PUTNAM COUNTY
OPERATION LIFE
PROTOCOLS

2014 Version
The following protocols have been developed to provide standardized guidelines for patient care in particular critical situations. In some instances it is necessary to abbreviate or shorten terms to provide the most concise set of guidelines possible. When "ALS" appears in this document, we refer to Indiana Paramedic (EMT-P) and EMT Basic Advanced (EMT-BA) / Advanced EMT (Adv. EMT) procedures, care, or transport as outlined by the Emergency Medical Services Branch, Fire and Building Safety Division of the Indiana Department of Homeland Security, for their respective certification level and scope of practice. When "BLS" appears in this document, we refer to Basic Emergency Medical Technician (EMT) procedures, care, or transport as defined by the Emergency Medical Services Branch, Fire and Building Safety Division of the Indiana Department of Homeland Security. Throughout this document the terms "guidelines", "protocols", and "directives" may be used interchangeably.

Indiana certified and IU Methodist affiliated NES Advanced EMT's may perform skills and medication administration consistent with the Indiana scope of practice for their level.

The following protocols are guidelines to be used in patient care management. These medical guidelines are not intended to be all-inclusive and may not necessarily have covered every situation which may be encountered by the Paramedic/EMT. These guidelines are not meant to serve as a teaching tool, but are written with the understanding that the EMT or Paramedic knows how to perform the procedures. If there are references to procedures, medications, or conditions to which the Paramedic/EMT is not familiar, it is his/her responsibility to attain the appropriate guidance and/or education prior to performing such procedures or using such medications.

The protocols are designed to guide the Paramedic/EMT through the continuity of care for the pre-hospital patient. ALS procedures are contained within the same protocol as the BLS procedures. This is intended to allow both the EMT and Paramedic to understand where ALS intervention is involved as part of the team of prehospital care providers and where ALS intervention may be necessary in the pre-hospital care. Some protocols are specific to ALS care as the treatment provided to the patient evolves beyond the BLS level of care.

Written protocols are not a substitute for direct physician orders and will always be superseded by on-scene EMS Medical Directors/Fellows or on-line medical control. As with all aspects of health care, these patient care protocols should be considered dynamic and will thus be continually evolving.

These protocols are to be used by all affiliates. Except where indicated, affiliating agencies may not alter, add to or delete any portion of these protocols without written permission from the Medical Director.
The Operational Guidelines Section contains guidelines for all affiliates. Some guidelines have specific notations for Indianapolis Emergency Medical Services (IEMS) personnel. These IEMS guidelines are in addition to, NOT substitution for, other guidelines in this section.

The protocols are to provide guidelines in the treatment of patients of all ages. Where necessary, protocols unique for specific ages those ages are noted. For the purposes of these protocols, an adult is over the age of 8 years, a child is ages 1 to 8 years, an infant is 1 month to 1 year, and a newborn is from time of delivery up to 28 days (less than 1 month). When certain procedures are contrary to these ages, they are noted in the specific protocol.

These protocols are based upon the Marion County Pre-hospital Care Task Force protocols and have been adopted by Putnam County Operation Life in March of 2014.

Kraig Kinney, Executive Director
Executive Director

Dr. Ed Bartkus
Medical Director
## Table of Contents

<table>
<thead>
<tr>
<th>SECTION ONE</th>
<th>OPERATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>General Guidelines</td>
<td>8-9</td>
<td></td>
</tr>
<tr>
<td>Communications and Orders</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Verification of Medical Personnel On-Scene</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Initiation of Resuscitation Guidelines</td>
<td>12-13</td>
<td></td>
</tr>
<tr>
<td>Medical &amp; Trauma Alert Criteria</td>
<td>14-15</td>
<td></td>
</tr>
<tr>
<td>Transportation/Destination</td>
<td>16-18</td>
<td></td>
</tr>
<tr>
<td>Non-Transported Patients</td>
<td>19-22</td>
<td></td>
</tr>
<tr>
<td>ALS/BLS Team Approach</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Requesting ALS / ALS Transportation Indicators</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Requesting Air Medical Transport</td>
<td>25-26</td>
<td></td>
</tr>
<tr>
<td>START and JumpSTART Triage</td>
<td>27-28</td>
<td></td>
</tr>
<tr>
<td>Decontamination of Patients</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Universal Precautions</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Blood and Body Fluid Exposure of EMS Personnel</td>
<td>31-32</td>
<td></td>
</tr>
<tr>
<td>Infection Control Procedures</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Post Exposure Protocol</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Request for New or Changed Protocol/Medical Equipment</td>
<td>35</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION TWO</th>
<th>TREATMENT GUIDELINES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>General Care</td>
<td>Initial Medical Care</td>
<td>37</td>
</tr>
<tr>
<td>Glasgow Coma Scale / Pediatric Glasgow Coma Scale</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Airway Management</td>
<td>39-40</td>
<td></td>
</tr>
<tr>
<td>Oxygen Administration</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>Obstructed Airway</td>
<td>42-43</td>
<td></td>
</tr>
<tr>
<td>Pain Management</td>
<td>44-45</td>
<td></td>
</tr>
<tr>
<td>Nausea and/or Vomiting</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Conscious Sedation</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>Respiratory Emergencies</td>
<td>Difficulty Breathing: Obstructive/Reactive Airway Diseases</td>
<td>48-49</td>
</tr>
<tr>
<td>Difficulty Breathing: Pulmonary Edema</td>
<td>49-50</td>
<td></td>
</tr>
<tr>
<td>Difficulty Breathing: Croup</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Difficulty Breathing: Smoke Inhalation</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Difficulty Breathing: Carbon Monoxide Poisoning</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Cardiovascular Emergencies</td>
<td>Chest Pain-Adult</td>
<td>53-54</td>
</tr>
<tr>
<td>STEMI Special Care</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>Dysrhythmias: Bradycardia</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>Dysrhythmias: Tachycardia</td>
<td>56-57</td>
<td></td>
</tr>
<tr>
<td>Shock: Cardiogenic</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>Shock: Noncardiogenic</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>Cardiac Arrest: General Care</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Cardiac Arrest: VF/VT</td>
<td>61-62</td>
<td></td>
</tr>
<tr>
<td>Cardiac Arrest: Pulseless Electrical Activity/Asystole</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>Post Cardiac Arrest Care</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>Left Ventricular Assist Device (LVAD)</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Medical Emergencies</td>
<td>Environmental Emergencies</td>
<td>Obstetrical Emergencies</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Altered Level of Consciousness</td>
<td>Allergic Reaction</td>
<td>Maternal Bleeding During Pregnancy</td>
</tr>
<tr>
<td>Stroke (CVA)</td>
<td>Hypothermia</td>
<td>Preeclampsia/Eclampsia</td>
</tr>
<tr>
<td>Syncope</td>
<td>Hyperthermia</td>
<td></td>
</tr>
<tr>
<td>Seizures</td>
<td>Drowning/Near Drowning</td>
<td></td>
</tr>
<tr>
<td>Drug Overdose/Poisoning-Suspected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dialysis Patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioral / Physical &amp; Chemical Restraint</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SECTION THREE  PROCEDURES--Continued

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous Positive Airway Pressure (CPAP)</td>
<td>116-117</td>
</tr>
<tr>
<td>Biphasic (BIPAP) Procedure</td>
<td>118-121</td>
</tr>
<tr>
<td>SIMV Ventilator Procedure</td>
<td>122-123</td>
</tr>
<tr>
<td>Rapid Sequence Airway (RSA)</td>
<td>124-125</td>
</tr>
<tr>
<td>Guidelines for IV/IO</td>
<td>126</td>
</tr>
<tr>
<td>Intraosseous Infusion-Pediatric</td>
<td>127-128</td>
</tr>
<tr>
<td>Intraosseous Infusion-Adult</td>
<td>129</td>
</tr>
<tr>
<td>Application of External Pacemaker</td>
<td>130-131</td>
</tr>
<tr>
<td>Preexisting Vascular Access Device (PVAD) Use</td>
<td>132-134</td>
</tr>
</tbody>
</table>

### SECTION FOUR  APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbreviation List</td>
<td>136-143</td>
</tr>
<tr>
<td>Protocol Medications / Pharmacology</td>
<td>144-150</td>
</tr>
<tr>
<td>Dopamine Drip Chart</td>
<td>150</td>
</tr>
<tr>
<td>English/Spanish Translations</td>
<td>151-152</td>
</tr>
<tr>
<td>Pain Assessment Scales – Adult</td>
<td>153</td>
</tr>
<tr>
<td>Pain Assessment Scales – Infant</td>
<td>154</td>
</tr>
<tr>
<td>Interfacility Transfers</td>
<td>155-156</td>
</tr>
<tr>
<td>Definitions of Level of Care of EMS Provider Required for Care</td>
<td>157</td>
</tr>
<tr>
<td>Emergency Pharmacology Overview</td>
<td>158</td>
</tr>
<tr>
<td>Transfer Medication—Approved Pharmacology</td>
<td>159-163</td>
</tr>
</tbody>
</table>
A. A patient is anyone who has either requested EMS or has had EMS requested on his/her behalf.

B. Confidentiality of patient information is to be maintained.

C. Since medical history and examination cannot reliably identify all patients infected with blood-borne pathogens, blood and body fluid precautions shall be used for all patients. Personnel are to follow their provider policies concerning Blood and Body Fluid Precautions.

D. The highest medical authority (usually the Paramedic) is responsible for the initial assessment of all patients (except under extreme circumstances).

E. After making contact with the patient, s/he is your responsibility until a higher or equal medical authority releases you, the patient is deemed non-viable, or you receive a signed signature of release (SOR). (See Non-Transported Patients Protocol or Determining the Need for Resuscitation Protocol)

F. Upon arrival at the scene, the Paramedic/EMT must determine the history and prior treatment by other persons and/or agencies before changing treatment.

G. Paramedics and EMT's may only perform the skills and therapies as outlined in the patient care protocols. An on-scene EMS Medical Director/Fellow or on-line physician must order any other skills or therapies and the Paramedic/EMT must have been trained in the skill or therapy.

H. Stabilization before transport is preferred, but if it is being done unsuccessfully or it appears to be taking an unreasonable length of time to accomplish, transportation should be started.

I. Run forms are to be completed and processed according to current Indiana Emergency Medical Commission Rules and Regulations. Affiliates may have additional run form completion and processing guidelines than those described by the Rules and Regulations. A verbal report to a designated ED medical care provider (e.g., registered nurse) must be provided to effect transfer of care. A completed written run form must be left at the bedside prior to the crew’s departure unless they are dispatched on another emergency run prior to its completion. Is so, the completed written run form will be made available as promptly as possible.
GENERAL GUIDELINES (cont.)

J. If you suspect child abuse or neglect, you are to report it to the receiving nurse and/or physician. You are encouraged to also contact Child Protective Services (CPS) via Central Dispatch at 653-5115.

K. If you suspect adult abuse or neglect you are to report it to the receiving nurse and/or physician. You are encouraged to also contact Adult Protective Services (APS) via Central Dispatch at 653-5115.

ALL PATIENT INFORMATION IS CONFIDENTIAL!
A. Establish communication with the intended receiving Emergency Department for any patient who is unstable, may require specialized care, or when requesting orders. If requesting orders, notify the receiving hospital prior to starting patient report.

B. Patient names are not to be given over the air – patient initials and/or last 4 digits of their social security number are permissible if required by the receiving facility.

C. State briefly and concisely (< 2 minutes) the pertinent aspects of the following:
   1. Patient's age and sex.
   2. Basic problem or chief complaint.
   3. A BRIEF summary of medical history including medications and allergies.
   5. Physical findings.
   6. Rhythm interpretation when appropriate.
   7. Treatment performed or in progress.

D. Request appropriate supporting orders.

E. Repeat the orders exactly as you receive them. Once confirmed, document and carry them out exactly as ordered.

F. If, in your opinion, the orders you receive are inappropriate and/or dangerous to the patient, question the physician three times and verbally refuse to act. Contact your sponsoring hospital for further instructions.

G. If you are unable to contact the receiving facility refer to the appropriate protocol for patient care.

H. If an order for a therapy which you consider to be life-saving is refused, verbally request the order three times. If you continue to be denied, contact your supervising hospital for further instructions. If they cannot be contacted, follow the appropriate protocols.

Any incident involving refusal of orders shall be brought to the immediate attention of the provider agency supervisory personnel and the medical director.
A. The Paramedic/EMT operates under the supervision (“medical control”) of the EMS Medical Director(s), or in his/her/their absence, the emergency department physician via direct communications.

B. In general, on scene physicians will be courteously dissuaded from participating in patient care.

1. This and sections C and D do not apply to the agency’s EMS Director(s) or the IUSM Out-of-Hospital Care (EMS) Fellow(s)

C. The Paramedic/EMT on the scene with the patient will have medical control of the patient except when a physician identifies him/herself as a physician and can produce a State of Indiana Health Professions Bureau License and is willing to assume, in advance, ALL medical and legal responsibilities for the patient. The physician:

1. Must make radio or telephone contact with the emergency department physician at the receiving facility and be willing to accompany the patient to the hospital in the ambulance, AND

2. Must be willing to sign the run sheet for all orders given, AND

3. Must be willing to sign any required provider specific forms.

D. If the physician requests an intervention that according to prehospital standards of care is inappropriate or detrimental to the patient, the Paramedic/EMT will treat the patient as outlined by the appropriate protocols. The Paramedic / EMT will then refer the on scene physician to the physician at the receiving hospital.

E. At no time should lifesaving medical care be delayed in order to establish identities or medical control. It is the responsibility of the Paramedic/EMT to institute appropriate medical care ASAP.
DETERMINING THE NEED FOR RESUSCITATION

A. In the absence of respirations, pulse and response to stimuli, resuscitation shall not be performed in the following situations:

1. Decomposition of the body.

2. Rigor Mortis – stiffness of the muscles, making the joints rigid. Progresses from head down the body affecting the legs and feet last. Generally manifests in 1-6 hours.

3. Livor Mortis – venous pooling of the blood in dependent portions of the body causing purple discoloration, which blanches with pressure and remains blanched. Similar but milder changes occur in shock. Care must be taken to distinguish the two.

4. Traumatic injury, including but not limited to patients presenting pulseless & apneic with decapitation, transection at midline of the torso, charring of the body, crushing of torso or head, severe head injury with brain tissue exposed.

5. In all other circumstances, excluding DNR, begin resuscitative efforts according to these EMS protocols.

B. Do not resuscitate (DNR) or POST orders:

1. If health care personnel or family members present at the scene of a patient in cardiopulmonary arrest and request that resuscitative measures be withheld, request to see a DNR or POST order that has been signed by the attending physician. If presented, resuscitative efforts should not be initiated or may be terminated.

2. If the DNR/POST order is presented and resuscitative efforts are not attempted, complete a patient care report with assessment findings, contact the attending physician, and contact the appropriate authorities.

3. In the event the documents cannot be produced immediately, begin resuscitative efforts in accordance with the appropriate protocol and contact the receiving facility for further orders.

4. If the paramedic questions the validity of the DNR order, resuscitative efforts should be initiated. Contact the emergency department physician at the intended receiving facility for further orders.

These guidelines do not apply to the Living Will.
C. Termination of CPR:

1. For any patient meeting the criteria in “A” or having a valid DNR order, resuscitative efforts may be terminated without contacting intended receiving facility.

2. Resuscitation may be terminated for a victim of an unwitnessed medical cardiac arrest who has no return of spontaneous circulation (ROSC) after thirty (30) minutes of advanced life support if the initial cardiac monitor presentation is asystole. This therapy should include, at a minimum, oxygenation and ventilation (via intubation, a non-visualized airway, or a bag-valve-mask), intravenous or intraosseous access, and administration of fluids and/or appropriate medications per protocol.
   a. This does NOT include patients under 18 years of age, pregnant women, or those in cardiac arrest from immersion or hypothermia. These patients should be transported promptly.
   b. This also does NOT include witnessed cardiac arrests.

3. For all other patients, the intended receiving facility must be contacted if an order is sought to cease resuscitation.
   a. If a patient is from one of the exceptions above or an order is not obtained to cease resuscitation, ALS transport to the closest receiving facility should be NON-EMERGENT unless there is inability to manage the airway or failure to obtain IV/IO access.
Medical Alert Criteria

- Suspected acute MI
- Acute neurological deficits of < 6 hours duration
- Inspiratory stridor

**Physiological**

- Systolic BP (SBP) < 90 mmHg (adults)
- GCS < 13
- Respiratory rate < 10 or > 30 (adults), < 15 or > 45 (peds)
- Heart rate < 40 or > 120
- Temp < 92°F or > 105°F
- Usually determined in the transferring ED
- Oxygen saturation < 88%

**Healthcare provider discretion**
Major Trauma Criteria

Physiologic
- Systolic BP < 90 mm Hg
- Glasgow Coma Scale (GCS) ≤ 13
- Respiratory rate < 10 or > 29
- Patient receiving blood to maintain vital signs
- Airway or respiratory compromise as defined by:
  - BVM, Intubation, adjunct airway, or cricothyroidotomy in the field
  - Needle chest decompression

Anatomic
- Penetrating trauma to the head, neck, chest, abdomen, or extremities proximal to the knees and elbows
- Traumatic amputation proximal to the wrist or ankle
- Burns > 15% or high voltage (>1000 volts) electrical injury
- Any crushed, degloved, pulseless, or mangled extremity
- Pelvic fracture
- Two or more long bone fractures
- Flail chest
- Extremity paralysis suggestive of spinal cord injury
- Open or depressed skull fracture
- Victim of hanging who meet above criteria

Healthcare provider discretion

Trauma Alert Criteria

Mechanism of Injury
- Ejection from vehicle
- Vehicle roll-over
- Prolonged extrication from vehicle
- Pedestrian struck by vehicle at speed > 20 MPH
- Falls > 20 feet (adults) or > 3x the child’s height

Healthcare provider discretion
A. Patients from emergency EMS responses will be transported only to a hospital with EMS radio communications capabilities.

B. If the patient appears unstable, s/he will be transported to the closest appropriate ED. Patients in cardiac arrest will be transported to the closest open ED.
   1. An “unstable” patient is a patient that cannot adequately be stabilized by the field provider, potentially including Medical and Trauma Alerts patients per these protocols.

C. When a technician believes that transport to the nearest facility would be in the patient’s best interests, but the patient is refusing transport to that particular facility, the technician should inform the patient of what advantages of transport to the local facility will allow as well as the risks associated with a longer transport. If the patient still refuses transport to the local facility, the patient should be transported by ambulance to the next closest receiving facility.

D. Patients will be transported to the hospital of his/her choice if the patient is stable and does not meet a special needs situation.

E. If, in the judgment of the Paramedic/EMT, there is a “time critical” threat to life or limb, red lights and sirens are appropriate.

F. If there are multiple patients from the same family, do NOT split the families unless absolutely necessary.

Transportation/Destination -- Medical Special Needs

1. Pregnant patients in 2nd or 3rd trimester should be transported to a hospital with obstetrical capabilities.

2. Patients with special medical needs (e.g., STEMI, acute stroke) may be transported to a facility with resources for that specialty care.

3. Children with known or suspected button battery ingestion should be transported to Riley.

4. Patients believed to be in a stable psychiatric condition with no medical issues (such as overdose or inflicted injuries) should be transported directly to a hospital with psychiatric facilities unless the patient has a specific destination choice. Furthermore, patients that have on-line Medical Direction approval may be transported directly to a psychiatric facility if the receiving facility has accepted the patient.
1. Following patient extrication and ascertainment of scene safety, the on-scene time should be limited to 10 minutes or less, except where there are extenuating circumstances (e.g. mass casualty events). Pre-hospital personnel should not extend on-scene time beyond 10 minutes waiting for air transport to arrive unless the on-scene waiting time is shorter than the ground transport time to the closest acute care facility. If the anticipated waiting time is longer than the ground transport time to the closest acute care facility, the air medical provider may be diverted to the receiving acute care facility. For purposes of this protocol, “appropriate acute care facility” implies a hospital that provides in-patient services and has an Emergency Department staffed 24 hours per day by in-house physician with an unrestricted medical license.

2. In cases where the total ground transport time to a Level I or II Trauma Center is greater than 30 minutes, air medical transport is recommended, when available, for the following trauma injuries as identified by the American College of Surgeons Committee on Trauma

   a) Step One Patients:
      I. Glasgow Coma Scale <14 or
      II. Systolic Blood Pressure < 90 or
      III. Respiratory rate  <10 or  > 29 (<20 in infant less than one year of age)

   b) Step Two Patients:
      I. All penetrating injuries to the head, neck torso, and extremities proximal to elbow and knee
      II. Flail chest
      III. Two or more proximal long-bone fractures
      IV. Crush, degloved, or mangled extremity
      V. Amputation proximal to wrist and ankle
      VI. Pelvic fractures
      VII. Open or depressed skull fracture
      VIII. Paralysis
3. The following cases (Step Three Patients) may be transported by ground to the closest acute care facility if stabilization is needed or directly to a Level I or II Trauma Center by ground:
   a) Falls
      I. Adults > 20 ft. (one story is equal to 10 ft.)
      II. Children > 10 ft. or 2-3 times the height of the child
   b) High-risk auto crash
      I. Intrusion > 12 in occupant side or > 18 in. any site
      II. Ejection (partial or complete) from vehicle
      III. Death in same passenger compartment
      IV. Vehicle telemetry data consistent with high risk of injury
   c) Auto versus pedestrian / bicyclist thrown, run over, or with significant (>20 mph) impact
   d) Motorcycle crash > 20 mph

4. Special Considerations / Step Four Patients, the EMS provider should use their judgment of which receiving facility is appropriate for the following special circumstances:
   a) Older Adults: Risk of injury & death increases after age 55
   b) Children (under the age of 15): Should be transported to pediatric capable trauma centers unless adults & children are from the same family and meet major trauma criteria transport then the family members may be transported to a facility with trauma capabilities for both age groups.
   c) Anti-coagulant and bleeding disorders
   d) Burns without other trauma mechanism: transport to a facility with a burn center
   e) Burns with other trauma mechanism: transport to a trauma center
   f) Time sensitive extremity injury
   g) End-stage renal disease requiring dialysis
   h) Pregnancy > 20 weeks: transport to a facility with trauma and OB capabilities

Current Trauma (Level I and II) and Burn Centers – Central Indiana

IU Health- Methodist Hospital  Indianapolis  Level I Adult & Pediatric Trauma Center
Eskenazi Health Hospital  Indianapolis  Level I Adult Trauma and Burn Center
Riley Hospital for Children  Indianapolis  Level I Pediatric Trauma and Burn Center
St. Vincent’s Hospital, 86th St.  Indianapolis  Level II Adult Trauma Center
All patients will be transported to a hospital emergency department unless the patient refuses transport or prior arrangements have been made. The following guidelines are to be observed:

A. If a patient initially refuses necessary care, the Paramedic/EMT will enlist the aid of friends, family, co-workers, or significant others, as well as address any concerns the patient may have in order to convince him/her to agree to needed treatment and/or transportation.

B. Medical Control must be contacted for consultation before obtaining any Signature of Release (SOR) if the patient or responsibly party (if the patient is a minor or declared legally incompetent) for any of the following:

1. Appears to be under the influence of drugs or alcohol,

2. Has an abnormal mental status, indicated by:
   (a) Slurred or abnormal speech,
   (b) Disorientation to person, place, or time,
   (c) Inappropriate or irrational thinking,

3. Is less than 1 year of age,

4. Assessment reveals historical data, symptoms, or signs suggestive of a potentially life threatening illness or injury

5. Does not have access to a phone or “significant others” to help her/him obtain further care if needed.

C. If Medical Control contact is required, communication will be established with the emergency department physician at the intended receiving facility or the supervising hospital. The physician will be apprised of the situation and asked for recommendations. The physician may ask to speak directly to the patient. The name of the physician, the hospital and recommendations will be recorded on the Refusal of Transportation form.
D. To accept the patient’s decision not to receive treatment and/or transportation, the following must be performed:

1. The patient (or the patient's guardian, if applicable) is advised that transport is indicated for further evaluation and care by an emergency department physician.

2. The patient (or guardian) is informed that he/she has not been evaluated by a physician. The patient (or guardian) is informed that significant medical problems may exist and that these potential problems cannot be fully described at this time, but may possibly lead to significant disability or even death.

3. The patient (or guardian) is instructed to seek follow-up medical care as soon as possible.

4. The patient (or guardian) is instructed that he/she may call 911 at any time should they change their mind and wish to be transported to a hospital emergency department.

5. The patient (or guardian) is asked if they understand the risks in refusing further medical care, and additional explanation is provided as needed.

6. The Paramedic/EMT completes the SOR form.

7. The patient (or guardian) reads (or has read to them) all statements on the SOR form and appears to have an understanding of them.

8. All appropriate signatures are obtained
   a. The patient will be encouraged to sign the Signature of Refusal form.

E. A run sheet with vital signs and pertinent medical information will be completed.

F. If a patient is less than 18 years old, only the parent, legal guardian, or adult sibling (in that order) may refuse care; exception is compelling evidence of emancipation.

1. Emancipation is defined under Indiana Code 16-36-1-3(a)(2)(A)-(E) is:
   a. At least fourteen (14) years of age; and
   b. Not dependent on a parent for support; and
   c. Living apart from the minor’s parents or from an individual in loco parentis; and
      i. Managing the minor’s own affairs; or
      ii. Is or has been married; or
      iii. Is in the military service of the United States; or
      iv. Is authorized to consent to the health care by any other statute.
G. In the event any of the following criteria are present, a BLS provider may not accept an SOR or disregard the ALS unit (when available). In each of the following circumstances, the patient must be evaluated by an ALS provider. In all other circumstances, it is appropriate for the BLS provider to accept an SOR and disregard the ALS unit. If, in the judgment of the BLS provider, the patient has suffered/is suffering from a potentially life or limb-threatening event, it is appropriate that the patient be examined by an ALS provider.

1. Near drowning
2. Chest pain of any type
3. Respiratory distress
4. Cardiac irregularity (too fast, too slow, irregular, or weak pulse)
5. Serious blunt or any penetrating head, chest, back, or abdominal injury
6. Symptomatic hypotension (weak, rapid pulse, lightheadedness, altered level of consciousness)
7. Symptomatic hypertension (headache, vertigo, disequilibrium, visual problems, altered level of consciousness)
8. Diabetic-related emergencies
9. All facial burns, all electrical burns, and/or any 2nd or 3rd degree burns covering 10% or more of the body
10. Overdose or accidental poisoning
11. First time seizures, repetitive seizures, or failure to fully recover from the post-ictal state
12. Severe orthopedic injuries (e.g., multiple, proximal, or open fractures)
13. Head injury with history of loss of consciousness, alteration in level of consciousness from baseline, or CSF/blood from ears or nose
14. Signs or symptoms suggestive of a spinal injury (such as lateralizing numbness, tingling, or weakness)
15. History of loss of consciousness (syncope) from any cause
16. Level of consciousness altered from baseline
A. In the event a minor (anyone under the age of 18) is on the scene without a parent or guardian the following steps should be taken to obtain consent for a refusal of transport.

1. Attempt to contact a parent or guardian to obtain refusal. This should not delay treatment or transport of other patients.
   a. The crew may wait for the parent or guardian if he/she will arrive at the scene in 15 minutes or less as long as the wait does not delay necessary treatment or the transport of other patients. The on-duty EMS officer/manager should be requested if the parent or guardian’s arrival will be delayed more than 15 minutes.

2. If unable to contact a parent or guardian, then follow this order for refusal:
   a. An individual in loco parentis (someone who assumes the duties and responsibilities in place of a parent, e.g., grandparent, aunt or uncle, babysitter, principal, police officer) if
      1) There is no guardian or parent;
      2) The guardian or parent is not reasonably available or declines to act; or
      3) The existence of the guardian or parent is unknown to the health care provider.
   b. Adult sibling of the minor if
      1) There is no parent, guardian, or individual in loco parentis;
      2) A parent, guardian or an individual in loco parentis is not reasonably available or declines to act; or
      3) The existence of the parent, guardian or an individual in loco parentis is unknown to the health care provider.

   (ref. Indiana Code 16-36-1-5 Persons authorized to consent for incapable parties; minors)

3. If unable to make contact with any of the above, the patient must be transported to the closest most appropriate facility.

4. A run sheet with vital signs and pertinent medical information will be completed.
A. Patient care may be delegated from the Paramedic to the EMT or EMT-BA under the following conditions:

1. The patient must be stable and not meet any criteria for ALS transportation. *(See Requesting ALS/ALS Transportation Protocol)* or the patient must not require care above the scope of practice of the EMT and EMT-BA.

2. The EMT or EMT-BA will be fully informed of the Paramedic's assessment and anticipated patient needs.

3. The EMT or EMT-BA must feel comfortable accepting the patient for treatment / transport.

5. The patient has not received ALS treatment (i.e. IV therapy, intubation, ALS medications or any other invasive procedure). If transferring to an EMT or has not received ALS skills which exceed the scope of practice of the EMT-BA as outlined by state guidelines.

B. The Paramedic will initiate a run sheet with all appropriate data reflecting the Paramedic's assessment and care up until the time of release to the EMT. The EMT will complete their run ticket as in any other patient care situation.

C. In the event the patient refuses transportation; the Paramedic should complete the Refusal of Transportation and Run Sheet. *(See Non-transported Patient Protocol)*

D. In the event the patient is deemed non-viable, the Paramedic is to determine the non-viability of the patient and complete the run sheet. *(See Determining the Need for Resuscitation Protocol)*
REQUESTING ALS / ALS TRANSPORTATION

ALS should be requested / transport if the patient has one or more of
the following conditions. If the BLS crew is able to deliver the patient to
an emergency room within the same time it would take for the ALS crew
to arrive at the scene, the BLS crew should transport the patient.

A. Chief complaint of shortness of breath or acute respiratory distress.
B. Chest pain (unless other signs and symptoms indicate that the chest pain is
   obviously from a non-life threatening source).
C. Recent onset of disorientation to person, place, time or time passage.
D. Uncontrollable bleeding.
E. Unconsciousness.
F. Status epilepticus.
G. An obstetrics patient >20 weeks gestation with or without trauma who is having
   contractions **AND** has evidence of meconium staining **OR** has excessive vaginal
   bleeding.
H. Any birth occurring prior to 38 weeks gestation (more than 2 weeks before
   expected due date).
I. Any unstable patient with significant trauma.
J. Any patient who has had an episode of fainting or near fainting.
K. There is any uncertainty as to the patient’s status.
L. Abnormal vital signs and symptomatic.
A. In cases where the total ground transport time to a Level I or II Trauma Center is greater than 30 minutes, air medical transport is recommended, when available, for the following trauma injuries as identified by the American College of Surgeons Committee on Trauma
   a) Step One:
      a) Glasgow Coma Scale <14 or
      b) Systolic Blood Pressure < 90 or
      c) Respiratory rate <10 or > 29 (<20 in infant less than one year of age)
   b) Step Two:
      a) All penetrating injuries to the head, neck torso, and extremities proximal to elbow and knee
      b) Flail chest
      c) Two or more proximal long-bone fractures
      d) Crush, degloved, or mangled extremity
      e) Amputation proximal to wrist and ankle
      f) Pelvic fractures
      g) Open or depressed skull fracture
      h) Paralysis

B. Other situations in which air medical transport would be appropriate may include:
1. Any unresponsive or combative trauma patient
2. Patients with multi-system trauma
3. Patients with serious single-system trauma that may require specialized care not available locally.
4. Unstable patients in remote areas who normally would require ALS intervention in these protocols but an ALS ground ambulance is unavailable.
5. Medical patients with the potential need for time sensitive advanced care not available either at a local facility or there is a long transport time to a local facility (such as need for catheterization labs, neurosurgery, etc).
6. Note that any patient currently in cardiac arrest/receiving CPR, either medical or trauma related, is never a candidate for air transport.
C. Additional factors to consider in whether to initiate air medical transport include:
   1. Prolonged extrications that may delay the patient from getting to definitive care.
   2. Isolated locations where ground transport would be lengthy delaying getting the patient to definitive care or subjecting the patient to riding in difficult road conditions that could affect their condition.

D. Air medical transport may be requested based on dispatch information but if an air medical unit is readily available, consideration may be given to waiting until the patient has been assessed by trained medical personnel before responding an air ambulance.
   1. If air medical transport is requested prior to securing of a landing area, the air transport provider should be directed to the nearest pre-established landing area.
   2. If the pre-established landing area is a hospital landing pad, it is permissible to transfer care directly to the air medical transport provider if they arrive before the ambulance or are arriving. If the air medical transport provider is delayed and the ambulance arrives before them to the landing helipad (eg. they are not on the ground or actively landing), then the patient should be taken inside the hospital emergency department for evaluation and further stabilization.

E. Once a decision has been made for to utilize air medical transport, the closest air medical unit should be requested.
Putnam County EMS providers have adopted a simple system for triaging patients in a multiple-patient scenario or a mass casualty incident. It is acknowledged that, under these circumstances, some patients that EMS could potentially save if encountered individually will not be given the benefit of all necessary resources.

### START Triage

<table>
<thead>
<tr>
<th>Tag:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move the Walking Wounded</td>
</tr>
<tr>
<td>No Resp. after head tilt and/or OPA</td>
</tr>
<tr>
<td>🗨️ Respirations: &gt; 30</td>
</tr>
<tr>
<td>🚫 Pulse: No radial pulse (least injured arm)</td>
</tr>
<tr>
<td>🧠 Mental status: Unable to follow simple commands</td>
</tr>
<tr>
<td>Otherwise…</td>
</tr>
</tbody>
</table>

Developed by the Newport Beach, CA Fire & Marine Dept., and the current DOT Standard for EMS providers.

**Jump-START** is a modification of the START triage guidelines for pediatric patients and takes into account the normal variation in respiratory rate on the basis of age, and the fact that primary respiratory failure can be corrected easily.

- An apneic child is more likely to have a primary respiratory problem than an adult. Perfusion may be maintained for a short time and the child may be salvageable.
- A respiratory rate of 30 may either over-triage or under-triage a child, depending on age.
- Capillary refill may not adequately reflect peripheral hemodynamic status in a cool environment.
- Obeying commands may not be an appropriate gauge of mental status for younger children.
Jump-START Triage (ages 1-8)

Tag: Move the Walking Wounded

<table>
<thead>
<tr>
<th></th>
<th>Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apneic or irregular respirations: <strong>Open airway</strong></td>
<td>Immediate</td>
</tr>
<tr>
<td>Resume breathing?</td>
<td>Immediate</td>
</tr>
<tr>
<td>Still apneic and no peripheral pulse?</td>
<td>Dead / Dying</td>
</tr>
<tr>
<td>Still apneic but has a peripheral pulse: <strong>Mouth-to-Mask for 15 seconds (4-5 breaths)</strong></td>
<td>Immediate</td>
</tr>
<tr>
<td>Resume breathing?</td>
<td>Immediate</td>
</tr>
<tr>
<td>Still apneic?</td>
<td>Dead / Dying</td>
</tr>
<tr>
<td>Respiration: &lt; 15 or &gt; 45</td>
<td>Immediate</td>
</tr>
<tr>
<td>Pulse: No peripheral pulse (least injured extremity)</td>
<td>Immediate</td>
</tr>
<tr>
<td>Mental status: Unresponsive or responsive to pain only</td>
<td>Immediate</td>
</tr>
<tr>
<td>Otherwise…</td>
<td>Delayed</td>
</tr>
</tbody>
</table>

**Age <1:**

If all Jump-START “delayed” criteria are satisfied and there are no significant external injuries, the child may be classified as “ambulatory” and tagged

|     | Minor |

Developed by Lou Romig MD, FAAP, FACEP at Miami Children’s Hospital
DECONTAMINATION OF PATIENTS

To decrease potential exposure of emergency and health care personnel, patients exposed to hazardous materials should be decontaminated at the scene as indicated by the exposure, given resources and patient condition. This guideline is for the medical treatment and transportation aspects of these patients, and does not encompass the hazardous materials response or mitigation.

A. Ensure that each receiving hospital is notified as early as possible of
   1. suspected agent(s),
   2. route of exposure (e.g., skin vs. inhalation-only), and
   3. estimated number of patients.

B. Ensure that the Indiana Poison Center (IPC) is notified as early as possible of the suspected agent(s) and likely receiving hospital(s). IHERN or phone is preferred; the IPC is also available at 962-2323 or (800) 222-1222.

C. Perform decontamination as indicated by the exposure.
   1. Upon completion of wet decontamination and/or removal of contaminated clothing, patients should be covered (including feet).
   2. If the patient’s clothing is removed, it should remain at the scene; valuables may come with the patient sealed in a plastic bag.

D. Treat and transport patients per appropriate prehospital care guidelines. Utilize appropriate personal protective devices to decrease likelihood of EMS personnel exposure.

E. For each patient transported, notify the receiving hospital en route of the patient’s medical and/or trauma issues, condition, and the type of decontamination performed.

F. Deliver patients to the appropriate area at the Emergency Department.
   1. If additional decontamination is needed, this will typically not be directly into the ED, but rather to the adjacent decontamination area.
   2. Unless otherwise directed, do not drive the ambulance into an enclosed area (e.g., garage).

G. At the conclusion of all prehospital patient assessment and transport activities, ensure that each hospital contacted in #A and the IPC is notified of
   1. The total number of patients transported (or if no patients are coming).
   2. The conclusion (“all clear”) of prehospital EMS activity at the scene.
UNIVERSAL PRECAUTIONS

SINCE MEDICAL HISTORY AND EXAMINATION CANNOT RELIABLY IDENTIFY ALL PATIENTS INFECTED WITH BLOOD BORNE PATHOGENS, BLOOD AND BODY FLUID, UNIVERSAL PRECAUTIONS SHALL BE USED FOR ALL PATIENTS.

A. Universal blood and body fluid precautions (the use of barriers) shall be used for all patients if contact with blood or body fluids is possible regardless of whether a diagnosis is known. EMS providers are responsible to use the personal protective equipment (PPE) made available by their employer.

B. PPE should be removed immediately after patient contact to avoid contamination of other surfaces (i.e. – steering wheel, door handles, clip boards, pens, etc.)

C. Personnel with patient contact responsibilities, who have any open lesions, cuts, or skin conditions such as eczema, should report such conditions to management personnel prior to beginning their scheduled shift. Management may consult the Medical Director or Occupational Health physician when appropriate.

D. Personnel should have been assessed for the need for immunization against the Hepatitis B Virus.

E. Personnel will, upon hire and annually thereafter receive education and training pertaining to infection control guidelines to be observed for their service.

F. Body fluids include: saliva, sputum, gastric secretions, urine, feces, CSF, breast milk, serosanguineous fluid, semen, or any drainage.

G. Immediately after use, sharps will be disposed of in provided biohazard, puncture resistant containers. Containers will be replaced when 3/4 full. Used needles shall not be sheared, bent, broken, recapped, or resheathed by hand. Used needles shall not be removed from disposable syringes. Do not lay or stick used needles in seat cushions.

H. Exposure to Blood and/or Body fluids:
   1. Personnel sustaining an exposure (needle stick, mucous membrane, or skin contact) to blood and/or body fluids shall immediately cleanse the contaminated area with soap and water. If these are not immediately available, waterless hand cleaner shall be used.
   2. In cases of splattering of blood or body fluids to the eyes and/or mouth, flush with copious amounts of water for 15 minutes.
   3. Notify the employee’s appropriate leadership personnel.
   4. Complete the Indiana State Board of Health REPORT OF BLOOD OR BODY FLUID EXPOSURE form and leave a copy of this at the receiving facility with any other paperwork left following patient care. Remaining copies shall be turned over to Management per the Department policy. This form must be filled out completely and accurately within twenty-four (24) hours.

I. Hand washing is the most important infection control procedure. EMS providers should wash their hands:
   1. after removing PPE
   2. after each patient contact
   3. after handling potentially infectious material
   4. after cleaning/decontaminating equipment
   5. after using the restroom
   6. before eating or preparing food
Background:

The Ryan White Care Act of 1990 and amended in 1996 contains provisions for the notification of emergency response personnel exposed to infectious diseases while attending, treating, assisting, or transporting a victim. In Indiana, the law (IC 16-41-10) provides for an emergency medical services provider (a firefighter, a law enforcement officer, a paramedic, an emergency medical technician, a physician or nurse licensed in Indiana, or other persons who provide emergency medical services in the course of their employment) who is exposed to potentially infectious blood or body fluids to get this notification in the following manner:

1. EMS Provider must notify provider’s employer within 24 hours of the exposure on a form designated by the EMS Commission and the State Health Department. A copy of the form goes to:
   1. The Medical Director of the health care facility to which the patient was taken following the exposure OR in the health care facility where the patient was located at the time of exposure, AND
   2. The EMS provider’s employer, AND
   3. The State Health Department.

2. A patient (including those unable to consent due to physical or mental incapacity) to whose blood or body fluids the EMS provider is exposed is considered to have consented to:
   1. Testing for the presence of dangerous communicable diseases. These diseases are only those which are life-threatening by carrying a substantial risk of death if acquired by a healthy, susceptible host, and the disease can be transmitted from person to person. The diseases are:
      a) Infectious pulmonary tuberculosis
      b) Hepatitis B, C
      c) HIV, including AIDS
      d) Diphtheria
      e) Hemorrhagic fevers
      f) Meningococcal disease
      g) Plague
      h) Rabies
   2. Release of the testing results to the Medical director of the health care facility (or other designated physician).
3. However, a medical facility may not restrain a patient in order to test the patient for dangerous communicable diseases, and nothing in the law prohibits a patient from being discharged from the medical facility before such testing is performed or the results of the tests are released.

4. A provider or a facility that tests patient for the presence of a dangerous communicable disease under this law is immune from liability for the performance of the test over the patient’s objections or without the patient’s consent.

3. Within 72 hours of being notified of the exposure, the Medical director of the health care facility (or other designated physician) must notify the Medical Director of the EMS provider’s employer (or other physician designated in writing by the EMS provider) of the results of the test(s).

4. Within 48 hours of being notified of the results of the test(s), the Medical Director of the EMS provider’s employer (or other physician designated by the EMS provider) will
   1. Explain, without disclosing information about the patient, the dangerous communicable disease(s) to which the provider was exposed, if any.
   2. Provide any medically necessary treatment and/or counseling to the EMS provider. Expenses of testing, treating, or counseling the EMS provider are the responsibility of the EMS provider or the provider’s employer.
A. All body fluids from all patients will be considered potentially to be infectious. All emergency response employees are to use the personal protective equipment (PPE) made available by their employer. It is the employee's responsibility to wear the appropriate PPE in order to have maximum protection against infectious disease.

B. Handwashing is the most important infection control procedure! Emergency response employees will wash hands:

1. after removing PPE
2. after each patient contact
3. after handling potentially infectious materials
4. after cleaning or decontaminating equipment
5. after using the bathroom
6. before eating
7. before and after handling or preparing food

C. Handwashing will be performed for at least 10-15 seconds, utilizing soap and water or an alcohol-based solution.

D. Eating, drinking, smoking, handling contact lenses, or applying cosmetics or lip balm is prohibited at the scene of EMS operations.

E. Disposable resuscitation equipment and supplies will be used whenever possible. For CPR, the order of preference is:

8. Disposable bag-valve mask
9. Disposable pocket mask with one-way valve
10. Mouth-to-mouth resuscitation

F. After use, all PPE and contaminated disposable patient care materials will be placed in leak proof bags, color coded and marked as a biohazard for disposal as soon as possible.

G. Contaminated work clothes will be removed and exchanged for clean clothes as soon as possible. The crew member will shower if body fluids were in contact with skin under work clothes.
RECOMMENDED POST-EXPOSURE PROTOCOL

A. Any employee exposed to potentially infectious material will immediately wash the exposed area with soap and water or an alcohol-based solution (saline wash if the eyes are involved.)

B. Any employee having an occupational communicable disease exposure will immediately report the exposure to his/her supervisor. Needle stick injuries will be reported to the designated officer immediately.

C. The emergency response employee will fill out the appropriate exposure report forms at the soonest possible time after any exposure occurs.

D. All exposures to infectious or potentially infectious materials should be medically evaluated within the first two (2) hours of the exposure as some prophylactic treatments are only effective if initiated within that time period.
   1. The following events will be considered potentially HIGH RISK exposures:
      a) Needle stick injuries.
      b) Breaks in the skin caused by potentially contaminated objects.
      c) Splash of blood or other potentially infectious material onto eyes, mucous membranes, or non-intact skin.

   2. All potentially HIGH RISK exposures will immediately be evaluated by and a plan for prophylactic treatment initiated (as deemed appropriate) by a qualified physician.
      a) Blood (and urine sample for UPT, if applicable) will be obtained to establish a baseline.
      b) The decision to initiate anti-retroviral therapy is made without waiting for lab test results.
      c) See Appendix III.X.3.2 and .3 for current treatment guidelines.
      d) The patient will be referred to Occupational Health, Infectious Disease, and/or their private physician as appropriate.

E. Whenever possible, the source patient will be traced to the receiving facility by the designated officer. The designated officer will notify the receiving facility that a communicable disease exposure has taken place, and request an infectious disease determination as provided for in IC 16-41-10.
REQUEST FOR NEW OR CHANGED PROTOCOL / MEDICAL EQUIPMENT

A. Documentation of the following information should be submitted to the EMS Medical Director for review:

5. Executive Summary (one-paragraph summary of everything below…)

6. Define the problem:
7. How commonly is the problem encountered (e.g., cases per week, month, or year)
8. This should be data-based – either retrospectively (looking at patient care records) or prospectively (using a survey after calls)

9. What is the proposed solution?
   a. Provide a copy of the new protocol (in the usual format) and/or
   b. Identify all protocols that will require a change…

10. What are the benefits? (e.g., reduced morbidity/mortality, increased patient comfort, increased patient care efficiency or effectiveness)

11. What are the risks (e.g., side effects, complications)?

12. What is the cost?
13. Direct costs (e.g., to supply all vehicles/kits plus spare supplies at station(s), how soon will it expire/become obsolete?
14. Is special storage necessary (e.g., refrigeration)
15. Indirect costs (e.g., education)

16. What alternatives were considered? Why is the proposed solution the best choice?

B. Include a list of the keywords used for the medical literature search, and a copy of the salient literature.
SECTION TWO

Treatment Guidelines
INITIAL MEDICAL CARE

To be performed on all patients suspected of having or presenting with a medical emergency.

A. Use Body Substance Isolation Precautions.
B. Open and maintain a patent airway. *(See Airway Management Protocol)*
C. Administer oxygen as the situation warrants. *(See Administration of Oxygen Protocol)*
D. Loosen tight clothing and reassure the patient.
E. Place the patient in the position of comfort unless contraindicated by injuries and/or symptoms.
F. Completely assess the patient, including vital signs.
G. Determine previous medical and medication history.
H. Refer to *appropriate protocol* according to patient condition.
I. Reassess patient and record vital signs every 5-10 minutes as condition warrants. Transported patients must have at least two sets of vital signs documented. At least one out-of-hospital blood pressure must be auscultated (determining a diastolic pressure). Weight should be recorded in kilograms for all pediatric patients, all overdose/poisoning patients, and any adult receiving medication(s).
J. Patient's body temperature should be preserved, especially children, infants and the elderly.
K. The receiving hospital is to be notified of all patients being transported to the ER that meet Adult Medical Alert Criteria.
### GLASGOW COMA SCALE

<table>
<thead>
<tr>
<th>Eye Opening</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>To Voice</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>To Pain</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Verbal Response</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oriented</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Confused</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Inappropriate Words</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Incomprehensible Sounds</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motor Response</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Obeys Commands</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Purposeful Movement to Pain</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Withdraw to Pain</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Flexion to Pain</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Extension to Pain</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 - 15</td>
<td></td>
</tr>
</tbody>
</table>

### PEDIATRIC ADAPTATION OF GLASGOW COMA SCALE

**FOR USE WITH CHILDREN LESS THAN SCHOOL AGE**

<table>
<thead>
<tr>
<th>Eye Opening</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>To Sounds</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>To Painful Stimuli</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Verbal Response</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate Words or Social Smile</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Cries but Consolable</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Persistently Irritable</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Restless, Agitated</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motor Response</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous Movement</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Localizes to Pain</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Withdraw to Pain</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Flexion to Pain</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Extension to Pain</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 - 15</td>
<td></td>
</tr>
</tbody>
</table>
AIRWAY MANAGEMENT

A. Open the airway by use of a chin-lift or jaw thrust without head tilt. Remember to protect the cervical spine at all times when the potential for cervical spine injury exists.

B. Suction is indicated in any patient whose airway is obstructed by liquid or solid material which may result in aspiration or interfere with respiration.

C. Use an oropharyngeal airway or a nasopharyngeal airway as needed to maintain patient's airway.

D. Assist ventilations as needed using a bag-valve device and 100% oxygen. 
(Pediatric rate - 20 / min., newborns – 40 - 60 / min.)

BLS

1. If the patient is in cardiac or respiratory arrest and has no gag reflex, insert non-visualized airway.

   • Non-visualized airways may be inserted in those patients who are 16 years of age or older and who are between 5 feet and 7 feet tall.

   • In cardiac arrest, if the SAED indicates a shockable rhythm, insertion of the non-visualized airway is delayed until the first shock has been delivered.  
   (See Cardiac Arrest Protocol)

ALS

If the above measures prove to be inadequate or there is risk of aspiration or vomiting in the unconscious patient, intubate adults with an endotracheal tube or non-visualized airway. The guidelines for intubation are as follows:

1. Endotracheal intubation is the preferred advanced airway maneuver for adults.  
   (See Verification of Endotracheal Tube (ETT) Placement – Procedure)

   a. The use of the non-visualized airway should be reserved for those adults (see above criteria) in whom an endotracheal tube cannot be placed.
b. If unable to place an endotracheal tube after two attempts, place a non-visualized airway.

3. If the above are unsuccessful, maintain an airway via basic skills utilizing modified jaw thrust, OP airways, etc.

2. Bag-valve-mask ventilation is the preferred method of oxygenating and ventilating pediatric patients. If you cannot adequately ventilate with a BVM, attempt placement of a non-visualized airway if available. If non-visualized airway fails to provide adequate oxygenation, proceed to endotracheal intubation.

3. Criteria for performance of cricothyrotomy are as follows:

   a. If basic airway management, non-visualized airways, and intubation are inadequate to sustain life, perform a cricothyrotomy.

   b. Surgical cricothyrotomy is to be performed on the patient 8 years and older. Needle cricothyrotomy is to be performed on the patient under the age of 8 years. *(See Procedures Surgical Cricothyrotomy / Needle Cricothyrotomy)*

---

If a cricothyrotomy is attempted, a copy of the run record must be submitted to the provider Administration and made available to the CQI Coordinator within 24 hours of the run.
A. Any patient who has difficulty breathing or a SaO₂ ≤ 93% should be given oxygen.

1. Patients with mild respiratory distress (respiratory rate <25, no cyanosis, or no use of accessory muscles) may be given oxygen by nasal cannula at 4-6 LPM to maintain an oxygen saturation of 94-99%.

2. Patients with moderate respiratory distress (with or without cyanosis and/or using accessory muscles while breathing) should be given oxygen by a non-rebreather mask at 10-15 LPM. Liter flow should be enough to maintain inflation of the reservoir with oxygen and to maintain an oxygen saturation of 94-99%.

   - Infants and newborns should have oxygen administered by the blow-by method.

3. Patients with severe respiratory distress should be assisted with ventilations by use of a bag-valve-mask with reservoir and supplemental oxygen (an oropharyngeal or nasopharyngeal airway should be inserted if tolerated). Oxygen should be set to 12-15 LPM.

4. Normal SaO₂ values are never used to withhold oxygen therapy. Do not withhold oxygen while determining the SaO₂ reading. Pediatric patients with a SaO₂ ≤ 93% have significant hypoxemia and oxygen must be provided.

5. Spontaneously breathing patients who are suspected to have been exposed to carbon monoxide or who are suspected of having a pneumothorax should receive oxygen by a non-rebreather mask at 10-15 LPM. Liter flow should be enough to maintain inflation of the reservoir with oxygen.
AIRWAY OBSTRUCTION

Child or Adult – Conscious

A. Determine complete airway obstruction.

B. Deliver abdominal thrusts until the obstruction is relieved or the patient becomes unconscious.

C. If patient becomes unconscious, see below.

Child or Adult – Unconscious

A. Stabilize cervical spine if potential for injury exists.

B. Open the airway and attempt to ventilate.

C. If unable to ventilate, reposition the head and reattempt to ventilate.

D. If unable to ventilate, give 5 abdominal thrusts.

E. Perform finger sweeps on an adult, visualize on a child. If object visualized, remove it.

\[\text{ALS}\text{ }\] - Use of the McGill forceps may be necessary to dislodge objects.

F. Attempt to ventilate.

G. If unable to ventilate, repeat above steps until material is dislodged. Suction the patient as needed.

H. If patient remains unconscious, transportation by advanced life support is preferred.

I. If the object is dislodged, assess airway, breathing, and circulation. Proceed with appropriate protocol.
AIRWAY OBSTRUCTION (cont.)

Infant – Conscious

B. Determine complete airway obstruction.
C. Deliver five back blows.
D. Deliver five chest thrusts.
E. Visualize for obstruction to be dislodged.
F. Repeat steps until obstruction is expelled or patient becomes unconscious.

Infant – Unconscious

G. Stabilize cervical spine if potential for injury exists.
H. Open the airway and attempt to ventilate.
I. If unable to ventilate, reposition the head and reattempt to ventilate.
J. If unable to ventilate, deliver five back blows.
K. Deliver five chest thrusts.
L. Visualize for obstruction to be dislodged.

ALS – Use of the McGill forceps may be necessary to dislodge objects.

M. Attempt to ventilate.
N. If unable to ventilate, repeat above steps until material is dislodged. Suction the patient as needed.
O. If patient remains unconscious, transportation by advanced life support is preferred.
P. If the object is dislodged, assess airway, breathing, and circulation. Proceed with appropriate protocol.
BLS

1. Attempt to place patient in position of greatest comfort

ALS

2. Paramedics should consider offering pain medication to any patient describing pain. Medications should be selected by paramedic judgment of pain severity (mild, moderate, severe) and is not necessarily limited to single pharmacologic agent.

Mild Pain to Moderate Pain

A. Paramedics should consider offering patients describing moderate to severe pain ketorolac (Toradol®) for pain management.
   1. Contraindications:
      a. An allergy or hypersensitivity to ketorolac (Toradol®), aspirin, or any other non-steroidal anti-inflammatory (NSAID) drug
      b. Renal disease/insufficiency
      c. Known peptic ulcer disease (PUD) or GI bleeding
      e. Active bleeding or suspicion of active bleeding.
      f. NSAID usage within the last 6 hours.
      g. Pregnancy

   2. Ketoralac is to be administered as follows:
      For patients > 14 years old: 15 mg IV or 30 mg IM once.

   3. Patient’s vital signs and pain scale must be monitored regularly (at least once prior to and once after the dose(s) of medication) and documented on patient care record
Severe Pain

B. Paramedics should consider offering narcotic pain management for patients describing severe pain.
   1. Fentanyl is the primary initial choice for pain management and should be administered in the following doses (if no allergy or hypersensitivity):
      a. Adults (> 8 years old and ≥ 50 Kg): Up to 100 mcg slow IV push or intra-nasal. Up to an additional 50 mcg may be administered every 5 minutes up to a maximum of 200-250 mcg prn pain > 3/10
      b. Pediatrics or patients < 50 Kg: Up to 1mcg/Kg slow IVP or 1-2 mcg/kg intra-nasal every 5 minutes up to a maximum of 3mcg/kg prn evidence of significant discomfort.
   2. Hydromorphone (Dilaudid®) may be administered (if no allergy or hypersensitivity) in the following doses when maximal doses of fentanyl are insufficient to provide pain relief:
      a. Adults (≥ 50 Kg): 1 – 1.5 mg IVP every 10 minutes for pain > 3/10 up to a maximum dose of 6 mg.
      b. Elderly (≥65 years) or impaired renal function: use ½ adult dose.
      c. Not recommended for pediatric patients (<12 years of age)
   3. Patient's BP, HR, RR, GCS, and pain scale must be monitored regularly (at least once prior to and once after the dose(s) of medication) and documented on the patient care record.
      a. Sample pain assessment scales are provided in the APPENDIX.

C. Naloxone must be immediately available if narcotics are administered. The ALLERGIC REACTION PROTOCOL may also be followed for adverse reactions to pain management medications.

D. To ease the transition to CPAP application, the patient, in the absence of allergy to and with a SBP greater than 90, may be administered 25 mcg fentanyl as a one-time dosage IVP.

E. Consider administering ondansetron (Zofran®) to patients if nausea or vomiting occurs or as a preventative agent before giving the pain management (see Severe Nausea & Vomiting protocol)
The following protocol is in place to care for patients with nausea and vomiting. Such cases may include cardiac problems, medication reactions or anaphylaxis, dehydration due to nausea and vomiting, dizziness or vertigo, motion sickness, or nausea and vomiting following pain medication administration. BLS and ALS should consider potential life-threatening causes and initiate other appropriate protocols.

ALS

A. If nausea or vomiting persists after initiating other indicated treatment protocols, and if no contraindication is present, you may administer ondansetron.

B. If, in the paramedic judgment, there is a risk of increased nausea or vomiting related to a medication administration (such as hydromorphone with a known side effect of nausea) or from a procedure, the paramedic may administer ondansetron as below before administering the treatment or other medication.

C. Administer ondansetron (Zofran®):

1. Adults 50 Kg and over: 4-8 mg IV push or via oral-dissolving (ODT) tablet.
2. Less than 50 kg: 0.1 mg/Kg IV push or via an appropriate portion of an oral-dissolving (ODT) tablet (e.g., one-quarter or one-half).

D. If a serious adverse reaction occurs, administer diphenhydramine:
   Adults: 50 mg IV or deep IM.
   Children: 1 mg/kg IV or deep IM.
A. Initiate IV access and continuous pulse oximetry. End-tidal CO₂ capnography is preferred.

B. For conscious patients who are to receive cardioversion or external pacemaker initiation, paramedics may administer midazolam (Versed®) as an amnestic agent in the following dose:

1. Adults (50 Kg and over): 2 mg IVP
   ** Not indicated for children less than 8 years old.
   ** Caution should be exercised with patients who appear intoxicated.

2. If the patient is successfully paced (i.e. mechanical and electrical capture), additional doses of midazolam (Versed®) may be administered at 1 mg every 5 minutes not to exceed 5 mg.

C. To ease the transition to CPAP application, the patient, in the absence of allergy to and with a SBP greater than 90, may be administered 25 mcg fentanyl as a one-time dosage IVP.

D. For patients who are intubated (primarily inter-facility transfers), midazolam (Versed®), in the absence of another amnestic sedative (e.g., lorazepam (Ativan®)) should be administered at a rate of 5 mg every 30 minutes.
DIFFICULTY BREATHING

A. Administer oxygen as indicated – *(See Oxygen Administration Protocol)*

**BLS**

1. If the patient is so short of breath that he/she cannot complete sentences, determine if patient has physician-prescribed hand-held inhaler. If so, assist patient with one dose (2-4 puffs) of albuterol (with or without ipratropium bromide) – use with spacer if possible.

2. Reassess patient. Anticipate need for assisting ventilations with BVM and high flow O₂.

3. Request ALS if not already en route. If the BLS crew is able to deliver the patient to an emergency room within the same time it would take for the ALS crew to respond to the scene, the BLS crew should transport the patient.

**ALS**

**Reactive airway disease (asthma) or obstructive airway disease**

If difficulty breathing is suspected from reactive airway disease or obstructive airway disease and there is no improvement from prescribed inhaler or if no inhaler was administered:

1. If your initial assessment of the patient demonstrates severe respiratory distress as defined by:

   - Hypoxemia (O₂ < 92%)
   - RR > 32
   - USE OF ACCESSORY MUSCLES
   - SPEAKING IN 1-2 WORD SENTENCES
   - SEVERE AGITATION DUE TO RESPIRATORY DISTRESS

   Consider immediate placement of the CPAP device. This should be immediately followed by appropriate ALS treatment of the underlying pulmonary disorder.

   1. Administer albuterol, 2.5 mg nebulized with 5-6 lpm of oxygen (Albuterol dose should be increased to 5 mg if the patient uses an albuterol nebulizer regularly) and 0.5 mg. ipratropium

   2. Apply the cardiac monitor. Initiate an IV/saline lock.

   3. Initiate transport.
4. If, after the albuterol is administered, the patient is still markedly short of breath, repeat nebulizer treatment every 10 minutes as needed. Note that no more than three doses of ipratropium should be administered.

5. If the patient becomes unresponsive or is markedly short of breath, albuterol may be administered via the BVM (intubate as necessary) and high flow oxygen.

6. Contact the receiving facility for further instructions.

PULMONARY EDEMA – IF DIFFICULTY BREATHING IS SUSPECTED FROM PULMONARY EDEMA:

7. If SBP is 90 mm Hg or greater, administer an initial dose of up to three 0.4 mg sprays of nitroglycerin sublingually, consider maximum particularly if the patient has already taken nitroglycerin prior to arrival. *See note next page – Nitroglycerin and Sexual Enhancement Drugs.

8. Subsequent nitroglycerin may be administered as up to three (3) 0.4 mg SL sprays at a time every 3-5 minutes as long as the patient continues to be dyspneic and systolic BP remains at or above 90 mm Hg.

9. Apply the cardiac monitor and pulse oximetry. Initiate an IV/saline lock.

10. CPAP should be considered for patients who present with rales, tachypnea, dyspnea, and hypoxia (O2 saturation<92% on 100% oxygen via NRB). Refer to CPAP Procedures Protocol for contraindications. H2O/Pressure valve of 2.5 or 5 cm are appropriate for initiation for COPD. H2O/Pressure valves of 5 to 10 cm for pulmonary edema, possible aspiration, and pneumonia.
   1. Nitroglycerin sprays may be administered concurrently through multiple spray doses via briefly removing the CPAP mask every few minutes.
   2. If significant wheezing is noted, 5 mg. albuterol and 0.5 mg. ipratropium may be administered via nebulizer with oxygen. Treatments may be administered through the CPAP mask with the use of a “T” piece and a second oxygen source.
Nitroglycerin & Sexual Enhancement Drugs

The combination of nitroglycerin and Viagra®, Revatio® (sildenafil), Levitra® (vardenafil), or Cialis® (tadalafil) have been found to cause precipitous and irreversible hypotension.

🌟 Ask every chest pain patient whether or not he/she has been on Viagra, etc. and, if so, when was the last dose? Document this on every run sheet involving the cardiac chest pain patient (even those who deny using Viagra or similar medications).

🌟 **DO NOT** automatically administer nitroglycerin to any patient who has had Viagra, etc. within the past week. Consult with the receiving physician for appropriateness.

🌟 Monitor blood pressure very closely on any patient receiving nitroglycerin. If hypotension occurs, refer to the Suspected Cardiogenic Shock Protocol.

DIFFICULTY BREATHING

ALS (cont.)

CROUP –

A. If difficulty breathing is suspected from croup, the patient has stridor at rest with retractions and/or accessory muscle use, and the patient is at least 1 year of age:

1. **Administer one of the following treatments:**

   a. The preferred treatment is 0.5 ml of 2.25% racepinephrine (Vaponephrine) diluted with 4.5 ml of 0.9% normal saline (for a total volume of 5 ml) and administered by nebulizer with 5-6 lpm oxygen.

   b. If racepinephrine is unavailable administer 5 ml of 1:1,000 epinephrine by nebulizer with 5-6 lpm oxygen.

2. Apply the cardiac monitor.

3. If the patient becomes unresponsive or is markedly short of breath, a nebulizer may be connected to a BVM using a "flex connector" to administer racepinephrine or epinephrine. Two oxygen connections will be required. The nebulizer will require an oxygen connection at 5-6 lpm in addition to a high flow connector for the BVM.
DIFFICULTY BREATHING

SMOKE INHALATION

A. Assess for and manage trauma or burns per the appropriate protocol.

B. Carbon monoxide and cyanide toxicity should be considered for any patient who experiences smoke inhalation in an enclosed space.

C. Pulse oximetry monitors may give false readings in patients exposed to cyanide and/or carbon monoxide.

D. Categorize the patient:

### BLS

<table>
<thead>
<tr>
<th>Responsive patient</th>
<th>Unresponsive patient</th>
</tr>
</thead>
</table>
| 1. Provide high flow O₂  
2. Request ALS if not already en route | 1. Establish an airway with OP, NP or non-visualized airway  
2. Provide high flow O₂ by NRB mask or BVM  
3. Request ALS if not already en route  
4. If BLS can transport the patient before ALS can arrive at the scene, do so. |

### ALS

<table>
<thead>
<tr>
<th>Responsive patient – no evidence of significant cyanide toxicity</th>
<th>Responsive patient – soot in airway and 1. altered level of consciousness, or 2. hypotension</th>
<th>Unresponsive patient</th>
</tr>
</thead>
</table>
| 1. Provide high flow O₂ by NRB mask | 1. Ensure an airway and provide high flow O₂  
2. For wheezing or stridor, treat with 2.5-5 mg nebulized albuterol as needed. Administer 0.5 mg. ipratropium with initial albuterol dose.  
3. Establish an IV  
4. If hypotensive, consider fluid challenge(s)  
5. Transport emergently to closest appropriate hospital | 1. Establish an airway and provide high flow O₂  
2. For wheezing or stridor, treat with 2.5-5 mg nebulized albuterol as needed. Administer 0.5 mg. ipratropium with initial albuterol dose.  
3. Establish an IV; if patient is in cardiac arrest, establish 2 IVs  
4. If hypotensive, consider fluid challenge(s)  
5. Transport emergently to closest appropriate hospital |
Carbon Monoxide Poisoning

Patients suffering from exposure to byproducts of combustion may, when available, have a carbon monoxide (CO) level recorded using a co-oximeter device. These situations include fire victims or smoke inhalation exposure to CO, firefighters during rehab activities, patients or families with complaints of general illness or headache. EMS providers should make efforts to assure that firefighters are assessed for elevated levels of CO after structural firefighting activities.

BLS

1. Refer to airway management protocol.
2. Obtain vital signs.
3. Apply oxygen 100% NRB and transport to nearest appropriate hospital.

ALS

1. Refer to airway management protocol
2. Obtain vital signs and CO determination using a co-oximeter device if available.
3. IV Access when appropriate.
4. Treat arrhythmia per appropriate protocol.
5. When available to monitor, CO level 10% or greater and/or symptomatic-100% NRB O2 and transport to nearest appropriate hospital

NOTES:

1. Remember that pulse oximetry should not be used as a determination of oxygenation in the patient with elevated carboxyhemoglobin.
2. Smokers may have a baseline CO level as high as 5-6%
CHEST PAIN – Adult

All patients complaining of chest pain should be treated as having a myocardial infarction, unless other signs indicate pain is obviously from another origin.

A. Administer high flow oxygen. *(See Administration of Oxygen Protocol)*

B. If pain is possibly cardiac in origin and if no allergy to aspirin, administer four (4) baby aspirins *(81 mg each / total 324 mg)* and have the patient chew them.

BLS

1. Request ALS if not already en route.

2. If BP is at or above 90 systolic and the patient has own nitroglycerin prescription, assist the patient with taking one dose of his / her nitroglycerin. Nitroglycerin may be administered up to 3 times (every 3-5 minutes) as long as pain is not resolved and systolic BP remains above 90. *See Note on following page – Nitroglycerin and Sexual Enhancement Drugs.*

   A. Additional nitroglycerin may be given (beyond the 3 doses) with approval of the receiving facility.

3. Contact receiving facility for further consultation if ALS is not on the scene. Initiate transport.

ALS

1. Apply the cardiac monitor. If dysrhythmias are present, refer to the *appropriate protocol* If available, obtain a 12-lead analysis as quickly as possible but do not significantly delay the administration of nitroglycerin.

2. If BP is at or above 90 systolic, administer a 0.4 mg dose of nitroglycerin sublingually. Nitroglycerin may be administered every 3 – 5 minutes as long as pain is not resolved and systolic BP remains at or above 90. *See Note on following page regarding Nitroglycerin and Sexual Enhancement Drugs.*

3. Initiate an IV.

4. Scene time should be kept to a minimum, as this is a time-critical condition. Contact the intended receiving facility and alert them of a potential myocardial infarction (Medical Alert).
5. Patients who are hemodynamically stable will be transported to a hospital of their choice.

6. Patients who are hemodynamically unstable (systolic BP < 90 mm Hg) or who have life-threatening dysrhythmias will be transported to the closest hospital.

STEMI (ST Segment Elevation Myocardial Infarction Special Care)

1. Patients with a STEMI or patients with chest pain thought to be due to myocardial ischemia and a left bundle branch block (LBBB) will be transported to a receiving facility either in close proximity for stabilization and potential treatment or directly to a facility capable of unscheduled cardiac catheterization, if the patient is stable.

2. The intended receiving facility should be notified in advance of arrival that a “STEMI Alert” is being transported.

3. Patients with a 12-Lead suggestive of STEMI are strongly recommended to be transported with both the standard 3 or 4 lead cardiac monitoring but defibrillation/pacing pads on the patient in case the patient’s condition should deteriorate rapidly.

4. Time permitting, repeat the 12-lead EKG and present both print outs with patient to the receiving facility.

5. Consider initiating Remote Ischemic Conditioning (rIC).
   a) After initial BP obtained, inflate cuff to 200mmHg or 25mmHg above systolic BP and hold for 5 minutes. Deflate, while obtaining repeat BP, for 5 minutes.
      i. Repeat this cycle up to 4 times total.

Nitroglycerin & Sexual Enhancement Drugs

The combination of nitroglycerin and Viagra®, Revatio® (sildenafil), Levitra® (vardenafil), or Cialis® (tadalafil) have been found to cause precipitous and irreversible hypotension.

- Ask every chest pain patient whether or not he/she has been on Viagra, etc. and, if so, when was the last dose? Document this on every run sheet involving the cardiac chest pain patient (even those who deny using Viagra or similar medications).

- **DO NOT** automatically administer nitroglycerin to any patient who has had Viagra, etc. within the past week. Consult with the receiving physician for appropriateness.

- Monitor blood pressure very closely on any patient receiving nitroglycerin. If hypotension occurs, refer to the Suspected Cardiogenic Shock Protocol.
**DYSRHYTHMIAS: Bradycardia**

**BRADYCARDIA CRITERIA:** Heart rate <60/minute for children (1-8) and adults; <80/minute in infants. *Bradycardia with hemodynamic compromise is an ominous sign of impending cardiac arrest in infants and children.*

**SYMPTOMATIC CRITERIA:** SBP <90 mmHg with signs of poor perfusion, altered mentation, chest pain or dyspnea.

**BLS**
A. Begin Initial Medical Care  
B. Follow Airway Management protocol  
C. Follow Oxygen Administration protocol  
D. If patient is symptomatic, call for ALS unit. If the BLS crew is able to deliver the patient to an emergency room within the same time is would take the ALS crew to respond to the scene, the BLS crew should emergently transport the patient.

**ALS**
1. Apply cardiac monitor and obtain 12-lead EKG  
2. If patient is symptomatic, establish a saline lock or IV with 0.9% NaCl. If an IV cannot be established and an urgent need for vascular access exists, establish IO access.  
3. If patient remains symptomatic, perform the following in a step-wise fashion. Reassess after each step and proceed to the next step if there is no improvement.

<table>
<thead>
<tr>
<th>BRADYCARDIA-ADULT</th>
<th>BRADYCARDIA-PEDIATRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Administer atropine 0.5 mg every 2 minutes until pulse rate is greater than 60 beats per minutes or a total dose of 3 mg is given.</td>
<td></td>
</tr>
<tr>
<td>2. Implement pacing procedures:</td>
<td></td>
</tr>
<tr>
<td>1. Set rate at 70 bpm</td>
<td></td>
</tr>
<tr>
<td>2. Start mA at 10 and gradually increase until the point of electrical capture</td>
<td></td>
</tr>
<tr>
<td>3. Verify mechanical capture by feeling for a femoral or radial pulse. Muscle contractures initiated by the pacemaker make a carotid pulse unreliable while externally pacing.</td>
<td></td>
</tr>
<tr>
<td>4. If sedation or analgesia is indicated during the pacing procedure, 2-5 mg Versed may be administered SIVP.</td>
<td></td>
</tr>
<tr>
<td>1. Perform CPR if HR &lt;60</td>
<td></td>
</tr>
<tr>
<td>2. Intubate only if BVM ventilations/oxygenation is inadequate</td>
<td></td>
</tr>
<tr>
<td>3. Administer epinephrine 0.01 mg/kg (1:10,000, 0.1 mL/kg) IV or IO every 3-5 minutes.</td>
<td></td>
</tr>
<tr>
<td>4. For increased vagal tone or primary AV block administer atropine 0.02 mg/kg (min. dose 0.1 mg, max single dose 0.5 mg) IV or IO; may repeat one time 3-5 minutes after initial dose.</td>
<td></td>
</tr>
<tr>
<td>5. Continue searching for possible reversible causes of hypoxia</td>
<td></td>
</tr>
</tbody>
</table>
DYSRHYTHMIAS: Tachycardia

BLS
A. Begin Initial Medical Care
B. Follow Airway Management protocol
C. Follow Oxygen Administration protocol
D. If patient is symptomatic, call for ALS
E. Rule out underlying causes of tachycardia

ALS
1. Apply cardiac monitor and obtain 12-lead EKG
2. If patient is symptomatic, establish a saline lock or IV with 0.9% NaCl. If an IV cannot be established and an urgent need for vascular access exists, establish IO access.
3. If the patient has no signs or symptoms of pulmonary edema, administer 250 mL bolus of 0.9% NaCl solution. Repeat 250 mL boluses every 5 minutes as long as SBP remains below 90 mmHg and no signs of pulmonary edema exist. (For peds, 20 mL/kg boluses)
4. If patient remains symptomatic, perform the following in a step-wise fashion. Reassess after each step and proceed to the next step if there is no improvement.
5. For pediatric patients, refer to Pediatric Emergency weight/length-based tape

<table>
<thead>
<tr>
<th>NARROW COMPLEX-ADULT</th>
<th>QRS &lt; 0.12 sec</th>
<th>NARROW COMPLEX-PEDIATRIC</th>
<th>QRS &lt; 0.12 sec</th>
</tr>
</thead>
</table>
| **Urgent:** angina chest pain, hypotension, and/or pulmonary edema | **Urgent:** *Infants*-rate usually >220/min  
*Children*- rate usually > 180/min |
| 1. Have patient perform Valsalva maneuver | 1. Consider Valsalva maneuvers |
| 2. If rhythm has not converted to a sinus rhythm, and in your judgment the rhythm is believed to be SVT, administer: | 2. If probable SVT: |
| a. Adenosine, 6 mg RIVP, followed with 10 mL fluid flush | a. Adenosine 0.1 mg/kg (max 6 mg) RIVP, followed with 10 mL fluid flush. |
| i. Observe and anticipate AV block(s) and/or transient asystole | b. Second dose of adenosine, 0.2 mg/kg (max 12 mg) RIVP, followed by 10 mL fluid flush. |
| b. If, after 1-2 minutes, the rhythm does not convert, or no AV block/transient asystole has occurred, repeat adenosine at 12 mg RIVP, followed with 10 mL fluid flush | |
| 3. If unable to rapidly establish IV access, or if no response to adenosine, or a rhythm other than SVT is observed, transport. | |
**DYSRHYTHMIAS: Tachycardia Continued**

<table>
<thead>
<tr>
<th>Emergent: Unconscious or no obtainable BP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform synchronous cardioversion in an escalating fashion at dosages recommended by the manufacturer.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emergent: Hypotension, acutely altered mentation, signs of shock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform synchronous cardioversion in an escalating fashion at dosages recommended by the manufacturer.</td>
</tr>
</tbody>
</table>

**WIDE COMPLEX-ADULT (QRS > 0.12 sec)**

<table>
<thead>
<tr>
<th>Asymptomatic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Establish IV access and monitor patient for changes</td>
</tr>
</tbody>
</table>

**WIDE COMPLEX-PEDIATRIC (QRS > 0.12 sec)**

<table>
<thead>
<tr>
<th>Asymptomatic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Establish IV access and contact medical control for further instructions</td>
</tr>
</tbody>
</table>

**Mild Symptoms-chest pain, dyspnea, or decreased level of consciousness**

1. If regular/monomorphic administer adenosine 6 mg RIVP; immediately follow with 10 mL fluid flush.
2. If irregular or VT does not resolve, administer amiodarone 150 mg IV over 10 minutes
3. If VT does not resolve, begin emergent transport.
4. En route, an additional 150 mg amiodarone may be administered over 10 minutes
5. If VT persists, contact medical control regarding additional doses of amiodarone

**Serious Symptoms-pulmonary edema, SBP < 90, or unconscious with pulse**

1. Perform synchronous cardioversion in an escalating fashion at energy levels recommended by the manufacturer
2. Administer amiodarone 150 mg IV over 10 minutes
3. If VT persists, cardiovert with maximum electrical output
4. If VT recurs, administer additional amiodarone 150 mg IV over 10 minutes and cardiovert at the energy level that was previously successful
5. If VT persists, contact medical control regarding additional doses of amiodarone

**Serious Symptoms: Hypotension, acutely altered mentation, signs of shock**

1. Perform synchronous cardioversion beginning with 0.5-1 j/kg; if not effective, increase to 2 j/kg
2. Contact medical control for further instructions

**Unconscious without Pulses**

| Treat as Cardiac Arrest, VF/VT |

**Unconscious without Pulses**

| Treat as Cardiac Arrest, VF/VT |
A patient is considered in shock if he/she has a low systolic blood pressure. This must be associated with clinical signs and symptoms of shock:

- Cool clammy skin
- Pallor
- Decreased level of consciousness
- Weak rapid pulse
- Prolonged capillary refill (greater than 2 seconds)
- If shock is due to trauma – see Initial Trauma Care

**SHOCK-CARDIOGENIC**

Criteria: Symptomatic hypotension due to a suspected cardiac event with heart rate between 60-150 per minute.

**BLS**
A. Begin Initial Medical Care
B. Follow Airway Management protocol
C. Follow Oxygen Administration protocol
D. Request ALS if not already en route. If the BLS crew is able to deliver the patient to an emergency room within the same time it would take for the ALS crew to respond to the scene, the BLS crew should transport the patient.

**ALS**
1. Apply cardiac monitor and obtain 12-lead EKG; if dysrhythmias are present, treat according to the appropriate protocol. If STEMI is suspected, notify the intended receiving facility
2. Establish an IV with 0.9% NaCl. If an IV cannot be established and an urgent need for vascular access exists, establish IO access.
3. If the patient has no signs or symptoms of pulmonary edema, administer 250 mL bolus of 0.9% NaCl solution (20ml/Kg in pediatrics).
4. Contact medical control at the intended receiving facility to discuss additional fluid boluses and/or a dopamine infusion (typically beginning at 5 mcg/kg/min and titrated to a systolic BP of 90 mmHg).
A patient is considered in shock if he/she has a low systolic blood pressure. This must be associated with clinical signs and symptoms of shock:

- Cool clammy skin
- Pallor
- Decreased level of consciousness
- Weak rapid pulse
- Prolonged capillary refill (greater than 2 seconds)
- If shock is due to trauma – see Initial Trauma Care

**SHOCK-NONCARDIOGENIC**

**BLS**
A. Follow A-D in Shock-Cardiogenic protocol
B. If evidence of trauma or hemorrhage present see Initial Trauma Care Protocol
C. Consider other causes of shock

**ALS**

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC</th>
</tr>
</thead>
</table>
| 1. Apply the cardiac monitor  
2. Initiate two large bore IVs (or IO, if IV access in not available) of NaCl and titrate to a systolic BP of 90 mmHg if patient has no signs or symptoms of fluid overload  
3. Reassess vital signs and peripheral perfusion; reassess for signs of pulmonary edema. | 1. Administer 20 mL/kg IV or IO NaCl solution as rapidly as possible.  
2. Reassess vital signs and peripheral perfusion; reassess for signs of pulmonary edema.  
3. If no improvement in vital signs, peripheral perfusion, and no indication of pulmonary edema is present, repeat NaCl bolus of 20 mL/kg  
4. In cases of hypotension involving infants, perform glucose analysis. If blood glucose suggest hypoglycemia administer 4 mL/kg D₂₅ |
CARDIAC ARREST: General Care

Adults: (>18 yrs) Quick defibrillation is key!

Pediatric/Infant/Neonate: Oxygenation and ventilation is of utmost importance in cardiac arrest care! Use the Broselow® tape (or appropriate equivalent) to assess and determine correct dosing regimen.

BLS
A. Initiate chest compressions according to current AHA guidelines for healthcare providers.
B. Call for ALS if not already en route.
C. Attach AED and follow prompts.
   1. If "no shock advised," perform CPR for 2 minutes, then check pulse.
      Re-analyze rhythm if no pulse is found.
D. Initial airway management
   1. Provide oxygen via 100% NRB @ 15lpm
   2. OP/NP with NRB Only if gag reflex absent – No non-visualized airway initially.
   3. After the 3rd cycle of CPR (roughly six minutes), then an EMT provider may follow the Airway Management protocol for insertion of a non-visualized airway in adults.
E. If the patient regains a pulse, follow Post Cardiac Arrest Care protocol.

ALS
A. Establish an IV/IO with 0.9% NaCl
B. Apply cardiac monitor and follow appropriate Cardiac Arrest Dysrhythmia protocol
C. VF/VT witnessed arrest primary goal is high quality UNINTERRUPTED CPR and basic airway maneuvers with
   NP/OP with NRB only- no non-visualized airway
   1. Provide oxygen via 100% NRB @15lpm
   2. Op/NP with NRB only if gag reflex absent- No Non-Visualized Airway initially.
D. After the 3rd cycle of CPR (roughly six minutes), then a paramedic provider may follow the Airway Management protocol for insertion of an endotracheal tube or non-visualized airway in adults.

- Defibrillation is the treatment priority when advised by the AED. Bare and dry chest, remove any nitroglycerin patch. Place patient on hard surface.
- Defibrillation settings are based on manufacturer’s recommendations maximum setting defibrillators (Zoll is 200J biphasic).
- Try to minimize interruptions in chest compressions
- Respiratory rate of 6-8/minute is adequate for patients in cardiac arrest – do not hyperventilate.
- If "no shock advised" perform CPR for 2 minutes, then check pulse -- re-analyze rhythm if no pulse is found.
- Start an IV (or an IO line if IV access is not available or successful).
- Refer to appropriate Cardiac Arrest Dysrhythmia Protocol.
# Cardiac Arrest Dysrhythmias

## Ventricular Fibrillation or Pulseless Ventricular Tachycardia

### BLS

A. Perform chest compressions until defibrillator is attached. (Provide 2 minutes of chest compressions prior to defibrillation for unwitnessed arrest.) Compressions should be performed at a rate of 100-120/minute.

B. Refer to Cardiac Arrest, General Care guidelines

### ALS

#### Cardiac Arrest-Adult

<table>
<thead>
<tr>
<th>Persistent or Recurrent VF/VT</th>
<th>Persistent or Recurrent VF/VT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. For witnessed arrest apply pads and defibrillate at maximum settings as recommended by the manufacturer.</td>
<td>1. Defibrillate, if indicated at 2J/Kg. Subsequent shocks should be at 4 J/Kg. The use of pediatric defibrillation pads is preferred. If adult pads are used, they should be placed in an anterior-posterior configuration.</td>
</tr>
<tr>
<td>2. Immediately resume CPR for 2 minutes. Place OP or NP airway and provide oxygen via 100% NRB. Establish IV/IO</td>
<td>2. Defibrillate, immediately resume CPR for 2 minutes and begin BVM ventilation and oxygenation. Establish an IV (or an IO line, if IV access is not available).</td>
</tr>
<tr>
<td>3. ASAP administer 1 mg epinephrine 1:10,000 IV or IO push and repeat every 3-5 min.</td>
<td>3. Administer 0.01 mg/Kg (0.1 mL/Kg) 1:10,000 epinephrine IV or IO every 3-5 minutes</td>
</tr>
<tr>
<td>4. Check for an organized rhythm at 2-minute intervals. Shock if indicated. Immediately resume CPR.</td>
<td>4. Check for an organized rhythm at 2-minute intervals. Shock if indicated. Immediately resume CPR.</td>
</tr>
<tr>
<td>5. If still in V/VT after 3rd cycle of CPR and shock consider advanced airway techniques or BVM at rate of 8-10/min (this can include prior treatment by fire/BLS)</td>
<td>5. Administer amiodarone 5 mg/Kg IV or IO.</td>
</tr>
<tr>
<td>6. Administer 300 mg amiodarone IV or IO. May repeat one time at half dose (150 mg)</td>
<td>6. Resuscitative efforts should rotate on a 2-minute cycle. Pattern should be shock, CPR, drug.</td>
</tr>
<tr>
<td>7. Resuscitative efforts should rotate on 2 minute cycles. Pattern should be shock, CPR, drug.</td>
<td></td>
</tr>
<tr>
<td>8. If no response to amiodarone, consider 2 grams magnesium sulfate IV or IO. May repeat one time in 3-5 mins.</td>
<td></td>
</tr>
</tbody>
</table>
# CARDIAC ARREST DYSRHYTHMIAS

## Resolved Ventricular Fibrillation or Pulseless Ventricular Tachycardia

<table>
<thead>
<tr>
<th>Once VF/VT has Resolved - ADULT</th>
<th>Once VF/VT has Resolved - PEDIATRICS</th>
</tr>
</thead>
</table>
| **1.** Administer amiodarone if the 300 mg bolus was not given previously:  
   a. Add 150 mg amiodarone to a 50 mL 5% dextrose IV bag  
   b. Infuse over 10 minutes  
      - 100 gtt/min using 20 gtt/mL drip set  
      - 80 gtt/min using 15 gtt/mL drip set  
      - 50 gtt/min using 10 gtt/mL drip set  
| **2.** Begin a magnesium IV infusion at 33 mg/min (2 g/h) if the 2 g magnesium bolus was used  
   a. Add 2 g magnesium sulfate to a 50 mL 0.9% saline or 5% dextrose IV bag  
   b. Infuse at 50 gtt/min using the 60 gtt/mL drip set. | **1.** Contact medical control for further instructions. |
Pulseless Electrical Activity (PEA) / Asystole

Consider possible reversible causes of PEA such as hypovolemia, hypoxia, tension pneumothorax, cardiac tamponade, hypothermia, acidosis, drug overdose, hyperkalemia, massive acute MI, or pulmonary embolism.

Consider possible reversible causes of Asystole such as hypoxia, preexisting acidosis, drug overdose, or hypothermia.

<table>
<thead>
<tr>
<th>CARDIAC ARREST-ADULT</th>
<th>CARDIAC ARREST-PEDIATRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEA/ASYSTOLE</td>
<td>PEA/ASYSTOLE</td>
</tr>
<tr>
<td>1. If the rhythm is unclear and possibly ventricular fibrillation, defibrillate as for VF.</td>
<td>1. If the rhythm is unclear and possibly ventricular fibrillation, defibrillate as for VF.</td>
</tr>
<tr>
<td>2. <strong>Immediately</strong> resume CPR for 2 minutes. Apply 100% NRB with OP/NP if no gag reflex present. No Non-Visualized Airway. Establish IV/IO.</td>
<td>2. Resume CPR immediately and begin BVM ventilation and oxygenation. Intubate the patient only if BVM ventilation/oxygenation is inadequate</td>
</tr>
<tr>
<td>3. <strong>ASAP</strong> Administer 1 mg epinephrine 1:10,000 IV or IO push and repeat every 3-5 min.</td>
<td>3. Establish IV (or an IO line, if IV access is not available)</td>
</tr>
<tr>
<td>4. Check for an organized rhythm at 2-minute intervals. Shock if indicated. Immediately resume CPR.</td>
<td>4. Administer 0.01 mg/kg epinephrine: (1:10,000, 0.1 mL/Kg) IV or IO every 3-5 minutes.</td>
</tr>
<tr>
<td>5. If after 2nd round pt still is asystole/PEA may consider advanced airway maneuvers and/or BVM at rate of 8-10/min</td>
<td>5. If patient remains asystolic, contact the receiving facility for possible termination of resuscitation efforts.</td>
</tr>
<tr>
<td>6. Continue resuscitative efforts for 30 minutes total. Contact receiving facility for further consultation as needed.</td>
<td></td>
</tr>
</tbody>
</table>
A. For return of spontaneous circulation (ROSC) -- Applies to patients resuscitated from cardio-respiratory arrest who have a perfusing rhythm and pulse, and who remain unresponsive, continue supportive care and transport promptly.

1. Secure the airway. If not previously accomplished, the airway should be secured with an ET tube or a non-visualized airway.
2. Maintain normoventilation. Initially, ventilate at 8-10 breaths per minutes. Do NOT hyperventilate. If end-tidal capnography is available, titrate ventilation to an EtCO\textsubscript{2} of 35-40 mm Hg.
3. Stabilize dysrhythmias:
   a. Unstable tachydysrhythmias – treat with cardioversion
   b. Unstable bradydysrhythmias – consider external pacing
   c. Stable tachycardia or bradycardia – treat per protocols
4. If initial arrest rhythm was v-fib or v-tach, give amiodarone 150 mg IV over 10 minutes if not already given during resuscitation. If significant ventricular ectopy persists, repeat amiodarone per protocol.
5. Support blood pressure
   a. If cold saline is not available (see below), administer 250 mL boluses of 0.9 NS to maintain SBP between 110 and 140 mm Hg
   b. If the patient’s SBP is less than 90 mm Hg after 500 mL of fluid (cold or room-temperature), begin dopamine and titrate to a SBP >110 and < 140.
6. Obtain a 12-lead EKG and transmit, if possible. Notify the receiving facility as soon as a STEMI is suspected.
7. Check glucose and treat per protocol
9. If indicated and the paramedic is trained, an OG tube may be placed in the patient.

B. If the intended receiving facility and the provider both participate in post cardiac arrest hypothermia protocols, infuse iced or chilled 0.9% saline through an 18 gauge (or larger) IV into ROSC patients who remain comatose.

A. Avoid in patients in whom cardiac arrest is thought to be due to trauma, suspected significant ongoing hemorrhage, significant head injury, significant pulmonary edema, arrest caused by hypothermia, in women who are obviously pregnant, in children (< 18 years), and for patients who have a severe pre-existing neurologic impairment or terminal illness.
B. If shivering develops, administer midazolam 5 mg IVP. This may be repeated every 5 minutes as needed.
C. If significant dysrhythmias develop, stop cooling and treat as noted above.
D. Infuse 30 ml/Kg (up to 2,000 ml) ml using a pressure bag inflated to 300 mmHg.
E. Cooling may also be done with cold packs under the armpits, groin area, or other regions to reduce core body temperature.
A. The most valuable resource for the LVAD patient is their caregiver. They are trained and familiar with all of the LVAD equipment. The caregiver will be transported with the patient to the Emergency department.

B. Contact VAD coordinator (found on card the patient will give you) for additional guidance.

C. All ALS and BLS protocols are valid for the LVAD patient.

D. You must use clinical judgment to determine the need for CPR. (warm, pink, with good capillary refill)
   a. Peripheral pulses may not be present.
   b. BP can only be measured with a Doppler ultrasound.
   c. Pulse oximetry is not reliable (there is no pulse).
   d. Listen over the pump for a mechanical whirring sound.
      1. If this is present no need for CPR.
      2. Look for another cause of the patients decompensated state.
   e. If CPR is initiated transport patient to the hospital.

E. CPR is performed in the usual manner.

F. Defibrillation and cardioversion are performed in the usual manner.
   a. Not all dysrhythmias need to be treated.
      1. If the patient is warm, pink with good capillary refill is not necessary
   b. Do not place defibrillator pads over the “pump”

G. If the pump is not working (no mechanical whirring sound):
   a. Check System control panel for alarms.
   b. Check Power Supply connection.
   c. Never disconnect both batteries at the same time.
   d. Contact VAD coordinator (found on card the patient will give you) for additional guidance.

H. Always transport patient with Travel Bag containing extra controller, batteries and cables and if stable transport to a VAD center.

I. Most patients are on sidenifil (Viagra®, Revatio®) and nitrates should not be administered.
ALTED LEVEL OF CONSCIOUSNESS

A. Protect the patient’s airway. *(See Airway Management)* and administer high flow oxygen. *(See Administration of Oxygen Protocol)*

B. Check the patient for a medic alert tag, mechanism of injury, past medical history, and look for empty medicine containers. Use dextrose with caution if uncertain if the patient could be suffering a stroke or head injury.

C. Categorize the patient as below:

### ADULT PATIENTS

<table>
<thead>
<tr>
<th>Awake But Confused</th>
<th>Responsive Only to Verbal, Painful, or No Stimuli</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS</strong></td>
<td><strong>BLS</strong></td>
</tr>
<tr>
<td>1. If the patient is showing signs of hypoglycemia but appears able to protect his/her airway (sitting or standing and has the ability to speak without difficulty), glucose paste/tablets or other food items containing sugar may be administered.</td>
<td></td>
</tr>
<tr>
<td>2. If the patient shows signs of choking at any time, administration of glucose must cease.</td>
<td></td>
</tr>
<tr>
<td><strong>ALS</strong></td>
<td><strong>ALS</strong></td>
</tr>
<tr>
<td>1. Protect the patient’s airway. <em>(See Airway Management)</em></td>
<td></td>
</tr>
<tr>
<td>2. Do not administer glucose paste.</td>
<td></td>
</tr>
<tr>
<td>3. Contact receiving facility for further orders if ALS is not on scene. Request advanced life support.</td>
<td></td>
</tr>
</tbody>
</table>

#### ALS

<table>
<thead>
<tr>
<th>Glucose</th>
<th>50% Dextrose</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-69</td>
<td>16 mL</td>
</tr>
<tr>
<td>50-59</td>
<td>20 mL</td>
</tr>
<tr>
<td>40-49</td>
<td>24 mL</td>
</tr>
<tr>
<td>30-39</td>
<td>28 mL</td>
</tr>
<tr>
<td>20-29</td>
<td>32 mL</td>
</tr>
<tr>
<td>10-19</td>
<td>36 mL</td>
</tr>
</tbody>
</table>

a. If unable to establish an IV after 2 attempts, administer glucagon 1 mg IM or intra-nasal.

b. 20ml of D10 may be substituted for 4 ml of D50 due to the national medication shortage.

3. If patient has respiratory depression and a history suggestive of opiate overdose, administer 0.4 mg of naloxone IV push or intra-nasal
   a. If respiratory depression persists after 5 minutes, repeat IV or intra-nasal via alternating nostrils until respirations are adequate or a total of 2 mg of naloxone has been given.
## PEDIATRIC PATIENTS

### Awake But Confused

<table>
<thead>
<tr>
<th>BLS</th>
<th>BLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If the patient is showing signs of hypoglycemia but appears able to protect his/her airway (sitting or standing and has the ability to speak without difficulty), glucose paste/tablets or other food items containing sugar may be administered.</td>
<td>1. Protect the patient’s airway. <em>(See Airway Management)</em></td>
</tr>
<tr>
<td>2. If the patient shows signs of choking at any time, administration of glucose must cease.</td>
<td>2. Do not administer glucose paste.</td>
</tr>
</tbody>
</table>

### Responsive Only to Verbal, Painful, or No Stimuli

<table>
<thead>
<tr>
<th>ALS</th>
<th>ALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Apply the cardiac monitor.</td>
<td>1. Apply the cardiac monitor.</td>
</tr>
</tbody>
</table>
| 2. Perform blood glucose analysis. If blood glucose suggests hypoglycemia and patient can protect his or her own airway, administer oral glucose via paste/gel. | 2. Perform blood glucose analysis. If blood glucose suggests hypoglycemia *(neonates < 40, pediatrics < 60)*, administer 4 mL/Kg of 25% dextrose IV push for infants (<10 Kg) or 2 mL/Kg of 50% dextrose (or 4 mL/Kg of 25% dextrose) for older/heavier children.  
   a. If unable to establish IV after 2 attempts, administer glucagon 0.5 mg IM or intra-nasal for children < 20 Kg, 1 mg IM or intra-nasal for children ≥ 20Kg. |
| 3. If patient has respiratory depression and a history suggestive of opiate ingestion/overdose, administer 0.01 mg/Kg (up to 0.4 mg) of naloxone IV push or intra-nasal  
   a. If respiratory depression persists after 5 minutes, repeat IV, IM, or intra-nasal via alternating nostrils until respirations are adequate or a total of 2 mg of naloxone has been given | 3. Contact receiving facility for further orders if ALS is not on scene. Request advanced life support. |
SUSPECTED STROKE (CEREBRAL VASCULAR ACCIDENT)

This protocol is intended to reduce the time to thrombolysis in the acute stroke patient. Patient with symptoms of less than 6 hours duration are considered “time-critical.” Patients may present as having fallen, unable to walk, or with altered level of consciousness.

**BLS**

A. Administer oxygen as indicated. *(See Oxygen Administration protocol)*

B. Evaluate patient using the Cincinnati Prehospital Stroke Scale

C. Contact the emergency department at the intended receiving facility and include the following information: time of onset of signs/symptoms, Cincinnati Prehospital Stroke Scale, and blood glucose results. Record results on run sheet.

D. Encourage a close family member to accompany the patient to the hospital to provide information on baseline function, onset of symptoms, and possible consent for tPA. If a family member is unable to accompany the patient, obtain a phone number for a family member to provide the hospital with this same information.

E. If level of consciousness is decreased or vital signs abnormal, transportation by advanced life support is preferred.

**ALS**

1. Perform blood glucose analysis. If blood glucose < 70 mg/dL, administer 50% dextrose 4 mL IVP for every 10 mg/dL under 100 mg/dL.

<table>
<thead>
<tr>
<th>BGL</th>
<th>50% Dextrose</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-69</td>
<td>16 mL</td>
</tr>
<tr>
<td>50-59</td>
<td>20 mL</td>
</tr>
<tr>
<td>40-49</td>
<td>24 mL</td>
</tr>
<tr>
<td>30-39</td>
<td>28 mL</td>
</tr>
<tr>
<td>20-29</td>
<td>32 mL</td>
</tr>
<tr>
<td>10-19</td>
<td>36 mL</td>
</tr>
</tbody>
</table>

2. If unable to establish an IV after 2 attempts, administer Glucagon 1 mg IM or intra-nasally

3. Obtain a 12-lead EKG

4. Do not treat hypertension

**Cincinnati Prehospital Stroke Scale**

**Facial Droop** (have patient show teeth or smile):
- Normal – both sides of face move equally well
- Abnormal – one side of face does not move as well as the other side

**Arm Drift** (have patient close eyes and hold both arms out, palms up):
- Normal – both arms move the same or both arms do not move at all
- Abnormal – one arm does not move or one arm drifts down compared with the other

**Speech** (have the patient say “you can’t teach old dog new tricks”):
- Normal – patient uses correct words with no slurring
- Abnormal – patient slurs words, uses inappropriate words, or is unable to speak
SYNCOPE

BLS

A. If patient’s mental status remains altered, refer to Altered Level of Consciousness Protocol.
B. Place patient in position of comfort.
C. Perform Cincinnati Prehospital Stroke Scale, if abnormal, refer to Suspected Stroke (CVA) Protocol.

**Cincinnati Prehospital Stroke Scale**

**Facial Droop** (have patient show teeth or smile):
- **Normal** – both sides of face move equally well
- **Abnormal** – one side of face does not move as well as the other side

**Arm Drift** (have patient close eyes and hold both arms out, palms up):
- **Normal** – both arms move the same or both arms do not move at all
- **Abnormal** – one arm does not move or one arm drifts down compared with the other

**Speech** (have the patient say “you can’t teach old dogs new tricks”):
- **Normal** – patient uses correct words with no slurring
- **Abnormal** – patient slurs words, uses inappropriate words, or is unable to speak.

ALS

1. Apply the cardiac monitor
2. Obtain 12-lead EKG
3. If the patient’s mental status is not completely normal or there is a slow response to baseline, measure blood glucose.
   a. If less than 70 mg/dL, refer to Altered Mental Status Protocol.
   b. Treat abnormal vital signs appropriately.
SEIZURES

A. Administer high flow oxygen. *(See Oxygen Administration)*
B. Protect patient from injury while patient is seizing. DO NOT RESTRRAIN PATIENT. DO NOT FORCE A BITE STICK INTO THE PATIENT'S MOUTH. Determine the duration of the seizure. Observe the type of seizure activity and what part(s) of the body it affects.

*Not in Status Seizures*

1. Initiate transport.
   a. Adult patients who are no longer post-ictal may request not to be transported. *(See Non-Transported Patient Protocol)*

*Status Seizures*

**Criteria:** Continuous seizure activity for longer than 3 minutes or two or more consecutive seizures without regaining consciousness

**BLS**

1. Assist ventilations. *(See Airway Management Protocol)*
2. Contact receiving facility for further orders if ALS is not on scene. Request advanced life support.

**ALS**

<table>
<thead>
<tr>
<th>STATUS SEIZURE-ADULT</th>
<th>STATUS SEIZURE-PEDIATRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Perform blood glucose analysis. If blood glucose &lt; 70 mg/dL, administer 50% dextrose 4 mL IVP for every 10 mg/dL under 100 mg/dL</td>
<td>1. Perform blood glucose analysis. If blood glucose suggests hypoglycemia, administer 4 mL/Kg 25% dextrose IV push to infants or 2 mL/Kg of 50% dextrose for older children (not to exceed 50 mL).</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Glucose</td>
<td>Dextrose</td>
</tr>
<tr>
<td>60-69</td>
<td>16 mL</td>
</tr>
<tr>
<td>50-59</td>
<td>20 mL</td>
</tr>
<tr>
<td>40-49</td>
<td>24 mL</td>
</tr>
<tr>
<td>30-39</td>
<td>28 mL</td>
</tr>
<tr>
<td>20-29</td>
<td>32 mL</td>
</tr>
<tr>
<td>10-19</td>
<td>36 mL</td>
</tr>
<tr>
<td>2. If unable to establish IV after 2 attempts, administer glucagon 1 mg IM or intra-nasal</td>
<td>2. If unable to establish IV after 2 attempts, administer glucagon 0.5 mg IM or intra-nasal for children &lt; 20 Kg, 1 mg IM or intra-nasal for children ≥ 20Kg.</td>
</tr>
<tr>
<td>3. Apply the cardiac monitor and pulse oximeter.</td>
<td>3. Apply the cardiac monitor and pulse oximeter.</td>
</tr>
<tr>
<td>4. Administer midazolam IV, IM, or intra-nasal:</td>
<td>4. Administer midazolam IV, IM, or intra-nasal:</td>
</tr>
<tr>
<td>a. If patient ≥ 50 kg, administer 5 mg</td>
<td>a. 0.1mg/kg of midazolam (up to a maximum of 2.5 mg)</td>
</tr>
<tr>
<td>b. If patient &lt; 50 kg, administer 2.5 mg</td>
<td>b. If intra-nasal, divide the dose so that each nares receives half</td>
</tr>
<tr>
<td>c. Dose may be repeated in 5 minutes, if needed; use other nare if administered intranasally</td>
<td>c. The dose may be repeated in 5 minutes if needed.</td>
</tr>
<tr>
<td>If the patient is pregnant in the 3rd trimester, administer 2 grams magnesium IVP over 2 minutes</td>
<td>5. Contact the receiving facility for further instructions.</td>
</tr>
</tbody>
</table>
A. Protect yourself from exposure to poisons.

B. Obtain the following information:
   1. Type of poison
   2. Type of exposure-ingestion, injection, absorption, inhalation
   3. Length of time of exposure
   4. Amount of poison exposure
   5. Time exposure took place
   6. Time of last food intake
   7. Time of last alcohol intake
   8. Weight of patient (in Kg).

C. Remove the patient from the source of contamination, if necessary, without endangering responders. In the event of topical poisons, decontaminate the patient with copious amounts of water. Brush away powdered substances prior to irrigation.

D. Categorize type of poison
   1. Injected poisons - (e.g., bites, stings, or open wounds caused by an object contaminated with a poisonous substance), apply a venous constricting band above the site of injection on an extremity, immobilize the extremity and keep it below the level of the heart. For stings, SCRAPE stinger away, do not squeeze stinger.
   2. Suspected allergic reactions (See Allergic Reaction Protocol)
   3. Inhaled poisons - Administer high flow oxygen to all patients with poisoning by inhalation or who meet criteria for oxygen administration or airway management procedures. (See Administration of Oxygen Protocol and/or Airway Management Protocol)
E. If level of consciousness is decreased or vital signs abnormal, transportation by advanced life support is preferred. *(See Altered Level of Consciousness Protocol)*

F. Gather containers or remaining medications that can be taken to the hospital safely.

G. Consider contacting the Indiana Poison Center (IPC) for information on expected toxicity. The Poison Center is to be used as a resource for information, **NOT** for orders for patient care. The IPC is also available at 962-2323 or (800) 222-1222.

**ALS**

If the paramedic can ascertain the likely agent cause, the appropriate treatment may be issued. A few potential overdose causes & treatments are as follows:

**BETA BLOCKER OVERDOSE**

Glucagon 3 mg IM, intra-nasal or IVP over 3 minutes may be indicated for the treatment of beta-blocker overdose with hypotension (SBP < 90 mm Hg).

**CALCIUM CHANNEL BLOCKER OVERDOSE**

Calcium chloride 1 gram slow IVP, may be indicated for the treatment of calcium channel blocker overdose with bradycardia (heart rate < 60) and hypotension (SBP < 90 mm Hg). 3 grams of Calcium gluceptate or calcium gluconate may be substituted in place of calcium chloride.

**CYCLIC ANTIDEPRESSANT OVERDOSE**

Sodium bicarbonate 1 mEq/Kg IVP may be indicated for the treatment of cyclic antidepressant overdose with wide QRS complex (≥ 120 msec), hypotension (SBP < 90 mm Hg), or seizures.

**Organophosphates Exposure**

For signs associated with intense parasympathetic response (eg. SLUDGEM), obtain intravenous access and give 1–3 mg of atropine as a bolus, depending on severity. Set up an infusion of 0.9% normal saline; aim to keep the systolic blood pressure above 80 mm Hg.
The use of Body Substance Isolation Procedures is especially important because of the possibility of exposure to blood and body fluids and the probability of dialysis patients being carriers of the hepatitis B virus. Treat any presenting problems according to the appropriate protocol and note the following modifications:

A. Do not take vital signs in an extremity containing a graft or fistula.

B. If the patient is on the hemodialysis machine, have the dialysis technician disconnect the patient from the machine. If the dialysis technician is not present, or is unable to disconnect the patient, turn off the machine.
   1. Clamp off the access device and disconnect the patient from the machine.
   2. Remove or have technician remove the needles. Apply pressure as the needle is removed so as to avoid cutting the access device.

C. If the patient is on continuous ambulatory peritoneal dialysis (CAPD), unclamp drainage tube and allow fluid in the peritoneal cavity to drain back into the bag.

D. Be alert for pathological fractures or fractures that might occur.

E. If a venous or arterial air embolus is suspected, immediately place the patient in Trendelenburg position on the left side.

F. If the site is persistently bleeding, apply direct pressure and elevate the limb. Do NOT apply a tourniquet device.

ALS

A. Initiate an IV in an extremity containing a shunt or fistula only if an immediate life-threatening situation exists and there is no other IV site. **NOTE: This does not mean that inserting an IV into the shunt or fistula is allowed—only that another IV site in the same arm is allowed.**
C. Hyperkalemia is suggested by:
   1. A history of end-stage renal disease and a history of one or missed
      hemodialysis or peritoneal dialysis sessions, or
   2. Wide QRS complex rhythms (NOS) seen on a ECG rhythm strip or monitor,
      or a 12-lead ECG which reveals QRS widening (≥ 120 msec), T-wave tenting,
      PR prolongation, and/or ST segment depression (typically seen in leads II, III,
      V2 and V3), or
   3. Hypotension, or
   4. Ventricular fibrillation refractory to antidysrhythmics and defibrillation

Hyperkalemia should be treated with the following medications:

   1. Calcium chloride 1 gm SLOW IVP or 3 grams of Calcium gluceptate or
      calcium gluconate in place of calcium chloride.

   2. Albuterol 5 mg nebs back-to-back/continuously for the spontaneously
      breathing patient, and

   3. Sodium Bicarbonate, 100 mEq IVP if lung sounds are clear.
A. Any time a patient exhibits behavior which may cause harm to himself/herself, others, or EMS personnel, the following precautions need to be taken:

1. Assess the safety of the situation. Approach only if safe to do so.

2. Request police assistance if the situation warrants.

B. Perform assessment and initial medical care and obtain the medical history if the patient allows.

C. Do not leave the patient alone unless there is risk of harm to prehospital personnel or others.

D. If patient restraint is necessary to prevent harm to the patient and/or others, request law enforcement assistance.

E. Maintain professionalism in conduct and interaction with the patient.

F. Patients believed to be in a stable psychiatric condition with no medical issues (such as overdose or inflicted injuries) should be transported directly to a hospital with psychiatric facilities. Furthermore, patients that have on-line Medical Direction approval may be transported directly to a psychiatric facility if the receiving facility has accepted the patient.

1. This includes Court-ordered transports signed by a Judge or inter-facility transports where a physician has issued a “72-hour hold” on a patient and made arrangements for the patient to be admitted to a facility.

2. This may include a transfer from an Extended Care Facility where the patient is being transferred due to State Department of Health regulations (such as if the patient struck another person in the facility).

3. The patient may request transport to a specific receiving facility or hospital and this may determine destination choice. Providers should indicate if the facility is able to handle psychiatric admissions but should honor the patient’s wishes where possible.
PATIENT RESTRAINT

A. General approach

1. Violent behavior may be a manifestation of a medical condition such as head injury, drug or alcohol intoxication, metabolic disorders, hypoxia, stroke, or post-ictal state. Field personnel should consider these medical conditions first, and then consider psychiatric disorders in the approach to violent patients. Field personnel should obtain a detailed history from family members, bystanders, and law enforcement personnel, and make particular note of patient surroundings for clues to the cause of the behavior (e.g., drug paraphernalia, medication bottles).

2. EMS personnel shall attempt to de-escalate verbally aggressive behavior with a calm and reassuring approach and manner.

B. Physical Restraint Issues

1. Restrained patients shall be placed in a supine position, Fowler’s or semi-Fowler’s position. Patients shall not be transported in a prone position or “hog-tied.” Patients shall not be “sandwiched” between scoop stretchers, backboards, and/or mattresses during transport.

2. Four-point restraint is preferred; additional tethering of the thorax may be necessary. A surgical mask may be placed on the patient to prevent spitting.

3. The method of restraint must allow for adequate monitoring of pulse and respirations, and should not restrict the patient or rescuer’s ability to protect the airway should vomiting occur. EMS personnel must provide sufficient slack in the restraint device(s) to allow the patient to straighten the abdomen and chest and to take full tidal-volume breaths. The neck may not be compromised.

4. Once the patient has been restrained, he/she should never be left alone.

5. Restrained extremities should be monitored for circulation, motor function, and sensory function every 10 minutes and upon arrival at the hospital. It is recognized that the evaluation of motor and sensory status requires patient cooperation, and thus may be difficult or impossible to achieve.

6. Out-of-hospital documentation should include behavior, reason for restraint, that the restraints were “applied for the patient’s safety”, identification of personnel/agency applying restraint, other pertinent clinical information, vital signs, and documentation of monitoring of restrained extremities.
7. Unless mandated for emergency care, restraints are to be left in place until the patient is turned over to hospital ED staff and preparations are made for a smooth and safe transfer.

8. Metal handcuffs for initial restraint may only be applied by law enforcement personnel. Metal handcuffs may be replaced with another method of restraint (e.g., those listed above or hard plastic flex-cuffs) prior to transport. Metal handcuffs may only be used for restraint during transport when law enforcement personnel accompany the patient. Only law enforcement personnel may remove metal handcuffs.

Law enforcement responsibilities:

a. Law enforcement personnel are responsible for the capture and/or restraint of potentially violent patients. EMS personnel should obtain assistance from law enforcement to prepare patients for transport.

b. Law enforcement agencies retain primary responsibility for safe transport of patients under arrest or involuntary detention.

c. Patients under arrest or involuntary detention shall be searched thoroughly by law enforcement personnel prior to being placed in the ambulance.
   i. Patients under arrest must always be accompanied by law enforcement personnel.
   ii. EMS and law enforcement personnel should mutually agree on need for law enforcement assistance during transport of involuntary detention patients.

d. IC 12-26-4-1 permits an “ID” or “Immediate Detention” by a law enforcement officer that has reasonable grounds to believe that “an individual who has a mental illness, is either dangerous, or gravely disabled, and is need of hospitalization and treatment” to “apprehend and transport the individual to the nearest appropriate facility.”
   i. If Law Enforcement is requesting that EMS transport because the patient cannot safely be transported via law enforcement vehicle then the technician should note this in their documentation.

C. Transport Issues

1. If an unrestrained patient becomes violent during transport, EMS personnel shall request law enforcement assistance and make reasonable efforts to calm and reassure the patient

2. If the crew believes that their personal safety is at risk, they should not inhibit a patient’s attempt to leave the ambulance. Every effort should be made to release the patient into a safe environment. EMS personnel are to remain on scene until law enforcement arrives to take control of the situation.
CHEMICAL RESTRAINT

Chemical restraint is to be used only where the patient can be adequately and repeatedly monitored by EMT-P providers. It is to be reserved for patients who cannot otherwise be restrained or restrained only at the risk of significant harm to the patient, law enforcement, and EMS providers.

1. Assess the patient for other causes of combative or irrational behavior, including but not limited to hypoxia and hypoglycemia.

2. Administer midazolam via IV, IM, or intra-nasal spray
   a. If patient > 50 kg, administer 10 mg (5 mg in each nostril)
   b. If patient < 50 kg, administer 5 mg

3. Patient should be isolated and placed in an ALS ambulance as soon as possible.

4. Airway, mental status, and vital signs (including pulse oximetry and heart rhythm) must be examined and documented every 5 minutes.

5. All patients will be transported to the closest most appropriate facility for further evaluation, and released to law enforcement thereafter.

If chemical restraint is used, a copy of the run record must be directed to the provider Administration and then made available to the Medical Director through the CQI Coordinator within 24 hours.
**ALLERGIC REACTION**

**BLS**
A. Begin “Initial Medical Care” “Airway Management” & “Oxygen Administration” protocols.
B. Call for an ALS unit if patient has wheezing, stridor, or shows other signs of respiratory distress or nausea/vomiting.
C. If patient is experiencing stridor and/or hypotension, assist patient with or administer one dose of the either patient’s own or ambulance-provider supplied Epinephrine auto-injector. Adult dose is 0.3 mg. and Pediatric dose is 0.15 mg.

**ALS**
A. Establish a saline lock or an IV with 0.9% NaCl. Titrate fluids to a SBP of 90 mmHg.
B. Apply cardiac monitor.
C. Medicate according to signs/symptoms as below.

<table>
<thead>
<tr>
<th>ISOLATED ITCHY RASH/HIVES-ADULT</th>
<th>ISOLATED ITCHY RASH/HIVES-PEDIATRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administer Diphenhydramine 25-50mg IV or IM.</td>
<td>Administer Diphenhydramine 0.5 mg/kg IV or IM. (Max 50 mg)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RASH/HIVES &amp; WHEEZING-ADULT</th>
<th>RASH/HIVES &amp; WHEEZING-PEDIATRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Administer 5 mg. albuterol and 0.5 mg. ipratropium nebulized at a flow sufficient to produce a mist.</td>
<td>1. Administer 5 mg. albuterol and 0.5 mg. ipratropium nebulized at a flow sufficient to produce a mist.</td>
</tr>
<tr>
<td>2. Administer Diphenhydramine 25-50 mg IV or IM.</td>
<td>2. Administer Diphenhydramine 0.5 mg/kg IV or IM. (Max 50 mg)</td>
</tr>
<tr>
<td>3. If no improvement, administer 0.3 mg Epinephrine 1:1,000 IM.</td>
<td>3. If no improvement, administer 0.01 mg/kg Epinephrine 1:1,000 IM. (Max 0.3 mg)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STRIDOR &amp;/OR HYPOTENSION-ADULT</th>
<th>STRIDOR &amp;/OR HYPOTENSION-PEDIATRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Administer 5 mg. albuterol and 0.5 mg. ipratropium nebulized at a flow sufficient to produce a mist.</td>
<td>1. Administer 5 mg. albuterol and 0.5 mg. ipratropium nebulized at a flow sufficient to produce a mist.</td>
</tr>
<tr>
<td>2. Administer 0.3 mg Epinephrine 1:1,000 IM.</td>
<td>2. Administer Diphenhydramine 0.5 mg/kg IV or IM. (Max 50 mg)</td>
</tr>
<tr>
<td>3. Administer Diphenhydramine 25-50 mg IV or IM.</td>
<td>3. Be prepared for emergent airway management.</td>
</tr>
<tr>
<td>4. If condition remains unchanged or worsens after 3 minutes, administer additional dose of 0.3mg Epinephrine 1:1,000 IM.</td>
<td>4. Administer Diphenhydramine 0.5 mg/kg IV or IM. (Max 50 mg)</td>
</tr>
<tr>
<td>5. If after 3 minutes and second dose of epinephrine condition remains unchanged, administer 0.1 mg Epinephrine 1:100,000 slow IVP. Titrate to improvement of symptoms.</td>
<td>5. If condition is unchanged after 3 min. or worsens, administer additional dose of 0.01mg/kg Epinephrine 1:1,000 IM.</td>
</tr>
<tr>
<td>6. If after 3 minutes and second dose of epinephrine condition remains unchanged administer 0.1 mg Epi 1:100,000 SIVP. Titrate to improvement of symptoms.</td>
<td>6. If after 3 minutes and second dose of epinephrine condition remains unchanged administer 0.1 mg Epi 1:100,000 SIVP. Titrate to improvement of symptoms. <strong>NOTE: Call medical control for children &lt;1y/o or &lt;10kg BEFORE administering IV Epi</strong></td>
</tr>
</tbody>
</table>

*Epi 1:100,000 concentration MUST be mixed by expelling 9 mL of 10 mL prefilled Epi 1:10,000 and drawing 9 mL saline into the prefilled syringe. Concentration after mixing is 0.1 mg/10mL Epinephrine 1:100,000*
HYPOTHERMIA

Any patient with a suspected core body temperature of 96°F or less. Hypothermic patients are considered viable until rewarmed and pronounced dead by a physician.

A. Administer oxygen at 10-15 LPM per non-rebreather (See Administration of Oxygen Protocol)

1. If you need to assist ventilations with BVM, do not induce a gag reflex, do not hyperventilate, and do not insert a non-visualized airway or OP airway.

B. On all patient procedures, handle gently. Do not let the patient walk.

C. Remove wet clothing. Cover patient with dry blankets. Do not rub patient's extremities.

D. Assess vital signs (You must check for a pulse for one full minute).

<table>
<thead>
<tr>
<th>Pulse present</th>
<th>Pulse absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLS/ALS</td>
<td>BLS</td>
</tr>
<tr>
<td>1. If patient presents with altered level of consciousness, (See Altered Level of Consciousness Protocol).</td>
<td>1. Initiate CPR and request ALS if not already en route.</td>
</tr>
</tbody>
</table>

ALS

1. If monitor shows an organized rhythm, do not initiate CPR.
2. Initiate CPR if the patient is found to be in asystole or ventricular fibrillation.
3. Intubate if there are no spontaneous respirations. Do not hyperventilate (rapid correction of acidosis may induce ventricular fibrillation).
HYPERTHERMIA

A. Administer high flow oxygen. *(See Administration of Oxygen Protocol)*

B. Move patient to cool environment.

C. Remove clothing. Cool patient down with cold packs around the abdominal, axillary, neck, and groin areas.

D. Do not allow patient to shiver during cooling. If shivering occurs, remove cold packs.

E. If patient presents with altered level of consciousness, see *Altered Level of Consciousness*.

If patient appears unstable:

**BLS**

Request ALS if not already en route and initiate transport. Contact receiving facility for further orders if ALS is not on scene.

**ALS**

1. Apply the cardiac monitor.

2. Initiate an IV and titrate to a systolic blood pressure of 90 mm Hg.
DROWNING/NEAR DROWNING

A. **PROTECT YOURSELF!** Do not enter a body of water unless you are certified in water rescue and have the appropriate equipment.

B. Administer high flow oxygen. *(See Administration of Oxygen Protocol)*

C. Immobilize cervical spine if potential exists for cervical injury.

D. Treat patient for problems as indicated by *appropriate protocol*.

E. CPAP should be considered for patients who present with rales, tachypnea, dyspnea, and hypoxia (SaO2<94%). Refer to CPAP Procedures Protocol for contraindications. Pressure valve of 5 to 10 cm are appropriate for initiation

F. If a cold water drowning exists, consider hypothermia.

G. Transportation by advanced life support is preferred.

H. All near drowning patients should be transported to a hospital -- complications such as pulmonary edema may be delayed.
Pre-Eclampsia / Eclampsia

Any pregnant or recently delivered woman with known or suspected history of pre-eclampsia or eclampsia and the presence of hypertension (B/P >140/90) AND marked edema of the face, hands, and/or feet.

A. Administer high flow oxygen to mother. *(See Administration of Oxygen Protocol)*

B. Transport non-emergently (without lights or siren) in a darkened ambulance.

C. If patient begins to have seizures, *see Seizures Protocol.*

Maternal Bleeding During Pregnancy

A. Have patient estimate blood loss (number of pads soaked in 1 hour.) How long has it been occurring? Assess vital signs every five minutes.

B. Administer high flow oxygen to mother. *(See Administration of Oxygen Protocol)*

C. Prepare to treat for shock. *(See Shock Protocol)*

D. Transport emergent in left lateral recumbent position if >20 weeks gestation or if uncontrollable bleeding present.

**BLS**

1. Request ALS if not already en route and initiate transport.

2. Contact receiving facility for further orders if ALS is not on scene.

**ALS**

1. Insert 2 large bore IV's with normal saline and run wide open to maintain a systolic blood pressure of 90 mm Hg.

2. Contact the receiving facility for further orders.
If delivery is determined to be imminent, follow the guidelines below. Delivery may be imminent even though the bag of waters has not broken. If the mother is not at full term, or if signs of meconium stain are present, call for advanced life support.

A. Obtain the following information:
   1. Due date.
   2. Frequency of contractions.
   3. History of pre-term or post-term deliveries.
   4. Sensation of the need to move bowels – delivery imminent.
   5. Presence of crowning - delivery imminent.
   6. Number of pregnancies (gravida), number of children born (para)

B. If no crowning is present, begin transportation in the left lateral recumbent position. If crowning is present, prepare to deliver the infant.

C. Administer high flow oxygen to the mother. (See Administration of Oxygen Protocol)

D. Assist with the delivery. (See Obstetric Emergencies - Newborn Care Protocol)
   1. Guide and control but do not try to stop the delivery.
   2. Don't pull on infant or put traction on cord.
   3. If cord is around the neck of the infant, slip it over the head. If unable to slip the cord over the head, immediately clamp the cord in two places and cut between the clamps. Continue with delivery.
   4. Look for presence of meconium staining. (See Obstetric Emergencies Protocol - Meconium Staining)
   5. After completion of delivery, wipe mouth and nose with gauze-wrapped finger or use bulb suction to gently clear secretions.
   6. Wait at least one minute before clamping the newborn’s cord.
E. Provide post-partum care to the mother. When the placenta is delivered (or if the placenta is not delivered in 5 minutes), initiate patient transportation. Massage the fundus of the uterus after delivery of the placenta. Wrap up the delivered placenta and take it to the hospital.

F. Contact the receiving facility for early notification.

NEWBORN CARE

A. Keep the infant warm; cover the body and head.

B. Keep infant at the same level of the perineum for at least one minute. Stimulate the infant to cry by rubbing the back. Keep infant warm and dry.

C. Normal respiratory rate (40-60 minute) and pulse (120-160 minute).

D. Clamp and cut the cord. Place one clamp six inches from the infant, the second clamp three inches distal from the first clamp. Cut the cord between the clamps. If cord continues to bleed, apply additional clamps.

E. Record the time of birth. Complete APGAR score on the infant at one minute and five minutes after birth.

F. Contact the receiving facility for early notification.

<table>
<thead>
<tr>
<th>SIGN</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVITY</td>
<td>LIMP</td>
<td>SOME EXTREMITY FLEXION</td>
<td>GOOD EXTREMITY FLEXION</td>
</tr>
<tr>
<td>PULSE</td>
<td>ABSENT</td>
<td>&lt;100</td>
<td>&gt;100</td>
</tr>
<tr>
<td>GRIMACE</td>
<td>ABSENT</td>
<td>SOME FACIAL GRIMACE</td>
<td>GOOD GRIMACE</td>
</tr>
<tr>
<td>APPEARANCE</td>
<td>BLUE</td>
<td>BLUE EXTREMITIES PINK TRUNK</td>
<td>ALL PINK</td>
</tr>
<tr>
<td>RESPIRATORY EFFORT</td>
<td>ABSENT</td>
<td>WEAK CRY PINK TRUNK</td>
<td>GOOD CRY</td>
</tr>
</tbody>
</table>
OBSTETRIC EMERGENCIES

Newborn Resuscitation (at time of delivery)

If any of the following are present:
- respiratory rate < 30
- heart rate < 100
- presence of central cyanosis

Perform the following procedures in a stepwise fashion as indicated.
Reassess after each step before proceeding to the next.

A. Perform tactile stimulation: drying, warming, positioning, and suctioning.

B. Administer oxygen using blow-by method at 5-6 lpm.

C. Suction only if an obvious obstruction is seen or the neonate requires positive pressure ventilation.

C. Ventilate using bag-valve-mask ventilation at a rate of 40-60/minute.

D. If the HR < 60, perform chest compressions and ventilations at a rate of 120/events per minute and a 3:1 ratio of compressions to breaths (in one minute, 90 compressions and 30 breaths).
   1. Continue until heart rate is $\geq 60$ bpm

E. Intubate the patient only if BVM ventilation/oxygenation is inadequate.
MECONIUM STAINING: Presence of green amniotic fluid or green particulate material noted on face or in upper airway.

A. After completion of delivery, using a catheter or bulb syringe, suction mouth and nose of newborn. During delivery, suction as soon as head is delivered and continue until chest is delivered.

B. Wipe away any collection of meconium in the upper airway with gauze wrapped finger.

BLS

Request ALS if not already en route and initiate transport. Avoid stimulating infant. Contact receiving facility for further orders if ALS is not on scene.

ALS

1. In the nonvigorous infant only, insert an endotracheal tube and suction. Use a meconium aspirator, if available.
Prolapsed Umbilical Cord

A. Administer high flow oxygen to the mother. *(See Administration of Oxygen Protocol)*

B. Place patient in Trendelenburg or left lateral recumbent position.

C. Elevate presenting part off of the umbilical cord by using a gloved hand in vagina. Keep elevated until relieved by doctor.

D. Contact receiving facility as early as possible

  BLS

  1. Request ALS if not already en route and initiate transport.

Breech Presentation

A. Administer high flow oxygen to the mother. *(See Administration of Oxygen Protocol)*

B. Place patient in left lateral recumbent position.

C. Check for prolapsed cord.

D. Contact receiving facility as early as possible

  BLS

  1. Request ALS if not already en route and initiate transport.
OBSTETRIC EMERGENCIES (cont.)

Postpartum Hemorrhage

Any patient who has an estimated blood loss exceeding 500 ml following childbirth.

A. Administer high flow oxygen to mother. *(See Administration of Oxygen Protocol)*

B. Massage the fundus of the uterus after delivery of the placenta until firm. Check fundus every 5 minutes for firmness and repeat massage as necessary.

**BLS**

1. Request ALS if not already en route and initiate transport.

2. Contact receiving facility for further orders if ALS is not on scene.

**ALS**

1. Insert 2 large bore IV's with normal saline and run wide open to maintain a systolic blood pressure of 90mmHg.
 INITIAL TRAUMA CARE

To be performed on all patients, following a traumatic or suspected traumatic incident.

A. Perform a scene survey, assess for mechanism of injury.

B. Check and record the level of consciousness using the AVPU method:
   - A = alert
   - V = responds to verbal stimuli only
   - P = responds to painful stimuli only
   - U = unresponsive to any stimuli

C. Obtain an initial Glasgow Coma Score.

D. Airway. Assess, secure and maintain an adequate airway with c-spine immobilization. (See Airway Management Protocol)

E. Breathing: Quickly look, listen, and feel for breathing.
   1. Visually check the chest.
   2. Check for presence and equality of breath sounds.
   3. If patient has difficulty breathing, administer oxygen. (See Administration of Oxygen Protocol)
   4. Do not attempt to intubate patients with a patent airway and spontaneous respirations. If apneic or inadequate airway/ventilations, secure airway and begin ventilations (See Airway Management Protocol).
   5. Auscultate breath sounds.

ALS

If tension pneumothorax is suspected, perform needle decompression. (See Procedure Needle Chest Decompression)
INITIAL TRAUMA CARE (cont.)

**BLS**

**F. Circulation:**
1. Assess carotid and peripheral pulses for presence and quality.
2. Check capillary refill.
3. Control all massive or life-threatening bleeding with direct pressure.
   a. In extremity injuries, utilize a pressure dressing.
   b. If unable to control bleeding in an extremity with a pressure dressing and elevation, consider use of a tourniquet.

**G. Assess baseline vital signs.** Check and record vital signs every five minutes.

**IF SYSTOLIC BP < 90.**

**BLS**

1. Request ALS if not already en route and initiate transport.
2. Contact receiving facility for further orders if ALS is not on scene.

**ALS**

1. Initiate two large bore IVs of an isotonic salt solution and titrate to maintain a systolic BP > 90 mm Hg. Prehospital times should never be extended solely for the establishment of IVs.

**H. Rapidly extricate and transport the patient.** Keep on-the-scene times to 10 minutes or less when possible. If scene time exceeds 10 minutes, document the reason for the delay.
I. The focused history and physical examination should be conducted en route to the receiving facility. Expose the patient for complete assessment.

1. Reassess mental status.

2. Inspect and palpate looking for injuries / signs of injuries using DCAP-BTLS:
   - Deformities
   - Burns
   - Contusions
   - Tenderness
   - Abrasions
   - Lacerations
   - Punctures
   - Swelling

3. Assess the head including scalp, face, ears, and eyes. Check and record pupil size, quality, and reaction to light.


5. Assess chest.

6. Assess abdomen and pelvis.

7. Assess all four extremities.

8. Roll patient with spinal precautions and assess posterior body.

9. Assess SAMPLE history:
   - Signs / symptoms of present illness or injury
   - Allergies
   - Medications
   - Pertinent past history
   - Last oral intake
   - Events leading to injury or illness

J. Maintain body temperature.

K. Patients with major multiple system trauma, penetrating trauma to the head, neck, chest or abdomen, should be transported by ALS to a Trauma Center. Patients with serious burn injuries should be transported to a burn center. If the patient can be transported by BLS to a Trauma Center in less time than it would take for ALS to arrive, then transport by BLS.

L. Contact the receiving facility for early notification of patients meeting any of the following criteria:
Pre-hospital Spinal Immobilization Precautions

A. Spinal immobilization is to be provided to blunt trauma patients only if significant evidence of spinal injury exists, see below.

B. Penetrating trauma patients do NOT require full spinal immobilization on backboard for transport.

C. Patients that are ambulatory upon arrival do NOT require full spinal immobilization on backboard for transport.

BLS / ALS

1. Cervical collar immobilization should be used for trauma patients meeting any of the following (eg. the patient does not meet the NEXUS criteria):
   a. Presence of midline bony tenderness of c-spine to palpation or with movement
   b. Focal neurologic deficit present or reported
   c. Age <8 or >65
   d. Intoxication
   e. Distracting injury present
   f. High risk injury/mechanism of injury or medic discretion

2. Cervical collar and long spine board immobilization should be provided to patients meeting Trauma Alert criteria and any of the following
   a. Unconscious or altered mental status on exam
   b. Neurologic deficit present or reported
   c. Midline spinal tenderness or deformity
   d. Intoxication

3. If a long spine board is used for extrication purposes only, and the patient does not meet the above criteria, the patient does NOT need full spinal immobilization for transport unless necessary for patient safety. The patient can be moved onto the stretcher.

4. Providers are permitted to do a spinal injury assessment per this protocol, including removing previously established BLS spinal precautions such as applied c-collar or even placement on a long back-board device so long as this protocol is followed.

5. Full spinal immobilization is always appropriate if the provider has concerns regarding possible injury to the spine, even if the patient meets the criteria listed above.
### Pre-hospital Spinal Immobilization Precautions (cont.)

#### Pregnant Trauma Patient

A. During the third trimester, transport the patient in the left lateral recumbent position, 20-30 degrees to the left, by securing the patient to the backboard and tilting the backboard with pillow or blankets.

B. If the patient is hypotensive, turn onto left side and re-check the vital signs.

### Summary of NEXUS C-Spine Management Criteria

<table>
<thead>
<tr>
<th>Meets all low-risk criteria?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No posterior midline cervical-spine tenderness</td>
</tr>
<tr>
<td>2. No evidence of intoxication</td>
</tr>
<tr>
<td>3. A normal level of alertness</td>
</tr>
<tr>
<td>4. No focal neurologic deficit</td>
</tr>
<tr>
<td>5. No painful distracting injuries</td>
</tr>
</tbody>
</table>
SPECIAL TRAUMA SITUATIONS

Musculoskeletal Trauma

A. Assess distal circulation, movement, and sensation before moving the injured extremity.

B. Cover open wounds with a sterile dressing. If bone is exposed, use a moist, sterile saline dressing.

C. Splint the injured extremity.

D. Do not attempt to straighten the extremity unless pulses are absent. Never attempt to straighten an injury involving a joint. If resistance is met while straightening a limb, splint the injury as it is.

E. Reassess distal circulation, movement and sensation.

F. Elevate the extremity in a supported position apply cold packs.

G. When in doubt, splint.

1. If the patient is in more pain after splinting of the injured part, reassess and re-splint.

2. Care of amputated parts:
   1. Rinse away gross contamination with sterile saline, \textbf{DO NOT USE WATER.}
   2. Cover the injured site on the amputated part with a moist, sterile saline dressing and bulky bandage.
   3. Place the amputated part in a plastic bag. If ice is immediately available, place the plastic bag on ice. Do not delay transport to obtain ice.
   4. Do not clamp bleeders. Apply a compression dressing.
Chest Injuries

A. Assess for flail segments or rib fractures. If present, use a bulky dressing or blanket to stabilize. Do not use sandbags.

B. Cover open chest wounds with an occlusive dressing. Apply on exhalation. Watch for signs of increased respiratory distress and decreasing blood pressure. If this occurs, lift one edge of the dressing long enough to allow air to escape.

ALS

If tension pneumothorax is suspected, perform needle decompression. *(See Needle Chest Decompression)*

C. Stabilize impaled objects. Secure Vaseline gauze at base of impaled objects.

D. Assess breath sounds every five minutes.

A. If level of consciousness is decreased or vital signs abnormal; transportation by advanced life support is preferred.
SPECIAL TRAUMA SITUATIONS (cont.)

Abdominal Trauma

A. If evisceration is present, keep it covered with moist sterile, non-adherent dressings. Use normal saline. Do not attempt to replace organs. Do not use Vaseline dressing.

B. Transportation by advanced life support is preferred.

Pregnant Trauma Patient

C. During the third trimester, transport the patient in the left lateral recumbent position, 20-30 degrees to the left, by securing the patient to the backboard and tilting the backboard with pillow or blankets. If the patient is hypotensive, turn onto left side and re-check the vital signs.
SPECIAL TRAUMA SITUATIONS (cont.)

Traumatic Brain Injury

Identify patients with physical trauma and a mechanism consistent with the potential to have induced brain injury and:
1. GCS of 12 or less
2. GCS <15 with decreasing mental status
3. Multisystem trauma requiring intubation (whether the primary need for intubation was from TBI or from other potential injuries)
4. Post-traumatic seizures (whether status or not).

A. Elevate head of gurney 30° if possible.
B. Start 6 L/min O₂ via nasal cannula and obtain IV access when applicable.
C. Monitor O₂, BP, HR, and neurologic status every 3-5 minutes.
D. Maintain oxygen saturation > 90%.
   1. If oxygen saturation falls below 90% despite nasal cannula, reposition airway and increase to NRB mask (see Airway Management protocol).
   2. If continued saturation <90%, start BVM ventilation with airway adjuncts (eg, OP or NP airway when appropriate).
   3. If airway compromise or hypoxia persists after these interventions, a non-visualized airway or ETI should be considered (see Airway Management protocol).

F. Maintain Normo-Ventilation.
   1. If there is evidence of hypoventilation (ineffective respiratory rate, shallow or irregular respirations or periods of apnea) despite high-flow O₂, assist ventilation with BVM and if ineffective, consider non-visualized airway or ETI (see Airway protocol).
   2. When assisting ventilation with BVM, maintain respiratory rate according to the following:
      • 25 breaths per minute in infants (0-24 mo)
      • 20 bpm in children (2 yo-14 yo)
      • 10 bpm in children aged 15 or older
      • 10 breaths per minute in adults
   3. In intubated patients, use BVM to maintain ETCO₂ between 35 and 45 mmHg.
G. Maintain blood pressure according to the following:

- >70 mmHg for infants 0-24 mo
- >80 mmHg for children 2 yo-7 yo
- >90 mmHg for children 8 yo and older and all adults

Prevent even a single isolated episode of hypotension by IV fluid resuscitation with initial bolus of 1 L NS, followed by repeat boluses of 500 ml NS to keep SBP >90 mmHg in adults. 20 ml/kg for pediatric patients, followed by repeat boluses of 10 ml/kg NS or at sufficient rate to keep SBP as above. Do not treat hypertension, but restrict IVF TKO in adults with SBP >140 mmHg, infants with SBP >100 mm Hg and older children/adolescents with SBP >130 mmHg.

H. Check for hypoglycemia.

1. For blood sugar < 70 mg/dL, follow Hypoglycemia protocol.
2. Recheck blood sugar 10 minutes after administration of dextrose, and repeat treatment X 1 if BS <70 mg/dL.

I. Evaluate for impending herniation, including dilated/unresponsive pupils; GCS <9 or rapid deterioration in GCS by >2 points; extensor posturing; asymmetric pupils (one or both non-reactive to light).

1. In presence of impending herniation, proceed with moderate hyperventilation at

- 20 breaths/min OR enough to maintain ETCO$_2$ 28-31 in adults
- 30 breaths/min in infants (0-24 mo)
- 25 bpm in children (2 yo-14 yo)
- 20 bpm in adolescents (15 yo-17 yo) OR enough to maintain ETCO$_2$ 28-31.

2. Avoid ETCO$_2$ <28 mmHg.
Eye Injuries

E. Assess for the following:
   1. Intact globe (do not touch the globe)
   2. Hemorrhage, lacerations, contusions
   3. Ability of both eyes to move together.
   4. Fluid from the globe
   5. Decreased visual acuity
   6. Visible foreign bodies

B. Cover both eyes when bandaging, but avoid pressure on the eyes.

C. Do not remove impaled objects, stabilize.

D. Cover avulsed eye with paper cup.

E. For chemical burns, irrigate the eye with normal saline or water for 20 minutes, and then bandage both eyes. If initiating transport will not interrupt eye irrigation, continue irrigation en route to the hospital.
A. PROTECT YOURSELF!

B. Remove the patient from the source, put out fire on the patient and remove burned clothing.

C. Address the more life-threatening injuries first, and then treat burns.

D. Maintain sterility when treating burns.

E. Estimate the percentage and degree of burns using the rule of nines, or as an alternative for burns less than 10 percent, the palm of the patient’s hand is equivalent to 1% BSA.

F. Categorize type of burn and provide appropriate treatment:

**Thermal burns** -
1. Suspect inhalation injury in any patient with facial burns or involvement in any fire in an enclosed space.
2. For first and second degree thermal burns involving < 10% body surface, soak area with sterile water for 10-15 minutes until temperature is the same as the normal skin, then cover. Do not apply cold packs to burned areas.
3. For all other thermal burns, cover with dry, sterile dressings or burn sheets (If in doubt whether to soak burns, leave dry.)
4. Leave unbroken blisters intact.

**Chemical burns** -
1. Brush off excess dry agent
2. Copious irrigation with saline or water for at least 20-30 minutes.
3. Transport in dry sterile sheets.
4. Keep warm – protect from hypothermia associated with wet skin.

**Electrical burns** -
1. TURN OFF THE SOURCE
2. Be aware of musculoskeletal injuries and an irregular pulse.
3. Look for entrance and exit wounds.

G. Place the patient on high flow oxygen with a non-re-breather at 10 – 15 LPM.
H. ALS is preferred for:
   1. Any burns complicated by fractures
   2. All electrical burns
   3. Any burns complicated by smoke inhalation, damage to the airway or confinement in an enclosed space.
   4. Pediatric patients
   5. Partial thickness burns of >10% BSA.
   6. Burns involving hands, feet, face, genitalia or joints
   7. Patients meeting medical alert criteria
   8. Patients meeting trauma criteria

ALS

I. Intubate the patient if indicated. Strongly consider oral intubation if LOC is decreasing and one or more of the following signs are present:
   1. Obvious oral inhalation injury (e.g., increasing hoarseness, stridor)
   2. Soot in the airway or nasal hair burned

J. Apply the cardiac monitor to non-burned skin.

K. Initiate an IV with normal saline for partial or full thickness burns > 20% BSA, other associated trauma, significant dysrhythmias, or need for intubation.
   1. Insert IV catheter preferentially through non-burned skin.
   2. Rate wide open until arrival at hospital or 1000 ml infused.
   3. Document total IV fluids given in the field and advise receiving facility upon arrival.

L. Administer pain management as appropriate (per Pain Management protocol)

Patients for referral to a Burn Center

- Partial thickness burns greater than 10% total body surface area (TBSA).
- Burns that involve the face, hands, feet, genitalia, perineum, or major joints.
- Third degree burns in any age group.
- Electrical burns, including lightning injury.
- Chemical burns.
- Inhalation injury.
- Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality.
- Any patient with burns and concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality. In such cases, if the trauma poses the greater immediate risk, the patient may be initially stabilized in a trauma center before being transferred to a burn unit. Paramedic judgment will be necessary in such situations and should be in concert with the regional medical control plan and triage protocols.
Burn Severity

RULE OF NINES

BURN SEVERITY

<table>
<thead>
<tr>
<th>BSA</th>
<th>Superficial</th>
<th>Partial Thickness</th>
<th>Full Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>Moderate &gt;50%</td>
<td>Critical &gt;30%</td>
<td>Critical &gt;10%</td>
</tr>
<tr>
<td>90%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td>Minor &lt;50%</td>
<td>Moderate &lt;30%</td>
<td></td>
</tr>
<tr>
<td>40%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30%</td>
<td></td>
<td>Minor &lt;15%</td>
<td>Moderate &lt;10%</td>
</tr>
<tr>
<td>20%</td>
<td></td>
<td></td>
<td>Minor &lt;2%</td>
</tr>
<tr>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Critical: Any partial or full thickness burn involving hands, feet, face, genitalia, or joints.
SPECIAL TRAUMA SITUATIONS (cont.)

EMD Weapon (e.g., Taser®) Injuries

BLS

This protocol is intended to provide guidelines for care of patients following the use of EMD weapons (e.g., the M26 TASER). For situations involving altered level of consciousness, significant secondary trauma, or other medical problems, follow the applicable protocol(s).

A. Assure the scene is secure. Use of this type of weapon to subdue a violent person implies he/she was a risk to him/herself or others.

B. Evaluate and treat for secondary injuries/ altered level of consciousness as indicated.

C. Stabilize dart(s) in place and transport patient to ED:
   1. If a dart has penetrated more than ½” (into the thick portion of the dart’s barrel), OR
   2. If the dart(s) is embedded in the eyelid/globe of eye, genitalia, or face/neck

D. Darts in other locations may be carefully removed by gently pulling backwards in the same plane as they entered the body. Assure the dart is intact and no portion of the dart remains inside the patient’s skin.

E. Provide the darts to law enforcement.

F. Control minor bleeding and clean the wound area(s) with alcohol and/or povidone-iodine solution. Cover with an adhesive bandage.

G. If all darts are out, any minor bleeding is controlled, and no other injuries or symptoms exist, EMS transport is not indicated and an SOR may be obtained.
Section Three

PROCEDURES
PROCEDURES

Pulse Oximetry – BLS Skill

May be used as an adjunct measurement of oxygen saturation of patients being placed on oxygen.

A. Apply the oximeter.
   1. Attach finger sensor.
   2. Turn on oximeter.
   3. Verify operation.
      a. Observe green blinking light for 10 continuous seconds.
      b. If light red or yellow reposition finger sensor.
   4. After 8 green flashes a stable reading will be available.

B. Pediatric patients with an SaO₂ ≤ 93% have significant hypoxemia and oxygen must be provided.

C. Record the data as a vital sign.

D. Remember to interpret this as any other vital sign and TREAT THE PATIENT NOT JUST THE PULSE OXIMETRY NUMBER.

Capnography – ALS Skill

A. Where available, capnography may be used in the following circumstances:
   1. Verification and monitoring of endotracheal tube placement.
   2. Verification and monitoring of supraglottic airway devices (see Protocol).
   3. Rapid Sequence Airway (RSA) protocol verification and monitoring.
   4. Patient complaint of respiratory distress and decompensating airway status including: hyperventilation, hypoventilation, asthma, COPD,
   5. Determining effectiveness of compressions in CPR.
   6. May be of benefit for patients at risk of hypoventilation such as CVA, head injury, drug overdose, DKA patients, CHF, and administration of sedative agents under the Severe Pain guidelines (eg. fentanyl and hydromorphone).

B. Documentation of the use of capnography for end-tidal carbon dioxide monitoring should include the following:
   1. Respiratory assessment for the patient.
   2. EtCO₂ readings along with other vital signs in regular intervals.
   3. Waveform description and any changes of waveforms with treatment(s).
PROCEDURES (cont.)

Verification of Supraglottic Airway Devices - Skill

A. **ALL** supraglottic devices (including non-visualized airways such as King airway, Combitube, & LMA as well as visualized devices such as endotracheal intubation) are to be secured prior to moving the patient. Any time the patient has been moved (i.e. from the scene to the vehicle, in the vehicle, from the vehicle to the ED) the supraglottic placement is to be verified and documented.

Verification of Endotracheal Intubation Tube - Skill

B. End-Tidal-Carbon-Dioxide detection (EtCO2) is the preferred confirmation device for the initial placement of the ETT on ALL intubated patients (in addition to physical exam) per EtCO2 standard operating procedure, on any ambulance that has the capability of performing capnography. Continuous EtCO2 monitoring should be used throughout patient encounter on ALL intubated patients.

C. Documentation on the run sheet is to include:
   1. Bilateral breath sounds, absence of epigastric sounds
   2. Size of ETT and depth of insertion (in centimeters)
   3. Method of securing the ETT
   4. EtCO2 measurement (initial reading and any changes during patient encounter)

Capnography Waveform Review

[Image of capnography waveform]

Normal waveform

[Image of normal waveform]
“Shark fins” – indicates bronchospasm

Displaced ET tube / Apnea

Hypoventilation

Hyperventilation

Air trapping or inadequate exhalation as in COPD or asthma
PROCEDURES (cont.)

Verification of Endotracheal Tube Placement without Capnography - Skill

The following shall be used ONLY if capnography is not available:

If capnography available, see preceding procedure.

The Esophageal Detector Device (EDD) may be used to validate INITIAL tube placement in patients (especially those in cardiac arrest):

1. Intubate the patient
2. Inflate the cuff
3. Apply the EDD
   a. Pull back on plunger
   b. Measure ease of filling of EDD*

<table>
<thead>
<tr>
<th>Correct Placement</th>
<th>Incorrect Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy filling / plunger moves easily to 40 ml.</td>
<td>Poor filling / plunger resistant at 10 ml</td>
</tr>
<tr>
<td></td>
<td>Reassess tube and return to step 1 (one)</td>
</tr>
</tbody>
</table>

* False negatives may include obesity, blood in the airway, pulmonary edema, pneumothorax, deep mainstem intubation. False positives may be seen with excessive gastric insufflation prior to intubation.

4. Auscultate for positive breath sounds and negative epigastrium sounds.
5. Secure the tube.

C. The colorimetric carbon dioxide detector may be used to monitor tube placement in patients who have a palpable pulse:

1. Place colorimetric carbon dioxide detector and ventilate patient 6 times.
   a. Observe for color changes to “C”/yellow range – this is suggestive of appropriate tube placement.
   b. Observe for no change (remains in “A”/purple range) or minimal change (goes to “B”/tan range). Critically evaluate tube placement, adequacy of CPR, and rule out low cardiac output.

D. EtCO₂ capnography should be used, if available, to continuously monitor the placement and function of the ET tube.
D. Documentation on the run sheet is to include:

1. Breath sounds, epigastric sounds
2. Method of securing the ETT
3. Use of EDD including ease of filling and/or colorimetric CO₂ Detector including color change
4. EtCO₂ readings, if available.

The Colorimetric CO₂ Detector and Esophageal Detector Device are adjuncts to assessment of the ETT placement. They are not substitutes for other methods of evaluation (e.g., auscultation of breath and epigastric sounds).
Cricothyrotomy – ALS Skill

A. Position adult patient (age greater than 8 years) by hyperextending the neck unless c-spine concerns mandate neutral positioning.

B. Locate the cricothyroid membrane.

C. Clean the incision site, if possible.

D. Incise the skin vertically over the membrane.

E. Bluntly dissect down to the cricothyroid membrane.

F. Incise the lower portion of the membrane horizontally with scalpel and rotate the blade 90°.

G. Enlarge and maintain the opening with hemostats or the end of the scalpel.

H. Insert endotracheal tube and inflate cuff.

I. Confirm correct placement by use of the Esophageal Detector Device or colorimetric ETCO₂ detector and auscultating for breath sounds over both lungs and stomach.

J. Cover wound with occlusive dressings and secure the tube.

K. Reassess breath sounds.
PROCEDURES (cont.)

Cricothyrotomy – ALS Skill (cont.)

SURGICAL (CONT.)

**COMPLICATIONS**

1. Hypoxemia  
2. Hypercarbia (CO₂ toxicity)  
3. Perforation of the esophagus  
4. Hemorrhage  
5. Injury to the thyroid or parathyroid glands  
6. Damage to the tracheal cartilage involving disruption of the vocal cords  
7. Infection  
8. Subcutaneous and mediastinal emphysema

If cricothyrotomy is attempted, a copy of the run record must be made available to the Medical Director through the CQI Coordinator within 24 hours of the run.
1. Position pediatric patient (age 8 years or less) by hyperextending the neck unless c-spine concerns mandate neutral positioning.

2. Locate the cricothyroid membrane.

3. Clean the puncture site, if possible.

4. Insert a catheter-over-the-needle into the cricothyroid space at less than 90 degrees to the longitudinal axis of the neck and caudally.

5. Connect a syringe to the end of the catheter/needle. Maintain suction with the syringe until air freely flows into the syringe or until bubbles are noted (if the syringe is partially filled with saline).

6. Advance the catheter over the needle, and then remove the needle.

7. Reconfirm placement with free-flow aspiration or the syringe bubble technique.

8. Attach a mechanism to provide high flow oxygen through the catheter (e.g., a 3.0 ET tube adapter plus BVM or an oxygen supply tubing, 3-way stopcock, and extension set) and begin oxygenation.

9. Watch for prompt chest inflation and auscultate for breath sounds over both lungs and stomach.

10. Secure the catheter carefully; avoiding kinking the cannula.

11. Reassess breath sounds.
F. Secure the tube with tape.

G. Reassess breath sounds.

**COMPLICATIONS**

1. Hypoxemia
2. Hypercarbia (CO₂ toxicity)
3. Perforation of the esophagus
4. Hemorrhage.
5. Injury to the thyroid or parathyroid glands
6. Damage to the tracheal cartilage involving disruption of the vocal cords
7. Infection
8. Subcutaneous and mediastinal emphysema.

If cricothyrotomy is attempted, a copy of the run record must be made available to the Medical Director through the CQI Coordinator within 24 hours of the run.
Neurological Emergencies (cont.)

Needle Chest Decompression – ALS Skill

A. Auscultate the chest to confirm which side has a suspected tension pneumothorax
   1. Locate the midclavicular line.
   2. Locate the second intercostal space.

B. Prep the skin.
   1. Cleanse the area with povidone-iodine solution.
   2. Cleanse the area with alcohol.

C. Insert a 3” needle over the superior border at an angle (45° – 75°) with the bevel pointing toward the midline and through the tissue.
   1. When the needle reaches the visceral pleura you may feel a “pop”.

D. Reassess and re-auscultate for improvement of breath sounds, pulse, respirations, and blood pressure.

E. Remove the needle and tape the catheter in place.

F. Reassess and re-auscultate for improvement of breath sounds, pulse, respirations, and blood pressure.

COMPLICATIONS
1. Hemorrhage from laceration of intercostal vessels
2. Hemorrhage from laceration of a pulmonary vessel
3. Puncture of the lung
Continuous Positive Airway Pressure (CPAP) Procedure – ALS Skill

The Continuous Positive Airway Pressure (CPAP) procedure is to be used as an adjunct for patients suspected of having pulmonary edema, COPD exacerbation, or asthma and who present with rales, tachypnea, dyspnea, and hypoxia (SaO2<94%)

A. Place the patient in a sitting position on the cot. To ease the transition to CPAP, the patient may receive 25 mCg of IV fentanyl once if not allergic and with a SBP greater than 90 mm Hg.

B. Assemble the CPAP mask and valve per manufacturer instructions.

C. Check fit of the mask for leaks and proper fit. There are several adjustments that can be made to improve the fit of the CPAP mask and reduce leaks:

1. Make sure the soft facial ring that connects the patient’s face is inflated properly. If the ring is too flat in one area, the ring can be inflated using any syringe that will fit the valve of the mask body. Adding 5-10 ml. of air to the mask ring may eliminate the leak(s).
2. If your patient’s facial anatomy precludes using the CPAP mask system provided (i.e. the mask is too large or too small) you can use any mask provide with BVMs. The ring that holds the ends of the mask restraint can easily be removed from the original CPAP mask and placed on another mask.
3. Remember to apply equal pressure to all four points of the mask restraint. Unequal pressure can cause the mask to leak and reduce the efficacy of the CPAP.

D. Select the appropriate valve based upon the patient’s condition.

1) Use 5-10 cm H2O valve for a patient with pulmonary edema, near drowning, possible aspiration, or pneumonia.
2) Use 2.5 to 5.0 cm H2O valve for a patient with COPD exacerbation.

E. Open the flow meter at 15 L/min.—this will allow good oxygenation of the patient and prevent a too-sudden positive pressure effect from being exerted on the patient.

F. Apply the mask to the patient’s face with one hand and put the other hand behind the patient’s head. Explain the process to the patient, as the mask may cause some patients, who are already anxious due to the difficulty in breathing, to become further apprehensive.

G. Check for leaks.
PROCEDURES (cont.)

CPAP Procedure – ALS Skill Continued

H. Check for areas where the mask is pressed too tightly on the patient’s face.
I. Adjust the mask position by inflating/deflating the cuff or change the harness traction.
J. Maintain clinical and cardiac monitoring of the patient throughout.
K. Make adjustments of the CPAP system as warranted by your assessment.
L. CPAP does not replace pharmacology – initiate medications first if applicable:
   1. If suspected pulmonary edema and SBP > 90 mm Hg, administer three 0.4 mg doses of NTG SL and repeat three 0.4 mg doses every 3 minutes if SBP remains at or above 90 mm Hg and patient remains dyspneic.
   2. Remember to avoid the use of NTG in the setting of Viagra, Levitra, Cialis, or other ED drug use.
   3. If asthma or COPD is suspected, administer 5 mg albuterol and 0.5 mg ipratropium per nebulizer and repeat every 10 minutes if the patient remains dyspneic (not to exceed 3 doses of ipratropium).
   4. If the 2nd round of pharmacologic therapy (above) fails to resolve the patient’s dyspnea, and they remain hypoxemic (oxygen saturation < 92% on 100% oxygen), then CPAP may be initiated.

Contraindications for use of the CPAP may include but are not limited to:
- Laryngeal trauma
- Recent tracheal or esophageal surgery or repair
- Gastrointestinal bleeding or ileus
- Recent gastric surgery
- Basilar skull fracture
- Emphysematous Bulla—when an area of the lung may be brittle and present a risk of bursting
- Hypovolemia
- Facial Lacerations
- Patients with a high risk of vomiting
Bi-level (BIPAP) Procedure – ALS Skill

The adaptive Bi-level (BIPAP) procedure, when available, may be used as an adjunct for patients suspected of having pulmonary edema, COPD exacerbation, or asthma and who present with rales, tachypnea, dyspnea, and hypoxia (SaO₂<94%) by paramedics that have had supplemental training in usage of the BIPAP device for their agency. Contraindications include altered mental status with GCS less than 8, coma, respiratory arrest, or cardiopulmonary arrest.

Scene Response / Pre-Hospital Initiation

A. Place the patient in a sitting position on the cot.

B. Assemble the BIPAP mask per manufacturer instructions. Attach a high flow oxygen line to the device using the green high-pressure oxygen line in the back and connecting to a high pressure DISS outlet on the oxygen regulator.

C. Check fit of the mask for leaks, apply it to the patient, and check for a proper fit.

D. Turn on the IVENT via the Rear panel POWER button (green). Allow the device to do the self checks.

E. Select the patient weight in kg. via the selector knob. Not to be used for patients under 10 kg.

F. Change the MODE to BIPAP/Adaptive Biphasic via the selector knob and the box in the upper right hand of the screen. The default is set at “SIMV Vctrl” and must be changed to “A. Bi-Level.”

   1) The selections will have presets including 40% FiO₂ for supplemental oxygen.
   2) IPAP default is 10 and EPAP is 5 for “average” patients (again, it is weight adjusted)
   3) ACCEPT the preset selections.

G. Any ALARMS may be briefly silenced but cannot be ignored. If the paramedic is unable to correct the source of the alarm and assure the patient is safely being ventilated, the use of the device should be discontinued immediately and other treatments initiated.
H. The Pre-Settings should be utilized based upon the patient’s weight with the following adjustments being permitted:

1) If the patient appears hypoxic (continued decreased oxygen saturation or pale/cyanotic skin), then the FiO₂ can be increased in increments of 10% from the preset of 40%. The FiO₂ may not exceed 60% without on-line Medical Direction. The FiO₂ is changed by selecting the box in the middle upper left that is labeled FiO₂ and then advancing or decreasing the round selector knob.
2) The IPAP may be increased in increments of 2 not to exceed 4 above the default for the patient’s weight without on-line Medical Direction.
3) 25 mcg. of Fentanyl may be administered IV prior to initiation of the BIPAP to ease the patient’s adjustment to the BIPAP. Coaching is encouraged during the adjustment period.
4) ALL other adjustments require on-line Medical Direction.

I. Patients on BIPAP should be carefully monitored in terms of respiratory status, breath sounds (for signs of a tension pneumothorax), and blood pressure.
   1) Note that, if appropriate, nebulizer treatments of albuterol may be administered concurrently with the BIPAP by selecting MENU then ADVANCED SETTINGS and then Nebulizer function. This will require a T valve and supplemental oxygen to function.
   2) If the patient shows signs of decompensation such as significantly decreased blood pressure or O₂ saturations then the BIPAP should be discontinued and alternative treatments performed.

J. A verbal report to the Receiving Facility and written documentation should include
   1) use of BIPAP/Bi-Level mode
   2) the patient’s weight or estimated weight used
   3) The minimum breathing rate used
   4) the FiO₂ used
   5) the Inspiratory (IPAP) and Expiratory Pressures (EPAP) utilized
   6) Full respiratory assessments before and during use of BIPAP
   7) the pulse oximetry readings throughout
   8) Any complications encountered
PROCEDURES (cont.)

Biphasic (BIPAP) Procedure – ALS Skill

The adaptive Bi-level (BIPAP) procedure, when available, may be used as an adjunct for patients suspected of having pulmonary edema and who present with rales, tachypnea, dyspnea, and hypoxia (SaO2<94%) by paramedics that have had supplemental training in usage of the BIPAP device for their agency. Contraindications include altered mental status with GCS less than 8, coma, respiratory arrest, or cardiopulmonary arrest.

Hospital Transfers / Pre-established BIPAP

A. Place the patient in a sitting position on the cot.

B. Assemble the BIPAP mask per manufacturer instructions. Attach a high flow oxygen line to the device using the green high-pressure oxygen line in the back and connecting to a high pressure DISS outlet on the oxygen regulator.

C. Check fit of the mask for leaks and proper fit.

D. Turn on the IVENT via the Rear panel POWER button (green). Allow the device to do the self checks.

E. Select the patient weight in kg. via the selector knob. Not to be used for patients under 10 kg. The transferring facility should provide the weight in Kg.

F. Change the MODE to BIPAP/Adaptive Biphasic via the selector knob and the box in the upper right hand of the screen. The default is set at “SIMV Vctrl” and must be changed to “A. Bi-Level.”

1) The Transferring Facility should have established parameters for the patient and you should compare them with the defaults to see if adjustments need to be made before hitting ACCEPT. These include
   i. RATE (minimum bpm)
   ii. FiO2 input %
   iii. IPAP rate
   iv. EPAP rate

G. Hit ACCEPT and patient must remain on the BIPAP at the Transferring Facility for at least five minutes before departure to check for problems while the respiratory therapist is available to assist.
PROCEDURES (cont.)

Biphasic (BIPAP) Procedure – ALS Skill (continued)

H. The Transferring Facility’s Pre-Settings should be utilized.
   5) If the patient appears hypoxic (continued decreased oxygen saturation or
      pale/cyanotic skin), then the FiO₂ can be increased in increments of 10% 
      from the preset of 40%. The FiO₂ may not exceed 60% without on-line 
      Medical 
      Direction. The FiO₂ is changed by selecting the box in the middle upper 
      left that is labeled FiO₂ and then advancing or decreasing the round 
      selector knob. 
      6) The IPAP may be increased in increments of 2 not to exceed 4 above the 
         default for the patient’s weight without on-line Medical Direction. 
       7) ALL other adjustments require on-line Medical Direction.

I. Patients on BIPAP should be carefully monitored in terms of respiratory status, 
   breath sounds (for signs of a tension pneumothorax), and blood pressure.
   1) Note that, if appropriate, nebulizer treatments of albuterol may be 
      administered concurrently with the BIPAP by selecting MENU then 
      ADVANCED SETTINGS and then Nebulizer function. This will require 
      a T valve and supplemental oxygen to function.
   2) If the patient shows signs of decompensation such as significantly 
      decreased blood pressure or O₂ saturations then the BIPAP should be 
      discontinued and alternative treatments performed.

J. Verbal reports to the Receiving Facility and written documentation should include 
   1) use of BIPAP/Bi-Level mode per on-line Medical Direction of the 
      Transferring Facility. 
   2) the patient’s weight or estimated weight used 
   3) The minimum breathing rate used 
   4) the FiO₂ used 
   5) the Inspiratory (IPEP) and Expiratory Pressures (EPEP) utilized 
   6) Full respiratory assessments before and during use of BIPAP 
   7) the pulse oximetry readings throughout 
   8) Any complications encountered
Where available and when the paramedic has received additional training, the VENT functions of the IVENT may be utilized with on-line Medical Direction for patients that have been previously intubated and require transfer to a specialty hospital.

A. Turn on the IVENT via the Rear panel POWER button (green). Allow the device to do the self checks.

B. Select the patient weight in kg. via the selector knob. Not to be used for patients under 10 kg.

C. Confirm the mode is in “SIMV Vctrl” which is the default setting.

   1) The Transferring Facility should have established parameters for the patient and you should compare them with the defaults to see if adjustments need to be made before hitting ACCEPT. These include
      i. RATE (b.p.m.)
      ii. Tidal Volume (TV) or VT
      iii. Pressure or P
      iv. FiO₂ input %
      v. Pressure Support Ventilation or PSV rate
      vi. The PEEP rate

   2) Make changes from the defaults and hit ACCEPT. The crew should remain at the Transferring Facility for a minimum of five minutes to make sure no complications arise.

D. Any ALARMS may be briefly silenced but cannot be ignored. If the paramedic is unable to correct the source of the alarm and assure the patient is safely being ventilated, the use of the device should be discontinued immediately and other treatments initiated.

E. All adjustments to VENT functions, other than discontinuing usage as described below, require on-line Medical Direction to deviate from the pre-determined orders.

F. Patients on the VENT should be carefully monitored in terms of respiratory status, breath sounds (for signs of a tension pneumothorax), and blood pressure.

   1) Note that, if appropriate, nebulizer treatments of albuterol may be administered concurrently with the BIPAP by selecting MENU then ADVANCED SETTINGS and then Nebulizer function. This will require a T valve and supplemental oxygen to function.
2) If the patient shows signs of decompensation such as significantly decreased blood pressure or O₂ saturations then the BIPAP should be discontinued and alternative treatments performed.

3) The paramedic should also monitor that a sedative/amnesiac agent has been administered if the patient is paralyzed. See the Conscious Sedation protocol on Page 90, Section C.

G. A verbal report to the Receiving Facility and written documentation should include:
   1) use of the SIMV VENT mode
   2) the patient’s weight or estimated weight used
   3) RATE (minimum bpm)
   4) Tidal Volume (TV) or V₇
   5) Pressure or P
   6) FiO₂ input %
   7) Pressure Support Ventilation or PSV rate
   8) The PEEP rate
   9) Triggers
   10) Full respiratory assessments before and during use of the VENT
   11) the pulse oximetry readings throughout
   12) Any complications encountered
Rapid Sequence Airway (RSA) – ALS Skill

**CRITERIA:** Adult patients for whom intubation is necessary but cannot safely be performed due to patient combativeness, clenched teeth, intact gag reflex, or other patient conditions in which sedation and paralysis will make the likelihood of intubation significantly more successful.

**NOTE:** This procedure shall only be performed by appropriately trained and EMS Medical Director-approved personnel from the agency for which the procedure is being performed.

**ACTIONS:**

1) Initiate *Airway Management* protocol

2) **Pre-oxygenate** patient with 100% O₂ using a NRB mask and 15 lpm for spontaneously breathing patients, or a BVM with 15 lpm to assist ineffective respirations.

3) **Position patient** for best likelihood of airway management success:
   - a. For trauma patients, with c-collar open and in-line stabilization in a neutral position by holding the maxilla immobile bilaterally
   - b. For all others, with padding underneath the occiput and the head in a “sniffing position”.

4) **Pre-medicate** as indicated:
   - a. **Every** patient:
     - i. Fentanyl 2 mCg/Kg IV/IO
   - b. Patients with suspected increased ICP (intracranial pressure) – e.g., closed head injury or patients with asthma:
     - i. Lidocaine 1.5 mg/Kg IV/IO

5) **Paralyze after inducing unconsciousness**
   - a. Administer one available induction agent
     - i. Etomidate (Amidate®)
       1) 0.3 mg/Kg IV/IO for normotensive/normovolemic patients;
       2) 0.15 mg/Kg IV/IO for hypotensive or hypovolemic patients
       3) Avoid in septic patients
     - ii. Ketamine 2 mg/Kg IV/IO
       1) Optimal choice if patient is hypotensive or asthmatic

   - b. Paralyze with rocuronium (Zemuron®) 1mg/Kg IV/IO
6) **Place of airway (with proof of success)**
   a. Airway placement
      i. A single attempt of oral intubation utilizing a bougie may be attempted
      ii. Place King LTS-D airway if not intubated immediately
      iii. If airway is not secured, utilize OP/NP airway and BVM
      iv. If unable to ventilate, perform surgical cricothyrotomy
   b. Confirm placement utilizing auscultation and continuous EtCO₂ monitoring

7) **Post-intubation/airway management**
   a. Continue EtCO₂ and oximetry monitoring
   b. Provide ongoing sedation, paralysis and pain control as needed:
      i. Ketamine 1 mg/Kg IV/IO
      ii. Midazolam 0.1 mg/Kg IV/IO (do not use if SBP<100)
      iii. Rocuronium 0.5 mg/Kg every 20-30 minutes as needed
      iv. Fentanyl 1 mG/Kg IV/IO every 20 minutes as needed for pain
         (evidenced by tachycardia, increasing blood pressure, or grimace…)
   c. A gastric tube should be placed through port of King LTS-D for stomach decompression if BVM ventilation occurred for more than 1-2 minutes.

If Rapid Sequence Airway is attempted, a copy of the run record must be submitted to the provider Administration and made available to the Medical Director for review.
PROCEDURES (cont.)

Guidelines for IV / IO Initiation – ALS Skill

A. IVs should only be initiated for patients needing out-of-hospital IV medication administration, rapid fluid replacement, or for those patients who are likely to decompensate before arriving at the hospital.

B. Aseptic technique must be observed.

C. IVs should be initiated according to the following guidelines:

1. Peripheral sites, including the external jugular, are the routes of choice. Upper extremity placement is preferred to lower.

2. IO may be considered if an IV cannot be placed in the following situations:
   a. Cardiac arrest (medical or traumatic) ** site should be humerus in adults
   b. Profound hypovolemia (shock) with significantly altered mental status
   c. Emergent need for an IV but veins are not immediately available

D. Whenever an IO has been attempted unsuccessfully, identify the site(s) of the attempt(s) to the receiving hospital personnel. A secondary IO may not be attempted in the same bone where a prior IO attempt was made during a response.

E. IV/IO placement attempts should not delay appropriate and timely patient care.

F. Basic-Advanced EMT’s may initiate and monitor IV’s in order to assist the paramedic or when medically appropriate based upon the patient’s condition but no paramedic is available.

G. Basic-Advanced EMT’s may transport patients with crystalloid solutions as outlined by state regulations for their certification level.

H. Blood draws are permitted if:

1. Blood vacutainer tubes and the vacutainer adapter or luer are readily available.
2. The blood tubes should be labeled with the patients name, the time drawn, and the initials of the technician that drew the blood.
3. At NO time should a syringe with an attached needle be used in the field to perform blood draws due to the danger of needle sticks.
4. At NO time should establishment of an IV or drawing blood delay transport to the receiving facility.
PROCEDURES (cont.)

Pediatric Intraosseous Infusion – ALS Skill

A. Place the child in the supine position.

B. Identify the tibial tuberosity, 1-3 cm below the tuberosity on the medial surface of the tibia (approximately one finger's breath below and just medial to the tuberosity).

1. Alternatively, 1 - 2 cm proximal to the medial malleolus on the anteromedial surface of the distal tibia.)

C. Clean the skin.

D. The leg should be supported on a firm surface. Grasp the thigh and knee above and lateral to the insertion site. Do not allow any portion of your hand to rest behind the insertion point.

E. With the stylet in place, insert the needle at a 45° – 90° angle to the skin and to the long axis of the bone slightly toward the toes.

1. Using gentle pressure that is steady, begin to advance the needle through the skin and bone, using a gentle twisting, screwing, or drilling motion through the skin, then through the cortex of the bone.

2. Stop advancing the needle when a sudden decrease in resistance to forward motion of the needle is felt. Unscrew the cap and remove the stylet. It may be possible to aspirate bone marrow at this point with a 20 or 30 cc syringe.

F. Stabilize the IO

G. Aspiration of marrow must be followed by brisk irrigation with 10 ml saline to prevent obstruction of the needle with marrow. WHEN THE PATIENT HAS PULSES OR IS RESPONSIVE.. administer 1 mL 2% lidocaine (over 60 seconds) followed by brisk irrigation with 5 mL saline and then another 0.5 mL 2% lidocaine.
H. Check for any signs of increased resistance to injection, increased circumference of the soft tissues of the calf, or increased firmness of the tissue.

I. The needle is in the bone marrow when:

   a. there is a lack of resistance
   
   b. the needle passes through the cortex.
   
   c. the needle stands upright without resistance.
   
   d. there is no infiltration
   
   e. blood and marrow are aspirated (less common)
   
   f. fluid flows freely through the needle without evidence of subcutaneous infiltration

I. Disconnect the syringe.

J. Attach the IV tubing and begin the infusion. A pressure infusion bag or in-line 60 ml syringe may be required to infuse the solution.

K. If unsuccessful, remove the needle and move to the other leg.

L. Stabilize and secure with tape.

COMPLICATIONS

1. Abscess from prolonged insertion.
2. Leakage around the needle with compartment syndrome.
3. Potential injury to the bone marrow cavity.
4. Osteomyelitis from prolonged insertion.
5. Tibial fractures.
6. Skin necrosis.
PROCEDURES (cont.)

Adult Intraosseous Infusion – ALS Skill

A. Prepare the IO insertion device and needle

B. Locate insertion site
   a. Proximal humerus
   b. Tibial plateau

C. Cleanse insertion site using aseptic technique

D. Stabilize extremity and insert the needle following the manufacturer’s recommendations.

E. Remove driver from needle set while stabilizing catheter hub

F. Remove stylet from needle set and secure until it can be placed in a sharps container

G. Confirm placement. It may be possible to aspirate bone marrow with a 20 or 30 mL syringe.

H. If the patient is awake and alert administer prime all tubing with lidocaine instead of saline and 2 mL 2% lidocaine slowly over 60 seconds, then allow 30-60 seconds for the lidocaine to affect the visceral nerves. Follow with a brisk 10 mL saline flush. Another 1 mL 2% lidocaine may be administered in the same manner

I. Connect primed IV line and begin infusion

J. Place a pressure bag (or IV infusion pump) on solution being infused where applicable

K. Dress site using commercial stabilizer if available, and secure tubing

L. Frequently monitor IO catheter site and patient condition

COMPLICATIONS

1. Abscess from prolonged insertion.
2. Leakage around the needle with compartment syndrome.
3. Potential injury to the bone marrow cavity.
4. Osteomyelitis from prolonged insertion.
5. Tibial fractures.
6. Skin necrosis.
APPLICATION OF EXTERNAL PACEMAKER - ALS SKILL

Any patient 18 years or older with a non-traumatic presentation of atropine-refractory symptomatic bradycardia.

A. Assess for signs of instability.
   1. Heart rate < 60/min and
   2. Systolic blood pressure < 100 mmHg and
   3. Signs and symptoms of shock

B. Apply pacing electrodes.
   1. The anterior-posterior (AP) placement of the pacing electrodes is preferred. If absolutely necessary, anterior-anterior (AA) placement may be used.
      AP placement-
      a. Place negative electrode on left anterior chest halfway between the xyphoid process and the left nipple with the upper edge of the electrode below the nipple line.
      b. Place the positive electrode on the left posterior chest beneath the scapula and lateral to the spine.
      AA placement-
      a. Place negative electrode on left chest, midaxillary over the fourth intercostal space.
      b. Place positive electrode on anterior right chest, inferior to clavicle.
      c. This position should only be used if AP placement is not possible.

C. Pacing procedure:
   1. Maintain EKG monitoring during pacing procedure.
   2. Attach pacing electrodes and connect pacing cable to pacemaker.
   3. Power up pacemaker.
D. Observe monitor for a "sense" marker. One mark should appear on each QRS complex. If it does not appear or only appears intermittently, the pacemaker is not sensing the intrinsic rhythm of the patient. Adjust EKG size (larger) or change from Lead II to Lead I or III in order to achieve sensing. If more than one sensing mark appears for each QRS, the EKG size is probably too high. If intrinsic beats are not present, omit this step.

E. Adjust milliamp (mA) output to start at 10. Gradually increase mA until electrical capture is noticed on the monitor.

F. Adjust pacing rate to 70 bpm.

G. Assess for mechanical capture by checking for a pulse and blood pressure. If electrical capture is present but no pulse is present, increasing mA is of no benefit.

H. Record time of application and obtain rhythm strips before and after application.

- If the patient's intrinsic rate exceeds the pacing rate, the pacemaker will sense the activity and not discharge.

- Musculoskeletal discomfort may accompany external pacing. If this is a problem and the patient's vital signs will allow it, sedation and/or analgesia may be appropriate.
PVADs (pre-existing vascular access devices) include any indwelling catheter/device placed into one of the central veins to provide vascular access for those patients requiring long term intravenous therapy and hemodialysis shunts or grafts.

A. Types of Catheters

1. External indwelling catheters/devices

   a. Heparin/Saline Lock - A temporary venous catheter placed in a peripheral vein and occluded with a cap. Heparin or saline is instilled periodically to maintain its patency. It may be accessed directly through the injection cap.

   b. Peripherally inserted central catheter (PICC) - a long catheter inserted in the upper arm or antecubitaly into the subclavian vein or superior vena cava. It may be accessed through the injection cap.

   c. “Broviac®”, “Hickman®”, “Groshong®”, and others - a long catheter that is inserted into the right atrium through a central vein. The catheter enters the skin through an incision in the chest. The line may be heparinized and may be accessed directly through the injection cap. These catheters are usually multi-lumened and any lumen can be used, but a red-colored port is preferred.

2. Internal indwelling devices – NOT TO BE USED

   a. Internal subcutaneous infusion ports - an access device embedded subcutaneously and must be accessed through the skin using special equipment.

   b. Hemodialysis fistula or graft - A permanent access device that diverts blood flow from an artery to a vein and is usually located in the forearm or upper arm. It is used for dialysis.
Pre-Existing Vascular Access Device (PVAD) Use - ALS Skill (Cont.)

B. Indication for use of external indwelling catheters/devices (other than a heparin/saline lock, which may be used as needed):

1. Cardiac arrest

2. Other emergent need to administer fluids and/or medications:
   a. which can only be given by the IV route, and
   b. a peripheral IV site is not readily/immediately available (after 2 tries), and
   c. intraosseous access is not appropriate due to the patient’s condition, and
   d. with approval by on-line medical control.

3. All ALS medications and fluids (approved for IV administration) may be given through a PVAD.

C. Procedure for external indwelling catheters/devices:

1. Assemble necessary equipment
   a. 10 ml syringe
   b. 0.9 normal saline for injection
   c. IV tubing and fluid
   d. alcohol wipes
   e. 18 gauge needles

2. Disconnect any existing IV lines.
3. Prepare syringe with 10 ml NS and set up IV line.
4. Clean injection cap or needleless-port with alcohol wipe.
   • If there is a red port, it is preferred for use.
5. If clamped, unclamp catheter.
6. Slowly inject 5 ml of saline – if resistance is met, discontinue procedure.
7. Attach IV tubing to port (using an 18 ga. Needle if an injection cap is in place) and initiate fluid and/or medication therapy
8. Flush line with IV fluid after medication administration.
D. Complications

1. Infection. Due to the location of the catheter end, strict adherence to aseptic technique is crucial when handling these devices. The injection cap or needleless port must be cleansed thoroughly. Sterile gloves are preferred. Care must be used not to contaminate the needle used to access the line or the IV tubing used.

2. Air embolism. These devices provide a direct line into the circulation, therefore the introduction of any air into the device will go straight to the heart. Do not ever remove the injection cap or needleless port from the catheter. Do not allow IV fluids to run dry. Clear all air from the IV tubing and syringes prior to administration of fluids or medications.

3. Thrombosis. Improper handling and maintenance of the device may dislodge a clot causing pulmonary embolus or vascular damage. Check patency of the line by slowly injecting 5 cc of NS. Do not inject medications or infuse fluids if resistance is met when establishing patency of the catheter. Flush line with 5 ml of normal saline after medication administration.

4. Catheter damage. These catheters are meant for long-term use. They usually require an invasive or surgical procedure and are costly to insert. Care must be taken to avoid any damage to the catheter. If damage to the catheter outside the skin occurs, immediately clamp the catheter between the skin exit site and the damaged area to prevent air embolism or blood loss. Always use a 10 ml or larger syringe to prevent catheter damage from excess pressure when injecting directly. Use caution when inserting the needle into the injection port.
SECTION FOUR

APPENDICES
ABBREVIATION LIST

The following is a list of acceptable abbreviations to be used when completing patient care records. This list is not all inclusive but to be used as a quick reference of more commonly used abbreviations. If other abbreviations are used, be sure they are proper and widely understood.

A&O           alert and oriented
ab             abortion
abd            abdomen
ACLS           Advanced Cardiac Life Support
AED            automatic external defibrillator
adm            administered
Af or afib     atrial fibrillation
AF or AFL      atrial flutter
AIDS           Acquired Immune Deficiency Syndrome
AK or AKA      above the knee (amputation)
ALG            allergies
AMI            acute myocardial infarction
amt.           amount
ant.           anterior
AP             anteroposterior
AT             atrial tachycardia
AVPU           alert, responsive to verbal stimuli, painful stimuli, or unresponsive
BBB            bundle branch block
BBS            bilateral breaths sounds
BK or BKA      below the knee (amputation)
Bld.           blood
BOW            bag of waters
BS             blood sugar, breath sounds, bowel sounds
Brady          bradycardia
BSA            body surface area
BVM            bag valve mask
BW             body weight
C-c            cervical collar
C-spine        cervical spine
C1, C2 … C7    1st cervical vertebrae, etc.
CA or ca       carcinoma, cancer
CC             chief complaint
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>c/e</td>
<td>clear and equal</td>
</tr>
<tr>
<td>CHF</td>
<td>congested heart failure</td>
</tr>
<tr>
<td>CHI</td>
<td>closed head injury</td>
</tr>
<tr>
<td>CHD</td>
<td>coronary heart disease</td>
</tr>
<tr>
<td>CNS</td>
<td>central nervous system</td>
</tr>
<tr>
<td>C/O</td>
<td>complaint of</td>
</tr>
<tr>
<td>CO</td>
<td>carbon monoxide</td>
</tr>
<tr>
<td>CO₂</td>
<td>carbon dioxide</td>
</tr>
<tr>
<td>COPD</td>
<td>chronic obstructive pulmonary disease</td>
</tr>
<tr>
<td>CP</td>
<td>chest pain</td>
</tr>
<tr>
<td>CSF</td>
<td>cerebral spinal fluid</td>
</tr>
<tr>
<td>D₅W</td>
<td>dextrose 5% in water</td>
</tr>
<tr>
<td>d/c</td>
<td>discontinue</td>
</tr>
<tr>
<td>DCAP-BTLS</td>
<td>Deformities, Contusions, Abrasions, Punctures, Burns, Tenderness, Lacerations, Swelling</td>
</tr>
<tr>
<td>dc’d</td>
<td>discontinued</td>
</tr>
<tr>
<td>DEX or DS</td>
<td>dextrostick</td>
</tr>
<tr>
<td>disp</td>
<td>disposition</td>
</tr>
<tr>
<td>DKA</td>
<td>diabetic ketoacidosis</td>
</tr>
<tr>
<td>DM</td>
<td>diabetes</td>
</tr>
<tr>
<td>DNR</td>
<td>Do Not Resuscitate</td>
</tr>
<tr>
<td>DOA</td>
<td>dead on arrival</td>
</tr>
<tr>
<td>DOB</td>
<td>date of birth</td>
</tr>
<tr>
<td>DOE</td>
<td>dyspnea on exertion</td>
</tr>
<tr>
<td>DSD</td>
<td>dry sterile dressing</td>
</tr>
<tr>
<td>Dt's</td>
<td>delirium tremens</td>
</tr>
<tr>
<td>Dx</td>
<td>diagnosis</td>
</tr>
<tr>
<td>ECG or EKG</td>
<td>electrocardiogram</td>
</tr>
<tr>
<td>EMT</td>
<td>Emergency Medical Technician</td>
</tr>
<tr>
<td>EMT-P</td>
<td>Paramedic</td>
</tr>
<tr>
<td>ETOH or EtOH</td>
<td>alcohol/ethanol</td>
</tr>
<tr>
<td>ER (ED)</td>
<td>emergency room (emergency department)</td>
</tr>
<tr>
<td>ETT</td>
<td>endotracheal tube</td>
</tr>
<tr>
<td>ex</td>
<td>exercise</td>
</tr>
<tr>
<td>EXT</td>
<td>extremities</td>
</tr>
<tr>
<td>FB</td>
<td>foreign body</td>
</tr>
<tr>
<td>Fib.</td>
<td>fibrillation</td>
</tr>
<tr>
<td>FH or FmHx</td>
<td>family history</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>FROM</td>
<td>full range of motion</td>
</tr>
<tr>
<td>FSP</td>
<td>Full spinal precautions (c-collar and long back board)</td>
</tr>
<tr>
<td>FT</td>
<td>foot</td>
</tr>
<tr>
<td>F/U</td>
<td>follow-up</td>
</tr>
<tr>
<td>Fx</td>
<td>fracture</td>
</tr>
<tr>
<td>GCS</td>
<td>Glasgow coma scale</td>
</tr>
<tr>
<td>G-1, 2…</td>
<td>primigravidia, second pregnancy…</td>
</tr>
<tr>
<td>GSW</td>
<td>gun shot wound</td>
</tr>
<tr>
<td>gtt(s)</td>
<td>drop(s)</td>
</tr>
<tr>
<td>H/A</td>
<td>head ache</td>
</tr>
<tr>
<td>HBP</td>
<td>high blood pressure</td>
</tr>
<tr>
<td>HEENT</td>
<td>head, eyes, ears, nose, throat</td>
</tr>
<tr>
<td>Hep. A</td>
<td>hepatitis A</td>
</tr>
<tr>
<td>Hep. B</td>
<td>hepatitis B</td>
</tr>
<tr>
<td>Hist. or Hx</td>
<td>history</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immune Virus</td>
</tr>
<tr>
<td>H/O</td>
<td>history of</td>
</tr>
<tr>
<td>HPI</td>
<td>history of present illness</td>
</tr>
<tr>
<td>HR</td>
<td>heart rate</td>
</tr>
<tr>
<td>HTN</td>
<td>hypertension</td>
</tr>
<tr>
<td>HV</td>
<td>hyperventilation</td>
</tr>
<tr>
<td>IDDM</td>
<td>insulin dependent diabetes</td>
</tr>
<tr>
<td>i.e.,</td>
<td>that is</td>
</tr>
<tr>
<td>IM</td>
<td>intramuscular</td>
</tr>
<tr>
<td>imp</td>
<td>impression</td>
</tr>
<tr>
<td>inf.</td>
<td>inferior</td>
</tr>
<tr>
<td>INJ</td>
<td>injection</td>
</tr>
<tr>
<td>Insp.</td>
<td>inspiration</td>
</tr>
<tr>
<td>ICS</td>
<td>intercostal space</td>
</tr>
<tr>
<td>IV</td>
<td>intravenous</td>
</tr>
<tr>
<td>IVF</td>
<td>IV fluids</td>
</tr>
<tr>
<td>IVP</td>
<td>IV push</td>
</tr>
<tr>
<td>IVPB</td>
<td>intravenous piggyback</td>
</tr>
<tr>
<td>jt.</td>
<td>joint</td>
</tr>
<tr>
<td>JVD</td>
<td>jugular venous distention</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>l</td>
<td>liter</td>
</tr>
<tr>
<td>lpm</td>
<td>liters per minute</td>
</tr>
<tr>
<td>L</td>
<td>low</td>
</tr>
<tr>
<td>L1, L2-L5</td>
<td>1st lumbar vertebrae, etc.</td>
</tr>
<tr>
<td>L-spine</td>
<td>lumber spine</td>
</tr>
<tr>
<td>lac</td>
<td>laceration</td>
</tr>
<tr>
<td>lat</td>
<td>lateral</td>
</tr>
<tr>
<td>LBP</td>
<td>lower back pain</td>
</tr>
<tr>
<td>LE</td>
<td>lower extremity</td>
</tr>
<tr>
<td>Lg.</td>
<td>large</td>
</tr>
<tr>
<td>LLE</td>
<td>left lower extremity</td>
</tr>
<tr>
<td>LLL</td>
<td>left lower lobe (lung exam)</td>
</tr>
<tr>
<td>LLQ</td>
<td>left lower quadrant (abdomen)</td>
</tr>
<tr>
<td>LMP</td>
<td>last menstrual period</td>
</tr>
<tr>
<td>LOC.</td>
<td>loss of consciousness, level of consciousness</td>
</tr>
<tr>
<td>LR</td>
<td>lactated ringer's solution</td>
</tr>
<tr>
<td>LUE</td>
<td>left upper extremity</td>
</tr>
<tr>
<td>LUL</td>
<td>left upper lobe (lung exam)</td>
</tr>
<tr>
<td>LUQ</td>
<td>left upper quadrant (abdomen)</td>
</tr>
<tr>
<td>mA</td>
<td>milliamps (pacing current)</td>
</tr>
<tr>
<td>MAE</td>
<td>moves all extremities</td>
</tr>
<tr>
<td>MAST</td>
<td>military anti shock trousers (®Armstrong) – PASG preferred</td>
</tr>
<tr>
<td>MCL</td>
<td>midclavicular line</td>
</tr>
<tr>
<td>mec</td>
<td>meconium</td>
</tr>
<tr>
<td>med</td>
<td>medial</td>
</tr>
<tr>
<td>mEq</td>
<td>milliequivalents</td>
</tr>
<tr>
<td>meds</td>
<td>medications</td>
</tr>
<tr>
<td>mg</td>
<td>milligram</td>
</tr>
<tr>
<td>MgSO₄</td>
<td>magnesium sulfate</td>
</tr>
<tr>
<td>MI</td>
<td>myocardial infarction</td>
</tr>
<tr>
<td>min.</td>
<td>minute</td>
</tr>
<tr>
<td>ml</td>
<td>milliliter</td>
</tr>
<tr>
<td>m/o</td>
<td>month old</td>
</tr>
<tr>
<td>mod.</td>
<td>moderate</td>
</tr>
<tr>
<td>mvmt</td>
<td>movement</td>
</tr>
<tr>
<td>MSO₄</td>
<td>morphine sulfate</td>
</tr>
<tr>
<td>MVC</td>
<td>motor vehicle crash</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>N or NL</td>
<td>normal</td>
</tr>
<tr>
<td>NA or N/A</td>
<td>not applicable, not available</td>
</tr>
<tr>
<td>NB</td>
<td>newborn</td>
</tr>
<tr>
<td>nc</td>
<td>nasal cannula</td>
</tr>
<tr>
<td>neg.</td>
<td>negative</td>
</tr>
<tr>
<td>NKA</td>
<td>no known allergies</td>
</tr>
<tr>
<td>NKDA</td>
<td>no known drug allergies</td>
</tr>
<tr>
<td>NS</td>
<td>normal saline</td>
</tr>
<tr>
<td>NSR</td>
<td>normal sinus rhythm</td>
</tr>
<tr>
<td>NT tube</td>
<td>nasal tracheal tube</td>
</tr>
<tr>
<td>NTG</td>
<td>nitroglycerin</td>
</tr>
<tr>
<td>n/v</td>
<td>nausea and vomiting</td>
</tr>
<tr>
<td>Ox1</td>
<td>oriented to person</td>
</tr>
<tr>
<td>Ox2</td>
<td>oriented to person and place</td>
</tr>
<tr>
<td>Ox3</td>
<td>oriented to person, place and time</td>
</tr>
<tr>
<td>O₂</td>
<td>oxygen</td>
</tr>
<tr>
<td>O₂ sat.</td>
<td>oxygen saturation</td>
</tr>
<tr>
<td>O/A</td>
<td>on arrival</td>
</tr>
<tr>
<td>Ob</td>
<td>obstetrics</td>
</tr>
<tr>
<td>obs.</td>
<td>observation</td>
</tr>
<tr>
<td>Occ</td>
<td>occasional</td>
</tr>
<tr>
<td>OD</td>
<td>overdose</td>
</tr>
<tr>
<td>OD</td>
<td>right eye</td>
</tr>
<tr>
<td>opp</td>
<td>opposite</td>
</tr>
<tr>
<td>OS</td>
<td>left eye</td>
</tr>
<tr>
<td>OU</td>
<td>both eyes</td>
</tr>
<tr>
<td>n</td>
<td>pulse</td>
</tr>
<tr>
<td>P0, P1…</td>
<td>nulliparous, 1 child born…</td>
</tr>
<tr>
<td>PASG</td>
<td>pneumatic anti-shock garment</td>
</tr>
<tr>
<td>PAT</td>
<td>paroxysmal atrial tachycardia</td>
</tr>
<tr>
<td>PCN</td>
<td>penicillin</td>
</tr>
<tr>
<td>P.E.</td>
<td>physical exam</td>
</tr>
<tr>
<td>PEA</td>
<td>pulseless electrical activity</td>
</tr>
<tr>
<td>Ped.</td>
<td>pediatric</td>
</tr>
<tr>
<td>PERL</td>
<td>pupils equal/react to light</td>
</tr>
<tr>
<td>PERLA</td>
<td>pupils equal/react to light and accommodate</td>
</tr>
<tr>
<td>PERRLA</td>
<td>pupils equal, round, react to light and accommodate</td>
</tr>
</tbody>
</table>
ABBREVIATION LIST (cont.)

PIV  peripheral IV
PMH or PMHx  past medical history
PMS  pulse, motor & sensory functions
pn  pain (described as n/10)
PO  by mouth
post.  posterior
PSVT  paroxysmal supraventricular tachycardia
Pt.  patient
PVC  premature ventricular tachycardia

rec'd  received
Resp.  respirations
RL  ringer's lactate
ROM  range of motion
RR  respiratory rate
RSR  regular sinus rhythm
RUE  right upper extremity
RUL  right upper lobe (lung exam)
RUQ  right upper quadrant (abdomen)
Rx  treatment

SAED  semiautomatic external defibrillator
SCA  sickle cell anemia
SCC  sickle cell crisis
SCD  sickle cell disease
Sev.  Severe
SIDS  sudden infant death syndrome
SL  sublingual
SOB  short of breath
Sol. or sol.  solution
SOR  signature of release
SQ or subq.  subcutaneous
S/S  signs and symptoms
STD  sexually transmitted diseases
SVT  supraventricular tachycardia
Sx  symptoms
Sz. or sz.  seizure
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1, T2-T12</td>
<td>1st thoracic vertebrae, etc.</td>
</tr>
<tr>
<td>T-spine</td>
<td>thoracic vertebrae</td>
</tr>
<tr>
<td>tach.</td>
<td>tachycardia</td>
</tr>
<tr>
<td>TB</td>
<td>tuberculosis</td>
</tr>
<tr>
<td>TCA</td>
<td>tricyclic antidepressant</td>
</tr>
<tr>
<td>TIA</td>
<td>transient ischemic attack</td>
</tr>
<tr>
<td>TKO</td>
<td>to keep open</td>
</tr>
<tr>
<td>TR</td>
<td>Trendelenburg</td>
</tr>
<tr>
<td>trach.</td>
<td>tracheostomy</td>
</tr>
<tr>
<td>Tx</td>
<td>treatment</td>
</tr>
<tr>
<td>UE</td>
<td>upper extremity</td>
</tr>
<tr>
<td>Unk</td>
<td>unknown</td>
</tr>
<tr>
<td>UTI</td>
<td>urinary tract infection</td>
</tr>
<tr>
<td>v-fib or VF</td>
<td>ventricular fibrillation</td>
</tr>
<tr>
<td>vol.</td>
<td>volume</td>
</tr>
<tr>
<td>VS</td>
<td>vital signs</td>
</tr>
<tr>
<td>VSS</td>
<td>vital signs stable</td>
</tr>
<tr>
<td>V-Tach or VT</td>
<td>ventricular tachycardia</td>
</tr>
<tr>
<td>WC or W/C</td>
<td>wheelchair</td>
</tr>
<tr>
<td>W/D or WD</td>
<td>warm and dry</td>
</tr>
<tr>
<td>wt.</td>
<td>weight</td>
</tr>
<tr>
<td>wk</td>
<td>week</td>
</tr>
<tr>
<td>wks.</td>
<td>weeks (gestational age)</td>
</tr>
<tr>
<td>WNL</td>
<td>within normal limits</td>
</tr>
<tr>
<td>x</td>
<td>times</td>
</tr>
<tr>
<td>YOF or Y/F</td>
<td>year old female</td>
</tr>
<tr>
<td>YOM or Y/M</td>
<td>year old male</td>
</tr>
</tbody>
</table>

**Race/Origin/Heritage**

- A: Asian
- B: Black
- H: Hispanic
- W: White
- O: Other
<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>≈ or ~</td>
<td>approximately</td>
<td>female</td>
</tr>
<tr>
<td>Δ</td>
<td>change</td>
<td>male</td>
</tr>
<tr>
<td>↓</td>
<td>decrease</td>
<td>left (circle around)</td>
</tr>
<tr>
<td>↑</td>
<td>increase</td>
<td>right (circle around)</td>
</tr>
<tr>
<td>/</td>
<td>per</td>
<td>bilateral (circle around)</td>
</tr>
<tr>
<td>%</td>
<td>percent</td>
<td>less than</td>
</tr>
<tr>
<td>1°</td>
<td>primary, first degree</td>
<td>greater than</td>
</tr>
<tr>
<td>2°</td>
<td>secondary, second degree</td>
<td>positive</td>
</tr>
<tr>
<td>3°</td>
<td>tertiary, third degree</td>
<td>negative</td>
</tr>
<tr>
<td>c</td>
<td>with (line over top)</td>
<td>and</td>
</tr>
<tr>
<td>s</td>
<td>without (line over top)</td>
<td>at</td>
</tr>
<tr>
<td>a</td>
<td>before (line over top)</td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>after (line over top)</td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>murmur (circle around like @)</td>
<td></td>
</tr>
</tbody>
</table>
NOTE: ALS non-transporting units will be required to carry a decreased amount and/or fewer medications. The minimum amount carried on non-transporting units is indicated in parentheses.
<table>
<thead>
<tr>
<th>Medication</th>
<th>Minimum Amount Carried</th>
<th>Indications</th>
<th>Side Effects</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>adenosine</td>
<td>10 (5) – 6 mg /2ml vials</td>
<td>PSVT, monomorphic (regular) VT</td>
<td>Dyspnea, chest pain, atrial tachy-dysrhythmias, nausea, throat tightness, AV block, asystole.</td>
<td>Adult dosage only DO NOT GIVE: in any degree of AV block, sick sinus syndrome, atrial flutter, atrial fib, VT.</td>
</tr>
<tr>
<td>albuterol</td>
<td>10 (5) – 2.5 mg unit doses</td>
<td>Asthma</td>
<td>Tremors, anxiety. Rare: tachycardia, hypertension, dysrhythmias.</td>
<td>USE WITH CAUTION: cardiac disorder, hyperthyroidism, hypertension.</td>
</tr>
<tr>
<td>acetylsalicylic acid (Aspirin)</td>
<td>BLS &amp; ALS: 10 (5) doses of 162 mg</td>
<td>Chest pain/discomfort suspected to be of cardiac origin</td>
<td>Tinnitus, nausea / vomiting. GI bleeding</td>
<td>Adult dosage only DO NOT GIVE: If known hypersensitivity to aspirin</td>
</tr>
<tr>
<td>amiodarone</td>
<td>5 (0) - 150 mg/3 ml vials</td>
<td>Tachy-dysrhythmias (especially VT or VF)</td>
<td>Hypotension, bradycardia</td>
<td>In the non-arrest situation, must be administered slowly over 10 minutes.</td>
</tr>
<tr>
<td>atropine sulfate</td>
<td>8 (4) – 10 mg syringes</td>
<td>Brady-dysrhythmias, asystole, organo-phosphate poisoning.</td>
<td>Dilated pupils, headache, Dry mouth, tachycardia, PVC's.</td>
<td>DO NOT GIVE: with tachy-dysrhythmias; USE WITH CAUTION: pregnancy, CHF, hyperthyroidism, COPD, hepatic disease.</td>
</tr>
<tr>
<td>Medication</td>
<td>Minimum Amount Carried</td>
<td>Indications</td>
<td>Side Effects</td>
<td>Considerations</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------------------------</td>
<td>--------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td>calcium chloride ** may substitute calcium gluceptate or calcium glucanote due to shortages</td>
<td>3 (1) –10 ml 10% syringes</td>
<td>Hypocalcaemia, calcium channel blocker overdose, hyperkalemia associated ventricular arrhythmias</td>
<td>Possible heart block, VF.</td>
<td>USE WITH CAUTION: Pt. on digitalis, renal failure, DO NOT MIX WITH: sodium bicarbonate.</td>
</tr>
<tr>
<td>Dextrose 25%</td>
<td>2 (0) – 2.5 g syringes</td>
<td>Hypoglycemia</td>
<td>Impaired neurologic recovery following stroke or cardiac arrest</td>
<td>Infant dosage only Tissue necrosis if infiltrates. Should not be used in cardiac arrest or in ischemic CVA unless documented hypoglycemia.</td>
</tr>
<tr>
<td>Dextrose 50% ** May substitute D10 in 20 ml due to shortages</td>
<td>5 (2) – 25 g syringes</td>
<td>Hypoglycemia</td>
<td>Impaired neurologic recovery following stroke or cardiac arrest</td>
<td>Tissue necrosis if infiltrates. Should not be used in cardiac arrest or in ischemic CVA unless documented hypoglycemia.</td>
</tr>
<tr>
<td>diphenhydramine (e.g., Benadryl®)</td>
<td>2 (1) - 50 mg vials or syringes</td>
<td>Allergic reaction.</td>
<td>Dizziness, drowsiness, hypotension, dry mouth, tachycardia, dilated pupils, blurred vision.</td>
<td>DO NOT USE: in acute asthma USE WITH CAUTION: renal disease, cardiac disease, hypertension, asthma, seizure.</td>
</tr>
<tr>
<td>dopamine</td>
<td>1 - Pre-mixed IV solution (1600 mcg/ml concentration) (0)</td>
<td>Shock NOT of hypovolemic origin and bradycardia in lieu of pacing.</td>
<td>Ectopic beats, headache, tachycardia, vomiting, dyspnea.</td>
<td>DO NOT USE: in uncorrected hypovolemic shock, pheochromocytoma or VF. Tissue necrosis if infiltrates. Monitor VS q 2 to 3 minutes.</td>
</tr>
<tr>
<td>Medication</td>
<td>Minimum Amount Carried</td>
<td>Indications</td>
<td>Side Effects</td>
<td>Considerations</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>----------------------------------</td>
<td>--------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>epinephrine</td>
<td><strong>ALS</strong>: 10 (6) – 1:10,000 syringes; and <strong>ALS</strong>: 5 (2) – 1:1,000 ampule [or 2 (1) 30 ml multi-dose vials]; and <strong>BLS</strong>: one (1) 0.3 mg auto-injector and one (1) 0.15 mg auto-injector</td>
<td>Cardiac arrest, anaphylaxis, asthma.</td>
<td>Tremors, tachycardia, dysrhythmias, hypertension.</td>
<td><strong>USE WITH CAUTION:</strong> angina, hypertension, hyperthyroidism, NO CONTRA-INDICATIONS IN CARDIAC ARREST.</td>
</tr>
<tr>
<td>Etomidate (Amidate)</td>
<td>Equivalent of 80 mg.</td>
<td>Rapid Sequence Airway Management</td>
<td>Paralysis</td>
<td><strong>USE WITH CAUTION:</strong> Hyotension or hypovolemia <strong>Do Not USE:</strong> Septic Patients.</td>
</tr>
<tr>
<td>fentanyl</td>
<td>5 (0) – 100 mcg ampules or syringes</td>
<td>Pain</td>
<td>Hypotension, sedation, vomiting, bradycardia, respiratory depression.</td>
<td><strong>DO NOT USE</strong> if hypotensive, significant head injury, or other depressants (e.g., EtOH) taken.</td>
</tr>
<tr>
<td>glucagon</td>
<td>2 (1) – 1 mg vials</td>
<td>Hypoglycemia β-blocker OD</td>
<td>Nausea, vomiting, hypersensitivity</td>
<td>Pts need additional carbohydrates after awakening.</td>
</tr>
<tr>
<td>glucose (oral)</td>
<td><strong>BLS and ALS</strong>: 3 (1) – 15 g dose(s)</td>
<td>Hypoglycemia.</td>
<td>Nausea, vomiting, hypersensitivity</td>
<td>Pts need additional carbohydrates after awakening.</td>
</tr>
<tr>
<td>Hydromorphone hydrochloride (Dilaudid®)</td>
<td>Five (5) 1mg. units</td>
<td>Pain</td>
<td>Hypotension, sedation, vomiting, bradycardia, respiratory depression</td>
<td><strong>DO NOT USE</strong> if hypotensive, significant head injury, or other depressants (e.g., EtOH) taken.</td>
</tr>
</tbody>
</table>
## EMERGENCY PHARMACOLOGY

<table>
<thead>
<tr>
<th>Medication</th>
<th>Minimum Amount Carried</th>
<th>Indications</th>
<th>Side Effects</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ipratropium bromide (Atrovent®)</td>
<td>Five (5) – 0.5 mg unit doses</td>
<td>Asthma and COPD</td>
<td>Tremors, anxiety. Rare: tachycardia, hypertension, dysrhythmias.</td>
<td>USE WITH CAUTION: cardiac disorder, hyperthyroidism, hypertension.</td>
</tr>
<tr>
<td>Ketamine</td>
<td>Equivalent of 800 mg.</td>
<td>Rapid Sequence Airway Management</td>
<td>Paralysis</td>
<td>USE WITH CAUTION: Hyotension or hypovolemia Do Not USE: Septic Patients.</td>
</tr>
<tr>
<td>Ketorolac Tromethaznine (Toradol®)</td>
<td>5 units</td>
<td>Pain</td>
<td>Drowsiness, Dizziness, headache, nausea, pain at injection site</td>
<td>DO NOT USE with pregnancy, history of ulcers or other bleeding, dehydration and advanced renal disease.</td>
</tr>
<tr>
<td>lidocaine</td>
<td>Five (5) 100 ml. doses or equivalent</td>
<td>Pain from IO infusion &amp; RSA pre-medication</td>
<td>Drowsiness, confusion, seizures, hypotension, heart blocks</td>
<td>DO NOT USE: if heart rate &lt; 60, heart block USE WITH CAUTION: renal or liver disease, CHF, pts &gt; 60 years old</td>
</tr>
<tr>
<td>magnesium sulfate 50%</td>
<td>3 (1) – 2 g syringes</td>
<td>Pregnant pts. experiencing severe pre-eclampsia or eclampsia; Alcoholic patient with prolonged seizures</td>
<td>Decreased muscle strength which may lead to hypoventilation , esp. if patient is also taking depressant medications.</td>
<td>May occasionally lead to A-V block &amp;/or respiratory. arrest. Calcium chloride may reverse these effects. NOT INDICATED in patients with heart block or significant heart disease.</td>
</tr>
<tr>
<td>Medication</td>
<td>Minimum Amount Carried</td>
<td>Indications</td>
<td>Side Effects</td>
<td>Considerations</td>
</tr>
<tr>
<td>----------------------------</td>
<td>---------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>midazolam Hydrochloride</td>
<td>Equivalent of two (2) 5 mg. units &amp; Four (4) 10 mg. units (for RSA)</td>
<td>Seizures and for Conscious sedation for procedures</td>
<td>Retrograde amnesia, respiratory depression, hypotension, nausea &amp; vomiting</td>
<td>DO NOT USE with hypotension. Use with caution in CHF and COPD patients.</td>
</tr>
<tr>
<td>(Versed®)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>naloxone (e.g., Narcan®)</td>
<td>10 (4) 2 mg/ml vials or syringes</td>
<td>Narcotic overdose</td>
<td>Vomiting, acute withdrawal, ventricular dysrhythmias.</td>
<td>Titrate to improve respirations only. Do not fully arouse addicted patient.</td>
</tr>
<tr>
<td>nitroglycerin</td>
<td>2 bottles or 2 spray canisters (or a combination) (1)</td>
<td>Angina, chest pain of suspected cardiac origin, pulmonary edema.</td>
<td>Hypotension, headache, dizziness, flushing.</td>
<td>Adult dosage only DO NOT USE: if systolic BP&lt;90, increased ICP. USE WITH CAUTION: acute MI.</td>
</tr>
<tr>
<td>ondansetron (Zofran®)</td>
<td>Nausea and Vomiting</td>
<td>Constipation, headache, lightheadedness</td>
<td></td>
<td>Minimal sedation, if at all</td>
</tr>
<tr>
<td>Rocuronium</td>
<td>Equivalent of 800 mg.</td>
<td>Rapid Sequence Airway Management</td>
<td>Paralysis</td>
<td>USE WITH CAUTION: Hyotension or hypovolemia Do Not USE: Septic Patients.</td>
</tr>
</tbody>
</table>
Sodium bicarbonate

| Sodium bicarbonate | 6 (4) – 8.4% syringes and 2 (0) – 4.2% syringes | Metabolic Acidosis in cardiac arrest, ventricular arrhythmias secondary to tricyclic OD | Alkalosis, hypervolemia, hypokalemia, tetany. | DO NOT USE during first 10 minutes of cardiac arrest. USE WITH CAUTION: CHF, renal disease, toxemia, cirrhosis. DO NOT MIX with epinephrine or calcium. Hyperventilate patient after administration. |

Dopamine Drip Chart (for 400 mg. in 250 ml on 60 gtts/cc set)

<table>
<thead>
<tr>
<th>Weight/Kg.</th>
<th>5 Mcg.</th>
<th>10 Mcg.</th>
<th>15 Mcg.</th>
<th>20 Mcg.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>gtt/min</td>
<td>gtt/min</td>
<td>gtt/min</td>
<td>gtt/min</td>
</tr>
<tr>
<td>40</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td>36</td>
</tr>
<tr>
<td>50</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>60</td>
<td>12</td>
<td>24</td>
<td>36</td>
<td>48</td>
</tr>
<tr>
<td>70</td>
<td>14</td>
<td>28</td>
<td>42</td>
<td>56</td>
</tr>
<tr>
<td>80</td>
<td>16</td>
<td>32</td>
<td>48</td>
<td>64</td>
</tr>
<tr>
<td>90</td>
<td>18</td>
<td>36</td>
<td>54</td>
<td>72</td>
</tr>
<tr>
<td>100</td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>110</td>
<td>22</td>
<td>44</td>
<td>66</td>
<td>88</td>
</tr>
<tr>
<td>120</td>
<td>24</td>
<td>48</td>
<td>72</td>
<td>96</td>
</tr>
<tr>
<td>130</td>
<td>26</td>
<td>52</td>
<td>78</td>
<td>104</td>
</tr>
<tr>
<td>140</td>
<td>28</td>
<td>56</td>
<td>84</td>
<td>112</td>
</tr>
<tr>
<td>150</td>
<td>30</td>
<td>60</td>
<td>90</td>
<td>120</td>
</tr>
<tr>
<td>160</td>
<td>32</td>
<td>64</td>
<td>96</td>
<td>128</td>
</tr>
<tr>
<td>170</td>
<td>34</td>
<td>68</td>
<td>102</td>
<td>136</td>
</tr>
<tr>
<td>180</td>
<td>36</td>
<td>72</td>
<td>108</td>
<td>144</td>
</tr>
<tr>
<td>English</td>
<td>Spanish</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>----------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am a paramedic.</td>
<td>Yo soy paramedico.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How are you?</td>
<td>Como estas?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What's the matter?</td>
<td>Que pasa?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speak slowly please.</td>
<td>Despacio por favor.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>You must go to the hospital.</td>
<td>Tienes que ir al hospital.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>We're going to take you to the hospital. OK?</td>
<td>Te vamos a llevar al hospital. OK?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understand?</td>
<td>Comprehendo?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is your name?</td>
<td>Como se llama?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is your age?</td>
<td>Cuantos anos tiene?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Where do you live?</td>
<td>Donde vive?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you allergic to medicine?</td>
<td>Tiene alergia de medicino?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Where does it hurt?</td>
<td>Donde duele?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does it hurt here?</td>
<td>Duele aqui?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How much does it hurt?</td>
<td>Quanto duele?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you take medications?</td>
<td>Toma medicino?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you have insurance?</td>
<td>Toma seguro?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What hospital do you want to go to?</td>
<td>Que hospital?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sign here please.</td>
<td>Firme aqui por favor.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you feel better?</td>
<td>Se siente mejor?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you take Viagra?</td>
<td>Toma Viagra?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please don't move.</td>
<td>Por favor, no te muevas.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any questions?</td>
<td>Hay preguntas?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Indianapolis Fire Department
Emergency Medical Services
English/Spanish Translation

Refusal of Transportation

1. Emergency personnel have offered to transport me to the hospital for further evaluations and care. I refuse this service.

   El personnel de emergencia me ha ofrecido transportation para el hospital para me propio cuidad medico. Yo no quiero el transporte.

2. I understand that I have not been evaluated by a Physician, and that serious medical problems may still exist which may result in disability or death.

   Yo comprendo que no he sido visto por un doctor y que el problema setio que di existir el cual puede causar desavilidad o muerte.

3. I understand that I may call 911 or an ambulance at anytime if I change my mind and wish to be taken to a hospital.

   Yo comprendo que puedo llamar al telefono 911 o ambulancia si necesito mas tarde

4. I understand that I am assuming full responsibility for my continuing medical care.

   Yo compreno que yo asumo toda la responsabilidad por me cui dado medico.

(Sign here please. Show the patient the signature line on the form)

(Firme aqui por favor.)
PAIN ASSESSMENT SCALES

0-10 NUMERIC RATING SCALE & DESCRIPTORS

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>no pain</td>
<td>little</td>
<td>moderate</td>
<td>quite bad</td>
<td>severe</td>
<td>unbearable pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

WONG-BAKER FACES PAIN RATING SCALE

Wong-Baker FACES Pain Rating Scale


WONG-BAKER FACES PAIN RATING SCALE IN SPANISH

Escala de rostros de dolor

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muy contento; sin dolor</td>
<td>Siente sólo un poquito de dolor</td>
<td>Siente un poco más de dolor</td>
<td>Siente aún más dolor</td>
<td>Siente mucho dolor</td>
<td>El dolor es el peor que puede imaginarse (no tiene que estar llorando para sentir este dolor tan fuerte)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## INFANT PAIN SCALE ASSESSMENT TOOL

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facial</strong></td>
<td>0                1                2                3</td>
</tr>
<tr>
<td></td>
<td>Neutral/smiling</td>
</tr>
<tr>
<td><strong>Body Movement</strong></td>
<td>Calm, relaxed</td>
</tr>
<tr>
<td><strong>Sleep</strong></td>
<td>Sleeping quietly with easy respirations</td>
</tr>
<tr>
<td><strong>Verbal/vocal</strong></td>
<td>No cry</td>
</tr>
<tr>
<td><strong>Consolability</strong></td>
<td>Neutral</td>
</tr>
<tr>
<td><strong>Response to Movement/Touch</strong></td>
<td>Moves Easily</td>
</tr>
</tbody>
</table>
Interfacility Transfers and Transfer of Unstable Patients

A. In guidelines set forth by the federal government under the COBRA statutes, patients are to be stabilized by the transferring facility to the best of their abilities prior to transport. ED physicians typically request transfer of patients to other facilities for care not available at Putman County Hospital (e.g., neurosurgery, cardiovascular surgery, or angioplasty). The physicians will make every effort to stabilize the patients, but it is acknowledged that some patients cannot be stabilized without these or other essential therapies available only at the receiving facility. If the need for CPR is imminent, transfer should be deferred until the patient is resuscitated. CPR performed en route is very difficult and ineffective – outcomes are almost universally poor. The physicians understand that they are legally responsible for the patient until that patient arrives at and is formally turned over to personnel at the receiving facility.

B. The transferring physician and receiving physician must agree on the mode of transport. Transport of critical patients by ground EMS is likely to require supplemental crew members, and hospital personnel will make an endeavor to notify PCOL at the earliest point to allow time for such arrangements to be made.

C. Upon initial contact at the hospital, the transporting crew must briefly review the patient’s condition and current and proposed en-route therapies to ensure that the patient’s condition and level of acuity is within their capabilities to transport safely.

1. The prehospital provider is an excellent authority on the medical limitations of ground ambulance transport, and the ultimate authority on their capabilities. If, when the crew arrives to pick up the patient, they are faced with a patient requiring therapies or possible complications with which the crew is uncomfortable (e.g., requiring procedures or medications outside of the scope of practice), they will communicate this fact to the ED physician. If a compromise cannot be reached in a timely fashion, PCOL management should be contacted for assistance prior to the transport of the patient (which may include discussion with the Medical Director).

2. Patients cannot be transported, regardless of the sense of urgency, if the care required en route exceeds the attending EMT, AEMT or Medic’s scope of practice. Identification of the minimum level of EMS provider, as it relates to therapeutic(s) employed, as described in the section following this one.

a. If a physician requests a higher level of EMS provider than is required for the current level of patient care (e.g., a paramedic for a patient only receiving BLS care in the ED), the physician must write the order and document the rationale for the requested level of provider for reimbursement purposes.

3. An inclusive list of interfacility transport medications is also provided on in the following pages – no other medications may be utilized by PCOL personnel.
D. The following documentation must accompany the patient on every interfacility transport:
   1. A “Physician Certification for Transfer” form, with wording complying with the COBRA regulations, must be completed by the ED or transferring physician. The patient (or representative) must also provide informed consent.
   2. The name of the physician accepting the patient, and a reliable means (e.g., pager/phone number) of contacting the individual again at the expected time of arrival at the receiving facility.
   3. Unsealed copies of the patient care charts, records, test results, and originals or copies of x-rays must accompany the patient (unless delay would endanger the patient).
   4. Written orders for patient treatment en route, with a second copy for the receiving facility.

E. For patients that have previously been paralyzed and sedated by the hospital, it is imperative that the patient be given continuing dose or have an IV maintenance infusion of an amnesiac/sedative agent (typically versed or propofol) during the interfacility transfer. If an interfacility transfer intubated patient that has previously been paralyzed by the transferring hospital shows signs of awakening (regular movement, biting the tube, physical resistance to ventilations), the paramedic may administer 150 to 200 mcg. of fentanyl IVP in conjunction with the amnesiac/sedative agent.

F. Patients with a 12-Lead suggestive of STEMI are strongly recommended to be transported with both the standard 3 or 4 lead cardiac monitoring but defibrillation/pacing pads on the patient in case the patient’s condition should deteriorate rapidly.
DEFINITIONS OF LEVEL OF EMS PROVIDER REQUIRED FOR THERAPEUTIC CARE

Level of EMS Provider Required:

EMT Basic-Adv. Medic

Therapeutic(s) in place or anticipated:
Pre-packaged IV crystalloids containing
- Dextrose, saline (up to 0.9%), Lactated Ringers, or any combination thereof  X
Pre-existing narcotic/pain management patches and NTG paste/patch  X
** Use BSI when handling & remove Prior to any defibrillation attempts.

IV Solution additives:
- Antibiotics  X
- Bretylium  X
- Cardizem  X
- cis-atracurium  X
- Dobutamine  X
- Dopamine  X
- Epinephrine  X
- Furosemide  X
- Heparin  X
- Lidocaine  X
- Magnesium  X
- Methylprednisolone  X
- Midazolam  X
- Nitroglycerin  X
- Potassium chloride up to 20 mEq/l 21-40 mEq/l >40 mEq/l
- Vitamins (e.g., MVI, thiamine)  X

Any “piggy back” or secondary line  X

Cardiac monitoring  X
Cardiac monitoring for dysrhythmias needing Intervention  X
Central venous access Clamped In Use
Chest tube  X
Gastric tube Clamped In Use

No other medications not listed above or on Transfers Page following may be utilized by PCOL personnel without Medical Director approval.
 Adenosine (Adenocard®)
 Albuterol (Proventil®)
 Amiodarone (Cordarone®)
 Aspirin
 Atropine
 Calcium Chloride
 Dextrose 50%
 Diphenhydramine (Benadryl®)
 Dopamine (Intropin)
 Epinephrine
 Fentanyl
 Glucagon
 Glucose (oral)
 Hydromorphone (Dilaudid®)
 Ipratropium (Atrovent®)
 Ketorlac (Toradol®)
 Lidocaine
 Magnesium Sulfate
 Midazolam (Versed®)
 Naloxone (Narcan)
 Nitroglycerin
 Ondansetron (Zofran®)
 Sodium Bicarbonate

 Diltiazem (Cardizem®)
 Dobutamine (Dobutrex®)
 Eptifibatide (Integrilin®)
 Fosphenytoin (Cerebyx®)
 Heparin
 Isoproterenol (Isuprel®)
 Labetalol (Normodyne®)
 Methylprednisolone (Solu-Medrol®)
 Nitroglycerin infusion
 Paralytics (Paramedic must be familiar with the paralytic agent and must be certain that
 sedative/analgesic has been and continues to be administered, such as versed or
 propofol.)
 Thrombolytic IV bolus/infusion
 Streptokinase (Streptase®)
 Tissue Plasminogen Activator [t-PA, r-PA] (Activase®, TNKase®)
 Pre-initiated blood product infusions. With on-line Medical Direction, paramedic
 may hang additional units of emergency blood products for prior or ongoing exsanguinating
 hemorrhage (PRBCS) or coagulopathy (FFP or platelets).
<table>
<thead>
<tr>
<th>Medication</th>
<th>Standard Dosage</th>
<th>Indications</th>
<th>Side Effects</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diltiazem</strong></td>
<td>IV: 0.25 mg/kg IV bolus over 2 min, if inadequate response, may repeat in 15 min with 0.35 mg/kg, followed by a continuous infusion of 5–10 mg/h (max: 15 mg/h for 24 h)</td>
<td>Atrial Fibrillation</td>
<td>Headache, nausea, dizziness, hypotension</td>
<td>Do not use with sick sinus syndrome; 2nd or 3rd degree AV block; severe Hypotension; INCOMPATIBLE WITH FUROSEMIDE (Lasix)</td>
</tr>
<tr>
<td><strong>Dobutamine</strong></td>
<td>IV 2.5–10 mcg/kg/min (max: 40 mcg/kg/min), has been given for up to 72 h without decrease in effectiveness</td>
<td>Cardiogenic Shock</td>
<td>Headache, Chest Pain</td>
<td>INCOMPATIBLE WITH: Sodium Bicarb, Calcium Chloride, Diazepam, Digoxin, Epi, Furosemide, Heparin, Insulin, Mag Sulfate, Potassium Chloride</td>
</tr>
<tr>
<td><strong>Eptifibatide</strong></td>
<td>IV 180 mcg/kg initial bolus followed by 2 mcg/kg/min until hospital discharge or up to 72 h</td>
<td>Unstable Angina, Non-Q wave MI</td>
<td>Anemia</td>
<td>Do not use with any type of active bleeding</td>
</tr>
<tr>
<td><strong>Fosphenytoin</strong></td>
<td>IV Loading dose 15-20mg PE/kg (PE = phenytoin sodium equivalents) administered at 100-150mg PE/min. IV Maintenance: 4-6mg PE/kg/d</td>
<td>Status Epilepticus</td>
<td>Nystagmus, dizziness, somnolence, drowsiness, gingival hyperplasia, pruritus</td>
<td>Discontinue use if rash appears. Do not use with sinus brady, complete or incomplete heart block</td>
</tr>
<tr>
<td>Medication</td>
<td>Standard Dosage</td>
<td>Indications</td>
<td>Side Effects</td>
<td>Considerations</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>--------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Heparin</td>
<td>IV 5000-U bolus dose, then 20,000–40,000 U infused over 24 h, dose adjusted to maintain desired APTT or 5000–10,000 U IV piggyback q4–6h SC 10,000–20,000 U followed by 8000–20,000 U q8–12h</td>
<td>Venous Thrombosis, Pulmonary embolism, Acute MI, Atrial Fibrillation</td>
<td>Spontaneous bleeding, bronchospasm</td>
<td>Do not use with active bleeding, jaundice, suspected head bleed, shock. <strong>INCOMPATIBLE WITH:</strong> promethazine, diazepam, diphenhydramine, nitro</td>
</tr>
<tr>
<td>Insulin</td>
<td>IV 2.4-7.2 U loading dose, followed by 2.4-7.2 U/h continuous infusion</td>
<td>Ketoacidosis</td>
<td>Profuse sweating, tremors, palpitations, nausea</td>
<td><strong>Incompatible with:</strong> doubutamine, sodium bicarb</td>
</tr>
<tr>
<td>Isoproterenol</td>
<td>IV 0.02-0.06 mg bolus, followed by 5 mcg/min infusion</td>
<td>Asthma, Cardiogenic and bacteremic shock, cardiac stimulant in cardiac arrest</td>
<td>Ventricular arrhythmias, Tachycardia</td>
<td>Do not give simultaneously with Epi. <strong>Incompatible with sodium bicarb.</strong></td>
</tr>
<tr>
<td>Labetalol</td>
<td>IV: 20 mg slowly over 2 minutes, with 40-80 mg every 10 min if needed up to 300 mg total or 2 mg/min continuous infusion (max:300 mg total dose)</td>
<td>Mild, moderate, and severe hypertension;</td>
<td>Postural Hypotension, bronchospasm</td>
<td>Do not use with bronchial asthma, uncontrolled cardiac failure, heart block, Cardiogenic shock, severe Bradycardia. <strong>Incompatible with Sodium bicarb, Furosemide, and Heparin.</strong></td>
</tr>
</tbody>
</table>
### Methylprednisolone (Solu-Medrol)

<table>
<thead>
<tr>
<th>Medication</th>
<th>Standard Dosage</th>
<th>Indications</th>
<th>Side Effects</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adult: IV 10–250 mg q6h</td>
<td>Acute Bronchial asthma, severe acute and chronic allergic processes, management of acute inflammatory diseases</td>
<td>Headache, nausea</td>
<td>Do not use in patients with systemic fungal infections. Incompatible with D5 ½ NS, Potassium chloride, propofol</td>
</tr>
<tr>
<td></td>
<td>Pediatric: IV 0.5–1.7 mg/kg/d divided q6–12h</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SPINAL CORD Injury: IV 30 mg/kg over 15 min, followed in 45 min by 5.4 mg/kg/h times 23 h</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Nitroglycerin Infusion

<table>
<thead>
<tr>
<th>Medication</th>
<th>Standard Dosage</th>
<th>Indications</th>
<th>Side Effects</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IV: Start with 5 mcg/min and titrate q3–5min until desired response</td>
<td>Angina, hypertension, CHF, Acute MI,</td>
<td>Hypotension, headache</td>
<td>Do not use in patients with head trauma, pericardial tamponade, uncorrected Hypovolemia. DO NOT USE IN PATIENTS WHO HAVE SUSPECTED OR ADMITTED ERECTILE DYSFUNCTION DRUGS</td>
</tr>
</tbody>
</table>


## EMERGENCY PHARMACOLOGY FOR INTERFACILITY TRANSFER MEDS

<table>
<thead>
<tr>
<th>Medication</th>
<th>Standard Dosage</th>
<th>Indications</th>
<th>Side Effects</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paralytics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cisatracurium besylate</td>
<td>IV: 0.03 mg/kg q20 min prn or 1-2 mcg/kg/min</td>
<td>Adjunct to general anesthesia to facilitate tracheal intubation and provide skeletal muscle relaxation during mechanical ventilation</td>
<td></td>
<td>Incompatible with Ketorolac, propofol, sodium bicarb</td>
</tr>
<tr>
<td><strong>Paralytics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Succinylcholine chloride</td>
<td>IV: 0.5-10 mg/min by continuous infusion</td>
<td>To provide skeletal muscle relaxation as adjunct to anesthesia; to facilitate intubation</td>
<td></td>
<td>Incompatible with sodium bicarb</td>
</tr>
</tbody>
</table>

**Paramedic must be familiar with paralytic agent and must be certain that a sedative/analgesic (such as versed or propofol) has been and continues to be administered**

Paramedics may transfer pre-initiated blood products infusions and may hang additional hospital provided units with a transfer order when there is prior or ongoing exsanguinating hemorrhage (PRBCS) or coagulopathy (FFP or platelets). There is no waiting period for blood transfusions and reactions to blood should prompt the paramedic to turn off the infusion immediately and follow Allergic Reaction protocol as needed.
<table>
<thead>
<tr>
<th>Medication</th>
<th>Standard Dosage</th>
<th>Indications</th>
<th>Side Effects</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Streptokinase</strong></td>
<td><strong>IV:</strong> 1.5 million IU infused over 60 min.</td>
<td>DVT, Arterial thrombosis or embolism, PE, coronary artery thrombosis, MI</td>
<td>Anaphylaxis, bleeding at sites of percutaneous trauma, ventricular Dysrhythmias</td>
<td>Do not use with active or suspected internal bleeding, recent CPR, CVA, uncontrolled hypertension,</td>
</tr>
<tr>
<td>(Streptase)</td>
<td><strong>Intracoronary:</strong> 15,000–20,000 IV bolus, followed by 2000-4000 IU/min for 60 min.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DVT, PE:</strong></td>
<td><strong>IV 250,000 IU over 30 min loading dose, then 100,000 IU/h for 48–72 hours</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tissue Plasminogen Activator</strong></td>
<td><strong>Acute MI</strong>&lt;br&gt;&lt;br&gt;<strong>&gt;65 kg:</strong> 60 mg over first hour, with 6–10 mg infused over first 1–2 min; then 20 mg/h over the second hour and 20 mg over the third hour (100 mg over 3 h);&lt;br&gt;&lt;br&gt;<strong>&lt;65 kg:</strong> Infuse 1.25 mg/kg over 3 h (60%; h1; 20%; h2; 20%; h3) <strong>accelerated schedule.</strong> 15-mg bolus, then 0.75 mg/kg (up to 50 mg) over 30 min, then 0.5 mg/kg (up to 35 mg) over 60 min&lt;br&gt;&lt;br&gt;<strong>Thrombolytic Stroke</strong>&lt;br&gt;IV 0.9 mg/kg over 60 min with 10% of dose as an initial bolus over 1 min (max: 90 mg)</td>
<td>Selected cases of Acute Myocardial Infarction; acute ischemic stroke; PE</td>
<td>Internal and superficial bleeding</td>
<td></td>
</tr>
<tr>
<td>(Activase)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tissue Plasminogen Activator</strong></td>
<td><strong>[t-PA, r-PA]</strong>&lt;br&gt;&lt;br&gt;IV: infuse dose over 5 sec, &lt;60 kg: 30 mg; 60-70 kg: 35mg; 70-80 kg: 40mg; 80-90 kg: 45mg; &gt;90 kg: 50mg</td>
<td>Reduction of mortality associated with Acute Myocardial Infarction</td>
<td>Bleeding</td>
<td>Do not use in patients with active internal bleeding; history of CVA, aneurysm; severe uncontrolled hypertension</td>
</tr>
</tbody>
</table>