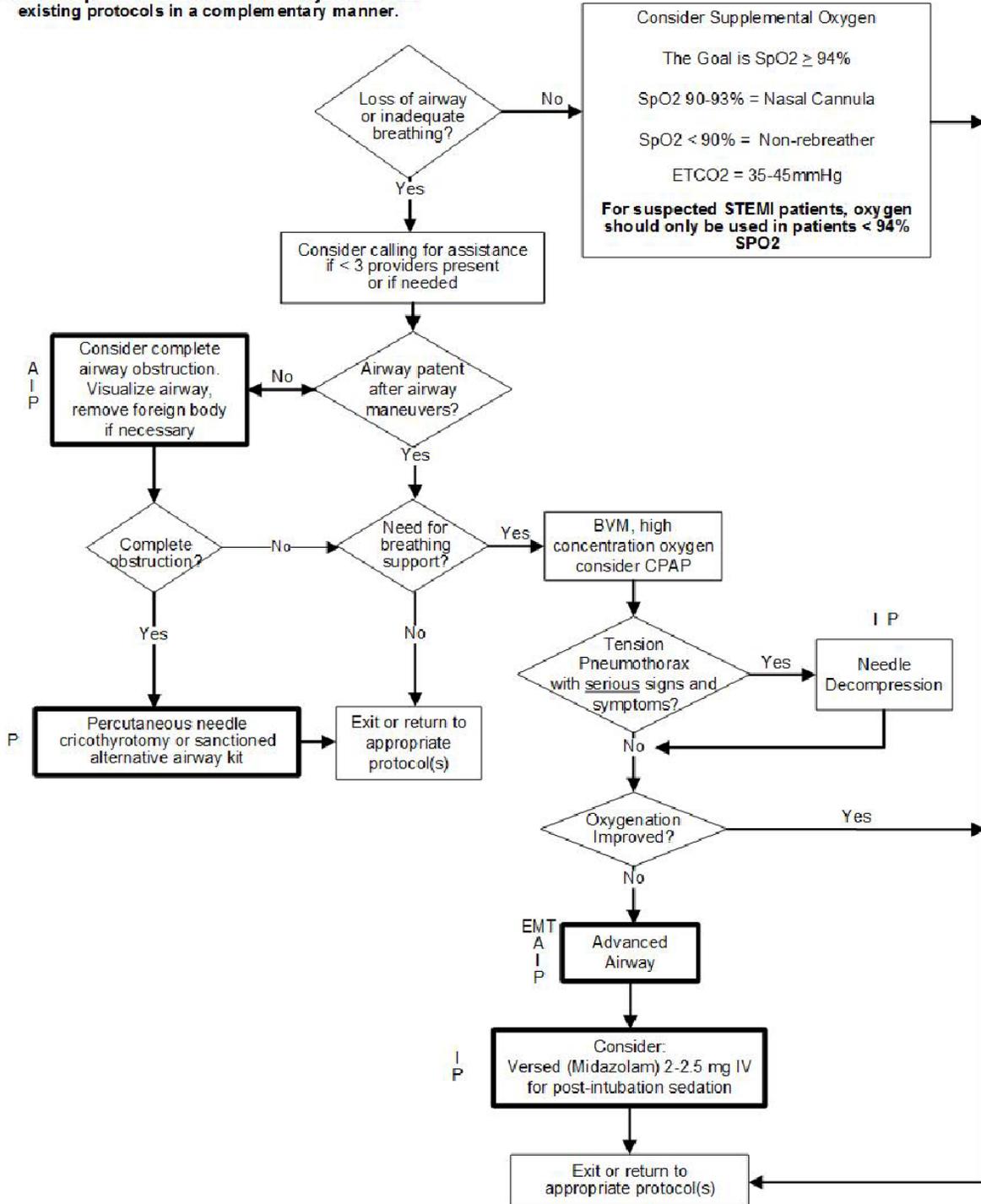
- Ventricular Assist Device Patients - Early contact with medical control should be made

**Performance Indicators:**

|                          |                        |                                |
|--------------------------|------------------------|--------------------------------|
| Initial and ongoing SpO2 | Confirmation of airway | ETCO2                          |
| Use of CPAP              | Application of oxygen  | Cervical immobilization        |
| Use of secondary airway  |                        | Documentation of Breath Sounds |



Note: This protocol is to be used in conjunction with existing protocols in a complementary manner.





**Objectives:**

- To assess and appropriately treat patients with allergic reactions and /or anaphylaxis
- To differentiate between an allergic reaction and anaphylaxis

**General Information:**

- Signs and symptoms of allergic reaction may include:
  - Itching
  - Hives
  - Flushing (red skin)
  - Mild swelling of face (especially the eyes and lips), neck, hands, feet or tongue
- Signs and symptoms of anaphylaxis may include all of the above; but must include one of the following:
  - Respiratory distress
    - Labored breathing (i.e. stridor, wheezing, hoarseness, cough)
  - Signs and symptoms of a hemodynamically unstable patient can include:
    - Acute change in mental status
    - Hypotension
    - Ongoing chest pain and/or breathing difficulty
- Rapidly progressing signs and symptoms should be treated as anaphylaxis
- EMT may use patient's EpiPen on standing orders
- In hemodynamically unstable patients, epinephrine 1:1,000 IM is the preferred route of administration instead of SQ
- In severe anaphylaxis with hypotension and/or severe airway obstruction, medical control medical order Epinephrine 1:10,000 IV



**Warnings/Alerts:**

- Epinephrine 1:1,000 shall not be given IV
- Caution should be used when administering epinephrine to patients with a cardiac history or to patients 40 years old or older
- Due to packaging change, epinephrine 1:1,000 may appear as 1 mg/1ml and epinephrine 1:10,000 may appear as 1mg/10ml

**OMD Notes:**

- Maximum single dose of Epinephrine is 0.5mg
- Medication induced angioedema (e.g. ACE inhibitor) may not respond to epinephrine, Benadryl, or Solu-medrol; aggressive airway management may be required

**Performance Indicators:**

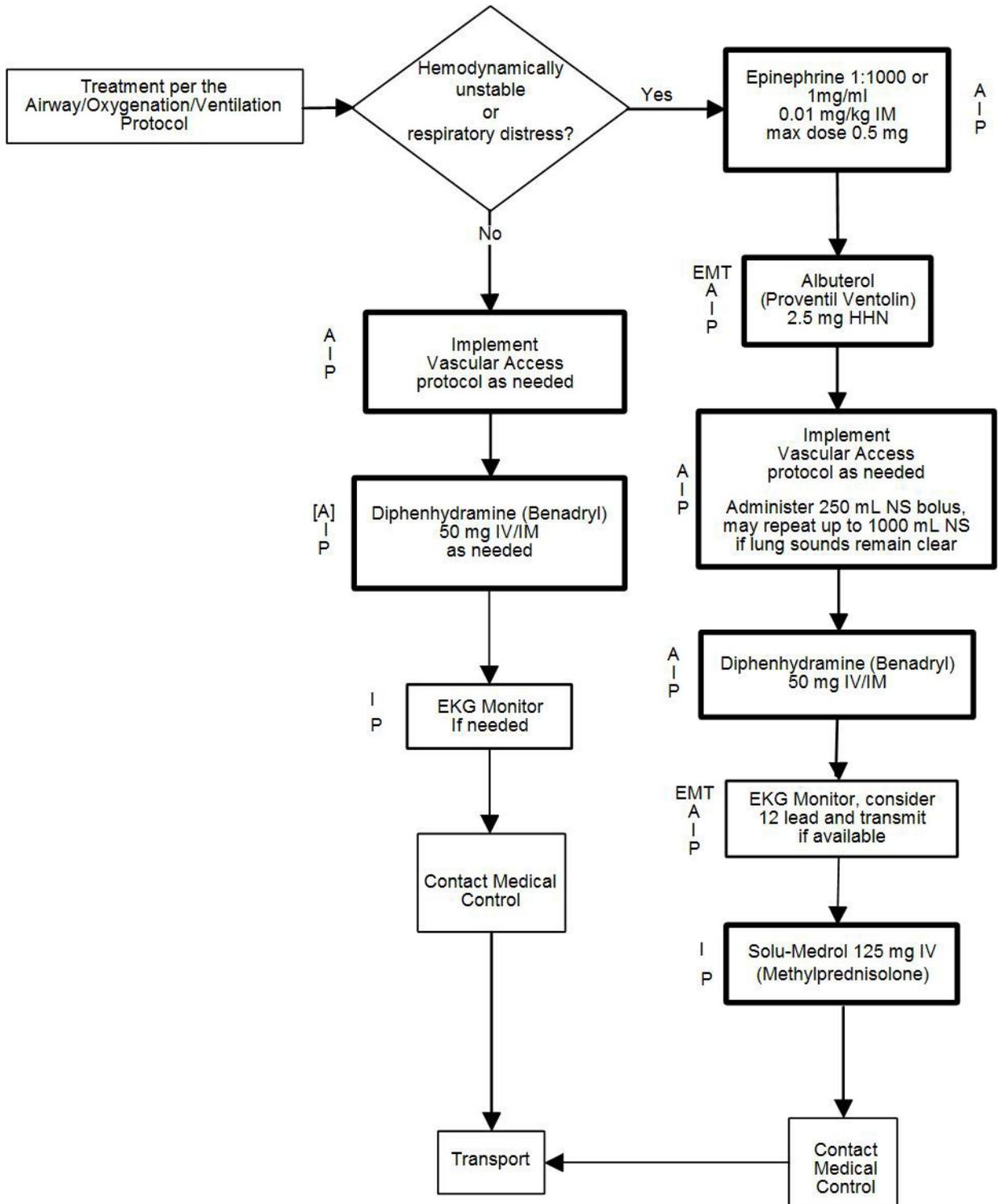
Use of EpiPen

12 Lead EKG

Treatment and response to treatment

Application of oxygen

Application of oxygen





**Objectives:**

- To assess and appropriately treat patients with behavioral emergencies
- Address any underlying conditions that may contribute to behavioral

**General Information:**

- Contact police if there is any question of scene safety
- Assure physical safety of patient and personnel
- Capacity to refuse issues are complex. If a patient is intoxicated, has a head injury, has a history of overdose or is thought to be of any danger to self or others, he/she is most likely not capable to refuse treatment. Contact police and Medical Control to aid in making the decision
- No transport does not mean no PCR is necessary.
- Documentation should be complete including patient's mental state and your rationale for the no transport decision



**Warnings/Alerts:**

- Behavioral emergency calls can rapidly deteriorate
- Failure to appropriately address behavioral emergencies for patients with questionable capacity may lead to negative outcomes

Example: medical legal, harm to patient or others, further patient deterioration

**OMD Notes:**

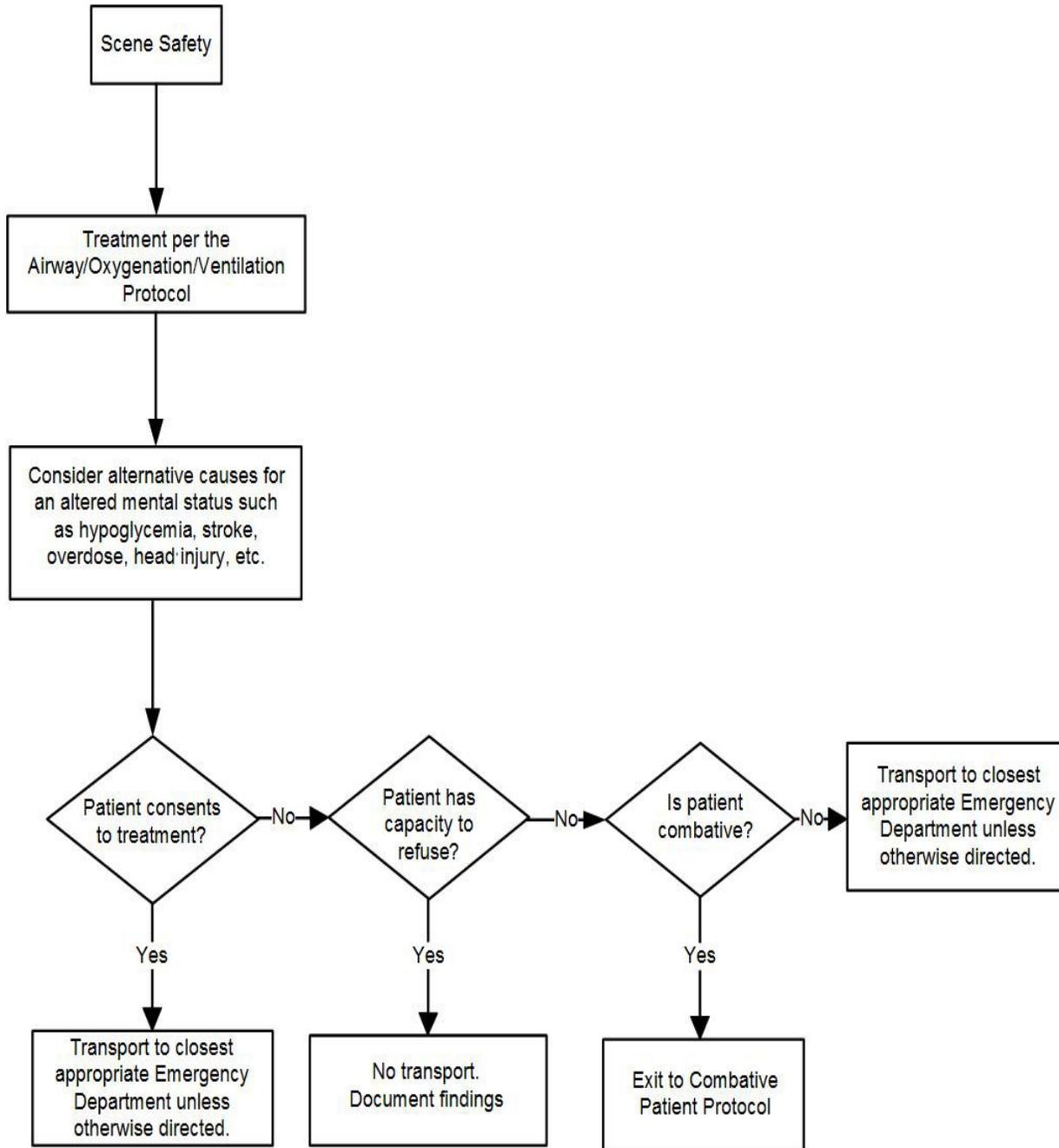
**Performance Indicators:**

Time on Scene

Patient Capacity

Transport or Non-Transport

Online Physician Name





**Objectives:**

- To appropriately assess and treat patients who received bites and stings
- To identify source of bite or sting

**General Information:**

- The use of constricting bands requires an order from medical control
- Consider contacting animal control for identification and management of animal



**Warnings/Alerts:**

- Make no attempts to capture or kill the animal or insect inflicting the bite or sting
- Do not bring live animals to the hospital. Transport dead animals in a sealed container or consider bringing a photograph of the animal or insect that inflicted the bite or sting

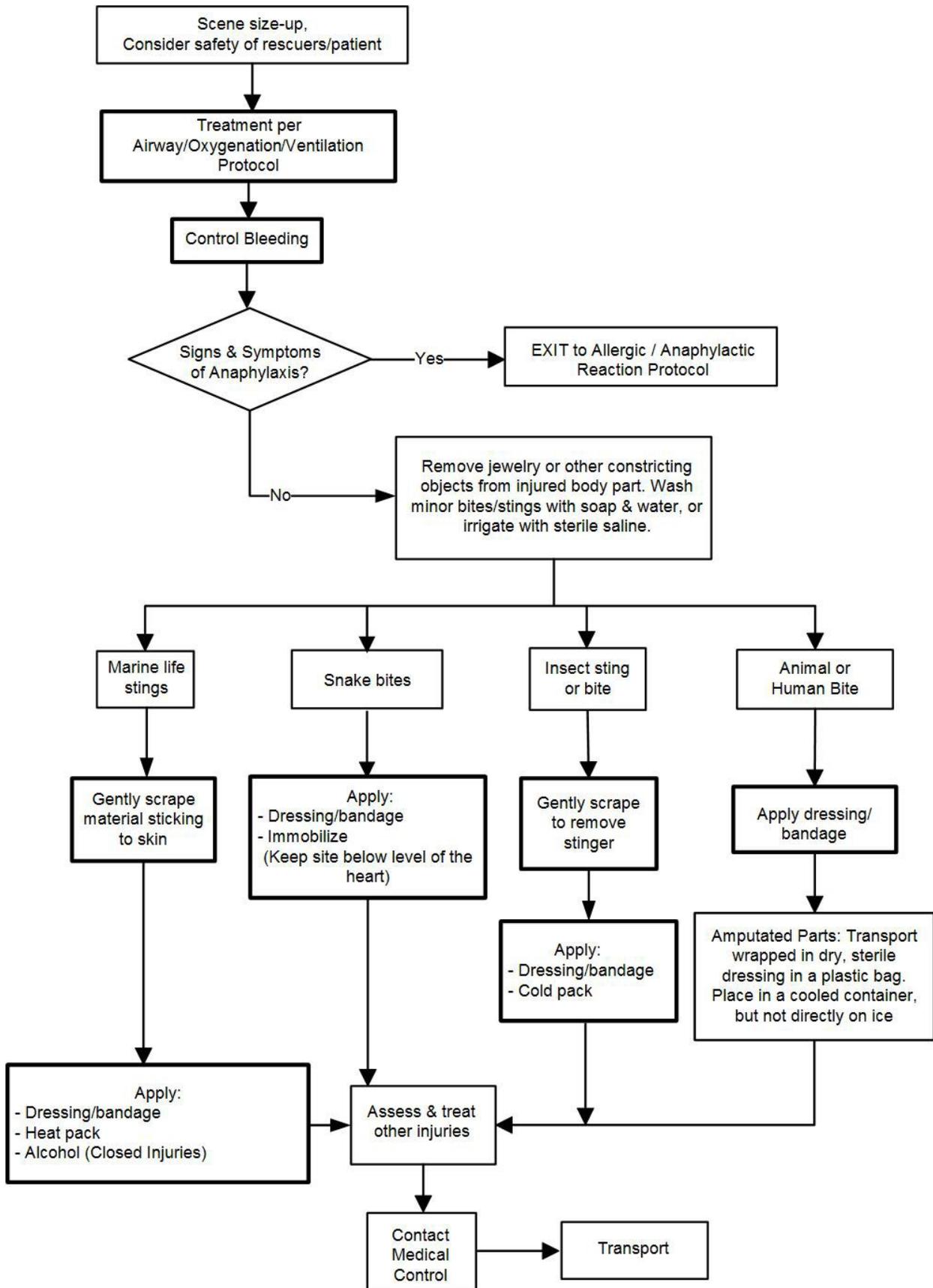
**OMD Notes:**

- none provided

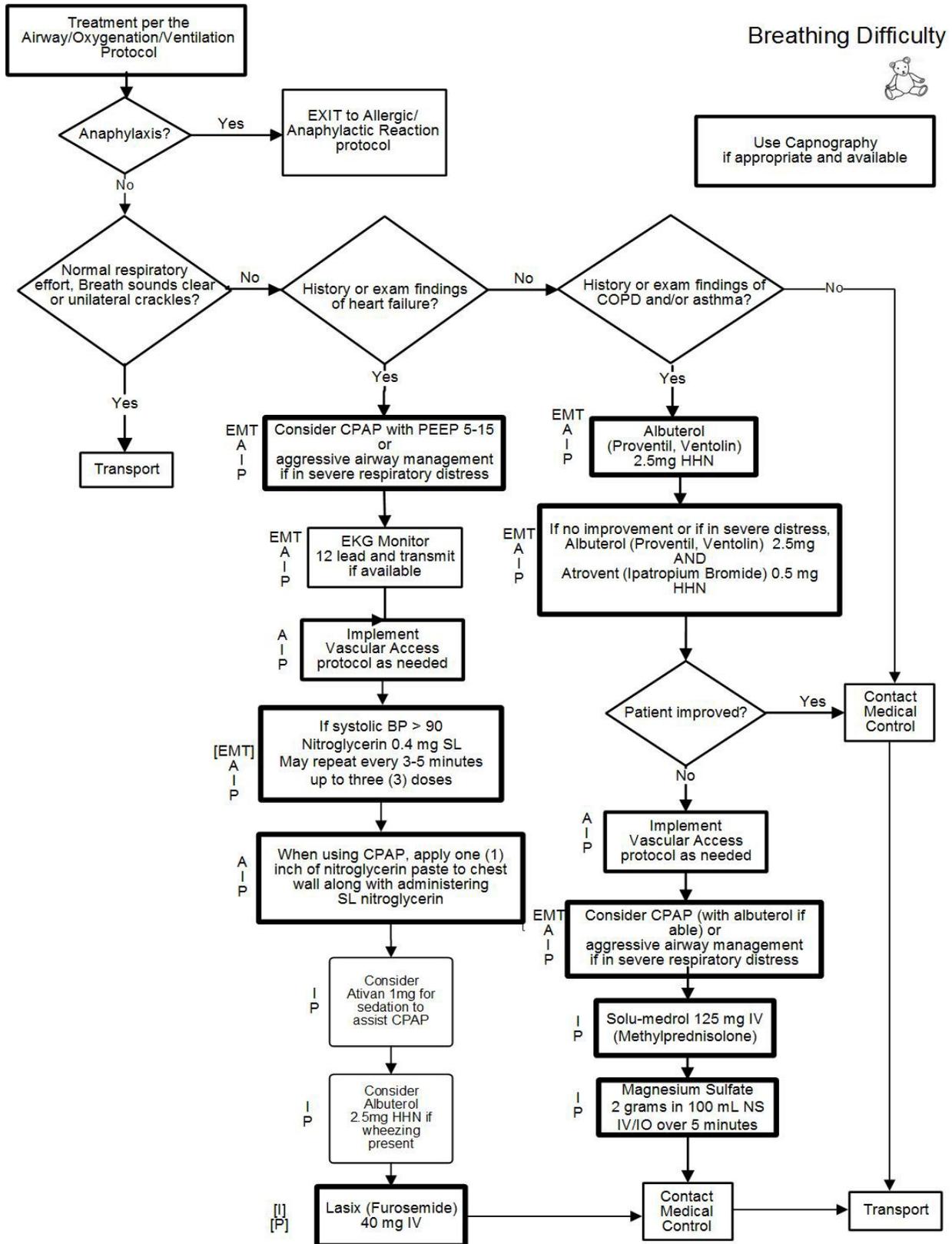
**Performance Indicators:**

Identification of bite/sting source  
Packaging of amputated part(s)

Treatment and response to treatment









**Objectives:**

- To assess and appropriately treat patients with burn injuries
- To determine the extent and severity of burn injuries

**General Information:**

- Stop the burning process. Cool burned areas until pain is lessened or up to 30 minutes if patient can maintain normal body temperature.
- Remove clothing around burned area carefully. If clothing is stuck to skin, cut the clothing instead of pulling it away.
- Small burned areas may be covered with a moist dressing for patient comfort; large burned areas should be covered with dry, sterile dressings.
- Criteria for direct transport to a regional Burn Center:
  - > 10% BSA full-thickness burns
  - > 20% BSA partial-thickness burns
  - > 15% BSA partial and full-thickness burns
  - Burns to genitals, hands, feet, face or surface area over joints
  - Geriatric or pediatric patients
  - Inhalation, electrical injury or chemical burns
  - Associated traumatic injuries
  - Pre-existing disorders that could complicate management



**Warnings/Alerts:**

- Do not delay transport to start IVs or perform other nonlife-saving ALS interventions
- Use caution when cooling patients to avoid hypothermia
- Inhalation burns with impending airway compromise should be treated with aggressive advanced airway management
- Patients who received morphine should have SPO2 and cardiac monitor

**OMD Notes:**

- None provided

**Performance Indicators:**

Time on scene

Estimated body surface area

Transport to appropriate facility

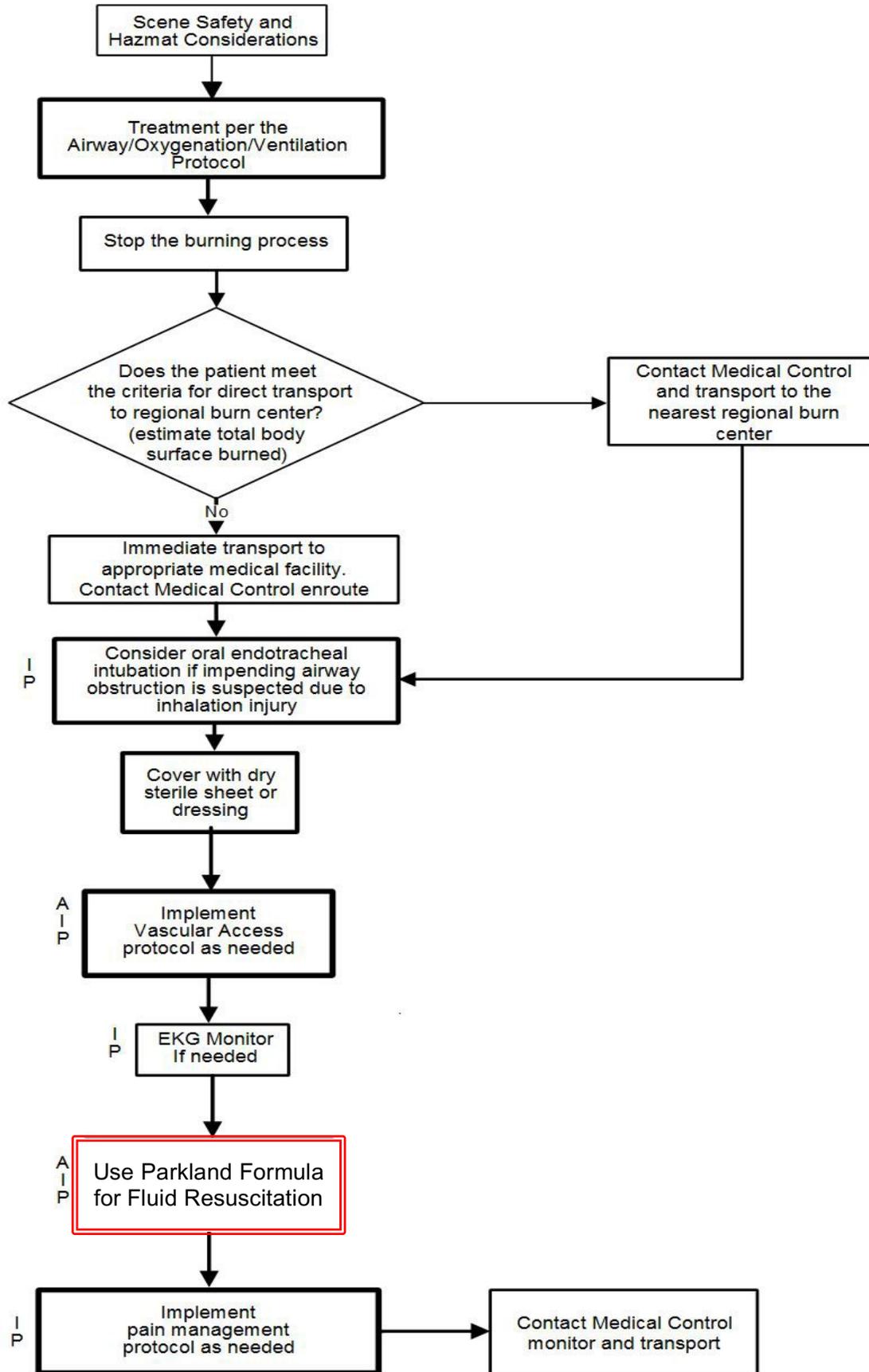
Use of appropriate dressing

Initial and ongoing SPO2

Initial and ongoing vitals

Patient disposition

Appropriate pain management





**Objectives:**

- To assess and appropriately treat patients with suspected cerebrovascular accidents

**General Information:**

- Obtain CVA- specific history
  - Onset of stroke symptoms
  - Last time seen normal
  - List of signs/ symptoms
  - Risk factors
  - Previous CVA
  - Medications
  - New onset dysrhythmias
- Transport patient, even if symptoms have resolved
- Transport a family member or other witness to verify time of onset of stroke symptoms
- Utilize recognized pre-hospital stroke scale (i.e. Cincinnati Pre-Hospital Stroke Scale)
- If possible, transport to a medical facility with the ability to give thrombolytics
- Make contact with medical control early if your closest facility is **not** a stroke center



**Warnings/Alerts:**

- Do not delay transport to start IVs or perform other non life-saving ALS interventions
- Patients with stroke symptoms are at high risk for airway compromise
  - Example: vomiting, gurgling, drooling, snoring, change in breathing pattern, change in head position
  - The airway should be continuously monitored for patency
  - Hypoxemia will worsen stroke outcomes

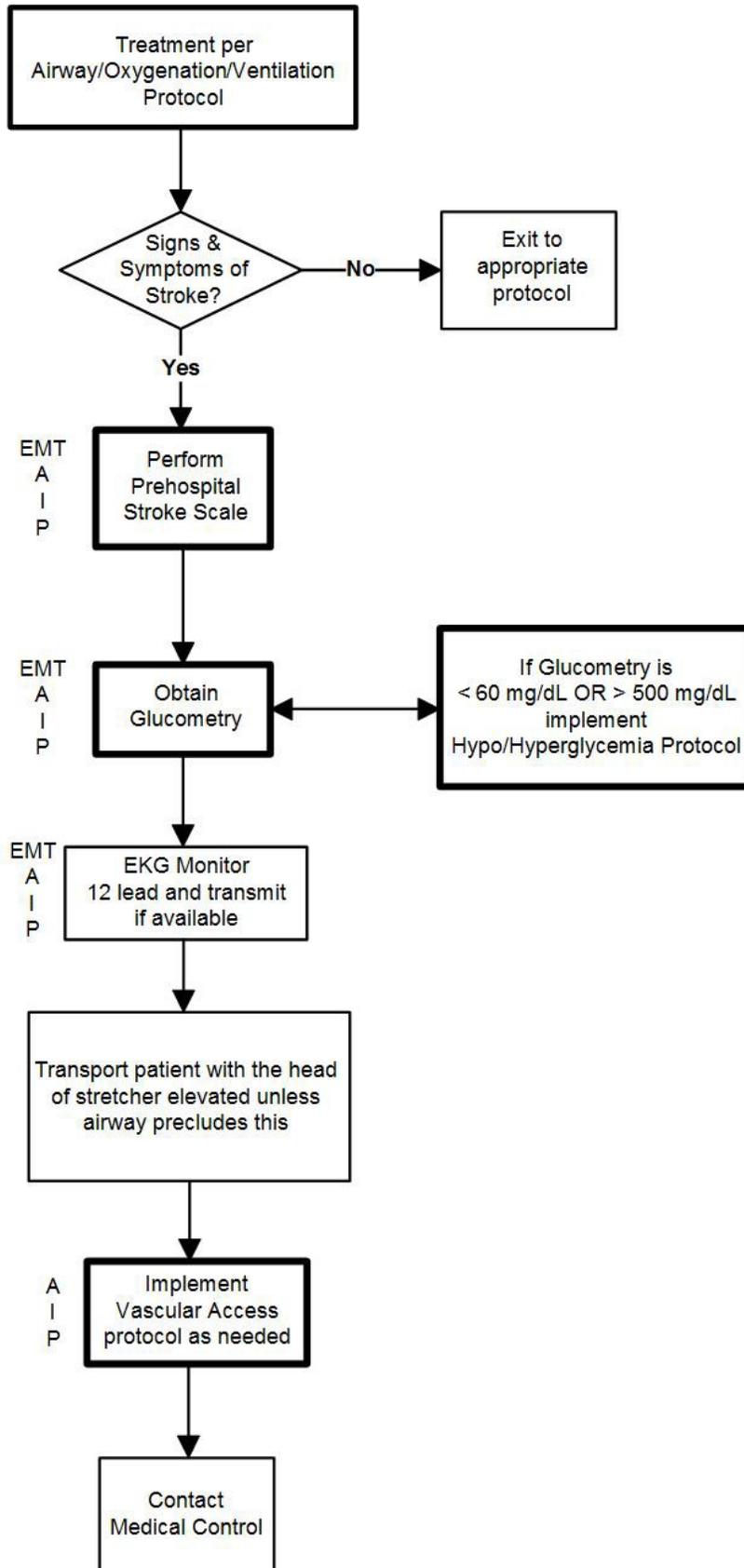
**OMD Notes:**

None provided

**Performance Indicators:**

Time of symptom onset  
Blood glucose level  
Previous deficits

Pre-hospital stroke scale  
EKG monitor





**Objectives:**

- To assess and treat patients who have been poisoned by various substances

**General Information:**

- If the scene is unsafe, notify fire department or HAZMAT team immediately
- Do not act upon advice from poison control center; contact medical control for instructions
- Drychemicals should be brushed off patient's skin before flushing with water
- Chemical exposure to the eyes can be flushed with IV saline using an administration set by all field providers
- Remove any contaminated clothing
- Asphyxiants
  - Examples: Carbon monoxide, cyanide, hydrogen sulfide
  - Pulse oximetry may be unreliable due to asphyxiants' effects on red blood cells
  - Do not transport directly to a hyperbaric facility without consulting medical control
- Cholinergic
  - Examples: Organophosphates, carbamates, military nerve agents, azinphos-methyl, methyl parathion, chlorothiophos, carbaryl, aldicarb
- SLUDGE  
Salivation, Lacrimation, Urination, Defecation, Gastrointestinal cramping, Emesis
- Corrosives
  - Examples: Acids (acetic, hydrochloric, nitric, phosphoric, sulfuric) and Bases (sodium hydroxide, ammonium hydroxide, potassium hydroxide)
  - Do not induce vomiting if ingested. If patient vomits, position patient and suction to avoid aspiration
  - Expect rapid mucous membrane swelling if ingested, and consider early and aggressive airway management
- Hydrocarbons
  - Examples: gasoline, methane, toluene, carbon tetrachloride, methylene chloride, trichloroethylene
  - Do not induce vomiting if ingested. If patient vomits, position patient and suction to avoid aspiration
- Irritant Gas
  - Examples: Chlorine, ammonia, phosgene
  - Chlorine gas is created when bleach is mixed with ammonia or acid-based cleaners



**Warnings/Alerts:**

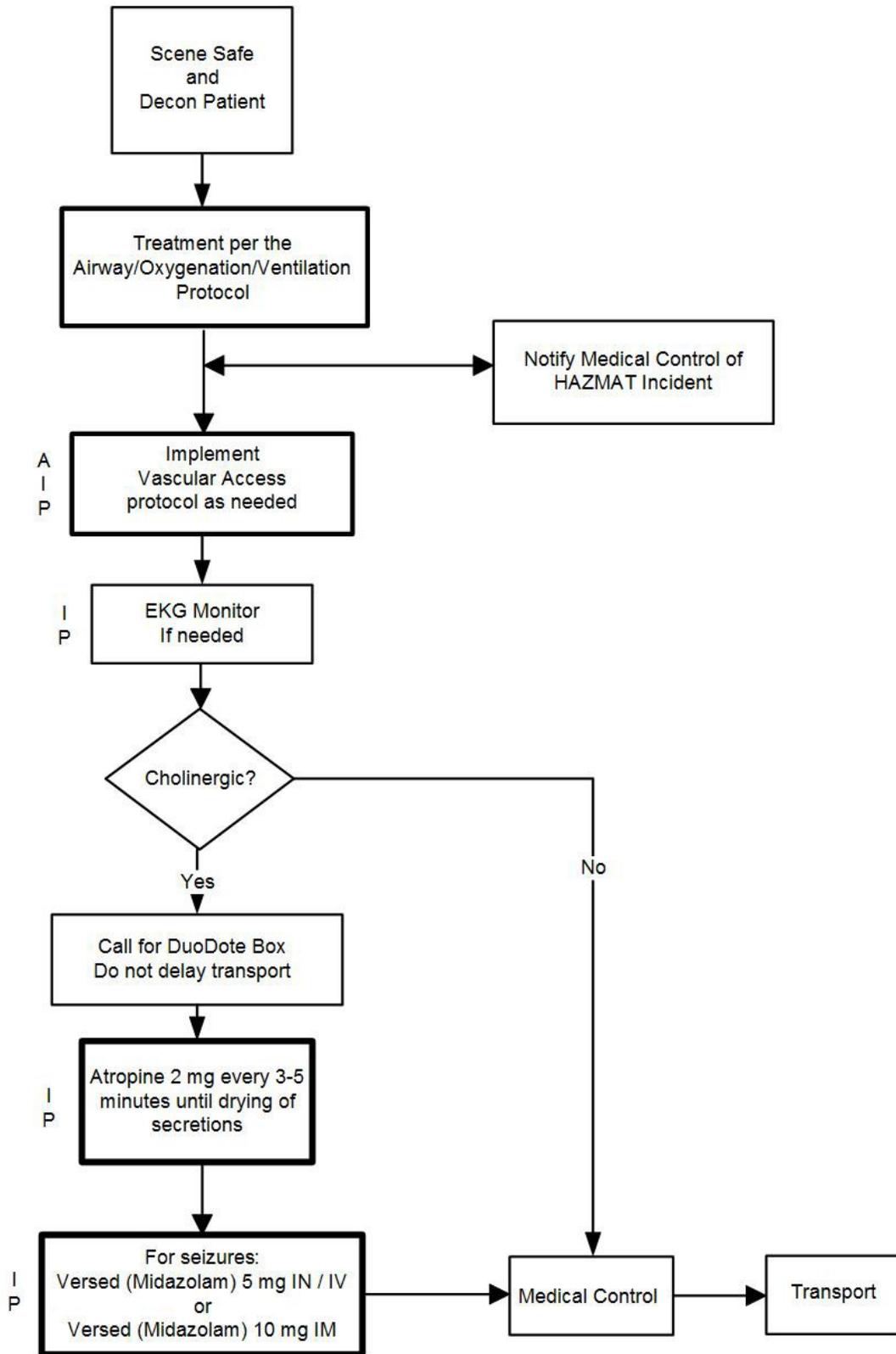
- Do not bring hazardous materials to the hospital / Notify hospital ASAP
- Do not use diuretics or nitroglycerin for patients with non-cardiogenic pulmonary edema

**OMD Notes:**

- Notify Hospital Early for preparation purposes
- Don't delay transport for WMD kits

**Performance Indicators:**

|                        |                                |                                       |
|------------------------|--------------------------------|---------------------------------------|
| Initial Evaluation     | Appropriate Receiving Facility | Documentation of Substance (if known) |
| Use of Decontamination |                                | Treatment and Response to Treatment   |





**Objectives:**

- To assess and appropriately treat patients with chest pain or suspected acute myocardial infarction
- To eliminate patient's chest pain

**General Information:**

- Aspirin
  - EMT and AEMT may administer aspirin on standing orders
  - Even if patient has taken aspirin within one day, administer additional aspirin up to the maximum protocol directed dose
  - Patient should be directed to chew and swallow
  - Do not administer aspirin in the following cases:
    - Patient with history of GI bleeding or other bleeding disorders
    - Patient with history of recent surgery ( Within 14 days)
    - Patients that have already recently taken maximum dose of aspirin prior to EMS arrival
    - Patients with sensitivity / allergy to aspirin
- Nitroglycerin
  - EMT and AEMT may administer nitroglycerin with physician order
  - Nitroglycerin should not be given to patients with a systolic blood pressure < 110mmHg without IV access
  - Nitroglycerin may be given every 5 minutes ( after the initial three doses) with physician orders as long as the systolic blood pressure remains > 90mmHg
  - Sublingual should be given first, whenever possible; transdermal Nitro has a slower onset (> 30 minutes)
- Transdermal nitroglycerin
  - Should be administered if patient cannot tolerate SL nitroglycerin or if SL nitroglycerin fails to relieve pain
- Morphine ( I and P only)
  - May be administered concurrently with nitroglycerin if pain is unresolved
  - May administer additional morphine if needed with physician order
  - Implement nausea / vomiting protocol as necessary
- If the patient has cocaine induced chest pain, physician may order Valium 5mg IV/IM



**Warnings/Alerts:**

- Do not administer nitroglycerin to patients who have taken sexually enhancing medications ( Viagra, Levitra, Cialis) within the past 72 hours
- Be cautious of continued nitroglycerin Administration with a > 30mmHg systolic blood pressure drop
- Contact medical control prior to administering ASA if patient is on anticoagulant therapy (Heparin, Lovenox, Coumadin, Effient, Warfarin, Plavix, Paradaxa, Xarelto)

**OMD Notes:**

- May administer ASA if patient is taking anti thrombolytics (Aggrenox, Ticlid)
- Call medical control if patient has any history of prior sensitivity or allergic reaction to aspirin
- Do not delayed patient treatment to obtain a 12-lead EKG

**Performance Indicators:**

Chest pain scale 1 to 10

OPQRST assessment      12 lead EKG within 10 minutes

Vital signs after Drug Administration

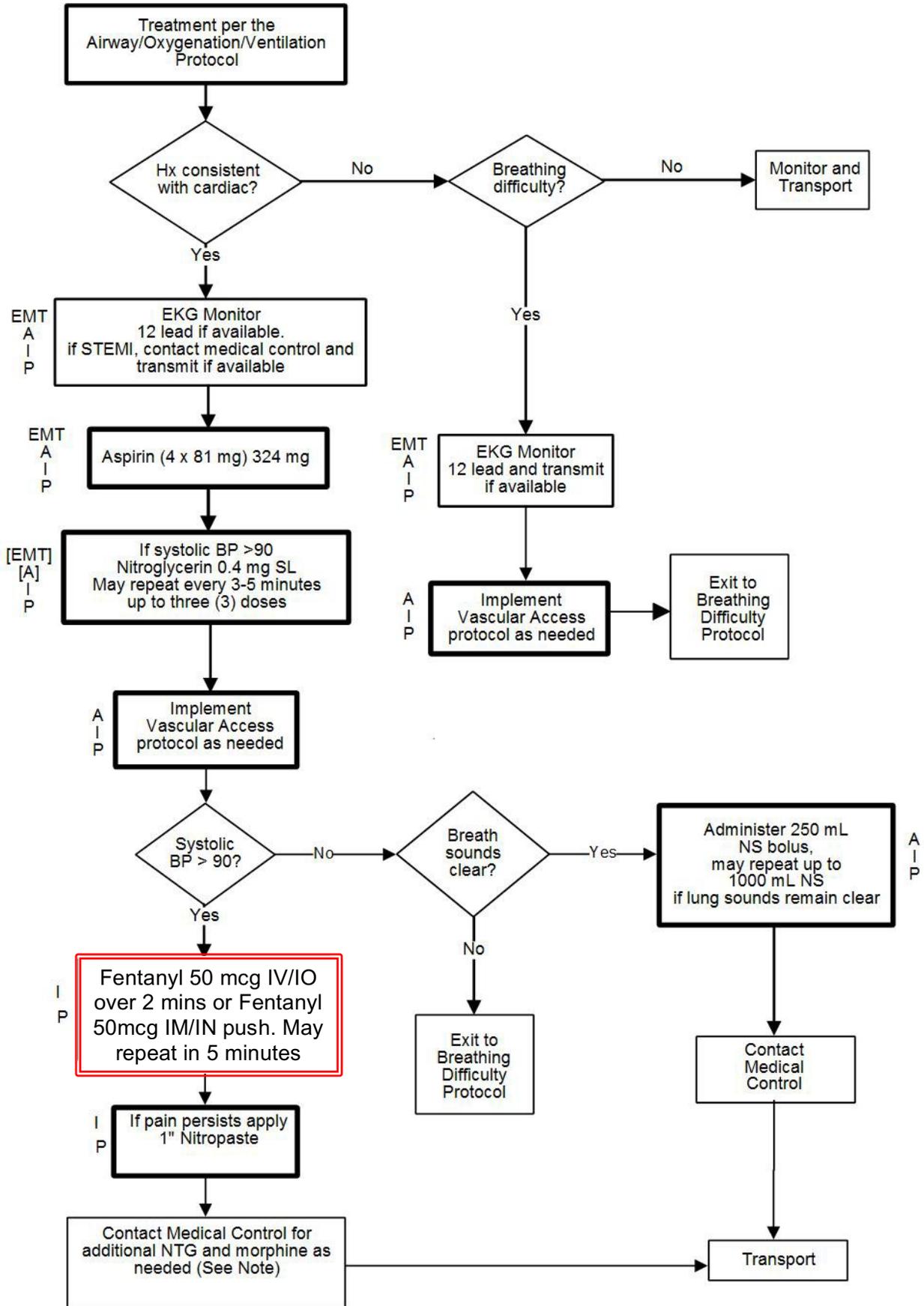
Sexually enhancing drug use

Closest appropriate facility

Medication administration



EMT





**Objectives:**

- To assess and appropriately treat a patient who is combative
- To ensure the safety of the patient and others
- To utilize de-escalation techniques prior to pharmaceutical intervention

**General Information:**

- De-escalation
- Physical restraint guidelines
  - Use the minimum physical restraint required to accomplish necessary patient care and ensure safe transportation
    - Soft restraints may be sufficient
    - If law enforcement or additional Personnel are needed, call for it prior to attempting restraint procedures
    - Do not endanger yourself or your crew
  - Avoid placing restraints and such a way as to preclude evaluation of the patient's medical status (airway, breathing, and circulation). Consider whether placement of restraints will interfere with necessary patient care activities or will cause further harm
- Chemical restraint guidelines
  - Sedative agents may be used to provide a safe and humane method of restraining the violently combative patient who presents a danger to themselves or others and to prevent the violently combative patient from further injury while secured by physical restraints
  - These patients may include but are not limited to the following:
    - Alcohol and/or drug-intoxicated patient
    - Restless, combative head injury patients
    - Mental illness patients
    - Physical abuse patients (more humane than physical restraint)
- Capacity to refuse issues are complex. Capacity is a patient's ability to understand their medical situation and make an informed decision about care after being advised of the risks and benefits of a particular course of action. Contact police and medical control to aid in making the decision
- Consider 50mg diphenhydramine (Benadryl) if patient exhibits signs of a dystonic reaction (standing orders for intermediates / paramedics)
  - note: abnormal muscle tone, sudden stiffening, turning head to one side



**Warnings/Alerts:**

- All patients who have been given Haldol must be placed on EKG Monitor and physically restrained
- Haldol lowers the seizure threshold and is contraindicated in patients with a seizure history
- Considerations during restraint:
  - Airway / ventilation compromise
  - Positional asphyxia
  - Neurovascular injuries/compromise
  - Agitated delirium (acidosis)

**OMD Notes:**

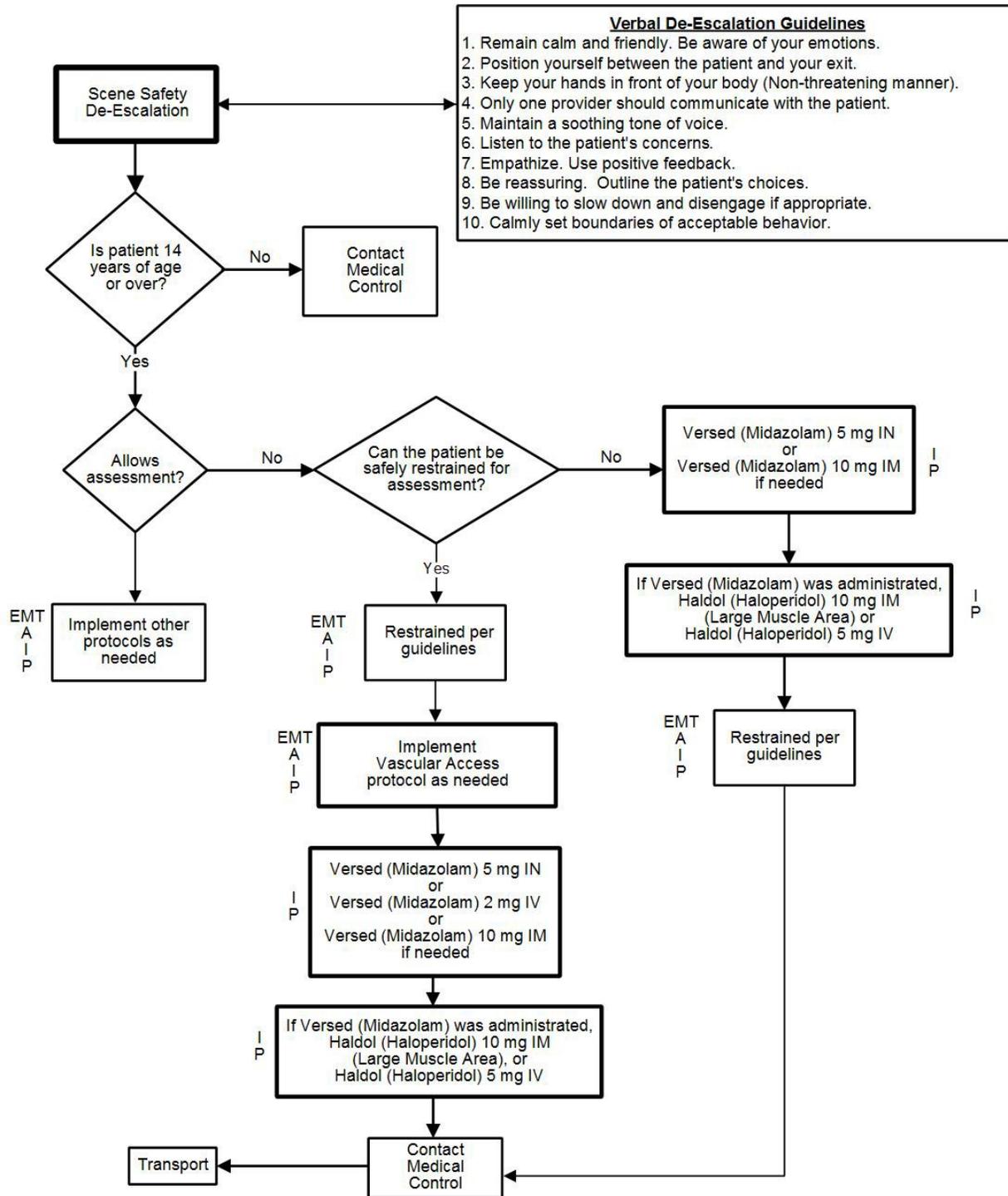
- None provided

**Performance Indicators:**

De-escalation attempted  
Use of chemical restraint

Patient mental capacity  
Time on scene

Use of physical restraint  
Patient disposition





**Objectives:**

- To assess and appropriately treat patients who receive dialysis

**General Information:**

- Dialysis patients are very susceptible to electrolyte imbalances and hypoglycemia
- Serious signs and symptoms of electrolyte imbalances include:
  - Weakness
  - Chills
  - Peaked t-waves on an EKG
  - Hypotension
  - Hypertension
  - Pulmonary edema
  - Headache
  - Dizziness
- Shunts/fistulas are formed by connecting a vein to an artery to provide access for hemodialysis
  - Do not take a blood pressure or start an IV in the extremity with the shunt / fistula
- Dialysis patients are frequently given anticoagulant medications and bleeding may be difficult to control
- Bleeding from shunts/fistulas can be very difficult to control
  - Apply fingertip pressure directly to the bleeding site
  - Do not apply pressure to other areas of the shunt / fistula
  - Do not use tourniquets directly on shunt / fistula
  - It may be necessary to assign a provider to maintain direct pressure
  - For life-threatening, uncontrollable bleeding place a tourniquet above the shunt / fistula
- Dialysis patients with chest pain should be disconnected from the machine and reassessed prior to implementing the chest pain/AMI/ACS protocol
- For cardiac arrest in dialysis patients, calcium chloride 1 gram IV/IO followed by 40 ml flush and sodium bicarbonate 1mEq/kg IV/IO should be administered as first-line drugs



**Warnings/Alerts:**

- Do not use tourniquets directly on shunt / fistula
- Do not give magnesium sulfate to renal failure patients
- Flush IV lines thoroughly between sodium bicarbonate and calcium chloride administration; or administer through two separate IV lines

**OMD Notes:**

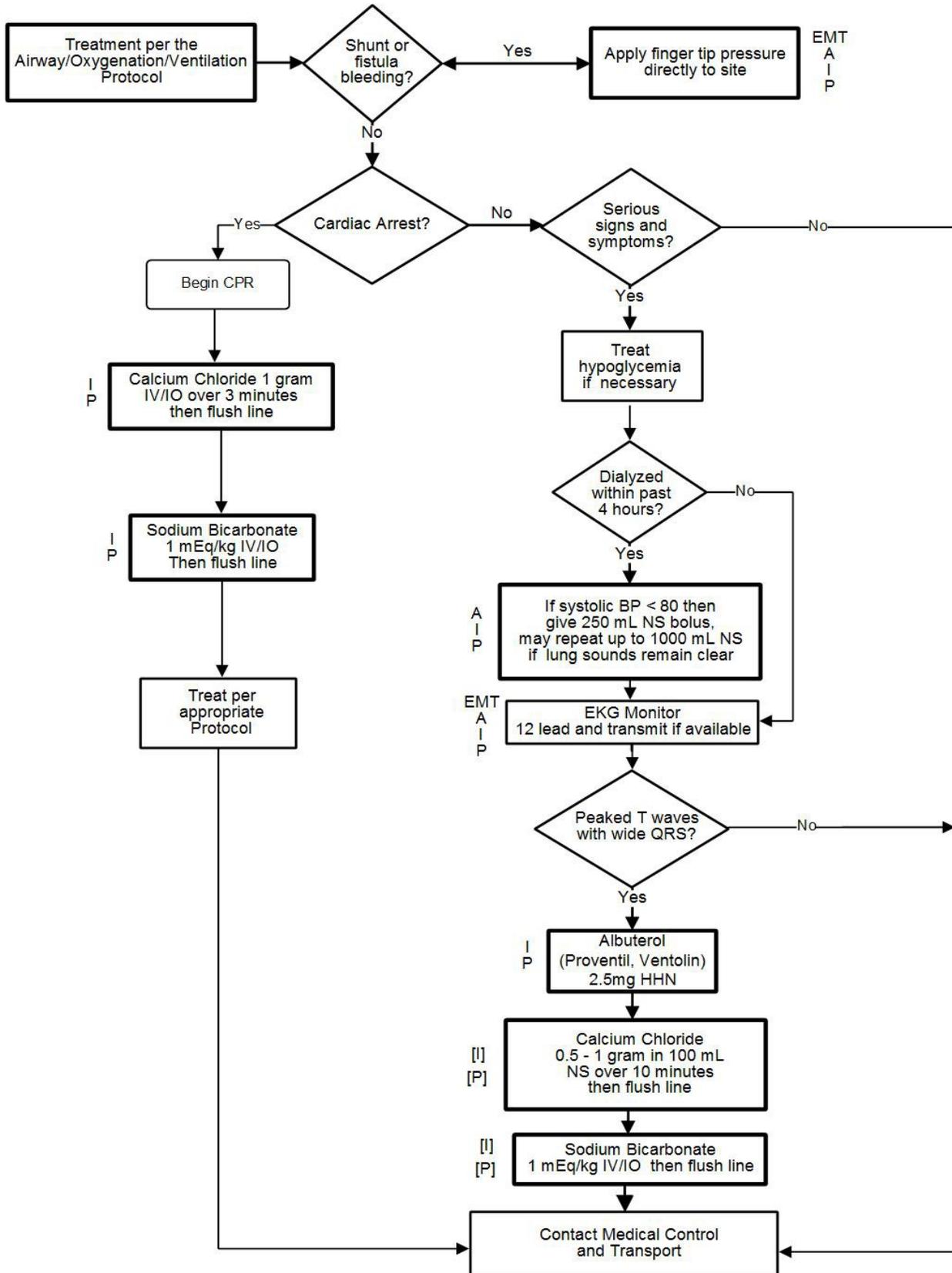
- None provided

**Performance Indicators:**

Last dialysis treatment  
Treatment and response

Onset of sign and symptom

EKG rhythm  
12 lead EKG





**Objectives:**

- To assess and appropriately treat patients who are experiencing a diving medical disorder

**General Information:**

- Mild symptoms
  - Fatigue
  - Itching
- Serious Symptoms
  - Pain
  - Vertigo
  - Focal weakness
  - Vision and/ or speech difficulty
  - Marbled rash
  - Numbness and /or tingling
  - Confusion
  - Seizure
  - Cardiac arrest
- Aspirin may help prevent clot formation around nitrogen bubbles in the bloodstream
- Medical Control will designate transport destination
  - Hyperbaric chambers:
    - Sentara Leigh Hospital ED, (757) 261-6804, Hyperbaric (757) 261-4325  
\*the only 24 hour facility\*
    - Bon Secours DePaul ED (757) 889-5112, Hyperbaric (757) 889-2300
    - Chesapeake Regional Medical Center (757) 312-6149, Hyperbaric (757) 312-6510
    - Sentara Obici ED (757) 983-4815, Hyperbaric (757) 934-4953
    - Diver Alert Network (919) 684-9111
- Document Depth, Time and Gas



**Warnings/Alerts:**

- Transport patients in a supine position
- Do not transport directly to a hyperbaric chamber without direction from medical control

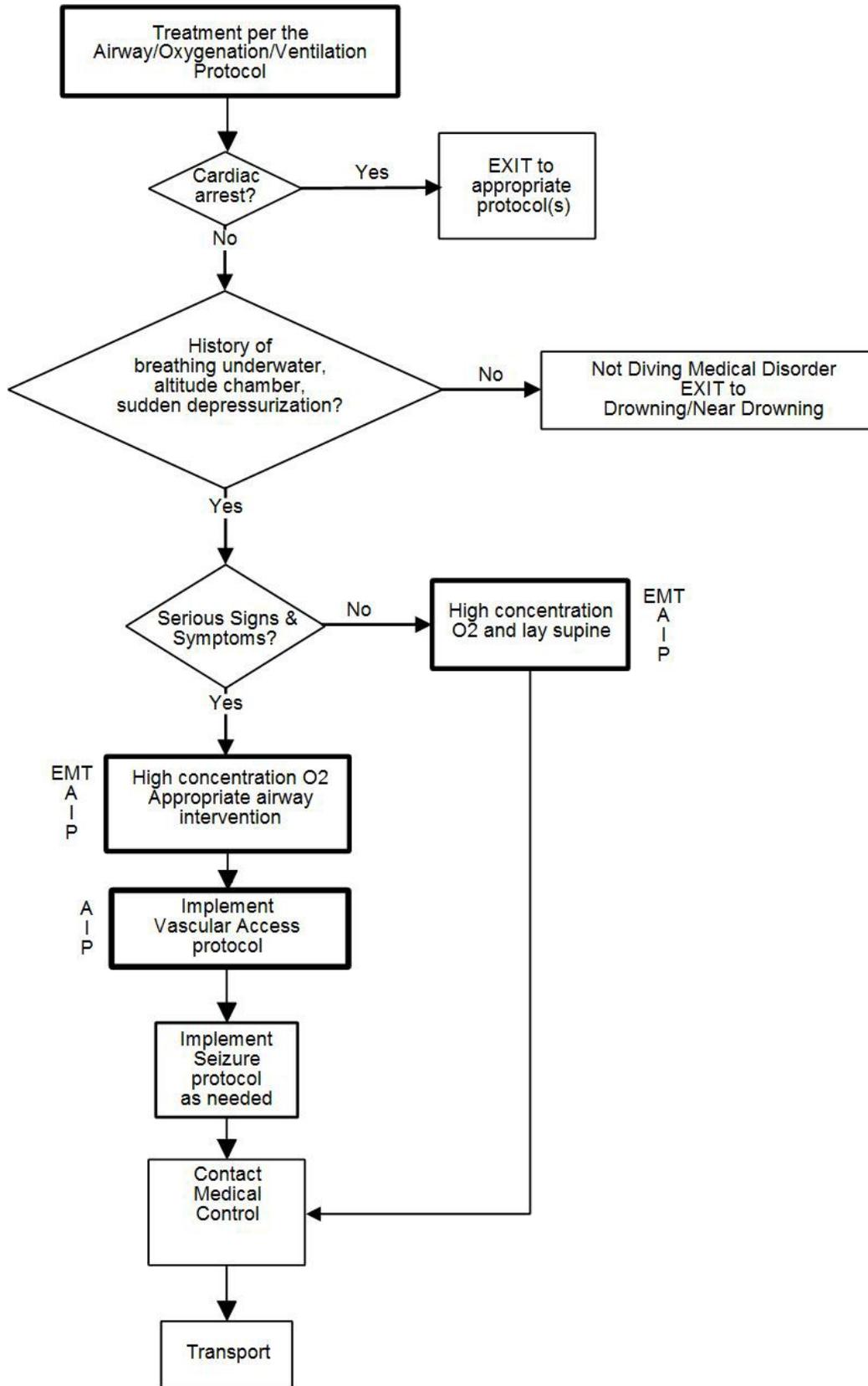
**OMD Notes:**

- Transport only to hyperbaric chambers at medical facilities listed above
- Medical control may order ASA

**Performance Indicators:**

Barotrauma history  
Transport to appropriate facility

Depth, time and gas  
Online medical control





**Objectives:**

- To assess and appropriately treat patients who have experienced a submersion injury

**General Information:**

- Collect history
  - Trauma
  - Immersion time
  - Air and water temperature
  - Salt, brackish or fresh water
  - Under the influence of alcohol or medication/drugs



**Warnings/Alerts:**

- Do not insert a nasogastric or orogastric tube without securing the airway with endotracheal intubation
- Consider alternate methods of c-spine immobilization if patient will not tolerate a supine position (e.g. KED, short board, manual control)

**OMD Notes:**

- Transport all submersion incident patients; patients who have experienced a submersion incident are at high risk for developing life-threatening pulmonary edema within 72 hours of the incident
- Medical control may order CPAP

**Performance Indicators:**

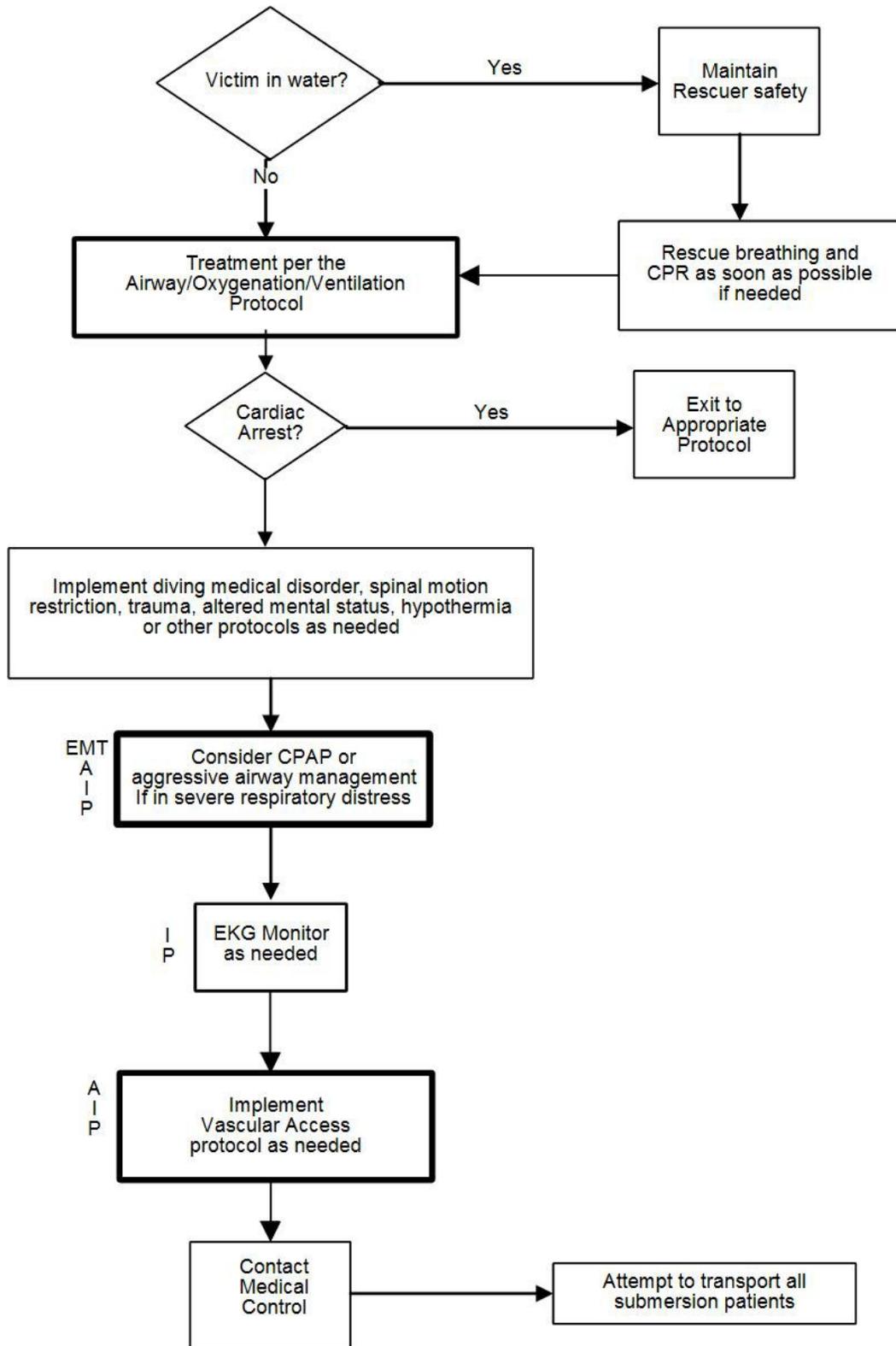
Time in water

Secondary injury

Water temperature

Salt, brackish, or fresh water

Transport to appropriate facility





**Objectives:**

- To assess and appropriately treat patients who have experienced an electrical or lightning injury

**General Information:**

- Note entrance/exit wounds
- Lightning and high voltage injuries can be associated with internal injuries from blast effect
- Electrical injuries are associated with falls, seizures, and extremity injuries
- Multiple patients are common in electrical injuries
- Patients with electrical/lightning injuries are at high risk for developing cardiac dysrhythmias
- For cardiac arrest, defibrillate at highest possible setting



**Warnings/Alerts:**

- Scene safety is paramount
- Ensure patient is not touching source of electrical current

**OMD Notes:**

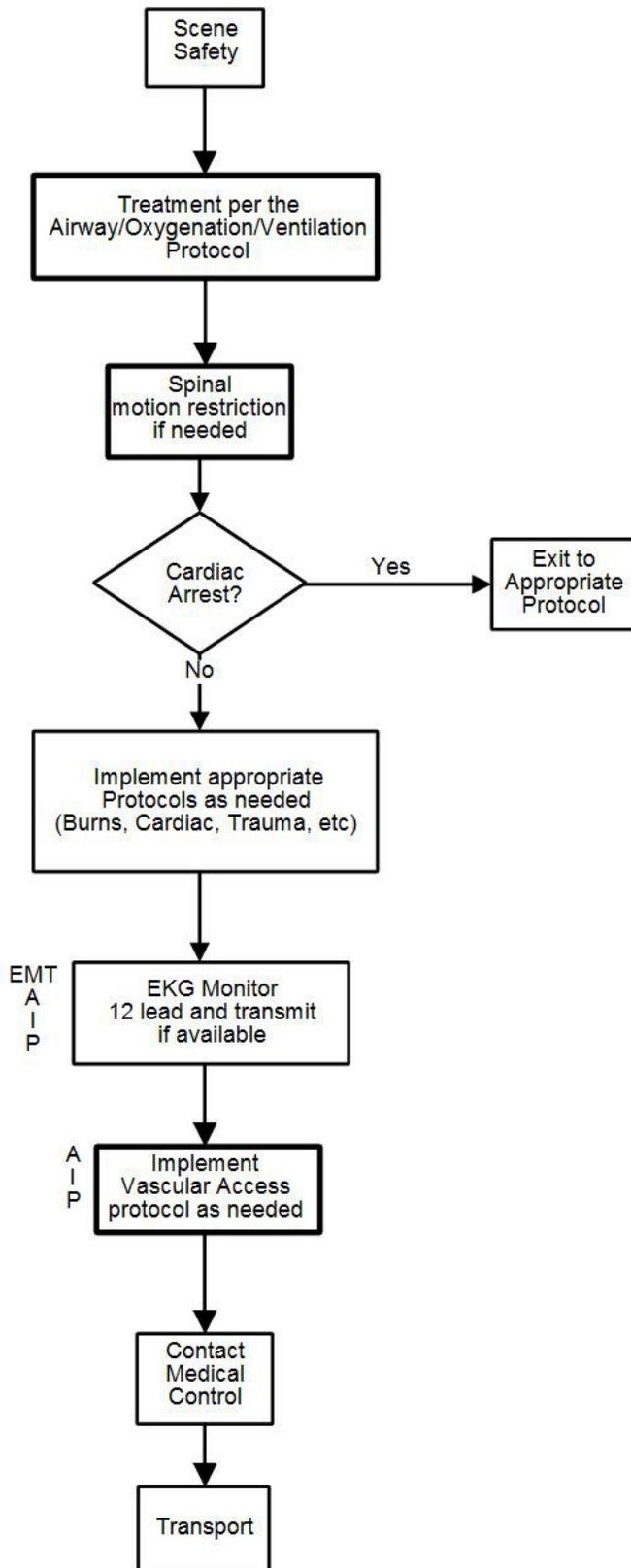
- 12 lead EKG should be obtained, if available
- Use reverse triage which requires patients in cardiac arrest to be treated first

**Performance Indicators:**

Vital signs-2 set minimum  
12 lead EKG

EKG rhythm

Transport to appropriate facility  
Secondary injury





**Objectives:**

- To maintain the life of a specific patient if it may be necessary, in rare situations, for the online physician to direct and ALS prehospital provider to render care not explicitly listed within the TEMS regional medical protocols

**General Information:**

- Extraordinary care is defined as any situation not covered by the TEMS regional medical protocols
- If the prehospital provider receives a physician order for care, but does not feel comfortable with the order or does not agree that it is absolutely necessary to maintain the life of the patient, he/she must document the “inability to carry out a physician order” in the narrative section of the PCR
- A TEMS Regional Trauma Triage or EMS Non-trauma Quality Improvement form must be submitted by the receiving physician and the primary ALS provider immediately following the incident
- The agency medical director, specialty physician, attending physician, primary ALS provider and trauma attending physician, if applicable, must conduct a review of the incident for the purpose of quality improvement
- Consider calling a physician to the scene for more efficient medical direction



**Warnings/Alerts:**

- All of the following are essential criteria must be met:
  - o The online physician and the provider must agree that the procedure is not addressed elsewhere in the protocols and that the procedure is absolutely necessary to maintain the life of the patient
  - o The provider must feel capable, based on the direction given by the online physician, of correctly performing the procedure
  - o The prehospital provider must inform the consulting and receiving physician(s) of the effect of the treatment upon arrival at the receiving hospital

**OMD Notes:**

- None provided

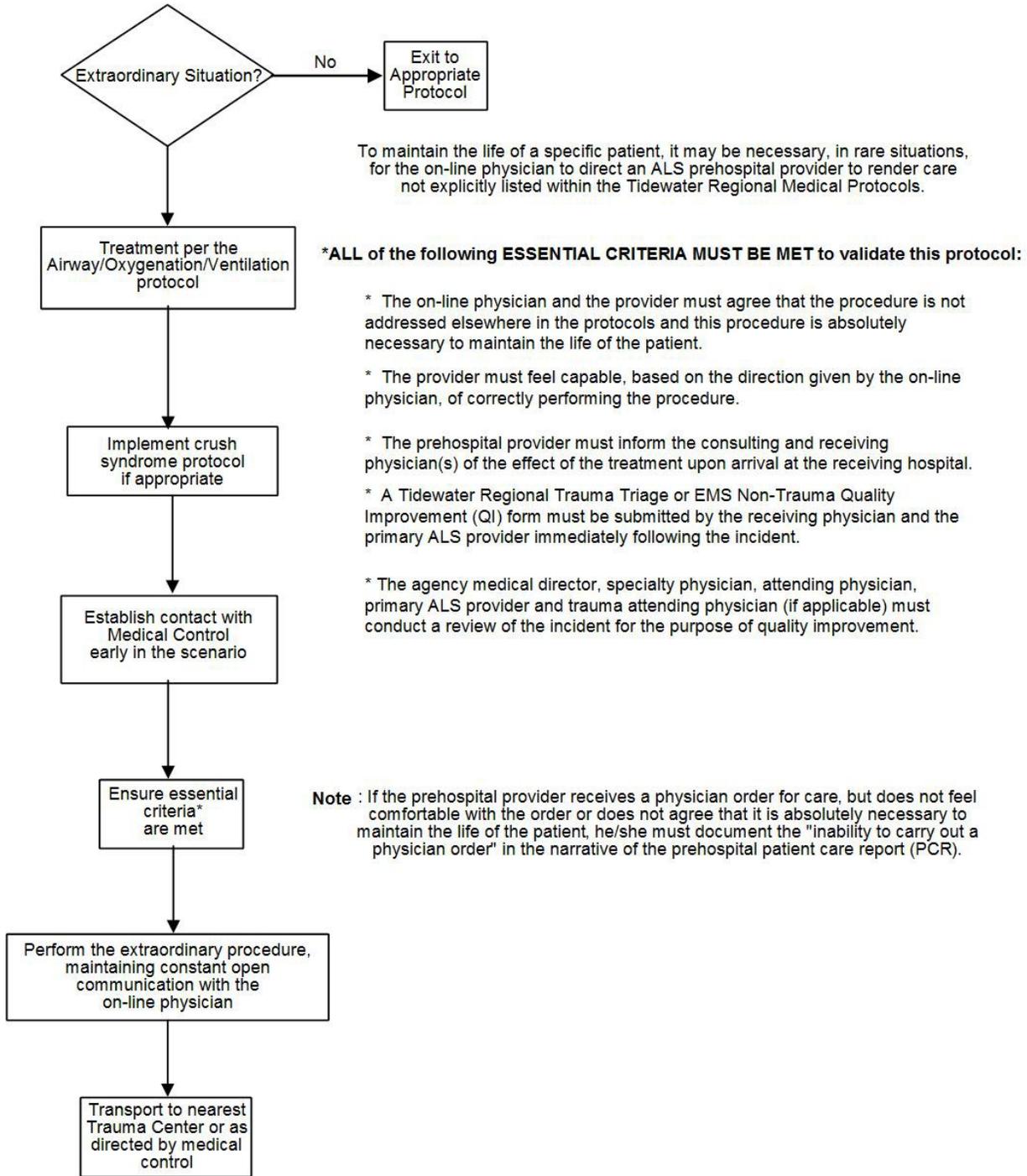
**Performance Indicators:**

Online medical control (name)  
 Condition of airway  
 Procedure performed  
 Transport to appropriate facility

Onset of injury  
 Patient packaging  
 Patient response  
 Scene time



Extraordinary care is defined as any situation not covered by the Tidewater EMS Regional Medical Protocols.





**Objectives:**

- To assess and appropriately treat patients with Hyper / hypoglycemia

**General Information:**

- Oral glucose may be administered by EMT and above providers on standing orders, provided to Patient meets the following criteria:
  - Glucometer < 60 mg/dL
  - Known or suspected history of diabetes
  - Conscious and able to swallow
  - Able to maintain own airway
- Dextrose 50% may be administered rectally with physician order
- Dextrose administration requires a patent flowing IV line, not a saline lock
- Patients with a prolonged period of hypoglycemia may not respond to glucagon



**Warnings/Alerts:**

- Do not administer oral glucose to patients that are not able to swallow or protect their own airway
- If the IV infiltrates while administering dextrose, stop dextrose administration immediately

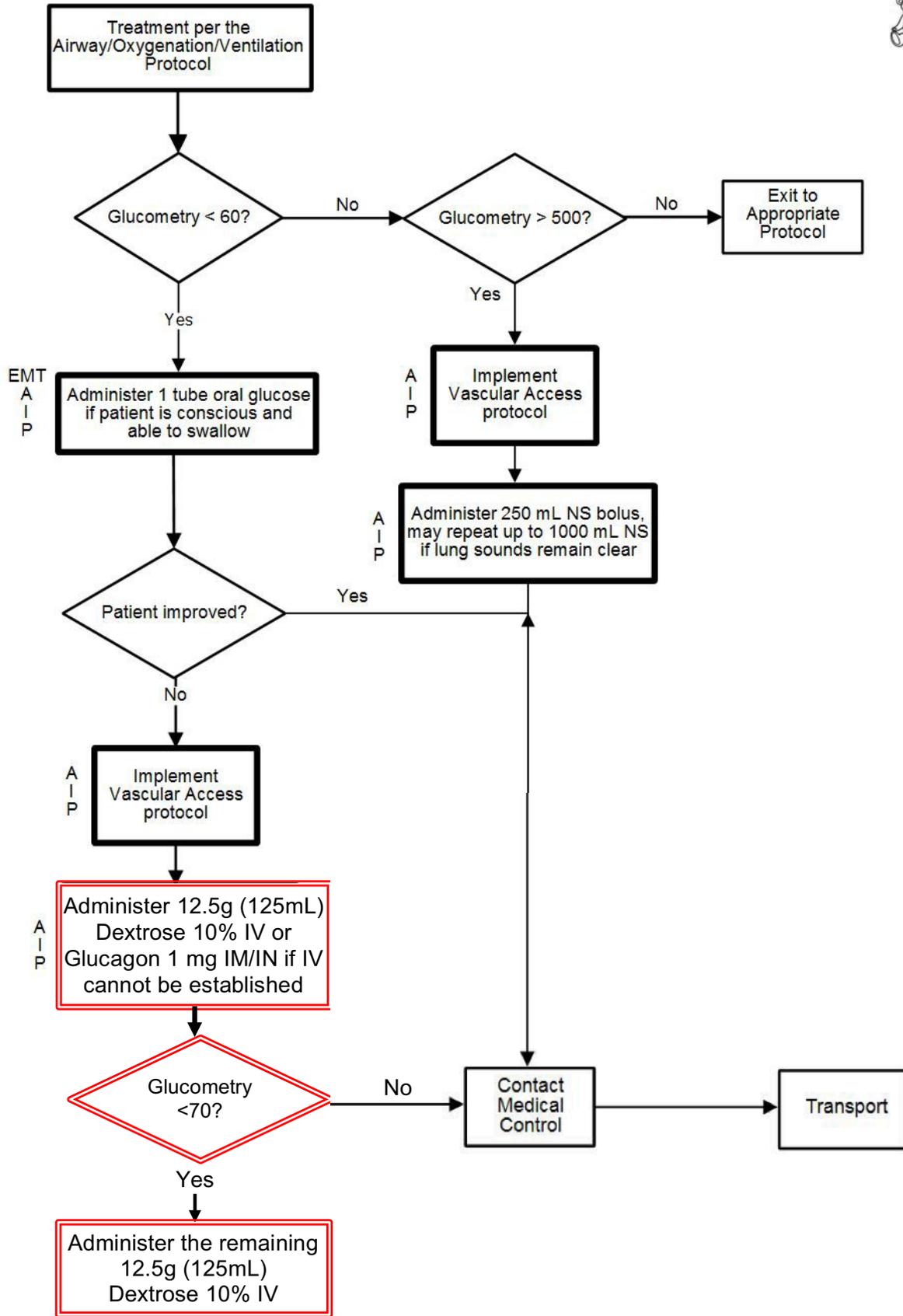
**OMD Notes:**

- IO access is inappropriate for suspected narcotic overdoses or hypoglycemic patients. Consider other routes of administration of medications
- IN glucagon may be used for the combative, hypothermic or poor peripheral vascular disease patient

**Performance Indicators:**

Documented cause (if known)  
Treatment and response to treatment

Post treatment glucometry reading





**Objectives:**

- To assess and appropriately treat patients who are hyperthermic

**General Information:**

- Mild symptoms (heat cramps / heat exhaustion)
  - Muscle cramps
  - Nausea
  - Headache
  - Irritability
- Mild hyperthermia (passive cooling)
  - Administer oral fluids - water or half-strength electrolyte solution, if mixed with ice
  - Remove from environment
  - Remove clothes
- Serious symptoms (heat stroke)
  - Hypotension
  - Loss of sweating ( wipe away sweat to see if it reappears)
  - Vomiting
  - Altered mental status
  - Seizures
  - Coma
- Serious hyperthermia (active cooling)
  - Air moving across wet skin
  - Ice packs at axilla, groin, neck
  - Unit A/C on
  - May have need for administration of IV fluids and transport rapidly



**Warnings/Alerts:**

- Heat stroke is a life-threatening emergency. Do not delay transport

**OMD Notes:**

- None provided

**Performance Indicators:**

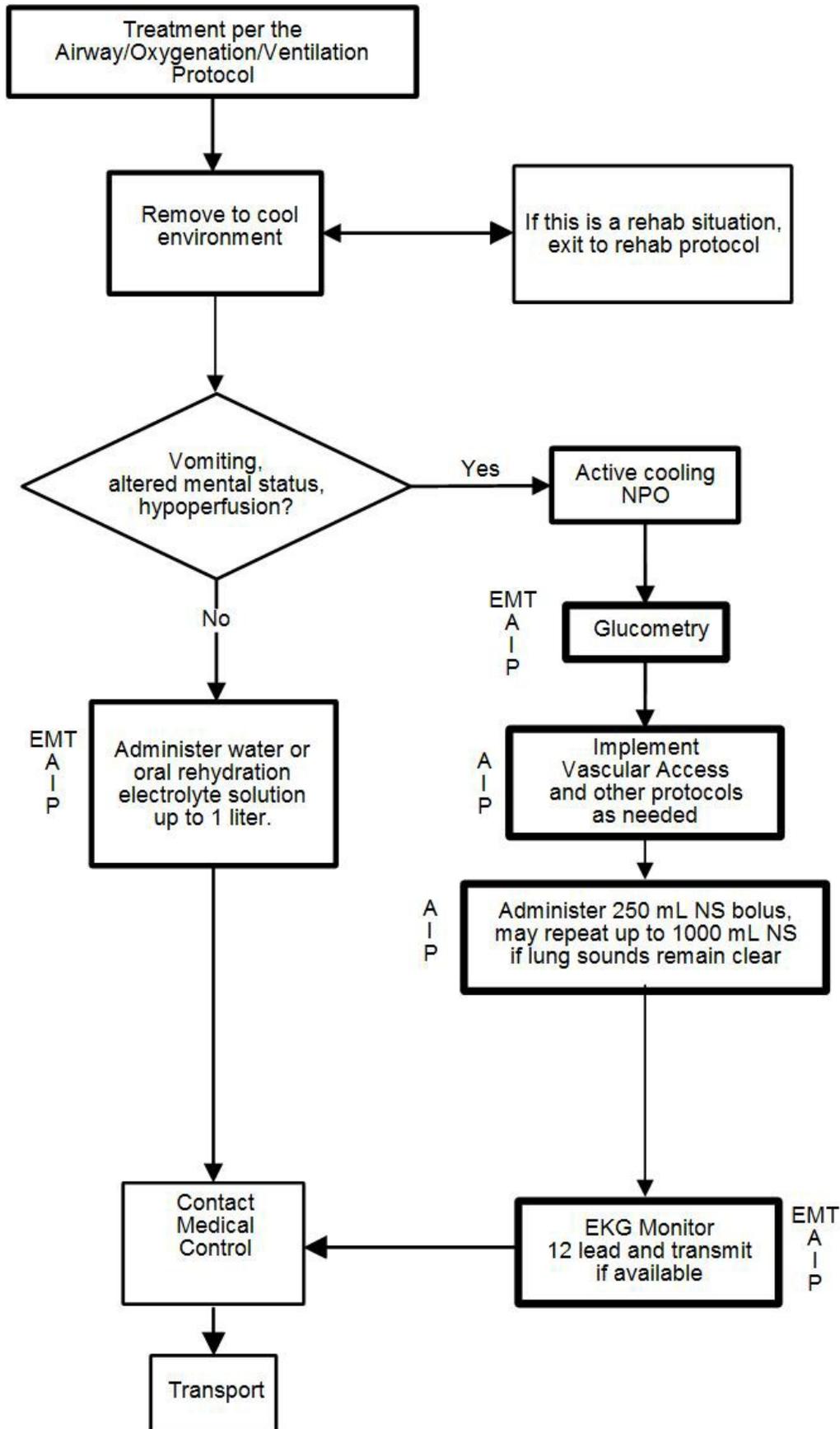
Time on scene

12 lead EKG

Patient disposition

Total amount of fluid given PO/IV

Cooling method used





**Objectives:**

- To assess and appropriately treat patients who are exhibiting signs and symptoms of hypothermia

**General Information:**

- Mild hypothermia
  - Tachycardia
  - Lethargy
  - Shivering
  - Slurred speech
- Moderate hypothermia
  - Respiratory depression
  - Altered mental status
  - Bradycardia
- Severe hypothermia
  - Unconscious
  - Cyanosis
  - Rigid muscles
  - Pupils fixed and dilated
  - Cardiac arrest
- Management
  - Keeping patients horizontal as much as possible
  - Count pulse and respiratory rate for 60 seconds
  - Use passive rewarming measures only
    - i) Remove wet clothing
    - ii) Cover patient with blanket
    - iii) Turn up heat in unit
- Active rewarming is not advocated in the prehospital setting



**Warnings/Alerts:**

- Handle hypothermic patients gently to avoid deterioration into ventricular fibrillation
- Severely hypothermic patients can appear to be in rigor mortis. Providers should attempt resuscitation for hypothermic patients in cardiac arrest, unless there is clear evidence of irreversible death (e.g. decomposition, injuries incompatible with life, etc.)

**OMD Notes:**

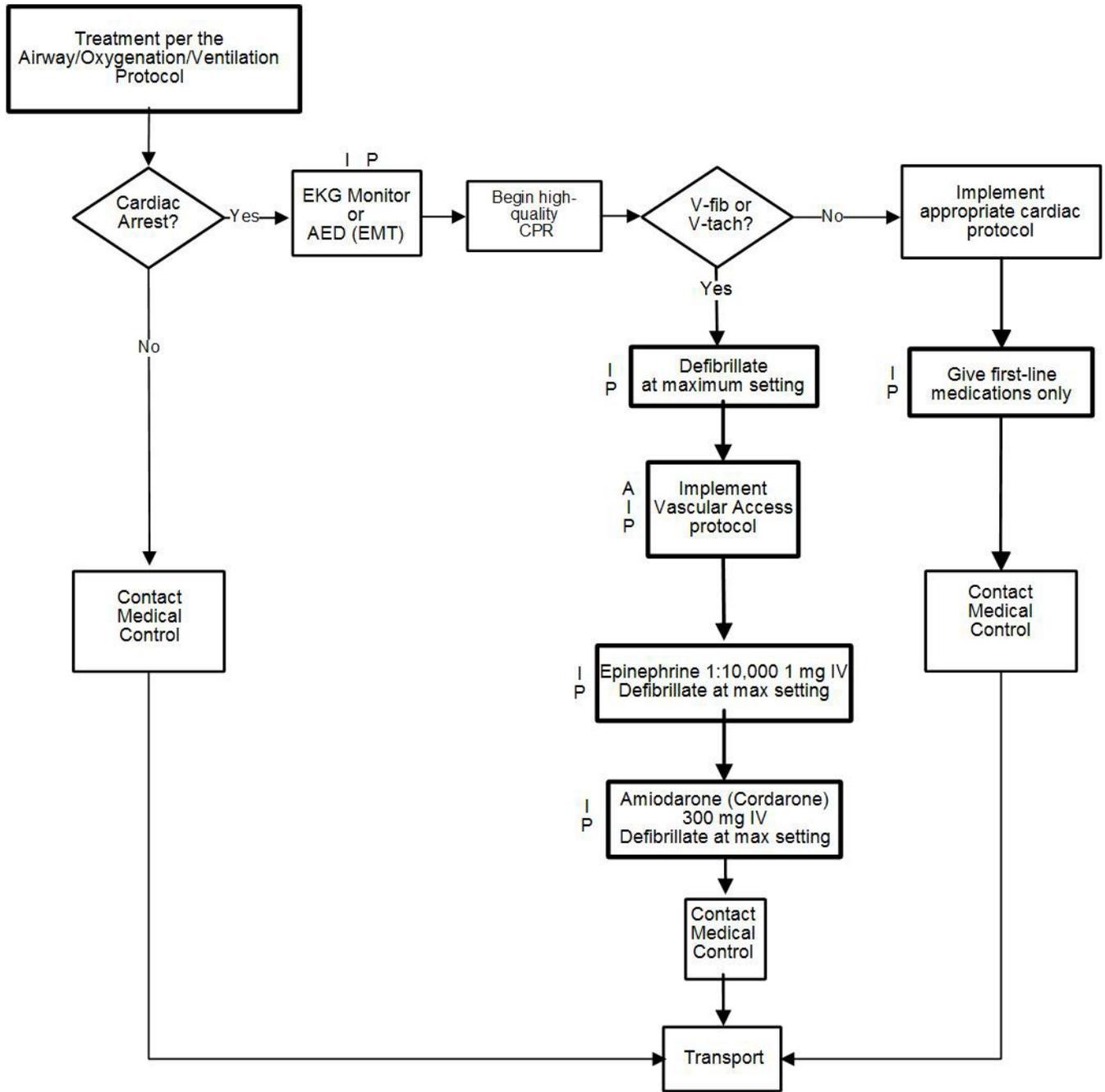
- None provided

**Performance Indicators:**

Time on scene  
Warming methods

Volume infused

Patient disposition  
Exposure time





**Objectives:**

- To appropriately assess and treat patients who are profoundly nauseous or vomiting

**General Information:**

- Nausea and vomiting generally are not life-threatening conditions
- Suction should be readily available whenever a patient is nauseous or vomiting
- Zofran (ondansetron) may be administered when vomiting could produce an airway obstruction (for example, in backboarded patients) or for patient comfort when the patient is repeatedly vomiting
  - Dose 4mg slow IV push over 2-5 minutes or IM if IV is unavailable
  - Repeated doses are generally not effective; however, if the patient is still vomiting 10 minutes after the first dose a repeat dose may be given
  - Pregnancy- providers should consult medical control before administering Zofran to a pregnant patient



**Warnings/Alerts:**

- Ventilating an unconscious patient will produce aspiration and airway obstruction- suctioning is essential
- Use caution when administering Zofran (ondansetron) with Cordarone (amiodarone), or Haldol (haloperidol) due to increased risk of arrhythmias from prolonged Q-T intervals

**OMD Notes:**

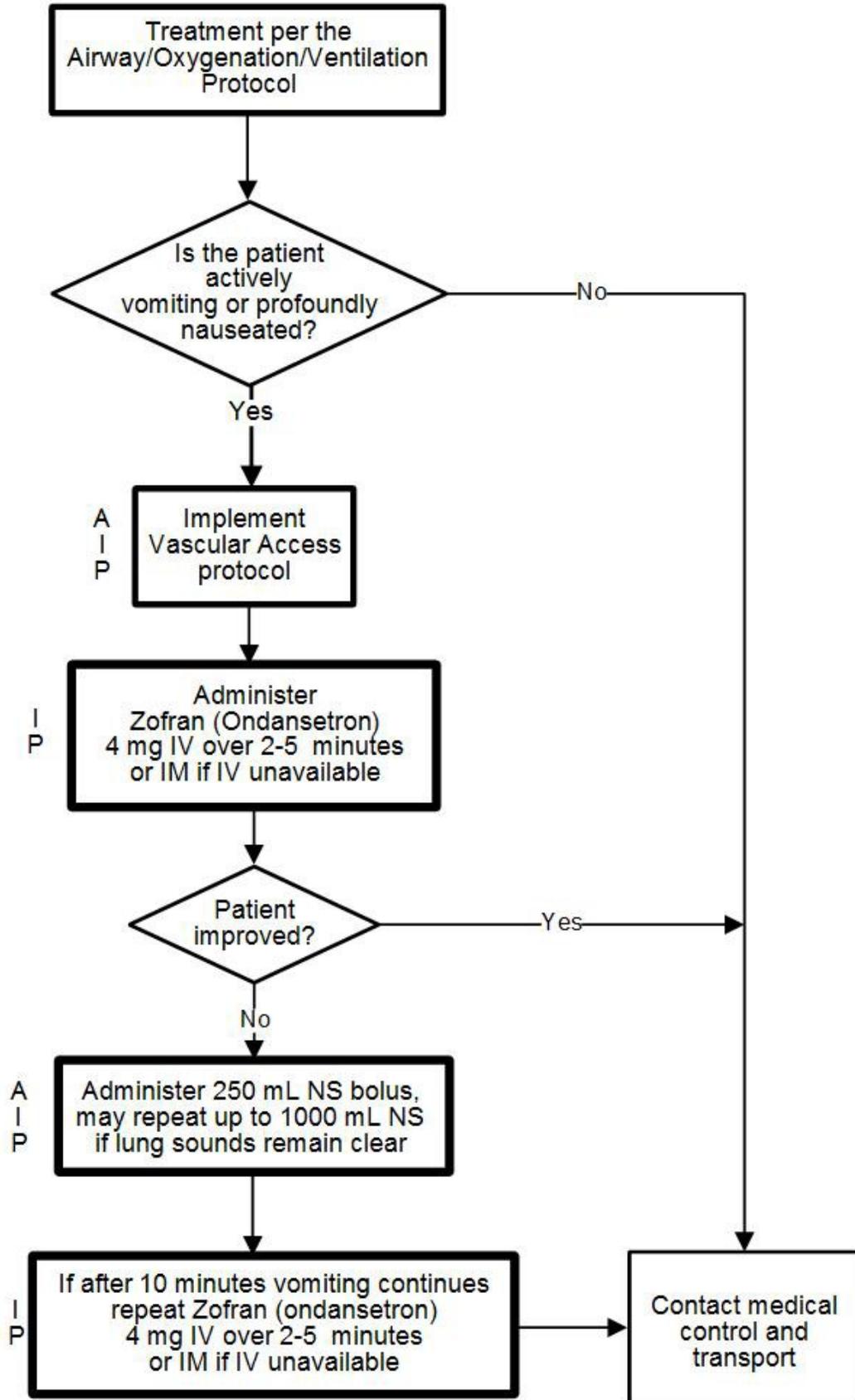
- None provided

**Performance Indicators:**

Document cause (if known)

Type of emesis

Treatment and response to treatment





**Objectives:**

- To appropriately assess and manage out-of-hospital births
- To appropriately assess and manage patients with vaginal bleeding

**General Information:**

- Obtain functional history:
  - Premature?
  - Multiple births?
  - Meconium?
  - Prenatal care?
  - Narcotic use?
- Transport pregnant patients in the left lateral recumbent position
- For patients with gestation greater than 20 weeks, transport patient to the closest facility with obstetric capabilities. Medical control continues to serve as a resource in cases of uncertainty
- High-risk pregnancies include the following: (notify medical control early for transport destination)
  - No prenatal care
  - Preterm labor- gestational age <= 34 weeks
  - Premature rupture of membranes (with or without labor-gestational age <= 34 weeks)
  - Major medical conditions (pre-eclampsia, diabetes, etc.) with gestational age <= 34 weeks
  - Mild/moderate vaginal bleeding at gestational age 20-34 weeks
- Consider additional resources to care for the patient and the newly born
- Vaginal bleeding is considered moderate to severe if the patient has lost more than 500ml of blood or if she is using 1 pad/hour or more
- If child is delivered, technician needs to complete 2 PCRs
- If possible transport mother and baby together



**Warnings/Alerts:**

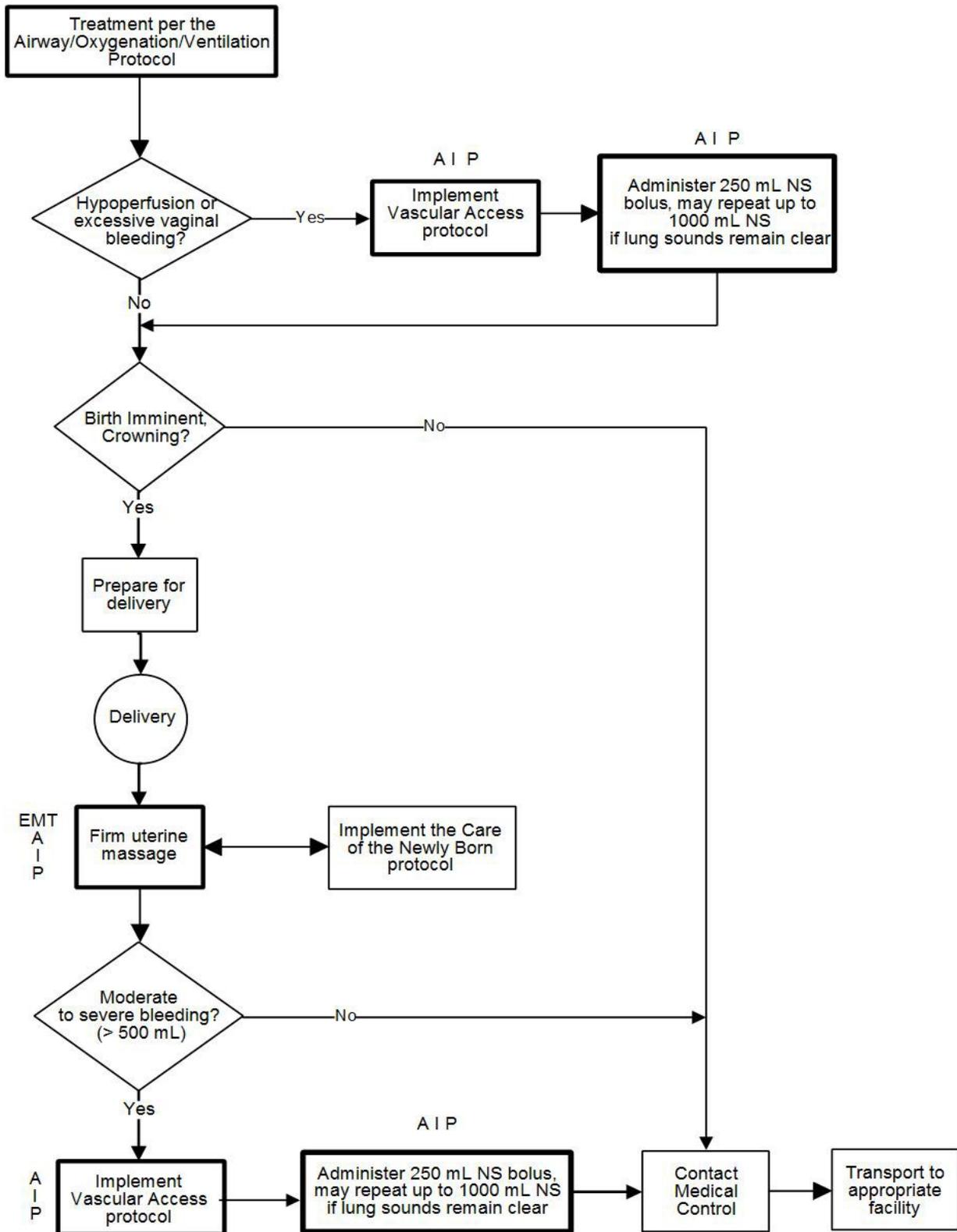
- Checking for cervical dilation is not within the scope of these protocols
- Do not assume that vaginal bleeding is due to normal menstruation
- Third-trimester bleeding is never normal and can be life-threatening to the mother and the fetus

**OMD Notes:**

- None provided

**Performance Indicators:**

|                                     |                          |                        |
|-------------------------------------|--------------------------|------------------------|
| History of pregnancy                | Time of delivery         | Delivery complications |
| Sex of newborn                      | Total fluid administered | Time of placenta       |
| deliveryPresentation position       | 1 and 5 minute APGAR     | Amniotic fluid color   |
| Treatment and response to treatment |                          | Amount of blood loss   |





**Objectives:**

- To appropriately assess and treat patients with pre-eclampsia or eclampsia

**General Information:**

- Pre-eclampsia may occur for up to 6-8 weeks post-partum
- Signs and symptoms
  - Blood pressure- systolic > 140mmHg and/or diastolic > 80mmHg
  - General edema, particularly upper extremities or face
  - Frontal headaches
  - Vision disturbances
  - Altered mental status
  - Abdominal pain
- Magnesium sulfate
  - Treatment for control of eclampsia
  - Dose 4g in 100mL NS over 5 minutes
- Ativan (lorazepam)
  - Dilute in an equal amount of NS for IV/IO administration
  - Dose 2mg slow IV push (over 2 minutes)
  - May be administered IM if IV/IO access is not available. Do not dilute if administering IM
  - May repeat with physician order up to max dose 8mg
  - Medical control may order 1mg for post-seizure patients to prevent further seizures
- Versed (midazolam)
  - Dose 5mg IN equally (2.5mg) divided in each nostril
  - Dose 10mg IM
  - Dose 2mg slow IV push over 1 minute
- All patients receiving Ativan (lorazepam) or Versed (midazolam) should have cardiac and SPO2 monitoring
- Transport pregnant patient in left lateral recumbent position
  - Transport patient to appropriate facility
  - In case of imminent delivery, transport patient to the closest facility. Medical control continues to serve as a resource in cases of uncertainty.



**Warnings/Alerts:**

- Use caution in administering magnesium sulfate to patients in renal failure.
- Benzodiazepines have the potential to cause respiratory depression and bradycardia. For that reason patients receiving benzodiazepines should be on cardiac and SPO2 monitor with vital sign reassessment every 5 minutes
- Flush IV lines thoroughly after medication administration
- Valium is incompatible with most drugs and precipitation is likely to occur

**OMD Notes:**

- Glucometry should be obtained on all patients experiencing a seizure
- IO is to be used as a last resort

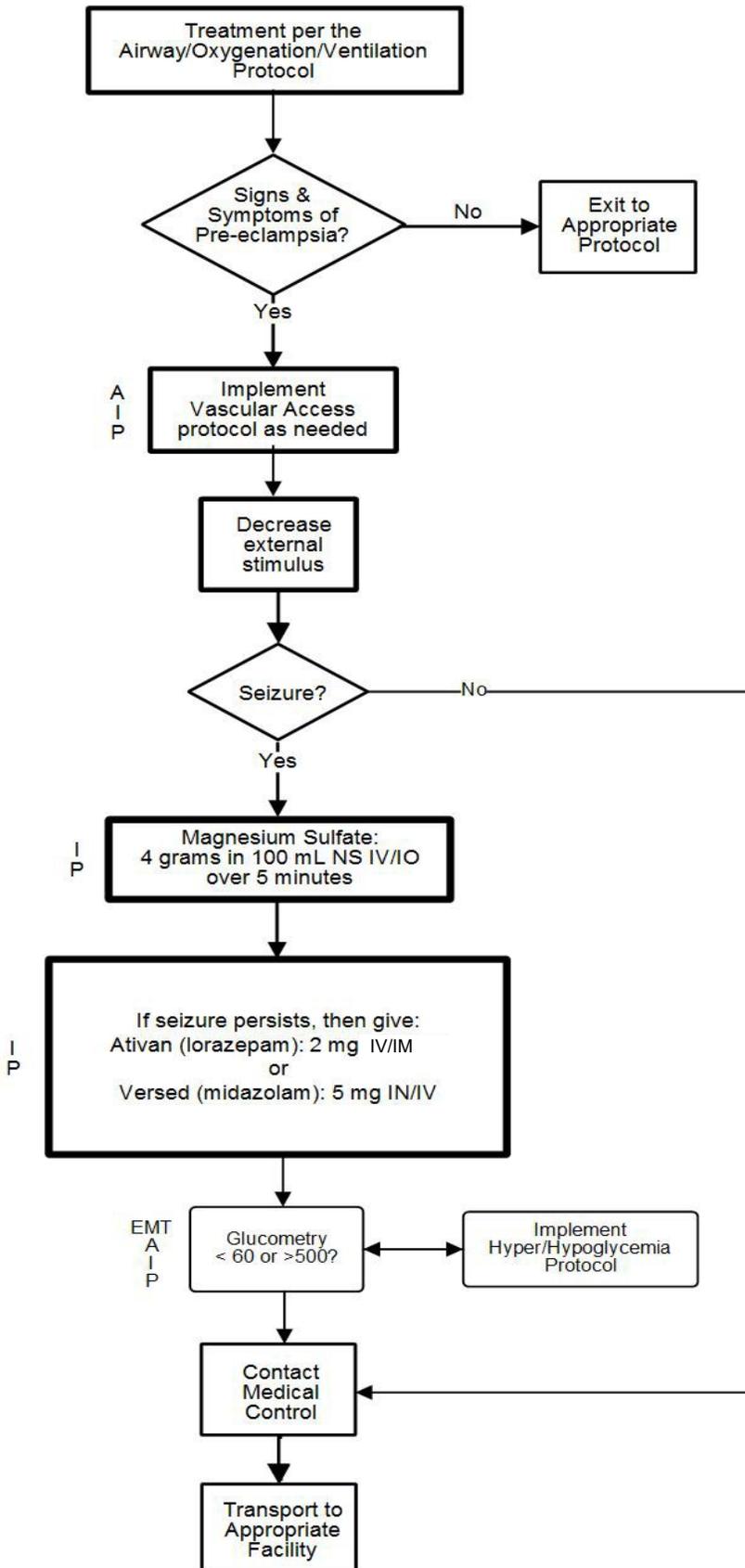
**Performance Indicators:**

Onset of symptoms

Treatment and response to treatment

History of pregnancy

Transport to appropriate facility





**Objectives:**

- To assess and appropriately treat non-cardiac pain to reduce patient's level of pain

**General Information:**

- Pain is an important indicator of disease or injury, but is generally undertreated in EMS
- Physicians do not have to assess first-hand a patient's pain level-document the patient's initial pain level in the PCR
- Provide BLS pain control measures such as position of comfort, splinting, ice, traction, etc.
- Fentanyl dose
  - 50mcg IV/IO over 2 minutes
  - 50mcg IM/IN Push
  - May be repeated up to 100mcg
- Morphine dose
  - 5mg IV or IM with maximum total dose 10mg
  - Morphine should be administered via slow IV push
  - Higher doses may be appropriate for patients with chronic pain after consulting medical control
- Conditions in which pain control may be appropriate (standing orders for I and P)
  - Significant traumatic injury
  - Burns
  - Kidney stones
  - Cancer
  - Sickle cell
  - Abdominal pain
- Implement nausea/vomiting protocol as needed



**Warnings/Alerts:**

- Patients who receive pain medication should also receive cardiac and SPO2 monitoring
- Monitor patient closely for respiratory depression and treat appropriately

**OMD Notes:**

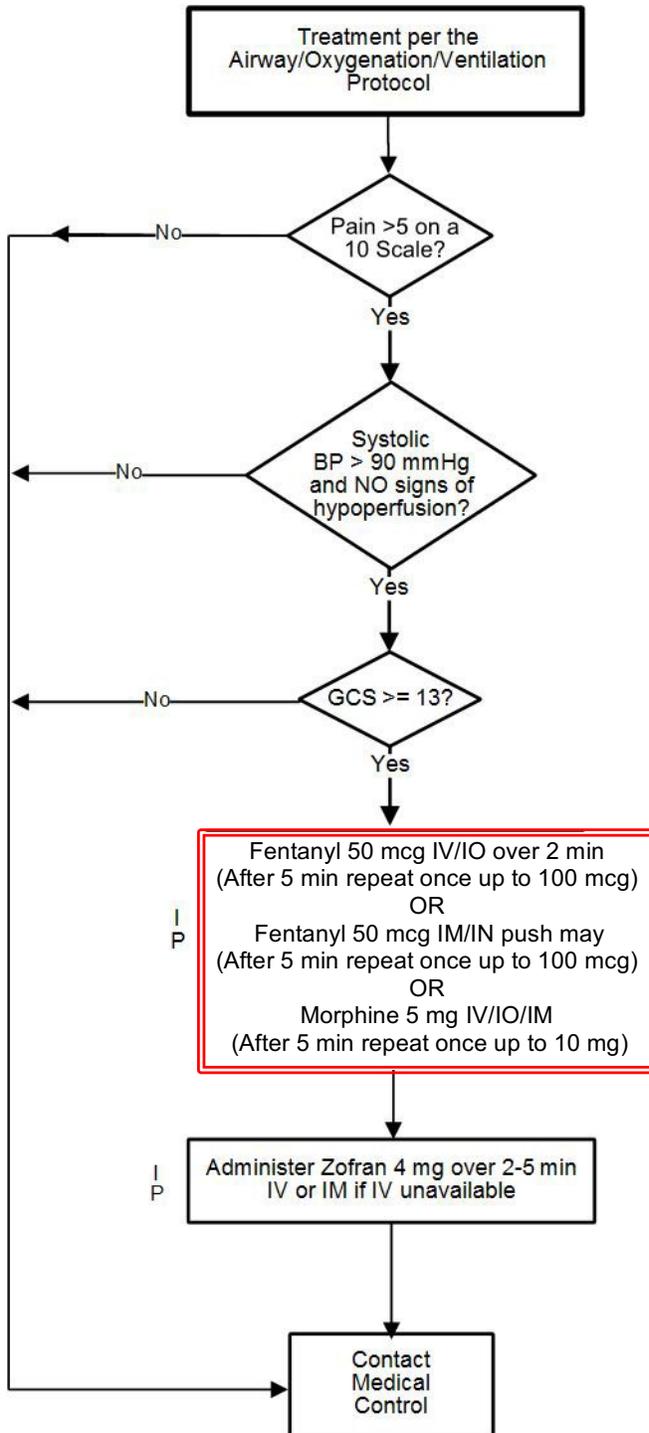
- Do not implement pain management protocol to treat headaches/migraines
- Rapid administration of Fentanyl can cause an inability to ventilate

**Performance Indicators:**

Pain scale before and after

Patient mental status

Treatment and response to treatment





**Objectives:**

- To assess and treat responders at working scenes

**General Information:**

- Rated Perceived Exertion (RPE) scale (NFPA 1584)
  - 1 No exertion
  - 2 Very light
  - 3 Light
  - 4
  - 5 Somewhat hard
  - 6
  - 7 Hard heavy
  - 8
  - 8.5 Very hard
  - 9
  - 9.5 Extremely hard
  - 10 Maximal exertion
- Active Cooling
  - Cooling vest, chair or other direct cooling devices
  - Place arms in ice water
  - Should take place in a shaded area
  - Allow patients to cool off gradually before moving them to an airconditioned environment
- Passive cooling
  - Remove protective gear
  - Rest in shaded and/or air conditioned environment
  - Cool water misters
- Rehydration should be with water or sports drink
  - Powdered sports drinks should be mixed at half-strength
  - Single serve sports drinks should be full strength
- Patients removed from the incident or transported to a medical facility warrant PCR documentation
- Implement Hyperthermia protocol as necessary



**Warnings/Alerts:**

- Patients with signs/symptoms of heat stroke (see hyperthermia protocol) should be transported immediately with active cooling enroute

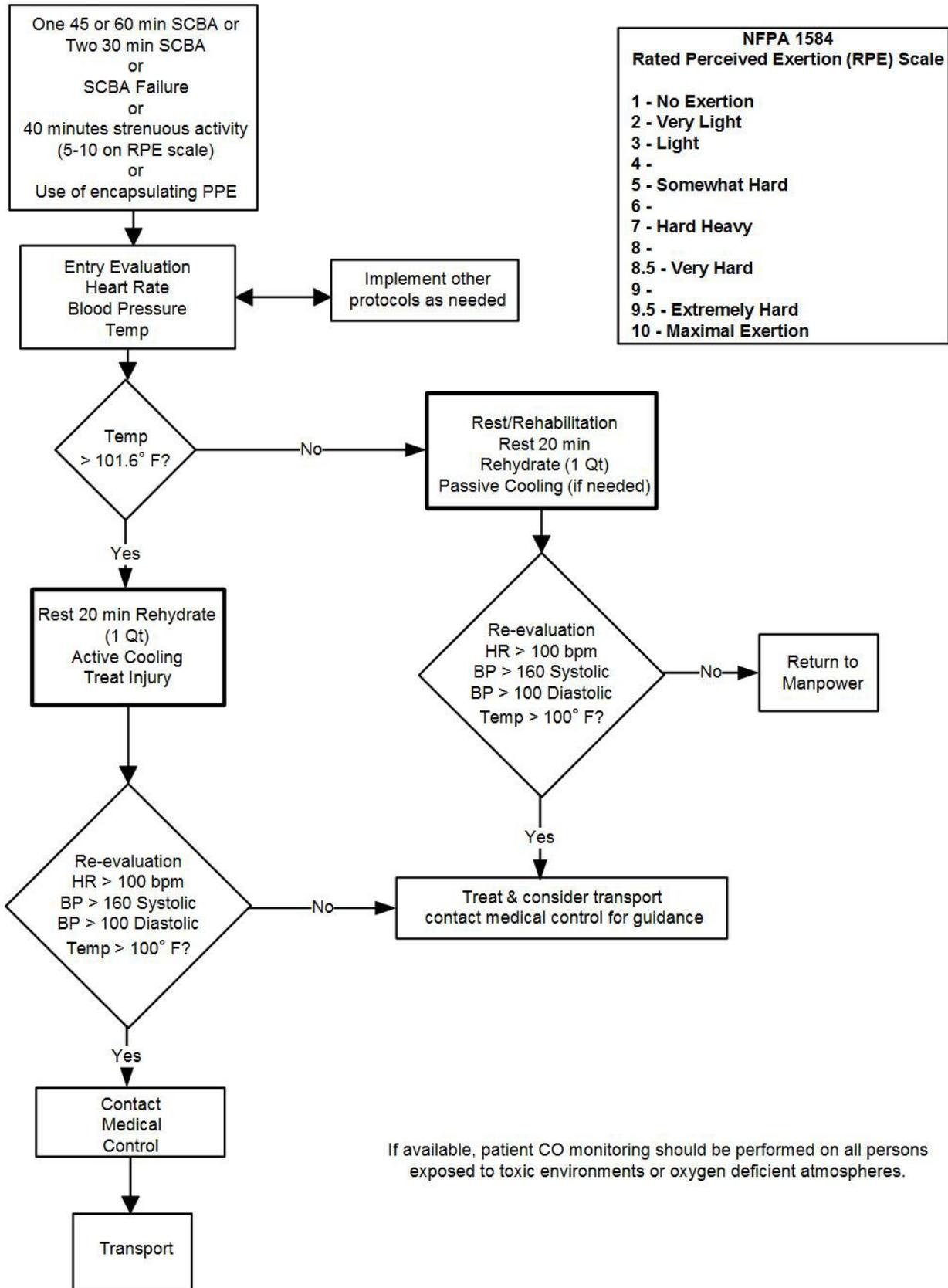
**OMD Notes:**

**Performance Indicators:**

Activity Level  
Ambient Temperature

RPE Scale  
Patient Temperature

Initial and Ongoing Vital Signs  
Cooling Method





**Objectives:**

- To assess and treat patients with seizures
- To protect the airway of a seizing patient

**General Information:**

- Ativan (lorazepam) IV/IM is the preferred drug/route for seizure
- Ativan (lorazepam)
  - Dilute in an equal amount of NS for IV/IO administration
  - Dose 2mg slow IV push (over 2 minutes)
  - May be administered IM if IV/IO access is not available. Do not dilute if administering IM
  - May repeat with physician order up to max dose of 8mg
  - Medical control may order 1mg for post-seizure patients to prevent further seizures (I and P)
- Versed (midazolam)
  - Dose 5mg IN equally (2.5mg divided in each nostril)
  - Dose 10mg IM
  - Dose 2mg slow IV push (over 1 minute)



**Warnings/Alerts:**

- Versed and Ativan have potential to cause respiratory depression or bradycardia. For that reason, patients receiving these drugs should be on cardiac and SPO2 monitor with vital sign reassessment every 5 minutes
- Inadvertent arterial injection of Ativan may cause arterial spasm resulting in gangrene and possible amputation
- Flush IV lines thoroughly after medication administration

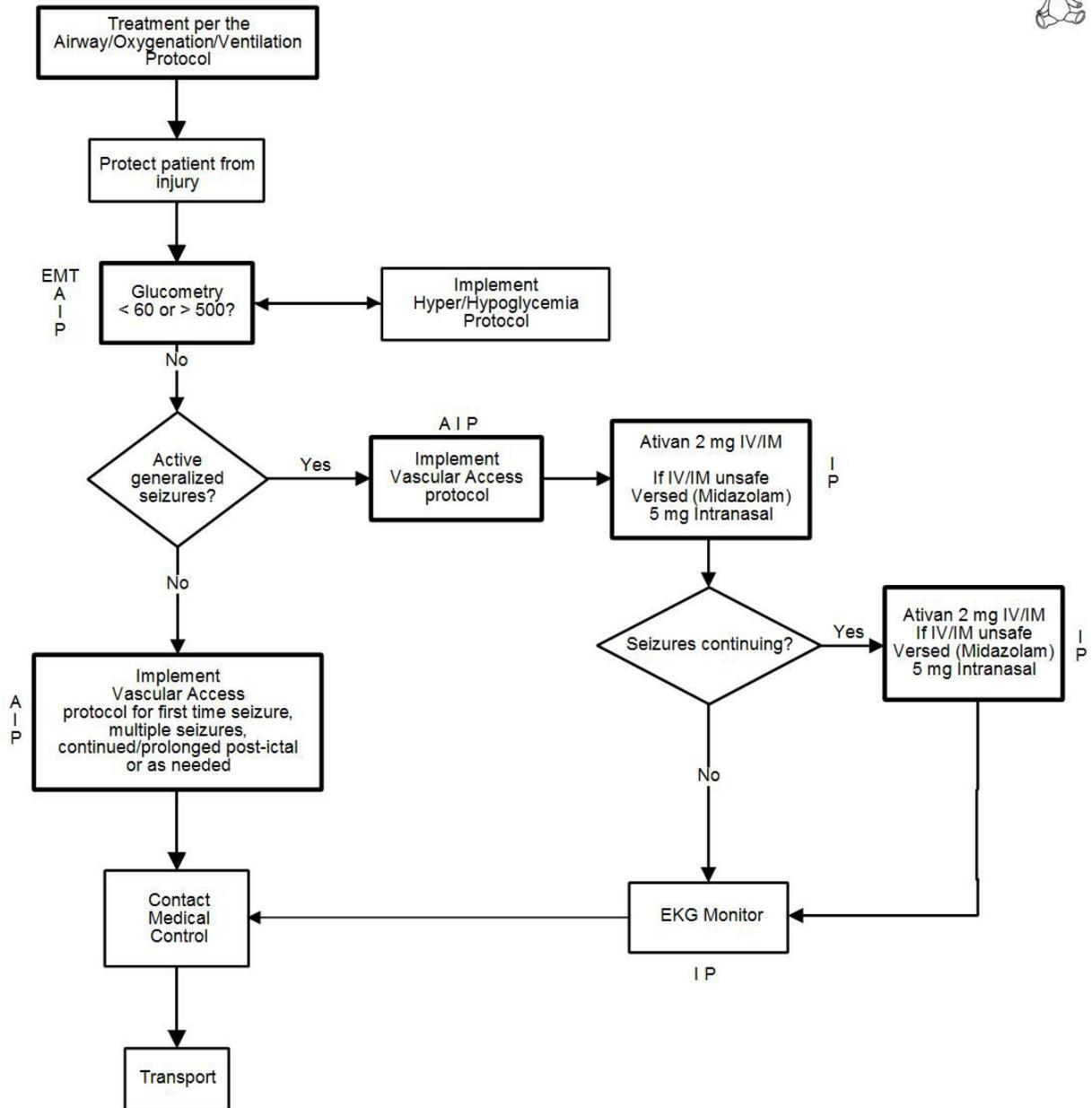
**OMD Notes:**

- None provided

**Performance Indicators:**

Length and frequency of seizure  
Treatment and response to treatment

Glucometry reading





**Objectives:**

- To identify and treat patients with sepsis

**General Information:**

- Early identification and hospital notification of sepsis is associated with improved patient outcome
- Systemic Inflammatory Response Syndrome (SIRS) Symptoms:
  - SBP < 90 mmHg
  - Heart rate > 90/min
  - Respiratory rate > 20
  - Altered Mental Status
  - Temperature > 100.4 F or < 96.0 F
- Sepsis: systemic, deleterious host response to infection
- Severe Sepsis: Acute organ dysfunction secondary to documented or suspected infection
- Septic Shock: Severe sepsis plus hypotension not reversed with fluid resuscitation
- Decreased ETCO<sub>2</sub> levels are linked to elevated serum lactate levels and are a good indicator of metabolic acidosis



**Warnings/Alerts:**

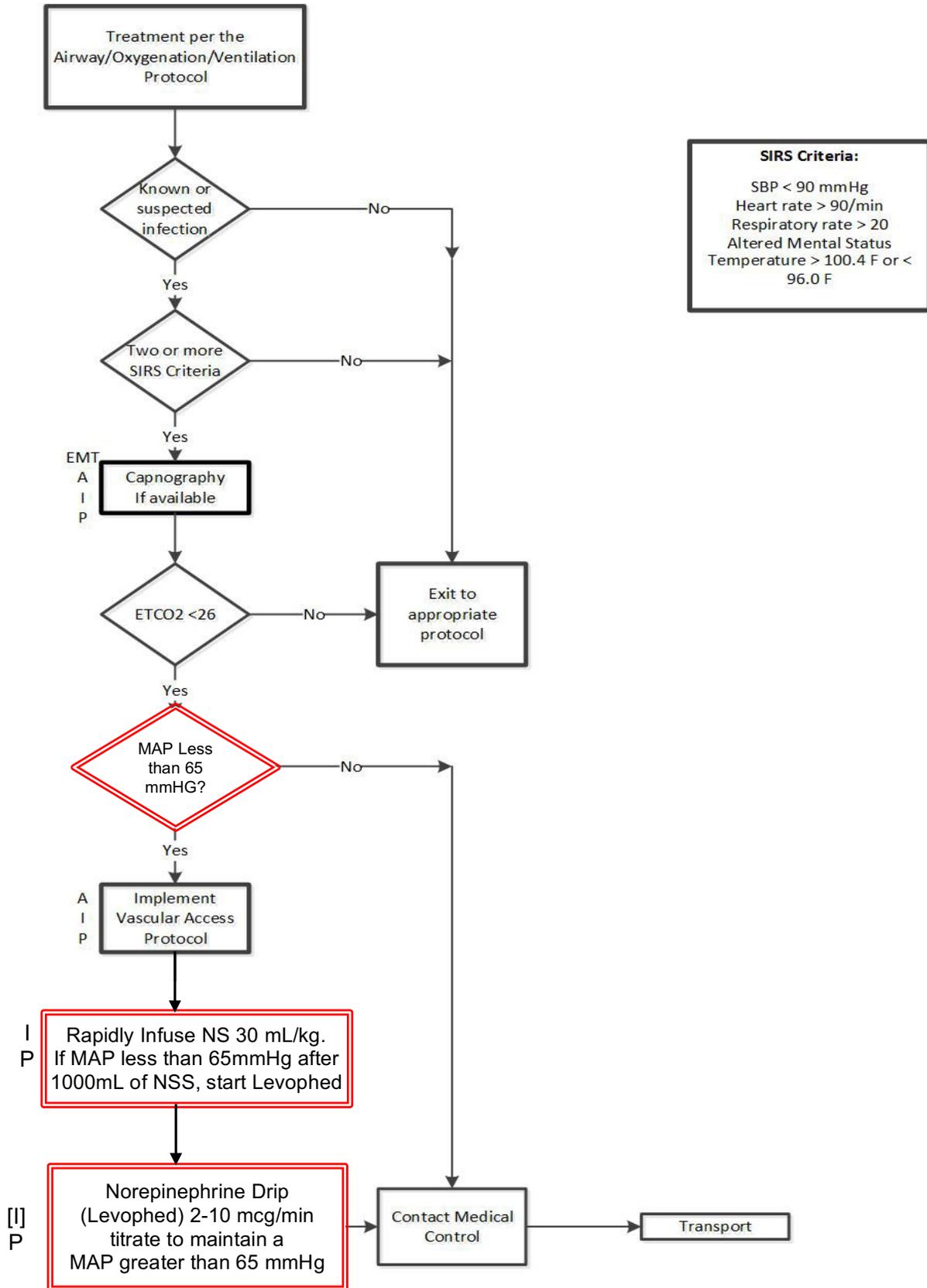
- Sepsis patients are at high risk for pulmonary edema. Frequently reassess lung sounds.

**OMD Notes:**

**Performance Indicators:**

Source of infection if known  
Amount of Fluid Given

Vital signs including temperature, ETCO<sub>2</sub>, and Lung sounds  
Treatment and Response to Treatment





**Objectives:**

- To assess and treat patients with shock

**General Information:**

- Signs and symptoms of a hemodynamically unstable patient can include:
- Acute change in mental status
  - Hypotension
  - Ongoing chest pain and / or breathing difficulty
- Types of shock
  - Hypovolemic
    - Hemorrhage \*GI bleed, nose bleed
    - Fluid loss \*vomiting/diarrhea, dehydration
  - Cardiogenic (pump failure)
    - Additional symptoms may include pulmonary edema, chest pain
    - Implement chest pain / AMI and breathing difficulty protocols as necessary
    - If no signs of pulmonary edema, administer 250ml bolus, may repeat up to 1000ml if breath sounds remain clear
    - Levophed (Norepinephrine) 2mg in 1000ml NS IV, 2-10mcg/min titrate to a MAP of 65mmHg
  - Vasogenic shock (inappropriate vasodilation)
    - Examples: anaphylactic, neurogenic, septic
    - Treat anaphylaxis per allergic reaction / anaphylaxis protocol
    - Fluid boluses are frequently ineffective; vasopressors are often necessary
    - Levophed (Norepinephrine) 2mg in 1000ml NS IV, 2-10mcg/min titrate to a MAP of 65mmHg



**Warnings/Alerts:**

- 

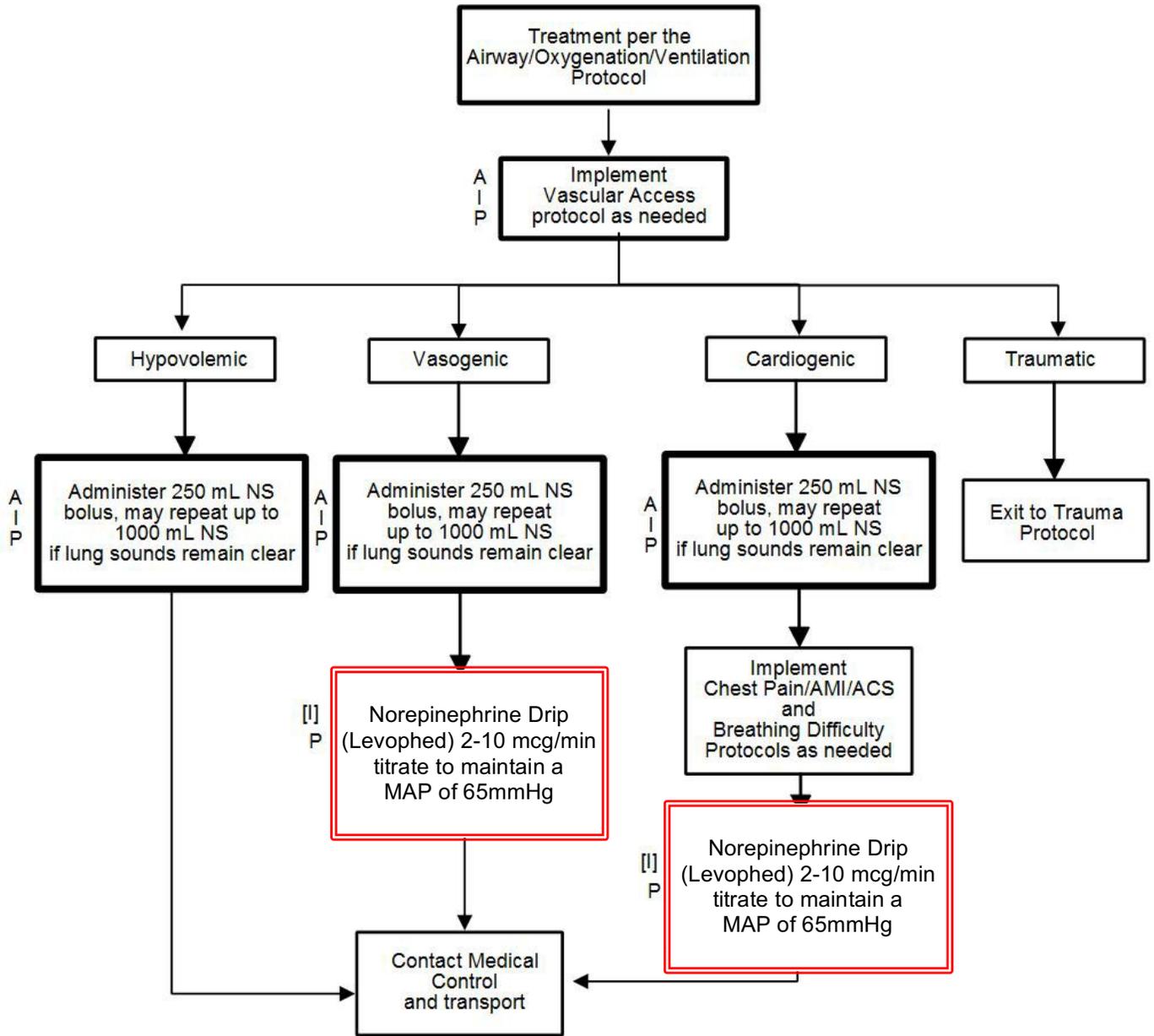
**OMD Notes:**

- None provided

**Performance Indicators:**

Lung sounds  
Treatment and response to treatment

Vital signs every 5 minutes  
Amount of fluid given





**Objectives:**

- To provide guidelines for assessing and treatment patients with possible spinalinjuries

**General Information:**

- Spinal motion restriction (SMR) includes:
  - C-Collar
  - Adequately secured to a stretcher
  - Minimal movement/transfers
  - Maintain in-line stabilization during necessary movement
- Age extreme (< 5 or > 65 years old) should receive SMR
- High-risk mechanisms of injury
  - High speed MVC
  - Falls > 3 times the patient's height
  - Axial load
  - Diving accidents
  - Penetrating wounds in or near the spinal column with positive neuro deficit
  - Blunt trauma to or near the spinal column
  - Sports injuries to the head/neck
  - Unconscious trauma patient
- High-risk mechanisms are not the only mechanisms that can be produce spinalinjuries
  - Previous spinal surgery
  - Trauma associated with intoxication
  - Age extreme patients (<5 or >65 years old)
- 2) Medical patients are at risk for spinal injuries as well
  - Falls with unknown mechanism
  - Unable to determine if trauma occurred
- Low-risk mechanisms of injury can also produce spinal injuries that warrantmotion restriction
- Reliable patients are:
  - Calm
  - Cooperative
  - Not impaired by drugs, medications, alcohol, or existing medication conditions
  - Awake, alert and oriented to person, place, time and event
  - Without distracting injuries
- Signs and symptoms of an abnormal neurological exam include, but are not limited to:
  - Numbness and/or tingling
  - Altered mental status
  - New onset of difficulty in moving extremities
  - Decreased or absent or peripheral pulses
  - Inability to follow commands
  - Incontinence
  - Abnormal pupils and/or response
  - Dizziness or balance issues (e.g. unsteady gait)



**Warnings/Alerts:**

- Manual spinal immobilization must be maintained until neurological exam is completed
- When in doubt, provide spinal motion restrictions

**OMD Notes:**

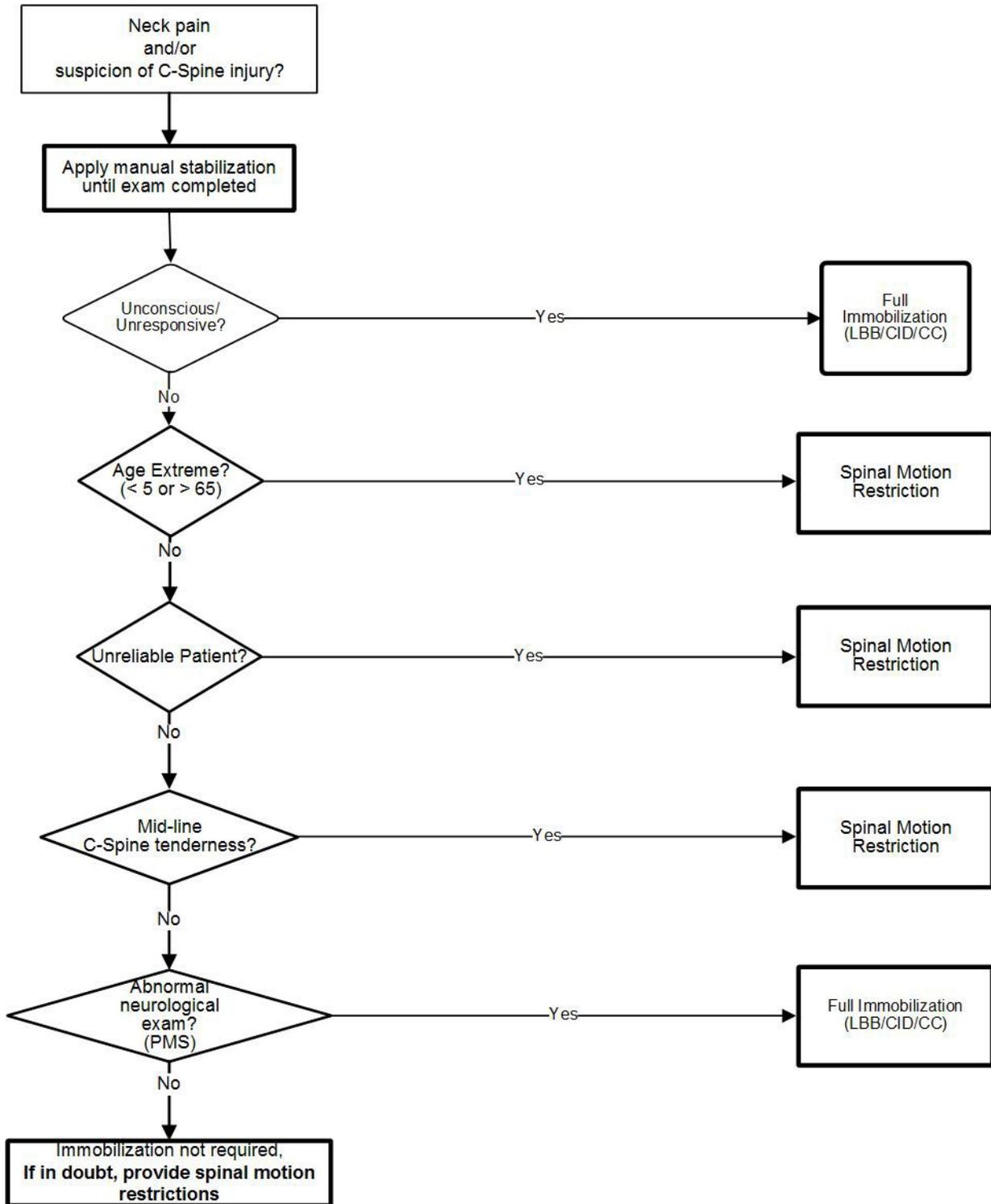
- None provided

**Performance Indicators:**

Index of suspicion  
Reliability indicators

Mechanism of injury  
Sensory exam results

Spinal stabilization during exam  
Patient packaging





**Objectives:**

- To assess and treat patients who have a toxicological medical emergency

**General Information:**

- CNS depressants (symptoms may include: respiratory depression, pinpoint pupils, bradycardia, hypotension)
  - Examples: opiates (heroin, methadone, fentanyl, morphine, codeine, ultram, oxycodone), benzodiazepines (valium, versed, xanax, librium, ativan), barbiturates (Nembutal, Secoonal, amytal), anesthetics (GHB, Ketamine), ethyl alcohol
  - Support patient's respirations as necessary with an OPA/NPA and BVM
  - Administer Narcan before attempting intubation
- Hallucinogens (symptoms may include: hallucinations, hypertension, tachycardia)
  - Examples: LSD, cannabis (marijuana), mescaline (peyote), PCP, mushrooms, ecstasy, jimson weed, nutmeg, morning glory seeds
- CNS Stimulants (symptoms may include hypertension, tachycardia, dysrhythmias)
  - Examples: cocaine (including crack), amphetamines (speed, diet pills); methamphetamines (crystal meth, ice, ecstasy); dexedrine; caffeine; club or designer drugs; ephedra and ephedrine
- Tricyclic antidepressants (symptoms may include: altered mental status, seizure, depressed respirations, coma)
  - Examples: Amitriptyline (Elavil); Amoxapine (Asendin); Clomipramine (Anafranil); Doxepin (Sinequin, Adepin); Imipramine (Trofanil); Nortriptyline (Aventyl, Pamelor);
  - Flexeril (cyclobenzaprine) is closely related to TCAs and should be treated the same



**Warnings/Alerts:**

- Narcan can precipitate seizures in patients with a seizure history or in long-term narcotic addicts
- Narcan can precipitate dysrhythmias in patients with cardiac disease, including ventricular fibrillation or ventricular tachycardia
- The goal of narcan administration is to establish an adequate respiratory rate, not to return the patient to full consciousness

**OMD Notes:**

- Do not act upon advice from poison control center; contact medical control for instructions as needed

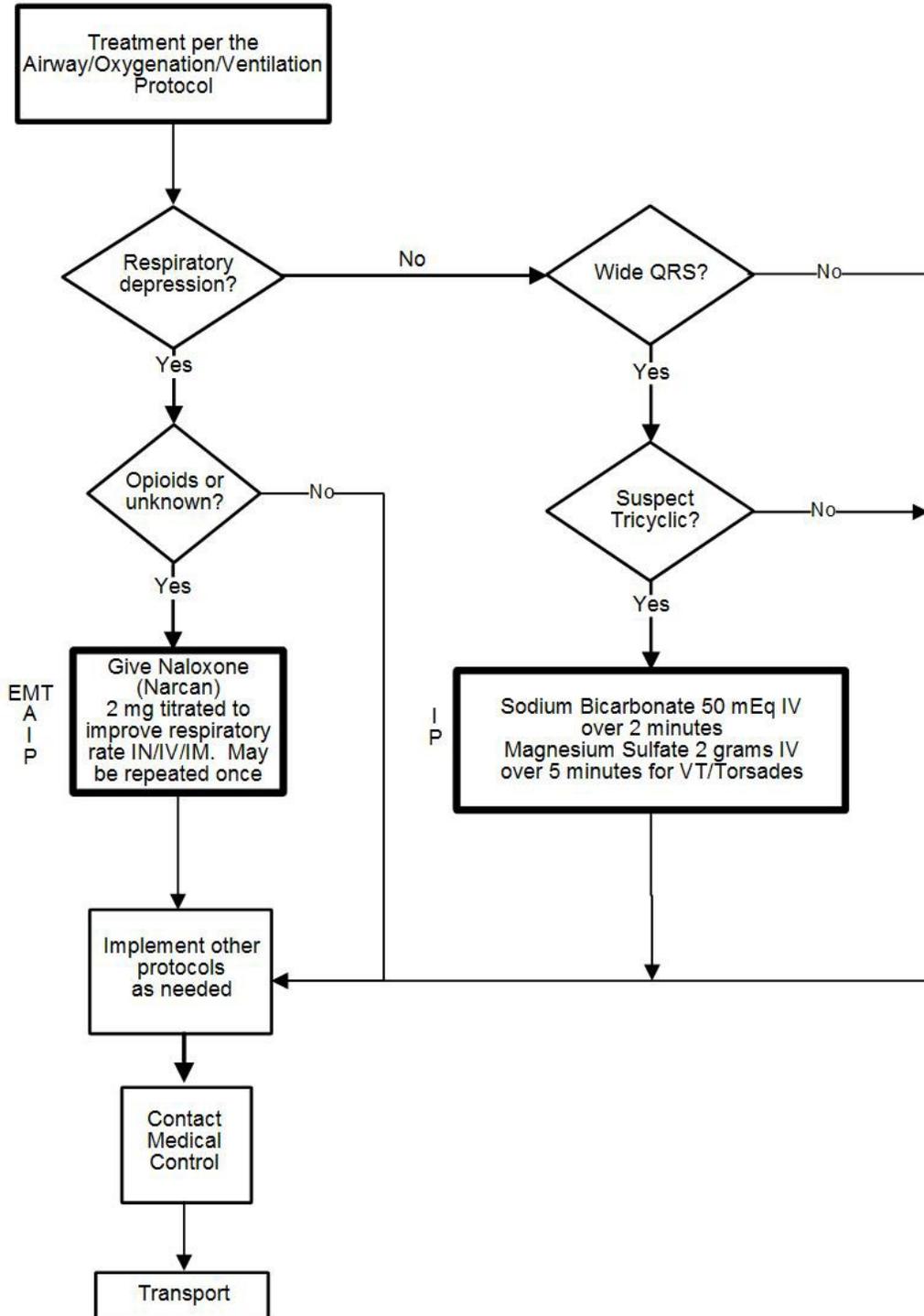
**Performance Indicators:**

Initial evaluation

Appropriate receiving facility

Documentation of substance taken (if known)

Treatment and response to treatment





**Objectives:**

- To appropriately assess and treat patients who have sustained traumatic injuries

**General Information:**

- External bleeding control
  - Direct pressure (may require firm fingertip pressure at site)
  - Tourniquet
    - Apply to the extremity proximal to the wound
    - IV tourniquets are not effective for bleeding control
- Some patients should be transported directly to a trauma center – it is not necessary to contact the closest facility for a diversion order. This includes patients who have:
  - Respirations < 8 or > 30
  - Assisted ventilations
  - Airway obstruction
  - Intubation
  - Unconscious/unresponsive
  - Do not follow commands
  - Unable to move extremities
  - Amputation of extremity
  - BP < 90 mmHg with signs/symptoms of shock
  - Heart rate > 120 with signs/symptoms of shock
  - Uncontrolled bleeding
  - No pulse in extremity
  - Penetrating injury of the head, neck, chest or abdomen
- If a patent airway cannot be established or CPR is in progress, transport the patient to the closest facility
- Some patients may need care at a trauma center, even if their injuries do not fit the criteria above. Those patients include:
  - Pregnancy > 24 weeks' gestation
  - Geriatric
  - Pediatric
  - Bariatric
  - Special needs
- **The goal of IV fluid administration is to maintain a MAP of 65 mmHg.**
- For patients with head injuries and a GCS < 8, the goal of IV fluid administration is to maintain a systolic blood pressure of 110 mmHg
- Resuscitation Criteria
  - Resuscitation should be withheld or discontinued in cases of:
    - Injuries incompatible with life (e.g. decapitation)
    - Trauma with evidence of significant time lapse (rigor mortis, dependent lividity, etc.)
  - Consider withholding resuscitation (Contact medical control if guidance is needed) for blunt or penetrating trauma with no breathing, pulse, pupillary response or organized EKG rhythm
- Does not apply to situations involving hypothermia, electrical injuries or submersion injuries



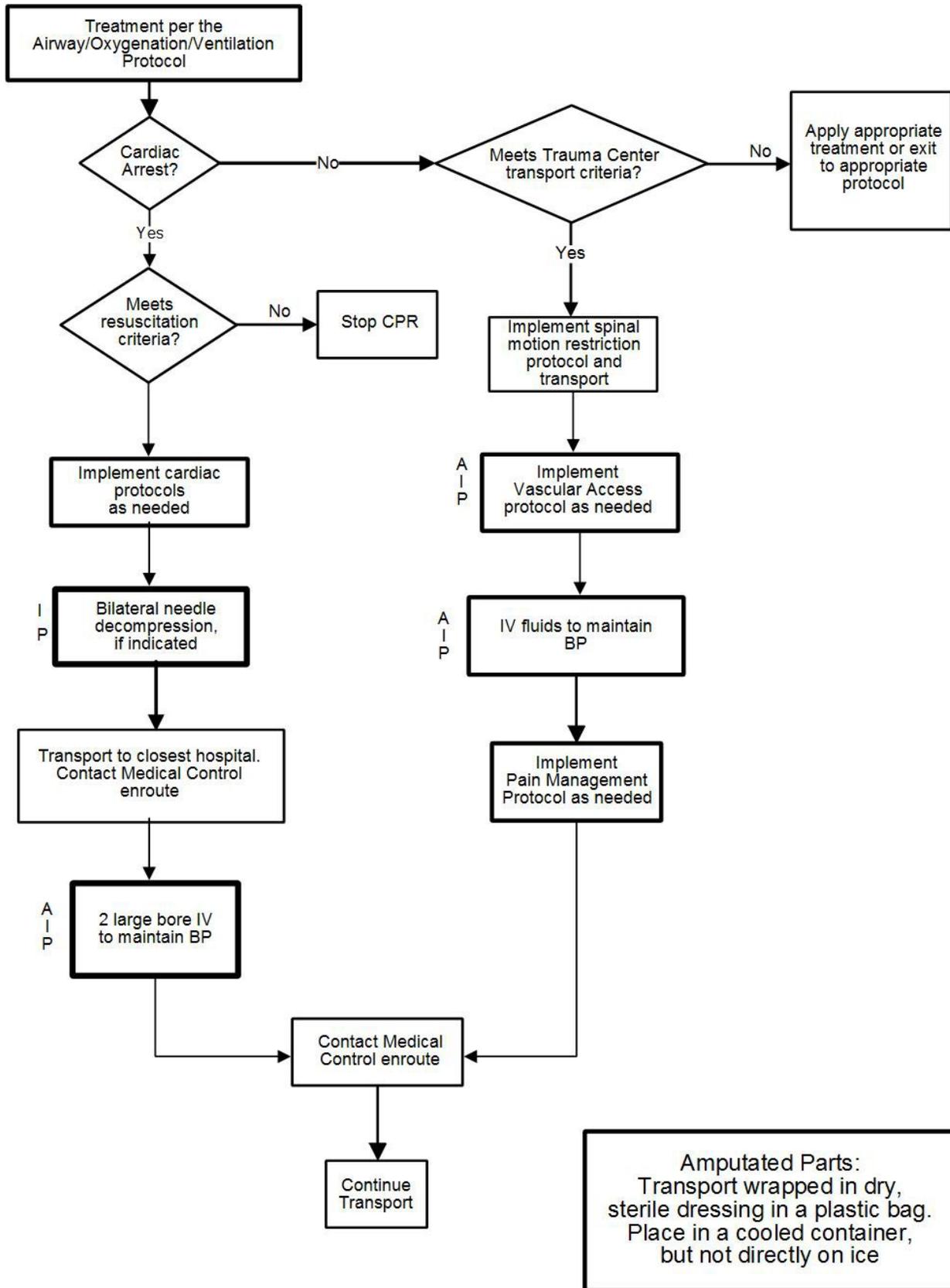
**Warnings/Alerts:**

- Do not delay transport to perform non-lifesaving ALS interventions on scene

**OMD Notes:**

**Performance Indicators:**

|                                     |                     |                   |                        |
|-------------------------------------|---------------------|-------------------|------------------------|
| Onset of injury                     | Condition of airway | Patient Packaging | Online medical control |
| Treatment and Response to Treatment |                     | Scene Time        | Patient disposition    |
| Total Amount of Fluid Given         |                     |                   |                        |





**Objectives:**

- To assess and manage patients with crush injuries

**General Information:**

- Consider crush syndrome if trapped extremity or torso with compression and compromise of vascular supply
- Perform interventions simultaneously – crush syndrome development before prophylactic treatment may require volume load along with medications
- Apply EKG monitor early
- Coordinate medication administration with extrication efforts. Medications must be given before compression mechanism is released
- For prolonged extrication or high level compression, consider calling a physician to the scene to bring insulin, calcium gluconate and for more efficient medical direction
- Sodium bicarbonate
  - Helps reverse acidosis
  - 1-2 mEq/kg IV (may be mixed in 1000 ml NS)
- Albuterol
  - Continuous administration
  - Helps drive potassium back into the cells
- Calcium chloride
  - Temporarily stabilizes the cell membranes
  - 1 gram over 3 minutes
  - Calcium gluconate is preferred
- Insulin
  - Helps drive potassium back into the cells
  - 10 units IV with Dextrose 25 grams (must be given simultaneously)



**Warnings/Alerts:**

- Do not delay transport to provide non-life-saving ALS interventions on scene

**OMD Notes:**

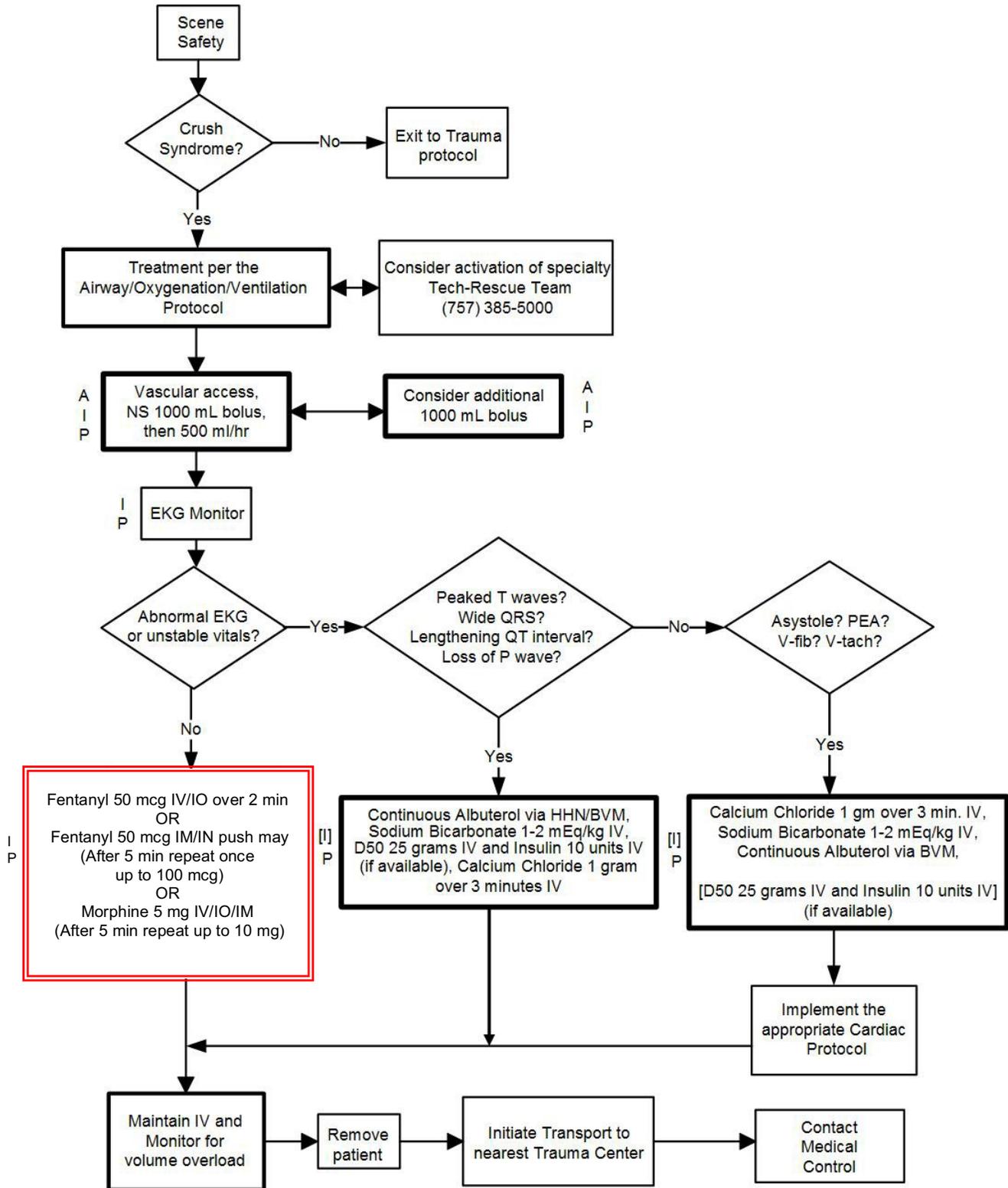
- Early contact with medical control is recommended

**Performance Indicators:**

Cause and Onset of Injury  
Patient Packaging

Appropriate Transport Destination  
Total Volume Infused

Confirmation of Airway  
Vital Signs Every 5 Minutes





**Objectives:**

- To provide guidance for how and when prehospital providers should obtain vascular access

**General Information:**

- Fluid management standing orders for hypoperfusion or burns
  - Adults: 250 mL bolus with reassessment up to 1000 mL
  - Infant/child: 20 mL/kg
  - Newly born: 10 mL/kg within 20 minutes using syringe/stop-cock technique
- All bolus medications should be followed by an appropriate flush, 20-30 mL for adults and 5-10 mL for pediatrics
- Indications for intraosseous access:
  - Cardiac arrest
  - Profound hypovolemia with altered mental status
  - Patient with immediate need for medications and/or fluids
- Contraindications for IO:
  - Inability to locate landmarks (consider alternate sites)
  - Fractures or previous orthopedic procedures near insertion sites (consider alternate sites)
  - Infection at insertion site (consider alternate sites)
  - Severe osteoporosis or other degenerative bone conditions
- Approved intraosseous access sites:
  - Humeral head (Standing Order)
  - Proximal tibia (Standing Order)
  - Distal tibia tertiary (Physicians Order only)
- IOs must be flushed before attempting medication or fluid administration, and may require pressure infusers to administer fluid
- Lidocaine may be used for pain management of IO standing order for conscious patient
  - 20-40 mg for adults
  - 0.5 mg/kg for pediatrics



**Warnings/Alerts:**

- Do not use a 14g needle for IV access
- Intraosseous access is inappropriate for prophylactic access
- Intraosseous access is inappropriate for suspected narcotic overdose or suspected hypoglycemic patients. Consider IM medications instead

**OMD Notes:**

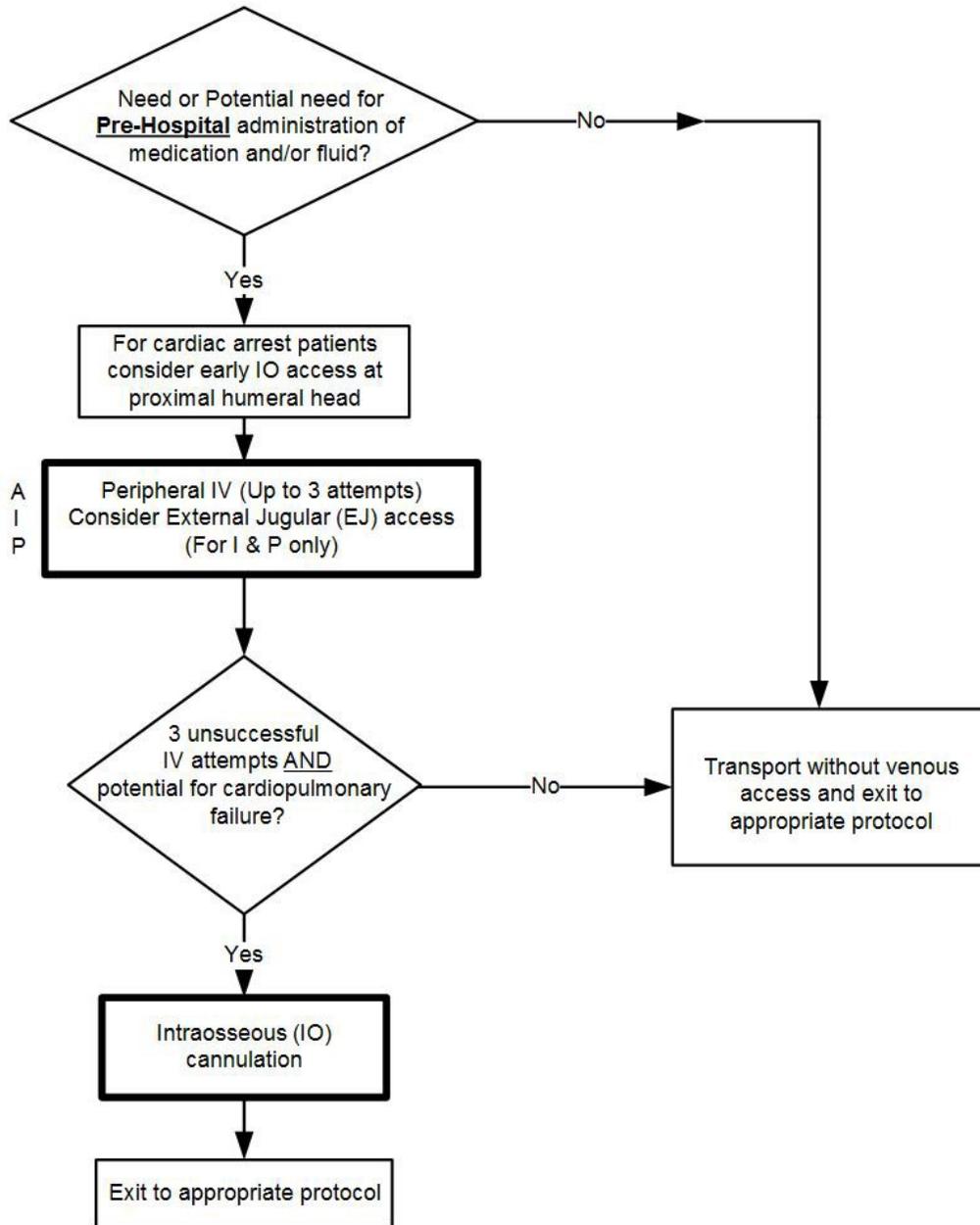
- The 14g catheters in the IV box are intended for chest decompressions and needle cricothyrotomy only

**Performance Indicators:**

Location and Type of Access      Treatment and Response to Treatment      Number of Attempts



**NOTE: Intraosseous access is inappropriate for prophylactic access!**



# **Pediatrics**

**(14 YR or Less)**

**Pediatric References & Procedures**

**Pediatric Cardiac Protocols**

**Pediatric General Protocols**

**Weight Based Medication Reference**

**Main Menu**

# Pediatric Reference Protocols

**Pediatric APGAR / GCS / Pain Scale**

**Pediatric Burn Chart**

**Pediatric Nasogastric/Orogastric Tube**

**Pediatric Triage - JumpSTART**

**Pediatric Trauma - Transport Criteria**

**Weight Based Medication Reference**

**Medication Information Sheets**

**Main Menu**



# APGAR / Glasgow Coma Scale Score / Pain Rating Scale

## APGAR

| Sign                    | 0           | 1                           | 2                  |
|-------------------------|-------------|-----------------------------|--------------------|
| Appearance (skin color) | Blue, pale  | Body pink, blue extremities | Completely pink    |
| Pulse rate (heart rate) | Absent      | <100 beats/minute           | >100 beats/minute  |
| Grimace (irritability)  | No response | Grimace                     | Cough, sneeze, cry |
| Activity (muscle tone)  | Limp        | Some flexion                | Active motion      |
| Respirations (effort)   | Absent      | Slow, irregular             | Good, crying       |

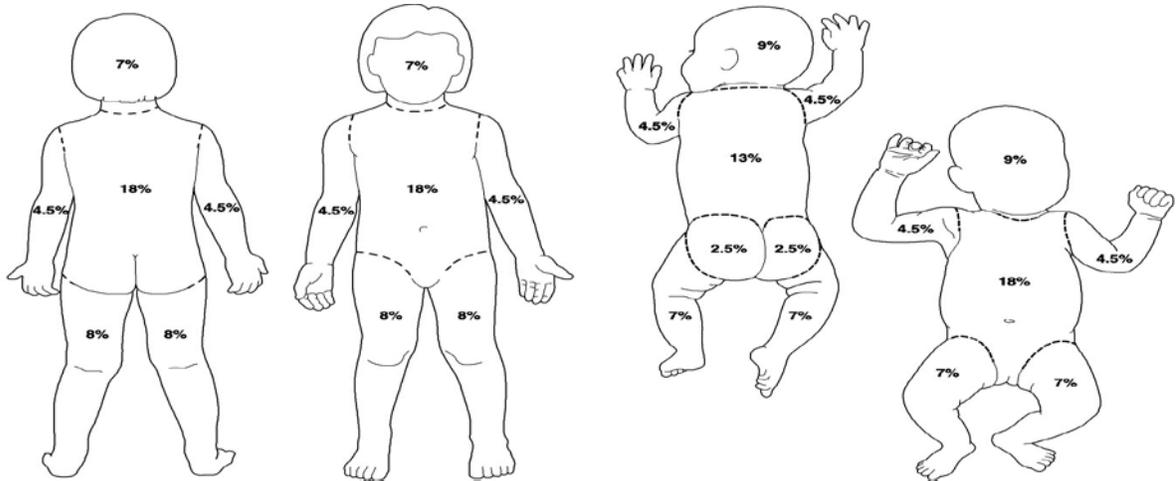
## Pediatric Glasgow Coma Scale (GCS) Score

| Eye   | Verbal   | Motor   |
|---|--|---|
| 4 – Spontaneous eye opening<br>3 – Eye opening on command<br>2 – Eye opening to painful stimulus<br>1 – No eye opening<br><br>*If eye(s) cannot be opened due to severe swelling, the patient should receive the score based on what he/she would be able to do | <p style="text-align: center;"><i>&gt;5 Years of Age</i></p> 5 – Oriented and converses<br>4 – Disoriented and converses<br>3 – Inappropriate words<br>2 – Incomprehensible sounds<br>1 – Makes no verbal response<br><br><p style="text-align: center;"><i>2-5 Years of Age</i></p> 5 – Appropriate words and phrases<br>4 – Inappropriate words<br>3 – Cries/screams<br>2 – Grunts<br>1 – Makes no verbal response<br><br><p style="text-align: center;"><i>Birth to 2 Years of Age</i></p> 5 – Cries appropriately, smiles, coos<br>4 – Cries<br>3 – Inappropriate crying/screaming<br>2 – Grunts<br>1 – Makes no verbal response<br>*See note about intubation | 6 – Follows command<br>5 – Localizes painful stimuli<br>4 – Withdrawal to pain<br>3 – Responds with abnormal flexion to painful stimuli (decorticate)<br>2 – Responds with abnormal extension to painful stimuli (decerebrate)<br>1 – Gives no motor response |
| <ul style="list-style-type: none"> <li>If patient intubated, GCS score contains only eye and motor scales and a "T" is added to note the inability to assess verbal response (e.g., "8T")</li> </ul>  |  |   |

## Pediatric Pain Rating Scale

Explain to the child that each face is for a person who feels happy because there is no pain (hurt) or sad because there is some or a lot of pain. Face 0 is very happy because there is no hurt. Face 2 hurts just a little bit. Face 4 hurts a little more. Face 6 hurts even more. Face 8 hurts a whole lot, but Face 10 hurts as much as you can imagine, although you do not have to be crying to feel this bad. Ask child to choose the face that best describes the child's own pain. Record the number under chosen face on patient care report.



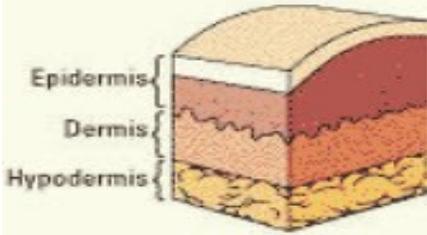
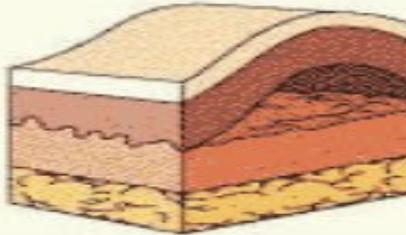
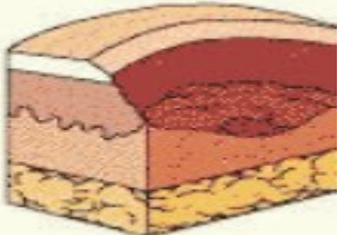


**Palm Method:**

The palm method is a tool whereby the size of the patients palm is used as an indicator for specific percentage of TBSA.

The surface area of a patients palm equals approximately 1% of TBSA.

This method is particularly useful where the burn has an irregular shape or has a scattered distribution.

| Superficial (First-Degree)  | Partial Thickness (Second-Degree)  | Full Thickness (Third-Degree)  |
|---|--|--|
|        |    |   |
| <p>Damage to the outer layer of skin {epidermis}, causing pain, redness and swelling.</p> | <p>Damage to both outer skin and underlying tissue layers {epidermis and dermis} causing pain, redness, swelling and blistering.</p> | <p>Damage extends deeper into tissues {epidermis, dermis and hypodermis} causing extensive tissue destruction. The skin may feel numb.</p> |



**INDICATIONS: (A, I, P)**

- Gastric decompression in intubated patients

**CONTRAINDICATIONS:**

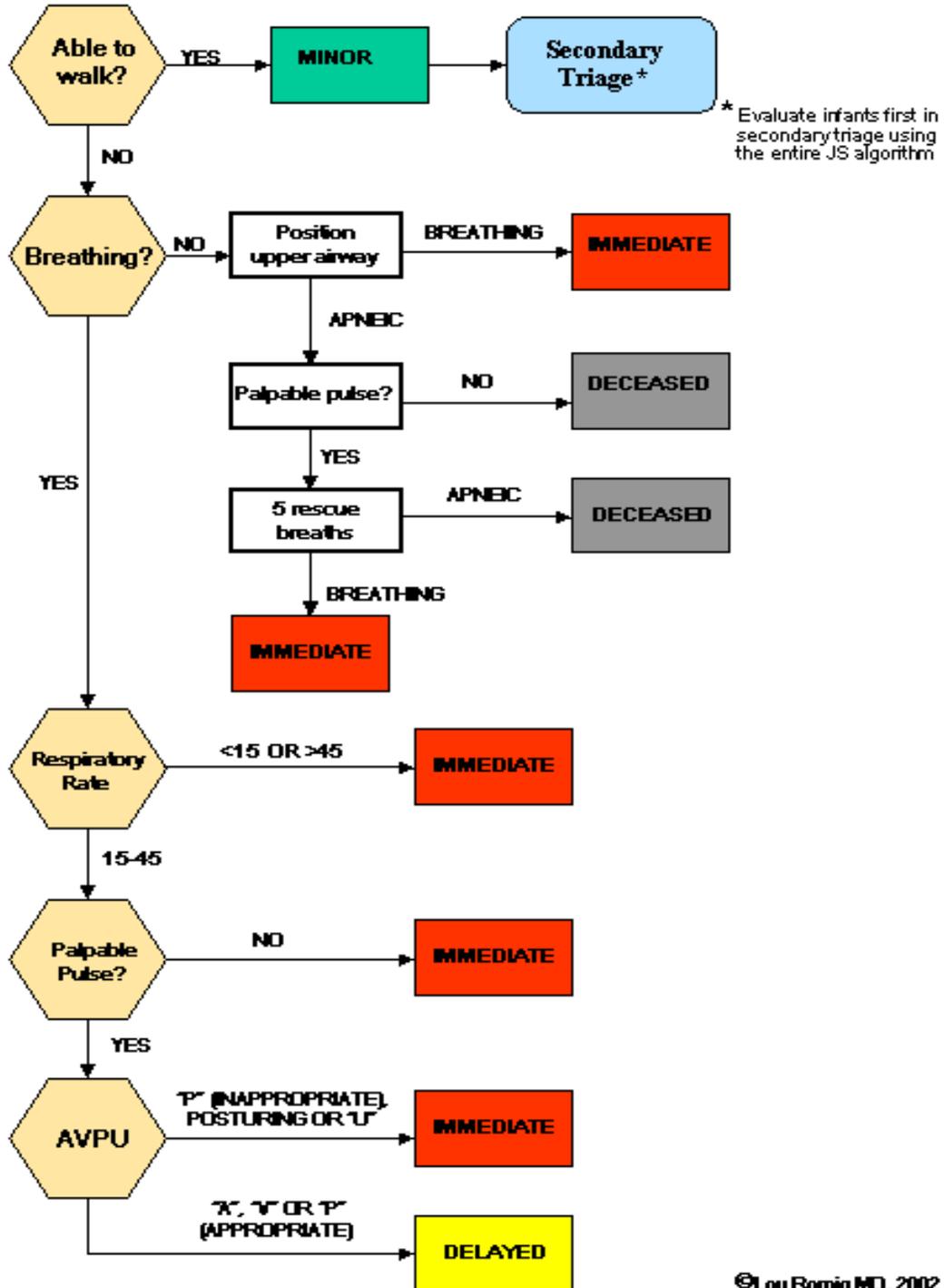
- Sinusitis (for nasogastric)
- Esophageal varices
- Recent nasal surgery (for nasogastric)
- Maxillofacial trauma (for nasogastric)

**PROCEDURE:**

- Estimate insertion length by superimposing the tube over the body from the nose to ear to xiphoid process
- Liberally lubricate the distal end of the tube and pass through the patient's nostril along the floor of the nasal passage. Do not orient the tip upward into the turbinates. This increases the difficulty of the insertion and may cause bleeding. The use of a tongue depressor may be helpful during insertion
- In the setting of an unconscious, intubated patient or a patient with facial trauma, oral insertion of the tube may be considered or preferred
- Continue to advance the tube gently until the measured distance is reached
- Confirm placement by injecting 30-50cc of air with a Toomey Syringe (catheter tip) and auscultate over the stomach for the swish or bubbling of the air
- Secure the tube
- Decompress the stomach of air and food either by connecting the tube to suction or manually aspirating with the large catheter tip syringe. Set suction to the lowest setting that will effectively decompress the patient's stomach



## JumpSTART Pediatric MCI Triage<sup>®</sup>





**Indications:** Trauma patients who meet any of the following criteria shall be transported to the **closest appropriate** trauma center within a 30-minute ground transport time. Trauma patients who are not within 30 minutes ground transport time of a trauma center should be transported to the closest hospital if they cannot be delivered to an appropriate facility more rapidly by air ambulance.

#### **Physiologic Criteria**

- Glasgow Coma Scale less than 14, or
- Systolic blood pressure of less than 90 mm/Hg, or
- Respiratory rate of less than 10 or greater than 29 breaths per minute (less than 20 breaths per minute in infants less than 1 year old)

#### **Anatomic Criteria**

- Penetrating injuries to head, neck, torso and extremities proximal to elbow or knee
- Flail Chest
- 2 or more proximal long bone fractures
- Crushed, degloved or mangled extremity
- Amputation proximal to wrist or ankle
- Pelvic fractures
- Open or depressed skull fractures
- Paralysis

#### **Mechanism of Injury**

- **Falls**
  - Adults – greater than 20 feet
  - Children less than 15 years old – greater than 10 feet, or 2-3 times the child's height
- **High-risk auto crash**
  - Intrusion- more than 12 inches to the occupant site or more than 18 inches to any site
  - Ejection (partial or complete) from automobile
  - Death in the same passenger compartment
  - Vehicle telemetry data consistent with high risk of injury
- **Auto versus pedestrian / bicyclists-** thrown, run over or with significant (greater than 20 mph) impact
- **Motorcycle crash** at speed greater than 20 mph
- **Special Considerations**
- **Burns** (with or without other trauma) – absent other trauma, burns that meet Burn Center criteria should be transported to a burn center
- **Pregnancy-** Injured women who are more than 20 weeks pregnant should be considered for transport to a trauma center or a hospital with obstetrical resources
- **Age** – greater than 55 years of age
- **Anticoagulation and Bleeding Disorders** – EMS should contact medical control and consider transport to trauma center
- **Time- Sensitive Extremity Injury** – open fracture(s) or fracture(s) with neurovascular compromise
- **EMS Provider Judgment** – EMS provides, based on experience and expertise, may always exercise clinical judgment regarding atypical patient presentations

# Pediatric Cardiac Protocols

**Pediatric Cardiac Arrest**

**Bradycardia**

**Tachycardia (Stable)**

**Tachycardia (Unstable)**

**ROSC – Return of Spontaneous Circulation**

**Weight Based Medication Reference**

**Medication Information Sheets**

**Main Menu**



**Objectives:**

- Early recognition and appropriate intervention for pediatric patients in cardiac arrest

**General Information:**

- During High-Quality CPR
  - Push hard and fast (At least 100/min; at least 1/3 anterior-posterior diameter of chest)
  - Ensure full chest recoil; minimize interruptions in compressions
  - One person CPR: 30 compressions: 2 breaths, two minutes = 5 cycles
  - Two person CPR: 15 compressions: 2 breaths, two minutes = 10 cycles
  - Rotate compressors every 2 min
  - A two-thumb encircling technique is preferred for infants
  - Avoid excessive ventilation
- If BLS airway is adequate, priority is vascular access and medication administration. A brief attempt at an advanced airway by an experienced provider is appropriate
  - After an advanced airway is placed, give continuous chest compressions without pauses for breaths.
  - Give 8-10 breaths/min (1 breath every 6-8 seconds)
- AED use
  - Pediatric AEDs are preferred for children < 8 years old
  - If pediatric AED is unavailable; an adult AED should be used
  - Adult AEDs should be used on children 8 years old or older
  - Defibrillation pads should not touch. Use pediatric-sized pads if available for children less than 8 years old; use a front-back placement if needed
  - Contraindications:
    - Rigor mortis / dependent lividity
    - Injuries incompatible with life
    - "No code"/ DNR
- Search for and treat possible contributing factors:
 

|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Hypovolemia</li> <li>• Hypoxia</li> <li>• Hypokalemia / Hyperkalemia</li> <li>• Hypoglycemia (Verify via Glucometry)</li> <li>• Hypothermia / Hyperthermia</li> <li>• Hydrogen ion (Acidosis)</li> </ul> | <ul style="list-style-type: none"> <li>• Tension Pneumothorax</li> <li>• Toxins</li> <li>• Trauma</li> <li>• Tamponade Cardiac</li> <li>• Thrombosis (coronary or pulmonary)</li> </ul> |
|---|---|



**Warnings/Alerts:**

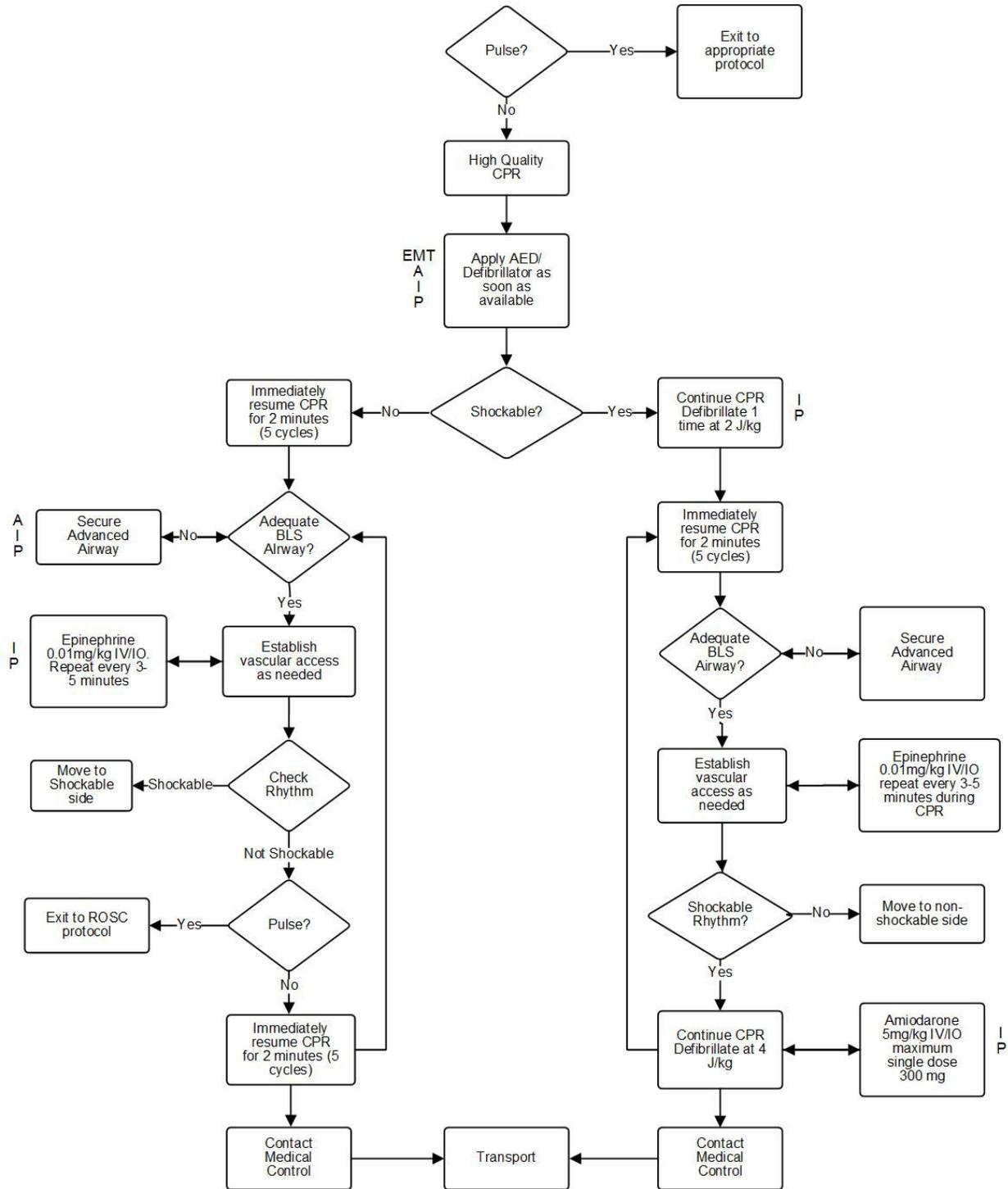
- CPR may still be required in the presence of an organized cardiac rhythm
- Perform CPR if the heart rate is less than 60 with poor perfusion despite oxygenation and ventilation
- It is the responsibility of the provider delivering the shock to ensure that no one is touching the patient prior to the shock delivery
- Failure to stop a moving vehicle during AED analysis may lead to inappropriate defibrillation
- The following conditions need to be addressed prior to defibrillation:
  - Patients in standing water
  - Patients with transdermal medication

**OMD Notes:**

- Endotracheal administration of medications should be used ONLY when IV/IO access is not available

**Performance Indicators:**

|                                |                     |                       |
|--------------------------------|---------------------|-----------------------|
| Onset of Arrest Time           | Initial Rhythm      | Bystander/FR CPR/AED  |
| Time of Initial Defibrillation | Consistency of CPR  | Changes in EKG Rhythm |
| Patient Packaging              | Patient Disposition |                       |





**Objectives:**

- Early recognition and appropriate management of pediatric bradycardia

**General Information:**

- Signs and symptoms of a hemodynamically unstable patient can include:
  - Increased work of breathing
  - Altered mental status
  - Cyanosis
  - Poor perfusion and loss of peripheral pulses
- Search for and treat possible contributing factors
  - Hypovolemia
  - Hypoxia
  - Hypokalemia / Hyperkalemia
  - Hypoglycemia (Verify via Glucometry)
  - Hypothermia / Hyperthermia
  - Hydrogen ion (Acidosis)
  - Epinephrine
    - IV/IO 0.01 mg/kg (1:10,000 0.1 mL/kg) every 3-5 minutes
    - ETT 0.1 mg/kg (1:1,000 0.1 mL/kg added to 2-5 mL NS max of 10 mL of fluid) drug toxicity (eg: organophosphates), or complete AV block. Physician order only
  - Atropine
    - 0.02 mg/kg IV/IO, minimum dose 0.1 mg, max dose 0.5 mg
  - Pacing
    - Set rate to 100 bpm
    - Increase milliamps until electrical capture; final mA setting should be slightly above where electrical capture is obtained to prevent loss of capture
    - Verify mechanical capture
- Tension Pneumothorax
- Toxins
- Trauma
- Tamponade Cardiac
- Thrombosis (coronary or pulmonary)



**Warnings/Alerts:**

- Too small doses of atropine produce a paradoxical bradycardia; therefore, a minimum dose of 0.1 mg is recommended
- Atropine and pacing are preferred over epinephrine if the patient has existing heart disease (cardiomyopathy or myocarditis, for example) - contact medical control for guidance

**OMD Notes:**

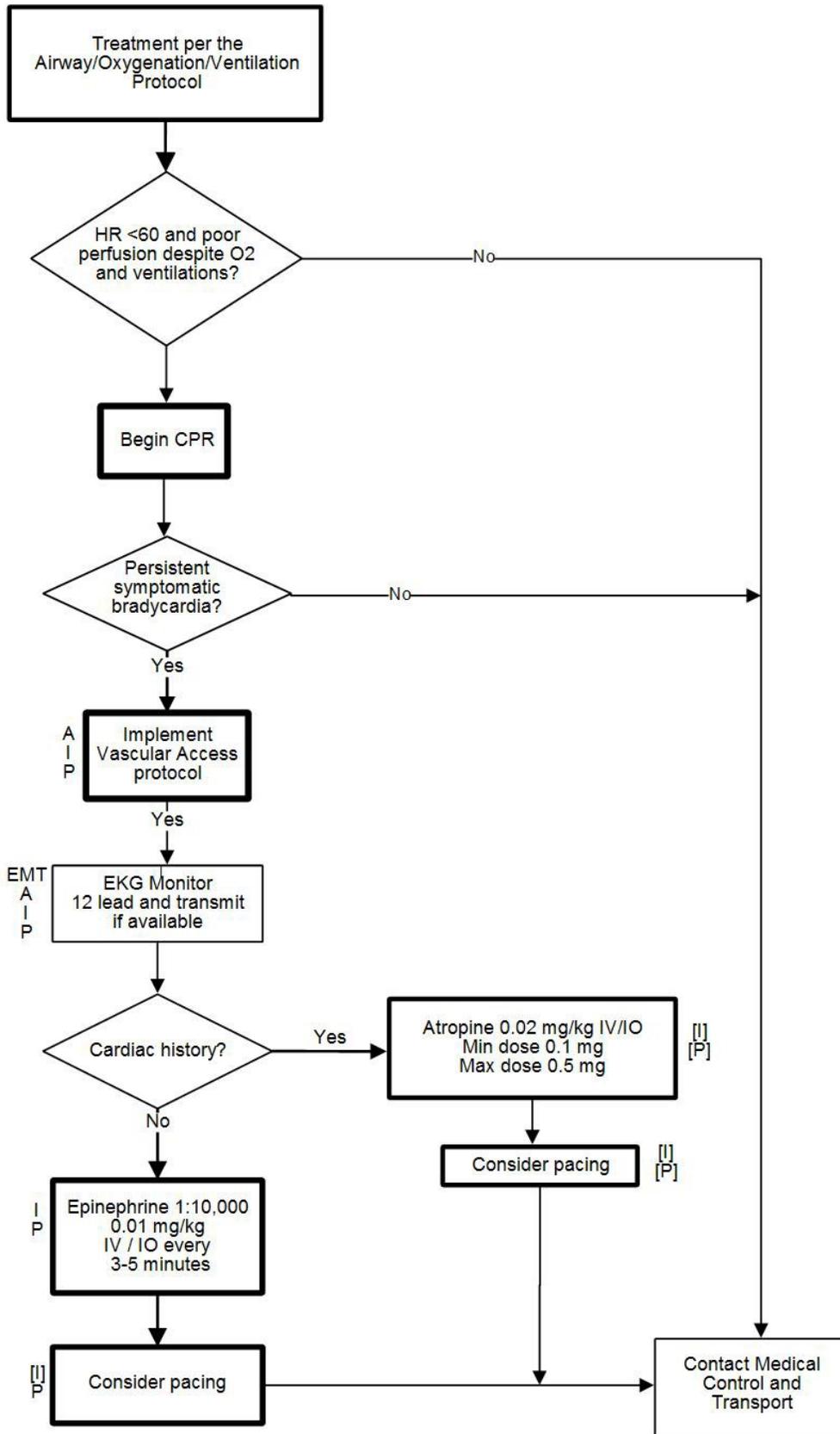
- None provided

**Performance Indicators:**

Onset of Symptoms (time)  
LOC  
12 Lead EKG

Treatment and Response  
Pacing Parameters

Vital Signs – 2 set minimum  
Stable or Unstable Patient





**Objectives:**

- Early recognition and management of stable tachycardia in the pediatric patient

**General Information:**

- A key component to treatment of pediatric tachycardia is distinguishing between sinus tachycardia and SVT
  - Sinus tachycardia:
    - HR usually < 180 in children, 220 in infants
    - Rate variable with stress or activity
    - P-waves may be visible
    - Gradual onset
    - Common causes of ST include fever, dehydration, hemorrhage,pain, medications,exercise,anxiety, hypoxia
  - Supraventricular tachycardia
    - HR usually > 180 in children, 220 in children
    - Rate not variable
    - P waves absent or inverted
    - Sudden Onset
    - Infants may present with CHF symptoms
- Signs and Symptoms of a hemodynamically unstable patientinclude:
  - Altered Mental Status
  - Poor perfusion
    - Mottling
    - Pallor
    - Cyanosis
    - Diminished peripheral pulses
  - Ongoing chest discomfort and / or shortness of breath
  - Hypotension / Shock
- Vagal maneuvers
  - Apply ice to the forehead, eyes and bridge of nose to infants
  - Older children:
    - Blow through obstructed straw
    - Bear down as if having bowel movement
    - Hold breath while ice is applied to forehead, eyes and bridge of nose
- Adenosine:
  - First dose: 0.1 mg/kg rapid IV/IO push, max dose 6 mg
  - Second dose : 0.2 mg/kg rapid IV/IO push, max dose 12 mg
  - Medical control may order adenosine if SVT with aberrant conduction is suspected
- Amiodarone:
  - Perfusing rhythm with a pulse
    - < 10 kg 5 mg/kg in 100 mL NS over 20 minutes
    - > 10 kg 5 mg/kg in 250 mL NS over 20 minutes
  - Pulseless rhythm
    - 5 mg/kg rapid IV push with no dilution



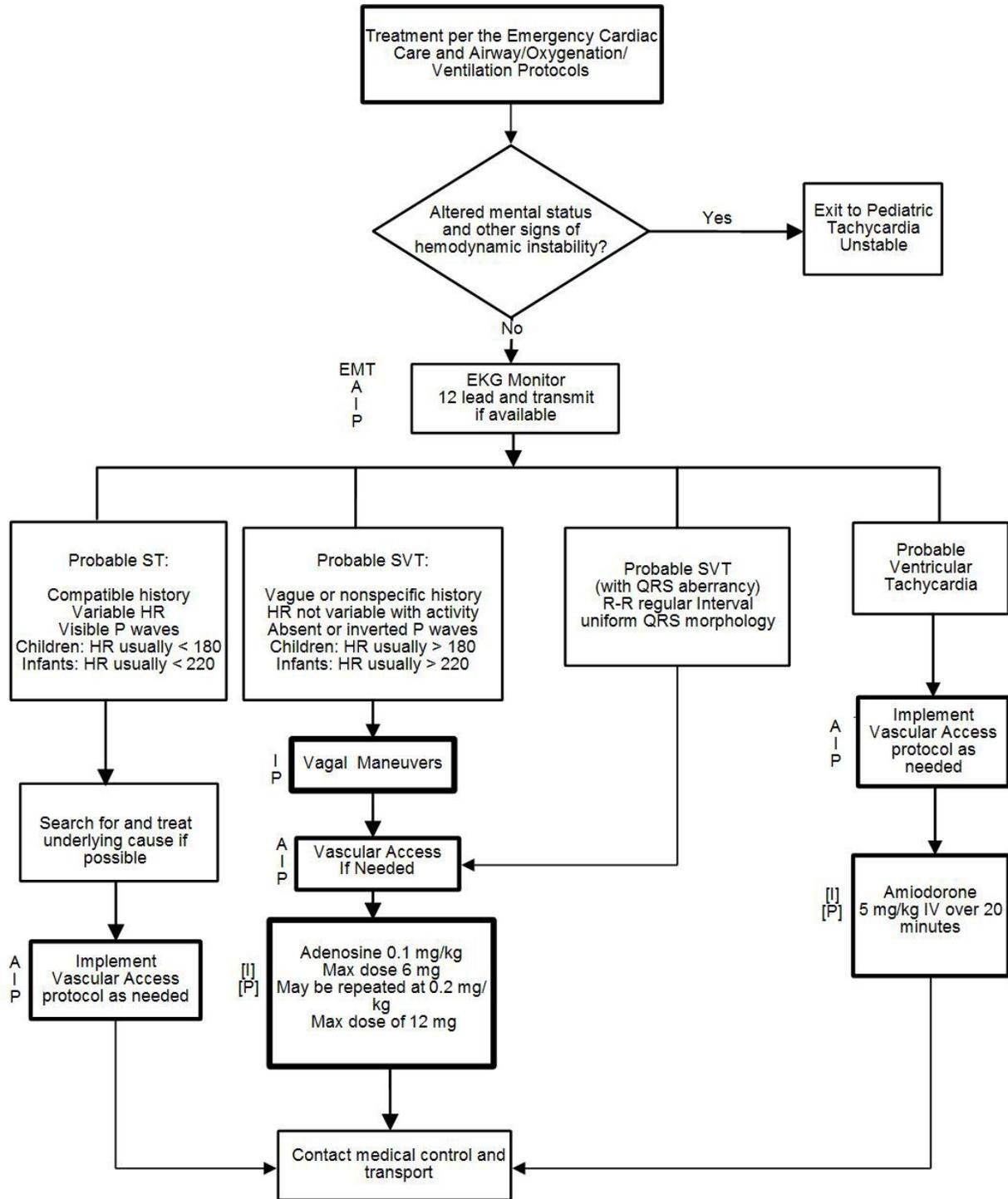
**Warnings/Alerts:**

- Do not obstruct infant’s airway while performing vagal maneuvers
- Do not use ocular pressure or carotid massage as a vagal maneuver

**OMD Notes:**

**Performance Indicators:**

|                                 |                                |                            |
|---------------------------------|--------------------------------|----------------------------|
| Vital Signs before Intervention | Vital Signs after Intervention | Stable or Unstable Patient |
| Response to Therapy             | Initial Rhythm                 | LOC                        |
| Onset of Symptoms               | 12 Lead EKG                    |                            |





**Objectives:**

- Early recognition and management of unstable tachycardia in the pediatric patient

**General Information:**

- A key component to treatment of pediatric tachycardia is distinguishing between sinus tachycardia and SVT
  - Sinus tachycardia:
    - HR usually < 180 in children, 220 in infants
    - Rate variable with stress or activity
    - P-waves may be visible
    - Gradual onset
    - Common causes of ST include fever, dehydration, hemorrhage, pain, medications, exercise, anxiety, hypoxia
- Supraventricular tachycardia
  - HR usually > 180 in children, 220 in children
  - Rate not variable
  - P waves absent or inverted
  - Sudden Onset
  - Infants may present with CHF symptoms
- Signs and Symptoms of a hemodynamically unstable patient include:
  - Altered Mental Status
  - Poor perfusion
    - Mottling
    - Pallor
    - Cyanosis
    - Diminished peripheral pulses
  - Ongoing chest discomfort and / or shortness of breath
  - Hypotension / Shock
- Consider causes such as the following and contact medical control for guidance:
  - Congenital cardiac conditions
  - Drug toxicity (tricyclic antidepressants, cocaine, calcium channel blockers)
- Adenosine:
  - First dose: 0.1 mg/kg rapid IV/IO push, max dose 6 mg
  - Second dose : 0.2 mg/kg rapid IV/IO push, max dose 12 mg
  - Medical control may order adenosine if SVT with aberrant conduction is suspected
- Amiodarone:
  - Perfusing rhythm with a pulse
    - < 10 kg 5 mg/kg in 100 mL NS over 20 minutes
    - > 10 kg 5 mg/kg in 250 mL NS over 20 minutes
  - Pulseless rhythm
    - 5 mg/kg rapid IV push with no dilution



**Warnings/Alerts:**

- Polymorphic VT can deteriorate quickly to VF- cardiovert ASAP
- If unable to obtain synchronization, deliver unsynchronized shock at defibrillation energy (manufacturer recommendations)
- If the patient has VT or SVT with altered mental status and other signs of hemodynamic instability, do not delay cardioversion to administer sedation

**OMD Notes:**

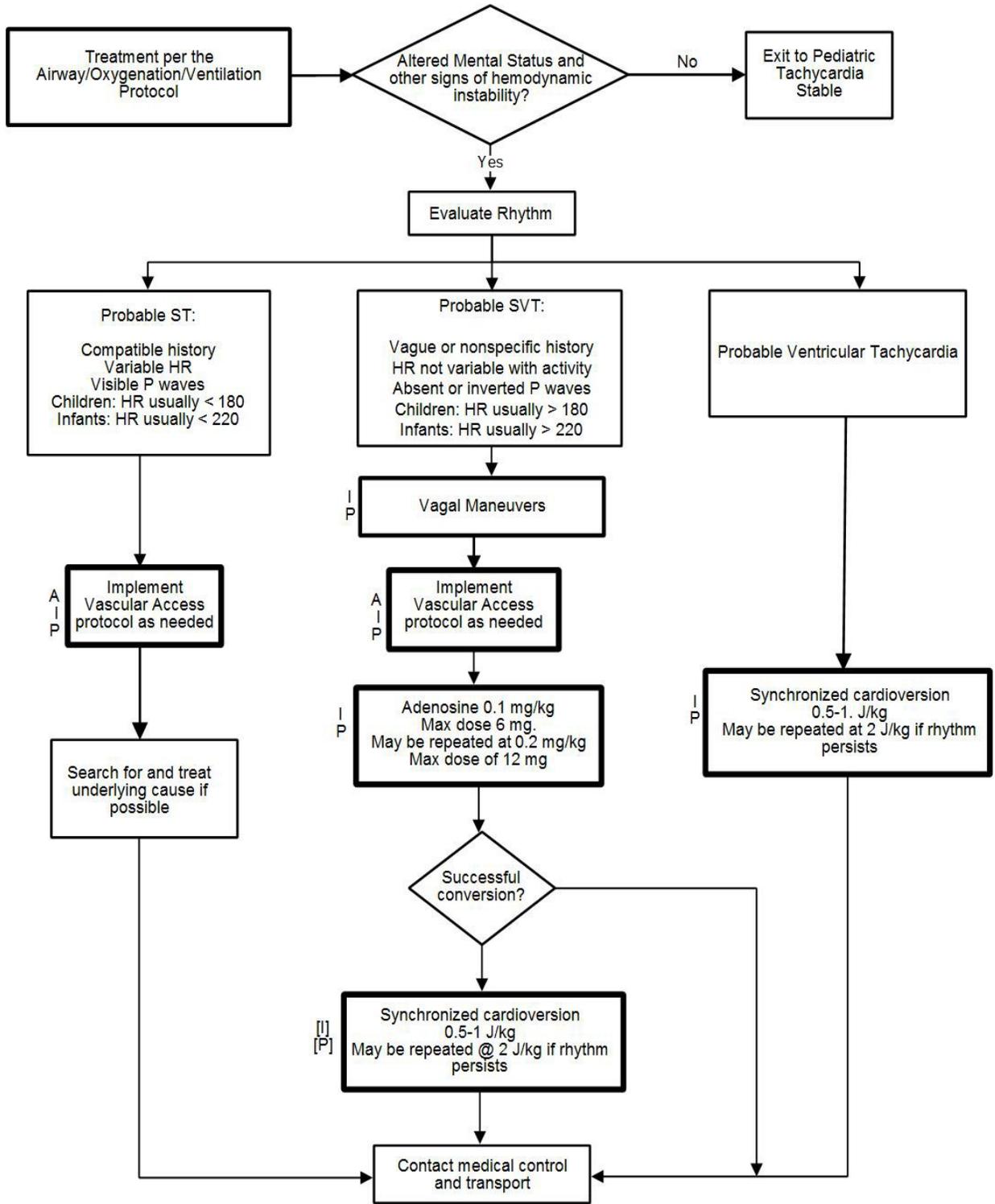
- None Provided

**Performance Indicators:**

Vital Signs before Intervention  
Response to Therapy  
Onset of Symptoms

Vital Signs after Intervention  
Initial Rhythm

Stable or Unstable Patient  
LOC





**Objectives:**

- To appropriately treat patients who have return of spontaneous circulation
- To ensure adequate perfusion

**General Information:**

- Optimize ventilation and oxygenation
  - Utilize end tidal CO<sub>2</sub> with ventilation and oxygenation with 12-20 breaths/minute and titrate to a target PETCO<sub>2</sub> of 35-40 mm Hg
  - Maintain oxygen saturation 94% - 99%
  - Do not hyperventilate – 1 breath every 3-5 seconds / 12-20 breaths a minute
- Administer 20 mL/kg NS boluses up to 1000 mL reassessing after each bolus
- Search for and treat possible contributing factors:
  - Hypovolemia
  - Hypoxia
  - Hypokalemia / Hyperkalemia
  - Hypoglycemia (Verify via Glucometry)
  - Hypothermia / Hyperthermia
  - Hydrogen ion (Acidosis)
  - Tension Pneumothorax
  - Toxins
  - Trauma
  - Tamponade Cardiac
  - Thrombosis (coronary or pulmonary)



**Warnings/Alerts:**

- Perform CPR if the heart rate is less than 60 with poor perfusion despite oxygenation and ventilation

**OMD Notes:**

- With a patient in cardiac arrest, providers need to contact medical control as early as possible

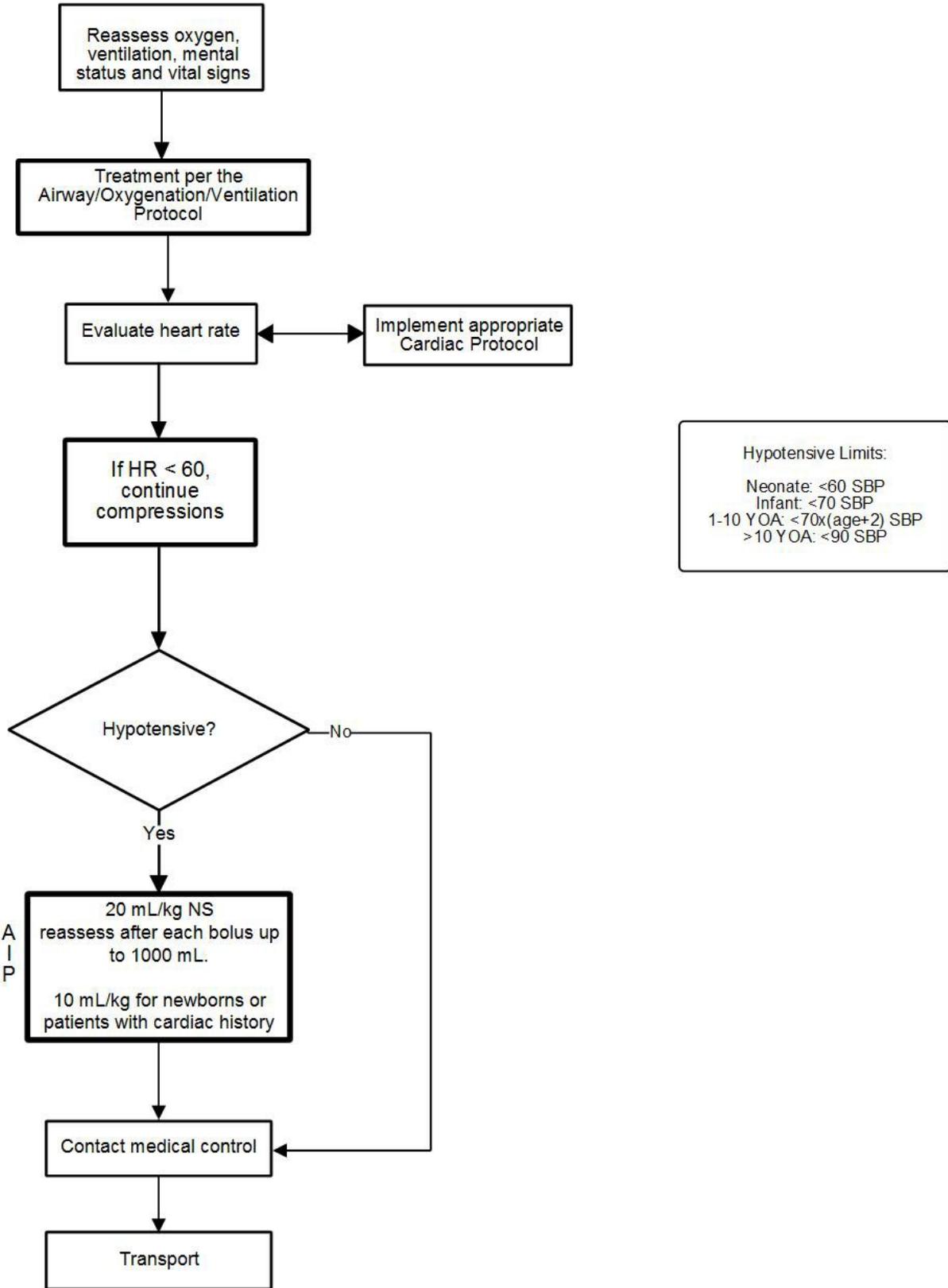
**References:**

**Performance Indicators:**

EKG Rhythm

Total fluid administered

Evaluation of Perfusion Treatment and Response to Treatment



# Pediatric General Protocols

**Airway/Oxygenation/Ventilation**

**Allergic / Anaphylactic**

**Breathing Difficulty**

**Burns**

**Care of the Newly Born**

**Hyper – Hypoglycemia**

**Nausea Vomiting**

**Pain Management (Non-Cardiac)**

**Seizures**

**Toxicological Emergencies (Overdose)**

**Main Menu**



**Objectives:**

- Ensure patency of airway
- Provide proper oxygenation therapy
- Support the patient's breathing as needed

**General Information:**

- Oxygen therapy for patients with altered mental status, hypoperfusion, pain, trauma, carbon monoxide exposure, dyspnea or sickle cell patient in pain crisis regardless of SPO2 reading
- When possible, a room air pulse oximetry reading should be obtained and documented
- Oxygen therapy
  - The goal is to maintain SPO2 > 94% but may not be achievable due to various conditions (eg patient history, device limitations)
  - SPO2 90 %- 93 % - Nasal Cannula at 1-6 lpm
    - ii) SPO2 < 90 % - Non-Rebreather at 10-15 lpm
  - The pulse oximetry reading should not be the sole factor to determine if the patient needs oxygen
- A BLS airway is adequate for most pediatric patients. However, a brief attempt at oral intubation by an experienced provider is appropriate
- Assisted ventilations
  - BLS Airway
    - The ventilation rate for pediatric patients is 12-20 bpm, or once every 3-5 seconds without CPR
      - Attempts should be made to use 2 providers to ensure adequate BVM ventilations using "E-C" technique
  - ALS (Advanced) Airway 8-10 breaths per minute, or once every 6-8 seconds with CPR (endotracheal intubation, supraglottic tube placement)
    - Select tube size using one of the following methods:
      - Size indicated on the length based resuscitation tape
      - (16+ age) divided by a 4 or (Age divided by 4 ) + 4
      - If using cuffed tubes, use tube half size smaller
    - Cardiac Monitor and Pulse Oximetry are required and waveform capnography if available
    - Consider OG/NG tube when using BVM or after endotracheal intubation
    - Unconscious Intubated Patients
      - Verify tube placement
      - Secure with commercial device
      - Secure with commercial device, package with c-collar and longboard
      - Reassess tube placement every 5 minute, during transport or after movement of patient

**OMD Notes:**

- Needle cricothyrotomy may be used in children 3-12 years old if the cricothyroid membrane can be palpated
- Consider oxygen therapy for sickle cell patients in pain crisis as they may benefit from this therapy

**Performance Indicators:**

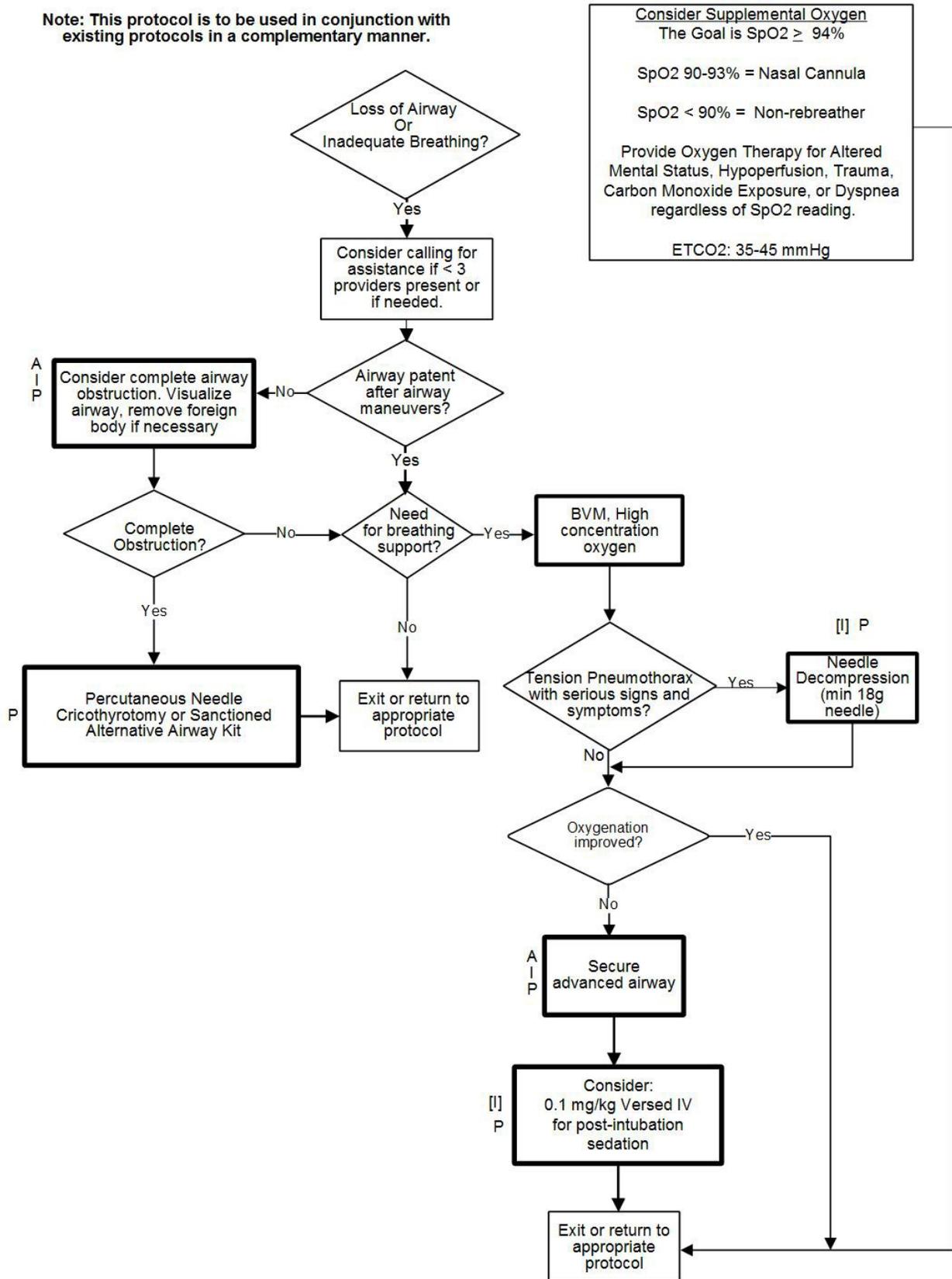
Initial and Ongoing SpO2  
Application of Oxygen

Confirmation of ETT  
Use of Secondary Airway

Documentation of Breath Sounds  
Patient Packaging



Note: This protocol is to be used in conjunction with existing protocols in a complementary manner.





**Objectives:**

- To assess and appropriately treat pediatric patients with allergic reactions and / or anaphylaxis
- To differentiate between an allergic reaction and anaphylaxis

**General Information:**

- Signs and Symptoms of allergic reaction may include:
  - Itching
  - Hives
  - Flushing (red skin)
  - Mild swelling of face (especially the eyes and lips), neck, hands, feet or tongue
- Signs and symptoms of anaphylaxis may include all of the above; but must include one of the following:
  - Respiratory distress
    - Labored breathing (i.e. stridor, wheezing, hoarseness, cough)
  - Hemodynamic instability
    - Hypotension
    - Weak or absent distal pulses
    - Excessive sweating (diaphoresis)
- Rapidly progressing signs and symptoms should be treated as anaphylaxis
- EMTs may use patient's Epi-Pen on standing orders
- In severe anaphylaxis with hypotension and/or severe airway obstruction, medical control may order Epinephrine 1:10,000 IV
- In hemodynamic instability Epinephrine 1:1,000 IM is the preferred route of administration instead of SQ
- Solu-Medrol is not indicated in the management of allergic reaction/anaphylaxis



**Warnings/Alerts:**

- Failure to use end-tidal CO<sub>2</sub> monitoring increases the risk of an unrecognized misplaced tube
- Failure to confirm tube placement prior to securing or following patient movement may lead to unrecognized tube placement

**OMD Notes:**

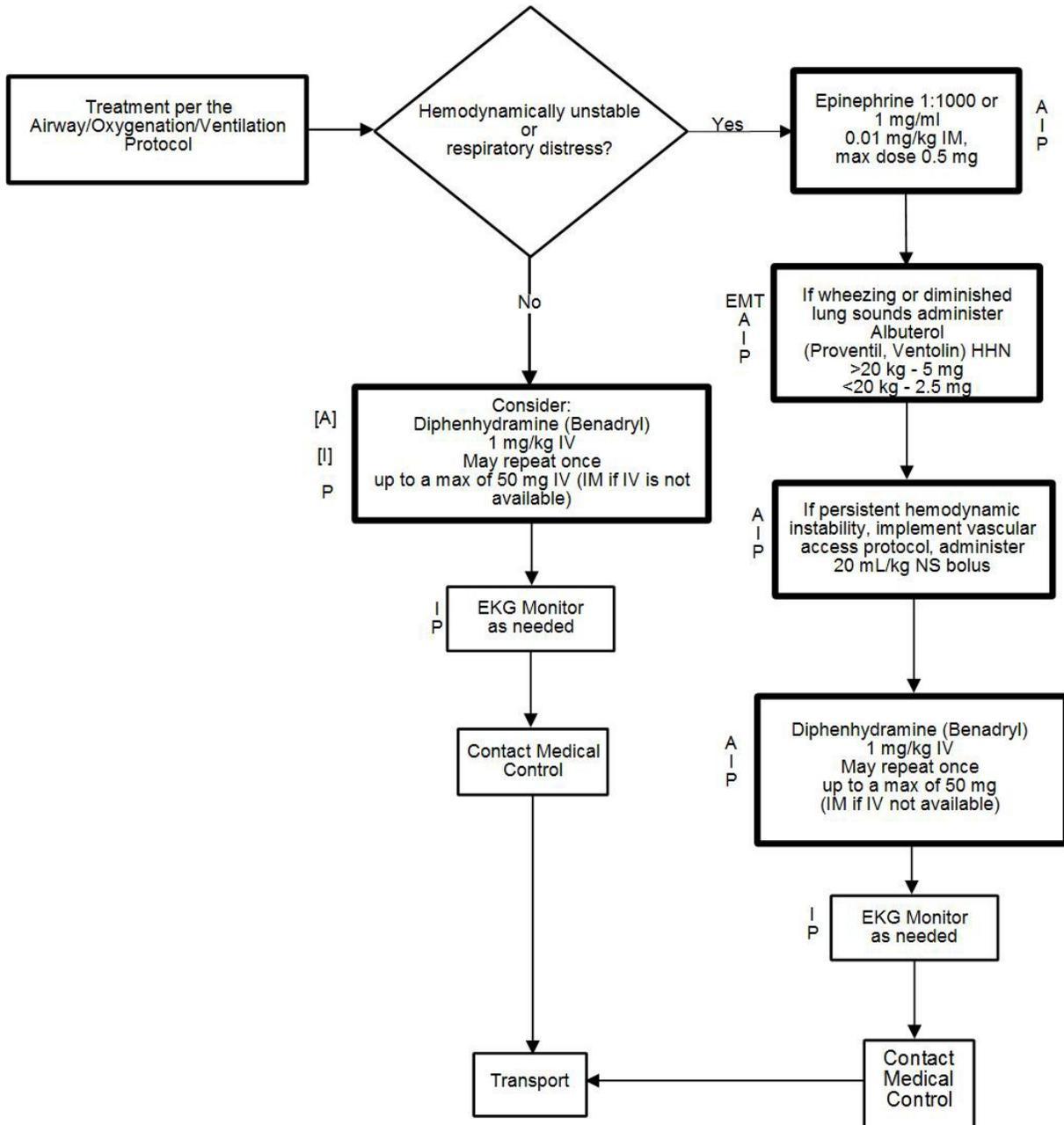
- Maximum dose of Epinephrine is 0.5 mg
- The use of albuterol is encouraged if the patient exhibits wheezing or diminished aeration

**Performance Indicators:**

Documented Cause (If Known)  
Response to Treatment

Application of Oxygen

Treatment Provided  
Use of Epi-Pen





**Objectives:**

- To appropriately manage breathing difficulty in pediatric patients

**General Information:**

- In the patient with stridor, drooling, and forward posture, let the patient maintain a position of comfort if they are maintaining their own airway
- In severe asthma, wheezing may not be present due to insufficient tidal volume
- Patients in severe distress or those who have not responded to home therapy may receive albuterol/atrovent as a first-line treatment.
- For severe asthma, medical control may order other medications:
  - Magnesium sulfate
    - 50 mg/kg (max dose 2 g) IV/IO drip
    - Mix in 250 mL NS administer over 20 minutes
  - Epinephrine 1:1,000
    - 0.01 mg/kg IM, max dose 0.5 mg
  - Solumedrol
    - Dose: 2 mg/kg (max dose 125 mg)
- Overdoses on drugs such as beta-blockers, tricyclic antidepressants and calcium-channel blockers may produce pulmonary edema



**Warnings/Alerts:**

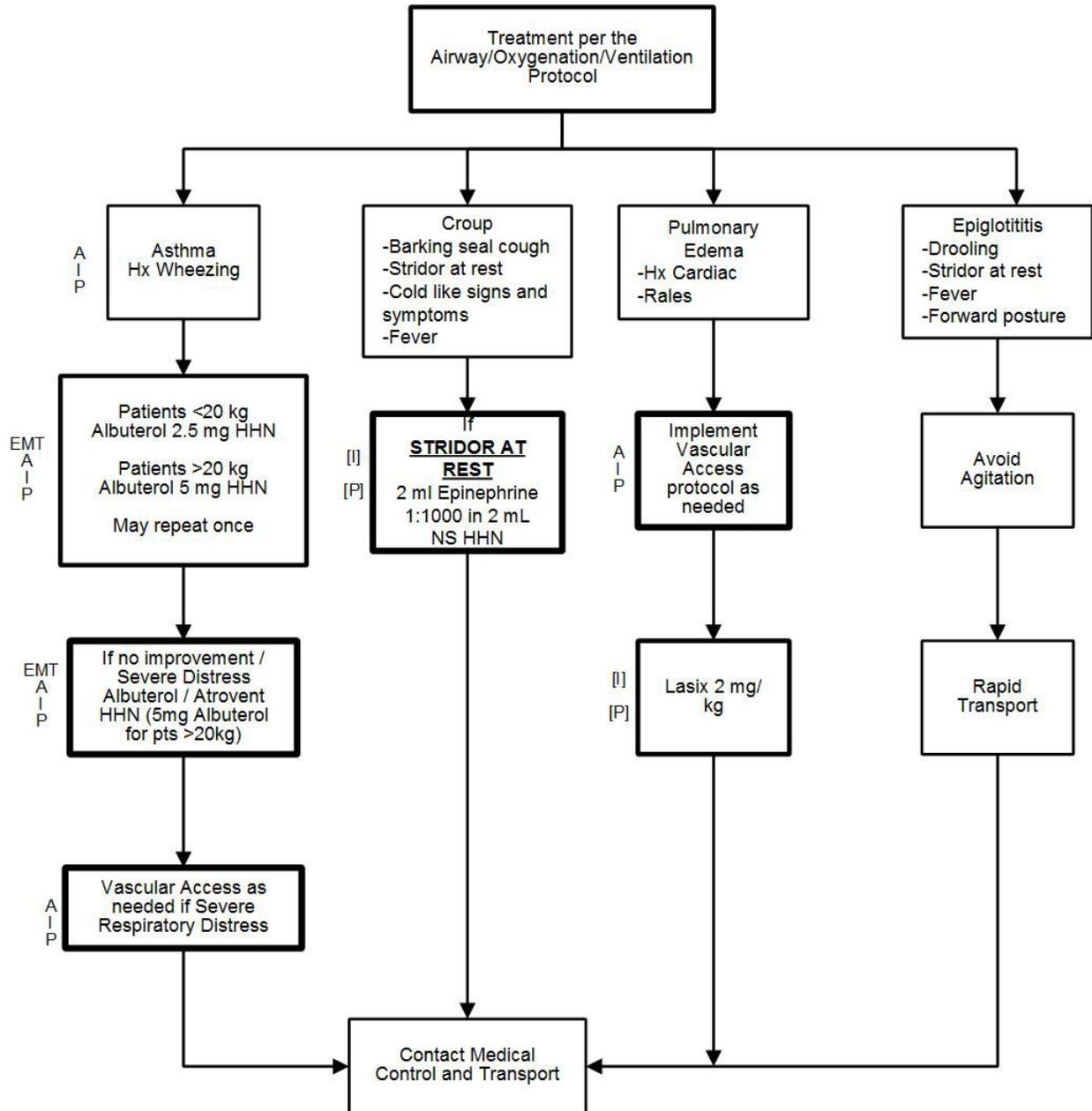
**OMD Notes:**

- Solu-medrol should not be routinely administered to pediatric patients; however, it may be considered for extended transports (physician order only)

**Performance Indicators:**

Breath Sounds Before and After Treatment  
Treatment and Response to Treatment

Initial and Ongoing SpO2





**Objectives:**

- To assess and appropriately treat pediatric patients with burn injuries

**General Information:**

- Stop the burning process. Cool burned area(s) until pain is lessened or up to 30 minutes if patient can maintain normal body temperature
- Remove clothing around burned area carefully. If clothing is stuck to skin, cut the clothing instead of pulling it away
- All burned areas should be covered with a dry, sterile dressing
- Criteria for direct transport to a regional burn/trauma center:
  - >10% BSA full-thickness
  - >20% BSA partial-thickness burns
  - >15% BSA partial and full-thickness burns
  - Burns to genitals, hands, feet, face or surface area over joints
  - Geriatric or pediatric patients
  - Inhalation, electrical injury or chemical burns
  - Associated traumatic injuries
- Sentara Norfolk General and CHKD have an agreement where some burn patients may be transported to CHKD
  - Significant burns to the face, and/or upper chest that could potentially compromise the airway should go to Sentara Norfolk General
  - A mechanism, such as a house fire where inhalation burn and potential rapid loss of airway control is a possibility, should go to Sentara Norfolk General. Check availability of CynoKit.
  - If the provider is unsure whether to transport to Sentara Norfolk General or CHKD they can call either facility for destination decision



**Warnings/Alerts:**

- Do not delay transport to start IV or to perform other non-life-saving ALS interventions for non-critical burn patients; not all burn patients need an IV
- Use caution when cooling patients to avoid hypothermia
- Inhalation burns with impending airway compromise should be treated with aggressive airway management

**OMD Notes:**

- Do not start an IO for pain management only

**Performance Indicators:**

Time on Scene

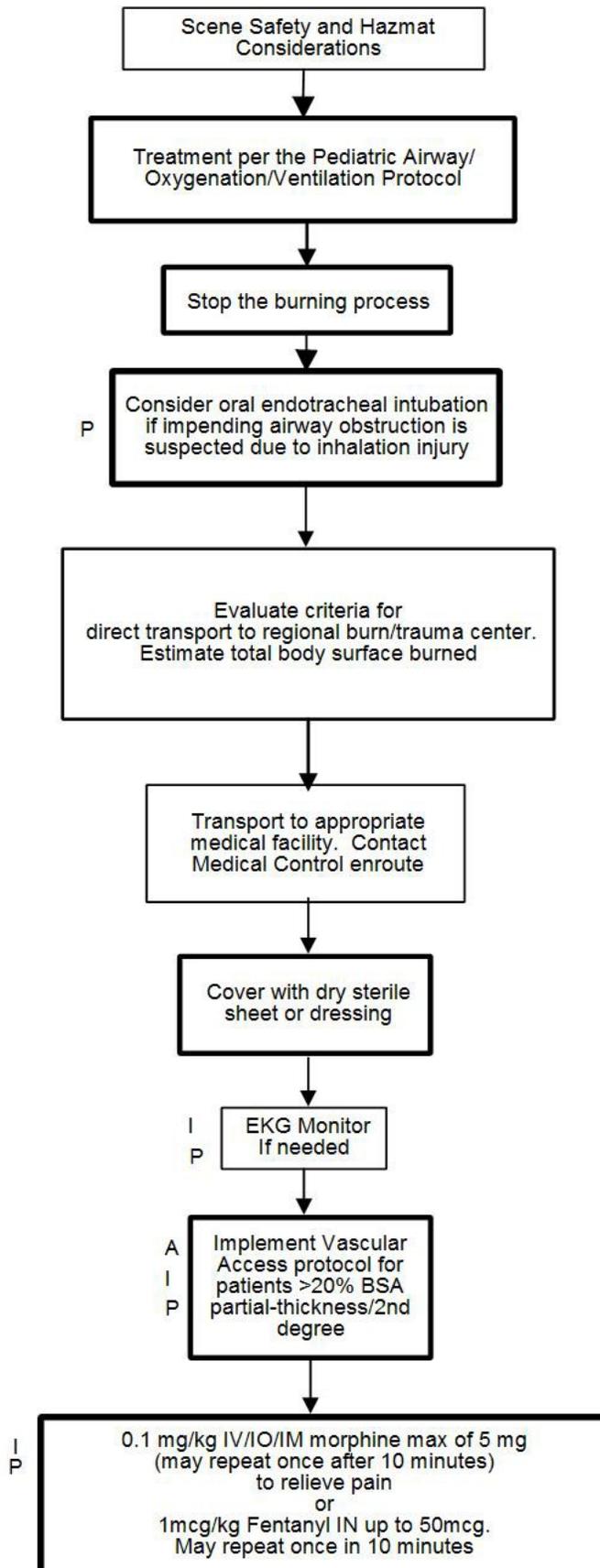
Initial and Ongoing Vital Signs

Initial SpO<sub>2</sub>

Dressing Type

Estimated Body Surface Burned

Appropriate Facility





**Objectives:**

- To provide appropriate resuscitation for the newly born

**General Information:**

- Vascular access is generally not needed in resuscitation of the newly born
- Resuscitation should focus on airway management and breathing
- Meconium aspiration (Paramedic Skill Only)
- Routine suctioning is no longer recommended: only perform tracheal suctioning with thick meconium present in a severely distressed newborn
- Umbilical vein cannulation should not routinely be utilized in the newly born
- Utilization of the EZ IO may be indicated and may require less pressure during insertion than insertion in adult patients
- APGAR scoring should be documented at 1 minute and repeated at 5 minutes
- The depressed newly born or prematurely born infant is at risk for hypoglycemia
  - Check blood sugar
    - When a patient has a sudden change in responsiveness or perfusion
    - Patient is cold stressed
    - Patients large for gestational age
    - Patients born to diabetic mothers
    - When transport time is greater than 30 minutes
  - Implement pediatric hypo/hyperglycemia protocol as needed



**Warnings/Alerts:**

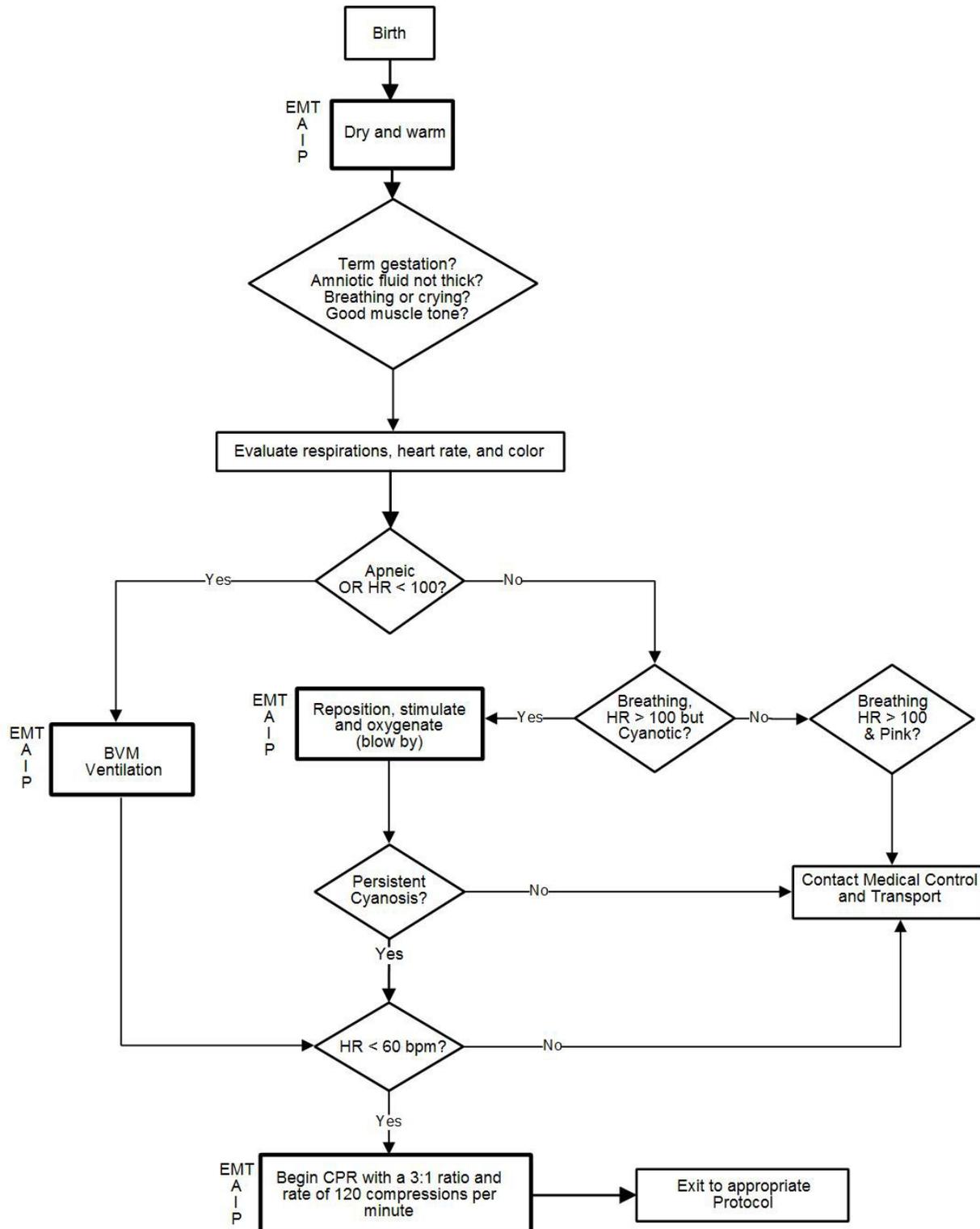
- Avoiding hypothermia is an important part of newly born management. Before delivery, make the room or ambulance as warm as possible
- Narcan is contraindicated for neonates of narcotic-addicted or methadone-dependent mothers

**OMD Notes:**

**Performance Indicators:**

1 minute & 5 Minute APGAR Score  
Meconium Aspiration

Initial and Ongoing Vital Signs  
Suctioning of Airway





**Objectives:**

- To assess and appropriately treat pediatric patients with hypo/hyperglycemia

**General Information:**

- Oral glucose may be administered by EMTs and above providers on standing orders, provided the patient meets the following criteria:
  - Glucometry < 60 mg/dL pediatric, < 45 mg/dL newborn
  - Known or suspected history of diabetes
  - Conscious and able to swallow
  - Able to maintain own airway
- Dextrose 50% may be administered rectally with physician order
- Dose 1 g/kg (or 2 mL/kg)
- Dextrose administration requires a patent flowing IV line, not a saline lock
- To make Dextrose 25% expel 25 mL of the preloaded syringe and draw up 25 mL of NS
- To make Dextrose 10% expel 40 mL of the preloaded syringe and draw up 40 mL of NS
- Patients weighing more than 25 kg will be administered D10 125cc or 12.5 grams via IV drip.
- After D10 administration, reassess the Blood Glucose Level. If below 70 mg/dL, repeat the weight appropriate dose. For any patient over 25 kg, infuse the remaining D10.
- Patients with a prolonged period of hypoglycemia may not respond to glucagon



**Warnings/Alerts:**

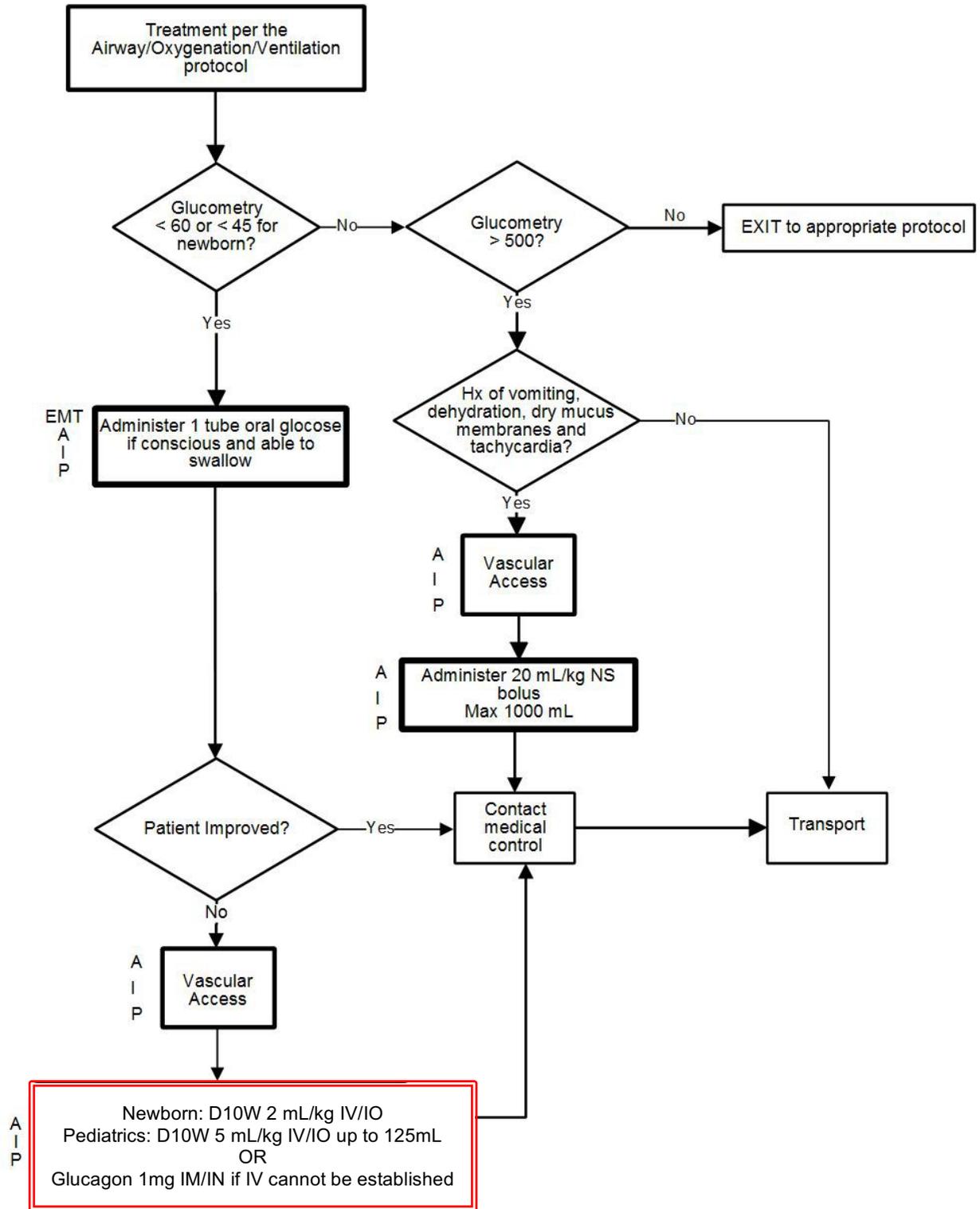
- Do not administer oral glucose to patients that are not able to swallow or protect their own airway
- If the IV infiltrates while administering dextrose, stop dextrose administration immediately

**OMD Notes:**

- Hypoglycemia is very dangerous, much more than hyperglycemia

**Performance Indicators:**

Documented Cause (If Known) Treatment and Response to Treatment Post Treatment Glucometry





**Objectives:**

- To appropriately assess and treat pediatric patients who are profoundly nauseous or vomiting

**General Information:**

- Nausea and vomiting generally are not life-threatening conditions
- Suction should be readily available whenever a patient is nauseous or vomiting
- Zofran (ondansetron) may be administered when vomiting could produce an airway obstruction (for example, in backboarded patients) or for patient comfort when the patient is repeatedly vomiting
  - Dose 0.15 mg/kg up to total dose of 4 mg slow IV push over 2-5 minutes. OMD may order more



**Warnings/Alerts:**

- Ventilating an unconscious patient will produce aspiration and airway obstruction- suctioning is essential
- Fluid bolus should be given cautiously in the pediatric population

**OMD Notes:**

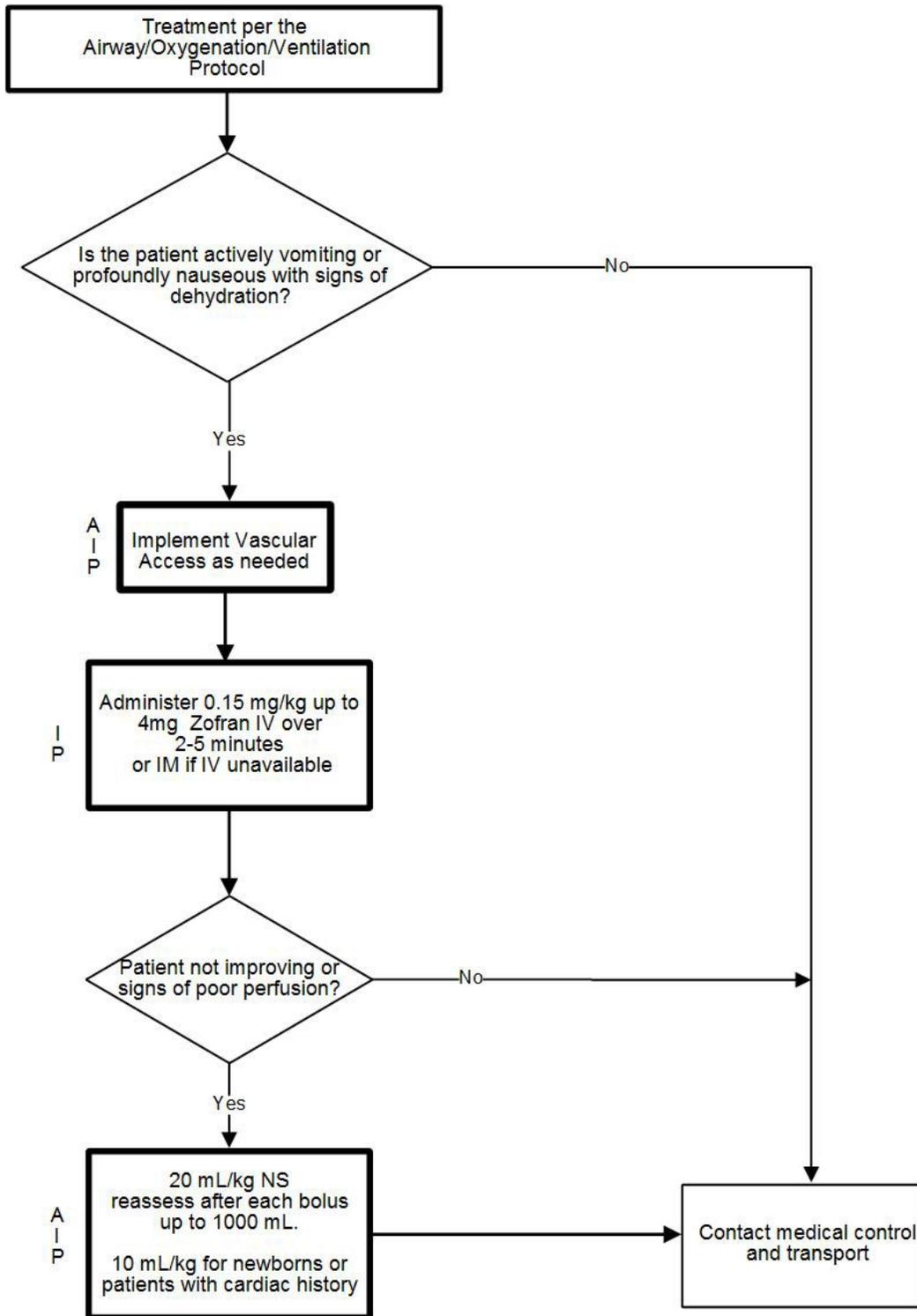
- There are conditions that cause vomiting in which a fluid bolus might increase intracranial pressure and cause a rapid deterioration, such as intracranial lesions, tumors, acute bleeding, malfunctioning VP shunts
- Prior to administering Zofran (ondansetron) obtain history of cardiac issues, arrhythmias, or prolonged Q-T intervals

**Performance Indicators:**

Document Cause (if Known)

Type of Emesis

Treatment and Response to Treatment





**Objectives:**

- To assess and appropriately treat non-cardiac pain in an effort to reduce the pediatric patient's level of pain

**General Information:**

Pain is an important indicator of disease or injury, but is generally undertreated in EMS

- Physicians do not have to assess first-hand a patient's pain level-document the patient's initial pain level in the PCR
- Provide BLS pain control measures such as position of comfort, splinting, ice, traction, etc.
- Fentanyl dose when no IV is available (IN only)
  - 1 mcg/kg
  - May be repeated up to a total of 50 mcg
- Morphine dose when IV available
  - 0.1 mg/kg IV, any single dose should not exceed 5 mg
  - Morphine should be administered via slow IV push
  - Higher doses may be appropriate for patients with chronic pain after consulting medical control
- Conditions in which pain control may be appropriate
  - Isolated extremity injury
  - Sickle cell crisis
  - Kidney stones
  - Cancer
  - Burns
- Implement nausea/vomiting protocol as needed



**Warnings/Alerts:**

- Patients who receive pain medication should also receive cardiac and SPO2 monitoring
- Monitor patient closely for respiratory depression and treat appropriately

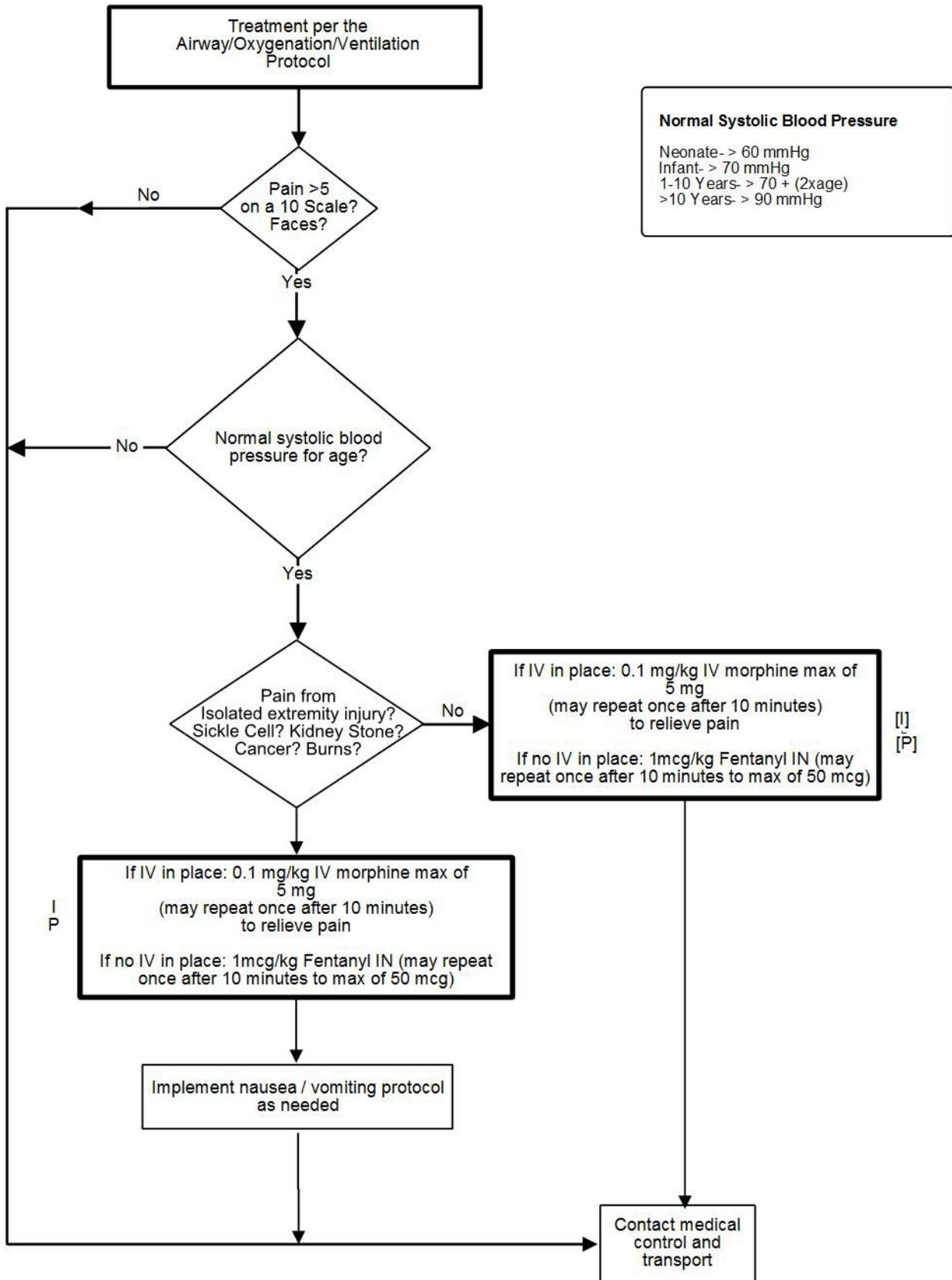
**OMD Notes:**

- Do not start an IO for pain management
- IV Fentanyl not recommended for pediatric patients
- IN Fentanyl preferred
- Rapid administration of Fentanyl can cause an inability to ventilate

**Performance Indicators:**

Pain Scale Before and After Treatment  
Response to Treatment

Initial and Ongoing Vital Signs    Patient Mental Status  
Patient Disposition





**Objectives:**

- To assess and treat pediatric patients with seizures
- To protect the airway of a seizing pediatric patient

**General Information:**

- Versed (midazolam) intranasal (IN) is the preferred drug for seizures
- Versed (midazolam)
  - Dose 0.2 mg/kg IN equally divided in each nostril, max 5 mg
  - Dose 0.1 mg/kg slow IV/IM push over 1 minute, max 2.5 mg
  - May be administered IM if IV/IO access is not available. IM versed may be just as good, if not better, than IV Ativan
- Ativan (lorazepam)
  - Dilute in an equal amount of NS for IV/IO administration
  - Dose 0.1 mg/kg up to total dose of 2 mg given IV/IO slow IV push (over 2 minutes)
  - May be administered IM if IV/IO access is not available. Do not dilute if administering IM
  - May repeat with physician order up to max dose of 8 mg
- All patients receiving Versed (midazolam) or Ativan (lorazepam) should have cardiac and SPO2 monitoring



**Warnings/Alerts:**

- Versed and Ativan have potential to cause respiratory depression or bradycardia. For that reason, patients receiving these drugs should be on cardiac and SPO2 monitor with vital sign reassessment every 5 minutes. Administer slow IVP to avoid apnea
- Inadvertent arterial injection of Ativan may cause arterial spasm, resulting in gangrene and possible amputation

**OMD Notes:**

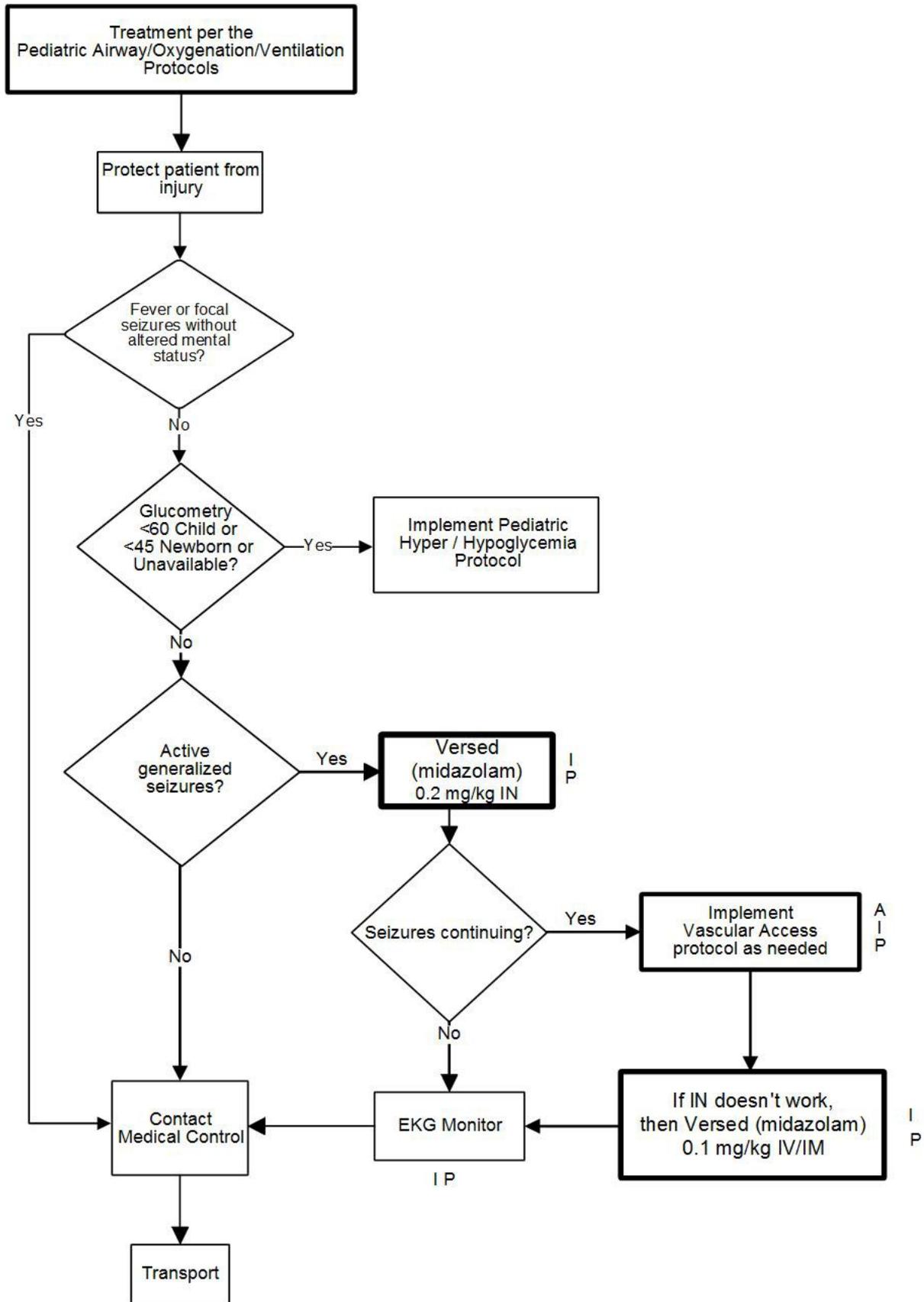
- IO placement is the last resort for the treatment of a seizure patient

**Performance Indicators:**

Length and Onset of Seizure

Glucometer Reading

Treatment and Response to Treatment





**Objectives:**

- To assess and treat patients who have a toxicological medical emergency

**General Information:**

- CNS depressants (symptoms may include: respiratory depression, pinpoint pupils, bradycardia, hypotension)
  - Examples: Opiates (heroin, methadone, fentanyl, morphine, codeine, Ultram, oxycodone); benzodiazepines (Valium, Versed, Xanax, Librium, Ativan); Barbiturates (Nembutal, Secoanal, Amytal); Anesthetics (GHB, Ketamine); ethyl alcohol (EtOH)
  - Support patient's respirations as necessary with an OPA/NPA and BVM
  - Administer Narcan before attempting intubation
- Hallucinogens (symptoms may include: hallucinations, hypertension, tachycardia,
  - Examples: LSD, Cannabis (marijuana), mescaline (peyote), PCP, mushrooms, Ecstasy, Jimson Weed, nutmeg, morning glory seeds)
- CNS stimulants (symptoms may include: hypertension, tachycardia, dysrhythmias)
  - Examples: Cocaine (including crack), amphetamines (speed, diet pills); methamphetamines (crystal meth, ice, Ecstasy); Dexedrine; caffeine; club or designer drugs; ephedra and ephedrine
- Tricyclic Antidepressants (symptoms may include: altered mental status, seizure, depressed respirations, coma)
  - Examples: Amitriptyline (Elavil); Amoxapine (Asendin); Clomipramine (Anafranil); Doxepin (Sinequin, Adepin); Imipramine (Tofranil); Nortriptyline (Aventyl, Pamelor);
  - Flexeril (Cyclobenzaprine) is closely related to TCAs and should be treated the same



**Warnings/Alerts:**

- Narcan can precipitate seizures in patients with a seizure history or in long term narcotic addicts
- Narcan can precipitate dysrhythmias in patients with cardiac disease, including ventricular fibrillation or ventricular tachycardia
- The goal of Narcan administration is to establish an adequate respiratory rate, not to return the patient to full consciousness

**OMD Notes:**

- Do not act upon advice from poison control center; contact medical control for instructions if needed

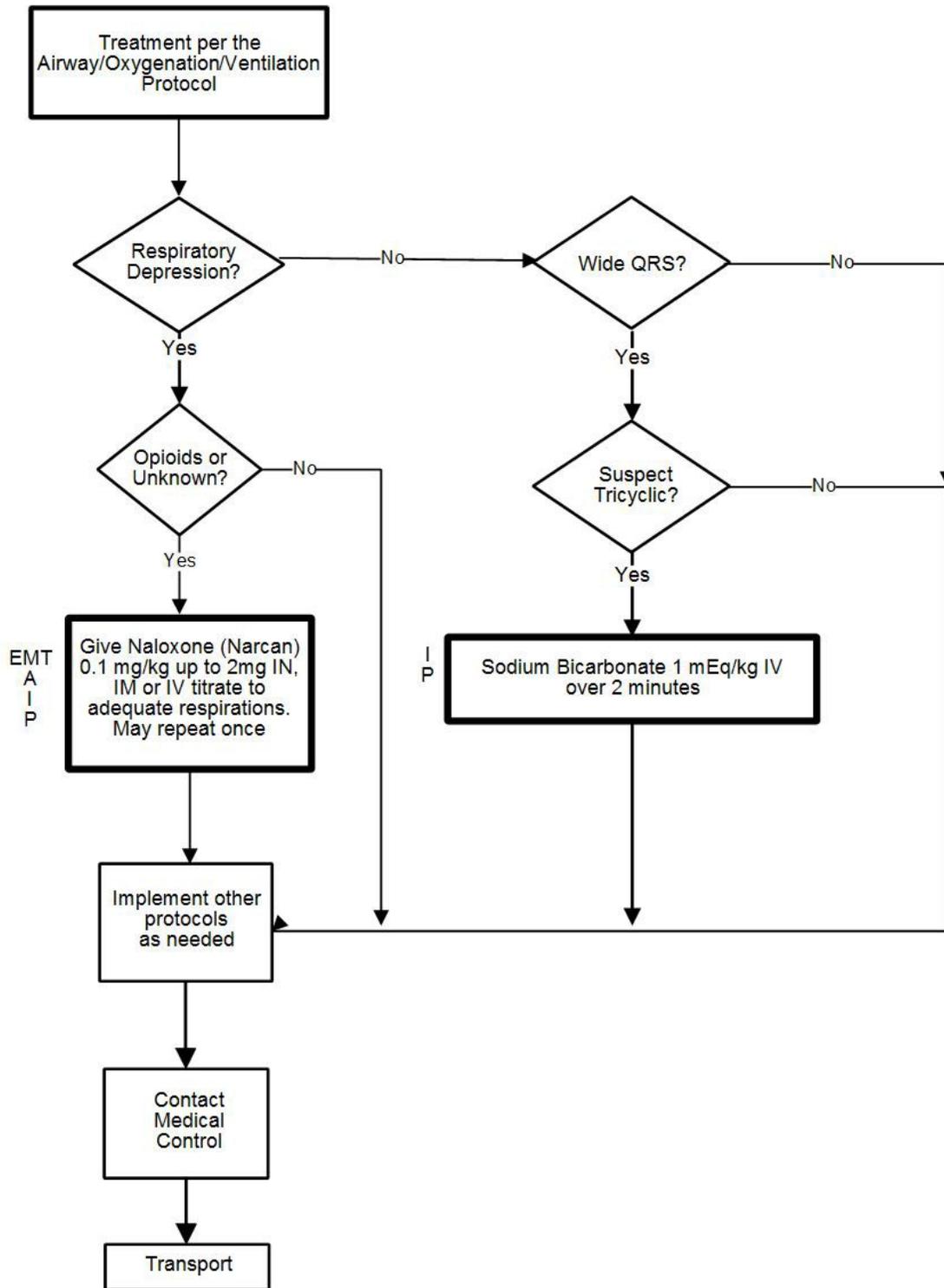
**Performance Indicators:**

Initial Evaluation

Documentation of substance taken (if known)

Appropriate receiving facility

Treatment and Response to Treatment



# PEDIATRIC REFERENCE CHART

|        |     |      |
|--------|-----|------|
| PREMIE | 2KG | Gray |
|--------|-----|------|

|     |     |      |
|-----|-----|------|
| 4MO | 6KG | Pink |
|-----|-----|------|

|     |      |        |
|-----|------|--------|
| 1YR | 10KG | Purple |
|-----|------|--------|

|     |      |       |
|-----|------|-------|
| 3YR | 15KG | White |
|-----|------|-------|

|     |      |      |
|-----|------|------|
| 5YR | 20KG | Blue |
|-----|------|------|

|     |      |        |
|-----|------|--------|
| 7YR | 25KG | Orange |
|-----|------|--------|

|     |      |       |
|-----|------|-------|
| 9YR | 30KG | Green |
|-----|------|-------|

|      |      |       |
|------|------|-------|
| 11YR | 40KG | Green |
|------|------|-------|

|      |      |       |
|------|------|-------|
| 13YR | 60KG | Green |
|------|------|-------|

|                        |  |  |
|------------------------|--|--|
| ADULT 80 KG DOSE CHART |  |  |
|------------------------|--|--|

|                         |  |  |
|-------------------------|--|--|
| ADULT 100 KG DOSE CHART |  |  |
|-------------------------|--|--|

|         |     |      |
|---------|-----|------|
| Newborn | 4KG | Gray |
|---------|-----|------|

|     |     |     |
|-----|-----|-----|
| 6MO | 8KG | Red |
|-----|-----|-----|

|     |      |        |
|-----|------|--------|
| 2YR | 12KG | Yellow |
|-----|------|--------|

|     |      |       |
|-----|------|-------|
| 4YR | 17KG | White |
|-----|------|-------|

|     |      |      |
|-----|------|------|
| 6YR | 22KG | Blue |
|-----|------|------|

|     |      |        |
|-----|------|--------|
| 8YR | 27KG | Orange |
|-----|------|--------|

|      |      |       |
|------|------|-------|
| 10YR | 35KG | Green |
|------|------|-------|

|      |      |       |
|------|------|-------|
| 12YR | 50KG | Green |
|------|------|-------|

|      |      |       |
|------|------|-------|
| 14YR | 70KG | Green |
|------|------|-------|

|                        |  |  |
|------------------------|--|--|
| ADULT 90 KG DOSE CHART |  |  |
|------------------------|--|--|

|           |  |  |
|-----------|--|--|
| Main Menu |  |  |
|-----------|--|--|

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**PREMIE**

| CHESAPEAKE FIRE DEPARTMENT    |  | 2 KG IDEAL WEIGHT       |              |
|-------------------------------|--|-------------------------|--------------|
| AIRWAY EQUIPMENT              |  | INSTRUCTIONS            |              |
| Resuscitation Bag (BVM)       |  | Infant                  |              |
| OPA (Teeth to Angle Jaw)      |  | -                       |              |
| NPA (Nostril to Earlobe)      |  | -                       |              |
| BLADE                         |  | 0 Straight              |              |
| ETT Size                      |  | 2.5 - 3.0 mm (Uncuffed) |              |
| Stylet                        |  | 6 F                     |              |
| ETT @ Lip                     |  | 8 cm                    | (1 Kg: 7 cm) |
| King Airway                   |  | -                       |              |
| NG Tube                       |  | 5 F                     |              |
| Suction Catheter              |  | 5 F                     |              |
| INTRAVENOUS EQUIPMENT         |  | INSTRUCTIONS            |              |
| IV Catheter                   |  | -                       |              |
| EZ-IO                         |  | 15 mm (15 G) Pink       |              |
| Defib Pads Size               |  | Pediatric               |              |
| VITALS                        |  | RANGE                   |              |
| Respiratory Rate              |  | 40 - 70                 |              |
| Heart Rate                    |  | 120 - 170               |              |
| Systolic Blood Pressure (SBP) |  | 55 - 90                 |              |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 4   | 8   | 15  | 15  |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 2   | 2   | 4   | 4   |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |
|---|-------|------------------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 5 mL/hour        |
|   | 20%   | 10 mL/hour       |
|   | 30%   | 15 mL/hour       |
|   | 40%   | 20 mL/hour       |
|   | 50%   | 25 mL/hour       |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

# PREMIE

| CHESAPEAKE FIRE DEPARTMENT        |                |                  | 2 KG IDEAL WEIGHT |                  |             |
|-----------------------------------|----------------|------------------|-------------------|------------------|-------------|
| DRUG                              | CONC           | VOL              | ROUTE             | DOSE/KG          | AMOUNT      |
| Adenosine (Adenocard)             | 3 mg/mL        | 0.07 mL          | IV/IO             | 0.1 mg/kg        | 0.2 mg      |
| Amiodarone (Cordarone)            | 50 mg/mL       | 0.2 mL           | IV/IO             | 5 mg/kg          | 10 mg       |
| Atropine                          | 0.1 mg/mL      | 0.4 mL           | IV/IO             | 0.02 mg/kg       | 0.04 mg     |
| Calcium Chloride                  | 100 mg/mL      | 0.4 mL           | IV/IO             | 20 mg/kg         | 40 mg       |
| Dextrose 10%                      | 0.1 gm/mL      | 4 mL             | IV/IO             | 0.2 gm/kg        | 0.4 gm      |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 0.04 mL          | IV/IO             | 1 mg/kg          | 2 mg        |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.02 mL</b>   | <b>IM</b>         | 0.01 mg/kg       | 0.02 mg     |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 0.2 mL           | IV/IO             | 0.01 mg/kg       | 0.02 mg     |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 0.04 mL          | IV/IO/IN          | 1 mcg/kg         | 2 mcg       |
| Glucagon                          | 1 mg/mL        | 0.2 mL           | IM                | 0.1 mg/kg        | 0.2 mg      |
| Lorazepam (Ativan)                | 2 mg/mL        | 0.1 mL           | IV/IO/IM          | 0.1 mg/kg        | 0.2 mg      |
| Midazolam (Versed) IN             | 5 mg/mL        | 0.08 mL          | IN                | 0.2 mg/kg        | 0.4 mg      |
| Midazolam (Versed)                | 5 mg/mL        | 0.04 mL          | IV/IM             | 0.1 mg/kg        | 0.2 mg      |
| Morphine Sulfate                  | 2 mg/mL        | 0.1 mL           | IV/IO             | 0.1 mg/kg        | 0.2 mg      |
| Naloxone (Narcan)                 | 1 mg/mL        | 0.2 mL           | IN/IV/IO          | 0.1 mg/kg        | 0.2 mg      |
| Odansetron (Zofran)               | 2 mg/mL        | 0.2 mL           | IV/IM             | 0.15 mg/kg       | 0.3 mg      |
| Sodium Bicarbonate                | 1 mEq/mL       | 2 mL             | IV/IO             | 1 mEq/kg         | 2 mEq       |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 0.06 mL          | IV/IO             | 2 mg/kg          | 4 mg        |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 0.2 mL           | IV/IO             | 1 mg/kg          | 2 mg        |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 0.2 mL           | IO                | 1 mg/kg          | 2 mg        |
| NEBULIZED MEDICATIONS             |                |                  |                   |                  |             |
| Albuterol (Proventil)             | 2.5mg/3mL      | 3 mL             | NEB               | Set Dose         | 2.5 mg      |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL           | NEB               | Set Dose         | 0.5 mg      |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS | NEB               | Set Dose         | 2 mg        |
| DRIPS MEDICATIONS (60 gtt/mL Set) |                |                  |                   |                  |             |
| Epinephrine Drip                  | 2 mcg/mL       | 6 gtt/min        | IV/IO             | 0.1 mcg/kg       | 0.2 mcg/min |
| Norepinephrine (Levophed)         | 2 mcg/mL       | 6 gtt/min        | IV/IO             | 0.1 mcg/kg       | 0.2 mcg/min |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                  |                   |                  |             |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 6 mL             | IV/IO             | Push over 15 min | 140 mg      |
| Normal Saline Bolus               | 0.9%           | 40 mL            | IV/IO             | 20 mL/kg         | 40 mL       |

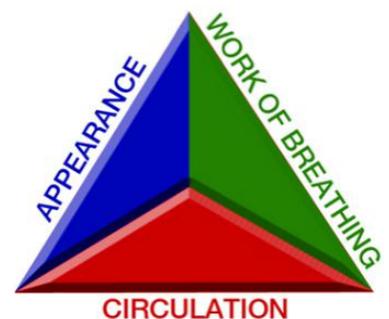
OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

# Newborn

| CHESAPEAKE FIRE DEPARTMENT    |                         | 4 KG IDEAL WEIGHT |
|-------------------------------|-------------------------|-------------------|
| AIRWAY EQUIPMENT              | INSTRUCTIONS            |                   |
| Resuscitation Bag (BVM)       | Infant                  |                   |
| OPA (Teeth to Angle Jaw)      | 40 mm                   |                   |
| NPA (Nostril to Earlobe)      | 14 F                    |                   |
| BLADE                         | 0 - 1 Straight          |                   |
| ETT Size                      | 3.0 - 3.5 mm (Uncuffed) |                   |
| Stylet                        | 6 F                     |                   |
| ETT @ Lip                     | 10 - 10.5 cm            |                   |
| King Airway                   | 0                       |                   |
| NG Tube                       | 5 - 8 F                 |                   |
| Suction Catheter              | 6 - 8 F                 |                   |
| INTRAVENOUS EQUIPMENT         | INSTRUCTIONS            |                   |
| IV Catheter                   | 24 G                    |                   |
| EZ-IO                         | 25 mm (15 G) Blue       |                   |
| Defib Pads Size               | Pediatric               |                   |
| VITALS                        | RANGE                   |                   |
| Respiratory Rate              | 30 - 60                 |                   |
| Heart Rate                    | 100 - 205               |                   |
| Systolic Blood Pressure (SBP) | 60 - 100                |                   |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 8   | 15  | 20  | 30  |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 2   | 4   | 8   | 8   |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |
|---|-------|------------------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 10 mL/hour       |
|   | 20%   | 20 mL/hour       |
|   | 30%   | 30 mL/hour       |
|   | 40%   | 40 mL/hour       |
|   | 50%   | 50 mL/hour       |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

# Newborn

## CHESAPEAKE FIRE DEPARTMENT

## 4 KG IDEAL WEIGHT

| DRUG                              | CONC           | VOL              | ROUTE     | DOSE/KG          | AMOUNT      |
|-----------------------------------|----------------|------------------|-----------|------------------|-------------|
| Adenosine (Adenocard)             | 3 mg/mL        | 0.13 mL          | IV/IO     | 0.1 mg/kg        | 0.4 mg      |
| Amiodarone (Cordarone)            | 50 mg/mL       | 0.4 mL           | IV/IO     | 5 mg/kg          | 20 mg       |
| Atropine                          | 0.1 mg/mL      | 0.8 mL           | IV/IO     | 0.02 mg/kg       | 0.08 mg     |
| Calcium Chloride                  | 100 mg/mL      | 0.8 mL           | IV/IO     | 20 mg/kg         | 80 mg       |
| Dextrose 10%                      | 0.1 gm/mL      | 8 mL             | IV/IO     | 0.2 gm/kg        | 0.8 gm      |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 0.08 mL          | IV/IO     | 1 mg/kg          | 4 mg        |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.04 mL</b>   | <b>IM</b> | 0.01 mg/kg       | 0.04 mg     |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 0.4 mL           | IV/IO     | 0.01 mg/kg       | 0.04 mg     |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 0.08 mL          | IV/IO/IN  | 1 mcg/kg         | 4 mcg       |
| Glucagon                          | 1 mg/mL        | 0.4 mL           | IM        | 0.1 mg/kg        | 0.4 mg      |
| Lorazepam (Ativan)                | 2 mg/mL        | 0.2 mL           | IV/IO/IM  | 0.1 mg/kg        | 0.4 mg      |
| Midazolam (Versed) IN             | 5 mg/mL        | 0.16 mL          | IN        | 0.2 mg/kg        | 0.8 mg      |
| Midazolam (Versed)                | 5 mg/mL        | 0.08 mL          | IV/IM     | 0.1 mg/kg        | 0.4 mg      |
| Morphine Sulfate                  | 2 mg/mL        | 0.2 mL           | IV/IO     | 0.1 mg/kg        | 0.4 mg      |
| Naloxone (Narcan)                 | 1 mg/mL        | 0.4 mL           | IN/IV/IO  | 0.1 mg/kg        | 0.4 mg      |
| Odansetron (Zofran)               | 2 mg/mL        | 0.3 mL           | IV/IM     | 0.15 mg/kg       | 0.6 mg      |
| Sodium Bicarbonate                | 1 mEq/mL       | 4 mL             | IV/IO     | 1 mEq/kg         | 4 mEq       |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 0.1 mL           | IV/IO     | 2 mg/kg          | 8 mg        |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 0.4 mL           | IV/IO     | 1 mg/kg          | 4 mg        |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 0.4 mL           | IO        | 1 mg/kg          | 4 mg        |
| NEBULIZED MEDICATIONS             |                |                  |           |                  |             |
| Albuterol (Proventil)             | 2.5mg/3mL      | 3 mL             | NEB       | Set Dose         | 2.5 mg      |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL           | NEB       | Set Dose         | 0.5 mg      |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS | NEB       | Set Dose         | 2 mg        |
| DRIPS MEDICATIONS (60 gtt/mL Set) |                |                  |           |                  |             |
| Epinephrine Drip                  | 2 mcg/mL       | 12 gtt/min       | IV/IO     | 0.1 mcg/kg       | 0.4 mcg/min |
| Norepinephrine (Levophed)         | 2 mcg/mL       | 12 gtt/min       | IV/IO     | 0.1 mcg/kg       | 0.4 mcg/min |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                  |           |                  |             |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 11 mL            | IV/IO     | Push over 15 min | 280 mg      |
| Normal Saline Bolus               | 0.9%           | 80 mL            | IV/IO     | 20 mL/kg         | 80 mL       |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**4 MO**

**CHESAPEAKE FIRE DEPARTMENT**

**6 KG IDEAL WEIGHT**

| AIRWAY EQUIPMENT              | INSTRUCTIONS            |
|-------------------------------|-------------------------|
| Resuscitation Bag (BVM)       | Infant                  |
| OPA (Teeth to Angle Jaw)      | 50 mm                   |
| NPA (Nostril to Earlobe)      | 14 F                    |
| BLADE                         | 1 Straight              |
| ETT Size                      | 3.0 - 3.5 mm (Uncuffed) |
| Stylet                        | 6 F                     |
| ETT @ Lip                     | 10.5- 11 cm             |
| King Airway                   | 1                       |
| NG Tube                       | 5 - 8 F                 |
| Suction Catheter              | 8 F                     |
| INTRAVENOUS EQUIPMENT         | INSTRUCTIONS            |
| IV Catheter                   | 22 - 24 G               |
| EZ-IO                         | 25 mm (15 G) Blue       |
| Defib Pads Size               | Pediatric               |
| VITALS                        | RANGE                   |
| Respiratory Rate              | 30 - 53                 |
| Heart Rate                    | 100 - 190               |
| Systolic Blood Pressure (SBP) | 72 - 104                |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 15  | 20  | 30  | 50  |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 3   | 6   | 15  | 15  |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |
|---|-------|------------------|
| $Wt \text{ kg} \times TBSA \times 0.25cc$<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 15 mL/hour       |
|   | 20%   | 30 mL/hour       |
|   | 30%   | 45 mL/hour       |
|   | 40%   | 60 mL/hour       |
|   | 50%   | 75 mL/hour       |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**4 MO**

**CHESAPEAKE FIRE DEPARTMENT**

**6 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL              | ROUTE     | DOSE/KG          | AMOUNT      |
|-----------------------------------|----------------|------------------|-----------|------------------|-------------|
| Adenosine (Adenocard)             | 3 mg/mL        | 0.2 mL           | IV/IO     | 0.1 mg/kg        | 0.6 mg      |
| Amiodarone (Cordarone)            | 50 mg/mL       | 0.6 mL           | IV/IO     | 5 mg/kg          | 30 mg       |
| Atropine                          | 0.1 mg/mL      | 1.2 mL           | IV/IO     | 0.02 mg/kg       | 0.12 mg     |
| Calcium Chloride                  | 100 mg/mL      | 1.2 mL           | IV/IO     | 20 mg/kg         | 120 mg      |
| Dextrose 10%                      | 0.1 gm/mL      | 30 mL            | IV/IO     | 0.5 gm/kg        | 3 gm        |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 0.12 mL          | IV/IO     | 1 mg/kg          | 6 mg        |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.06 mL</b>   | <b>IM</b> | 0.01 mg/kg       | 0.06 mg     |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 0.6 mL           | IV/IO     | 0.01 mg/kg       | 0.06 mg     |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 0.12 mL          | IV/IO/IN  | 1 mcg/kg         | 6 mcg       |
| Glucagon                          | 1 mg/mL        | 0.6 mL           | IM        | 0.1 mg/kg        | 0.6 mg      |
| Lorazepam (Ativan)                | 2 mg/mL        | 0.3 mL           | IV/IO/IM  | 0.1 mg/kg        | 0.6 mg      |
| Midazolam (Versed) IN             | 5 mg/mL        | 0.24 mL          | IN        | 0.2 mg/kg        | 1.2 mg      |
| Midazolam (Versed)                | 5 mg/mL        | 0.12 mL          | IV/IM     | 0.1 mg/kg        | 0.6 mg      |
| Morphine Sulfate                  | 2 mg/mL        | 0.3 mL           | IV/IO     | 0.1 mg/kg        | 0.6 mg      |
| Naloxone (Narcan)                 | 1 mg/mL        | 0.6 mL           | IN/IV/IO  | 0.1 mg/kg        | 0.6 mg      |
| Odansetron (Zofran)               | 2 mg/mL        | 0.45 mL          | IV/IM     | 0.15 mg/kg       | 0.9 mg      |
| Sodium Bicarbonate                | 1 mEq/mL       | 6 mL             | IV/IO     | 1 mEq/kg         | 6 mEq       |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 0.2 mL           | IV/IO     | 2 mg/kg          | 12 mg       |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 0.6 mL           | IV/IO     | 1 mg/kg          | 6 mg        |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 0.6 mL           | IO        | 1 mg/kg          | 6 mg        |
| NEBULIZED MEDICATIONS             |                |                  |           |                  |             |
| Albuterol (Proventil)             | 2.5mg/3mL      | 3 mL             | NEB       | Set Dose         | 2.5 mg      |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL           | NEB       | Set Dose         | 0.5 mg      |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS | NEB       | Set Dose         | 2 mg        |
| DRIPS MEDICATIONS (60 gtt/mL Set) |                |                  |           |                  |             |
| Epinephrine Drip                  | 2 mcg/mL       | 18 gtt/min       | IV/IO     | 0.1 mcg/kg       | 0.6 mcg/min |
| Norepinephrine (Levophed)         | 2 mcg/mL       | 18 gtt/min       | IV/IO     | 0.1 mcg/kg       | 0.6 mcg/min |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                  |           |                  |             |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 17 mL            | IV/IO     | Push over 15 min | 420 mg      |
| Normal Saline Bolus               | 0.9%           | 120 mL           | IV/IO     | 20 mL/kg         | 120 mL      |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**6 MO**

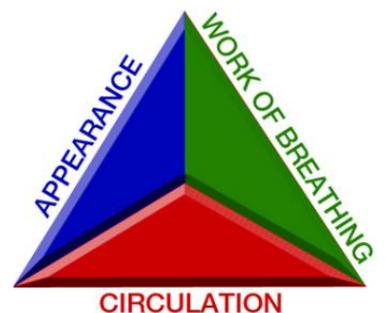
**CHESAPEAKE FIRE DEPARTMENT**

**8 KG IDEAL WEIGHT**

| AIRWAY EQUIPMENT              | INSTRUCTIONS      |
|-------------------------------|-------------------|
| Resuscitation Bag (BVM)       | Infant/Pediatric  |
| OPA (Teeth to Angle Jaw)      | 50 mm             |
| NPA (Nostril to Earlobe)      | 14 F              |
| BLADE                         | 1 Straight        |
| ETT Size                      | 3.5 mm (Uncuffed) |
| Stylet                        | 6 F               |
| ETT @ Lip                     | 10.5- 11 cm       |
| King Airway                   | 1                 |
| NG Tube                       | 5 - 8 F           |
| Suction Catheter              | 8 F               |
| INTRAVENOUS EQUIPMENT         | INSTRUCTIONS      |
| IV Catheter                   | 23 - 24 G         |
| EZ-IO                         | 25 mm (15 G) Blue |
| Defib Pads Size               | Pediatric         |
| VITALS                        | RANGE             |
| Respiratory Rate              | 30 - 53           |
| Heart Rate                    | 100 - 190         |
| Systolic Blood Pressure (SBP) | 72 - 104          |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 15  | 30  | 50  | 70  |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 4   | 8   | 15  | 15  |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |
|---|-------|------------------|
| $Wt \text{ kg} \times TBSA \times 0.25cc$<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 20 mL/hour       |
|   | 20%   | 40 mL/hour       |
|   | 30%   | 60 mL/hour       |
|   | 40%   | 80 mL/hour       |
|   | 50%   | 100 mL/hour      |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**6 MO**

**CHESAPEAKE FIRE DEPARTMENT**

**8 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL              | ROUTE     | DOSE/KG          | AMOUNT      |
|-----------------------------------|----------------|------------------|-----------|------------------|-------------|
| Adenosine (Adenocard)             | 3 mg/mL        | 0.27 mL          | IV/IO     | 0.1 mg/kg        | 0.8 mg      |
| Amiodarone (Cordarone)            | 50 mg/mL       | 0.8 mL           | IV/IO     | 5 mg/kg          | 40 mg       |
| Atropine                          | 0.1 mg/mL      | 1.6 mL           | IV/IO     | 0.02 mg/kg       | 0.16 mg     |
| Calcium Chloride                  | 100 mg/mL      | 1.6 mL           | IV/IO     | 20 mg/kg         | 160 mg      |
| Dextrose 10%                      | 0.1 gm/mL      | 40 mL            | IV/IO     | 0.5 gm/kg        | 4 gm        |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 0.16 mL          | IV/IO     | 1 mg/kg          | 8 mg        |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.08 mL</b>   | <b>IM</b> | 0.01 mg/kg       | 0.08 mg     |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 0.8 mL           | IV/IO     | 0.01 mg/kg       | 0.08 mg     |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 0.16 mL          | IV/IO/IN  | 1 mcg/kg         | 8 mcg       |
| Glucagon                          | 1 mg/mL        | 0.8 mL           | IM        | 0.1 mg/kg        | 0.8 mg      |
| Lorazepam (Ativan)                | 2 mg/mL        | 0.4 mL           | IV/IO/IM  | 0.1 mg/kg        | 0.8 mg      |
| Midazolam (Versed) IN             | 5 mg/mL        | 0.32 mL          | IN        | 0.2 mg/kg        | 1.6 mg      |
| Midazolam (Versed)                | 5 mg/mL        | 0.16 mL          | IV/IM     | 0.1 mg/kg        | 0.8 mg      |
| Morphine Sulfate                  | 2 mg/mL        | 0.4 mL           | IV/IO     | 0.1 mg/kg        | 0.8 mg      |
| Naloxone (Narcan)                 | 1 mg/mL        | 0.8 mL           | IN/IV/IO  | 0.1 mg/kg        | 0.8 mg      |
| Odansetron (Zofran)               | 2 mg/mL        | 0.6 mL           | IV/IM     | 0.15 mg/kg       | 1.2 mg      |
| Sodium Bicarbonate                | 1 mEq/mL       | 8 mL             | IV/IO     | 1 mEq/kg         | 8 mEq       |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 0.3 mL           | IV/IO     | 2 mg/kg          | 16 mg       |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 0.8 mL           | IV/IO     | 1 mg/kg          | 8 mg        |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 0.8 mL           | IO        | 1 mg/kg          | 8 mg        |
| NEBULIZED MEDICATIONS             |                |                  |           |                  |             |
| Albuterol (Proventil)             | 2.5mg/3mL      | 3 mL             | NEB       | Set Dose         | 2.5 mg      |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL           | NEB       | Set Dose         | 0.5 mg      |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS | NEB       | Set Dose         | 2 mg        |
| DRIPS MEDICATIONS (60 gtt/mL Set) |                |                  |           |                  |             |
| Epinephrine Drip                  | 2 mcg/mL       | 24 gtt/min       | IV/IO     | 0.1 mcg/kg       | 0.8 mcg/min |
| Norepinephrine (Levophed)         | 2 mcg/mL       | 24 gtt/min       | IV/IO     | 0.1 mcg/kg       | 0.8 mcg/min |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                  |           |                  |             |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 22 mL            | IV/IO     | Push over 15 min | 560 mg      |
| Normal Saline Bolus               | 0.9%           | 160 mL           | IV/IO     | 20 mL/kg         | 160 mL      |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**1 YR**

**CHESAPEAKE FIRE DEPARTMENT** **10 KG IDEAL WEIGHT**

| AIRWAY EQUIPMENT         | INSTRUCTIONS            |
|--------------------------|-------------------------|
| Resuscitation Bag (BVM)  | Pediatric               |
| OPA (Teeth to Angle Jaw) | 60 mm                   |
| NPA (Nostril to Earlobe) | 18 F                    |
| BLADE                    | 1 Straight              |
| ETT Size                 | 3.5 - 4.0 mm (Uncuffed) |
| Stylet                   | 10 F                    |
| ETT @ Lip                | 11 - 12 cm              |
| King Airway              | 1                       |
| NG Tube                  | 8 - 10 F                |
| Suction Catheter         | 10 F                    |

| INTRAVENOUS EQUIPMENT | INSTRUCTIONS      |
|-----------------------|-------------------|
| IV Catheter           | 20 - 24 G         |
| EZ-IO                 | 25 mm (15 G) Blue |
| Defib Pads Size       | Pediatric         |

| VITALS                        | RANGE    |
|-------------------------------|----------|
| Respiratory Rate              | 22 - 30  |
| Heart Rate                    | 98 - 140 |
| Systolic Blood Pressure (SBP) | 75 - 105 |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 20  | 50  | 70  | 70  |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 5   | 10  | 20  | 20  |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |
|---|-------|------------------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 25 mL/hour       |
|   | 20%   | 50 mL/hour       |
|   | 30%   | 75 mL/hour       |
|   | 40%   | 100 mL/hour      |
|   | 50%   | 125 mL/hour      |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**1 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**10 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL              | ROUTE     | DOSE/KG          | AMOUNT    |
|-----------------------------------|----------------|------------------|-----------|------------------|-----------|
| Adenosine (Adenocard)             | 3 mg/mL        | 0.33 mL          | IV/IO     | 0.1 mg/kg        | 1 mg      |
| Amiodarone (Cordarone)            | 50 mg/mL       | 1 mL             | IV/IO     | 5 mg/kg          | 50 mg     |
| Atropine                          | 0.1 mg/mL      | 2 mL             | IV/IO     | 0.02 mg/kg       | 0.2 mg    |
| Calcium Chloride                  | 100 mg/mL      | 2 mL             | IV/IO     | 20 mg/kg         | 200 mg    |
| Dextrose 10%                      | 0.1 gm/mL      | 50 mL            | IV/IO     | 0.5 gm/kg        | 5 gm      |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 0.2 mL           | IV/IO     | 1 mg/kg          | 10 mg     |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.1 mL</b>    | <b>IM</b> | 0.01 mg/kg       | 0.1 mg    |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 1 mL             | IV/IO     | 0.01 mg/kg       | 0.1 mg    |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 0.2 mL           | IV/IO/IN  | 1 mcg/kg         | 10 mcg    |
| Glucagon                          | 1 mg/mL        | 1 mL             | IM        | 0.1 mg/kg        | 1 mg      |
| Lorazepam (Ativan)                | 2 mg/mL        | 0.5 mL           | IV/IO/IM  | 0.1 mg/kg        | 1 mg      |
| Midazolam (Versed) IN             | 5 mg/mL        | 0.4 mL           | IN        | 0.2 mg/kg        | 2 mg      |
| Midazolam (Versed)                | 5 mg/mL        | 0.2 mL           | IV/IM     | 0.1 mg/kg        | 1 mg      |
| Morphine Sulfate                  | 2 mg/mL        | 0.5 mL           | IV/IO     | 0.1 mg/kg        | 1 mg      |
| Naloxone (Narcan)                 | 1 mg/mL        | 1 mL             | IN/IV/IO  | 0.1 mg/kg        | 1 mg      |
| Odansetron (Zofran)               | 2 mg/mL        | 0.75 mL          | IV/IM     | 0.15 mg/kg       | 1.5 mg    |
| Sodium Bicarbonate                | 1 mEq/mL       | 10 mL            | IV/IO     | 1 mEq/kg         | 10 mEq    |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 0.3 mL           | IV/IO     | 2 mg/kg          | 20 mg     |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 1 mL             | IV/IO     | 1 mg/kg          | 10 mg     |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 1 mL             | IO        | 1 mg/kg          | 10 mg     |
| NEBULIZED MEDICATIONS             |                |                  |           |                  |           |
| Albuterol (Proventil)             | 2.5mg/3mL      | 3 mL             | NEB       | Set Dose         | 2.5 mg    |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL           | NEB       | Set Dose         | 0.5 mg    |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS | NEB       | Set Dose         | 2 mg      |
| DRIPS MEDICATIONS (60 gtt/mL Set) |                |                  |           |                  |           |
| Epinephrine Drip                  | 2 mcg/mL       | 30 gtt/min       | IV/IO     | 0.1 mcg/kg       | 1 mcg/min |
| Norepinephrine (Levophed)         | 2 mcg/mL       | 30 gtt/min       | IV/IO     | 0.1 mcg/kg       | 1 mcg/min |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                  |           |                  |           |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 28 mL            | IV/IO     | Push over 15 min | 700 mg    |
| Normal Saline Bolus               | 0.9%           | 200 mL           | IV/IO     | 20 mL/kg         | 200 mL    |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**2 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**12 KG IDEAL WEIGHT**

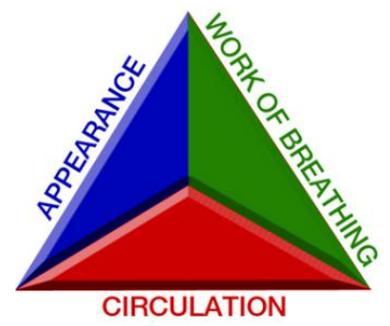
| AIRWAY EQUIPMENT         | INSTRUCTIONS            |
|--------------------------|-------------------------|
| Resuscitation Bag (BVM)  | Pediatric               |
| OPA (Teeth to Angle Jaw) | 60 mm                   |
| NPA (Nostril to Earlobe) | 20 F                    |
| BLADE                    | 2 Straight              |
| ETT Size                 | 4.0 - 4.5 mm (Uncuffed) |
| Stylet                   | 10 F                    |
| ETT @ Lip                | 11 - 12 cm              |
| King Airway              | 1                       |
| NG Tube                  | 10 F                    |
| Suction Catheter         | 10 F                    |

| INTRAVENOUS EQUIPMENT | INSTRUCTIONS      |
|-----------------------|-------------------|
| IV Catheter           | 18 - 22 G         |
| EZ-IO                 | 25 mm (15 G) Blue |
| Defib Pads Size       | Pediatric         |

| VITALS                        | RANGE    |
|-------------------------------|----------|
| Respiratory Rate              | 22 - 30  |
| Heart Rate                    | 98 - 140 |
| Systolic Blood Pressure (SBP) | 75 - 105 |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 20  | 50  | 70  | 100 |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 6   | 15  | 20  | 20  |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |
|---|-------|------------------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 30 mL/hour       |
|   | 20%   | 60 mL/hour       |
|   | 30%   | 90 mL/hour       |
|   | 40%   | 120 mL/hour      |
|   | 50%   | 150 mL/hour      |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**2 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**12 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL              | ROUTE     | DOSE/KG                             | AMOUNT    |
|-----------------------------------|----------------|------------------|-----------|-------------------------------------|-----------|
| Adenosine (Adenocard)             | 3 mg/mL        | 0.4 mL           | IV/IO     | 0.1 mg/kg                           | 1.2 mg    |
| Amiodarone (Cordarone)            | 50 mg/mL       | 1.2 mL           | IV/IO     | 5 mg/kg                             | 60 mg     |
| Atropine                          | 0.1 mg/mL      | 2.4 mL           | IV/IO     | 0.02 mg/kg                          | 0.24 mg   |
| Calcium Chloride                  | 100 mg/mL      | 2.4 mL           | IV/IO     | 20 mg/kg                            | 240 mg    |
| Dextrose 10%                      | 0.1 gm/mL      | 60 mL            | IV/IO     | 0.5 gm/kg                           | 6 gm      |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 0.24 mL          | IV/IO     | 1 mg/kg                             | 12 mg     |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.12 mL</b>   | <b>IM</b> | 0.01 mg/kg                          | 0.12 mg   |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 1.2 mL           | IV/IO     | 0.01 mg/kg                          | 0.12 mg   |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 0.24 mL          | IV/IO/IN  | 1 mcg/kg                            | 12 mcg    |
| Glucagon                          | 1 mg/mL        | 1 mL             | IM        | 0.1 mg/kg                           | 1 mg      |
| Lorazepam (Ativan)                | 2 mg/mL        | 0.6 mL           | IV/IO/IM  | 0.1 mg/kg                           | 1.2 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 0.48 mL          | IN        | 0.2 mg/kg                           | 2.4 mg    |
| Midazolam (Versed)                | 5 mg/mL        | 0.24 mL          | IV/IM     | 0.1 mg/kg                           | 1.2 mg    |
| Morphine Sulfate                  | 2 mg/mL        | 0.6 mL           | IV/IO     | 0.1 mg/kg                           | 1.2 mg    |
| Naloxone (Narcan)                 | 1 mg/mL        | 1.2 mL           | IN/IV/IO  | 0.1 mg/kg                           | 1.2 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 0.9 mL           | IV/IM     | 0.15 mg/kg                          | 1.8 mg    |
| Sodium Bicarbonate                | 1 mEq/mL       | 12 mL            | IV/IO     | 1 mEq/kg                            | 12 mEq    |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 0.4 mL           | IV/IO     | 2 mg/kg                             | 24 mg     |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 1.2 mL           | IV/IO     | 1 mg/kg                             | 12 mg     |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 1.2 mL           | IO        | 1 mg/kg                             | 12 mg     |
| NEBULIZED MEDICATIONS             |                |                  |           |                                     |           |
| Albuterol (Proventil)             | 2.5mg/3mL      | 3 mL             | NEB       | Set Dose                            | 2.5 mg    |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL           | NEB       | Set Dose                            | 0.5 mg    |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS | NEB       | Set Dose                            | 2 mg      |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                  |           |                                     |           |
| Epinephrine Drip                  | 2 mcg/mL       | 6 gtt/min        | IV/IO     | 0.1 mcg/kg                          | 1 mcg/min |
| Norepinephrine (Levophed)         | 2 mcg/mL       | 6 gtt/min        | IV/IO     | 0.1 mcg/kg                          | 1 mcg/min |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                  |           |                                     |           |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 34 mL            | IV/IO     | Push over 15 min                    | 840 mg    |
| Magnesium Sulfate                 | 500 mg/mL      | 1.2 mL           | IV/IO     | Add to 250mL NSS<br>Adm over 20 min | 600 mg    |
| Normal Saline Bolus               | 0.9%           | 240 mL           | IV/IO     | 20 mL/kg                            | 240 mL    |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**3 YR**

| CHESAPEAKE FIRE DEPARTMENT    |                         | 15 KG IDEAL WEIGHT |
|-------------------------------|-------------------------|--------------------|
| AIRWAY EQUIPMENT              | INSTRUCTIONS            |                    |
| Resuscitation Bag (BVM)       | Pediatric               |                    |
| OPA (Teeth to Angle Jaw)      | 60 mm                   |                    |
| NPA (Nostril to Earlobe)      | 22 F                    |                    |
| BLADE                         | 2 Straight              |                    |
| ETT Size                      | 4.5 - 5.0 mm (Uncuffed) |                    |
| Stylet                        | 10 F                    |                    |
| ETT @ Lip                     | 14 - 15 cm              |                    |
| King Airway                   | 2                       |                    |
| NG Tube                       | 10 F                    |                    |
| Suction Catheter              | 10 F                    |                    |
| INTRAVENOUS EQUIPMENT         | INSTRUCTIONS            |                    |
| IV Catheter                   | 18 - 22 G               |                    |
| EZ-IO                         | 25 mm (15 G) Blue       |                    |
| Defib Pads Size               | Adult                   |                    |
| VITALS                        | RANGE                   |                    |
| Respiratory Rate              | 20 - 28                 |                    |
| Heart Rate                    | 80 - 120                |                    |
| Systolic Blood Pressure (SBP) | 89 - 112                |                    |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 30  | 70  | 100 | 125 |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 8   | 15  | 30  | 30  |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |
|---|-------|------------------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 37.5 mL/hour     |
|   | 20%   | 75 mL/hour       |
|   | 30%   | 112.5 mL/hour    |
|   | 40%   | 150 mL/hour      |
|   | 50%   | 187.5 mL/hour    |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**3 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**15 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL              | ROUTE     | DOSE/KG                             | AMOUNT    |
|-----------------------------------|----------------|------------------|-----------|-------------------------------------|-----------|
| Adenosine (Adenocard)             | 3 mg/mL        | 0.5 mL           | IV/IO     | 0.1 mg/kg                           | 1.5 mg    |
| Amiodarone (Cordarone)            | 50 mg/mL       | 1.5 mL           | IV/IO     | 5 mg/kg                             | 75 mg     |
| Atropine                          | 0.1 mg/mL      | 3 mL             | IV/IO     | 0.02 mg/kg                          | 0.3 mg    |
| Calcium Chloride                  | 100 mg/mL      | 3 mL             | IV/IO     | 20 mg/kg                            | 300 mg    |
| Dextrose 10%                      | 0.1 gm/mL      | 75 mL            | IV/IO     | 0.5 gm/kg                           | 7.5 gm    |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 0.3 mL           | IV/IO     | 1 mg/kg                             | 15 mg     |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.15 mL</b>   | <b>IM</b> | 0.01 mg/kg                          | 0.15 mg   |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 1.5 mL           | IV/IO     | 0.01 mg/kg                          | 0.15 mg   |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 0.3 mL           | IV/IO/IN  | 1 mcg/kg                            | 15 mcg    |
| Glucagon                          | 1 mg/mL        | 1 mL             | IM        | 0.1 mg/kg                           | 1 mg      |
| Lorazepam (Ativan)                | 2 mg/mL        | 0.75 mL          | IV/IO/IM  | 0.1 mg/kg                           | 1.5 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 0.6 mL           | IN        | 0.2 mg/kg                           | 3.0 mg    |
| Midazolam (Versed)                | 5 mg/mL        | 0.3 mL           | IV/IM     | 0.1 mg/kg                           | 1.5 mg    |
| Morphine Sulfate                  | 2 mg/mL        | 0.75 mL          | IV/IO     | 0.1 mg/kg                           | 1.5 mg    |
| Naloxone (Narcan)                 | 1 mg/mL        | 1.5 mL           | IN/IV/IO  | 0.1 mg/kg                           | 1.5 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 1.1 mL           | IV/IM     | 0.15 mg/kg                          | 2.3 mg    |
| Sodium Bicarbonate                | 1 mEq/mL       | 15 mL            | IV/IO     | 1 mEq/kg                            | 15 mEq    |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 0.5 mL           | IV/IO     | 2 mg/kg                             | 30 mg     |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 1.5 mL           | IV/IO     | 1 mg/kg                             | 15 mg     |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 1.5 mL           | IO        | 1 mg/kg                             | 15 mg     |
| NEBULIZED MEDICATIONS             |                |                  |           |                                     |           |
| Albuterol (Proventil)             | 2.5mg/3mL      | 3 mL             | NEB       | Set Dose                            | 2.5 mg    |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL           | NEB       | Set Dose                            | 0.5 mg    |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS | NEB       | Set Dose                            | 2 mg      |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                  |           |                                     |           |
| Epinephrine Drip                  | 2 mcg/mL       | 8 gtt/min        | IV/IO     | 0.1 mcg/kg                          | 2 mcg/min |
| Norepinephrine (Levophed)         | 2 mcg/mL       | 8 gtt/min        | IV/IO     | 0.1 mcg/kg                          | 2 mcg/min |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                  |           |                                     |           |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 42 mL            | IV/IO     | Push over 15 min                    | 1050 mg   |
| Magnesium Sulfate                 | 500 mg/mL      | 1.5 mL           | IV/IO     | Add to 250mL NSS<br>Adm over 20 min | 750 mg    |
| Normal Saline Bolus               | 0.9%           | 300 mL           | IV/IO     | 20 mL/kg                            | 300 mL    |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**4 YR**

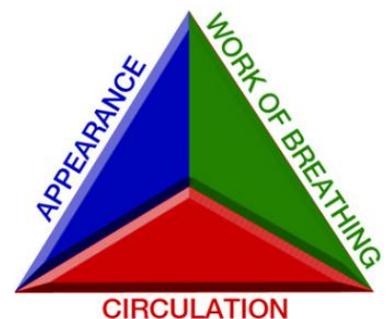
**CHESAPEAKE FIRE DEPARTMENT**

**17 KG IDEAL WEIGHT**

| AIRWAY EQUIPMENT              | INSTRUCTIONS      |
|-------------------------------|-------------------|
| Resuscitation Bag (BVM)       | Pediatric         |
| OPA (Teeth to Angle Jaw)      | 60 mm             |
| NPA (Nostril to Earlobe)      | 22 F              |
| BLADE                         | 2 Straight        |
| ETT Size                      | 5.0 mm (Uncuffed) |
| Stylet                        | 10 F              |
| ETT @ Lip                     | 15 - 15.5 cm      |
| King Airway                   | 2                 |
| NG Tube                       | 10 F              |
| Suction Catheter              | 10 F              |
| INTRAVENOUS EQUIPMENT         | INSTRUCTIONS      |
| IV Catheter                   | 18 - 22 G         |
| EZ-IO                         | 25 mm (15 G) Blue |
| Defib Pads Size               | Adult             |
| VITALS                        | RANGE             |
| Respiratory Rate              | 20 - 28           |
| Heart Rate                    | 80 - 120          |
| Systolic Blood Pressure (SBP) | 89 - 112          |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 30  | 70  | 100 | 125 |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 9   | 15  | 30  | 30  |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |
|---|-------|------------------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 43 mL/hour       |
|   | 20%   | 85 mL/hour       |
|   | 30%   | 128 mL/hour      |
|   | 40%   | 170 mL/hour      |
|   | 50%   | 213 mL/hour      |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**4 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**17 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL              | ROUTE     | DOSE/KG                             | AMOUNT    |
|-----------------------------------|----------------|------------------|-----------|-------------------------------------|-----------|
| Adenosine (Adenocard)             | 3 mg/mL        | 0.6 mL           | IV/IO     | 0.1 mg/kg                           | 1.7 mg    |
| Amiodarone (Cordarone)            | 50 mg/mL       | 1.7 mL           | IV/IO     | 5 mg/kg                             | 85 mg     |
| Atropine                          | 0.1 mg/mL      | 3.4 mL           | IV/IO     | 0.02 mg/kg                          | 0.34 mg   |
| Calcium Chloride                  | 100 mg/mL      | 3.4 mL           | IV/IO     | 20 mg/kg                            | 340 mg    |
| Dextrose 10%                      | 0.1 gm/mL      | 85 mL            | IV/IO     | 0.5 gm/kg                           | 8.5 gm    |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 0.34 mL          | IV/IO     | 1 mg/kg                             | 17 mg     |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.17 mL</b>   | <b>IM</b> | 0.01 mg/kg                          | 0.17 mg   |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 1.7 mL           | IV/IO     | 0.01 mg/kg                          | 0.17 mg   |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 0.34 mL          | IV/IO/IN  | 1 mcg/kg                            | 17 mcg    |
| Glucagon                          | 1 mg/mL        | 1 mL             | IM        | 0.1 mg/kg                           | 1 mg      |
| Lorazepam (Ativan)                | 2 mg/mL        | 0.85 mL          | IV/IO/IM  | 0.1 mg/kg                           | 1.7 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 0.68 mL          | IN        | 0.2 mg/kg                           | 3.4 mg    |
| Midazolam (Versed)                | 5 mg/mL        | 0.34 mL          | IV/IM     | 0.1 mg/kg                           | 1.7 mg    |
| Morphine Sulfate                  | 2 mg/mL        | 0.85 mL          | IV/IO     | 0.1 mg/kg                           | 1.7 mg    |
| Naloxone (Narcan)                 | 1 mg/mL        | 1.7 mL           | IN/IV/IO  | 0.1 mg/kg                           | 1.7 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 1.3 mL           | IV/IM     | 0.15 mg/kg                          | 2.6 mg    |
| Sodium Bicarbonate                | 1 mEq/mL       | 17 mL            | IV/IO     | 1 mEq/kg                            | 17 mEq    |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 0.54 mL          | IV/IO     | 2 mg/kg                             | 34 mg     |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 1.7 mL           | IV/IO     | 1 mg/kg                             | 17 mg     |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 1.7 mL           | IO        | 1 mg/kg                             | 17 mg     |
| NEBULIZED MEDICATIONS             |                |                  |           |                                     |           |
| Albuterol (Proventil)             | 2.5mg/3mL      | 3 mL             | NEB       | Set Dose                            | 2.5 mg    |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL           | NEB       | Set Dose                            | 0.5 mg    |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS | NEB       | Set Dose                            | 2 mg      |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                  |           |                                     |           |
| Epinephrine Drip                  | 2 mcg/mL       | 9 gtt/min        | IV/IO     | 0.1 mcg/kg                          | 2 mcg/min |
| Norepinephrine (Levophed)         | 2 mcg/mL       | 9 gtt/min        | IV/IO     | 0.1 mcg/kg                          | 2 mcg/min |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                  |           |                                     |           |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 48 mL            | IV/IO     | Push over 15 min                    | 1190 mg   |
| Magnesium Sulfate                 | 500 mg/mL      | 1.7 mL           | IV/IO     | Add to 250mL NSS<br>Adm over 20 min | 850 mg    |
| Normal Saline Bolus               | 0.9%           | 340 mL           | IV/IO     | 20 mL/kg                            | 340 mL    |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

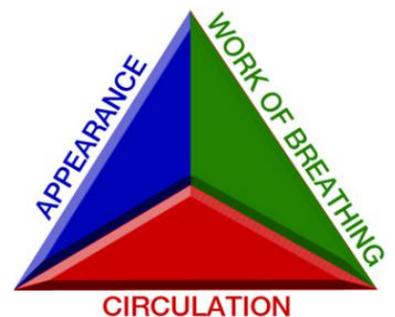
**5 YR**

**CHESAPEAKE FIRE DEPARTMENT** **20 KG IDEAL WEIGHT**

| AIRWAY EQUIPMENT              | INSTRUCTIONS            |
|-------------------------------|-------------------------|
| Resuscitation Bag (BVM)       | Pediatric               |
| OPA (Teeth to Angle Jaw)      | 70 mm                   |
| NPA (Nostril to Earlobe)      | 24 F                    |
| BLADE                         | 2 Straight or Curved    |
| ETT Size                      | 5.0 - 5.5 mm (Uncuffed) |
| Stylet                        | 10 F                    |
| ETT @ Lip                     | 15.5 - 16.5 cm          |
| King Airway                   | 2                       |
| NG Tube                       | 12 - 14 F               |
| Suction Catheter              | 10 F                    |
| INTRAVENOUS EQUIPMENT         | INSTRUCTIONS            |
| IV Catheter                   | 18 - 20 G               |
| EZ-IO                         | 25 mm (15 G) Blue       |
| Defib Pads Size               | Adult                   |
| VITALS                        | RANGE                   |
| Respiratory Rate              | 20 - 28                 |
| Heart Rate                    | 80 - 120                |
| Systolic Blood Pressure (SBP) | 89 - 112                |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 50  | 70  | 125 | 150 |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 10  | 20  | 50  | 50  |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |         |
|---|-------|------------------|---------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 50               | mL/hour |
|   | 20%   | 100              | mL/hour |
|   | 30%   | 150              | mL/hour |
|   | 40%   | 200              | mL/hour |
|   | 50%   | 250              | mL/hour |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**5 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**20 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL                | ROUTE     | DOSE/KG                             | AMOUNT  |
|-----------------------------------|----------------|--------------------|-----------|-------------------------------------|---------|
| Adenosine (Adenocard)             | 3 mg/mL        | 0.7 mL             | IV/IO     | 0.1 mg/kg                           | 2 mg    |
| Amiodarone (Cordarone)            | 50 mg/mL       | 2 mL               | IV/IO     | 5 mg/kg                             | 100 mg  |
| Atropine                          | 0.1 mg/mL      | 4 mL               | IV/IO     | 0.02 mg/kg                          | 0.4 mg  |
| Calcium Chloride                  | 100 mg/mL      | 4 mL               | IV/IO     | 20 mg/kg                            | 400 mg  |
| Dextrose 10%                      | 0.1 gm/mL      | 100 mL             | IV/IO     | 0.5 gm/kg                           | 10 gm   |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 0.4 mL             | IV/IO     | 1 mg/kg                             | 20 mg   |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.2 mL</b>      | <b>IM</b> | 0.01 mg/kg                          | 0.2 mg  |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 2 mL               | IV/IO     | 0.01 mg/kg                          | 0.2 mg  |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 0.4 mL             | IV/IO/IN  | 1 mcg/kg                            | 20 mcg  |
| Glucagon                          | 1 mg/mL        | 1 mL               | IM        | 0.1 mg/kg                           | 1 mg    |
| Lorazepam (Ativan)                | 2 mg/mL        | 1 mL               | IV/IO/IM  | 0.1 mg/kg                           | 2 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 0.8 mL             | IN        | 0.2 mg/kg                           | 4 mg    |
| Midazolam (Versed)                | 5 mg/mL        | 0.4 mL             | IV/IM     | 0.1 mg/kg                           | 2 mg    |
| Morphine Sulfate                  | 2 mg/mL        | 1 mL               | IV/IO     | 0.1 mg/kg                           | 2 mg    |
| Naloxone (Narcan)                 | 1 mg/mL        | 2 mL               | IN/IV/IO  | 0.1 mg/kg                           | 2 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 1.5 mL             | IV/IM     | 0.15 mg/kg                          | 3 mg    |
| Sodium Bicarbonate                | 1 mEq/mL       | 20 mL              | IV/IO     | 1 mEq/kg                            | 20 mEq  |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 0.64 mL            | IV/IO     | 2 mg/kg                             | 40 mg   |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 2 mL               | IV/IO     | 1 mg/kg                             | 20 mg   |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 2 mL               | IO        | 1 mg/kg                             | 20 mg   |
| NEBULIZED MEDICATIONS             |                |                    |           |                                     |         |
| Albuterol (Proventil)             | 2.5mg/3mL      | 6 mL               | NEB       | Set Dose                            | 5 mg    |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL             | NEB       | Set Dose                            | 0.5 mg  |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS   | NEB       | Set Dose                            | 2 mg    |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                    |           |                                     |         |
| Epinephrine Drip                  | 2 mcg/mL       | See Epi Drip Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| Norepinephrine (Levophed)         | 2 mcg/mL       | See Levophed Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                    |           |                                     |         |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 56 mL              | IV/IO     | Push over 15 min                    | 1400 mg |
| Magnesium Sulfate                 | 500 mg/mL      | 2 mL               | IV/IO     | Add to 250mL NSS<br>Adm over 20 min | 1000 mg |
| Normal Saline Bolus               | 0.9%           | 400 mL             | IV/IO     | 20 mL/kg                            | 400 mL  |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**6 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**22 KG IDEAL WEIGHT**

| AIRWAY EQUIPMENT              | INSTRUCTIONS         |
|-------------------------------|----------------------|
| Resuscitation Bag (BVM)       | Pediatric            |
| OPA (Teeth to Angle Jaw)      | 70 mm                |
| NPA (Nostril to Earlobe)      | 24 F                 |
| BLADE                         | 2 Straight or Curved |
| ETT Size                      | 5.5 mm (Uncuffed)    |
| Stylet                        | 10 F                 |
| ETT @ Lip                     | 16 -17 cm            |
| King Airway                   | 2                    |
| NG Tube                       | 12 - 14 F            |
| Suction Catheter              | 10 F                 |
| INTRAVENOUS EQUIPMENT         | INSTRUCTIONS         |
| IV Catheter                   | 18 - 20 G            |
| EZ-IO                         | 25 mm (15 G) Blue    |
| Defib Pads Size               | Adult                |
| VITALS                        | RANGE                |
| Respiratory Rate              | 20 - 28              |
| Heart Rate                    | 80 - 120             |
| Systolic Blood Pressure (SBP) | 89 - 112             |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 50  | 100 | 125 | 175 |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 10  | 20  | 50  | 50  |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |
|---|-------|------------------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 55 mL/hour       |
|   | 20%   | 110 mL/hour      |
|   | 30%   | 165 mL/hour      |
|   | 40%   | 220 mL/hour      |
|   | 50%   | 275 mL/hour      |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**6 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**22 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL                | ROUTE     | DOSE/KG                             | AMOUNT  |
|-----------------------------------|----------------|--------------------|-----------|-------------------------------------|---------|
| Adenosine (Adenocard)             | 3 mg/mL        | 0.7 mL             | IV/IO     | 0.1 mg/kg                           | 2.2 mg  |
| Amiodarone (Cordarone)            | 50 mg/mL       | 2.2 mL             | IV/IO     | 5 mg/kg                             | 110 mg  |
| Atropine                          | 0.1 mg/mL      | 4.4 mL             | IV/IO     | 0.02 mg/kg                          | 0.44 mg |
| Calcium Chloride                  | 100 mg/mL      | 4.4 mL             | IV/IO     | 20 mg/kg                            | 440 mg  |
| Dextrose 10%                      | 0.1 gm/mL      | 110 mL             | IV/IO     | 0.5 gm/kg                           | 11 gm   |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 0.44 mL            | IV/IO     | 1 mg/kg                             | 22 mg   |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.22 mL</b>     | <b>IM</b> | 0.01 mg/kg                          | 0.22 mg |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 2.2 mL             | IV/IO     | 0.01 mg/kg                          | 0.22 mg |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 0.44 mL            | IV/IO/IN  | 1 mcg/kg                            | 22 mcg  |
| Glucagon                          | 1 mg/mL        | 1 mL               | IM        | 0.1 mg/kg                           | 1 mg    |
| Lorazepam (Ativan)                | 2 mg/mL        | 1 mL               | IV/IO/IM  | 0.1 mg/kg                           | 2 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 0.88 mL            | IN        | 0.2 mg/kg                           | 4.4 mg  |
| Midazolam (Versed)                | 5 mg/mL        | 0.44 mL            | IV/IM     | 0.1 mg/kg                           | 2.2 mg  |
| Morphine Sulfate                  | 2 mg/mL        | 1.1 mL             | IV/IO     | 0.1 mg/kg                           | 2.2 mg  |
| Naloxone (Narcan)                 | 1 mg/mL        | 2 mL               | IN/IV/IO  | 0.1 mg/kg                           | 2 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 1.7 mL             | IV/IM     | 0.15 mg/kg                          | 3.3 mg  |
| Sodium Bicarbonate                | 1 mEq/mL       | 22 mL              | IV/IO     | 1 mEq/kg                            | 22 mEq  |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 0.7 mL             | IV/IO     | 2 mg/kg                             | 44 mg   |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 2.2 mL             | IV/IO     | 1 mg/kg                             | 22 mg   |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 2.2 mL             | IO        | 1 mg/kg                             | 22 mg   |
| NEBULIZED MEDICATIONS             |                |                    |           |                                     |         |
| Albuterol (Proventil)             | 2.5mg/3mL      | 6 mL               | NEB       | Set Dose                            | 5 mg    |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL             | NEB       | Set Dose                            | 0.5 mg  |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS   | NEB       | Set Dose                            | 2 mg    |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                    |           |                                     |         |
| Epinephrine Drip                  | 2 mcg/mL       | See Epi Drip Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| Norepinephrine (Levophed)         | 2 mcg/mL       | See Levophed Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                    |           |                                     |         |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 62 mL              | IV/IO     | Push over 15 min                    | 1540 mg |
| Magnesium Sulfate                 | 500 mg/mL      | 2.2 mL             | IV/IO     | Add to 250mL NSS<br>Adm over 20 min | 1100 mg |
| Normal Saline Bolus               | 0.9%           | 440 mL             | IV/IO     | 20 mL/kg                            | 440 mL  |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**7 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**25 KG IDEAL WEIGHT**

| AIRWAY EQUIPMENT              | INSTRUCTIONS         |
|-------------------------------|----------------------|
| Resuscitation Bag (BVM)       | Pediatric            |
| OPA (Teeth to Angle Jaw)      | 80 mm                |
| NPA (Nostril to Earlobe)      | 26 F                 |
| BLADE                         | 2 Straight or Curved |
| ETT Size                      | 6.0 mm               |
| Stylet                        | 10 F                 |
| ETT @ Lip                     | 17 - 18 cm           |
| King Airway                   | 2.5 - 3              |
| NG Tube                       | 14 - 18 F            |
| Suction Catheter              | 10 F                 |
| INTRAVENOUS EQUIPMENT         | INSTRUCTIONS         |
| IV Catheter                   | 18 - 20 G            |
| EZ-IO                         | 25 mm (15 G) Blue    |
| Defib Pads Size               | Adult                |
| VITALS                        | RANGE                |
| Respiratory Rate              | 18 - 24              |
| Heart Rate                    | 70 - 100             |
| Systolic Blood Pressure (SBP) | 80 - 120             |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 50  | 100 | 150 | 200 |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 15  | 30  | 50  | 50  |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |
|---|-------|------------------|
| $Wt \text{ kg} \times TBSA \times 0.25cc$<br>= total volume to be infused for each hour of the first 8 hours. | 10%   | 63 mL/hour       |
|   | 20%   | 125 mL/hour      |
|   | 30%   | 188 mL/hour      |
|   | 40%   | 250 mL/hour      |
|   | 50%   | 313 mL/hour      |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**7 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**25 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL                | ROUTE     | DOSE/KG                             | AMOUNT  |
|-----------------------------------|----------------|--------------------|-----------|-------------------------------------|---------|
| Adenosine (Adenocard)             | 3 mg/mL        | 0.8 mL             | IV/IO     | 0.1 mg/kg                           | 2.5 mg  |
| Amiodarone (Cordarone)            | 50 mg/mL       | 2.5 mL             | IV/IO     | 5 mg/kg                             | 125 mg  |
| Atropine                          | 0.1 mg/mL      | 5 mL               | IV/IO     | 0.02 mg/kg                          | 0.5 mg  |
| Calcium Chloride                  | 100 mg/mL      | 5 mL               | IV/IO     | 20 mg/kg                            | 500 mg  |
| Dextrose 10%                      | 0.1 gm/mL      | 125 mL             | IV/IO     | 0.5 gm/kg                           | 12.5 gm |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 0.5 mL             | IV/IO     | 1 mg/kg                             | 25 mg   |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.25 mL</b>     | <b>IM</b> | 0.01 mg/kg                          | 0.25 mg |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 2.5 mL             | IV/IO     | 0.01 mg/kg                          | 0.25 mg |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 0.5 mL             | IV/IO/IN  | 1 mcg/kg                            | 25 mcg  |
| Glucagon                          | 1 mg/mL        | 1 mL               | IM        | 0.1 mg/kg                           | 1 mg    |
| Lorazepam (Ativan)                | 2 mg/mL        | 1 mL               | IV/IO/IM  | 0.1 mg/kg                           | 2 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 1 mL               | IN        | 0.2 mg/kg                           | 5 mg    |
| Midazolam (Versed)                | 5 mg/mL        | 0.5 mL             | IV/IM     | 0.1 mg/kg                           | 2.5 mg  |
| Morphine Sulfate                  | 2 mg/mL        | 1.25 mL            | IV/IO     | 0.1 mg/kg                           | 2.5 mg  |
| Naloxone (Narcan)                 | 1 mg/mL        | 2 mL               | IN/IV/IO  | 0.1 mg/kg                           | 2 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 1.9 mL             | IV/IM     | 0.15 mg/kg                          | 3.8 mg  |
| Sodium Bicarbonate                | 1 mEq/mL       | 25 mL              | IV/IO     | 1 mEq/kg                            | 25 mEq  |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 0.8 mL             | IV/IO     | 2 mg/kg                             | 50 mg   |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 2.5 mL             | IV/IO     | 1 mg/kg                             | 25 mg   |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 2.5 mL             | IO        | 1 mg/kg                             | 25 mg   |
| NEBULIZED MEDICATIONS             |                |                    |           |                                     |         |
| Albuterol (Proventil)             | 2.5mg/3mL      | 6 mL               | NEB       | Set Dose                            | 5 mg    |
| Atrovent (Ipratropium Bromid      | 0.5mg / 2.5mL  | 2.5 mL             | NEB       | Set Dose                            | 0.5 mg  |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS   | NEB       | Set Dose                            | 2 mg    |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                    |           |                                     |         |
| Epinephrine Drip                  | 2 mcg/mL       | See Epi Drip Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| Norepinephrine (Levophed)         | 2 mcg/mL       | See Levophed Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                    |           |                                     |         |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 70 mL              | IV/IO     | Push over 15 min                    | 1750 mg |
| Magnesium Sulfate                 | 500 mg/mL      | 2.5 mL             | IV/IO     | Add to 250mL NSS<br>Adm over 20 min | 1250 mg |
| Normal Saline Bolus               | 0.9%           | 500 mL             | IV/IO     | 20 mL/kg                            | 500 mL  |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**8 YR**

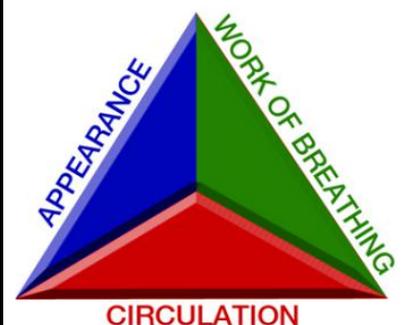
**CHESAPEAKE FIRE DEPARTMENT**

**27 KG IDEAL WEIGHT**

| AIRWAY EQUIPMENT              | INSTRUCTIONS         |
|-------------------------------|----------------------|
| Resuscitation Bag (BVM)       | Pediatric            |
| OPA (Teeth to Angle Jaw)      | 80 mm                |
| NPA (Nostril to Earlobe)      | 26 F                 |
| BLADE                         | 2 Straight or Curved |
| ETT Size                      | 6.0 mm               |
| Stylet                        | 10 F                 |
| ETT @ Lip                     | 17.5 - 18.5 cm       |
| King Airway                   | 2.5 - 3              |
| NG Tube                       | 14 - 18 F            |
| Suction Catheter              | 10 F                 |
| INTRAVENOUS EQUIPMENT         | INSTRUCTIONS         |
| IV Catheter                   | 18 - 20 G            |
| EZ-IO                         | 25 mm (15 G) Blue    |
| Defib Pads Size               | Adult                |
| VITALS                        | RANGE                |
| Respiratory Rate              | 18 - 24              |
| Heart Rate                    | 70 - 100             |
| Systolic Blood Pressure (SBP) | 80 - 120             |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 50  | 100 | 150 | 225 |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 15  | 30  | 50  | 50  |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |
|---|-------|------------------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 68 mL/hour       |
|   | 20%   | 135 mL/hour      |
|   | 30%   | 203 mL/hour      |
|   | 40%   | 270 mL/hour      |
|   | 50%   | 338 mL/hour      |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**8 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**27 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL                | ROUTE     | DOSE/KG                             | AMOUNT  |
|-----------------------------------|----------------|--------------------|-----------|-------------------------------------|---------|
| Adenosine (Adenocard)             | 3 mg/mL        | 0.9 mL             | IV/IO     | 0.1 mg/kg                           | 2.7 mg  |
| Amiodarone (Cordarone)            | 50 mg/mL       | 2.7 mL             | IV/IO     | 5 mg/kg                             | 135 mg  |
| Atropine                          | 0.1 mg/mL      | 5.4 mL             | IV/IO     | 0.02 mg/kg                          | 0.5 mg  |
| Calcium Chloride                  | 100 mg/mL      | 5.4 mL             | IV/IO     | 20 mg/kg                            | 540 mg  |
| Dextrose 10%                      | 0.1 gm/mL      | 135 mL             | IV/IO     | 0.5 gm/kg                           | 13.5 gm |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 0.54 mL            | IV/IO     | 1 mg/kg                             | 27 mg   |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.27 mL</b>     | <b>IM</b> | 0.01 mg/kg                          | 0.27 mg |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 2.7 mL             | IV/IO     | 0.01 mg/kg                          | 0.27 mg |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 0.54 mL            | IV/IO/IN  | 1 mcg/kg                            | 27 mcg  |
| Glucagon                          | 1 mg/mL        | 1 mL               | IM        | 0.1 mg/kg                           | 1 mg    |
| Lorazepam (Ativan)                | 2 mg/mL        | 1 mL               | IV/IO/IM  | 0.1 mg/kg                           | 2 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 1.1 mL             | IN        | 0.2 mg/kg                           | 5 mg    |
| Midazolam (Versed)                | 5 mg/mL        | 0.54 mL            | IV/IM     | 0.1 mg/kg                           | 2.7 mg  |
| Morphine Sulfate                  | 2 mg/mL        | 1.35 mL            | IV/IO     | 0.1 mg/kg                           | 2.7 mg  |
| Naloxone (Narcan)                 | 1 mg/mL        | 2 mL               | IN/IV/IO  | 0.1 mg/kg                           | 2 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 2 mL               | IV/IM     | 0.15 mg/kg                          | 4.1 mg  |
| Sodium Bicarbonate                | 1 mEq/mL       | 27 mL              | IV/IO     | 1 mEq/kg                            | 27 mEq  |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 0.86 mL            | IV/IO     | 2 mg/kg                             | 54 mg   |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 2.7 mL             | IV/IO     | 1 mg/kg                             | 27 mg   |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 2.7 mL             | IO        | 1 mg/kg                             | 27 mg   |
| NEBULIZED MEDICATIONS             |                |                    |           |                                     |         |
| Albuterol (Proventil)             | 2.5mg/3mL      | 6 mL               | NEB       | Set Dose                            | 5 mg    |
| Atrovent (Ipratropium Bromid      | 0.5mg / 2.5mL  | 2.5 mL             | NEB       | Set Dose                            | 0.5 mg  |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS   | NEB       | Set Dose                            | 2 mg    |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                    |           |                                     |         |
| Epinephrine Drip                  | 2 mcg/mL       | See Epi Drip Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| Norepinephrine (Levophed)         | 2 mcg/mL       | See Levophed Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                    |           |                                     |         |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 76 mL              | IV/IO     | Push over 15 min                    | 1890 mg |
| Magnesium Sulfate                 | 500 mg/mL      | 2.7 mL             | IV/IO     | Add to 250mL NSS<br>Adm over 20 min | 1350 mg |
| Normal Saline Bolus               | 0.9%           | 540 mL             | IV/IO     | 20 mL/kg                            | 540 mL  |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

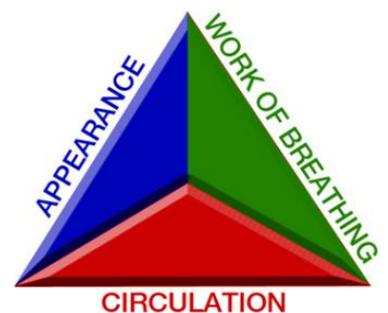
**9 YR**

**CHESAPEAKE FIRE DEPARTMENT** **30 KG IDEAL WEIGHT**

| AIRWAY EQUIPMENT              | INSTRUCTIONS         |
|-------------------------------|----------------------|
| Resuscitation Bag (BVM)       | Pediatric            |
| OPA (Teeth to Angle Jaw)      | 80 mm                |
| NPA (Nostril to Earlobe)      | 28 F                 |
| BLADE                         | 3 Straight or Curved |
| ETT Size                      | 6.5 mm               |
| Stylet                        | 14 F                 |
| ETT @ Lip                     | 18.5 - 19.5 cm       |
| King Airway                   | 2.5 - 3              |
| NG Tube                       | 16 - 18 F            |
| Suction Catheter              | 10 -12 F             |
| INTRAVENOUS EQUIPMENT         | INSTRUCTIONS         |
| IV Catheter                   | 16 - 20 G            |
| EZ-IO                         | 25 mm (15 G) Blue    |
| Defib Pads Size               | Adult                |
| VITALS                        | RANGE                |
| Respiratory Rate              | 18 - 24              |
| Heart Rate                    | 70 - 100             |
| Systolic Blood Pressure (SBP) | 80 - 120             |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 70  | 125 | 175 | 250 |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 15  | 30  | 70  | 70  |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |
|---|-------|------------------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 75 mL/hour       |
|   | 20%   | 150 mL/hour      |
|   | 30%   | 225 mL/hour      |
|   | 40%   | 300 mL/hour      |
|   | 50%   | 375 mL/hour      |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**9 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**30 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL                | ROUTE     | DOSE/KG                             | AMOUNT  |
|-----------------------------------|----------------|--------------------|-----------|-------------------------------------|---------|
| Adenosine (Adenocard)             | 3 mg/mL        | 1 mL               | IV/IO     | 0.1 mg/kg                           | 3 mg    |
| Amiodarone (Cordarone)            | 50 mg/mL       | 3 mL               | IV/IO     | 5 mg/kg                             | 150 mg  |
| Atropine                          | 0.1 mg/mL      | 5 mL               | IV/IO     | 0.02 mg/kg                          | 0.5 mg  |
| Calcium Chloride                  | 100 mg/mL      | 6 mL               | IV/IO     | 20 mg/kg                            | 600 mg  |
| Dextrose 10%                      | 0.1 gm/mL      | 125 mL             | IV/IO     | 0.5 gm/kg                           | 12.5 gm |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 0.6 mL             | IV/IO     | 1 mg/kg                             | 30 mg   |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.3 mL</b>      | <b>IM</b> | 0.01 mg/kg                          | 0.3 mg  |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 3 mL               | IV/IO     | 0.01 mg/kg                          | 0.3 mg  |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 0.6 mL             | IV/IO/IN  | 1 mcg/kg                            | 30 mcg  |
| Glucagon                          | 1 mg/mL        | 1 mL               | IM        | 0.1 mg/kg                           | 1 mg    |
| Lorazepam (Ativan)                | 2 mg/mL        | 1 mL               | IV/IO/IM  | 0.1 mg/kg                           | 2 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 1 mL               | IN        | 0.2 mg/kg                           | 5 mg    |
| Midazolam (Versed)                | 5 mg/mL        | 0.5 mL             | IV/IM     | 0.1 mg/kg                           | 2.5 mg  |
| Morphine Sulfate                  | 2 mg/mL        | 1.5 mL             | IV/IO     | 0.1 mg/kg                           | 3 mg    |
| Naloxone (Narcan)                 | 1 mg/mL        | 2 mL               | IN/IV/IO  | 0.1 mg/kg                           | 2 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 2 mL               | IV/IM     | 0.15 mg/kg                          | 4 mg    |
| Sodium Bicarbonate                | 1 mEq/mL       | 30 mL              | IV/IO     | 1 mEq/kg                            | 30 mEq  |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 1 mL               | IV/IO     | 2 mg/kg                             | 60 mg   |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 3 mL               | IV/IO     | 1 mg/kg                             | 30 mg   |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 3 mL               | IO        | 1 mg/kg                             | 30 mg   |
| NEBULIZED MEDICATIONS             |                |                    |           |                                     |         |
| Albuterol (Proventil)             | 2.5mg/3mL      | 6 mL               | NEB       | Set Dose                            | 5 mg    |
| Atrovent (Ipratropium Bromid      | 0.5mg / 2.5mL  | 2.5 mL             | NEB       | Set Dose                            | 0.5 mg  |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS   | NEB       | Set Dose                            | 2 mg    |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                    |           |                                     |         |
| Epinephrine Drip                  | 2 mcg/mL       | See Epi Drip Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| Norepinephrine (Levophed)         | 2 mcg/mL       | See Levophed Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                    |           |                                     |         |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 84 mL              | IV/IO     | Push over 15 min                    | 2100 mg |
| Magnesium Sulfate                 | 500 mg/mL      | 3 mL               | IV/IO     | Add to 250mL NSS<br>Adm over 20 min | 1500 mg |
| Normal Saline Bolus               | 0.9%           | 600 mL             | IV/IO     | 20 mL/kg                            | 600 mL  |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**10 YR**

**CHESAPEAKE FIRE DEPARTMENT** **35 KG IDEAL WEIGHT**

| AIRWAY EQUIPMENT              | INSTRUCTIONS         |
|-------------------------------|----------------------|
| Resuscitation Bag (BVM)       | Adult                |
| OPA (Teeth to Angle Jaw)      | 80 mm                |
| NPA (Nostril to Earlobe)      | 28 F                 |
| BLADE                         | 3 Straight or Curved |
| ETT Size                      | 6.5 mm               |
| Stylet                        | 14 F                 |
| ETT @ Lip                     | 18.5 - 19.5 cm       |
| King Airway                   | 3                    |
| NG Tube                       | 16 - 18 F            |
| Suction Catheter              | 10 -12 F             |
| INTRAVENOUS EQUIPMENT         | INSTRUCTIONS         |
| IV Catheter                   | 16 - 20 G            |
| EZ-IO                         | 25 mm (15 G) Blue    |
| Defib Pads Size               | Adult                |
| VITALS                        | RANGE                |
| Respiratory Rate              | 18 - 24              |
| Heart Rate                    | 70 - 100             |
| Systolic Blood Pressure (SBP) | 90 - 120             |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 70  | 150 | 200 | 275 |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 20  | 30  | 70  | 70  |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |         |
|---|-------|------------------|---------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 88               | mL/hour |
|   | 20%   | 175              | mL/hour |
|   | 30%   | 263              | mL/hour |
|   | 40%   | 350              | mL/hour |
|   | 50%   | 438              | mL/hour |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**10 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**35 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL                | ROUTE     | DOSE/KG                             | AMOUNT  |
|-----------------------------------|----------------|--------------------|-----------|-------------------------------------|---------|
| Adenosine (Adenocard)             | 3 mg/mL        | 1.2 mL             | IV/IO     | 0.1 mg/kg                           | 4 mg    |
| Amiodarone (Tachycardia)          | 50 mg/mL       | 3 mL               | IV/IO     | 5 mg/kg                             | 150 mg  |
| Amiodarone (VF/VT Arrest)         | 50 mg/mL       | 3.5 mL             | IV/IO     | 5 mg/kg                             | 175 mg  |
| Atropine                          | 0.1 mg/mL      | 5 mL               | IV/IO     | 0.02 mg/kg                          | 0.5 mg  |
| Calcium Chloride                  | 100 mg/mL      | 7 mL               | IV/IO     | 20 mg/kg                            | 700 mg  |
| Dextrose 10%                      | 0.1 gm/mL      | 125 mL             | IV/IO     | 0.5 gm/kg                           | 12.5 gm |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 0.7 mL             | IV/IO     | 1 mg/kg                             | 35 mg   |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.35 mL</b>     | <b>IM</b> | 0.01 mg/kg                          | 0.4 mg  |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 3.5 mL             | IV/IO     | 0.01 mg/kg                          | 0.4 mg  |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 0.7 mL             | IV/IO/IN  | 1 mcg/kg                            | 35 mcg  |
| Glucagon                          | 1 mg/mL        | 1 mL               | IM        | 0.1 mg/kg                           | 1 mg    |
| Lorazepam (Ativan)                | 2 mg/mL        | 1 mL               | IV/IO/IM  | 0.1 mg/kg                           | 2 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 1 mL               | IN        | 0.2 mg/kg                           | 5 mg    |
| Midazolam (Versed)                | 5 mg/mL        | 0.5 mL             | IV/IM     | 0.1 mg/kg                           | 2.5 mg  |
| Morphine Sulfate                  | 2 mg/mL        | 1.75 mL            | IV/IO     | 0.1 mg/kg                           | 3.5 mg  |
| Naloxone (Narcan)                 | 1 mg/mL        | 2 mL               | IN/IV/IO  | 0.1 mg/kg                           | 2 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 2 mL               | IV/IM     | 0.15 mg/kg                          | 4 mg    |
| Sodium Bicarbonate                | 1 mEq/mL       | 35 mL              | IV/IO     | 1 mEq/kg                            | 35 mEq  |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 1.1 mL             | IV/IO     | 2 mg/kg                             | 70 mg   |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 3.5 mL             | IV/IO     | 1 mg/kg                             | 35 mg   |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 3.5 mL             | IO        | 1 mg/kg                             | 35 mg   |
| NEBULIZED MEDICATIONS             |                |                    |           |                                     |         |
| Albuterol (Proventil)             | 2.5mg/3mL      | 6 mL               | NEB       | Set Dose                            | 5 mg    |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL             | NEB       | Set Dose                            | 0.5 mg  |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS   | NEB       | Set Dose                            | 2 mg    |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                    |           |                                     |         |
| Epinephrine Drip                  | 2 mcg/mL       | See Epi Drip Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| Norepinephrine (Levophed)         | 2 mcg/mL       | See Levophed Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                    |           |                                     |         |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 98 mL              | IV/IO     | Push over 15 min                    | 2450 mg |
| Magnesium Sulfate                 | 500 mg/mL      | 3.5 mL             | IV/IO     | Add to 250mL NSS<br>Adm over 20 min | 1750 mg |
| Normal Saline Bolus               | 0.9%           | 700 mL             | IV/IO     | 20 mL/kg                            | 700 mL  |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

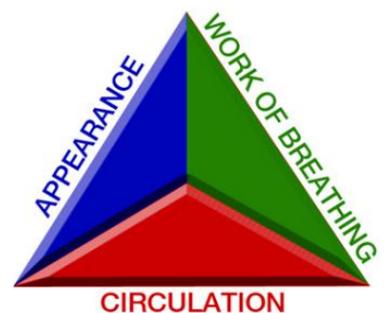
**11 YR**

**CHESAPEAKE FIRE DEPARTMENT** **40 KG IDEAL WEIGHT**

| AIRWAY EQUIPMENT              | INSTRUCTIONS         |
|-------------------------------|----------------------|
| Resuscitation Bag (BVM)       | Adult                |
| OPA (Teeth to Angle Jaw)      | 80 mm                |
| NPA (Nostril to Earlobe)      | 28 F                 |
| BLADE                         | 3 Straight or Curved |
| ETT Size                      | 6.5 - 7.0 mm         |
| Stylet                        | 14 F                 |
| ETT @ Lip                     | 18.5 - 20 cm         |
| King Airway                   | 3                    |
| NG Tube                       | 16 - 18 F            |
| Suction Catheter              | 10 -12 F             |
| INTRAVENOUS EQUIPMENT         | INSTRUCTIONS         |
| IV Catheter                   | 16 - 20 G            |
| EZ-IO                         | 25 mm (15 G) Blue    |
| Defib Pads Size               | Adult                |
| VITALS                        | RANGE                |
| Respiratory Rate              | 16 - 22              |
| Heart Rate                    | 60 - 100             |
| Systolic Blood Pressure (SBP) | 90 - 120             |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 70  | 150 | 250 | 325 |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 20  | 50  | 70  | 70  |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |         |
|---|-------|------------------|---------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 100              | mL/hour |
|   | 20%   | 200              | mL/hour |
|   | 30%   | 300              | mL/hour |
|   | 40%   | 400              | mL/hour |
|   | 50%   | 500              | mL/hour |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)

OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**11 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**40 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL                | ROUTE     | DOSE/KG                             | AMOUNT  |
|-----------------------------------|----------------|--------------------|-----------|-------------------------------------|---------|
| Adenosine (Adenocard)             | 3 mg/mL        | 1.3 mL             | IV/IO     | 0.1 mg/kg                           | 4 mg    |
| Amiodarone (Tachycardia)          | 50 mg/mL       | 3 mL               | IV/IO     | 5 mg/kg                             | 150 mg  |
| Amiodarone (VF/VT Arrest)         | 50 mg/mL       | 4 mL               | IV/IO     | 5 mg/kg                             | 200 mg  |
| Atropine                          | 0.1 mg/mL      | 5 mL               | IV/IO     | 0.02 mg/kg                          | 0.5 mg  |
| Calcium Chloride                  | 100 mg/mL      | 8 mL               | IV/IO     | 20 mg/kg                            | 800 mg  |
| Dextrose 10%                      | 0.1 gm/mL      | 125 mL             | IV/IO     | 0.5 gm/kg                           | 12.5 gm |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 0.8 mL             | IV/IO     | 1 mg/kg                             | 40 mg   |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.4 mL</b>      | <b>IM</b> | 0.01 mg/kg                          | 0.4 mg  |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 4 mL               | IV/IO     | 0.01 mg/kg                          | 0.4 mg  |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 0.8 mL             | IV/IO/IN  | 1 mcg/kg                            | 40 mcg  |
| Glucagon                          | 1 mg/mL        | 1 mL               | IM        | 0.1 mg/kg                           | 1 mg    |
| Lorazepam (Ativan)                | 2 mg/mL        | 1 mL               | IV/IO/IM  | 0.1 mg/kg                           | 2 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 1 mL               | IN        | 0.2 mg/kg                           | 5 mg    |
| Midazolam (Versed)                | 5 mg/mL        | 0.5 mL             | IV/IM     | 0.1 mg/kg                           | 2.5 mg  |
| Morphine Sulfate                  | 2 mg/mL        | 2 mL               | IV/IO     | 0.1 mg/kg                           | 4 mg    |
| Naloxone (Narcan)                 | 1 mg/mL        | 2 mL               | IN/IV/IO  | 0.1 mg/kg                           | 2 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 2 mL               | IV/IM     | 0.15 mg/kg                          | 4 mg    |
| Sodium Bicarbonate                | 1 mEq/mL       | 40 mL              | IV/IO     | 1 mEq/kg                            | 40 mEq  |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 1.3 mL             | IV/IO     | 2 mg/kg                             | 80 mg   |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 4 mL               | IV/IO     | 1 mg/kg                             | 40 mg   |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 4 mL               | IO        | 1 mg/kg                             | 40 mg   |
| NEBULIZED MEDICATIONS             |                |                    |           |                                     |         |
| Albuterol (Proventil)             | 2.5mg/3mL      | 6 mL               | NEB       | Set Dose                            | 5 mg    |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL             | NEB       | Set Dose                            | 0.5 mg  |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS   | NEB       | Set Dose                            | 2 mg    |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                    |           |                                     |         |
| Epinephrine Drip                  | 2 mcg/mL       | See Epi Drip Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| Norepinephrine (Levophed)         | 2 mcg/mL       | See Levophed Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                    |           |                                     |         |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 112 mL             | IV/IO     | Push over 15 min                    | 2800 mg |
| Magnesium Sulfate                 | 500 mg/mL      | 4 mL               | IV/IO     | Add to 250mL NSS<br>Adm over 20 min | 2 gm    |
| Normal Saline Bolus               | 0.9%           | 800 mL             | IV/IO     | 20 mL/kg                            | 800 mL  |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**12 YR**

**CHESAPEAKE FIRE DEPARTMENT** **50 KG IDEAL WEIGHT**

| AIRWAY EQUIPMENT              | INSTRUCTIONS         |
|-------------------------------|----------------------|
| Resuscitation Bag (BVM)       | Adult                |
| OPA (Teeth to Angle Jaw)      | 80 - 90 mm           |
| NPA (Nostril to Earlobe)      | 28 F                 |
| BLADE                         | 3 Straight or Curved |
| ETT Size                      | 6.5 - 7.0 mm         |
| Stylet                        | 14 F                 |
| ETT @ Lip                     | 19 - 21 cm           |
| King Airway                   | 3                    |
| NG Tube                       | 16 - 18 F            |
| Suction Catheter              | 10 -12 F             |
| INTRAVENOUS EQUIPMENT         | INSTRUCTIONS         |
| IV Catheter                   | 16 - 20 G            |
| EZ-IO                         | 25 mm (15 G) Blue    |
| Defib Pads Size               | Adult                |
| VITALS                        | RANGE                |
| Respiratory Rate              | 14 - 20              |
| Heart Rate                    | 60 - 100             |
| Systolic Blood Pressure (SBP) | 90 - 120             |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 100 | 200 | 300 | 360 |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 30  | 50  | 100 | 100 |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |         |
|---|-------|------------------|---------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 125              | mL/hour |
|   | 20%   | 250              | mL/hour |
|   | 30%   | 375              | mL/hour |
|   | 40%   | 500              | mL/hour |
|   | 50%   | 625              | mL/hour |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**12 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**50 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL                | ROUTE     | DOSE/KG                             | AMOUNT  |
|-----------------------------------|----------------|--------------------|-----------|-------------------------------------|---------|
| Adenosine (Adenocard)             | 3 mg/mL        | 1.7 mL             | IV/IO     | 0.1 mg/kg                           | 5 mg    |
| Amiodarone (Tachycardia)          | 50 mg/mL       | 3 mL               | IV/IO     | 5 mg/kg                             | 150 mg  |
| Amiodarone (VF/VT Arrest)         | 50 mg/mL       | 5 mL               | IV/IO     | 5 mg/kg                             | 250 mg  |
| Atropine                          | 0.1 mg/mL      | 5 mL               | IV/IO     | 0.02 mg/kg                          | 0.5 mg  |
| Calcium Chloride                  | 100 mg/mL      | 10 mL              | IV/IO     | 20 mg/kg                            | 1 gm    |
| Dextrose 10%                      | 0.1 gm/mL      | 125 mL             | IV/IO     | 0.5 gm/kg                           | 12.5 gm |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 1 mL               | IV/IO     | 1 mg/kg                             | 50 mg   |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.05 mL</b>     | <b>IM</b> | 0.01 mg/kg                          | 0.5 mg  |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 5 mL               | IV/IO     | 0.01 mg/kg                          | 0.5 mg  |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 1 mL               | IV/IO/IN  | 1 mcg/kg                            | 50 mcg  |
| Glucagon                          | 1 mg/mL        | 1 mL               | IM        | 0.1 mg/kg                           | 1 mg    |
| Lorazepam (Ativan)                | 2 mg/mL        | 1 mL               | IV/IO/IM  | 0.1 mg/kg                           | 2 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 1 mL               | IN        | 0.2 mg/kg                           | 5 mg    |
| Midazolam (Versed)                | 5 mg/mL        | 0.5 mL             | IV/IM     | 0.1 mg/kg                           | 2.5 mg  |
| Morphine Sulfate                  | 2 mg/mL        | 2.5 mL             | IV/IO     | 0.1 mg/kg                           | 5 mg mg |
| Naloxone (Narcan)                 | 1 mg/mL        | 2 mL               | IN/IV/IO  | 0.1 mg/kg                           | 2 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 2 mL               | IV/IM     | 0.15 mg/kg                          | 4 mg    |
| Sodium Bicarbonate                | 1 mEq/mL       | 50 mL              | IV/IO     | 1 mEq/kg                            | 50 mEq  |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 1.6 mL             | IV/IO     | 2 mg/kg                             | 100 mg  |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 5 mL               | IV/IO     | 1 mg/kg                             | 50 mg   |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 4 mL               | IO        | 1 mg/kg                             | 40 mg   |
| NEBULIZED MEDICATIONS             |                |                    |           |                                     |         |
| Albuterol (Proventil)             | 2.5mg/3mL      | 6 mL               | NEB       | Set Dose                            | 5 mg    |
| Atrovent (Ipratropium Bromid)     | 0.5mg / 2.5mL  | 2.5 mL             | NEB       | Set Dose                            | 0.5 mg  |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS   | NEB       | Set Dose                            | 2 mg    |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                    |           |                                     |         |
| Epinephrine Drip                  | 2 mcg/mL       | See Epi Drip Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| Norepinephrine (Levophed)         | 2 mcg/mL       | See Levophed Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                    |           |                                     |         |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 140 mL             | IV/IO     | Push over 15 min                    | 3500 mg |
| Magnesium Sulfate                 | 500 mg/mL      | 4 mL               | IV/IO     | Add to 250mL NSS<br>Adm over 20 min | 2 gm    |
| Normal Saline Bolus               | 0.9%           | 1000 mL            | IV/IO     | 20 mL/kg                            | 1000 mL |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

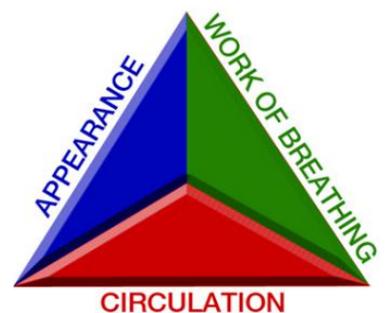
**13 YR**

**CHESAPEAKE FIRE DEPARTMENT** **60 KG IDEAL WEIGHT**

| AIRWAY EQUIPMENT              | INSTRUCTIONS         |
|-------------------------------|----------------------|
| Resuscitation Bag (BVM)       | Adult                |
| OPA (Teeth to Angle Jaw)      | 80 - 90 mm           |
| NPA (Nostril to Earlobe)      | 28 F                 |
| BLADE                         | 3 Straight or Curved |
| ETT Size                      | 6.5 - 7.0 mm         |
| Stylet                        | 14 F                 |
| ETT @ Lip                     | 19 - 21 cm           |
| King Airway                   | 3                    |
| NG Tube                       | 16 - 18 F            |
| Suction Catheter              | 10 -12 F             |
| INTRAVENOUS EQUIPMENT         | INSTRUCTIONS         |
| IV Catheter                   | 16 - 20 G            |
| EZ-IO                         | 25 mm (15 G) Blue    |
| Defib Pads Size               | Adult                |
| VITALS                        | RANGE                |
| Respiratory Rate              | 14 - 20              |
| Heart Rate                    | 60 - 100             |
| Systolic Blood Pressure (SBP) | 90 - 120             |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 125 | 250 | 360 | 360 |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 30  | 50  | 125 | 125 |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |         |
|---|-------|------------------|---------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 150              | mL/hour |
|   | 20%   | 300              | mL/hour |
|   | 30%   | 450              | mL/hour |
|   | 40%   | 600              | mL/hour |
|   | 50%   | 750              | mL/hour |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)

OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**13 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**60 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL                | ROUTE     | DOSE/KG                             | AMOUNT  |
|-----------------------------------|----------------|--------------------|-----------|-------------------------------------|---------|
| Adenosine (Adenocard)             | 3 mg/mL        | 2 mL               | IV/IO     | 0.1 mg/kg                           | 6 mg    |
| Amiodarone (Tachycardia)          | 50 mg/mL       | 3 mL               | IV/IO     | 5 mg/kg                             | 150 mg  |
| Amiodarone (VF/VT Arrest)         | 50 mg/mL       | 6 mL               | IV/IO     | 5 mg/kg                             | 300 mg  |
| Atropine                          | 0.1 mg/mL      | 5 mL               | IV/IO     | 0.02 mg/kg                          | 0.5 mg  |
| Calcium Chloride                  | 100 mg/mL      | 10 mL              | IV/IO     | 20 mg/kg                            | 1 gm    |
| Dextrose 10%                      | 0.1 gm/mL      | 125 mL             | IV/IO     | 0.5 gm/kg                           | 12.5 gm |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 1 mL               | IV/IO     | 1 mg/kg                             | 50 mg   |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.05 mL</b>     | <b>IM</b> | 0.01 mg/kg                          | 0.5 mg  |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 6 mL               | IV/IO     | 0.01 mg/kg                          | 0.6 mg  |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 1 mL               | IV/IO/IN  | 1 mcg/kg                            | 50 mcg  |
| Glucagon                          | 1 mg/mL        | 1 mL               | IM        | 0.1 mg/kg                           | 1 mg    |
| Lorazepam (Ativan)                | 2 mg/mL        | 1 mL               | IV/IO/IM  | 0.1 mg/kg                           | 2 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 1 mL               | IN        | 0.2 mg/kg                           | 5 mg    |
| Midazolam (Versed)                | 5 mg/mL        | 0.5 mL             | IV/IM     | 0.1 mg/kg                           | 2.5 mg  |
| Morphine Sulfate                  | 2 mg/mL        | 2.5 mL             | IV/IO     | 0.1 mg/kg                           | 5 mg    |
| Naloxone (Narcan)                 | 1 mg/mL        | 2 mL               | IN/IV/IO  | 0.1 mg/kg                           | 2 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 2 mL               | IV/IM     | 0.15 mg/kg                          | 4 mg    |
| Sodium Bicarbonate                | 1 mEq/mL       | 60 mL              | IV/IO     | 1 mEq/kg                            | 60 mEq  |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 1.9 mL             | IV/IO     | 2 mg/kg                             | 120 mg  |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 6 mL               | IV/IO     | 1 mg/kg                             | 60 mg   |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 4 mL               | IO        | 1 mg/kg                             | 40 mg   |
| NEBULIZED MEDICATIONS             |                |                    |           |                                     |         |
| Albuterol (Proventil)             | 2.5mg/3mL      | 6 mL               | NEB       | Set Dose                            | 5 mg    |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL             | NEB       | Set Dose                            | 0.5 mg  |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS   | NEB       | Set Dose                            | 2 mg    |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                    |           |                                     |         |
| Epinephrine Drip                  | 2 mcg/mL       | See Epi Drip Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| Norepinephrine (Levophed)         | 2 mcg/mL       | See Levophed Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                    |           |                                     |         |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 168 mL             | IV/IO     | Push over 15 min                    | 4200 mg |
| Magnesium Sulfate                 | 500 mg/mL      | 4 mL               | IV/IO     | Add to 250mL NSS<br>Adm over 20 min | 2 gm    |
| Normal Saline Bolus               | 0.9%           | 1200 mL            | IV/IO     | 20 mL/kg                            | 1200 mL |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**14 YR**

**CHESAPEAKE FIRE DEPARTMENT** **70 KG IDEAL WEIGHT**

| AIRWAY EQUIPMENT              | INSTRUCTIONS             |
|-------------------------------|--------------------------|
| Resuscitation Bag (BVM)       | Adult                    |
| OPA (Teeth to Angle Jaw)      | 80 - 90 mm               |
| NPA (Nostril to Earlobe)      | 28 F                     |
| BLADE                         | 3 Straight or Curved     |
| ETT Size                      | 7.0 mm                   |
| Stylet                        | 14 F                     |
| ETT @ Lip                     | 20 - 21 cm               |
| King Airway                   | 3 to 4 (Based on Height) |
| NG Tube                       | 16 - 18 F                |
| Suction Catheter              | 10 -12 F                 |
| INTRAVENOUS EQUIPMENT         | INSTRUCTIONS             |
| IV Catheter                   | 16 - 20 G                |
| EZ-IO                         | 25 mm (15 G) Blue        |
| Defib Pads Size               | Adult                    |
| VITALS                        | RANGE                    |
| Respiratory Rate              | 14 - 20                  |
| Heart Rate                    | 60 - 100                 |
| Systolic Blood Pressure (SBP) | 90 - 120                 |

| LIFEPAK        | JOULES/KG       | 1ST | 2ND | 3RD | 4TH |
|----------------|-----------------|-----|-----|-----|-----|
| Defibrillation | 2 → 4 → 6 → 8   | 150 | 275 | 360 | 360 |
| Cardioversion  | 0.5 → 1 → 2 → 2 | 30  | 70  | 150 | 150 |

| Burn Fluid Formula  | %TBSA | Hourly NSS Bolus |         |
|---|-------|------------------|---------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 10%   | 175              | mL/hour |
|   | 20%   | 350              | mL/hour |
|   | 30%   | 525              | mL/hour |
|   | 40%   | 700              | mL/hour |
|   | 50%   | 875              | mL/hour |



OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**14 YR**

**CHESAPEAKE FIRE DEPARTMENT**

**70 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL                | ROUTE     | DOSE/KG                             | AMOUNT  |
|-----------------------------------|----------------|--------------------|-----------|-------------------------------------|---------|
| Adenosine (Adenocard)             | 3 mg/mL        | 2 mL               | IV/IO     | 0.1 mg/kg                           | 6 mg    |
| Amiodarone (Tachycardia)          | 50 mg/mL       | 3 mL               | IV/IO     | 5 mg/kg                             | 150 mg  |
| Amiodarone (VF/VT Arrest)         | 50 mg/mL       | 6 mL               | IV/IO     | 5 mg/kg                             | 300 mg  |
| Atropine                          | 0.1 mg/mL      | 5 mL               | IV/IO     | 0.02 mg/kg                          | 0.5 mg  |
| Calcium Chloride                  | 100 mg/mL      | 10 mL              | IV/IO     | 20 mg/kg                            | 1 gm    |
| Dextrose 10%                      | 0.1 gm/mL      | 125 mL             | IV/IO     | 0.5 gm/kg                           | 12.5 gm |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 1 mL               | IV/IO     | 1 mg/kg                             | 50 mg   |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.05 mL</b>     | <b>IM</b> | 0.01 mg/kg                          | 0.5 mg  |
| Epinephrine 1:10,000              | 0.1 mg/mL      | 7 mL               | IV/IO     | 0.01 mg/kg                          | 0.7 mg  |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 1 mL               | IV/IO/IN  | 1 mcg/kg                            | 50 mcg  |
| Glucagon                          | 1 mg/mL        | 1 mL               | IM        | 0.1 mg/kg                           | 1 mg    |
| Lorazepam (Ativan)                | 2 mg/mL        | 1 mL               | IV/IO/IM  | 0.1 mg/kg                           | 2 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 1 mL               | IN        | 0.2 mg/kg                           | 5 mg    |
| Midazolam (Versed)                | 5 mg/mL        | 0.5 mL             | IV/IM     | 0.1 mg/kg                           | 2.5 mg  |
| Morphine Sulfate                  | 2 mg/mL        | 2.5 mL             | IV/IO     | 0.1 mg/kg                           | 5 mg    |
| Naloxone (Narcan)                 | 1 mg/mL        | 2 mL               | IN/IV/IO  | 0.1 mg/kg                           | 2 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 2 mL               | IV/IM     | 0.15 mg/kg                          | 4 mg    |
| Sodium Bicarbonate                | 1 mEq/mL       | 70 mL              | IV/IO     | 1 mEq/kg                            | 70 mEq  |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 2 mL               | IV/IO     | 2 mg/kg                             | 125 mg  |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 7 mL               | IV/IO     | 1 mg/kg                             | 70 mg   |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 4 mL               | IO        | 1 mg/kg                             | 40 mg   |
| NEBULIZED MEDICATIONS             |                |                    |           |                                     |         |
| Albuterol (Proventil)             | 2.5mg/3mL      | 6 mL               | NEB       | Set Dose                            | 5 mg    |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL             | NEB       | Set Dose                            | 0.5 mg  |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS   | NEB       | Set Dose                            | 2 mg    |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                    |           |                                     |         |
| Epinephrine Drip                  | 2 mcg/mL       | See Epi Drip Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| Norepinephrine (Levophed)         | 2 mcg/mL       | See Levophed Chart | IV/IO     | 2 - 10 mcg/min                      |         |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                    |           |                                     |         |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 196 mL             | IV/IO     | Push over 15 min                    | 4900 mg |
| Magnesium Sulfate                 | 500 mg/mL      | 4 mL               | IV/IO     | Add to 250mL NSS<br>Adm over 20 min | 2 gm    |
| Normal Saline Bolus               | 0.9%           | 1400 mL            | IV/IO     | 20 mL/kg                            | 1400 mL |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**ADULT**

| CHESAPEAKE FIRE DEPARTMENT    |                          |
|-------------------------------|--------------------------|
| <b>AIRWAY EQUIPMENT</b>       | <b>INSTRUCTIONS</b>      |
| Resuscitation Bag (BVM)       | Adult                    |
| OPA (Teeth to Angle Jaw)      | 80 - 100 mm              |
| NPA (Nostril to Earlobe)      | 28 - 32 F                |
| BLADE                         | 3 - 4 Straight or Curved |
| ETT Size                      | 7.0 - 8.0 mm             |
| Stylet                        | 14 F                     |
| ETT @ Lip                     | 20 - 21 cm               |
| King Airway                   | 3 to 5 (Based on Height) |
| NG Tube                       | 16 - 18 F                |
| Suction Catheter              | 14 F                     |
| <b>INTRAVENOUS EQUIPMENT</b>  | <b>INSTRUCTIONS</b>      |
| IV Catheter                   | 16 - 20 G                |
| EZ-IO (Tibial)                | 25 mm (15 G) Blue        |
| EZ-IO (Humeral)               | 45 mm (15 G) Yellow      |
| Defib Pads Size               | Adult                    |
| <b>VITALS</b>                 | <b>RANGE</b>             |
| Respiratory Rate              | 14 - 20                  |
| Heart Rate                    | 60 - 100                 |
| Systolic Blood Pressure (SBP) | 90 - 120                 |

| LIFEPAK        | JOULES                         | 1ST | 2ND | 3RD | 4TH |
|----------------|--------------------------------|-----|-----|-----|-----|
| Defibrillation | Physio-Control Recommendations | 200 | 300 | 360 | 360 |
| Cardioversion  | Physio-Control Recommendations | 100 | 200 | 300 | 360 |

| Burn Fluid Formula  | Wt Range   | %TBSA | Hourly NSS Bolus   |
|---|--|-------|--------------------|
| Wt kg x TBSA x 0.25cc<br>= total volume to be<br>infused for each hour<br>of the first 8 hours. | 80 - 100 kg<br>Use Burn Reference<br>Sheet for Admin Rates | 10%   | 200 - 250 mL/hour  |
|   |  | 20%   | 400 - 500 mL/hour  |
|   |  | 30%   | 600 - 750 mL/hour  |
|   |  | 40%   | 800 - 1000 mL/hour |
|   |  | 50%   | 1000 -1250 mL/hour |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**Adult 80KG**

**CHESAPEAKE FIRE DEPARTMENT**

**80 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL                | ROUTE     | DOSE/KG                                | AMOUNT  |
|-----------------------------------|----------------|--------------------|-----------|--|---------|
| Adenosine (Adenocard)             | 3 mg/mL        | 2 mL               | IV/IO     | Set Dose                               | 6 mg    |
| Amiodarone (Tachycardia)          | 50 mg/mL       | 3 mL               | IV/IO     | Add to 100mL NSS<br>Adm over 10 min    | 150 mg  |
| Amiodarone (VF/VT Arrest)         | 50 mg/mL       | 6 mL               | IV/IO     | Set Dose                               | 300 mg  |
| Atropine                          | 0.1 mg/mL      | 5 mL               | IV/IO     | Set Dose                               | 0.5 mg  |
| Calcium Chloride                  | 100 mg/mL      | 10 mL              | IV/IO     | Set Dose                               | 1 gm    |
| Dextrose 10%                      | 0.1 gm/mL      | 125 mL             | IV/IO     | Set Dose                               | 12.5 gm |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 1 mL               | IV/IO     | Set Dose                               | 50 mg   |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.5 mL</b>      | <b>IM</b> | Set Dose                               | 0.5 mg  |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 1 mL               | IV/IO/IN  | Set Dose                               | 50 mcg  |
| Glucagon                          | 1 mg/mL        | 1 mL               | IM        | Set Dose                               | 1 mg    |
| Lorazepam (Ativan)                | 2 mg/mL        | 1 mL               | IV/IO/IM  | Set Dose                               | 2 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 1 mL               | IN        | Set Dose                               | 5 mg    |
| Midazolam (Versed) IV             | 5 mg/mL        | 0.5 mL             | IV        | Set Dose                               | 2.5 mg  |
| Midazolam (Versed) IM             | 5 mg/mL        | 2 mL               | IM        | Set Dose                               | 10 mg   |
| Morphine Sulfate                  | 2 mg/mL        | 2.5 mL             | IV/IO     | Set Dose                               | 5 mg    |
| Naloxone (Narcan)                 | 1 mg/mL        | 2 mL               | IN/IV/IO  | Set Dose                               | 2 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 2 mL               | IV/IM     | Set Dose                               | 4 mg    |
| Sodium Bicarbonate                | 1 mEq/mL       | 80 mL              | IV/IO     | 1 mEq/kg                               | 80 mEq  |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 2 mL               | IV/IO     | Set Dose                               | 125 mg  |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 8 mL               | IV/IO     | 1 mg/kg                                | 80 mg   |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 4 mL               | IO        | Set Dose                               | 40 mg   |
| NEBULIZED MEDICATIONS             |                |                    |           |  |         |
| Albuterol (Proventil)             | 2.5mg/3mL      | 3 mL               | NEB       | Set Dose                               | 2.5 mg  |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL             | NEB       | Set Dose                               | 0.5 mg  |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS   | NEB       | Set Dose                               | 2 mg    |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                    |           |  |         |
| Epinephrine Drip                  | 2 mcg/mL       | See Epi Drip Chart | IV/IO     | 2 - 10 mcg/min                         |         |
| Norepinephrine (Levophed)         | 2 mcg/mL       | See Levophed Chart | IV/IO     | 2 - 10 mcg/min                         |         |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                    |           |  |         |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 200 mL             | IV/IO     | Infuse over 15 min                     | 5 gm    |
| Magnesium Sulfate(Resp/Cardiac)   | 500 mg/mL      | 4 mL               | IV/IO     | Add to 100 mL NSS<br>infuse over 5 min | 2 gm    |
| Magnesium Sulfate (Eclapsia)      | 500 mg/mL      | 8 mL               | IV/IO     | Add to 100 mL NSS<br>infuse over 5 min | 4 gm    |
| Normal Saline Bolus               | 0.9%           | 1600 mL            | IV/IO     | 20 mL/kg                               | 1600 mL |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**Adult 90KG**

**CHESAPEAKE FIRE DEPARTMENT**

**90 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL                | ROUTE     | DOSE/KG                                | AMOUNT  |
|-----------------------------------|----------------|--------------------|-----------|--|---------|
| Adenosine (Adenocard)             | 3 mg/mL        | 2 mL               | IV/IO     | Set Dose                               | 6 mg    |
| Amiodarone (Tachycardia)          | 50 mg/mL       | 3 mL               | IV/IO     | Add to 100mL NSS<br>Adm over 10 min    | 150 mg  |
| Amiodarone (VF/VT Arrest)         | 50 mg/mL       | 6 mL               | IV/IO     | Set Dose                               | 300 mg  |
| Atropine                          | 0.1 mg/mL      | 5 mL               | IV/IO     | Set Dose                               | 0.5 mg  |
| Calcium Chloride                  | 100 mg/mL      | 10 mL              | IV/IO     | Set Dose                               | 1 gm    |
| Dextrose 10%                      | 0.1 gm/mL      | 125 mL             | IV/IO     | Set Dose                               | 12.5 gm |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 1 mL               | IV/IO     | Set Dose                               | 50 mg   |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.5 mL</b>      | <b>IM</b> | Set Dose                               | 0.5 mg  |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 1 mL               | IV/IO/IN  | Set Dose                               | 50 mcg  |
| Glucagon                          | 1 mg/mL        | 1 mL               | IM        | Set Dose                               | 1 mg    |
| Lorazepam (Ativan)                | 2 mg/mL        | 1 mL               | IV/IO/IM  | Set Dose                               | 2 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 1 mL               | IN        | Set Dose                               | 5 mg    |
| Midazolam (Versed) IV             | 5 mg/mL        | 0.5 mL             | IV        | Set Dose                               | 2.5 mg  |
| Midazolam (Versed) IM             | 5 mg/mL        | 2 mL               | IM        | Set Dose                               | 10 mg   |
| Morphine Sulfate                  | 2 mg/mL        | 2.5 mL             | IV/IO     | Set Dose                               | 5 mg    |
| Naloxone (Narcan)                 | 1 mg/mL        | 2 mL               | IN/IV/IO  | Set Dose                               | 2 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 2 mL               | IV/IM     | Set Dose                               | 4 mg    |
| Sodium Bicarbonate                | 1 mEq/mL       | 90 mL              | IV/IO     | 1 mEq/kg                               | 90 mEq  |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 2 mL               | IV/IO     | Set Dose                               | 125 mg  |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 9 mL               | IV/IO     | 1 mg/kg                                | 90 mg   |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 4 mL               | IO        | Set Dose                               | 40 mg   |
| NEBULIZED MEDICATIONS             |                |                    |           |  |         |
| Albuterol (Proventil)             | 2.5mg/3mL      | 3 mL               | NEB       | Set Dose                               | 2.5 mg  |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL             | NEB       | Set Dose                               | 0.5 mg  |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS   | NEB       | Set Dose                               | 2 mg    |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                    |           |  |         |
| Epinephrine Drip                  | 2 mcg/mL       | See Epi Drip Chart | IV/IO     | 2 - 10 mcg/min                         |         |
| Norepinephrine (Levophed)         | 2 mcg/mL       | See Levophed Chart | IV/IO     | 2 - 10 mcg/min                         |         |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                    |           |  |         |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 200 mL             | IV/IO     | Infuse over 15 min                     | 5 gm    |
| Magnesium Sulfate(Resp/Cardiac)   | 500 mg/mL      | 4 mL               | IV/IO     | Add to 100 mL NSS<br>infuse over 5 min | 2 gm    |
| Magnesium Sulfate (Eclapsia)      | 500 mg/mL      | 8 mL               | IV/IO     | Add to 100 mL NSS<br>infuse over 5 min | 4 gm    |
| Normal Saline Bolus               | 0.9%           | 1800 mL            | IV/IO     | 20 mL/kg                               | 1800 mL |

OPTION 1 - USE ACTUAL AGE (IF STANDARD SIZED CHILD)  
 OPTION 2 - ESTIMATE AGE IF ACTUAL AGE IS UNKNOWN

**Adult 100KG**

**CHESAPEAKE FIRE DEPARTMENT**

**100 KG IDEAL WEIGHT**

| DRUG                              | CONC           | VOL                | ROUTE     | DOSE/KG                                | AMOUNT  |
|-----------------------------------|----------------|--------------------|-----------|--|---------|
| Adenosine (Adenocard)             | 3 mg/mL        | 2 mL               | IV/IO     | Set Dose                               | 6 mg    |
| Amiodarone (Tachycardia)          | 50 mg/mL       | 3 mL               | IV/IO     | Add to 100mL NSS<br>Adm over 10 min    | 150 mg  |
| Amiodarone (VF/VT Arrest)         | 50 mg/mL       | 6 mL               | IV/IO     | Set Dose                               | 300 mg  |
| Atropine                          | 0.1 mg/mL      | 5 mL               | IV/IO     | Set Dose                               | 0.5 mg  |
| Calcium Chloride                  | 100 mg/mL      | 10 mL              | IV/IO     | Set Dose                               | 1 gm    |
| Dextrose 10%                      | 0.1 gm/mL      | 125 mL             | IV/IO     | Set Dose                               | 12.5 gm |
| Diphenhydramine (Benadryl)        | 50 mg/mL       | 1 mL               | IV/IO     | Set Dose                               | 50 mg   |
| <b>Epinephrine 1:1000 (IM)</b>    | <b>1 mg/mL</b> | <b>0.5 mL</b>      | <b>IM</b> | Set Dose                               | 0.5 mg  |
| Fentanyl Citrate (Sublimaze)      | 50 mcg/mL      | 1 mL               | IV/IO/IN  | Set Dose                               | 50 mcg  |
| Glucagon                          | 1 mg/mL        | 1 mL               | IM        | Set Dose                               | 1 mg    |
| Lorazepam (Ativan)                | 2 mg/mL        | 1 mL               | IV/IO/IM  | Set Dose                               | 2 mg    |
| Midazolam (Versed) IN             | 5 mg/mL        | 1 mL               | IN        | Set Dose                               | 5 mg    |
| Midazolam (Versed) IV             | 5 mg/mL        | 0.5 mL             | IV        | Set Dose                               | 2.5 mg  |
| Midazolam (Versed) IM             | 5 mg/mL        | 2 mL               | IM        | Set Dose                               | 10 mg   |
| Morphine Sulfate                  | 2 mg/mL        | 2.5 mL             | IV/IO     | Set Dose                               | 5 mg    |
| Naloxone (Narcan)                 | 1 mg/mL        | 2 mL               | IN/IV/IO  | Set Dose                               | 2 mg    |
| Odansetron (Zofran)               | 2 mg/mL        | 2 mL               | IV/IM     | Set Dose                               | 4 mg    |
| Sodium Bicarbonate                | 1 mEq/mL       | 100 mL             | IV/IO     | 1 mEq/kg                               | 100 mEq |
| Solu-Medrol (Methylprednisolone)  | 62.5 mg/mL     | 2 mL               | IV/IO     | Set Dose                               | 125 mg  |
| Xylocaine 2% (Cardiac)            | 10 mg/mL       | 10 mL              | IV/IO     | 1 mg/kg                                | 100 mg  |
| Xylocaine 2% (IO Pain)            | 10 mg/mL       | 4 mL               | IO        | Set Dose                               | 40 mg   |
| NEBULIZED MEDICATIONS             |                |                    |           |  |         |
| Albuterol (Proventil)             | 2.5mg/3mL      | 3 mL               | NEB       | Set Dose                               | 2.5 mg  |
| Atrovent (Ipratropium Bromide)    | 0.5mg / 2.5mL  | 2.5 mL             | NEB       | Set Dose                               | 0.5 mg  |
| (NEB) Epinephrine 1:1000          | 1mg /mL        | 2mL Epi + 2mL NS   | NEB       | Set Dose                               | 2 mg    |
| DRIPS MEDICATIONS (10 gtt/mL Set) |                |                    |           |  |         |
| Epinephrine Drip                  | 2 mcg/mL       | See Epi Drip Chart | IV/IO     | 2 - 10 mcg/min                         |         |
| Norepinephrine (Levophed)         | 2 mcg/mL       | See Levophed Chart | IV/IO     | 2 - 10 mcg/min                         |         |
| BOLUS ADMINISTRATION MEDICATIONS  |                |                    |           |  |         |
| CYANOKIT (Hydroxocobalamin)       | 25 mg/mL       | 200 mL             | IV/IO     | Infuse over 15 min                     | 5 gm    |
| Magnesium Sulfate(Resp/Cardiac)   | 500 mg/mL      | 4 mL               | IV/IO     | Add to 100 mL NSS<br>infuse over 5 min | 2 gm    |
| Magnesium Sulfate (Eclapsia)      | 500 mg/mL      | 8 mL               | IV/IO     | Add to 100 mL NSS<br>infuse over 5 min | 4 gm    |
| Normal Saline Bolus               | 0.9%           | 2000 mL            | IV/IO     | 20 mL/kg                               | 2000 mL |

**Adenosine (Adenocard)**

**Albuterol Sulfate (Proventil)**

**Amiodarone (Cordarone)**

**Aspirin (Acetylsalicylic Acid)**

**Ativan (Lorazepam)**

**Atropine**

**Atrovent (Ipratropium Bromide)**

**Benadryl (Diphenhydramine)**

**Calcium Chloride**

**CYANOKIT (Hydroxocobalamin)**

**Dextrose 10%**

**Epinephrine 1:1000**

**Epinephrine 1:10,000**

**Epinephrine Drip**

**Fentanyl Citrate (Sublimaze)**

**Glucagon**

**Fentanyl Citrate (Sublimaze)**

**Glucagon**

**Haldol (Haloperidol)**

**Lasix (Furosemide Sulfate)**

**Levophed (Norepinephrine)**

**Lidocaine (Xylocaine 2%)**

**Magnesium Sulfate**

**Midazolam (Versed)**

**Morphine Sulfate**

**Narcan (Naloxone)**

**Nitroglycerin Sublingual Tablets**

**Nitroglycerin Topical Paste**

**Oxygen**

**Sodium Bicarbonate**

**Solu-Medrol (Methylprednisolone)**

**Zofran (Odansetron)**

# Back to Medications

## Adenosine (Adenocard)

### Indications

Symptomatic (poor perfusion) narrow complex tachycardia w/ pulse

### Dosage

#### Adult

6mg IV - Initial Dose

12 mg IV - Second Dose

#### Pediatric

0.1 mg/kg IV (Max 6 mg) - Initial Dose

0.2 mg/kg IV (Max 12 mg) - Second Dose

### Adminstration

Administer rapid IV push with a 10 mL flush

Antecubital IV site is preferred

### Contraindications

Known hypersensitivity.

Sick Sinus Syndrome.

Second or third degree AV block.

### Side Effects

Flushing

Chest Pain

Hypotension

Headache

Nausea

Vomiting

### Precautions

Use with caution in patients with severe asthma.

The effects of adenosine are antagonized by methylxanthines such as caffeine and theophylline, so larger doses of adenosine may be required to be effective.

### Actions

Slows AV node conduction, interrupts reentry pathways. Adenosine works in a variety of receptors grouped into a group called P1 receptors. The true mechanism is somewhat unclear. Adenosine works through the activation of cAMP and coupled G-proteins to cause its cardiac effects.

# Back to Medications

## Albuterol Sulfate (Proventil)

### Indications

Wheezing due to bronchospasm  
Crush injury

### Dosage

#### Adult

2.5 mg Nebulized

#### Pediatric

2.5 mg Nebulized (Newborn - 4 years)  
2.5 mg Nebulized ( 5 - 14 years)

### Adminstration

Nebulize/Inhalation. Use continuously for crush and hyperkalemia renal patients.

### Contraindications

Known hypersensitivity  
Symptomatic tachycardia

Tachycardia  
Palpitations  
Peripheral vasodilation

Tremors  
Headache  
Sore throat and dry mouth

### Precautions

Patients with cardiovascular disorders (coronary insufficiency, arrhythmias, hypertension, etc.), convulsive disorders and diabetes. Blood pressure and pulse should be monitored.

### Actions

Albuterol is a moderately selective beta2-adrenergic agonist that stimulates receptors of the smooth muscle in the lungs, uterus, and vasculature supplying skeletal muscle. The net result of beta2-receptor agonism in the lungs is relaxation of bronchial and tracheal smooth muscles, which in turn relieves bronchospasm, reduces airway resistance, facilitates mucous drainage, and increases vital capacity. Stimulation of beta2-receptors on peripheral vascular smooth muscle can cause vasodilation and a modest decrease in diastolic blood pressure. Albuterol is an effective adjunctive treatment for hyperkalemia; beta2-adrenergic stimulation results in intracellular accumulation of serum potassium due to stimulation of the Na/K ATPase pump, leading to moderate degrees of hypokalemia.

# Back to Medications

## Amiodarone (Cordarone)

### Indications

Ventricular Arrhythmias or Wide Complex Tachycardia with or without a pulse

### Dosage

#### Adult

300 mg - Ventricular Fibrillation (1st dose)  
150 mg - Ventricular Fibrillation(2nd dose)  
150 mg - Wide Complex Tachycardia  
(diluted in 100 mL of NSS)

#### Pediatric

5mg/kg - Ventricular Fibrillation  
(1st Dose 300mg Max & 2nd 150mg Max)  
5mg/kg - Wide Complex Tachycardia  
(Diluted in 100 mL of NSS for less <10kg  
and 250 mL >10 kg -150mg Max dose)

### Adminstration

Pulseless VF/VT- Administer IV/IO push

Perfusing rhythm - Administer IV/IO bolus infusion diluted in NSS

(Infuse over 10 mins for Adults and 20 minutes for Pediatrics)

### Contraindications

Cardiogenic shock

Bradycardia

Second/third degree block

Vasodilation

Hypotension

Bradycardia

AV block

Increased QT interval,

Ventricular Tachycardia

### Precautions

Use with caution with patients that are currently taking beta blockers, calcium channel blockers, anticoagulants and if the patient has a history of heart failure.

### Actions

Prolongs the duration of the action potential and refractory period of all Cardiac fibers. Depresses the Phase 0 slope by causing a sodium blockade. Causes a Beta block as well as a weak calcium channel blockade. Therefore it decreases the SA nodes rate of firing, suppresses automaticity, interrupts reentrant pathways and prolongs PR, QRS and QT intervals. Relaxes vascular smooth muscle, decreases peripheral vascular resistance, and increases coronary contractility.

# Back to Medications

## Versed (Midazolam)

### Indications

Seizures, Violent Patient/Chemical Sedation, Sedation for Electrical Therapy

### Dosage

#### Adult

5mg IN

10 mg IM

2 mg IV

#### Pediatric

0.2 mg/kg IN (Max 5 mg)

0.1 mg/kg IV/IM (Max 2.5 mg)

### Administration

Administer slow IV push (over 1 minute)

Intranasal doses should be divided in each nostril and rapidly pushed

### Contraindications

Shock

Acute Narrow Glaucoma

Coma

### Side Effects

Respiratory Depression

Hypotension

Bradycardia

Headache

Nausea

Vomiting

### Precautions

Monitor for hypoventilation and respiratory depression

Adverse reactions may increase when used with barbituates, CNS depressants, Cimetidine (Tagamet), Ranitidine (Zantac), Diltiazem (Cardizem) and Alcohol.

### Actions

As a Benzodiazepine this drug functions on GABA similarly to the action of "Diazepam". Midazolam is a short-acting muscle-relaxant, anticonvulsant, in addition to these effects Midazolam also has anterograde amnesic effects, it is therefore preferred prior to cardioversion.

# Back to Medications

## Zofran (Ondansetron)

### Indications

Nausea and/or Vomiting

### Dosage

#### Adult

4mg IV/IM

#### Pediatric

0.15mg/kg IV/IM

### Adminstration

Administer slow IV push (over 2 - 5 minutes); may repeat same dose in 10 minutes

### Contraindications

Hypersensitive to (Zofran) Ondansetron Hydrochloride  
Allergic reaction to (Zofran) Ondansetron Hydrochloride  
Reactions to drugs similiar to Zofran (Anzemet or Kytril)  
Phenylketonuria history (an excess of the amino acid phenylalanine)

### Side Effects

|                                       |                          |
|---------------------------------------|--------------------------|
| Blurred vision or temporary blindness | Anxiety                  |
| Fever,                                | Agitation                |
| Bradycardia                           | Shivering                |
| Trouble breathing                     | Light-headed or fainting |

### Precautions

Use with Amiodarone and Haldol may cause dysrhythmias (prolonged Q-T intervals)  
Pediatric patients less than one year of age  
Liver disease

### Actions

Ondansetron is a selective 5-HT<sub>3</sub> receptor antagonist. While its mechanism of action has not been fully characterized, Ondansetron is not a dopamine-receptor antagonist. Serotonin receptors of the 5-HT<sub>3</sub> type are present both peripherally on vagal nerve terminals and centrally in the chemoreceptor trigger zone of the area postrema. It is not certain whether Ondansetron's antiemetic action is mediated centrally, peripherally, or in both sites. The released serotonin may stimulate the vagal afferents through the 5-HT<sub>3</sub> receptors and initiate the vomiting reflex.