Santa Barbara County
PUBLIC Health
DEPARTMENT

POLICY 533

PREHOSPITAL TREATMENT PROTOCOLS

BLS – EMT-OPTIONAL SCOPE – ALS

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SANTA BARBARA COUNTY EMS
BLS, EMT OPTIONAL SCOPE, AND ALS TREATMENT PROTOCOLS
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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 540 – Spinal Motion Restriction)

C. Primary Survey – Assessment of A-B-C's will be modified to C-A-B during instances of cardiac arrest or major arterial bleeding)

1. 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
2. Breathing
   a. Assess rate, depth, and quality of respirations
   b. Assess lung sounds
   c. If respiratory effort is inadequate, assist ventilations with BVM
   d. Initiate airway management and oxygen therapy as indicated
3. 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
4. Disability
   a. Evaluate patient responsiveness: AVPU Scale (Alert, Verbal, Pain, Unresponsive)
   b. Evaluate Circulation, Sensory, Motor (CSM) function in all extremities
   c. Assess pupillary response
   d. Check blood glucose in patients with altered mental status
5. Exposure

a. Expose the patient as appropriate to their complaint
   i. Be considerate of patient modesty
b. Keep patient warm

D. Determine Chief Complaint. Initiate treatment per SBCEMSA policies/protocols

II. Secondary Survey – Should not delay transport in critical patients. Assessment should be tailored to patient presentation and chief complaint.

A. Head
   1. Pupils
   2. Nasopharynx
   3. Skull and Scalp

B. Neck
   1. Jugular Vein Distension (JVD)
   2. Tracheal position
   3. Spinal tenderness

C. Chest
   1. Retractions
   2. Breath sounds
   3. Chest wall deformity

D. Abdomen/Back
   1. Flank/abdominal tenderness or bruising
   2. Abdominal distention

E. Extremities
   1. Edema
   2. Pulses
   3. Deformity

F. Neurologic
   1. Mental Status/Orientation
   2. Motor/Sensory

III. Obtain Baseline Vital Signs

A. Full Set of Vital Signs
   1. Blood Pressure and/or Capillary Refill
   2. Heart Rate
   3. Respiratory Rate
   4. Pain Scale (Use Numeric, FACES or FLACC scale as age-appropriate)

B. ALS assessments, in addition to the primary/secondary surveys and vital signs listed above, may include the following:
   1. Continuous Cardiac Monitoring
   2. 12-Lead ECG as indicated per Policy 539: 12-Lead ECG Process

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3. Pulse Oximetry
4. Capnography (when utilizing Dual Nasal Cannula (if available), CPAP, or BVM)
5. Abnormal vital sign(s) should be reassessed and documented often. Any medications or procedures performed should be documented as contemporaneously as possible.

IV. History of Present Illness (HPI) – include pertinent negatives and additional signs/symptoms

A. Obtain OPQRST History:

1. **O**nset of symptoms
2. **P**rovocation – location; any exacerbating or alleviating factors
3. **Q**uality of pain
4. **R**adiation of pain
5. **S**everity of symptoms – pain scale
6. **T**ime of onset and circumstances around the onset

B. Obtain SAMPLE History:

1. **S**ymptoms
2. **A**llergies – medication, environmental, and foods
3. **M**edications – prescription and over-the-counter; bring containers to ED if possible
4. **P**ast medical history
5. **L**ast oral intake
6. **E**vents leading up to the 911 call

C. Do not leave these areas blank in documentation; if the information is unknown or unavailable, utilize an appropriate null data entry choice.

V. Base Hospital contact shall be made for all required patients in accordance with Policy 303: Mandatory Base Hospital Communications

VI. Transport to the appropriate facility per the appropriate policy

A. Policy 510: Trauma Triage Criteria & Patient Destination
B. Policy 511: EMS Transport Zones
C. Policy 550: Stroke System Triage & Destination
D. Policy 620: Hospital Diversion
E. Policy 622: Base Hospital Service Areas and Ground Ambulance Transport Zones

VII. Continuously monitor vital signs and document all findings as contemporaneously as possible.

A. Continue appropriate treatments during transport and reassess for changes in patient status.

VIII. Documentation

A. Completion of patient care report per Policy 700: Documentation of Prehospital Patient Care
B. Submit cardiac monitor data, including any 12-lead ECG(s), for all ALS patients.
   1. *For 911 patients*: If 12-Lead ECG is obtained prior to EMS arrival, obtain hardcopy and transport 12-Lead ECG with patient to the receiving facility.
C. Maintain patient confidentiality at all times.

SBC Trauma Assessment/Treatment Guidelines

I. Purpose: To establish a consistent approach to caring for trauma patients

A. Refer to Santa Barbara County General Patient Guidelines for information regarding the following:

A. Initial Response

B. Scene Arrival and Size-Up

II. Perform Trauma Assessment

A. Rapid Trauma Assessment

1. Airway

a. Maintain inline cervical stabilization

i. Follow spinal precautions per Policy 540 – Spinal Motion Restriction

b. Open airway as needed

i. Utilize a trauma jaw thrust to maintain inline cervical stabilization if indicated

c. Suction airway if indicated

d. Refer to Policy 533-02 Airway Management

2. Breathing

a. Assess rate, depth, and quality of respirations

i. If a respiratory effort is inadequate, assist ventilations with BVM

b. Insert appropriate airway adjunct (if indicated)

c. Assess lung sounds

d. Initiate airway management and oxygen therapy as indicated

i. Goal to maintain $SpO_2 \geq$ 94-98%

3. Circulation

a. Assess skin color, temperature, and moisture

b. Check distal/central pulses and capillary refill time

c. Control major bleeding

d. Initiate shock management as indicated

e. Refer to Policy 533-20 Shock-Hypotension & Policy 533-23 Tranexamic Acid

4. Disability

a. Determine Level of Consciousness (Glasgow Coma Scale). Refer to Appendix B

b. Evaluate patient responsiveness: AVPU Scale (Alert, Verbal, Pain, Unresponsive)

c. Evaluate Circulation, Sensory, Motor (CSM) function in all extremities

d. Assess pupillary response

e. Consider checking blood glucose in patients with altered mental status if time and patient condition permit

i. Do not delay on-scene time to perform BGL assessment

f. Refer to Policy 533-06 Altered Neurological Function

5. Exposure
    a. If indicated, remove clothing for proper assessment/treatment of injury location
        i. Be considerate of patient modesty
    b. Keep patient warm

B. Detailed Physical Exam
1. Head
    a. Inspect/palpate skull
    b. Inspect eyes, ears, nose and throat
2. Neck
    a. Palpate cervical spine
    b. Check position of trachea
    c. Assess for jugular vein distention (JVD)
3. Chest
    a. Visualize, palpate, and auscultate chest wall
4. Abdomen/Pelvis
    a. Inspect/palpate abdomen
    b. Assess pelvis, including genitalia/perineum (if pertinent)
5. Extremities
    a. Visualize, inspect, and palpate
    b. Assess Circulation, Sensory, Motor (CSM)
6. Back
    a. Visualize, inspect and palpate thoracic and lumbar spine

III. Trauma Care Guidelines
A. Head Injuries
1. General Treatments
    a. Evaluate head and face – maintain a high index of suspicion for injury if a significant mechanism of injury is present or physical examination is remarkable for findings
    b. Elevate head 30° unless contraindicated
    c. Do not attempt to intubate head injured patients unless unable to manage with BLS airwaymeasures
    d. Do not delay transport if there is a significant airway compromise
    e. Scalp hemorrhage can be life-threatening; dress with pressure dressing
2. Penetrating Injuries
    a. DO NOT REMOVE IMPALED OBJECT (unless airway obstruction is present)
    b. Stabilize object manually or with bulky dressings
3. Facial Injuries
    a. Assess airway and suction as needed
    b. Remove loose teeth or dentures (if present)

i. Place displaced teeth in emergency dental kit, if available

c. Frequently assess airway and provide suctioning as needed

4. Eye Injuries

a. Remove contact lenses (if applicable)

b. Irrigate the eye thoroughly with suspected acid/alkali burns

c. Avoid direct pressure to the injured eye(s)

d. Do not attempt to replace displaced or partially torn globe

i. Stabilize with saline-soaked gauze and follow step “e” below

e. Cover both eyes loosely with a protective dressing

f. Stabilize any impaled object manually or with a bulky dressing

B. Spinal Cord Injuries

1. General treatments

a. Evaluate spinal column – maintain a high index of suspicion for injury if a significant mechanism of injury is present or physical examination is remarkable for findings

i. Follow spinal precautions per Policy 540 – Spinal Motion Restriction

b. Place the patient in a supine position if hypotension is present

2. Penetrating injuries – DO NOT REMOVE IMPALED OBJECT

a. Stabilize object manually or with bulky dressings

b. Control bleeding if present

c. In the presence of isolated penetrating injuries, spinal immobilization is contraindicated

3. Neck injuries

a. Monitor airway, including suctioning if indicated

b. Control bleeding if present

C. Thoracic Trauma

1. General treatments

a. Evaluate chest – maintain high index of suspicion for internal injury if significant mechanism of injury is present or physical examination is remarkable for findings

b. Keep patients sitting high-fowlers

i. In the presence of isolated penetrating injuries, spinal motion restriction is contraindicated

c. Goal of fluid resuscitation is to maintain SBP of ≥ 90mmHg. If SBP > 90mmHg, then maintain IV/IO at TKO rate

i. Maintain palpable peripheral pulses

d. Tranexamic Acid – Refer to Policy 533-23: Tranexamic Acid (TXA)

2. Penetrating injuries – DO NOT REMOVE IMPALED OBJECT UNLESS IT INTERFERES WITH PERFORMING CPR

a. Stabilize object manually or with bulky dressings

Control bleeding if present

3. Flail Chest/Rib Injuries
   a. Assist ventilations if respiratory status deteriorates
4. Pneumothorax/Hemothorax
   a. Keep patient sitting high-fowlers
   b. Assist ventilations if respiratory status deteriorates
      i. Suspected tension pneumothorax – Refer to Policy 536: Needle Thoracostomy
5. Open (Sucking) Chest Wound
   a. Place occlusive dressing on wound, secure on 3 sides only or place a vented chest seal
   b. Assist ventilations if respiratory status deteriorates
6. Cardiac Tamponade – If suspected, expedite transport
   a. Beck's Triad
      a. Muffled Heart Tones
      b. Jugular Vein Distension (JVD)
      c. Hypotension
7. Traumatic Aortic Disruption – If suspected, expedite transport
   a. Assess for quality of radial and femoral pulses

D. Abdominal/Pelvic Trauma
1. General Treatments
   a. Evaluate abdomen and pelvis – maintain high index of suspicion for internal injury if significant mechanism of injury is present or physical examination is remarkable for findings
   b. Goal of fluid resuscitation is to maintain SBP of ≥ 90 mmHg. If SBP > 90 mmHg, then maintain IV/IO at TKO rate
      i. Maintain palpable peripheral pulses
   c. Tranexamic Acid – Refer to Policy 533-23: Tranexamic Acid (TXA)
2. Blunt Injuries
   a. Place patient in supine position if hypotension is present
3. Penetrating Injuries – DO NOT REMOVE IMPALED OBJECT
   a. Stabilize object manually or with bulky dressings
   b. Control bleeding if present
4. Eviscerations – DO NOT REPLACE ABDOMINAL CONTENTS
   a. Cover wound with saline-soaked dressings
   b. Control bleeding if present
5. Pregnancy
   a. Place patient in left-lateral position to prevent supine hypotensive syndrome
6. Pelvic Injuries
   a. Assessment of pelvis should be only performed ONCE to limit additional injury
   Control bleeding if present

c. If possible, avoid log rolling patient

E. Extremity Trauma

1. General Treatments

a. Evaluate CSM distal to injury

i. If CSM is decreased or absent:

a. Manually reposition extremity into anatomical position

b. Re-evaluate CSM

ii. If no change in CSM after manually repositioning the extremity, splint in anatomical position and expedite transport

b. Cover open wounds with sterile dressings

c. Place ice pack on injury area (if closed wound)

d. Splint/elevate extremity with appropriate equipment

e. Uncontrolled Hemorrhage

i. Apply tourniquet (if applicable) – Refer to Policy 544: Tourniquet

ii. Refer to Policy 533-23: Tranexamic Acid (TXA)

F. Dislocations

1. Splint in position found with appropriate equipment

G. Penetrating Injuries – DO NOT REMOVE IMPALED OBJECTS

1. Stabilize object manually or with bulky dressings

2. Control bleeding if present

H. Femur Fractures

1. Utilize traction splint only if isolated mid-shaft femur fracture is suspected

2. Assess CSM before and after traction splint application

I. Amputations

1. Clean the amputated extremity with normal saline

2. Wrap amputated limb in moist sterile gauze

a. Place wrapped limb in a plastic bag

3. Place bag with amputated extremity into a separate bag containing ice packs

a. Prevent direct tissue contact with the ice packs

IV. Refer to Santa Barbara County General Patient Guidelines for information regarding the following:

A. Base Hospital Contact Guidelines

B. Transportation and Destination Guidelines

C. Documentation and Confidentiality Guide

AIRWAY MANAGEMENT

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
Maintain Airway Patency • Open and reposition the airway • Utilize airway adjuncts (OPA/NPA) as indicated • Oropharyngeal suctioning as indicated • For suspected spinal injuries, administer oxygen via appropriate delivery device while maintaining in-line cervical stabilization *Oxygen Administration - Maintain SpO_2 ≥ 94-98%* • Nasal Cannula (NC) 2 - 6LPM • Non-Rebreather Mask (NRB) 10 - 15LPM • Bag-Valve Mask (BVM) ○ 10-12 breaths/min *Foreign Body Airway Obstruction (FBAO)* • BLS Choking Procedures	*Maintain Airway Patency* • Open and reposition the airway • Utilize airway adjuncts (OPA/NPA) as indicated • Oropharyngeal suctioning as indicated • For suspected spinal injuries, administer oxygen via appropriate delivery device while maintaining in-line cervical stabilization *Oxygen Administration - Maintain SpO_2 ≥ 94-98%* • Nasal Cannula (NC) 2 - 6LPM • Non-Rebreather Mask (NRB) 10 - 15LPM • Bag-Valve Mask (BVM) • 12-20 breaths/min or 20-30 breaths/min (for infants) *Foreign Body Airway Obstruction (FBAO)* • BLS Choking Procedures
Expanded Scope	
Maintain Airway Patency • Utilize airway adjuncts (OPA/NPA/SGA) as indicated *Oxygen Administration - Maintain SpO_2 ≥ 94-98%* • Bag-Valve Mask (BVM) / Supraglottic Airway (SGA) 10-15LPM ○ 10-12 breaths/min	*Maintain Airway Patency* • Utilize airway adjuncts (OPA/NPA) as indicated *Oxygen Administration - Maintain SpO_2 ≥ 94-98%* • Bag-Valve Mask (BVM) ○ 10-12 breaths/min
ALS Prior to Base Hospital Contact	
Foreign Body Airway Obstruction (FBAO) • If BLS Choking Procedures are unsuccessful, perform direct visualization via laryngoscopy & remove FBAO using Magill forceps m H_2O *Advanced Airway Management* • Supraglottic Airway Device ○ Refer to Policy 546: Supraglottic Airway Device • Endotracheal Intubation ○ Refer to Policy 532: Endotracheal Intubation ○ Consider alternate airway device, or maintain BLS airway, if the following conditions are met: ▪ ETT is contraindicated ▪ Difficult airway/delayed airway is anticipated *Needle Thoracostomy* • Refer to Policy 536: Needle Thoracostomy	*Foreign Body Airway Obstruction (FBAO)* • If BLS Choking Procedures are unsuccessful, perform direct visualization via laryngoscopy & remove FBAO using Magill forceps *Advanced Airway Management* • Supraglottic Airway Device ○ Refer to Policy 546: Supraglottic Airway Device • Endotracheal Intubation for patients ≥ 12 y/o ○ Refer to Policy 532: Endotracheal Intubation ○ Consider alternate airway device, or maintain BLS airway, if the following conditions are met: ▪ ETT is contraindicated ▪ Difficult airway/delayed airway is anticipated *Needle Thoracostomy* • Refer to Policy 536: Needle Thoracostomy
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures
Additional Information	
• Oxygen administration may be titrated down if SPO_2 is 100% • Refer to Policy 533-18 Shortness of Breath for CPAP guidance.	• Oxygen administration may be titrated down if SPO_2 is 100% • Refer to Policy 533-18 Shortness of Breath for CPAP guidance.

PAIN CONTROL

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
• Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management • Place patient in position of comfort • Assess pain using the most appropriate scale (numeric or Wong-Baker FACES* scale)	• Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management • Place patient in position of comfort • Assess pain using the most appropriate scale (numeric or Wong-Baker FACES* scale)
Expanded Scope	
Same as BLS	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 *Pain Scale ≥ 5/10* **Fentanyl** *SBP ≥ 100mmHg with unimpaired respirations, GCS normal for baseline & no known anaphylaxis:* • IV/IO – 1mcg/kg over 1 min ○ Max single dose 100mcg ○ May repeat every 5 mins for persistent pain ○ Not to exceed 200mcg total dose • IM/IN – 1mcg/kg ○ Max single dose 100mcg ○ May repeat after 15 mins for persistent pain ○ Not to exceed 200mcg total dose **-OR-** **Ketamine** – Only when **Fentanyl** is contraindicated • IV/IO – 0.3mg/kg in 100mL **Normal Saline** IVPB over 5 mins ○ Max single dose 30mg ○ May repeat x1 in 10 mins • Contraindications: ○ GCS <14 ○ Suspected or confirmed pregnancy ○ Suspected acute coronary syndrome ○ Known or suspected alcohol or drug intoxication ○ Known allergy or anaphylaxis *Recheck & document vital signs before and after each administration*	• Vascular Access • Cardiac monitor • If nausea/vomiting is present: ○ Refer to Policy 533-15: Nausea/Vomiting *Pain Scale ≥ 5/10* **Fentanyl** *SBP is Age-Appropriate with unimpaired respirations, GCS normal for baseline & no known anaphylaxis - Refer to Appendix A* • IV/IO – 1mcg/kg over 1 min ○ May repeat every 5 mins for persistent pain ○ Not to exceed 4 doses or 200mcg total dose • IM/IN – 1mcg/kg ○ Max single dose 100mcg ○ May repeat after 15 mins for persistent pain ○ Not to exceed 4 doses or 200mcg total dose **-OR-** **Ketamine** – Only when **Fentanyl** is contraindicated • IV/IO – 0.3mg/kg in 100mL **Normal Saline** IVPB over 5 mins ○ Max single dose 10mg ○ May repeat x1 in 10 mins • Contraindications: ○ GCS <14 ○ Suspected or confirmed pregnancy ○ Suspected acute coronary syndrome ○ Known or suspected alcohol or drug intoxication ○ Known allergy or anaphylaxis *Recheck and document vital signs before and after each administration*
Base Hospital Physician Orders Only	
Pain control must be confirmed by the BH Physician if: • Significant injury to: ○ Head ○ Chest ○ Abdomen *Consult with ED Physician for further treatment measures*	*Pain control must be confirmed by the BH Physician if:* • Hypotensive (Below age-appropriate blood pressure) • Significant injury to: ○ Head ○ Chest ○ Abdomen *Consult with ED Physician for further treatment measures*

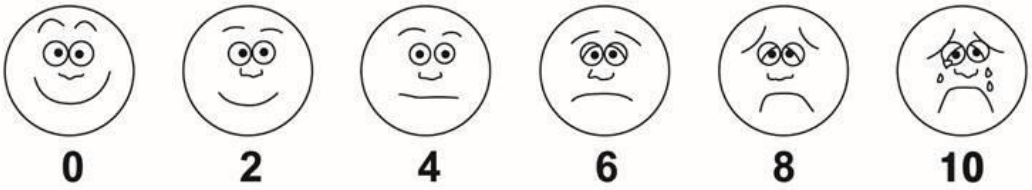
Additional Information

Consider administering ½ dose of any analgesics if: • Patient ≥ 65 y/o • Patients with past adverse reaction to analgesics • Patients with suspected cardiac ischemia (applies to Fentanyl only; Ketamine is contraindicated) or active TCP • Patients with traumatic injuries who are at risk for hemodynamic decompensation	*Consider administering ½ dose of any analgesics if:* • Patients with past adverse reaction to analgesics • Patients with suspected cardiac ischemia (applies to Fentanyl only; Ketamine is contraindicated) or active TCP • Patients with traumatic injuries who are at risk for hemodynamic decompensation

Alternate Pain Scale Assessment Tool

Indicated for Adult & Pediatric patients when unable to provide you a numeric pain scale value.

Wong-Baker FACES® Pain Rating Scale



0	2	4	6	8	10
No Hurt	Hurts Little Bit	Hurts Little More	Hurts Even More	Hurts Whole Lot	Hurts Worst

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VASCULAR ACCESS

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
N/A	N/A
Expanded Scope	
N/A	N/A
ALS Prior to Base Hospital Contact	
Peripheral Vascular Access (IV/IO) • Standing Order for all patients as indicated by protocol → peripheral vascular access is preferred • A saline lock is acceptable if there is no need to administer IV fluids or medication • Needle gauge should be determined by the situation and patient physiology ○ Stroke, STEMI, and trauma patients → establish AC access if possible *External Jugular Access* • Indicated in patients that require emergent medication administration *Intraosseous Access* • Preferred choice in cardiac arrest • Indicated for patients that require emergent medication administration and IV access is not readily available • Refer to Policy 538: Intraosseous Vascular Access	*Peripheral Vascular Access (IV/IO)* • Standing Order for all patients as indicated by protocol → peripheral vascular access is preferred ○ Obtaining vascular access should not delay the transport of pediatric patients • A saline lock is acceptable if there is no need to administer IV fluids or medication • Pediatric patients may require a small gauge peripheral IV based on their size *Intraosseous Access* • Tibial Site: Indicated for patients ≥ 3kg • Humeral Site: Not indicated in patients < 18 years old • IO access preferred in cardiac arrest • Indicated for patients that require emergent medication administration and IV access is not readily available • **2% Lidocaine** is contraindicated for pediatric patients • Refer to Policy 538: Intraosseous Vascular Access
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures
Additional Information	
• All established sites must be visible, monitored for infiltration and/or extravasation, and discontinued as appropriate • Do not remove abandoned IO devices	• All established sites must be visible, monitored for infiltration and/or extravasation, and discontinued as appropriate • Do not remove abandoned IO devices • Consider that establishing vascular access to pediatric patients contributes to significantly increased patient stress levels

ABDOMINAL/FLANK PAIN

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
• Place patient in a position of comfort • Monitor vital signs and assess for orthostatic changes • If SBP <90mmHg or signs of shock: ○ Place patient supine • Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management	• Place patient in a position of comfort • Monitor vital signs and assess for orthostatic changes • If SBP is below age-appropriate value (refer to Appendix A) or signs of shock: ○ Place patient supine • Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management
Expanded Scope	
Same as BLS	Same as BLS
ALS Prior to Base Hospital Contact	
• Vascular Access • Cardiac monitor • Consider performing a 12-Lead ECG ○ Refer to Policy 539: 12-Lead ECG ○ Must perform 12-lead ECG to rule out STEMI in all patients with epigastric abdominal pain • If nausea/vomiting is present: ○ Refer to Policy 533-15: Nausea/Vomiting • For pain management: ○ Refer to Policy 533-03: Pain Control **Normal Saline** • IV/IO – 1L ○ Reevaluate after each 500mL ○ May repeat x1 to maintain SBP ≥ 90mmHg *Hypotension Refractory to Normal Saline* • Must perform 12-Lead ECG to rule out STEMI in all patients with epigastric abdominal pain • Refer to Policy 533-10: Push Dose Epinephrine	• Vascular Access • Cardiac monitor • Consider performing a 12-Lead ECG ○ Refer to Policy 539: 12-Lead ECG • If nausea/vomiting is present: ○ Refer to Policy 533-15: Nausea/Vomiting • For pain management: ○ Refer to Policy 533-03: Pain Control **Normal Saline** • IV/IO 20mL/kg to maintain SBP appropriate for age (refer to Appendix A): ○ May repeat x1 as indicated *Hypotension Refractory to Normal Saline* • Refer to Policy 533-10: Push Dose Epinephrine
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures
Additional Information	
Consider atypical presentations for acute coronary syndrome	Consider atypical presentations for acute coronary syndrome

ALTERED NEUROLOGICAL FUNCTION

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
• Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management • Suspected stroke: ○ Refer to Policy 533-21: Stroke • Determine Blood Glucose Level (BGL) ○ If BGL < 60 and patient is awake and able to swallow with a gag reflex intact: **Oral Glucose** • PO – 15g • Suspected overdose: ○ Refer to Policy 533-16: Poisoning/Overdose	• Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management • Suspected stroke: ○ Refer to Policy 533-21: Stroke • Determine Blood Glucose Level (BGL) ○ If BGL < 60 and patient is awake and able to swallow with a gag reflex intact: **Oral Glucose** • PO – 15g • Suspected overdose: ○ Refer to Policy 533-16: Poisoning/Overdose
Expanded Scope	
Same as BLS	Same as BLS
ALS Prior to Base Hospital Contact	
• Vascular Access • Cardiac monitor • Determine Blood Glucose Level (BGL) *If BGL <60 and oral glucose contraindicated:* **D10W** ○ IV/IO – 25g (250mL) **Glucagon** (if no IV access available) ○ IM – 1mg Repeat BGL 5 mins after **D10W** or 10 mins after **Glucagon** administration. If BGL remains <60: **D10W** ○ IV/IO – 25g (250mL)	• Vascular Access • Cardiac monitor • Determine Blood Glucose Level (BGL) *If BGL <60 and oral glucose contraindicated:* **D10W** • IV/IO – 0.5g/kg (5mL/kg) • Max dose 25g (250mL) **Glucagon** (if no IV access available) • IM – 0.1mg/kg • Max dose 1mg Repeat BGL 5 mins after **D10W** or 10 mins after **Glucagon** administration. If BGL remains <60: **D10W** • IV/IO – 0.5g/kg (5mL/kg) • Max dose 25g (250mL)
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures
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 hypoglycemia for up to 3 days, and may occur during sleep, resulting in death. • If the patient continues to refuse care, every effort must be made to have the patient speak to the BH Physician prior to leaving the scene • Consider **AEIOU-TIPS:**	• 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 hypoglycemia for up to 3 days, and may occur during sleep, resulting in death. • If the patient continues to refuse care, every effort must be made to have the patient speak to the BH Physician prior to leaving the scene • Consider **AEIOU-TIPS:**

A – Alcohol	T – Trauma
E – Epilepsy	I – Infection
I – Insulin	P – Psychosis
O – Overdose	S – Stroke
U – Uremia	

ANAPHYLAXIS / ALLERGIC REACTION

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
• Assist with prescribed **Epi Auto-Injector** • Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management • **Epinephrine 1mg/mL – Auto-Injector** ○ IM – 0.3mg	• Assist with prescribed **Epi Auto-Injector** • Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management • **Epinephrine 1mg/mL – Auto-Injector** ○ Patient weighs 15kg – 30kg ▪ IM – 0.15mg (Max total dose of 0.15mg) ○ Patient weighs > 30kg ▪ IM – 0.3mg (Max total dose of 0.3mg)
Expanded Scope	
Epinephrine 1mg/mL – Auto-Injector or **Syringe/Vial** • IM – 0.3mg (0.3mL) ○ May repeat x1 for ongoing distress	**Epinephrine 1mg/mL – Auto-Injector** or **Syringe/Vial** • IM – 0.01mg/kg • Patient weighs 15kg – 30kg • IM – 0.15mg (Max total dose of 0.15mg) • Patient weighs > 30kg • IM – 0.3mg (Max total dose of 0.3mg)
ALS Prior to Base Hospital Contact	
• Vascular Access • Cardiac monitor *Anaphylaxis Without Shock* **Epinephrine 1mg/mL** • IM – 0.3mg (0.3mL) ○ May repeat every 5 mins x2 for ongoing distress *Anaphylaxis With Shock* • Same as above (anaphylaxis without shock) • Initiate 2nd IV/IO ○ **Normal Saline** ▪ IV/IO bolus – 1L *For Hypotension Refractory to Normal Saline* **Push-Dose Epinephrine** • Refer to Policy 533-10: Push-Dose Epinephrine *If Wheezing Is Present* **Albuterol** • Nebulizer – 5mg (6mL) ○ Repeat as needed *Allergic Reaction (Hives Only)* **Diphenhydramine** • IM – 50mg	• Vascular Access • Cardiac monitor *Anaphylaxis Without Shock* **Epinephrine 1mg/mL** • IM – 0.01mg/kg • Patient weighs 15kg – 30kg • IM – 0.15mg (Max total dose of 0.15mg) • Patient weighs > 30kg • IM – 0.3mg (Max total dose of 0.3mg) • Contact BH for further *Anaphylaxis With Shock* • Same as above (anaphylaxis without shock) • Initiate 2nd IV/IO ○ **Normal Saline** ▪ IV/IO bolus – 20mL/kg *For Hypotension Refractory to Normal Saline* **Push-Dose Epinephrine** • Refer to Policy 533-10: Push-Dose Epinephrine *If Wheezing Is Present* **Albuterol** • Age < 2 years – 2.5mg (3mL) • Age ≥ 2 years – 5mg (6mL) • Repeat as needed *Allergic Reaction (Hives Only)* **Diphenhydramine** • IM – 1mg/kg (max 50mg)
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures
Additional Information	
• Anaphylaxis is a true medical emergency requiring immediate assessment, recognition, and intervention using **Epinephrine** • It is pivotal to treat these patients with IM **Epinephrine** • Once anaphylaxis is stabilized, continue to recognize and treat signs/symptoms throughout transport.	• Anaphylaxis is a true medical emergency requiring immediate assessment, recognition, and intervention using **Epinephrine** • It is pivotal to treat these patients with IM **Epinephrine** • Once anaphylaxis is stabilized, continue to recognize and treat signs/symptoms throughout transport.

BEHAVIORAL EMERGENCIES

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
• Confirm and maintain scene/responder safety • Attempt to establish rapport • If scenario dictates and patient is cooperative, determine Blood Glucose Level (BGL) *Patient is Stable and Emergent Treatment Not Indicated* • Reassure patient while transporting • Perform vital signs and any necessary procedures only as patient/responder safety allows • Be aware of the patient's personal space	• Confirm and maintain scene/responder safety • Attempt to establish rapport • If scenario dictates and patient is cooperative, determine Blood Glucose Level (BGL) *Patient is Stable and Emergent Treatment Not Indicated* • Reassure patient while transporting • Perform vital signs and any necessary procedures only as patient/responder safety allows • Be aware of the patient's personal space
Expanded Scope	
Same as BLS	Same as BLS
ALS Prior to Base Hospital Contact	
• Consider Vascular Access • Determine Blood Glucose Level (if not previously obtained) • Cardiac Monitor and Pulse Oximetry *Extreme Agitation* **Midazolam** • IM – 5 or 10mg; OR • IV/IO – 2mg ○ Repeat 1mg every 2 mins as needed ○ Max of 10mg	• Consider Vascular Access • Determine Blood Glucose Level (if not previously obtained) • Cardiac Monitor and Pulse Oximetry *Extreme Agitation* **Midazolam** • IM – 0.1mg/kg ○ Max of 5mg • IV/IO – 0.1mg/kg ○ Repeat every 2 mins as needed ○ Max single dose of 2mg • Max total dose of 5mg
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures
Additional Information	
Refusal of Care • If a patient with a "mental disorder" refuses care and transport, consider law enforcement evaluation for Welfare and Institutions Code Sect. 5150 ○ "Mental disorders" do not generally include alcohol/drug intoxication, brain injury, hypoxemia, hypoglycemia, or similar causes ○ Be sure to consider AEIOU-TIPS *Documentation* • Use of restraints (physical or chemical) shall be documented in ePCR and monitored appropriately per Policy 535-Restraints & Violent Patients *Transport & Destination* • Patients with evidence of an emergency medical condition and/or acute agitation shall be transported to the closest emergency department.	*Refusal of Care* • If a patient with a "mental disorder" refuses care and transport, consider having them taken into custody according to Welfare and Institutions Code Sect. 5585 ○ "Mental disorders" do not generally include alcohol/drug intoxication, brain injury, hypoxemia, hypoglycemia, or similar causes ○ Be sure to consider AEIOU-TIPS *Documentation* • Use of restraints (physical or chemical) shall be documented in ePCR and monitored appropriately per Policy 535-Restraints & Violent Patients *Transport & Destination* • Patients with evidence of an emergency medical condition and/or acute agitation shall be transported to the closest emergency department.

CARDIAC ARREST MANAGEMENT (CAM)

ADULT

PEDIATRIC – (14 years and under)

Initial Procedures

Initial Management

- The primary goal in cardiac arrest resuscitation 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 every 200 compressions

Defibrillation

- 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

- Compressions Halted:
  - Allow AED to analyze/manually analyze
    - For manual defibrillation, determine if shockable rhythm within 3 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, the 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
- Use "2 thumbs up" jaw thrust technique to open the airway
- Deliver small tidal volume ventilation, one-handed, via small adult BVM on the upstroke of every 10th compression
- Airway adjunct should match the specific patient situation

Initial Management

- Neonatal Resuscitation (0 to 28 days old)
  - Refer to 533-31 Neonatal Resuscitation
- Primary goal in cardiac arrest resuscitation 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 (1-14 years): Use 1 or 2 hands
    - Infant (1 month-1 year): Use 2 fingers
  - Allow full chest recoil
  - Limit any pause to 3 seconds or less
  - Switch compressors every 200 compressions

Defibrillation

- 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

- Compressions Halted:
  - Allow AED to analyze/manually analyze
    - For manual defibrillation, determine if shockable rhythm within 3 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, the 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
- Use the "2 thumbs up" jaw thrust technique to open the airway
- Deliver small tidal volume ventilation, one-handed, via appropriately-sized BVM on the upstroke of every 10th compression
- Airway adjunct should match the specific patient situation

ALS Prior to Base Hospital Contact

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/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 $ETCO_2$ 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
- SPO_2 waveform
- $ETCO_2$ waveform

Circulation
- Assess for palpable radial pulse
- Obtain peripheral IV access (18GA preferred)
- Initiate **IV/IO Normal Saline 1L bolus** unless signs/symptoms of pulmonary edema
- Obtain manual blood pressure
- Maintain systolic of > 90mmHg
  - **1L Normal Saline fluid bolus**
  - **Push-Dose Epinephrine**
    - Refer to Policy 533-10: Push Dose Epinephrine

Airway/Ventilation
- Assess for responsiveness and spontaneous ventilations
- Assess $ETCO_2$, lung sounds and SPO_2
  - Oxygenate to SPO_2 > 94-98%
  - Oxygen flow rate titrated to prevent 100% SPO_2

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/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
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- 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
- SPO_2 waveform
- $ETCO_2$ waveform

Circulation
- Assess for palpable radial pulse
- Obtain peripheral IV access (18GA preferred)
- Initiate **IV/IO Normal Saline 20mL/kg bolus** unless signs/symptoms of pulmonary edema
- Obtain manual blood pressure
  - **Epi and fluids** to maintain weight-based appropriate SBP
    - For hypotension consider **Push-Dose Epinephrine** administration & consult with the BH for orders
    - Refer to Policy 533-10: Push Dose Epinephrine

Airway/Ventilation
- Assess for responsiveness and spontaneous ventilations
- Assess $ETCO_2$, lung sounds and SPO_2
  - Oxygenate to SPO_2 > 94-98%
  - Oxygen flow rate titrated to prevent 100% SPO_2

- Ventilate the patient at 10 breaths per minute until chest begins to rise (approx. 500 mL) to achieve:
  - $ETCO_2$ of 35-45
  - 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)

12-Lead EKG

- Obtain a 12-lead EKG. 5-10 minutes at scene is reasonable to ensure rhythm stability.
  - Refer to Policy 539: 12-Lead ECG

Transport ROSC patients to a STEMI Receiving Center.

- Ventilate the patient at 10 breaths per minute until chest begins to rise to achieve:
  - $ETCO_2$ of 35-45
  - 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)

12-Lead EKG

- Obtain a 12-lead EKG. 5-10 minutes at scene is reasonable to ensure rhythm stability.
  - Refer to Policy 539: 12-Lead ECG

Transport ROSC patients to a STEMI Receiving Center.

Base Hospital Physician Orders Only

Consult with ED Physician for further treatment measures

Consult with ED Physician for further treatment measures

Additional Information

CAM Notes

- 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

Hypothermic Patients

- Should be transported to the closest hospital;
- Administer only **one (1) round** of medications & limit defibrillation to **six (6) times** prior to Base Hospital contact.

Modifications for Pregnancy

- Circulation
  - Higher hand placement on chest wall
  - Perform left lateral 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 if using BVM
  - Increase Ventilation Rate from 10-12 to 16-18 breaths/min

Miscellaneous

- **EMS personnel must contact the BH prior to termination of resuscitation for all cardiac arrests regardless of rhythm.**
- EMS personnel must perform 20 minutes of resuscitation at minimum while on scene of a cardiac arrest except when:
  - Patient is in persistent VF/VT, at which point, resuscitation time must be a minimum of ≥30 minutes;
  - The scene is unsafe/unworkable;
  - EMS is presented with an active DNR/POLST; or
  - Base Hospital Orders have been obtained to terminate outside of parameters mentioned above.
- After minimum resuscitation time and BH contact, EMS personnel may terminate resuscitation efforts.
- **Naloxone** & assessing **BGL** are not indicated for patients in cardiac arrest, but if ROSC is achieved, **Naloxone** & **BGL** may be considered.
- For patients with non-shockable rhythms, the earlier epinephrine is given, the more likely the patient is to survive.

CAM Notes

- 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

Hypothermic Patients

- Should be transported to the closest hospital;
- Administer only **one (1) round** of medications & limit defibrillation to **six (6) times** prior to Base Hospital contact.

Modifications for Pregnancy

- Pregnant patient's less than ≤14-years-old:
  - EMS Personnel will follow "Modifications for Pregnancy" under the "Adult – Additional Information" section.

Resuscitation Time

- All pediatric (< 18 y/o) resuscitations will be transported to the closest receiving hospital

Miscellaneous

- **Naloxone** and assessing **BGL** are not indicated for patients in cardiac arrest, but if ROSC is achieved, **Naloxone** and **BGL** may be considered.
- For patients with non-shockable rhythms, the earlier epinephrine is given, the more likely the patient is to survive.

Continuous chest compressions & defibrillation are more important than ventilation, vascular access, & med admin.

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

Effective Date: April 1, 2024
Last Reviewed/Revised: December 31, 2023
Next Review Date: December 31, 2025

Signature on File

Daniel Shepherd, MD, EMS Medical Director

Traumatic Arrest – Withholding Resuscitation ○ Refer to Policy 533-26: Traumatic Arrest ○ Refer to Policy 509: Determination of Death *Continuous chest compressions & defibrillation are more important than ventilation, vascular access, & med admin.* *Do NOT stop compressions during ventilations, charging of defibrillators, or ALS procedures.*	

CARDIAC ARREST
VF/VT

ADULT

BLS Procedures

Perform Cardiac Arrest Management
- Initiate Compressions
- Apply AED & Defibrillate as Indicated
- Airway Management
  - Refer to Policy 533-02: Airway Management
- Refer to Policy 533-9a: Cardiac Arrest Management

Expanded Scope

Same as BLS

ALS Prior to Base Hospital Contact

Defibrillation
- **Defibrillate** every 2 minutes (as indicated) using highest Joule setting
  - *Zoll*: 200
  - *LifePak*: 360

Perform the Following
- Vascular Access
- Cardiac Monitor – Paddles Mode
- Airway Management
  - Maintain and ensure airway patency
    - Refer to Policy 533-02: Airway Management

Epinephrine – 0.1mg/1mL
- IV/IO – 1mg (10mL) every 3-5 min

Amiodarone
- IV/IO – 300mg after 2nd defibrillation
  - Repeat 150mg if VT/VF persists after 3 minutes
  - Max Total Dose 450mg

Normal Saline
- IV/IO – 1000mL

Torsades de Pointes
Magnesium Sulfate
- IV/IO – 2g over 2 min (Slow IVP)
  - Repeat x 1 in 5 min

Suspected Renal Failure or Suspected Hyperkalemia
Calcium Chloride
- IV/IO – 1g
  - Repeat x 1 in 10 min

Sodium Bicarbonate
- 2nd vascular access site if available
- IV/IO – 1mEq/kg
  - Repeat 0.5mEq/kg x 2 every 5 min

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

PEDIATRIC – (14 years and under)

BLS Procedures

Perform Cardiac Arrest Management
- Neonatal Resuscitation (0 to 28 days old)
  - Refer to 533-31 Neonatal Resuscitation
- Initiate Compressions
- Apply AED & Defibrillate as Indicated
- Airway Management
  - Refer to Policy 533-02: Airway Management
- Refer to Policy 533-9a: Cardiac Arrest Management

Expanded Scope

Same as BLS

ALS Prior to Base Hospital Contact

Defibrillation
- **Defibrillate** every 2 minutes using escalating Joules doses
  - 2, 4, 6, 8, 10 Joules/kg (or adult dose)
  - If the patient rearrests, initial defibrillation should be at the last successful energy level, then escalate as indicated

Perform the Following
- Vascular Access
- Cardiac Monitor – Paddles Mode
- Airway Management
  - Maintain and ensure airway patency
  - Refer to Policy 533-02: Airway Management

Epinephrine – 0.1mg/1mL
- IV/IO – 0.01mg/kg (0.1mL/kg) every 3-5 min

Amiodarone
- IV/IO – 5mg/kg (max 300mg) after 2nd defibrillation
- If VT/VF persists, may repeat 5mg/kg (max 150mg) every 5 minutes x 2
- Max Total Dose of 15mg/kg or 450mg (whichever is lower)

Normal Saline
- IV/IO – 20mL/kg

Torsades de Pointes
Magnesium Sulfate
- IV/IO – 50mg/kg over 2 min (Slow IVP)
  - Max 2000mg

Suspected Renal Failure or Suspected Hyperkalemia
Calcium Chloride
- IV/IO – 20mg/kg
  - Repeat x 1 in 10 min

Sodium Bicarbonate
- 2nd vascular access site if available
- IV/IO – 1mEq/kg
  - Repeat 0.5mEq/kg x 2 every 5 min

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

Base Hospital Physician Orders Only

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

Additional Information

ROSC > 30 Seconds
- Initiate Post-Arrest Resuscitation
- Refer to Policy 533-9a: Cardiac Arrest Management

Hypothermic Patients
- Refer to Policy 533-9a: Cardiac Arrest Management

Modifications for Pregnancy
- Refer to Policy 533-9a: Cardiac Arrest Management

Miscellaneous
- **EMS personnel must contact the BH prior to termination of resuscitation for all cardiac arrests regardless of rhythm.**
- Ventricular tachycardia (VT) is a rate > 150 bpm
- EMS Personnel must perform 20 minutes of resuscitation at a minimum while on scene of a cardiac arrest except when:
  - Patient is in persistent VF/VT, at which point, resuscitation must be ≥30 minutes;
    - Refer to Policy 533-9a: Cardiac Arrest Management
  - The scene is unsafe/unworkable;
  - EMS is presented with an active DNR/POLST; or
  - Base Hospital Orders have been obtained to terminate outside of the parameters mentioned above.
- After minimum resuscitation time and BH contact, EMS personnel may terminate resuscitation efforts.
- **Naloxone** and assessing **BGL** are not indicated for patients in cardiac arrest, but if ROSC is achieved, **Naloxone** and **BGL** may be considered.

ROSC > 30 Seconds
- Initiate Post-Arrest Resuscitation
- Refer to Policy 533-9a: Cardiac Arrest Management
- All pediatric resuscitation patients are to be transported to the closest hospital.

Hypothermic Patients
- Refer to Policy 533-9a: Cardiac Arrest Management

Modifications for Pregnancy
- Refer to Policy 533-9a: Cardiac Arrest Management

Miscellaneous
- Ventricular tachycardia (VT) is a rate > 150 bpm
- **Naloxone** and assessing **BGL** are not indicated for patients in cardiac arrest, but if ROSC is achieved, **Naloxone** and **BGL** may be considered.

CARDIAC ARREST
ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA)

ADULT

BLS Procedures

Perform Cardiac Arrest Management
- Initiate Compressions
- Apply AED & Defibrillate as Indicated
- Airway Management
  - Refer to Policy 533-02: Airway Management
- Refer to Policy 533-9a: Cardiac Arrest Management

Expanded Scope

Same as BLS

ALS Prior to Base Hospital Contact

Confirmation of Asystole
- Increase cardiac monitor gain to 2.0 to rule out fine VF
  - If Ventricular Rhythm
    - Refer to Policy 533-09b: Cardiac Arrest – VF/VT

Perform the Following
- Vascular Access
- Cardiac Monitor – Paddles Mode
- Airway Management
  - Maintain and ensure airway patency
  - Refer to Policy 533-02: Airway Management

Epinephrine – 0.1mg/1mL
- IV/IO – 1mg (10mL) every 3-5 min

Normal Saline
- IV/IO – 1000mL

When One of the Following is the Suspected Cause of Arrest:

Suspected Renal Failure or Suspected Hyperkalemia
Calcium Chloride
- IV/IO – 1g
  - Repeat x 1 in 10 min

Sodium Bicarbonate
- 2nd vascular access site if available
- IV/IO – 1mEq/kg
  - Repeat 0.5mEq/kg every 5 min x 2

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

Suspected Beta-Blocker or Calcium Channel Blocker OD
Calcium Chloride
- IV/IO – 1g over 1 minute
  - Repeat x 1 in 10 min

Glucagon
- IV/IO – 2mg (May repeat x 5 if available)
  - Total Max 10mg
  - Consider **Ondansetron** administration (if not in arrest)

PEDIATRIC – (14 years and under)

BLS Procedures

Perform Cardiac Arrest Management
- Neonatal Resuscitation (0 to 28-days-old)
  - Refer to 533-31 Neonatal Resuscitation
- Initiate Compressions
- Apply AED & Defibrillate as Indicated
- Airway Management
  - Refer to Policy 533-02: Airway Management
- Refer to Policy 533-9a: Cardiac Arrest Management

Expanded Scope

Same as BLS

ALS Prior to Base Hospital Contact

Confirmation of Asystole
- Increase cardiac monitor gain to 2.0 to rule out fine VF
  - If Ventricular Rhythm
    - Refer to Policy 533-09b: Cardiac Arrest – VF/VT

Perform the Following
- Vascular Access
- Cardiac Monitor – Paddles Mode
- Airway Management
  - Maintain and ensure airway patency
  - Refer to Policy 533-02: Airway Management

Epinephrine – 0.1mg/1mL
- IV/IO – 0.01mg/kg (0.1mL/kg) every 3-5 min

Normal Saline
- IV/IO – 20mL/kg

When One of the Following is the Suspected Cause of Arrest:

Suspected Renal Failure or Suspected Hyperkalemia
Calcium Chloride
- IV/IO – 20mg/kg
  - Repeat x 1 in 10 min

Sodium Bicarbonate
- 2nd vascular access site if available
- IV/IO – 1mEq/kg
  - Repeat 0.5mEq/kg every 5 min x 2

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

Suspected Beta-Blocker or Calcium Channel Blocker OD
Calcium Chloride
- IV/IO – 20mg/kg
  - Repeat x 1 in 10 min

Glucagon
- IV/IO – 0.05mg/kg (Max of 5mg per Dose)
  - *If no response within 15 mins*:
    - May repeat until Max 10mg (if available)
  - Consider **Ondansetron** administration (if not in arrest)

Early Base Hospital Contact for All Peds Cardiac Arrests

Base Hospital Physician Orders Only

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

Additional Information

ROSC > 30 Seconds
- Initiate Post-Arrest Resuscitation
- Refer to Policy 533-9a: Cardiac Arrest Management

Hypothermic Patients
- Refer to Policy 533-9a: Cardiac Arrest Management

Modifications for Pregnancy
- Refer to Policy 533-9a: Cardiac Arrest Management

Miscellaneous
- **EMS personnel must contact the BH prior to termination of resuscitation for all cardiac arrests regardless of rhythm.**
- EMS Personnel must perform 20 minutes of resuscitation at minimum while on scene of a cardiac arrest except when:
  - Patient is in persistent VF/VT, at which point, resuscitation must be ≥ 30 minutes;
    - Refer to Policy 533-9a: Cardiac Arrest Management
  - The scene is unsafe/unworkable;
  - EMS is presented with an active DNR/POLST; or
  - Base Hospital Orders have been obtained to terminate outside of parameters mentioned above.
- After minimum resuscitation time and BH contact, EMS personnel may terminate resuscitation efforts
- **Naloxone** and assessing **BGL** are not indicated for patients in cardiac arrest, but if ROSC is achieved, **Naloxone** and **BGL** may be considered.
- For patients with non-shockable rhythms, the earlier epinephrine is given, the more likely the patient is to survive.

ROSC > 30 Seconds
- Initiate Post-Arrest Resuscitation
- Refer to Policy 533-9a: Cardiac Arrest Management
- All pediatric resuscitation patients are to be transported to the closest hospital.

Hypothermic Patients
- Refer to Policy 533-9a: Cardiac Arrest Management

Modifications for Pregnancy
- Refer to Policy 533-9a: Cardiac Arrest Management

Miscellaneous
- **Naloxone** and assessing **BGL** are not indicated for patients in cardiac arrest, but if ROSC is achieved, **Naloxone** and **BGL** may be considered.
- For patients with non-shockable rhythms, the earlier epinephrine is given, the more likely the patient is to survive.

PUSH-DOSE EPINEPHRINE

INDICATIONS

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

ACTIONS

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

APPLICABLE PROTOCOLS

- Policies Referenced:
  - 533-05: Abdominal Pain
  - 533-07: Anaphylaxis Allergic Reaction
  - 533-11: Chest Pain
  - 533-12: Symptomatic Bradycardia
  - 533-18: Shortness of Breath
  - 533-20: Shock – Hypovolemia
  - 533-25: Potential Crush Injury/Crush Syndrome

ONSET

- One (1) min

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" – ***Epinephrine 1mg/10mL*** *(0.1mg/mL; 100mcg/mL)*

- Supplies needed (1 of each):
  - 0.1mg/mL **Epinephrine** syringe (preload)
  - 100mL bag of 0.9% **Normal Saline**
  - 10mL syringe
- Mixing instructions:
  - 10mL of 0.1mg/mL Epinephrine into 100 mL **Normal Saline** bag
  - Final concentration is **Epinephrine 10mcg/mL**

Mixing Concentration Using Ampule – ***Epinephrine 1mg/mL***

- Supplies needed (1 of each):
  - **Epinephrine** 1mg/mL (1mg) ampule or vial
  - Filtered Needle (for ampule)
  - Regular needle
  - 100mL bag of 0.9% **Normal Saline**
  - 10mL syringe
- Mixing instructions:
  - 1mL of 1mg/mL **Epinephrine** into 100 mL **Normal Saline** bag
  - Final concentration is **Epinephrine 10mcg/mL**

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
N/A	N/A
Expanded Scope	
N/A	N/A
ALS Prior to Base Hospital Contact	
• Vascular Access • Cardiac monitor **Epinephrine 10mcg/mL – Push-Dose** • Withdraw 10mL of solution using 10mL syringe • Administer 10mcg (1mL) every 3 mins IV push • Titrate to SBP > 90mmHg *Hypotension in Sepsis Patient Refractory to* ***Normal Saline*** • Administer **Epinephrine 10mcg/mL** as indicated above	• Vascular Access • Cardiac monitor **Epinephrine 10mcg/mL – Push-Dose** • Withdraw 10mL of solution using 10mL syringe ○ *Weight <10kg:* Administer 1mcg/kg (0.1mL/kg) q 3min IV push ○ *Weight ≥10kg:* Administer 10mcg (1mL) q 3 mins IV push ○ Titrate to weight-appropriate SBP (refer to Appendix A) *Hypotension in Sepsis Patient Refractory to* ***Normal Saline*** • Administer **Epinephrine 10mcg/mL** as indicated above

Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures
Additional Information	
*Potential complications – **Sodium Bicarbonate** ($NaHCO_3$)* • **Epinephrine** is neutralized by, and may precipitate with, **Sodium Bicarbonate**; consider establishing secondary vascular access site • Do <u>not</u> administer **Epinephrine** and **Sodium Bicarbonate** in the same vascular access line <u>unless</u> the line has been flushed with ≥ 10mL of **Normal Saline** between med administrations *Documentation* • Time and amount of each **Push-Dose Epinephrine** given • Patient response 1 min after administration *Base Hospital Report* • Communicate the use of **Push-Dose Epinephrine** • Report the final concentration delivered • Report the total amount of **Push-Dose Epinephrine** given, the elapsed time of total dosage, and the patient response	*Potential complications – **Sodium Bicarbonate** ($NaHCO_3$)* • **Epinephrine** is neutralized by, and may precipitate with, **Sodium Bicarbonate**; consider establishing secondary vascular access site • Do <u>not</u> administer **Epinephrine** and **Sodium Bicarbonate** in the same vascular access line <u>unless</u> the line has been flushed with ≥ 10mL of **Normal Saline** between med administrations *Documentation* • Time and amount of each **Push-Dose Epinephrine** given • Patient response 1 min after administration *Base Hospital Report* • Communicate the use of **Push-Dose Epinephrine** • Report the final concentration delivered • Report the total amount of **Push-Dose Epinephrine** given, the elapsed time of total dosage, and the patient response

CHEST PAIN / ACUTE CORONARY SYNDROME

ADULT

BLS Procedures

- Administer oxygen as indicated
  - Refer to Policy 533-02 Airway Management
- Assist patient with prescribed **Nitroglycerin** (NTG) as needed for chest pain
- Hold if SBP < 110 mmHg

Expanded Scope

Same as BLS

ALS Prior to Base Hospital Contact

Perform 12-Lead ECG

- Refer to Policy 539: 12-Lead ECG
- If "MEETS ST ELEVATION MI CRITERIA" or "***ACUTE MI SUSPECTED***" is present:
  - Place defibrillation pads on the patient and expedite transport to the closest STEMI Receiving Center (SRC)*

For patients with symptoms of acute coronary syndrome without chest pain

- Contact the Base Hospital prior to medication administration (if possible)

For ongoing or recurrent chest pain consistent with acute coronary syndrome

Nitroglycerin (Withhold if ECG states Inferior MI)

- Sublingual or lingual spray – 0.4mg every 5 mins for continued pain
  - No max dosage
- Maintain SBP > 110mmHg
  - If normal SBP < 110mmHg, then maintain SBP > 90mmHg

Aspirin

- PO – 324mg

Vascular Access

- 2 attempts prior to base hospital contact

*Pain refractory to **Nitroglycerin***

- Refer to Policy 533-03: Pain Control
- Maintain SBP > 110 mmHg

Hypotension present and/or develops

- Elevate legs
- Unless signs of CHF are present, **Normal Saline**
  - IV/IO bolus – 250mL

Ventricular ectopy – Runs of V-Tach (wide-complex, HR > 150bpm, > 30sec duration)

Amiodarone

- IV/IO – 150mg in 100mL 0.9% **Normal Saline** administered over 10 mins

Base Hospital Physician Orders Only

Hypotension, signs of CHF are present, and/or no response to fluid therapy

Push-Dose Epinephrine

- IV/IO – 10mcg (1mL) every 3 mins slow IV push
- Titrate to SBP > 90mmHg
- Refer to Policy 533-10: Push Dose Epinephrine

Consult with ED Physician for further treatment measures.

Additional Information

Medication Considerations:

- Perform 12-lead ECG prior to medication administration (if possible)
- **Nitroglycerin** is contraindicated when phosphodiesterase (PDE) medications (**Viagra®**, **Levitra®**, and **Cialis®**) have been recently used (**Viagra** or **Levitra** within 24hours; **Cialis** within 48hours). **Nitroglycerin** may only be given by BH Physician Order.

**Transport Considerations:*

- 12-Lead ECG interpretation of "MEETS ST ELEVATION MI CRITERIA" or "***ACUTE MI SUSPECTED***
  - Do not routinely transport STEMI patients Code-3
  - Consider Code-3 transport for unstable vital signs and/or patient condition

SYMPTOMATIC BRADYCARDIA

ADULT (HR < 40 BPM)	PEDIATRIC – (14 years and under) (Refer to Appendix A)
BLS Procedures	
• Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management • Shock position (if indicated) • Assist ventilations (if needed) • Attach AED & Initiate CPR (if indicated)	• Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management • Shock position (if indicated) • Assist ventilations (if needed) • Attach AED & Initiate CPR (if indicated)
Expanded Scope	
Same as BLS	Same as BLS
ALS Prior to Base Hospital Contact	
• Vascular Access • Cardiac monitoring ○ Consider early placement of defibrillation pads • Consider performing 12-Lead ECG ○ Refer to Policy 539: 12-Lead ECG *Asymptomatic Bradycardia* • No treatment is necessary, but be prepared to treat if symptoms develop *Symptomatic Bradycardia without Signs of Hypoperfusion* • Apply defibrillation pads (if not done prior) **Atropine** • IV/IO – 1mg • If initial **Atropine** is transiently effective, or patient remains bradycardic without hemodynamic compromise: ○ May repeat **Atropine** 0.5mg IV/IO every 3-5 mins ○ Max 0.04mg/kg • If no response to initial **atropine**, and patient remains symptomatic without hemodynamic compromise: **Push-Dose Epinephrine** ○ Refer to Policy 533-10: Push Dose Epinephrine *Symptomatic Bradycardia with Signs of Hypoperfusion* • Initiate medical and electrical therapy simultaneously **Atropine** • IV/IO – 1mg Initiate **Transcutaneous Pacing (TCP)** per Policy 541 – TCP • Prepare **Push-Dose Epinephrine** ○ Refer to Policy 533-10: Push Dose Epinephrine • If pain is present during TCP ○ Refer to Policy 533-03: Pain Control *Suspected Renal Failure or Suspected Hyperkalemia* **Calcium Chloride** • IV/IO – 1g ○ Repeat x 1 in 10 min **Sodium Bicarbonate** • 2nd vascular access site if available • IV/IO – 1mEq/kg ○ Repeat 0.5mEq/kg x 2 every 5 min	• Vascular Access • Cardiac monitoring ○ Consider early placement of defibrillation pads • Consider performing 12-Lead ECG ○ Refer to Policy 539: 12-Lead ECG *Asymptomatic Bradycardia* • No treatment necessary, but early Base Hospital Contact encouraged *Symptomatic Bradycardia without Signs of Hypoperfusion* • Apply defibrillation pads (if not done prior) **Atropine** • IV/IO – 0.02mg/kg ○ Minimum dose – 0.1mg ○ Maximum single dose 0.5mg ○ Maximum total dose 0.04mg/kg Prepare **Push-Dose Epinephrine** ○ Refer to Policy 533-10: Push Dose Epinephrine *Symptomatic Bradycardia with Signs of Hypoperfusion* **Atropine** • IV/IO – 0.02mg/kg ○ Minimum dose – 0.1mg ○ Maximum single dose 0.5mg ○ Maximum total dose 0.04mg/kg Prepare **Push-Dose Epinephrine** ○ Refer to Policy 533-10: Push Dose Epinephrine • **TCP allowed with Base Hospital Order**

Suspected Beta-Blocker or Calcium Channel Blocker OD **Calcium Chloride** • IV/IO – 1gm over 1 min **Glucagon** • IV/IO – 2mg (May repeat x 5 if available ○ Total Max 10mg ○ Consider **Ondansetron** administration (if not in arrest)	
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures.	*Suspected Renal Failure or Suspected Hyperkalemia* **Calcium Chloride** • IV/IO – 20mg/kg ○ Repeat x 1 in 10 min **Sodium Bicarbonate** • 2nd vascular access site if available • IV/IO – 1mEq/kg ○ Repeat 0.5mEq/kg x 2 every 5 min *Suspected Beta-Blocker or Calcium Channel Blocker OD* **Calcium Chloride** • IV/IO – 20mg/kg over 1 min ○ Max of 1gm **Glucagon** • IV/IO – 0.05mg/kg (Max of 5mg per Dose) ○ *If no response within 15 mins:* • May repeat until Max 10mg (if available) ○ Consider **Ondansetron** administration Consult with ED Physician for further treatment measures
Additional Information	
Signs and Symptoms of: • Symptomatic Bradycardia ○ Chest pain, shortness of breath, dizziness, profound weakness. • Hypoperfusion: ○ Hypotension, altered level of consciousness, diaphoresis, altered skin signs (pallor, mottled)	*Signs and Symptoms of:* • Symptomatic Bradycardia ○ Chest pain, shortness of breath, dizziness, profound weakness. • Hypoperfusion: ○ Hypotension, altered level of consciousness, diaphoresis, altered skin signs (pallor, mottled)

SUPRAVENTRICULAR TACHYCARDIA

ADULT (HR > 150)	PEDIATRIC – (14 years and under) (Refer to Appendix A)
BLS Procedures	
• Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management	• Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management
Expanded Scope	
Same as BLS	Same as BLS
ALS Prior to Base Hospital Contact	
• Vascular Access • Cardiac monitor ○ Consider early placement of defibrillation pads *Stable – Mild to Moderate Chest Pain/SOB* • Valsalva Maneuver **Adenosine** • IV/IO – 6mg rapid push immediately followed by 10-20mL **Normal Saline** flush *No conversion or rate control after initial treatment* **Adenosine** • IV/IO – 12mg rapid push immediately followed by 10-20mL **Normal Saline** flush ○ May repeat x1 if no conversion or rate control *Unstable – ALOC, signs of shock, CHF, or severe CP* **Synchronized Cardioversion** • *Zoll*: 100, 120, 150, 200 • *LifePak*: 100, 200, 300, 360 **Fentanyl** • IV/IO – 1mcg/kg • Should only be given if it does not result in delay in synchronized cardioversion	• Vascular Access • Cardiac monitor ○ Consider early placement of defibrillation pads *Stable – Mild to Moderate Chest Pain/SOB* • Valsalva Maneuver *Unstable – ALOC, signs of shock, CHF, or severe CP* **Synchronized Cardioversion** • 1Joule/kg • May increase to 2J/kg if initial dose ineffective **Fentanyl** • IV/IO – 1mcg/kg ○ Should only be given if it does not result in delay in synchronized cardioversion
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	*Stable – mild to moderate chest pain/SOB* **Adenosine** • IV/IO – 0.1mg/kg (max 6mg) rapid push immediately followed by 10-20mL **Normal Saline** flush *No conversion or rate control after initial treatment* **Adenosine** • IV/IO – 0.2mg/kg (max 12mg) rapid push immediately followed by 10-20mL **Normal Saline** flush ○ May repeat x1 if no conversion or rate control Consult with ED Physician for further treatment measures

Additional Information

Adenosine *Contraindications*
- 2nd degree or 3rd degree AV Block
- Sick Sinus Syndrome (except in patients with functioning pacemaker)
- Known hypersensitivity or anaphylaxis to **Adenosine**

Synchronized Cardioversion Indications
- Unstable narrow-complex, regular tachycardia (SVT)
- Unstable Atrial Flutter
- Rapidly conducting Atrial Fibrillation

Transport Considerations
- Consider withholding **Adenosine** until ED Physician evaluation if stable and/or there are underlying causes of tachycardia (sepsis, hypovolemia, heart failure, etc.)

Documentation
- Document all ECG strips during Valsalva Maneuver, **Adenosine** administration and/or synchronized cardioversion

Adenosine *Contraindications*
- 2nd degree or 3rd degree AV Block
- Sick Sinus Syndrome (except in patients with functioning pacemaker)
- Known hypersensitivity or anaphylaxis to **Adenosine**

Synchronized Cardioversion Indications
- Unstable narrow-complex, regular tachycardia (SVT)
- Unstable Atrial Flutter
- Rapidly conducting Atrial Fibrillation

Transport Considerations
- Patient should be evaluated for underlying causes of tachycardia (infection, dehydration, trauma, etc.)

Documentation
- Document all ECG strips during Valsalva Maneuver, **Adenosine** administration and/or synchronized cardioversion

WIDE-COMPLEX TACHYCARDIA – NOT IN ARREST

ADULT (HR > 150)	PEDIATRIC – (14 years and under) (Refer to Appendix A)
BLS Procedures	
• Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management	• Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management
Expanded Scope	
Same as BLS	Same as BLS
ALS Prior to Base Hospital Contact	
• Vascular Access • Cardiac monitor ○ Consider early placement of defibrillation pads *Stable – Mild to Moderate Chest Pain/SOB* **Amiodarone** • IV/IO – 150mg in 100mL 0.9% **Normal Saline** ○ Deliver over 10 mins *Unstable Monomorphic VT – ALOC, signs of shock, CHF, or severe CP* **Synchronized Cardioversion** • *Zoll*: 100, 120, 150, 200 • *LifePak*: 100, 200, 300, 360 **Fentanyl** • IV/IO – 1mcg/kg ○ Should only be given if it does not result in delay of Synchronized Cardioversion *Unstable Polymorphic VT – Torsades de Pointes* **Defibrillation** • *Zoll*: 200 • *LifePak*: 360	• Vascular Access • Cardiac monitor ○ Consider early placement of defibrillation pads *Stable – Mild to Moderate Chest Pain/SOB* • Apply defibrillation pads (if not placed prior) • Establish early Base Hospital Contact *Unstable – ALOC, signs of shock, CHF, or severe CP* • Place on a backboard and prepare for Synchronized Cardioversion **Synchronized Cardioversion** • 1Joule/kg • May increase to 2J/kg if initial dose ineffective **Fentanyl** • IV/IO – 1mcg/kg ○ Should only be given if it does not result in delay in synchronized cardioversion • Contact Base Hospital, if not completed already
Base Hospital Physician Orders Only	
Stable Polymorphic VT – Torsades de Pointes **Magnesium Sulfate** • IVPB – 2gm in 100mL 0.9% **Normal Saline** infused over 2 mins ○ May repeat x1 if Torsades continues or reoccurs Consult with ED Physician for further treatment measures	*Stable – Mild to Moderate Chest Pain/SOB* **Amiodarone** • IV/IO – 2.5mg/kg in 100mL 0.9% **Normal Saline** ○ Deliver over 10 mins ▪ Early Base Hospital Contact Consult with ED Physician for further treatment measures
Additional Information	
Early BH contact is recommended in unusual circumstances (e.g. Torsades de Pointes, Tricyclic OD and renal failure).	Early BH contact is recommended in unusual circumstances (e.g. Torsades de Pointes, Tricyclic OD and renal failure).

NAUSEA / VOMITING

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
• Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management	• Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management
Expanded Scope	
Same as BLS	Same as BLS
ALS Prior to Base Hospital Contact	
Cardiac Monitor • Cardiac monitor required throughout care • In the event of any patient entanglement or extrication, place the monitor early and maintain it throughout the extrication *If moderate to severe nausea/vomiting is present or there is a potential for airway compromise (secondary to suspected/actual head injury)* • Consider vascular access **Ondansetron** • PO – 4mg ODT ○ May repeat x1 in 10 mins • IV/IO/IM – 4mg ○ May repeat x1 in 10 mins	Cardiac Monitor • Cardiac monitor required throughout care • In the event of any patient entanglement or extrication, place the monitor early and maintain it throughout the extrication *If moderate to severe nausea/vomiting is present or there is a potential for airway compromise (secondary to suspected/actual head injury)* • Consider vascular access **Ondansetron** • Ages 6 months up to 5 years ○ PO – 2mg ODT ○ IV/IO/IM – 0.1mg/kg (Max of 2mg) • Ages > 5 years ○ PO – 4mg ODT ○ IV/IO/IM – 0.1mg/kg (Max of 4mg)
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures
Additional Information	
• In the event of prolonged interfacility transfers, **Ondansetron** may be administered hourly, as needed, not to exceed a total dose of **32mg** in adults. • **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 **16mg** in pediatrics. • **Ondansetron** is not required for pain control, but should be administered as needed for nausea/vomiting

POISONING / OVERDOSE

ADULT

BLS Procedures

- Administer oxygen as indicated
  - Refer to Policy 533-02 Airway Management

Suspected Opiate Overdose Without Respiratory Effort
- Begin CPR
- Apply AED and follow instructions

Suspected Opiate Overdose with RR < 12/min
- Assist ventilations appropriately

Naloxone
- IN – 2mg (1mg per nostril) via MAD
  - May repeat prn every 3 mins to maintain RR > 12/min
- IN – 4mg via prefilled nasal spray
  - May repeat x1 in 3 mins to maintain respirations >12/min
  - Total Max 8mg

Expanded Scope

Naloxone
- IM – 2mg
  - May repeat prn every 3 mins to maintain RR > 12/min
  - Total Max 8mg

ALS Prior to Base Hospital Contact

- Vascular Access
- Cardiac monitor

Oral ingestion within 1-hour, estimated transport time >15 mins & patient is awake with gag reflex present

Activated Charcoal
- PO – 1gm/kg
- Max 50gm

Suspected Opiate Overdose with RR < 12/min

Naloxone
- IV/IO – 0.4mg every 1 min
  - May repeat as needed to maintain RR > 12/min
- Total Max 8mg

Suspected Dystonic/Extrapyramidal Reactions

Diphenhydramine
- IV/IM/IO – 50mg
- Max 50mg

Suspected Tricyclic Antidepressant Overdose

Sodium Bicarbonate
- IV/IO – 1mEq/kg

Stimulant/Hallucinogen OD & Extreme Agitation
- Refer to Policy 533-08: Behavioral Emergencies

PEDIATRIC – (14 years and under)

BLS Procedures

- Administer oxygen as indicated
  - Refer to Policy 533-02 Airway Management

Suspected Opiate Overdose Without Respiratory Effort
- Begin CPR
- Apply AED and follow instructions

Suspected Opiate Overdose with RR < 12/min
- Assist ventilations appropriately

Naloxone
- IN – 2mg (1mg per nostril) via MAD
  - May repeat prn every 3 mins to maintain RR > 12/min
- IN – 4mg via prefilled nasal spray
  - May repeat x1 in 3 mins to maintain respirations >12/min
  - Total Max 8mg

Expanded Scope

Naloxone
- IM – 0.1mg/kg
  - May repeat prn every 3 mins to maintain RR > 12/min
  - Total Max 8mg

ALS Prior to Base Hospital Contact

- Vascular Access
- Cardiac monitor

Oral ingestion within 1-hour, estimated transport time >15 mins & patient is awake with gag reflex present

Activated Charcoal
- PO – 1gm/kg
- Max 25gm

Suspected Opiate Overdose with RR < 12/min

Naloxone
- IV/IO – 0.1mg/kg
  - May repeat as needed to maintain RR > 12/min
- Total Max 8mg

Suspected Dystonic/Extrapyramidal Reactions

Diphenhydramine
- IV/IM/IO – 1mg/kg
- Max 50mg

Suspected Tricyclic Antidepressant Overdose

Sodium Bicarbonate
- IV/IO – 1mEq/kg

Stimulant/Hallucinogen OD & Extreme Agitation
- Refer to Policy 533-08: Behavioral Emergencies

Suspected Beta-Blocker or Calcium Channel Blocker OD **Calcium Chloride** • IV/IO – 1g over 1 minute ○ Repeat x 1 in 10 min **Glucagon** • IV/IO – 2mg (May repeat x 5 if available) ○ Total Max 10mg ○ Consider **Ondansetron** administration (if not in arrest)	*Suspected Beta-Blocker or Calcium Channel Blocker OD* **Calcium Chloride** • IV/IO – 20mg/kg over 1 min ○ Max of 1gm **Glucagon** • IV/IO – 0.05mg/kg (Max of 5mg per Dose) ○ *If no response within 15 mins:* • May repeat until Max 10mg (if available) ○ Consider **Ondansetron** administration (if not in arrest)
Base Hospital Physician Orders Only	
Suspected organophosphate poisoning/exposure **Atropine** • IV/IO – 2mg every 1 min • Repeat until symptoms are relieved Consult with ED Physician for further treatment measures	*Suspected organophosphate poisoning/exposure* **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
Additional Information	
Poison Control Hotline: 1-800-222-1222 *Do not administer **Activated Charcoal** if:* • Oral ingestion of caustic, corrosive, or petroleum distillate substances ○ Do not induce vomiting • Tricyclic antidepressant ODs ○ If chest pain present, do not administer **Aspirin** ○ Assess and provide pain control as appropriate ▪ Refer to Policy 533-03: Pain Control *Guidance for **Naloxone** use* • It is not necessary that the patient be awake & alert • Administer until max dose is reached or RR > 12/min • When given to chronic opioid patients, withdrawal symptoms may present *Organophosphate poisoning/exposure – **SLUDGE*** **S – Salivation** **L – Lacrimation** **U – Urination** **D – Defecation** **G – Gastrointestinal Distress** **E – Emesis**	*Poison Control Hotline: 1-800-222-1222* *Do not administer **Activated Charcoal** if:* • Oral ingestion of caustic, corrosive, or petroleum distillate substances ○ Do not induce vomiting • Tricyclic antidepressant ODs ○ Assess and provide pain control as appropriate ▪ Refer to Policy 533-03: Pain Control *Guidance for **Naloxone** use* • It is not necessary that the patient be awake & alert • Administer until max dose is reached or RR > 12/min • When given to chronic opioid patients, withdrawal symptoms may present *Organophosphate poisoning/exposure – **SLUDGE*** **S – Salivation** **L – Lacrimation** **U – Urination** **D – Defecation** **G – Gastrointestinal Distress** **E – Emesis**

NERVE AGENT POISONING

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
Refer to Appendix C – "Chempack Cache Deployment Guide"	Refer to Appendix C – "Chempack Cache Deployment Guide"
Expanded Scope	
Same as BLS	Same as BLS
ALS Prior to Base Hospital Contact	
Prior to CHEMPACK Arrival • Identify if patient is exhibiting obvious signs of organophosphate exposure (SLUDGE) • Vascular Access should only be performed in the cold zone after complete decontamination *Hot/Warm Zones* **Atropine** • IM – 2mg every 5 mins ○ No max dose ○ Repeat until symptoms are relieved *Cold Zone – For fully decontaminated patients* • Vascular access **Atropine** • IV/IO – 2mg every 1 min ○ No max dose ○ Repeat until symptoms are relieved • IM – 2mg every 5 mins ○ Repeat until symptoms are relieved *Seizure Activity in Any Zone* **Midazolam** • IV/IO – 2mg ○ Repeat 1mg every 2 mins as needed ○ Max 10mg • IM – 10mg	*Prior to CHEMPACK Arrival* • Identify if patient is exhibiting obvious signs of organophosphate exposure (SLUDGE) • Vascular Access should only be performed in the cold zone after complete decontamination *Hot/Warm Zones* **Atropine** • IM – 0.05mg/kg every 5 mins ○ Minimum dose – 0.1mg ○ No max dose ○ Repeat until symptoms are relieved *Cold zone – For fully decontaminated patients* • Vascular access **Atropine** • IV/IO – 0.05mg/kg every 1 min ○ Minimum dose – 0.1mg ○ No max dose ○ Repeat until symptoms are relieved • IM – 0.05mg/kg every 5 mins ○ Minimum dose – 0.1mg ○ Repeat until symptoms are relieved *Seizure Activity in Any Zone* **Midazolam** • IM – 0.1mg/kg ○ Max 5mg • IV/IO – 0.1mg/kg ○ Repeat every 2 min as needed ○ Max single dose 2mg • Max total dose 5mg
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures
Additional Information	
• In such hazardous situations, the Incident Commander (IC) shall determine when the patient can be safely accessed by field providers. • 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	• In such hazardous situations, the Incident Commander (IC) shall determine when the patient can be safely accessed by field providers. • 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

SHORTNESS OF BREATH

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
• Place patient in a position of comfort • Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management • Assist with prescribed Metered Dose Inhaler (if available) *Suspected Allergic Reaction* • Refer to Policy 533-07: Anaphylaxis/Allergic Reaction *Severe Distress* **Epinephrine 1mg/mL** (via approved auto-injector) • IM – 0.3mg **CPAP** • 10cm/H_2O • May reduce to 5cm/H_2O if unable to tolerate initial pressure	• Place patient in a position of comfort • Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management • Assist with prescribed Metered Dose Inhaler (if available) • Suction nasal passages as needed *Suspected Allergic Reaction* • Refer to Policy 533-07: Anaphylaxis/Allergic Reaction *Severe Distress* **Epinephrine 1mg/mL** (via approved auto-injector) • Weight 15 to 30kg – 0.15mg IM • Weight > 30kg – 0.3mg IM **CPAP (Age 3 and older)** • 5cm/H_2O
Expanded Scope	
Severe Distress **Epinephrine 1mg/mL** • IM – 0.3mg **CPAP** as referenced above	*Severe Distress* **Epinephrine 1mg/mL** • IM – 0.01mg/kg ○ Max 0.3mg (0.3mL) **CPAP (Age 3 and older)** as referenced above
ALS Prior to Base Hospital Contact	
• Vascular Access • Consider 12-Lead ECG *Bronchospasms (COPD, Asthma, etc.)* **Albuterol** • Nebulizer – 5mg (6mL) • Repeat as needed **CPAP** as referenced above *Severe Distress* **Epinephrine 1mg/mL** • IM – 0.3mg ○ Repeat if no change after 10 minutes **CPAP** as referenced above *Suspected Pulmonary Edema* **Nitroglycerin (SBP ≥ 110mmHg)** • SL or Lingual Spray – 0.4mg every 1 min x3 ○ Repeat 0.4mg every 2 mins ○ No Max Dosage **CPAP** as referenced above	• Vascular Access • Consider 12-Lead ECG *Bronchospasms (COPD, Asthma, etc.)* **Albuterol** ○ Age < 2 years – 2.5mg (3mL) ○ Age ≥ 2 years – 5mg (6mL) ○ Repeat as needed **CPAP (Age 3 and older)** as referenced above *Severe Distress* **Epinephrine 1mg/mL** • IM – 0.01mg/kg ○ Max 0.3mg (0.3mL) ○ Repeat if no change after 10 minutes **CPAP (Age 3 and older)** as referenced above *Stridor or Suspected Croup* **Normal Saline** • Nebulizer/Aerosolized Mask – 5mL
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures
Additional Information	
N/A	N/A

SEIZURES

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
• Protect from injury • Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management • Determine Blood Glucose Level (BGL) ○ Refer to Policy 533-06: Altered Neurologic Function	• Protect from injury • Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management • Suspected febrile seizure ○ Begin passive cooling measures ○ If seizure activity persists, see below • Determine Blood Glucose Level (BGL) ○ Refer to Policy 533-06: Altered Neurologic Function
Expanded Scope	
Same as BLS	Same as BLS
ALS Prior to Base Hospital Contact	
• Vascular Access • Cardiac Monitoring • Determine Blood Glucose Level (BGL), if not yet obtained ○ If BGL < 60, establish vascular access and administer **D10W** ▪ IV/IO – 25gm (250mL) ○ If no vascular access available, administer **Glucagon** ▪ IM – 1mg *Active Seizure* **Midazolam** • IM – 10mg or IV/IO – 2mg ○ Repeat 1mg every 2 mins as needed ○ Max 10mg *3rd Trimester Pregnancy & No Known Seizure Hx with Signs/Symptoms of Eclampsia or Active Seizures** • Refer to Policy 533-32: OB/GYN	• Vascular Access • Cardiac Monitoring • Determine Blood Glucose Level (BGL), if not yet obtained ○ If BGL < 60, establish vascular access and administer **D10W** ▪ IV/IO – 0.5gm/kg (5mL/kg) ▪ Max dose 25gm (250mL) ○ If no vascular access available, administer **Glucagon** ▪ IM – 0.1mg/kg ▪ Max dose 1mg *Active Seizure* **Midazolam** • IM – 0.1mg/kg ○ Max 5mg • IV/IO – 0.1mg/kg ○ Repeat every 2 min as needed ○ Max single dose 2mg ○ Max total dose 5mg
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures
Additional Information	
N/A	N/A

SHOCK – HYPOTENSION

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
• Place patient in supine position • Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management • Hemorrhage control – Policy 544: Tourniquet	• Place patient in supine position • Administer oxygen as indicated ○ Refer to Policy 533-02 Airway Management • Hemorrhage control – Policy 544: Tourniquet
Expanded Scope	
Same as BLS	Same as BLS
ALS Prior to Base Hospital Contact	
• Vascular Access *Hypovolemic Shock* **Normal Saline** • IV/IO Bolus – 1L ○ May repeat x1 for persistent signs of shock **Push-Dose Epinephrine** • Refer to Policy 533-10: Push Dose Epinephrine *Hemorrhagic Shock – SBP ≤ 90mmHg* **Tranexamic Acid (TXA) – *Traumatic Injury Only*** • IV/IO – Infuse 1gm (100mL) **TXA** over 10 mins • Refer to Policy 533-23: Tranexamic Acid (TXA) **Push-Dose Epinephrine** • Refer to Policy 533-10: Push Dose Epinephrine • Hemorrhage control – Policy 544: Tourniquet *Septic Shock* **Normal Saline** • IV/IO Bolus – 1L ○ May repeat x1 for persistent signs of shock **Push-Dose Epinephrine** • Refer to Policy 533-10: Push Dose Epinephrine *Anaphylactic Shock* **Epinephrine 1mg/mL** • IM – 0.3mg ○ May repeat every 5 mins x2 **Push-Dose Epinephrine** • Refer to Policy 533-10: Push Dose Epinephrine **Normal Saline** • IV/IO Bolus – 1L ○ May repeat x1 for persistent signs of shock *Cardiogenic Shock* **Push-Dose Epinephrine** • Refer to Policy 533-10: Push Dose Epinephrine **Normal Saline** • IV/IO Bolus – 1L ○ Re-evaluate lung sounds after 500mL ○ If signs of pulmonary edema/CHF, decrease to TKO ○ If patient becomes normotensive, decrease to TKO	• Vascular Access *Hypovolemic Shock – Titrate to Age-Appropriate SBP* - Refer to Appendix A for vital sign chart **Normal Saline** • IV/IO Bolus – 20mL/kg ○ May repeat x1 for persistent signs of shock **Push-Dose Epinephrine** • Refer to Policy 533-10: Push Dose Epinephrine *Hemorrhagic Shock –Titrate to Age-Appropriate SBP* - Refer to Appendix A for vital sign chart **Normal Saline** • IV/IO Bolus – 20mL/kg ○ May repeat x1 for persistent signs of shock **Push-Dose Epinephrine** • Refer to Policy 533-10: Push Dose Epinephrine • Hemorrhage control – Policy 544: Tourniquet *Septic Shock –Titrate to Age-Appropriate SBP* - Refer to Appendix A for vital sign chart **Normal Saline** • IV/IO Bolus – 20mL/kg ○ May repeat x1 for persistent signs of shock **Push-Dose Epinephrine** • Refer to Policy 533-10: Push Dose Epinephrine *Anaphylactic Shock –Titrate to Age-Appropriate SBP* - Refer to Appendix A for vital sign chart **Epinephrine 1mg/mL** • IM – 0.01mg/kg • Patient weighs 15kg – 30kg • IM – 0.15mg (Max total dose of 0.15mg) • Patient weighs > 30kg • IM – 0.3mg (Max total dose of 0.3mg) •Contact BH for further **Push-Dose Epinephrine** • Refer to Policy 533-10: Push Dose Epinephrine **Normal Saline** • IV/IO Bolus – 20mL/kg ○ May repeat x1 for persistent signs of shock *Cardiogenic Shock – Titrate to Age-Appropriate SBP* - Refer to Appendix A for vital sign chart **Push-Dose Epinephrine** • Refer to Policy 533-10: Push Dose Epinephrine **Normal Saline** • IV/IO Bolus – 20mL/kg ○ Re-evaluate lung sounds ○ If signs of pulmonary edema/CHF, decrease to TKO ○ If SBP age-appropriate, decrease to TKO

Effective Date: April 1, 2024
Last Reviewed/Revised: December 31, 2023
Next Review Date: December 31, 2025

Signature on File

Daniel Shepherd, MD, EMS Medical Director

Neurogenic Shock **Push-Dose Epinephrine** • Refer to Policy 533-10: Push Dose Epinephrine **Normal Saline** • IV/IO Bolus – 1L ○ May repeat x1 for persistent signs of shock	*Neurogenic Shock – Titrate to Age-Appropriate SBP* - Refer to Appendix A for vital sign chart **Push-Dose Epinephrine** • Refer to Policy 533-10: Push Dose Epinephrine **Normal Saline** • IV/IO Bolus – 20mL/kg ○ May repeat x1 for persistent signs of shock

Base Hospital Physician Orders Only

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

Additional Information

Tranexamic Acid (TXA) • TXA is indicated for patients with traumatic injuries per Policy 533-23 – Tranexamic Acid. • TXA may be administered for emergency medical conditions outside of these indications with Base Hospital Physician Order only. *Signs and Symptoms of Septic Shock* • Physiological Response ○ Fever (or Hot to the Touch) ○ Tachycardia ○ Tachypnea ○ ALOC • History or Physical Exam Suggestive of Infection ○ Pneumonia ○ UTI ○ Cellulitis ○ Infected Wound ○ Currently Taking Antibiotics	*Signs and Symptoms of Septic Shock* • Physiological Response ○ Fever (or Hot to the Touch) ○ Tachycardia ○ Tachypnea ○ ALOC • History or Physical Exam Suggestive of Infection ○ Pneumonia ○ UTI ○ Cellulitis ○ Infected Wound ○ Currently Taking Antibiotics

STROKE

ADULT

BLS Procedures

- Assess LOC and perform neurological assessment
  - Cincinnati Stroke Scale (CSS)
- Administer oxygen as indicated
  - Refer to Policy 533-02: Airway Management
- Determine Blood Glucose Level (BGL)
  - Refer to Policy 533-06: Altered Neurological Function

Expanded Scope

- Determine Blood Glucose Level (BGL) – if not obtained prior
  - Refer to Policy 533-06: Altered Neurological Function

ALS Prior to Base Hospital Contact

Stroke Assessment

- Perform Cincinnati Stroke Scale (CSS)
  - If positive, perform VAN Screen
  - Refer to Policy 550: Stroke System Triage and Destination
- Vascular Access
- Cardiac monitor

"Stroke Alert" Criteria

- Positive CSS, VAN negative, TLKW < 24 hours & BGL > 60mg/dL → Declare ***"Stroke Alert"***

"LVO Alert" Criteria

- Presence of arm drift on CSS **AND** positive VAN, TLKW < 24 hours & BGL > 60mg/dL → Declare ***"LVO Alert"***

Stroke Symptoms with TLKW > 24 hours or Unknown TLKW

- If patient exhibits stroke symptoms, but TLKW is > 24 hours (or unknown/unable to determine) → Declare ***"Subacute Stroke Suspected"***
- This is **NOT** a Stroke/LVO Alert.
- Do not delay transport for on-scene assessment

Base Hospital Notification and Report

- Make early BH contact with "Stroke Alert" or "LVO Alert" patients
- *Advise BH of "Stroke Alert, "LVO Alert," or "Subacute Stroke Suspected."*

Base Hospital Physician Orders Only

Consult with ED Physician for further treatment measures

Additional Information

Cincinnati Stroke Scale Guidelines	***VAN Screen: Arm Drift + One of the Following***
Facial Droop ○ *Normal*: Both sides of face move equally ○ *Abnormal*: One side of face does not move at all	Visual Disturbance ○ *Normal*: Ability to see in all directions (up, down, left, right) ○ *Abnormal*: There is vision loss (partial or complete)
Arm Drift ○ ***Normal*: Both arms move equally or not at all** ○ ***Abnormal*: One arm drifts compared to the other**	Aphasia ○ *Normal*: Ability to communicate clearly & understand simple commands ○ *Abnormal*: Inability to communicate clearly, is mute, or cannot understand commands ○ APHASIA IS NOT SLURRED SPEECH
Speech ○ *Normal*: Patient uses correct words with no slurring ○ *Abnormal*: Slurred or inappropriate words or mute	Neglect ○ *Normal*: Ability to track surroundings & all peripheral sensation intact ○ *Abnormal*: Looks to one side or ignores stimulus to one side of the body
ePCR Documentation Should Include the Following:	
• Activation of the Specialty Care Stroke Tab	• CSS Assessment
• Documentation of BGL	• VAN Assessment (if performed)
• Name/contact number of person w/ TLKW information	• Time Last Known Well (TLKW)

TRAUMATIC INJURIES

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
• Administer oxygen as indicated ○ Refer to Policy 533-02: Airway Management • Trauma Guidelines ○ Refer to Policy 533-1b SBC Trauma Assessment/Treatment Guidelines ○ Spinal Motion Restriction ▪ Refer to Policy 540: Spinal Motion Restriction ○ Determine Glasgow Coma Scale (GCS) ▪ Refer to Appendix B Utilize approved hemostatic dressings where appropriate	• Administer oxygen as indicated ○ Refer to Policy 533-02: Airway Management • Trauma Guidelines ○ Refer to Policy 533-1b SBC Trauma Assessment/Treatment Guidelines ○ Spinal Motion Restriction ▪ Refer to Policy 540: Spinal Motion Restriction ○ Determine Glasgow Coma Scale (GCS) ▪ Refer to Appendix B Utilize approved hemostatic dressings where appropriate
Expanded Scope	
Same as BLS	Same as BLS
ALS Prior to Base Hospital Contact	
• Vascular Access ○ Do not delay transport for vascular access • Cardiac monitor • Airway management ○ Refer to Policy 533-02: Airway Management • Pain Control ○ Refer to Policy 533-03: Pain Control *Traumatic Injury – Hypotension SBP ≤ 90mmHg* **Normal Saline** • IV/IO Bolus – 1L **Normal Saline** ○ Maintain SBP > 90mmHg • Refer to Policy 533-20: Shock-Hypotension • Refer to Policy 533-23: Tranexamic Acid (TXA) *Suspected Pneumothorax/Hemothorax* • Place patient in seated position if possible • Refer to Policy 536: Needle Thoracostomy	• Vascular Access ○ Do not delay transport for vascular access • Cardiac monitor • Airway management ○ Refer to Policy 533-02: Airway Management • Pain Control ○ Refer to Policy 533-03: Pain Control *Traumatic Injury – Hypotension - Refer to Appendix A* **Normal Saline** • IV/IO Bolus – 20mL/kg ○ May repeat x1 for persistent signs of shock • Maintain SBP appropriate for age • Refer to Policy 533-20: Shock-Hypotension *Suspected Pneumothorax/Hemothorax* • Place patient in seated position if possible • Weight < 40kg: 3cm Needle • Weight ≥ 40kg: 8.0-8.5cm Needle • Refer to Policy 536: Needle Thoracostomy
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures
Additional Information	
• Maintain a high index of suspicion for patients with analtered sensorium (drugs, alcohol, head injuries, ALOC) • Documentation should include detailed description of injury, such as presence of localized swelling, angulation/rotation, laceration, open/closed fracture, neurovascular compromise, estimated blood loss, etc.) • For BH and destination refer to Policy 510: Trauma Triage and Patient Destination	• Maintain a high index of suspicion for patients with an altered sensorium (drugs, alcohol, head injuries, ALOC) • Documentation should include detailed description of injury, such as presence of localized swelling, angulation/rotation, laceration, open/closed fracture, neurovascular compromise, estimated blood loss, etc.) • For BH and destination refer to Policy 510: Trauma Triage and Patient Destination

TRANEXAMIC ACID (TXA)

ADULT (≥15 y/o)

INDICATIONS

- Blunt/penetrating traumatic injury with SBP ≤ 90mmHg

-OR-

- Significant blood loss with bleeding not controlled by direct pressure, hemostatic agents, or tourniquet

ACTIONS

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

APPLICABLE PROTOCOLS

- Policies Referenced:
  - 533-20: Shock - Hypotension
  - 533-22: Traumatic Injuries
  - 533-25: Potential Crush Injury

ONSET & DURATION

- Onset of Action: 20 mins to 2 hours
- Duration of Action: 2-8 hours

CONTRAINDICATIONS

- Patients < 15 y/o
- Greater than 3 hours post-injury
- Isolated head injury
- Neurogenic shock (spinal injury with hypotension)
- Isolated extremity hemorrhage w/ controlled bleeding
- Active thrombotic event within 24 hours
  - i.e. Acute Stroke, Myocardial Infarction, Pulmonary Embolus, or Deep Vein Thrombosis
- Hypersensitivity or anaphylactic reaction to **TXA**
- Traumatic arrest with > 5 mins of CPR without ROSC
- 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% **Normal Saline**
  - Mixing instructions:
    - 1gm of **TXA** into 100mL **Normal Saline** bag

Administration

- Vascular Access
- IV/IO – Infuse 1gm (100mL) **TXA** over 10 mins

Base Hospital Physician Orders Only

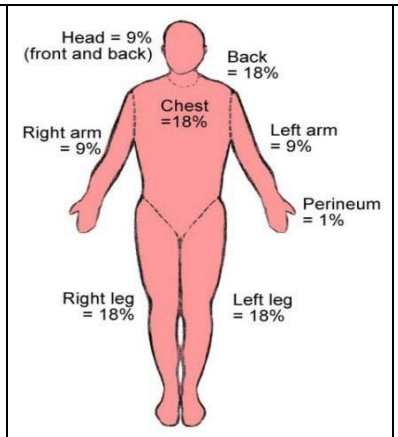
Base Hospital Physician order is required for non-traumatic hemorrhagic conditions.

Additional Information

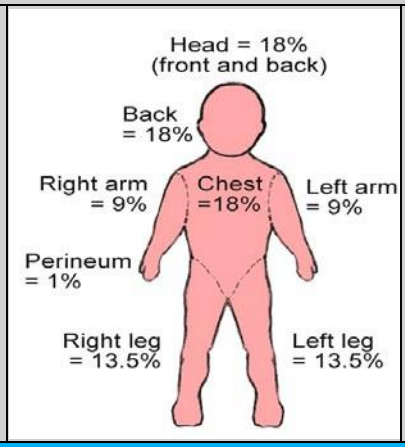
- TXA is indicated for patients with traumatic injuries per this policy.
- TXA may be administered for emergency medical conditions outside of these indications with Base Hospital Physician Order only.
- All adverse effects must be documented in ePCR and reported to the receiving hospital upon transfer of patient care.
  - Possible adverse effects may include: Hypotension with rapid IV infusion, chest tightness, difficulty breathing, facial flushing, blurred vision, nausea, vomiting, and diarrhea.

BURNS

ADULT



PEDIATRIC – (14 years and under)



BLS Procedures

General Burn Guidelines

- Remove constrictive clothing/jewelry & garments made of synthetic materials
- Determine type of burn (thermal, chemical, electrical, or radiation) and stop the burning process*
- Maintain body heat at all times
- Elevate burned limb(s) if possible
- Total Body Surface Area (TBSA) ≤ 10%
  - Cool burned area with saline dressings
- Total Body Surface Area (TBSA) > 10%
  - Cover burned area with dry sterile dressings, followed by a clean dry sheet/burn sheet

General Burn Guidelines

- Remove constrictive clothing/jewelry & garments made of synthetic materials
- Determine type of burn (chemical, thermal, electrical, or radiation) and stop the burning process*
- Maintain body heat at all times
- Elevate burned limb(s) if possible
- Total Body Surface Area (TBSA) ≤ 10%
  - Cool burned area with saline dressings
- Total Body Surface Area (TBSA) > 10%
  - Cover burned area with dry sterile dressings, followed by a clean dry sheet/burn sheet

Expanded Scope

Same as BLS

Same as BLS

ALS Prior to Base Hospital Contact

- Vascular Access
- Pain Control
  - Refer to Policy 533-03: Pain Control

TBSA > 10% or Hypotension Present
Normal Saline
- IV/IO – 1L bolus

- Vascular Access
- Pain Control
  - Refer to Policy 533-03: Pain Control

TBSA > 10% or Hypotension Presents – Refer to Appendix A
Normal Saline
- IV/IO – 20mL/kg bolus
- Maintain SBP appropriate for age

Base Hospital Physician Orders Only

Consult with ED Physician for further treatment measures

Consult with ED Physician for further treatment measures

Additional Information

*Stopping the Burning Process**

- ***Thermal:*** Put out fire using water or other non-hazardous, non-flammable liquid. Fire extinguisher may be used.
- ***Liquid Chemical:*** Flush area w/ copious amounts of water.
- ***Powdered Chemical*:** Brush off as much as possible prior to flushing area with copious amounts of water.
- ***Electrical:*** Turn off power source and safely remove patient from hazard area.
- ***Radiation:*** Keep area clean, cover with dry sterile dressings.

*Stopping the Burning Process**

- ***Thermal:*** Put out fire using water or other non-hazardous, non-flammable liquid. Fire extinguisher may be used.
- ***Liquid Chemical:*** Flush area w/ copious amounts of water.
- ***Powdered Chemical*:** Brush off as much as possible prior to flushing area with copious amounts of water.
- ***Electrical:*** Turn off power source and safely remove patient from hazard area.
- ***Radiation:*** Keep area clean, cover with dry sterile dressings.

POTENTIAL CRUSH INJURY / CRUSH SYNDROME

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
• Administer oxygen as indicated ○ Refer to Policy 533-02: Airway Management • Perform spinal precautions as indicated • Maintain body heat • Obtain Crush/Compression Timeframe (if available)	• Administer oxygen as indicated ○ Refer to Policy 533-02: Airway Management • Perform spinal precautions as indicated • Maintain body heat • Obtain Crush/Compression Timeframe (if available)
Expanded Scope	
Same as BLS	Same as BLS
ALS Prior to Base Hospital Contact	
*Potential Crush Syndrome** • Vascular access • Release compression • Monitor for cardiac dysrhythmias *Crush Syndrome** • Establish 2nd vascular access **Normal Saline** • IV/IO bolus – 1L • Caution with cardiac and/or renal history **Sodium Bicarbonate** • IV/IO mix – 1mEq/kg ○ Added to 1st Liter of **Normal Saline** **Albuterol** • Nebulizer – 5mg (6mL) ○ Repeat as needed *Additional Treatments* • Pain control ○ Refer to Policy 533-03: Pain Control • Release compression • Monitor for dysrhythmias • If cardiac dysrhythmias present: **Calcium Chloride** ○ IV/IO bolus – 1g over 1 min ○ Repeat x1 in 10 minutes • For continued shock: ○ Repeat **Normal Saline** ▪ IV/IO bolus – 1L ○ Refer to Policy 533-20: Shock – Hypotension *Hypotension Refractory to Normal Saline and Ongoing Extended Entrapment* **Push-Dose Epinephrine** • Refer to Policy 533-10: Push Dose Epinephrine	*Potential Crush Syndrome** • Vascular access • Release compression • Monitor for cardiac dysrhythmias *Crush Syndrome** • Establish 2nd vascular access **Normal Saline** • IV/IO bolus – 20mL/kg • Caution with cardiac and/or renal history **Sodium Bicarbonate** • IV/IO mix – 1mEq/kg ○ Added to 1st Liter of **Normal Saline** **Albuterol** • Age < 2 years- 2.5mg (3mL) Nebulizer • Age ≥ 2 years- 5mg (6mL) Nebulizer • Repeat as needed *Additional Treatments* • Pain control ○ Refer to Policy 533-03: Pain Control • Release compression • Monitor for dysrhythmias • If cardiac dysrhythmias present: **Calcium Chloride** ○ IV/IO bolus – 20mg/kg ○ Repeat x1 in 10 minutes • For continued shock: ○ Repeat **Normal Saline** ▪ IV/IO bolus – 20mL/kg ○ Refer to Policy 533-20: Shock – Hypotension ▪ Titrate to weight-appropriate SBP ▪ Refer to Appendix A *Hypotension Refractory to Normal Saline and Ongoing Extended Entrapment* **Push-Dose Epinephrine** • Refer to Policy 533-10: Push Dose Epinephrine • Refer to Appendix A
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures

Additional Information

*Potential Crush Syndrome** • Continuous crush injury to torso or extremity (above the wrist or ankle) for ≤ 2 hrs. *Crush Syndrome** • Continuous crush injury to torso or extremity (above the wrist or ankle) for > 2 hrs. *Miscellaneous* • 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 secondary access site for administration of $CaCl_2$. ▪ If using the same access, flush with a minimum of 10mL **Normal Saline** between medications. • If elderly or cardiac history is present, use caution with fluid administration. Reassess and treat accordingly.	*Potential Crush Syndrome** • Continuous crush injury to torso or extremity (above the wrist or ankle) for ≤ 2 hrs. *Crush Syndrome** • Continuous crush injury to torso or extremity (above the wrist or ankle) for > 2 hrs. *Miscellaneous* • 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 secondary access site for administration of $CaCl_2$. ▪ If using the same access, flush with a minimum of 10mL **Normal Saline** between medications. • If cardiac history is present, use caution with fluid administration. Reassess and treat accordingly.

TRAUMATIC ARREST

ADULT – (18 years and greater)	PEDIATRIC – (17 years and under)
BLS Procedures	
• Manage using Cardiac Arrest Management policy ○ Refer to Policy 533-9a: Cardiac Arrest Management • Airway management ○ Refer to Policy 533-02: Airway Management • Perform Spinal Motion Restriction as indicated ○ Refer to Policy 540: Spinal Motion Restriction • Hemorrhage Control/Tourniquet Placement as indicated ○ Refer to *Policy 544 – Tourniquet Use*	• Manage using Cardiac Arrest Management policy ○ Refer to Policy 533-9a: Cardiac Arrest Management • Airway management ○ Refer to Policy 533-02: Airway Management • Perform Spinal Motion Restriction as indicated ○ Refer to Policy 540: Spinal Motion Restriction • Hemorrhage Control/Tourniquet Placement as indicated ○ Refer to Policy 544 – Tourniquet Use
Expanded Scope	
Same as BLS	Same as BLS
ALS Prior to Base Hospital Contact	
• Cardiac monitor • Immediate transport • Vascular Access ○ Consider large-bore access x2 **Normal Saline** • IV/IO Bolus – 1L *Cardiac Dysrhythmias* • 533-09b Cardiac Arrest – VF/VT • 533-09c Cardiac Arrest – Asystole/PEA *Withholding/Terminating Resuscitation Pts ≥ 18 y/o* • Refer to Policy 509: Determination of Death *Triage and Patient Destination* • Refer to Policy 510: Trauma Triage and Patient Destination	• Cardiac monitor • Immediate transport • Vascular Access ○ Consider large-bore access x2 **Normal Saline** • IV/IO Bolus – 20mL/kg *Cardiac Dysrhythmias* • 533-09b Cardiac Arrest – VF/VT • 533-09c Cardiac Arrest – Asystole/PEA *Triage and Patient Destination* • All pediatric (< 18 y/o) resuscitations will be transported to the closest receiving hospital • Refer to Policy 510: Trauma Triage and Patient Destination
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures
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. ○ Refer to Policy 536: 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.

BITES & STINGS

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
• Administer oxygen as indicated ○ Refer to Policy 533-02: Airway Management • Monitor for allergic reaction or anaphylaxis ○ Refer to Policy 533-07: Anaphylaxis/Allergic Reaction *Animal/Insect Bites* • Flush site with sterile water • Control bleeding • Apply bandage *Snake Bites/Envenomation* • Mark the edge of the wound ASAP & monitor q 10-15 mins • Remove rings and constrictions • Immobilize the affected part in an elevated position • Avoid excessive activity *Bee Stings* • If present, remove stinger • Apply ice pack *Jellyfish Stings* • Rinse thoroughly with normal saline • DO NOT: ○ Rinse with fresh water ○ Rub with wet sand ○ Apply heat *All Other Marine Animal Stings* • If present, remove barb • Immerse in hot water, if available	• Administer oxygen as indicated ○ Refer to Policy 533-02: Airway Management • Monitor for allergic reaction or anaphylaxis ○ Refer to Policy 533-07: Anaphylaxis/Allergic Reaction *Animal/Insect Bites* • Flush site with sterile water • Control bleeding • Apply bandage *Snake Bites/Envenomation* • Mark the edge of the wound ASAP & monitor q 10-15 mins • Remove rings and constrictions • Immobilize the affected part in an elevated position • Avoid excessive activity *Bee Stings* • If present, remove stinger • Apply ice pack *Jellyfish Stings* • Rinse thoroughly with normal saline • DO NOT: ○ Rinse with fresh water ○ Rub with wet sand ○ Apply heat *All Other Marine Animal Stings* • If present, remove barb • Immerse in hot water, if available
Expanded Scope	
Same as BLS	Same as BLS
ALS Prior to Base Hospital Contact	
• Consider Vascular Access • Cardiac monitor • Monitor for allergic reaction or anaphylaxis ○ Refer to Policy 533-07: Anaphylaxis/Allergic Reaction • Pain Control ○ Refer to Policy 533-03: Pain Control	• Consider Vascular Access • Cardiac monitor • Monitor for allergic reaction or anaphylaxis ○ Refer to Policy 533-07: Anaphylaxis/Allergic Reaction • Pain Control ○ Refer to Policy 533-03: Pain Control
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures
Additional Information	
• All bites other than snake bites may be treated as a BLS call • For known snake envenomation, consider rapid transport	• All bites other than snake bites may be treated as a BLS call • For known snake envenomation, consider rapid transport

HEAT EMERGENCIES

ADULT	PEDIATRIC – (14 years and under)
BLS Procedures	
• Place patient in cool environment • Initiate active cooling measures ○ Remove clothing ○ Fan the patient or turn on air conditioner ○ Apply ice packs to axilla, groin, back of neck ○ Other active cooling measures as available • Administer oxygen as indicated ○ Refer to Policy 533-02: Airway Management • If patient is altered, obtain blood glucose level (BGL) ○ Refer to Policy 533-06: Altered Neurological Function	• Place patient in cool environment • Initiate active cooling measures ○ Remove clothing ○ Fan the patient or turn on air conditioner ○ Apply ice packs to axilla, groin, back of neck ○ Other active cooling measures as available • Administer oxygen as indicated ○ Refer to Policy 533-02: Airway Management • If patient is altered, obtain blood glucose level (BGL) ○ Refer to Policy 533-06: Altered Neurological Function
Expanded Scope	
Same as BLS	Same as BLS
ALS Prior to Base Hospital Contact	
• Determine BGL if not performed previously • Vascular Access • Cardiac monitor **Normal Saline** • IV/IO – 1L ○ Maintain SBP > 110, re-evaluating after each 500mL ○ May repeat x1 for persistent hypotension ○ Caution with cardiac and/or renal history	• Determine BGL if not performed previously • Vascular Access • Cardiac monitor **Normal Saline** • IV/IO – 20mL/kg ○ Maintain SBP appropriate for age ▪ Refer to Appendix A ○ May repeat x1 for persistent hypotension ○ Caution with cardiac and/or renal history
Base Hospital Physician Orders Only	
Consult with ED Physician for further treatment measures	Consult with ED Physician for further treatment measures
Additional Information	
• For heat emergencies involving seizures ○ Refer to Policy 533-19: Seizures	• For heat emergencies involving seizures ○ Refer to Policy 533-19: Seizures

HYPOTHERMIA

ADULT

BLS Procedures

- Gently move patient to warm environment and begin passive rewarming
- Minimize movement of extremities
- Attempt to maintain supine position
- Cut off wet clothing and cover patient, including head, with dry blankets
- Administer oxygen as indicated
  - Refer to Policy 533-02: Airway Management
- If patient is altered, determine Blood Glucose Level (BGL)
  - Refer to Policy 533-06: Altered Neurological Function

Monitor vital signs (VS) for 1 minute

Acceptable Ranges for Severe Hypothermia	
Respiratory Rate	Minimum of 4 breaths/minute
Heart Rate	Minimum of 20 beats/minute

If VS are within the acceptable range for severe hypothermia
- Do not initiate respiratory assistance or chest compressions.
- Monitor VS every 5 minutes

If VS are not within the acceptable range for severe hypothermia
- Assist ventilations and/or initiate CAM

Frostbite
- Wrap affected extremity in blankets or clothing
- DO NOT rub or otherwise attempt active rewarming

Expanded Scope

Same as BLS

ALS Prior to Base Hospital Contact

- Determine Blood Glucose Level (BGL) if not done previously
- Vascular Access (if indicated)
  - If administering fluid, avoid administering cold fluids
- Pain control
  - Refer to Policy 533-03: Pain Control

If VS are not within the acceptable range for severe hypothermia
- Transport to the closest hospital
- Administer only **one (1) round** of medications & contact BHC prior to TCP.
  - Refer to Policy 533-12 – Symptomatic Bradycardia
- Expedite transport (Code-3) if no shivering present
  - Indicates core temp below 90ºF

Base Hospital Physician Orders Only

Consult with ED Physician for further treatment measures

Additional Information

Adjust the transport unit climate to facilitate patient warming.

PEDIATRIC – (14 years and under)

BLS Procedures

- Gently move patient to warm environment and begin passive rewarming
- Minimize movement of extremities
- Attempt to maintain supine position
- Cut off wet clothing and cover patient, including head, with dry blankets
- Administer oxygen as indicated
  - Refer to Policy 533-02: Airway Management
- If patient is altered, determine Blood Glucose Level (BGL)
  - Refer to Policy 533-06: Altered Neurological Function

Monitor vital signs (VS) for 1 minute

Acceptable Ranges for Severe Hypothermia	
Respiratory Rate	Minimum of 4 breaths/minute
Heart Rate	Minimum of 20 beats/minute

If VS are within the acceptable range for severe hypothermia
- Do not initiate respiratory assistance or chest compressions.
- Monitor VS every 5 minutes

If VS are not within the acceptable range for severe hypothermia
- Assist ventilations and/or initiate CAM

Frostbite
- Wrap affected extremity in blankets or clothing
- DO NOT rub or otherwise attempt active rewarming

Expanded Scope

Same as BLS

ALS Prior to Base Hospital Contact

- Determine Blood Glucose Level (BGL) if not done previously
- Vascular Access (if indicated)
  - If administering fluid, avoid administering cold fluids
- Pain control
  - Refer to Policy 533-03: Pain Control

If VS are not within the acceptable range for severe hypothermia
- Transport to the closest hospital
- Administer only **one (1) round** of medications & establish early BHC.
  - Refer to Policy 533-12 – Symptomatic Bradycardia
- Expedite transport (Code-3) if no shivering present
  - Indicates core temp below 90ºF

Base Hospital Physician Orders Only

Consult with ED Physician for further treatment measures

Additional Information

Adjust the transport unit climate to facilitate patient warming.

CHILDBIRTH

BLS Procedures

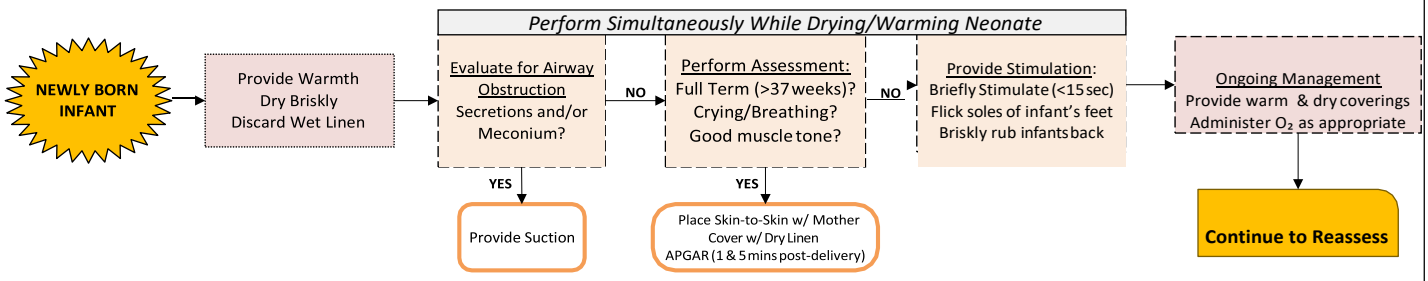
Determine:

- Number of G/P/AB [pregnancies (gravida), deliveries (para), 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
- Mother's Past Medical History
- Presence of crowning or any abnormal presenting part at perineum

PROLAPSED CORD	OTHER PRESENTING PART	
	DELIVERING	NOT DELIVERING
• Cover cord with wet saline dressing • Instruct the mother to **stop** pushing • Place mother in left-lateral position • Attempt to lift the presenting fetal part (usually the head) off of the umbilicus • Maintain this position (lifting presenting part) until transfer of care at the hospital • Initiate Transport	• Elevate hips • Assist delivery while initiating Code-3 transport • Assist with breech delivery while supporting the infant's body (covering to maintain body warmth)	• Place mother left-lateral (Trendelenburg) • Initiate Code-3 transport
Consider Code-3 transport if there is partial delivery of the infant and no further progress after 1-2 minutes		

If the <u>head</u> is crowning, prepare to guide baby out and assist mother with delivery:

- Note Time of Birth
- Double clamp the cord (1st clamp placement: 3-6 inches; 2nd clamp placement: 2-3 inches after 1st clamp)
- Perform assessment below and cut the cord with sterile scissors (should wait a minimum of 30 seconds before cutting cord)



- 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 <u>butt</u> 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 & 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 using process above

*****Neonatal Assessment – APGAR score at 1 min and 5 mins <u>Post-Delivery</u>*****

- If after 5 minutes, APGAR is ≤ 7
  - Reassess APGAR using 5-minute intervals and consider additional supportive care.
  - Refer to Policy 533-31 – Neonatal Resuscitation

Expanded Scope

Same as BLS

ALS Prior to Base Hospital Contact

- Vascular Access

Normal Saline
- IV/IO – 1L
- May keep TKO or as saline lock

Base Hospital Physician Orders Only

Consult with ED Physician for further treatment measures

Additional Information

- Complete neonatal assessment (APGAR Score) at the following intervals:
  - **1 minute post-delivery**
  - **5 minutes post-delivery**
- **Note**: If after 5 minutes, APGAR is ≤ 7
  - Reassess APGAR using 5-minute intervals and consider additional supportive care.
  - Refer to Policy 533-31 – Neonatal Resuscitation

APGAR Score	0	1	2
A – Appearance	Blue/Pale	Pink w/ blue extremities	Pink
P – Pulse	Absent	< 100 bpm	> 100 bpm
G – Grimace (Reflexes)	Absent	Grimace	Cough/Cry/Sneeze
A – Activity (Muscle Tone)	Limp	Some flexion	Active
R – Respirations	Absent	Slow	Good cry

- Refer to Appendix A for age-appropriate vital signs

NEONATAL RESUSCITATION

BLS Procedures

*If **NO IMPROVEMENT** in muscle tone/respiratory effort after **1 minute** of opening the airway and drying/stimulating:*

BEGIN PPV– 1 breath every 3 seconds
(Using a self-inflated infant BVM using Room Air)

*Assist with gentle and appropriate PPV for **30 seconds**, ensuring good chest rise, then **check for a heart rate**.*

HEART RATE < 60 BPM	HEART RATE 60-99 BPM	HEART RATE ≥ 100 BPM
Reassess Ventilations	Reassess Ventilations	Continue PPV 40-60 breaths/min
Corrective Steps ▪ Adjust head ▪ Consider adding O_2 ▪ Clear/Suction Airway	Corrective Steps ▪ Adjust head ▪ Consider adding O_2 ▪ Clear/Suction Airway	Monitor for spontaneous respiratory effort
Begin Compressions 100/minute	N/A	N/A

3:1 Compression/Ventilation Ratio
Reassess Heart Rate every 60 seconds

ALS Prior to Base Hospital Contact

ALS Management

- Establish IO line only in presence of CPR – *IO Indicated in patients weighing >3kg*
- Asystole, PEA, or Persistent Bradycardia (HR < 60bpm)
  - Epinephrine **1mg/10mL**
    - IO – **0.01mg/kg** (0.1mL/kg) every 3-5 mins
- Establish early Base Hospital Contact

Advanced Airway Management

- Supraglottic Airway Device for patients weighing ≥2kg
  - Refer to Policy 546: Supraglottic Airway Device

Base Hospital Physician Orders Only

Consult with ED Physician for further treatment measures.

Additional Information

Miscellaneous

- Early Base Hospital Contact should be made for all pediatric cardiac arrests
- If HR remains below 60bpm despite resuscitative measures, consider hypovolemia

Withholding Resuscitation Efforts

- Resuscitation 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 and establish BHC

Oxygen Saturation in Neonates

- Refer to Appendix A for age-appropriate vital signs and refer to chart for Target Oxygen Saturation Table for further reference.

Target Oxygen Saturation Table	
1 min	60%-65%
2 min	65%-70%
3 min	70%-75%
4 min	75%-80%
5 min	80%-85%
10 min	85%-95%
Initial oxygen concentration for PPV	
≥ 35 weeks' GA	21% oxygen
< 35 weeks' GA	21%-30% oxygen

OB / GYN
(Pre-eclampsia, Eclampsia, Vaginal Bleeding & Miscarriage)

BLS Procedures

- Administer oxygen as indicated
  - Refer to Policy 533-02: Airway Management
- 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 (Trendelenburg)

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

3rd Trimester Pregnancy & No Known Seizure Hx with Signs/Symptoms of Eclampsia or Active Seizures
Midazolam – *Give to actively seizing pregnant patients prior to Magnesium*
- IM 10mg or IV/IO 2mg
  - Repeat 1mg every 2 mins as needed
  - Max dose 10mg
- Refer to Policy 533-19: Seizures

Magnesium Sulfate
- IVPB – 2gm in 100mL 0.9% **Normal Saline** over 5 mins
  - Must repeat x1
  - Slow or stop infusion if bradycardia, heart block, or decreased respiratory effort occur

Base Hospital Physician Orders Only

Consult with ED Physician for further treatment measures

Additional Information

- Spontaneous abortion of a fetus 23 weeks gestational age or greater should be considered a neonatal resuscitation
  - Refer to Policy 533-31: 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
- TXA may be administered for emergency medical conditions (such as post-partum hemorrhage) with Base Hospital Physician Order only.
- 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
  - Signs/Symptoms of pre-eclampsia or eclampsia (altered mental status, hypertension, or seizures)

APPENDIX A

Pediatric Vital Signs - Normal Ranges

UTILIZING AHA PALS GUIDELINES

AGE GROUP	RESP RATE	AWAKE HR	SBP	WEIGHT (KG)	WEIGHT (LBS)
Newborn	30 - 60	85 - 205	60 - 84	2 - 3	4.5 - 7
Infant (1-12 months)	30 - 60	80 - 140	73 - 105	4 - 10	9 - 22
Toddler (1-3 years)	24 - 40	80 - 120	67 - 106	10 - 14	22 - 31
Preschooler (3-5 years)	22 - 34	80 - 120	79 - 115	14 - 18	31 - 40
School Age (6-12 years)	18 - 30	70 - 110	79 - 115	20 - 42	41 - 92
Adolescent (13+ years)	12 - 16	60 - 100	93 - 131	> 50	> 110

- The **patient's** normal range should always be taken into consideration.
- HR, BP & RR are expected to increase during times of fever or stress.
- RR on infants should be counted for a full 60 seconds.
- In a clinically decompensating child, the BP will be the **last** to change.
    - Just because your 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.

APPENDIX B

Glasgow Coma Scale (GCS)

ADULT	PEDIATRIC	SCORE
EYE OPENING		
Spontaneous	Spontaneous	4
To Speech	To Speech	3
To Pain	To Pain	2
No Response	No Response	1
BEST VERBAL RESPONSE		
Oriented & converses	Coos, babbles	5
Disoriented & converses	Cries, but consolable	4
Inappropriate words	Persistently irritable	3
Incomprehensible sounds	Grunts to pain/restless	2
No response	No response	1
BEST MOTOR RESPONSE		
Obeys verbal commands	Normal movements	6
Localizes Pain	Localizes pain	5
Flexion – Withdraws from pain	Withdraws from pain	4
Flexion – Abnormal	Flexion – Abnormal	3
Extension	Extension	2
No response	No response	1
	E – V – M Score Range: 1 – 15	

Eye Opening
Highest Score: 4
Lowest Score: 1

Verbal Response
Highest Score: 5
Lowest Score: 1

Motor Response
Highest Score: 6
Lowest Score: 1

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 maybe 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

Record the following information when Chempack medications are requested in response to a nerve agent or chemical exposure:	
Location	
Incident Commander Name, Call Sign, and Telephone Number	
Incident Command Post Location	
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** _____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: _____Diazepam 10 mg auto-injector (2 cases) _____Atropine Sulfate, 0.4 mg/ml in 20 ml. (100 per case, 9 cases in cache). _____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). _____Atropen 2.0 mg deploy for ADULTS _____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 instructions 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 Santa Barbara 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) that 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

	Task	*Yes*	*No*	*Notes/Time/Who Notified*
1.	**Alert EMS Duty Officer**			
2.	**Alert OES**			
3.	**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. **<u>Marian Regional Medical Center</u> (2 caches)** **1400 E. Church St.** **Santa Maria, CA 93454** **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** **(1) EMS Chempack (for incidents in the field)** **(1) Hospital Chempack** **<u>Santa Barbara Cottage Hospital</u> (1 cache)** **400 W. Pueblo St.** **Santa Barbara, CA 93105** ***(805) 682-7111 24/7*** ***SBCH Emergency Department Manager or Pharmacy Director*** **(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 Downtown Santa Barbara 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.** Note: 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.			
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 considering traffic patterns and any other relevant information, EMS duty officer or IC will determine if the Marian West cache or the SBCH cache is most appropriate for deployment to the scene. Receiving hospitals will receive medications from the HOSPITAL cache or the Santa Barbara 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 SBCH 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) cache:** • 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 SBCH (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 SBCH:* 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 ensure 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 to waste too much time waiting for several callbacks.***
- Other nearby counties with EMS CHEMPACK caches include: Ventura and San Luis Obispo.

APPENDIX D

Term	Abbreviation
5% Dextrose in Water	D5W
Abdomen	Abd
Abdominal Aortic Aneurysm	AAA
Above knee amputation	AKA
Acquired Immunodeficiency Syndrome	AIDS
Ad Libitum (as desired)	Ad lib
Advanced Life Support	ALS
Against Medical Advice	AMA
Alcohol	ETOH
Alert and Oriented	A & O
Also Known As	aka
Altered Level Of Consciousness	ALOC
Amount	Amt
Ampule	Amp
Antecubital	AC
Anterior	Ant
Anterior/Posterior	AP
Appointment	Appt
Arterial Blood Gas	ABG
Arteriosclerotic Heart Disease	ASHD
As necessary	prn
As soon as possible	ASAP
Aspirin	ASA
At	@
Arrived to find	ATF
Atrial Fibrillation	A fib, AF
Attention Deficit Hyperactivity Disorder	ADHD
Automated external Defibrillator	AED
Automatic Implantable Cardiac Defibrillator	AICD
Bag Valve Mask	BVM
Basic Life Support	BLS
Birth Control Pill	bcp

Term	Abbreviation
Bowel Movement	BM
Bundle Branch Block	BBB
By Mouth	p.o.
By Order Of	per
Cardiac Arrest Management	CAM
Cancer	CA
Carbon Dioxide	CO2
Carbon Monoxide	CO
Cardio Pulmonary Resuscitation	CPR
Central Nervous System	CNS
Cerebrospinal Fluid	CSF
Bowel Movement	BM
Cerebrovascular Accident	CVA
Cervical Spine	C-Spine
Chest pain	CP
Chief Complaint	CC
Chronic Obstructive Pulmonary Disease	COPD
Circulation, Motor, Sensation	CMS
Congestive Heart Failure	CHF
Continuous Positive Airway Pressure	CPAP
Coronary Artery Bypass Graft	CABG
Coronary Artery Disease	CAD
Cervical, thoracic, lumbar, sacral	CTLS
Date of Birth	DOB
Dead on Arrival	DOA
Defibrillated	Defib
Determination of death	DOD
Delirium Tremens	DTs
Diabetes Mellitus	DM
Dilation and curettage	D & C
Cerebrovascular Accident	CVA
Discontinue*	D/C*

Term	Abbreviation
Distal Interphalangeal Joint	DIP
Deformity, Contusion, Abrasion, Penetration, Burn, Tenderness, Laceration, Swelling	DCAPBTLS
Do Not Resuscitate	DNR
Doctor of Osteopathy	DO
Drops	gtts
Dyspnea On Exertion	DOE
Electrocardiogram	ECG
Electroencephalogram	EEG
Emergency Department	ED
Emergency Medical Services	EMS
Emergency Medical Technician	EMT
Endotracheal	ET
Equal	=
Estimated	Est
Estimated Time of Arrival	ETA
Etiology	Etiol.
Evening	Pm
Every	q
Every day*	qd*
Eye, ear, nose, throat	EENT
Fahrenheit	F
Female	F
Fetal Heart Rate	FHR
Fluid	Fl
Foot	Ft
Foreign body	FB
Four times a day	QID
Fracture	Fx
Gallbladder	GB
Gastrointestinal	GI
Genitourinary	GU
Glasgow Coma Score	GCS

Term	Abbreviation
Grain	Gr
Gram	gm
Gravida 1,2,3, etc.	G1, G2, G3
Gun Shot Wound	GSW
Gynecological	Gyn
Heart Rate	HR
Hematocrit	Hct
Hemoglobin	Hgb
Hepatitis A Virus	HAV
Hepatitis B Virus	HBV
Hepatitis C Virus	HCV
History	Hx
History and Physical	H & P
Hour of Sleep (bedtime)*	hs*
Human Immunodeficiency Virus	HIV
Hydrochlorothiazide	HCTZ
Hypertension	HTN
Immediately	STAT
Insulin Dependent Diabetes Mellitus	IDDM
Intake and Output	I & O
Intensive Care Unit	ICU
Intercostal Space	ICS
Intracranial Pressure	ICP
Intramuscular	IM
Intraosseous	IO
Intrauterine Device	IUD
Intravenous	IV
Intravenous Push	IVP
Irregular	Irreg
Jugular venous distention	JVD
Kilogram	kg
Kilometer	Km

Term	Abbreviation
Labor and Delivery	L & D
Laceration	Lac
Last Menstrual Period	LMP
Lateral	Lat
Left	L
Left Eye*	OD*
Left Lower Extremity	LLE
Left Lower Lobe	LLL
Left Lower Quadrant	LLQ
Left Upper Extremity	LUE
Left Upper Lobe	LUL
Left Upper Quadrant	LUQ
Less Than	<
Level of Consciousness	LOC
Liters per min	l/min
Lower Extremity	LE
Lumbar Puncture	LP
Left Ventricular Hypertrophy	LVH
Male	M
Medical Doctor	MD
Metered Dose Inhaler	MDI
Microgram	mcg
Milliequivalent	mEq
Milligram	mg
Milliliter	ml
Millimeter	mm
Minute	Min
Morning	am
Morphine Sulphate*	MS*
Motor Vehicle Collision	MVC
Moves all Extremities	MAE
Mass Casualty Incident	MCI

Term	Abbreviation
Methicillin Resistant Staphylococcus Aureus	MRSA
Multiple sclerosis	MS
Myocardial Infarction	MI
Nasal cannula	NC
Naso-pharyngeal airway	NPA
Nasotracheal	NT
Nausea/Vomiting	N/V
Negative	neg
Night	Noc
Nitroglycerine	NTG
No Acute Distress	NAD
No Known Allergies	NKA
No Known Drug Allergies	NKDA
Non-Insulin Dependent Diabetes Mellitus	NIDDM
Non Rebreather Mask	NRB
Non-Steroidal Anti-Inflammatory Drugs	NSAID
Normal Saline	NS
Normal Sinus Rhythm	NSR
Not applicable	N/A
Nothing by Mouth	NPO
Obstetrics	OB
Occupational Therapy	OT
Oral Dissolving Tablet	ODT
Operating Room	OR
Oropharyngeal airway	OPA
Ounce	oz
Over the Counter	OTC
Overdose	OD
Oxygen	O2
Palpable	Palp
Para, number of pregnancies	Para 1,2,3, etc.

Term	Abbreviation
Premature Atrial Contraction	PAC
Premature Ventricular Contraction	PVC
Paramedic	PM
Paroxysmal Supraventricular Tachycardia	PSVT
Paroxysmal Nocturnal Dyspnea	PND
Past Medical History	PMH
Patient	pt
Pediatric	Peds
Pediatric Advanced Life Support	PALS
Pelvic Inflammatory Disease	PID
Per Rectum	pr
Percutaneously Inserted Central Catheter	PICC
Phencyclidine	PCP
Physical Exam	PE
Positive	+, pos
Pound	lb
Pregnant	Preg
Premature Ventricular Contraction	PVC
Private/Primary Medical Doctor	PMD
Prior to Arrival	PTA
Privately Owned Vehicle	POV
Pro Re Nata – As Needed	PRN
Pulmonary Embolism	PE
Pulse, Motor, Sensation	PMS
Pulseless Electrical Activity	PEA
Pupils Equal Round and Reactive to Light	PERRL
Range of Motion	ROM
Rapid Sequence Intubation	RSI
Registered Nurse	RN
Respiration	R
Respiratory Rate	RR
Respiratory Therapist	RT

Term	Abbreviation
Right	Rt
Right Eye*	OD*
Right Lower Extremity	RLE
Right Lower Lobe	RLL
Right Lower Quadrant	RLQ
Right Middle Lobe	RML
Right Ventricular Hypertrophy	RVH
Ringer's Lactate	LR
Rule Out	R/O
Sexually Transmitted Disease	STD
Shortness of Breath	SOB
Signs and symptoms	s/s
Sinus Bradycardia	SB
Sinus Tachycardia	ST
Skilled Nursing Facility	SNF
Sodium Bicarbonate	NaHCO3
Sodium Chloride	NaCl
Status post	s/p
Streptococcus	Strep
Subcutaneous*	SQ*
Sublingual	SL
Sudden Acute Respiratory Syndrome	SARS
Sudden Infant Death Syndrome	SIDS
Systolic blood pressure	SBP
Supraventricular Tachycardia	SVT
Tissue Plasminogen Activator	tPA
Temperature	T
Temperature, Pulse, Respiration	TPR
Three Times a Day	TID
Times	X
Time Last Known Well	TLKW
To Keep Open	TKO

Term	Abbreviation
Tracheostomy	Trach
Traffic Collision	TC
Transient Ischemic Attack	TIA
Transcutaneous Pacing	TCP
Traumatic Brain Injury	TBI
Treatment	Tx
Tuberculosis	TB
Twice a day	BID
Upper Respiratory Infection	URI
Urinalysis	UA
Urinary Tract Infection	UTI
Ventricular Fibrillation	VF
Ventricular Tachycardia	VT
versus	vs
Vital Signs	VS
Volume	Vol
Water	H20
Weight	Wt
With	w/
Within Normal Limits	WNL
Without	w/o
Wolf-Parkinson-White	WPW
Year	Yr
Years Old	y/o