POLICY #600: BLS AND ALS TREATMENT PROTOCOLS

I. PURPOSE
A. To provide uniform standards for on-duty EMS personnel to render prehospital medical care when responding to a medical incident or on an inter-facility transfer.

II. DEFINITIONS
A. EMS Personnel – for the purpose of this policy means on-duty EMTs or paramedics.

III. POLICY
A. All on-duty EMS personnel will follow the treatment protocols
B. EMS personnel will utilize principles and skills as indicated in these protocols.
C. EMS personnel shall use the protocol that is most closely associated with the patient’s condition. Some situations may indicate the use of more than one protocol and EMS personnel shall use their best judgment
D. Only on-duty paramedics, under the direction of an on-duty base station physician, may make deviations from these protocols
E. After paramedic assessment, a paramedic may elect to have an EMT attend a stable BLS patient.

IV. AUTHORITY
A. California Health and Safety code, Division 2.5, Section 1797.220
B. California Code of Regulations, Title 22, Section 100144
<table>
<thead>
<tr>
<th>UNIVERSAL</th>
<th>MEDICAL</th>
<th>TRAUMA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS Procedures</strong></td>
<td></td>
<td></td>
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<tr>
<td>• Evaluate Scene Safety/Personal Protective Equipment</td>
<td>• Evaluate Scene Safety/Personal Protective Equipment</td>
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<tr>
<td>• Assess, establish and maintain airway</td>
<td>• Assess, establish and maintain airway</td>
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<tr>
<td>○ Suction as needed</td>
<td>○ Suction as needed</td>
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<tr>
<td>• Pulse Oximetry</td>
<td>• Pulse Oximetry</td>
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<tr>
<td>○ O₂ administration per Airway Management Protocol #602</td>
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<tr>
<td>• Evaluate breathing and circulation</td>
<td>• Evaluate breathing and circulation</td>
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<tr>
<td>• Assess chief complaint</td>
<td>• Control life-threatening bleeding</td>
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<tr>
<td>• Focused physical exam and vital signs:</td>
<td>• Remove patient’s clothing to expose and identify injuries</td>
<td></td>
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<tr>
<td>○ Pulse</td>
<td>○ Ensure patient warmth – cover patient after clothing removal to maintain core body temperature</td>
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<tr>
<td>○ Blood pressure</td>
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<tr>
<td>○ Respiratory rate</td>
<td></td>
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<tr>
<td>○ Lung sounds</td>
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<tr>
<td>○ Skin signs</td>
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<tr>
<td>• BLS treatment protocols</td>
<td>• Spinal motion restriction (SMR) if indicated per Spinal Motion Restriction Procedure #702</td>
<td></td>
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<tr>
<td></td>
<td>• BLS treatment protocols</td>
<td></td>
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<tr>
<td><strong>BLS Elective Skills</strong></td>
<td></td>
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<tr>
<td>Obtain Blood Glucose Level if indicated by:</td>
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<tr>
<td>• Policy #612 ALOC</td>
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<tr>
<td>• Policy #620 Seizures</td>
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<td></td>
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<tr>
<td>• Policy #621 CVA/TIA</td>
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<td></td>
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<tr>
<td>• As directed by ALS provider</td>
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</tbody>
</table>

| **ALS Procedures** | | |
| • Vascular access – Procedure #710 | • Trauma Triage and Destination | |
| • Consider 12-lead ECG early | • ALS Treatment Protocols | |
| • Capnography (if available/applicable) | | |
| • Blood Glucose Measurement | | |
| • Transport Determination | | |
| • ALS Treatment Protocols | | |

| **Base Hospital Orders Only** | | |
| • Determined on patient needs | • Determined on patient needs | |

| **Notes** | | |
| • Use Pediatric Policies for patients ≤34 kg and consider use of Broselow tape or equivalent | | |
### UNIVERSAL ATTACHMENT - A

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC (≤34 KG)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HEMODYNAMIC DEFINITIONS</strong></td>
<td><strong>HEMODYNAMIC DEFINITIONS</strong></td>
</tr>
<tr>
<td>These signs or symptoms MAY indicate instability:</td>
<td>These signs or symptoms MAY indicate instability:</td>
</tr>
<tr>
<td><strong>Medical Hemodynamic Instability</strong></td>
<td><strong>Medical Hemodynamic Instability</strong></td>
</tr>
<tr>
<td>- SBP &lt; 100 mmHg</td>
<td>- Evidence of poor perfusion — capillary refill, color, temp, etc.</td>
</tr>
<tr>
<td>- Evidence of poor perfusion — capillary refill, color, temp, etc.</td>
<td>- ALOC or GCS ≤ 13</td>
</tr>
<tr>
<td>- ALOC or GCS ≤ 13</td>
<td>- Shortness of breath</td>
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<tr>
<td>- Shortness of breath</td>
<td>- Pulmonary edema</td>
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<tr>
<td>- Pulmonary edema</td>
<td><strong>Trauma Hemodynamic Instability</strong></td>
</tr>
<tr>
<td><strong>Trauma Hemodynamic Instability</strong></td>
<td></td>
</tr>
<tr>
<td>- SBP &lt; 90 mmHg</td>
<td>- GCS ≤ 13</td>
</tr>
<tr>
<td>- Evidence of poor perfusion — capillary refill, color, temp, etc.</td>
<td>- Evidence of poor perfusion — capillary refill, color, temp, etc.</td>
</tr>
<tr>
<td>- GCS ≤ 13</td>
<td>- Respiratory rate:</td>
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<tr>
<td>- Respiratory rate &lt; 10 or &gt; 30/minute</td>
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</tr>
<tr>
<td>- Pulse &gt; 120 BPM</td>
<td>- &gt; 60/min or apnea</td>
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<tr>
<td></td>
<td>- &lt; 20/min in infants &lt; 1 yr</td>
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<tr>
<td></td>
<td><strong>Heart Rate</strong></td>
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<tr>
<td></td>
<td>- ≤ 5 yrs (≤22 Kg) - ≤ 80/min or &gt; 180/min</td>
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<tr>
<td></td>
<td>- &gt; 6 yrs (23-34 Kg) - ≤ 60/min or &gt; 160/min</td>
</tr>
<tr>
<td></td>
<td><strong>Blood Pressure</strong></td>
</tr>
<tr>
<td></td>
<td>- Newborn (&lt; 1 mo) SBP &lt; 60 mmHg</td>
</tr>
<tr>
<td></td>
<td>- Infant (1 mo-1 yr) SBP &lt; 70 mmHg</td>
</tr>
<tr>
<td></td>
<td>- Child (1 yr-10 yrs) SBP &lt; 70 mmHg + (2X age in yrs)</td>
</tr>
<tr>
<td></td>
<td>- Child (11-14 yrs) SBP &lt; 90 mmHg</td>
</tr>
</tbody>
</table>

### OTHER DEFINITIONS FOR BOTH ADULT AND PEDIATRIC

- **Stable** — Pt is compensating for their illness but may require medical intervention
- **Unstable** — See above definitions of instability: Vital signs are not normal, or abnormal presentation with a likelihood to decline
- **Extremis** — Imminent death likely

### Absent Signs of Life - Results of the physical exam:

- Signs of obvious death
  - Decapitation
  - Evisceration of heart or brain
  - Incineration
  - Rigor mortis
  - Decomposition
- Pulseless/Apneic
- Lack of heart and lung sounds
- Fixed and dilated pupils
- Skin color i.e. lividity, cyanosis, other signs of absent circulation
# AIRWAY MANAGEMENT

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC (&lt;34 kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS</strong></td>
<td></td>
</tr>
<tr>
<td>• Universal Protocol #601</td>
<td>• Newborn (&lt; 1 day) follow AHA guidelines – Newborn Protocol #651</td>
</tr>
<tr>
<td>• Administer O₂ as clinical symptoms indicate (see notes below)</td>
<td></td>
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<tr>
<td>• Pulse oximetry</td>
<td></td>
</tr>
<tr>
<td>• Patients with O₂ Sat ≥ 94% without signs or symptoms of hypoxia or respiratory compromise should not receive O₂</td>
<td></td>
</tr>
<tr>
<td>• When applying O₂ use the simplest method to maintain O₂ Sat ≥ 94%</td>
<td></td>
</tr>
<tr>
<td>• Do not withhold O₂ if patient is in respiratory distress</td>
<td></td>
</tr>
<tr>
<td><strong>Foreign Body/Airway Obstruction</strong></td>
<td><strong>BLS Elective Skills</strong></td>
</tr>
<tr>
<td>• Use current BLS choking procedures</td>
<td>• CPAP not used for patients ≤34 kg</td>
</tr>
<tr>
<td>• Basic airway adjuncts and suctioning as indicated and tolerated</td>
<td></td>
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</tbody>
</table>

## BLS Elective Skills

<table>
<thead>
<tr>
<th><strong>Moderate to Severe Respiratory Distress</strong></th>
<th>CPAP not used for patients ≤34 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>• CPAP as needed – CPAP procedure #703</td>
<td></td>
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</tbody>
</table>

## ALS Standing Orders

<table>
<thead>
<tr>
<th><strong>Foreign Body/Airway Obstruction</strong></th>
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</tr>
</thead>
<tbody>
<tr>
<td>If obstruction not relieved with BLS maneuvers</td>
<td>If obstruction not relieved with BLS maneuvers</td>
</tr>
<tr>
<td>• Visualize and remove obstruction with Magill forceps</td>
<td>• Visualize and remove obstruction with Magill forceps</td>
</tr>
<tr>
<td>• If obstruction persists consider – Needle Cricothyrotomy Procedure #704</td>
<td>• If obstruction persists consider – Needle Cricothyrotomy Procedure #704</td>
</tr>
<tr>
<td>• Upon securing airway monitor O₂ Sat and ETCO₂ – Capnography Procedure #701</td>
<td>• Upon securing airway monitor O₂ Sat and ETCO₂ – Capnography Procedure #701</td>
</tr>
<tr>
<td><strong>Endotracheal intubation – as needed to control airway</strong></td>
<td><strong>Needle thoracostomy with symptoms of tension pneumothorax – Needle Thoracostomy Procedure #705</strong></td>
</tr>
<tr>
<td><strong>Needle thoracostomy with symptoms of tension pneumothorax – Needle Thoracostomy Procedure #705</strong></td>
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</tbody>
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## Base Hospital Orders Only

<table>
<thead>
<tr>
<th><strong>Symptomatic Esophageal Obstruction</strong></th>
<th><strong>Symptomatic Esophageal Obstruction</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Glucagon 1mg IV followed by rapid flush. Give oral fluid challenge 60 sec after admin - check a blood sugar prior</td>
<td>• Glucagon 0.1mg/kg IV not to exceed 1mg followed by rapid flush. Give oral fluid challenge 60 sec after admin - check a blood sugar prior</td>
</tr>
<tr>
<td>• As needed</td>
<td>• As needed</td>
</tr>
</tbody>
</table>
Notes

- Oxygen Delivery
  - Mild distress – 0.5-6 L/min nasal cannula
  - Severe respiratory distress – 15 L/min via non-rebreather mask
  - Moderate to severe distress – CPAP 3-15 cm H2O
  - Assisted respirations with BVM – 15 L/min
- Pediatric intubation is no longer an approved ALS skill – maintain with BLS options
## PAIN MANAGEMENT

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC (≤34KG)</th>
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<tbody>
<tr>
<td><strong>BLS</strong></td>
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</tr>
<tr>
<td>• Universal Protocol #601</td>
<td>• Universal Protocol #601</td>
</tr>
</tbody>
</table>
| • Pulse Oximetry  
  o O₂ administration per Airway Management Protocol #602 | • All causes of pain - consider age/situation appropriate distraction techniques  
  o Video viewing  
  o Calm environment  
  o Caregiver support |
| • Medical (non-cardiac)  
  o Position of comfort  
  o Nothing by mouth | • Medical  
  o Position of comfort  
  o Nothing by mouth |
| • Cardiac chest pain – Chest Pain/Acute Coronary Syndrome Protocol #640  
  • Trauma – General Trauma Protocol #660  
  o Splint, ice, elevate as indicated | • Otherwise same as adult |

<table>
<thead>
<tr>
<th><strong>ALS Standing Orders</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>MODERATE or SEVERE PAIN</strong></td>
<td><strong>MODERATE or SEVERE PAIN</strong> (use age appropriate indicators)</td>
</tr>
<tr>
<td>Acute Pain – SBP ≥ 90mmHg, unimpaired respirations, GCS normal for baseline</td>
<td>Acute Pain - BP &gt; age-based min., unimpaired respirations, GCS normal for age</td>
</tr>
</tbody>
</table>
| • Fentanyl 50-100 mcg SLOW IV (over 1 min), may repeat after 5 min if needed (not to exceed 200 mcg total) | • Fentanyl 1.5 mcg/kg IN (split between nares)  
  • Fentanyl 1 mcg/kg IM  
  (IN and IM routes) may repeat after 15 min if needed (not to exceed 4 doses)  
  **If IV already established**  
  • Fentanyl 1 mcg/kg SLOW IV (over 1 min), may repeat after 5 min if needed (not to exceed 4 doses) |
| **If difficulty obtaining IV** | **If difficulty obtaining IV** |
| • Fentanyl 50-100 mcg IM/IN (use 1 mcg/kg as guideline), may repeat after 15 min if needed (not to exceed 200 mcg total) | **Base Hospital Orders Only** |
| | • Same as adult  
  • As needed |
| **Fentanyl administration with:** | **Fentanyl administration with:**  
  • ALOC  
  • SBP <90 mmHg  
  • Chronic pain  
  • Additional doses of Fentanyl  
  • As needed |

<table>
<thead>
<tr>
<th><strong>Notes</strong></th>
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</tr>
</thead>
</table>
| • Consider doses of Fentanyl 25 mcg for initial dose in elderly (>65 y/o) and for maintenance doses  
  • Request orders, as appropriate, for obviously painful conditions not covered by standing orders  
  • Use clinical judgement if patient has difficulty using pain scale, or their reported pain is inconsistent with clinical impression  
  o Consider using FACES scale in adults with barriers to communication (below)  
  • Non-pharmacologic interventions should be provided concurrently or prior to medication administration  
  • Do not withhold appropriate pain medication due to short transport times  
  • Strongly consider initiating pain management on scene if movement is expected to be painful for patient (unless unstable condition requires rapid transport) |
Every patient with evidence of pain should have documented pain score before and after each analgesic intervention.

- Patient must have SpO2 and EKG monitoring in place during administration of analgesics.
- EtCO2 must be used on any patients with decreased mental status, respiratory depression following opiate administration.

### Pediatric Considerations

- Pediatric pain is often under-recognized and inadequately treated.
- Fentanyl IN has well established efficacy and is first line for small children that are afraid of injections.
- Fentanyl – avoid administering small volumes too quickly via IV. Dilute doses smaller than 1 mL by filling remaining volume of syringe with Normal Saline. Use clock/timer to ensure rate of IV administration is SLOW.
- Use appropriate pain evaluation tools for patient’s age/ability to answer (see below):
  - <3 y/o – Behavioral tool – “r-FLACC” (sum of values estimates pain on 1-10 scale)
  - 3-7 y/o – FACES Scale OR Visual Analog Scale
  - 8-14 y/o – Visual Analog Scale

<table>
<thead>
<tr>
<th>R-FLACC Pain Score (&lt; 3 y/o)</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Face</strong></td>
<td>No particular expression or smile</td>
<td>Occasional grimace or frown, withdrawn, disinterested; appears sad or worried</td>
<td>Frequent to constant frown, clenched jaw, quivering chin; distressed-looking face, expression of fright or panic</td>
</tr>
<tr>
<td><strong>Legs</strong></td>
<td>Normal or relaxed position</td>
<td>Uneasy, restless, tense; occasional tremors</td>
<td>Kicking, or legs drawn up; constant tremors or jerking</td>
</tr>
<tr>
<td><strong>Activity</strong></td>
<td>Lying quietly, normal position, moves easily</td>
<td>Squirming, tense, shifting back and forth; mildly agitated (head back and forth, aggression), shallow respirations, intermittent sighs</td>
<td>Arched, rigid or jerking; severe agitation, head banging, shivering, breath-holding, gasping</td>
</tr>
<tr>
<td><strong>Cry</strong></td>
<td>No cry (awake or asleep)</td>
<td>Moans or whimpers; occasional complaint; occasional outburst or grunt</td>
<td>Cries steadily, screams, sobs; repeated outbursts, constant grunting</td>
</tr>
<tr>
<td><strong>Consolability</strong></td>
<td>Content, relaxed</td>
<td>Reassured by occasional touching, hugging, being talked to; distractable</td>
<td>Difficult to console or comfort; pushing away caregiver, resisting comfort measures</td>
</tr>
</tbody>
</table>
Wong-Baker FACES Scale

Instructions for use

- Explain to the person that each face represents a person who has no pain (hurt), or some, or a lot of pain.
- Point to each face and read the descriptions:
  - Face 0 – Doesn’t hurt at all
  - Face 2 – Hurts just a little bit
  - Face 4 – Hurts a little bit more
  - Face 6 – Hurts even more
  - Face 8 – Hurts a whole lot
  - Face 10 – Hurts as much as you can imagine, but you don’t have to be crying to have this worst pain
- Ask the person to choose the face that best depicts the pain they are experiencing

![Wong-Baker FACES Scale Diagram]

Visual Analog Scale

![Visual Analog Scale Diagram]
# ABDOMINAL/FLANK PAIN (MEDICAL)

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<th>PEDIATRIC (≤34 KG)</th>
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<td>Same as Adult</td>
</tr>
<tr>
<td>• Universal Protocol #601</td>
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</tr>
<tr>
<td>• Pulse Oximetry</td>
<td></td>
</tr>
<tr>
<td>o O₂ administration per Airway Management Protocol #602</td>
<td></td>
</tr>
<tr>
<td>• NPO and position of comfort</td>
<td></td>
</tr>
<tr>
<td>• Monitor for orthostatic changes</td>
<td></td>
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<tr>
<td>• If VS are unstable</td>
<td></td>
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<tr>
<td>o Place supine as tolerated</td>
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<tr>
<td><strong>ALS Standing Orders</strong></td>
<td></td>
</tr>
<tr>
<td>• Hypotension or other signs of early shock – Shock (Medical) Protocol #619</td>
<td>Evaluate signs of hypotension specific to age – see Universal Protocol #601 Attachment A</td>
</tr>
<tr>
<td>• Moderate or Severe Pain – Pain Management Protocol #603</td>
<td>• Obtain blood glucose</td>
</tr>
<tr>
<td>• Severe Nausea – Severe Nausea/Vomiting Protocol #615</td>
<td>• Same as Adult</td>
</tr>
<tr>
<td>• Consider obtaining 12-lead and blood glucose</td>
<td></td>
</tr>
<tr>
<td><strong>Base Hospital Orders Only</strong></td>
<td></td>
</tr>
<tr>
<td>• As needed</td>
<td>As needed</td>
</tr>
<tr>
<td><strong>Notes</strong></td>
<td></td>
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<tr>
<td>• Consider acute coronary syndrome with atypical presentation</td>
<td></td>
</tr>
</tbody>
</table>
## ALLERGIC REACTION/ANAPHYLAXIS

### ADULT

- Universal Protocol #601
- Pulse Oximetry
  - O₂ administration per Airway Management Protocol #602
- May assist with the administration of patient’s prescribed medication (i.e. Epi Auto-injector, inhaler, etc.)

### PEDIATRIC (≤34 KG)

- Same as Adult

### BLS Elective Skill

#### Unstable
(Dyspnea/Wheezing/Shock)

- Adult 0.3 mg Epinephrine Auto-Injector administered in anterolateral thigh
  - May repeat, if indicated, every 5 min, max 3 doses

#### Unstable
(Dyspnea/Wheezing/Shock)

- Pediatric (≥15 kg) 0.15 mg Epinephrine Auto-Injector administered in anterolateral thigh
  - May repeat, if indicated, every 5 min, max 3 doses

### ALS Standing Orders

#### Stable
(itching/rash)

- Diphenhydramine 50 mg IV/IM

#### Unstable
(Dyspnea/Wheezing/Shock)

- Albuterol 2.5-5 mg via HHN/Mask/BVM with adjunct, over 5-10 min
  - Repeat as needed
- Epinephrine 1:1,000 0.01 mg/kg IM – not to exceed 0.5 mg
  - May repeat every 5 min, max 3 doses
- Diphenhydramine 50 mg IV/IM

#### Extremis

- Epinephrine 1:1,000 0.01 mg/kg SL – not to exceed 0.5 mg
  - May repeat every 5 min, max 3 doses

#### Stable
(itching/rash)

- Diphenhydramine 2 mg/kg IV/IM – not to exceed 50 mg

#### Unstable
(Dyspnea/Wheezing/Shock)

- Albuterol 2.5-5 mg via HHN/Mask/BVM with adjunct, over 5-10 min
  - Repeat as needed
- Epinephrine 1:1,000 0.01 mg/kg IM – not to exceed 0.3 mg
  - May repeat every 5 min, max 3 doses
- Diphenhydramine 2 mg/kg IV/IM – not to exceed 50 mg

#### Extremis

- Epinephrine 1:1,000 0.01 mg/kg SL – not to exceed 0.3 mg
  - May repeat every 5 min, max 3 doses

### Base Hospital Orders Only

- Unresponsive to previous therapy
  - Epinephrine 1:10,000 0.01 mg/kg slow IV titrated – not to exceed 0.5 mg
  - As needed

- Unresponsive to previous therapy
  - Epinephrine 1:10,000 0.01 mg/kg slow IV titrated – not to exceed 0.3 mg
  - As needed

### Notes

- Auto-injector injection site should be exposed and cleansed with aseptic technique prior to injection
- Follow manufacturer’s instructions when using Epinephrine auto-injector
# ALTERED MENTAL STATUS

## ADULT

- Universal Protocol #601
- Pulse Oximetry
  - O₂ administration per Airway Management Protocol #602
- Evaluate and treat for possible cause, see notes

### Suspected, or confirmed (BG <60 mg/dL)

#### Diabetic Emergency:

- Oral Glucose 15 Gm assist with self-administration in patient meeting criteria below, repeat as needed
  - Awake patient able to follow commands
  - Able to swallow without difficulty, and able to control secretions

## PEDIATRIC (≤34KG)

- Same as Adult

### BLS Elective Skills

All patients with Altered Mental Status

- Obtain Blood Sugar Level

### ALS Standing Orders

#### With Blood Glucose (BG) <60 mg/dL

**Stable**

- Oral Glucose 15 Gm assist with self-administration, repeat as needed

**Unstable**

- Dextrose 10% (250mL bag) 150 mL IV
  - Recheck BG level after 5 min
  - If BG < 60mg/dL – repeat 100 mL IV bolus
  - Or
- Dextrose 50% 25 Gm (50 mL) slow IV
  - Or
- Glucagon 1 mg IM if unable to establish IV after 2 attempts

#### With Blood Glucose (BG) <60 mg/dL (Newborn <40 mg/dL)

**Stable – Same as adult**

**Unstable**

- Dextrose 10% (250 mL bag) 0.5 Gm/kg (5 mL/kg) IV not to exceed 150 mL
  - A syringe may be utilized for administering small volumes < 50 mL
  - Recheck BG level after 5 min
  - If BG < 60mg/dL – repeat 0.5 Gm/kg (5 mL/kg) IV, not to exceed 100 mL
  - Or
- Dextrose 25% 0.5 Gm/kg (2 mL/kg) slow IV (see dilution preparation below)
  - Or
- Glucagon 0.1 mg/kg IM not to exceed 1 mg if unable to establish IV after 2 attempts

### Base Hospital Orders Only

- As needed
Notes

- Assisting a patient with Oral Glucose requires they be awake, able to swallow, and follow commands.
- Dextrose 10% may be administered via IV drip tubing at an open (rapid) rate.
- Pediatric dilution of Dextrose 50% when 25% pre-package is unavailable:
  - Use a 250 mL bag NS and remove/discard 200 mL of NS.
  - Add 50 mL of Dextrose 50%.
  - Verify total bag volume = 100 mL.
  - This concentration is now approximately 0.25 Gm/mL or 25% Dextrose.
- Evaluate for possible causes and refer to appropriate treatment protocol:
  - A – alcohol
  - E – epilepsy
  - I – insulin
  - O – overdose/low oxygen (hypoxia)
  - U – uremia
  - T – trauma
  - I – infection
  - P – psychiatric
  - S – stroke
**BEHAVIORAL EMERGENCIES**

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC (≤34KG)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS</strong></td>
<td><strong>ALS Standing Orders</strong></td>
</tr>
<tr>
<td>• Universal Protocol #601</td>
<td></td>
</tr>
<tr>
<td>• Pulse Oximetry</td>
<td></td>
</tr>
<tr>
<td>• O₂ administration per Airway Management Protocol #602</td>
<td></td>
</tr>
<tr>
<td>• Assess for reversible causes such as: hypoxia, shock, hypoglycemia</td>
<td></td>
</tr>
<tr>
<td>• Restraints per Use of Restraints Procedure #711</td>
<td></td>
</tr>
<tr>
<td><strong>ALS Standing Orders</strong></td>
<td><strong>ALS Standing Orders</strong></td>
</tr>
<tr>
<td>• Obtain blood glucose as possible/safe</td>
<td>• Obtain blood glucose as possible/safe</td>
</tr>
<tr>
<td>• Midazolam</td>
<td>• Midazolam</td>
</tr>
<tr>
<td>• Up to 2 mg slow IV or</td>
<td>• 0.1 mg/kg slow IV not to exceed 2 mg or</td>
</tr>
<tr>
<td>• 5 mg IM/IN (split between nares)</td>
<td>• 0.1 mg/kg IM/IN (split between nares)</td>
</tr>
<tr>
<td>• May repeat once after 10 min</td>
<td></td>
</tr>
<tr>
<td><strong>Base Hospital Orders Only</strong></td>
<td><strong>Base Hospital Orders Only</strong></td>
</tr>
<tr>
<td>• As needed</td>
<td>• Repeat doses of Midazolam</td>
</tr>
<tr>
<td></td>
<td>• As needed</td>
</tr>
</tbody>
</table>

**Notes**

- **Behavioral emergencies** — severely agitated or aggressive patients that interfere with patient care or patient/crew safety
- IV and IM administration of Midazolam are the preferred routes
- Consider law enforcement support for violent or threatening patients
- “Tasered” patients — EMS personnel not to remove barbs, law enforcement may remove
### INGESTION/POISONING/OD

<table>
<thead>
<tr>
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<th>PEDIATRIC (≤34KG)</th>
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</tr>
<tr>
<td>- O₂ administration per Airway Management Protocol #602</td>
<td></td>
</tr>
<tr>
<td>- Decontamination at scene</td>
<td></td>
</tr>
<tr>
<td>- Dry substance</td>
<td></td>
</tr>
<tr>
<td>- Remove contaminated clothing</td>
<td></td>
</tr>
<tr>
<td>- Brush off substance prior to flushing with large quantities of water</td>
<td></td>
</tr>
<tr>
<td>- Liquid substance</td>
<td></td>
</tr>
<tr>
<td>- Remove contaminated clothing</td>
<td></td>
</tr>
<tr>
<td>- Flush with large quantities of water</td>
<td></td>
</tr>
<tr>
<td>- Eye involvement</td>
<td></td>
</tr>
<tr>
<td>- Flush with normal saline when available for minimum of 15 min</td>
<td></td>
</tr>
<tr>
<td><strong>ALS Standing Orders</strong></td>
<td></td>
</tr>
<tr>
<td>- If alert with normal gag reflex, ingestion within 1 hour and no contraindications</td>
<td></td>
</tr>
<tr>
<td>- Activated Charcoal 50 Gm PO</td>
<td></td>
</tr>
<tr>
<td><strong>Base Hospital Orders Only</strong></td>
<td></td>
</tr>
<tr>
<td>- Beta Blocker Overdose</td>
<td></td>
</tr>
<tr>
<td>- Glucagon 3-10 mg slow IV/IO (when cache available)</td>
<td></td>
</tr>
<tr>
<td>- Calcium Channel Blocker Overdose</td>
<td></td>
</tr>
<tr>
<td>- Calcium Chloride 1 Gm slow IV/IO</td>
<td></td>
</tr>
<tr>
<td>- Organophosphate Overdose</td>
<td></td>
</tr>
<tr>
<td>- Atropine 2 mg IV/IO/IM repeat as needed</td>
<td></td>
</tr>
<tr>
<td>- Tricyclic Overdose – with tachycardia and signs of QRS widening (&gt; 0.1 seconds)</td>
<td></td>
</tr>
<tr>
<td>- Sodium Bicarbonate 1 mEq/kg IV/IO, may repeat every 10 minutes at ½ the initial dose with persistent wide QRS.</td>
<td></td>
</tr>
<tr>
<td>- As needed</td>
<td></td>
</tr>
<tr>
<td>- If suspected opiate overdose AND inadequate respirations with a O₂ sat &lt; 94% or ETCO₂ &gt; 45 mmHg see Respiratory Depression – Opiate Overdose Protocol #618 for Narcan administration</td>
<td></td>
</tr>
<tr>
<td>- Activated Charcoal contraindicated for:</td>
<td></td>
</tr>
<tr>
<td>- Ingestion of caustics, corrosives or hydrocarbons (petroleum distillates)</td>
<td></td>
</tr>
<tr>
<td>- ALOC hindering patient’s ability to control airway/swallowing</td>
<td></td>
</tr>
<tr>
<td>- Ineffective for ingestion of cyanides, ETOH, heavy metals</td>
<td></td>
</tr>
<tr>
<td>- Consider nerve agents, carbon monoxide or organophosphate exposure with multiple victims – see Hazmat Training Standards Policy #201</td>
<td></td>
</tr>
<tr>
<td>- Protect rescuers from exposure due to contact with substance or secondary exposure through patient contact</td>
<td></td>
</tr>
</tbody>
</table>
## SEVERE NAUSEA/VOMITING

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC (≤34KG)</th>
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</thead>
<tbody>
<tr>
<td><strong>Universal Protocol #601</strong></td>
<td>Same as Adult</td>
</tr>
<tr>
<td><strong>Pulse Oximetry</strong></td>
<td></td>
</tr>
<tr>
<td>○  O₂ administration per Airway Management Protocol #602</td>
<td></td>
</tr>
</tbody>
</table>

### ALS Standing Orders

- **With IV Access**
  - Ondansetron 4 mg slow IV over 1 min
  - May repeat every 20 min not to exceed 12 mg total
- **No IV Access**
  - Ondansetron 4 mg IM/PO
  - May repeat every 20 min not to exceed 12 mg total

### Base Hospital Orders Only

- **Ondansetron for nausea in pregnancy**
  - Dosing same as above
- **As needed**

- **Ondansetron**
  - 4 mg slow IV push over 1 min
  - 4 mg IM or PO
  - Repeat per physician order
- **As needed**

### Notes

- Caution – Dizziness or hypotension may occur with rapid IV administration of Ondansetron
# RESPIRATORY – BRONCHOSPASM

## ASTHMA/COPD/CROUP

<table>
<thead>
<tr>
<th></th>
<th>ADULT</th>
<th>PEDIATRIC (≤34 KG)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS</strong></td>
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</tr>
<tr>
<td></td>
<td>Pulse Oximetry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- O₂ administration per Airway Management Protocol #602</td>
<td></td>
</tr>
<tr>
<td></td>
<td>May assist with patient’s prescribed medication, inhaler, etc.</td>
<td></td>
</tr>
<tr>
<td><strong>BLS Elective Skills</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CPAP per Airway Management Protocol #602</td>
<td>None</td>
</tr>
</tbody>
</table>

## ASTHMA

### Stable
- **Albuterol** 2.5-5 mg via HHN/Mask/CPAP/BVM with adjunct over 5-10 min
  - repeat as needed

### Unstable
- **Epinephrine 1:1,000** 0.01 mg/kg IM – not to exceed 0.5 mg
  - may repeat every 5 min, max 3 doses

### Extremis
- **Epinephrine 1:1,000** 0.01 mg/kg SL – not to exceed 0.5 mg
  - may repeat every 5 min, max 3 doses

## COPD/BRONCHOSPASM

### Stable
- **Albuterol** 2.5-5 mg via HHN/Mask/CPAP/BVM with adjunct over 5-10 min
  - repeat as needed

## BRONCHOSPASM/ASTHMA

### Stable
- **Albuterol** 2.5-5 mg via HHN/Mask/CPAP/BVM with adjunct over 5-10 min
  - repeat as needed

### Unstable
- **Epinephrine 1:1,000** 0.01 mg/kg IM – not to exceed 0.3 mg
  - may repeat every 5 min, max 3 doses

### Extremis
- **Epinephrine 1:1,000** 0.01 mg/kg SL – not to exceed 0.3 mg
  - may repeat every 5 min, max 3 doses

## CROUP

### Stable
- **Humidified oxygen** via HHN/Mask or blow-by

## Base Hospital Orders Only

### Unresponsive to previous therapy
- **Epinephrine 1:10,000** 0.01 mg/kg (0.1 mL/kg) slow IV titrated – not to exceed 0.5 mg
- As needed

### Unresponsive to previous therapy
- **Epinephrine 1:10,000** 0.01 mg/kg (0.1 mL/kg) slow IV titrated – not to exceed 0.3 mg

- **CROUP**
  - **Albuterol** 2.5-5 mg via HHN/Mask/BVM over 5-10 min
    - repeat per base order
  - As needed

## Notes

**BRONCHOSPASM** – narrowing of lower airways, may be associated with: wheezes, cough, and chest tightness
- Can be caused by: respiratory infections, exposures (toxins, allergens, fire/smoke), exercise, stress, cold dry air
- Evaluate history of: chronic lung disease, prescribed medications, allergies, chronic infections (TB, Coccidioidomycosis)
# RESPIRATORY DISTRESS – PULMONARY EDEMA

## Adult

<table>
<thead>
<tr>
<th>BLS</th>
<th>PEDIATRIC (≤34 KG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Universal Protocol #601</td>
<td></td>
</tr>
<tr>
<td>• Pulse Oximetry</td>
<td></td>
</tr>
<tr>
<td>o O₂ administration per Airway Management Protocol #602</td>
<td></td>
</tr>
<tr>
<td>Same as Adult</td>
<td></td>
</tr>
</tbody>
</table>

### BLS Elective Skills

| CPAP per Airway Management Protocol #602 | None |

### ALS Standing Orders

<table>
<thead>
<tr>
<th>Nitroglycerin 0.4 mg SL tablet or spray</th>
</tr>
</thead>
<tbody>
<tr>
<td>• May repeat every 5 min</td>
</tr>
<tr>
<td>• Do not administer if SBP &lt; 100 mmHg</td>
</tr>
<tr>
<td>Nitroglycerin Paste 1 inch (1 Gm) may be considered after initial dose(s) of SL Nitroglycerin</td>
</tr>
<tr>
<td>HOLD NITROGLYCERIN and consult base if:</td>
</tr>
<tr>
<td>o SBP is trending towards or drops &lt;100 mmHg or in the presence of other signs/symptoms of hemodynamic instability</td>
</tr>
<tr>
<td>None</td>
</tr>
</tbody>
</table>

### Base Hospital Orders Only

<table>
<thead>
<tr>
<th>Nitroglycerin with</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Significant decrease in SBP</td>
</tr>
<tr>
<td>• Patients taking erectile dysfunction medications</td>
</tr>
<tr>
<td>• Signs and symptoms of non-cardiogenic pulmonary edema</td>
</tr>
<tr>
<td>• Atrial Fibrillation with RVR</td>
</tr>
<tr>
<td>As needed</td>
</tr>
</tbody>
</table>

## Notes

Pulmonary Edema – fluid accumulation in tissues and air spaces of the lungs associated with rales/crackles

- Cardiogenic causes may include: acute CHF, MI, hypertension
- Non-cardiogenic pulmonary edema causes may include: toxic inhalation, high-altitude sickness, kidney/liver failure, decompression, drowning
- Pulmonary edema not commonly found in children – consult Base Hospital for specific treatments
- Atrial fibrillation with RVR is atrial fibrillation with ventricular rate >100
# RESPIRATORY DISTRESS – OPIATE OVERDOSE

## ADULT
- Universal Protocol #601
- Pulse Oximetry
  - O₂ administration per Airway Management Protocol #602
- May assist with administration of patient’s prescribed medication

## BLS
- Same as Adult

## BLS Elective Skills

### Suspected Opiate Overdose with inadequate respirations
(O₂ Sat < 94%, rate ≤ 8 bpm)
- Narcan 1 mg IN in one nare – assess for adequate respirations
  - may repeat in alternate nare if no improvement after 2 min, max total of 4 doses

## ALS Standing Orders

### Suspected Opiate Overdose with inadequate respirations
(O₂ Sat < 94% or ETCO₂ > 45 mmHg)
- Narcan up to 1 mg IV/IM/IN (split between nares) – assess for adequate respirations
  - repeat as needed
- Narcan 0.5 mg SL – assess for adequate respirations
  - repeat as needed

### Suspected Opiate Overdose with inadequate respirations
(O₂ Sat < 94% or ETCO₂ > 45 mmHg)
- Narcan 0.1 mg/kg IV/IM/IN (split between nares) up to 1 mg – assess for adequate respirations
  - repeat as needed
- Narcan 0.5 mg SL – assess for adequate respirations
  - repeat as needed

## Base Hospital Orders Only
- As needed
- As needed

## Notes
- IV is preferred route for Narcan administration
- Inadequate airway, and respirations should be supported with BLS adjuncts and ventilations prior to Narcan administration
- Poly-mixed drugs may require additional doses of Narcan titrated to maintain respirations
- Alternate Narcan dosing for BLS Elective Skills may be added with approval of the EMS Agency Medical Director
# SHOCK (MEDICAL) - HYPOTENSION/SEPSIS

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC (≤34KG)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS</strong></td>
<td>Same as Adult</td>
</tr>
<tr>
<td>- Universal Protocol #601</td>
<td></td>
</tr>
<tr>
<td>- Pulse Oximetry</td>
<td></td>
</tr>
</tbody>
</table>
  - O₂ administration per Airway Management Protocol #602 |
| - Place in supine position if tolerated | |

## ALS Standing Orders

<table>
<thead>
<tr>
<th>SBP &lt; 100 mmHg or other signs of hypotension</th>
<th>Signs of hypotension specific to age – see Universal Protocol #601 Attachment A</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Normal Saline up to 500 mL IV</td>
<td></td>
</tr>
</tbody>
</table>
  - repeat x1 if hypotension persists |
| - Consider establishing secondary IV access |  |
| - Consider 12-lead ECG |  |
| - If shock is due to trauma refer to General Trauma Protocol #660 |  |

## Base Hospital Orders Only

<table>
<thead>
<tr>
<th>Non-Hypovolemic Shock</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Push-Dose Epinephrine 10 mcg/mL</td>
<td></td>
</tr>
</tbody>
</table>
  - 1 mL IV/IO every 1-3 min  |
  - repeat as needed titrated to SBP >90mmHg  |
  - See notes for mixing instructions |
| **OR** |  |
| - Epinephrine Drip start at 10 mcg/min IV/IO infusion  |
  - Consider for extended transport  |
  - See formulary for mixing instructions |

## Notes

- **Mixing Push-Dose Epinephrine 10 mcg/mL (1:100,000):** Mix 9 mL of Normal Saline with 1 mL of Epinephrine 1:10,000, mix well
- Consider underlying causes of shock
- Use caution with fluid challenges if signs of CHF or history of liver or renal failure
- Keep patient warm
- Treatable/Reversible considerations:
  - Hypoxemia
  - Tachycardia/Bradycardia
  - Hyper/Hypothermia
  - Hypovolemia
  - Altered mental status
  - Fractures/Bleeding/Tension pneumothorax
  - Anaphylaxis
  - Chest pain
  - Overdose
<table>
<thead>
<tr>
<th></th>
<th>ADULT</th>
<th>PEDIATRIC (≤34KG)</th>
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</thead>
<tbody>
<tr>
<td><strong>BLS</strong></td>
<td></td>
<td>Same as Adults</td>
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<tr>
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<td></td>
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<tr>
<td>• Pulse Oximetry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o O₂ administration per Airway</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Management Protocol #602</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Prevent patient from injuring themselves – Do not restrain</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BLS Elective Skills</strong></td>
<td>Obtain Blood Sugar Level – if &lt;60 mg/dL see Altered Mental Status Protocol #612</td>
<td></td>
</tr>
<tr>
<td><strong>ALS Standing Orders</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Midazolam</td>
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<td></td>
</tr>
<tr>
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</tr>
<tr>
<td>o May repeat once after 10 min</td>
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<tr>
<td>• Obtain blood sugar level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Midazolam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o 0.1 mg/kg slow IV not to exceed 2mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o 0.1 mg/kg IM/IN (split between nares)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Obtain blood sugar level</td>
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<td><strong>Base Hospital Orders Only</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• As needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Repeat doses of Midazolam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• As needed</td>
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</table>

**Notes**
## SUSPECTED CVA/TIA

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<tr>
<td>• Pulse Oximetry</td>
<td></td>
</tr>
<tr>
<td>o O₂ administration per Airway Management Protocol #602</td>
<td></td>
</tr>
<tr>
<td>• Place patient in position of comfort with head elevated</td>
<td></td>
</tr>
<tr>
<td>• Complete B-E-F-A-S-T exam, see Notes</td>
<td></td>
</tr>
</tbody>
</table>

### BLS Elective Skills

- Obtain Blood Sugar Level – if <60 mg/dL see Altered Mental Status Protocol #612

### ALS Standing Orders

- Initiate STROKE ALERT base report and EARLY transport if ANY of B-E-F-A-S-T present and last seen normal is < 6 hours
- Same as Adult

### Base Hospital Orders Only

- As needed
- As needed

### Notes

- Contact receiving hospital early if patient meets STROKE ALERT criteria
- Do not delay transport to hospital for on scene treatment
- B-E-F-A-S-T (new onset or change from previous “normal”)(*)
  - B – Balance – changes or problems
  - E – Eyes – sudden change in vision or double vision
  - F – Facial droop
  - A – Arm drift
  - S – Speech abnormalities
  - T – Time last seen normal < 6 hrs. (record the time)
- “Time last seen normal” – do not confuse with time symptoms noticed – “time last seen normal” starts the clock
- Evaluate and correct for other potential causes i.e.
  - Hypoxia
  - Hypoglycemia
  - Overdose
  - Seizure
- If time is available and the patient or family can provide the information, gather the criteria listed in the Fibrinolytic Evaluation listed below (Fibrinolytic Evaluation – ASA/NSA Standards)
  - Use of anticoagulants
  - History of stroke/TIA/brain tumor
  - Mental Status - orientation
  - Known bleeding disorder
  - Age > 18 yrs.
  - Active bleeding, surgery, or trauma < 3 weeks
  - Jaundice, hepatitis, kidney failure
  - Terminal illness

(*) BEFAST – was developed by Intermountain Healthcare, as an adaptation of the FAST model implemented by the American Stroke Assoc. Reproduction with the permission from Intermountain Healthcare, Copyright 2011, Intermountain Health Care.
## Bites/Stings/Snake Bites

### Adult

- **Universal Protocol #601**
- **Pulse Oximetry**
  - \( O_2 \) administration per Airway Management Protocol #602
- **Monitor for allergic reaction – Protocol #611**
- **Insect Bite**
  - Remove stinger
  - Apply ice
- **Animal Bite**
  - Hemorrhage control per Hemorrhage/Hemostatic Dressing Procedure # 706 as indicated
- **Snake Bite**
  - Do not delay transport
  - Remove constricting items near the site
  - Mark area of swelling and record time
  - Irrigate wound – DO NOT apply ice
  - DO NOT incise or attempt suction of venom
- **Marine envenomation**
  - Jellyfish
    - Do not apply heat
    - Rinse with Normal Saline (vinegar or baking soda if available)
  - All others
    - Remove barb if necessary
    - Apply warm compresses

### Pediatric (≤ 34 kg)

- **BLS**
- For allergic reaction see Allergic Reaction/Anaphylaxis Protocol #611

### ALS Standing Orders

- For allergic reaction see Allergic Reaction/Anaphylaxis Protocol #611
  - Same as Adult

### Base Hospital Orders Only

- As needed
  - As needed

### Notes
<table>
<thead>
<tr>
<th>HYPERTERMIA/HYPOTHERMIA</th>
<th>ADULT</th>
<th>PEDIATRIC (&lt;34 KG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLS</td>
<td></td>
<td>Same as Adult</td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>Management Protocol #602</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hyperthermia/Heat related emergencies</td>
<td>Remove from environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Begin cooling measures</td>
<td></td>
</tr>
<tr>
<td>Hypothermia/Cold related emergencies</td>
<td>Remove from environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Begin warming measures</td>
<td></td>
</tr>
</tbody>
</table>

**ALS Standing Orders**

- Heat related seizures – see Seizure (Active) Protocol #620
- Arrhythmias – follow appropriate protocol

**Base Hospital Orders Only**

- As needed

**Notes**

- Heat related emergencies
  - Cooling measures
    - Remove clothing/cool with water and fans/air conditioning
    - Ice packs to neck, armpits and groin
  - Alert patients may receive up to 1 liter of water or sport drink (50/50 with water) in small amounts if tolerated
- Cold related emergencies
  - Pulses may be difficult to obtain – check for 30-45 seconds
  - Warming measures
    - Move to warm environment
    - Remove wet clothing
    - Rewarm with blankets/heater/etc
    - Rough handling may precipitate arrhythmias
- Frostbite – consider only if evacuation not possible for 6-12 hours
  - If no risk of refreezing – use tepid water immersing limb until soft, pink and pliable
  - After rewarming place gauze between digits and dress extremity – splint as necessary
ADULT CARDIAC CHEST PAIN/ACUTE CORONARY SYNDROME
FOR USE IN ADULT PATIENTS

BLS

- Universal Protocol #601 Pulse Oximetry
  - O₂ administration per Airway Management Protocol #602
- Aspirin 162 mg PO (non-enteric coated) chewable tablets
- May assist with administration of patient’s prescribed Nitroglycerin with SBP ≥ 100 mmHg

ALS Standing Orders

- Obtain 12-lead ECG early
- Nitroglycerin 0.4 mg SL tablet or spray
  - Repeat every 5 min
- Nitroglycerin Paste 1 inch (1 Gm) may be considered after initial dose(s) of SL Nitroglycerin
- HOLD NITROGLYCERIN and consult base if:
  - SBP is trending towards or drops < 100 mmHg or in the presence of other signs/symptoms of hemodynamic instability
  - Evidence of Right Ventricular Infarction (RVI) – see Notes

MODERATE or SEVERE PAIN

- Refractory to Nitroglycerin
  - Fentanyl 25-50 mcg SLOW IV (over 1 min), titrated to pain improvement, maintain SBP ≥ 100 mmHg
    - May repeat after 5 min if needed (not to exceed 200 mcg total)

If difficulty obtaining IV
- Fentanyl 50-100 mcg IM/IN (use 1 mcg/kg as guideline)
  - May repeat after 15 min if needed (not to exceed 200 mcg total)

Base Hospital Orders Only

- Nitroglycerin with
  - Significant decrease in SBP after administration
  - Patients taking erectile dysfunction medications
  - Atrial fibrillation with RVR
  - Evidence of RVI
- Additional Fentanyl

  Persistent hypotension
  - Normal Saline bolus up to 500 mL
  - Push-Dose Epinephrine 10 mcg/mL 1mL IV/IO every 1-3 min
    - Repeat as needed to maintain SBP >90 mmHg
    - See notes for mixing instructions
  OR
  - Epinephrine Drip start at 10 mcg/min IV/IO infusion
    - Consider for extended transport
    - See formulary for mixing instructions
  - As needed

Notes

- Acute Coronary Syndrome – a group of conditions resulting from acute myocardial ischemia – including: chest/upper body discomfort, shortness of breath, nausea/vomiting, or diaphoresis
- Evidence for RVI: All inferior STEMI should be evaluated for ST elevation in V4R
- Atrial fibrillation with RVR is atrial fibrillation with a ventricular rate > 100
- Early notification of the SRC with “STEMI Alert” with a 12-lead ECG reading of ***Acute MI Suspected*** or equivalent based on monitor type.
- “STEMI Alerts” consider a secondary IV with NS lock to assist the Cath Lab in tubing changes
- **Mixing Push-Dose Epinephrine 10 mcg/mL (1:100,000):** Mix 9 mL of Normal Saline with 1 mL of Cardiac Epinephrine 1:10,000 (0.1 mg/mL), mix well
# CARDIAC ARREST (ATRAUMATIC)

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC (≤34 kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS</strong></td>
<td><strong>Same as Adult (except for neonate)</strong></td>
</tr>
<tr>
<td>• Universal Protocol #601</td>
<td>• Neonate (&lt; 1 month) follow AHA guidelines</td>
</tr>
<tr>
<td>• High Performance CPR (HPCPR) (10:1) per Procedure #712</td>
<td>• CPR compression to ventilation ratio</td>
</tr>
<tr>
<td>o Continuous compressions with 1 short breath every 10</td>
<td>o Newborn – CPR 3:1</td>
</tr>
<tr>
<td>• AED application (if shock advised, administer 30 compressions prior to shocking)</td>
<td>o 1 day to 1 month – CPR 15:2</td>
</tr>
<tr>
<td>• Pulse Oximetry</td>
<td>o &gt; 1 month – HPCPR 10:1</td>
</tr>
<tr>
<td>o O₂ administration per Airway Management Protocol #602</td>
<td>• AED – pediatric patient &gt; 1 year</td>
</tr>
<tr>
<td></td>
<td>• Use Broselow tape or equivalent if available</td>
</tr>
</tbody>
</table>

## ALS Standing Orders

### Rhythm analysis and shocks
- At 200 compressions begin charging the defibrillator while continuing CPR
- Once fully charged, stop CPR for rhythm analysis
- Defibrillate V-fib/Pulseless V-tach – shock at 120J and immediately resume CPR
  - Subsequent shock, after 2 mins of CPR: 150J, then 200J
  - Recurrent V-fib/Pulseless V-tach use last successful shock level
- No shock indicated – dump the charge and immediately resume CPR

**V-fib/Pulseless V-tach and Non-shockable Rhythms**

- Epinephrine 1:10,000 1 mg IV/IO repeat every 3-5 min
  - Do not give epinephrine during first cycle of CPR

**V-fib/Pulseless V-tach**

- Lidocaine 1.5 mg/kg IV/IO repeat once in 3-5 min (max total dose 3 mg/kg)

### Emphasize resuscitation and HPCPR rather than immediate transport

#### Rhythm analysis and shocks
- Coordinate compressions and charging same as adult
- Defibrillate V-fib/Pulseless V-tach – shock at 2 J/kg and immediately resume CPR
  - Subsequent shock, after 2 mins of CPR: 4 J/kg
  - Recurrent V-fib/Pulseless V-tach use last successful shock level
- No shock indicated – dump the charge and immediately resume CPR

**V-fib/Pulseless V-tach and Non-shockable Rhythms**

- Epinephrine 1:10,000 0.01 mg/kg (0.1 ml/kg) IV/IO, not to exceed 0.3 mg, repeat every 3-5 min
  - Do not give epinephrine during first cycle of CPR

**V-fib/Pulseless V-tach**

- Lidocaine 1 mg/kg IV/IO repeat every 5 min (max total dose 3 mg/kg)

### Base Hospital Orders Only

#### ROSC with Persistent Hypotension
- Push-Dose Epinephrine 10 mcg/mL 1 mL IV/IO every 1-3 min
  - Repeat as needed titrated to SBP >90mmHg
  - See notes for mixing instructions
  - OR

#### Contact closest Base Hospital for additional orders

#### ROSC with Persistent Hypotension for Age
- Push-Dose Epinephrine 10 mcg/mL 1 mL IV/IO (0.1 ml/kg if <10 kg) every 1-3 min
  - Repeat as needed titrated to age appropriate SBP
- Epinephrine Drip start at 10 mcg/min IV/IO infusion
  - Consider for extended transport
  - See formulary for mixing instructions

Contact STEMI Receiving Center (French Hospital)
- Refractory V-Fib or V-Tach not responsive to treatment
- Request for a change in destination if patient rearrests en route
- Termination orders when unresponsive to resuscitative measures
- As needed

Contact appropriate Base Station per Base Station Report Policy #121 - Atraumatic cardiac arrests due to non-cardiac origin (OD, drowning, etc.)

Notes
- **Mixing Push-Dose Epinephrine 10 mcg/mL (1:100,000):** Mix 9 mL of Normal Saline with 1 mL of Epinephrine 1:10,000, mix well
- Use manufacturer recommended energy settings if different from listed
- Assess for reversible causes
  - Tension PTX, hypoxia, hypovolemia, hypothermia, hyperkalemia, hypoglycemia, overdose
- Vascular access – IV preferred over IO – continue vascular access attempts even if IO access established
- Oral Intubation (Adults) – Consider if airway is not patent or with maintained ROSC
- Adult ROSC that is maintained:
  - Obtain 12-lead ECG and vital signs
  - Transport to the nearest STEMI Receiving Center regardless of 12-lead ECG reading
  - Maintain O₂ Sat ≥ 94%
  - Monitor ETCO₂
  - Protect airway with oral intubation if indicated
  - With BP < 100 mmHg, contact SRC (French Hospital) for fluid, or pressors
- **Termination for patients > 34 Kg - Contact SRC (French Hospital) for termination orders**
  - If the patient remains pulseless and apneic following 20 minutes of resuscitative measures
  - Persistent ETCO₂ values < 10mmHg, consider termination of resuscitation
  - Documentation shall include the patient’s failure to respond to treatment and of a non-viable cardiac rhythm (copy of rhythm strip)
- **Pediatric patients ≤ 34 kg**
  - Stay on scene to establish vascular access, provide for airway management, and administer the first dose of epinephrine followed by 2 min of HPCPR
  - Evaluate and treat for respiratory causes
  - Use Broselow tape if available
  - Contact and transport to the nearest Base Hospital
  - Receiving Hospital shall provide medical direction/termination for pediatric patients
ADULT CARDIAC ARREST – (ATRAUMATIC)

Universal Protocol
HPCPR 10:1
Consider Reversible Causes
Monitor ETCO₂

- At 200 compressions begin charging the monitor – continue CPR while monitor is charging
- Once fully charged, stop CPR for rhythm analysis

YES

Shockable Rhythm? V-FIB OR V-TACH

Shocks
- Initial shock at 120J
- Subsequent shocks at 150J then 200J
- Recurrent V-fib/V-tach use last successful shock level

Medications
- Epinephrine 1:10,000 1 mg IV/IO repeat every 3-5 min
- Lidocaine 1.5 mg/kg IV/IO repeat once in 3-5 min (max total dose 3 mg/kg)

NO

Dump charge
Continue HPCPR

Medications
- Epinephrine 1:10,000 1 mg IV/IO repeat every 3-5 min

Base Orders – STEMI Receiving Center (French Hospital)
- Push-Dose Epinephrine 10 mcg/mL 1 mL IV/IO every 1-3 min, repeat as needed to titrate to SBP >90 mmHg, or
- Epinephrine Drip start at 10 mcg/min IV/IO infusion
- Termination of resuscitation if no response after 20 min
Arrests due to non-cardiac origin i.e. OD, drowning – contact appropriate Base per Policy # 121

Notes
- Perform 2 minutes of CPR between treatment modalities
- Pulse checks – perform during rhythm analysis with an organized rhythm >40 bpm
- Organized rhythm <40 BPM continue HPCPR for 2 min, then reassess for ROSC
- ROSC – transport to nearest STEMI Center regardless of 12-lead ECG reading
- Perform 2 minutes of uninterrupted CPR between rhythm analysis
- Immediately resume CPR after defibrillations
- Utilize BVM unless airway compromised or patient has ROSC without adequate respiratory effort
- Use manufacturer recommended energy settings if different from listed
# Pediatric Cardiac Arrest

**Universal Protocol**
- Newborn – CPR 3:1
- 1 day to 1 month – CPR 15:2
- > 1 month – HPCPR 10:1
- Consider Reversible Causes
- Monitor ETCO₂

- **Emphasize resuscitation and HPCPR rather than immediate transport**
  - At 200 compressions begin charging the monitor – continue CPR while monitor is charging
  - Once fully charged, stop CPR for rhythm analysis

**Shockable Rhythm? V-FIB OR V-TACH**

**YES**
- Shocks
  - Initial shock at 2 J/kg
  - Subsequent shocks at 4 J/kg
  - Recurrent V-fib/V-tach use last successful shock level

**Medications**
- Epinephrine 1:10,000 0.01 mg/kg (0.1 ml/kg) IV/IO, not to exceed 0.3 mg, repeat every 3-5 min
- Lidocaine 1 mg/kg IV/IO repeat every 5 min (max total dose 3 mg/kg)

**NO**
- **Dump charge**
- **Continue HPCPR**

**Medications**
- Epinephrine 1:10,000 0.01 mg/kg (0.1 ml/kg) IV/IO, not to exceed 0.3 mg, repeat every 3-5 min

**Base Hospital Orders - Contact and transport to the nearest Base Hospital**
- Push-Dose Epinephrine 10 mcg/mL 1 mL IV/IO (0.1 mL/kg if <10 kg) every 1-3 min, repeat as needed to titrate to age appropriate SBP, or
- Epinephrine Drip start at 10 mcg/min IV/IO infusion
- Termination of CPR

**Notes**
- Provide 2 minutes of CPR between treatment modalities
- Pulse checks – perform during rhythm analysis with an organized rhythm >60 BPM
- Organized rhythm ≤60 continue HPCPR for 2 mins, then assess for ROSC
- Immediately resume CPR after defibrillations
- Do not hyperventilate – keep ventilations to 1 sec
- Use Broselow tape or equivalent, if available
- Prior to transport:
  - IV access
  - Management of the airway
  - First round of Epinephrine followed by 2 min CPR
# Supraventricular Tachycardia

## ADULT

### BLS
- Universal Protocol #601
- Pulse Oximetry
  - O₂ administration per Airway Management Protocol #602

### ALS Standing Orders

#### Stable
- Attempt vagal maneuvers
- Adenosine 6 mg IV followed by 20 mL NS bolus
- Adenosine 12 mg followed by 20 mL NS bolus
  - May repeat once

#### Unstable
- Synchronized cardioversion (see notes)
- Midazolam up to 2 mg slow IV or 5 mg IN (split into two doses 2.5 mg each nostril) to pre-medicate prior to cardioversion

## PEDIATRIC (≤ 34Kg)

### BLS
- Same as Adult

### ALS Standing Orders

#### Stable
- Attempt vagal maneuvers
- Adenosine 0.1 mg/kg IV followed by 20 mL NS bolus
- Adenosine 0.2 mg/kg IV followed by 20 mL NS bolus

#### Unstable
- Synchronized cardioversion (see notes)
- Midazolam 0.1 mg/kg slow IV/IN, not to exceed 2 mg to pre-medicate prior to cardioversion

## Base Hospital Orders Only

- Cardioversion of unstable Atrial Fibrillation with RVR
- As needed

## Notes
- Obtain 12-lead ECG before and after conversion if possible
- Preferred IV site for Adenosine administration is in a proximal vein with a large bore catheter
- Vascular access may be omitted prior to cardioversion if in extremis
- Typical SVT in adults is a QRS < 0.12 seconds
- Typical SVT in pediatric patients is a QRS < 0.09 seconds with rates >180 for children and >220 in infants
- Avoid Adenosine in atrial fibrillation and atrial flutter
- Consider and treat underlying causes in unstable patients with atrial fibrillation and atrial flutter, i.e. sepsis, dehydration/hypovolemia, medication errors, etc.
- Synchronized/Unsynchronized Sequences
  (if synchronized mode is unable to capture use unsynchronized cardioversion)
- Use manufacturer recommended energy settings if different from below

## Energy Settings

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 J</td>
<td>1 J/kg</td>
</tr>
<tr>
<td>70/75 J</td>
<td>2 J/kg</td>
</tr>
<tr>
<td>100 J</td>
<td>2 J/kg</td>
</tr>
<tr>
<td>120 J</td>
<td></td>
</tr>
<tr>
<td>150 J</td>
<td></td>
</tr>
<tr>
<td>200 J</td>
<td></td>
</tr>
</tbody>
</table>

(start at 120J in adult patient with unstable Atrial Fibrillation with RVR)
VENTRICULAR TACHYCARDIA WITH PULSES

ADULT | PEDIATRIC (≤34KG)

**BLS**
- Universal Protocol #601
- Pulse Oximetry
  - O₂ administration per Airway Management Protocol #602

**ALS Standing Orders**

**Stable**
- Lidocaine 1.5 mg/kg IV
  - Repeat 0.75 mg/kg every 5-10 min (max total dose 3 mg/kg)

**Unstable**
- Consider Midazolam up to 2 mg slow IV or 5 mg IN (split into two doses 2.5 mg each nostril) to pre-medicate
- Synchronized/Unsynchronized cardioversion sequences (see notes)
- Unresponsive to previous therapy
  - Lidocaine 1.5 mg/kg IV
    - May repeat 0.75 mg/kg every 5-10 min (max total dose 3 mg/kg)

**Base Hospital Orders Only**
- Lidocaine post conversion or for potentially malignant PVCs
- As needed

**Notes**
- Obtain a 12-lead ECG before and after conversion, if possible
- Vascular access may be omitted prior to cardioversion if in extremis
- QRS ≥ 0.12 seconds typical for VT in adults
- QRS ≥ 0.09 seconds typical for VT in pediatrics
- Malignant PVCs – that may pose heightened risk of precipitating sustained dysrhythmias: short coupling interval <0.3 sec, multifocal, couplets, frequent occurrence
- Irregular Wide-complex tachycardia (Torsade’s de Pointes) requires unsynchronized cardioversion
- Synchronized/Unsynchronized Sequences
  - (if synchronized mode is unable to capture use unsynchronized cardioversion)
- Use manufacturer recommended energy settings if different from below

<table>
<thead>
<tr>
<th></th>
<th>ADULT</th>
<th>PEDIATRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 J</td>
<td></td>
<td>1 J/kg</td>
</tr>
<tr>
<td>120 J*</td>
<td></td>
<td>2 J/kg</td>
</tr>
<tr>
<td>150 J</td>
<td></td>
<td>2 J/kg</td>
</tr>
<tr>
<td>200 J</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(*start at 120J unsynchronized in adult patients with Torsade’s de Pointes)
### BRADYCARDIA

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC (≤34KG)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS</strong></td>
<td></td>
</tr>
<tr>
<td>• Universal Protocol #601</td>
<td>• Same as Adult</td>
</tr>
<tr>
<td>• Pulse Oximetry</td>
<td></td>
</tr>
<tr>
<td>• O₂ administration per Airway Management Protocol #602</td>
<td></td>
</tr>
<tr>
<td><strong>ALS Standing Orders</strong></td>
<td></td>
</tr>
<tr>
<td>• Obtain 12-lead ECG</td>
<td>• Obtain 12-lead ECG</td>
</tr>
<tr>
<td>• With STEMI contact STEMI base prior to administration of Atropine unless in extremis</td>
<td><strong>Unstable</strong></td>
</tr>
<tr>
<td>• Atropine 0.5 mg IV</td>
<td>• Epinephrine 1:10,000 0.01 mg/kg (0.1 ml/kg) slow IV not to exceed 0.3 mg per dose</td>
</tr>
<tr>
<td>• May repeat every 3-5 min (not to exceed 3 mg total)</td>
<td>• May repeat every 3-5 min</td>
</tr>
<tr>
<td><strong>Base Hospital Orders Only</strong></td>
<td></td>
</tr>
<tr>
<td>• Normal Saline fluid bolus 500 mL</td>
<td>• Atropine 0.02 mg/kg IV (minimum dose of 0.1 mg and maximum dose of 0.5 mg)</td>
</tr>
<tr>
<td>• Atropine 0.5 mg IV for stable patient or STEMI patient not in extremis</td>
<td>• May repeat every 3-5 min (not to exceed 1 mg total)</td>
</tr>
<tr>
<td>• Push-Dose Epinephrine 10 mcg/ml 1 mL IV/IO every 1-3 min</td>
<td>• Normal Saline fluid bolus 20 mL/kg</td>
</tr>
<tr>
<td>• repeat as needed titrated to SBP &gt;90mmHg</td>
<td><strong>Beta Blocker Overdose</strong></td>
</tr>
<tr>
<td>• See notes for mixing instructions</td>
<td>• Glucagon 0.1 mg/kg IV/IM</td>
</tr>
<tr>
<td>• Epinephrine Drip 10 mcg/min IV/IO infusion</td>
<td><strong>Calcium Channel Blocker Overdose</strong></td>
</tr>
<tr>
<td>• Consider for extended transport</td>
<td>• Calcium Chloride 20 mg/kg slow IV/IO (maximum single dose of 500 mg)</td>
</tr>
<tr>
<td>• See formulary for mixing instructions</td>
<td><strong>Organophosphate Overdose</strong></td>
</tr>
<tr>
<td></td>
<td>• Atropine 0.05-0.1 mg/kg IV/IO/IM</td>
</tr>
<tr>
<td><strong>Hyperkalemia</strong></td>
<td><strong>Tricyclic Overdose</strong> – with signs of QRS widening</td>
</tr>
<tr>
<td>• Calcium Chloride 1 Gm slow IV/IO</td>
<td>• Sodium Bicarbonate 1 mEq/kg IV/IO, may repeat every 10 minutes at ½ the initial dose with persistent QRS widening</td>
</tr>
<tr>
<td>• Sodium Bicarbonate 1 mEq/kg IV/IO</td>
<td>• As needed</td>
</tr>
<tr>
<td><strong>Beta Blocker Overdose</strong></td>
<td></td>
</tr>
<tr>
<td>Organophosphate Overdose</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>• Atropine 2 mg IV/IO/IM repeat as needed</td>
<td></td>
</tr>
<tr>
<td>• As needed</td>
<td></td>
</tr>
</tbody>
</table>

**Notes**

- **Mixing Push-Dose Epinephrine 10 mcg/mL (1:100,000):** Mix 9 mL of Normal Saline with 1 mL of Epinephrine 1:10,000, mix well
- Atropine in pediatric patients may cause paradoxical bradycardia
- High degree heart blocks (Second degree type II, and Third degree) may respond poorly to Atropine
  - If unstable consider obtaining Base Hospital Orders for Push-Dose Epinephrine instead of Atropine
- Ensure all Calcium Chloride is thoroughly flushed from IV tubing prior to administration of Sodium Bicarbonate
- Higher doses of Atropine may be needed for organophosphate OD
**CHILDBIRTH**

<table>
<thead>
<tr>
<th>Normal</th>
<th>Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS</strong></td>
<td><strong>BLS</strong></td>
</tr>
<tr>
<td>- Universal Protocol #601</td>
<td>- Universal Protocol #601</td>
</tr>
<tr>
<td>- Pulse Oximetry</td>
<td>- Pulse Oximetry</td>
</tr>
<tr>
<td>- O₂ administration per Airway Management Protocol #602</td>
<td>- O₂ administration per Airway Management Protocol #602</td>
</tr>
</tbody>
</table>

**Delivery**
- Patient assessment with visual exam of perineum for crowning
- Control head and speed of delivery
- Check for cord around neck
- Deliver upper, then lower shoulder
- Dry, stimulate, and wrap baby
- Suction airway as needed
- Cut and clamp cord 6” from newborn’s umbilicus
- Healthy infant to mother’s breast
- Prepare for delivery of placenta

**Postpartum Hemorrhage Control**
- Perform visual exam to determine site of bleeding
- For perineal tear, apply direct pressure
- Firmly massage fundus

**Initiate Transport Early**
- Hypertension BP > 180/110 mmHg
- Seizures – follow Seizure Protocol #620
- Vaginal bleeding in last trimester not associated with labor may indicate Placenta Previa/Abruption
- Breech/Limb presentation
- Prolapsed cord - Place mother in knee-chest position. Feel cord for pulse. With gloved hand, push baby into vagina slightly to take pressure off cord. Maintain this position. Do not attempt to push cord back

**ALS Standing Orders**
- Refer to appropriate protocol based on patient’s presentation
- Refer to appropriate protocol based on patient’s presentation

**Base Hospital Orders Only**
- As needed
- As needed

**Notes**
- Knee-chest position for prolapse chord presentation
- General guideline transport in left lateral position
- Obtain Para/Gravida
# Newborn Care

## Stable

- Universal Protocol #601
- Pulse Oximetry
  - O₂ administration per Airway Management Protocol #602
- Assess vital signs then dry thoroughly and cover head and body to maintain body heat
- Position infant on back and suction as needed
- Stimulate infant by vigorously rubbing the back or flicking the soles of the feet

## Unstable

- Universal Protocol #601
- Pulse Oximetry
  - O₂ administration per Airway Management Protocol #602
- Respiratory distress – assist with BVM using room air (RA)
- HR < 100 BPM – assist with BVM RA 40-60/min
- HR < 60 BPM – BVM 100% O₂, provide chest compressions X 1 minute and reassess

## ALS Standing Orders

- None indicated
- ALS resuscitation measures if indicated
- Monitor EKG, and pulse oximetry in right upper extremity (peductal O₂ Sat)
- Consider oxygen titrated to peductal O₂ Sat
- With APGAR < 7 at 5 min check blood sugar level (treat if <40 mg/dL)

## Base Hospital Orders Only

- As needed

## Notes

- Asphyxiation/respiratory distress is most common cause of neonatal arrest
- Prompt warming, airway management and ventilations are the key to a successful resuscitation
- A 3:1 compression-to-ventilation ratio is used for neonatal resuscitation where compromise of gas exchange is nearly always the primary cause of cardiovascular collapse
- High-concentrations of oxygen may result in adverse outcomes, particularly in preterm infants
- Meconium-stained infants – Routine intubation for tracheal suction is not approved. Suction oropharynx with bulb syringe and provide BLS airway management
- Use proper sized equipment based on Broselow tape or equivalent
- Determine APGAR at 1 minute, 5 minutes, and after any intervention

<table>
<thead>
<tr>
<th>APGAR</th>
<th>0 Points</th>
<th>1 Point</th>
<th>2 Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity (muscle tone)</td>
<td>Absent</td>
<td>Arms and legs flexed</td>
<td>Active movement</td>
</tr>
<tr>
<td>Pulse</td>
<td>Absent</td>
<td>Below 100</td>
<td>Over 100</td>
</tr>
<tr>
<td>Grimace (reflex excitability)</td>
<td>Does not react</td>
<td>Makes a grimace</td>
<td>Screams, coughs, or sneezes</td>
</tr>
<tr>
<td>Appearance (skin color)</td>
<td>Pale, blue</td>
<td>Pink trunk with blue extremities</td>
<td>Pink skin</td>
</tr>
<tr>
<td>Respiratory Effort</td>
<td>Absent</td>
<td>Irregular, slow, or weak cry</td>
<td>Vigorous cry</td>
</tr>
</tbody>
</table>

### Normal Preductal O₂ Sat After Birth

<table>
<thead>
<tr>
<th>Time</th>
<th>O₂ Sat</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 min</td>
<td>60%-65%</td>
</tr>
<tr>
<td>2 min</td>
<td>65%-70%</td>
</tr>
<tr>
<td>3 min</td>
<td>70%-75%</td>
</tr>
<tr>
<td>4 min</td>
<td>75%-80%</td>
</tr>
<tr>
<td>5 min</td>
<td>80%-85%</td>
</tr>
<tr>
<td>10 min</td>
<td>85%-95%</td>
</tr>
</tbody>
</table>

### Intervention

- **Warming, Drying, Position airway, Stimulation**
  - Suction, Ventilate with room air, Consider titrating oxygen
  - Chest Compressions, 100% oxygen
  - IV/IO, Medications
### GENERAL TRAUMA

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC (≤34 KG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Universal Protocol #601</td>
</tr>
<tr>
<td></td>
<td>Pulse Oximetry</td>
</tr>
<tr>
<td></td>
<td>· O₂ administration per Airway Management Protocol #602</td>
</tr>
<tr>
<td></td>
<td>Assess for injuries meeting Trauma Triage Guidelines Policy #153</td>
</tr>
<tr>
<td></td>
<td>Possible Spinal Injury - Spinal Motion Restriction (SMR) Procedure #702</td>
</tr>
<tr>
<td></td>
<td>Uncontrolled Hemorrhage - Hemorrhage Control/Tourniquet/Hemostatic Dressings Procedure #706</td>
</tr>
<tr>
<td></td>
<td>Unstable</td>
</tr>
<tr>
<td></td>
<td>· Communicate if SBP &lt;90mmHg at ANY time</td>
</tr>
<tr>
<td></td>
<td>· Pelvic Injury – Pelvic Binder Procedure #713</td>
</tr>
<tr>
<td></td>
<td>· Place pelvic binder if (all of the following):</td>
</tr>
<tr>
<td></td>
<td>· · High-risk mechanism</td>
</tr>
<tr>
<td></td>
<td>· · Pelvic, low back, or groin pain</td>
</tr>
<tr>
<td></td>
<td>· · SBP ≤90 mmHg</td>
</tr>
</tbody>
</table>

#### ALS Standing Orders

<table>
<thead>
<tr>
<th>Stable</th>
<th>Stable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Monitor patient</td>
</tr>
<tr>
<td>Unstable</td>
<td>Hypotension – SBP of ≤90mmHg or if unable to palpate peripheral pulses</td>
</tr>
<tr>
<td></td>
<td>· Normal Saline up to 500 mL IV</td>
</tr>
<tr>
<td></td>
<td>· · May repeat X 1 for ongoing hypotension</td>
</tr>
<tr>
<td></td>
<td>· TXA if indicated and ≥15 y/o - TXA Administration Procedure #714</td>
</tr>
<tr>
<td></td>
<td>· · TXA 1 gm in 100 mL IV infusion over 10 min, no repeat</td>
</tr>
<tr>
<td></td>
<td>· Tension pneumothorax - Needle Thoracostomy Procedure #705</td>
</tr>
</tbody>
</table>

**Base Hospital Orders Only**

<table>
<thead>
<tr>
<th>Additional Normal Saline</th>
<th>Additional Normal Saline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurogenic Shock Refractory to Fluids</td>
<td>Neurogenic Shock Refractory to Fluids</td>
</tr>
<tr>
<td>Push-Dose Epinephrine 10 mcg/mL 1 mL IV/IO every 1-3 min</td>
<td></td>
</tr>
<tr>
<td>· · repeat as needed to maintain SBP &gt;90mmHg</td>
<td></td>
</tr>
<tr>
<td>· · See notes for mixing instructions</td>
<td>Push-Dose Epinephrine 10 mcg/mL 1 mL IV/IO (0.1 mL/kg if &lt;10 kg) every 1-3 min</td>
</tr>
<tr>
<td>· · repeat as needed to maintain age appropriate SBP</td>
<td></td>
</tr>
</tbody>
</table>
**OR**
- Epinephrine Drip start at 10 mcg/min IV/IO infusion
- Consider for extended transport
- See formulary for mixing instructions
- As needed

**OR**
- See notes for mixing instructions
- Epinephrine Drip start at 1 mcg/kg, up to max of 10 mcg/min IV/IO infusion
- Consider for extended transport
- See formulary for mixing instructions
- As needed

**Notes**
- **Mixing Push-Dose Epinephrine 10 mcg/mL (1:100,000):** Mix 9 mL of Normal Saline with 1 mL of Epinephrine 1:10,000, mix well
- Maintain body temperature/warm as indicated
- Destination and documentation per Trauma Triage and Destination Policy #153
- Early transport with treatment en route for high risk or unstable patients
- A manual blood pressure is preferred for all unstable trauma patients
- BLS responders – when in doubt regarding pelvic injury – avoid unnecessary movement, consider preparation for placement of pelvic binder until ALS evaluation
- Pain Control – Pain Management Protocol #603
- Include Step Criteria with MIVT Base Hospital report – update 5 min out or with changes
- IV access large bore (>18G) with a saline lock to facilitate tubing changes at the Trauma Center
- Treatable considerations for critical trauma patients: Hypoxia, Hypovolemia, Tension Pneumothorax
GENERAL TRAUMA – ATTACHMENT A

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC (≤34 KG)</th>
</tr>
</thead>
</table>

**BLS TRAUMA PROTOCOL ATTACHMENT**

**FACIAL TRAUMA**

**Head Injuries**
- Hemorrhage – direct pressure and dressings or approved hemostatic dressings

**Eye Injuries**
- Trauma/foreign body
  - Cover both eyes with dressings – avoid direct pressure
  - Do not remove foreign body or impaled object – stabilize with bulky dressings
- Chemical Contamination – Acid or alkali
  - Flush continuously with Normal Saline for at least 15 min or until arrival at the hospital
  - Remove contact lenses if possible

**Avulsed Teeth**
- Place in saline gauze and transport with patient

**IMPALED OBJECTS**
- Immobilize the object to prevent further movement

**TORSO INJURIES**

**Penetrating wound**
- Use chest seal device or occlusive dressing

**Flail Chest**
- Support flail segment and monitor respirations

**ABDOMINAL INJURIES**

**Evisceration**
- Cover with moist saline dressing

**PREGNANCY**
- If > 20 weeks pregnant place in left lateral position for transport

**EXTREMITY INJURIES**

**Fractures**
- Splint with traction or other splinting devices after gentle realignment as indicated – see Notes
- Neurovascular Compromise – attempt to place in anatomic position – checking for pulses and sensation pre/post alignment
- Cover open wounds with sterile dressing

**Dislocation**
- Splint in position found

**Amputation**
- Wrap amputated part in dry dressing and place in waterproof container/bag. Place on ice/cooling pack (do not freeze) and transport with patient.
- Bandage wound and moisten with sterile saline

**Mangled extremity**
- Check for distal pulses and sensation before and after splinting
- Stabilize/splint after gentle realignment
- Cover with clean/sterile dressing
- See Hemorrhage Control Policy #706 for persistent or uncontrolled venous or arterial bleeding
<table>
<thead>
<tr>
<th>ALS Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>See General Trauma Protocol #660</td>
</tr>
<tr>
<td>Base Hospital Orders Only</td>
</tr>
</tbody>
</table>

- As needed
- As needed

Notes
- With multiple chest wounds consider chest seal devices or occlusive dressings
- Padded box splints for simple fractures preferred (facilitates imaging)
- Confirm and mark distal pulses before and after splinting, traction and patient movement
- Traction splints for isolated mid-shaft femur fractures without pelvic pain (closed or open)
- Remove rings or other items that may cause constriction
## Traumatic Cardiac Arrest

### Adult

**BLS**
- Universal Protocol #601
- **Obvious Death**
- Non-initiation - Prehospital Determination of Death Policy #125
  - Traumatic arrest without signs of life upon EMS arrival
- Consider non-initiation – Prehospital Determination of Death Policy #125
- Traumatic arrest after EMS arrival
- HPCPR (10:1) and minimize interruptions (< 5 seconds)

### ALS Standing Orders
- Traumatic arrest after EMS arrival and < 20 min from nearest hospital
  - Resuscitate and treat for reversible causes
  - Do not delay transport
    - Perform ALS treatments en route
  - Normal Saline up to 500 mL
    - May repeat x1 if no ROSC
  - **Do not use Epinephrine or Lidocaine** unless the arrest is suspected to be of medical origin
  - Suspected Tension Pneumothorax see Needle Thoracostomy Procedure #705
  - Unstable Pelvis see Pelvic Binder Procedure #712
  - ROSC see General Trauma Policy #660

### Base Hospital Orders Only
- Traumatic arrest after EMS arrival and > 20 min from nearest hospital
  - Contact SLO Trauma Center for treatment and/or destination
    - Termination of resuscitation
  - As needed

### Notes
- Signs of life to be evaluated include: heart and respiratory rate, heart and lung sounds, pupil size and reactivity
- Trauma Center is the preferred destination if equal or near equal distance
- Do not delay transport for advanced airway or other treatment modalities
- Consider medical origin in older patients with low probable mechanism of injury
- Unsafe scene or other circumstances may warrant transport despite low potential for survival
- Minimize disturbance of potential crime scene

### Pediatric (≤34kg)

- Same as Adult
## BURNS

### ADULT

- Universal Protocol #601
- Pulse Oximetry
  - O₂ administration per Airway Management Protocol #602
- Thermal
  - Stop the burning process (see notes)
  - Cover with clean dressing/sheet
- Chemical
  - Decontamination and HazMat procedures
  - Brush off dry powder
  - Irrigate with water or saline
  - Continue irrigation en route
- Electrical
  - Cover with clean dressing/sheet

### PEDIATRIC (≤34 KG)

### BLS

### ALS Standing Orders

- **Pain Control** per Pain Management Protocol #603
- **Hypotension** – SBP of ≤90mmHg or if unable to palpate peripheral pulses
  - Normal Saline up to 500 mL IV
    - May repeat X 1 for ongoing hypotension
- **Pain Control** per Pain Management Protocol #603
- **Hypotension** – as identified for age group
  - Normal Saline IV/IO 20 mL/kg not to exceed 500 mL
    - May repeat x1 if no change in SBP

### Base Hospital Orders Only

- As needed
- As needed

### Notes

- Remove rings, constrictive clothing and garments made of synthetic material
- **Stop the burning process**
  - Initially cool with tepid water
  - Do not use ice or ice packs on burns
- When burn area is < 10% may use moist/gel dressings for comfort
- Use appropriate dressings to prevent hypothermia
- Maintain burned body areas in neutral position
- Assess for complicating factors, i.e. exposure in enclosed space, total time exposed, drugs or alcohol
- If associated with trauma, transport per Trauma Triage and Destination Policy #153
- If no trauma associated with burn, transport to nearest hospital for evaluation and stabilization
- Determine and document extent of burn (patient’s hand equals approximately 1% of TBSA)