POLICY 533
BLS, EMT OPTIONAL SCOPE, AND ALS TREATMENT PROTOCOLS
March 2020

DANIEL SHEPHERD, MD
EMS MEDICAL DIRECTOR
# SANTA BARBARA COUNTY EMS
## BLS, EMT OPTIONAL SCOPE, AND ALS TREATMENT PROTOCOLS

### Table of Contents

<table>
<thead>
<tr>
<th>General:</th>
<th>Policy Number</th>
<th>Page Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Patient Guidelines</td>
<td>533-01</td>
<td>3</td>
</tr>
<tr>
<td>Airway Management</td>
<td>533-02</td>
<td>7</td>
</tr>
<tr>
<td>Pain Control</td>
<td>533-03</td>
<td>9</td>
</tr>
<tr>
<td>Vascular Access</td>
<td>533-04</td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medical Emergencies:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal/Flank Pain</td>
<td>533-05</td>
<td>12</td>
</tr>
<tr>
<td>Altered Neurological Function</td>
<td>533-06</td>
<td>13</td>
</tr>
<tr>
<td>Anaphylaxis / Allergic Reaction</td>
<td>533-07</td>
<td>15</td>
</tr>
<tr>
<td>Behavioral Emergencies</td>
<td>533-08</td>
<td>17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cardiac Emergencies</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac Arrest Management (CAM)</td>
<td>533-09a</td>
<td>19</td>
</tr>
<tr>
<td>Cardiac Arrest – VF/VT</td>
<td>533-09b</td>
<td>23</td>
</tr>
<tr>
<td>Cardiac Arrest – Asystole/PEA</td>
<td>533-09c</td>
<td>25</td>
</tr>
<tr>
<td>Push-dose Epinephrine</td>
<td>533-10</td>
<td>28</td>
</tr>
<tr>
<td>Chest Pain - Acute Coronary Syndrome</td>
<td>533-11</td>
<td>30</td>
</tr>
<tr>
<td>Symptomatic Bradycardia</td>
<td>533-12</td>
<td>32</td>
</tr>
<tr>
<td>Supraventricular Tachycardia</td>
<td>533-13</td>
<td>34</td>
</tr>
<tr>
<td>Wide Complex Tachycardia</td>
<td>533-14</td>
<td>36</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Medical Emergencies:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nausea/Vomiting</td>
<td>533-15</td>
<td>38</td>
</tr>
<tr>
<td>Seizures</td>
<td>533-20</td>
<td>48</td>
</tr>
<tr>
<td>Stroke</td>
<td>533-22</td>
<td>53</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poisonings and Overdose</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>533-16</td>
<td>39</td>
</tr>
<tr>
<td>Nerve Agents</td>
<td>533-17</td>
<td>42</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Respiratory Emergencies</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shortness of Breath – Upper Airway Obstruction</td>
<td>533-18</td>
<td>44</td>
</tr>
<tr>
<td>Shortness of Breath – Lower Airway: Asthma / Pulmonary Edema / COPD</td>
<td>533-19</td>
<td>46</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Traumatic Injury and Shock Emergencies:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shock - Hypovolemia</td>
<td>533-21a</td>
<td>50</td>
</tr>
<tr>
<td>Shock - Sepsis</td>
<td>533-21b</td>
<td>51</td>
</tr>
<tr>
<td>Tranexamic Acid</td>
<td>533-21c</td>
<td>52</td>
</tr>
<tr>
<td>Head/Face/Neck Trauma</td>
<td>533-23</td>
<td>55</td>
</tr>
<tr>
<td>Chest/Abdomen/Pelvis Trauma</td>
<td>533-24</td>
<td>57</td>
</tr>
<tr>
<td>Spinal Trauma</td>
<td>533-25</td>
<td>59</td>
</tr>
<tr>
<td>Extremity Trauma</td>
<td>533-26</td>
<td>60</td>
</tr>
<tr>
<td>Burns</td>
<td>533-27</td>
<td>62</td>
</tr>
<tr>
<td>Crush Injury</td>
<td>533-28</td>
<td>63</td>
</tr>
<tr>
<td>Traumatic Arrest</td>
<td>533-29</td>
<td>65</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental Emergencies:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bites and Stings</td>
<td>533-30</td>
<td>66</td>
</tr>
<tr>
<td>Heat Emergencies</td>
<td>533-31</td>
<td>67</td>
</tr>
<tr>
<td>Hypothermia/Frostbite</td>
<td>533-32</td>
<td>68</td>
</tr>
<tr>
<td>Water Emergencies</td>
<td>533-33</td>
<td>69</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OB/GYN Emergencies:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Childbirth</td>
<td>533-34</td>
<td>70</td>
</tr>
<tr>
<td>Neonatal Resuscitation</td>
<td>533-35</td>
<td>72</td>
</tr>
<tr>
<td>OB/GYN</td>
<td>533-36</td>
<td>74</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Appendix</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix A</td>
<td>Pediatric Vital Signs Normal Ranges</td>
<td>75</td>
</tr>
<tr>
<td>Appendix B</td>
<td>Glasgow Coma Scale and Cincinnati Stroke Scale</td>
<td>77</td>
</tr>
<tr>
<td>Appendix C</td>
<td>Chempack Cache Nerve Agent Antidote Deployment Guide</td>
<td>78</td>
</tr>
<tr>
<td>Appendix D</td>
<td>Approved Abbreviation List</td>
<td>87</td>
</tr>
</tbody>
</table>

Effective Date: January 1, 2020
Next Review Date: December 31, 2021
Date Revised: December 31, 2019
Last Reviewed: October 30, 2020

Signature on File
Angelo Salvucci, MD, EMS Medical Director
Santa Barbara County General Patient Guidelines

I. Purpose: To establish a consistent approach to patient care

A. Initial response
   1. Review dispatch information with crew members and dispatch center as needed
   2. Consider other potential issues (location, time of day, weather, etc.)

B. Scene arrival and Size-up
   1. Address Body Substance Isolation/Personal Protection Equipment (BSI/PPE)
   2. Evaluate scene safety
   3. Determine the mechanism of injury (if applicable) or nature of illness
   4. Determine the number of patients
   5. Request additional help if necessary
   6. Consider spinal precautions (refer to Policy 533-25: Spinal Trauma)

C. Initial assessment
   1. Circulation
      a. Assess skin color, temperature, and condition
      b. Check distal/central pulses, including capillary refill time
      c. Control major bleeding
      d. Initiate shock management as indicated
   2. Airway
      a. Open airway as needed, maintaining inline cervical stabilization if trauma is suspected
      b. Insert appropriate airway adjunct if indicated
      c. Suction airway if indicated
      d. If a partial or complete Foreign Body Airway Obstruction (FBAO) is present, utilize appropriate interventions
   3. Breathing
      a. Assess rate, depth, and quality of respirations
      b. Assess lung sounds
      c. If respiratory effort inadequate, assist ventilations with BVM
      d. Initiate airway management and oxygen therapy as indicated

Effective Date: January 1, 2020
Last Reviewed/Revised: December 31, 2019
Next Review Date: December 31, 2021
Signature on File
Angelo Salvucci, MD, EMS Medical Director
4. Disability
   a. Determine level of consciousness
   b. Assess pupils
   c. Assess Circulation, Sensory, Motor (CSM)

5. Exposure
   a. If indicated, remove clothing for proper assessment/treatment of injury location. Attempt to maintain patient dignity
   b. Maintain patient body temperature at all times, utilize adjunct methods as needed.

D. Determine Chief Complaint. Initiate treatment per Santa Barbara County policies/protocols

II. History of Present Illness (HPI) – including pertinent negatives and additional signs/symptoms
   A. Onset of current illness or chief complaint
   B. Provoking factors
   C. Quality
   D. Radiation
   E. Severity – 1 to 10 on pain scale (or pediatric pain scale)
   F. Time

III. Vital Signs
   A. Blood pressure in mmHg (at least one of which is auscultated) and capillary refill
   B. Heart rate
   C. Respirations
   D. Pain – Use Numeric, FACES or FLACC scale as age appropriate
   E. ALS assessments shall include:
      1. Cardiac rhythm
      2. 12-lead ECG as indicated per Policy 539: 12-lead ECG
      3. Pulse Oximetry
      4. Capnography (after advanced airway placement and CPAP placement)
      5. If documenting an abnormal vital sign(s), repeat as appropriate and document action taken

IV. Obtain history, including pertinent negatives
   A. HPI
   B. Past medical history
   C. Medications
   D. Allergies

Effective Date: January 1, 2020
Last Reviewed/Revised: December 31, 2019
Next Review Date: December 31, 2021

Signature on File
Angelo Salvucci, MD, EMS Medical Director
E. Do not leave these areas blank in documentation; if information is not known or available, utilize an appropriate null data entry choice.

V. Perform Trauma assessment as appropriate.

A. Rapid trauma survey

1. Airway
   a. Maintain inline cervical stabilization
   b. Follow spinal precautions per EMS Policy 533-25: Spinal Trauma
   c. Open airway as needed
   d. Utilize a trauma jaw thrust to maintain inline cervical stabilization if indicated
   e. Suction airway if indicated

2. Breathing
   a. Assess rate, depth and quality of respirations
   b. If respiratory effort inadequate, assist ventilations with BVM
   c. Insert appropriate airway adjunct if indicated
   d. Assess lung sounds
   e. Initiate airway management and oxygen therapy as indicated
   f. Goal to maintain $\text{SpO}_2 \geq 95$

3. Circulation
   a. Assess skin color, temperature, and condition
   b. Check distal/central pulses and capillary refill time
   c. Control major bleeding
   d. Initiate shock management as indicated

4. Disability
   a. Determine Glasgow Coma Scale - level of consciousness. Refer to Appendix B
   b. Assess pupils

5. Exposure
   a. If indicated, remove clothing for proper assessment/treatment of injury location.
   b. Maintain patient dignity
   c. Maintain patient body temperature
VI. Base Hospital contact shall be made for all required patients in accordance with Policy 303: Mandatory Base Hospital Communications

VII. Transport to appropriate facility per the appropriate policy
   A. Transport and Destination Guidelines – Policy 622
   B. STEMI Receiving Center Standards – Policy 640
   C. Post cardiac arrest with ROSC – Policy 539
   D. Trauma Triage and Destination Criteria – Policy 510
   E. Hospital Diversion – Policy 620

VIII. Continuously monitor vital signs and document all findings. Continue appropriate treatments and reassess throughout transport to assess for changes in patient status

IX. Documentation
   A. Completion of patient care documentation per Policy 701: Electronic Patient Care Report Documentation
   B. Document all assessment findings, pertinent negatives, vital signs (including a turnover of care set of vital signs), interventions/treatments (both initial and ongoing), responses to treatments, and all changes in patient status.
   C. Submit ECG strips for all ALS patients and all 12-lead ECG reports.
   D. Maintain patient confidentiality at all times.
# AIRWAY MANAGEMENT

## ADULT vs PEDIATRIC – (14 years and under)

### BLS Procedures

- Open and position the airway
- For foreign body airway obstruction: BLS choking Procedures
- Airway adjuncts: OPA/NPA as needed to control airway
- Oropharyngeal succioning via tonsil-tip catheter
- Oxygen via selected device to maintain $SpO_2$ at >94%
  - Nasal Cannula 2-6 LPM
  - Non-rebreather mask 10-15 LPM
  - Bag-valve ventilations 10 breaths/min as needed
- Initiate CPAP for moderate to severe distress
  - 10cm H$_2$O
  - If patient unable to tolerate 10 cm H$_2$O, may reduce to 5cm H$_2$O
- For suspected spinal injuries, ventilate while maintaining in-line cervical stabilization

### Expanded Scope

- Same as BLS

### ALS Prior to Base Hospital Contact

- For foreign body airway obstruction refractory to BLS choking procedures, laryngoscopy to visualize and remove foreign body using Magill forceps
- Initiate CPAP for moderate to severe distress
  - 10cm H$_2$O
  - If patient unable to tolerate 10 cm H$_2$O, may reduce to 5cm H$_2$O
- Endotracheal intubation or EMS approved supraglottic airway device as needed to control the airway
  - Refer to Policy 532: Endotracheal Intubation
  - Refer to Policy 546: AirQsp
- If unable to intubate after two attempts (of not more than 20 seconds each), or endotracheal intubation is otherwise contraindicated, or paramedic believes may be difficult or delayed, insert the approved alternative airway or maintain BLS airway
- Endotracheal tube succioning with suction catheter (no more than 15 seconds per attempt)
- Needle Thoracostomy procedure to be utilized only to relieve a tension pneumothorax.
  - Refer to Policy 536: Needle Thoracostomy

### PEDIATRIC

- Open and position the airway
- For foreign body airway obstruction: BLS choking Procedures
- Airway adjuncts: OPA/NPA as needed to control airway
- Oropharyngeal succioning via tonsil-tip catheter
- Oxygen via selected device to maintain $SpO_2$ at >94%
  - Nasal Cannula 2-6 LPM
  - Non-rebreather mask 10-15 LPM
  - Bag-valve ventilations 12-20 breaths/min as needed (20-30 for infants.)
- Consider CPAP if 3 years old or greater and in severe distress
  - 5cm H$_2$O
- For suspected spinal injuries, ventilate while maintaining in-line cervical stabilization

### Expanded Scope

- Same as BLS

### ALS Prior to Base Hospital Contact

- For foreign body airway obstruction refractory to BLS choking procedures, laryngoscopy to visualize and remove foreign body using Magill forceps
- Consider CPAP if 3 years old or greater and in severe distress.
  - 5cm H$_2$O
- Consider endotracheal intubation as needed to control the airway
  - **Patient must be 12 years of age or greater for intubation**
    - Refer to Policy 532: Endotracheal Intubation
- For patients aged 3 or greater with symptomatic tension pneumothorax:
  - Needle Thoracostomy.
    - Refer to Policy 536: Needle Thoracostomy

---

Effective Date: January 1, 2020  
Last Reviewed/Revised: December 31, 2019  
Next Review: December 31, 2021  
Signature on File: Angelo Salvucci, MD, EMS Medical Director
## Base Hospital Orders only

<table>
<thead>
<tr>
<th>Patient Status</th>
<th>Base Hospital Orders only</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>Consult with ED Physician for further treatment measures</td>
</tr>
</tbody>
</table>

## Communication Failure Protocol

<table>
<thead>
<tr>
<th>N/A</th>
<th>N/A</th>
</tr>
</thead>
</table>

## Additional Information

- The following are signs and symptoms of tension pneumothorax may be present:
  - Altered level of consciousness
  - Decreased BP
  - Increased HR and RR
  - Absent breath sounds on affected side
  - Hyperresonance to percussion on the affected side
  - Jugular vein distension
  - Increased dyspnea or difficulty ventilating
  - Tracheal shift away from affected side (often difficult to assess)

- The following are signs and symptoms of tension pneumothorax may be present:
  - Altered level of consciousness
  - Decreased BP
  - Increased HR and RR
  - Absent breath sounds on affected side
  - Hyperresonance to percussion on the affected side
  - Jugular vein distension
  - Increased dyspnea or difficulty ventilating
  - Tracheal shift away from affected side (often difficult to assess)
# PAIN CONTROL

## ADULT

### BLS Procedures
- Place patient in position of comfort
- Administer oxygen as indicated
- Assess pain using numeric pain scale

### Expanded Scope
- Same as BLS

### ALS Prior to Base Hospital Contact
- Vascular access
- Cardiac Monitor

If nausea/vomiting is present, refer to **Policy 533-15: Nausea/Vomiting**

### Fentanyl
- MODERATE or SEVERE PAIN with SBP ≥ 100 mmHg, unimpaired respirations and GCS normal for baseline:
  - IV/IO – 1mcg/kg SLOW (over 1 min)
    - Max single dose 100mcg
    - May repeat every 5 minutes
    - Not to exceed 200mcg total dose
  - IM – 1mcg/kg, not to exceed 100mcg
    - May repeat after 15 minutes
    - Not to exceed 200mcg total dose

- OR

### Ketamine
- MODERATE or SEVERE PAIN refractory to fentanyl or when fentanyl is contraindicated*:
  - IV/IO – 0.3mg/kg in 100mL normal saline IVPB over 5 minutes
    - Max dose 30mg
    - May repeat x1 in 10 minutes
  - Contraindications* for Ketamine:
    - GCS <14
    - Suspected or Confirmed Pregnancy
    - Suspected Acute Coronary Syndrome
    - Known or suspected alcohol or drug intoxication
    - Known allergy or anaphylaxis

(continued on next page)

## PEDIATRIC – (14 years and under)

### BLS Procedures
- Place patient in position of comfort
- Administer oxygen as indicated
- Assess pain using FACES or FLACC pain scale

### Expanded Scope
- Same as BLS

### ALS Prior to Base Hospital Contact
- Vascular access
- Cardiac Monitor

If nausea/vomiting is present, refer to **Policy 533-15: Nausea/Vomiting**

### Fentanyl
- MODERATE or SEVERE PAIN with SBP ≥ 100 mmHg, unimpaired respirations and GCS normal for baseline:
  - IV/IO – 1mcg/kg SLOW (over 1 min)
    - May repeat every 5 minutes
    - Not to exceed 4 doses or 200mcg
  - IM – 1mcg/kg, not to exceed 100mcg
    - May repeat after 15 minutes
    - Not to exceed 4 doses or 200mcg

- OR

### Ketamine
- MODERATE or SEVERE PAIN refractory to fentanyl or when fentanyl is contraindicated*:
  - IV/IO – 0.3mg/kg in 100mL normal saline IVPB over 5 minutes
    - Max dose 10mg
    - May repeat x1 in 10 minutes
  - Contraindications* for Ketamine:
    - GCS <14
    - Suspected or Confirmed Pregnancy
    - Suspected Acute Coronary Syndrome
    - Known or suspected alcohol or drug intoxication
    - Known allergy or anaphylaxis

(continued on next page)
### Morphine Sulfate

- **For moderate to severe pain**
  - **IV/IO** – 0.1mg/kg
    - May repeat every 5 min at half original dose
    - Max 10 mg
  - **IM** – 0.1mg/kg
    - May repeat every 15 min at half original dose
    - Max 10 mg
- In patients >65 years, with known hypersensitivity, or due to provider discretion:
  - **IV/IO** – 0.05mg/kg
    - May repeat every 5 min at half original dose
    - Max 10 mg
  - **IM** – 0.05mg/kg
    - May repeat every 15 min at half original dose
    - Max 10 mg
- Hold for SBP < 100 mmHg
- Recheck and document vital signs before and after each administration

### Base Hospital Orders Only

- Pain control must be confirmed by the base hospital physician in the event of:
  - SBP < 100 mmHg
  - Significant injury to:
    - Head
    - Chest
    - Abdomen
- Consult with ED Physician for further treatment measures

### Communication Failure Protocol

- N/A

### Additional Information

- **In patients >65 years**, with known hypersensitivity, or due to provider discretion:
  - Consider ½ dose of any pain control medication
  - Pain scale utilized in assessment should be documented before and after all pain interventions

- Pain scale utilized in assessment should be documented before and after all pain interventions
  - Consider using FACES pain scale for the younger pediatric patient and document appropriately.
### Vascular Access

#### Adult

**BLS Procedures**
- N/A

**Expanded Scope**
- N/A

**ALS Prior to Base Hospital Contact**
- Vascular access is a Standing Order for all patients where IV/IO access is indicated by protocol.
- Peripheral IV placement is the preferred choice in all patients.
- A saline lock is acceptable and may be utilized unless there is a specific need for running IV fluids.
- Needle gauge selection should be determined by the situation and patient physiology.
- STROKE and STEMI patients should be accessed in large vessel sites, i.e. A/C, avoiding the radial area.
- External Jugular (EJ) IV placement is indicated in patients when no other peripheral IV can be established and the patient requires fluid administration or access for IV medications. Generally external jugular lines are used in unconscious patients but may be used in conscious patients with due regard for the patient’s sensitivities.
- Intraosseous Access (IO) is the preferred choice in unconscious patients >3kg when a peripheral IV cannot be established in no more than 2 attempts AND the patient requires immediate fluid administration or access for immediate medication administration. IO is contraindicated in conscious patients unless indicated in a specific treatment protocol. IO access must meet Policy 538: Intraosseous Infusion.
- No patient under 3kg will have intraosseous access established in the prehospital setting.
- 2% Lidocaine is NOT to be utilized for pediatric patients.

**Base Hospital Orders only**
- Consult with ED Physician for further treatment measures

**Communication Failure Protocol**
- N/A

**Additional Information**
- All established sites must be visible, monitored for infiltration and/or extravasation, and discontinued as appropriate. Do not remove abandoned IO devices.
- For procedure on establishing Humeral IO, refer to: Policy 538 – Attachment A.
- For procedure on establishing Tibial IO, refer to: Policy 538 – Attachment B.
- All established sites must be visible, monitored for infiltration and/or extravasation, and discontinued as appropriate. Do not remove abandoned IO devices.
- Establishing vascular access on pediatric patients contributes to significantly increased patient stress levels. Paramedics should take this in to consideration prior to any prophylactic peripheral IV/IO placement.
# ABDOMINAL/FLANK PAIN

## ADULT

### BLS Procedures

- Position of Comfort
- NPO
- Monitor VS (check for orthostatic changes)
- Vital signs unstable (SBP < 90 or signs of poor perfusion):
  - Place supine
  - Administer oxygen to maintain SpO₂ >94%
- Vital signs unstable (SBP < 90 or signs of poor perfusion): Refer to Appendix A
  - Place supine
  - Administer oxygen to maintain SpO₂ >94%

## PEDIATRIC – (14 years and under)

### BLS Procedures

- Position of Comfort
- NPO
- Monitor VS (check for orthostatic changes)
- Vital signs unstable (SBP < 90 or signs of poor perfusion): Refer to Appendix A
  - Place supine
  - Administer oxygen to maintain SpO₂ >94%

## Expanded Scope

- Same as BLS

## ALS Prior to Base Hospital Contact

- Vascular access
- Normal Saline
  - IV/IO TKO or saline lock
  - Maintain SBP>90, re-evaluating after each 500mL
  - Max 1L
- For epigastric pain, consider performing a 12-lead ECG
  - Refer to Policy 539: 12-Lead ECG
- For nausea/vomiting
  - Refer to Policy 533-15: Nausea/Vomiting
- Assess and provide pain control as appropriate
  - Refer to Policy 533-03: Pain Control
- Consider Vascular access
- Normal Saline
  - IV/IO TKO or saline lock
  - Maintain SBP appropriate for age
    - Refer to Appendix A
  - NS bolus as needed to achieve above
    - 20mL/kg, may repeat x1 then contact Base Hospital
- For nausea/vomiting
  - Refer to Policy 533-15: Nausea/Vomiting
- Assess and provide pain control as appropriate
  - Refer to Policy 533-03: Pain Control

## Base Hospital Orders only

- Consult with ED Physician for further treatment measures

## Communication Failure Protocol

- N/A

## Additional Information

- Consider atypical presentation possible for acute coronary syndrome.
# Altered Neurologic Function

## ADULT

### BLS Procedures

- If suspected stroke, refer to Policy 533-22: Stroke; Policy 550: Stroke System Triage and Destination (perform Cincinnati Stroke Scale)
- Administer oxygen to maintain SpO\(_2\) >94%
- Determine blood glucose
  - If blood glucose <60 AND
  - Patient is awake and able to swallow safely
    - Oral Glucose - PO – 15g
- If Hx/PE suggests opioid overdose:
  - Refer to Policy 533-16: Poisoning/Overdose

## PEDIATRIC – (14 years and under)

### BLS Procedures

- If suspected stroke, refer to Policy 533-22: Stroke; Policy 550: Stroke System Triage and Destination (perform Cincinnati Stroke Scale)
- Administer oxygen to maintain SpO\(_2\) >94%
- Determine blood glucose
  - If blood glucose <60 AND
  - Patient is awake and able to swallow safely
    - Oral Glucose - PO – 15g
- If Hx/PE suggests opioid overdose
  - Refer to Policy 533-16: Poisoning/Overdose

## Expanded Scope

- If blood sugar <60 and patient unable to swallow safely
  - Glucagon
    - IM – 1mg
- If Hx/PE suggests opioid overdose
  - Refer to Policy 533-16: Poisoning/Overdose

## ALS Prior to Base Hospital Contact

- If Hx/PE suggests opioid overdose
  - Refer to Policy 533-16: Poisoning/Overdose
- Vascular access
- If blood glucose < 60 and not able to swallow safely
  - D10W
    - IV/IO – 25G (250 mL)
  - Glucagon (if no IV access)
    - IM – 1mg
  - Recheck Blood Glucose level 5 min after IV Dextrose bolus complete or 10 min after Glucagon administration
  - If still < 60
    - D10W
      - IV/IO – 25G (250 mL)
  - If Hx/PE suggests opioid overdose
    - Refer to Policy 533-16: Poisoning/Overdose

## Base Hospital Orders only

- Consider vascular access
- If blood glucose <60 and not able to swallow safely
  - D10W
    - IV/IO bolus –0.5G/kg (5mL/kg)
  - Maximum dose 25G (250mL)
  - Glucagon (if no IV access)
    - IM – 0.1mg/kg
    - Maximum dose 1mg
  - Recheck Blood Glucose level 5 min after IV Dextrose bolus complete or 10 min after Glucagon administration:
    - If still < 60
      - D10W
        - IV/IO –0.5G/kg (5mL/kg)
        - Maximum dose 25G (250mL)
  - If Hx/PE suggests opioid overdose
    - Refer to Policy 533-16: Poisoning/Overdose

---

**Effective Date:** January 1, 2020  
**Last Reviewed/Revised:** December 31, 2019  
**Next Review:** December 31, 2021  
**Signature on File**

Angelo Salvucci, MD, EMS Medical Director
## Communication Failure Protocol

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Additional Information

- Certain oral hypoglycemic agents (e.g. - sulfonylureas) and long-acting insulin preparations have a long duration of action, sometimes up to 72 hours. Patients on these medications who would like to decline transport MUST be warned about the risk of repeat hypoglycemia for up to 3 days, which can occur during sleep and result in the patient’s death. If the patient continues to decline further care, every effort must be made to have the patient speak to the ED Physician prior to leaving the scene.

- Naloxone is not to be used for patients in cardiac arrest.

- If strongly suspect opioid overdose and no or inadequate response to initial 2mg naloxone, may give up to 10mg naloxone IV/IM in 2mg doses.

- If stroke is suspected refer to Policy 533-22: Stroke; Policy 550: Stroke System Triage and Destination

- IO for access ONLY if patient meets IO Policy 538: Intraosseous Infusion

- Naloxone is not to be used for patients in cardiac arrest.

- IO for access ONLY if patient meets IO Policy 538: Intraosseous Infusion
# ANAPHYLAXIS / ALLERGIC REACTION

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC – (14 years and under)</th>
</tr>
</thead>
</table>

**BLS Procedures**
- Assist with prescribed Epi-Pen
- Administer oxygen to maintain SpO₂ >94%
- Epinephrine – 0.3mg
  - Approved BLS autoinject device
- Assist with prescribed Epi-Pen
- Administer oxygen to maintain SpO₂ >94%
- Epinephrine
  - Approved BLS autoinject device

**Expanded Scope**
- Epinephrine 1mg/mL
  - IM – 0.5mg (0.5mL)
  - May repeat x2
- If wheezing is present
  - Albuterol
    - Nebulizer – 5mg (6mL)
    - Repeat as needed
- Epinephrine 1mg/mL
  - IM
    - 0.01mg/kg (0.01mL/kg) for 15 to 50kg patients
    - 0.5mg (0.5mL) for >50kg patients
    - May repeat x2
- If wheezing is present
  - Albuterol
    - Less than 2 years old
      - Nebulizer – 2.5mg (3mL)
      - Repeat as needed
    - 2 years old and greater
      - Nebulizer – 5mg (6mL)
      - Repeat as needed

**ALS Prior to Base Hospital Contact**
- Epinephrine 1mg/mL
  - IM
    - 0.5mg (0.5mL)
    - May repeat every 5 mins x2
- Cardiac Monitor
- Vascular Access
  - Anaphylaxis with Shock
    - Treatment as above for Anaphylaxis without Shock
    - Initiate 2nd IV/IO
      - Normal Saline
        - IV/IO bolus – 1 Liter
  - For Profound Hypotension
    - Push dose epinephrine
    - Refer to Policy 533-10: Push-Dose Epinephrine
      - (continued)
- Epinephrine 1mg/mL
  - IM
    - 0.01mg/kg (0.01mL/kg) for 15 to 50kg patients
    - 0.5mg (0.5mL) for >50kg patients
    - May repeat every 5 mins x2
- Cardiac Monitor
- Vascular Access
  - Anaphylaxis with Shock
    - Treatment as above for Anaphylaxis without Shock
    - Initiate 2nd IV/IO
      - Normal Saline
        - IV/IO bolus – 20 mL/kg
  - For Profound Hypotension
    - Push dose epinephrine
    - Refer to Policy 533-10: Push-Dose Epinephrine
      - (continued)
### If Wheezing is present
- Albuterol
  - Nebulizer – 5mg (6mL)
  - Repeat as needed

### Allergic Reaction (less severe, hives only)
- Diphenhydramine
  - IM – 50mg

---

### If Wheezing is present
- Albuterol
  - Less than 2 years old
    - Nebulizer – 2.5mg (3mL)
    - Repeat as needed
  - 2 years old and greater
    - Nebulizer – 5mg (6mL)
    - Repeat as needed

### Allergic Reaction (less severe, hives only)
- Diphenhydramine
  - IM – 1mg/kg (Max 50mg)

---

**Base Hospital Orders only**
Consult with ED Physician for further treatment measures

**Communication Failure Protocol**
N/A

**Additional Information**
- Anaphylaxis is a true medical emergency requiring immediate assessment, recognition, and intervention using epinephrine.
- It is pivotal to treat these patients with intramuscular epinephrine. Once the cascade of anaphylaxis is stabilized, continue to recognize and treat signs/symptoms throughout transport.
**BEHAVIORAL EMERGENCIES**

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC – (14 years and under)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS Procedures</strong></td>
<td></td>
</tr>
<tr>
<td>• Confirm and maintain scene/responder safety</td>
<td>• Confirm and maintain scene/responder safety</td>
</tr>
<tr>
<td>• Attempt to establish rapport.</td>
<td>• Attempt to establish rapport.</td>
</tr>
<tr>
<td>• If patient appears stable, and emergency treatment is unnecessary, reassure while transporting and do not attempt vital signs or any other procedures.</td>
<td>• If patient appears stable, and emergency treatment is unnecessary, reassure while transporting and do not attempt vital signs or any other procedures.</td>
</tr>
<tr>
<td>• Try not to violate the patient's personal space.</td>
<td>• Try not to violate the patient's personal space.</td>
</tr>
<tr>
<td>• Determine blood glucose</td>
<td>• Determine blood glucose</td>
</tr>
<tr>
<td>• If scenario dictates and patient is cooperative</td>
<td>• If scenario dictates and patient is cooperative</td>
</tr>
</tbody>
</table>

| Expanded Scope | | |
|----------------|----------------|
| Same as BLS | Same as BLS |

| ALS Prior to Base Hospital Contact | | |
|-----------------------------------|---------------|
| • Consider vascular access | • Determine blood glucose level |
| • Determine blood glucose level | • For excited delirium |
| • For excited delirium |   • Midazolam |
|   • Midazolam |     • 13kg to 40kg |
|     • IM 10mg |       • IM - 5mg |
|     OR |     • <13kg |
|     • IV/IO 2mg |       • IM - 0.1mg/kg |
|   o Repeat 1mg every 2 min as needed |     = Max 5mg |
|   o Max 10mg | • Any patient receiving Midazolam will be monitored with pulse oximetry. |

| Base Hospital Orders only | | |
|--------------------------|---------------|
| Consult with ED Physician for further treatment measures | Consult with ED Physician for further treatment measures |

| Communication Failure Protocol | | |
|--------------------------------|---------------|
| N/A | N/A |

(continued)
### Additional Information

| If patient refuses care and transport, and that refusal is because of “mental disorder”, consider having patient taken into custody according to Welfare and Institutions Code Section 5150. “Mental disorders” do not generally include alcohol or drug intoxication, brain injury, hypoxemia, hypoglycemia, or similar causes. |
| Be sure to consider and rule out other possible causes or behavior (traumatic or medical). |
| Use of restraints (physical or chemical) shall be documented and monitored. |
| Patients shall be medically cleared prior to transporting to a psychiatric facility if patient is placed on 5150 hold by law enforcement. |
| All patients that are deemed medically unstable shall be transported to the most accessible Emergency Department. |

| If patient refuses care and transport, and that refusal is because of “mental disorder”, consider having patient taken into custody according to Welfare and Institutions Code Section 5150. “Mental disorders” do not generally include alcohol or drug intoxication, brain injury, hypoxemia, hypoglycemia, or similar causes. |
| Be sure to consider and rule out other possible causes or behavior (traumatic or medical). |
| Use of restraints (physical or chemical) shall be documented and monitored. |
| Patients shall be medically cleared prior to transporting to a psychiatric facility if patient is placed on 5150 hold by law enforcement. |
| All patients that are deemed medically unstable shall be transported to the most accessible Emergency Department. |
# CARDIAC ARREST MANAGEMENT (CAM)

## Initial Procedures

### Adult

- **Initial Management**
  - The primary goal in resuscitation of cardiac arrest patients is to establish circulation via high quality, uninterrupted chest compressions
  - High performance CPR begins immediately
  - Set metronome at 110 compressions per minute
  - Chest compressions should be 2-2.5 inches deep
  - Allow full chest recoil
  - Limit any pause to 3 seconds or less
  - Switch compressors at every 200 compressions
  - Defibrillation should be attempted as soon as possible during the resuscitation
  - Attach defibrillator during compressions
  - Rescuers 2 and 3 should focus initially on attaching electrodes
  - Compressions halted:
    - Allow AED to analyze/manually analyze
      - For manual defibrillation determine if shockable rhythm within three seconds
    - Rotate compressors every 2 minutes during each rhythm check
  - If shock indicated:
    - Complete 30 compressions during the charge cycle of the defibrillator
    - Ventilations stop at 20th compression
    - After 30th compressions, rescuer “hovers” over the chest and calls out “OFF”
    - Defibrillation should occur within 1 second
  - Hover hands over the chest and be prepared to begin compressions as soon as shock is delivered

- **Airway Management and Ventilation**
  - Insert OPA
  - BVM ventilation after initial AED/manual analysis
  - Utilize the “2 thumbs up” jaw thrust technique to open the airway
  - Deliver small tidal volume ventilations, one handed, (approx.100mL) via small adult BVM on the upstroke of every 10th compression
  - Airway adjunct should match the specific patient situation

### Pediatric — (14 years and under)

- **Initial Management**
  - The primary goal in resuscitation of cardiac arrest patients is to establish circulation via high quality, uninterrupted chest compressions
  - High performance CPR begins immediately
  - Set metronome at 110 compressions per minute
  - Compressions should be 1/3 to 1/2 chest depth
    - Child (age 1-14 years): Use 1 or 2 hands
    - Infant (0-1 year): Use 2 fingers
  - Allow full chest recoil
  - Limit any pause to 3 seconds or less
  - Switch compressors at every 200 compressions
  - Defibrillation should be attempted as soon as possible during the resuscitation
  - Attach defibrillator during compressions
  - Rescuers 2 and 3 should focus initially on attaching electrodes
  - Compressions halted:
    - Allow AED to analyze/manually analyze
      - For manual defibrillation determine if shockable rhythm within three seconds
    - Rotate compressors every 2 minutes during each rhythm check
  - If shock indicated:
    - Complete 30 compressions during the charge cycle of the defibrillator
    - Ventilations stop at 20th compression
    - After 30th compressions, rescuer “hovers” over the chest and calls out “OFF”
    - Defibrillation should occur within 1 second
  - Hover hands over the chest and be prepared to begin compressions as soon as shock is delivered

- **Airway Management and Ventilation**
  - Insert OPA
  - BVM ventilation after initial AED/manual analysis
  - Utilize the “2 thumbs up” jaw thrust technique to open the airway
  - Deliver small tidal volume ventilations, one handed, (approx.100mL) via pediatric BVM on the upstroke of every 10th compression
  - Airway adjunct should match the specific patient situation
### Transition of Care
- Switch to manual cardiac monitor/defibrillator
- Complete compression cycle prior to analyzing rhythm
- ALS care must not interfere with the triangle of life

### Establish vascular access
- Do not interrupt compressions to accomplish
- IV or IO
  - Refer to Policy 533-04: Vascular Access

### Medication Administration
- Refer to specific policy for resuscitation and medication administration procedures
  - Policy 533-09b: Cardiac Arrest – VF / VT
  - Policy 533-09c: Cardiac Arrest – Asystole / PEA

### Advanced airway management
- Unless insufficient or compromised, maintain BLS airway
- Place ETCO₂ filter line to monitor and attach to BVM
- End-tidal capnography will be used to determine effectiveness of resuscitation, ROSC, and as a decision tool for termination of resuscitation
- Advanced airway placement should not interfere with continuous chest compressions or defibrillation

### Post ROSC Management
- Focus is on stabilizing the patient causal factors and providing transport
- If ROSC is achieved a BLS airway is preferred but an advanced airway can be considered
- Mix Push-dose Epinephrine
  - Refer to Policy 533-10: Push Dose Epinephrine
- Prior to moving the patient:

#### Initial Actions
- Initiate 5-10 minute continuous femoral pulse check
- Continue rescue breathing
- Confirm monitor settings are correct and visible with ACCURATE WAVEFORM
  - Paddles ECG
  - SPO₂ waveform
  - ETCO₂ waveform

#### Circulation
- Assess for palpable radial pulse
- Obtain peripheral IV access (18GA preferred, 20GA minimum)
- Initiate IV fluid bolus, 1000mL NS unless signs/symptoms of pulmonary edema
- Obtain manual blood pressure
- Epi and fluids for systolic blood pressure <100 mmHg

### Transition of Care
- Switch to manual cardiac monitor/defibrillator
- Complete compression cycle prior to analyzing rhythm
- ALS care must not interfere with the triangle of life

### Establish vascular access
- Do not interrupt compressions to accomplish
- IV or IO
  - Refer to Policy 533-04: Vascular Access

### Medication Administration
- Refer to specific policy for resuscitation and medication administration procedures
  - Policy 533-09b: Cardiac Arrest – VF / VT
  - Policy 533-09c: Cardiac Arrest – Asystole / PEA

### Advanced airway management
- Unless insufficient or compromised, maintain BLS airway
- Place ETCO₂ filter line to monitor and attach to BVM
- End-tidal capnography will be used to determine effectiveness of resuscitation, ROSC, and as a decision tool for termination of resuscitation
- Advanced airway placement should not interfere with continuous chest compressions or defibrillation

### Post ROSC Management
- Focus is on stabilizing the patient causal factors and providing transport
- If ROSC is achieved a BLS airway is preferred but an advanced airway can be considered
- Mix Push-dose Epinephrine
  - Refer to Policy 533-10: Push Dose Epinephrine
- Prior to moving the patient:

#### Initial Actions
- Initiate 5-10 minute continuous femoral pulse check
- Continue rescue breathing
- Confirm monitor settings are correct and visible with ACCURATE WAVEFORM
  - Paddles ECG
  - SPO₂ waveform
  - ETCO₂ waveform

#### Circulation
- Assess for palpable radial pulse
- Obtain peripheral IV access (18GA preferred, 20GA minimum)
- Initiate IV fluid bolus, 20mL/kg NS unless signs/symptoms of pulmonary edema
- Obtain manual blood pressure
- Epi and fluids titrated to weight based appropriate systolic blood pressure
Airway/Ventilation

- Assess for responsiveness and spontaneous ventilations
- Assess ETCO₂, lung sounds and SPO₂
  - Oxygenate to SPO₂ 94-99%
  - Oxygen flow rate titrated to prevent 100% SPO₂
- Ventilate the patient at 10 breaths per minute until chest begins to rise (approx. 500 ml) to achieve:
  - ETCO₂ of 35-45
  - SPO₂ 94-99%
  - No hyperventilation or hyper-oxygenation
- Maintain BLS airway or place advanced airway as indicated
- Place advanced airway if needed to effectively ventilate while moving patient (consider transport time when determining need for advanced airway)
- Obtain a 12 lead EKG. 5-10 minutes at scene is reasonable to ensure rhythm stability.
- Refer to Policy 539: 12-Lead ECG

Transport all ROSC patients to a STEMI Receiving Center.

- Post ROSC
  - Maintain systolic of >90mmHg
  - NS fluid bolus
  - Push-dose epinephrine
  - Consult with the Base Hospital for additional
  - Refer to Policy 533-10: Push-Dose Epinephrine

(continued)
### Additional Information

- CAM focus is on the Triangle of Life
- Rescuer #3 (at the head) should lead the CPR team.
- **Timekeeping** is important
  - The compressor should count 1-10 and repeat
  - The ventilator should count 10, 20, 30, etc. at every 10 compressions
- Resuscitation time
  - A minimum of 20 minutes at scene during resuscitation are required in all instances except:
    - 30 minutes of resuscitation are required in persistent VF/VT
  - Less time resuscitating may be appropriate in:
    - Unsafe scenes
    - Unworkable scenes
- Withhold or terminate resuscitation in traumatic arrest if:
  - Time from arrest to arrival at the nearest Hospital will exceed 20 minutes OR
  - The patient has remained in Cardiac Arrest after > 20 minutes of extended extrication
  - If the rhythm is asystole or wide complex PEA at a rate of 30 beats per minute or slower, the patient shall be determined to be dead
- Refer to Policy 533-29: Traumatic Arrest
- Refer to Policy 509: Determination of Death

Continuous chest compressions and defibrillation are more important than ventilation, vascular access, and medication administration.

Do NOT stop compressions during ventilations, charging of defibrillators, or ALS procedures.

---

**Effective Date:** January 1, 2020  
**Last Reviewed/Revised:** December 31, 2019  
**Next Review:** December 31, 2021  
**Signature on File**  
Angelo Salvucci, MD, EMS Medical Director
# CARDIAC ARREST

## VF / VT

### ADULT

**BLS Procedures**

- Manage using Cardiac Arrest Management policy.
- Refer to Policy 533-09a: Cardiac Arrest Management (CAM)
- Airway management
  - Refer to Policy 533-02: Airway Management

### PEDIATRIC – (14 years and under)

**BLS Procedures**

- Manage using Cardiac Arrest Management policy.
- Refer to Policy 533-09a: Cardiac Arrest Management (CAM)
- Airway management
  - Refer to Policy 533-02: Airway Management

**Expanded Scope**

- Same as BLS

### ALS Prior to Base Hospital Contact

- **Defibrillate**
  - Use the energy settings recommended by the monitor manufacturer that have been approved by service provider medical director
- **Vascular access**
  - Epinephrine
    - IV/IO – 1mg/10mL:
      - 1mg (10 mL) every 3-5 min
  - Amiodarone
    - IV/IO – 300mg after second defibrillation
  - If VT/VF persists after 3 minutes
    - Additional 150mg IV/IO
    - Max total dose 450mg
  - **ALS Airway Management**
    - If unable to ventilate by BLS measures, initiate appropriate advanced airway procedures
    - Refer to Policy 533-02: Airway Management
  - If VF/VT converts and then recurs;
    - Defibrillate at last successful energy level
  - **Suspected origin of Tricyclic Antidepressant Overdose:**
    - Sodium Bicarbonate
      - IV/IO – 1mEq/kg
      - Repeat 0.5mEq/kg every 5 min
    - If sustained ROSC (>30 seconds), perform 12-lead EKG and transport patient to the appropriate SRC
  - **Suspected renal failure, patient on dialysis and no dialysis for 3 days or more**
    - Calcium Chloride
      - IV/IO – 1gm over 1 min
    - Repeat x 1 in 10 min
    - 2nd vascular access site
    - Sodium bicarbonate (see additional information, below)
      - IV/IO – 1mEq/kg
      - Repeat 0.5mEq/kg every 5 min

- **Defibrillate** – 2 Joules/kg
  - If patient still in VF/VT at rhythm check, increase to 4 Joules/kg
  - Repeat every 2 minutes as indicated

- **Vascular access**
  - Epinephrine 1mg/10mL
    - IV/IO – 0.01mg/kg (0.1 mL/kg) every 3-5 min
  - Amiodarone
    - IV/IO – 5mg/kg after second defibrillation
  - If VT/VF persists after 3 minutes
    - Additional 2.5mg/kg
  - **ALS Airway Management**
    - If unable to ventilate by BLS measures, initiate appropriate advanced airway procedures
    - Refer to Policy 533-02: Airway Management

- **Suspected renal failure, patient on dialysis and no dialysis for 3 days or more**
  - Calcium Chloride
    - IV/IO – 20mg/kg over 1 min
  - Repeat x 1 in 10 min
  - 2nd vascular access site
  - Sodium bicarbonate (see additional information, below)
    - IV/IO – 1mEq/kg
    - Repeat 0.5mEq/kg every 5 min
# Base Hospital Orders only

- **Patient with repeated firing of AICD:**
  - Amiodarone
    - IV/IO – 150mg in 100mL 0.9% normal saline
    - Deliver over 10 minutes

- **Torsades de Pointes**
  - Magnesium Sulfate
    - IV/IO – 2gm over 2min
    - May repeat x1 in 5 min

- **Refractory VF/VT** should be resuscitated for a full 30 minutes, if not transported earlier. If after 30 minutes there is no ROSC, contact Base Hospital for confirmation of terminating resuscitation

- **Refer to** [Policy 509: Determination of Death](#)

<table>
<thead>
<tr>
<th>Consult with ED Physician for further treatment measures</th>
<th>Consult with ED Physician for further treatment measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

## Communication Failure Protocol

N/A

## Additional Information

- Metronome shall be set at 110 compressions per minute:
  - 10:1 synchronized compressions/ventilations

- Hypothermic patients should be transported to the most accessible receiving hospital. Administer only one round of medication administration and limit defibrillation to 6 times prior to Base Hospital contact.

- Ventricular tachycardia (VT) is a rate > 150 bpm

- IO to be used when unable to establish an IV after 2 attempts or 90 seconds.

- CPR is not to be interrupted during IV/IO, intubation attempts, or medication administration.

- Blood glucose measurements are not accurate and D50 and naloxone are not helpful, so these are not a standard indication for any patient in cardiac arrest. Blood glucose may be evaluated if ROSC is achieved.

- **Modifications for Pregnancy**
  - **Circulation**
    - Higher hand placement on chest wall
    - Perform uterine displacement (manual, backboard, pillows) to allow effective compressions
    - AED same as with non-pregnant patient
    - AED same as with non-pregnant patient
  - **Airway**
    - May need jaw-thrust to open airway
    - Consider early advanced airway
    - Use smaller ET tube than normal (0.5-1 mm smaller)
    - Provide cricoid pressure when intubating
  - **Breathing**
    - Expect increased resistance to bag/mask ventilation
    - Increase rate of respirations from 10-12 to 16-18 breaths/minute

- All pediatric resuscitation patients are to be transported to the closest receiving hospital.

- Hypothermic patients should be transported to the most accessible receiving hospital. Administer only one round of medication administration and limit defibrillation to 6 times prior to Base Hospital contact.

---

Effective Date: January 1, 2020

Last Reviewed/Revised: December 31, 2019

Next Review: December 31, 2021

Signature on File

Angelo Salvucci, MD, EMS Medical Director

26 of 91
# CARDIAC ARREST -

## ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA)

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC – (14 years and under)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS Procedures</strong></td>
<td><strong>BLS Procedures</strong></td>
</tr>
<tr>
<td>• Manage using Cardiac Arrest Management policy</td>
<td>• Manage using Cardiac Arrest Management policy</td>
</tr>
<tr>
<td>• Refer to Policy 533-09a: Cardiac Arrest Management (CAM)</td>
<td>• Refer to Policy 533-09a: Cardiac Arrest Management (CAM)</td>
</tr>
<tr>
<td>• Airway management. Refer to Policy 533-02: Airway Management</td>
<td>• Airway management. Refer to Policy 533-02: Airway Management</td>
</tr>
</tbody>
</table>

### Expanded Scope

<table>
<thead>
<tr>
<th>Same as BLS</th>
<th>Same as BLS</th>
</tr>
</thead>
</table>

### ALS Prior to Base Hospital Contact

| • Assess/treat causes | • Assess/treat causes |
| • Defibrillator shall be charged during compressions and charge dumped if Asystole/PEA. | • Vascular access |
| • Confirm Asystole by increasing gain to 2.0 | • Epinephrine 1mg/10mL |
| • If found to be fine VF, deliver shock | • IV/IO – 0.01mg/kg (0.1 mL/kg) every 3-5 min |

| • Vascular access | • If suspected hypovolemia: |
| • Epinephrine | • Normal Saline |
| • IV/IO – 1mg/10mL: 1mg (10 mL) every 3-5 min | • IV/IO bolus – 20mL/kg |
| • If suspected hypovolemia: | • Repeat x 2 |
| • Normal Saline | | |
| • IV/IO bolus – 1 Liter | | |

| • ALS Airway Management | • ALS Airway Management |
| • If unable to ventilate by BLS measures, initiate appropriate advanced airway procedures | • If unable to ventilate by BLS measures, initiate appropriate advanced airway procedures |
| • Refer to Policy 533-02: Airway Management | • Refer to Policy 533-02: Airway Management |

| • If Asystole converts to organized rhythm but is <40 and/or ETCO₂ <20, continue compressions for 2 minutes then reassess | • Suspected renal failure, patient on dialysis and no dialysis for 3 days or more |
| • Tricyclic Antidepressant Overdose | • Calcium Chloride |
| • Perform 12-lead ECG | • IV/IO – 20mg/kg over 1 min |
| • Sodium Bicarbonate | • Repeat x 1 in 10 min |
| • IV/IO – 1mEq/kg | • 2nd vascular access site |
| • Repeat 0.5mEq/kg every 5 min | • Sodium bicarbonate (see additional information, below) |

(continued)

- **Tricyclic Antidepressant Overdose**
  - Perform 12-lead ECG
  - Sodium Bicarbonate
  - IV/IO – 1mEq/kg
  - Repeat 0.5mEq/kg every 5 min

- **Make early Base Hospital contact for all pediatric cardiac arrests**

---

**Effective Date:** January 1, 2020  
**Last Reviewed/Revised:** December 31, 2019  
**Next Review:** December 31, 2021

**Signature on File**

Angelo Salvucci, MD, EMS Medical Director
• Suspected renal failure, patient on dialysis and no dialysis for 3 days or more
  • Calcium Chloride
    • IV/IO – 1gm over 1 min
    • Repeat x 1 in 10 min
  • 2nd vascular access site
    • Sodium bicarbonate (see additional information, below)
      • IV/IO – 1mEq/kg
      • Repeat 0.5mEq/kg every 5 min

Base Hospital Orders only

• Beta Blocker Overdose
  • Glucagon
    • IV/IO – 2mg
      • May give up to 10mg if available

• Calcium Channel Blocker Overdose
  • Calcium Chloride
    • IV/IO – 1gm
    • Repeat x 1 in 10 min
  • Glucagon
    • IV/IO – 2mg
    • May give up to 10mg if available

• Tricyclic Antidepressant Overdose
  • Sodium Bicarbonate
    • IV/IO – 1mEq/kg
    • Repeat 0.5mEq/kg every 5 min

• Beta Blocker Overdose
  • Glucagon
    • IV/IO – 0.1mg/kg
    • May give up to 10mg if available

• Calcium Channel Blocker Overdose
  • Calcium Chloride
    • IV/IO – 20mg/kg
    • Repeat x 1 in 10 min
  • Glucagon
    • IV/IO – 0.1mg/kg
    • May give up to 10mg if available

Consult with ED Physician for further treatment measures

Communication Failure Protocol

N/A

Additional Information

• Blood glucose measurements are not accurate and D50 and naloxone are not helpful, so none are done for any patient in cardiac arrest. Blood glucose may be evaluated if ROSC is achieved.

• If suspected hypovolemia, initiate immediate transport

• In cases of normothermic cardiac arrest patients 18 years and older with unwitnessed cardiac arrest, adequate ventilations, vascular access, and persistent asystole or PEA, confirmed in 2 leads, after 20 full minutes of standard advanced life support care, the paramedic may consider termination of resuscitation.
  • Any patient experiencing any period of VF/VT shall be discussed on scene and with the base station prior to termination
  • Refer to Policy 533-09a: Cardiac Arrest Management

• If patient is hypothermic – only ONE round of medication administration prior to Base Hospital contact.

• All pediatric resuscitation patients are to be transported to the closest receiving facility.
• If patient is hypothermic – only ONE round of medication administration prior to Base Hospital contact. Field determination of death is discouraged in these patients and they should be transported to the most accessible receiving facility.

(continued)

• **Modifications for Pregnancy**
  - **Circulation**
    - Higher hand placement on chest wall
    - Perform uterine displacement (manual, backboard, pillows) to allow effective compressions
    - AED same as with non-pregnant patient
  - **Airway**
    - May need jaw-thrust to open airway
    - Consider early advanced airway
    - Use smaller ET tube than normal (0.5-1 mm smaller)
    - Provide cricoid pressure when intubating
  - **Breathing**
    - Expect increased resistance to bag/mask ventilation
    - Increase rate of respirations from 10-12 to 16-18 breaths/minute
# PUSH DOSE EPINEPHRINE

## INDICATIONS
- Unstable Anaphylaxis
- Severe hypotension with signs of shock
- Septic shock
- Unstable bradycardia

Policies referenced:
- 533-07: Anaphylaxis Allergic Reaction
- 533-11: Chest Pain
- 533-12: Symptomatic Bradycardia
- 533-19: SOB Pulmonary Edema
- 533-21a: Shock – Hypovolemia
- 533-21b: Shock – Sepsis
- 533-28: Crush Injury

## ACTIONS
- Increases cardiac output
- Increases heart rate
- Increases mean arterial pressure (MAP)

## ADULT
### MIXING the CONCENTRATION
- Double check your concentration prior to mixing
- Maintain sterile technique
- Label the bag and syringe(s) with the drug name and final concentration
  - Example: “Epinephrine 10mcg/mL”

**Mixing concentration using “cardiac preloads”:**
- 1mg/10mL (0.1mg/mL; 100mcg/mL)
  - Supplies needed:
    - 1- 0.1mg/mL epi syringe (preload)
    - 1- 100mL bag of 0.9% normal saline
    - 1- 10mL syringe
  - Mixing instructions:
    - 10mL of 0.1mg/mL epinephrine into 100mL NS bag
    - Final concentration is 10mcg/mL

**Alternate mixing concentration: 1mg/mL**
- Supplies needed:
  - 1- epi 1mg/mL (1mg) ampule or vial
  - 1- filter needle (ampule)
  - 1- regular needle
  - 1- 100mL bag of 0.9% normal saline
  - 1- 10mL syringe
- Mixing instructions:
  - 1mL of 1mg/mL epinephrine into 100mL NS bag
  - Final concentration is 10mcg/mL (same as above method)

(continued)

## PEDIATRIC – (14 years and under)
### MIXING the CONCENTRATION
- Double check your concentration prior to mixing
- Maintain sterile technique
- Label the bag and syringe(s) with the drug name and final concentration
  - Example: “Epinephrine 10mcg/mL”

**Mixing concentration using “cardiac preloads”:**
- 1mg/10mL (0.1mg/mL; 100mcg/mL)
  - Supplies needed:
    - 1- 0.1mg/mL epi syringe (preload)
    - 1- 100mL bag of 0.9% normal saline
    - 1- 10mL syringe
  - Mixing instructions:
    - 10mL of 0.1mg/mL epinephrine into 100mL NS bag
    - Final concentration is 10mcg/mL

**Alternate mixing concentration: 1mg/mL**
- Supplies needed:
  - 1- epi 1mg/mL (1mg) ampule or vial
  - 1- filter needle (ampule)
  - 1- regular needle
  - 1- 100mL bag of 0.9% normal saline
  - 1- 10mL syringe
- Mixing instructions:
  - 1mL of 1mg/mL epinephrine into 100mL NS bag
  - Final concentration is 10mcg/mL (same as above method)

(continued)
## Santa Barbara County EMS
### County Wide Protocols
#### Policy 533 - 10

<table>
<thead>
<tr>
<th><strong>BLS Procedures</strong></th>
<th>N/A</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expanded Scope</strong></td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### ALS Prior to Base Hospital Contact

- **IV/IO**
  - Withdraw 10mL of solution using 10mL syringe
  - Administer 10mcg (1mL) every 3 min IV push
  - Titrate to SBP >90
  - Onset: 1 minute

### Base Hospital Orders only

Consult with ED Physician for further treatment measures

### Communication Failure Protocol

- **In sepsis ONLY:**
  - After 1 Liter of NS bolus
  - May use push dose epi as indicated above

### Additional Information

- **Contraindications:**
  - Sodium Bicarbonate (NaHCO₃)
  - Epinephrine is neutralized by, and may precipitate with Sodium Bicarbonate
  - Do NOT administer together in the same vascular access line and/or location unless the line has been flushed with 10mL or greater of NS

- **Documentation:**
  - Time and amount of each push dose epi given
  - Patient response 1 minute after administration

- **Base hospital report:**
  - Communicate the use of push dose epinephrine
  - Report the final concentration delivered
  - Report the total amount of push dose epi given, the elapsed time of total dosage, and the patient response

- **Contraindications:**
  - Sodium Bicarbonate (NaHCO₃)
  - Epinephrine is neutralized by, and may precipitate with Sodium Bicarbonate
  - Do NOT administer together in the same vascular access line and/or location unless the line has been flushed

- **Documentation:**
  - Time and amount of each push dose epi given
  - Patient response 1 minute after administration

- **Base hospital report:**
  - Communicate the use of push dose epinephrine
  - Report the final concentration delivered
  - Report the total amount of push dose epi given, the elapsed time of total dosage, and the patient response
CHEST PAIN – ACUTE CORONARY SYNDROME

ADULT

BLS Procedures

- Administer oxygen if dyspnea, signs of heart failure or shock, or SpO2 < 94%-99%
- Assist patient with prescribed Nitroglycerin as needed for chest pain
  - Hold if SBP < 110 mmHg

Expanded Scope

- NTG 0.4mg SL (spray or tabs) every 5 min until pain resolved.
  - Hold NTG if SBP < 110

ALS Prior to Base Hospital Contact

- Perform 12-lead ECG (prior to medication administration if possible)
  - Refer to Policy 539: 12-Lead ECG
  - If “MEETS ST ELEVATION MI CRITERIA” or “***ACUTE MI SUSPECTED***” is present, expedite transport to closest STEMI Receiving Center
- Document all initial and ongoing rhythm strips and ECG changes
- Apply defibrillation pads onto the patient
- For continuous chest pain consistent with acute coronary syndrome:
  - Nitroglycerin
    - SL or lingual spray – 0.4mg every 5 min for continued pain
      - No max dosage
      - Maintain SBP > 110 mmHg
      - If normal SBP < 110 mmHg, then maintain SBP > 90 mmHg
  - Aspirin
    - PO – 324 mg
- Vascular access
  - 2 attempts only prior to Base Hospital contact
- If pain persists and not relieved by NTG:
  - Refer to Policy 533-03: Pain Control
    - Maintain SBP > 110 mmHg
- If patient presents or becomes hypotensive:
  - Elevate legs
  - Normal Saline
    - IV/IO bolus – 250mL
      - Unless CHF is present
  - Ventricular Ectopy – runs of V-Tach (wide complex, heart rate > 100bpm, > 30 second duration)
    - Amiodarone
      - IV/IO – 150mg in 100mL 0.9% normal saline
      - Deliver over 10 minutes
Base Hospital Orders only

- If hypotensive and signs of CHF are present or no response to fluid therapy:
  - Push dose epinephrine
    - IV/IO
      - 10mcg (1mL) every 3 min slow IV push
      - Titrate to SBP >90
    - Refer to Policy 533-10: Push Dose Epinephrine
  - Consult with ED Physician for further treatment measures

Communication Failure Protocol

N/A

Additional Information

- Nitroglycerin is contraindicated when erectile dysfunction medications (Viagra, Levitra, and Cialis) have been recently used (Viagra or Levitra within 24 hours; Cialis within 48 hours). NTG then may only be given by ED Physician order
### Symptomatic Bradycardia

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC – (14 years and under)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(HR &lt; 45 BPM)</td>
<td>(HR &lt; 60 BPM)</td>
</tr>
</tbody>
</table>

#### BLS Procedures
- Administer oxygen as indicated
- Shock position as tolerated
- Administer oxygen as indicated
- Assist ventilations if needed
  - If significant ALOC, initiate CPR

#### Expanded Scope
- Same as BLS
- Same as BLS

#### ALS Prior to Base Hospital Contact
- Vascular access
  - Atropine
    - IV/O – 0.5mg
- Transcutaneous Pacing (TCP)
  - Consider early
    - Place defibrillator/pacing pads
  - Should be initiated only if patient has signs of hypo perfusion
  - If pain is present during TCP
    - Refer to Policy 533-03: Pain Control
- If symptoms persist for 3 minutes after first atropine dose and if no capture with TCP:
  - Atropine
    - IV/O – 0.5mg every 3-5 min
    - Max 0.04mg/kg
  - Consider performing 12-lead ECG
    - Refer to Policy 539: 12-Lead ECG
- If symptoms persist for 3 minutes after first atropine dose and if no capture with TCP:
  - Push dose epinephrine
    - IV/O
      - 10mcg (1mL) every 3 min slow IV push
      - Titrate to SBP >90
    - Refer to Policy 533-10: Push Dose Epinephrine
- **Suspected renal failure**, patient on dialysis **and** no dialysis for 3 days or more
  - Calcium Chloride
    - IV/O – 1gm over 1 min
    - Repeat x 1 in 10 min
  - 2nd vascular access site
    - Sodium bicarbonate (see additional information, below)
      - IV/O – 1mEq/kg
      - Repeat 0.5mEq/kg every 5 min

(continued)
<table>
<thead>
<tr>
<th>Base Hospital Orders only</th>
<th></th>
</tr>
</thead>
</table>
| Consult with ED Physician for further treatment measures | • Atropine  
  o IV/IO – 0.02mg/kg  
  o Minimum dose – 0.1mg  
  o Maximum single dose 0.5mg  
  o Maximum total dose 0.04mg/kg  
  Consult with ED Physician for further treatment measures |

<table>
<thead>
<tr>
<th>Communication Failure Protocol</th>
<th></th>
</tr>
</thead>
</table>
| • If symptoms persist for 3 minutes after first atropine dose and if no capture with TCP  
  • Atropine  
  o IV/IO – 0.5mg every 3-5 min  
  o Max 0.04mg/kg |  |

<table>
<thead>
<tr>
<th>Additional Information</th>
<th></th>
</tr>
</thead>
</table>
| • Calcium Chloride and Sodium Bicarbonate precipitate when mixed. Strongly consider starting / utilizing a second vascular access site (if possible) for administration of Calcium Chloride  
  • If a secondary vascular access site cannot be established, flush with 10mL saline in between. | • Calcium Chloride and Sodium Bicarbonate precipitate when mixed. Strongly consider starting / utilizing a second vascular access site (if possible) for administration of Calcium Chloride  
  • If a secondary vascular access site cannot be established, flush with 10mL saline in between. |
## Supraventricular Tachycardia (Heart Rate >160bpm)

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC – (14 years and under)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS Procedures</strong></td>
<td><strong>BLS Procedures</strong></td>
</tr>
<tr>
<td>• Administer oxygen to maintain SPO₂ &gt;94%</td>
<td>• Administer oxygen to maintain SPO₂ &gt;94%</td>
</tr>
</tbody>
</table>

### Expanded Scope

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC – (14 years and under)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same as BLS</td>
<td>Same as BLS</td>
</tr>
</tbody>
</table>

### ALS Prior to Base Hospital Contact

**ADULT**

- **Vascular access**
- **Stable** – Mild to moderate chest pain/SOB/distress
  - Valsalva maneuver
  - Adenosine – ONLY FOR REGULAR NARROW COMPLEX TACHYCARDIAS
    - IV/IO – 6mg rapid push immediately followed by 10-20mL NS flush
    - No conversion or rate control from first Adenosine dose:
      - Adenosine
      - IV – 12mg rapid push immediately followed by 10-20mL NS flush
      - May repeat x 1 if no conversion or rate control
      - BH contact for further direction.
  - Consider 12-Lead ECG
  - Refer to Policy 539: 12-Lead ECG

**Unstable** – ALOC, signs of shock or CHF, severe CP
- Place on backboard and prepare for synchronized cardioversion
- Midazolam
  - IV/IO – 2mg
  - Should only be given if it does not result in delay of synchronized cardioversion

- **Synchronized Cardioversion**
  - For unstable narrow complex, regular tachycardia (SVT), for atrial flutter, and for rapidly conducting atrial fibrillation
    - Use standard energy of 200J, 360J
    - OR energy settings recommended by monitor manufacturer and approved by service provider medical director

**PEDIATRIC** – (14 years and under)

- **Stable** – Mild to moderate chest pain/SOB/distress
  - Valsalva maneuver

- **Unstable** – ALOC, signs of shock or CHF, severe CP
  - Place on backboard and prepare for synchronized cardioversion
  - Contact Base Hospital
Base Hospital Orders only

<table>
<thead>
<tr>
<th>Consult with ED Physician for further treatment measures</th>
<th>Consult with ED Physician for further treatment measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Additional Information

| • Cardioversion per PALS guidelines.                  | • For the purpose of this policy, Supraventricular Tachycardia is defined as a heart rate greater than 160 |
| ▪ 0.5J/kg                                             | • Document all ECG strips during adenosine administration and/or synchronized cardioversion |
| ▪ (may increase to 2J/kg if initial dose ineffective) |                                                         |

- Adenosine is contraindicated in the following pts:
  - with 2° or 3rd° AV Block,
  - Sick Sinus Syndrome (except in pt with functioning pacemaker),
  - irregular wide complex tachycardia
  - Wolff Parkinson White syndrome
  - or known hypersensitivity to adenosine
- Unless the patient is in moderate or severe distress, consider IV access and transport only. Consider withholding adenosine administration if patient is stable until ED Physician evaluation
- Document all ECG strips during adenosine administration and/or synchronized cardioversion
## WIDE COMPLEX TACHYCARDIA – NOT IN ARREST

### ADULT

<table>
<thead>
<tr>
<th>BLS Procedures</th>
<th>PEDIATRIC – (14 years and under)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Administer oxygen to maintain SPO$_2$ &gt;94%</td>
<td>• Administer oxygen to maintain SPO$_2$ &gt;94%</td>
</tr>
</tbody>
</table>

### Expanded Scope

| Same as BLS | Same as BLS |

### ALS Prior to Base Hospital Contact

- **Vascular access**
- **Stable – Mild to moderate chest pain/SOB**
  - Amiodarone
    - IV/IO – 150mg in 100mL 0.9% normal saline
      - Deliver over 10 minutes
- **Unstable – ALOC, signs of shock or CHF, severe CP**
  - Midazolam
    - IV/IO – 2 mg
  - Should only be given if it does not result in delay of synchronized cardioversion
- **Synchronized Cardioversion**
  - For unstable V-tach with a pulse
    - Use standard energy of 200J, 360J
    - OR energy settings recommended by monitor manufacturer and approved by service provider medical director
- **Unstable polymorphic VT (Torsades de Pointes):**
  - Defibrillation
  - Use the biphasic energy settings that have been approved by service provider medical director

### Base Hospital Orders only

- **Torsades de Pointes**
  - Magnesium Sulfate
    - IVPB – 2 gm in 100mL 0.9% normal saline infused over 5 min
      - May repeat x 1 if Torsades continues or recurs
- **Cardioversion per PALS guidelines**
  - 0.5 J/kg
  - (may increase to 2 J/kg if initial dose ineffective)
  - Consult with ED Physician for further treatment measures

(continued)
## Communication Failure Protocol

<table>
<thead>
<tr>
<th>N/A</th>
<th>N/A</th>
</tr>
</thead>
</table>

### Additional Information

- Ventricular tachycardia (VT) is a rate > 150 bpm
- Early base hospital contact is recommended in unusual circumstances, e.g. Torsades de Pointes, Tricyclic OD and renal failure.
### NAUSEA / VOMITING

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC – (14 years and under)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS Procedures</strong></td>
<td></td>
</tr>
<tr>
<td>• Administer oxygen to maintain SPO$_2$ &gt;94%</td>
<td>• Administer oxygen to maintain SPO$_2$ &gt;94%</td>
</tr>
<tr>
<td><strong>Expanded Scope</strong></td>
<td></td>
</tr>
<tr>
<td>Same as BLS</td>
<td>Same as BLS</td>
</tr>
<tr>
<td><strong>ALS Prior to Base Hospital Contact</strong></td>
<td></td>
</tr>
<tr>
<td>• Any patient receiving Ondansetron MUST be placed on a cardiac monitor throughout care</td>
<td>• Any patient receiving Ondansetron MUST be placed on a cardiac monitor throughout care</td>
</tr>
<tr>
<td>• In the event of any patient entanglement or extrication, place the monitor early and maintain it throughout the extrication</td>
<td>• In the event of any patient entanglement or extrication, place the monitor early and maintain it throughout the extrication</td>
</tr>
<tr>
<td>• If cardiac monitoring would hamper the extrication process, place it as soon as possible</td>
<td>• If cardiac monitoring would hamper the extrication process, place it as soon as possible</td>
</tr>
<tr>
<td>• If moderate to severe nausea or vomiting is present or there is a potential for airway compromise (secondary to suspected/actual head injury):</td>
<td>• If moderate to severe nausea or vomiting is present or there is a potential for airway compromise (secondary to suspected/actual head injury):</td>
</tr>
<tr>
<td>• Vascular access</td>
<td>• Vascular access</td>
</tr>
<tr>
<td>• Normal saline</td>
<td>• Normal saline</td>
</tr>
<tr>
<td>• IV/IO 1L bolus</td>
<td>• IV/IO 20mL/kg (bolus)</td>
</tr>
<tr>
<td>• Ondansetron</td>
<td>• May repeat x1</td>
</tr>
<tr>
<td>• PO – 4mg ODT</td>
<td>• Ondansetron – 4 years old and greater</td>
</tr>
<tr>
<td>○ May repeat x 1 in 10 min</td>
<td>• PO – 4mg</td>
</tr>
<tr>
<td>• IV/IO/IM – 4mg</td>
<td>• IV/IO/IM – 4mg</td>
</tr>
<tr>
<td>○ May repeat x 1 in 10 min</td>
<td></td>
</tr>
</tbody>
</table>

**Base Hospital Orders only**

Consult with ED Physician for further treatment measures

**Communication Failure Protocol**

N/A

**Additional Information**

In the event of prolonged interfacility transfers, ondansetron may be administered hourly, as needed, not to exceed a total dose of 32 mg. Ondansetron is not required for pain control, but should be administered as needed for nausea/vomiting.

In the event of prolonged interfacility transfers, ondansetron may be administered hourly, as needed, not to exceed a total dose of 16 mg in pediatrics. Ondansetron is not required for pain control, but should be administered as needed for nausea/vomiting.
# Poisoning / Overdose

## Adult

<table>
<thead>
<tr>
<th>Public Safety First Aid Optional Skill Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Suspected opiate overdose with respirations less than 12/min:</td>
</tr>
<tr>
<td>• Assist ventilations appropriately</td>
</tr>
<tr>
<td>• Naloxone</td>
</tr>
<tr>
<td>• IN – 4mg via prefilled nasal spray</td>
</tr>
<tr>
<td>○ May repeat x1 in 3 minutes to maintain respirations greater than 12/min</td>
</tr>
<tr>
<td>• Total max 8mg</td>
</tr>
<tr>
<td>• Unless it is not possible to do so, an AED should be deployed and utilized to help monitor the patient’s condition.</td>
</tr>
<tr>
<td>• Suspected opiate overdose with NO respiratory effort</td>
</tr>
<tr>
<td>• Begin CPR</td>
</tr>
<tr>
<td>• Place AED and follow directions</td>
</tr>
</tbody>
</table>

## BLS Procedures

<table>
<thead>
<tr>
<th>Decontaminate if indicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administer oxygen to maintain SPO$_2$ &gt;94%</td>
</tr>
<tr>
<td>Suspected opiate overdose with respirations less than 12/min:</td>
</tr>
<tr>
<td>• Assist ventilations appropriately</td>
</tr>
<tr>
<td>• Naloxone</td>
</tr>
<tr>
<td>• IN – 2mg (1mg per nostril) via MAD</td>
</tr>
<tr>
<td>○ May repeat x1 in 3 minutes to maintain respirations greater than 12/min</td>
</tr>
<tr>
<td>• IN – 4mg via prefilled nasal spray</td>
</tr>
<tr>
<td>○ May repeat x1 in 3 minutes to maintain respirations greater than 12/min</td>
</tr>
<tr>
<td>• Total max 8mg</td>
</tr>
</tbody>
</table>

## Expanded Scope

| Suspected opiate overdose with respirations less than 12/min:  |
|   • Naloxone  |
|     • IM – 2mg  |
|       ○ May repeat x1 in 3 minutes to maintain respirations greater than 12/min  |
|     • Total max 8mg  |

• Suspected opiate overdose with respirations less than 12/min:  
  • Naloxone  
  • IM – 0.1mg/kg  
  • May repeat x1 in 3 minutes to maintain respirations greater than 12/min  
  • Total max 8mg  

(continued)
### ALS Prior to Base Hospital Contact

- Vascular access
- Oral ingestion within 1 hour, awake and gag reflex present:
  - Activated Charcoal
    - PO – 1gm/kg
    - Max 50gm
- Suspected opiate overdose with respirations less than 12/min:
  - Naloxone
    - IV/IO – 0.4mg every 1 min
      - May repeat as needed to maintain respirations greater than 12/min
    - Total max 8mg
- Tricyclic Antidepressant Overdose
  - Sodium Bicarbonate
    - IV – 1mEq/kg
- Stimulant/Hallucinogen Overdose/Excited Delirium
  - Refer to Policy 533-08: Behavioral Emergencies: Excited delirium

### Base Hospital Orders only

- Beta Blocker Overdose
  - Glucagon
    - IV/IO – 2mg
    - *May give up to 10 mg if available*
- Calcium Channel Blocker Overdose
  - Calcium Chloride
    - IV/IO – 1gm over 1 min
  - Glucagon
    - IV/IO – 2mg
    - *May give up to 10 mg if available*
- Organophosphate Poisoning
  - Atropine
    - IV – 2mg every 1 min
    - *Repeat until symptoms are relieved*
- Calcium Channel Blocker Overdose
  - Calcium Chloride
    - IV/IO – 20mg/kg over 1 min
  - Glucagon
    - IV/IO – 0.1mg/kg
    - *May give up to 10 mg if available*
- Organophosphate Poisoning
  - Atropine
    - IV/IO – 0.02mg/kg every 1 min
    - Minimum dose – 0.1mg
    - *Repeat until symptoms are relieved*

Consult with ED Physician for further treatment measures

(continued)
Communication Failure Protocol

<table>
<thead>
<tr>
<th>N/A</th>
<th>N/A</th>
</tr>
</thead>
</table>

**Additional Information**

- For Caustic/Corrosive or petroleum distillate ingestions, DO NOT GIVE CHARCOAL OR INDUCE VOMITING
- For Tricyclic Antidepressant Overdose, DO NOT GIVE CHARCOAL
- If chest pain present DO NOT GIVE ASPIRIN
  - Assess and provide pain control as appropriate
  - Refer to [Policy 533-03: Pain Control](#)
- Organophosphate poisoning – **SLUDGE**
  - S – Salivation
  - L – Lacrimation
  - U – Urination
  - D – Defecation
  - G – Gastrointestinal Distress
  - E – Elimination (vomiting)
- Naloxone – it is not necessary that the patient be awake and alert. Administer until max dosage is reached or RR greater than 12/min. When given to chronic opioid patients, withdrawal symptoms may present.

- For Caustic/Corrosive or petroleum distillate ingestions, DO NOT GIVE CHARCOAL OR INDUCE VOMITING
- For Tricyclic Antidepressant Overdose, DO NOT GIVE CHARCOAL
- If chest pain present DO NOT GIVE ASPIRIN
  - Assess and provide pain control as appropriate
  - Refer to [Policy 533-03: Pain Control](#)
- Organophosphate poisoning – **SLUDGE**
  - S – Salivation
  - L – Lacrimation
  - U – Urination
  - D – Defecation
  - G – Gastrointestinal Distress
  - E – Elimination (vomiting)
- Naloxone – it is not necessary that the patient be awake and alert. Administer until max dosage is reached or RR greater than 12/min. When given to chronic opioid patients, withdrawal symptoms may present.
NERVE AGENT POISONING

The Incident Commander is in charge of the scene and you are to follow his/her direction for entering and exiting the scene. Patients in the hot and warm zones MUST be decontaminated prior to entering the cold zone.

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC – (14 years and under)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS Procedures</strong></td>
<td><strong>BLS Procedures</strong></td>
</tr>
<tr>
<td>Refer to Appendix C – &quot;Chempack Cache Deployment Guide&quot;</td>
<td>Refer to Appendix C – &quot;Chempack Cache Deployment Guide&quot;</td>
</tr>
<tr>
<td><strong>Expanded Scope</strong></td>
<td><strong>Expanded Scope</strong></td>
</tr>
<tr>
<td>Refer to Appendix C – &quot;Chempack Cache Deployment Guide&quot;</td>
<td>Refer to Appendix C – &quot;Chempack Cache Deployment Guide&quot;</td>
</tr>
<tr>
<td><strong>ALS Prior to Base Hospital Contact</strong></td>
<td><strong>ALS Prior to Base Hospital Contact</strong></td>
</tr>
<tr>
<td>Refer to Appendix C – &quot;Chempack Cache Deployment Guide&quot;</td>
<td>Refer to Appendix C – &quot;Chempack Cache Deployment Guide&quot;</td>
</tr>
</tbody>
</table>

- PRIOR to CHEMPACK ARRIVAL:
  - Patient’s that are exhibiting obvious signs of exposure (SLUDGE)

**Hot/Warm Zones**
- Atropine
  - IM – 2mg every 5 min
  - Repeat until symptoms are relieved
- Vascular access should only be performed in the cold zone after complete decontamination

**Cold Zone**
- Vascular access
  - Atropine
    - IV/IO – 2mg every 1 min
    - Repeat until symptoms are relieved
    - IM – 2mg every 5 min
    - Repeat until symptoms are relieved
  - For seizures:
    - Midazolam
    - IM – 10mg
    - IV/IO – 2mg
      - Repeat 1 mg every 2 min as needed
      - Max 10mg

(continued)
## Base Hospital Orders only

<table>
<thead>
<tr>
<th>Base Hospital Orders only</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UPON ARRIVAL OF CHEMPACK:</strong></td>
</tr>
<tr>
<td><strong>CHEMPACK Inventory Includes –</strong></td>
</tr>
<tr>
<td>- Single dose Atropen (0.5mg dose)</td>
</tr>
<tr>
<td>- Single dose Atropen (1mg dose)</td>
</tr>
<tr>
<td>- Single dose Atropen (2mg dose)</td>
</tr>
<tr>
<td>- Atropine Sulfate 0.4mg/mL (20mL)</td>
</tr>
<tr>
<td>- Pralidoxime 1gm in 20mL</td>
</tr>
<tr>
<td>- Single dose Pralidoxime Chloride Injection (300mg/2ml)</td>
</tr>
<tr>
<td>- Diazepam Auto-Injector (10mg/2ml)</td>
</tr>
<tr>
<td>- Midazolam 5mg/mL 10mL</td>
</tr>
<tr>
<td>- Sterile Water (20cc vials)</td>
</tr>
</tbody>
</table>

## Base Hospital Orders only

<table>
<thead>
<tr>
<th>Base Hospital Orders only</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UPON ARRIVAL OF CHEMPACK:</strong></td>
</tr>
<tr>
<td><strong>CHEMPACK Inventory Includes –</strong></td>
</tr>
<tr>
<td>- Single dose Atropen (0.5mg dose)</td>
</tr>
<tr>
<td>- Single dose Atropen (1mg dose)</td>
</tr>
<tr>
<td>- Single dose Atropen (2mg dose)</td>
</tr>
<tr>
<td>- Atropine Sulfate 0.4mg/mL (20mL)</td>
</tr>
<tr>
<td>- Pralidoxime 1gm in 20mL</td>
</tr>
<tr>
<td>- Single dose Pralidoxime Chloride Injection (300mg/2ml)</td>
</tr>
<tr>
<td>- Diazepam Auto-Injector (10mg/2ml)</td>
</tr>
<tr>
<td>- Midazolam 5mg/mL 10mL</td>
</tr>
<tr>
<td>- Sterile Water (20cc vials)</td>
</tr>
</tbody>
</table>

---

**Consult with ED Physician for further treatment measures**

---

**Communication Failure Protocol**

<table>
<thead>
<tr>
<th>N/A</th>
</tr>
</thead>
</table>

---

**Additional Information**

- Diazepam is available in the CHEMPACK and may be deployed in the event of a nerve agent exposure.
- The Incident Commander is in charge of the scene and you are to follow his/her direction for entering and exiting the scene.
- Patients in the hot and warm zones MUST be decontaminated prior to entering the cold zone.

---

- Diazepam is available in the CHEMPACK and may be deployed in the event of a nerve agent exposure.
- The Incident Commander is in charge of the scene and you are to follow his/her direction for entering and exiting the scene.
- Patients in the hot and warm zones MUST be decontaminated prior to entering the cold zone.
# Shortness of Breath – Upper Airway Obstruction

## BLS Procedures

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC – (14 years and under)</th>
</tr>
</thead>
<tbody>
<tr>
<td>If suspected allergic reaction</td>
<td>If suspected allergic reaction</td>
</tr>
<tr>
<td>Assist patient with prescribed Metered Dose Inhaler if available</td>
<td>Assist patient with prescribed Metered Dose Inhaler if available</td>
</tr>
<tr>
<td>Administer oxygen to maintain SPO$_2 &gt;$94%</td>
<td>Administer oxygen to maintain SPO$_2 &gt;$94%</td>
</tr>
<tr>
<td><strong>Severe Distress</strong></td>
<td></td>
</tr>
<tr>
<td>Epinephrine 1mg/mL</td>
<td><strong>Severe Distress</strong></td>
</tr>
<tr>
<td>IM – 0.3mg via approved autoinject device</td>
<td>Epinephrine 1mg/mL</td>
</tr>
<tr>
<td>Consider CPAP in severe distress</td>
<td><strong>Severe Distress</strong></td>
</tr>
<tr>
<td>CPAP</td>
<td>Consider CPAP if 3 years old or greater and in severe distress</td>
</tr>
<tr>
<td>10cm H$_2$O</td>
<td>CPAP</td>
</tr>
<tr>
<td>If patient is intolerant, may reduce to 5cm H$_2$O</td>
<td>5cm H$_2$O</td>
</tr>
</tbody>
</table>

## Expanded Scope

<table>
<thead>
<tr>
<th>Moderate Distress</th>
<th>Moderate Distress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuterol</td>
<td></td>
</tr>
<tr>
<td>Nebulizer – 5mg (6mL)</td>
<td>Less than 2 years old</td>
</tr>
<tr>
<td><em>Repeat as needed</em></td>
<td>Albuterol</td>
</tr>
<tr>
<td>Severe Distress</td>
<td></td>
</tr>
<tr>
<td>Epinephrine 1mg/mL</td>
<td>2 years old and greater</td>
</tr>
<tr>
<td>IM – 0.3mg</td>
<td>Albuterol</td>
</tr>
<tr>
<td>Normal Saline</td>
<td></td>
</tr>
<tr>
<td>Nebulizer/Aerosolized Mask – 5 mL</td>
<td>Nebulizer – 2.5mg (3mL)</td>
</tr>
<tr>
<td><em>Repeat as needed</em></td>
<td><em>Repeat as needed</em></td>
</tr>
</tbody>
</table>

## ALS Prior to Base Hospital Contact

<table>
<thead>
<tr>
<th>Moderate Distress</th>
<th>Suspected Croup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuterol</td>
<td></td>
</tr>
<tr>
<td>Nebulizer – 5mg (6mL)</td>
<td>Normal Saline</td>
</tr>
<tr>
<td><em>Repeat as needed</em></td>
<td>Nebulizer/Aerosolized Mask – 5 mL</td>
</tr>
<tr>
<td>Severe Distress</td>
<td></td>
</tr>
<tr>
<td>Epinephrine 1mg/mL</td>
<td>Moderate Distress</td>
</tr>
<tr>
<td>IM – 0.3mg (0.3mL)</td>
<td>Less than 2 years old</td>
</tr>
<tr>
<td>Vascular access</td>
<td>Albuterol</td>
</tr>
<tr>
<td>Nebulizer – 2.5mg (3mL)</td>
<td>Nebulizer – 5mg (6mL)</td>
</tr>
<tr>
<td><em>Repeat as needed</em></td>
<td><em>Repeat as needed</em></td>
</tr>
<tr>
<td>2 years old and greater</td>
<td>Severe Distress</td>
</tr>
<tr>
<td>Albuterol</td>
<td></td>
</tr>
<tr>
<td>Nebulizer – 5mg (6mL)</td>
<td>Epinephrine 1mg/mL</td>
</tr>
<tr>
<td><em>Repeat as needed</em></td>
<td>IM – 0.01mg/kg</td>
</tr>
<tr>
<td>Vascular access</td>
<td>Max 0.3mg (0.3mL)</td>
</tr>
</tbody>
</table>

Effective Date: January 1, 2020
Last Reviewed/Revised: December 31, 2019
Next Review: December 31, 2021
Signature on File
Angelo Salvucci, MD, EMS Medical Director
# Base Hospital Orders only

<table>
<thead>
<tr>
<th>Consult with ED physician for further treatment measures</th>
<th>Consult with ED physician for further treatment measures</th>
</tr>
</thead>
</table>

## Communication Failure Protocol

- **Severe Distress**
  - If no change is apparent 10 minutes after first epinephrine administration:
  - Repeat Epinephrine 1mg/mL
  - IM – 0.3mg (0.3mL)

- **Severe Distress**
  - If no change is apparent 10 minutes after first Epinephrine administration
  - Repeat Epinephrine 1mg/mL
    - IM – 0.01mg/kg
    - Max 0.3mg (0.3mL)

## Additional Information

| N/A | N/A |
### Shortness of Breath – Lower Airway: Asthma / Pulmonary Edema / COPD

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC – (14 years and under)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS Procedures</strong></td>
<td><strong>BLS Procedures</strong></td>
</tr>
<tr>
<td>- Assist patient with prescribed Metered Dose Inhaler if available</td>
<td>- Assist patient with prescribed Metered Dose Inhaler if available</td>
</tr>
<tr>
<td>- Administer Oxygen to maintain SPO$_2$ &gt;94%</td>
<td>- Administer Oxygen to maintain SPO$_2$ &gt;94%</td>
</tr>
<tr>
<td>- Severe Distress</td>
<td>- Severe Distress</td>
</tr>
<tr>
<td>- Epinephrine 1mg/mL</td>
<td>- Epinephrine 1mg/mL</td>
</tr>
<tr>
<td>- IM – 0.3mg via approved autoinjector</td>
<td>- Approved BLS autoinjector</td>
</tr>
<tr>
<td>- CPAP for severe respiratory distress</td>
<td>- 0.15mg for 15-30kg patients</td>
</tr>
<tr>
<td>- 10cm H$_2$O</td>
<td>- 0.3mg for &gt;30kg patients</td>
</tr>
<tr>
<td>- If unable to tolerate mask, may reduce to 5cm H$_2$O</td>
<td>- CPAP, if ≥ 3-years-old and in severe respiratory distress</td>
</tr>
<tr>
<td>- Moderate Distress</td>
<td>- 5cm H$_2$O</td>
</tr>
<tr>
<td>- Albuterol</td>
<td>- 5mg (6mL)</td>
</tr>
<tr>
<td>- Nebulizer – 5mg (6mL)</td>
<td>- Repeat as needed</td>
</tr>
<tr>
<td>- Repeat as needed</td>
<td>- Severe Distress</td>
</tr>
<tr>
<td>- Epinephrine 1mg/mL</td>
<td>- Epinephrine 1mg/mL</td>
</tr>
<tr>
<td>- IM – 0.3mg</td>
<td>- Approved BLS autoinjector</td>
</tr>
<tr>
<td><strong>Expanded Scope</strong></td>
<td>- 0.15mg for 15-30kg patients</td>
</tr>
<tr>
<td>- Severe Distress</td>
<td>- 0.3mg for &gt;30kg patients</td>
</tr>
<tr>
<td>- Suspected Pulmonary Edema</td>
<td>- CPAP, if ≥ 3-years-old and in severe respiratory distress</td>
</tr>
<tr>
<td>- Nitroglycerin</td>
<td>- 5cm H$_2$O</td>
</tr>
<tr>
<td>- SL or lingual spray – 0.4mg every 1 min x 3</td>
<td>- 5mg (6mL)</td>
</tr>
<tr>
<td>- Repeat 0.4mg every 2 min</td>
<td>- Repeat as needed</td>
</tr>
<tr>
<td>- No max dosage</td>
<td>- Suspected Pulmonary Edema</td>
</tr>
<tr>
<td>- Hold for SBP &lt;110 mmHg</td>
<td>- Nitroglycerin</td>
</tr>
<tr>
<td>- Moderate Distress</td>
<td>- SL or lingual spray – 0.4mg every 1 min x 3</td>
</tr>
<tr>
<td>- Albuterol</td>
<td>- Repeat 0.4mg every 2 min</td>
</tr>
<tr>
<td>- Nebulizer – 2.5mg (3mL)</td>
<td>- No max dosage</td>
</tr>
<tr>
<td>- Repeat as needed</td>
<td>- Hold for SBP &lt;110 mmHg</td>
</tr>
<tr>
<td>- 2 years old and Greater</td>
<td>- Suspected Pulmonary Edema</td>
</tr>
<tr>
<td>- Nebulizer – 5mg (6mL)</td>
<td>- Nitroglycerin</td>
</tr>
<tr>
<td>- Repeat as needed</td>
<td>- SL or lingual spray – 0.4mg every 1 min x 3</td>
</tr>
<tr>
<td>- Severe Distress</td>
<td>- Repeat 0.4mg every 2 min</td>
</tr>
<tr>
<td>- Epinephrine 1mg/mL</td>
<td>- No max dosage</td>
</tr>
<tr>
<td>- IM – 0.01mg/kg</td>
<td>- Hold for SBP &lt;110 mmHg</td>
</tr>
<tr>
<td>- Max 0.3mg (0.3mL)</td>
<td>- Suspected Pulmonary Edema</td>
</tr>
<tr>
<td>(continued)</td>
<td>(continued)</td>
</tr>
</tbody>
</table>
# ALS Prior to Base Hospital Contact

- **Moderate Distress**
  - Nebulizer – 5mg (6mL)
  - *Repeat as needed*

- **Severe Distress**
  - Epinephrine 1mg/mL
  - IM – 0.3mg (0.3mL)

- Vascular access
- Consider 12-Lead EKG

### Suspected Pulmonary Edema

- Nitroglycerin
  - SL or lingual spray – 0.4mg every 1 min x 3
  - Repeat 0.4mg every 2 min
  - No max dosage
  - Hold for SBP <110 mmHg

- If Hypotension is present:
  - Push-Dose Epinephrine
    - IV/IO
      - 10mcg (1mL) every 3 min slow IV push
      - Titrate to SBP >90
    - Refer to Policy 533-10: Push Dose Epinephrine

### Base Hospital Orders only

Consult with ED Physician for further treatment measures

### Communication Failure Protocol

- **Severe Distress** (other than suspected pulmonary edema)
  - If no change is apparent after 10 minutes of first Epinephrine administration:
    - Repeat Epinephrine 1mg/mL
      - IM – 0.3mg (0.3mL)

- **Severe Distress** (other than suspected pulmonary edema)
  - If no change is apparent after 10 minutes of first Epinephrine administration
    - Repeat Epinephrine 1mg/mL
      - IM – 0.01mg/kg
      - Max 0.3mg (0.3mL)

### Additional Information

NA

---

Effective Date: January 1, 2020 | Last Reviewed/Revised: December 31, 2019 | Next Review: December 31, 2021

Signature on File

Angelo Salvucci, MD, EMS Medical Director
## SEIZURES

### ADULT

**BLS Procedures**
- Protect from injury
- Airway management.
  - Refer to Policy 533-02: Airway Management
- Administer oxygen to maintain SPO\textsubscript{2} >94%
- Determine blood glucose

### PEDIATRIC – (14 years and under)

**BLS Procedures**
- Protect from injury
- Airway management.
  - Refer to Policy 533-02: Airway Management
- For suspected febrile seizures, begin passive cooling measures. If seizure activity persists, see below
- Administer oxygen to maintain SPO\textsubscript{2} >94%
- Determine blood glucose

### Expanded Scope
- If blood glucose level <60
  - Glucagon IM – 1mg

### ALS Prior to Base Hospital Contact
- Known history of diabetes
  - If blood glucose level <60
    - Vascular access
    - D10
      - IV/IO – 25gm (250 mL)
    - No vascular access
      - Glucagon
        - IM - 1mg
  - Vascular access
- Persistent Seizure Activity (greater than 5 minutes in length)
  - Midazolam
    - IM 10mg OR
    - IV/IO 2mg
      - Repeat 1mg every 2 min as needed
      - Max 10mg
  - 3rd Trimester Pregnancy & No Known Seizure History with either signs and symptoms of eclampsia or active seizures (Refer to Policy 533-36: OB/GYN):
    - Magnesium Sulfate
      - IVPB – 2gm in 100mL 0.9% normal saline over 5 min
      - MUST Repeat x 1
      - Slow or stop infusion if bradycardia, heart block, or decreased respiratory effort occur
    - Midazolam
      - IM 10mg OR
      - IV/IO 2mg
        - Repeat 1mg every 2 min as needed
        - Max 10mg
- Known history of diabetes
  - If blood glucose level <60
    - Vascular access
    - D10
      - IV/IO – 0.5gm/kg (5mL/kg)
      - Max 25gm (250 mL)
  - No vascular access
    - Glucagon
      - IM 0.1mg/kg
      - Max 1mg
  - Consider vascular access
- Persistent Seizure Activity (greater than 5 minutes in length)
  - Midazolam
    - 13kg to 40kg patient
      - IM - 5mg
    - Less than 13kg patient
      - IM – 0.1mg/kg
      - Max 5mg

---

Effective Date: January 1, 2020
Last Reviewed/Revised: December 31, 2019
Next Review: December 31, 2021

Signature on File
Angelo Salvucci, MD, EMS Medical Director
<table>
<thead>
<tr>
<th>Base Hospital Orders only</th>
<th>Communication Failure Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consult with ED Physician for further treatment measures</td>
<td>Consult with ED Physician for further treatment measures</td>
</tr>
<tr>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Additional Information**

- **Treatment with Midazolam as indicated in the following:**
  - Continuous seizures >5 min (or > 2 min in pregnancy)
  - Repetitive seizures without regaining consciousness

- **Patients with a known seizure disorder, no longer seizing and with a normal postictal state, AND who have not received ALS interventions, may be treated as a BLS call.**

- **Treatment with Midazolam as indicated in the following:**
  - Continuous seizures >5 min
  - Repetitive seizures without regaining consciousness

- **Patients with a known seizure disorder, no longer seizing and with a normal postictal state, AND who have not received ALS interventions, may be treated as a BLS call.**
### SHOCK – HYPOVOLEMIA

#### ADULT

<table>
<thead>
<tr>
<th>BLS Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Evaluate patient lung sounds, if lungs clear use passive leg raising</td>
</tr>
<tr>
<td>• Administer oxygen to maintain SPO2 &gt;94%</td>
</tr>
<tr>
<td>• Hemorrhage Control</td>
</tr>
</tbody>
</table>

#### PEDIATRIC – (14 years and under)

<table>
<thead>
<tr>
<th>BLS Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Evaluate patient lung sounds, if lungs clear use passive leg raising</td>
</tr>
<tr>
<td>• Administer oxygen to maintain SPO2 &gt;94%</td>
</tr>
<tr>
<td>• Hemorrhage control</td>
</tr>
</tbody>
</table>

#### Expanded Scope

<table>
<thead>
<tr>
<th>Same as BLS</th>
</tr>
</thead>
</table>

#### ALS Prior to Base Hospital Contact

| Vascular access - large bore preferred |
| Normal saline |
| IV/IO |
| • 1L bolus |
| • Caution with cardiac and/or renal history |
| • Continue to evaluate lung sounds. If signs of CHF, decrease IV/IO to TKO |
| • If vital signs return to normal limits, decrease IV/IO to TKO |

| Traumatic Injury – for SBP <90 |
| Do not delay transport for vascular access |
| Attempt second IV/IO while enroute to ED |

| Hemorrhage Control |
| Tranexamic Acid (TXA) |
| • IV/IO |
| • Infuse 1gm (100mL) TXA over 10 minutes |
| • Refer to Policy 533-21c: Tranexamic Acid |

| If shock persists: |
| Repeat Normal Saline |
| • IV/IO |
| • 1L bolus |
| • After saline bolus |
| • Push dose epinephrine |
| • IV/IO |
| • 10mcg (1mL) every 3 min slow IV push |
| • Titrate to SBP >90 |
| • Refer to Policy 533-10: Push Dose Epinephrine |

| Vascular access |
| Normal saline |
| IV/IO |
| • 20mL/kg bolus |
| • May repeat x1 prior to BH contact |
| • Caution with cardiac and/or renal history |
| • Continue to evaluate lung sounds. If signs of CHF, decrease IV/IO to TKO |
| • If vital signs return to normal limits, decrease IV/IO to TKO |

| Traumatic Injury |
| Do not delay transport for vascular access |
| Attempt second IV/IO while enroute to ED |

| If shock persists: |
| Repeat normal saline |
| • IV/IO |
| • 20mL/kg bolus |
| • After saline bolus |
| • Push dose epinephrine |
| • IV/IO |
| • Withdraw 10mL of solution using 10mL syringe |
| • Patient weight <10kg |
| • Administer 1mcg/kg (0.1mL/kg) every 3min IV push |
| • Patient weight 10kg or greater |
| • Administer 10mcg (1mL) every 3 min IV push |
| • Titrate to weight appropriate SBP |
| • Refer to Appendix A |
| • Onset: 1 minute |
| • Refer to Policy 533-10: Push Dose Epinephrine |

#### Base Hospital Orders only

Consult with ED Physician for further treatment measures

#### Communication Failure Protocol

N/A

#### Additional Information

N/A

---

Effective Date: January 1, 2020

Last Reviewed/Revised: December 31, 2019

Next Review: December 31, 2021

Signature on File

Angelo Salvucci, MD, EMS Medical Director
## SHOCK – SEPSIS

### ADULT

<table>
<thead>
<tr>
<th>BLS Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Evaluate patient lung sounds, if lungs clear use passive leg raising</td>
</tr>
<tr>
<td>• Administer oxygen to maintain SPO₂ &gt;94%</td>
</tr>
</tbody>
</table>

### PEDIATRIC – (14 years and under)

<table>
<thead>
<tr>
<th>BLS Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Evaluate patient lung sounds, if lungs clear use passive leg raising</td>
</tr>
<tr>
<td>• Administer oxygen to maintain SPO₂ &gt;94%</td>
</tr>
</tbody>
</table>

### Expanded Scope

<table>
<thead>
<tr>
<th>Same as BLS</th>
</tr>
</thead>
</table>

### ALS Prior to Base Hospital Contact

<table>
<thead>
<tr>
<th>Vascular access - large bore preferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Normal saline</td>
</tr>
<tr>
<td>▪ IV/IO</td>
</tr>
<tr>
<td>▪ 1L bolus</td>
</tr>
<tr>
<td>• Caution with cardiac and/or renal history</td>
</tr>
<tr>
<td>• Continue to evaluate lung sounds. If signs of CHF, decrease IV/IO to TKO</td>
</tr>
<tr>
<td>• If vital signs return to normal limits, decrease IV/IO to TKO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If shock persists:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Repeat Normal Saline</td>
</tr>
<tr>
<td>▪ IV/IO</td>
</tr>
<tr>
<td>▪ 1L bolus</td>
</tr>
<tr>
<td>• After saline bolus</td>
</tr>
<tr>
<td>▪ Push dose epinephrine</td>
</tr>
<tr>
<td>▪ IV/IO</td>
</tr>
<tr>
<td>▪ 10mcg (1mL) every 3 min slow IV push</td>
</tr>
<tr>
<td>▪ Titrate to SBP &gt;90</td>
</tr>
<tr>
<td>• Refer to Policy 533-10: Push Dose Epinephrine</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vascular access</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Normal saline</td>
</tr>
<tr>
<td>▪ IV/IO</td>
</tr>
<tr>
<td>▪ 20mL/kg bolus</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>May repeat x1 prior to BH contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Caution with cardiac and/or renal history</td>
</tr>
<tr>
<td>• Continue to evaluate lung sounds. If signs of CHF, decrease IV/IO to TKO</td>
</tr>
<tr>
<td>• If vital signs return to normal limits, decrease IV/IO to TKO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If shock persists:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Repeat normal saline</td>
</tr>
<tr>
<td>▪ IV/IO</td>
</tr>
<tr>
<td>▪ 20mL/kg bolus</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>After saline bolus</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Push dose epinephrine</td>
</tr>
<tr>
<td>▪ IV/IO</td>
</tr>
<tr>
<td>▪ Withdraw 10mL of solution using 10mL syringe</td>
</tr>
<tr>
<td>▪ Patient weight &lt;10kg</td>
</tr>
<tr>
<td>▪ Administer 1mcg/kg (0.1mL/kg) every 3min IV push</td>
</tr>
<tr>
<td>▪ Patient weight 10kg or greater</td>
</tr>
<tr>
<td>▪ Administer 10mcg (1mL) every 3 min IV push</td>
</tr>
<tr>
<td>▪ Titrate to weight appropriate SBP</td>
</tr>
<tr>
<td>• Refer to Appendix A</td>
</tr>
<tr>
<td>• Onset: 1 minute</td>
</tr>
<tr>
<td>• Refer to Policy 533-10: Push Dose Epinephrine</td>
</tr>
</tbody>
</table>

### Base Hospital Orders only

<table>
<thead>
<tr>
<th>Consult with ED Physician for further treatment measures</th>
</tr>
</thead>
</table>

### Communication Failure Protocol

<table>
<thead>
<tr>
<th>N/A</th>
</tr>
</thead>
</table>

### Additional Information

<table>
<thead>
<tr>
<th>N/A</th>
</tr>
</thead>
</table>

---

Effective Date: January 1, 2020

Last Reviewed/Revised: December 31, 2019

Next Review: December 31, 2021

Signature on File

Angelo Salvucci, MD, EMS Medical Director
## Tranexamic Acid (TXA)

### ADULT (15 yrs or over)

#### INDICATIONS
- Blunt or penetrating traumatic injury with SBP \( \leq 90 \)
- Significant blood loss with ongoing bleeding not controlled by direct pressure, hemostatic agents, or tourniquet application
- Policies referenced:
  - 533-21a: Shock - Hypovolemia
  - 533-24: Chest, Abdomen, Pelvis Trauma
  - 533-25: Spinal Trauma
  - 533-26: Extremity Trauma
  - 533-28: Crush Injury

#### ACTIONS
- Inhibits conversion of plasminogen to plasmin
- Reduces fibrinolysis and clot breakdown
- Stabilizes clot formation

#### ONSET/DURATION
- Onset of Action: 20 minutes to 2 hours
- Duration of Action: 2-8 hours

#### CONTRAINDICATIONS
- Patients less than 15 years of age
- Greater than 3 hours post injury
- Isolated head injury
- Isolated spinal shock: Spinal injury with motor signs and hypotension
- Isolated extremity hemorrhage when bleeding has been controlled
- Active thrombolytic event (within 24 hours); i.e., active stroke, myocardial infarction, pulmonary embolus or DVT
- Hypersensitivity or anaphylactic reaction to TXA
- Traumatic arrest with >5 min of CPR without return of vital signs
- Drowning or hanging victims

### BLS Procedures

N/A

### Expanded Scope

N/A

### ALS Prior to Base Hospital Contact

#### MIXING the CONCENTRATION
- Maintain sterile technique
- Label the bag with the drug name and final concentration
  - Example: “TXA 1gm in 100mL”
- 10mg/mL concentration
- Supplies needed:
  - 1-1gm Tranexamic Acid (TXA)
  - 1-100mL bag of 0.9% saline (Normal Saline)
- Mixing instructions:
  - 1gm of TXA into 100mL NS bag

#### ADMINISTRATION
- Vascular Access
  - IV/IO
  - Infuse 1gm (100mL) TXA over 10 minutes
# STROKE

## ADULT

### BLS Procedures

- Perform LOC and neurological assessment
  - Utilize the Cincinnati Stroke Scale:
    - Facial Droop
    - Arm Drift
    - Speech
  
- Airway management protocol as needed (Refer to [Policy 533-02: Airway Management](#))

- Administer oxygen to maintain SPO₂ 94%-99%

- C-spine immobilization if evidence of trauma

- Check for Medical Alert Bracelet/Advanced Directive

- Determine blood glucose – (Refer to [Policy 533-06: Altered Neurological Function](#))

### Expanded Scope

- If blood glucose <60
  - Glucagon
  - IM – 1mg

### ALS Prior to Base Hospital Contact

- Cardiac Monitor

- Vascular access
  - Normal saline
    - IV/IO TKO or saline lock
    - Maintain SBP>110, re-evaluating after each 500 mL
      - MAX 1L

- Base hospital report: include time last known well
  - If TLKW is <6 hours and patient meets stroke criteria, declare Stroke Alert to the base hospital

- Do not delay transport for on-scene assessment

- Refer to [Policy 550: Stroke System Triage and Destination](#)

### Base Hospital Orders only

Consult with ED Physician for further treatment measures

### Communication Failure Protocol

N/A
Additional Information

- Documentation should specifically include:
  - Blood glucose
  - Cincinnati Stroke Scale
  - Time last known well
    - Name/Contact with TLKW information
    - If appropriate, consider transporting the person with TLKW history to the ED along with the patient

Cincinnati Stroke Scale Guidelines:
- Facial Droop
  - Normal: Both sides of face move equally
  - Abnormal: One side of face does not move at all

- Arm Drift
  - Normal: Both arms move equally or not at all
  - Abnormal: One arm drifts compared to the other

- Speech
  - Normal: Patient uses correct words with no slurring
  - Abnormal: Slurred or inappropriate words or mute
# HEAD / FACE / NECK TRAUMA

## ADULT

### BLS Procedures

- Airway management.
  - Refer to Policy 533-02: Airway Management
- Administer oxygen to maintain SPO$_2$ >94%
- C-spine precautions including placing patient supine with the head in the mid-line
- Facial trauma special considerations:
  - Check the oropharynx for teeth and dentures
  - For displaced teeth, place tooth in emergency dental kit, if available
  - Frequent airway suctioning is needed to prevent aspiration of blood, etc
- Eye injuries special considerations:
  - Avoid applying direct pressure to an injured eye
  - Do not attempt to replace the partially torn globe – stabilize it with a saline soaked gauze
  - Acid or alkali injuries: irrigate profusely with saline and remove contact lenses if possible
  - With any eye trauma cover both eyes loosely with a protective dressing
  - Stabilize impaled objects, do not remove
- Head trauma special considerations:
  - Scalp hemorrhage can be life threatening – dress with a pressure dressing
- Penetrating trauma special considerations:
  - In patients with penetrating torso or neck injury and unstable vital signs, transportation must be expedited
  - No C-Collar for penetrating neck injuries; otherwise immobilize the head appropriately
- Utilize approved hemostatic dressings where appropriate

## PEDIATRIC – (14 years and under)

### BLS Procedures

- Airway management.
  - Refer to Policy 533-02: Airway Management
- Administer oxygen to maintain SPO$_2$ >94%
- C-spine precautions including placing patient supine with the head in the mid-line
- Facial trauma special considerations:
  - Check the oropharynx for teeth and dentures
  - For displaced teeth, place tooth in emergency dental kit, if available
  - Frequent airway suctioning is needed to prevent aspiration of blood, etc
- Eye injuries special considerations:
  - Avoid applying direct pressure to an injured eye
  - Do not attempt to replace the partially torn globe – stabilize it with a saline soaked gauze
  - Acid or alkali injuries: irrigate profusely with saline and remove contact lenses if possible
  - With any eye trauma cover both eyes loosely with a protective dressing
  - Stabilize impaled objects, do not remove
- Head trauma special considerations:
  - Scalp hemorrhage can be life threatening – dress with a pressure dressing
- Penetrating trauma special considerations:
  - In patients with penetrating torso or neck injury and unstable vital signs, transportation must be expedited
  - No C-Collar for penetrating neck injuries; otherwise immobilize the head appropriately
- Utilize approved hemostatic dressings where appropriate

## Expanded Scope

- Same as BLS

## ALS Prior to Base Hospital Contact

- Airway management protocol as needed
  - Do not intubate head injured patients unless unable to ventilate by BVM
- Cardiac Monitor
- Vascular access
- Normal saline
  - IV/IO TKO or saline lock
  - Maintain SBP >110, reevaluating after each 500 mL
  - MAX 1L

(continued)
- Determine initial Glasgow Coma Scale Score
  - Report to Base Hospital
  - Update Base Hospital to any changes in GCS
  - Refer to Appendix B: Glasgow Coma Scale

- Hemorrhage Control
  - Refer to Policy 533-21a: Shock-Hypovolemia

- Assess and provide pain control as appropriate
  - Refer to Policy 533-03: Pain Control

- Determine initial Glasgow Coma Scale Score, utilizing Pediatric Modified GCS
  - Report to Base Hospital
  - Update Base Hospital to any changes in GCS
  - Refer to Appendix B: Glasgow Coma Scale

- Hemorrhage Control
  - Refer to Policy 533-21a: Shock-Hypovolemia

- Assess and provide pain control as appropriate
  - Refer to Policy 533-03: Pain Control

<table>
<thead>
<tr>
<th>Base Hospital Orders only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consult with ED Physician for further treatment measures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Communication Failure Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>For destination, refer to Policy 510: Trauma Triage</td>
</tr>
</tbody>
</table>

Effective Date: January 1, 2020
Last Reviewed/Revised: December 31, 2019
Next Review: December 31, 2021
Signature on File: Angelo Salvucci, MD, EMS Medical Director

58 of 91
<table>
<thead>
<tr>
<th>CHEST / ABDOMEN / PELVIS TRAUMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADULT</td>
</tr>
<tr>
<td><strong>BLS Procedures</strong></td>
</tr>
</tbody>
</table>
| • Airway management.  
  • Refer to Policy 533-02: Airway Management | • Airway management.  
  • Refer to Policy 533-02: Airway Management |
| • Administer oxygen to maintain SPO₂ >94% | • Administer oxygen to maintain SPO₂ >94% |
| • Open chest wound  
  • Apply chest seal dressing | • Open chest wound  
  • Apply chest seal dressing |
| • Utilize approved hemostatic dressings where appropriate | • Utilize approved hemostatic dressings where appropriate |
| **Expanded Scope** | **Expanded Scope** |
| Same as BLS | Same as BLS |
| **ALS Prior to Base Hospital Contact** | **ALS Prior to Base Hospital Contact** |
| • Vascular access, consider large bore | • Vascular access, consider larger bore |
| • Cardiac Monitor | • Cardiac Monitor |
| • Normal saline  
  • IV/IO TKO or saline lock  
  • Maintain SBP>90, re-evaluating after each 500mL  
  • Max 1L | • Normal saline  
  • IV/IO TKO or saline lock  
  • Maintain SBP appropriate for age;  
  • Refer to Appendix A  
  • NS bolus as needed to achieve above  
  • 20mL/kg, may repeat x1 then contact Base Hospital |
| • For pneumothorax/hemothorax, sit patient upright  
  • If tension pneumothorax, position appropriately and  
  • Needle Thoracostomy.  
  • Refer to Policy 536: Needle Thoracostomy | • For pneumothorax/hemothorax, sit patient upright  
  • If tension pneumothorax, position appropriately and  
  • Needle Thoracostomy.  
  • Refer to Policy 536: Needle Thoracostomy |
| • Hemorrhage Control  
  • Refer to Policy 533-21: Shock-Hypovolemia | • Hemorrhage Control  
  • Refer to Policy 533-21: Shock-Hypovolemia |
| • Assess and provide pain control as appropriate  
  • Refer to Policy 533-03: Pain Control | • Assess and provide pain control as appropriate  
  • Refer to Policy 533-03: Pain Control |

**Base Hospital Orders only**
Consult with ED Physician for further treatment measures  
Consult with ED Physician for further treatment measures

**Communication Failure Protocol**
N/A  
N/A
### Additional Information

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Blunt and penetrating trauma can cause extensive multi-organ intra-abdominal injuries with little or no pain or tenderness for the first few minutes or hours. This is especially true in adults with altered sensorium (drugs, alcohol, head or spinal cord injury) and children.</td>
<td>• Blunt and penetrating trauma can cause extensive multi-organ intra-abdominal injuries with little or no pain or tenderness for the first few minutes or hours. This is especially true in adults with altered sensorium (drugs, alcohol, head or spinal cord injury) and children.</td>
</tr>
<tr>
<td>• For Base Hospital and destination refer to <a href="#">Policy 510: Trauma Triage and Patient Destination</a></td>
<td>• For Base Hospital and destination refer to <a href="#">Policy 510: Trauma Triage and Patient Destination</a></td>
</tr>
</tbody>
</table>
## SPINAL TRAUMA

### ADULT

<table>
<thead>
<tr>
<th>BLS Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Airway management.</td>
</tr>
<tr>
<td>• Refer to Policy 533-02: Airway Management</td>
</tr>
<tr>
<td>• Administer oxygen to maintain SPO$_2$ &gt;94%</td>
</tr>
<tr>
<td>• Spinal Immobilization as follows:</td>
</tr>
<tr>
<td>• A patient with a mechanism of injury sufficient to result in a spinal injury meeting any one of the following criteria requires spinal immobilization:</td>
</tr>
<tr>
<td>• Not alert and oriented</td>
</tr>
<tr>
<td>• Intoxication with alcohol or drugs</td>
</tr>
<tr>
<td>• Any painful distracting injury</td>
</tr>
<tr>
<td>• Cervical spine pain</td>
</tr>
<tr>
<td>• Cervical spine tenderness or deformity</td>
</tr>
<tr>
<td>• Abnormal strength or sensation in any extremity</td>
</tr>
<tr>
<td>• Patients who do not meet any of these criteria do not require spinal immobilization</td>
</tr>
</tbody>
</table>

### PEDIATRIC – (14 years and under)

<table>
<thead>
<tr>
<th>BLS Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Airway management.</td>
</tr>
<tr>
<td>• Refer to Policy 533-02: Airway Management</td>
</tr>
<tr>
<td>• Administer oxygen to maintain SPO$_2$ &gt;94%</td>
</tr>
<tr>
<td>• Spinal Immobilization as follows:</td>
</tr>
<tr>
<td>• A patient with a mechanism of injury sufficient to result in a spinal injury meeting any one of the following criteria requires spinal immobilization:</td>
</tr>
<tr>
<td>• Not alert and oriented</td>
</tr>
<tr>
<td>• Intoxication with alcohol or drugs</td>
</tr>
<tr>
<td>• Any painful distracting injury</td>
</tr>
<tr>
<td>• Cervical spine pain</td>
</tr>
<tr>
<td>• Cervical spine tenderness or deformity</td>
</tr>
<tr>
<td>• Abnormal strength or sensation in any extremity</td>
</tr>
<tr>
<td>• Patients who do not meet any of these criteria do not require spinal immobilization</td>
</tr>
</tbody>
</table>

### Expanded Scope

<table>
<thead>
<tr>
<th>Same as BLS</th>
<th>Same as BLS</th>
</tr>
</thead>
</table>

### ALS Prior to Base Hospital Contact

| • Cardiac monitor |
| • Vascular access |
| Normal saline  |
|   • IV/IO TKO or saline lock |
|   • Maintain SBP >90, re-evaluating after each 500mL |
|   • Max 1L |
| Hemorrhage Control  |
|   • Refer to Policy 533-21: Shock – Hypovolemia |
|   • Assess and provide pain control as appropriate |
|   • Refer to Policy 533-03: Pain Control |

### ALS Prior to Base Hospital Contact

| • Cardiac monitor |
| • Vascular access |
| Normal saline  |
|   • IV/IO TKO or saline lock |
|   • Maintain SBP appropriate for age |
|   • Refer to Appendix A |
|   • NS bolus as needed to achieve above |
|   • 20mL/kg, may repeat x1 then contact Base Hospital |
| Hemorrhage Control  |
|   • Refer to Policy 533-21: Shock - Hypovolemia |
|   • Assess and provide pain control as appropriate |
|   • Refer to Policy 533-03: Pain Control |

### Base Hospital Orders only

| Consult with ED Physician for further treatment measures |

### Communication Failure Protocol

| N/A |

### Additional Information

For Base Hospital and destination refer to Policy 510: Trauma Triage and Patient Destination
## Extremity Trauma

### Adult

<table>
<thead>
<tr>
<th>BLS Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Control bleeding with direct pressure, cover open fractures with sterile saline soaked gauze</td>
</tr>
</tbody>
</table>
| - Tourniquet for uncontrollable bleeding  
  - Refer to Policy 544: Tourniquet |
| - Splint all dislocations in position found and transport as soon as possible |
| - Apply splints and re-check neurovascular status after any manipulation and periodically en-route |
| - For amputations: Bandage wound with dressing moistened with sterile saline |
| - Wrap amputated parts in sterile gauze/saline, place in bag, keep cool. Don’t place tissue directly in ice. |
| - Utilize approved hemostatic dressings where appropriate |

### Pediatric – (14 years and under)

<table>
<thead>
<tr>
<th>BLS Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Control bleeding with direct pressure, cover open fractures with sterile saline soaked gauze</td>
</tr>
</tbody>
</table>
| - Tourniquet for uncontrollable bleeding  
  - Refer to Policy 544: Tourniquet |
| - Splint all dislocations in position found and transport as soon as possible |
| - Apply splints and re-check neurovascular status after any manipulation and periodically en-route |
| - For amputations: Bandage wound with dressing moistened with sterile saline |
| - Wrap amputated parts in sterile gauze/saline, place in bag, keep cool. Don’t place tissue directly in ice. |
| - Utilize approved hemostatic dressings where appropriate |

### Expanded Scope

<table>
<thead>
<tr>
<th>Same as BLS</th>
</tr>
</thead>
</table>

### ALS Prior to Base Hospital Contact

<table>
<thead>
<tr>
<th>Same as BLS</th>
</tr>
</thead>
</table>

- Return extremity to anatomic position if possible as resistance/pain allow
- Consider vascular access
- If vital signs normal;
  - Normal saline
    - IV/Io TKO or saline lock
- Assess and provide pain control as appropriate
  - Refer to Policy 533-03: Pain Control
- Tourniquet management for uncontrollable bleeding
  - Refer to Policy 544: Tourniquet
- For hypotension:
  - Supine position
  - Normal saline
    - IV/Io TKO or saline lock
  - Maintain SBP >90, reevaluating after each 500mL
    - Max 1L
- Hemorrhage Control
  - Refer to Policy 533-21: Shock - Hypovolemia
- Consider vascular access
- If vital signs normal consider;
  - Normal saline
    - IV/Io TKO or saline lock
- Assess and provide pain control as appropriate
  - Refer to Policy 533-03: Pain Control
- Tourniquet management for uncontrollable bleeding
  - Refer to Policy 544: Tourniquet
- For hypotension:
  - Supine position
  - Normal saline
    - IV/Io TKO or saline lock
  - Maintain SBP appropriate for age
    - Refer to Appendix A
    - NS bolus as needed to achieve above
      - 20mL/kg, may repeat x1 then contact Base Hospital
- Hemorrhage Control
  - Refer to Policy 533-21: Shock - Hypovolemia
<table>
<thead>
<tr>
<th>Base Hospital Orders only</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Consult with ED Physician for further treatment measures</td>
<td>Consult with ED Physician for further treatment measures</td>
</tr>
</tbody>
</table>

### Communication Failure Protocol

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Additional Information

- Note in history and documentation: Localized swelling, angulation, lacerations, exposed bone, crepitus, neurovascular compromise, estimated blood loss.
- For Base Hospital and destination refer to [Policy 510: Trauma Triage and Patient Destination](#)

- Note in history and documentation: Localized swelling, angulation, lacerations, exposed bone, crepitus, neurovascular compromise, estimated blood loss.
- For Base Hospital and destination refer to [Policy 510: Trauma Triage and Patient Destination](#)
<table>
<thead>
<tr>
<th>BURNS</th>
<th>ADULT</th>
<th>PEDIATRIC – (14 years and under)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS Procedures</strong></td>
<td>• Remove rings, constrictive clothing and garments made of synthetic material</td>
<td>• Remove rings, constrictive clothing and garments made of synthetic materia</td>
</tr>
<tr>
<td></td>
<td>• Assess for chemical, thermal, electrical, or radiation burns and treat accordingly</td>
<td>• Assess for chemical, thermal, electrical, or radiation burns and treat accordingly</td>
</tr>
<tr>
<td></td>
<td>• If &lt; 10% Total Body Surface Area (TBSA) is burned, apply sterile saline dressings and elevate burned extremities if possible</td>
<td>• If &lt; 10% Total Body Surface Area (TBSA) is burned, apply sterile saline dressings and elevate burned extremities if possible</td>
</tr>
<tr>
<td></td>
<td>• Once area is cooled, remove saline dressings and cover with dry, sterile burn sheets</td>
<td>• Once area is cooled, remove saline dressings and cover with dry, sterile burn sheets</td>
</tr>
<tr>
<td></td>
<td>• Maintain body heat at all times</td>
<td>• Maintain body heat at all times</td>
</tr>
<tr>
<td></td>
<td>• Adjust the transport unit climate to facilitate patient thermoregulation</td>
<td>• Adjust the transport unit climate to facilitate patient thermoregulation</td>
</tr>
<tr>
<td></td>
<td>• Administer oxygen to maintain SPO$_2$ &gt;94%</td>
<td>• Administer oxygen to maintain SPO$_2$ &gt;94%</td>
</tr>
</tbody>
</table>

**Expanded Scope**

Same as BLS

**ALS Prior to Base Hospital Contact**

- Vascular access
- Assess and provide pain control as appropriate
  - Refer to Policy 533-03: Pain Control
- If TBSA >10% or hypotension is present:
  - Normal saline –
  - IV/IO bolus – 1L

**Base Hospital Orders only**

- Consult with ED Physician for further treatment measures

**Communication Failure Protocol**

N/A

**Additional Information**

- Additional Information:

![Additional Information Image](image-url)
Crush Injury / Syndrome

**ADULT**

**BLS Procedures**
- Perform spinal precautions as indicated
- Determine potential vs. actual crush syndrome scenario
- Administer oxygen to maintain SPO$_2$ >94%

**Expanded Scope**
- Same as BLS

**ALS Prior to Base Hospital Contact**
- Potential crush injury
  - Vascular access
  - Maintain body heat
  - Release compression
  - Monitor for cardiac dysrhythmias
- Actual crush syndrome
  - Initiate 2nd vascular access
    - Normal Saline
      - IV/IO bolus – 1L
      - *Caution with cardiac and/or renal history
  - Hemorrhage Control
    - Refer to Policy 533-21: Shock – Hypovolemia
  - Assess and provide pain control as appropriate
    - Refer to Policy 533-03: Pain Control
  - For continued shock
    - Repeat Normal Saline
      - IV/IO bolus – 1L
  - For ongoing extended entrapment and no response to fluid therapy:
    - Push dose epinephrine
      - IV/IO
        - 10mcg (1mL) every 3 min slow IV push
        - Titrate to SBP >90
      - Refer to Policy 533-10: Push Dose Epinephrine

**PEDIATRIC – (14 years and under)**

**BLS Procedures**
- Perform spinal precautions as indicated
- Determine potential vs. actual crush syndrome scenario
- Administer oxygen to maintain SPO$_2$ >94%

**Expanded Scope**
- Same as BLS

**ALS Prior to Base Hospital Contact**
- Potential crush injury
  - Vascular access
  - Maintain body heat
  - Release compression
  - Monitor for cardiac dysrhythmias
- Actual crush syndrome
  - Initiate 2nd vascular access if possible
    - Normal Saline
      - IV/IO bolus – 20mL/kg
      - *Caution with cardiac and/or renal history
  - Hemorrhage Control
    - Refer to Policy 533-21: Shock – Hypovolemia
  - Assess and provide pain control as appropriate
    - Refer to Policy 533-03: Pain Control
  - For continued shock
    - Repeat Normal Saline
      - IV/IO bolus – 20mL/kg
  - For ongoing extended entrapment and no response to fluid therapy:
    - Push dose epinephrine
      - IV/IO
      - Withdraw 10mL of solution using 10mL syringe
        - Patient weight <10kg
          - Administer 1mcg/kg (0.1mL/kg) every 3min IV push
        - Patient weight 10kg or greater
          - Administer 10mcg (1mL) every 3 min IV push
          - Titrate to weight appropriate SBP
          - Refer to Appendix A
          - Onset: 1 minute
      - Refer to Policy 533-10: Push Dose Epinephrine

(continued)
### Base Hospital Orders only

- **Actual crush syndrome**
  - Sodium Bicarbonate
    - IV/IO mix – 1mEq/kg
    - Added to 1st Liter of Normal Saline
  - Albuterol
    - Nebulizer – 5mg (6mL)
    - Repeat x 2
  - 2nd Vascular access
    - Calcium Chloride (see additional information, below)
      - IV/IO - 1gm over 1 minute

- **Actual crush syndrome**
  - Sodium Bicarbonate
    - IV mix– 1mEq/kg
    - Added to 1st Liter of Normal Saline
    - Albuterol
    - Less than 2 years old
      - Nebulizer – 2.5mg (3mL)
      - Repeat x 2
    - 2 years old and greater
      - Nebulizer – 5mg (6mL)
      - Repeat x 2
  - 2nd Vascular access
    - Calcium Chloride (see additional information, below)
      - IV/IO – 20mg/kg

Consult with ED Physician for further treatment measures

### Communication Failure Protocol

- **Actual crush syndrome**
  - Sodium Bicarbonate
    - IV/IO mix – 1mEq/kg
    - Added to 1st Liter of Normal Saline
  - Albuterol
    - Nebulizer – 5mg (6 mL)
    - Repeat x 2
  - 2nd Vascular access
    - Calcium Chloride (see additional information, below)
      - IV/IO - 1gm over 1 minute

- **Actual crush syndrome**
  - Sodium Bicarbonate
    - IV mix– 1mEq/kg
    - Added to 1st Liter of Normal Saline
    - Albuterol
    - Less than 2 years old
      - Nebulizer – 2.5mg (3mL)
      - Repeat x 2
    - 2 years old and greater
      - Nebulizer – 5mg (6mL)
      - Repeat x 2
  - 2nd Vascular access
    - Calcium Chloride (see additional information, below)
      - IV/IO – 20mg/kg

Consult with ED Physician for further treatment measures

### Additional Information

- **If elderly or cardiac history is present,** use caution with fluid administration. Reassess and treat accordingly.

- **Dysrhythmias are usually secondary to Hyperkalemia.**
  ECG monitor may show: Peaked T-waves, Absent P-waves, widened QRS complexes, bradycardia

- **Calcium Chloride and Sodium Bicarbonate precipitate when mixed.** Strongly consider starting / utilizing a second IV (if feasible) for administration of Calcium Chloride
  - If using the same access, flush with a minimum of 10mL normal saline between medications

- **Dysrhythmias are usually secondary to Hyperkalemia.**
  ECG monitor may show: Peaked T-waves, Absent P-waves, widened QRS complexes, bradycardia

- **Calcium Chloride and Sodium Bicarbonate precipitate when mixed.** Strongly consider starting / utilizing a second IV (if feasible) for administration of Calcium Chloride
  - If using the same access, flush with a minimum of 10mL normal saline between medications

---

Effective Date: January 1, 2020

Last Reviewed/Revised: December 31, 2019

Next Review: December 31, 2021

Signature on File

Angelo Salvucci, MD, EMS Medical Director
## TRAUMATIC ARREST

### ADULT

**BLS Procedures**
- Manage using Cardiac Arrest Management policy.
  - Refer to Policy 533-09: Cardiac Arrest Management (CAM)
- Airway management.
  - Refer to Policy 533-02: Airway Management
- Spinal immobilization as needed.
  - Refer to Policy 533-25: Spinal Trauma

### PEDIATRIC – (14 years and under)

**BLS Procedures**
- Manage using Cardiac Arrest Management policy.
  - Refer to Policy 533-09: Cardiac Arrest Management (CAM)
- Airway management.
  - Refer to Policy 533-02: Airway Management
- Spinal immobilization as needed.
  - Refer to Policy 533-25: Spinal Trauma

### Expanded Scope

Same as BLS

### ALS Prior to Base Hospital Contact

- Cardiac Monitor
- Immediate Transport
- Vascular access
  - Normal saline
  - IV/IO 1-2 large-bore
  - Wide open
  - Start enroute unless delay in extrication/loading
- Treat dysrhythmias per specific Cardiac Arrest Protocol
  - 533-09b Cardiac Arrest – VF/VT
  - 533-09c Cardiac Arrest – Asystole/PEA
- Withhold or terminate resuscitation in traumatic arrest if:
  - Time from arrest to arrival at the nearest Hospital will exceed 20 minutes OR
  - The patient has remained in Cardiac Arrest after >20 minutes of extended extrication
  - If the rhythm is asystole or wide complex PEA at a rate of 30 beats per minute or slower, the patient shall be determined to be dead
  - Refer to Policy 509: Determination of Death
- Refer to Policy 510: Trauma Triage and Patient Destination

### Base Hospital Orders only

Consult with ED Physician for further treatment measures

### Communication Failure Protocol

N/A

### Additional Information

In patients for whom mechanism of injury does not correlate with clinical condition, suggesting a non-traumatic cause of the arrest, a standard resuscitation should be initiated.

Prior to terminating resuscitation on traumatic arrest in PEA, consider bilateral needle thoracostomy

In patients for whom mechanism of injury does not correlate with clinical condition, suggesting a non-traumatic cause of the arrest, a standard resuscitation should be initiated.

Prior to terminating resuscitation on traumatic arrest in PEA, consider bilateral needle thoracostomy
## Bites & Stings

### Adult

**BLS Procedures**
- Animal/insect bites:
  - Flush site with sterile water
  - Control bleeding
  - Apply bandage
- Snake bites/envenomation:
  - Remove rings and constrictions
  - Immobilize the affected part in dependent position
  - Avoid excessive activity
- Bee stings:
  - If present, remove stinger
  - Apply ice pack
- Jellyfish stings:
  - Rinse with hot water, if available
  - **DO NOT:**
    - Rinse with fresh water, alcohol
    - Rub with wet sand
    - Apply heat
- All other marine animal stings:
  - If present, remove barb
  - Immerse in hot water, if available
- Administer oxygen to maintain \( \text{SPO}_2 > 94\% \)

### Pediatric – (14 years and under)

**BLS Procedures**
- Animal/insect bites:
  - Flush site with sterile water
  - Control bleeding
  - Apply bandage
- Snake bites/envenomation:
  - Remove rings and constrictions
  - Immobilize the affected part in dependent position
  - Avoid excessive activity
- Bee stings:
  - If present, remove stinger
  - Apply ice pack
- Jellyfish stings:
  - Rinse with hot water, if available
  - **DO NOT:**
    - Rinse with fresh water, alcohol
    - Rub with wet sand
    - Apply heat
- All other marine animal stings:
  - If present, remove barb
  - Immerse in hot water, if available
- Administer oxygen to maintain \( \text{SPO}_2 > 94\% \)

### Expanded Scope

Consider Policy 533-07: Anaphylaxis/Allergic Reaction

### ALS Prior to Base Hospital Contact

- Consider vascular access
- Monitor for allergic reaction or anaphylaxis
  - Refer to Policy 533-07: Anaphylaxis/Allergic Reaction
- Assess and provide pain control as appropriate
  - Refer to Policy 533-03: Pain Control

### Base Hospital Orders only

Consult with ED Physician for further treatment measures

### Communication Failure Protocol

N/A

### Additional Information

- All bites other than snake bites may be treated as a BLS call
- For known snake envenomation, consider rapid transport

---

Effective Date: January 1, 2020
Last Reviewed/Revised: December 31, 2019
Next Review: December 31, 2021

Signature on File
Angelo Salvucci, MD, EMS Medical Director
## HEAT EMERGENCIES

### ADULT

**BLS Procedures**
- Place patient in cool environment
- Initiate active cooling measures (remove clothing, fanning, spray with water)
- Administer oxygen to maintain SPO$_2$ >94%
- Determine blood glucose

### PEDIATRIC – (14 years and under)

**BLS Procedures**
- Place patient in cool environment
- Initiate active cooling measures (remove clothing, fanning, spray with water)
- Administer oxygen to maintain SPO$_2$ >94%
- Determine blood glucose

### Expanded Scope

- Same as BLS

### ALS Prior to Base Hospital Contact

**For ADULT**
- Vascular access
- Normal saline
  - IV/IO – Fluid bolus
  - Maintain SBP $>110$, re-evaluating after each 500mL
  - MAX 1L

**For PEDIATRIC**
- Vascular access
- Normal saline
  - IV/IO TKO or saline lock
  - Maintain SBP appropriate for age
  - Refer to Appendix A
  - NS bolus as needed to achieve above
  - 20mL/kg, may repeat x1 then contact Base Hospital

### Base Hospital Orders only

- If hypotensive after initial IV fluid bolus:
  - Repeat Normal Saline
  - IV/IO bolus – 1L

**For ADULT**
- If hypotensive after initial IV fluid bolus:
  - Repeat Normal Saline
  - IV/IO bolus – 20mL/kg
  - Maintain age appropriate SBP
  - Refer to Appendix A

**For PEDIATRIC**
- If hypotensive after initial IV fluid bolus:
  - Repeat Normal Saline
  - IV/IO bolus – 20mL/kg
  - Maintain age appropriate SBP
  - Refer to Appendix A

Consult with ED Physician for further treatment measures

### Communication Failure Protocol

- If hypotensive after initial IV fluid bolus:
  - Repeat Normal Saline
  - IV/IO bolus – 1L

**For ADULT**
- If hypotensive after initial IV fluid bolus:
  - Repeat Normal Saline
  - IV/IO bolus – 20mL/kg
  - Maintain age appropriate SBP
  - Refer to Appendix A

**For PEDIATRIC**
- If hypotensive after initial IV fluid bolus:
  - Repeat Normal Saline
  - IV/IO bolus – 20mL/kg
  - Maintain age appropriate SBP
  - Refer to Appendix A

### Additional Information

- For heat emergencies involving seizures
  - Refer to Policy 533-20: Seizures

- For heat emergencies involving seizures
  - Refer to Policy 533-20: Seizures
# HYPOTHERMIA

## ADULT

<table>
<thead>
<tr>
<th>BLS Procedures</th>
<th>PEDIATRIC – (14 years and under)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor vital signs for 1 minute:</td>
<td>Monitor vital signs for 1 minute:</td>
</tr>
<tr>
<td>• Acceptable ranges for severe hypothermia</td>
<td>• Acceptable ranges for severe hypothermia</td>
</tr>
<tr>
<td>• Respiratory Rate: 4-6/minute</td>
<td>• Respiratory Rate: 4-6/minute</td>
</tr>
<tr>
<td>• Heart rate: 20-30/minute</td>
<td>• Heart rate: 20-30/minute</td>
</tr>
<tr>
<td>If no pulse begin chest compressions</td>
<td>If no pulse begin chest compressions</td>
</tr>
<tr>
<td>Gently move patient to warm environment</td>
<td>Gently move patient to warm environment</td>
</tr>
<tr>
<td>Remove wet clothing and replace with dry blankets</td>
<td>Remove wet clothing and replace with dry blankets</td>
</tr>
<tr>
<td>Insulate head</td>
<td>Insulate head</td>
</tr>
<tr>
<td>Begin passive rewarming</td>
<td>Begin passive rewarming</td>
</tr>
<tr>
<td>STAT transport if no shivering (indicates core temp below 90º)</td>
<td>STAT transport if no shivering (indicates core temp below 90º)</td>
</tr>
<tr>
<td>Administer oxygen to maintain SPO₂ &gt;94%</td>
<td>Administer oxygen to maintain SPO₂ &gt;94%</td>
</tr>
<tr>
<td>For Frostbite:</td>
<td>For Frostbite:</td>
</tr>
<tr>
<td>• Wrap affected extremity in blankets or clothing</td>
<td>• Wrap affected extremity in blankets or clothing</td>
</tr>
<tr>
<td>• DO NOT rub or otherwise attempt active rewarming</td>
<td>• DO NOT rub or otherwise attempt active rewarming</td>
</tr>
</tbody>
</table>

## Expanded Scope

Same as BLS

Same as BLS

## ALS Prior to Base Hospital Contact

- Vascular access (if needed for medication or fluid administration)
  - If administering fluid, avoid administering cold fluids
- Assess and provide pain control as appropriate
  - Refer to Policy 533-03: Pain Control

## Base Hospital Orders only

Consult with ED Physician for further treatment measures

Consult with ED Physician for further treatment measures

## Communication Failure Protocol

N/A

N/A

## Additional Information

- Adjust the transport unit climate to facilitate patient warming
- Adjust the transport unit climate to facilitate patient warming
# WATER EMERGENCIES

## ADULT

### BLS Procedures
- Airway management
  - Refer to Policy 533-02: Airway Management
  - Administer oxygen to maintain SPO\(_2\) >94%
- Immobilize C-spine as indicated, or if suspected traumatic event
  - Refer to Policy 533-25: Spinal Trauma
- Patient flat on gurney (FOR DIVING INJURIES)
- Remove wet clothing, keep patient warm & dry

## PEDIATRIC – (14 years and under)

### BLS Procedures
- Airway management
  - Refer to Policy 533-02: Airway Management
  - Administer oxygen to maintain SPO\(_2\) >94%
- Immobilize C-spine as indicated, or if suspected traumatic event
  - Refer to Policy 533-25: Spinal Trauma
- Patient flat on gurney (FOR DIVING INJURIES)
- Remove wet clothing, keep patient warm & dry

## Expanded Scope
- Same as BLS
  - Same as BLS

## ALS Prior to Base Hospital Contact
- Cardiac Monitor
- Vascular access
- Normal saline
  - IV/IO TKO or saline lock
  - Maintain SBP >110, re-evaluating after each 500 mL
  - MAX 1L
- If hypotensive:
  - Normal saline
  - IV/IO bolus 20mL/kg x1
  - Maintain age appropriate SBP
  - Refer to Appendix A
  - May repeat x1 PRN prior to BH contact

## Base Hospital Orders only
- Consult with ED Physician for further treatment measures

## Communication Failure Protocol
- N/A

### Additional Information
- Early BH contact, to allow for assigned destination (consider possible hyperbaric capable receiving facility)
- Minimize time at scene
- Review History and report / document:
  - Use of any drugs, Trauma, Extremes of Age
  - Location of pain (for decompression injuries)
  - Dive History: Depth, Time down, Bring the diver’s Dive Computer with patient
  - Abnormal Neurological findings
  - Skin: Cool skin, especially abdominal wall
  - Bilateral breath sounds
  - Subcutaneous emphysema with retro-sternal discomfort.
  - Dysphagia, hoarseness, crepitus.
  - Consider associated trauma to C-spine to be present until proven otherwise

---

**Effective Date:** January 1, 2020  
**Last Reviewed/Revised:** December 31, 2019  
**Next Review:** December 31, 2021  
**Signature on File**  
Angelo Salvucci, MD, EMS Medical Director
CHILDBIRTH

ADULT

BLS Procedures

- Determine
  - number of pregnancies (gravida)
  - number of deliveries (para)
  - number of spontaneous and/or elective abortions
  - due date (weeks of gestation)
  - onset/duration/frequency/intensity of contractions
  - if a rupture of membranes has occurred (including color)
  - if any expected complications during pregnancy are present

- Visualize to determine if there is crowning or any abnormal presenting part

- Administer oxygen to maintain SPO$_2$ >94%

<table>
<thead>
<tr>
<th>PROLATED CORD</th>
<th>OTHER PRESENTING PART NOT DELIVERING</th>
<th>DELIVERING</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Cover cord with wet saline dressing</td>
<td>• Elevate hips</td>
<td>• Assist delivery while initiating Code-3 transport</td>
</tr>
<tr>
<td>• Place mother in left-lateral position</td>
<td>• Place mother in left-lateral position</td>
<td>• Assist with breech delivery while supporting the infant’s body (covering to maintain body warmth)</td>
</tr>
<tr>
<td>• Provide constant manual pressure on presenting part to avoid cord compression</td>
<td>• Initiate Code-3 transport</td>
<td>• Initiate Code-3 transport</td>
</tr>
</tbody>
</table>

- Initiate Code-3 transport if there is partial delivery of the infant and no further progress after 1-2 minutes

- If the HEAD is crowning, prepare to assist mother with delivery –
  - Guide baby out
  - If infant does not cry vigorously or appears to be having difficulty clearing it’s airway
    - Suction ONLY if secretions including meconium, causes airway obstruction
  - If suctioning, always suction mouth first, then nares
  - Dry and stimulate (rub gently, but briskly with warm towel)
  - Note time of birth
  - Double clamp the cord and cut with sterile scissors between clamps
  - Begin transport
- **Do not wait for placenta to deliver**
  - If placenta delivery is present, assist and package, then gently massage fundus
- **Do not massage fundus until the placenta has delivered**

- If the BUTT is “crowning:”
  - Have the mother push until the butt and legs are out to the mid-calves and then assist the feet out
  - If only one leg is presenting, reach up and bring down the second leg
  - Grab the torso carefully with a towel or blanket (be careful not to squeeze the infant’s abdomen)
  - Pull down a loop of cord to allow for further delivery and then rotate baby right or left, whichever is easier, to deliver the top shoulder
  - Raise body to deliver the bottom shoulder
  - Put gloved finger inside mouth and flex the chin toward the chest
  - Gently pivot the baby upward without pulling on the head. An assistant can provide suprapubic pressure to assist you with the delivery
  - Double clamp the cord and cut with sterile scissors or scalpel between clamps

- Neonatal assessment – Apgar score at 1 minute and 5 minutes **post-delivery**
Expanded Scope

Same as BLS

ALS Prior to Base Hospital Contact

- Vascular Access
- Normal Saline
  - IV/IO TKO or saline lock:
  - Maintain SBP >90, re-evaluating after each 500mL
- MAX 1L

Base Hospital Orders only

Consult with ED Physician for further treatment measures

Communication Failure Protocol

N/A

Additional Information

Refer to Appendix A

Complete neonatal assessment (APGAR Score) at 1 and 5 minutes post delivery as follows (note: if arriving >5 mins post delivery, use standard neonatal assessment):

<table>
<thead>
<tr>
<th>APGAR score</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>A – Appearance</td>
<td>Blue/Pale</td>
<td>Pink w/ blue extremities</td>
<td>Pink</td>
</tr>
<tr>
<td>P – Pulse</td>
<td>Absent</td>
<td>&lt; 100 bpm</td>
<td>&gt; 100 bpm</td>
</tr>
<tr>
<td>G – Grimace (reflexes)</td>
<td>Absent</td>
<td>Grimace</td>
<td>Cough/Cry/Sneeze</td>
</tr>
<tr>
<td>A – Activity (muscle tone)</td>
<td>Limp</td>
<td>Some flexion</td>
<td>Active</td>
</tr>
<tr>
<td>R – Respirations</td>
<td>Absent</td>
<td>Slow</td>
<td>Good cry</td>
</tr>
</tbody>
</table>
NEONATAL RESUSCITATION

28 days and under

BLS Procedures

- Newly Born Infant
  - Provide warmth, dry briskly and discard wet linen
  - Suction ONLY if secretions, including meconium, cause airway obstruction
  - Assess while drying infant
    - Full term (39 weeks)?
    - Crying or breathing?
    - Good muscle tone?
      - If “YES” to all three
        - Place skin-to-skin with mother
        - Cover both with dry linen
        - Observe breathing, activity, color
      - If “NO” to any of three
        - Stimulate briefly (<15 seconds)
        - Flick soles of infant’s feet
        - Briskly rub infant’s back
  - Provide warm/dry covering
  - Administer oxygen to maintain SPO₂ >94%
  - Continue to assess

- Newly Born Infant of 28 days of age or less
  - Assess Breathing
    - If crying or breathing, assess circulation
  - If apneic or gasping
    - Positive pressure ventilations (PPV) with BVM and ROOM AIR at 40-60 breaths per minute for 30 seconds
    - Continue PPV, reassessing every 30 seconds, until infant is breathing adequately
  - Reassess breathing, assess circulation
  - Administer oxygen to maintain SPO₂ >94%

- Assess Circulation
  - If HR between 60 and 100 bpm
    - PPV with BVM and ROOM AIR at 40-60 breaths per minute for 30 seconds
    - Continue PPV, reassessing every 30 seconds, until infant maintains HR >100 bpm
  - If HR <60 bpm
    - CPR at 3:1 ratio for 30 seconds
    - 90/min compressions
    - 30/min ventilations
    - Continue CPR, reassessing every 30 seconds, until HR >60 bpm
    - If no improvement after 90 seconds of ROOM AIR CPR, add supplemental O2 until HR >100

Expanded Scope

Same as BLS

(continued)
## ALS Prior to Base Hospital Contact

- Establish IO line **only** in presence of CPR
- Asystole OR Persistent Bradycardia < 60 bpm or PEA
  - Epinephrine $1mg/10mL$
    - IO – $0.01mg/kg$ (0.1mL/kg) every 3-5 min

## Base Hospital Orders only

Consult with ED Physician for further treatment measures

## Communication Failure Protocol

N/A

## Additional Information

- Resuscitation efforts may be withheld for extremely preterm infants (< 23 weeks or < 9 inches long).
  - Sensitivity to the desires of the parent(s) may be considered.
  - If uncertain as to gestational age, begin resuscitation.
- Refer to Appendix A for further reference
## OB / GYN (Pre-eclampsia, Eclampsia, Vaginal Bleeding & Miscarriage)

### ADULT

#### BLS Procedures

- Airway management. Refer to Policy 533-02: Airway Management
- Administer oxygen to maintain SPO₂ >94%

#### Vaginal Bleeding/Spontaneous Abortion:
- Place pad or large dressing over vaginal opening
- Save and transport all tissue or fetal remains passed

#### Pre-Eclampsia/Eclampsia:
- Minimize stimulation (lights, noise, other stressors)
- Left lateral position

### Expanded Scope

Same as BLS

### ALS Prior to Base Hospital Contact

- Vascular access
- Normal saline
  - IV/IO TKO or saline lock:
  - Maintain SBP >90, re-evaluating after each 500mL
  - MAX 1L
- Refer to Policy 533-20: Seizure as needed, including for Magnesium Sulfate administration

### Base Hospital Orders only

Consult with ED Physician for further treatment measures

### Communication Failure Protocol

N/A

### Additional Information

- Spontaneous abortion of a fetus 23 weeks gestational age or greater should be considered a neonatal resuscitation. Refer to Policy 533-35: Neonatal Resuscitation.

- Do not pack the vagina with any material to stop bleeding. A bulky dressing or pad may be used externally to absorb blood flow.

- History/report/documentation should include:
  - Last menstrual period and possibility of pregnancy
  - Duration and amount of any bleeding, estimated blood loss (EBL), passage of the products of conception
  - If pregnant: gestational age of fetus, gravida/para, and anticipated problems (placenta previa, pre-eclampsia, lack of prenatal care, use of narcotics or stimulants, etc.)
  - Presence of contractions, cramping or discomfort
  - Pre-eclampsia or eclampsia: altered mental status or seizures, hypertension
Pediatric Vital Sign Normal Ranges

(Utilizing AHA PALS Guidelines)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Respiratory Rate</th>
<th>Awake Heart Rate</th>
<th>Systolic Blood Pressure</th>
<th>Weight in kilos</th>
<th>Weight in pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn</td>
<td>30 - 60</td>
<td>85 - 205</td>
<td>60 - 84</td>
<td>2 - 3</td>
<td>4.5 - 7</td>
</tr>
<tr>
<td>Infant (1-12 months)</td>
<td>30 - 60</td>
<td>80 - 140</td>
<td>73 - 105</td>
<td>4 - 10</td>
<td>9 - 22</td>
</tr>
<tr>
<td>Toddler (1-3 yrs.)</td>
<td>24 - 40</td>
<td>80 - 130</td>
<td>67 - 106</td>
<td>10 - 14</td>
<td>22 - 31</td>
</tr>
<tr>
<td>Preschooler (3-5 yrs.)</td>
<td>22 - 34</td>
<td>80 - 120</td>
<td>79 - 115</td>
<td>14 - 18</td>
<td>31 - 40</td>
</tr>
<tr>
<td>School Age (6-12 yrs.)</td>
<td>18 - 30</td>
<td>70 - 110</td>
<td>79 - 115</td>
<td>20 - 42</td>
<td>41 - 92</td>
</tr>
<tr>
<td>Adolescent (13+ yrs.)</td>
<td>12 - 16</td>
<td>60 - 100</td>
<td>93 - 131</td>
<td>&gt;50</td>
<td>&gt;110</td>
</tr>
</tbody>
</table>

- The patient's normal range should always be taken into consideration.
- Heart rate, BP & respiratory rate are expected to increase during times of fever or stress.
- Respiratory rate on infants should be counted for a full 60 seconds.
- In a clinically decompensating child, the blood pressure will be the last to change. Just because your pediatric patient's BP is normal, don't assume that your patient is "stable".
- Bradycardia in children is an ominous sign, usually a result of hypoxia. Act quickly, as this child is extremely critical.

Pediatric Pain Scale Assessment Tool

Wong-Baker FACES® Pain Rating Scale

Used with permission.
# APGAR Score

Complete Fetal Assessment (APGAR Score) at 1 and 5 minutes post delivery as follows:

<table>
<thead>
<tr>
<th>APGAR score</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Appearance</td>
<td>Blue/Pale</td>
<td>Pink w/ blue extremities</td>
<td>Pink</td>
</tr>
<tr>
<td>P – Pulse</td>
<td>Absent</td>
<td>&lt; 100 bpm</td>
<td>&gt; 100 bpm</td>
</tr>
<tr>
<td>G – Grimace (reflexes)</td>
<td>Absent</td>
<td>Grimace</td>
<td>Cough/Cry/Sneeze</td>
</tr>
<tr>
<td>A – Activity (muscle tone)</td>
<td>Limp</td>
<td>Some flexion</td>
<td>Active</td>
</tr>
<tr>
<td>R – Respirations</td>
<td>Absent</td>
<td>Slow</td>
<td>Good cry</td>
</tr>
</tbody>
</table>
Glasgow Coma Scale

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye opening</strong></td>
<td><strong>Eye opening</strong></td>
</tr>
<tr>
<td>Spontaneous 4</td>
<td>Spontaneous 4</td>
</tr>
<tr>
<td>To speech 3</td>
<td>To speech 3</td>
</tr>
<tr>
<td>To pain 2</td>
<td>To pain 2</td>
</tr>
<tr>
<td>No response 1</td>
<td>No response 1</td>
</tr>
<tr>
<td><strong>Best verbal response</strong></td>
<td><strong>Best verbal response</strong></td>
</tr>
<tr>
<td>Oriented and converses 5</td>
<td>Coos, babbles 5</td>
</tr>
<tr>
<td>Disoriented and converses 4</td>
<td>Cries but consolable 4</td>
</tr>
<tr>
<td>Inappropriate words 3</td>
<td>Persistently irritable 3</td>
</tr>
<tr>
<td>Incomprehensible sounds 2</td>
<td>Grunts to pain/restless 2</td>
</tr>
<tr>
<td>No response 1</td>
<td>No response 1</td>
</tr>
<tr>
<td><strong>Best motor response</strong></td>
<td><strong>Best motor response</strong></td>
</tr>
<tr>
<td>Obeys verbal command 6</td>
<td>Normal movements 6</td>
</tr>
<tr>
<td>Localizes pain 5</td>
<td>Localizes pain 5</td>
</tr>
<tr>
<td>Flexion - withdraws from pain 4</td>
<td>Withdraws from pain 4</td>
</tr>
<tr>
<td>Flexion – abnormal 3</td>
<td>Flexion – abnormal 3</td>
</tr>
<tr>
<td>Extension 2</td>
<td>Extension 2</td>
</tr>
<tr>
<td>No response 1</td>
<td>No response 1</td>
</tr>
<tr>
<td><strong>E + V + M = 3 to 15</strong></td>
<td><strong>E + V + M = 3 to 15</strong></td>
</tr>
</tbody>
</table>

Cincinnati Stroke Scale

- **Facial Droop**
  - Normal: Both sides of face move equally
  - Abnormal: One side of face does not move at all

- **Arm Drift**
  - Normal: Both arms move equally or not at all
  - Abnormal: One arm drifts compared to the other

- **Speech**
  - Normal: Patient uses correct words with no slurring
  - Abnormal: Slurred or inappropriate words or mute
CHEMPACK CACHE DEPLOYMENT Guide

CHEMPACK Cache Information

The CHEMPACK Project, part of the Strategic National Stockpile (SNS) Program, is designed to provide a ‘forward’ and sustainable resource of chemical and nerve agent antidotes throughout the United States. CHEMPACK caches placed in Santa Barbara County are managed by the federal Centers for Disease Control and Prevention (CDC).

There are two types of CHEMPACK caches:

- **EMS cache** containers are primarily auto-injectors designed for pre-hospital emergency responder use, but are appropriate for hospital emergency departments as well.
- **HOSPITAL cache**, designed for hospital and treatment center use, has more multi-use vials.

There are 2 EMS caches and 1 hospital cache in Santa Barbara County:

- Each **EMS cache should treat 450** and each **hospital cache 1,000** patients of 30% mild, 40% moderate, and 30% severe cases.

CHEMPACK logistics:

- CHEMPACK container dimensions: 60.5" (Height) X 32.5" (Width) X 60.5" (Length)
- Total Weight: >700 lbs.
- CHEMPACK cache medications are in boxes that may be removed from the container and transported in passenger vehicles.

*For maximum effectiveness, CHEMPACKs need to reach affected patients within 60 minutes.*

Authorized CHEMPACK deployment requestors:

- Incident Commander
- Hospital ED Manager
- Santa Barbara County EMS Duty Officer
- Health Officer (Medical/Health Operational Area Coordinator)
- Regional Disaster Medical/Health Coordinator or Specialist
- California Department of Public Health staff
- California Emergency Medical Services Authority staff

Effective Date: January 1, 2020
Last Reviewed/Revised: December 31, 2019
Next Review: December 31, 2021
Signature on File

Angelo Salvucci, MD, EMS Medical Director
Record the following information when Chempack medications are requested in response to a nerve agent or chemical exposure:

<table>
<thead>
<tr>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incident Commander Name, Call Sign and Telephone Number</td>
</tr>
<tr>
<td>Incident Command Post Location</td>
</tr>
</tbody>
</table>

**Required Information Prior to Activation:**

| Nature and severity of chemical release: |
| Estimated number of patients: |

Based on estimated number of patients, the staff housing the CHEMPACK, the requesting hospital or the EMS duty officer will select the appropriate number of cases to deploy.

The cases of these medications are inside the Chempack container and may be removed and transported in the back of a passenger or other vehicle.

**EMS Cache**

- _____Mark I auto injectors. (1 case of 240 injectors for up to 50 patients. 5 cases per EMS cache-yellow)
- _____Diazepam 5 mg/ml auto injector (1 case of 150 injectors for up to 50 patients. 2 cases per EMS cache-green)
- _____Atropen 0.5 mg deploy for PEDS (1 case of 144 injectors for up to 50 PEDS. 1 case per EMS cache-purple)
- _____Atropen 1.0 mg deploy for PEDS (1 case of 144 injectors for up to 50 PEDS. 1 case per EMS cache-grey).

**Hospital Cache**

includes autoinjectors plus:

- _____Diazepam 5 mg/ml in 10 ml vial (25 per case, 26 cases in cache)
- _____Atropine Sulfate, 0.4 mg/ml in 20 ml. (100 per case, 9 cases in cache).
- _____Pralidoxime 1 gm in 20 ml. (276 per case, 10 cases per cache)
- _____Sterile water for injections (100 per case, 28 cases per cache)

Staging location for delivery at the scene:
Chempack Deployment Objectives

- **Alert the Chempack custodial sites** to ready the cache for deployment and stand by for further instructions.
- **Determine which caches to transport** based on the number of victims. The Chempack custodial hospital, the EMS duty officer, or receiving hospital will determine which EMS or Hospital CHEMPACKs to deploy and the quantity of items needed from each cache at each location (scene or hospital).
- **Determine route and staging site** for delivery to the scene as well as to receiving hospitals. Incident Commander on scene will provide routing instruction and staging location for delivery.
- **Arrange Code 3 transport** for EMS cache items to the incident site and Hospital cache items to the receiving hospital(s). Note: Due to proximity, portions of the EMS cache at Goleta Valley Cottage Hospital may be transported for use in a hospital in southern Santa Barbara County.
- **Notify the Chempack custodial site(s)** of the name of agency(s) which will arrive to take custody of the Chempack assets.
- **Assure that hospitals have secured** their Chempack custodial and receiving hospital sites with their own security personnel or in coordination with Sheriff or PD.

### Immediate Concerns

<table>
<thead>
<tr>
<th>Task</th>
<th>Yes</th>
<th>No</th>
<th>Notes/Time/Who Notified</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alert EMS Duty Officer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Alert OES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Alert CHEMPACK Custodial sites.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Contact the two CHEMPACK Custodial Sites:

- Request them to ready their caches.
- Tell the custodial agents to stand by for information on who will be making the pick up.
- Remind site to arrange for security at Chempack site.
<table>
<thead>
<tr>
<th>Marian Regional Medical Center (2 caches)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1400 E. Church St.</td>
<td></td>
</tr>
<tr>
<td>Santa Maria, CA 93454</td>
<td></td>
</tr>
<tr>
<td>24/7: (805) 739-3000 or (805) 739-3450 ask for ED Guerena, Director of Pharmacy; or Lisa Zurek, Asst. Director of Pharmacy; or Nursing Supervisor</td>
<td></td>
</tr>
</tbody>
</table>

(1) EMS Chempack (for incidents in the field)

(1) Hospital Chempack

<table>
<thead>
<tr>
<th>Goleta Valley Cottage Hospital (1 cache)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>351 South Patterson Avenue</td>
<td></td>
</tr>
<tr>
<td>Santa Barbara, CA 93111</td>
<td></td>
</tr>
<tr>
<td>967-3411 24/7</td>
<td></td>
</tr>
</tbody>
</table>

**GVCH Emergency Department Manager or Environmental Safety Manager**

(1) EMS Chempack (for incidents in the field)

**NOTE:** Due to the time sensitive nature of administration of these antidotes it may be necessary to use some of the medications in the Goleta Valley EMS cache in the hospital settings in southern Santa Barbara.

You will likely need to deploy items from the EMS cache to the scene AND items from the hospital or EMS cache to the receiving hospitals.
<table>
<thead>
<tr>
<th><strong>Note:</strong> In order to comply with CDC, DEA and internal procedures concerning controlled substances, for security purposes a custodial agent may elect to call the Sheriff’s Communications Center back to verify the validity of the request.</th>
</tr>
</thead>
</table>

4. **Based on location and access on scene, EMS duty officer and IC determine the most appropriate EMS and hospital caches to deploy.**

**Note:** Each EMS cache can treat up to 450 patients in the field. If more than 450 patients are to be treated in the field, BOTH EMS caches must be deployed.

**Note:** The hospital cache can treat 1,000 patients.

Based primarily on the location of the incident, but also taking into account traffic patterns and any other relevant information, EMS duty officer or IC will determine if the Marian West cache or the GVCH cache is most appropriate for deployment to the scene.

**Receiving hospitals will receive medications from the HOSPITAL cache or the Goleta Valley EMS cache.**

**Note:** You will need to make multiple separate transportation arrangements to move Chempack resources to the scene and to the receiving hospital(s).
5. SB County Communication Center to make code 3 transportation arrangements for:

- EMS Chempack cache to the staging area indicated by the authorized requestor
- Hospital Chempack to receiving hospitals.

Note: Due to proximity, in some cases antidotes from the EMS Chempack at GVCH will need to be used at south county hospitals.

Note: Time is of critical importance. 60 minute window to administer nerve agent antidotes.

- Consider all available public safety resources, the traffic situation and other incident-specific factors and use the resource or combination of resources necessary.
- Remember, if the entire EMS cache(s) and the hospital cache are deployed, separate transportation will be needed for each.
- Relay ETA to the requestor when available.

NOTE: Items may be removed from the wheeled Chempack container and transported separately in vehicles. The EMS cache will fit into the backseat of a passenger vehicle.

For out-of-county incidents, transportation arrangements are the responsibility of the requestor. In the interest of public safety, dispatch personnel will take all necessary action to assist out-of-county requestors in coordinating transportation using any
resources available within the county including those from cities and CHP.

**Transportation resources for Marian West Hospital (hospital and EMS) caches:**

- Santa Maria Fire (consider their level of involvement and commitment of resources if the incident is occurring within their jurisdiction – if they are heavily involved in response and suppression activities, consider another alternative)
- Sheriff
- Santa Barbara County Fire or Santa Maria City Fire
- AMR
- Santa Maria PD
- CHP
- Helicopter
- CALSTAR
- Other code-3 equipped law enforcement, fire or EMS asset
- Other air assets

Air transport helispot options for Marian West:

Have the helicopter meet the ground unit at Marian Hospital’s helispot.

If air transport is arranged, be sure to coordinate helispot security and ground transportation at the receiving end.

**Transportation resources for GVCH (EMS) cache:**

- Sheriff
- Santa Barbara County Fire
- AMR
- CHP
- Santa Barbara PD
- helicopter
- CALSTAR
- Other air assets
- Other code-3 equipped law enforcement, fire or EMS asset

*Air transport helispot for GVCH:*

Contact Airport Patrol via SBPD. Have helicopter meet the ground unit at the Santa Barbara Airport at Signature Air.

If air transport is arranged, be sure to coordinate helispot security and tarmac access via Airport Patrol. Arrange ground transportation to scene or hospital at the receiving end.

Inform IC on scene and receiving hospital of ETA of Chempack assets.
6. The EMS Duty Officer will notify the Regional Disaster Medical Health Coordinator (RDMHC) by calling 562-347-1500 (Main) or 949-981-2865 (c).

7. Notify all Santa Barbara, Ventura, and SLO County hospitals and other REDDINet users via REDDINet memo. Include estimated number of victims and which hospitals will receive the HOSPITAL CHEMPACK medications.

8. Request that hospitals receiving Chempack medications coordinate security with local law enforcement to assure safeguarding of the cache and protecting the facility and its staff from any crowd control issues. If the venue agency is unable to fill the request, request officers from other agencies on a mutual aid basis.

Reminders

🌟 Time is of the essence. The medications must reach the patients and/or affected first responders within 60 minutes! Take action quickly, particularly when arranging transportation. If one transportation resource alternative cannot rapidly commit, immediately begin looking for another. Be careful not lose too much time waiting for several call backs.

🌟 Other nearby counties with EMS CHEMPACK caches include: Ventura and San Luis Obispo.
<table>
<thead>
<tr>
<th>Term</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5% Dextrose in Water</td>
<td>D5W</td>
</tr>
<tr>
<td>Abdomen</td>
<td>Abd</td>
</tr>
<tr>
<td>Abdominal Aortic Aneurysm</td>
<td>AAA</td>
</tr>
<tr>
<td>Above knee amputation</td>
<td>AKA</td>
</tr>
<tr>
<td>Acquired Immunodeficiency Syndrome</td>
<td>AIDS</td>
</tr>
<tr>
<td>Ad Libitum (as desired)</td>
<td>Ad lib</td>
</tr>
<tr>
<td>Advanced Life Support</td>
<td>ALS</td>
</tr>
<tr>
<td>Against Medical Advice</td>
<td>AMA</td>
</tr>
<tr>
<td>Alcohol</td>
<td>ETOH</td>
</tr>
<tr>
<td>Alert and Oriented</td>
<td>A &amp; O</td>
</tr>
<tr>
<td>Also Known As</td>
<td>aka</td>
</tr>
<tr>
<td>Altered Level Of Consciousness</td>
<td>ALOC</td>
</tr>
<tr>
<td>Amount</td>
<td>Amt</td>
</tr>
<tr>
<td>Ampule</td>
<td>Amp</td>
</tr>
<tr>
<td>Antecubital</td>
<td>AC</td>
</tr>
<tr>
<td>Anterior</td>
<td>Ant</td>
</tr>
<tr>
<td>Anterior/Posterior</td>
<td>AP</td>
</tr>
<tr>
<td>Appointment</td>
<td>Appt</td>
</tr>
<tr>
<td>Arterial Blood Gas</td>
<td>ABG</td>
</tr>
<tr>
<td>Arteriosclerotic Heart Disease</td>
<td>ASHD</td>
</tr>
<tr>
<td>As necessary</td>
<td>pm</td>
</tr>
<tr>
<td>As soon as possible</td>
<td>ASAP</td>
</tr>
<tr>
<td>Aspirin</td>
<td>ASA</td>
</tr>
<tr>
<td>At</td>
<td>@</td>
</tr>
<tr>
<td>Arrived to find</td>
<td>ATF</td>
</tr>
<tr>
<td>Atrial Fibrillation</td>
<td>A fib, AF</td>
</tr>
<tr>
<td>Attention Deficit Hyperactivity Disorder</td>
<td>ADHD</td>
</tr>
<tr>
<td>Automated external Defibrillator</td>
<td>AED</td>
</tr>
<tr>
<td>Automatic Implantable Cardiac Defibrillator</td>
<td>AICD</td>
</tr>
<tr>
<td>Bag Valve Mask</td>
<td>BVM</td>
</tr>
<tr>
<td>Basic Life Support</td>
<td>BLS</td>
</tr>
<tr>
<td>Birth Control Pill</td>
<td>bcp</td>
</tr>
<tr>
<td>Bowel Movement</td>
<td>BM</td>
</tr>
<tr>
<td>Bundle Branch Block</td>
<td>BBB</td>
</tr>
<tr>
<td>By Mouth</td>
<td>p.o.</td>
</tr>
<tr>
<td>By Order Of</td>
<td>per</td>
</tr>
<tr>
<td>Cardiac Arrest Management</td>
<td>CAM</td>
</tr>
<tr>
<td>Cancer</td>
<td>CA</td>
</tr>
<tr>
<td>Carbon Dioxide</td>
<td>CO₂</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>CO</td>
</tr>
<tr>
<td>Cardio Pulmonary Resuscitation</td>
<td>CPR</td>
</tr>
<tr>
<td>Central Nervous System</td>
<td>CNS</td>
</tr>
<tr>
<td>Cerebrospinal Fluid</td>
<td>CSF</td>
</tr>
<tr>
<td>Cerebrovascular Accident</td>
<td>CVA</td>
</tr>
<tr>
<td>Cervical Spine</td>
<td>C-Spine</td>
</tr>
<tr>
<td>Chest pain</td>
<td>CP</td>
</tr>
<tr>
<td>Chief Complaint</td>
<td>CC</td>
</tr>
<tr>
<td>Chronic Obstructive Pulmonary Disease</td>
<td>COPD</td>
</tr>
<tr>
<td>Circulation, Motor, Sensation</td>
<td>CMS</td>
</tr>
<tr>
<td>Congestive Heart Failure</td>
<td>CHF</td>
</tr>
<tr>
<td>Continuous Positive Airway Pressure</td>
<td>CPAP</td>
</tr>
<tr>
<td>Coronary Artery Bypass Graft</td>
<td>CABG</td>
</tr>
<tr>
<td>Coronary Artery Disease</td>
<td>CAD</td>
</tr>
<tr>
<td>Cervical, thoracic, lumbar, sacral</td>
<td>CTLS</td>
</tr>
<tr>
<td>Date of Birth</td>
<td>DOB</td>
</tr>
<tr>
<td>Dead on Arrival</td>
<td>DOA</td>
</tr>
<tr>
<td>Defibrillated</td>
<td>Defib</td>
</tr>
<tr>
<td>Determination of death</td>
<td>DOD</td>
</tr>
<tr>
<td>Delirium Tremens</td>
<td>DTs</td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>DM</td>
</tr>
<tr>
<td>Dilation and curettage</td>
<td>D &amp; C</td>
</tr>
<tr>
<td>Discontinue*</td>
<td>D/C*</td>
</tr>
<tr>
<td>Distal Interphalangeal Joint</td>
<td>DIP</td>
</tr>
<tr>
<td>Deformity, Contusion, Abrasion, Penetration, Burn, Tenderness, Laceration, Swelling</td>
<td>DCAPBTLS</td>
</tr>
<tr>
<td>Do Not Resuscitate</td>
<td>DNR</td>
</tr>
<tr>
<td>Doctor of Osteopathy</td>
<td>DO</td>
</tr>
<tr>
<td>Drops</td>
<td>gtts</td>
</tr>
<tr>
<td>Dyspnea On Exertion</td>
<td>DOE</td>
</tr>
<tr>
<td>Electrocardiogram</td>
<td>ECG</td>
</tr>
<tr>
<td>Electroencephalogram</td>
<td>EEG</td>
</tr>
<tr>
<td>Emergency Department</td>
<td>ED</td>
</tr>
<tr>
<td>Emergency Medical Services</td>
<td>EMS</td>
</tr>
<tr>
<td>Emergency Medical Technician</td>
<td>EMT</td>
</tr>
<tr>
<td>Endotracheal</td>
<td>ET</td>
</tr>
<tr>
<td>Equal</td>
<td>=</td>
</tr>
<tr>
<td>Estimated</td>
<td>Est</td>
</tr>
<tr>
<td>Estimated Time of Arrival</td>
<td>ETA</td>
</tr>
<tr>
<td>Etiology</td>
<td>Etol.</td>
</tr>
<tr>
<td>Evening</td>
<td>Pm</td>
</tr>
<tr>
<td>Every</td>
<td>q</td>
</tr>
<tr>
<td>Every day*</td>
<td>gd*</td>
</tr>
<tr>
<td>Eye, ear, nose, throat</td>
<td>EENT</td>
</tr>
<tr>
<td>Fahrenheit</td>
<td>F</td>
</tr>
<tr>
<td>Term</td>
<td>Abbreviation</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Female</td>
<td>F</td>
</tr>
<tr>
<td>Fetal Heart Rate</td>
<td>FHR</td>
</tr>
<tr>
<td>Fluid</td>
<td>FI</td>
</tr>
<tr>
<td>Foot</td>
<td>Ft</td>
</tr>
<tr>
<td>Foreign body</td>
<td>FB</td>
</tr>
<tr>
<td>Four times a day</td>
<td>QID</td>
</tr>
<tr>
<td>Fracture</td>
<td>Fx</td>
</tr>
<tr>
<td>Gallbladder</td>
<td>GB</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>GI</td>
</tr>
<tr>
<td>Genitourinary</td>
<td>GU</td>
</tr>
<tr>
<td>Glasgow Coma Score</td>
<td>GCS</td>
</tr>
<tr>
<td>Grain</td>
<td>Gr</td>
</tr>
<tr>
<td>Gram</td>
<td>gm</td>
</tr>
<tr>
<td>Gravida 1,2,3, etc</td>
<td>G1, G2, G3</td>
</tr>
<tr>
<td>Gun Shot Wound</td>
<td>GSW</td>
</tr>
<tr>
<td>Gynecological</td>
<td>Gyn</td>
</tr>
<tr>
<td>Heart Rate</td>
<td>HR</td>
</tr>
<tr>
<td>Hematocrit</td>
<td>Hct</td>
</tr>
<tr>
<td>Hemoglobin</td>
<td>Hgb</td>
</tr>
<tr>
<td>Hepatitis A Virus</td>
<td>HAV</td>
</tr>
<tr>
<td>Hepatitis B Virus</td>
<td>HBV</td>
</tr>
<tr>
<td>Hepatitis C Virus</td>
<td>HCV</td>
</tr>
<tr>
<td>History</td>
<td>Hx</td>
</tr>
<tr>
<td>History and Physical</td>
<td>H &amp; P</td>
</tr>
<tr>
<td>Hour of Sleep (bedtime)*</td>
<td>hs*</td>
</tr>
<tr>
<td>Human Immunodeficiency Virus</td>
<td>HIV</td>
</tr>
<tr>
<td>Hydrochlorothiazide</td>
<td>HCTZ</td>
</tr>
<tr>
<td>Hypertension</td>
<td>HTN</td>
</tr>
<tr>
<td>Immediately</td>
<td>STAT</td>
</tr>
<tr>
<td>Insulin Dependent Diabetes Mellitus</td>
<td>IDDM</td>
</tr>
<tr>
<td>Intake and Output</td>
<td>I &amp; O</td>
</tr>
<tr>
<td>Intensive Care Unit</td>
<td>ICU</td>
</tr>
<tr>
<td>Intercostal Space</td>
<td>ICS</td>
</tr>
<tr>
<td>Intracranial Pressure</td>
<td>ICP</td>
</tr>
<tr>
<td>Intramuscular</td>
<td>IM</td>
</tr>
<tr>
<td>Intracranosse</td>
<td>IO</td>
</tr>
<tr>
<td>Intrauterine Device</td>
<td>IUD</td>
</tr>
<tr>
<td>Intravenous</td>
<td>IV</td>
</tr>
<tr>
<td>Intravenous Push</td>
<td>IVP</td>
</tr>
<tr>
<td>Irregular</td>
<td>Irreg</td>
</tr>
<tr>
<td>Jugular venous distention</td>
<td>JVD</td>
</tr>
<tr>
<td>Kilogram</td>
<td>kg</td>
</tr>
<tr>
<td>Kilometer</td>
<td>Km</td>
</tr>
<tr>
<td>Labor and Delivery</td>
<td>L &amp; D</td>
</tr>
<tr>
<td>Laceration</td>
<td>Lac</td>
</tr>
<tr>
<td>Last Menstrual Period</td>
<td>LMP</td>
</tr>
<tr>
<td>Lateral</td>
<td>Lat</td>
</tr>
<tr>
<td>Left</td>
<td>L</td>
</tr>
<tr>
<td>Left Eye*</td>
<td>OD*</td>
</tr>
<tr>
<td>Left Lower Extremity</td>
<td>LLE</td>
</tr>
<tr>
<td>Left Lower Lobe</td>
<td>LLL</td>
</tr>
<tr>
<td>Left Lower Quadrant</td>
<td>LLQ</td>
</tr>
<tr>
<td>Left Upper Extremity</td>
<td>LUE</td>
</tr>
<tr>
<td>Less Than</td>
<td>&lt;</td>
</tr>
<tr>
<td>Level of Consciousness</td>
<td>LOC</td>
</tr>
<tr>
<td>Litters per min</td>
<td>l/min</td>
</tr>
<tr>
<td>Lower Extremity</td>
<td>LE</td>
</tr>
<tr>
<td>Lumbar Puncture</td>
<td>LP</td>
</tr>
<tr>
<td>Left Ventricular Hypertrophy</td>
<td>LVH</td>
</tr>
<tr>
<td>Male</td>
<td>M</td>
</tr>
<tr>
<td>Medical Doctor</td>
<td>MD</td>
</tr>
<tr>
<td>Metered Dose Inhaler</td>
<td>MDI</td>
</tr>
<tr>
<td>Microgram</td>
<td>mcg</td>
</tr>
<tr>
<td>Milliequivalent</td>
<td>mEq</td>
</tr>
<tr>
<td>Milligram</td>
<td>mg</td>
</tr>
<tr>
<td>Milliliter</td>
<td>ml</td>
</tr>
<tr>
<td>Millimeter</td>
<td>mm</td>
</tr>
<tr>
<td>Minute</td>
<td>Min</td>
</tr>
<tr>
<td>Morning</td>
<td>am</td>
</tr>
<tr>
<td>Morphine Sulphate*</td>
<td>MS*</td>
</tr>
<tr>
<td>Motor Vehicle Collision</td>
<td>MVC</td>
</tr>
<tr>
<td>Moves all Extremities</td>
<td>MAE</td>
</tr>
<tr>
<td>Mass Casualty Incident</td>
<td>MCI</td>
</tr>
<tr>
<td>Methicillin Resistant</td>
<td>MRSA</td>
</tr>
<tr>
<td>Staphylococcus Aureus</td>
<td></td>
</tr>
<tr>
<td>Multiple sclerosis</td>
<td>MS</td>
</tr>
<tr>
<td>Myocardial Infarction</td>
<td>MI</td>
</tr>
<tr>
<td>Nasal cannula</td>
<td>NC</td>
</tr>
<tr>
<td>Naso-pharyngeal airway</td>
<td>NPA</td>
</tr>
<tr>
<td>NasoTracheal</td>
<td>NT</td>
</tr>
<tr>
<td>Nausea/Vomiting</td>
<td>N/V</td>
</tr>
<tr>
<td>Negative</td>
<td>neg</td>
</tr>
<tr>
<td>Night</td>
<td>Noc</td>
</tr>
<tr>
<td>Nitroglycerine</td>
<td>NTG</td>
</tr>
<tr>
<td>No Acute Distress</td>
<td>NAD</td>
</tr>
<tr>
<td>No Known Allergies</td>
<td>NKA</td>
</tr>
<tr>
<td>No Known Drug Allergies</td>
<td>NKDA</td>
</tr>
<tr>
<td>Non Insulin Dependent</td>
<td></td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>NIDDM</td>
</tr>
<tr>
<td>Non Rebreather Mask</td>
<td>NRB</td>
</tr>
<tr>
<td>Non Steroidal Anti-inflammatory Drugs</td>
<td>NSAID</td>
</tr>
<tr>
<td>Normal Saline</td>
<td>NS</td>
</tr>
<tr>
<td>Normal Sinus Rhythm</td>
<td>NSR</td>
</tr>
<tr>
<td>Not applicable</td>
<td>N/A</td>
</tr>
<tr>
<td>Nothing by Mouth</td>
<td>NPO</td>
</tr>
<tr>
<td>Obstetrics</td>
<td>OB</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>OT</td>
</tr>
<tr>
<td>Oral Dissolving Tablet</td>
<td>ODT</td>
</tr>
<tr>
<td>Operating Room</td>
<td>OR</td>
</tr>
<tr>
<td>Oro-pharyngeal airway</td>
<td>OPA</td>
</tr>
<tr>
<td>Ounce</td>
<td>oz</td>
</tr>
<tr>
<td>Over the Counter</td>
<td>OTC</td>
</tr>
<tr>
<td>Overdose</td>
<td>OD</td>
</tr>
<tr>
<td>Oxygen</td>
<td>O2</td>
</tr>
<tr>
<td>Palpable</td>
<td>Palp</td>
</tr>
</tbody>
</table>

Effective Date: January 1, 2020
Last Reviewed/Revised: December 31, 2019
Next Review: December 31, 2021
Signature on File
Angelo Salvucci, MD, EMS Medical Director
<table>
<thead>
<tr>
<th>Term</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Para, number of pregnancies</td>
<td>Para 1,2,3, etc</td>
</tr>
<tr>
<td>Premature Atrial Contraction</td>
<td>PAC</td>
</tr>
<tr>
<td>Premature Ventricular Contraction</td>
<td>PVC</td>
</tr>
<tr>
<td>Paramedic</td>
<td>PM</td>
</tr>
<tr>
<td>Paroxysmal Supraventricular Tachycardia</td>
<td>PSVT</td>
</tr>
<tr>
<td>Paroxysmal Nocturnal Dyspnea</td>
<td>PND</td>
</tr>
<tr>
<td>Past Medical History</td>
<td>PMH</td>
</tr>
<tr>
<td>Patient</td>
<td>pt</td>
</tr>
<tr>
<td>Pediatric</td>
<td>Peds</td>
</tr>
<tr>
<td>Pediatric Advanced Life Support</td>
<td>PALS</td>
</tr>
<tr>
<td>Pelvic Inflammatory Disease</td>
<td>PID</td>
</tr>
<tr>
<td>Per Rectum</td>
<td>pr</td>
</tr>
<tr>
<td>Percutaneously Inserted Central Catheter</td>
<td>PICC</td>
</tr>
<tr>
<td>Phencyclidine</td>
<td>PCP</td>
</tr>
<tr>
<td>Physical Exam</td>
<td>PE</td>
</tr>
<tr>
<td>Positive</td>
<td>+, pos</td>
</tr>
<tr>
<td>Pound</td>
<td>lb</td>
</tr>
<tr>
<td>Pregnant</td>
<td>Preg</td>
</tr>
<tr>
<td>Premature Ventricular Contraction</td>
<td>PVC</td>
</tr>
<tr>
<td>Private/Primary Medical Doctor</td>
<td>PMD</td>
</tr>
<tr>
<td>Prior to Arrival</td>
<td>PTA</td>
</tr>
<tr>
<td>Privately Owned Vehicle</td>
<td>POV</td>
</tr>
<tr>
<td>Pro Re Nata – As Needed</td>
<td>PRN</td>
</tr>
<tr>
<td>Pulmonary Embolism</td>
<td>PE</td>
</tr>
<tr>
<td>Pulse, Motor, Sensation</td>
<td>PMS</td>
</tr>
<tr>
<td>Pulseless Electrical Activity</td>
<td>PEA</td>
</tr>
<tr>
<td>Pupils Equal Round and Reactive to Light</td>
<td>PERRL</td>
</tr>
<tr>
<td>Range of Motion</td>
<td>ROM</td>
</tr>
<tr>
<td>Rapid Sequence Intubation</td>
<td>RSI</td>
</tr>
<tr>
<td>Registered Nurse</td>
<td>RN</td>
</tr>
<tr>
<td>Respiration</td>
<td>R</td>
</tr>
<tr>
<td>Respiratory Rate</td>
<td>RR</td>
</tr>
<tr>
<td>Respiratory Therapist</td>
<td>RT</td>
</tr>
<tr>
<td>Right</td>
<td>Rt</td>
</tr>
<tr>
<td>Right Eye*</td>
<td>OD*</td>
</tr>
<tr>
<td>Right Lower Extremity</td>
<td>RLE</td>
</tr>
<tr>
<td>Right Lower Lobe</td>
<td>RLL</td>
</tr>
<tr>
<td>Right Lower Quadrant</td>
<td>RLQ</td>
</tr>
<tr>
<td>Right Middle Lobe</td>
<td>RML</td>
</tr>
<tr>
<td>Right Ventricular Hypertrophy</td>
<td>RVH</td>
</tr>
<tr>
<td>Ringer’s Lactate</td>
<td>LR</td>
</tr>
<tr>
<td>Rule Out</td>
<td>R/O</td>
</tr>
<tr>
<td>Sexually Transmitted Disease</td>
<td>STD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shortness of Breath</td>
<td>SOB</td>
</tr>
<tr>
<td>Signs and symptoms</td>
<td>s/s</td>
</tr>
<tr>
<td>Sinus Bradycardia</td>
<td>SB</td>
</tr>
<tr>
<td>Sinus Tachycardia</td>
<td>ST</td>
</tr>
<tr>
<td>Skilled Nursing Facility</td>
<td>SNF</td>
</tr>
<tr>
<td>Sodium Bicarbonate</td>
<td>NaHCO3</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>NaCl</td>
</tr>
<tr>
<td>Status post</td>
<td>s/p</td>
</tr>
<tr>
<td>Streptococcus</td>
<td>Strep</td>
</tr>
<tr>
<td>Subcutaneous*</td>
<td>SQ*</td>
</tr>
<tr>
<td>Sublingual</td>
<td>SL</td>
</tr>
<tr>
<td>Sudden Acute Respiratory Syndrome</td>
<td>SARS</td>
</tr>
<tr>
<td>Sudden Infant Death Syndrome</td>
<td>SIDS</td>
</tr>
<tr>
<td>Systolic blood pressure</td>
<td>SBP</td>
</tr>
<tr>
<td>Supraventricular Tachycardia</td>
<td>SVT</td>
</tr>
<tr>
<td>Tissue Plasminogen Activator</td>
<td>tPA</td>
</tr>
<tr>
<td>Temperature</td>
<td>T</td>
</tr>
<tr>
<td>Temperature, Pulse, Respiration</td>
<td>TPR</td>
</tr>
<tr>
<td>Three Times a Day</td>
<td>TID</td>
</tr>
<tr>
<td>Times</td>
<td>X</td>
</tr>
<tr>
<td>Time Last Known Well</td>
<td>TLKW</td>
</tr>
<tr>
<td>To Keep Open</td>
<td>TKO</td>
</tr>
<tr>
<td>Tracheostomy</td>
<td>Trach</td>
</tr>
<tr>
<td>Traffic Collision</td>
<td>TC</td>
</tr>
<tr>
<td>Transient Ischemic Attack</td>
<td>TIA</td>
</tr>
<tr>
<td>Transcutaneous Pacing</td>
<td>TCP</td>
</tr>
<tr>
<td>Traumatic Brain Injury</td>
<td>TBI</td>
</tr>
<tr>
<td>Treatment</td>
<td>Tx</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>TB</td>
</tr>
<tr>
<td>Twice a day</td>
<td>BID</td>
</tr>
<tr>
<td>Upper Respiratory Infection</td>
<td>URI</td>
</tr>
<tr>
<td>Urinalysis</td>
<td>UA</td>
</tr>
<tr>
<td>Urinary Tract Infection</td>
<td>UTI</td>
</tr>
<tr>
<td>Ventricular Fibrillation</td>
<td>VF</td>
</tr>
<tr>
<td>Ventricular Tachycardia</td>
<td>VT</td>
</tr>
<tr>
<td>versus</td>
<td>vs</td>
</tr>
<tr>
<td>Vital Signs</td>
<td>VS</td>
</tr>
<tr>
<td>Volume</td>
<td>Vol</td>
</tr>
<tr>
<td>Water</td>
<td>H2O</td>
</tr>
<tr>
<td>Weight</td>
<td>Wt</td>
</tr>
<tr>
<td>With</td>
<td>w/</td>
</tr>
<tr>
<td>Within Normal Limits</td>
<td>WNL</td>
</tr>
<tr>
<td>Without</td>
<td>w/o</td>
</tr>
<tr>
<td>Wolf-Parkinson-White</td>
<td>WPW</td>
</tr>
<tr>
<td>Year</td>
<td>Yr</td>
</tr>
<tr>
<td>Years Old</td>
<td>y/o</td>
</tr>
</tbody>
</table>

*JOINT COMMISSION and ISMP have indicated these abbreviations have a high likelihood of misinterpretation; thereby leading to medical errors, therefore, they are not to be used in handwritten documentation.*