


# Citizens Memorial Hospital EMS Protocols

## Part 0 - Front Matter

### Section 0-010 - Citizens Signature Page

Version Number: v 5Version Date: December 1st, 2015Citizens EMS Director:  (Neal Taylor)Citizens EMS Medical Director:  (Dr. Roger Merk)Citizens EMS Clinical Officer:  (Theron Becker)

These protocols are designed to provide Emergency Medical Responders (EMR), Emergency Medical Technicians (EMT), Registered Nurses (RN), and Paramedics with standing written orders to coordinate and stabilize patient care and improved immediate definitive therapy while on the scene of an illness or injury and during transport. This document will be reviewed annually.

These protocols are written to provide continuity of care from initial 9-1-1 call to emergency department visit. 9-1-1 dispatchers provide initial care followed by assessment and initial treatment by Emergency Medical Responders acting within their first responder or fire department agency. These responders begin treatment by completing the items listed for EMR or EMT according to their licensure. CMH/EMH ambulance EMT and Paramedic continue assessment and treatment by completing the items listed for EMR, EMT, and Paramedic. The transporting CMH/EMH Paramedic is ultimately responsible to ensure complete patient care, including BLS-level procedures.

Medications and equipment listed in these protocols may not reflect actual medications and equipment available due to drug shortages and other considerations. Refer to Section 7-001 - Medications Currently on Ambulances (page 87) and Section 8-001 - Equipment Currently on Ambulances (page 155).

Unless specified Adult or Pediatric, protocols apply to both adult and pediatric patients. Pediatric is defined as a patient under the age of 18 years unless otherwise specified.

This copy is issued to: \_\_\_\_\_

# Ellett Memorial Hospital EMS Protocols

## Section 0-020 - Ellett Signature Page

Version Number: v 5

Version Date: December 1st, 2015

Ellett EMS Director:  (Cathy Menninga)

Ellett EMS Medical Director:  (Dr. Paul Kramer)

These protocols are designed to provide Emergency Medical Responders (EMR), Emergency Medical Technicians (EMT), Registered Nurses (RN), and Paramedics with standing written orders to coordinate and stabilize patient care and improved immediate definitive therapy while on the scene of an illness or injury and during transport. This document will be reviewed annually.

These protocols are written to provide continuity of care from initial 9-1-1 call to emergency department visit. 9-1-1 dispatchers provide initial care followed by assessment and initial treatment by Emergency Medical Responders acting within their first responder or fire department agency. These responders begin treatment by completing the items listed for EMR or EMT according to their licensure. CMH/EMH ambulance EMT and Paramedic continue assessment and treatment by completing the items listed for EMR, EMT, and Paramedic. The transporting CMH/EMH Paramedic is ultimately responsible to ensure complete patient care, including BLS-level procedures.

Medications and equipment listed in these protocols may not reflect actual medications and equipment available due to drug shortages and other considerations. Refer to Section 7-001 - Medications Currently on Ambulances (page 87) and Section 8-001 - Equipment Currently on Ambulances (page 155).

Unless specified Adult or Pediatric, protocols apply to both adult and pediatric patients. Pediatric is defined as a patient under the age of 18 years unless otherwise specified.

This copy is issued to: \_\_\_\_\_

## Section 0-030 - Hard-Copy Protocol Maintenance Agreement

Hard copies of these protocols will be provided at the locations below for reference by CMH/EMH employees or other interested individuals. It is the responsibility of the county managers (or their designee) to maintain these copies with updates and in good condition.

- One copy provided to each medical director. This copy is usually located at CMH ER and EMH ER.
- One copy provided to each EMS supervisor.
- One copy provided in each ambulance base. It is the discretion of the county manager to designate a usual location for these copies.
- One copy provided in each ambulance. These copies are usually located between the front seats in the cab of the ambulance.

If you wish to have an official pocket-sized hard-copy of these protocols, please agree to the following:

- I will maintain these protocols with updates as they are provided to me.
  - I will protect this hard-copy from damage that is above and beyond normal use.
  - I will not alter, add to, or modify these protocols. If you have a specific resource you would like included, please provide it to the EMS Clinical Officer for inclusion in the next version.
  - Upon my separation from CMH or EMH, I will return these protocols to the EMS Clinical Officer in good working order to be issued to another individual.
- 
- Date of agreement: \_\_\_\_\_
  - Your name: \_\_\_\_\_
  - Your signature: \_\_\_\_\_

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**Section 0-040 - Document Style Standards**

- *Adult* or *Pediatric* orders.
- **Medication** or **Procedure** order.
- **MEDICAL CONTROL** order.

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## Part 1 - Assessment Protocols

### Protocol 1-010 - General Assessment and Treatment - Medical

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| <p><b><u>BLS - EMR</u></b></p> <ul style="list-style-type: none"> <li>* Scene safety.</li> <li>* Coordinate with or establish incident command.</li> <li>* BSI.</li> <li>* Determine nature of illness.</li> <li>* Determine number of patients.</li> <li>* Determine need for additional resources.</li> <li>* ABCs.</li> <li>* LOC.</li> <li>* SAMPLE history.</li> <li>* Focused assessment.</li> <li>* Baseline vitals.             <ul style="list-style-type: none"> <li>* Two sets of vitals should be obtained that include time, blood pressure, pulse, respirations, SpO<sub>2</sub>, and Pain level.                 <ul style="list-style-type: none"> <li>+ If patient contact time is less than 15 minutes (i.e. very short transport time with a critical patient), one set of vitals may be appropriate.</li> </ul> </li> <li>* When appropriate, additional vitals may include temperature, orthostatic blood pressure, and Glucose. Consider assisting ALS with ETCO<sub>2</sub>.</li> </ul> </li> </ul> | <p><b><u>ALS - Paramedic</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of all applicable BLS items on the left.</li> <li>* <u>ALS indicated when:</u> <ul style="list-style-type: none"> <li>* Unresponsive.</li> <li>* Responsive meeting one of the following:                     <ul style="list-style-type: none"> <li>+ Altered mental status.</li> <li>+ GCS less than 13.</li> <li>+ Respiratory distress.</li> <li>+ Signs of shock.</li> <li>+ PulseOx less than 88.</li> <li>+ Need for IV/IO or medications.</li> <li>+ Chest discomfort.</li> </ul> </li> <li>+ <u>Adult</u> vitals:                     <ul style="list-style-type: none"> <li>✗ SBP less than 100 or greater than 180</li> <li>✗ Pulse less than 60 or greater than 120</li> <li>✗ Respirations less than 12 or greater than 30</li> </ul> </li> <li>+ <u>Pediatric</u> vitals:                     <ul style="list-style-type: none"> <li>✗ SBP less than 70 + 2 x (age yrs)</li> <li>✗ Pulse less than 60 or greater than 140</li> <li>✗ Respirations greater than 30</li> </ul> </li> </ul> </li> <li>* <u>Pediatric</u>: Utilize Broslow tape for equipment and drug dosages.</li> <li>* Rapid medical assessment.</li> <li>* Treat per appropriate protocol.</li> <li>* Transport.</li> </ul> |
| <p><b><u>BLS - EMT</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of applicable EMR items above.</li> <li>* Responsive: Treatment decision (BLS / ALS).</li> <li>* Interfacility transfer of patients meeting BLS criteria with the only exception of Heparin- or Saline-locked IV may be transported BLS.</li> <li>* Four-lead cardiac monitoring does not require the patient to be transported ALS, but an ALS patient does require cardiac monitoring. If BLS patient with four-lead, do not document EKG monitoring. 12-Lead EKG does require the patient to be ALS. Any EKG monitor for assessment must be transported ALS.</li> </ul>   |  |
| <p>Link to research articles (QR code on right): <a href="http://1drv.ms/1KerUBT">http://1drv.ms/1KerUBT</a><br/>           Citations: (Chapter 190 - Emergency services, 2012)</p>  |   |

## Protocol 1-020 - General Assessment and Treatment - Trauma

### BLS - EMR

- \* Scene safety.
- \* Coordinate with or establish incident command.
- \* BSI.
- \* Mechanism of Injury (MOI).
- \* Number of patients.
- \* Need for additional resources
- \* ABCs.
- \* LOC.
- \* Consider SMR.
- \* Control bleeding. If bleeding cannot be controlled by simple means:
  - \* Consider **Tourniquet**.
  - \* Consider **Hemostatic Agent**.
- \* Maintain patient temperature between 91-99 degrees F.
- \* SAMPLE history.
- \* Focused assessment.
- \* Baseline vitals.
  - \* Two sets of vitals should be obtained that include time, blood pressure, pulse, respirations, SpO<sub>2</sub>, and Pain level.
    - + If patient contact time is less than 15 minutes (i.e. very short transport time with a critical patient), one set of vitals may be appropriate.
  - \* When appropriate, additional vitals may include temp, and Glucose. Consider assisting ALS with ETCO<sub>2</sub>.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.
- \* No significant MOI:
  - \* Treatment decision (BLS/ALS).
- \* Transfer of patients meeting BLS criteria with the only exception of Heparin or Saline locked IV may be transported BLS.

### ALS - Paramedic

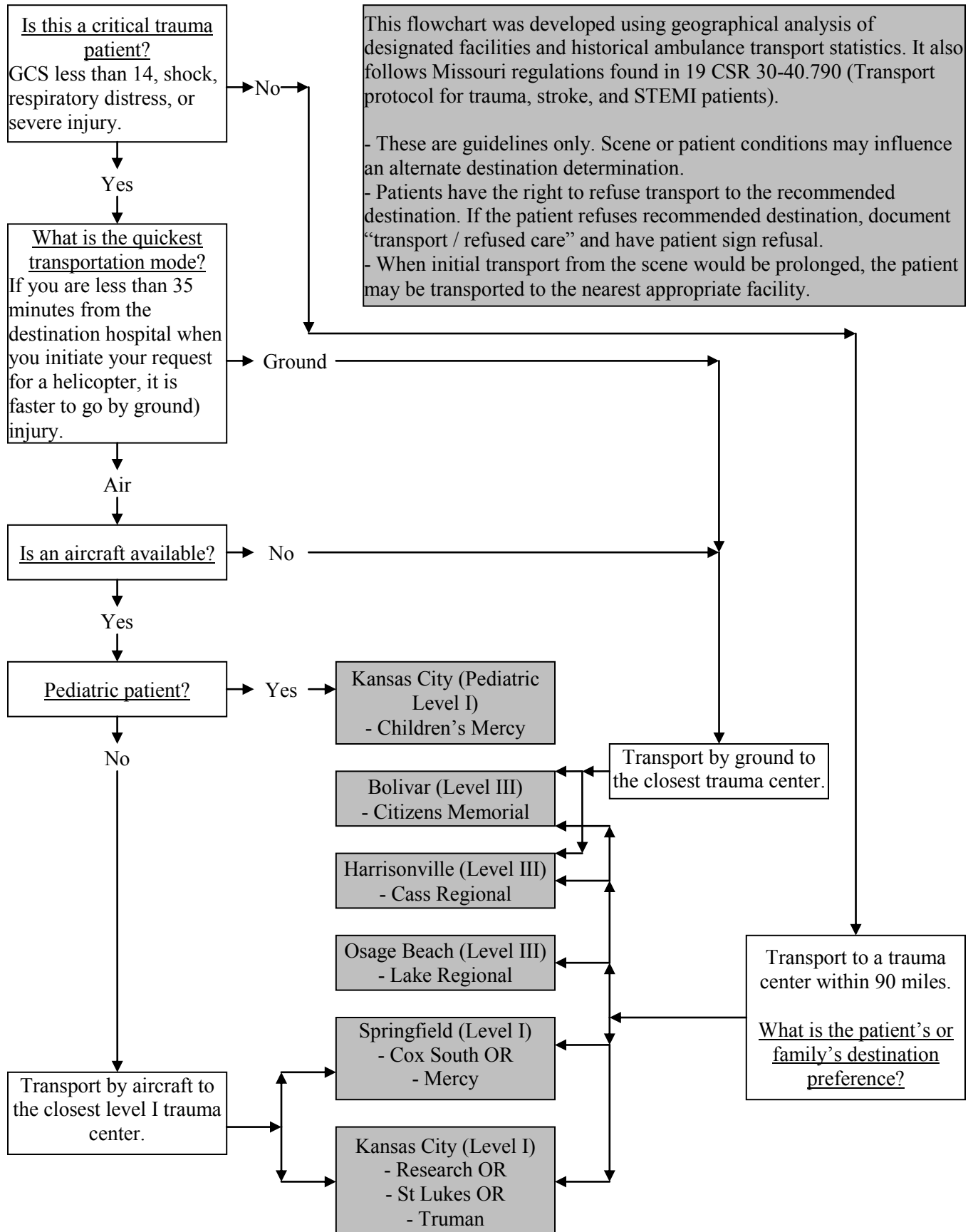
- \* Ensure completion of all applicable BLS items on the left.
- \* ALS indicated when:
  - \* Significant MOI.
  - \* Unresponsive.
  - \* Responsive meeting one of the following:
    - + Altered mental status.
    - + GCS less than 13.
    - + Respiratory distress.
    - + Signs of shock.
    - + PulseOx less than 90.
    - + Need for IV/IO or medications.
    - + Chest discomfort.
    - + Severe Pain.
- + Adult vitals:
  - \* SBP less than 100 or greater than 180
  - \* Pulse less than 60 or greater than 120
  - \* Respirations less than 12 or greater than 30
- + Pediatric vitals:
  - \* SBP less than 70 + 2 x (age yrs)
  - \* Pulse less than 60 or greater than 140
  - \* Respirations greater than 30
- \* Pediatric: Utilize Broslow tape for equipment and drug dosages.
- \* Rapid trauma assessment.
- \* Treat per appropriate protocol.
- \* Transport according to Section 1-021 - Trauma Destination Determination Flowchart (page 13).

Link to research articles (QR code on right): <http://1drv.ms/1GgCK7u>

Citations: (Chapter 190 - Emergency services, 2012), (Designated hospitals)





**Section 1-021 - Trauma Destination Determination Flowchart**

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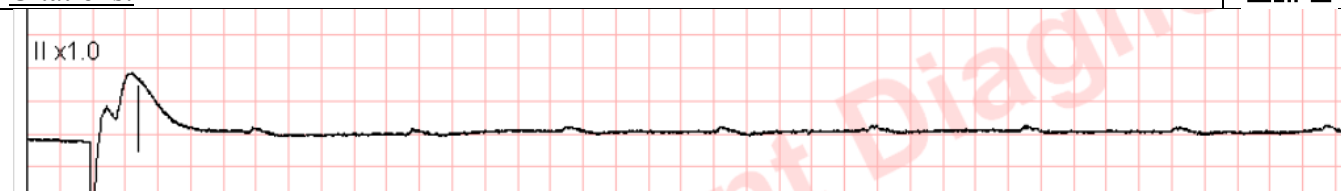
## Part 2 - Cardiac Protocols

### Protocol 2-010 - Asystole

|   |   |
|---|---|
| <b><u>BLS - EMR</u></b><br><br><ul style="list-style-type: none"> <li>* Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 70).</li> </ul> | <b><u>ALS - Paramedic</u></b><br><br><ul style="list-style-type: none"> <li>* Ensure completion of all applicable BLS items on the left.</li> <li>* Confirm in 2 leads.</li> <li>* Consider <b>Intubation</b>.</li> <li>* IV/IO NS.</li> </ul>  |
| <b><u>BLS - EMT</u></b><br><br><ul style="list-style-type: none"> <li>* Ensure completion of applicable EMR items above.</li> </ul>                         | <ul style="list-style-type: none"> <li>* <u>Adult</u>:             <ul style="list-style-type: none"> <li>* <b>Epinephrine 1:10,000</b> 1 mg IV/IO every 3-5 min.</li> <li>* Consider <b>Sodium Bicarbonate</b> 1 mEq/kg IV/IO every 10 min (ensure adequate ventilations).</li> <li>* Consider <b>Pacing</b>.</li> <li>* Consider <b>Atropine</b> 1 mg IV/IO every 3-5 min (max 3 mg).</li> </ul> </li> <li>* <u>Pediatric</u>:             <ul style="list-style-type: none"> <li>* <b>Epinephrine 1:10,000</b> 0.01 mg/kg IV/IO every 3-5 min (max 1 mg/dose).</li> <li>* OR <b>Epinephrine 1:1,000</b> 0.1 mg/kg ETT (max 2.5 mg/dose).</li> </ul> </li> <li>* Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade.</li> <li>* <u>Adult</u>: Contact <b>MEDICAL CONTROL</b> if ET<math>\text{CO}_2</math> less than 10 for 10 min or no response after 20 min, consider termination of resuscitation.</li> </ul> |

Link to research articles (QR code on right): <http://1drv.ms/1GO8ePM>

Citations:



## Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter

### BLS - EMR

- \* Calm and reassure patient. Ensure patient does not exert themselves.
- \* **Oxygen** to maintain SpO<sub>2</sub> between 94-99%.
- \* Apply cardiac monitor limb leads.
- \* Adult: Rate greater than 150: Apply **Combo Pads** anterior / posterior.
- \* Pediatric (child): Rate greater than 160: Apply **Combo Pads** anterior / posterior.
- \* Pediatric (infant): Rate greater than 220: Apply **Combo Pads** anterior / posterior.
- \* Monitor pulseoximetry.
- \* Obtain vital signs.

### BLS - EMT

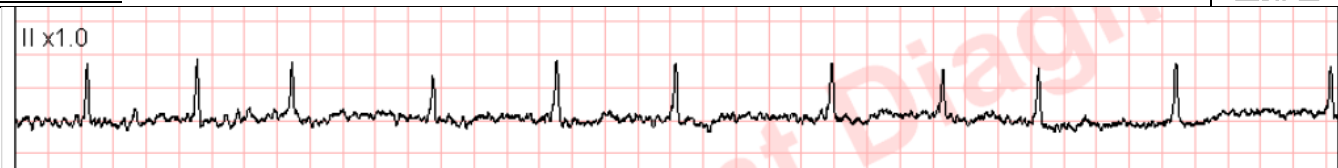
- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* Obtain **12-Lead EKG**.
- \* IV/IO NS.
- \* Adult: Rate greater than 150:
  - \* Pulmonary edema: **Amiodarone** 150 mg over 10 min. May repeat at 150 mg over 10 min if Tachycardia returns.
  - \* No pulmonary edema: **Cardizem** 0.25 mg/kg (max 20 mg) IV/IO over 2 min. May repeat after 15 min at 0.35 mg/kg (max 25 mg) IV/IO over 2 min.
    - + If converted, **Cardizem** drip at 10 mg/hr.
- \* Pediatric: Rate greater than 160 (child), greater than 220 (infant): **Contact MEDICAL CONTROL:**
  - \* Consider **Cardizem**.
  - \* Consider **Adenosine**: 0.1 mg/kg RAPID IV/IO. If ineffective, second and/or third dose at 0.2 mg/kg.
  - \* Consider **Versed** IV/IO/IN.
    - + Over 12 yrs: Same as adult.
    - + Between 6 yrs and 12 yrs: 0.05 mg/kg.
    - + Under 6 yrs: 0.05-0.1 mg/kg.
  - \* OR **Ativan** 0.05 mg/kg (max 2 mg) IV/IO.
  - \* Consider **Fentanyl** 2-3 mcg/kg IV/IO/IN (max 150 mcg).
  - \* Consider synchronized **Cardioversion** 0.5-1 J/kg.
- \* Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade.

Link to research articles (QR code on right): <http://1drv.ms/1GgDmKu>

Citations:



**Protocol 2-030 - Automated External Defibrillation (AED)****BLS - EMR**

- \* Request **ALS** support if not already en route.
- \* Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 70).

**BLS - EMT**

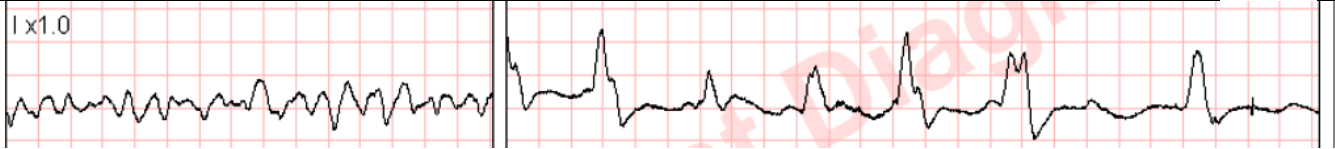
- \* Ensure completion of applicable EMR items above.

**ALS - Paramedic**

- \* Ensure completion of all applicable BLS items on the left.
- \* If ALS and LifePak 12/15 available, manual **Defibrillation** is preferred.

Link to research articles (QR code on right): <http://1drv.ms/1GgDwBs>

Citations:



## Protocol 2-040 - Bradycardia

### BLS - EMR

- \* Calm and reassure patient. Ensure patient does not exert themselves.
- \* **Oxygen** to maintain SpO<sub>2</sub> between 94-99%.
- \* Apply cardiac monitor limb leads.
- \* Rate less than 60: Apply **Combo Pads** anterior / posterior.
- \* Pediatric: HR less than 50: **Ventilate**. Initiate Chest compressions if ventilation does not raise HR above 60.
- \* Monitor pulseoximetry.
- \* Obtain vital signs.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.

### ALS - Paramedic

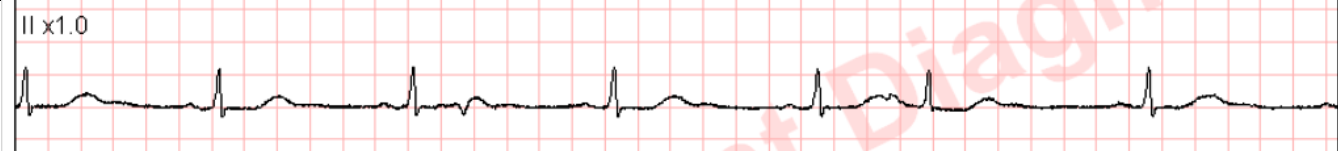
- \* Ensure completion of all applicable BLS items on the left.
- \* Obtain **12-Lead EKG**.
- \* IV/IO NS. Do not delay for IV if symptomatic.
- \* Adult: Rate less than 50 and symptomatic:
  - \* **Contact Medical Control** if Hypothermia patient.
  - \* Unstable: **Pacing**.
    - + **Versed** 2.5-5 mg IV/IO (max 10 mg). Maintain SBP greater than 100.
    - + OR **Ativan** 2 mg IV/IO.
    - + Consider **Fentanyl** 50-100 mcg IV/IO/IN (max 300 mcg). Over 65 yr old: 0.5-2 mcg/kg.
  - \* Stable: **Atropine** 0.5 mg IV/IO. May repeat 0.5 mg every 5 min (max 3 mg).
  - \* Consider **Dopamine** 5-20 mcg/kg/min IV/IO.
  - \* **Contact MEDICAL CONTROL** for: Consider **Epinephrine 1:10,000** 2-10 mcg/min IV/IO.
    - + Mix 1 mg in 250 ml NS.
    - + 2 mcg/min = 30 ml/hr.
    - + 10 mcg/min = 150 ml/hr.
- \* Pediatric: Rate less than 60 and symptomatic:
  - \* **Epinephrine 1:10,000** 0.01 mg/kg IV/IO repeat every 3-5 min.
  - \* **Atropine** 0.02 mg/kg IV/IO may repeat once (min 0.1 mg) (max 0.5 mg).
  - \* Consider **Pacing** at age appropriate rate:
 

|                   |                   |                   |                  |                    |
|-------------------|-------------------|-------------------|------------------|--------------------|
| 0-1yr: <b>135</b> | 2-3yr: <b>130</b> | 4-5yr: <b>105</b> | 6-9yr: <b>90</b> | 10-18yr: <b>80</b> |
|-------------------|-------------------|-------------------|------------------|--------------------|

    - + **Versed** IV/IO/IN.
      - \* Over 12 yrs: Same as adult.
      - \* Between 6 yrs and 12 yrs: 0.05 mg/kg.
      - \* Under 6 yrs: 0.05-0.1 mg/kg.
    - \* OR **Ativan** 0.05 mg/kg IV/IO.
    - + Consider **Fentanyl** 2-3 mcg/kg IV/IO/IN (max 150 mcg).
  - \* Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade.

Link to research articles (QR code on right): <http://1drv.ms/1GgDE3U>

Citations:



**Protocol 2-050 - Chest Discomfort**

|   |   |
|---|---|
| <p><b><u>BLS - EMR</u></b></p> <ul style="list-style-type: none"> <li>* Calm and reassure patient. Ensure patient does not exert themselves.</li> <li>* <b>Oxygen</b> to maintain SpO<sub>2</sub> between 94-99%.</li> <li>* Apply cardiac monitor limb leads.</li> <li>* Monitor pulseoximetry.</li> <li>* Obtain vital signs.</li> <li>* <b>STEMI</b>: Consider <b>Combo Pads</b> anterior / posterior.</li> <li>* <u>Adult</u>: <b>Aspirin</b> 324 mg (4 chewable tablets) within 5 minutes of patient contact.</li> </ul> | <p><b><u>ALS - Paramedic</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of all applicable BLS items on the left.</li> <li>* IV/IO NS. Preferred left AC (not distal of right AC). Use pigtail extension.</li> <li>* Obtain <b>12-Lead EKG</b> within 10 minutes of patient contact. <ul style="list-style-type: none"> <li>* <b>15-Lead EKG</b> indicated when: normal EKG, inferior MI, ST depression in V-leads.</li> <li>* <b>STEMI</b> (ST elevation greater than 0.1 MV in at least 2 contiguous leads OR new LBBB): <ul style="list-style-type: none"> <li>+ Contact ER to activate STEMI as early as possible. (CMH ER Charge Nurse: <b>417-328-6923</b>).</li> <li>* Include name, age, time of onset, assessment, treatment, response to treatment, vitals, cardiac/bleeding history. Provide your contact phone number.</li> </ul> </li> <li>+ Transmit EKG to receiving facility (if possible).</li> </ul> </li> </ul>   |
| <p><b><u>BLS - EMT</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of applicable EMR items above.</li> <li>* Assist ALS with <b>Capnography</b>.</li> </ul>  | <ul style="list-style-type: none"> <li>* <u>Adult</u>: <ul style="list-style-type: none"> <li>* <b>Pulmonary edema</b>: Refer to Protocol 4-070 - Congestive Heart Failure (CHF) (page 46).</li> <li>* <b>Right-sided MI (ST elevation in V4R)</b>: NS 1-2 L followed by <b>Nitroglycerin</b> 5+ mcg/min IV/IO.</li> <li>* <b>SBP greater than 100</b>: <b>Nitroglycerin</b> 0.4 mg SL (1 spray or 1 tablet). Every 5 min until no Pain or SBP less than 90.</li> <li>* <b>SBP less than 100</b>: Consider <b>Nitroglycerin</b> 10+ mcg/min IV/IO titrated to blood pressure and Pain.</li> <li>* <b>Nausea/Vomiting</b>: See Protocol 6-040 - Control of Nausea (page 72).</li> <li>* <b>Continued discomfort/pain</b>: <ul style="list-style-type: none"> <li>+ Consider <b>Morphine</b> 2 mg IV/IO (max 10 mg). Maintain SBP greater than 100.</li> <li>+ Consider <b>Fentanyl</b> 50-100 mcg every 5-20 min (max 300 mcg) IV/IO/IN. Over 65 yr old: 0.5-2 mcg/kg.</li> </ul> </li> <li>* <b>Contact MEDICAL CONTROL</b>: Consider <b>Heparin 4,000 U.</b></li> </ul> </li> <li>* Transport according to Section 2-052 - STEMI Destination Determination Flowchart (page 21).</li> </ul> |

Link to research articles (QR code on right): <http://1drv.ms/1GgDKIT>

Citations: (Chapter 190 - Emergency services, 2012), (Citizens Memorial Hospital, 2014), (Clemency, Thompson, Tundo, & Lindstrom, 2013), (Designated hospitals), (Missouri EMS Regional Committee - Southwest Region, 2013), (Proposed regulations, 2010)



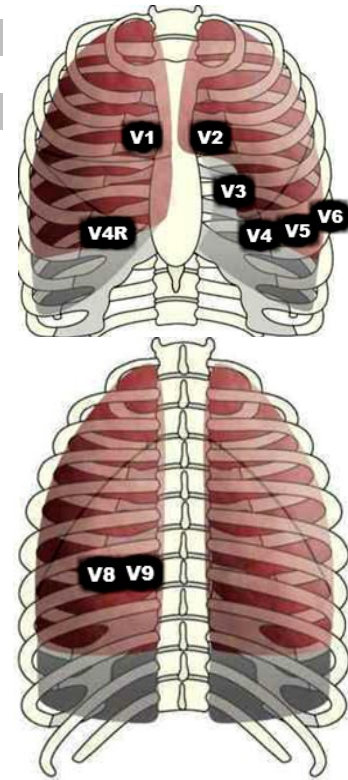
## Section 2-051 - EKG Interpretation Guide

### Check lead placement.

- \* Lead I positive and aVR negative: Good placement

### Rhythm:

- \* Regular or irregular
- \* Bradycardia or Tachycardia
- \* P-Waves:
  - \* Heart block:
    - + PR greater than 200ms: First degree heart block
    - + PR widening: Second degree type I
    - + Dropping P-waves: Second degree type II
    - + P-waves not associated: Third degree
  - \* Greater than 2.5mm high: Right Atrial enlargement or PE
  - + "M" shape: Left Atrial enlargement
- \* QRS:
  - \* Greater than 120 ms: Bundle branch block (**LBBB** or Ventricular Pacing, go to Sgarbossa)
  - \* QTc between 390 and 450
  - \* Peaked T-waves: Hyperkalemia
  - \* Q greater than 40 ms: Pathological Q (previous MI)
  - \* Q greater than 35 mm combined V5 & V1: Left Ventricular hypertrophy
  - \* Q greater than 7 mm V1: Right Ventricular hypertrophy
  - \* Delta wave (sloped R) with PR less than 120 ms: Wolff-Parkinson-White



### Axis:

- \* -30 to -90 degrees (up, dn, dn): Left axis deviation (obesity, pregnancy, **LBBB**, left Ventricular hypertrophy, **LEFT ANTERIOR HEMIBLOCK**, **INFERIOR MI**)
- \* 90 to 180 degrees (dn, up, up): Right axis deviation (slender, pulmonary disease, RBBB, right Ventricular hypertrophy, **LEFT POSTERIOR HEMIBLOCK**)
- \* -90 to -180 degrees (dn, dn, dn): Extreme right axis deviation (**MYOCARDIAL INFARCTION**)

### ST:

- \* ST elevation in all leads: Pericarditis
- \* Cup or dome ST in V-leads: Early repolarization
- \* ST elevation in contiguous leads: **STEMI**

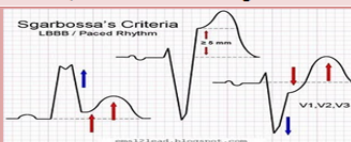
### Sgarbossa Criteria (LBBB or Pacing):

- \* A = ST elevation greater than 1mm concordant with QRS in any lead
- \* B = ST depression greater than 1mm in V1, V2, or V3
- \* C = ST elevation greater than 5mm discordant with QRS in any lead

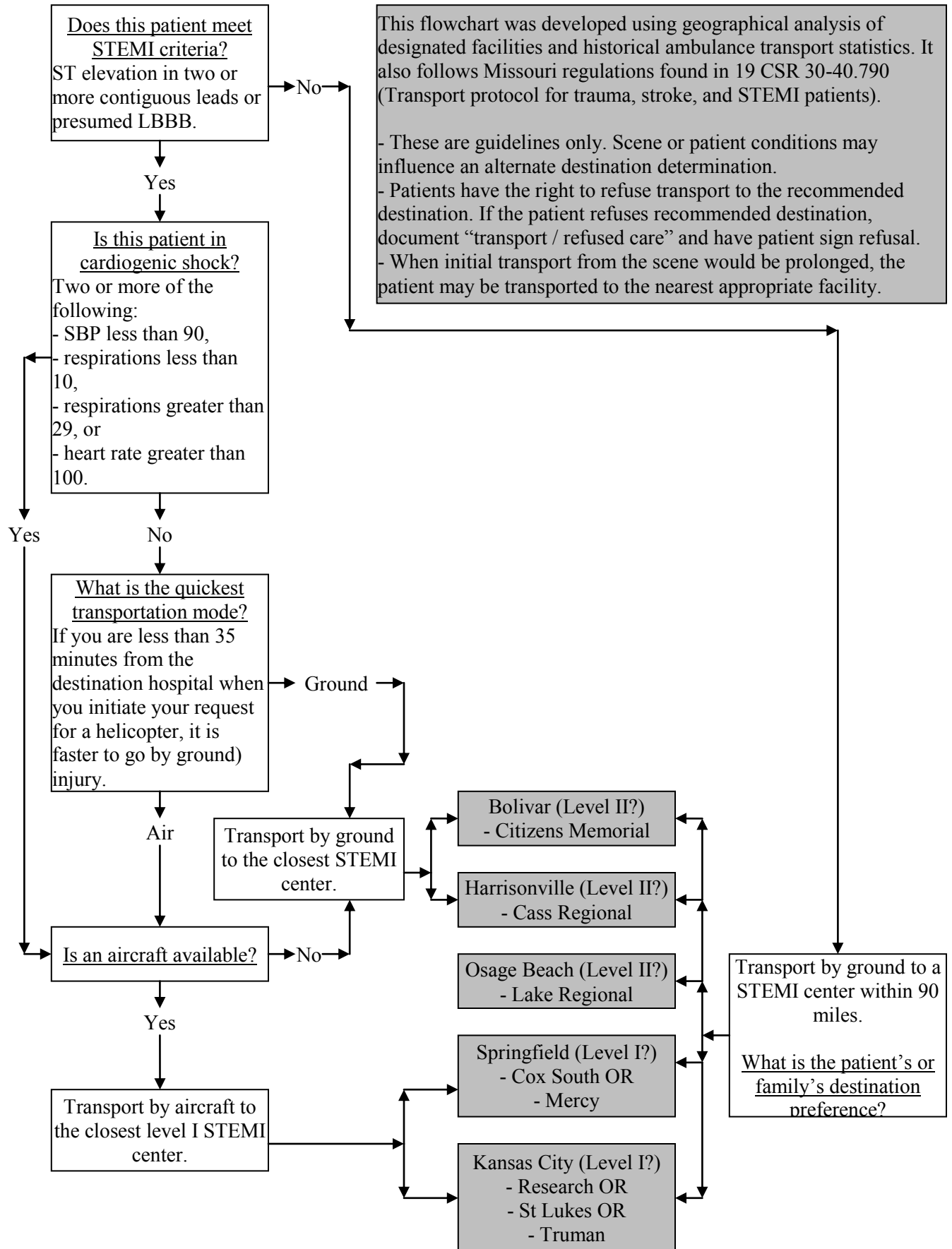
|   |   |                             |  |   |
|---|---|-----------------------------|--|---|
| <b>I</b> Lateral<br>• LAD & LCX<br>Reciprocal: II, III, AVF | aVR   | <b>V1</b> Septal<br>• LAD   | <b>V4</b> Anterior<br>• LAD                                  | <b>V4R</b> Right<br>• RMA   |
| <b>II</b> Inferior<br>• RCA<br>Reciprocal: I, aVL           | <b>aVL</b> Lateral<br>• LAD & LCX<br>Reciprocal: II, III, AVF | <b>V2</b> Septal<br>• LAD   | <b>V5</b> Lateral<br>• LAD & LCX<br>Reciprocal: II, III, AVF | <b>V8</b> Posterior<br>• Post. branch of RCA<br>Reciprocal: V1-V4 |
| <b>III</b> Inferior<br>• RCA<br>Reciprocal: I, aVL          | <b>aVF</b> Inferior<br>• RCA<br>Reciprocal: I, aVL            | <b>V3</b> Anterior<br>• LAD | <b>V6</b> Lateral<br>• LAD & LCX<br>Reciprocal: II, III, AVF | <b>V9</b> Posterior<br>• Post. branch of RCA<br>Reciprocal: V1-V4 |

### Sgarbossa Scoring – AMI in LBBB & Ventricular Pacing

| Question                                   | Yes | No | Answers |    |     |    |    |    |   |  |
|--|-----|----|---------|----|-----|----|----|----|---|--|
| ST Elev. ↑ 1mm in QRS with Pos. Deflection | +5  | +0 | ✓       | ✓  | ✓   | ✓  |    |    |   |  |
| ST Depression ↑ 1mm in V1, V2, V3          | +3  | +0 | ✓       | ✓  |     |    | ✓  | ✓  |   |  |
| ST Elev. ↑ 5mm in WRS with Neg. Deflection | +2  | +0 | ✓       |    | ✓   |    | ✓  |    | ✓ |  |
| Score Total:                               | 10  | 8  | 7       | 5  | 5   | 3  | 2  | 0  |   |  |
| % MI Probability                           | 100 | 92 | 93      | 88 | 100 | 66 | 50 | 16 |   |  |





**Section 2-052 - STEMI Destination Determination Flowchart**

## Protocol 2-060 - Post Resuscitative Care

|   |  |
|---|--|
| <p><b><u>BLS - EMR</u></b></p> <ul style="list-style-type: none"> <li>* Establish and maintain Airway and Ventilate with <b>Oxygen</b>.</li> <li>* Avoid hyperventilation.</li> <li>* <u>Conscious</u>: Attempt to maintain SpO<sub>2</sub> between 92-96%.</li> <li>* <u>Unconscious</u>: Attempt to maintain SpO<sub>2</sub> between 88-92%.</li> <li>* Monitor pulseoximetry.</li> <li>* Apply cardiac monitor <b>Combo Pads</b> and limb leads.</li> <li>* Obtain vital signs.</li> </ul> | <p><b><u>ALS - Paramedic</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of all applicable BLS items on the left.</li> <li>* Obtain <b>12-Lead EKG</b>.</li> <li>* Treat rate and rhythm per protocol.</li> <li>* Secure Airway if necessary.</li> <li>* <b>IV/IO NS.</b></li> </ul> <hr/> <p>* <u>Adult</u>:</p> <ul style="list-style-type: none"> <li>* <u>Hypotension</u>: Assess lung sounds for pulmonary edema. <ul style="list-style-type: none"> <li>+ <u>Clear lung sounds</u>: <b>NS</b> 250-500 ml IV/IO.</li> <li>+ <u>Pulmonary edema</u>: Consider <b>Dopamine</b> 5-20 mcg/kg/min IV/IO.</li> </ul> </li> <li>* <u>Continued sedation</u>: <b>Versed</b> 2.5-5 mg IV/IO every 5 min as needed (max 10 mg). Maintain SBP greater than 100. <ul style="list-style-type: none"> <li>+ <b>OR Ativan</b> 1-2 mg IV/IO every 5 min (max 4 mg).</li> <li>+ Consider <b>Fentanyl</b> 50-100 mcg IV/IO/IN every 10 min as needed (max 300 mcg).</li> </ul> </li> </ul> <hr/> <p>* <u>Pediatric</u>:</p> <ul style="list-style-type: none"> <li>* <u>Hypotension</u>: Assess lung sounds for pulmonary edema. <ul style="list-style-type: none"> <li>+ <u>Clear lung sounds</u>: Consider 20 ml/kg <b>NS</b>.</li> <li>+ <u>Pulmonary edema</u>: Contact <b>MEDICAL CONTROL: Dopamine</b> 5-20 mcg/kg/min IV/IO.</li> </ul> </li> <li>* <u>Continued sedation</u>: <b>Versed</b> IV/IO/IN. <ul style="list-style-type: none"> <li>✖ Over 12 yrs: Same as adult.</li> <li>✖ Between 6 yrs and 12 yrs: 0.05 mg/kg.</li> <li>✖ Under 6 yrs: 0.05-0.1 mg/kg.</li> <li>+ <b>OR Ativan</b> 0.05 mg/kg IV/IO.</li> <li>+ Consider <b>Fentanyl</b> 2-3 mcg/kg IV/IO/IN (max 150 mcg).</li> </ul> </li> </ul> <hr/> <ul style="list-style-type: none"> <li>* Consider <b>Air Ambulance</b> to expedite transport.</li> <li>* Consider <b>RSI</b> and <b>Cooling</b> with cold packs and cold IV fluids if: <ul style="list-style-type: none"> <li>* No trauma,</li> <li>* No purposeful movement, AND</li> <li>* SBP greater than 90.</li> </ul> </li> </ul> |
| <p><b><u>BLS - EMT</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of applicable EMR items above.</li> <li>* Assist ALS with <b>Capnography</b>.</li> </ul>  |  |

Link to research articles (QR code on right): <http://1drv.ms/1GgDSIf>

Citations:



**Protocol 2-070 - Pulseless Electrical Activity (PEA)**

|   |  |
|---|--|
| <b><u>BLS - EMR</u></b><br><br><ul style="list-style-type: none"> <li>* Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 70).</li> </ul> | <b><u>ALS - Paramedic</u></b><br><br><ul style="list-style-type: none"> <li>* Ensure completion of all applicable BLS items on the left.</li> <li>* Consider <b>Intubation</b>.</li> <li>* IV/IO NS.</li> </ul>  |
| <b><u>BLS - EMT</u></b><br><br><ul style="list-style-type: none"> <li>* Ensure completion of applicable EMR items above.</li> </ul>                         | <ul style="list-style-type: none"> <li>* <u>Adult</u>:             <ul style="list-style-type: none"> <li>* <b>Epinephrine 1:10,000</b> 1 mg IV/IO every 3-5 min.</li> <li>* <u>Slow PEA rate</u>:                 <ul style="list-style-type: none"> <li>+ Consider <b>Atropine</b> 1 mg IV/IO every 3-5 min (max 3 mg).</li> <li>+ Consider <b>Pacing</b>.</li> </ul> </li> <li>* Consider <b>Sodium Bicarbonate</b> 1 mEq/kg IV/IO.</li> </ul> </li> <li>* <u>Pediatric</u>: <b>Epinephrine 1:10,000</b> 0.01 mg/kg IV/IO every 3-5 min (max 1 mg/dose). OR 1:1,000 0.1 mg/kg ET.</li> <li>* Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade.</li> <li>* <u>Adult</u>: Contact <b>MEDICAL CONTROL</b> if ETCO<sub>2</sub> less than 10 for 10 min or no response after 20 min, consider termination of resuscitation.</li> </ul> |

Link to research articles (QR code on right): <http://1drv.ms/1GgE1eQ>

Citations:



Paddles x1.0



## Protocol 2-080 - Tachycardia Narrow Stable

### BLS - EMR

- \* Calm and reassure patient. Ensure patient does not exert themselves.
- \* **Oxygen** to maintain SpO<sub>2</sub> between 94-99%.
- \* Apply cardiac monitor limb leads.
- \* Adult: Rate greater than 150 OR Pediatric: Rate greater than 160 (child), greater than 220 (infant):
  - \* Consider: apply **Combo Pads** anterior / posterior.
- \* Monitor pulseoximetry.
- \* Obtain vital signs.

### BLS - EMT

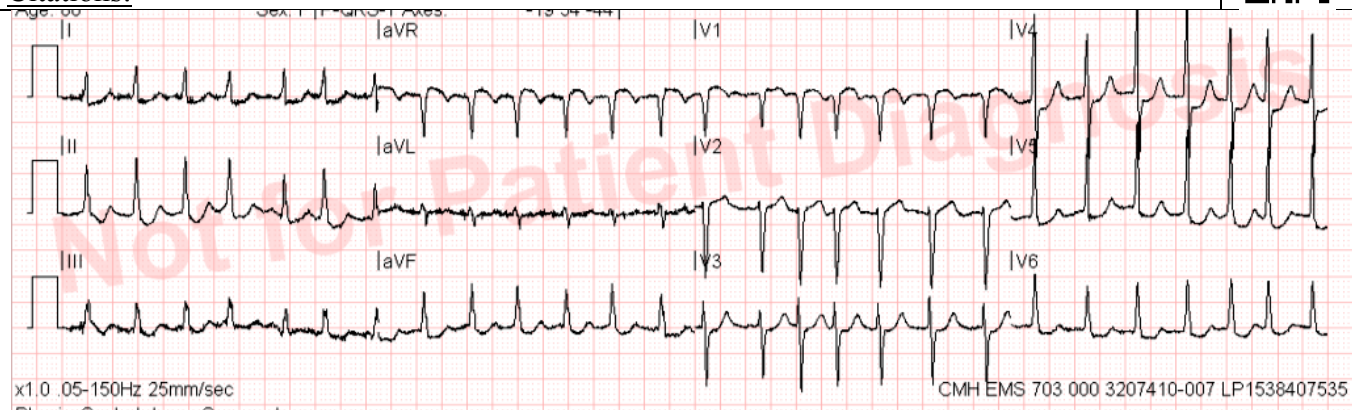
- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* Obtain **12-Lead EKG**.
- \* **Vagal maneuvers**. (Contraindicated for CAD and stroke).
- \* **IV/IO NS**.
- \* Adult: Rate greater than 150:
  - \* **Adenosine** 6 mg RAPID IV/IO. If ineffective, second and/or third dose at 12 mg.
  - \* **Pulmonary edema**: **Amiodarone** 150 mg over 10 min. May repeat at 150 mg over 10 min if Tachycardia returns (max 300 mg).
  - \* **No pulmonary edema**: **Cardizem** 0.25 mg/kg (max 20 mg) IV/IO over 2 min. May repeat after 15 min at 0.35 mg/kg (max 25 mg) IV/IO over 2 min.
    - + If converted: **Cardizem** drip at 10 mg/hr.
- \* Pediatric: Rate greater than 160 (child), greater than 220 (infant): Contact **MEDICAL CONTROL**:
  - \* Consider **Adenosine**: 0.1 mg/kg RAPID IV/IO. If ineffective, second and/or third dose at 0.2 mg/kg.
  - \* Consider **Versed** IV/IO/IN.
    - ✗ Over 12 yrs: Same as adult.
    - ✗ Between 6 yrs and 12 yrs: 0.05 mg/kg.
    - ✗ Under 6 yrs: 0.05-0.1 mg/kg.
  - + OR **Ativan** 0.05 mg/kg (max 2 mg) IV/IO.
  - + Consider **Fentanyl** 2-3 mcg/kg IV/IO/IN (max 150 mcg).
  - \* Consider **synchronized Cardioversion** 0.5-1 J/kg.
- \* Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade.

Link to research articles (QR code on right): <http://1drv.ms/1xUeshs>

Citations:



**Protocol 2-090 - Tachycardia Narrow Unstable****BLS - EMR**

- \* Calm and reassure patient. Ensure patient does not exert themselves.
- \* **Oxygen** to maintain SpO<sub>2</sub> between 94-99%.
- \* Apply cardiac monitor limb leads.
- \* Adult: Rate greater than 150 OR Pediatric: Rate greater than 160 (child), greater than 220 (infant):
  - \* Apply **Combo Pads** anterior / posterior.
- \* Monitor pulseoximetry.
- \* Obtain vital signs.

**BLS - EMT**

- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.

**ALS - Paramedic**

- \* Ensure completion of all applicable BLS items on the left.
- \* Obtain **12-Lead EKG**.
- \* IV/IO NS. Do not delay for IV if symptomatic.
- \* Adult: Rate greater than 150 and symptomatic:
  - \* Conscious: Consider **Versed** 2.5-5 mg IV/IO/IN.
    - + OR **Ativan** 2 mg IV/IO.
    - + Consider **Fentanyl** 50-100 mcg IV/IO/IN (max 300 mcg).
  - \* Synchronized **Cardioversion** 125 J (if unsuccessful, increase to 200 J).
- \* Pediatric: Rate greater than 180 (child), greater than 220 (infant) and symptomatic:
  - \* Consider **Vagal** maneuvers.
  - \* **Adenosine** 0.1 mg/kg RAPID IV/IO (max 6 mg).
    - + If ineffective, 2nd and/or 3rd dose at 0.2 mg/kg (max 12 mg).
  - \* Conscious: Consider **Versed** IV/IO/IN.
    - ✗ Over 12 yrs: Same as adult.
    - ✗ Between 6 yrs and 12 yrs: 0.05 mg/kg.
    - ✗ Under 6 yrs: 0.05-0.1 mg/kg.
    - + OR **Ativan** 0.05 mg/kg (max 2 mg) IV/IO.
    - + Consider **Fentanyl** 2-3 mcg/kg IV/IO/IN (max 150 mcg).
  - \* Synchronized **Cardioversion** 0.5-1 J/kg.
  - \* **Contact MEDICAL CONTROL**.
- \* Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade.

Link to research articles (QR code on right): <http://1drv.ms/1BRpZ2o>

Citations:



## Protocol 2-100 - Tachycardia Wide Stable

### BLS - EMR

- \* Calm and reassure patient.  
Ensure patient does not exert themselves.
- \* **Oxygen** to maintain SpO<sub>2</sub> between 94-99%.
- \* Apply cardiac monitor limb leads.
- \* Adult: Rate greater than 150:  
Apply **Combo Pads** anterior / posterior.
- \* Pediatric (Child): Rate greater than 160: Consider: Apply **Combo Pads** anterior / posterior.
- \* Pediatric (Infant): Rate greater than 220: Consider: Apply **Combo Pads** anterior / posterior.
- \* Monitor pulseoximetry.
- \* Obtain vital signs.

### BLS - EMT

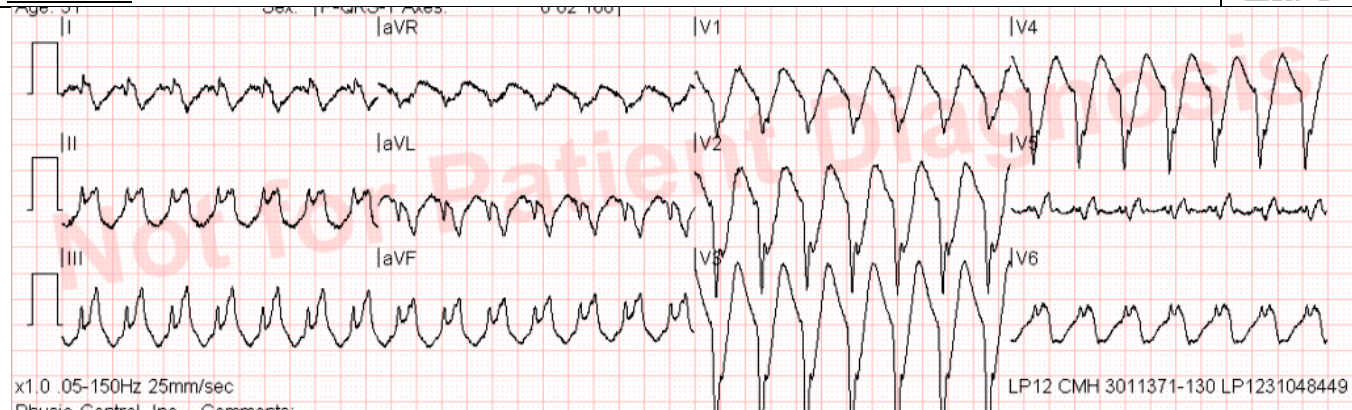
- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* Obtain **12-Lead EKG**.
- \* IV/IO NS.
- \* Adult: Rate greater than 150:
  - \* **Amiodarone** 150 mg IV/IO over 10 min. Repeat as needed (max 2.2 gm over 24 hr). 150 mg in 100 ml **D5W** over 10 min.
  - + OR **Lidocaine** 0.5-0.75 mg/kg IV/IO.
  - \* QT/RR greater than 0.4: **Magnesium Sulfate** 1-2 g IV/IO over 15-20 min. Mix 1-2 g in 100 ml **D5W**.
- \* Pediatric: Rate greater than 160 (child), greater than 220 (infant): Contact **MEDICAL CONTROL**:
  - \* Consider **Amiodarone** 5 mg/kg IV/IO over 20-60 min.
  - + OR **Procainamide** 15 mg/kg IV/IO over 30-60 min.
  - \* Consider **Versed** IV/IO/IN.
    - ✗ Over 12 yrs: Same as adult.
    - ✗ Between 6 yrs and 12 yrs: 0.05 mg/kg.
    - ✗ Under 6 yrs: 0.05-0.1 mg/kg.
    - + OR **Ativan** 0.05 mg/kg (max 2 mg) IV/IO.
    - + Consider **Fentanyl** 2-3 mcg/kg IV/IO/IN (max 150 mcg).
  - \* Consider **synchronized Cardioversion** 0.5-1 J/kg.
- \* Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade.

Link to research articles (QR code on right): <http://1drv.ms/1BRq3iK>

Citations:





**Protocol 2-110 - Tachycardia Wide Unstable****BLS - EMR**

\* Calm and reassure patient.  
Ensure patient does not exert themselves.

\* **Oxygen** to maintain SpO<sub>2</sub> between 94-99%.

\* Apply cardiac monitor limb leads.

\* Adult: Rate greater than 150:  
Apply **Combo Pads** anterior / posterior.

\* Pediatric (Child): Rate greater than 160: Consider: Apply **Combo Pads** anterior / posterior.

\* Pediatric (Infant): Rate greater than 220: Consider: Apply **Combo Pads** anterior / posterior.

\* Monitor pulseoximetry.

\* Obtain vital signs.

**BLS - EMT**

\* Ensure completion of applicable EMR items above.

\* Assist ALS with **Capnography**.

**ALS - Paramedic**

\* Ensure completion of all applicable BLS items on the left.

\* Obtain **12-Lead EKG**.

\* IV/IO NS. Do not delay for IV if symptomatic.

\* Adult: Rate greater than 150 and symptomatic:

\* Conscious: Consider **Versed** 2.5-5 mg IV/IO/IN.

✚ OR **Ativan** 2 mg IV/IO.

✚ Consider **Fentanyl** 50-100 mcg IV/IO/IN (max 300 mcg). Over 65 yr old: 0.5-2 mcg/kg.

\* Synchronized **Cardioversion** 125 J (if unsuccessful, increase to 200 J).

\* QT/RR greater than 0.4: **Magnesium Sulfate** 1-2 g IV/IO over 15-20 min. Mix 1-2 g in 100 ml **D5W**.

\* Pediatric: Rate greater than 180 (child), greater than 220 (infant) and symptomatic:

\* Conscious: Consider **Versed** IV/IO/IN.

✖ Over 12 yrs: Same as adult.

✖ Between 6 yrs and 12 yrs: 0.05 mg/kg.

✖ Under 6 yrs: 0.05-0.1 mg/kg.

✚ OR **Ativan** 0.05 mg/kg (max 2 mg) IV/IO.

✚ Consider **Fentanyl** 2-3 mcg/kg IV/IO/IN (max 150 mcg).

\* Synchronized **Cardioversion** 0.5-1 J/kg.

\* **Contact MEDICAL CONTROL:**

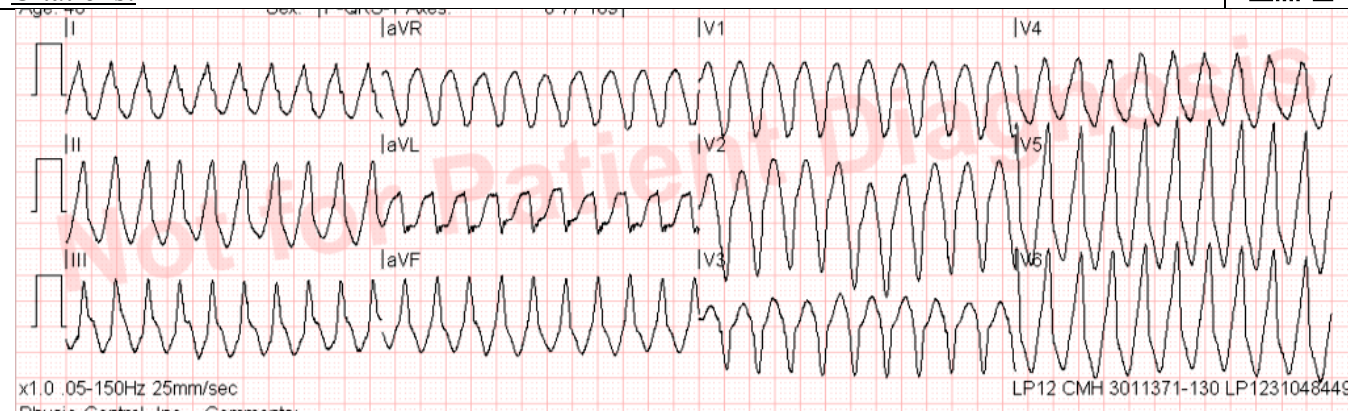
✚ **Amiodarone** 5 mg/kg IV/IO over 20-60 min.

✚ OR **Procainamide** 15 mg/kg IV/IO over 30-60 min.

\* Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade.

Link to research articles (QR code on right): <http://1drv.ms/1BRq862>

Citations:



## Protocol 2-120 - Torsades de Pointes

### BLS - EMR

- \* Calm and reassure patient. Ensure patient does not exert themselves.
- \* **Oxygen** to maintain SpO<sub>2</sub> between 94-99%.
- \* Apply cardiac monitor limb leads. Apply **Combo Pads** anterior / posterior.
- \* Monitor pulseoximetry.
- \* Obtain vital signs.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* Obtain **12-Lead EKG**.
- \* Consider **Intubation**.
- \* IV/IO NS.

#### \* Adult:

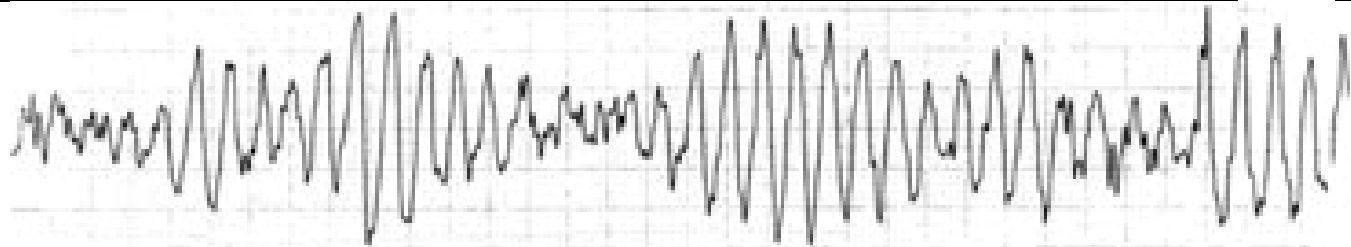
- \* **Magnesium Sulfate** 1-2 g over 15-20 min. Mix 1-2 g in 100 ml **D5W**.
- \* Follow with **Magnesium Sulfate** 0.5-1 g/hr IV/IO titrated to control Torsades de Pointes.
- \* Conscious: Consider **Versed** 2.5-5 mg IV/IO/IN.
  - ✚ OR **Ativan** 2 mg IV/IO.
  - ✚ Consider **Fentanyl** 50-100 mcg IV/IO/IN (max 300 mcg).
- \* Synchronized **Cardioversion** 200 J.

#### \* Pediatric:

- \* **Magnesium Sulfate** 25-50 mg/kg over 15-20 min. Mix in 100 ml **D5W** (max 2 g).
- \* Conscious: Consider **Versed** IV/IO/IN.
  - ✘ Over 12 yrs: Same as adult.
  - ✘ Between 6 yrs and 12 yrs: 0.05 mg/kg.
  - ✘ Under 6 yrs: 0.05-0.1 mg/kg.
  - ✚ OR **Ativan** 0.05 mg/kg (max 2 mg) IV/IO.
  - ✚ Consider **Fentanyl** 2-3 mcg/kg IV/IO/IN (max 150 mcg).
- \* Synchronized **Cardioversion** 0.5-1 J/kg.

Link to research articles (QR code on right): <http://1drv.ms/1BRq9qy>

Citations:





**Protocol 2-130 - Ventricular Ectopy****BLS - EMR**

- \* Calm and reassure patient. Ensure patient does not exert themselves.
- \* **Oxygen** to maintain SpO<sub>2</sub> between 94-99%.
- \* Apply cardiac monitor limb leads.
- \* Consider apply **Combo Pads** anterior / posterior.
- \* Monitor pulseoximetry.
- \* Obtain vital signs.

**BLS - EMT**

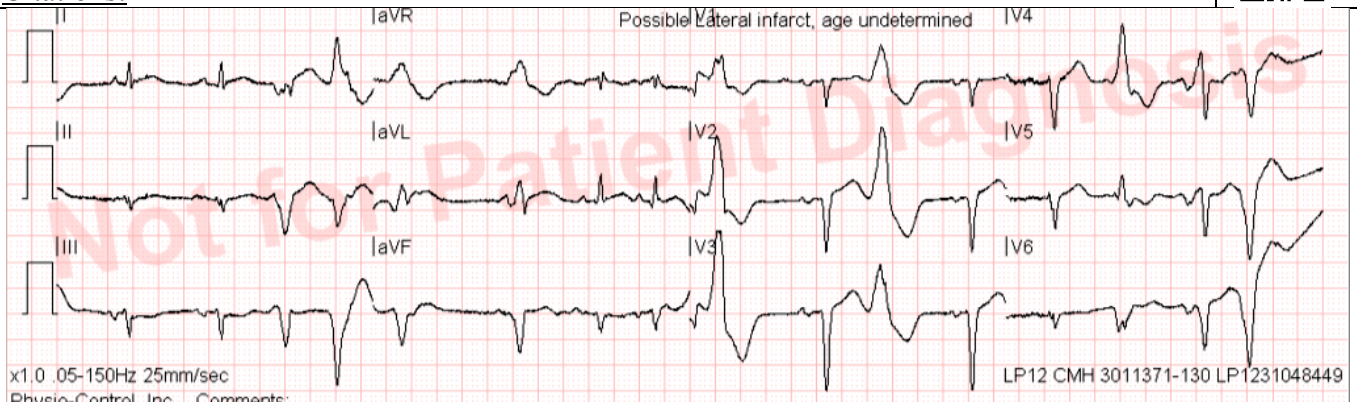
- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.

**ALS - Paramedic**

- \* Ensure completion of all applicable BLS items on the left.
- \* Obtain **12-Lead EKG**.
- \* IV/IO NS.
- \* Treat causes of ectopy: Hypoxia, infarction, or ischemia.
- \* **Contact MEDICAL CONTROL:**
  - \* Consider **Lidocaine**.
  - \* Consider **Amiodarone**.

Link to research articles (QR code on right): <http://1drv.ms/1BRqdGA>

Citations:

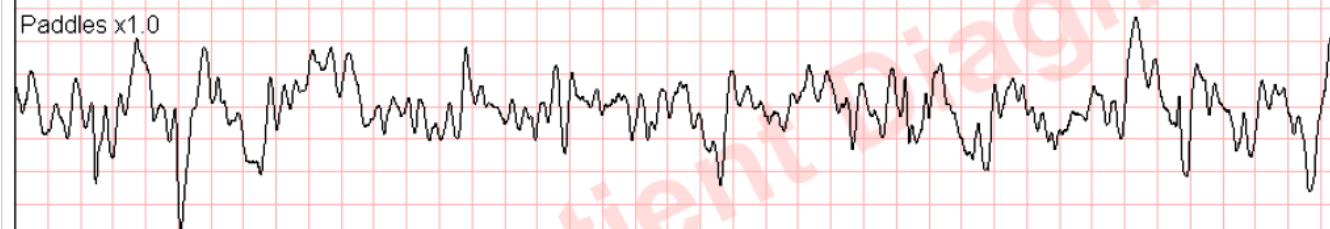


## Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach)

|   |  |
|---|--|
| <p><b><u>BLS - EMR</u></b></p> <ul style="list-style-type: none"> <li>* Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 70).</li> </ul> | <p><b><u>ALS - Paramedic</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of all applicable BLS items on the left.</li> <li>* <u>Witnessed Arrest</u>: <b>Defibrillation</b> immediately. Unwitnessed: 2 min of <b>compressions</b>, then <b>Defibrillation</b>. Immediately do <b>compressions</b> for 2 min after each shock before rhythm or pulse check.</li> </ul>  |
| <p><b><u>BLS - EMT</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of applicable EMR items above.</li> </ul>                         | <ul style="list-style-type: none"> <li>* <u>Adult</u>: 360 J (OR consider biphasic dose of 200 J).</li> <li>* <u>Pediatric</u>: 4 J/kg.</li> <li>* Consider <b>Intubation</b>.</li> <li>* IV/IO NS.</li> <li>* <u>Adult</u>: <ul style="list-style-type: none"> <li>* <b>Epinephrine 1:10,000</b> 1 mg IV/IO every 3-5 min.</li> <li>* <b>Defibrillation</b> 360 J (OR consider biphasic dose of 200 J) and immediately resume CPR.</li> <li>* <b>Lidocaine</b> 1-1.5 mg/kg IV/IO repeat 3-5 min at half dose (max 3 mg/kg). <ul style="list-style-type: none"> <li>✚ OR <b>Amiodarone</b> 300 mg IV/IO. Recurrent VF/VT: Additional 150 mg (total max 450 mg).</li> </ul> </li> <li>* <u>Torsades de points</u>: Consider <b>Magnesium Sulfate</b> 1-2 g over 15-20 min IV/IO. Refer to Protocol 2-120 - Torsades de Pointes (page 28).</li> </ul> </li> <li>* <u>Pediatric</u>: <ul style="list-style-type: none"> <li>* <b>Epinephrine 1:10,000</b> 0.01 mg/kg IV/IO OR 1:1,000 0.1 mg/kg ET every 3-5 min.</li> <li>* <b>Defibrillation</b> 4 J/kg, add 2 J/kg each shock (max 10 J/kg) and immediately resume CPR.</li> <li>* <b>Lidocaine</b> 1-1.5 mg/kg IV/IO repeat 3-5 min at half dose (max 3 mg/kg). <ul style="list-style-type: none"> <li>✚ OR <b>Amiodarone</b> 5 mg/kg (max 3 doses) IV/IO.</li> </ul> </li> <li>* <u>Torsades de points</u>: Consider <b>Magnesium Sulfate</b> 25-50 mg/kg over 15-20 min IV/IO. Refer to Protocol 2-120 - Torsades de Pointes (page 28).</li> </ul> </li> <li>* Consider <b>Sodium Bicarbonate</b> 1 mEq/kg IV/IO every 10 min (ensure adequate ventilations)</li> <li>* Consider and correct treatable causes.</li> <li>* <u>Adult</u>: Contact <b>MEDICAL CONTROL</b> If ETCO<sub>2</sub> less than 10 for 10 min or no response after 20 min, consider termination of resuscitation.</li> </ul> |

Link to research articles (QR code on right): <http://1drv.ms/1BRqhpT>

Citations:



**Protocol 2-150 - Wolff-Parkinson-White (WPW)****BLS - EMR**

- \* Calm and reassure patient. Ensure patient does not exert themselves.
- \* **Oxygen** to maintain SpO<sub>2</sub> between 94-99%.
- \* Apply cardiac monitor limb leads.
- \* Consider apply **Combo Pads** anterior / posterior.
- \* Monitor pulseoximetry.
- \* Obtain vital signs.

**BLS - EMT**

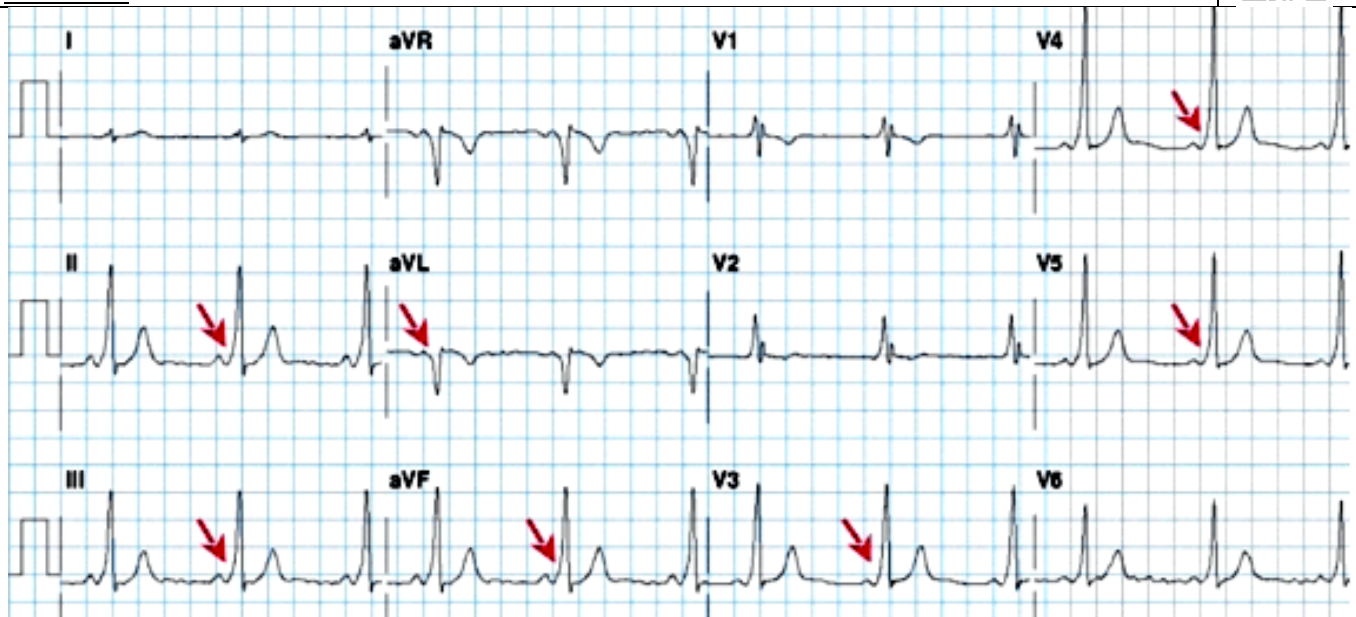
- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.

**ALS - Paramedic**

- \* Heart rate greater than 150 and symptomatic:
  - \* Ensure completion of all applicable BLS items on the left.
  - \* Obtain **12-Lead EKG**.
  - \* IV/IO NS.
  - \* **Procainamide** 20 mg/min. Continue until: arrhythmia subsides, hypotension, QRS widens by greater than 50%, or total dose of 17 mg/kg.
    - ✦ Mix 1 g in 250 ml **D5W** = 4 mg/ml.
    - ✦ 5 ml/min = 20 mg/min = 300 ml/hr.
  - ✦ Post conversion: **Procainamide** 1-4 mg/min.
    - ✦ 1 ml/min = 4 mg/min = 60 ml/hr.
- \* OR **Amiodarone** 150 mg over 10 min.

Link to research articles (QR code on right): <http://1drv.ms/1BRqIWK>

Citations:



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## Part 3 - Environmental Protocols

### Protocol 3-010 - Drowning

#### BLS - EMR

- \* Remove from water.
- \* Open and maintain Airway.
  - \* Be prepared to **Suction** Airway.
- \* Pulseless: Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 70).
- \* Dry and warm patient.
- \* Obtain core body temperature.
- \* Monitor pulseoximetry.
- \* Consider: Apply cardiac monitor limb leads.
- \* Consider apply **Combo Pads**.
- \* Obtain vital signs.
- \* Attempt to determine down-time, and history.

#### BLS - EMT

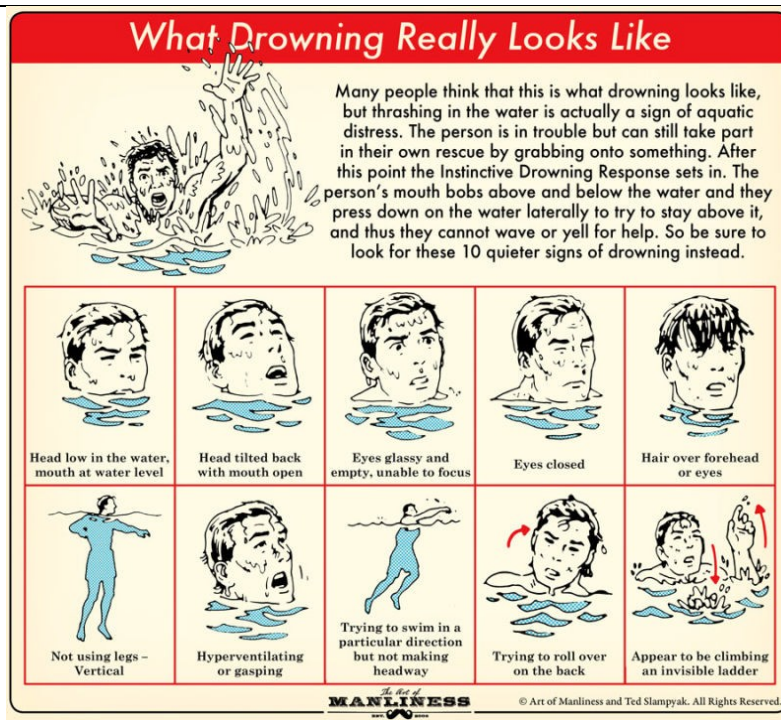
- \* Ensure completion of applicable EMR items above.
- \* Adult: Consider assisting ALS with **CPAP**.
- \* Assist ALS with **Capnography**.

#### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* IV/IO warm NS.
- \* Pulseless: Adult: V-Fib: **Defibrillation** 360 J (OR consider biphasic dose of 200 J) once.
  - \* Core temp greater than 86 F: **ACLS** per protocol.
  - \* Remember, Hypothermia patients require longer intervals between drugs due to slower absorption and metabolism rates.
  - \* Core temp less than 86 F: **CPR only**.
- \* Consider **Intubation**.
- \* Treat cardiac dysrhythmias per specific protocol.
- \* Consider **Air Ambulance** to expedite transport.

Link to research articles (QR code on right): <http://1drv.ms/1ADvdrrf>

Citations:



## Protocol 3-020 - Hyperthermia

### BLS - EMR

- \* Remove from exposure.
- \* Open and maintain Airway.
- \* Attempt to determine down-time, and history.
- \* Consider **Oxygen** if SpO<sub>2</sub> less than 88%.
- \* Passively **Cool** patient.
- \* Obtain core body temperature.
- \* Monitor pulseoximetry.
- \* Consider: Apply cardiac monitor limb leads.
- \* Obtain vital signs.
- \* Normal mentation: Heat exhaustion. Treat specific complaints per protocol.
- \* Altered mentation: Heat stroke. Rapid **Cooling** is indicated. Attempt to cool to 102 F.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* IV/IO cool **NS** or **LR**.
  - \* Adult: 125 ml/hr.
  - \* Pediatric: 20 ml/kg may repeat once.
- \* Monitor closely for arrhythmias. Treat per protocol.
- \* Tremors: **Ativan** 2 mg IV/IO.

Link to research articles (QR code on right): <http://1drv.ms/1BRqxW7>

Citations:



## Heat Index Chart

Note: Heat exhaustion can occur in less than 30 min when heat index is above 103.

|                       |     | Temperature (deg F) |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------------------|-----|---------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                       |     | 80                  | 82 | 84  | 86  | 88  | 90  | 92  | 94  | 96  | 98  | 100 | 102 | 104 | 106 | 106 | 110 |
| Relative Humidity (%) | 40  | 80                  | 81 | 83  | 85  | 88  | 91  | 94  | 97  | 101 | 105 | 109 | 114 | 119 | 124 | 130 | 136 |
|                       | 45  | 80                  | 82 | 84  | 87  | 89  | 93  | 96  | 100 | 104 | 109 | 114 | 119 | 124 | 130 | 137 |     |
|                       | 50  | 81                  | 83 | 85  | 88  | 91  | 95  | 99  | 103 | 108 | 113 | 118 | 124 | 131 | 137 |     |     |
|                       | 55  | 81                  | 84 | 86  | 89  | 93  | 97  | 101 | 106 | 112 | 117 | 124 | 130 | 137 |     |     |     |
|                       | 60  | 82                  | 84 | 88  | 91  | 95  | 100 | 105 | 110 | 116 | 123 | 129 | 137 |     |     |     |     |
|                       | 65  | 82                  | 85 | 89  | 93  | 98  | 103 | 108 | 114 | 121 | 128 | 136 |     |     |     |     |     |
|                       | 70  | 83                  | 86 | 90  | 95  | 100 | 105 | 112 | 119 | 126 | 134 |     |     |     |     |     |     |
|                       | 75  | 84                  | 88 | 92  | 97  | 103 | 109 | 116 | 124 | 132 |     |     |     |     |     |     |     |
|                       | 80  | 84                  | 89 | 94  | 100 | 106 | 113 | 121 | 129 |     |     |     |     |     |     |     |     |
|                       | 85  | 85                  | 90 | 96  | 102 | 110 | 117 | 126 | 135 |     |     |     |     |     |     |     |     |
|                       | 90  | 86                  | 91 | 98  | 105 | 113 | 122 | 131 |     |     |     |     |     |     |     |     |     |
|                       | 95  | 86                  | 93 | 100 | 108 | 117 | 127 |     |     |     |     |     |     |     |     |     |     |
|                       | 100 | 87                  | 95 | 103 | 112 | 121 | 132 |     |     |     |     |     |     |     |     |     |     |



**Protocol 3-030 - Hypothermia****BLS - EMR**

- \* Remove from exposure.
- \* Open and maintain Airway.
- \* Be prepared to **Suction** Airway.
- \* Pulseless: Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 70).
- \* **Dry and warm** patient.
- \* Remove constricting or wet clothing and jewelry.
- \* Cover affected tissue with loose, dry, sterile dressing.
- \* Obtain core body temperature.
- \* Monitor pulseoximetry.
- \* Consider: Apply cardiac monitor limb leads.
- \* Consider: Apply **Combo Pads**.
- \* Obtain vital signs.
- \* Attempt to determine down-time, and history.

**BLS - EMT**

- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.

**ALS - Paramedic**

- \* Ensure completion of all applicable BLS items on the left.
- \* IV/IO warm **NS**.
- \* Consider **Intubation**.
- \* Pulseless: V-Fib:
  - \* **Defibrillation** once.
    - ✦ Adult: 360 J (OR consider biphasic dose of 200 J).
    - ✦ Pediatric: 2 J/kg.
- \* Core temp greater than 86 F: **ACLS** per protocol. Remember, Hypothermia patients require longer intervals between drugs due to slower absorption and metabolism rates.
- \* Core temp less than 86 F: **CPR** only.
- \* Do not delay transport for rewarming.
- \* **Rapid transport** to hospital.
- \* Pain: Refer to Protocol 6-050 - Control of Pain (page 73).
- \* Nausea: Refer to Protocol 6-040 - Control of Nausea (page 72).

Link to research articles (QR code on right): <http://1drv.ms/1ADvx9w>

Citations:

**Wind Chill Chart**

Note: Frostbite can occur in less than 30 min when wind chill is below -17.

|                  |    | Temperature (deg F) |    |    |    |    |    |     |     |     |     |     |  |
|------------------|----|---------------------|----|----|----|----|----|-----|-----|-----|-----|-----|--|
|                  |    | 40                  | 35 | 30 | 25 | 20 | 15 | 10  | 5   | 0   | -5  | -10 |  |
| Wind Speed (MPH) | 5  | 36                  | 31 | 25 | 19 | 13 | 7  | 1   | -5  | -11 | -16 | -22 |  |
|                  | 10 | 34                  | 27 | 21 | 15 | 9  | 3  | -4  | -10 | -16 | -22 | -28 |  |
|                  | 15 | 32                  | 25 | 19 | 13 | 6  | 0  | -7  | -13 | -19 | -26 | -32 |  |
|                  | 20 | 30                  | 24 | 17 | 11 | 4  | -2 | -9  | -15 | -22 | -29 | -35 |  |
|                  | 25 | 29                  | 23 | 16 | 9  | 3  | -4 | -11 | -17 | -24 | -31 | -37 |  |
|                  | 30 | 28                  | 22 | 15 | 8  | 1  | -5 | -12 | -19 | -26 | -33 | -39 |  |
|                  | 35 | 28                  | 21 | 14 | 7  | 0  | -7 | -14 | -21 | -27 | -34 | -41 |  |
|                  | 40 | 27                  | 20 | 13 | 6  | -1 | -8 | -15 | -22 | -29 | -36 | -43 |  |

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**Part 4 - Medical Protocols****Protocol 4-010 - Abdominal Pain****BLS - EMR**

- \* Consider **Oxygen** if SpO<sub>2</sub> less than 88%.
- \* Obtain vital signs.
- \* Monitor pulseoximetry.
- \* Apply cardiac monitor limb leads.
- \* Identify possible causes.

**BLS - EMT**

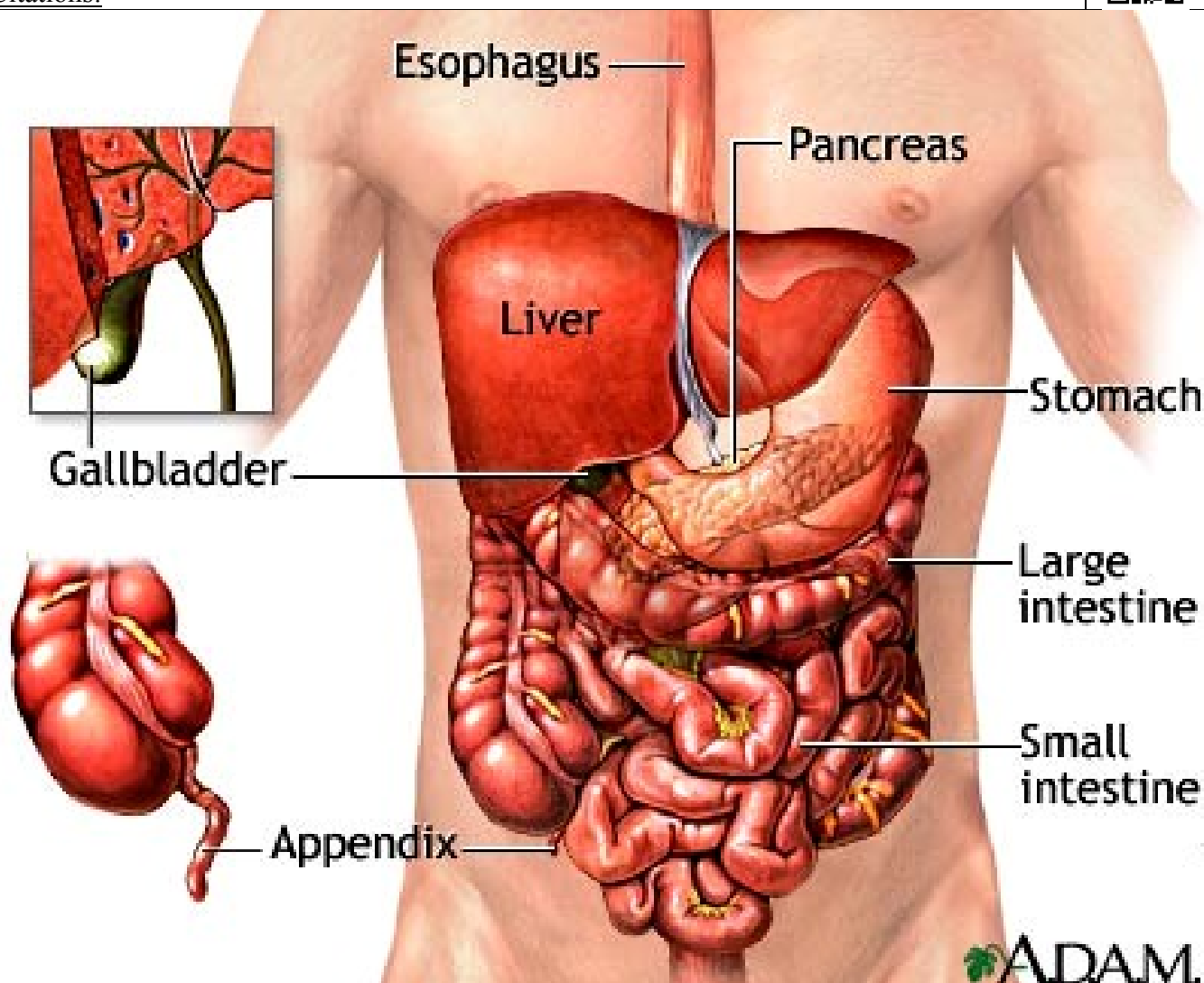
- \* Ensure completion of applicable EMR items above.

**ALS - Paramedic**

- \* Ensure completion of all applicable BLS items on the left.
- \* IV/IO NS.
- \* Refer to Protocol 6-050 - Control of Pain (page 73).
- \* Nausea: Refer to Protocol 6-040 - Control of Nausea (page 72).

Link to research articles (QR code on right): <http://1drv.ms/1BRqNnP>

Citations:



## Protocol 4-020 - Anaphylaxis

### BLS - EMR

- \* Remove allergen.
- \* Obtain vital signs.
- \* **Oxygen** to maintain SpO<sub>2</sub> at 100%.
- \* Monitor pulseoximetry.
- \* Consider: Apply cardiac monitor limb leads.
- \* Identify possible causes.

### BLS - EMT

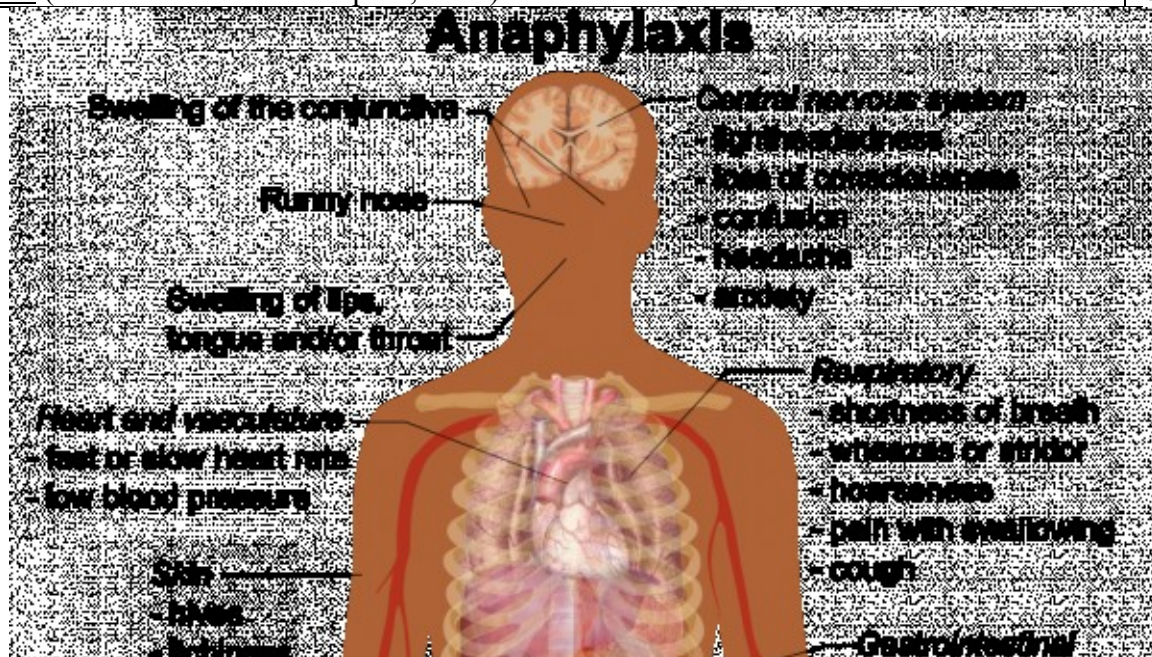
- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.
- \* If Paramedic unavailable and difficulty breathing, trouble swallowing, or hypotensive:
  - \* **Epinephrine Auto-Injector**.
  - \* ALS unit should be en route.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* IV/IO NS.
- \* Adult:
  - \* **Uncompensated shock: Epinephrine 1:10,000 0.1 mg IV/IO. Repeat every 15 min as needed.**
    - ✚ OR **Epinephrine 1:1,000 0.3-0.5 mg IM/SQ.**
  - \* **Benadryl 25-50 mg IV/IO/IM.**
  - \* **Solu-Medrol 125 mg IV/IO.**
  - \* Wheezing or obstructed ETCO<sub>2</sub> waveform: Consider **Duoneb Nebulized (max 1 dose). 0.5 mg Ipratropium + 1.5mg Albuterol.**
    - ✚ Consider **Albuterol 2.5 mg Nebulized.**
    - ✚ Consider **Xopenex 0.63-1.25 mg Nebulized.**
- \* Pediatric:
  - \* **Epinephrine 1:1,000 0.01 mg/kg IM/SQ (max 0.3 mg) repeat every 15 min as needed.**
  - \* **Benadryl 1 mg/kg IV/IO/IM (max 50 mg).**
  - \* **Solu-Medrol 1-2 mg/kg IV/IO (max 125 mg).**
  - \* Wheezing or obstructed ETCO<sub>2</sub> waveform: Consider **Albuterol 2.5 mg Nebulized.**
    - ✚ Greater than 6 yr old: Consider **Duoneb Nebulized (max 1 dose). 0.25 mg Ipratropium + 1.5mg Albuterol.**

Link to research articles (QR code on right): <http://1drv.ms/1EyXh7a>

Citations: (Citizens Memorial Hospital, 2014)



**Protocol 4-030 - Asthma****BLS - EMR**

- \* **Oxygen** to maintain SpO<sub>2</sub> between 88-92%.
- \* Monitor pulseoximetry.
- \* Apply cardiac monitor limb leads.
- \* Obtain vital signs.

**BLS - EMT**

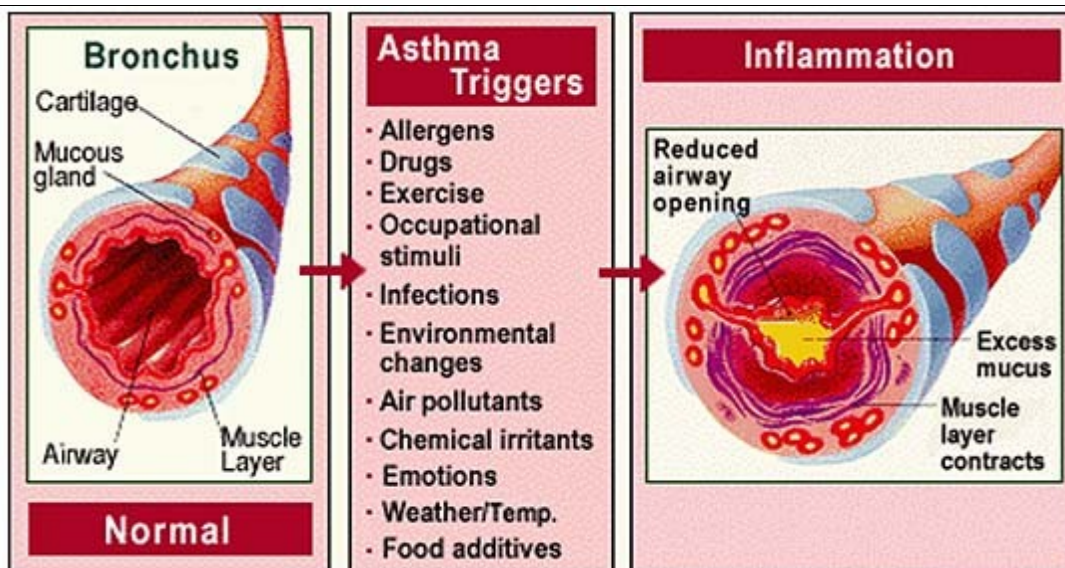
- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.

**ALS - Paramedic**

- \* Ensure completion of all applicable BLS items on the left.
- \* **IV/IO NS.**
- \* **Adult:**
  - \* Consider **Duoneb**. 0.5 mg **Ipratropium** + 2.5 mg **Albuterol** Nebulized (max 1 dose).
  - \* Consider **Albuterol** 2.5 mg in NS 3ml Nebulized.
  - \* **HR greater than 110:** Consider **Xopenex** 0.63-1.25 mg Nebulized.
  - \* Consider **Solu-Medrol** 125 mg IV/IO.
  - \* **Decompensating:** Consider **Decadron** 12 mg Nebulized (max 1 dose).
  - \* Consider **Epinephrine 1:1,000** 0.3-0.5 mg IM/SQ. Caution when greater than 55 yr old with cardiac history.
  - \* **Contact MEDICAL CONTROL for: Consider Magnesium Sulfate 1-2 g IV/IO over 15-20 min.**
  - \* Consider trial of **CPAP** Nebulized.
- \* **Pediatric:**
  - \* Consider **Duoneb**. 0.25 mg **Ipratropium** + 2.5 mg **Albuterol** Nebulized (max 1 dose).
  - \* Consider **Albuterol** 2.5mg in NS 3 ml Nebulized.
  - \* **Greater than 6 yr old:** Consider **Xopenex** 0.31-0.63 mg Nebulized.
  - \* **Contact MEDICAL CONTROL:**
    - + Consider **Solu-Medrol** 1-2 mg/kg IV/IO.
    - + Consider **Magnesium Sulfate** 25-50 mg/kg IV/IO in D5W over 15-20 min.
- \* Consider **Intubation** only as a last resort.

Link to research articles (QR code on right): <http://1drv.ms/1BRqR7a>

Citations:





## Protocol 4-040 - Behavioral

### BLS - EMR

- \* Ensure scene safety and consider law enforcement for **physical Restraint** if necessary.
- \* Verbal de-escalation. Stay calm and calm the patient.
- \* Identify possible causes. Obtain history of current event, crisis, toxic exposure, drugs, ETOH, suicidal, or homicidal.
- \* ALOC: Treat per appropriate protocol.
- \* Provide emotional support:
  - \* Help meet basic needs.
  - \* Provide simple, clear, and accurate information.
  - \* Listen with compassion.
  - \* Be friendly and calm.
  - \* Provide support and “presence.”

### BLS - EMT

- \* Ensure completion of applicable EMR items above.
- \* Consider performing **Glucose check**.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* Mild (responds to verbal de-escalation):  
Contact **MEDICAL CONTROL** for:
  - \* Adult:
    - + Anxiety:
      - \* Consider **Valium** 2 mg IV/IM.
      - \* Consider **Ativan** 2 mg IV/IO.
    - + Agitation: Consider **Haldol** 2-5 mg IV/IM.
  - \* Pediatric: Anxiety:
    - + Consider **Valium** 0.2 mg/kg IV/IM.
    - + Consider **Ativan** 0.05 mg/kg (max 2 mg) IV/IO.
- \* Transport in **position of comfort**.
- \* Moderate to severe (requires Restraint for crew/patient safety):
  - \* Adult:
    - + **Physical Restraint**
      - \* Least restrictive: manual Restraint OR four-point soft Restraint.
      - \* If handcuffed by law enforcement, they must be present throughout entire transport.
    - + Consider **Haldol** 2-5 mg IV/IM.
    - + Consider **Valium** 2-5 mg IV/IM.
    - + Consider **Ativan** 2 mg IV/IO.
    - + Consider **Benadryl** 50 mg IV/IM.
    - + Consider **Ketamine** 1-2 mg/kg IV/IO or 4-5 mg/kg IM. If greater than 65 yr old, half dose.
  - \* Pediatric:
    - + Consider **Valium** 1 mg IV/IM.
    - + Consider **Ativan** 0.05 mg/kg (max 2mg) IV/IO.
- \* Contact **MEDICAL CONTROL** after if sedation above used.
- \* Transport in **position of safety**.
- \* If Haldol given: Obtain **12-Lead EKG**. Assess QT.

Link to research articles (QR code on right): <http://1drv.ms/1ADwNJE>

Citations: (Citizens Memorial Hospital, 2012), (Missouri Department of Mental Health, 2013), (Taney County Ambulance District, 2014)



**Protocol 4-050 - Cardiovascular Accident (CVA) or Stroke****BLS - EMR**

- \* Complete **Cincinnati Stroke Scale** (facial droop, arm drift, speech).
- \* Consider completing Section 4-051 - NIH Stroke Scale (page 42).
- \* **Oxygen** to maintain SpO<sub>2</sub> between 94-99%.
- \* Monitor pulseoximetry.
- \* Apply cardiac monitor limb leads.
- \* Obtain vital signs.
- \* Elevate Head of cot.

**BLS - EMT**

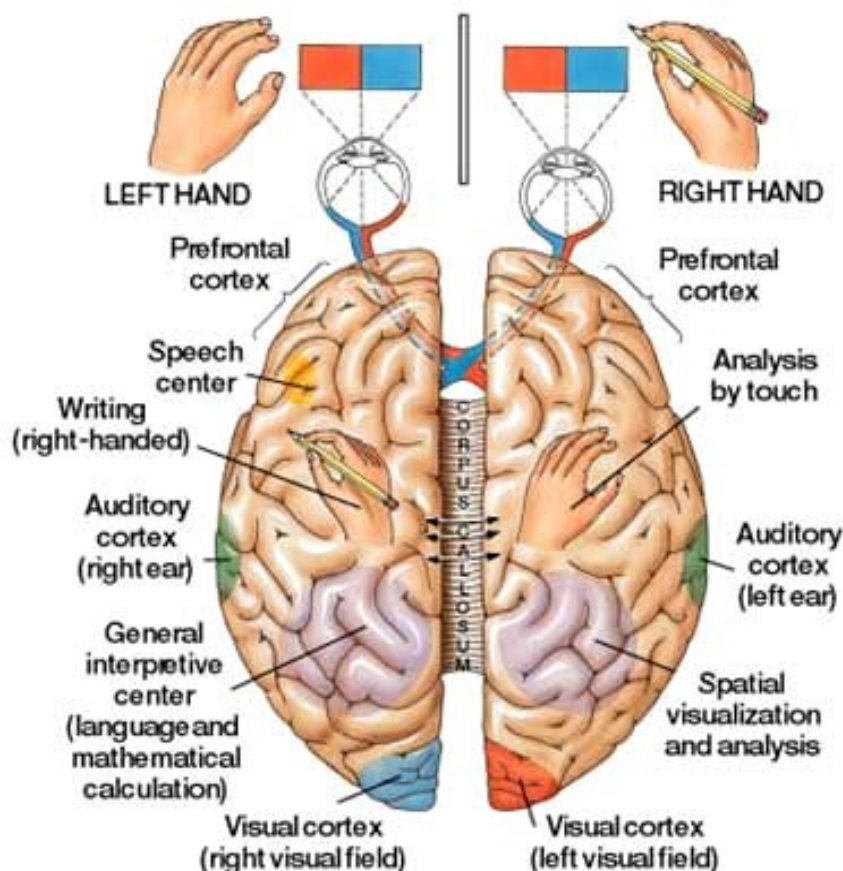
- \* Ensure completion of applicable EMR items above.
- \* Perform **Glucose check**.
  - \* Glucose less than 70 mg/dl: Refer to Protocol 4-120 - Hypoglycemia (page 52).

**ALS - Paramedic**

- \* Ensure completion of all applicable BLS items on the left.
- \* **IV/IO NS**.
- \* Obtain **12-Lead EKG**.
- \* Obtain and record contact information for family and/or witness.
- \* Transport according to Section 4-053 - Stroke Destination Determination Flowchart (page 44).
- \* If receiving facility has cot scales, weigh pt and cot upon entry to ER and weigh empty cot after transfer. Report pt net weight to receiving RN.

Link to research articles (QR code on right): <http://1drv.ms/1BRr2PT>

Citations: (Chapter 190 - Emergency services, 2012), (Designated hospitals), (NIH stroke scale international, 2003), (Proposed regulations, 2010), (University of Kansas Hospital)



## Section 4-051 - NIH Stroke Scale Questions

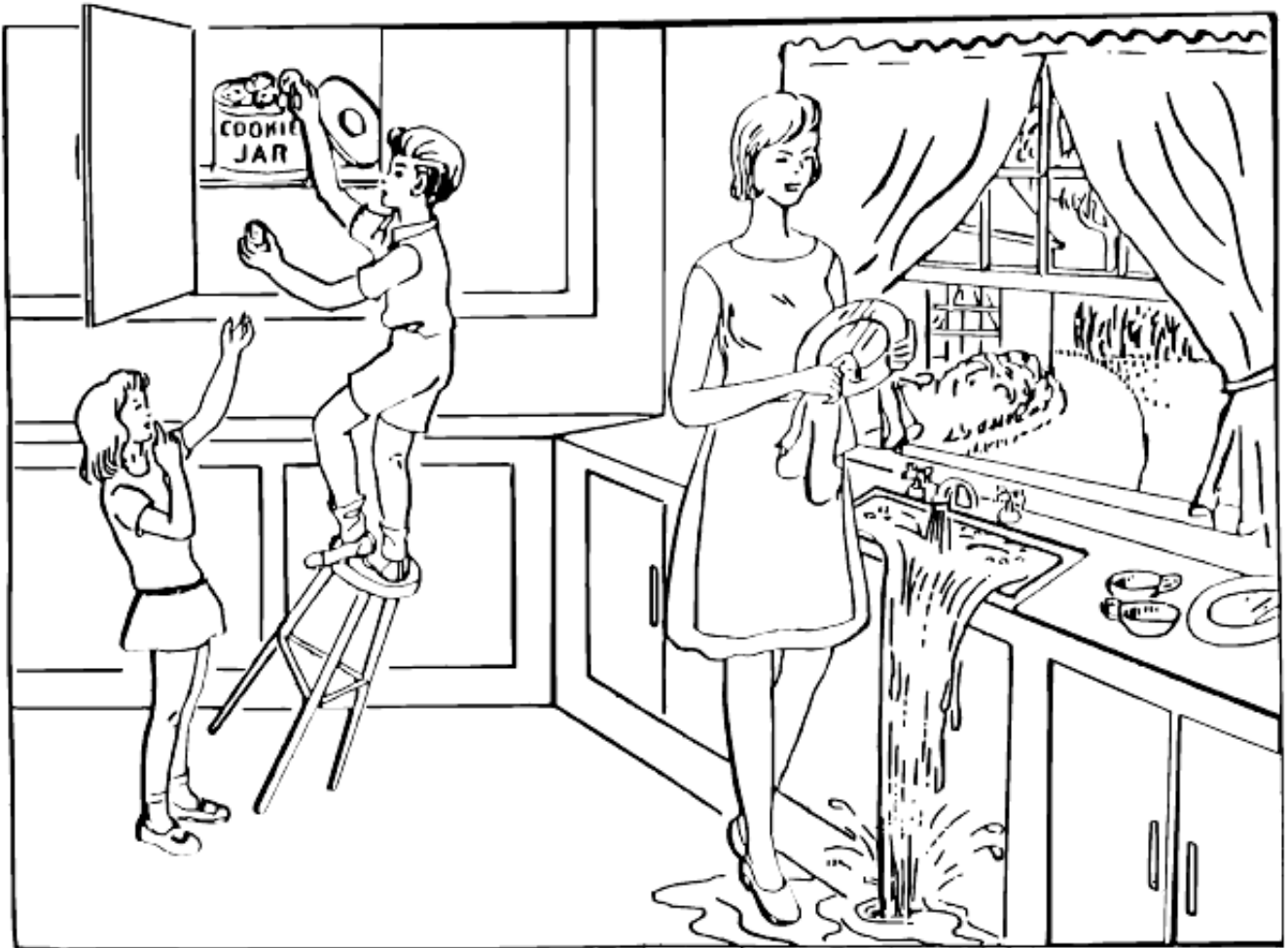
Score only first attempt. Do not coach. Do not go back and re-score.

|  |  |   |
|--|--|---|
| <b>1a. Level of consciousness (LOC).</b><br>Is the patient alert, drowsy, etc.   | Alert (A)                                    | 0 |
|  | Drowsy (V)                                   | 1 |
|  | Stuporous (P)                                | 2 |
|  | Coma (U)                                     | 3 |
| <b>1b. LOC questions.</b><br>Ask the patient the month and his/her age. Answer must be correct.  | Answers both correctly                       | 0 |
|  | Answers one correctly                        | 1 |
|  | Both incorrect (coma)                        | 2 |
| <b>1c. LOC commands.</b><br>Ask patient to open/close eyes and then grip/release nonparetic hand.  | Performs both correctly                      | 0 |
|  | Performs one correctly                       | 1 |
|  | Both incorrect                               | 2 |
| <b>2. Best gaze.</b><br>Test only horizontal movement. Oculocephalic reflex is OK, but not calorics. Eyes open - patient follows finger or face.                               | Normal                                       | 0 |
|  | Partial gaze palsy (one direction)           | 1 |
|  | Forced deviation (neither direction)         | 2 |
| <b>3. Visual.</b><br>Test by confrontation. Introduce visual stimulus to patient's upper and lower field quadrants.  | No visual loss                               | 0 |
|  | Partial hemianopia (one Eye)                 | 1 |
|  | Complete hemianopia (both eyes, one side)    | 2 |
|  | Bilateral hemianopia (both eyes, both sides) | 3 |
| <b>4. Facial palsy.</b><br>Ask patient to show teeth/smile, raise eyebrows, and close eyes tightly. May use Pain grimace.  | Normal                                       | 0 |
|  | Minor paralysis                              | 1 |
|  | Partial paralysis (lower only)               | 2 |
|  | Complete paralysis                           | 3 |
| <b>5a. Motor arm left.</b><br>Extend left arm, palm down, to 90 degrees if sitting or 45 degrees if supine. Count down verbal and finger 10 sec. Unaffected side first.        | No drift                                     | 0 |
|  | Drift (or jerky)                             | 1 |
|  | Some effort against gravity (but falls)      | 2 |
|  | No effort against gravity                    | 3 |
|  | No movement                                  | 4 |
| <b>5b. Motor arm right.</b><br>Extend right arm, palm down, to 90 degrees if sitting or 45 degrees if supine. Count down verbal and finger 10 sec. Unaffected side first.      | No drift                                     | 0 |
|  | Drift (or jerky)                             | 1 |
|  | Some effort against gravity (but falls)      | 2 |
|  | No effort against gravity                    | 3 |
|  | No movement                                  | 4 |
| <b>6a. Motor leg left.</b><br>Elevate left leg to 30 degrees. Always supine.   | No drift                                     | 0 |
|  | Drift (or jerky)                             | 1 |
|  | Some effort against gravity (but falls)      | 2 |
|  | No effort against gravity                    | 3 |
|  | No movement                                  | 4 |
| <b>6b. Motor leg right.</b><br>Elevate right leg to 30 degrees. Always supine.   | No drift                                     | 0 |
|  | Drift (or jerky)                             | 1 |
|  | Some effort against gravity (but falls)      | 2 |
|  | No effort against gravity                    | 3 |
|  | No movement                                  | 4 |
| <b>7. Limb ataxia.</b><br>Finger-nose and heel-shin tests done on both sides. Unaffected side first. "Touch my finger then your nose." "Run your heel down then up your shin." | Absent (weakness)                            | 0 |
|  | Present in one limb                          | 1 |
|  | Present in two limbs                         | 2 |
| <b>8. Sensory.</b><br>Use a pinprick to face, arms, trunk, and legs. Compare side to side. Assess patient's awareness of being touched.  | Normal                                       | 0 |
|  | Mild to moderate loss                        | 1 |
|  | Severe loss                                  | 2 |
| <b>9. Best language.</b><br>Ask patient to name items, describe a picture, read a sentence. This is the best response, not the first response.                                 | No aphasia                                   | 0 |
|  | Mild to moderate aphasia                     | 1 |
|  | Severe aphasia                               | 2 |
|  | Mute, global aphasia                         | 3 |
| <b>10. Dysarthria.</b><br>Evaluate speech clarity by asking patient to repeat listed words. Do not explain why.  | Normal articulation                          | 0 |
|  | Mild to moderate dysarthria                  | 1 |
|  | Severe dysarthria                            | 2 |
| <b>11. Extinction and inattention.</b><br>Use information from prior testing to identify neglect.  | No neglect                                   | 0 |
|  | Partial neglect (touch or visual)            | 1 |
|  | Complete neglect (touch and visual)          | 2 |

Total score less than 4: Favorable outcome with complete recovery is probable.

Total score greater than 21: TPA will likely worsen the condition.

## Section 4-052 - NIH Stroke Scale Images



You know how.

Down to earth.

I got home from work.

Near the table in the dining  
room.

They heard him speak on  
the radio last night.

MAMA

TIP - TOP

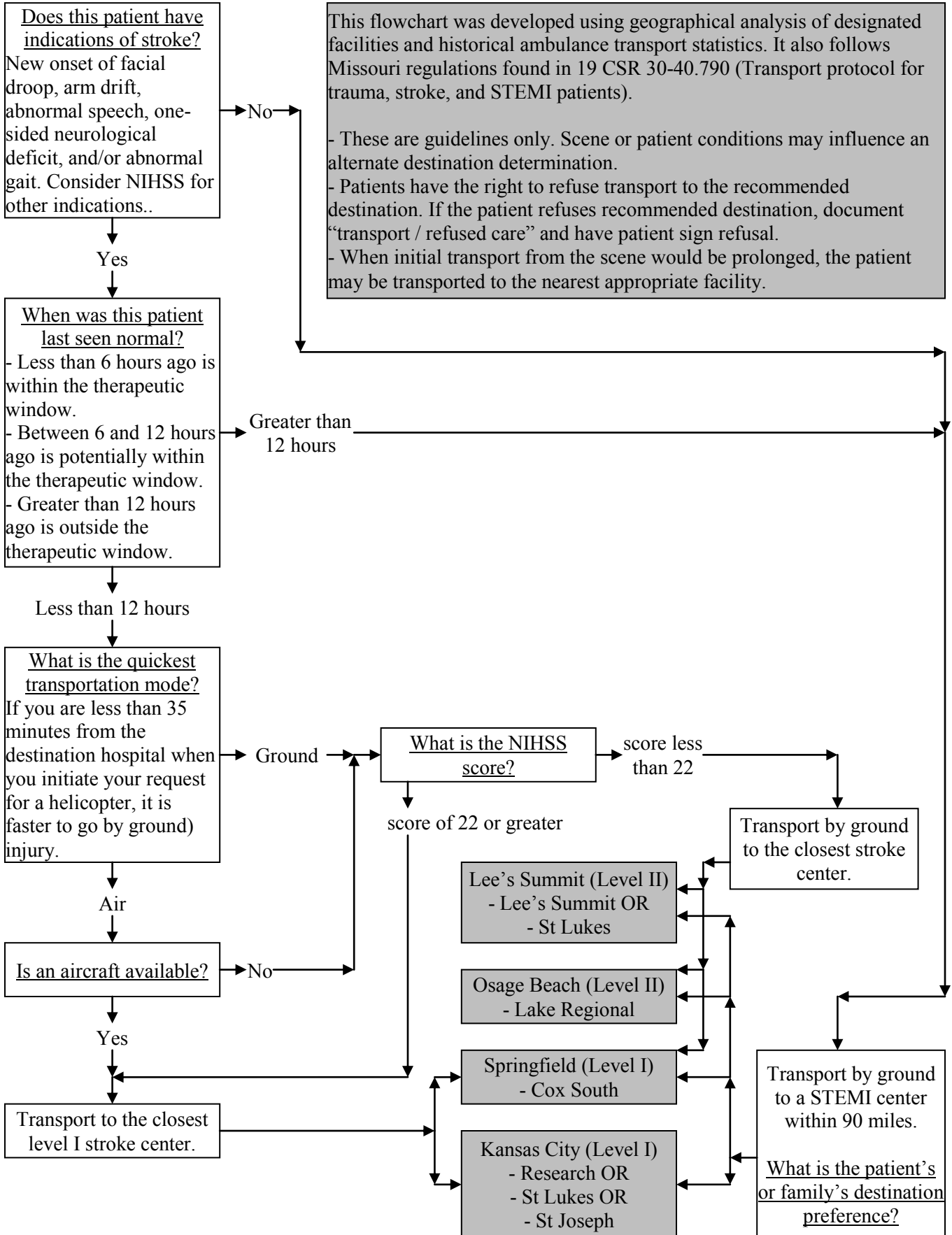
FIFTY - FIFTY

THANKS

HUCKLEBERRY

BASEBALL PLAYER

## Section 4-053 - Stroke Destination Determination Flowchart



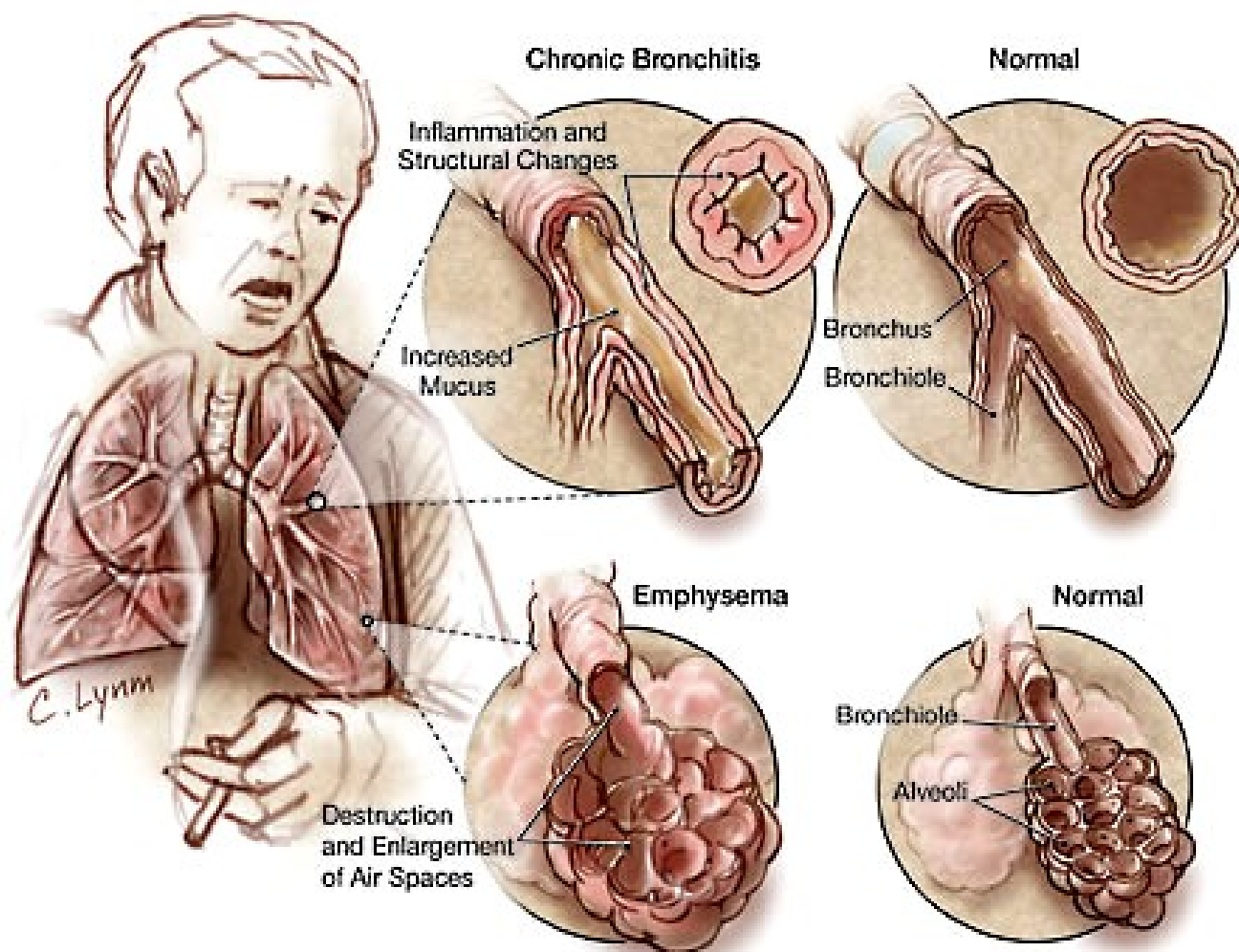


**Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD)**

|   |  |
|---|--|
| <b><u>BLS - EMR</u></b> <ul style="list-style-type: none"> <li>* <b>Oxygen</b> to maintain SpO<sub>2</sub> between 88-92%.</li> <li>* Monitor pulseoximetry.</li> <li>* Apply cardiac monitor limb leads.</li> <li>* Obtain vital signs.</li> </ul> | <b><u>ALS - Paramedic</u></b> <ul style="list-style-type: none"> <li>* Ensure completion of all applicable BLS items on the left.</li> <li>* Consider Intubation.</li> <li>* IV/IO NS.</li> <li>* Consider <b>12-Lead EKG</b>.</li> </ul>  |
| <b><u>BLS - EMT</u></b> <ul style="list-style-type: none"> <li>* Ensure completion of applicable EMR items above.</li> <li>* Assist ALS with <b>Capnography</b>.</li> <li>* <u>Adult</u>: Consider assisting ALS with <b>CPAP</b>.</li> </ul>       | <ul style="list-style-type: none"> <li>* <u>Adult</u>: <ul style="list-style-type: none"> <li>* Consider <b>Duoneb</b> Nebulized (max 1 dose). 0.5 mg <b>Ipratropium</b> + 2.5 mg <b>Albuterol</b>.</li> <li>* Consider <b>Albuterol</b> 2.5 mg in NS 3 ml Nebulized. Repeat continuously as needed.</li> <li>* Consider <b>Xopenex</b> 0.63-1.25 mg Nebulized.</li> <li>* Consider <b>Solu-Medrol</b> 125 mg IV/IO.</li> <li>* <b>Contact MEDICAL CONTROL</b> for: Consider <b>Magnesium Sulfate</b> 1-2 g IV/IO over 15-20 min.</li> </ul> </li> </ul> |

Link to research articles (QR code on right): <http://1drv.ms/1ADxin0>

Citations:



## Protocol 4-070 - Congestive Heart Failure (CHF)

### BLS - EMR

- \* **Oxygen** to maintain SpO<sub>2</sub> between 94-99%.
- \* Monitor pulseoximetry.
- \* Apply cardiac monitor limb leads.
- \* Obtain vital signs.
- \* Elevate Head of cot.

### BLS - EMT

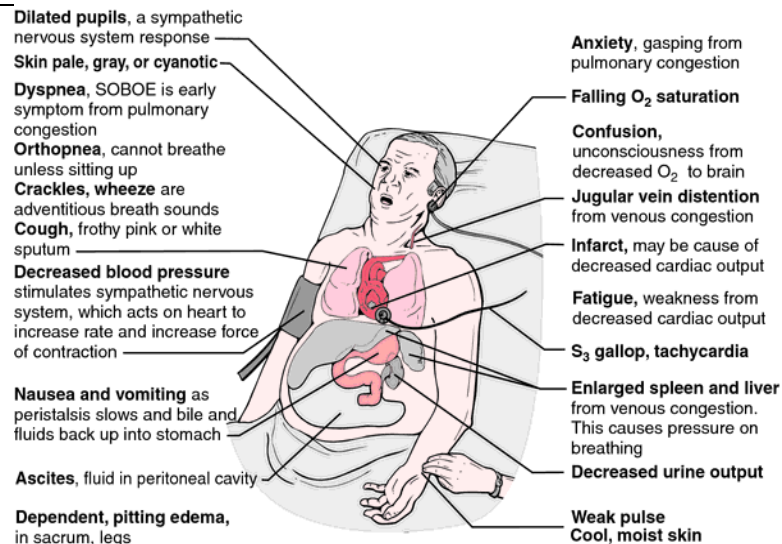
- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.
- \* Adult: Consider assisting ALS with **CPAP**.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
  - \* Consider **Intubation**.
  - \* **IV/IO Saline LOCK**.
  - \* Obtain **12-Lead EKG**.
  - \* Consider **15-Lead EKG**.
- 
- \* Adult:
    - \* Consider **CPAP**.
    - \* SBP greater than 100: **Nitroglycerin** 0.4-0.8 mg SL every 3-5 min until no dyspnea or SBP less than 90.
      - ✦ Consider **Nitroglycerin** 50+ mcg/min titrate to SBP greater than 100 and dyspnea Pain.
    - \* SBP less than 100: **Dopamine** 5-15 mcg/kg/min.
    - \* Consider **Lasix** 40 mg IV/IO/IM.
      - ✦ Patient currently on diuretics: **Lasix** double prescribed dose.
    - \* Wheezing or obstructed ETCO<sub>2</sub> waveform:
      - ✦ Consider **Duoneb**. 0.5 mg **Ipratropium** + 2.5 mg **Albuterol** Nebulized (max 1 dose).
      - ✦ Consider **Albuterol** 2.5 mg in NS 3 ml Nebulized.
      - ✦ Consider **Xopenex** 0.63-1.25 mg Nebulized.
- 
- \* Pediatric:
    - \* Consider **Lasix** 1-2 mg/kg IV/IO/IM (max 40 mg).
    - \* Wheezing or obstructed ETCO<sub>2</sub> waveform:
      - ✦ Consider **Duoneb**. 0.25 mg **Ipratropium** + 2.5 mg **Albuterol** Nebulized (max 1 dose).
      - ✦ Consider **Albuterol** 2.5 mg in NS 3 ml Nebulized.
      - ✦ Greater than 6 yr old: Consider **Xopenex** 0.31-0.63 mg Nebulized.

Link to research articles (QR code on right): <http://1drv.ms/1ADxuCX>

Citations:

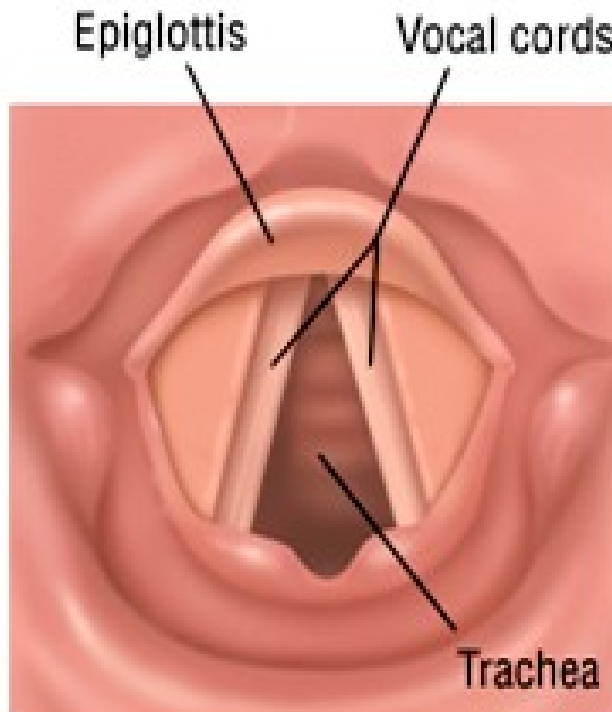


**Protocol 4-080 - Croup**

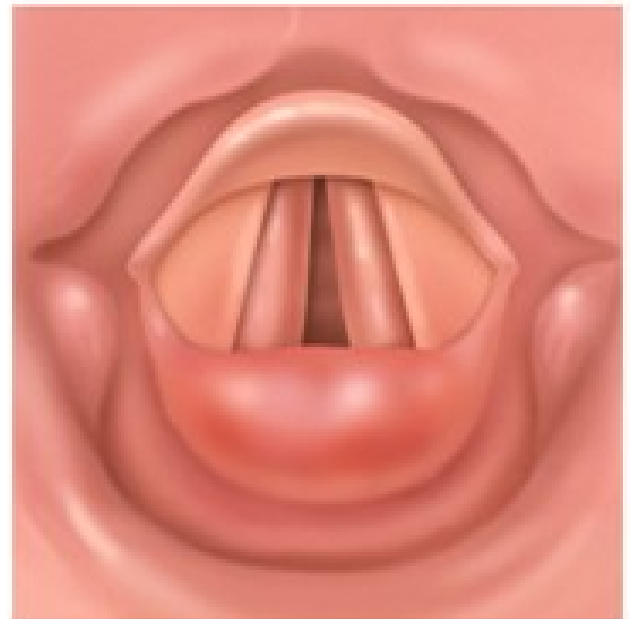
|   |  |
|---|--|
| <b><u>BLS - EMR</u></b> <ul style="list-style-type: none"> <li>* <b>Oxygen</b> to maintain SpO<sub>2</sub> between 88-92%.</li> <li>* Monitor pulseoximetry.</li> <li>* Consider: Apply cardiac monitor limb leads.</li> <li>* Obtain vital signs.</li> </ul> | <b><u>ALS - Paramedic</u></b> <ul style="list-style-type: none"> <li>* Ensure completion of all applicable BLS items on the left.</li> <li>* <b>Decadron</b> 0.6 mg/kg PO/Neb (max 20 mg). <ul style="list-style-type: none"> <li>* In the absence of Decadron, <b>Solu-Medrol</b> 2 mg/kg IV/IO/IM. Be cautious of inducing crying as aggravation may seriously worsen patient's condition.</li> </ul> </li> <li>* Consider <b>Racemic Epinephrine</b> 0.5 ml with 3 ml NS Nebulized. <ul style="list-style-type: none"> <li>* In the absence of Racemic Epinephrine, <b>Epinephrine 1:1,000</b> may be used 0.5 ml/kg (max 5 ml) Nebulized.</li> </ul> </li> </ul> |
| <b><u>BLS - EMT</u></b> <ul style="list-style-type: none"> <li>* Ensure completion of applicable EMR items above.</li> <li>* Assist ALS with <b>Capnography</b>.</li> </ul>   |  |

Link to research articles (QR code on right): <http://1drv.ms/1BRrcXm>

Citations:



**Normal larynx**



**Inflamed larynx**

## Protocol 4-090 - Childbirth

### BLS - EMR

- \* Consider **Oxygen** if SpO<sub>2</sub> less than 88%.
- \* Inspect for active bleeding / crowning. Determine amount of blood loss.
- \* Monitor pulseoximetry.
- \* Apply cardiac monitor limb leads.
- \* Obtain vital signs.
- \* Crowning: Stop transport and **Deliver** infant. Both crew members should be available during delivery.
  - \* Consider cleaning Vaginal area prior to birth.
  - \* Inspect for prolapsed cord.
    - + Breech: **Deliver** as best you can (see below).
    - + No complications:
      - ✗ Provide **peritoneal pressure** during delivery to prevent tearing.
      - ✗ Only Suction Airway if infant is in distress.
      - ✗ **Dry, warm, and stimulate.**
      - ✗ Place infant skin-to-skin with mother while she **breastfeeds**, if possible.
      - ✗ **Clamp and cut cord** halfway between mother and infant. Only clamp cord if full-term gestation baby.
      - ✗ Assess Section 4-091 - APGAR Scoring System (page 49) at 1 min.
      - ✗ Expect placenta within 5 min and transport it with patients.
      - ✗ **Fundal massage.**
      - ✗ Targeted Pre-Ductal SpO<sub>2</sub> After Birth:
        - \* 1 min = 60-65%
        - \* 2 min = 65-70%
        - \* 3 min = 70-75%
        - \* 4 min = 75-80%
        - \* 5 min = 80-85%
        - \* 10 min = 85-95%
      - ✗ Assess Section 4-091 - APGAR Scoring System (page 49) at 5 min intervals.
    - + Prolapsed cord:
      - ✗ Place mother on hands and knees.
      - ✗ Do not handle cord. Cover it with moist dressing.
      - ✗ Protect cord from compression with fingers.
      - ✗ Rapid transport to nearest hospital with OB department.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* IV/IO NS titrated to blood pressure.
- \* Treat any problems per appropriate protocol.

Link to research articles (QR code on right): <http://1drv.ms/1ADxOBw>

Citations:



**Section 4-091 - APGAR Scoring System**

|                                      |  |   |
|--------------------------------------|--|---|
| <b>Activity (muscle tone)</b>        | Absent                                   | 0 |
|                                      | Arms and legs flexed                     | 1 |
|                                      | Active movements                         | 2 |
| <b>Pulse</b>                         | Absent                                   | 0 |
|                                      | Below 100 bpm                            | 1 |
|                                      | Over 100 bpm                             | 2 |
| <b>Grimace (reflex irritability)</b> | Flaccid                                  | 0 |
|                                      | Some flexion of extremities              | 1 |
|                                      | Active motion (sneeze, cough, pull away) | 2 |
| <b>Appearance (skin color)</b>       | Blue, pale                               | 0 |
|                                      | Body pink, extremities blue              | 1 |
|                                      | Completely pink                          | 2 |
| <b>Respiration</b>                   | Absent                                   | 0 |
|                                      | Slow, irregular                          | 1 |
|                                      | Vigorous cry                             | 2 |

Total 0-3: Severely depressed.Total 4-6: Moderately depressed.Total 7-10: Excellent condition.

## Protocol 4-100 - Fever

### BLS - EMR

- \* Consider **Oxygen** if SpO<sub>2</sub> less than 88%.
- \* Remove excess clothing / blankets.
- \* Monitor pulseoximetry.
- \* Consider: Apply cardiac monitor limb leads.
- \* Obtain vital signs.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* IV/IO NS.
- \* Fever greater than 102 F: Begin **cooling**.
- \* Adult:
  - \* Acetaminophen NOT given within 4 hrs:  
**Acetaminophen** 325-650 mg PO.
  - \* Acetaminophen given within 4 hrs: **Ibuprofen** 200-400 mg PO.
- \* Pediatric:
  - \* Acetaminophen NOT given within 4 hrs:  
**Acetaminophen** Elixir 15 mg/kg PO.
  - \* Acetaminophen given within 4 hrs: **Ibuprofen** Elixir 10 mg/kg PO.

Link to research articles (QR code on right): <http://1drv.ms/1ADy1F1>

Citations:



**Protocol 4-110 - Hypertension****BLS - EMR**

- \* Calm and reassure the patient.
- \* Identify possible causes.
- \* Consider **Oxygen** if SpO<sub>2</sub> less than 88%.
- \* Monitor pulseoximetry.
- \* Apply cardiac monitor limb leads.
- \* Obtain vital signs.
- \* Dim lights. Avoid loud noises and rough transport.
- \* Transport with Head slightly elevated.
- \* **Pregnant:**
  - \* Inspect for active bleeding / crowning. Determine amount of blood loss.
  - \* Consider transport in left lateral recumbent position to reduce risk of Vena Cava compression.

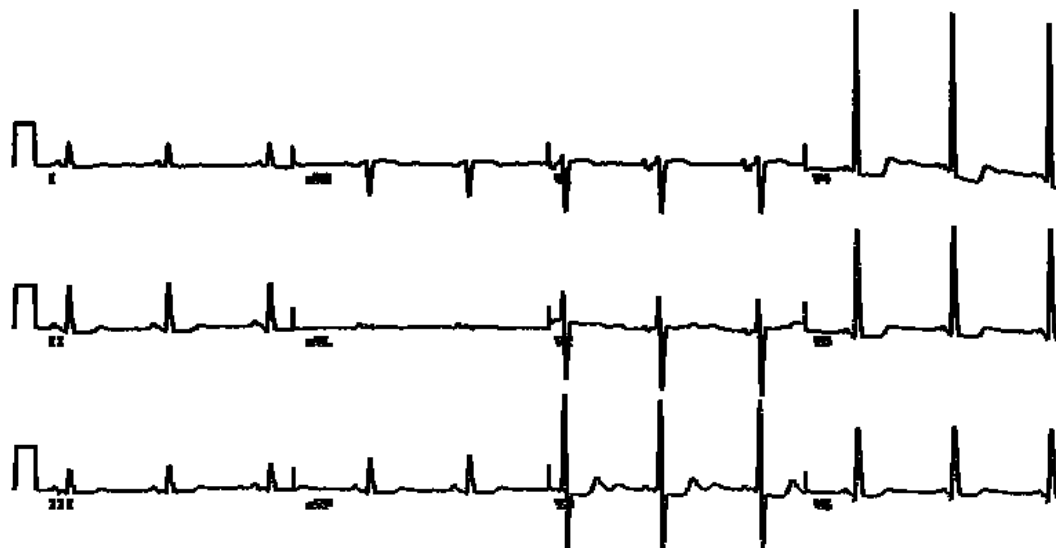
**BLS - EMT**

- \* Ensure completion of applicable EMR items above.

**ALS - Paramedic**

- \* Ensure completion of all applicable BLS items on the left.
- \* IV/IO NS.
- \* **Diastolic greater than 115 with Nausea, ALOC, blurred vision, Headache, or Chest Pain: Contact MEDICAL CONTROL for:**
  - \* **Adult:**
    - + Consider **Labetalol** 20 mg over 2 min IV/IO.
    - + Consider **Hydralazine** 10-20 mg IV/IO/IM.
    - + Consider **Nitroglycerin** sublingual.
    - + Consider **Nitroglycerin** drip IV/IO.
  - \* **Pediatric:**
    - + Consider **Labetalol** 0.4-1 mg/kg/hr IV/IO.
    - + Consider **Hydralazine** 0.1-0.2 mg/kg (max 20 mg) IV/IO/IM.
- \* **Pregnant:**
  - \* **Actively seizing: Magnesium Sulfate** 4 g IM/IV/IO (IV/IO over 5 min) and refer to Protocol 4-170 - Seizures (page 56).
  - \* **Contact MEDICAL CONTROL for:**
    - + Consider **Magnesium Sulfate** 4-6 g IV/IO over 20 min or 2 g/hr.
    - + Consider **Labetalol** 20 mg IV/IO over 2 min.
    - + Consider **Hydralazine** 10-20 mg IV/IO/IM.
- \* Do not reduce Mean Arterial Pressure (MAP) lower than 20% of the original.
- \*  $(MAP) = (Diastolic) + \frac{(Systolic) - (Diastolic)}{3}$

Link to research articles (QR code on right): <http://1drv.ms/1BRri1i>  
Citations:



## Protocol 4-120 - Hypoglycemia

### BLS - EMR

- \* Identify possible causes.
- \* Consider **Oxygen** if SpO<sub>2</sub> less than 88%.
- \* Monitor pulseoximetry.
- \* Consider: Consider cardiac monitor limb leads.
- \* Obtain vital signs.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.
- \* Perform **Glucose check**.
  - \* Glucose less than 70 mg/dl: Conscious and able to swallow: ORAL **Glucose** 15 g PO.
- \* Have patient **eat** after treatment.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* Glucose less than 40 mg/dl, Unconscious, and/or unable to swallow: ALS patient.
- \* IV/IO NS.
- \* Adult: Glucose less than 70 mg/dl:
  - \* **Thiamine** 100 mg IM. If given IV, infuse in NS over 30 min.
  - \* **Dextrose** (D50W, D25W, or D10W) 25 g IV.
  - \* If unable to obtain IV: **Glucagon** 1 mg IM/SQ.
- \* Pediatric: Glucose less than 40 mg/dl:
  - \* **Dextrose** (D25W) 0.5-1 g/kg IV/IO (repeat as needed). 5 ml D50W + 5 ml NS = 2.5 g D25W.
  - \* If unable to obtain IV: **Glucagon** 0.5 mg IM/SQ.
- \* Neonate: **Dextrose** (D10W) 0.5-1 g/kg IV/IO (repeat as needed). 2 ml D50W + 8 ml NS = 1 g D10W.
- \* **Contact MEDICAL CONTROL prior to PRC if:**
  - \* Any ALS intervention has been performed.
  - \* Oral hypoglycemic in patient med list.
  - \* Long acting insulin in patient med list.
  - \* Treated with Glucagon.
  - \* IO inserted (should not be PRC'd).

Link to research articles (QR code on right): <http://1drv.ms/1BRrmxV>

Citations:





**Protocol 4-130 - Neonatal Resuscitation****BLS - EMR**

- ✱ Confirm ABCs.
- ✱ Establish and maintain Airway.
- ✱ Suction thoroughly.
- ✱ Use **BVM** on room air unless you suspect hypoxic event. Maintain SpO<sub>2</sub> according to chart below.
  - ✱ Targeted Pre-Ductal SpO<sub>2</sub> After Birth:
    - ✱ 1 min = 60-65%
    - ✱ 2 min = 65-70%
    - ✱ 3 min = 70-75%
    - ✱ 4 min = 75-80%
    - ✱ 5 min = 80-85%
    - ✱ 10 min = 85-95%
- ✱ Apply cardiac monitor limb leads.
- ✱ Monitor pulseoximetry.
- ✱ Maintain warmth of infant.

**BLS - EMT**

- ✱ Ensure completion of applicable EMR items above.
- ✱ Assist ALS with **Capnography**.
- ✱ Perform **Glucose check**.
  - ✱ Glucose less than 40 mg/dl: Refer to Protocol 4-120 - Hypoglycemia (page 52).

**ALS - Paramedic**

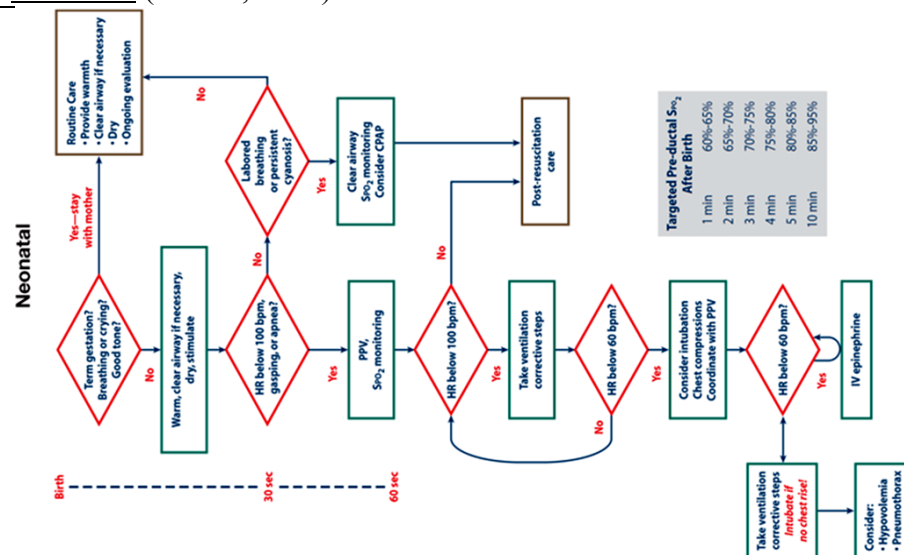
- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ Consider IV/IO/Umbilical **Saline lock**.
- ✱ Meconium present AND infant in distress: **Laryngoscopy** and **Suction** trachea with ET tube.
- ✱ No Meconium present AND infant in distress: **Suction** mouth then nose with Meconium Aspirator or bulb syringe.
- ✱ Position on back.
- ✱ Open Airway.
- ✱ **Stimulate**. Dry with clean towel.
- ✱ No vigorous response: **Intubate**.

| Gestational age (weeks) | ET Size | Depth |
|-------------------------|---------|-------|
| less than 28            | 2.5     | 6-7   |
| 28-34                   | 3.0     | 7-8   |
| 34-38                   | 3.5     | 8-9   |
| greater than 38         | 4.0     | 9-10  |

- ✱ Meconium: Prolonged positive pressure **ventilation** at 40-60/min.
- ✱ HR less than 60: Chest **compressions** at 120/min. Ratio is 3:1.
- ✱ HR remains less than 80 despite BVM and Chest compressions:
  - ✱ **Epinephrine 1:10,000** 0.01-0.03 mg/kg IV/IO.
  - ✱ **OR Epinephrine 1:10,000** 0.05-0.1 mg/kg ET.
  - ✱ No response:
    - ✱ **Epinephrine 1:1,000** 0.05-0.1 mg/kg ET.
- ✱ Consider **Narcan** 0.1 mg/kg IV/IO/IN/IM/SQ/ET.

Link to research articles (QR code on right): <http://1drv.ms/1ADyEyd>

Citations: (Bloom, 2006)



## Protocol 4-140 - Poisoning or Overdose

### BLS - EMR

- \* Consider hazmat. Refer to Protocol 6-055 - Decontamination (page 74).
- \* Identify possible causes.
- \* Identify substance.
- \* Consider **Oxygen** 100%.
  - \* Paraquat Poisoning: Only administer **Oxygen** if SpO<sub>2</sub> less than 88%.
- \* Monitor pulseoximetry.
- \* Apply cardiac monitor limb leads.
- \* Obtain vital signs.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.
- \* Perform **Glucose check**.
  - \* Glucose less than 70 mg/dl: Refer to Protocol 4-120 - Hypoglycemia (page 52).

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* IV/IO NS.
  - \* If suspected intentional Poisoning or Overdose: Mandatory **ALS patient** and pre-hospital **IV access** is required.
- \* Consider **Intubation**.
- \* Beta-Blocker Overdose:
  - \* Refer to Protocol 2-040 - Bradycardia (page 18)..
  - \* **Contact MEDICAL CONTROL for Glucagon**:
    - + Adult: 2-5 mg IV/IO. Repeat at 10 mg if Bradycardia and hypotension recur.
    - + Pediatric: 0.5 mg IV/IO.
- \* Calcium channel blocker Overdose:
  - \* **Contact MEDICAL CONTROL for Calcium Chloride**.
- \* Cyanide Poisoning (structure/vehicle fire smoke inhalation with altered mental status):
  - \* **Decontamination** with water.
  - \* **Cyanokit**:
    - + Adult: 5 g IV/IO over 15 min.
    - + Pediatric: 70 mg/kg IV/IO over 15 min.
- \* Illegal drug Overdose with excited delirium (i.e. Bath Salts): Refer to Protocol 4-040 - Behavioral (page 40).
- \* Narcotic Overdose:
  - \* Adult: **Narcan** 0.2-0.4 mg (max 2 mg) to maintain Airway, SpO<sub>2</sub>, and ETCO<sub>2</sub> IV/IO/IN/IM/SQ.
    - + **OR Narcan** 2 mg in 3 ml NS ET.
  - \* Pediatric: **Narcan** 0.1 mg/kg IV/IO/IN/IM/SQ/ET (max 2 mg).
- \* Organophosphate Poisoning:
  - \* **Decontamination** with water.
  - \* Adult: **Atropine** 1-2+ mg IV/IO. If **Intubation** needed: 6 mg IV/IO.
  - \* Pediatric: **Atropine** 0.02-0.05 mg/kg IV/IO.
  - \* Seizing: Refer to Protocol 4-170 - Seizures (page 56) (**Valium** preferred).
- \* Hydrofluoric acid contact:
  - \* **Decontamination** with water.
  - \* **Contact MEDICAL CONTROL for Calcium Gluconate / KY Jelly** applied to exposed contact area.
- \* **Contact POISON CONTROL: 888-268-4195.**
- \* **Contact MEDICAL CONTROL**.
  - \* If patient can protect their Airway: Consider **Activated Charcoal** 0.5-1 g/kg PO.

Link to research articles (QR code on right): <http://1drv.ms/1BRtd3>

Citations: (Citizens Memorial Hospital, 2014), (Clarke, Dargan, & Jones, 2005), (Cyanokit, 2012)



**Protocol 4-160 - Pre-Term Labor****BLS - EMR**

- \* Consider **Oxygen** if SpO<sub>2</sub> less than 88%.
- \* Inspect for active bleeding / crowning.
- \* Determine amount of blood loss.
- \* Monitor pulseoximetry.
- \* Apply cardiac monitor limb leads.
- \* Obtain vital signs.
- \* Consider orthostatic vital signs.
- \* Consider transport in left lateral recumbent position to reduce risk of Vena Cava compression.

**BLS - EMT**

- \* Ensure completion of applicable EMR items above.

**ALS - Paramedic**

- \* Ensure completion of all applicable BLS items on the left.
- \* IV/IO NS.
- \* NS 500-1000 ml bolus.

Link to research articles (QR code on right): <http://1drv.ms/1ADz8o8>

Citations:



## Protocol 4-170 - Seizures

### BLS - EMR

- \* Ensure open Airway.
- \* Identify possible **causes**.
- \* Clear area to decrease chance of injury.
- \* Consider **Oxygen** if SpO<sub>2</sub> less than 88%.
- \* Monitor pulseoximetry.
- \* Apply cardiac monitor limb leads.
- \* Obtain vital signs.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.
- \* Perform **Glucose check**.
  - \* Glucose less than 70 mg/dl: Refer to Protocol 4-120 - Hypoglycemia (page 52).

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* IV/IO NS.
- \* Actively seizing:
  - \* Adult:
    - + **Valium** 5-10 mg (max 30 mg) IV/IO.
      - ✗ OR **Ativan** 4 mg (max 8 mg) IV/IO.
      - ✗ OR **Versed** 2.5-5 mg IV/IO/IN.
      - ✗ OR **Valium** 2.5-5 mg IN.
      - ✗ OR **Versed** 10 mg IM.
    - + Pregnant hypertension: Refer to Protocol 4-110 - Hypertension (page 51)
  - \* Pediatric (5-18 yr):
    - + **Valium** 1 mg (max 10 mg) IV/IO.
      - ✗ OR **Valium** 0.3 mg/kg (max 20 mg) PR.
      - ✗ OR **Ativan** 0.07 mg/kg over 5 min IV/IO. May repeat in 15 min (max 8 mg).
      - ✗ OR **Versed** 5 mg IM.
      - ✗ OR **Versed** IV/IO/IN.
        - \* Over 12 yrs: Same as adult.
        - \* Between 6 yrs and 12 yrs: 0.05 mg/kg.
        - \* Under 6 yrs: 0.05-0.1 mg/kg.
  - \* Pediatric (6 mo-5 yr):
    - + **Valium** 0.2-0.5 mg/kg (max 5 mg) IV/IO.
      - ✗ OR **Valium** 0.5 mg/kg (max 20 mg) PR.
      - ✗ OR **Ativan** 0.1 mg/kg over 5 min IV/IO. May repeat half dose in 15 min.
      - ✗ OR **Versed** 0.05-0.1 mg/kg IV/IO/IN.
  - \* Pediatric (0-6 mo):
    - + **Valium** 0.1-0.3 mg/kg over 5 min (max 2 mg).
    - ✗ OR **Ativan** 0.05 mg/kg over 5 min IV/IO. May repeat in 15 min.
  - \* **Contact MEDICAL CONTROL for: Valium, Versed, or Ativan higher dose.**
- \* Use RSI with caution in Seizure patients. Paralysis only masks the manifestation of Seizure.
- \* Continued sedation for intubated patient: **Ativan** 1 mg.

Link to research articles (QR code on right): <http://1drv.ms/1ADzj2x>

Citations: (Bhattacharyya, Kalra, & Gulati, 2006), (Holsti, et al., 2007), (Silbergleit, et al., 2012)



**Protocol 4-180 - Vaginal Bleeding****BLS - EMR**

- \* Consider **Oxygen** 100%.
- \* Inspect for active bleeding / crowning.
- \* Determine amount of blood loss.
- \* Monitor pulseoximetry.
- \* Consider: Apply cardiac monitor limb leads.
- \* Obtain vital signs.
- \* Consider treating for shock.
- \* Post partum:
  - \* Massage the fundus.
  - \* Have mother breastfeed.
- \* Consider orthostatic vital signs.
- \* Consider transport in left lateral recumbent position to reduce risk of Vena Cava compression.

**BLS - EMT**

- \* Ensure completion of applicable EMR items above.

**ALS - Paramedic**

- \* Ensure completion of all applicable BLS items on the left.
- \* IV/IO NS titrated to blood pressure.
- \* Post partum:
  - \* Rapidly infuse IV/IO fluids.
  - \* Contact **medical control** for: Consider **Oxytocin** 10-20 u in 1,000 ml NS. Run wide open.

Link to research articles (QR code on right): <http://1drv.ms/1ADzzih>  
Citations:



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## Part 5 - Trauma Protocols

### Protocol 5-020 - Abdominal Trauma

#### BLS - EMR

- \* Consider **SMR**.
- \* Assist ventilations as needed.
- \* Consider **Oxygen** 100%.
- \* Control bleeding / bandage / splint / stabilize impaled objects as required.
- \* Monitor pulseoximetry.
- \* Apply cardiac monitor limb leads.
- \* Obtain vital signs.
- \* Maintain body temperature.
- \* Moist, sterile **dressings** for eviscerations.
- \* Abdominal crush injury: Immediate release and rapid transport.

#### BLS - EMT

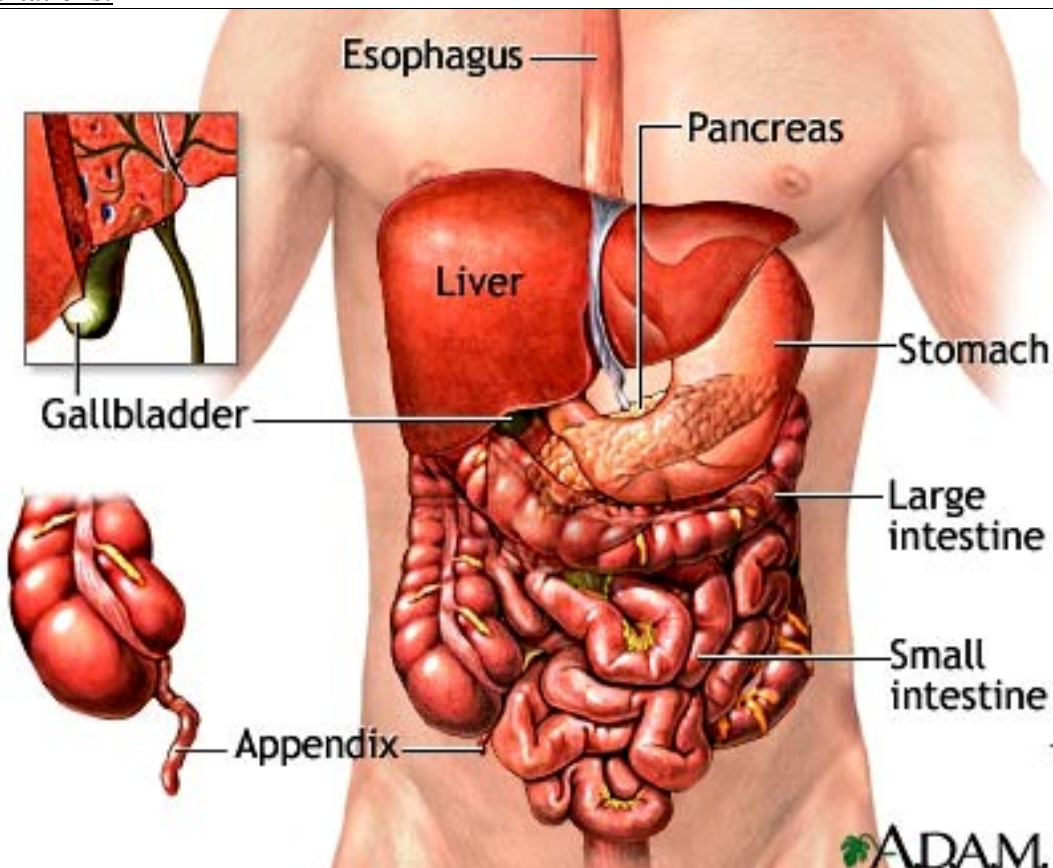
- \* Ensure completion of applicable EMR items above.

#### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* **IV/IO LR** titrated to SBP greater than 80.
- \* **Intubate** as necessary.
- \* Pain: Refer to Protocol 6-050 - Control of Pain (page 73).
- \* Nausea: Refer to Protocol 6-040 - Control of Nausea (page 72).
- \* Adult:
  - \* Consider **TXA** 1 g in 100 ml NS over 10 min if all of the following:
    - + Major injury AND
    - + Signs of shock (SBP less than 90 OR HR greater than 115 that is persistent after at least 1 L fluid bolus) AND
    - + Recent injury (less than 3 hrs ago).
- \* Pediatric:
  - \* Consider **MEDICAL CONTROL**.

Link to research articles (QR code on right): <http://1drv.ms/1BRrDks>

Citations:





## Protocol 5-030 - Burns

### BLS - EMR

- \* Stop the burning process.
- \* Assist **ventilations** as needed.
- \* Consider **Oxygen** 100%.
- \* Control bleeding / bandage.  
Consider **saran wrap**.
- \* Monitor pulseoximetry.
- \* Consider: Apply cardiac monitor limb leads.
- \* Obtain vital signs.
- \* Remove all jewelry.
- \* Keep patient warm.
- \* Consider direct transport to Burn Unit if:
  - \* 2nd degree burn greater than 10%,
  - \* 3rd degree burn of any size,
  - \* Critical area burned (hands, feet, face, genitals),
  - \* Electrical or chemical burn,
  - \* Inhalation burn,
  - \* Trauma, OR
  - \* Pediatric.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.

### ALS - Paramedic

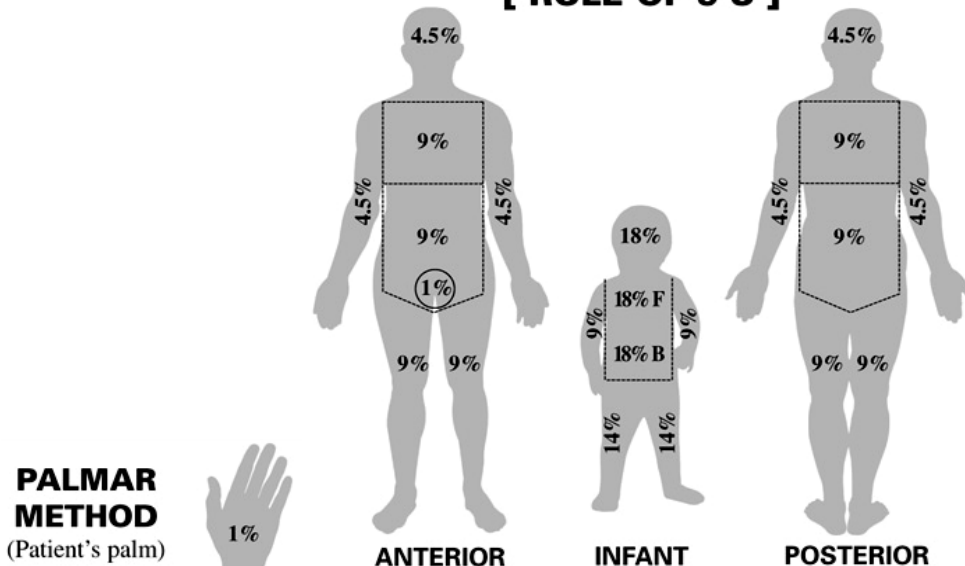
- \* Ensure completion of all applicable BLS items on the left.
- \* IV/IO **LR** titrated to SBP greater than 90.
  - \* Adult (greater than 13 yr): 500 ml/hr.
  - \* Pediatric (6-13 yr): 250 ml/hr.
  - \* Pediatric (less than 6 yr): 125 ml/hr.
- \* **Intubate** as necessary.
  - \* Consider **RSI** if any of the following:
    - + Carbonaceous sputum,
    - + Deep facial burns,
    - + Hoarse voice,
    - + Brassy cough, OR
    - + Rhonchi / rales / crackles.
  - \* Be alert for Airway Burns.
  - \* King Airway contraindicated
  - \* ET 7.5 or larger desired.
- \* **Pain:** Refer to Protocol 6-050 - Control of Pain (page 73).
- \* **Nausea:** Refer to Protocol 6-040 - Control of Nausea (page 72).
- \* **Smoke inhalation with altered mental status:** Refer to Protocol 4-140 - Poisoning or Overdose (page 54).

Link to research articles (QR code on right): <http://1drv.ms/1EKDuAb>

Citations: (Boland, Satterlee, & Jansen, 2014), (Finn, et al., 2004), (Mercy Burn Center, 2014)



### [ RULE OF 9'S ]





**Protocol 5-040 - Chest Trauma****BLS - EMR**

- \* Consider **SMR**.
- \* Assist ventilations as needed.
- \* Consider **Oxygen** 100%.
- \* Control bleeding / bandage / splint / stabilize impaled objects as required.
- \* Monitor pulseoximetry.
- \* Apply cardiac monitor limb leads.
- \* Obtain vital signs.
- \* Consider: Apply 3-sided **Occlusive dressing** to open wounds.
- \* **Chest crush injury**: Immediate release and rapid transport.

**BLS - EMT**

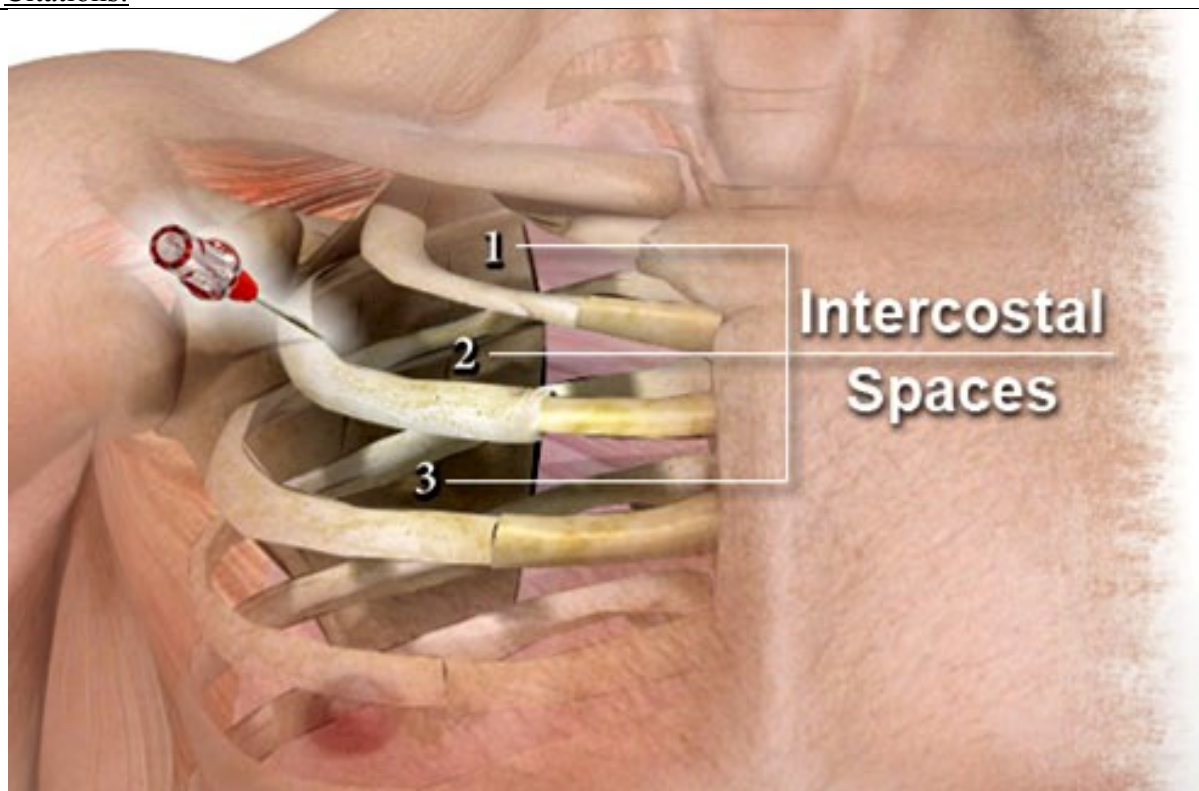
- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.
- \* **Flail Chest**: Stabilize.
  - \* **Adult**: Consider assisting ALS with **CPAP**.

**ALS - Paramedic**

- \* Ensure completion of all applicable BLS items on the left.
- \* **IV/IO LR** titrated to SBP greater than 80.
- \* **Intubate** as necessary.
- \* Consider **Chest Decompression** (at 2nd intercostal space, mid-clavicular line) if respiratory compromise and suspect tension pneumothorax.
- \* **Pain**: Refer to Protocol 6-050 - Control of Pain (page 73).
- \* **Nausea**: Refer to Protocol 6-040 - Control of Nausea (page 72).
- \* **Adult**:
  - \* Consider **TXA** 1 g in 100 ml NS over 10 min if all of the following:
    - + Major injury AND
    - + Signs of shock (SBP less than 90 OR HR greater than 115 that is persistent after at least 1 L fluid bolus) AND
    - + Recent injury (less than 3 hrs ago).
- \* **Pediatric**:
  - \* Consider **MEDICAL CONTROL**.

Link to research articles (QR code on right): <http://1drv.ms/1EKDCzK>

Citations:



## Protocol 5-050 - Extremity Trauma

### BLS - EMR

- \* Consider **SMR**.
- \* Assist ventilations as needed.
- \* Consider **Oxygen** 100%.
- \* Control bleeding / bandage / splint / stabilize impaled objects as required.
  - \* Splint in position of comfort.
  - \* Open fracture: Cover with sterile Saline dressings.
- \* Consider **Tourniquet**.
- \* Elevate.
- \* Assess distal neurovascular status.
- \* Consider **cold pack**.
- \* Monitor pulseoximetry.
- \* Consider: Apply cardiac monitor limb leads.
- \* Obtain vital signs.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.

### ALS - Paramedic


- \* Ensure completion of all applicable BLS items on the left.
- \* No crush injury: IV/IO **LR** titrated to SBP greater than 80.
- \* **Intubate** as necessary.
- \* Pain: Refer to Protocol 6-050 - Control of Pain (page 73).
- \* Nausea: Refer to Protocol 6-040 - Control of Nausea (page 72).
- \* Adult:
  - \* Consider **TXA** 1 g in 100 ml NS over 10 min if all of the following:
    - + Major injury AND
    - + Signs of shock (SBP less than 90 OR HR greater than 115 that is persistent after at least 1 L fluid bolus) AND
    - + Recent injury (less than 3 hrs ago).
- \* Pediatric:
  - \* **Consider MEDICAL CONTROL.**
- \* Extremity crush injury (suspected compartment and/or crush syndrome if Extremity pinned for 15 minutes to 6 hours depending on weight and other factors):
- \* IV/IO NS. Two large bore IVs wide open.
- \* **Contact MEDICAL CONTROL:**
  - + **Consider Tourniquet.**
    - ✗ (To limit acid and Potassium release).
  - + Consider NS 2 L prior to release, then 500 ml/hr after.
  - + Consider **Sodium Bicarbonate** 1 mEq/kg (max 100 mEq) IV/IO prior to release, then add 100 mEq to 1 L NS and drip at 100 ml/hr.
    - ✗ (To alkalize blood and urine).
  - + Consider **Calcium Chloride** 1g IV/IO over 10-15 min. Do not mix with Sodium Bicarbonate.
    - ✗ (To decrease cell membrane permeability).
  - + Consider **Albuterol** neb high dose (10-20 mg).
    - ✗ (To lower Potassium).
  - + Consider **Dextrose** IV/IO.
    - ✗ (To facilitate insulin administration in ER).

Link to research articles (QR code on right): <http://1drv.ms/1EKDJuY>

Citations: (Cain, 2008), (Citizens Memorial Hospital, 2014), (Composite Resources, Inc), (Doyle & Taillac, 2008), (Flores, 2012), (Kragh, et al., 2008), (Niven & Castle, 2010), (Richey, 2007)



**Protocol 5-060 - Eye Injury**

|  |   |
|--|---|
| <p><b><u>BLS - EMR</u></b></p> <ul style="list-style-type: none"> <li>* Consider <b>Oxygen</b> if SpO<sub>2</sub> less than 88%.</li> <li>* Control bleeding / bandage / stabilize impaled objects as required.</li> <li>* Monitor pulseoximetry.</li> <li>* Obtain vital signs.</li> <li>* <u>Foreign substance</u>:             <ul style="list-style-type: none"> <li>* <u>Non-penetrating injuries</u>: Flush Eye with at least 1 L NS over 20 min.</li> </ul> </li> </ul> <p><b><u>BLS - EMT</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of applicable EMR items above.</li> </ul> | <p><b><u>ALS - Paramedic</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of all applicable BLS items on the left.</li> <li>* Consider IV/IO <b>Saline lock</b>.</li> <li>* <u>Trauma</u>:             <ul style="list-style-type: none"> <li>* Cover open wounds.</li> <li>* Do not apply pressure to Eye.</li> <li>* <b>Cover</b> both eyes.</li> </ul> </li> <li>* <u>Foreign substance</u>:             <ul style="list-style-type: none"> <li>* Consider <b>Tetracaine</b> 1-2 drops in affected Eye.</li> <li>* <u>Non-penetrating injuries</u>: Flush Eye with at least 1 L NS over 20 min.                 <ul style="list-style-type: none"> <li>✚ Consider <b>Morgan Lens</b>.</li> </ul> </li> </ul> </li> <li>* <u>Pain</u>: Refer to Protocol 6-050 - Control of Pain (page 73).</li> <li>* <u>Nausea</u>: Refer to Protocol 6-040 - Control of Nausea (page 72).</li> </ul> <hr/> <ul style="list-style-type: none"> <li>* <u>Pediatric</u>:             <ul style="list-style-type: none"> <li>* Consider <b>MEDICAL CONTROL</b>.</li> </ul> </li> </ul> |
| <p>Link to research articles (QR code on right): <a href="http://1drv.ms/1EKDYGu">http://1drv.ms/1EKDYGu</a></p> <p><u>Citations</u>:</p>  |   |

## Protocol 5-070 - Head Trauma

### BLS - EMR

- \* Consider **SMR**.
- \* Assist ventilations as needed.
- \* Consider **Oxygen** 100%.
- \* Control bleeding / bandage / splint / stabilize impaled objects as required.
- \* Monitor pulseoximetry.
- \* Apply cardiac monitor limb leads.
- \* Obtain vital signs.
- \* Elevate Head of cot.
- \* Head crush injury: Immediate release and rapid transport.
- \* Maintain body temperature between 91 and 99 degrees F.

### BLS - EMT

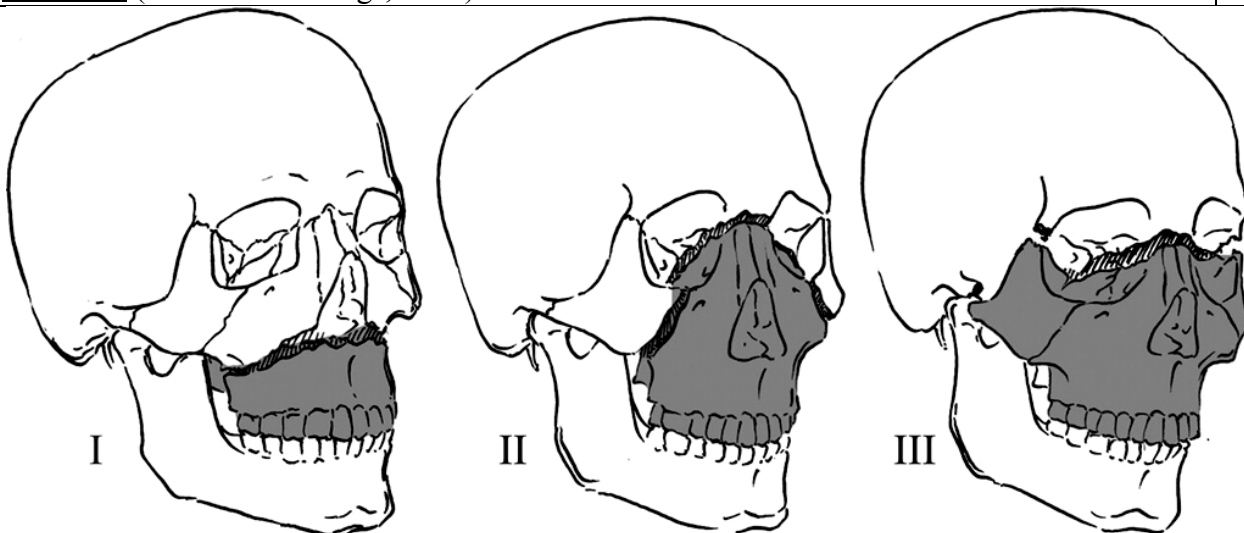
- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography**.
- \* GSC less than 9 or unequal pupils: Maintain  $\text{ETCO}_2$  at 40-45.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* IV/IO NS 20 ml/kg (max 40 ml/kg or 2 L) titrated to maintain SBP according to age:
  - \* Greater than 10 yr: Greater than 90 SBP.
  - \* 1-10 yr: Greater than  $70 + (2 \times \text{age})$  SBP.
  - \* 1-12 mo: Greater than 70 SBP.
  - \* 0-28 days: Greater than 60 SBP.
- \* GCS less than 8 OR Cushing's Triad (abnormal breathing AND bradycardia AND hypertension): Consider **RSI**.
- \* Adult:
  - \* **Lidocaine** 1.5 mg/kg IV/IO prior to **Intubation**.
  - \* Consider **Fentanyl** 50-100 mcg every 5-20 min (max 300 mcg) IV/IO/IN. Over 65 yr old: 0.5-2 mcg/kg.
  - \* Nausea: Consider **Zofran** 4mg IV/IM/IN (max 8 mg).
- \* Pediatric:
  - \* **Lidocaine** 1 mg/kg IV/IO prior to **Intubation**.
  - \* Age less than 3 yrs: **Atropine** 0.02 mg/kg (min 0.1 mg) IV.
  - \* Consider **Fentanyl** 1-2 mcg/kg may repeat (max 150 mcg) IV/IO/IN. (Morphine is contraindicated for Head injury.)
- \* **Contact MEDICAL CONTROL.**

Link to research articles (QR code on right): <http://1drv.ms/1EKEdkX>

Citations: (Flower & Hellings, 2012)



**Protocol 5-080 - Spinal Trauma****BLS - EMR**

- \* **SMR.**
- \* Assist ventilations as needed.
- \* Consider **Oxygen** 100%.
- \* Control bleeding / bandage / splint / stabilize impaled objects as required.
- \* Monitor pulseoximetry.
- \* Consider: Apply cardiac monitor limb leads.
- \* Obtain vital signs.

**BLS - EMT**

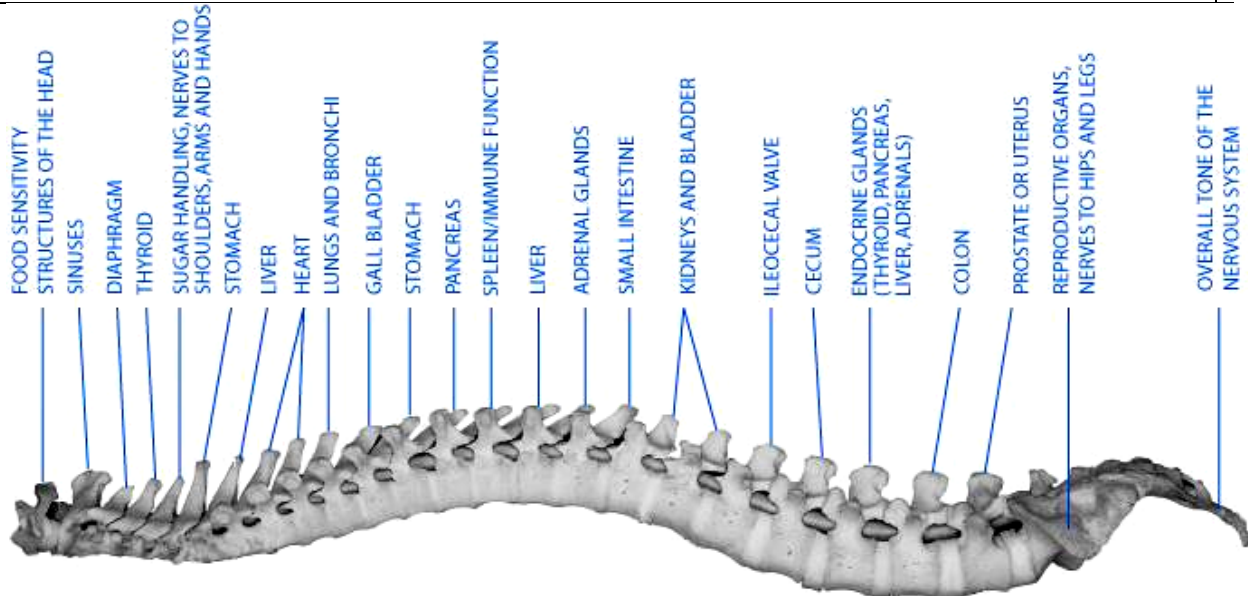
- \* Ensure completion of applicable EMR items above.

**ALS - Paramedic**

- \* Ensure completion of all applicable BLS items on the left.
- \* IV/IO **LR** titrated to SBP greater than 80.
- \* **Intubate** as necessary. Consider **RSI**.
- \* **Pain:** Refer to Protocol 6-050 - Control of Pain (page 73).
- \* **Nausea:** Refer to Protocol 6-040 - Control of Nausea (page 72).
- \* **Pediatric:**
- \* **Consider MEDICAL CONTROL.**

Link to research articles (QR code on right): <http://1drv.ms/1EKEmoj>

Citations:



## Protocol 5-090 - Trauma Arrest

### BLS - EMR

- \* Confirm pulselessness and apnea.
- \* Attempt to determine down-time, and history.
- \* **SMR.**
- \* **Begin CPR.**
  - \* Push hard and fast at 100/min.
  - \* Minimize compression interruptions.
  - \* Rotate compressors every 2 minutes at rhythm check or as soon as practical.
- \* Establish and maintain Airway and Ventilate 100% **Oxygen.**
  - \* Establish BLS **Airway.**
  - \* Compressions : Ventilations ratio = 30:2 unless intubated, then 8-10 breaths per min.
  - \* Avoid hyperventilation.
- \* **Control bleeding, bandage, splint** as required.
- \* Monitor pulseoximetry.
- \* Apply cardiac monitor **Combo Pads** and limb leads.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.
- \* Assist ALS with **Capnography.**

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* **IV/IO LR** wide open (x2 large bore).
- \* Consider **Intubation.**
- \* Treat rhythm per protocol.
- \* **Bilateral Chest Decompression** if Chest trauma etiology.
- \* **Adult:** Field termination may be requested from **MEDICAL CONTROL** regardless of how long **ACLS** efforts have been underway.
- \* **Pediatric:** Contact **MEDICAL CONTROL.**
  - \* **Immediate transport.**

Link to research articles (QR code on right): <http://1drv.ms/1EKESMT>

Citations:





## Part 6 - General Protocols

### Section 6-010 - Acquisition of Medical Control

|   |   |
|---|---|
| <p><b><u>BLS - EMR</u></b></p> <ul style="list-style-type: none"> <li>* Medical control is the responsibility of the <b>CMH/EMH Paramedic</b>. The only exception is to obtain a PRC by a BLS-only crew.</li> </ul> | <p><b><u>ALS - Paramedic</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of all applicable BLS items on the left.</li> <li>* Medical control shall only be provided by a <b>Physician</b>. Medical control shall not be accepted from nurses, nurse practitioners, Physician assistants, midwives, or any Physician extenders.</li> <li>* Medical control shall be provided by <b>receiving hospital</b>. If contact cannot be made, CMH Emergency Room will be the default medical control for CMH ambulances and EMH Emergency Room will be the default medical control for EMH ambulances.</li> <li>* When transporting from another facility and treatment that deviates from protocol is suggested by transferring Physician, Paramedic should contact receiving MEDICAL CONTROL in the ambulance to verify orders.</li> <li>* If medical control cannot be contacted, protocols should be utilized as <b>standing orders</b> including those designated as requiring medical control. Medical control should be contacted as soon as possible and attempts at contact shall be documented.</li> <li>* If an on-scene Physician gives orders, Paramedic shall require credential evidence and the requesting Physician must accompany the patient in transport to the receiving facility. This process should not be considered if the Physician does not have the appropriate medical sub-specialties as determined by the Paramedic.</li> </ul> |
| <p><b><u>BLS - EMT</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of applicable EMR items above.</li> </ul>   |   |

|                   |                                 |              |
|-------------------|---------------------------------|--------------|
| Appleton City     | Ellett Memorial Hospital        | 660-476-2111 |
| Bolivar           | Citizens Memorial Healthcare    | 417-328-6301 |
| Butler            | Bates County Memorial Hospital  | 660-200-7000 |
| Carthage          | McCune Brooks Regional Hospital | 417-358-8121 |
| Clinton           | Golden Valley Memorial Hospital | 660-885-6690 |
| Columbia          | Boone County Hospital           | 573-815-8000 |
| Columbia          | University Hospital             | 573-882-8091 |
| Columbia          | Veterans Hospital               | 573-814-6000 |
| El Dorado Springs | Cedar County Memorial Hospital  | 417-876-2511 |
| Ft Leonard Wood   | Ft Leonard Wood Hospital        | 573-596-0803 |
| Joplin            | Freeman West                    | 417-347-1111 |
| Kansas City       | Veterans Hospital               | 800-525-1483 |
| Lamar             | Barton County Memorial Hospital | 417-681-5100 |
| Lebanon           | Mercy                           | 417-533-6350 |
| Monett            | Cox Monett Hospital             | 417-235-3144 |
| Neosho            | Freeman Neosho Hospital         | 417-451-1234 |
| Nevada            | Nevada Regional Medical Center  | 417-667-3355 |
| Osage Beach       | Lake Regional Health System     | 573-348-8000 |
| Springfield       | Cox North                       | 417-269-3393 |
| Springfield       | Cox South                       | 417-269-4983 |
| Springfield       | Mercy                           | 417-820-2115 |
| Springfield       | Ozarks Community Hospital       | 417-874-4596 |
| St Louis          | Barnes Jewish Hospital          | 314-294-1403 |

Link to research articles (QR code on right): <http://1drv.ms/1Do4yoF>

Citations: (Citizens Memorial Hospital, 2013)



## Section 6-020 - Air Ambulance

### BLS - EMR

- \* Consider Air Ambulance if **ONE** or more of the following are true:
  - \* Ground resources are exhausted.
  - \* Prolonged extrication time (greater than 20 min) is anticipated.
  - \* Road or bridge conditions which prevent ground transport.
  - \* Decreased LOC; GCS less than 10;
  - \* High risk OB patient;
  - \* Active GI bleed;
  - \* Second or third degree burn greater than 20% BSA;
  - \* Acute MI or Chest Pain suggestive of MI;
  - \* Head or spinal trauma with neurological deficits;
  - \* Fall greater than 20 feet;
  - \* Ejection;
  - \* Pedestrian hit by vehicle greater than 20 mph.
- \* Consider Air Ambulance if **TWO** or more of the following are true (also includes ALS list at right):
  - \* MVA with associated fatality(s); SBP less than 90 or greater than 200; Respirations less than 10 or greater than 30; Heart rate less than 60 or greater than 120; Hypo or Hyperthermia; Shortness of breath; Nausea; Diaphoresis; Overdose; Pulsating Abdominal mass; Seizure activity; less than 8 yrs or greater than 55 yrs old; CVA or GI bleed; Gross bleeding; Trauma during pregnancy; Positive loss of consciousness; Penetrating injury; Injuries to Head, neck, Chest, abdomen or extremities.
- \* Request for Air Ambulance should be made as early as possible. Can be made while en route.
- \* Do not ask dispatch for flight availability or to put aircraft on "standby." Requesting a lift is the only option.
- \* Request for Air Ambulance should be made through dispatch.
- \* Once en route, the request can only be canceled by EMS or rescue personnel on scene.
- \* Prepare a safe **landing zone**. Utilize local law enforcement and fire department.
- \* Final decision to accept a mission is the responsibility of the pilot.
- \* Patient requests for specific aircraft and destinations should be discussed with air crew.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* Consider Air Ambulance if **ONE** or more of the following are true:
  - \* Uncontrollable cardiac dysrhythmias;
  - \* Airway control intervention;
- \* Consider Air Ambulance if **TWO** or more of the following are true (also includes BLS list at left):
  - \* External Pacing in progress;
  - \* Medication administration requiring an infusion pump;

Link to research articles (QR code on right): <http://1drv.ms/1EKf4SD>  
Citations: (Citizens Memorial Hospital, 2013)

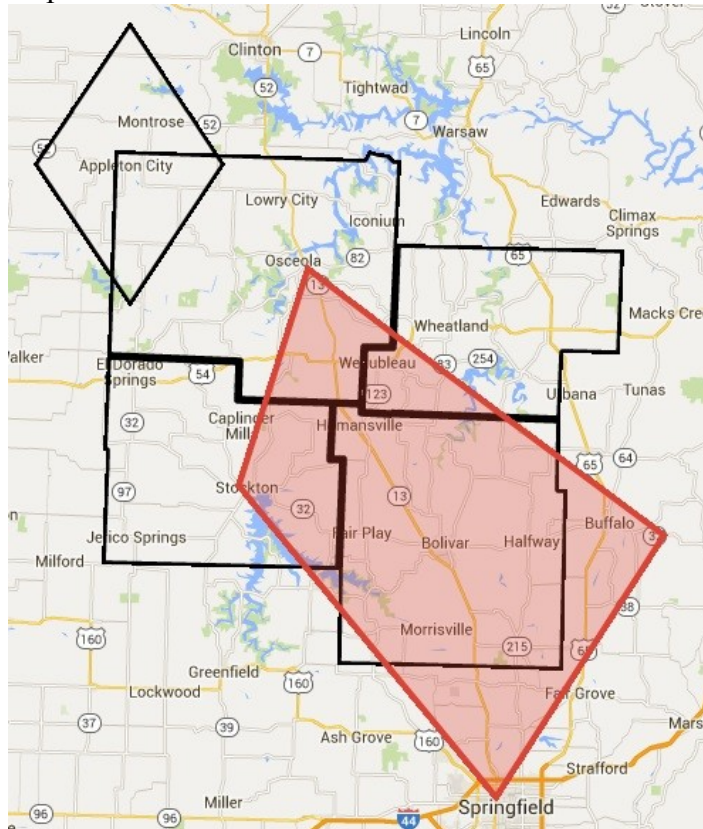




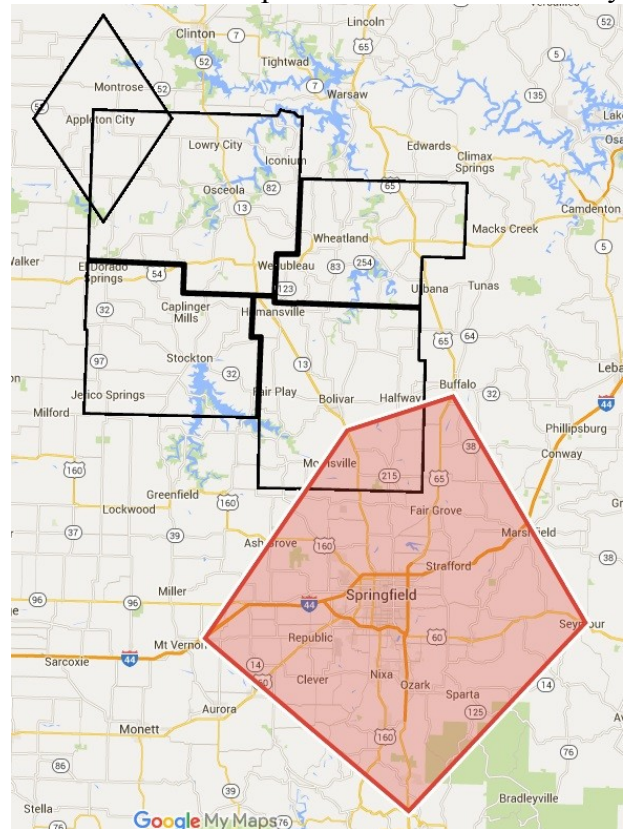
**Section 6-021 - No Fly Zone**

If you are within 35 minutes drive time from the destination, it is faster to drive by ground than request an aircraft.

Map of 35 minutes from CMH



Map of 35 minutes from Mercy



## Protocol 6-025 - Cardiopulmonary Resuscitation (CPR)

### BLS - EMR

- \* Confirm pulselessness and apnea.
- \* Consider **AED** or **LifePak** in AED mode..
  - \* If using **AED**, turn **AED** on and follow instructions.
- \* Perform **Compressions**.
  - \* Consider **Chest Compressor**.
  - \* Minimize interruptions.
  - \* Use CPR metronome set at 110/min, if available or count out loud.
  - \* No advanced airway in place:
    - + **Compressions** at 30:2 ratio at 110/min.
    - \* Witness arrest with shock able rhythm:  
Perform continuous **compressions** at 110/min with passive **Oxygen** and basic airway adjunct for 3 cycles.
    - + Rotate compressors every 2 minutes.
  - \* Advanced airway in place:
    - + Continuous **Compressions** at 110/min.
    - + Rotate compressors every 200 compressions.
- \* Attach monitor **Combo Pads** and limb leads.
- \* Attach pulseox.
- \* Attempt to determine down-time, history, and DNR status.
- \* Insert **OPA** or **NPA**.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.
- \* Prepare IV/IO and any requested medications from ALS.
- \* Consider **KING** or **LMA AIRWAY**.
- \* Attach **Capnography**.
- \* Check **Glucose**.
- \* Prepare for termination or transport.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* Every 2 minutes, **Charge** monitor in anticipation of shock able rhythm.
  - \* Adult: 360 J (OR consider biphasic dose of 200 J).
  - \* PEDIATRIC: 4 J/kg
  - \* During pause in compressions, **Defibrillate** or **Dump Charge**.
- \* Consider immediate Intubation without interruption of compressions to facilitate continuous compressions.
- \* Start IV/IO with **Fluid Bolus**.
- \* **Epinephrine 1:10,000** IV/IO every 3-5 min.
  - \* Adult: 1 mg.
  - \* Pediatric: 0.01 mg/kg.
- \* Consider **Atropine** 1 mg for Bradycardia every 3-5 min.
- \* Consider **Sodium Bicarbonate** 1 mEq/kg for acidosis.
- \* Consider **Lidocaine** 1 mg/kg for Ventricular Ectopy.
  - \* OR **Amiodarone** 300 mg.
- \* Consider **Pacing**.
- \* Consider **Dextrose** for Hypoglycemia.
- \* Consider **Narcan** for Overdose.
- \* Perform **Physical Exam**.
- \* Begin termination/transportation conversation.
  - \* Consider full ACLS efforts for adult, non-trauma, non-poisoning arrest patients for 20 minutes prior to movement.
  - \* Refer to Section 6-140 - Termination of Resuscitation (page 86).

Link to research articles (QR code on right): <http://1drv.ms/1EKFOke>

Citations: (Taney County Ambulance District, 2014), (Wake County EMS System, 2010)



**Section 6-030 - Competencies and Education****BLS - EMR**

- \* Each year, a list of competency requirements will be compiled from input from Quality program, medical control, staff, and first responder agencies.
- \* Competencies will routinely be comprised of five different topics offered every other even month (excluding December). Additional classroom and/or skill Competencies may be required based on community and professional development needs.
- \* Competency schedule will be posted and announced at least 30 days ahead. For each competency, at least one date in each county will be provided.
  - \* First responder agencies may deliver the competency locally with the approval of CMH EMS.
- \* Annually, each EMR shall successfully complete at least one BLS competency with at least a **90% pass rate**.

**BLS - EMT**

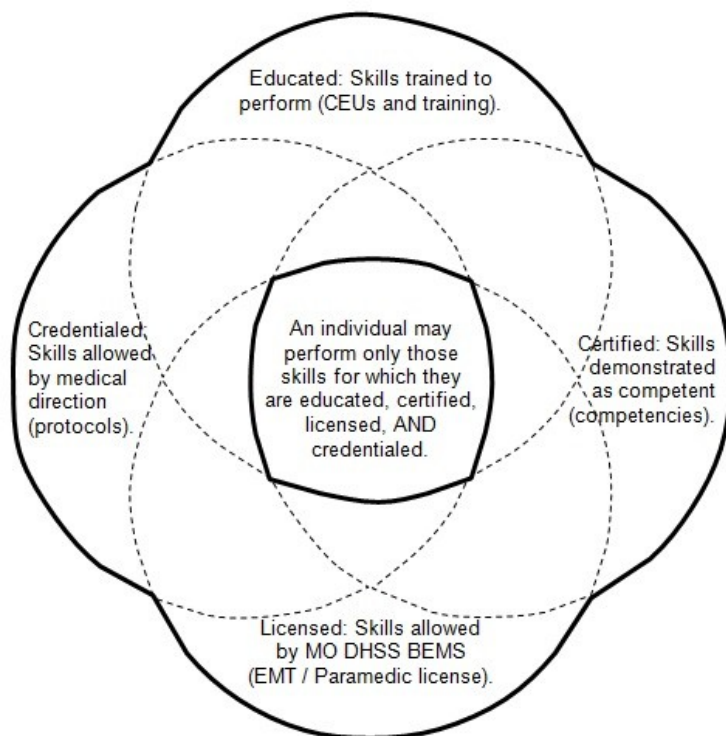
- \* Ensure completion of applicable EMR items above.
- \* Annually, each volunteer EMT shall successfully complete at least two BLS Competencies with at least a **90% pass rate**.
- \* Annually, each paid (career fire department, CMH, or EMH) shall:
  - \* Successfully complete all BLS Competencies with at least **90% pass rate**.
  - \* Successfully complete at least one RSI Simulation Scenario with a high-fidelity manikin.

**ALS - Paramedic**

- \* Ensure completion of all applicable BLS items on the left.
- \* Annually, each Paramedic shall:
  - \* Successfully complete all BLS and ALS Competencies with at least a **90% pass rate**.
  - \* Successfully complete at least one RSI Simulation Scenario.
  - \* Successfully intubate two live persons with an anesthesiologist during surgery rotation.

Link to research articles (QR code on right): <http://1drv.ms/1EKFAQH>

Citations: (Citizens Memorial Hospital, 2013), (National Highway Traffic Safety Administration, 2007)




## Protocol 6-040 - Control of Nausea

|  |   |
|--|---|
| <p><b><u>BLS - EMR</u></b></p> <ul style="list-style-type: none"> <li>* Identify possible causes.</li> <li>* Consider <b>Oxygen</b> if SpO<sub>2</sub> less than 88%.</li> <li>* Monitor pulseoximetry.</li> <li>* Apply cardiac monitor limb leads.</li> <li>* Obtain vital signs.</li> </ul> | <p><b><u>ALS - Paramedic</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of all applicable BLS items on the left.</li> <li>* IV/IO NS or LR.</li> <li>* Note: Antiemetic medications are not to be used as a prophylactic to prevent possible nausea.</li> </ul> <hr/> <p>* <u>Adult (greater than 27 kg):</u></p> <ul style="list-style-type: none"> <li>* Consider <b>Zofran</b> 4 mg IV/IO/IM/IN (max 8 mg).</li> <li>✚ OR <b>Phenergan</b> 12.5-25 mg IM or IV/IO infused in NS over 15-30 min.</li> </ul> <hr/> <p>* <u>Pediatric (greater than 27 kg):</u> Use adult dosage.</p> <hr/> <p>* <u>Pediatric (greater than 2 yr &amp; less than 27 kg):</u></p> <ul style="list-style-type: none"> <li>* Consider <b>Zofran</b> 0.1-0.2 mg/kg IV/IO/IM/IN (max 8 mg).</li> <li>✚ OR <b>Phenergan</b> 0.25-0.5 mg/kg IM or IV/IO infused in NS over 15-30 min.</li> </ul> <hr/> <p>* <u>Pediatric (less than 2 yr):</u> Zofran and Phenergan contraindicated.</p> |
| <p><b><u>BLS - EMT</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of applicable EMR items above.</li> </ul>  |   |

Link to research articles (QR code on right): <http://1drv.ms/1EKFQ27>  
Citations: (Taney County Ambulance District, 2014)



**Protocol 6-050 - Control of Pain**

|  |  |
|--|--|
| <p><b><u>BLS - EMR</u></b></p> <ul style="list-style-type: none"> <li>* Identify possible causes.</li> <li>* Consider <b>Oxygen</b> if SpO<sub>2</sub> less than 88%.</li> <li>* Monitor pulseoximetry.</li> <li>* Apply cardiac monitor limb leads.</li> <li>* Obtain vital signs.</li> </ul> <p><b><u>BLS - EMT</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of applicable EMR items above.</li> </ul> | <p><b><u>ALS - Paramedic</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of all applicable BLS items on the left.</li> <li>* IV/IO NS or LR.</li> <li>* <u>Acute (non traumatic) or chronic (acute exacerbation) with autonomic signs and symptoms:</u></li> <li>* <u>Adult:</u> <ul style="list-style-type: none"> <li>+ Consider <b>Fentanyl</b> 50-100 mcg may repeat every 5 min (max 300 mcg) IV/IO/IM/IN. <u>Over 65 yr old:</u> 25-50 mcg (max 150 mcg).</li> <li>* OR <b>Morphine</b> 2-5 mg (max 10 mg) IV/IO/IM. Maintain SBP greater than 100.</li> <li>* OR <b>Toradol</b> 30 mg IV/IO or 60 mg IM. Over 65 yr: 15 mg IV/IO or 30 mg IM.</li> <li>* OR <b>Dilaudid</b> 0.5-1 mg IV/IO/IM may repeat 0.5 mg every 15 min (max 2 mg).</li> <li>* <u>Over 65 yr old:</u> Max 0.5 mg.</li> </ul> </li> <li>* <u>Pediatric:</u> <ul style="list-style-type: none"> <li>+ Consider <b>Fentanyl</b> 1-2 mcg/kg may repeat every 5 min (max 150 mcg) IV/IO/IN.</li> <li>* OR <b>Morphine</b> 0.1-0.2 mg/kg IV/IO/IM.</li> </ul> </li> <li>+ <b>Anxiety: Contact MEDICAL CONTROL for:</b> <ul style="list-style-type: none"> <li>* Consider: <b>Versed</b> IV/IO/IN. <ul style="list-style-type: none"> <li>* <u>Over 12 yrs:</u> Same as adult.</li> <li>* <u>Between 6 yrs and 12 yrs:</u> 0.05 mg/kg.</li> <li>* <u>Under 6 yrs:</u> 0.05-0.1 mg/kg.</li> </ul> </li> <li>* Consider: <b>Ativan</b> 0.05 mg/kg (max 2 mg) IV/IO.</li> </ul> </li> <li>* <u>Severe pain:</u> Consider <b>Ketamine</b> (analgesic dose) 0.1-0.2 mg/kg IV/IO or 0.8-1 mg/kg IM. Half dose if age greater than 65 yr.</li> <li>* <u>Painful procedure of short duration (i.e. extrication):</u> Consider <b>Ketamine</b> (dissociative dose) 1-2 mg/kg IV/IO OR 4-5 mg/kg IM. Half dose if age greater than 65 yr.</li> <li>* <u>Chronic without autonomic signs and symptoms:</u> Transport in position of comfort.</li> <li>* Any patient receiving Narcotics must be transported.</li> </ul> |
| <p>Link to research articles (QR code on right): <a href="http://1drv.ms/1EKG0GL">http://1drv.ms/1EKG0GL</a></p> <p><u>Citations:</u> (Boland, Satterlee, &amp; Jansen, 2014), (Finn, et al., 2004), (Taney County Ambulance District, 2014)</p>   |   |



## Protocol 6-055 - Decontamination

### BLS - EMR

- \* Coordinate with fire department, hazmat, and emergency management to **establish hot, warm, and cold zones**.
- \* **Identify the substance** with two sources, if possible.
- \* Notify receiving facilities as soon as possible with number of patients and possible contamination agent.
- \* Ensure proper **PPE**.
- \* Research proper Decontamination procedure according to the substance.
- \* All persons leaving the hot zone must be gross decontaminated:
  - \* **Remove outer clothing** and jewelry.
  - \* If contaminated with liquids, high volume **water rinsing**.
  - \* **Irrigate** eyes and face.
- \* **Triage** according to Protocol 6-130 - Triage (page 85).
- \* Create transport plan.
- \* All persons leaving the warm zone must be technically decontaminated:
  - \* **Remove ALL clothing** and jewelry.
  - \* Gentle **washing** with soap and water.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* Identifying and researching the contamination is critical in effective Decontamination, responder safety, and patient treatment.
- \* Do not perform most ALS procedures until technical Decontamination has been performed due to causing additional breaks in the skin.

Link to research articles (QR code on right): <http://1drv.ms/1EKGblg>  
Citations: (Wake County EMS System, 2010)



**Section 6-060 - Do Not Resuscitate (DNR)**

|   |  |
|---|--|
| <p><b><u>BLS - EMR</u></b></p> <ul style="list-style-type: none"> <li>* The documented wishes of patients not wanting to be resuscitated shall be honored.</li> <li>* Original Documentation must be with patient or presented to EMS crew at time of arrival on the scene.</li> <li>* DNR Documentation must contain: <ul style="list-style-type: none"> <li>* Patient signature.</li> <li>* Patient's Physician signature.</li> <li>* Dated within the last 365 days.</li> </ul> </li> <li>* If any doubt exists regarding the validity of the Documentation, immediate resuscitation should be initiated.</li> </ul> | <p><b><u>ALS - Paramedic</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of all applicable BLS items on the left.</li> <li>* All therapeutic care and vigorous support (IVs, medications, etc.) shall be given until the point of cardiac respiratory Arrest.</li> <li>* If a valid DNR form is present, it may be honored without contacting medical control. If a valid DNR is presented after resuscitation has been initiated, it can also be honored without contacting medical control and resuscitation may be terminated.</li> <li>* DNR form shall remain with the patient.</li> <li>* Document DNR form number and signing Physician's name on ePCR.</li> </ul> |
| <p><b><u>BLS - EMT</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of applicable EMR items above.</li> </ul>   |  |

Link to research articles (QR code on right): <http://1drv.ms/1KeFKnY>  
Citations:





## Section 6-070 - Documentation

### BLS - EMR

- \* An ePCR must be completed for **every EMS response** by the lead first responder or incident commander.
- \* The ePCR shall be completed within 24 hours if volunteer responder (by end of shift if career employee).
  - \* All ePCRs shall be available to the Medical Director (or designee) within 24 hours of completion if requested.
- \* **No Care Needed (NCN):** After scene assessment, there may be no patients (i.e. false alarms). An ePCR shall be completed including: situation description, number of individuals, and medical screening.
  - \* If the patient exhibits any mechanism of injury, Pain behaviors, indications of altered mental status, or the patient is the 9-1-1 caller or at any time requested medical care or an ambulance: Treatment and transport or PRC must be completed.
- \* **Patient Refusal of Care (PRC):** If the patient refuses care and/or transport, patient should be informed of potential risks, and need for transport and comprehensive Physician evaluation.
  - \* In the absence of an ALS assessment, BLS-only crew must contact MEDICAL CONTROL or on-duty EMS supervisor prior to obtaining PRC.
  - \* If any ALS intervention has been performed, MEDICAL CONTROL must be contacted prior to PRC.
  - \* Obtain **signature of patient**. If patient refuses to sign, document this fact.
  - \* Obtain **signature of witness**. Preferably law enforcement official or family member.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.
- \* **CMH or EMH ambulance crew:**
  - \* An ePCR must be completed for **every EMS response** (regardless of patient contact or transport status).
  - \* All PCRs shall be **completed, faxed, and exported** prior to end of shift unless approved by supervisor.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* If patient care would have met ALS criteria, PRC must be completed by the Paramedic.

Link to research articles (QR code on right): <http://1drv.ms/1KeJlCh>  
Citations: (Citizens Memorial Hospital, 2013)



**Protocol 6-080 - Event Standby****BLS - EMR**

- \* Treat illnesses and injuries per appropriate protocol.

**BLS - EMT**

- \* Ensure completion of applicable EMR items above.
- \* Park the emergency vehicle in a manner to allow view of the scene from a distance but always have the ability to leave the scene in an expedient manner.
- \* Dedicated standby:
  - \* Make contact with **athletic trainers** upon arrival (if they are present).
  - \* Place first in bag, Oxygen, monitor, and SMR supplies on cot and have it ready in the truck.
  - \* If medical care is needed for a player, event staff should wave EMS onto the field/track if you are needed.
  - \* Football player or other event with significant padding and helmet:
    - ✦ Assist athletic trainers in removing athletic equipment prior to transport.
      - ✗ If unable or not recommended by athletic trainer, secure player to backboard with helmet and pads remaining in place.
      - ✗ Apply c-collar and backboard if spinal injury is suspected.
      - ✗ Use 8-person lift or scoop stretcher to move patient from the ground to the backboard. Avoid use of log-roll procedure unless posterior inspection is required.
    - ✦ Utilize athletic trainer staff and equipment for Extremity splinting.
  - \* Preferred to request second unit to transport and standby unit remain at event.
    - ✦ Consider requesting a second unit to cover standby if critical patient.
    - ✦ Athletic training staff may ride with patient in back if requested.
    - ✦ Air ambulance landing zone should not be on the playing field.
  - \* A standby **ePCR report** shall be completed for all dedicated standbys. Be specific about which standby it is and which location.

**ALS - Paramedic**

- \* Ensure completion of all applicable BLS items on the left.
- \* When requested and approved by supervisor, CMH/EMH may provide an ALS ambulance for dedicated or non-dedicated event standby.
- \* Treat illnesses and injuries per appropriate protocol.

Link to research articles (QR code on right): <http://1drv.ms/1F6d5e5>

Citations: (Citizens Memorial Hospital, 2012), (National Athletic Trainers Association, 2015)



## Protocol 6-085 - High-Threat Response

### BLS - EMR

- \* EMS does not have an obligation to put themselves in danger. It is the discretion of the crew to enter an unsafe scene. Available information, resources, situational awareness, and a risk-vs-benefit analysis should help determine actions..
- \* PREPARATION:
  - \* Collect resources for security. Minimum of two Threat Elimination Specialists assigned to EMS, but four is preferable.
  - \* Gather the bare minimum equipment to perform lifesaving medical interventions.
- \* DIRECT THREAT CARE (Hot zone - Immediate threat has not been neutralized):
  - \* Instruct responsive TES to continue advancing toward eliminating the active threat and to provide self-aid.
  - \* Instruct ambulatory casualties to move to cover and provide self-aid.
  - \* Consider moving unresponsive casualties to cover and place in position to maintain airway.
  - \* Control massive hemorrhage with **Tourniquet**.
- \* INDIRECT THREAT CARE (Warm zone - Immediate threat has been neutralized, but secondary threats may still be present):
  - \* All weapons on the casualty should be rendered safe and secure.
  - \* Consider casualty collection points.
  - \* Hasty Triage: Uninjured or ambulatory, deceased or expectant.
  - \* Conduct abbreviated patient assessment and perform interventions to stabilize patient for extrication. Do not delay extraction for non-life-threatening interventions. MARCHE:
    - ✚ Major hemorrhage control: Consider **Tourniquet** and/or **Hemostatic Agent**.
    - ✚ Airway management: Positioning, **NPA**.
    - ✚ Respirations: Consider vented **Occlusive Dressing**.
    - ✚ Circulation.
    - ✚ Head / Hypothermia: Treat life-threatening head injuries and maintain warmth.
    - ✚ Everything else: Conduct secondary survey. Prepare for extraction.
- \* EVACUATION:
  - \* Maintain situational awareness.
  - \* Reassess all patients and refer to Protocol 6-130 - Triage (page 85).

### BLS - EMT

- \* Ensure completion of applicable EMR items above.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* MARCHE:
  - \* Major hemorrhage control.
  - \* Airway management: Consider **Intubation**.
  - \* Respirations: Consider **Needle Decompression**.
  - \* Circulation:
    - ✚ Consider IV/IO **LR** fluid bolus.
    - ✚ Consider **TXA** 1 g in 100 ml NS over 10 min if all of the following:
      - ✗ Major injury AND
      - ✗ Signs of shock AND
      - ✗ Recent injury (less than 3 hrs ago).
  - \* Head / Hypothermia.
  - \* Everything else: If it will not delay extraction. Refer to Protocol 6-050 - Control of Pain (page 73).


Link to research articles (QR code on right): <http://1drv.ms/1KeKMka>

Citations: (Committee for Tactical Emergency Casualty Care, 2014)

“This protocol has been written based on guidelines and principles established by the Committee of Tactical Emergency Casualty Care.”



**Protocol 6-090 - IDLH Standby**

|   |  |
|---|--|
| <p><b><u>BLS - EMR</u></b></p> <ul style="list-style-type: none"> <li>* Treat illnesses and injuries per appropriate protocol.</li> <li>* Refer to Protocol 6-055 - Decontamination (page 74) as appropriate prior to contaminating personnel, equipment, and ambulance.</li> </ul>   | <p><b><u>ALS - Paramedic</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of all applicable BLS items on the left.</li> <li>* Treat illnesses and injuries according to appropriate protocol.</li> </ul> |
| <p><b><u>BLS - EMT</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of applicable EMR items above.</li> <li>* Non-dedicated ambulance may be requested by any public safety agency engaged in operations deemed Immediately Dangerous to Life and Health (IDLH). Examples include, but are not limited to: Structure fires, hazardous materials, clandestine drug labs, etc. <ul style="list-style-type: none"> <li>* If Incident Commander requests ambulance to be dedicated and remain on the scene, contact the duty officer or supervisor on call.</li> </ul> </li> <li>* Once on scene, check in with the <b>Staging Officer</b> or <b>Incident Commander</b>. <ul style="list-style-type: none"> <li>* Park the ambulance in a manner to allow view of the scene from a distance but always have the ability to leave the scene in an expedient manner.</li> </ul> </li> <li>* Rehab of responders, baseline vitals, hydration, etc. shall preferably be conducted by fire department and/or emergency management personnel. <ul style="list-style-type: none"> <li>* Ambulance crew duties are to care for civilians, bystanders, and/or responders that require treatment and/or transport for an injury or illness.</li> <li>* Due to possible contamination, firefighters shall not be placed in an ambulance for cooling/warming unless they require treatment and/or transport for injuries or illnesses.</li> <li>* Assist with rehab duties as assigned within fire department policies which may include: <ul style="list-style-type: none"> <li>✚ Encourage removal of PPE, rest, passive cooling, and oral hydration.</li> <li>✚ Prior to returning to activity, obtain and record vitals. If vitals are outside the limits below, suggest further rest: <ul style="list-style-type: none"> <li>✖ SBP greater than 200.</li> <li>✖ Pulse greater than 110.</li> <li>✖ Respirations greater than 40.</li> <li>✖ Temperature greater than 101.</li> <li>✖ PulseOx less than 90%.</li> </ul> </li> </ul> </li> </ul> </li> </ul> |  |
| <p>Link to research articles (QR code on right): <a href="http://1drv.ms/1F6dbSY">http://1drv.ms/1F6dbSY</a></p> <p>Citations: (Wake County EMS System, 2010)</p>   |   |

## Section 6-100 - Off-Duty Protocols

### BLS - EMR

- \* These protocols do not apply to EMR personnel while off-duty.

### BLS - EMT

- \* While off duty: EMTs, Paramedics, and RNs currently employed with an agency that has adopted these protocols may provide **Basic Life Support** according to these protocols.
- \* Ensure **9-1-1** is contacted and an ambulance is responding as appropriate.
- \* Coordinate with responding emergency services.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* While Off-Duty, current CMH or EMH Pre-Hospital Paramedics and CMH or EMH Emergency Department RNs may assist in providing **Advanced Life Support** according to these protocols if the following conditions are met:
  - \* A CMH or EMH ambulance must be the transporting unit and an on-duty CMH or EMH Paramedic must provide primary patient care.

Link to research articles (QR code on right): <http://1drv.ms/1KeJUfr>

Citations:



**Section 6-105 - Quality Improvement****BLS - EMR**

- \* Each month, a Quality meeting will be scheduled and held at CMH.
  - \* Demographic and statistical data from the previous months will be presented by all represented agencies.
    - ✦ This data may include, but not limited to:
      - ✦ Requests for service,
      - ✦ Dispatch times,
      - ✦ Turnout times,
      - ✦ Response times,
      - ✦ Specific protocol compliance, and
      - ✦ Specific Documentation requirements.
  - \* Additionally, any response agency or dispatch agency may request a detailed review of one or more specific calls.
  - \* Each RSI, intubation, supraglottic airway insertion, or administration of RSI drugs (Ketamine, Etomidate, Rocuronium, Vecuronium, or Succinylcholine) will be brought to quality meeting for review.
    - ✦ Dispatchers, first responders, and ambulance crew involved in the call will be invited to attend.
- \* Ongoing in-house Quality improvement must include at least a 10% review rate of Documentation by management staff to ensure protocol compliance and appropriate patient care.

**BLS - EMT**

- \* Ensure completion of applicable EMR items above.
- \* Annually, each volunteer BLS agency must participate in two Quality meetings (preferably one every six months).
- \* Annually, each career BLS agency must participate in four Quality meetings (preferably one every quarter).

**ALS - Paramedic**

- \* Ensure completion of all applicable BLS items on the left.
- \* Annually, each ALS agency must participate each month in the Quality meeting.

Link to research articles (QR code on right): <http://1drv.ms/1KeK5HG>  
Citations:



## Protocol 6-110 - Rapid Sequence Intubation (RSI)

|  |  |
|--|--|
| <p><b><u>BLS - EMR</u></b></p> <ul style="list-style-type: none"> <li>* Maintain Airway and Ventilate with 100% <b>Oxygen</b> for 5 min, if possible.</li> <li>* Attempt to maintain SpO<sub>2</sub> above 90% at all times.</li> <li>* Consider nasal cannula at 15 LPM after sedation.</li> <li>* Avoid BVM prior to intubation if SpO<sub>2</sub> above 90%.</li> <li>* Monitor pulseoximetry.</li> <li>* Attach cardiac monitor.</li> </ul>  | <p><b><u>ALS - Paramedic</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of all applicable BLS items on the left.</li> <li>* RSI is indicated for all patients with a pulse needing intubation.</li> <li>* <b>Call Medical Control for permission to RSI.</b></li> <li>* IV/IO NS or LR. Consider 250 ml bolus.</li> <li>* Assign duties.</li> </ul> <hr/> <p>* <b><u>Premedicate:</u></b></p> <ul style="list-style-type: none"> <li>* <b><u>Head injury:</u></b> <b>Lidocaine</b> 1.5 mg/kg IV/IO (2-3 min before intubation).</li> <li>* <b><u>Adult:</u></b> <ul style="list-style-type: none"> <li>+ <b><u>Bradycardic:</u></b> <b>Atropine</b> 0.5 mg IV/IO.</li> <li>+ <b><u>Seizing:</u></b> Refer to Protocol 4-170 - Seizures (page 56).</li> <li>+ <b><u>Pain or tachycardic:</u></b> Consider <b>Fentanyl</b> 3 mcg/kg IV/IO/IN (max 300 mcg).</li> </ul> </li> <li>* <b><u>Pediatric:</u></b> <ul style="list-style-type: none"> <li>+ Consider <b>Atropine</b> 0.02 mg/kg IV/IO (min 0.1 mg) (max 0.5 mg).</li> <li>+ <b><u>Seizing:</u></b> Refer to Protocol 4-170 - Seizures (page 56).</li> <li>+ Consider <b>Fentanyl</b> 1-2 mcg/kg IV/IO/IN (max 150 mcg).</li> </ul> </li> </ul>  |
| <p><b><u>BLS - EMT</u></b></p> <ul style="list-style-type: none"> <li>* Ensure completion of applicable EMR items above.</li> <li>* Request <b>second ALS unit</b> or <b>supervisor</b>, if possible.</li> <li>* Assist ALS with <b>Capnography</b>.</li> <li>* <b><u>RSI contraindications:</u></b> <ul style="list-style-type: none"> <li>* Unable to Ventilate with BVM.</li> <li>* Facial or neck trauma.</li> <li>* Possibility of failure of backup Airways.</li> <li>* Cricothyrotomy would be difficult or impossible.</li> <li>* Acute epiglottitis.</li> <li>* Upper Airway obstruction.</li> </ul> </li> <li>* Press "<b>PRINT</b>" on the monitor after <b>Intubation</b> and at transfer to ER/LZ to record <b>Capnography</b> waveform.</li> <li>* Maintain warmth for paralyzed patient.</li> </ul> | <hr/> <p>* <b><u>Sedate:</u></b></p> <ul style="list-style-type: none"> <li>* <b>Ketamine</b> 1 mg/kg IV/IO (60 sec onset, 10 min duration).</li> <li>+ OR Consider <b>Etomidate</b> 0.3 mg/kg IV/IO (contraindicated in sepsis).</li> </ul> <hr/> <p>* <b><u>Paralyze:</u></b> Consider delayed paralysis to allow preoxygenation.</p> <ul style="list-style-type: none"> <li>* <b>Rocuronium</b> 0.6 mg/kg IV/IO (1 min onset, 30 min duration).</li> <li>+ OR <b>Rocuronium</b> 0.1 mg/kg IV/IO (2 min onset, 10 min duration).</li> <li>+ OR <b>Vecuronium</b> 0.1 mg/kg IV/IO.</li> <li>+ OR <b>Succinylcholine</b> IV/IO (contraindicated in Burns or crush injuries greater than 48 hrs or rhabdomyolysis).</li> <li>* <b><u>Adult:</u></b> 1.5 mg/kg (45 sec onset, 2 min duration).</li> <li>* <b><u>Pediatric:</u></b> 2 mg/kg (45 sec onset, 2 min duration).</li> </ul> <hr/> <p>* <b><u>INTUBATE.</u></b> Elevate head of cot. Confirm with <b>Capnography</b>. Maximum of three attempts, then BLS failed airway should be used.</p> <ul style="list-style-type: none"> <li>* Consider <b>Suction, Bougie, Gastric Tube, King, and/or LMA</b>.</li> </ul> <hr/> <p>* <b><u>Continued sedation:</u></b></p> <ul style="list-style-type: none"> <li>* <b><u>Adult:</u></b> <b>Versed</b> 2.5-5 mg IV/IO every 5 min as needed maintaining SBP greater than 100.</li> <li>+ OR <b>Ketamine</b> 1 mg/kg IV/IO.</li> <li>+ OR <b>Ativan</b> 2 mg IV/IO. (6 mg if seizing).</li> <li>+ Consider <b>Fentanyl</b> 50-100 mcg IV/IO/IN (max 300 mcg).</li> <li>* <b><u>Pediatric:</u></b> <b>Versed</b> IV/IO/IN.</li> <li>* <b><u>Over 12 yrs:</u></b> Same as adult.</li> <li>* <b><u>Between 6 yrs and 12 yrs:</u></b> 0.05 mg/kg.</li> <li>* <b><u>Under 6 yrs:</u></b> 0.05-0.1 mg/kg.</li> <li>+ OR <b>Ketamine</b> 1 mg/kg IV/IO.</li> <li>+ OR <b>Ativan</b> 0.05 mg/kg IV/IO. (0.07 mg/kg if seizing).</li> <li>+ Consider <b>Fentanyl</b> 1-2 mcg/kg IV/IO/IN (max 150 mcg).</li> </ul> <hr/> <p>* <b><u>Continued paralysis</u></b> (consider if signs of patient movement):</p> <ul style="list-style-type: none"> <li>* <b>Rocuronium</b> 0.1 mg/kg IV/IO.</li> <li>* OR <b>Vecuronium</b> 0.1 mg/kg IV/IO.</li> </ul> |





## Section 6-120 - Transfer of Care

### BLS - EMR

- \* First responder personnel will assume patient care from initial patient contact until face-to-face verbal report given to transporting ambulance crew.
- \* Verbal report shall include, but not limited to: patient history, current status, treatments provided.
- \* Available Documentation should also be transferred (i.e. EKGs, patient information, etc.).

### BLS - EMT

- \* Ensure completion of applicable EMR items above.
- \* CMH/EMH EMS personnel will assume patient care from initial patient contact or face-to-face verbal report from on-scene medical personnel until face-to-face verbal report given to flight crew or receiving facility.
- \* In the event of mechanical difficulty or other situation requiring transferring BLS patient to another ambulance, CMH or EMH EMT may maintain patient care in the new ambulance (even if the new ambulance is not a CMH or EMH ambulance).

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* In the event of mechanical difficulty or other situation requiring transferring ALS patient to another ambulance, CMH or EMH Paramedic may maintain patient care in the new ambulance (even if the new ambulance is not a CMH ambulance).
- \* In a multi-patient incident, CMH or EMH Paramedic will continue patient care until care can be transferred to appropriate incoming ambulance with face-to-face verbal report.

Link to research articles (QR code on right): <http://1drv.ms/1F6ei4Z>

Citations:



**Protocol 6-130 - Triage**

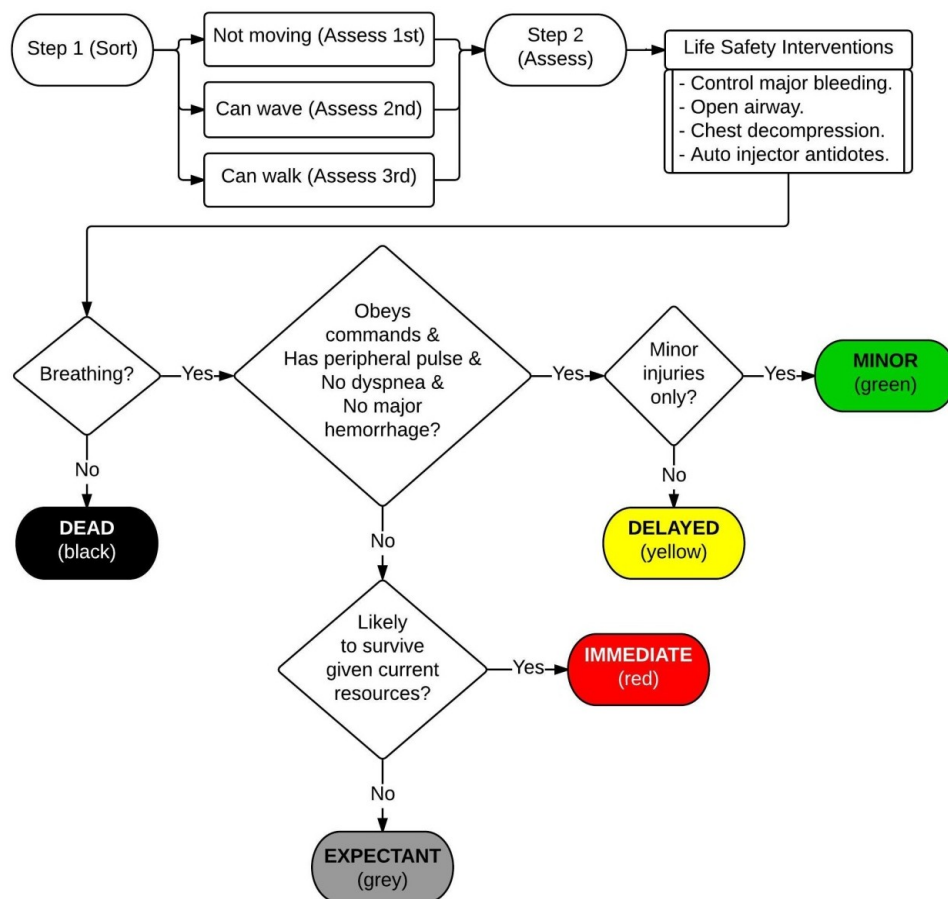
Triage tags will be used on mass casualty incidents, all patients transferred by Air Ambulance, and all patients transported to an ER on Tuesdays.

**HEAR Report:**

- \* Every patient radio report on shall be Triaged according to the following:
  - \* **MEDICAL RED** or **TRAUMA RED**: Requires immediate life-saving intervention (i.e. STEMI, Stroke, Unconscious, Unstable).
  - \* **MEDICAL YELLOW** or **TRAUMA YELLOW**: High risk or multiple resources needed in ER (i.e. ALOC, Labs, ECG, X-ray, CT, Ultrasound, Respiratory therapy).
  - \* **MEDICAL GREEN** or **TRAUMA GREEN**: Minor complaints and manageable with limited resources.

**Mass casualty incident:**

- \* Defined as greater than **five patients**.
- \* Notify ER as soon as possible (include number of patients, if known).
- \* First arriving ambulance assignments:
  - \* Paramedic: Designated **TRIAGE OFFICER**.
    - + Determine number of patients.
    - + Establish Triage area(s).
    - + Triage and tag patients.
  - \* EMT: Designated **TRANSPORTATION OFFICER**.
    - + Communicate number of patients.
    - + Establish staging area(s).
    - + Coordinate patient transport.
- \* Second arriving ambulance assignment:
  - \* Establish treatment area(s).

**SALT Mass Casualty Triage:**

Link to research articles (QR code on right): <http://1drv.ms/1KeLdex>

Citations: (Citizens Memorial Hospital, 2012)



## Section 6-140 - Termination of Resuscitation

### BLS - EMR

- \* Initiate **CPR** immediately in the event of acute cardiac or respiratory Arrest if:
  - \* There is a possibility that the brain is viable.
  - \* AND There are no legal or medical reasons to withhold resuscitation (DNR, declaration of intent, terminal illness, and verifiable absence of ABCs longer than 10min).
- \* Resuscitation should not be started if:
  - \* Decapitation.
  - \* OR Rigor mortis.
  - \* OR Tissue decomposition.
  - \* OR Extreme dependent lividity.
  - \* OR Obvious mortal injury.
  - \* OR Properly documented DNR order.
  - \* OR Properly documented advance directive.
- \* When any doubt exists of the validity of DNR orders or advance directive, **resuscitation** should be initiated immediately.

### BLS - EMT

- \* Ensure completion of applicable EMR items above.

### ALS - Paramedic

- \* Ensure completion of all applicable BLS items on the left.
- \* The following scenarios should always be transported to the closest appropriate facility as soon as possible and field termination is not an option:
  - \* Pediatrics, Drownings, Poisonings, or Hypothermia.
  - \* If Airway cannot be maintained and/or IV/IO cannot be accessed.
  - \* If none of the above apply: Patients should receive at least 20 minutes of ACLS resuscitative efforts on the scene prior to considering movement.
- \* If witnessed, non-trauma Arrest: full **ACLS** resuscitation efforts should continue for at least 20 minutes prior to consideration of field termination.
- \* When considering termination, Paramedic should consult with the family. If family believes the patient would wish continued resuscitative efforts, resuscitation will continue and the patient shall be transported to closest appropriate facility.
- \* In the event there is no clear evidence to withhold CPR, however patient has a terminal condition and the patient's wishes have been conveyed by the family, contact **MEDICAL CONTROL** to withhold resuscitation.
- \* Field termination may be requested from **MEDICAL CONTROL** for victims of trauma with no signs of life regardless of how long **ACLS** efforts have been underway.
- \* If field termination is decided, contact **MEDICAL CONTROL**: Inform emergency Physician of patient, history, causes, efforts, and treatments.
- \* After resuscitation has been terminated, contact local law enforcement and remain on scene until at least law enforcement or coroner arrival on the scene. If at healthcare facility, scene may be cleared prior to body retrieval.
- \* Fax the ePCR to the facility providing medical control. Faxing is not necessary if:
  - \* CMH providing medical control to CMH ambulance OR
  - \* EMH providing medical control to EMH ambulance.

Link to research articles (QR code on right): <http://1drv.ms/19zcgQK>  
Citations: (Citizens Memorial Hospital, 2013)



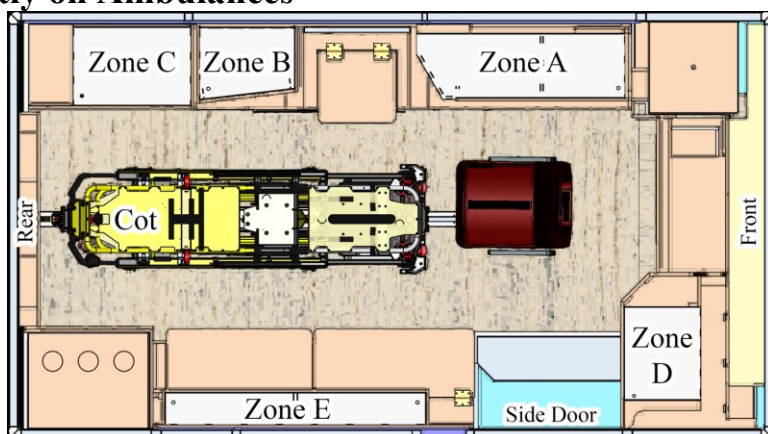


## Part 7 - Medication Protocols

### Section 7-001 - Medications Currently on Ambulances

19 CSR 30-40.303(2)(C) states “the medical director, in cooperation with the ambulance service administrator, shall develop, implement, and annually review medications and medical equipment to be utilized.” This section fulfills that requirement for equipment.

Refer to Section 8-001 - Equipment Currently on Ambulances (page 155) for equipment.



| Location                   | ✓ | Qty | Dose     | Description  |
|----------------------------|---|-----|----------|--|
| Cab                        |   |     |          |  |
| Cab - Bag Triage #1        |   |     |          |  |
| Cab - Bag Triage #2        |   |     |          |  |
| Cot                        |   |     |          |  |
| Cot - Bag First-In         |   |     |          |  |
| Cot - Bag Oxygen           |   | 1   | 2.5 mg   | Section 7-040 - Albuterol (Proventil, Ventolin) (page 95)                        |
|                            |   |     |          | Section 7-460 - Oxygen (page 134)  |
| Cot - Bag LifePak          |   | 1   | 1.25 mg  | Section 7-610 - Xopenex (Levalbuterol) (page 152)                                |
|                            |   | 4   | 81 mg    | Section 7-060 - Aspirin (Bayer) (page 97)  |
| Narcotic Box               |   | 1   | 6 g      | Section 7-420 - Nitroglycerin (Nitrostat, Nitolingual, Tridil) (page 132)        |
|                            |   |     | 100 mcg  | Section 7-230 - Fentanyl (Sublimaze) (page 115)                                  |
|                            |   |     | 10 mg    | Section 7-390 - Morphine (page 129)  |
|                            |   |     | 10 mg    | Section 7-580 - Valium (Diazepam) (page 149)                                     |
|                            |   |     | 5 mg     | Section 7-600 - Versed (Midazolam) (page 151)                                    |
| RSI Box                    |   |     | 150 mg   | Section 7-330 - Ketamine (Ketalar) (page 123)                                    |
|                            |   |     | 200 mg   | Section 7-370 - Lidocaine (Xylocaine) (page 127)                                 |
|                            |   |     | 0.5 mg   | Section 7-080 - Atropine (Sal-Tropine) (page 99)                                 |
|                            |   |     | 150 mg   | Section 7-330 - Ketamine (Ketalar) (page 123)                                    |
|                            |   |     | 100 mg   | Section 7-520 - Rocuronium (Zemuron) (page 140)                                  |
|                            |   | 4   |          | Draw needles   |
| Zone A - Above Action Area |   | 2   |          | 10 ml Syringes   |
|                            |   | 6   | 2.5 mg   | Section 7-040 - Albuterol (Proventil, Ventolin) (page 95)                        |
|                            |   | 4   | 0.5 mg   | Section 7-180 - Duoneb (Ipratropium and Albuterol, Combivent) (page 110)         |
|                            |   | 4   | 11.25 mg | Section 7-210 - Epinephrine Racemic (Micronefrin) (page 113)                     |
|                            |   | 4   |          | Section 7-320 - Ipratropium (Atrovent) (page 122)                                |
| Zone A - Action Area       |   | 6   | 1.25 mg  | Section 7-610 - Xopenex (Levalbuterol) (page 152)                                |
| Zone A - Below Action Area |   |     |          | Section 7-460 - Oxygen (page 134)  |
| Zone B                     |   |     |          |  |
| Zone C                     |   | 2   | 1,000 ml | Section 7-440 - Normal Saline (NS, Sodium Chloride) (page 133) - Irrigation      |
|                            |   | 2   | 1,000 ml | Sterile water - Irrigation   |
| Zone D                     |   | 1   | 400 mg   | Section 7-170 - Dopamine (Intropin) (page 109)                                   |
|                            |   |     |          | 1 - Pump tubing  |
|                            |   |     |          | 1 - Reference card   |
|                            |   | 1   | 2 g      | Section 7-370 - Lidocaine (Xylocaine) - Drip (page 127)                          |
|                            |   |     |          | 1 - Pump tubing  |
|                            |   |     |          | 1 - Reference card   |
|                            |   | 1   | 150 mg   | Section 7-420 - Nitroglycerin (Nitrostat, Nitolingual, Tridil) - Drip (page 132) |
|                            |   |     |          | 1 - Pump tubing  |
|                            |   |     |          | 1 - Reference card   |
|                            |   | 2   | 2 L      | Section 7-350 - Lactated Ringers (LR) (page 125)                                 |
|                            |   | 6   | 2 L      | Section 7-440 - Normal Saline (NS, Sodium Chloride) (page 133)                   |

## Section 7-001 - Medications Currently on Ambulances

| Location                        | ✓ | Qty | Dose    | Description  |
|---------------------------------|---|-----|---------|--|
| Zone D - Bag Adult              |   |     |         |  |
| Zone D - Bag Adult - Airway     |   |     |         |  |
| Zone D - Bag Adult - Medication |   | 3   | 6 mg    | Section 7-030 - Adenosine (Adenocard) (page 94)                                |
|                                 |   | 2   | 150 mg  | Section 7-050 - Amiodarone (Cordarone) (page 96)                               |
|                                 |   | 3   | 1 mg    | Section 7-080 - Atropine (Sal-Tropine) (page 99)                               |
|                                 |   | 1   | 50 mg   | Section 7-090 - Benadryl (Diphenhydramine) (page 100)                          |
|                                 |   | *   |         | Section 7-150 - Dextrose (page 107)<br>1 - 100 ml - D-5-W<br>1 - 25 g - D-50-W |
|                                 |   | 2   |         | Section 7-190 - Epinephrine 1:1,000 (page 111)                                 |
|                                 |   | 4   |         | Section 7-200 - Epinephrine 1:10,000 (page 112)                                |
|                                 |   | 1   |         | Section 7-240 - Glucagon (page 116)  |
|                                 |   | 2   | 40 mg   | Section 7-360 - Lasix (Furosemide) (page 126)                                  |
|                                 |   | 2   | 100 mg  | Section 7-370 - Lidocaine (Xylocaine) (page 127)                               |
|                                 |   | 4   | 1 g     | Section 7-380 - Magnesium Sulfate (page 128)                                   |
|                                 |   | 1   | 2 mg    | Section 7-400 - Narcan (Naloxone) (page 130)                                   |
|                                 |   | 1   | 100 ml  | Section 7-440 - Normal Saline (NS, Sodium Chloride) (page 133)                 |
|                                 |   | 2   | 50 mEq  | Section 7-530 - Sodium Bicarbonate (Soda) (page 142)                           |
|                                 |   | 1   | 100 mg  | Section 7-570 - Thiamine (Vitamin B1) (page 146)                               |
|                                 |   | 3   | 6 mg    | Section 7-030 - Adenosine (Adenocard) (page 94)                                |
|                                 |   | 2   | 150 mg  | Section 7-050 - Amiodarone (Cordarone) (page 96)                               |
| Zone D - Bag Medication         |   | 3   | 1 mg    | Section 7-080 - Atropine (Sal-Tropine) (page 99)                               |
|                                 |   | 1   | 50 mg   | Section 7-090 - Benadryl (Diphenhydramine) (page 100)                          |
|                                 |   | *   |         | Section 7-150 - Dextrose (page 107)<br>1 - 100 ml - D-5-W<br>1 - 25 g - D-50-W |
|                                 |   | 2   |         | Section 7-190 - Epinephrine 1:1,000 (page 111)                                 |
|                                 |   | 4   |         | Section 7-200 - Epinephrine 1:10,000 (page 112)                                |
|                                 |   | 1   |         | Section 7-240 - Glucagon (page 116)  |
|                                 |   | 2   | 40 mg   | Section 7-360 - Lasix (Furosemide) (page 126)                                  |
|                                 |   | 2   | 100 mg  | Section 7-370 - Lidocaine (Xylocaine) (page 127)                               |
|                                 |   | 4   | 1 g     | Section 7-380 - Magnesium Sulfate (page 128)                                   |
|                                 |   | 1   | 2 mg    | Section 7-400 - Narcan (Naloxone) (page 130)                                   |
|                                 |   | 1   | 100 ml  | Section 7-440 - Normal Saline (NS, Sodium Chloride) (page 133)                 |
|                                 |   | 2   | 50 mEq  | Section 7-530 - Sodium Bicarbonate (Soda) (page 142)                           |
|                                 |   | 1   | 100 mg  | Section 7-570 - Thiamine (Vitamin B1) (page 146)                               |
| Zone D - Bag Ped                |   |     |         |  |
| Zone D - Box Medication         |   | 1   | 160 mg  | Section 7-010 - Acetaminophen (Tylenol) (page 92)                              |
|                                 |   | 1   |         | Section 7-020 - Activated Charcoal (Actidose) (page 93)                        |
|                                 |   | 16  | 81 mg   | Section 7-060 - Aspirin (Bayer) (page 97)                                      |
|                                 |   | 1   |         | Section 7-080 - Atropine (Sal-Tropine) (page 99)                               |
|                                 |   | 1   |         | Section 7-100 - Calcium Chloride (Calciject) (page 101)                        |
|                                 |   | 1   | 100 mg  | Section 7-120 - Cardizem (Diltiazem) (page 103)                                |
|                                 |   | 2   | 20 mg   | Section 7-140 - Decadron (Dexamethasone) (page 106)                            |
|                                 |   | 1   |         | Section 7-260 - Haldol (Haloperidol) (page 118)                                |
|                                 |   | 1   | 5,000 u | Section 7-270 - Heparin (page 119)   |
|                                 |   | 1   | 20 mg   | Section 7-280 - Hydralazine (Apresoline) (page 120)                            |
|                                 |   | 1   | 100 mg  | Section 7-300 - Ibuprofen (Advil, Pediaprofen) (page 121)                      |
|                                 |   | 1   | 40 mg   | Section 7-340 - Labetalol (Nomadyne) (page 124)                                |
|                                 |   | 2   |         | Section 7-250 - Glucose (page 117) - Oral                                      |
|                                 |   | 1   |         | Section 7-410 - Neo-Synephrine (Phenylephrine) (page 131)                      |
|                                 |   | 2   | 10 u    | Section 7-470 - Oxytocin (Pitocin) (page 135)                                  |
|                                 |   | 4   | 25 mg   | Section 7-480 - Phenergan (Promethazine) (page 136)                            |
|                                 |   | 1   |         | Section 7-490 - Procainamide (Pronestyl) (page 137)                            |
|                                 |   | 2   | 125 mg  | Section 7-540 - Solu-Medrol (Methylprednisolone) (page 143)                    |
|                                 |   | 1   |         | Section 7-560 - Tetracaine (page 145)  |
|                                 |   | 2   | 500 mg  | Section 7-578 - TXA (Tranexamic Acid) (page 148)                               |
|                                 |   | 6   | 4 mg    | Section 7-620 - Zofran (Ondansetron) (page 153)                                |
| Zone D - IV Tray                |   | 6   | 10 ml   | Section 7-440 - Normal Saline (NS, Sodium Chloride) (page 133)                 |
| Zone E - Above Bench (if exist) |   |     |         |  |
| Zone E - Below Bench            |   | 2   |         | Section 7-460 - Oxygen (page 134)  |

| Location             | ✓ | Qty | Dose | Description |
|----------------------|---|-----|------|-------------|
| Exterior Compartment |   |     |      |             |

Medications in protocols but currently not on ambulances:

- \* Section 7-070 - Ativan (Lorazepam) (page 98)
- \* Section 7-110 - Captopril (Capoten) (page 102)
- \* Section 7-130 - Compazine (Prochlorperazine) (page 104)
- \* Section 7-135 - Cyanokit (Hydroxocobalamin, Vitamin B12) (page 105)
- \* Section 7-160 - Dilaudid (Hydromorphone) (page 108)
- \* Section 7-220 - Etomidate (Amidate) (page 114)
- \* Section 7-330 - Ketamine (Ketalar) (page 123)
- \* Section 7-500 - Propofol (Diprivan) (page 138)
- \* Section 7-505 - Reglan (Metoclopramide) (page 139)
- \* Section 7-520 - Rocuronium (Zemuron) (page 140)
- \* Section 7-525 - Romazicon (Flumazenil) (page 141)
- \* Section 7-550 - Succinylcholine (Anectine) (page 144)
- \* Section 7-575 - Toradol (Ketorolac) (page 147)
- \* Section 7-590 - Vecuronium (Norcuron) (page 150)



## Section 7-005 - Medications that prolong QT interval

**Section 7-005 - Medications that prolong QT interval**

|   |  |  |  |
|---|--|--|--|
| <ul style="list-style-type: none"> <li>• Abilify</li> <li>• Agrylin</li> <li>• Alfuzosin</li> <li>• Amantadine</li> <li>• <b>Amiodarone</b> (page 96)</li> <li>• Amisulpride</li> <li>• Amitriptyline</li> <li>• Amoxapine</li> <li>• Anafranil</li> <li>• Anagrelide</li> <li>• Anzemet</li> <li>• Apo-Hydro</li> <li>• Apokyn</li> <li>• Apomorphine</li> <li>• Aquachloral</li> <li>• Aralen</li> <li>• Aripiprazole</li> <li>• Arsenic trioxide</li> <li>• Asendin</li> <li>• Astemizole</li> <li>• Atazanavir</li> <li>• Avelox</li> <li>• Azithromycin</li> <li>• Bedaquiline</li> <li>• <b>Benadryl</b> (page 100)</li> <li>• Bepridil</li> <li>• Betapace</li> <li>• Biaxin</li> <li>• Bortezomib</li> <li>• Bosulif</li> <li>• Bosutinib</li> <li>• Caprelsa</li> <li>• Cardene</li> <li>• Celexa</li> <li>• Cerebyx</li> <li>• Chloral hydrate</li> <li>• Chloroquine</li> <li>• Chlorpromazine</li> <li>• Cipralex</li> <li>• Cipro</li> <li>• Ciprofloxacin</li> <li>• Cisapride</li> <li>• Citalopram</li> </ul> | <ul style="list-style-type: none"> <li>• Clarithromycin</li> <li>• Clomipramine</li> <li>• Clozapine</li> <li>• Clozaril</li> <li>• Cocaine</li> <li>• <b>Cordarone</b> (page 96)</li> <li>• Corvert</li> <li>• Crizotinib</li> <li>• Dabrafenib</li> <li>• Dasatinib</li> <li>• Definity</li> <li>• Delamanid</li> <li>• Delytba</li> <li>• Desipramine</li> <li>• Desyrel</li> <li>• Detrol</li> <li>• Dexmedetomidine</li> <li>• Diflucan</li> <li>• Dihydroartemisinin +piperazine</li> <li>• <b>Diphenhydramine</b> (page 100)</li> <li>• Dipiperon</li> <li>• Disopyramide</li> <li>• Dofetilide</li> <li>• Dogmatil</li> <li>• Dolasetron</li> <li>• Dolophine</li> <li>• Domperidone</li> <li>• Doxepin</li> <li>• Dronedarone</li> <li>• Droperidol</li> <li>• Dynacirc</li> <li>• Edurant</li> <li>• Effexor</li> <li>• Elavil</li> <li>• Eribulin</li> <li>• Erythromycin</li> <li>• Escitalopram</li> <li>• Eskalith</li> <li>• Eurartesim</li> <li>• Factive</li> <li>• Famotidine</li> <li>• Fanapt</li> </ul> | <ul style="list-style-type: none"> <li>• Fareston</li> <li>• Felbamate</li> <li>• Felbatol</li> <li>• Fingolimod</li> <li>• Flagyl</li> <li>• Flecainide</li> <li>• Floxin</li> <li>• Fluconazole</li> <li>• Fluoxetine</li> <li>• Foscarnet</li> <li>• Foscavir</li> <li>• Fosphenytoin</li> <li>• <b>Furosemide</b> (page 126)</li> <li>• Galantamine</li> <li>• Gatifloxacin</li> <li>• Gemifloxacin</li> <li>• Geodon</li> <li>• Gilenya</li> <li>• Granisetron</li> <li>• Halaven</li> <li>• <b>Haldol</b> (page 118)</li> <li>• Halfan</li> <li>• Halofantrine</li> <li>• <b>Haloperidol</b> (page 118)</li> <li>• Hismanal</li> <li>• Hydrochlorothiazide</li> <li>• Ibutilide</li> <li>• Iloperidone</li> <li>• Imipramine</li> <li>• Inapsine</li> <li>• Incivek</li> <li>• Indapamide</li> <li>• Invega</li> <li>• Invirase</li> <li>• Isradipine</li> <li>• Itraconazole</li> <li>• Ivabradine</li> <li>• Ketek</li> <li>• Ketoconazole</li> <li>• Korlym</li> <li>• Kytril</li> <li>• Lapatinib</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Lasix</b> (page 126)</li> <li>• Levaquin</li> <li>• Levitra</li> <li>• Levofloxacin</li> <li>• Levomepromazine</li> <li>• Levomethadyl</li> <li>• Levoprome</li> <li>• Lithium</li> <li>• Lorelco</li> <li>• Lozol</li> <li>• Melipramine</li> <li>• Mellaril</li> <li>• Mesoridazine</li> <li>• Methadone</li> <li>• Metronidazole</li> <li>• Mifepristone</li> <li>• Mirabegron</li> <li>• Mirtazapine</li> <li>• Moexipril/HCTZ</li> <li>• Motilium</li> <li>• Moxifloxacin</li> <li>• Multaq</li> <li>• Myrbetriq</li> <li>• Nelfinavir</li> <li>• Nexavar</li> <li>• Nicardipine</li> <li>• Nilotinib</li> <li>• Nitoman</li> <li>• Nizoral</li> <li>• Nolvadex</li> <li>• Norfloxacin</li> <li>• Noroxin</li> <li>• Norpace</li> <li>• Nortriptyline</li> <li>• Norvir</li> <li>• Nosinan</li> <li>• Noxafil</li> <li>• Nozinan</li> <li>• Ofloxacin</li> <li>• Olanzapine</li> <li>• <b>Ondansetron</b> (page 153)</li> <li>• Orap</li> <li>• Orlaam</li> </ul> |
|---|--|--|--|

## Section 7-005 - Medications that prolong QT interval

|   |   |   |  |
|---|---|---|--|
| <ul style="list-style-type: none"> <li>• <b>Oxytocin</b> (page 135)</li> <li>• Paliperidone</li> <li>• Pamelor</li> <li>• Papaverine</li> <li>• Paroxetine</li> <li>• Pasireotide</li> <li>• Paxil</li> <li>• Pazopanib</li> <li>• Pentam</li> <li>• Pentamidine</li> <li>• Pepcid</li> <li>• Perflutren</li> <li>• Pertofrane</li> <li>• <b>Phenergan</b> (page 136)</li> <li>• Pimozide</li> <li>• Pipamperone</li> <li>• <b>Pitocin</b> (page 135)</li> <li>• Posaconazole</li> <li>• Precedex</li> <li>• Probucol</li> <li>• <b>Procainamide</b> (page 137)</li> <li>• Procoralan</li> <li>• Prograf</li> <li>• <b>Promethazine</b> (page 136)</li> <li>• <b>Pronestyl</b> (page 137)</li> <li>• Propulsid</li> </ul> | <ul style="list-style-type: none"> <li>• Protriptyline</li> <li>• Prozac</li> <li>• Quaaluin</li> <li>• Quetiapine</li> <li>• Quinaglute</li> <li>• Quinidine</li> <li>• Quinine sulfate</li> <li>• Ranexa</li> <li>• Ranolazine</li> <li>• Remeron</li> <li>• Reminyl</li> <li>• Reyataz</li> <li>• Rilpivirine</li> <li>• Risperdal</li> <li>• Risperidone</li> <li>• Ritonavir</li> <li>• Roxithromycin</li> <li>• Rulide</li> <li>• Saquinavir</li> <li>• Seldane</li> <li>• Septra</li> <li>• Serdolect</li> <li>• Serentil</li> <li>• Seroquel</li> <li>• Sertindole</li> <li>• Sertraline</li> <li>• Sevoflurane</li> <li>• Signifor</li> <li>• Sinequan</li> <li>• Sirturo</li> <li>• Solian</li> </ul> | <ul style="list-style-type: none"> <li>• Solifenacin</li> <li>• Sorafenib</li> <li>• Sotalol</li> <li>• Sparfloxacin</li> <li>• Sporanox</li> <li>• Sprycel</li> <li>• Sulpiride</li> <li>• Sunitinib</li> <li>• Surmontil</li> <li>• Sutent</li> <li>• Symmetrel</li> <li>• Tacrolimus</li> <li>• Tafenlar</li> <li>• Tambocor</li> <li>• Tamoxifen</li> <li>• Tassigna</li> <li>• Telaprevir</li> <li>• Telavancin</li> <li>• Telithromycin</li> <li>• Tequin</li> <li>• Terfenadine</li> <li>• Tetrabenazine</li> <li>• Thioridazine</li> <li>• Thorazine</li> <li>• Tikosyn</li> <li>• Tizanidine</li> <li>• Tofranil</li> <li>• Tolterodine</li> <li>• Toremfene</li> <li>• Trazodone</li> <li>• Trimethoprim-Sulfa</li> </ul> | <ul style="list-style-type: none"> <li>• Trimipramine</li> <li>• Trisenox</li> <li>• Tykerb</li> <li>• Ulane</li> <li>• Uniretic</li> <li>• Uroxatral</li> <li>• Vandetanib</li> <li>• Vardenafil</li> <li>• Vascor</li> <li>• Velcade</li> <li>• Vemurafenib</li> <li>• Venlafaxine</li> <li>• VESicare</li> <li>• VFend</li> <li>• Vibativ</li> <li>• Viracept</li> <li>• Vivactil</li> <li>• Voriconazole</li> <li>• Vorinostat</li> <li>• Votrient</li> <li>• Xalkori</li> <li>• Zagam</li> <li>• Zanaflex</li> <li>• Zelboraf</li> <li>• Ziprasidone</li> <li>• Zithromax</li> <li>• <b>Zofran</b> (page 153)</li> <li>• Zolinza</li> <li>• Zolof</li> <li>• Zyprexa</li> </ul> |
|---|---|---|--|

|                                 |  |
|---------------------------------|--|
| Citations: (CredibleMeds, 2015) |  |
|---------------------------------|--|

## Section 7-010 - Acetaminophen (Tylenol)

### Advanced Life Support

Class:

- \* Analgesic. Antipyretic.

Action:

- \* Analgesic mechanism unknown. Antipyretic is through direct action on hypothalamus.

Route:

- \* PO.

Half-Life:

- \* 1-4 hours.

Contraindications:

- \* Hypersensitivity.

Indications:

Protocol 4-100 - Fever (Fever greater than 102 degrees F) ..... page 50

Section 7-300 - Ibuprofen (Advil, Pediaprofen)

(has been ineffective or administered within 6 hours) ..... page 121

Adult dosage:

- \* 325-650 mg every 4-6 hrs.

Pediatric dosage:

- \* 15 mg/kg every 4-6 hrs.

Precautions:

- \* Impaired liver function. Chronic alcohol use. Impaired renal function. PKU.

Side effects:

- \* Rash, urticaria, Nausea.

Antidote:

- \* Acetylcysteine or mucomyst.

Link to research articles (QR code on right): <http://1drv.ms/1BEhGW0>

Citations:



**Section 7-020 - Activated Charcoal (Actidose)****Advanced Life Support**Class:

- \* Adsorbent.

Action:

- \* Adsorbs toxins by chemical binding and prevents gastrointestinal absorption.

Route:

- \* Oral.

Half-Life:

- \*

Contraindications:

- \* No gag reflex.
- \* Any altered mental state.
- \* Ingestion of acids, alkalis, ethanol, methanol, Cyanide, iron salts, lithium, pesticides, petroleum products.
- \* Acetaminophen Overdose unless the receiving hospital has IV antidote.
- \* GI Obstruction.

Indications:

Protocol 4-140 - Poisoning or Overdose

(Poisoning following emesis or when emesis is contraindicated) ..... page 54

Adult dosage:

- \* 50-100 g mixed with glass of water to form slurry.

Pediatric dosage:

- \* 0.5-1 g/kg mixed with glass of water to form slurry.

Precautions:

- \* Aspiration may cause pneumonitis.

Side effects:

- \* Nausea, vomiting, constipation, diarrhea.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1BEi5aZ>

Citations:



## Section 7-030 - Adenosine (Adenocard)

### Advanced Life Support

Class:

- \* Antiarrhythmic.

Action:

- \* Slows AV conduction.

Route:

- \* IV/IO slam followed by rapid flush.

Half-Life:

- \* less than 10 seconds.

Contraindications:

- \* 2nd or 3rd degree heart block.
- \* Sick Sinus Syndrome.
- \* Drug-induced Tachycardia.

Indications:

Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter (Symptomatic PSVT)..... page 16

Protocol 2-080 - Tachycardia Narrow Stable (Symptomatic PSVT)..... page 24

Protocol 2-090 - Tachycardia Narrow Unstable (Symptomatic PSVT) ..... page 25

Adult dosage:

- \* 6 mg.
- \* If ineffective, second and/or third dose at 12 mg.

Pediatric dosage:

- \* 0.1 mg/kg (max 6 mg/dose).
- \* If ineffective, second and/or third dose at 0.2 mg/kg (max 12 mg/dose).

Precautions:

- \* Arrhythmias, including blocks, are common at the time of Cardioversion. Use caution in patients with Asthma.

Side effects:

- \* Flushing, Headache, shortness of breath, dizziness, Nausea, sense of impending doom, Chest pressure, numbness. May be a brief episode of Asystole after administration.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1BEimL4>

Citations:



**Section 7-040 - Albuterol (Proventil, Ventolin)****Advanced Life Support**Class:

- \* Beta-2 selective sympathomimetic.

Action:

- \* Binds and stimulates beta-2 receptors, resulting in relaxation of bronchial smooth muscle.

Route:

- \* Nebulized.

Half-Life:

- \* 1.6 hours.

Contraindications:

- \* Angioedema.

Indications:

|   |          |
|---|----------|
| Protocol 4-020 - Anaphylaxis .....  | page 38  |
| Protocol 4-030 - Asthma .....   | page 39  |
| Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD)<br>(Reversible bronchospasm associated with COPD) ..... | page 45  |
| Protocol 4-070 - Congestive Heart Failure (CHF) .....   | page 46  |
| Protocol 5-050 - Extremity Trauma .....   | page 62  |
| Section 7-180 - Duoneb (Ipratropium and Albuterol, Combivent) .....   | page 110 |

Dosage:

- \* 2.5 mg in 2.5 ml  
NS over 5-15 min  
Nebulized.

Precautions:

- \* Blood pressure, pulse, and EKG should be monitored. Use caution in patients with known heart disease.

Side effects:

- \* Palpitations, anxiety, Headache, dizziness, sweating, hyperglycemia, hypokalemia, insomnia, Tachycardia, Nausea, vomiting, throat irritation, dry mouth, epistaxis, Hypertension, dyspepsia, and paradoxical bronchospasm.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1BEiBWk>

Citations:

## Section 7-050 - Amiodarone (Cordarone)

### Advanced Life Support

Class:

- \* Class III antiarrhythmic.

Action:

- \* Sodium, Calcium, and Potassium channel blocker. Prolongs intranodal conduction. Prolongs refractoriness of the AV node.

Route:

- \* IV/IO.

Half-Life:

- \* 58 days.

Contraindications:

- \* Cardiogenic shock.
- \* Sinus Bradycardia.
- \* 2nd or 3rd degree AV block.
- \* Sick Sinus Syndrome.
- \* Sensitivity to benzyl alcohol and iodine.

Indications:

|   |         |
|---|---------|
| Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter (Second-line agent for Atrial arrhythmias) ..... | page 16 |
| Protocol 2-080 - Tachycardia Narrow Stable .....  | page 24 |
| Protocol 2-100 - Tachycardia Wide Stable .....  | page 26 |
| Protocol 2-110 - Tachycardia Wide Unstable .....  | page 27 |
| Protocol 2-130 - Ventricular Ectopy .....   | page 29 |
| Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) .....   | page 30 |
| Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) .....  | page 70 |

Adult dosage:

- \* V-Fib/Pulseless V-Tach: 300 mg initial, 150 mg recurrent.
- \* Narrow complex Tachycardia: 150 mg in 100 ml D5W over 10 min.

Pediatric dosage:

- \* 5 mg/kg up (max 300 mg/dose) may repeat to a total of 15 mg/kg max.

Precautions:

- \* Proarrhythmic with concurrent antiarrhythmic meds. Consider slower administration on patients with hepatic or renal dysfunction.
- \* May prolong QT interval. 12-lead is indicated after administration.

Side effects:

- \* Hypotension, Bradycardia (slow down the rate of infusion).

Antidote:

- \* Section 7-100 - Calcium Chloride (Calciject) (page 101).
- \* Section 7-240 - Glucagon (page 116).

Link to research articles (QR code on right): <http://1drv.ms/1BEiNVA>

Citations:





**Section 7-060 - Aspirin (Bayer)****Basic Life Support (EMT)**Class:

- \* Platelet inhibitor. Anti-inflammatory. Analgesic.

Action:

- \* Prevents formation of thromboxane A2. Blocks platelet aggregation.

Route:

- \* PO.

Half-Life:

- \* 3.1-3.2 hours.

Contraindications:

- \* GI bleeding.
- \* Active ulcer disease.
- \* Hemorrhagic stroke.
- \* Bleeding disorders.
- \* Children with chickenpox or flu-like symptoms.

Indications:

Protocol 2-050 - Chest Discomfort (New Chest Pain suggestive of AMI)..... page 19

Adult dosage:

- \* Chew 324 mg (four 81 mg “baby Aspirin”).

Pediatric dosage:

- \* Not indicated.

Precautions:

- \* Aspirin may trigger Asthma attacks in certain individuals with sensitivity. GI bleeding and upset stomach, trauma, decreased LOC of unknown origin.

Side effects:

- \* Heartburn, Nausea, vomiting, wheezing, Anaphylaxis, angioedema, bronchospasm, bleeding, stomach irritation.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1BEj3UC>

Citations: (Carnahan, Title 19 - Rules of Department of Health and Senior Services Division 30 - Division of regulation and licensure Chapter 40 - Comprehensive emergency medical systems regulations, 2012)



## Section 7-070 - Ativan (Lorazepam)

### Advanced Life Support

#### Class:

- \* Benzodiazepine.

#### Action:

- \* Anticonvulsant. Skeletal muscle relaxant. Sedative. Binds to benzodiazepine receptor and enhances effects of GABA.

#### Route:

- \* IV/IM/PR/SL.

#### Half-Life:

- \* 9-16 hours.

#### Contraindications:

- \* Pregnancy and nursing.
- \* Sensitivity to benzodiazepines, polyethylene glycol, benzyl alcohol.
- \* COPD.
- \* Shock.
- \* Coma.
- \* Closed angle glaucoma.

#### Indications:

|   |          |
|---|----------|
| Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter .....                    | page 16  |
| Protocol 2-040 - Bradycardia (Premedication before Cardioversion) .....                 | page 18  |
| Protocol 2-060 - Post Resuscitative Care.....   | page 22  |
| Protocol 2-080 - Tachycardia Narrow Stable (Premedication before Cardioversion).....    | page 24  |
| Protocol 2-090 - Tachycardia Narrow Unstable (Premedication before Cardioversion) ..... | page 25  |
| Protocol 2-100 - Tachycardia Wide Stable (Premedication before Cardioversion) .....     | page 26  |
| Protocol 2-110 - Tachycardia Wide Unstable (Premedication before Cardioversion) .....   | page 27  |
| Protocol 2-120 - Torsades de Pointes (Premedication before Cardioversion).....          | page 28  |
| Protocol 3-020 - Hyperthermia .....   | page 34  |
| Protocol 4-040 - Behavioral (Acute anxiety).....  | page 40  |
| Protocol 4-170 - Seizures (Where Valium is indicated and not available).....            | page 56  |
| Protocol 6-050 - Control of Pain.....   | page 73  |
| Protocol 6-110 - Rapid Sequence Intubation (RSI) .....                                  | page 82  |
| Section 8-050 - Continuous Positive Airway Pressure (CPAP) .....                        | page 165 |

#### Adult dosage:

- \* Status epilepticus: 4 mg may be repeated once in 10 min.
- \* Acute anxiety: 2-4 mg.
- \* Premedication before Cardioversion: 2 mg.

#### Pediatric dosage:

- \* Status epilepticus: 0.1 mg/kg (max 2 mg/dose).
- \* Cardioversion: 0.05 mg/kg (max 2 mg).

#### Precautions:

- \* Depressive disorders. Psychosis. Acute alcohol intoxication. Renal or hepatic impairment. Organic brain syndrome. Myasthenia gravis. Suicidal tendencies. GI disorders. Elderly or debilitated. Limited pulmonary reserve.

#### Side effects:

- \* Apnea, Nausea, vomiting, drowsiness, restlessness, delirium, anterior grade amnesia, weakness, unsteadiness, depression, sleep disturbances, confusion, hallucinations, Hypertension, hypotension, blurred vision, Abdominal discomfort.

#### Antidote:

- \* Section 7-525 - Romazicon (Flumazenil) (page 141).

DEA NUMBER: 2885

Schedule: IV - Low potential for abuse.

Narcotic: No

#### Street names:

- \* Control, Silence

Link to research articles (QR code on right): <http://1drv.ms/1BEje2e>

Citations: (About Drugs), (Silbergleit, et al., 2012), (Sober Recovery), (Street Rx), (US Department of Justice, Drug Enforcement Administration, Office of Diversion Control)



**Section 7-080 - Atropine (Sal-Tropine)****Advanced Life Support**Class:

- \* Parasympatholytic (anticholinergic).

Action:

- \* Competes with acetylcholine at the site of muscarinic receptor. Increases heart rate. Decreases gastrointestinal secretions.

Route:

- \* IV/IO. ET at twice the dose.

Half-Life:

- \* 2 hours.

Contraindications:

- \* None when used in emergency situations.

Indications:

|   |         |
|---|---------|
| Protocol 2-010 - Asystole .....   | page 15 |
| Protocol 2-040 - Bradycardia.....   | page 18 |
| Protocol 2-070 - Pulseless Electrical Activity (PEA) .....                                    | page 23 |
| Protocol 4-140 - Poisoning or Overdose (Organophosphate Poisoning) (Nerve agent exposure) ... | page 54 |
| Protocol 5-070 - Head Trauma .....  | page 64 |
| Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) .....                                    | page 70 |
| Protocol 6-110 - Rapid Sequence Intubation (RSI)  |         |
| (RSI of pediatrics under 10 or any bradycardic patients) .....                                | page 82 |

Adult dosage:

- \* Asystole/PEA: 1 mg every 3-5 min (max 3 mg).
- \* Bradycardia: 0.5 mg every 5 min (max 3 mg).
- \* Organophosphate Poisoning: 2-5 mg.

Pediatric dosage:

- \* Asystole/PEA: 1 mg every 3-5 min (max 3 mg).
- \* Bradycardia: 0.02 mg/kg (min 0.1 mg, max 0.5 mg per dose) (max 1 mg).
- \* Organophosphate Poisoning: 0.05 mg/kg.
- \* Head trauma: 0.02 mg/kg (min 0.1 mg).

Precautions:

- \* Tachycardia. Hypertension. May cause paradoxical Bradycardia if dose is too low or administered too slowly.
- \* May prolong QT interval. 12-lead is indicated after administration.

Side effects:

- \* Palpitations and Tachycardia. Headache, dizziness, and anxiety. Dry mouth, pupillary dilation, and blurred vision. Urinary retention (especially older males). Hot skin temperature. Intense facial flushing. Restlessness.

Antidote:

- \* Physostigmine (Antilirium)

Link to research articles (QR code on right): <http://1drv.ms/1BEjyOl>

Citations:

## Section 7-090 - Benadryl (Diphenhydramine)

|   |   |
|---|---|
| <p><b><u>Advanced Life Support</u></b></p> <p><u>Class:</u></p> <ul style="list-style-type: none"> <li>* Antihistamine.</li> </ul> <p><u>Action:</u></p> <ul style="list-style-type: none"> <li>* Blocks H1 histamine receptors. Has some sedative effects.</li> </ul> <p><u>Route:</u></p> <ul style="list-style-type: none"> <li>* IV/IO/IM.</li> </ul>   | <p><u>Half-Life:</u></p> <ul style="list-style-type: none"> <li>* 8-17 hours.</li> </ul> <p><u>Contraindications:</u></p> <ul style="list-style-type: none"> <li>* Asthma.</li> <li>* Nursing mothers.</li> </ul>   |
| <p><u>Indications:</u></p> <p>Protocol 4-020 - Anaphylaxis ..... page 38</p> <p>Protocol 4-040 - Behavioral..... page 40</p> <p>Protocol 7-130 - Compazine (Prochlorperazine) (Extra Pyramidal Symptoms (EPS))..... page 91</p> <p>Protocol 7-260 - Haldol (Haloperidol) (Extra Pyramidal Symptoms (EPS)) ..... page 105</p> <p>Protocol 7-480 - Phenergan (Promethazine) (Extra Pyramidal Symptoms (EPS)) ..... page 123</p> |   |
| <p><u>Adult dosage:</u></p> <ul style="list-style-type: none"> <li>* 25-50 mg.</li> </ul> <p><u>Pediatric dosage:</u></p> <ul style="list-style-type: none"> <li>* 1.25 mg/kg.</li> </ul>   | <p><u>Precautions:</u></p> <ul style="list-style-type: none"> <li>* Hypotension.</li> <li>* May prolong QT interval. 12-lead is indicated after administration.</li> </ul> <p><u>Side effects:</u></p> <ul style="list-style-type: none"> <li>* Sedation. Dries bronchial secretions. Blurred vision. Headache. Palpitations. Dizziness, excitability, wheezing, thickening of bronchial secretions, Chest tightness, hypotension, dry mouth, Nausea, vomiting, diarrhea.</li> </ul> <p><u>Antidote:</u></p> <ul style="list-style-type: none"> <li>* Physostigmine (Antilirium)</li> </ul> |
| <p><u>Link to research articles (QR code on right):</u> <a href="http://1drv.ms/1wSGfsk">http://1drv.ms/1wSGfsk</a></p> <p><u>Citations:</u></p>  |   |



**Section 7-100 - Calcium Chloride (Calciject)****Advanced Life Support**Class:

- \* Electrolyte.

Action:

- \* Increases cardiac contractility.

Route:

- \* IV/IO.

Half-Life:

- \*

Contraindications:

- \* Patients on digitalis.

Indications:

Protocol 4-140 - Poisoning or Overdose

(Calcium channel blocker Overdose (Verapamil, Nifedipine))..... page 54

Protocol 5-050 - Extremity Trauma..... page 62

Section 7-050 - Amiodarone (Cordarone) ..... page 96

Section 7-120 - Cardizem (Diltiazem)..... page 103

Section 7-380 - Magnesium Sulfate (antidote for Overdose)..... page 128

Dosage:

- \* Contact medical control.

Precautions:

- \* IV line should be flushed between Calcium Chloride and Sodium Bicarbonate administration.

Side effects:

- \* Arrhythmias (Bradycardia and Asystole), and hypotension.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1BEkgeK>

Citations:



## Section 7-110 - Captopril (Capoten)

### Advanced Life Support

Class:

- \* ACE inhibitor.

Action:

- \* Competitive inhibitor of Angiotension Converting Enzyme (ACE).

Route:

- \* SL.

Half-Life:

- \* 1.9 hours.

Contraindications:

- \* Hypersensitivity to any ACE inhibitor.

Indications:

Not in current protocols.

Adult dosage:

- \* SBP greater than 110: 25 mg.
- \* SBP 90-110: 12.5 mg.

Pediatric

dosage:

- \* Not indicated.

Precautions:

- \* May cause hyperkalemia, especially in patients with renal deficiency. Aortic stenosis, bilateral renal artery stenosis, hypertrophic obstructive cardiomyopathy, pericardial tamponade, elevated serum Potassium levels, acute kidney failure.

Side effects:

- \* Hypotension, angioedema, Headache, dizziness, fatigue, depression, Chest Pain, palpitations, cough, dyspnea, Nausea, vomiting, rash, pruritus, renal failure.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1wSGYdd>

Citations:



**Section 7-120 - Cardizem (Diltiazem)****Advanced Life Support**Class:

- \* Calcium channel blocker.

Action:

- \* Slows conduction through the AV node.

Route:

- \* IV/IO.

Half-Life:

- \* 3-4.5 hours.

Contraindications:

- \* Heart blocks.
- \* Conduction disturbances.
- \* WPW.
- \* Congestive heart failure (pulmonary edema).
- \* Hypotension.

Indications:

Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter

(A-Fib with rapid Ventricular response)..... page 16

Protocol 2-080 - Tachycardia Narrow Stable ..... page 24

Adult dosage:

- \* 0.25 mg/kg (max 20 mg) over 2 min.
- \* May repeat at 0.35 mg/kg (max 25 mg) after 15 min.
- \* Infusion at 5-15 mg/hr.

Pediatric dosage:

- \* Call medical control.

Precautions:

- \* Hypotension. Should not be used in patients receiving IV Beta-Blockers.

Side effects:

- \* Nausea, vomiting, hypotension, dizziness, Bradycardia, flushing, Headache, heart block, cardiac Arrest.

Antidote:

- \* Section 7-100 - Calcium Chloride (Calciject) (page 101).
- \* Section 7-240 - Glucagon (page 116).

Link to research articles (QR code on right): <http://1drv.ms/1wSHd83>

Citations:



| CMH/EMH EMS Cardizem Quick Reference Dosing/Sizing Sheet |            |            |        |        |        |        |        |        |        |         |         |         |         |         |         |         |
|--|------------|------------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|
| Patient Age  |            | New        | 3 mo   | 6 mo   | 1 yr   | 2 yr   | 4 yr   | 6 yr   | 8 yr   | 10 yr   | 12 yr   | 14 yr   | adult   | adult   | adult   | adult   |
| Broslov Color  |            | Grey       | Pink   | Red    | Purple | Yellow | White  | Blue   | Orange | Green   |         |         |         |         |         |         |
| Patient Weight (lbs)                                     |            | 10 lbs     | 15 lbs | 20 lbs | 25 lbs | 30 lbs | 40 lbs | 50 lbs | 60 lbs | 80 lbs  | 90 lbs  | 110 lbs | 150 lbs | 200 lbs | 250 lbs | 300 lbs |
| Patient Weight (kg)                                      |            | 5 kg       | 7 kg   | 9 kg   | 11 kg  | 14 kg  | 18 kg  | 23 kg  | 27 kg  | 36 kg   | 41 kg   | 50 kg   | 68 kg   | 91 kg   | 114 kg  | 136     |
| Cardizem Bolus   |            |            |        |        |        |        |        |        |        |         |         |         |         |         |         |         |
| First Dose   | 0.25 mg/kg | 1.3 ml     | 1.8 ml | 2.3 ml | 2.8 ml | 3.5 ml | 4.5 ml | 5.8 ml | 6.8 ml | 9.0 ml  | 10.3 ml | 12.5 ml | 17.0 ml | 22.8 ml | 28.5 ml | 34.0 ml |
| Repeat Dose  | 0.35 mg/kg | 1.8 ml     | 2.5 ml | 3.2 ml | 3.9 ml | 4.9 ml | 6.3 ml | 8.1 ml | 9.5 ml | 12.6 ml | 14.4 ml | 17.5 ml | 23.8 ml | 31.9 ml | 39.9 ml | 47.6 ml |
| Cardizem Maintenance Infusion                            |            |            |        |        |        |        |        |        |        |         |         |         |         |         |         |         |
| Drip   | 5 mg/hr    | 5.0 ml/hr  |        |        |        |        |        |        |        |         |         |         |         |         |         |         |
| Drip   | 10 mg/hr   | 10.0 ml/hr |        |        |        |        |        |        |        |         |         |         |         |         |         |         |
| Drip   | 15 mg/hr   | 15.0 ml/hr |        |        |        |        |        |        |        |         |         |         |         |         |         |         |





## Section 7-130 - Compazine (Prochlorperazine)

|   |   |
|---|---|
| <p><b><u>Advanced Life Support</u></b></p> <p><u>Class:</u></p> <ul style="list-style-type: none"> <li>* Phenothiazine antiemetic.</li> </ul> <p><u>Action:</u></p> <ul style="list-style-type: none"> <li>* Antiemetic.</li> </ul> <p><u>Route:</u></p> <ul style="list-style-type: none"> <li>* IV/IO.</li> </ul> | <p><u>Half-Life:</u></p> <ul style="list-style-type: none"> <li>* 4-8 hours.</li> </ul> <p><u>Contraindications:</u></p> <ul style="list-style-type: none"> <li>* Comatose patients who have received a large amount of depressants (including alcohol).</li> </ul>   |
| <p><u>Indications:</u></p> <p>Not in current protocols.</p>   |   |
| <p><u>Adult dosage:</u></p> <ul style="list-style-type: none"> <li>* 5-10 mg over 2 min.</li> <li>* Each 5 mg must be diluted in 10 ml of NS.</li> </ul> <p><u>Pediatric dosage:</u></p> <ul style="list-style-type: none"> <li>* Not indicated.</li> </ul>   | <p><u>Precautions:</u></p> <ul style="list-style-type: none"> <li>* EPS.</li> </ul> <p><u>Side effects:</u></p> <ul style="list-style-type: none"> <li>* May impair mental and physical ability, drowsiness, hypotension.</li> <li>* Possible Extra-Pyramidal Symptoms (EPS) / dystonic reactions.</li> <li>* EPS is a movement disorder such as the inability to move or restlessness.</li> <li>* Treat with Section 7-090 - Benadryl (Diphenhydramine) (page 100).</li> </ul> <p><u>Antidote:</u></p> <ul style="list-style-type: none"> <li>*</li> </ul> |
| <p><u>Link to research articles (QR code on right):</u> <a href="http://1drv.ms/1BEkUc8">http://1drv.ms/1BEkUc8</a></p> <p><u>Citations:</u></p>  |   |



**Section 7-135 - Cyanokit (Hydroxocobalamin, Vitamin B12)****Advanced Life Support**Class:

\* Antidote.

Action:

\* Cyanide ion binder.

Route:

\* IV/IO.

Half-Life:

\* 6 days.

Contraindications:

\* None.

Indications:

Protocol 4-140 - Poisoning or Overdose (AMS following exposure to smoke in confined space).. page 54

Adult dosage:

\* 5 g IV/IO over 15 min.

Pediatric dosage:

\* 70 mg/kg IV/IO over 15 min (max 5 g total).

Precautions:

\* Substantial increases in blood pressure may occur following Cyanokit therapy. Based on animal studies, may cause fetal harm, however, treatment may be lifesaving.

Side effects:

\* Transient chromaturia, erythema, rash, increased blood pressure, Nausea, Headache.

Antidote:

\*

Link to research articles (QR code on right): <http://1drv.ms/1BEI971>

Citations: (Cyanokit, 2012)



## Section 7-140 - Decadron (Dexamethasone)

### Advanced Life Support

Class:

- \* Steroid.

Action:

- \* Anti-inflammatory. Reduces inflammation and immune response.

Route:

- \* IV/IO/IM/PO.
- \* Inhalation Nebulized as last resort.

Half-Life:

- \* 190 minutes.

Contraindications:

- \* Fungal infections.

Indications:

Protocol 4-030 - Asthma ..... page 39

Protocol 4-080 - Croup ..... page 47

Adult dosage:

- \* 12-16 mg  
(once).

Pediatric dosage:

- \* 0.6 mg/kg (max  
12 mg).

Precautions:

- \* None in emergency setting.

Side effects:

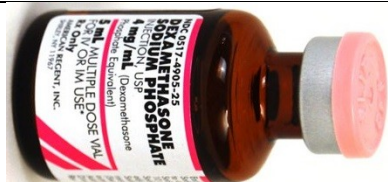
- \* Nausea, vomiting, Headache, vertigo, anxiety, hypokalemia, hyperglycemia, tremors, Hypertension, immunosuppression.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1F6iqSw>

Citations:



**Section 7-150 - Dextrose****Advanced Life Support**Class:

- \* Carbohydrate.

Action:

- \* Elevates blood Glucose level rapidly.

Route:

- \* IV/IO.

Half-Life:

- \*

Contraindications:

- \* Intracranial hemorrhage.

Indications:

|  |          |
|--|----------|
| Protocol 2-100 - Tachycardia Wide Stable.....              | page 26  |
| Protocol 2-110 - Tachycardia Wide Unstable.....            | page 27  |
| Protocol 2-120 - Torsades de Pointes .....                 | page 28  |
| Protocol 2-150 - Wolff-Parkinson-White (WPW).....          | page 31  |
| Protocol 4-120 - Hypoglycemia.....                         | page 52  |
| Protocol 5-050 - Extremity Trauma.....                     | page 62  |
| Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) ..... | page 70  |
| Section 7-050 - Amiodarone (Cordarone) .....               | page 96  |
| Section 7-490 - Procainamide (Pronestyl) .....             | page 137 |

Adult dosage:

- \* **D50W, D25W, or D10W** 25 g.

Pediatric dosage:

- \* **D25W** 0.5-1 g/kg.  
  - \* 5 ml **D50W** + 5 ml **NS** = 2.5 g **D25W**.

Neonate Dosage:

- \* **D10W** 0.5-1 g/kg.  
  - \* 2 ml **D50W** + 8 ml **NS** = 1 g **D10W**.

Precautions:

- \* Blood sample should be drawn before administering.

Side effects:

- \* Local venous irritation. Hyperglycemia, warmth, thrombosis.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1F6iySa>

Citations:



## Section 7-160 - Dilaudid (Hydromorphone)

|  |   |
|--|---|
| <p><b><u>Advanced Life Support</u></b></p> <p><u>Class:</u><br/>                 * Narcotic analgesic.</p> <p><u>Action:</u><br/>                 * Analgesia and sedation. CNS depressant. Decreased sensitivity to Pain.</p> <p><u>Route:</u><br/>                 * IV/IM/IO.</p> | <p><u>Half-Life:</u><br/>                 * 2-3 hours.</p> <p><u>Contraindications:</u><br/>                 * Hypersensitivity.</p>  |
| <p><u>Indications:</u><br/>                 Protocol 6-050 - Control of Pain.....page 73</p>   |   |
| <p><u>Adult dosage:</u><br/>                 * 0.5-1 mg. May repeat at 0.5 mg every 15 min (max 2 mg).<br/>                 * greater than 65 yr old: Max 0.5 mg.</p> <p><u>Pediatric dosage:</u><br/>                 * Not indicated.</p>  | <p><u>Precautions:</u><br/>                 * Respiratory depression may last longer than analgesia.</p> <p><u>Side effects:</u><br/>                 * Bradycardia, respiratory depression, euphoria.</p> <p><u>Antidote:</u><br/>                 * Section 7-400 - Narcan (Naloxone) (page 130).</p> |
| <p><u>DEA Number:</u> 9150</p> <p><u>Schedule:</u> II - High potential for abuse with severe dependence.</p> <p><u>Narcotic:</u> Yes.</p>  | <p><u>Street names:</u><br/>                 * Big D, Crazy 8, D, Dill, Dillies, Dilly, Drug Store Heroin, Dust, Footballs, Hillbilly Heroin, Hospital Heroin, Hydros, Juice, M2, M80s, Moose, Peaches, Shake and Bake, Smack, Super 8, White Triangles.</p>  |
| <p>Link to research articles (QR code on right): <a href="http://1drv.ms/1F6iP7H">http://1drv.ms/1F6iP7H</a></p> <p><u>Citations:</u> (About Drugs), (Sober Recovery), (Street Rx), (US Department of Justice, Drug Enforcement Administration, Office of Diversion Control)</p>     |   |



**Section 7-170 - Dopamine (Intropin)****Advanced Life Support**Class:

- \* Sympathomimetic.

Action:

- \* Stimulates alpha and beta adrenergic receptors. Increases cardiac contractility. Causes peripheral vasoconstriction.

Route:

- \* IV/IO.

Half-Life:

- \* 2 minutes.

Contraindications:

- \* Hypovolemic shock where complete fluid resuscitation has not occurred.
- \* Severe tachyarrhythmias.
- \* Ventricular Fibrillation or Ventricular arrhythmias.

Indications:

Protocol 2-040 - Bradycardia (Bradycardia unresponsive to Atropine) ..... page 18

Protocol 2-060 - Post Resuscitative Care

(Hypovolemic shock - only after complete fluid resuscitation)..... page 22

Protocol 4-070 - Congestive Heart Failure (CHF) (Cardiogenic shock) ..... page 46

Adult dosage:

- \* Beta effects (increased rate, contractility): 5-10 mcg/kg/min.
- \* Alpha effects (vasoconstriction): 10-20 mcg/kg/min.

Colorado down and dirty Dopamine dose:

- \* With 1600 mg/ml mixture only.
- \*  $\frac{(\text{Patient's weight in pounds})}{10} - 2 = \text{ml/hr for 5 mcg/kg/min}$

Pediatric dosage:

- \* 5-20 mcg/kg/min.
- \* Mix 6 mg/kg with enough D5W to make 100 ml.

Precautions:

- \* Ventricular irritability.

Side effects:

- \* Ventricular tachyarrhythmias. Hypertension. Angina, dyspnea, Headache, Nausea, vomiting.

Antidote:

- \* Rigitine.

Link to research articles (QR code on right): <http://1drv.ms/1FT3gjQ>

Citations:

**CMH/EMH EMS Dopamine Quick Reference Dosing/Sizing Sheet**

| Patient Age   | New    | 3 mo   | 6 mo   | 1 yr   | 2 yr   | 4 yr   | 6 yr   | 8 yr   | 10 yr  | 12 yr  | 14 yr   | adult   | adult   | adult   | adult   |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| Broslow Color   | Grey   | Pink   | Red    | Purple | Yellow | White  | Blue   | Orange | Green  |        |         |         |         |         |         |
| Patient Weight (lbs)  | 10 lbs | 15 lbs | 20 lbs | 25 lbs | 30 lbs | 40 lbs | 50 lbs | 60 lbs | 80 lbs | 90 lbs | 110 lbs | 150 lbs | 200 lbs | 250 lbs | 300 lbs |
| Patient Weight (kg)   | 5 kg   | 7 kg   | 9 kg   | 11 kg  | 14 kg  | 18 kg  | 23 kg  | 27 kg  | 36 kg  | 41 kg  | 50 kg   | 68 kg   | 91 kg   | 114 kg  | 136     |
| Dopamine Beta Effects (Chronotropy, Inotropy, Dromotropy) [ml/hr] |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |
| Beta 2 mcg/kg/min   | 0.4    | 0.6    | 0.7    | 0.9    | 1.1    | 1.4    | 1.8    | 2.1    | 2.7    | 3.1    | 3.8     | 5.1     | 6.9     | 8.6     | 10.2    |
| Beta 4 mcg/kg/min   | 0.8    | 1.1    | 1.4    | 1.7    | 2.1    | 2.7    | 3.5    | 4.1    | 5.4    | 6.2    | 7.5     | 10.2    | 13.7    | 17.1    | 20.4    |
| Beta 6 mcg/kg/min   | 1.2    | 1.6    | 2.1    | 2.5    | 3.2    | 4.1    | 5.2    | 6.1    | 8.1    | 9.3    | 11.3    | 15.3    | 20.5    | 25.7    | 30.6    |
| Beta 8 mcg/kg/min   | 1.5    | 2.1    | 2.7    | 3.3    | 4.2    | 5.4    | 6.9    | 8.1    | 10.8   | 12.3   | 15.0    | 20.4    | 27.3    | 34.2    | 40.8    |
| Dopamine Alpha Effects (Vasoconstriction) [ml/hr]                 |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |
| Alpha 10 mcg/kg/min   | 1.9    | 2.7    | 3.4    | 4.2    | 5.3    | 6.8    | 8.7    | 10.2   | 13.5   | 15.4   | 18.8    | 25.5    | 34.2    | 42.8    | 51.0    |
| Alpha 20 mcg/kg/min   | 3.8    | 5.3    | 6.8    | 8.3    | 10.5   | 13.5   | 17.3   | 20.3   | 27.0   | 30.8   | 37.5    | 51.0    | 68.3    | 85.5    | 102.0   |
| Alpha 30 mcg/kg/min   | 5.7    | 7.9    | 10.2   | 12.4   | 15.8   | 20.3   | 25.9   | 30.4   | 40.5   | 46.2   | 56.3    | 76.5    | 102.4   | 128.3   | 153.0   |
| Alpha 40 mcg/kg/min   | 7.5    | 10.5   | 13.5   | 16.5   | 21.0   | 27.0   | 34.5   | 40.5   | 54.0   | 61.5   | 75.0    | 102.0   | 136.5   | 171.0   | 204.0   |
| Alpha 50 mcg/kg/min   | 9.4    | 13.2   | 16.9   | 20.7   | 26.3   | 33.8   | 43.2   | 50.7   | 67.5   | 76.9   | 93.8    | 127.5   | 170.7   | 213.8   | 255.0   |

## Section 7-180 - Duoneb (Ipratropium and Albuterol, Combivent)

**Section 7-180 - Duoneb (Ipratropium and Albuterol, Combivent)****Advanced Life Support**Class:

- \* Beta adrenergic. Anticholinergic.

Action:

- \* Binds and stimulates beta-2 receptors, resulting in relaxation of bronchial smooth muscle, and antagonizes the acetylcholine receptor, producing bronchodilation.

Route:

- \* Nebulized.

Half-Life:

- \*

Contraindications:

- \* Hypersensitivity to Ipratropium, Albuterol, or Atropine.
- \* Allergy to soybeans or peanuts.
- \* Closed angle glaucoma.
- \* Bladder neck obstruction.
- \* Prostatic hypertrophy.

Indications:

|   |         |
|---|---------|
| Protocol 4-020 - Anaphylaxis .....  | page 38 |
| Protocol 4-030 - Asthma .....   | page 39 |
| Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) .....                                 | page 45 |
| Protocol 4-070 - Congestive Heart Failure (CHF) .....   | page 46 |
| Section 7-040 - Albuterol (Proventil, Ventolin) (Bronchoconstriction refractory to Albuterol) ..... | page 95 |

Adult dosage:

- \* 3 ml = 0.5 mg Ipratropium + 2.5 mg Albuterol (max 1 dose).

Pediatric dosage:

- \* 3 ml = 0.25 mg Ipratropium + 2.5 mg Albuterol (max 1 dose).

Precautions:

- \* Blood pressure, pulse, and EKG should be monitored. Use caution in patients with known heart disease. May cause paradoxical acute bronchospasm.

Side effects:

- \* Palpitations, anxiety, Headache, dizziness, sweating, Tachycardia, cough, Nausea, arrhythmias, paradoxical acute bronchospasm.

Antidote:

- \* Physostigmine.

Link to research articles (QR code on right): <http://1drv.ms/1FT3qI1>

Citations:





**Section 7-190 - Epinephrine 1:1,000****Basic Life Support (EMT)**

- \* Auto-injector pen indicated for Anaphylaxis if Paramedic is unavailable.

**Advanced Life Support**Class:

- \* Sympathomimetic.

Action:

- \* Binds with both alpha and beta receptors. Bronchodilation.

Route:

- \* SQ/IM/ET.

Half-Life:

- \* 2 minutes.

Contraindications:

- \* Cardiovascular disease.
- \* Hypertension.
- \* Pregnancy.
- \* Patients with tachyarrhythmias.
- \* CerebroVascular disease.
- \* Diabetes.

Indications:

|   |          |
|---|----------|
| Protocol 2-010 - Asystole .....                                   | page 15  |
| Protocol 2-070 - Pulseless Electrical Activity (PEA) .....        | page 23  |
| Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) ..... | page 30  |
| Protocol 4-020 - Anaphylaxis .....                                | page 38  |
| Protocol 4-030 - Asthma .....                                     | page 39  |
| Protocol 4-080 - Croup .....                                      | page 47  |
| Protocol 4-130 - Neonatal Resuscitation .....                     | page 53  |
| Section 7-200 - Epinephrine 1:10,000 .....                        | page 112 |

Adult dosage:

- \* 0.3-0.5 mg (max 1 mg).

Pediatric dosage:

- \* 0.01 mg/kg (max 0.5 mg).
- \* ET dose where IV access for Section 7-200 - Epinephrine 1:10,000 (page 112) concentration unavailable: 0.1 mg/kg.

Precautions:

- \* Medication should be protected from light. Blood pressure, pulse and EKG must be constantly monitored.

Side effects:

- \* Palpitations, Tachycardia, anxiousness, Headache, tremor, myocardial ischemia in older patients. Anxiety, Chest Pain, cardiac arrhythmias, Hypertension, Nausea, vomiting.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1FT3Aiy>

Citations: (Carnahan, Title 19 - Rules of Department of Health and Senior Services Division 30 - Division of regulation and licensure Chapter 40 - Comprehensive emergency medical systems regulations, 2012)



## Section 7-200 - Epinephrine 1:10,000

### Advanced Life Support

Class:

- \* Sympathomimetic.

Action:

- \* Binds with both alpha and beta receptors. Increases heart rate. Increases cardiac contractility. Causes bronchodilation.

Route:

- \* IV/IO.
- \* ET: see Section 7-190 - Epinephrine 1:1,000 (page 111).

Half-Life:

- \* 2 minutes.

Contraindications:

- \* None when used in emergency setting.

Indications:

|   |          |
|---|----------|
| Protocol 2-010 - Asystole .....                                   | page 15  |
| Protocol 2-040 - Bradycardia.....                                 | page 18  |
| Protocol 2-070 - Pulseless Electrical Activity (PEA) .....        | page 23  |
| Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) ..... | page 30  |
| Protocol 4-020 - Anaphylaxis .....                                | page 38  |
| Protocol 4-130 - Neonatal Resuscitation .....                     | page 53  |
| Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) .....        | page 70  |
| Section 7-340 - Labetalol (Nomadyne) (Overdose).....              | page 124 |

Adult dosage:

- \* Cardiac Arrest: 1 mg every 3-5 min.
- \* Bradycardia: 2-10 mcg/min.
  - \* Mix 1 mg in 250 ml NS. 2 mcg/min = 30 ml/hr. 10 mcg/min = 150 ml/hr.
- \* Severe Anaphylaxis: 0.3 mg. Consider 05-15 mcg/min.

Pediatric dosage:

- \* Cardiac Arrest: 0.01 mg/kg every 3-5 min.
- \* Bradycardia: 0.01 mg/kg every 3-5 min.
- \* Severe Anaphylaxis: 0.1-1 mcg/kg/min.

Precautions:

- \* Medication should be protected from light. Can be deactivated by alkaline solutions.

Side effects:

- \* Tachyarrhythmias. Palpitations. Anxiety, Chest Pain, Hypertension, Nausea, vomiting, Headache.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1Ff6JKu>

Citations:



**Section 7-210 - Epinephrine Racemic (Micronefrin)****Advanced Life Support**Class:

- \* Nonselective alpha and beta agonist.

Action:

- \* Arteriole constriction. Positive inotrope. Positive chronotrope. Bronchial smooth muscle relaxant. Blocks histamine release. Inhibits insulin secretion. Relaxes GI smooth muscle.

Route:

- \* Nebulized.

Half-Life:

- \* 2 minutes.

Contraindications:

- \* Glaucoma.
- \* Elderly.
- \* Cardiac disease.
- \* Hypertension.
- \* Thyroid disease.
- \* Diabetes.
- \* Sensitivity to sulfites.

Indications:

Protocol 4-080 - Croup (Croup with moderate to severe respiratory distress) ..... page 47

Dosage:

- \* 0.5 ml mixed with 3 ml NS.

Precautions:

- \* Observe 2-4hrs after administration.

Side effects:

- \* Palpitations, anxiety, Headache, Hypertension, Nausea, vomiting, arrhythmias, rebound edema. Dizziness, tremor, Tachycardia.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1F6jMg9>

Citations:



## Section 7-220 - Etomidate (Amidate)

### Advanced Life Support

Class:

- \* Sedative, non-barbiturate hypnotic.

Action:

- \* Unknown GABA-like effects. No analgesic effects. Has few Cardiovascular or respiratory effects. Cerebro-protective decreases ICP, IOP.

Route:

- \* IV/IO.

Half-Life:

- \* 75 minutes.

Contraindications:

- \* Hypersensitivity.
- \* Sepsis.

Indications:

Protocol 6-110 - Rapid Sequence Intubation (RSI) (Sedation prior to Intubation) ..... page 82

Dosage:

- \* 0.3  
mg/kg.

Precautions:

- \* Single dose only. Marked hypotension. Severe Asthma.

Side effects:

- \* Myoclonic skeletal muscle movements. Apnea. Hypertension, hypotension, dysrhythmias. Nausea, vomiting, hiccups, snoring. Adrenal insufficiency, laryngospasm, cardiac arrhythmias.

Antidote:


- \*

Link to research articles (QR code on right): <http://1drv.ms/1F6jZQE>

Citations:



**Section 7-230 - Fentanyl (Sublimaze)**

|  |  |
|--|--|
| <p><b><u>Advanced Life Support</u></b></p> <p><u>Class:</u></p> <ul style="list-style-type: none"> <li>* Narcotic analgesic.</li> </ul> <p><u>Action:</u></p> <ul style="list-style-type: none"> <li>* Binds to opiate receptors. Analgesia and sedation. Central nervous system depressant. Decreased sensitivity to Pain.</li> </ul> <p><u>Route:</u></p> <ul style="list-style-type: none"> <li>* IV/IN/IM/IO.</li> </ul>   | <p><u>Half-Life:</u></p> <ul style="list-style-type: none"> <li>* IV: 10-20 minutes</li> <li>* IN: 6.5 minutes.</li> </ul> <p><u>Contraindications:</u></p> <ul style="list-style-type: none"> <li>* Hypersensitivity.</li> </ul>  |
| <p><u>Indications:</u></p> <p>Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter.....page 16</p> <p>Protocol 2-040 - Bradycardia.....page 18</p> <p>Protocol 2-050 - Chest Discomfort.....page 19</p> <p>Protocol 2-060 - Post Resuscitative Care.....page 22</p> <p>Protocol 2-080 - Tachycardia Narrow Stable .....page 24</p> <p>Protocol 2-090 - Tachycardia Narrow Unstable .....page 25</p> <p>Protocol 2-100 - Tachycardia Wide Stable .....page 26</p> <p>Protocol 2-110 - Tachycardia Wide Unstable.....page 27</p> <p>Protocol 2-120 - Torsades de Pointes .....page 28</p> <p>Protocol 3-030 - Hypothermia .....page 35</p> <p>Protocol 4-010 - Abdominal Pain .....page 37</p> <p>Protocol 5-070 - Head Trauma.....page 64</p> <p>Protocol 6-050 - Control of Pain.....page 73</p> <p>Protocol 6-110 - Rapid Sequence Intubation (RSI) .....page 82</p> <p>Section 8-080 - Endotracheal Tube (ET) .....page 170</p> <p>Section 8-160 - King LTSD Airway .....page 179</p> <p>Section 8-170 - Laryngeal Mask Airway (LMA) Supreme .....page 180</p> |  |
| <p><u>Adult dosage:</u></p> <ul style="list-style-type: none"> <li>* 50 mcg every 5-20 min PRN for Pain (max 300 mcg). Maximum of 50 mcg per dose.</li> <li>* Greater than 65 yr: 25-50 mcg (max 150 mcg).</li> </ul> <p><u>Pediatric dosage:</u></p> <ul style="list-style-type: none"> <li>* 0.5-2 mcg/kg.</li> </ul>  | <p><u>Precautions:</u></p> <ul style="list-style-type: none"> <li>* Respiratory depression may last longer than the analgesic effects. Narcan should be available. Give slowly, rapid injection could cause rigid Chest syndrome (usually occurs when dose is greater than 200 mcg). Use with caution in traumatic brain injury.</li> </ul> <p><u>Side effects:</u></p> <ul style="list-style-type: none"> <li>* Bradycardia, respiratory depression, euphoria. Hypotension, Nausea, vomiting, dizziness, sedation, Bradycardia, Tachycardia, palpitations, Hypertension, diaphoresis, syncope.</li> </ul> <p><u>Antidote:</u></p> <ul style="list-style-type: none"> <li>* Section 7-400 - Narcan (Naloxone) (page 130).</li> </ul> |
| <p><u>DEA Number:</u> 9801</p> <p><u>Schedule:</u> II - High potential for abuse with severe dependence.</p> <p><u>Narcotic:</u> Yes.</p>  | <p><u>Street names:</u></p> <ul style="list-style-type: none"> <li>* Apache, China Girls, China Town, China White, Dance Fever, Fent, Friend, Goodfellas, Great Bear, HeMan, Jackpot, King Ivory, Magic, Murder 8, Perc-A-Pop, Poison, Tango and Cash, TNT.</li> </ul>   |
| <p>Link to research articles (QR code on right): <a href="http://1drv.ms/1F6k5Yt">http://1drv.ms/1F6k5Yt</a></p> <p><u>Citations:</u> (About Drugs), (Borland, Bergesio, Pascoe, Turner, &amp; Woodger, 2005), (Citizens Memorial Hospital, 2013), (Finn, et al., 2004), (O'Donnell, et al., 2013), (Sober Recovery), (Street Rx), (US Department of Justice, Drug Enforcement Administration, Office of Diversion Control)</p>  |   |



## Section 7-240 - Glucagon

### Advanced Life Support

Class:

- \* Other endocrine/metabolism.

Action:

- \* Converts hepatic glycogen to Glucose.

Route:

- \* IM/SQ/IV/IO.

Half-Life:

- \*

Contraindications:

- \* Pheochromocytoma.
- \* Insulinoma.

Indications:

Protocol 4-120 - Hypoglycemia

(Severe Hypoglycemia when unable to establish vascular access) .....page 52

Protocol 4-140 - Poisoning or Overdose (Beta-Blocker Overdose) .....page 54

Adult dosage:

- \* Hypoglycemia: 1 mg. May repeat once after 20 min.
- \* Beta-Blocker Overdose: 2-5 mg. May repeat at 10 mg if Bradycardia and hypotension recur.

Pediatric dosage:

- \* Hypoglycemia: 0.5 mg. May repeat once after 20 min.
- \* Beta-Blocker Overdose: 30-150 mcg/kg (max 5 mg).

Precautions:

- \* May cause severe rebound hyperglycemia.

Side effects:

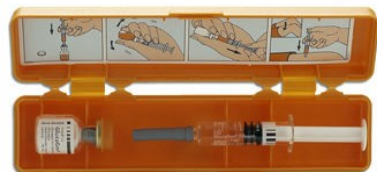
- \* Hypotension. Nausea/vomiting. Urticaria. Respiratory distress. Tachycardia.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1F6keLr>

Citations:



**Section 7-250 - Glucose**

|  |   |
|--|---|
| <b><u>Basic Life Support (EMT)</u></b><br><br><u>Class:</u><br>* Carbohydrate.<br><u>Action:</u><br>* Elevates blood sugar levels.<br><u>Route:</u><br>* PO. | <u>Half-Life:</u><br>*<br><u>Contraindications:</u><br>* Patients with altered level of consciousness that cannot protect Airway. |
|--|---|

Indications:

Protocol 4-120 - Hypoglycemia..... page 52

|                           |   |
|---------------------------|---|
| <u>Dosage:</u><br>* 15 g. | <u>Precautions:</u><br>* If alcohol abuse is suspected, then Glucose should be given after 100mg of Thiamine is administered.<br><u>Side effects:</u><br>* None.<br><u>Antidote:</u><br>* |
|---------------------------|---|

Link to research articles (QR code on right): <http://1drv.ms/1GOAdPy>

Citations: (Carnahan, Title 19 - Rules of Department of Health and Senior Services Division 30 - Division of regulation and licensure Chapter 40 - Comprehensive emergency medical systems regulations, 2012)





## Section 7-260 - Haldol (Haloperidol)

### Advanced Life Support

Class:

- \* Antipsychotic.

Action:

- \* Competitive postsynaptic Dopamine receptor blocker.

Route:

- \* IV/IM/IO.

Half-Life:

- \* 10-30 hours.

Contraindications:

- \* Parkinson's disease.
- \* Severe CNS depression.
- \* Comatose states.

Indications:

Protocol 4-040 - Behavioral (Agitation) (Aggressive behavior) ..... page 40

Adult dosage:

- \* Mild agitation: 2-5 mg.
- \* Moderate to severe agitation: 5 mg.

Pediatric dosage:

- \* Not recommended.

Precautions:

- \* Severe Cardiovascular disorders due to possible hypotension. If vasopressor is needed, use norEpinephrine.
- \* May prolong QT interval. 12-lead is indicated after administration.

Side effects:

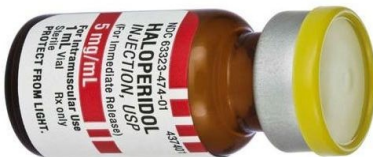
- \* Prolongation of QT. Drowsiness, tardive dyskinesia, hypotension, Hypertension, Tachycardia, Torsades, de Pointes.
- \* Possible Extra-Pyramidal Symptoms (EPS) / dystonic reactions.
  - \* EPS is a movement disorder such as the inability to move or restlessness.
  - \* Treat with Section 7-090 - Benadryl (Diphenhydramine) (page 100).

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1GOArWJ>

Citations:



**Section 7-270 - Heparin****Advanced Life Support**Class:

- \* Anticoagulant.

Action:

- \* Inhibition of Thrombin. Acts on antithrombin III to reduce ability to clot.

Route:

- \* IV.

Half-Life:

- \* 1.5 hours.

Contraindications:

- \* Previously given low molecular weight Heparin.
- \* Dissecting thoracic aortic aneurysm.
- \* Peptic ulceration.

Indications:

Protocol 2-050 - Chest Discomfort

(New Chest Pain suggestive of an acute myocardial infarction) ..... page 19

Adult dosage:

- \* 60 u/kg followed by 12 u/kg/hr (max 4,000 u bolus and 1,000 u/hr).

Pediatric dosage:

- \* Not indicated.

Precautions:

- \* Oral anticoagulants.

Side effects:

- \* Bleeding.

Antidote:

- \* Protamine sulfate.

Link to research articles (QR code on right): <http://1drv.ms/1GOABxq>

Citations:



## Section 7-280 - Hydralazine (Apresoline)

### Advanced Life Support

Class:

- \* Vasodilator.

Action:

- \* Directly dilates peripheral blood vessels.

Route:

- \* IV/IO/IM.

Half-Life:

- \* 2-8 hours.

Contraindications:

- \* Taking diazoxide or MAOIs.
- \* Coronary artery disease.
- \* Stroke.
- \* Angina
- \* Aortic aneurysm.
- \* Heart disease.

Indications:

Protocol 4-110 - Hypertension  
 (Hypertensive crisis or associated with preeclampsia and eclampsia) ..... page 51

Adult dosage:

- \* Preeclampsia and eclampsia: 5-10 mg.  
Repeat every 20-30 min until SBP less than 105.
- \* Hypertension: 10-20 mg.

Pediatric dosage:

- \* Hypertension: 0.1-0.2 mg/kg (max 20 mg).

Precautions:

- \* May cause reflex Tachycardia.

Side effects:

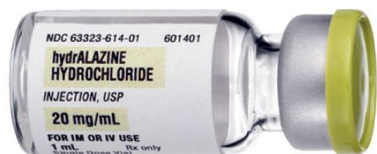
- \* Headache, angina, flushing, palpitations, Tachycardia, anorexia, Nausea, vomiting, diarrhea, hypotension, syncope, vasodilation, edema, paresthesias.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1GOB3eV>

Citations:



**Section 7-300 - Ibuprofen (Advil, Pediaprofen)****Advanced Life Support**Class:

- \* NSAID.

Action:

- \* Inhibits cyclooxygenase and lipoxygenase and reduces prostaglandin synthesis.

Route:

- \* PO.

Half-Life:

- \* 1.8-2 hours.

Contraindications:

- \* ASA/NSAID induced Asthma.
- \* History of GI bleeds.

Indications:

Protocol 4-100 - Fever (Fever greater than 102 degrees F) ..... page 50

Section 7-010 - Acetaminophen (Tylenol)

(Acetaminophen has been ineffective or given within last 4hrs)..... page 92

Adult dosage:

- \* 200-400 mg every 4-6 hrs.

Pediatric dosage:

- \* 10 mg/kg.

Precautions:

- \* Caution in Hypertension, CHF.

Side effects:

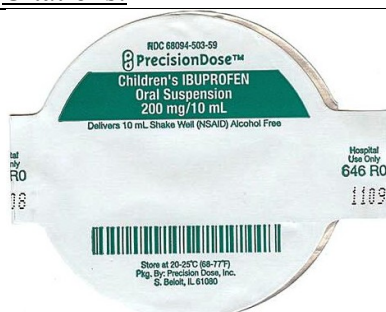
- \* Anaphylaxis, Abdominal Pain, Nausea, Headache, dizziness, rash.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1GOB3eV>

Citations:



## Section 7-320 - Ipratropium (Atrovent)

### Advanced Life Support

#### Class:

- \* Beta adrenergic.

#### Action:

- \* Binds and stimulates beta-2 receptors, resulting in relaxation of bronchial smooth muscle, producing bronchodilation.

#### Route:

- \* Nebulized.

#### Half-Life:

- \* 2 hours.

#### Contraindications:

- \* Hypersensitivity to Ipratropium, Albuterol, or Atropine.
- \* Allergy to soybeans or peanuts.
- \* Closed angle glaucoma.
- \* Bladder neck obstruction.
- \* Prostatic hypertrophy.

#### Indications:

|   |          |
|---|----------|
| Protocol 4-020 - Anaphylaxis .....  | page 38  |
| Protocol 4-030 - Asthma .....   | page 39  |
| Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) .....                                 | page 45  |
| Protocol 4-070 - Congestive Heart Failure (CHF) .....   | page 46  |
| Section 7-040 - Albuterol (Proventil, Ventolin) (Bronchoconstriction refractory to Albuterol) ..... | page 95  |
| Section 7-180 - Duoneb (Ipratropium and Albuterol, Combivent) .....                                 | page 110 |

#### Adult dosage:

- \* 0.5 mg (max 1 dose).

#### Pediatric

#### dosage:

- \* 0.25 mg (max 1 dose).

#### Precautions:

- \* Blood pressure, pulse, and EKG should be monitored. Use caution in patients with known heart disease. May cause paradoxical acute bronchospasm.

#### Side effects:

- \* Palpitations, anxiety, Headache, dizziness, sweating, Tachycardia, cough, Nausea, arrhythmias, paradoxical acute bronchospasm.

#### Antidote:

- \* Physostigmine (Antilirium).

Link to research articles (QR code on right): <http://1drv.ms/1GOBkyB>

Citations:



**Section 7-330 - Ketamine (Ketalar)****Advanced Life Support**Class:

- \* Dissociative anesthetic. NMDA receptor antagonist.

Action:

- \* Produces state of anesthesia while maintaining Airway reflexes, heart rate, and blood pressure. Acts on cortex and limbic receptors, producing dissociative analgesia and sedation. Higher doses act on the Mu opioid receptor.

Route:

- \* IV/IO/IM.

Half-Life:

- \* 2.5-3 hours.

Contraindications:

- \* Hypersensitivity.

Indications:

Protocol 4-040 - Behavioral..... page 40

Protocol 6-050 - Control of Pain (Pain and anesthesia for procedures of short duration)..... page 73

Protocol 6-110 - Rapid Sequence Intubation (RSI) ..... page 82

Analgesic dosage:

- \* IV/IO: 0.1-0.2 mg/kg.

- \* IM: 0.8-1.0 mg/kg.

Dissociative dosage:

- \* IV/IO: 1-2 mg/kg. Produces dissociation within 30 sec lasting 5-10 min.

- \* IM: 4-5 mg/kg. Produces dissociation within 3-4 min lasting 12-25 min.

Over 65 yr old: Half doses above.

Precautions:

- \* Use caution in patients where significant hypertension would be hazardous (i.e. stroke, head trauma, ICP, MI).

- \* Glaucoma, hypovolemia, dehydration, cardiac disease.

Side effects:

- \* Emergence phenomena, Hypertension, Tachycardia, hypotension, Bradycardia, arrhythmias, respiratory depression, apnea, laryngospasms, tonic/clonic movements, vomiting.

Antidote:

- \*

DEA Number: 7285

Schedule: III - Potential for abuse with moderate dependence.

Narcotic: No.

Street names:

- \* Black Hole, Bump, Cat Killer, Cat Valium, Coke, Green, Honey Oil, Jet, K Hole, K, Ket, Kit Kat, Kitty Flipping, Purple, Special K, Special LA, Super Acid, Super C, Vitamin K.

Link to research articles (QR code on right): <http://1drv.ms/1BRznTI>

Citations: (About Drugs), (Filanovsky, Miller, & Kao, 2010), (Flower & Hellings, 2012), (Sober Recovery), (Street Rx), (US Department of Justice, Drug Enforcement Administration, Office of Diversion Control)



## Section 7-340 - Labetalol (Nomadyne)

### Advanced Life Support

Class:

- \* Antihypertensive.

Action:

- \* Alpha and beta blockade. Binds with alpha-1, beta-1, and beta-2 receptors in vascular smooth muscle. Inhibits strength of heart's contractions and rate.

Route:

- \* IV/IO.

Half-Life:

- \* 5.5 hours.

Contraindications:

- \* Bronchial Asthma.
- \* Heart block.
- \* Cardiogenic shock.
- \* Bradycardia.
- \* Hypotension.
- \* Pulmonary edema.
- \* Heart failure.
- \* Sick Sinus Syndrome.

Indications:

Protocol 4-110 - Hypertension.....page 51

Adult dosage:

- \* 20 mg over 2 min while patient is supine.

Pediatric dosage:

- \* 0.4-1 mg/kg/hr (max 3 mg/kg/hr).

Precautions:

- \* Blood pressure should be constantly monitored. Cannot give at the same time with Section 7-360 - Lasix (Furosemide) (page 126).

Side effects:

- \* Dizziness, flushing, Nausea, Headaches, weakness, postural hypotension. Hypotension, vomiting, bronchospasm, arrhythmia, Bradycardia, AV block.

Antidote:

- \* Section 7-200 - Epinephrine 1:10,000 (page 112).
- \* Section 7-240 - Glucagon (page 116).

Link to research articles (QR code on right): <http://1drv.ms/1BRzvCE>

Citations:





**Section 7-350 - Lactated Ringers (LR)****Advanced Life Support**Class:

- \* Crystalloid solution.

Action:

- \*

Route:

- \* IV/IO.

Half-Life:

- \*

Contraindications:

- \* None.

Indications:

|  |          |
|--|----------|
| Protocol 3-020 - Hyperthermia .....                    | page 34  |
| Protocol 5-020 - Abdominal Trauma .....                | page 59  |
| Protocol 5-030 - Burns .....                           | page 60  |
| Protocol 5-040 - Chest Trauma .....                    | page 61  |
| Protocol 5-050 - Extremity Trauma .....                | page 62  |
| Protocol 5-080 - Spinal Trauma .....                   | page 65  |
| Protocol 5-090 - Trauma Arrest .....                   | page 66  |
| Protocol 6-040 - Control of Nausea .....               | page 72  |
| Protocol 6-050 - Control of Pain .....                 | page 73  |
| Protocol 6-110 - Rapid Sequence Intubation (RSI) ..... | page 82  |
| Section 7-470 - Oxytocin (Pitocin) .....               | page 135 |

Adult dosage:

- \* 500-1,000 ml for volume replacement.

Pediatric dosage:

- \* 20 ml/kg for volume replacement (max x3).

Precautions:

- \* NA.

Side effects:

- \* Pulmonary Edema.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1BRzAq0>

Citations: (Laszlo, et al., 2006), (Phillips, et al., 2009), (Schott, 2010), (Todd & Malinoski, 2007)



## Section 7-360 - Lasix (Furosemide)

### Advanced Life Support

Class:

- \* Potent diuretic.

Action:

- \* Inhibits reabsorption of sodium chloride. Promotes prompt diureses.  
 Vasodilation. Decreases absorption of water and increased production of urine.

Route:

- \* IV/IO/IM.

Half-Life:

- \* 100 minutes.

Contraindications:

- \* Pregnancy.
- \* Dehydration.

Indications:

Protocol 4-070 - Congestive Heart Failure (CHF) (Pulmonary edema) ..... page 46

Adult dosage:

- \* 40 mg.
- \* If on oral diuretics: Double that prescribed dose and give IV.

Pediatric dosage:

- \* 1-2 mg/kg.

Precautions:

- \* Should be protected from light. Dehydration.
- \* May prolong QT interval. 12-lead is indicated after administration.

Side effects:

- \* Hypotension.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/18iFKBC>

Citations:



**Section 7-370 - Lidocaine (Xylocaine)****Advanced Life Support**Class:

- \* Antiarrhythmic.

Action:

- \* Blocks sodium channels, increasing recovery period after repolarization. Suppresses automaticity in the His-Purkinje system and depolarization in the ventricles.

Route:

- \* IV/IO/ET/topical.

Half-Life:

- \* 1.5-2 hours.

Contraindications:

- \* High degree heart blocks.
- \* PVCs in conjunction with Bradycardia.
- \* Bleeding.

Indications:

|  |          |
|--|----------|
| Protocol 2-100 - Tachycardia Wide Stable.....  | page 26  |
| Protocol 2-130 - Ventricular Ectopy<br>(Ventricular arrhythmias when Amiodarone is not available)..... | page 29  |
| Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) (Cardiac Arrest from VF/VT).....           | page 30  |
| Protocol 5-070 - Head Trauma (Premedication for <b>Intubation</b> to help prevent increased ICP) ..... | page 64  |
| Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) .....   | page 70  |
| Protocol 6-110 - Rapid Sequence Intubation (RSI) .....   | page 82  |
| Section 8-135 - Intraosseous (IO) Needle.....  | page 175 |

Adult dosage:

- \* Pulseless VT/VF: 1-1.5 mg/kg repeat at 0.5-0.75 mg/kg every 5-10 min (max 3 mg/kg).
- \* Post-code: 1-4 mg/min (max 300 mg/hr).
- \* Arrhythmias: 0.5-0.75 mg/kg. Maintain at 1-4 mg/min.
- \* **Intubation** prophylaxis: 1.5 mg/kg.

Pediatric dosage:

- \* Pulseless VT/VF: 1 mg/kg (max 100 mg).
- \* Post-code: 20-50 mcg/kg/min.
- \* Arrhythmias: 1 mg/kg. Maintain at 20-50 mcg/min.
- \* **Intubation** prophylaxis: 1 mg/kg.

Precautions:

- \* Monitor for CNS toxicity. Liver disease or greater than 70yrs old: reduce dosage by 50%. Use with caution in Bradycardia, hypovolemia, shock, Adams-Stokes, Wolff-Parkinson-White.

Side effects:

- \* Anxiety, drowsiness, dizziness, confusion, Nausea, vomiting, convulsions, widening of QRS. Arrhythmias, hypotension.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/18iFNNG>

Citations:



### CMH/EMH EMS Quick Ref

#### Lidocaine Infusion

|      |          |            |
|------|----------|------------|
| Drip | 1 mg/min | 15.0 ml/hr |
| Drip | 2 mg/min | 30.0 ml/hr |
| Drip | 3 mg/min | 45.0 ml/hr |
| Drip | 4 mg/min | 60.0 ml/hr |



## Section 7-380 - Magnesium Sulfate

### Advanced Life Support

Class:

- \* Anticonvulsant. Smooth muscle relaxer.

Action:

- \* CNS depressant. Cofactor in neurochemical transmission and muscular excitability. Controls Seizure by blocking peripheral neuromuscular transmission. Peripheral vasodilator and platelet inhibitor.

Route:

- \* IV/IO/IM.

Half-Life:

- \*

Contraindications:

- \* Heart block.
- \* Recent MI.
- \* Renal insufficiency or renal failure.
- \* GI obstruction.

Indications:

|   |         |
|---|---------|
| Protocol 2-100 - Tachycardia Wide Stable.....   | page 26 |
| Protocol 2-110 - Tachycardia Wide Unstable.....   | page 27 |
| Protocol 2-120 - Torsades de Pointes .....  | page 28 |
| Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) (Refractory V-Fib/ V-Tach)..... | page 30 |
| Protocol 4-030 - Asthma.....  | page 39 |
| Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) .....                         | page 45 |
| Protocol 4-110 - Hypertension (Eclampsia) .....   | page 51 |
| Section 7-040 - Albuterol (Proventil, Ventolin) (Asthma refractory to Albuterol).....       | page 95 |

Adult dosage:

- \* Torsades de Pointes: 1-2 g over 15 min. Followed with 0.5-1 g/hr.
- \* Eclampsia: 4-6 g over 30 min. Followed by 1-2 g/hr.
- \* Status Asthmaticus: 2 g over 20 min.

Pediatric dosage:

- \* Torsades de Pointes: 25-50 mg/kg over 15 min (max 2 g).
- \* Status Asthmaticus: 25-50 mg/kg over 20 min (max 2 g).

Precautions:

- \* Digitalis. Hypotension. Magnesium toxicity.

Side effects:

- \* Respiratory depression. Drowsiness.

Antidote:

- \* Section 7-100 - Calcium Chloride (Calciject) (page 101).
- \* Section 7-240 - Glucagon (page 116).

Link to research articles (QR code on right): <http://1drv.ms/18iFRx3>

Citations:



**Section 7-390 - Morphine****Advanced Life Support**Class:

- \* Opiate.

Action:

- \* CNS depressant. Causes peripheral vasodilation. Decreases sensitivity to Pain. Binds with opiod receptors. Depresses vasomotor centers of brain. Releases histamine. Reduces stimulation of sympathetic nervous system.

Route:

- \* IV/IO/IM/SQ.

Half-Life:

- \* 1-2 min onset.
- \* 2-3 hours.

Contraindications:

- \* Head injury.
- \* Volume depletion.
- \* Undiagnosed Abdominal Pain.

Indications:

Protocol 2-050 - Chest Discomfort ..... page 19  
Protocol 6-050 - Control of Pain ..... page 73

Adult dosage:

- \* 2-5 mg (max 10 mg).

Pediatricdosage:

- \* 0.1-0.2 mg/kg.

Precautions:

- \* May worsen Bradycardia and heart block in patients with acute inferior wall MI. Acute Asthma.

Side effects:

- \* Dizziness. ALOC. Respiratory depression. Hypotension. Nausea. Vomiting, lightheadedness, sedation, diaphoresis, euphoria, dysphoria.

Antidote:

- \* Section 7-400 - Narcan (Naloxone) (page 130).

DEA Number: 9300Schedule: II - High potential for abuse with severe dependence.Narcotic: Yes.Street names:

- \* C & M, Cotton Brothers, Dreamer, Emsel, First Line, God's Drug, Hows, M, Miss Emma, Mister Blue, Morf, Morpho, MS, New Jack Swing, Unkie.

Link to research articles (QR code on right): <http://1drv.ms/18iFVN6>

Citations: (About Drugs), (Citizens Memorial Hospital, 2013), (Sober Recovery), (Street Rx), (US Department of Justice, Drug Enforcement Administration, Office of Diversion Control)



## Section 7-400 - Narcan (Naloxone)

### Basic Life Support (EMT)

- \* An EMT may administer IN/IM/SQ in the absence of a Paramedic in the case of narcotic overdose causing respiratory compromise.

### Advanced Life Support

#### Class:

- \* Narcotic antagonist.

#### Action:

- \* Binds to opioid receptor and blocks the effect of Narcotics.

#### Route:

- \* IV/IO/IN/IM/SQ/ET.

#### Half-Life:

- \* 1-1.5 hours.

#### Contraindications:

- \* Hypersensitivity.

### Indications:

|   |          |
|---|----------|
| Protocol 4-130 - Neonatal Resuscitation .....   | page 53  |
| Protocol 4-140 - Poisoning or Overdose (Narcotic Overdoses) .....   | page 54  |
| Can include: Darvon, Demerol, Dilaudid, Fentanyl, Heroin, Methadone, Morphine, Nubain, Paregoric, Percodan, Stadol, Talwin, Tylenol 3, Tylox. |          |
| Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) .....  | page 70  |
| Section 7-160 - Dilaudid (Hydromorphone) (Overdose) .....   | page 108 |
| Section 7-230 - Fentanyl (Sublimaze) (Overdose) .....   | page 115 |
| Section 7-390 - Morphine (Overdose) .....   | page 129 |

### Adult

#### dosage:

- \* 0.4 mg (max 2 mg).

### Pediatric

#### dosage:

- \* 0.1 mg/kg.

### Precautions:

- \* May cause withdrawal effects. Short acting, should be augmented every 5min. Monitor Airway and ventilatory status. Patients who have gone from a state of somnolence from a Narcotic Overdose may become wide awake and combative.

### Side effects:

- \* Nausea, vomiting, restlessness, diaphoresis, Tachycardia, Hypertension, tremulousness, Seizure, cardiac Arrest, withdrawal.

### Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/18iFWRi>

Citations: (Clarke, Dargan, & Jones, 2005), (Missouri revised statutes, 2014)



**Section 7-410 - Neo-Synephrine (Phenylephrine)****Advanced Life Support**Class:

- \* Vasoconstrictor (alpha).

Action:

- \* Topical vasoconstriction.

Route:

- \* Topical.

Half-Life:

- \* 2.1-3.4 hours.

Contraindications:

- \* Hypertension.
- \* Thyroid disease.

Indications:

Section 8-080 - Endotracheal Tube (ET)

(Premedication for nasal **Intubation** to prevent epistaxis)..... page 170Dosage:

- \* 2 sprays in each nare 1-2 min prior to **Intubation**.

Precautions:

- \* Enlarged prostate with dysuria.

Side effects:

- \* Nasal burning, stinging, sneezing, or increased nasal discharge.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1KeZYhn>

Citations:





## Section 7-420 - Nitroglycerin (Nitrostat, Nitolingual, Tridil)

### Advanced Life Support

#### Class:

- \* Nitrate vasodilator.

#### Action:

- \* Smooth muscle relaxant. Dilates coronary and systemic arteries.

#### Route:

- \* SL.
- \* IV. Delivery by infusion pump only. Must have glass bottle and non-PVC tubing.

#### Half-Life:

- \* 3 minutes.

#### Contraindications:

- \* Age less than 12yrs.
- \* Hypotension.
- \* Severe Bradycardia or Tachycardia.
- \* ICP.
- \* Patients taking erectile dysfunction medications.

#### Indications:

Protocol 2-050 - Chest Discomfort (Unstable angina) ..... page 19  
Protocol 4-070 - Congestive Heart Failure (CHF) (Acute CHF secondary to AMI)..... page 46  
Protocol 4-110 - Hypertension..... page 51

#### Adult dosage:

- \* Chest discomfort (SL): 0.4 mg - 1 tablet or 1 spray every 5 min until no Pain/discomfort or SBP less than 90.
- \* CHF (SL): 0.4-0.8 mg every 3-5 min until no dyspnea or SBP less than 90.

#### Pediatric dosage:

- \* Not indicated.

#### Precautions:

- \* Patients with inferior wall MI and right Ventricular involvement may have more pronounced hemodynamic response. Must have IV access prior to administration. Monitor blood pressure. Syncope. Drug must be protected from light. Expires quickly once bottle is opened.

#### Side effects:

- \* Headache, dizziness, hypotension. Bradycardia, lightheadedness, flushing.

#### Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/18iG3fJ>

Citations: (Clemency, Thompson, Tundo, & Lindstrom, 2013)



| CMH/EMH EMS Quick Ref  |                        |
|------------------------|------------------------|
| Nitroglycerin Infusion |                        |
| Drip                   | 10 mcg/min 3.0 ml/hr   |
| Drip                   | 20 mcg/min 6.0 ml/hr   |
| Drip                   | 30 mcg/min 9.0 ml/hr   |
| Drip                   | 40 mcg/min 12.0 ml/hr  |
| Drip                   | 50 mcg/min 15.0 ml/hr  |
| Drip                   | 60 mcg/min 18.0 ml/hr  |
| Drip                   | 70 mcg/min 21.0 ml/hr  |
| Drip                   | 80 mcg/min 24.0 ml/hr  |
| Drip                   | 90 mcg/min 27.0 ml/hr  |
| Drip                   | 100 mcg/min 30.0 ml/hr |
| Drip                   | 110 mcg/min 33.0 ml/hr |
| Drip                   | 120 mcg/min 36.0 ml/hr |
| Drip                   | 130 mcg/min 39.0 ml/hr |
| Drip                   | 140 mcg/min 42.0 ml/hr |
| Drip                   | 150 mcg/min 45.0 ml/hr |
| Drip                   | 160 mcg/min 48.0 ml/hr |
| Drip                   | 170 mcg/min 51.0 ml/hr |
| Drip                   | 180 mcg/min 54.0 ml/hr |
| Drip                   | 190 mcg/min 57.0 ml/hr |
| Drip                   | 200 mcg/min 60.0 ml/hr |

**Section 7-440 - Normal Saline (NS, Sodium Chloride)**

|  |  |
|--|--|
| <p><b><u>Basic Life Support (EMR or EMT)</u></b></p> <p>* EMRs and EMTs may utilize Normal Saline to irrigate wounds and Burns.</p> <p><b><u>Advanced Life Support</u></b></p> <p><u>Class:</u></p> <p>* Crystalloid solution.</p> <p><u>Action:</u></p> <p>* NA.</p> <p><u>Route:</u></p> <p>* IV/IO/topical.</p>   | <p><u>Half-Life:</u></p> <p>*</p> <p><u>Contraindications:</u></p> <p>* NA.</p>  |
| <p><u>Indications:</u></p> <p>Virtually all medical protocols. IV access for medical emergencies. Irrigation of open wound and Burns.</p>  |  |
| <p><u>Adult dosage:</u></p> <p>* IV/IO: 250-500 ml.</p> <p>* Topical: 1,000 ml.</p> <p><u>Pediatric dosage:</u></p> <p>* IV/IO: 20 ml/kg (max x3).</p> <p>* Topical: 500-1,000 ml.</p>   | <p><u>Precautions:</u></p> <p>* NA.</p> <p><u>Side effects:</u></p> <p>* IV: Pulmonary edema.</p> <p><u>Antidote:</u></p> <p>*</p> |
| <p>Link to research articles (QR code on right): <a href="http://1drv.ms/18iG8jz">http://1drv.ms/18iG8jz</a></p> <p><u>Citations:</u> (Carnahan, Title 19 - Rules of Department of Health and Senior Services Division 30 - Division of regulation and licensure Chapter 40 - Comprehensive emergency medical systems regulations, 2012), (Laszlo, et al., 2006), (Phillips, et al., 2009), (Schott, 2010), (Todd &amp; Malinoski, 2007)</p> |  |



## Section 7-460 - Oxygen

### Basic Life Support (EMR or EMT)

Class:

- \* Gas.

Action:

- \* Necessary for aerobic cellular metabolism.

Route:

- \* Inhalation.

Half-Life:

- \*

Contraindications:

- \* Known Paraquat Poisoning unless SpO<sub>2</sub> is less than 88%.

Indications:

Virtually all protocols. SpO<sub>2</sub> less than 88%. The overall goal of Oxygen therapy is to avoid tissue hypoxia.

Arterial hypoxemia or a failure of the Oxygen-hemoglobin transport system.

Arterial hypoxemia = Oxygen saturation of less than 88% and may result from impaired gas exchange in the lung, inadequate alveolar ventilation or a shunt that allows venous blood into the arterial circulation.

A failure of the Oxygen-hemoglobin transport system can result from a reduced Oxygen carrying capacity in blood (i.e. anemia, Carbon Monoxide Poisoning) or reduced tissue perfusion (i.e. shock).

Dosage:

- \* Titrate administration to SpO<sub>2</sub>:

| SpO <sub>2</sub> |   |
|------------------|---|
| 100%             | Anaphylaxis, anemia, CO, toxin, or trauma |
| 99%              | Cardiac or stroke                         |
| 98%              |   |
| 97%              |   |
| 96%              |   |
| 95%              |   |
| 94%              | Dyspnea or Unconscious ROSC               |
| 93%              |   |
| 92%              |   |
| 91%              |   |
| 90%              |   |
| 89%              |   |
| 88%              |   |

Precautions:

- \* Use cautiously in patients with COPD. Humidify when providing high-flow rates over extended periods of time.
- \* Hyperoxia resulting from high FiO<sub>2</sub> administration producing saturations higher than 94-96% can cause structural damage to the lungs and post reperfusion tissue damage.
- \* Patients who are chronically hypoxic (i.e. COPD, ALS, MS) have shifted their Oxygen dissociation curve and require lower Oxygen saturations. Prolonged Oxygen therapy may depress Ventilator drive.
- \* High blood Oxygen levels may disrupt the ventilation / perfusion balance and cause an increase in dead space to tidal volume ratio and increase PCO<sub>2</sub>.

Side effects:

- \* Drying of mucous membranes.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1Ff8nvs>

Citations: (Carnahan, Title 19 - Rules of Department of Health and Senior Services Division 30 - Division of regulation and licensure Chapter 40 - Comprehensive emergency medical systems regulations, 2012), (Citizens Memorial Hospital, 2013), (Sheppard, 2013)



**Section 7-470 - Oxytocin (Pitocin)****Advanced Life Support**Class:

- \* Hormone.

Action:

- \* Causes uterine contraction. Causes lactation. Slows postpartum Vaginal bleeding.

Route:

- \* IV.

Half-Life:

- \* 1-6 minutes.

Contraindications:

- \* Any condition other than postpartum bleeding.
- \* Cesarean section.

Indications:

Protocol 4-180 - Vaginal Bleeding (Postpartum Vaginal bleeding)..... page 57

Adult dosage:

- \* 10-20 u in 1000 ml LR.

Pediatricdosage:

- \* Not indicated.

Precautions:

- \* Essential to assure that the placenta has delivered and that there is not another fetus present before administering. Overdosage can cause uterine rupture. Hypertension.

- \* May prolong QT interval. 12-lead is indicated after administration.

Side effects:

- \* Anaphylaxis. Cardiac arrhythmias.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/18iGgiQ>

Citations:



## Section 7-480 - Phenergan (Promethazine)

### Advanced Life Support

Class:

- \* Anti-emetic.

Action:

- \* Decreases Nausea and vomiting by antagonizing H1 receptors.

Route:

- \* IM or IV/IO if infused in NS over 15-30 min.

Half-Life:

- \* 16-19 hours.

Contraindications:

- \* ALOC.
- \* Jaundice.

Indications:

Protocol 6-040 - Control of Nausea .....page 72

Adult dosage:

- \* 12.5-25 mg.

Pediatric dosage:

- \* 0.25-1 mg/kg.
  - \* less than 2 yr old: Contraindicated.
  - \* greater than 27 kg: Use adult dose.

Precautions:

- \* Seizure disorder.
  - \* May prolong QT interval. 12-lead is indicated after administration.
- Side effects:
- \* Excitation.
  - \* Possible Extra-Pyramidal Symptoms (EPS) / dystonic reactions.
    - \* EPS is a movement disorder such as the inability to move or restlessness.
    - \* Treat with Section 7-090 - Benadryl (Diphenhydramine) (page 100).

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1AEaO5p>

Citations:



**Section 7-490 - Procainamide (Pronestyl)****Advanced Life Support**Class:

- \* Antiarrhythmic.

Action:

- \* Slows conduction through myocardium. Elevates Ventricular Fibrillation threshold. Suppresses Ventricular ectopy.

Route:

- \* IV/IO.

Half-Life:

- \* 2.5-4.5 hours.

Contraindications:

- \* High degree heart blocks.
- \* PVCs in conjunction with Bradycardia.

Indications:

|  |         |
|--|---------|
| Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter ..... | page 16 |
| Protocol 2-100 - Tachycardia Wide Stable .....                       | page 26 |
| Protocol 2-110 - Tachycardia Wide Unstable .....                     | page 27 |
| Protocol 2-150 - Wolff-Parkinson-White (WPW) .....                   | page 31 |

Dosage:

- \* WPW initial: 20 mg/min until:
  - \* Arrhythmia abolished, hypotension, QRS widens 50%, max 17 mg/kg.
  - \* Mix 1 g in 250 ml NS or D5W = 4 mg/ml.
  - \* 300 ml/hr = 20 mg/min.
- \* WPW maintenance: 1-4 mg/min.
  - \* 60 ml/hr at 4 mg/ml = 4 mg/min.
- \* Tachycardia: 15 mg/kg over 30-60 min.

Precautions:

- \* Dosage should not exceed 17mg/kg. Monitor for CNS toxicity.
- \* May prolong QT interval. 12-lead is indicated after administration.

Side effects:

- \* Anxiety, Nausea, convulsions, widening QRS.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/18iGoin>

Citations:

## Section 7-500 - Propofol (Diprivan)

### Advanced Life Support

Class:

- \* Anesthetic.

Action:

- \* Produces rapid and brief state of general anesthesia.

Route:

- \* IV/IO.

Half-Life:

- \* 30-60 minutes.

Contraindications:

- \* Hypovolemia.
- \* Sensitivity to soybean oil or eggs.

Indications:

Not in current protocols.

Adult dosage:

- \* 1.5-3 mg/kg followed by 25-75 mcg/kg/min.

Pediatric dosage:

- \* 1.5-3 mg/kg followed by 125-300 mcg/kg/min.

Precautions:

- \*

Side effects:

- \* Apnea, arrhythmias, Asystole, hypotension, Hypertension.

Antidote:

- \*


Link to research articles (QR code on right): <http://1drv.ms/18iGqqH>

Citations:





**Section 7-505 - Reglan (Metoclopramide)**

|   |   |
|---|---|
| <b><u>Advanced Life Support</u></b><br><br><u>Class:</u><br>*<br><u>Action:</u><br>*<br><u>Route:</u><br>*                            | <u>Half-Life:</u><br>*<br><u>Contraindications:</u><br>*                            |
| <u>Indications:</u><br>Not in current protocols.  |   |
| <u>Adult dosage:</u><br>*<br><u>Pediatric dosage:</u><br>*  | <u>Precautions:</u><br>*<br><u>Side effects:</u><br>*<br><u>Antidote:</u><br>*      |
| <u>Link to research articles (QR code on right):</u> <a href="http://1drv.ms/18iGwhY">http://1drv.ms/18iGwhY</a><br><u>Citations:</u> |  |

## Section 7-520 - Rocuronium (Zemuron)

### Advanced Life Support

Class:

- \* Non-depolarizing neuromuscular blockade.

Action:

- \* Binds to post-synaptic muscle receptor sites. Antagonizes acetylcholine at the motor end plate, producing skeletal muscle paralysis.

Route:

- \* IV/IO.

Half-Life:

- \* 66-80 minutes.

Contraindications:

- \* Unable to Ventilate the patient.
- \* Sensitivity to bromides.

Indications:

Protocol 6-110 - Rapid Sequence Intubation (RSI) ..... page 82

Adult dosage:

- \* 1 mg/kg.

Pediatric dosage:

- \* 0.6 mg/kg.

Precautions:

- \* Patient will be paralyzed for up to 30min. Heart disease. Liver disease.

Side effects:

- \* Muscle paralysis, apnea, dyspnea, respiratory depression, Tachycardia, urticaria.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1aKvdAV>

Citations: (Swaminathan, 2014)



**Section 7-525 - Romazicon (Flumazenil)**

|   |  |
|---|--|
| <b><u>Advanced Life Support</u></b><br><br><u>Class:</u><br>*<br><u>Action:</u><br>*<br><u>Route:</u><br>*  | <u>Half-Life:</u><br>*<br><u>Contraindications:</u><br>*                       |
| <u>Indications:</u><br>Section 7-070 - Ativan (Lorazepam) ..... page 98<br>Section 7-580 - Valium (Diazepam) ..... page 149<br>Section 7-600 - Versed (Midazolam)..... page 151 |  |
| <u>Adult dosage:</u><br>*<br><u>Pediatric dosage:</u><br>*  | <u>Precautions:</u><br>*<br><u>Side effects:</u><br>*<br><u>Antidote:</u><br>* |
| Link to research articles (QR code on right): <a href="http://1drv.ms/1aKvhRf">http://1drv.ms/1aKvhRf</a><br><u>Citations:</u>  |  |



## Section 7-530 - Sodium Bicarbonate (Soda)

### Advanced Life Support

Class:

- \* Alkalinizing agent.

Action:

- \* Combines with excessive acids to form a weak volatile acid. Increases pH.

Route:

- \* IV/IO.

Half-Life:

\*

Contraindications:

- \* Alkalotic states.

Indications:

Protocol 2-010 - Asystole (Late in management of cardiac Arrest) ..... page 15  
 Protocol 2-070 - Pulseless Electrical Activity (PEA) (Late in management of cardiac Arrest) ..... page 23  
 Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) (Late in management of cardiac Arrest)page 3  
 Protocol 5-050 - Extremity Trauma ..... page 62  
 Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (Late in management of cardiac Arrest) . page 70

Dosage:

- \* 1 mEq/kg followed by 0.5 mEq/kg every 10 min as indicated.

Precautions:

- \* Correct dosage is essential. Can deactivate catecholamines. Can precipitate with Calcium. Delivers large sodium load. Can worsen acidosis if not intubated and adequately Ventilated.

Side effects:

- \* Alkalosis. Hypernatremia, fluid retention, peripheral edema.

Antidote:

\*

Link to research articles (QR code on right): <http://1drv.ms/1aKvIjQ>

Citations:



**Section 7-540 - Solu-Medrol (Methylprednisolone)****Advanced Life Support**Class:

- \* Corticosteroid.

Action:

- \* Anti-inflammatory. Immune suppressant.

Route:

- \* IV/IO/IM.

Half-Life:

- \* 18-26 hours.

Contraindications:

- \* None in emergency setting.
- \* Cushing's syndrome.
- \* Fungal infection.
- \* Measles.
- \* Varicella.

Indications:

|   |         |
|---|---------|
| Protocol 4-020 - Anaphylaxis .....                                  | page 38 |
| Protocol 4-030 - Asthma .....                                       | page 39 |
| Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) ..... | page 45 |
| Protocol 4-080 - Croup .....  | page 47 |

Adultdosage:

- \* 125-250 mg.

Pediatricdosage:

- \* 1-2 mg/kg.

Precautions:

- \* Must be reconstituted and used properly. Onset of action may be 2-5hrs. Active infections, renal disease, penetrating spinal cord injury, Hypertension, Seizure, CHF.

Side effects:

- \* GI bleeding. Prolonged wound healing. Suppression of natural steroids. Depression, euphoria, Headache, restlessness, Hypertension, Bradycardia, Nausea, vomiting, swelling, diarrhea, weakness.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1aKvp36>

Citations:

## Section 7-550 - Succinylcholine (Anectine)

### Advanced Life Support

#### Class:

- \* Depolarizing neuromuscular blocker. Ultra-short acting.

#### Action:

- \* Competes with the acetylcholine receptor of the motor end plate on the muscle cell, resulting in muscle paralysis.

#### Route:

- \* IV/IO.

#### Half-Life:

- \* 24-70 seconds.

#### Contraindications:

- \* Family history of malignant Hyperthermia.
- \* Penetrating Eye injuries.
- \* Narrow angle glaucoma.
- \* Severe Burns or crush injuries more than 48hrs old.
- \* CVA more than 3days old.
- \* Rhabdomyolysis.
- \* Pseudo cholinesterase deficiency.
- \* Hyperkalemia.

### Indications:

Protocol 6-110 - Rapid Sequence Intubation (RSI)

(To achieve paralysis for endotracheal **Intubation**).....page 82

#### Adult

#### dosage:

- \* 1.5 mg/kg.

#### Pediatric

#### dosage:

- \* 2.0 mg/kg.

#### Precautions:

- \* Electrolyte imbalances. Renal, hepatic, pulmonary, metabolic, or Cardiovascular disorders. Fractures, spinal cord injuries, severe anemia, dehydration, collagen disorders, porphyria. Causes initial transient contractions and fasciculations followed by sustained flaccid skeletal muscle paralysis. May increase Vagal tone especially in children.

#### Side effects:

- \* Apnea, Hypertension, hypotension, dysrhythmias, Nausea, vomiting, hiccups, snoring. Malignant Hyperthermia.

#### Antidote:

- \* Section 7-590 - Vecuronium (Norcuron) (page 150) for blocking fasciculations caused by Succinylcholine.

Link to research articles (QR code on right): <http://1drv.ms/1AEcWKC>

Citations:



**Section 7-560 - Tetracaine****Advanced Life Support**Class:

- \* Anesthetic.

Action:

- \* Local anesthesia.

Route:

- \* Topical.

Half-Life:

- \* 1.8 hours.

Contraindications:

- \* Hypersensitivity.

Indications:

Protocol 5-060 - Eye Injury (Need for Eye irrigation) ..... page 63

Section 8-210 - Morgan Lens ..... page 187

Dosage:

- \* 1-2 drops per Eye  
(max 2 drops)

Precautions:

- \* Patient will be unaware of objects touching their Eye. Be careful to protect the Eye from foreign debris and from the patient rubbing eyes.

Side effects:

- \* Burning, conjunctival redness, photophobia, lacrimation.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1aKvrbl>

Citations:





## Section 7-570 - Thiamine (Vitamin B1)

### Advanced Life Support

Class:

- \* Vitamin.

Action:

- \* Allows normal breakdown of Glucose. Thiamine combines with Adenosine triphosphate to produce Thiamine diphosphate, which acts as a coenzyme in carbohydrate metabolism.

Route:

- \* IV/IO/IM.

Half-Life:

- \*

Contraindications:

- \* Known sensitivity.

Indications:

Protocol 4-120 - Hypoglycemia (Coma of unknown origin)..... page 52  
 Section 7-150 - Dextrose (precedes Dextrose with suspected alcohol abuse or malnutrition)..... page 107

Adult dosage:

- \* 100 mg IM or 100 mg IV in NS over 15-30 min.

Pediatric dosage:

- \* Not recommended.

Precautions:

- \* Rare anaphylactic reactions.

Side effects:

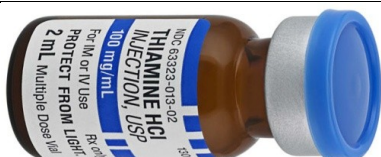
- \* Itching, rash.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/18LbctI>

Citations:



**Section 7-575 - Toradol (Ketorolac)****Advanced Life Support**Class:

- \* Non-Steroidal Anti-Inflammatory (NSAID).

Action:

- \* Inhibit prostaglandin synthesis by decreasing the activity of the enzyme, cyclooxygenase, which results in decreased formation of prostaglandin precursors.

Route:

- \* IV, IO, IM.

Half-Life:

- \* 2.5-6 hours.

Contraindications:

- \* Advanced renal impairment.
- \* Suspected CVA.
- \* GI bleeds.
- \* Peptic ulcers.
- \* Surgical candidates.
- \* Pregnant or nursing women.

Indications:

Protocol 6-050 - Control of Pain (Acute exacerbation of chronic Pain)..... page 73

Adult dosage:

- \* 30 mg IV/IO or 60 mg IM.
  - \* greater than 65 yr old: half the above dosage due to kidney dysfunction.

Pediatric dosage:

- \* Contraindicated

Precautions:

- \* Toradol inhibits platelet function. Hypersensitivity reactions have occurred (bronchospasm and Anaphylaxis).

Side effects:

- \* Can cause peptic ulcers, gastrointestinal bleeding and/or perforation. May adversely affect fetal circulation and the uterus.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1AEvvnH>

Citations: (McAuley, 2014)



## Section 7-578 - TXA (Tranexamic Acid)

### Advanced Life Support

#### Class:

- \* Antifibrinolytic

#### Action:

- \* Synthetic derivative of the amino acid lysine that inhibits fibrinolysis by blocking the lysine binding sites on plasminogen.

#### Route:

- \* IV/IO.

#### Half-Life:

- \* 2 hours.

#### Contraindications:

- \* Age less than 16.
- \* Renal failure.
- \* Hypersensitivity.
- \* History of thromboembolism.
- \* Known subarachnoid aneurism.
- \* Injury greater than three (3) hours old.
- \* Isolated head injury.
- \* Colorblindness.

#### Indications:

|   |         |
|---|---------|
| Protocol 5-020 - Abdominal Trauma.....      | page 59 |
| Protocol 5-040 - Chest Trauma.....          | page 61 |
| Protocol 5-050 - Extremity Trauma.....      | page 62 |
| Protocol 6-085 - High-Threat Response ..... | page 78 |

#### Adult dosage:

- \* Reconstitute 1 gram in 100 ml NS and infuse over 10 min.

#### Pediatric dosage:

- \* 16-18 yr old: 15 mg/kg in 100 ml NS and infuse over 10 min (max 1 g).
- \* Contraindicated less than 16 yrs old.

#### Precautions:

- \* If TXA is administered, transport destination must be a level I, level II, or level III trauma center.
- \* Avoid concurrent use with coagulation factors. Use caution in patients with DIC. Use caution in patients with renal impairment.
- \* Rapid infusion may cause hypotension.

#### Side effects:

- \* Visual defects. Seizures. Nausea, vomiting, diarrhea.

#### Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1xwGSNX>

Citations: (LeCong, 2012), (Maine EMS Trauma Advisory Committee, 2013), (Medical Control Board - EMS System for Metropolitan Oklahoma City and Tulsa, 2013), (Mercy Life Line, 2013), (Morrison, Dubose, Rasmussen, & Midwinter, 2011), (Roberts, Shakur, Ker, & Coats, 2012)



**Section 7-580 - Valium (Diazepam)****Advanced Life Support**Class:

- \* Tranquilizer. Anticonvulsant. Skeletal muscle relaxant. Sedative.

Action:

- \* Binds to benzodiazepine receptor and enhances effects of GABA.

Route:

- \* IV/IO/IM. PR at twice IV dose.

Half-Life:

- \* 20-100 hours.

Contraindications:

- \* Age less than 6 months.
- \* Acute-angle glaucoma.
- \* CNS depression.
- \* Alcohol intoxication.

Indications:

|   |         |
|---|---------|
| Protocol 4-040 - Behavioral (Acute anxiety stress)..... | page 40 |
| Protocol 4-140 - Poisoning or Overdose.....             | page 54 |
| Protocol 4-170 - Seizures (Status epilepticus).....     | page 56 |

Adult dosage:

- \* Status epilepticus: 5-10 mg (max 30 mg).
- \* Acute anxiety: 2-5 mg.
- \* Premedication before Cardioversion: 5-15 mg.

Pediatric dosage:

- \* Status epilepticus (5-18 yr old): 1 mg (max 10 mg).
- \* Status epilepticus (6 mo-5 yr old): 0.2 mg/kg (max 5 mg).

Precautions:

- \* Local venous irritation. Short duration of effect. May precipitate with other drugs.

Side effects:

- \* Drowsiness. Hypotension. Respiratory depression. Fatigue, Headache, confusion, Nausea, sedation.

Antidote:

- \* Section 7-525 - Romazicon (Flumazenil) (page 141).

DEA Number: 2765Schedule: IV - Low potential for abuse.Narcotic: No.Street names:

- \* Benzos, Blue Vs, Dead Flower, Downers, Drunk Pills, FooFoo, Howards, Ludes, Old Joes, Powers, Sleep Away, Tranks, Vs, Yellows Vs.

Link to research articles (QR code on right): <http://1drv.ms/18LbG2F>Citations:

## Section 7-590 - Vecuronium (Norcuron)

### Advanced Life Support

#### Class:

- \* Non-depolarizing neuromuscular blocker.

#### Action:

- \* Does not have any analgesic or sedative effects, sedation must accompany paralysis.
  - \* 1/10th dose: Blocks fasciculations caused by use of Section 7-550 - Succinylcholine (Anectine) (page 144).
  - \* Full dose: Causes total paralysis of skeletal muscles.

#### Route:

- \* IV/IO.

#### Half-Life:

- \* 51-80 minutes.

#### Contraindications:

- \* Sensitivity to bromides.

#### Indications:

Protocol 6-110 - Rapid Sequence Intubation (RSI)

(To achieve paralysis for endotracheal **Intubation**)..... page 82

Section 7-550 - Succinylcholine (Anectine) (fasciculations) ..... page 144

#### Dosage:

- \* 0.1 mg/kg.

#### Precautions:

- \* Impaired liver function. Severe obesity. Impaired respiratory function.

#### Side effects:

- \* Arrhythmias, bronchospasm, Hypertension, hypotension. Apnea, dyspnea, Tachycardia, urticaria.

#### Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/18LbQqI>

Citations:



**Section 7-600 - Versed (Midazolam)**

|  |  |
|--|--|
| <p><b><u>Advanced Life Support</u></b></p> <p><u>Class:</u></p> <ul style="list-style-type: none"> <li>* Benzodiazepine.</li> </ul> <p><u>Action:</u></p> <ul style="list-style-type: none"> <li>* Sedative, anxiolytic, amnesic (2-3x more potent than Valium). Binds to benzodiazepine receptor and enhances effects of GABA.</li> </ul> <p><u>Route:</u></p> <ul style="list-style-type: none"> <li>* IV/IN/IO.</li> </ul>  | <p><u>Half-Life:</u></p> <ul style="list-style-type: none"> <li>* 1.8-6.4 hours.</li> </ul> <p><u>Contraindications:</u></p> <ul style="list-style-type: none"> <li>* Hypotension.</li> <li>* Pregnancy.</li> <li>* Acute-angle glaucoma.</li> </ul>   |
| <p><u>Indications:</u></p> <p>Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter.....page 16</p> <p>Protocol 2-040 - Bradycardia (Premedication prior to Cardioversion or Pacing).....page 18</p> <p>Protocol 2-060 - Post Resuscitative Care.....page 22</p> <p>Protocol 2-080 - Tachycardia Narrow Stable (Premedication prior to Cardioversion or Pacing) .....page 24</p> <p>Protocol 2-090 - Tachycardia Narrow Unstable (Premedication prior to Cardioversion or Pacing) .....page 25</p> <p>Protocol 2-100 - Tachycardia Wide Stable (Premedication prior to Cardioversion or Pacing) .....page 26</p> <p>Protocol 2-110 - Tachycardia Wide Unstable (Premedication prior to Cardioversion or Pacing) .....page 27</p> <p>Protocol 2-120 - Torsades de Pointes .....page 28</p> <p>Protocol 4-170 - Seizures.....page 56</p> <p>Protocol 6-050 - Control of Pain.....page 73</p> <p>Protocol 6-110 - Rapid Sequence Intubation (RSI) .....page 82</p> <p>Section 8-050 - Continuous Positive Airway Pressure (CPAP).....page 165</p> <p>Section 8-080 - Endotracheal Tube (ET) (Endotracheal tube tolerance).....page 170</p> <p>Section 8-160 - King LTSD Airway.....page 179</p> <p>Section 8-190 - LifePak .....page 182</p> |  |
| <p><u>Adult dosage:</u></p> <ul style="list-style-type: none"> <li>* 2.5-5 mg. Can be repeated once (max 10 mg).</li> </ul> <p><u>Pediatric dosage:</u></p> <ul style="list-style-type: none"> <li>* Over 12 yrs: Same as adult.</li> <li>* Between 6 yrs and 12 yrs: 0.05 mg/kg.</li> <li>* Under 6 yrs: 0.05-0.1 mg/kg.</li> </ul>   | <p><u>Precautions:</u></p> <ul style="list-style-type: none"> <li>* COPD, acute alcohol intoxication, Narcotics, barbiturates, elderly, neonates.</li> </ul> <p><u>Side effects:</u></p> <ul style="list-style-type: none"> <li>* Hypoventilation, respiratory depression, respiratory Arrest, hypotension, laryngospasm. Nausea, vomiting, Headache, hiccups, cardiac Arrest.</li> </ul> <p><u>Antidote:</u></p> <ul style="list-style-type: none"> <li>* Section 7-525 - Romazicon (Flumazenil) (page 141).</li> </ul> |
| <p><u>DEA Number:</u> 2884</p> <p><u>Schedule:</u> IV - Low potential for abuse.</p> <p><u>Narcotic:</u> No.</p>   | <p><u>Street names:</u></p> <ul style="list-style-type: none"> <li>* Dazzle.</li> </ul>  |
| <p>Link to research articles (QR code on right): <a href="http://1drv.ms/18iHf2F">http://1drv.ms/18iHf2F</a></p> <p>Citations: (Citizens Memorial Hospital, 2013), (Holsti, et al., 2007), (Silbergleit, et al., 2012)</p>   |  |



## Section 7-610 - Xopenex (Levalbuterol)

### Advanced Life Support

Class:

- \* Beta-2 Agonist.

Action:

- \* Beta-2 receptor agonist with some beta-1 activity.

Route:

- \* Nebulized.

Half-Life:

- \* 1.6 hours.

Contraindications:

- \* Hypersensitivity to levalbuterol or racemic Albuterol.

Indications:

|   |         |
|---|---------|
| Protocol 4-020 - Anaphylaxis .....                                  | page 38 |
| Protocol 4-030 - Asthma .....                                       | page 39 |
| Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) ..... | page 45 |
| Protocol 4-070 - Congestive Heart Failure (CHF) .....               | page 46 |

Adult dosage:

- \* 0.63-1.25 mg.

Pediatric dosage:

- \* less than 6 yr old: not recommended.
- \* 6-12 yr old: 0.31 mg (max 0.63 mg).
- \* 12-18 yr old: 0.63-1.25 mg.

Precautions:

- \* Arrhythmias, Hypertension, paradoxical bronchospasm.

Side effects:

- \* Rhinitis, Headache, tremor, sinusitis, Tachycardia, nervousness, edema, hyperglycemia, hypokalemia.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/1AEeyUA>

Citations:





**Section 7-620 - Zofran (Ondansetron)****Advanced Life Support**Class:

- \* Antiemetic.

Action:

- \* Selective 5-HT receptor antagonist.

Route:

- \* IV/IM/IN.

Half-Life:

- \* 5.7 hours.

Contraindications:

- \* Hypersensitivity.

Indications:

Protocol 2-050 - Chest Discomfort ..... page 19

Protocol 5-070 - Head Trauma ..... page 64

Protocol 6-040 - Control of Nausea ..... page 72

Adult dosage:

- \* 4 mg (max 8 mg).

Pediatric dosage:

- \* 0.15 mg/kg.
  - \* less than 2 yrs old: Contraindicated.
  - \* greater than 27 kg: Use adult dose.

Precautions:

- \* May prolong QT interval. 12-lead is indicated after administration.

Side effects:

- \* None.

Antidote:

- \*

Link to research articles (QR code on right): <http://1drv.ms/18Lcm86>

Citations:

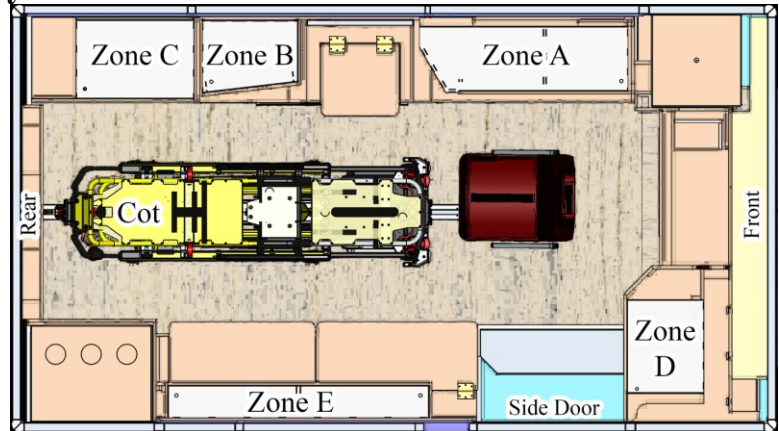
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## Part 8 - Equipment Protocols

### Section 8-001 - Equipment Currently on Ambulances

19 CSR 30-40.303(2)(C) states “the medical director, in cooperation with the ambulance service administrator, shall develop, implement, and annually review medications and medical equipment to be utilized.” This section fulfills that requirement for equipment.

Refer to Section 7-001 - Medications Currently on Ambulances (page 87) for medications.



| Location            | ✓ | Qty   | Description   |
|---------------------|---|-------|---|
| Cab                 |   |       | Book - Maps   |
|                     |   |       | Book - Protocols  |
|                     |   | 1     | Cellphone   |
|                     |   | 1     | Cellphone charger   |
|                     |   | 1     | Flashlight  |
|                     |   | 2     | Fuel cards  |
|                     |   | 2     | Garage opener   |
|                     |   | 1 box | Gloves - Small  |
|                     |   | 1 box | Gloves - Medium   |
|                     |   | 1 box | Gloves - Large  |
|                     |   | 1 box | Gloves - Extra Large  |
|                     |   | 1     | GPS   |
|                     |   | 1     | GPS charger   |
|                     |   | 1     | Hand sanitizer  |
|                     |   | 4     | Safety vest   |
| Cab - Bag Triage #1 |   | 2     | Sharpie   |
| Cab - Bag Triage #2 |   | 10    | Triage tags   |
|                     |   | 2     | Sharpie   |
| Cot                 |   | 10    | Triage tags   |
|                     |   | 1     | Section 8-060 - Cot (page 166)  |
|                     |   | 1     | Linen - Blanket   |
|                     |   | 1     | Linen - Pillow w/case   |
| Cot - Bag First-In  |   | 1     | Linen - Sheet   |
|                     |   |       | Section 8-120 - Glucometer (page 172)   |
| Cot - Bag Oxygen    |   | 1     | Section 8-240 - Nebulizer (page 189)  |
|                     |   | 1     | NC adult  |
|                     |   | 1     | NC capno  |
|                     |   | 1     | NRB adult   |
|                     |   | 1     | NRB ped   |
| Cot - Bag LifePak   |   | 1     | Section 8-010 - Automated External Defibrillator (AED) (page 160)<br>[Only if LifePak not equipped] |
|                     |   | 1     | Section 8-190 - LifePak (page 182)  |
|                     |   | 1     | BP cuff   |
|                     |   | 1     | Cable 4-lead  |
|                     |   | 1     | Cable 12-lead   |
|                     |   | 1     | Cable download  |
|                     |   | 1     | Cable spo2  |
|                     |   | 2     | Combo pad adult   |
|                     |   | 1     | Combo pad ped   |
|                     |   | 1     | EKG patches bag   |
|                     |   | 1     | Modem   |
|                     |   |       | [Only if LifePak 12]  |

| Location                   | ✓ | Qty | Description   |
|----------------------------|---|-----|---|
|                            |   | 1   | Monitor paper   |
|                            |   | 1   | Razor   |
| Narcotic Box               |   |     |   |
| RSI Box                    |   |     |   |
| Zone A - Above Action Area |   | 1   | Section 8-030 - Bougie (page 162) - Adult   |
|                            | * |     | Section 8-050 - Continuous Positive Airway Pressure (CPAP) (page 165)<br>1 - Medium kit<br>1 - Large mask<br>1 - Small mask                       |
|                            |   | 1   | Section 8-070 - Cricothyrotomy Kit (page 168)   |
|                            | * |     | Section 8-110 - Gastric Tube (page 171)<br>1 - NG 14 fr<br>1 - NG 16 fr<br>1 - suction cath 14 fr<br>1 - suction cath 16 fr<br>1 - Toomey syringe |
|                            |   | 1   | Section 8-230 - Naso-Pharyngeal Airway (NPA) (page 188) - Set   |
|                            | * |     | Section 8-240 - Nebulizer (page 189)<br>4 - Nebulizer<br>2 - Mask adult<br>2 - Mask ped   |
|                            |   | 1   | Section 8-260 - Oro-Pharyngeal Airway (OPA) (page 190) - Set  |
|                            |   | 1   | BVM adult   |
|                            |   | 1   | BVM ped   |
|                            |   | 1   | BVM infant  |
|                            |   | 6   | Emesis bag  |
|                            |   | 2   | ET adapter capno  |
|                            |   | 1   | Intubation adapter (15 mm x 22 mm)  |
|                            |   | 6   | NC adult  |
|                            |   | 4   | NC capno  |
|                            |   | 2   | NC ped  |
|                            |   | 6   | NRB adult   |
|                            |   | 2   | NRB ped   |
| Zone A - Action Area       |   | 1   | Section 8-032 - Capnometer (page 163)<br>[Only on vehicles without capnometer on LifePak]   |
|                            |   | 1   | Section 8-075 - Decompression Needle (page 169)   |
|                            |   |     |   |
|                            |   | 1   | Section 8-380 - Thermometer (page 199)<br>[Only on Cedar Co Ambulances]   |
| Zone A - Below Action Area |   | 1   | Hand sanitizer  |
|                            | * |     | Section 8-370 - Suction (page 198)<br>1 - Canister<br>1 - Tubing<br>1 - Yankauer  |
|                            |   |     | Section 8-330 - Portable Ventilator (page 194)<br>[Only on primary Cedar Co Ambulances]   |
| Zone B                     |   | 1   | Section 8-142 - IV Pump (page 177)  |
|                            |   | 1   | Battery - 9v  |
|                            |   | 6   | Battery - AA  |
|                            |   | 2   | Battery - C   |
|                            |   | 2   | Battery - LifePak   |
|                            |   | 1   | BP cuff kit   |
|                            |   | 1   | Combo pad adult   |
|                            |   | 1   | Combo pad ped   |
|                            |   | 1   | Doppler<br>[Only on Cedar and Hickory ambulances]   |
|                            |   | 1   | Doppler Gel<br>[Only on Cedar and Hickory ambulances]   |
|                            |   | 1   | EKG patches bag   |
| Zone C                     |   | 1   | Monitor paper   |
|                            |   | 1   | Section 8-210 - Morgan Lens (page 187)  |
|                            |   | 4   | Section 8-290 - Physical Restraint (page 191)   |

| Location                        | ✓ | Qty     | Description   |
|---------------------------------|---|---------|---|
|                                 |   | 2       | Section 8-360 - Splint (page 196) - SAM   |
|                                 |   | 1       | Section 8-125 - Hemostatic Agent (page 173)   |
|                                 |   | 1       | Section 8-390 - Tourniquet (page 203)   |
|                                 |   | 6       | Bag - Patient belongings  |
|                                 |   | 1 pack  | Bandage - 4x4 non-sterile   |
|                                 |   | 4 tubs  | Bandage - 4x4 sterile   |
|                                 |   | 4 packs | Bandage - 4x4 sterile   |
|                                 |   | 4       | Bandage - ABD pad   |
|                                 |   | 2       | Bandage - Ace 2"  |
|                                 |   | 1       | Bandage - Aluminum foil   |
|                                 |   | 6       | Bandage - Kerlix  |
|                                 |   | 6       | Bandage - Kling 4"  |
|                                 |   | 1       | Bandage - Plastic wrap  |
|                                 |   | 2       | Bandage - Trauma  |
|                                 |   | 2       | Bandage - Triangular  |
|                                 |   | 2       | Bedpan  |
|                                 |   | 2       | Burn sheet  |
|                                 |   | 2       | Burn towel  |
|                                 |   | 2       | Children's toy  |
|                                 |   | 4       | Chux pads   |
|                                 |   | 4       | Emergency blanket   |
|                                 |   | 6       | Linen - Blanket   |
|                                 |   | 4       | Linen - Gown  |
|                                 |   | 6       | Linen - Pillow case   |
|                                 |   | 6       | Linen - Sheet   |
|                                 |   | 6       | Linen - Towel   |
|                                 |   | 6       | Linen - Washcloth   |
|                                 |   | 4       | Pack - Cold   |
|                                 |   | 4       | Pack - Hot  |
|                                 |   | 1 box   | PPE - Face shields  |
|                                 |   | 4       | PPE - Gowns   |
|                                 |   | 1 box   | PPE - N95 mask  |
|                                 |   | 4       | Tape 1"   |
|                                 |   | 2       | Tape 2"   |
|                                 |   | 2       | Tape 3"   |
|                                 |   | 4       | Tape - Coban  |
|                                 |   | 10      | Triage tags   |
|                                 |   | 2       | Urinal  |
| Zone D                          |   | 1       | Section 8-295 - PICC and Central Line Access Kit (page 192)   |
|                                 |   | 1       | Section 8-320 - Port Access Kit (page 193)  |
|                                 |   | *       | Section 8-370 - Suction (page 198)<br>2 - Batteries<br>1 - Canister<br>1 - Pump<br>1 - Tubing<br>1 - Yankauer |
|                                 |   | 6       | Primary tubing  |
|                                 |   | 2       | Pump tubing   |
|                                 |   |         |   |
| Zone D - Bag Adult              |   |         | Section 8-135 - Intraosseous (IO) Needle (page 175)   |
|                                 |   |         | Section 8-160 - King LTSD Airway (page 179)   |
|                                 |   |         | Section 8-170 - Laryngeal Mask Airway (LMA) Supreme (page 180)  |
| Zone D - Bag Adult - Airway     |   | 1       | Section 8-230 - Naso-Pharyngeal Airway (NPA) (page 188) - Set   |
|                                 |   | 1       | Section 8-260 - Oro-Pharyngeal Airway (OPA) (page 190) - Set  |
|                                 |   |         | Section 8-080 - Endotracheal Tube (ET) (page 170)   |
|                                 |   |         | Section 8-180 - Laryngoscope (page 181)   |
| Zone D - Bag Adult - Medication |   | 1       | 3-way stopcock  |
|                                 |   | 2       | Syringe 5 ml  |
|                                 |   | 2       | Syringe 10 ml   |
|                                 |   | 2       | Syringe needle 22 g   |
|                                 |   | 2       | Syringe needle filter   |
|                                 |   | 4       | Syringe needle smart  |

| Location                          | ✓     | Qty | Description  |
|-----------------------------------|-------|-----|--|
| Zone D - Bag Medication           | 1     |     | 3-way stopcock   |
|                                   | 2     |     | Syringe 5 ml   |
|                                   | 2     |     | Syringe 10 ml  |
|                                   | 2     |     | Syringe needle 22 g  |
|                                   | 2     |     | Syringe needle filter  |
|                                   | 4     |     | Syringe needle smart   |
| Zone D - Bag Ped                  |       |     |  |
| Zone D - Box Medication           |       |     |  |
| Zone D - IV Tray                  | *     |     | Section 8-140 - Intravascular (IV) Needle (page 176)<br>6 - 14 g<br>6 - 16 g<br>6 - 18 g<br>6 - 20 g<br>6 - 22 g<br>6 - 24 g |
|                                   | 1     |     | Section 8-020 - Blood Draw Kit (page 161)  |
|                                   | 2     |     | Section 8-130 - Intranasal (IN) Device (page 174)  |
|                                   | 20    |     | 4x4s   |
|                                   | 10    |     | Bandaids   |
|                                   | 6     |     | Extension  |
|                                   | 2     |     | Lock   |
|                                   | 10    |     | Prep alcohol   |
|                                   | 10    |     | Prep chlorascrub   |
|                                   | 1     |     | Razor  |
|                                   | 6     |     | Start kit  |
|                                   | 2     |     | Syringe 1 ml   |
|                                   | 6     |     | Syringe 3 ml   |
|                                   | 2     |     | Syringe 5 ml   |
|                                   | 2     |     | Syringe 10 ml  |
|                                   | 2     |     | Syringe 20 ml  |
|                                   | 2     |     | Syringe needle 18 g  |
|                                   | 4     |     | Syringe needle 22 g  |
|                                   | 2     |     | Syringe needle filter  |
|                                   | 6     |     | Syringe needle smart   |
|                                   | 2     |     | Vacutainer direct  |
|                                   | 2     |     | Vacutainer transfer  |
|                                   |       |     |  |
| Zone D - OB Kit                   |       |     | Section 8-200 - Meconium Aspirator (page 186)  |
| Zone E - Above Bench (if exist)   |       |     |  |
| Zone E - Below Bench              | *     |     | Section 8-370 - Suction (page 198)<br>2 - Canister<br>2 - Tubing<br>2 - Yankauer   |
|                                   | 1 set |     | Cot straps   |
|                                   | 2     |     | Linen - Pillow   |
|                                   | 6     |     | Trash bags   |
| Exterior Compartment              | 1     |     | Section 8-150 - Kendrick Extrication Device (KED) (page 178)   |
|                                   | *     |     | Section 8-400 - Traction Splint (page 204)<br>1 - Traction adult<br>1 - Traction ped   |
|                                   | 1     |     | Board - Scoop  |
|                                   | 2     |     | Board - Section 8-350 - Spinal Motion Restriction (SMR) (page 195)   |
|                                   | 2     |     | Hazmat suit  |
|                                   |       |     | Section 8-365 - Stair Chair (page 197)<br>[Only on Cedar Co Ambulances and 702]  |
| Exterior Compartment - Bag SMR #1 | *     |     | Section 8-350 - Spinal Motion Restriction (SMR) (page 195)<br>4 - Collar adult<br>1 - Collar ped<br>2 - Head bed             |
|                                   | 1     |     | Straps spider  |
|                                   | 1     |     | Tape 2"  |
|                                   | 1     |     | Towel  |

| Location                          | ✓ | Qty | Description  |
|-----------------------------------|---|-----|--|
| Exterior Compartment - Bag SMR #2 |   | *   | Section 8-350 - Spinal Motion Restriction (SMR) (page 195)<br>4 - Collar adult<br>1 - Collar ped<br>2 - Head bed |
|                                   |   | 1   | Straps spider  |
|                                   |   | 1   | Tape 2"  |
|                                   |   | 1   | Towel  |

Equipment in protocols but currently not on ambulances:

\* Section 8-040 - Chest Compressor (page 164)



## Section 8-010 - Automated External Defibrillator (AED)

\*NOTE: When using LifePak in AED mode, use Section 8-190 - LifePak (page 182).

### Basic Life Support (EMR or EMT)

#### Precautions:

- \* Wet skin or patients in water. Do not apply directly over internal pacemaker or medication patch.
- \* Manual **Defibrillation** is preferred to AED for children less than 8 yrs old. If manual **Defibrillation** is not available, pediatric dose attenuator is preferred. If neither is available, use AED as you would on an adult. Pads may be placed anterior/posterior if Chest is too small to allow pads to be at least 1 in separated.

#### Contraindications:

- \* Pulse.

#### Indications:

Protocol 2-030 - Automated External Defibrillation (AED) ..... page 17  
 Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) ..... page 70

#### Procedure:

- \* Confirm unresponsiveness and breathlessness.
- \* Request ALS support.
- \* Confirm pulselessness.
- \* Unwitnessed: CPR for 2 min.
  - \* Push hard and fast at 100 /min.
  - \* Give 2 breaths with 30 compressions.
  - \* Rotate compressors every 2 minutes at rhythm check.
  - \* Compressions : Ventilations ratio = 30:2 unless intubated, then 8-10 breaths per min.
- \* Power on AED.
- \* Place pads and connect to AED.
- \* Clear patient and press “analyze” (if present).
- \* If shock indicated, continue CPR while charging. Compressor is last to clear.
  - \* Clear patient. Deliver shock.
- \* CPR for 2 min immediately following shock.
- \* Repeat as necessary and follow AED voice prompts.

Link to research articles (QR code on right): <http://1drv.ms/1zW988p>

Citations:



**Section 8-020 - Blood Draw Kit****Advanced Life Support****Contraindications:**

\* None.

**Precautions:**

- \* Avoid venipuncture in arms with dialysis shunts or injuries proximal to insertion site.

**Indications:**

Consider for all medical and trauma patients where time and resources allow and IV being started.

Section 8-140 - Intravascular (IV) Needle..... page 176

**Procedure:**

- \* After IV access but prior to Saline administration.
- \* Either directly draw blood from patient into blood tubes using Vacutainer Direct Draw Adapter or into syringe and transfer to tubes using Vacutainer Blood Transfer Device. To avoid needle sticks, do not use syringe and needle to fill blood tubes.
- \* Fill tubes in the following order:
  - \* Medical patient (5 tubes): BLUE, RED, GREEN (no gel), GREEN (gel), LAVENDER.
  - \* Trauma patient (4 tubes): BLUE, GREEN (no gel), GREEN (gel), LAVENDER.
- \* Label each tube with blue arm bands.
  - \* Place number sticker on each tube.
  - \* Write your initials and time blood was drawn in white area of wrist band.
  - \* Once at the destination, a patient identification sticker should be placed on the removable end of the wrist band. The patient sticker should contain your initials and time of Blood Draw.
  - \* Stickered blood tubes and the removable end with patient sticker will be sent to the lab.

**Blood draw for alcohol analysis Procedure:**

- \* Paramedics may draw blood in the field as requested by law enforcement officials on the scene where requested for medical assistance. We will not respond to jail, police dept, etc. for the sole purpose of drawing blood.
- \* If patient is alert and oriented, his/her consent is necessary before the procedure is performed.
- \* If patient is unable to give consent (unresponsive, dead, etc.), consent is implied.

Link to research articles (QR code on right): <http://1drv.ms/1zW988p>

Citations: (Citizens Memorial Hospital, 2013)



## Section 8-030 - Bougie

### Advanced Life Support

#### Precautions:

- \* None.

#### Contraindications:

- \* Age less than 8 years.
- \* Use of a 6.0 or smaller ETT.

#### Indications:

Protocol 6-110 - Rapid Sequence Intubation (RSI) (Predicted difficult **Intubation**) ..... page 82  
Section 8-070 - Cricothyrotomy Kit ..... page 168

#### Procedure:

- \* Lubricate Bougie.
- \* Using a laryngoscope and standard ETT **Intubation** techniques, attempt to visualize the vocal cords. If vocal cords are not fully visible, pass Bougie behind the epiglottis, guiding the tip of the Bougie anteriorly towards the trachea. Tracheal placement will yield the ability to feel cricoids rings and resistance at the carina. Esophageal placement will yield the ability to advance Bougie completely without resistance.
- \* While maintaining the laryngoscope and Bougie in position, an assistant threads an ETT over the end of the Bougie. The assistant then holds the Bougie.
- \* Rotate ETT 1/4 turn and advance through cords. Inflate cuff, remove Bougie and laryngoscope.
- \* Confirm placement with auscultation and **Capnography**.

Link to research articles (QR code on right): <http://1drv.ms/1EL02Ri>

#### Citations:



**Section 8-032 - Capnometer****Advanced Life Support****Contraindications:**

\* None.

**Precautions:**

- \* Accuracy is dependent upon adequate perfusion at probe site, bright ambient lighting, Carbon Monoxide Poisoning, Cyanide Poisoning, nail polish, and polycythemia.

**Indications:**

All ALS patients with cardiac or respiratory complaints.

**Procedure:**

- \* Turn monitor on.
- \* Attach capnograph probe (nasal cannula or ET tube) to patient and capnograph.
- \* Observe readings. May need to instruct patient on nasal cannula to breathe out through their mouth.

Link to research articles (QR code on right): <http://1drv.ms/1zW9hbS>**Citations:**

## Section 8-040 - Chest Compressor

### Basic Life Support (EMR or EMT)

#### Precautions:

\*

### Contraindications:

\*

### Indications:

Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) ..... page 70

### Procedure:

\*

Link to research articles (QR code on right): <http://1drv.ms/1zWe5ht>

Citations:



**Section 8-050 - Continuous Positive Airway Pressure (CPAP)****Advanced Life Support****Precautions:**

- \* **CPAP** is not mechanical ventilation. Blood pressure may drop due to increased intrathoracic pressure. Patients may not improve (must reassess). Patients may not accept mask (claustrophobia). Risk of pneumothorax. Risk of corneal drying. Large Oxygen demand.

**Contraindications:**

- \* Less than 18 yrs old.
- \* Patient unable to protect Airway.
- \* Need for immediate **Intubation**.
- \* Ventilatory failure.
- \* Gastric distention (GI bleeding).
- \* Trauma (pneumothorax).
- \* Tracheostomy.
- \* Altered LOC.
- \* Do not secure straps if Nausea/vomiting.
- \* Increasing ET $\text{CO}_2$ .

**Indications:**

|  |         |
|--|---------|
| Protocol 3-010 - Drowning (Near Drowning - awake and alert) .....                                  | page 33 |
| Protocol 4-030 - Asthma (Consider trial prior to <b>Intubation</b> of severe Asthma patient) ..... | page 39 |
| Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) .....                                | page 45 |
| Protocol 4-070 - Congestive Heart Failure (CHF) (Pulmonary edema) .....                            | page 46 |
| Protocol 5-040 - Chest Trauma (Pulmonary contusion or Flail Chest) .....                           | page 61 |

**Procedure:**

- \* Inform and calm patient. Consider **Ativan** for anxiety.
- \* Connect and turn on Oxygen to “flush.” Set PEEP to 10 cm H $\text{O}$  (may titrate to 15 as needed).
- \* Flip Head-strap forward.
- \* Hand to or place mask on patient. Hold mask firmly against face to eliminate air leaks.
- \* Flip Head-strap over Head after patient is comfortable. Remove straps if Nausea develops.
- \* Clip bottom straps.
- \* Adjust fit.
- \* Monitor patient. May raise intrathoracic pressures, reducing preload, therefore reducing blood pressure.
- \* Anxiety:
  - \* Consider **Ativan** 2 mg IV/IO.
  - \* OR consider **Versed** 2.5 mg IV/IO/IM.
- \* An in-line bronchodilator Nebulized may be placed in circuit if needed.

Link to research articles (QR code on right): <http://1drv.ms/1zW9kV7>

Citations:



## Section 8-060 - Cot

### **Basic Life Support (EMR or EMT)**

### **Contraindications:**

✱ None.

### **Precautions:**

- ✱ Always secure the patient using all Restraint straps and keep side rails up.
- ✱ Utilize 4 or more lifting persons if possible over rough terrain or overweight patients. Utilize a minimum of 2 lifting persons when a patient is on the cot.
- ✱ Do not allow the x-frame to drop unassisted.

### **Indications:**

Need to move non-ambulatory patient.

### **Generic Procedure:**

- ✱ Utilize all provided safety Restraint systems on every patient.
- ✱ To raise or lower cot, both ends must be lifted prior to squeezing handle.
- ✱ If patient 0-200 pounds, use two or more people to lift.
- ✱ If patient 200-400 pounds, use four or more people to lift.
- ✱ If patient 400-600 pounds, use eight or more people to lift.
- ✱ If patient greater than 600 pounds, special lifting and transport should be considered.
- ✱ Consider Stair Chair .

### **X-Frame Procedure:**

- ✱ Loading with a patient:
  - ✱ Place loading wheels in ambulance and safety bar past the safety hook.
  - ✱ Operator at foot lifts cot and squeezes and holds handle.
  - ✱ Assistant at side raises undercarriage.
  - ✱ Push cot into ambulance and secure it.
- ✱ Unloading with a patient:
  - ✱ Disengage cot from fastener. Pull cot out of ambulance.
  - ✱ Assistant grasps the undercarriage and lifts slightly.
  - ✱ Operator at foot squeezes handle.
  - ✱ Assistant lowers undercarriage to the ground.
  - ✱ Operator at foot releases handle to lock undercarriage down.
  - ✱ Assistant releases safety bar from safety hook.
- ✱ Loading empty cot (one operator):
  - ✱ Place loading wheels in ambulance and safety bar past the safety hook.
  - ✱ Lift bumper to raised position.
  - ✱ Operator at foot lifts cot and squeezes and holds handle.
  - ✱ Operator lowers foot end of cot to the floor to collapse undercarriage.
  - ✱ Release handle to lock in lowered position.
  - ✱ Raise, push into ambulance, and secure cot.
- ✱ Unloading empty cot (one operator):
  - ✱ Disengage cot from fastener.
  - ✱ Pull cot out of ambulance.
  - ✱ Lower cot to the ground, squeeze handle, raise cot, and release handle.
  - ✱ Release safety bar from safety hook.

**H-Frame Procedure:**

- \* Loading with a patient:
  - \* Place cot in loading position.
  - \* Place both loading wheels are on the patient compartment floor.
  - \* Assistant unlocks frame.
  - \* Operator lifts foot end of cot and squeezes control handle.
  - \* Assistant lifts undercarriage.
  - \* Operator pushes cot into patient compartment, releases handle, and secures it.
- \* Unloading with a patient:
  - \* Disengage cot from fastener. Pull cot out of ambulance.
  - \* Assistant lowers undercarriage to the ground and ensures it locks down.
  - \* Place cot in rolling position.
- \* Loading empty cot (one operator):
  - \* Place cot in loading position.
  - \* Place both loading wheels are on the patient compartment floor.
  - \* Unlock frame.
  - \* Operator lifts foot end of cot and squeezes control handle.
  - \* Operator pushes cot into patient compartment, releases handle, and secures it.
- \* Unloading empty cot (one operator):
  - \* Disengage cot from fastener. Pull cot out of ambulance.
  - \* Place cot in rolling position.

**Pedi-mate Procedure:**

- \* Use for all patients smaller than 40 lbs.
- \* Raise cot backrest to full upright position.
- \* Wrap pedi-mate straps around mattress and frame.

Link to research articles (QR code on right): <http://1drv.ms/1zW9trA>

Citations: (Citizens Memorial Hospital, 2014)





## Section 8-070 - Cricothyrotomy Kit

### Advanced Life Support

#### Precautions:

- \* Complications include hemorrhage from great vessel lacerations and damage to surrounding structures. Constantly check ventilation by standard techniques.

#### Contraindications:

- \* None in emergency setting.

#### Indications:

This procedure is a last resort when all attempts at ventilating the patient have failed.

Protocol 6-110 - Rapid Sequence Intubation (RSI) ..... page 82

#### Quick Trach II Procedure:

- \* Prepare the device: Remove valve opener and completely evacuate the cuff with the included 10 ml syringe. Remove and fill syringe for inflating the cuff with 10 ml of air.
- \* Prepare the patient: Hyperextend the Head of the patient. Locate the cricothyroid membrane by palpation of the depression between the thyroid and cricoids cartilage. Stabilize this point with forefinger and thumb for puncture.
- \* Puncture the cricothyroid membrane and insert QuickTrach II until red stopper touches skin. An incision is not necessary.
- \* Aspirate syringe to determine position of cannula. Aspiration of air indicates proper placement in trachea. If no air is aspirated, remove red stopper and advance slowly until air can be aspirated.
- \* Remove red stopper.
- \* Push cannula forward into the trachea and remove metal needle.
- \* Inflate cuff with 10 ml of air.
- \* Secure with foam neck tape.
- \* Attach BVM with connector and verify placement with auscultation and **Capnography**.

#### Surgical Procedure:

- \* **Call for order prior to attempting surgical cric.**
- \* Have Suction equipment ready.
- \* Clean neck with antiseptic solution.
- \* Stabilize larynx with thumb and index finger of one hand.
- \* Palpate cricothyroid membrane.
- \* Pull skin taut.
- \* Make 2 cm VERTICAL incision at the cricothyroid membrane.
- \* Puncture through the cricothyroid membrane horizontally.
- \* Place Bougie with coude tip into trachea with a back-and-forth motion to feel tracheal clicking or carina.
- \* Place ET tube or Shiley over Bougie just enough for cuff to be inside trachea.
- \* Inflate cuff and secure tube.
- \* Ventilate at 100% Oxygen.
- \* Observe and auscultate for correct placement.
- \* Confirm with **Capnography**.
- \* Cover incision site with Occlusive dressing.

Link to research articles (QR code on right): <http://1drv.ms/1zW9yLX>

#### Citations:



**Section 8-075 - Decompression Needle****Advanced Life Support****Precautions:**

- \* Complications may include laceration of intercostals vessels, creation of pneumothorax, laceration of lung tissue, and risk of infection.

**Contraindications:**

- \* None in presence of tension pneumothorax.

**Indications:**

Protocol 5-040 - Chest Trauma (Absent lung sounds on affected side with respiratory distress)page 61  
Protocol 6-085 - High-Threat Response .....page 78

**Turkel Procedure:**

- \* Identify second intercostal space, midclavicular line, on affected side.
- \* Clean area with antiseptic.
- \* Insert Turkel into skin over just over superior border of third rib.
- \* Insert catheter through parietal pleura until air escapes.
- \* During insertion, the color band will show RED until through parietal pleura, and then it turns GREEN.
- \* Advance catheter off device.
- \* Air should exit under pressure.
- \* Close 3-way valve.
- \* Reassess frequently for redevelopment of pneumothorax.
- \* If tension pneumothorax returns, open 3-way valve to release pressure.

**Gelco Procedure:**

- \* Identify second or third intercostal space, midclavicular line, on affected side.
- \* Clean area with antiseptic.
- \* Insert Jelco into skin over just over superior border of third rib.
- \* Insert catheter through parietal pleura until air escapes.
- \* Air should exit under pressure.
- \* Remove needle and leave plastic catheter in place.
- \* Reassess frequently for redevelopment of pneumothorax.
- \* If tension pneumothorax returns, repeat procedure.

Link to research articles (QR code on right): <http://1drv.ms/1zW9Geh>

**Citations:**

## Section 8-080 - Endotracheal Tube (ET)

### Advanced Life Support

### Contraindications:

\*

### Precautions:

- \* Can induce Hypertension and increase ICP in Head injured patients. Can induce Vagal response and Bradycardia. Can induce hypoxia-related arrhythmias.

### Indications:

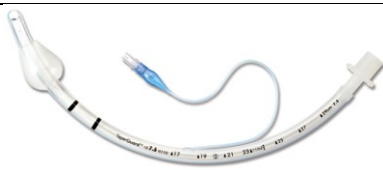
Protocol 6-085 - High-Threat Response ..... page 78  
Protocol 6-110 - Rapid Sequence Intubation (RSI) (Need for definitive Airway) ..... page 82

### Procedure:

- \* Hyperventilate with **BVM** and basic adjunct.
- \* Assemble, check, and prepare equipment.
- \* Consider **Neo-Synephrine** for nasal Intubation.
- \* Consider **King** or **LMA** for backup Airway.
- \* Place Head in sniffing position (maintain c-spine in trauma).
- \* Insert laryngoscope blade.
- \* Sweep tongue to the left.
- \* Lift forward to displace jaw.
- \* Advance tube past vocal cords until the cuff disappears.
- \* Inflate cuff with 7-10 ml of air.
- \* **Ventilate** and confirm placement with auscultation and **Capnography**.
- \* Secure tube, noting marking on tube.
- \* Consider: Insert **OPA** as a bite block.
- \* Ventilate with 100% **Oxygen**.
- \* Reassess tube placement often.
- \* Continued sedation:
  - \* Consider **Versed** 2.5-5 mg every 5 min. Repeat as needed maintaining SBP greater than 100.
  - \* Consider **Fentanyl** 50-100 mcg. Max 300 mcg.
- \* Consider **Gastric Tube**.

Link to research articles (QR code on right): <http://1drv.ms/1xwHPpr>

Citations:



**Section 8-110 - Gastric Tube****Advanced Life Support****Precautions:**

\*

**Contraindications:**

- \* Epiglottitis or Croup.
- \* Use orogastric route when: facial trauma or basilar skull fracture.

**Indications:**

Protocol 6-110 - Rapid Sequence Intubation (RSI) (Evacuation of air or fluids in stomach) ..... page 82  
 Section 8-080 - Endotracheal Tube (ET) (Evacuation of air or fluids in stomach) ..... page 170  
 Section 8-160 - King LTSD Airway (Evacuation of air or fluids in stomach) ..... page 179  
 Section 8-170 - Laryngeal Mask Airway (LMA) Supreme ..... page 180

**Procedure:**

- \* Assemble equipment.
- \* Explain procedure to patient.
- \* If possible, have patient sitting up.
- \* Use towel to protect patient's clothing.
- \* Measure tube from nose, around ear, and down to xiphoid process.
- \* Mark point at xiphoid process with tape.
- \* Lubricate distal end of tube 6-8 in with water-soluble lubricant.
- \* Insert tube in nostril and gently advance it towards posterior nasopharynx along nasal floor.
- \* When you feel tube at nasopharyngeal junction, rotate inward towards the other nostril.
- \* As tube enters oropharynx, instruct patient to swallow.
- \* Pass tube to pre-measured point.
- \* If resistance is met, back tube up and try again. Do not force tube.
- \* Check placement of tube by aspirating Gastric contents or auscultating air over epigastric region while injecting 20-30 ml of air.
- \* Tape tube in place and connect to low Suction if needed.

Link to research articles (QR code on right): <http://1drv.ms/1zW9OdN>

**Citations:**

## Section 8-120 - Glucometer

### Basic Life Support (EMT)

### Contraindications:

\* None.

### Precautions:

\* Do not rely on readings of other entities or patient's own Glucometer.

### Indications:

Protocol 4-050 - Cardiovascular Accident (CVA) or Stroke

(Any patient that presents with ALOC) ..... page 41

Protocol 4-120 - Hypoglycemia (Any patient that presents with ALOC) ..... page 52

Protocol 4-140 - Poisoning or Overdose (Any patient that presents with ALOC) ..... page 54

Protocol 4-170 - Seizures (Any patient that presents with ALOC) ..... page 56

Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) ..... page 70

### Procedure:

- \* Turn on and log into Glucometer.
- \* Obtain blood sample from IV start or finger stick.
  - \* Avoid "milking" finger.
  - \* Ensure skin is dry of alcohol wipe.
- \* Follow on-screen instructions.
- \* Dispose of sharp(s).

Link to research articles (QR code on right): <http://1drv.ms/1zW9UC5>

Citations:



**Section 8-125 - Hemostatic Agent****Advanced Life Support**Precautions:

\* None.

Contraindications:

\* None.

Indications:

Protocol 1-020 - General Assessment and Treatment - Trauma..... page 12

Protocol 6-085 - High-Threat Response ..... page 78

Procedure:

- \* Apply gauze to open wound. Fill and tightly pack whole wound.
- \* Use direct pressure on gauze and wound for approximately three (3) minutes to help form clot.
- \* If bleeding continues, hold pressure for an additional three (3) minutes.
- \* Wrap over gauze for transport.

Link to research articles (QR code on right): <http://1drv.ms/1xwHYJH>

Citations: (Medtrade Products Ltd)



## Section 8-130 - Intranasal (IN) Device

### Advanced Life Support

#### Precautions:

- \* Mucous, blood, and vasoconstrictors reduce absorption.
- \* Minimize volume, maximum concentration.
  - \* 1/3 ml per nostril is ideal, 1 ml is max.
  - \* Use both nostrils to double surface area.

#### Contraindications:

- \* If IV access can be obtained, IV is preferred medication route.

#### Indications:

Medication administration without IV access.

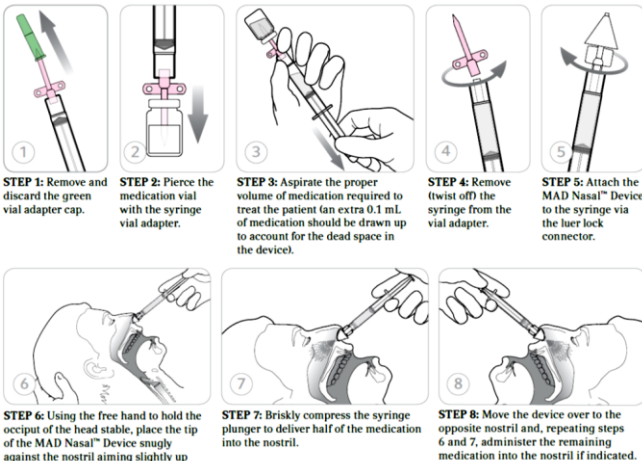
|  |          |
|--|----------|
| Section 7-230 - Fentanyl (Sublimaze) ..... | page 115 |
| Section 7-400 - Narcan (Naloxone) .....    | page 130 |
| Section 7-600 - Versed (Midazolam) .....   | page 151 |
| Section 7-620 - Zofran (Ondansetron) ..... | page 153 |

#### Procedure:

- \* Select correct medication at a high of a concentration as possible. Divide the dose between the two nares.
- \* Confirm orders, dosage, and expiration.
- \* Check patient allergies.
- \* Remove and discard the green vial adapter cap.
- \* Pierce the medication vial with the syringe vial adapter.
- \* Aspirate the proper volume of medication required to treat the patient (an extra 0.1ml of medication should be drawn up to account for the dead space in the device).
- \* Remove (twist off) the syringe from the vial adapter.
- \* Attach the MAD device to the syringe via the luer-lock connector.
- \* Using the free hand to hold the crown of the Head stable, place the tip of the MAD snugly against the nostril aiming slightly up and outward (toward the top of the ear).
- \* Briskly compress the syringe plunger to deliver half of the medication into the nostril.
- \* Move the device over to the opposite nostril and administer the remaining medication into that nostril.
- \* Observe patient for effects.

Link to research articles (QR code on right): <http://1drv.ms/18iTRT>

Citations: (Borland, Bergesio, Pascoe, Turner, & Woodger, 2005), (Finn, et al., 2004), (Holsti, et al., 2007), (O'Donnell, et al., 2013), (Teleflex Incorporated, 2013)



**Section 8-135 - Intraosseous (IO) Needle****Advanced Life Support****Precautions:**

- \* Shelf life for the EZ-IO G3 Power Driver is 10 years.

**Contraindications:**

- \* Fracture of target bone.
- \* Previous orthopedic procedure.
- \* Infection at insertion site.
- \* Inability to locate landmark due to edema or obesity.

**Indications:**

Any patient who needs IV access where IV attempts have failed or suspected to be unsuccessful.

**Procedure:**

- \* Prepare equipment.
- \* Identify landmark.
  - \* May use proximal tibia, distal tibia, or proximal humerus.
- \* Cleanse site.
- \* Stabilize site.
- \* Insert needle at 90 degree angle.
  - \* Insert needle without drilling until against bone.
  - \* If at least one black mark is visible on needle above skin, drill to appropriate depth.
  - \* If no black mark is visible on needle above skin, remove needle and re-attempt with longer needle.
- Re-attempts may be made at the same site only if bone was not drilled.
- \* Conscious: 2% **Lidocaine** 20-50 mg slow over 1-2 min. May repeat half dose after 30 min if Pain returns.
- \* Flush with NS 5-10 ml bolus.
- \* Connect tubing and apply pressure bag.
- \* Apply dressing.

Link to research articles (QR code on right): <http://1drv.ms/1xwI9oi>

Citations: (Vidacare Corporation, 2009)





## Section 8-140 - Intravascular (IV) Needle

### Advanced Life Support

### Contraindications:

\* None.

### Precautions:

\* Avoid venipuncture in arms with dialysis shunts or distal to injuries.

### Indications:

Any patient requiring IV medications.

### Procedure:

- \* Inform patient of procedure.
- \* Apply Tourniquet.
- \* Select and clean site.
- \* Stabilize vein.
- \* Pass needle into vein with bevel up, noting blood “flash.”
- \* Advance needle 2 mm more.
- \* Slide catheter over needle into vein.
- \* Remove needle.
- \* Hold pressure over distal tip of catheter to prevent blood loss.
- \* Perform Blood Draw if indicated.
- \* Remove Tourniquet.
- \* Flush with Saline to ensure placement.
- \* Secure with dressing.

Link to research articles (QR code on right): <http://1drv.ms/1zWbbt4>

Citations: (Citizens Memorial Hospital, 2013)



**Section 8-142 - IV Pump****Advanced Life Support**Precautions:

✱

Contraindications:

✱

Indications:

Patient requiring drip medications.

Procedure:

- ✱ Cassette priming and loading:
  - ✱ Make sure flow regulator is closed (white screw pushed in).
  - ✱ Insert piercing pin with a twisting motion into medication.
  - ✱ Fill drip chamber.
  - ✱ Invert cassette.
  - ✱ Turn flow regulator counterclockwise until a drop of fluid is seen in pumping chamber.
  - ✱ Turn cassette upright and prime remainder of administration set.
  - ✱ Push flow regulator closed.
  - ✱ Make sure proximal clamp (above cassette) is open.
  - ✱ Open cassette door and insert cassette.
  - ✱ Close door.
- ✱ Infusion:
  - ✱ Turn knob to "SET RATE."
  - ✱ Use up, down, and/or "QUICKSET" buttons to select infusion rate.
  - ✱ Turn knob to "SET VTBI."
  - ✱ Use up, down, and/or "QUICKSET" buttons to select volume to be infused.
  - ✱ Turn knob to "RUN."

Link to research articles (QR code on right): <http://1drv.ms/1zWbgNj>

Citations:



## Section 8-150 - Kendrick Extrication Device (KED)

### Basic Life Support (EMR or EMT)

#### Precautions:

✱

#### Contraindications:

✱ Patients with easy access requiring rapid extrication.

#### Indications:

Section 8-350 - Spinal Motion Restriction (SMR)

(Patients that are seated and meet criteria for SMR) ..... page 195

Section 8-360 - Splint ..... page 196

#### Procedure:

- ✱ Maintain c-spine.
- ✱ Assess distal pulses, motor function, and sensation.
- ✱ Apply c-collar.
- ✱ Position device behind patient.
- ✱ Pull device up until it fits snugly in armpits.
- ✱ Apply Chest straps and tighten. Avoid restricting breathing.
- ✱ Apply leg straps and tighten. Avoid pinching or injuring genitals.
- ✱ Apply padding behind Head.
- ✱ Secure Head to device.
- ✱ Remove patient from entrapment (if applicable) and lay down on backboard.
- ✱ Release leg straps and secure patient and device to backboard.
- ✱ KED Chest straps may be loosened for comfort.
- ✱ Reassess distal pulses, motor function, and sensation.

Link to research articles (QR code on right): <http://1drv.ms/1zWbsfo>

Citations:



**Section 8-160 - King LTSD Airway****Basic Life Support (EMT)**Precautions:

✱

Contraindications:

- ✱ Responsive patient with intact gag reflex.
- ✱ Known esophageal disease.
- ✱ Caustic substance ingestion.

Indications:

Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) ..... page 70  
 Protocol 6-110 - Rapid Sequence Intubation (RSI) ..... page 82  
 Section 8-080 - Endotracheal Tube (ET) (Considered alternate Airway to endotracheal tube)..... page 170

Procedure:

- ✱ Choose size:
  - ✱ Size 3 [yellow]: 4-5 ft tall,
  - ✱ Size 4 [red]: 5-6 ft tall,
  - ✱ Size 5 [purple]: greater than 6 ft tall.
- ✱ Test cuff inflation by injecting maximum recommended volume of air into cuffs. Remove all air from cuffs.
- ✱ Apply lubricant to beveled distal tip and posterior aspect of tube.
- ✱ Pre-Oxygenate.
- ✱ Position Head in “sniffing position” or neutral position.
- ✱ Hold King in dominant hand. Hold open mouth and lift chin with non-dominant hand.
- ✱ Rotate King 45-90 degrees to touch the corner of the mouth with the blue orientation line.
- ✱ Advance King behind base of tongue. Never force into position.
- ✱ As tip passes under tongue, rotate back to midline (blue orientation line faces chin).
- ✱ Advance King until base of connector aligns with teeth or gums.
- ✱ Inflate cuffs with minimum volume necessary to seal the Airway at peak ventilatory pressure.
- ✱ Attach resuscitation bag. While bagging, withdraw King until ventilation is easy and free flowing.
- ✱ Confirm proper position by auscultation, Chest movement, and ETCO<sub>2</sub>.
- ✱ Secure King with tape or other device.

**Advanced Life Support**

- ✱ Continued sedation: Consider **Versed** 2.5-5 mg every 5min or **Fentanyl** 50-100 mcg (max 300 mcg).
- ✱ **MANDATORY AFTER INSERTION TO CONFIRM PLACEMENT:**
  - ✱ Place up to 18 fr **Gastric Tube** into the drain tube of the King and advance into the stomach. The gastric tube should be well lubricated and passed slowly and carefully. Suction should not be performed until the gastric tube has reached the stomach.

Link to research articles (QR code on right): <http://1drv.ms/1xwIreU>

Citations:

| Size             | 2  | 2.5   | 3                        | 4                        | 5                                |
|------------------|--|---|--------------------------|--------------------------|----------------------------------|
| Connector Color  | Green                                      | Orange                                      | Yellow                   | Red                      | Purple                           |
| Patient Criteria | 35-45 inches<br>(90-115 cm)<br>or 12-25 kg | 41-51 inches<br>(105-130 cm)<br>or 25-35 kg | 4-5 feet<br>(122-155 cm) | 5-6 feet<br>(155-180 cm) | greater than 6 feet<br>(>180 cm) |
| Cuff Pressure    | 60 cm H <sub>2</sub> O                     | 60 cm H <sub>2</sub> O                      | 60 cm H <sub>2</sub> O   | 60 cm H <sub>2</sub> O   | 60 cm H <sub>2</sub> O           |
| KLTD O.D./I.D.   | 11 mm/7.5 mm                               | 11 mm/7.5 mm                                | 14 mm/10 mm              | 14 mm/10 mm              | 14 mm/10 mm                      |
| KLTD O.D./I.D.*  | n/a  | n/a   | 18 mm/10 mm              | 18 mm/10 mm              | 18 mm/10 mm                      |
| KLTD Cuff Volume | 25-35 ml                                   | 30-40 ml                                    | 45-60 ml                 | 60-80 ml                 | 70-90 ml                         |
| KLTD Cuff Volume | n/a  | n/a   | 40-55 ml                 | 50-70 ml                 | 60-80 ml                         |

## Section 8-170 - Laryngeal Mask Airway (LMA) Supreme

### Basic Life Support (EMT)

#### Precautions:

✱

#### Contraindications:

✱ Swallow or gag reflex.

#### Indications:

Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) ..... page 70

Protocol 6-110 - Rapid Sequence Intubation (RSI) ..... page 82

Section 8-080 - Endotracheal Tube (ET) (Considered alternate Airway to endotracheal tube) ..... page 170

#### Procedure:

- ✱ Examine LMA for damage, leaks, and blockages.
- ✱ Inflate cuff with 150% that listed. Fully deflate by compressing the distal tip of the mask with thumb and index finger. Apply slight tension to the inflation line while removing all air until a vacuum is felt. Disconnect the syringe.
- ✱ Generously lubricate posterior surface of cuff and airway tube.
- ✱ Place the patient's head in a neutral or slight "sniffing" position. Hold the LMA at the proximal end with the connector pointing downward to the chest and the tip of the distal end pointing toward the palate.
- ✱ Press the tip of the mask against the hard palate. Maintaining pressure against the palate, continue to rotate the mask inwards in a circular motion following the curvature of the hard and soft palate.
- ✱ Continue until resistance is felt. The distal end of the mask should now be in contact with the upper esophageal sphincter. The device is now fully inserted.
- ✱ Maintaining inward pressure, secure the mask into position by taping cheek to cheek across the fixation tab. This should be done prior to inflation. Inflate with the minimum amount of air needed to achieve an effective seal.

### Advanced Life Support

- ✱ Continued sedation:
  - ✱ Consider **Versed** 2.5-5 mg every 5 min. Repeat as needed maintaining SBP greater than 100.
  - ✱ Consider **Fentanyl** 50-100 mcg. Max 300 mcg.
- ✱ **MANDATORY AFTER INSERTION TO CONFIRM PLACEMENT:**
  - ✱ Place **Gastric Tube** tube into the drain tube of the LMA and advance into the stomach. The gastric tube should be well lubricated and passed slowly and carefully. Suction should not be performed until the gastric tube has reached the stomach.

Link to research articles (QR code on right): <http://1drv.ms/1zWbBQe>


Citations:



| CATALOG | MASK SIZE | PATIENT SIZE                | PRODUCT DESCRIPTION   | MAX INFLATION CUFF VOLUME | LARGEST SIZE OG/NG TUBE |
|---------|-----------|-----------------------------|-----------------------|---------------------------|-------------------------|
| 175010  | Size 1    | Neonates/infants up to 5 kg | LMA Supreme™ size 1   | 5 mL                      | 6 French                |
| 175015  | Size 1.5  | Infants 5 - 10 kg           | LMA Supreme™ size 1.5 | 8 mL                      | 6 French                |
| 175020  | Size 2    | Infants 10 - 20 kg          | LMA Supreme™ size 2   | 12 mL                     | 10 French               |
| 175025  | Size 2.5  | Children 20 - 30 kg         | LMA Supreme™ size 2.5 | 20 mL                     | 10 French               |
| 175030  | Size 3    | Children 30 - 50 kg         | LMA Supreme™ size 3   | 30 mL                     | 14 French               |
| 175040  | Size 4    | Adults 50 - 70 kg           | LMA Supreme™ size 4   | 45 mL                     | 14 French               |
| 175050  | Size 5    | Adults 70 - 100 kg          | LMA Supreme™ size 5   | 45 mL                     | 14 French               |



**Section 8-180 - Laryngoscope**

|  |   |
|--|---|
| <b><u>Advanced Life Support</u></b><br><br><u>Precautions:</u><br>*  | <u>Contraindications:</u><br>*  |
| <u>Indications:</u><br>Future location of video laryngoscope   |   |
| <u>Procedure:</u><br>*   |   |
| Link to research articles (QR code on right): <a href="http://1drv.ms/1zWdHzq">http://1drv.ms/1zWdHzq</a><br><u>Citations:</u> |  |

## Section 8-190 - LifePak

### **Basic Life Support - AED (EMR or EMT)**

#### Precautions:

- \* Exercise safety precautions.

#### Contraindications:

- \* If ALS is available, manual mode is preferred.
- \* None in cardiac Arrest.

#### Indications:

|  |          |
|--|----------|
| Protocol 2-030 - Automated External Defibrillation (AED)<br>(Cardiac Arrest without ALS assistance)..... | page 17  |
| Protocol 6-025 - Cardiopulmonary Resuscitation (CPR)<br>(Cardiac Arrest without ALS assistance).....     | page 70  |
| Section 8-010 - Automated External Defibrillator (AED)<br>(Cardiac Arrest without ALS assistance).....   | page 155 |

#### Procedure:

- \* Confirm patient is in cardiac Arrest.
- \* Apply and connect combo-pads.
- \* Press “ANALYZE.”
- \* Follow on-screen messages and voice prompts.

### **Basic Life Support - 12/15-Lead acquisition (EMR or EMT)**

#### Precautions:

- \*

#### Contraindications:

- \*

#### Indications:

|   |         |
|---|---------|
| Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter .....                      | page 16 |
| Protocol 2-040 - Bradycardia .....  | page 18 |
| Protocol 2-050 - Chest Discomfort (Suspected myocardial infarction).....                  | page 19 |
| Protocol 2-060 - Post Resuscitative Care .....  | page 22 |
| Protocol 2-080 - Tachycardia Narrow Stable .....  | page 24 |
| Protocol 2-090 - Tachycardia Narrow Unstable .....  | page 25 |
| Protocol 2-100 - Tachycardia Wide Stable .....  | page 26 |
| Protocol 2-110 - Tachycardia Wide Unstable .....  | page 27 |
| Protocol 2-120 - Torsades de Pointes .....  | page 28 |
| Protocol 2-130 - Ventricular Ectopy .....   | page 29 |
| Protocol 2-150 - Wolff-Parkinson-White (WPW) .....  | page 31 |
| Protocol 4-040 - Behavioral (Non-specific complaints).....                                | page 40 |
| Protocol 4-050 - Cardiovascular Accident (CVA) or Stroke (Non-specific complaints).....   | page 41 |
| Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) (Unexplained dyspnea) ..... | page 45 |
| Protocol 4-070 - Congestive Heart Failure (CHF) (Unexplained dyspnea) .....               | page 46 |

#### Procedure:

- \* Attach limb leads.
  - \* Preferred locations for 12-lead acquisition are wrists and ankles.
  - \* Preferred locations for 4-lead monitoring are shoulders and abdomen.
- \* Attach precordial leads.
- \* Perform 12-lead.
- \* Perform 15-Lead on the following patients:
  - \* Non-diagnostic 12-lead OR
  - \* Evidence of acute inferior wall injury.

|  |  |
|--|--|
| <b><u>Basic Life Support - Vitals (EMR or EMT)</u></b><br><br><u>Precautions:</u><br>*   | <u>Contraindications:</u><br>* Do not attempt blood pressures on injured extremities, side of previous mastectomies, or dialysis shunts. |
| <u>Indications:</u><br>All patient contacts.<br>Minimum of 2 sets of vitals required for all transported patients.<br>Before and after medication administration.<br>Every 5-10min in critical patients. ....  |  |
| <u>Procedure:</u><br>* Choose and apply appropriately sized cuff. Auscultated blood pressure is required as a baseline to verify LifePak before medication administration.<br>* Attach pulse-ox probe.<br>* If patient is being transported ALS: Connect 4-lead cardiac monitor.   |  |
| <b><u>Advanced Life Support - Defibrillation</u></b><br><br><u>Precautions:</u><br>* Exercise safety precautions.  | <u>Contraindications:</u><br>* None in cardiac Arrest.   |
| <u>Indications:</u><br>Protocol 2-030 - Automated External Defibrillation (AED) ..... page 17<br>Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) ..... page 30<br>Protocol 3-010 - Drowning ..... page 33<br>Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) ..... page 70<br>Section 8-010 - Automated External Defibrillator (AED)..... page 155  |  |
| <u>Procedure:</u><br>* Verify patient is in cardio-pulmonary Arrest.<br>* Record baseline rhythm.<br>* Apply combo-pads (anterior-posterior is preferred)<br>* Select appropriate energy.<br>* <u>Adult</u> : 360 J (OR consider biphasic dose of 200 J).<br>* <u>Pediatric</u> : 2 J/kg (first shock), 4 J/kg (subsequent shocks).<br>* Charge and clear patient.<br>* Call "CLEAR" and ensure patient is clear.<br>* Press "SHOCK."<br>* Reassess patient. |  |



|   |   |
|---|---|
| <p><b><u>Advanced Life Support - Download to ePCR</u></b></p> <p><u>Precautions:</u></p> <p>✱</p> | <p><u>Contraindications:</u></p> <p>✱</p> |
|---|---|

Indications:

Any time cardiac monitoring is required and/or documented in HealthEMS, the EKG and all 12-leads shall be downloaded and attached to the ePCR.

Procedure:

- ✱ Click paperclip icon in the HealthEMS ePCR. Select “EKG.” Click down-arrow. Click “Next.” Select “LifePak 12/15.” Click “Next.”
- ✱ Press “TRANSMIT” on LifePak.
- ✱ Click “Finish.” Select the correct file. Click plus icon. Click “OK.” Click “Yes.”

|   |   |
|---|---|
| <p><b><u>Advanced Life Support - Synchronized Cardioversion</u></b></p> <p><u>Precautions:</u></p> <p>✱ Exercise safety precautions. Cardiovert with extreme caution in patients on digitalis, Beta-Blockers, and Calcium channel blockers.</p> | <p><u>Contraindications:</u></p> <p>✱</p> |
|---|---|

Indications:

|  |         |
|--|---------|
| Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter ..... | page 16 |
| Protocol 2-080 - Tachycardia Narrow Stable .....                     | page 24 |
| Protocol 2-090 - Tachycardia Narrow Unstable .....                   | page 25 |
| Protocol 2-100 - Tachycardia Wide Stable .....                       | page 26 |
| Protocol 2-110 - Tachycardia Wide Unstable .....                     | page 27 |
| Protocol 2-120 - Torsades de Pointes .....                           | page 28 |

Procedure:

- ✱ Explain procedure to patient.
- ✱ If time permits, consider **Versed**.
- ✱ Record baseline rhythm.
- ✱ Select lead with tallest R-wave.
- ✱ Apply combo-pads (anterior-posterior is preferred).
- ✱ Select appropriate energy.
  - ✱ Adult: 120 J.
  - ✱ Pediatric: 0.5-1 J/kg.
- ✱ Synchronize (“SYNC”) and observe markers on screen. If sense markers
- ✱ Charge (“CHARGE”) and clear patient. To cancel charge, press speed dial. If “SHOCK” is not pressed within 60 sec, charge is cancelled.
- ✱ Call “CLEAR” and ensure patient is clear.
- ✱ Press “SHOCK.”
- ✱ Reassess patient.

**Advanced Life Support - Transcutaneous Pacing**Precautions:

- \* Exercise safety precautions. Do not place pacer electrodes directly over implanted pacemaker or AICD.

Contraindications:

- \* None in emergency setting.

Indications:

|  |         |
|--|---------|
| Protocol 2-010 - Asystole .....                            | page 15 |
| Protocol 2-040 - Bradycardia .....                         | page 18 |
| Protocol 2-070 - Pulseless Electrical Activity (PEA) ..... | page 23 |
| Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) ..... | page 70 |

Procedure:

- \* Explain procedure to patient.
- \* Connect 4-leads and record rhythm strip prior to Pacing.
- \* Select lead with tallest R-wave.
- \* Apply combo-pads (anterior-posterior is preferred).
- \* Turn pacer on and set rate to 80 bpm.
- \* Gradually increase energy until electrical capture is observed (usually wide, bizarre QRS).
- \* Check pulse for mechanical capture. If no mechanical capture, continue to increase energy until mechanical capture. If CPR is being conducted and no mechanical capture is detected at maximum energy, continue Pacing.
- \* Once mechanical capture is obtained, increase energy another 10%, assess blood pressure, and record rhythm strip.
- \* If CPR is being conducted, continue for another 2 minutes before discontinuing.
- \* Conscious: Consider **Versed** 2.5-5 mg for sedation if discomfort is intolerable.

Link to research articles (QR code on right): <http://1drv.ms/1zWbNPm>

Citations:

## Section 8-200 - Meconium Aspirator

### Advanced Life Support

#### Indications:

\*

#### Contraindications:

\*

#### Precautions:

\*

#### Indications:

Protocol 4-130 - Neonatal Resuscitation ..... page 53

#### Procedure:

\*

Link to research articles (QR code on right): <http://1drv.ms/1zWc7h1>

Citations:



**Section 8-210 - Morgan Lens****Advanced Life Support****Precautions:**

✱

**Contraindications:**

✱

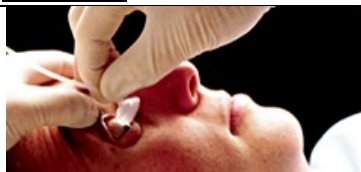
**Indications:**

Protocol 5-060 - Eye Injury (need for Eye irrigation) ..... page 63

**Procedure:**

- ✱ Pain: Consider topical anesthetic (**Tetracaine** 1-2 drops).
- ✱ Attach NS to IV set.
- ✱ Begin flow.
- ✱ Have patient look down. Insert lens under upper lid.
- ✱ Have patient look up, retract lower lid. Drop lens into place.
- ✱ Deliver at least 1/2 liter per Eye.
- ✱ If chemical is unknown or an alkali (base), flush for at least 20 min.
- ✱ To remove, have patient look up, retract lower lid, and slide lens out.

Link to research articles (QR code on right): <http://1drv.ms/1zWcdVN>

**Citations:**

Start minimal flow BEFORE\* inserting Lens

- Have patient look down
- Insert Lens under upper lid
- Have patient look up, retract lower lid, drop Lens in place

## Section 8-230 - Naso-Pharyngeal Airway (NPA)

### Basic Life Support (EMR or EMT)

#### Precautions:

\*

#### Contraindications:

\*

#### Indications:

Patients unable to control their Airway.  
Clinched jaws.  
Altered LOC with gag reflex.

#### Procedure:

- \* Pre-Oxygenate if possible.
- \* Measure tube from tip of nose to the earlobe.
- \* Lube Airway with water-soluble jelly.
- \* Insert tube (right nare first) with bevel towards the septum.
- \* Reassess Airway.

Link to research articles (QR code on right): <http://1drv.ms/1zWcmbQ>

#### Citations:



**Section 8-240 - Nebulizer****Advanced Life Support****Precautions:**

\*

**Contraindications:**

\*

**Indications:**

|   |          |
|---|----------|
| Protocol 4-020 - Anaphylaxis .....                                  | page 38  |
| Protocol 4-030 - Asthma .....                                       | page 39  |
| Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) ..... | page 45  |
| Protocol 4-070 - Congestive Heart Failure (CHF) .....               | page 46  |
| Protocol 4-080 - Croup .....  | page 47  |
| Section 7-040 - Albuterol (Proventil, Ventolin) .....               | page 95  |
| Section 7-140 - Decadron (Dexamethasone) .....                      | page 106 |
| Section 7-180 - Duoneb (Ipratropium and Albuterol, Combivent) ..... | page 110 |
| Section 7-210 - Epinephrine Racemic (Micronefrin) .....             | page 113 |
| Section 7-320 - Ipratropium (Atrovent) .....                        | page 122 |
| Section 7-610 - Xopenex (Levalbuterol) .....                        | page 152 |

**Procedure:**

- \* Select correct medication.
- \* Confirm orders, dosage, and expiration.
- \* Check patient allergies.
- \* Add medication to reservoir of Nebulized. Add Saline if necessary to equal 3 ml total volume.
- \* Connect Oxygen tubing and set flow rate to 6-8 lpm.
- \* Have patient take deep breaths, holding for a second, and exhale through tube.
- \* If patient is unable to hold Nebulized, attach to mask.
- \* Medication is delivered in 5-10 min.
- \* Observe patient for effects.

Link to research articles (QR code on right): <http://1drv.ms/1zWcrMN>

Citations:



## Section 8-260 - Oro-Pharyngeal Airway (OPA)

### Basic Life Support (EMR or EMT)

#### Precautions:

\*

#### Contraindications:

\* Gag reflex.

#### Indications:

Unconscious or unresponsive.

#### Procedure:

- \* Pre-Oxygenate if possible.
- \* Measure Airway from corner of mouth to earlobe.
- \* Grasp tongue and jaw, lifting anterior.
- \* Insert Airway inverted and rotate 180 degrees into place.
- \* Reassess Airway.

Link to research articles (QR code on right): <http://1drv.ms/1zWcxDW>

#### Citations:



**Section 8-290 - Physical Restraint****Advanced Life Support****Contraindications:**

\*

**Precautions:**

- \* If restrained by law enforcement (i.e. hand-cuffs), an officer from the Arresting agency must be present throughout EMS transport.

**Indications:**

Protocol 4-040 - Behavioral (Medical or Behavioral emergency endangering patient and/or EMS personnel or prohibiting appropriate medical evaluation and transport) ..... page 40

**Procedure:**

- \* **MEDICAL CONTROL** must be contacted prior to or immediately following patient Restraint.
- \* Maintain scene, crew, and personal safety.
- \* Attempt verbal de-escalation.
- \* Utilize family and friends to calm patient if they are helpful.
- \* Utilize law enforcement presence to calm patient.
- \* Managing the patient's Pain may assist in calming patient.
- \* Utilize the least restrictive device that achieves desired result.
- \* Monitor patient for physical response, Extremity circulation, respiratory compromise, and aspiration risk.
- \* Proper body alignment and patient comfort will be addressed.

Link to research articles (QR code on right): <http://1drv.ms/1zWcE2u>

**Citations:**



## Section 8-295 - PICC and Central Line Access Kit

### Advanced Life Support

#### Precautions:

- \* Sterile technique must be utilized.

#### Contraindications:

- \* Inability to obtain/maintain sterile field.

#### Indications:

Any patient who needs IV access, 2 attempts at IV access have failed, IO contraindicated or conscious patient, and at least one of the following:

- \* ALOC or GCS less than 8,
- \* Hemodynamic instability,
- \* Extreme respiratory compromise, OR
- \* Full Arrest.

#### Procedure:

- \* Cleanse the needless infusion cap. May use any catheter present.
- \* Aseptically attach flush.
- \* Open clamp on catheter lumen.
- \* Aspirate fluid from catheter slowly until blood return. If unable to aspirate blood, catheter is clotted and will need to be declotted in a hospital setting.
- \* Flush with NS. Remove flush while maintain pressure on syringe plunger.
- \* Attach appropriate IV fluids.

Link to research articles (QR code on right): <http://1drv.ms/1zWcLv2>

Citations: (Citizens Memorial Hospital, 2013)



**Section 8-320 - Port Access Kit****Advanced Life Support****Precautions:**

- \* Sterile technique must be utilized.

**Contraindications:**

- \* Inability to obtain/maintain sterile field.

**Indications:**

Any patient who needs IV access, 2 attempts at IV access have failed, IO contraindicated or conscious patient, and at least one of the following:

- \* ALOC or GCS less than 8,
- \* Hemodynamic instability,
- \* Extreme respiratory compromise, OR
- \* Full Arrest.

**Procedure:**

- \* Gather equipment and don mask.
- \* Palpate subcutaneous tissue to determine borders of the access device. Palpate the implanted infusion port borders and locate the septum and center of the septum. Determine if the patient has a single or double lumen implanted infusion port. Choose the smallest gauge non-coring needle that accommodates the therapy. Select a length that allows the length of the needle to sit flush to the skin and securely within the port.
- \* Assess the site for symptoms of infection.
- \* Open the implanted infusion port access kit using the sterile inner surface to create sterile field.
- \* Using sterile technique, remove wrapper from 10 ml syringe and place on sterile field. Remove packaging and place the needle with extension tubing, needleless injection cap, adhesive skin closures, and dressing on sterile field.
- \* Using sterile technique, prime tubing with NS syringe. Attach needleless injection cap to extension to needle.
- \* Cleanse insertion site with antiseptic for 30 seconds and allow to air dry.
- \* Stabilize borders of implanted port and insert needle firmly into center of port septum using 90 degree angle perpendicular to the skin. Advance needle until reaching base of portal reservoir.
- \* Aspirate blood and then flush with NS.
- \* Stabilize needle with dressing, Occlusive dressing, and/or tape. Document date, time, and your initials on external dressing.

Link to research articles (QR code on right): <http://1drv.ms/1zWcSXe>

Citations: (Citizens Memorial Hospital, 2013)



## Section 8-330 - Portable Ventilator

### Advanced Life Support

### Contraindications:

\* None.

### Precautions:

- \* Demand setting requires constant patient monitoring. If patient condition deteriorates, consider extubation and BVM.

### Indications:

Need for ventilation of intubated patient.

### Procedure:

- \* Adjust settings (may be based on existing Ventilator settings or anticipated patient needs):
  - \* Relief pressure is maximum delivered pressure.
  - \* Air mix is set at either “No Air Mix (100% Oxygen)” or “Air Mix (45% Oxygen).”
  - \* Frequency is the breaths per minute.
  - \* Tidal volume is the volume of air per breath.
- \* Connect supply hose to Oxygen, turn on Oxygen, and check visual alarm.
- \* Connect patient hose and patient valve to ETT.
- \* Confirm ventilation with auscultation and **Capnography**. Confirm Oxygenation with pulsoximeter.
- \* Constant patient monitoring is made more critical if Ventilator is in demand mode.
- \* Consider NG and/or OG Suction.

Link to research articles (QR code on right): <http://1drv.ms/1xwJawA>

Citations:



**Section 8-350 - Spinal Motion Restriction (SMR)****Basic Life Support (EMR or EMT)**Precautions:

- \* If used, c-collar must be properly sized.
- \* Appropriate amount of padding is needed to provide correct stabilization.
- \* Unless it is necessary to change a patient's position to maintain an open Airway or there is some other compelling reason, it is best to splint the neck or back in the original position of the deformity.

Contraindications:

- \* Elderly fall from standing with isolated Extremity fracture (i.e. hip fracture) without mechanism for spinal injury do not need SMR.
- \* Spinal precautions can be maintained by application of a rigid cervical collar and securing the patient firmly to the EMS stretcher (no backboard), and may be most appropriate for:
  - \* Patients found to be ambulatory at the scene,
  - \* Extended transport time,
  - \* Severe epistaxis or facial bleeding,
  - \* Respiratory distress when supine,
  - \* Airway compromise when supine, OR
  - \* Penetrating trauma with NO evidence of spinal injury.

Indications:

- \* High-energy mechanism of injury AND any of the following:
  - \* Drug or alcohol intoxication, Inability to communicate, Altered mental status, OR
  - \* Distracting injury.
- \* Unconscious with unknown history of event.
- \* Spinal Pain, tenderness, or deformity.
- \* Neurologic complaint (i.e. numbness or motor weakness).
- \* Patients "cleared" by transferring Physician being taken to trauma center meeting requirements for SMR must have SMR.

|   |           |
|---|-----------|
| Protocol 1-020 - General Assessment and Treatment - Trauma..... | page 12   |
| Protocol 5-020 - Abdominal Trauma .....                         | page 1259 |
| Protocol 5-040 - Chest Trauma .....                             | page 1261 |
| Protocol 5-050 - Extremity Trauma .....                         | page 1262 |
| Protocol 5-070 - Head Trauma .....                              | page 1264 |
| Protocol 5-080 - Spinal Trauma .....                            | page 1265 |
| Protocol 5-090 - Trauma Arrest .....                            | page 1266 |
| Protocol 6-080 - Event Standby .....                            | page 1277 |

Procedure:

- \* Assess distal pulse, motor, and sensation.
- \* Maintain manual stabilization, measure, size, and secure cervical collar.
- \* Seated patient: Consider **KED**.
- \* If no posterior injuries suspected: Eight-person lift a few inches and slide board underneath or use scoop stretcher.
  - \* OR Log-roll patient onto his/her side. Assess posterior and position backboard.
- \* Secure thorax and legs to backboard. Pad. Ensure breathing is not restricted.
- \* Secure Head and c-collar to backboard. Pad as needed. Tape should stick to all areas of forehead, eyebrows, collar, etc.
- \* Reassess distal pulse, motor, and sensation.

Link to research articles (QR code on right): <http://1drv.ms/1zWd0pY>

Citations: (Bledsoe B. E., 2013), (Boland, Satterlee, & Jansen, 2014), (Citizens Memorial Hospital, 2014), (Citizens Memorial Hospital, 2014), (Foerster, 2013), (Mercy EMS, 2013), (National Association of EMS Physicians and American College of Surgeons Committee on Trauma, 2013), (Niven & Castle, 2010), (National Athletic Trainers Association, 2015)



## Section 8-360 - Splint

### Basic Life Support (EMR or EMT)

### Contraindications:

#### Precautions:

- \* May be time consuming, should not take priority over life threatening conditions. Bone fracture splints should immobilize joints above and below. Joint fractures should immobilize bones above and below.

\*

#### Indications:

Protocol 5-050 - Extremity Trauma..... page 62

#### Procedure:

- \* Following splints are recommended for the following situations. Every situation is different, so splints may have to be improvised to achieve the desired effect of immobilization:
  - \* Clavicle: Sling and swath.
  - \* Radius/ulna: Ladder, board, or SAM.
  - \* Tibia/fibula: Ladder, board, or SAM.
  - \* Ankle: Pillow.
  - \* Joints: In position found.
  - \* Pelvis: Scoop, pillow, inverted KED, LSB, MAST.
  - \* Hand: In position of function.
- \* Assess distal pulse, motor, and senses before and after splinting.

#### Evac-u-Splint Procedure:


- \* Preparation:
  - \* Lay mattress on flat surface near patient. Head and Shoulder logo indicates the Head end.
  - \* Remove valve cap. Release vacuum by pushing red valve stem. Keep valve pushed in until mattress is pliable.
  - \* Disconnect strap from patient side of mattress and position top strap at level of armpit.
  - \* Smooth out beads to form level surface.
  - \* Connect pump to mattress at either foot or Head end. Foot end is preferred. Pediatric mattress only has valve on foot end.
- \* Application:
  - \* Assess patient's respiratory and neurovascular status.
  - \* Log roll patient onto mattress with manual c-spine control.
  - \* Secure patient using straps. Remove excess strap slack working Head to feet.
  - \* Repeat strap tightening if needed working Head to feet.
  - \* Shape mattress and fill voids.
  - \* Evacuate air from mattress. Pump may require up to 35 strokes to achieve rigid immobilization.
  - \* Disconnect pump. Replace cap on valve.
  - \* Secure Head using adhesive tape.
  - \* Assess patient's respiratory and neurovascular status.

Link to research articles (QR code on right): <http://1drv.ms/1zWd6xC>

#### Citations:



**Section 8-365 - Stair Chair**

|  |   |
|--|---|
| <b><u>Basic Life Support (EMR or EMT)</u></b><br><br><u>Precautions:</u><br>*  | <u>Contraindications:</u><br>*  |
| <u>Indications:</u><br>Section 8-060 - Cot .....page 166   |   |
| <u>Procedure:</u><br>*   |   |
| Link to research articles (QR code on right): <a href="http://1drv.ms/1zWebWk">http://1drv.ms/1zWebWk</a><br><u>Citations:</u> |  |

## Section 8-370 - Suction

### Basic Life Support (EMR or EMT)

### Contraindications:

✱

### Precautions:

- ✱ Be sure to switch off as soon as possible to avoid shorting batteries.

### Indications:

Protocol 4-130 - Neonatal Resuscitation ..... page 53  
Protocol 6-110 - Rapid Sequence Intubation (RSI) ..... page 82

### Procedure:

- ✱ Place 2 fully charged batteries.
- ✱ Attach patient connecting tube to patient port on the canister.
- ✱ Turn switch on.
- ✱ Occlude end of patient connecting tube and keep it occluded for 10sec. Release occlusion and check for negative pressure. If no negative pressure, check to ensure canister lid is tight and connections are secure.
- ✱ Dispose of canister after use.

Link to research articles (QR code on right): <http://1drv.ms/1zWdb15>

### Citations:



**Section 8-380 - Thermometer****Basic Life Support (EMR or EMT)****Contraindications:**

✱


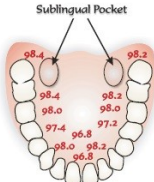

**Precautions:**

- ✱ Prehospital thermometers should only be used to measure a patient's temperature in the oral, axillary, or rectal body sites unless specifically designed for other locations by the manufacturer.
- ✱ Do not take a patient's temperature without using a Welch Allyn disposable probe cover. Doing so can cause patient discomfort, patient cross contamination, and erroneous temperature readings.

**Indications:**

Protocol 1-010 - General Assessment and Treatment - Medical ..... page 11  
 Protocol 1-020 - General Assessment and Treatment - Trauma ..... page 12

**Oral Temperature Procedure:**

- ✱ Using Probe with Blue Ejection Button and Blue Probe Well
- ✱ When used correctly, the SureTemp Plus thermometer accurately measures an oral temperature in approximately 4–6 seconds. The ability of the SureTemp Plus thermometer to take an accurate oral temperature requires correct user technique.
- ✱ Holding the probe handle with your thumb and two fingers on the indentations of the probe handle, withdraw the probe from the probe well.
- ✱ Verify that the oral model icon is selected by observing the flashing head icon on the instrument's display. If this icon is not flashing, press the Mode Selection button until the head icon appears. 
- ✱ Load a probe cover by inserting the probe into a probe cover and pressing the probe handle down firmly. The probe handle will move slightly to engage the probe cover. Use only Welch Allyn probe covers. The use of other manufacturer's probe covers or no probe cover may produce temperature measurement errors and/or inaccuracy.
- ✱ With the Oral Mode indicator flashing, quickly place the probe tip under the patient's tongue on either side of the mouth to reach the rear sublingual pocket. Have the patient close his/her lips around the probe. Hold the probe in place, keeping the tip of the probe in contact with the oral tissue throughout the measurement process. Rotating "walking" segments appear on the display, indicating that measurement is in progress. 
- ✱ The unit will beep three times when the final temperature is reached. The measurement site, temperature scale, and patient temperature will display on the LCD. The final temperature will remain on the display for 30 seconds.
- ✱ If you cannot correctly measure the patient's temperature in Normal Mode, the unit will automatically enter Monitor Mode. In this mode, measurement time is extended. Either repeat the temperature measurement in Normal Mode in the opposite sublingual pocket or keep the probe in place for three minutes in Monitor Mode. The thermometer will not beep to indicate a final temperature. Record the temperature before removing the probe from the site, as the temperature reading is not maintained in memory. 
- ✱ Long-term continuous monitoring beyond three minutes is not recommended in the Oral Mode.
- ✱ After the temperature measurement is complete, remove the probe from the patient's mouth. Eject the probe cover by firmly pressing the ejection button on the top of the probe.
- ✱ Return the probe to the probe well. The LCD display will go blank.
- ✱ Patient actions may interfere with accurate oral temperature readings. Ingesting hot or cold liquids, eating food, chewing gum or mints, brushing teeth, smoking, or performing strenuous activity may affect temperature readings for up to 20 minutes after activity has ended.



**Axillary Temperature Procedure:**

- \* Using Probe with Blue Ejection Button and Blue Probe Well
- \* When used correctly, the SureTemp Plus thermometer accurately measures an axillary temperature for pediatric patients (ages 17 and younger) in approximately 10–13 seconds and for adult patients (ages 18 and older) in approximately 12–15 seconds.
- \* Ensure that the axillary probe (blue ejection button) and the blue probe well are installed.
- \* Holding the probe handle with your thumb and two fingers on the indentations of the probe handle, withdraw the probe from the probe well.
- \* Verify that the axillary mode is selected by observing the correct flashing axillary icon on the instrument's display. If this icon is not flashing, press the Mode Selection button to select the Adult Axillary or Pediatric Axillary icon is displayed.
- \* To ensure optimal accuracy, always confirm that the correct axillary mode is selected.
- \* After a temperature is taken and the probe is returned to the probe well, the instrument reverts to the original measurement site mode.
- \* Do not take an axillary temperature through patient's clothing. Direct contact between patient's skin and the probe is required.
- \* Load a probe cover by inserting the probe into a probe cover and pressing the probe handle down firmly. The probe handle will move slightly to engage the probe cover.
- \* Use only Welch Allyn probe covers. The use of other manufacturer's probe covers or no probe cover may produce temperature measurement errors and/or inaccuracy.
- \* With the correct axillary mode indicator flashing, lift the patient's arm so that the entire axilla is easily seen. Place the probe as high as possible in the axilla. Do not allow the probe tip to come into contact with the patient until the probe is placed in the measurement site. Before this, any contact between the probe tip and the tissue or other material may cause inaccurate readings.
- \* Verify that the probe tip is completely surrounded by axillary tissue and place the arm snugly at the patient's side. Hold the patient's arm in this position and do not allow movement of the arm or probe during the measurement cycle. Rotating "walking" segments appear on the display, indicating that measurement is in progress.
- \* The unit will beep three times when the final temperature is reached. The measurement site, temperature scale, and patient temperature will display on the LCD. The final temperature will remain on the display for 30 seconds.
- \* If you cannot correctly measure the patient's temperature in Normal Mode, the unit will automatically enter Monitor Mode. In this mode, measurement time is extended. Either repeat the temperature measurement in Normal Mode in the opposite axilla or keep the probe in place for five minutes in Monitor Mode. The thermometer will not beep to indicate a final temperature. Record the temperature before removing the probe from the site, as the temperature reading is not maintained in memory.
- \* Long-term continuous monitoring beyond five minutes is not recommended in the Axillary Mode.
- \* After the temperature measurement is complete, remove the probe from the patient's axilla. Eject the probe cover by firmly pressing the ejection button on the top of the probe.
- \* Return the probe to the probe well. The LCD display will go blank.
- \* Probe contact with electrodes, bandages, etc., poor tissue contact, taking a temperature over clothing, or prolonged exposure of axilla to ambient air can cause inaccurate temperature readings.





Adult Axillary  
Mode Icon



Pediatric Axillary  
Mode Icon



**Rectal Temperature Procedure:**

- \* Using Probe with Red Ejection Button and Red Probe Well
- \* When used correctly, the SureTemp Plus thermometer accurately measures rectal temperature in approximately 10–13 seconds.
- \* Ensure that the rectal probe (red ejection button) and the red probe well are installed. The instrument will only operate in Rectal Mode when the red rectal probe and probe well are installed.
- \* Holding the probe handle with your thumb and two fingers on the indentations of the probe handle, withdraw the probe from the probe well.
- \* Observe the flashing lower-body icon on the unit's display. Load a probe cover by inserting the probe into a probe cover and pressing the probe handle down firmly. The probe handle will move slightly to engage the probe cover. 
- \* With the Rectal Mode indicator flashing, separate the patient's buttocks with one hand. Using the other hand, gently insert the probe only 1.5 cm (5/8 in.) inside the rectum (less for infants and children). The use of a lubricant is optional.
- \* Incorrect insertion of probe can cause bowel perforation.
- \* Tilt the probe so that the tip of the probe is in contact with tissue. Keep the hand separating the buttocks in place, and hold the probe in place throughout the measurement process. Rotating "walking" segments appear on the display, indicating that measurement is in progress.
- \* The unit will beep three times when the final temperature is reached. The measurement site, temperature scale, and patient temperature will display on the LCD. The final temperature will remain on the display for 30 seconds.
- \* If you cannot correctly measure the patient's temperature in Normal Mode, the unit will automatically enter Monitor Mode. In this mode, measurement time is extended. Either repeat the temperature measurement in Normal Mode or keep the probe in place for three minutes in Monitor Mode. The thermometer will not beep to indicate a final temperature. Record the temperature before removing the probe from the site, as the temperature reading is not maintained in memory. 
- \* Long-term continuous monitoring beyond three minutes is not recommended in Rectal Mode.
- \* After the temperature measurement is complete, remove the probe from the patient's rectum. Eject the probe cover by firmly pressing the ejection button on the top of the probe.
- \* Return the probe to the probe well. The LCD display will go blank.
- \* Wash your hands. Washing hands greatly reduces the risk of cross-contamination and Nosocomial Infection.

Link to research articles (QR code on right): <http://1drv.ms/1zWdUm5>

Citations: (Welch Allyn, Inc.)



| CMH/EMH EMS Quick Ref     |      |      |             |              |              |      |       |
|---------------------------|------|------|-------------|--------------|--------------|------|-------|
| Normal Temperature Ranges |      |      |             |              |              |      |       |
|                           | 94°F | 95°F | 96°F        | 97°F         | 98°F         | 99°F | 100°F |
| Oral                      |      |      |             |              |              |      |       |
| 0-2 yr                    |      |      |             |              |              |      |       |
| 3-10 yr                   |      |      |             | 95.9 - 99.5  |              |      |       |
| 11-65 yr                  |      |      |             | 97.5 - 99.5  |              |      |       |
| Over 65 yr                |      |      |             | 96.4 - 98.6  |              |      |       |
| Rectal                    |      |      |             |              |              |      |       |
| 0-2 yr                    |      |      |             |              | 97.9 - 100.4 |      |       |
| 3-10 yr                   |      |      |             |              | 97.9 - 100.4 |      |       |
| 11-65 yr                  |      |      |             |              | 98.6 - 100.6 |      |       |
| Over 65 yr                |      |      |             | 97.0 - 99.1  |              |      |       |
| Axillary                  |      |      |             |              |              |      |       |
| 0-2 yr                    |      |      | 94.5 - 99.1 |              |              |      |       |
| 3-10 yr                   |      |      | 96.6 - 98.1 |              |              |      |       |
| 11-65 yr                  |      |      | 95.4 - 98.4 |              |              |      |       |
| Over 65 yr                |      |      | 95.9 - 97.3 |              |              |      |       |
| Ear                       |      |      |             |              |              |      |       |
| 0-2 yr                    |      |      |             |              | 97.5 - 100.4 |      |       |
| 3-10 yr                   |      |      |             | 97.0 - 100.0 |              |      |       |
| 11-65 yr                  |      |      |             | 96.6 - 99.7  |              |      |       |
| Over 65 yr                |      |      |             | 96.4 - 99.5  |              |      |       |
| Core                      |      |      |             |              |              |      |       |
| 0-2 yr                    |      |      |             |              | 97.5 - 100.0 |      |       |
| 3-10 yr                   |      |      |             |              | 97.5 - 100.0 |      |       |
| 11-65 yr                  |      |      |             |              | 98.2 - 100.2 |      |       |
| Over 65 yr                |      |      |             | 96.6 - 98.8  |              |      |       |

**Section 8-390 - Tourniquet****Basic Life Support (EMR or EMT)****Contraindications:**

✱

**Precautions:**

- ✱ Prolonged Tourniquet application may result in nerve damage, rhabdomyolysis, compartment syndrome, ischemia, and re-perfusion injury. Time of Tourniquet application **MUST** be reported to accepting ER.
- ✱ Do not apply Tourniquet over a joint.

**Indications:**

Protocol 1-020 - General Assessment and Treatment - Trauma..... page 12  
 Protocol 5-050 - Extremity Trauma  
 (Life-threatening limb hemorrhage uncontrolled by simple methods) ..... page 62  
 Protocol 6-085 - High-Threat Response ..... page 78

**Procedure:**

- ✱ May use cloth, blood pressure cuff, or commercial device. Constricting band should be at least 1 inch wide.
- ✱ Apply Tourniquet proximal to bleeding site.
- ✱ Tighten Tourniquet until bright red bleeding has stopped.
- ✱ Secure Tourniquet from loosening.
- ✱ Note the time of Tourniquet application.

**Advanced Life Support**

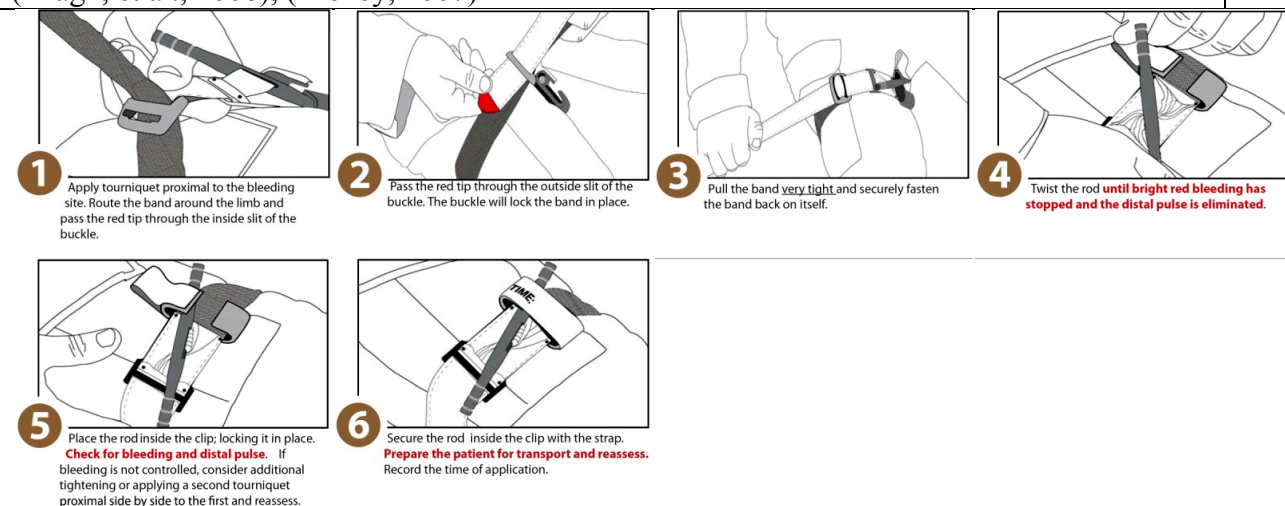
- ✱ Application of Tourniquets typically results in severe Pain. Consider referring to Protocol 6-050 - Control of Pain (page 73) after bleeding control and fluid administration.
- ✱ If prolonged transport time, consider Tourniquet removal if all of the following are met:
  - ✱ Not in circulatory shock.
  - ✱ Stable vitals.
  - ✱ Enough personnel and resources.
  - ✱ Not an amputated Extremity.

✱ **Contact MEDICAL CONTROL.**

- ✱ Apply pressure dressing and loosen Tourniquet (leave in place).
- ✱ Re-tighten Tourniquet if significant bleeding returns.

Link to research articles (QR code on right): <http://1drv.ms/1zWdkEV>

Citations: (Cain, 2008), (Composite Resources, Inc), (Doyle & Taillac, 2008), (Flores, 2012), (Kragh, et al., 2008), (Richey, 2007)



## Section 8-400 - Traction Splint

### **Basic Life Support (EMR or EMT)**

#### Precautions:

- \* In the case of open fracture with obvious contamination, loose debris should be brushed away and flushed with Saline prior to reduction.

#### Contraindications:

- \* Proximal femur fracture.
- \* Pelvic fracture.
- \* Tibia/fibula fracture.

#### Indications:

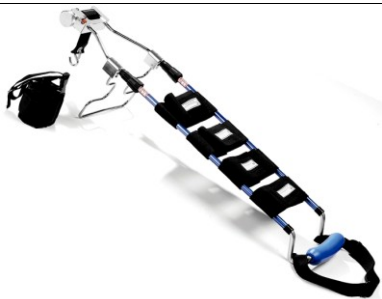
Protocol 5-050 - Extremity Trauma (Open or closed femur fracture) ..... page 62

#### Procedure:

- \* Assess distal pulse, motor, and sensation. If pulses are absent, apply manual, inline Traction. Pulseoximetry can help with distal pulse monitoring.
- \* Consider **MEDICAL CONTROL** for angulated or pulseless fractures.
- \* Stabilize limb manually.
- \* **ALS**: Consider sedation or analgesia prior to moving Extremity.
- \* In general, if distal pulses and sensation are present, field reduction should not be attempted.
- \* Reassess distal pulse, motor, and sensation.
- \* Patient destination should be a trauma center.
- \* In the event of bilateral femur fractures, consider MAST pants.

Link to research articles (QR code on right): <http://1drv.ms/1zWdpbZ>

Citations:



## Part 9 - Appendix

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**Section 9-020 - Change Log****Version 1 (Apgar)**

Version One is named in dedication to Virginia Apgar who was an American obstetrical anesthesiologist who introduced obstetrical considerations to the field of neonatology.

**Changes from version 1 to version 2 (Blalock)**

Version Two is named in dedication to Alfred Blalock who was an American surgeon who conducted significant research on shock and blue baby syndrome.

| Protocol        | Date     | Version 2 changes description                |
|-----------------|----------|--|
| Entire document | 06/01/12 | 6/1/12 version 1 approved by Roger Merk, MD. |
|                 | 08/29/13 | 9/1/13 version 2 approved by Roger Merk, MD. |

**Changes from version 2 to version 3 (Cohn)**

Version Three is named in dedication to Edwin Joseph Cohn who was an American scientist who developed the technique to separate blood plasma for transfusions.

| Protocol   | Date     | Version 3 changes description   |
|--|----------|---|
| Entire document  | 10/09/13 | Modification to most documents to include Oxygen titration based on Mercy Life Line protocols.  |
|  | 12/13/13 | Modification to most documents to remove Capnography as a BLS skill, now is "assist ALS."   |
|  | 12/16/13 | 1/1/14 Version 3 approved by Roger Merk, MD.  |
|  | 12/20/13 | 1/1/14 Version 3 re-approved by Roger Merk, MD (includes CVA and STEMI changes).  |
|  | 2/10/14  | Removed QR codes and re-released as version 3.  |
| Protocol 1-010 - General Assessment and Treatment - Medical    | 10/04/13 | Added orthostatic. Added 4-lead and 12-lead BLS vs ALS clarification.   |
|  | 11/11/13 | Added quote from MO Statutes on transporting TCD.   |
|  | 1/28/14  | Changed ALS indicated pulseox to reflect Oxygen titration changes.  |
| Protocol 1-020 - General Assessment and Treatment - Trauma     | 11/11/13 | Added quote from MO Statutes on transporting TCD trauma.  |
| Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter | 10/04/13 | Added rates to BLS Combo Pads.  |
| Protocol 2-040 - Bradycardia                                   | 10/04/13 | Added rates to BLS Combo Pads. Added "unstable" to Pacing. Added "stable" to Atropine.  |
| Protocol 2-050 - Chest Discomfort                              | 10/07/13 | Clarified image for 12- and 15-Lead placement.  |
|  | 11/11/13 | Added quote from MO Statutes on transporting TCD STEMI.   |
|  | 12/20/13 | Added CMH Cath Lab activation procedure.  |
|  | 1/29/14  | Added preferred IV locations, Combo Pads. Changed ER contact phone number. Changed EKG email address. Coordinated protocol with CMH policies. |
|  | 2/2/14   | Changed EKG email address again.  |
| Protocol 2-080 - Tachycardia Narrow Stable                     | 10/04/13 | Added rates and "consider" to Combo Pads.   |
| Protocol 2-090 - Tachycardia Narrow Unstable                   | 10/04/13 | Added rates to Combo Pads.  |
| Protocol 2-100 - Tachycardia Wide Stable                       | 10/04/13 | Added rates and "consider" to Combo Pads.   |
|  | 11/11/13 | Fixed Mag Sulfate dose over 5 min to over 15-20 min (assume it was a typo).   |
| Protocol 2-110 - Tachycardia Wide Unstable                     | 10/04/13 | Added rates to Combo Pads. Added "symptomatic" to ALS treatments.   |
| Protocol 2-130 - Ventricular Ectopy                            | 10/04/13 | Added "consider" to Combo Pads.   |
| Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach)    | 10/04/13 | Changed witnessed pediatric energy from 2 J/kg to 4 J/kg.   |
| Protocol 2-150 - Wolff-Parkinson-White (WPW)                   | 10/04/13 | Added "consider" to Combo Pads.   |
| Protocol 3-010 - Drowning                                      | 10/04/13 | Added "consider Combo Pads."  |
|  | 12/13/13 | Removed CPAP as BLS skill, now is "assist ALS."   |
| Protocol 3-030 - Hypothermia                                   | 10/04/13 | Added "consider Combo Pads."  |
| Protocol 4-020 - Anaphylaxis                                   | 1/29/14  | Coordinated protocol with CMH policies.   |
| Protocol 4-040 - Behavioral                                    | 11/11/13 | Removed Versed and replaced with Valium.  |
|  | 1/29/14  | Added types of Restraint allowed by policy. Added handcuff comment from policy.   |
| Protocol 4-050 - Cardiovascular Accident (CVA) or Stroke       | 11/11/13 | Added quote from MO Statutes on transporting TCD stroke.  |
|  | 12/20/13 | Added comment that TCD only applies when onset of symptoms less than 4 hours ago.   |
|  | 1/29/14  | Coordinated protocol with CMH policies.   |
| Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD)  | 12/13/13 | Removed CPAP as BLS skill, now is "assist ALS."   |
| Protocol 4-070 - Congestive Heart Failure (CHF)                | 12/13/13 | Removed CPAP as BLS skill, now is "assist ALS."   |
| Protocol 4-080 - Croup   | 10/04/13 | Added "(max 1 dose)" to Racemic.  |
|  | 11/11/13 | Added IV/IM/PO for Decadron and added Solu-Medrol.  |
| Protocol 4-090 - Childbirth                                    | 10/04/13 | Added "consider" to orthostatic.  |

| Protocol   | Date     | Version 3 changes description  |
|--|----------|--|
| Protocol 4-100 - Fever                                     | 11/11/13 | Added adult doses of Acetaminophen and Ibuprofen.  |
| Protocol 4-120 - Hypoglycemia                              | 10/04/13 | Removed "(entire tube)" from oral Glucose.   |
| Protocol 4-140 - Poisoning or Overdose                     | 1/9/14   | Corrected poison control number.   |
|  | 1/29/14  | Added consider hazmat decon. Added Hydrofluoric acid treatment. Coordinated with CMH policies.   |
| Protocol 4-160 - Pre-Term Labor                            | 10/04/13 | Added "consider" to orthostatic.   |
| Protocol 4-170 - Seizures                                  | 11/11/13 | Added "ensure open Airway" to BLS. Moved IM Versed to bottom of options.   |
| Protocol 4-180 - Vaginal Bleeding                          | 10/04/13 | Added "consider" to orthostatic.   |
|  | 11/11/13 | Changed "put baby to nurse" to "have mother breastfeed."   |
| Protocol 5-030 - Burns                                     | 1/29/14  | Added consider saran wrap. Replaced Parkland formulas with new ABLS fluid guidelines. Added consider direct transport to burn center guidelines. Added contraindication for King Airway and 7.5 ET tube desired. |
| Protocol 5-040 - Chest Trauma                              | 10/04/13 | Indented BLS CPAP under Flail Chest.   |
|  | 12/13/13 | Removed CPAP as BLS skill, now is "assist ALS."  |
| Protocol 5-050 - Extremity Trauma                          | 11/29/13 | Added "consider Tourniquet" to BLS.  |
|  | 1/29/14  | Added cold pack and dressings from orthopedic injury CMH policy.   |
| Protocol 5-060 - Eye Injury                                | 10/04/13 | Moved Morgan Lens from ALS to BLS.   |
| Protocol 5-070 - Head Trauma                               | 11/19/13 | Changed SMR mandatory to SMR "as required."  |
| Protocol 5-090 - Trauma Arrest                             | 10/04/13 | Removed need for 20 minutes of ACLS and added immediate trauma termination from 6-140.   |
| Section 6-010 - Acquisition of Medical Control             | 1/29/14  | Added comment if med control cannot be contacted from CMH policies.  |
| Section 6-020 - Air Ambulance                              | 1/29/14  | Coordinated protocol with CMH policies.  |
| Section 6-030 - Competencies and Education                 | 12/13/13 | Added National Scope of Practice graphic.  |
|  | 1/29/14  | Coordinated protocol with CMH policies.  |
| Protocol 6-055 - Decontamination                           | 1/29/14  | Coordinated protocol with CMH policies.  |
| Protocol 6-080 - Event Standby                             | 10/04/13 | Changed "ALS bag" to "first-in bag." Changed "will" to "may" provide ALS ambulance.  |
|  | 1/29/14  | Coordinated protocol with CMH policies.  |
| Protocol 6-090 - IDLH Standby                              | 1/29/14  | Removed "rehabilitation" from title.   |
| Protocol 6-110 - Rapid Sequence Intubation (RSI)           | 1/29/14  | Added "request second unit if possible."   |
| Section 6-120 - Transfer of Care                           | 10/04/13 | Added BLS section for EMT maintaining care in new ambulance after breakdown. Specified EMT/Medic maintains care even if new ambulance is not CMH.  |
|  | 11/11/13 | Changed "should maintain pt care" to "may maintain pt care."   |
| Protocol 6-130 - Triage                                    | 1/29/14  | Defined mass casualty from policy. Added first arriving crew's responsibilities from policies. Added when Triage tags used from policies.  |
| Section 6-140 - Termination of Resuscitation               | 10/04/13 | Specified faxing ePCR only to non-CMH facilities.  |
|  | 1/29/14  | Added if at healthcare facility, scene may be cleared. Coordinated with CMH policies.  |
| Part 7 - Medication Protocols                              | 10/07/13 | Added images of typical medication (vials).  |
| Section 7-010 - Acetaminophen (Tylenol)                    | 11/11/13 | Added adult dose.  |
| Section 7-060 - Aspirin                                    | 12/20/13 | Added EMT scope of practice statement.   |
| Section 7-070 - Ativan (Lorazepam)                         | 10/09/13 | Added option for SL tablet.  |
| Section 7-140 - Decadron (Dexamethasone)                   | 11/11/13 | Added IV/IO/IM/PO and moved Neb to last resort.  |
| Section 7-190 - Epinephrine 1:1,000                        | 10/06/13 | Added "medication" should be protected from light.   |
|  | 12/20/13 | Added EMT scope of practice statement.   |
| Section 7-200 - Epinephrine 1:10,000                       | 10/06/13 | Added "medication" should be protected from light.   |
| Section 7-230 - Fentanyl (Sublimaze)                       | 1/29/14  | Coordinated with CMH policies.   |
| Section 7-250 - Glucose                                    | 12/20/13 | Added EMT scope of practice statement.   |
| Section 7-280 - Hydralazine (Apresoline)                   | 11/11/13 | Added adult dose.  |
| Section 7-390 - Morphine                                   | 1/29/14  | Coordinated with CMH policies.   |
| Section 7-440 - Normal Saline (NS, Sodium Chloride)        | 12/20/13 | Added EMT scope of practice statement.   |
| Section 7-460 - Oxygen                                     | 10/09/13 | Major modification to include titration based on Mercy Life Line protocols.  |
|  | 12/20/13 | Added EMT scope of practice statement.   |
|  | 1/29/14  | Coordinated with CMH policies.   |
| Section 7-580 - Valium (Diazepam)                          | 1/29/14  | Coordinated with CMH policies.   |
| Section 7-600 - Versed (Midazolam)                         | 1/29/14  | Coordinated with CMH policies.   |
| Section 8-010 - Automated External Defibrillator (AED)     | 12/15/13 | Added EMT scope of practice statement.   |
| Section 8-020 - Blood Draw Kit                             | 1/29/14  | Coordinated with CMH policies.   |
| Section 8-032 - Capnometer                                 | 12/15/13 | Changed to ALS skill.  |
| Protocol 8-040 CombiTube                                   | 12/15/13 | Added EMT scope of practice statement.   |
| Section 8-050 - Continuous Positive Airway Pressure (CPAP) | 12/15/13 | Changed to ALS skill.  |
| Section 8-060 - Cot  | 12/15/13 | Added EMT scope of practice statement.   |
|  | 1/29/14  | Added number of lifters based on patient weight from CMH policies.   |
| Section 8-120 - Glucometer                                 | 12/15/13 | Added EMT scope of practice statement.   |
| Section 8-130 - Intranasal (IN) Device                     | 11/11/13 | Added comment that IV route is preferred.  |

| Protocol  | Date     | Version 3 changes description  |
|---|----------|--|
| Section 8-150 - Kendrick Extrication Device (KED)   | 12/15/13 | Added EMT scope of practice statement.   |
| Section 8-160 - King LTSD Airway                    | 12/15/13 | Added EMT scope of practice statement.   |
| Section 8-170 - Laryngeal Mask Airway (LMA) Supreme | 12/15/13 | Added EMT scope of practice statement.   |
| Section 8-190 - LifePak                             | 12/15/13 | Added EMT scope of practice statements.  |
| Section 8-210 - Morgan Lens                         | 11/11/13 | Changed to BLS and added ALS section for Tetracaine.   |
|   | 12/15/13 | Changed back to ALS skill.   |
| Section 8-230 - Naso-Pharyngeal Airway (NPA)        | 12/15/13 | Added EMT scope of practice statement.   |
| Section 8-260 - Oro-Pharyngeal Airway (OPA)         | 12/15/13 | Added EMT scope of practice statement.   |
| Protocol - 8-310 MAST                               | 12/15/13 | Added EMT scope of practice statement.   |
| Section 8-330 - Portable Ventilator                 | 12/15/13 | Changed to BLS skill   |
|   | 1/29/14  | Changed back to ALS skill.   |
| Section 8-350 - Spinal Motion Restriction (SMR)     | 11/19/13 | Added EMS Physicians position statement on backboards to only immobilize patients with spinal symptoms or altered consciousness.   |
|   | 12/15/13 | Added EMT scope of practice statement. Added facial bleeding and supine dyspnea to backboard contraindications. Added multi-person lift to procedure vs log-roll.  |
|   | 1/29/14  | Added c-collars should only be removed by ER MD from CMH policies.   |
| Section 8-360 - Splint                              | 12/15/13 | Added EMT scope of practice statement.   |
| Section 8-370 - Suction                             | 12/15/13 | Added EMT scope of practice statement.   |
| Section 8-375 Tablet                                | 12/10/13 | Added Tablet protocol (for STEMI transmission).  |
| Section 8-390 - Tourniquet                          | 11/29/13 | Added indications for use. Added precautionary statement about re-perfusion injury. Added ALS analgesics and Tourniquet removal instructions. Added Combat Application Tourniquet instructional graphic. |
|   | 12/15/13 | Added EMT scope of practice statement.   |
| Section 8-400 - Traction Splint                     | 12/15/13 | Added EMT scope of practice statement.   |

### Changes from version 3 to version 4 (Drew)

Version Four is named in dedication to Charles Richard Drew who was an American physician who developed techniques for blood storage and protested the practice of segregating blood supplied based on race of the donor.

| Protocol   | Date     | Version 4 changes description   |
|--|----------|---|
| Entire document  | 12/12/14 | Changed Pre-Hospital Services to Emergency Medical Services   |
|  | 3/30/15  | Added sections for EMR and changed BLS/ALS to EMT/Paramedic.  |
|  | 3/31/15  | Added QR codes and links to research articles.  |
|  | 4/7/15   | Changed several headings from "Protocol" to "Section" to indicate they are informational and not to be used in documentation as the protocol used to treat the patient.                               |
|  | 4/14/15  | Changed "<" to "less than", ">" to "greater than", and "MFR" to "EMR" throughout document to reduce confusion and align with national terminology.  |
|  | 4/14/15  | 4/1/15 version approved and signed by Dr. Merk and Neal Taylor.   |
| Part 0 - Front Matter  | 12/12/14 | Added definition of pediatric. Added DELIBERATE ACTIONS.  |
|  | 3/2/15   | Removed DELIBERATE ACTIONS.   |
|  | 3/30/15  | Added statement about EMR, EMT, and medic and the adoption of these protocols by first responder agencies.  |
| Section 0-050 - Table of Contents                              | 12/12/14 | Added column to identify Subject Matter Experts (SME).  |
|  | 3/2/15   | Removed SME column and created separate Excel document.   |
| Protocol 1-010 - General Assessment and Treatment - Medical    | 12/12/14 | Added if patient contact time less than 15 min, only one set of vitals needed. Added definition of DELIBERATE ACTIONS.  |
|  | 3/2/15   | Removed DELIBERATE ACTIONS.   |
| Protocol 1-020 - General Assessment and Treatment - Trauma     | 12/12/14 | Added comment to maintain patient temp. Added comment if patient contact time less than 15 min, only one set of vitals needed. Added definition of DELIBERATE ACTION. Removed list of trauma centers. |
|  | 3/2/15   | Removed DELIBERATE ACTION. Moved location from 5-010 to 1-020 to keep general assessment protocols together.  |
|  | 3/30/15  | Added trauma destination determination flowchart.   |
|  | 4/3/15   | Added "consider SMR."   |
| Protocol 2-010 - Asystole                                      | 12/12/14 | Added consider Gastric Tube.  |
|  | 4/3/15   | Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).   |
| Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter | 12/12/14 | Added Procainamide if pulmonary edema based on Dr. Nix conversation about a specific patient.   |
|  | 4/3/15   | Removed Procainamide after conversation with Dr. Merk. Clarified when to apply Combo Pads according to age and rates.   |
| Protocol 2-040 - Bradycardia                                   | 12/12/14 | Added contact medical control for Pacing Hypothermia patient. Added weight-based Fentanyl dose for greater than 65 yr.  |
|  | 12/15/14 | Added "do not delay for IV."  |
| Protocol 2-050 - Chest Discomfort                              | 12/12/14 | Removed Blood Draw. Added Fentanyl if nitro and Morphine contraindicated.   |
|  | 12/15/14 | Added "within 5 min" for ASA administration.  |

| Protocol  | Date     | Version 4 changes description  |
|---|----------|--|
|   | 3/30/15  | Added STEMI destination determination flowchart.   |
|   | 4/3/15   | Added "Use Tablet" for STEMI transmission.   |
| Protocol 2-070 - Pulseless Electrical Activity (PEA)          | 12/12/14 | Added consider Gastric Tube.   |
|   | 4/3/15   | Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).  |
| Protocol 2-090 - Tachycardia Narrow Unstable                  | 12/12/14 | Made Cardioversion a DELIBERATE ACTION.  |
|   | 12/15/14 | Added "do not delay for IV."   |
|   | 3/2/15   | Removed DELIBERATE ACTION.   |
| Protocol 2-100 - Tachycardia Wide Stable                      | 4/3/15   | Clarified when to apply Combo Pads according to age and rates.   |
| Protocol 2-110 - Tachycardia Wide Unstable                    | 12/12/14 | Made Cardioversion a DELIBERATE ACTION.  |
|   | 12/15/14 | Added "do not delay for IV."   |
|   | 3/2/15   | Removed DELIBERATE ACTION.   |
|   | 4/3/15   | Clarified when to apply Combo Pads according to age and rates.   |
| Protocol 2-120 - Torsades de Pointes                          | 12/12/14 | Added consider Gastric Tube.   |
|   | 4/3/15   | Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).  |
| Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach)   | 12/12/14 | Added consider Gastric Tube.   |
|   | 4/3/15   | Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).  |
| Protocol 3-010 - Drowning                                     | 4/3/15   | Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).  |
|   | 4/14/15  | Added "consider" to limb leads.  |
| Protocol 3-020 - Hyperthermia                                 | 12/29/14 | Changed name from "Heat exhaustion / heat stroke" to "Hyperthermia."   |
|   | 4/14/15  | Added "consider" to limb leads. Moved heat exhaustion and heat stroke sections from ALS to EMR.  |
| Protocol 3-030 - Hypothermia                                  | 12/12/14 | Changed Fentanyl over 65 yr to weight-based dose.  |
|   | 1/29/14  | Changed name from "Hypothermia / frostbite" to "Hypothermia."  |
|   | 4/3/15   | Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).  |
|   | 4/14/15  | Added "consider" to limb leads.  |
| Protocol 3-040 - Hypothermia Arrest                           | 4/3/15   | Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).  |
| Protocol 4-010 - Abdominal Pain                               | 12/12/14 | Changed Fentanyl over 65 yr to weight-based dose. Clarified pediatric Zofran and Phenergan dosages.  |
| Protocol 4-020 - Anaphylaxis                                  | 2/22/14  | Changed Oxygen dose to maintain 100%.  |
|   | 4/14/15  | Added "consider" to limb leads.  |
| Protocol 4-030 - Asthma                                       | 12/12/14 | Made Intubation a DELIBERATE ACTION.   |
|   | 3/2/15   | Removed DELIBERATE ACTION.   |
| Protocol 4-040 - Behavioral                                   | 1/20/15  | Added emotional first aid steps.   |
| Protocol 4-050 - Cardiovascular Accident (CVA) or Stroke      | 12/12/14 | Removed Blood Draw. Removed pending list of stroke centers.  |
|   | 3/30/15  | Added stroke destination determination flowchart.  |
|   | 3/31/15  | Added NIH Stroke Scale.  |
|   | 4/14/15  | Moved Cincinnati and NIH stroke scales to EMR section.   |
| Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) | 12/12/14 | Made Intubation a DELIBERATE ACTION.   |
|   | 3/2/15   | Removed DELIBERATE ACTION.   |
| Protocol 4-070 - Congestive Heart Failure (CHF)               | 12/12/14 | Added Capnography. Made Intubation a DELIBERATE ACTION. Increased nitro dose.  |
|   | 3/2/15   | Removed DELIBERATE ACTION.   |
| Protocol 4-080 - Croup  | 12/12/14 | Removed IV/IM from Decadron. Added comment to be cautious administering any medication IV/IM/IO.   |
|   | 4/14/15  | Added "consider" to limb leads.  |
| Protocol 4-090 - Childbirth                                   | 12/12/14 | Added detailed delivery instructions for normal, breech, and prolapsed cord. Added comments to only Suction if infant is in distress.  |
|   | 4/14/15  | Added comment to only clamp the cord if full-term delivery.  |
| Protocol 4-100 - Fever  | 12/12/14 | Removed Blood Draw.  |
|   | 4/14/15  | Added "consider" to limb leads.  |
| Protocol 4-110 - Hypertension                                 | 12/15/14 | Added mean arterial pressure comment.  |
| Protocol 4-120 - Hypoglycemia                                 | 12/12/14 | Removed Blood Draw.  |
|   | 4/14/15  | Added "consider" to limb leads.  |
| Protocol 4-130 - Neonatal Resuscitation                       | 12/12/14 | Added consider IV/IO/Umbilical access. Added only to Suction if infant is in distress. Added ET size and depth table.  |
|   | 4/14/15  | Added comment to BVM with room air unless hypoxia.   |
| Protocol 4-140 - Poisoning or Overdose                        | 12/12/14 | Removed Blood Draw. Added Dr. Merk comment about mandatory IV access if intentional. Made Intubation a DELIBERATE ACTION. Added comment to see Behavioral protocol for excited delirium.   |
|   | 3/2/15   | Removed DELIBERATE ACTION.   |
|   | 4/3/15   | Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).  |
| Protocol 4-170 - Seizures                                     | 12/12/14 | Removed Blood Draw.  |
| Protocol 4-180 - Vaginal Bleeding                             | 12/29/14 | Added contents of Protocol 4-150 (Post Partum Hemorrhage) and removed 4-150.   |
|   | 4/14/15  | Added "consider" to limb leads.  |
| Protocol 5-020 - Abdominal Trauma                             | 12/12/14 | Made Intubation a DELIBERATE ACTION. Added Fentanyl for greater than 65 yr to be weight-based.   |
|   | 3/2/15   | Removed DELIBERATE ACTION.   |
| Protocol 5-030 - Burns  | 12/12/14 | Added stop the burning process. Added remove all jewelry. Added keep patient warm. Detailed fluid bolus dose for pediatrics greater than 6 yr and less than 6 yr. Added weight-based dose for greater than 65yr for Fentanyl. Added reference to Poisoning for smoke inhalation. |
|   | 4/14/15  | Added "consider" to limb leads.  |
| Protocol 5-040 - Chest Trauma                                 | 12/12/14 | Made Intubation a DELIBERATE ACTION. Made Chest Decompression a DELIBERATE ACTION. Added   |

| Protocol   | Date     | Version 4 changes description   |
|--|----------|---|
|  |          | weight-based dose for greater than 65 yr for Fentanyl.  |
|  | 3/2/15   | Removed DELIBERATE ACTION.  |
|  | 4/14/15  | Added "consider" to occlusive dressing.   |
| Protocol 5-050 - Extremity Trauma                              | 12/12/14 | Made Intubation a DELIBERATE ACTION. Added weight-based dose for greater than 65 yr for Fentanyl. Considered making crush injury a separate protocol, but then decided against it.  |
|  | 4/14/15  | Added "consider" to limb leads.   |
| Protocol 5-060 - Eye Injury                                    | 12/12/14 | Added consider IV/IO. Added weight-based dose for greater than 65 yr for Fentanyl.  |
|  | 4/14/15  | Added "consider" to limb leads.   |
| Protocol 5-070 - Head Trauma                                   | 12/12/14 | Changed target ETCO <sub>2</sub> from 30-35 to 40-45. Added comment to maintain patient temperature. Changed LR to NS. Added desired SBP table. Defined Cushing's Triad. Made Intubation and RSI DELIBERATE ACTIONS. Added weight-based dose for greater than 65 yr for Fentanyl. |
|  | 3/2/15   | Removed DELIBERATE ACTIONS.   |
| Protocol 5-080 - Spinal Trauma                                 | 12/12/14 | Made Intubation and RSI DELIBERATE ACTIONS. Added weight-based dose for greater than 65 yr for Fentanyl.  |
|  | 4/14/15  | Added "consider" to limb leads.   |
| Section 6-010 - Acquisition of Medical Control                 | 12/12/14 | Changed phone number for Golden Valley. Changed name for Mercy Joplin Psych. Removed Sac-Osage.   |
| Section 6-020 - Air Ambulance                                  | 12/12/14 | Added comment to not put aircraft on standby. Moved MVA with fatality from single to the double criteria. Added clarification to Burns that it must be 2nd or 3rd degree. Added Head injury with neuro deficits.  |
|  | 12/26/14 | Added no fly zone map within 23 minutes ground travel time to CMH.  |
| Section 6-030 - Competencies and Education                     | 12/12/14 | Removed "quarterly" since we usually have five Competencies annually instead of four.   |
|  | 3/31/15  | Added competency requirements for EMR (1 competency). Added volunteer EMT requirements (2 Competencies). Modified career EMT requirements (4 Competencies). Clarified Paramedic requirements (all Competencies).  |
| Protocol 6-040 - Control of Nausea                             | 12/12/14 | Added clarification for pediatric dosages of Zofran and Phenergan.  |
|  | 12/15/14 | Added Regalin medication.   |
|  | 4/14/15  | Added comment that medication is not prophylactic.  |
| Protocol 6-050 - Control of Pain                               | 2/22/14  | Added medical control for Ketamine.   |
|  | 12/12/14 | Added weight-based dosage for greater than 65 yr for Fentanyl. Added IM option for Morphine. Added option for Toradol.  |
|  | 12/15/14 | Added Dilaudid medication.  |
| Protocol 6-055 - Decontamination                               | 12/12/14 | Created Decontamination protocol.   |
| Section 6-070 - Documentation                                  | 4/3/15   | Modified this section to reflect requirements for volunteers vs. career users of this protocol.   |
|  | 4/14/15  | Added ePCR is required by CMH EMS.  |
| Protocol 6-080 - Event Standby                                 | 4/3/15   | Modified this section to reflect other vehicle standbys at events other than just an ambulance.   |
| Protocol 6-090 - IDLH Standby                                  | 12/15/14 | Added rehab suggestions.  |
| Section 6-100 - Off-Duty Protocols                             | 4/3/15   | Clarified the application of this protocol on non-CMH employees.  |
| Section 6-105 - Quality Improvement                            | 12/29/14 | Added placeholder for this protocol.  |
|  | 3/31/15  | Created content for this protocol with similar requirements to Section 6-030 - Competencies and Education.  |
| Protocol 6-110 - Rapid Sequence Intubation (RSI)               | 2/22/14  | Removed Ketamine contraindication to Head injury.   |
|  | 12/15/14 | Added O <sub>2</sub> for 5 min if possible.   |
|  | 12/29/14 | Removed "call for orders" from title and moved it into the top of the ALS instructions for clarity.   |
|  | 4/3/15   | Added "Consider Bougie" and "Consider Suction." Moved all instances of Gastric Tube when identified with Intubation to this protocol.   |
| Section 6-120 - Transfer of Care                               | 12/12/14 | Removed Blood Draw.   |
| Protocol 6-130 - Triage  | 12/12/14 | New, clearer image for SALT Triage algorithm.   |
| Part 7 - Medication Protocols                                  | 2/24/14  | Added half-life of most medications.  |
|  | 12/29/14 | Removed "call for orders" from all titles.  |
| Section 7-050 - Amiodarone (Cordarone)                         | 4/1/15   | Added comment about prolonging QT interval and the need for 12-lead.  |
| Section 7-060 - Aspirin (Bayer)                                | 3/31/15  | Moved Asthma from contraindication to precautions.  |
| Section 7-070 - Ativan (Lorazepam)                             | 12/29/14 | Added DEA and street info.  |
| Section 7-090 - Benadryl (Diphenhydramine)                     | 4/1/15   | Added comment about prolonging QT interval and the need for 12-lead.  |
| Section 7-160 - Dilaudid (Hydromorphone)                       | 12/29/14 | Added DEA and street info. Clarified dosage.  |
| Section 7-220 - Etomidate (Amidate)                            | 2/22/14  | Added contraindication of sepsis.   |
| Section 7-230 - Fentanyl (Sublimaze)                           | 12/29/14 | Added DEA and street info. Added greater than 65 yr dose same as pediatric.   |
| Section 7-260 - Haldol (Haloperidol)                           | 4/1/15   | Added comment about prolonging QT interval and the need for 12-lead.  |
| Section 7-330 - Ketamine (Ketalar)                             | 12/29/14 | Added DEA and street info.  |
| Section 7-360 - Lasix (Furosemide)                             | 4/1/15   | Added comment about prolonging QT interval and the need for 12-lead.  |
| Section 7-390 - Morphine                                       | 12/29/14 | Added DEA and street info.  |
| Section 7-420 - Nitroglycerin (Nitrostat, Nitolingual, Tridil) | 12/29/14 | Added differentiation for Chest Pain dose and CHF dose.   |
| Section 7-460 - Oxygen   | 2/22/14  | Added unresponsive ROSC dosage and cleaned graphic of SpO <sub>2</sub> titration rates.   |



| Protocol  | Date     | Version 4 changes description  |
|---|----------|--|
| Section 7-470 - Oxytocin (Pitocin)              | 4/1/15   | Added comment about prolonging QT interval and the need for 12-lead.                                 |
| Section 7-480 - Phenergan (Promethazine)        | 12/29/14 | Added clarification for pediatric dosage.  |
|   | 4/1/15   | Added comment about prolonging QT interval and the need for 12-lead.                                 |
| Section 7-490 - Procainamide (Pronestyl)        | 12/29/14 | Added NS as option for WPW dilution.   |
|   | 4/1/15   | Added comment about prolonging QT interval and the need for 12-lead.                                 |
| Section 7-505 - Reglan                          | 12/29/14 | Added protocol.  |
| Section 7-525 - Romazicon                       | 12/29/14 | Added protocol.  |
| Section 7-560 - Tetracaine                      | 4/14/15  | Added halflife.  |
| Section 7-575 - Toradol (Ketorolac)             | 12/29/14 | Added protocol.  |
| Section 7-580 - Valium (Diazepam)               | 12/29/14 | Added DEA and street info.   |
| Section 7-600 - Versed (Midazolam)              | 12/29/14 | Added DEA and street info.   |
| Section 7-620 - Zofran (Ondansetron)            | 12/29/14 | Added pediatric dosage clarification.  |
|   | 4/1/15   | Added comment about prolonging QT interval and the need for 12-lead.                                 |
| Part 8 - Equipment Protocols                    | 12/29/14 | Removed "call for orders" from all titles.   |
| Section 8-020 - Blood Draw Kit                  | 12/29/14 | Added "consider" to indications.   |
| Section 8-032 - Capnometer                      | 12/29/14 | Moved Protocol 8-250 (Nellcor Capnometer) to this location and removed 8-250.                        |
| Section 8-060 - Cot                             | 4/3/15   | Added "Consider Stair Chair."  |
| Section 8-070 - Cricothyrotomy Kit              | 12/29/14 | Added info from 8-330 (QuickTrach II) and removed 8-330.   |
| Section 8-075 - Decompression Needle            | 12/29/14 | Created this protocol from 8-380 (Thoracentesis) and 8-410 (Turler Needle). Removed 8-380 and 8-410. |
| Section 8-080 - Endotracheal Tube (ET)          | 4/3/15   | Added "Consider Neo-Synephrine" and "Consider King"  |
| Section 8-135 - Intraosseous (IO) Needle        | 1/8/15   | Moved Protocol 8-100 (EZ-IO) to this location and removed 8-100.                                     |
| Section 8-142 - IV Pump                         | 12/29/14 | Added this protocol from 8-300 (Plum Pump) and removed 8-300.  |
| Section 8-230 - Naso-Pharyngeal Airway (NPA)    | 1/5/14   | Removed "Unconscious or unresponsive" from indications.  |
| Section 8-330 - Portable Ventilator             | 12/29/14 | Added this protocol from 8-270 (ParaPac Ventilator) and removed 8-270.                               |
| Section 8-350 - Spinal Motion Restriction (SMR) | 4/3/15   | Clarified indications and added "Consider KED."  |
| Section 8-370 - Suction                         | 12/29/14 | Removed "S-Scort" from the name of this protocol.  |
| Section 8-400 - Traction Splint                 | 12/29/14 | Added info from 8-340 (Sager Splint) and removed 8-340.  |
| Section 9-030 - Subject Matter Experts          | 4/3/15   | Created this section to track SMEs.  |
| Section 9-040 - Index                           | 4/3/15   | Created this section.  |
| Section 9-050 - Glossary of Abbreviations       | 4/14/15  | Created this section at the specific request of Dr. Merk.  |

### Changes from version 4 to version 5 (Einthoven)

Version Five is named in dedication to Willem Einthoven who was a Dutch doctor who invented the first practical electrocardiogram (ECG).

| Protocol   | Date     | Version 5 changes description   |
|--|----------|---|
| Entire document  | 11/17/15 | Added EMH (Ellett Memorial Hospital) to each location where CMH (Citizens Memorial Hospital) is mentioned.  |
|  | 11/18/15 | Version 5 dated December 1st, 2015 approved and signed by Dr. Merk, Dr. Kramer, Neal Taylor, and Cathy Menninga. Created two cover pages (one for CMH and one for EMH) for signatures.  |
| Part 0 - Front Matter                                      | 5/31/15  | Added comments about medications and equipment currently available on ambulances can be found in Section 7-001 - Medications Currently on Ambulances and Section 8-001 - Equipment Currently on Ambulances. Also added space to fill in who the hard copy is issued to. |
| Section 0-030 - Hard-Copy Protocol Maintenance Agreement   | 5/8/15   | Created this section to clarify expectations of those with hard-copies issued to them.  |
| Protocol 1-020 - General Assessment and Treatment - Trauma | 12/26/14 | Added Celox and Tourniquet to BLS if bleeding cannot be controlled by simple means.   |
|  | 5/31/15  | Added comment to maintain patient warmth.   |
| Section 1-021 - Trauma Destination Determination Flowchart | 9/16/15  | Added option to consider bypassing closest trauma center if stable patient or head trauma. Per Dr. Merk's specific request.   |
|  | 11/17/15 | Added northern destinations that might be closer to Ellett's response area. Modified quickest transportation mode definition to 35 minutes.   |
| Protocol 2-010 - Asystole                                  | 12/12/14 | Added 20 min of CPR before movement.  |
|  | 12/15/14 | Replaced CPR with CCR.  |

| Protocol   | Date     | Version 5 changes description   |
|--|----------|---|
|  | 3/31/15  | Reverted to CPR per medical director.   |
|  | 5/31/15  | Replaced BLS sections with refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR).   |
|  | 11/17/15 | Moved Atropine and Pacing to bottom of treatment list order.  |
| Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter | 11/17/15 | Increased adult heart rate treatment threshold from 130 to 150.   |
| Protocol 2-030 - Automated External Defibrillation (AED)       | 12/14/14 | Replace CPR with CCR.   |
|  | 3/31/15  | Reverted to CPR per medical director.   |
|  | 5/31/15  | Replaced BLS sections with refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR).   |
| Protocol 2-040 - Bradycardia                                   | 11/17/15 | Reduced adult heart rate treatment threshold from 60 to 50.   |
| Protocol 2-050 - Chest Discomfort                              | 8/6/15   | Moved Aspirin administration from EMT section to EMR section.   |
|  | 10/21/15 | Removed need to contact medical control for inferior MI. Added 1-2 L fluid bolus for right-sided MI. Clarified option for Fentanyl or Morphine for additional pain control.                                       |
| Section 2-052 - STEMI Destination Determination Flowchart      | 11/17/15 | Added northern destinations that might be closer to Ellett's response area. Modified quickest transportation mode definition to 35 minutes.   |
| Protocol 2-060 - Post Resuscitative Care                       | 12/12/14 | Added consider RSI and cooling.   |
| Protocol 2-070 - Pulseless Electrical Activity (PEA)           | 12/12/14 | Added 20 min of CPR before movement.  |
|  | 12/15/14 | Replaced CPR with CCR.  |
|  | 3/31/15  | Reverted to CPR per medical director.   |
|  | 5/31/15  | Replaced BLS sections with refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR).   |
| Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach)    | 12/12/14 | Added 20 min of CPR before movement.  |
|  | 12/15/14 | Replaced CPR with CCR.  |
|  | 3/31/15  | Reverted to CPR per medical director.   |
|  | 5/31/15  | Replaced BLS sections with refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR).   |
|  | 11/17/15 | Added comment to consider biphasic energy doses.  |
| Protocol 2-150 - Wolff-Parkinson-White (WPW)                   | 11/17/15 | Added treatment criteria of heart rate greater than 150 and symptomatic. Also added option for Amiodarone instead of Procainamide.  |
| Protocol 3-010 - Drowning                                      | 12/14/14 | Replaced CPR with CCR.  |
|  | 3/31/15  | Reverted to CPR per medical director.   |
|  | 5/31/15  | Replaced BLS (pulseless) sections with refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR).   |
|  | 11/17/15 | Added comment to consider biphasic energy doses.  |
| Protocol 3-030 - Hypothermia                                   | 12/15/14 | Replaced CPR with CCR.  |
|  | 3/31/15  | Reverted to CPR per medical director.   |
|  | 5/31/15  | Replaced BLS (pulseless) sections with refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR).   |
|  | 11/17/15 | Added comment to consider biphasic energy doses.  |
| Protocol 3-040 - Hypothermia Arrest                            | 12/15/14 | Replaced CPR with CCR.  |
|  | 3/31/15  | Reverted to CPR per medical director.   |
|  | 5/31/15  | Combined this protocol into Protocol 3-030 - Hypothermia.   |
| Protocol 4-020 - Anaphylaxis                                   | 11/17/15 | Reduced Epi 1:10,000 adult dose from 0.3 mg to 0.1 mg IV. Reduced pediatric Benadryl dose from 1.25 mg/kg to 1 mg/kg. Altered pediatric bronchodilator treatments to Albuterol unless over 6 yr old, then Duoneb. |
| Protocol 4-030 - Asthma  | 11/17/15 | Increased Xopenex indication from heart rate of 100 to 110.   |
| Protocol 4-040 - Behavioral                                    | 2/22/14  | Added Ketamine after medical control for severe.  |
|  | 12/15/14 | Added greater than 65 Ketamine dose.  |
|  | 11/17/15 | Modified severe adult Haldol dose from 5 mg to 2-5 mg.  |
| Section 4-052 - NIH Stroke Scale Images                        | 5/5/15   | Created this section for images to accompany NIHSS.   |
| Section 4-053 - Stroke Destination Determination Flowchart     | 5/5/15   | Changed this section from 4-052 to 4-053 to accommodate NIHSS images.   |
|  | 11/17/15 | Added northern destinations that might be closer to Ellett's response area. Modified quickest transportation mode definition to 35 minutes.   |
| Protocol 4-090 - Childbirth                                    | 11/17/15 | Added comment that patient should be transported to a hospital with an OB department.   |
| Protocol 4-120 - Hypoglycemia                                  | 11/17/15 | Added comment that medical control must be contacted if any ALS intervention has been performed prior to PRC.   |
| Protocol 4-140 - Poisoning or Overdose                         | 11/17/15 | Modified adult Narcan administration to 0.2-0.4 mg with a max of 2 mg.  |
| Protocol 4-170 - Seizures                                      | 8/6/15   | Added reference to Protocol 4-110 - Hypertension protocol for the hypertensive, pregnant, seizing patient.  |

| Protocol   | Date     | Version 5 changes description   |
|--|----------|---|
| Protocol 5-020 - Abdominal Trauma                    | 12/26/14 | Added TXA.  |
|  | 5/31/15  | Re-worded indications for TXA for better clarity.   |
|  | 9/16/15  | Added by request of Dr. Merk to TXA indications that signs of shock must still be present after 1 L fluid bolus.  |
| Protocol 5-030 - Burns                               | 12/12/14 | Made Intubation and RSI DELIBERATE ACTIONS. Added indications for RSI.  |
|  | 3/2/15   | Removed DELIBERATE ACTIONS.   |
| Protocol 5-040 - Chest Trauma                        | 12/26/14 | Added TXA.  |
|  | 5/31/15  | Re-worded indications for TXA for better clarity.   |
|  | 9/16/15  | Added by request of Dr. Merk to TXA indications that signs of shock must still be present after 1 L fluid bolus.  |
|  | 11/17/15 | Added "tension" pneumothorax as indication for decompression.   |
| Protocol 5-050 - Extremity Trauma                    | 12/26/14 | Added TXA.  |
|  | 5/31/15  | Re-worded indications for TXA for better clarity.   |
|  | 9/16/15  | Added by request of Dr. Merk to TXA indications that signs of shock must still be present after 1 L fluid bolus.  |
| Protocol 5-070 - Head Trauma                         | 12/12/14 | Added RSI indications.  |
|  | 11/17/15 | Removed comment that Morphine is contraindicated in head trauma.  |
| Section 6-010 - Acquisition of Medical Control       | 11/17/15 | Added PRC exception to rule that only paramedics can obtain medical control. Added medical control clarification for EMH vs CMH ambulances.   |
| Section 6-021 - No Fly Zone                          | 11/17/15 | Modified maps to indicate 35 minute drive time instead of 23 minute to account for landing and patient report. Added EMH district to maps.  |
| Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) | 12/12/14 | Created cardio cerebral resuscitation protocol.   |
|  | 12/26/14 | Added Atropine, sodium bicarb, Amiodarone, Pacing, pediatric dosages.   |
|  | 3/31/15  | Reverted to CPR per medical director.   |
|  | 5/31/15  | Added comment to refer to Section 6-140 - Termination of Resuscitation.   |
|  | 11/17/15 | Added comment to perform continuous compressions with passive oxygen and basic airway for 3 cycles on witness arrest with a shockable rhythm based on 2015 AHA recommendations. Added comment to consider biphasic energy doses. Added option for NPA in addition to OPA.   |
| Section 6-030 - Competencies and Education           | 9/16/15  | Added requirements for annual RSI skill scenarios and anesthesia intubations.   |
| Protocol 6-040 - Control of Nausea                   | 11/17/15 | Removed Regalin.  |
| Protocol 6-050 - Control of Pain                     | 5/5/15   | Modified Ketamine for chemical extrication (4 mg/kg IM and removed medical control).  |
|  | 8/6/15   | Added IM route for Fentanyl. Added IM route for Morphine. Added analgesic and dissociative doses of Ketamine. Added comment to half the dose of Ketamine if age over 65 yr.   |
|  | 11/17/15 | Modified over 65 yr old Fentanyl dose to 25-50 mcg with a max of 150 mcg.   |
| Section 6-070 - Documentation                        | 11/17/15 | Added medical control order for PRC if BLS-only crew. Added medical control order for PRC if any ALS intervention has been performed.   |
| Protocol 6-080 - Event Standby                       | 8/6/15   | Changed instruction to keep football equipment in place to remove football equipment prior to transport based on new recommendations by the National Athletic Trainers Association.   |
| Protocol 6-085 - High-Threat Response                | 12/29/14 | Added placeholder for this protocol.  |
|  | 4/14/15  | Renamed this protocol from Tactical Response to High-Threat Response.   |
|  | 5/31/15  | Re-worded indications for TXA for better clarity.   |
|  | 8/6/15   | Changed law enforcement officer to threat elimination specialist to encompass other threats such as hazmat.   |
| Section 6-105 - Quality Improvement                  | 9/16/15  | Removed requirements for quality meetings to be held in each county. Added indications for calls to be reviewed that meet RSI requirements. Also added that crew and responders will be invited.  |
| Protocol 6-110 - Rapid Sequence Intubation (RSI)     | 4/28/15  | Added 15 lpm O2 via NC. Added avoid BVM if SpO2 above 90%. Added maintain warmth. Added indication for RSI. Added 250 ml fluid bolus. Added Fentanyl as premedication. Added Ketamine onset and duration. Added Etomidate contraindicated in sepsis. Increase Rocuronium dose from 1 to 1.5 mg/kg. Added elevate head of cot. Moved continued paralysis under continued sedation. Added option for Ketamine continued sedation. |
|  | 5/8/15   | Replaced specific seizure control meds and dosages with reference to seizure protocol.  |
|  | 8/6/15   | Added comment to delay paralysis to allow preoxygenation if appropriate.  |
|  | 9/16/15  | Modified initial paralyzation doses per Dr. Merk request. Changes rapid dose from 1.5 mg/kg to 0.6 mg/kg. Changed continued paralyzation to only be indicated when patient is moving.   |
|  | 11/17/15 | Made prophylactic atropine administration to pediatric a consideration due to 2015 AHA recommendations removed atropine from routine administration prior to intubation.  |
| Section 6-111 - RSI Dosing Sheet                     | 4/28/15  | Created this section for quick reference sheet.   |
|  | 6/8/15   | Updated shading and other factors for better readability.   |
|  | 9/16/15  | Updated chart to reflect new Rocuronium doses and concentrations from pharmacy.   |
| Section 6-140 - Termination of Resuscitation         | 12/12/14 | Added comment that adults should receive 20 min of CPR before movement.   |
|  | 12/15/14 | Changed CPR to CCR.   |
|  | 3/31/15  | Reverted to CPR per medical director.   |
|  | 11/17/15 | Added clarification for EMH vs CMH faxing ePCR after termination.   |
| Section 7-001 - Medications Currently on Ambulances  | 5/31/15  | Added this section to meet state requirement for medical director approval of what medications are currently carried on ambulances.   |
|  | 9/16/15  | Added Ketamine to narcotic box. Added contents of RSI box.  |
| Section 7-005 - Medications that prolong QT          | 11/17/15 | Added this section.   |
|  | 11/24/15 | Added levomepromazine, Nosinan, Nozinan, Levoprome, delamanid, Deltiba, and papaverine to the list.   |

| Protocol   | Date     | Version 5 changes description  |
|--|----------|--|
| interval   |          |  |
| Section 7-020 - Activated Charcoal (Actidose)                  | 11/17/15 | Modified contraindication from unconsciousness to any altered mental state.  |
| Section 7-080 - Atropine (Sal-Tropine)                         | 5/5/15   | Added Physostigmine as antidote.   |
|  | 6/1/15   | Added indication for Protocol 6-025 - Cardiopulmonary Resuscitation (CPR).   |
| Section 7-090 - Benadryl (Diphenhydramine)                     | 5/5/15   | Added Physostigmine as antidote.   |
| Section 7-120 - Cardizem (Diltiazem)                           | 6/8/15   | Added quick reference dosage chart.  |
| Section 7-170 - Dopamine (Intropin)                            | 6/8/15   | Added quick reference dosage chart.  |
| Section 7-230 - Fentanyl (Sublimaze)                           | 10/21/15 | Added comment that rigid chest syndrome precaution usually occurs with doses greater than 200 mcg.   |
|  | 11/17/15 | Added comment for maximum single dose to be 50 mcg for adults. Clarified over 65 yr old dosage is 25-50 mcg with a max dose of 150 mcg.                                  |
| Section 7-320 - Ipratropium (Atrovent)                         | 5/5/15   | Added Physostigmine as antidote.   |
| Section 7-330 - Ketamine (Ketalar)                             | 8/6/15   | Removed pediatric dosages. Added analgesic vs. dissociative doses. Reduced dissociative dosages. Added comment to half the dose if age over 65 yr.                       |
| Section 7-370 - Lidocaine (Xylocaine)                          | 6/1/15   | Added indication for Protocol 6-110 - Rapid Sequence Intubation (RSI).   |
|  | 6/8/15   | Added quick reference dosage chart.  |
| Section 7-390 - Morphine                                       | 10/21/15 | Added 1-2 minute onset time.   |
| Section 7-400 - Narcan (Naloxone)                              | 6/1/15   | Added indication for Protocol 6-025 - Cardiopulmonary Resuscitation (CPR).   |
| Section 7-420 - Nitroglycerin (Nitrostat, Nitolingual, Tridil) | 6/8/15   | Added quick reference dosage chart.  |
| Section 7-575 - Toradol (Ketorolac)                            | 9/16/15  | Corrected misspelling of Ketorolac.  |
| Section 7-578 - TXA (Tranexamic Acid)                          | 12/29/14 | Added protocol.  |
|  | 5/31/15  | Added content.   |
|  | 8/6/15   | Added colorblindness contraindication. Added precaution for rapid infusion. Added requirement to transport to LI, LII, or LIII trauma center.                            |
| Section 8-001 - Equipment Currently on Ambulances              | 5/31/15  | Added this section to meet state requirements for medical director approval of what equipment are currently carried on ambulances.                                       |
| Section 8-070 - Cricothyrotomy Kit                             | 9/16/15  | Added comment that surgical cric must have physician orders.   |
| Section 8-075 - Decompression Needle                           | 6/1/15   | Added indication for Protocol 6-085 - High-Threat Response.  |
| Section 8-080 - Endotracheal Tube (ET)                         | 6/1/15   | Added indication for Protocol 6-085 - High-Threat Response.  |
| Section 8-110 - Gastric Tube                                   | 6/1/15   | Added indication for Section 8-170 - Laryngeal Mask Airway (LMA) Supreme.  |
| Section 8-120 - Glucometer                                     | 6/1/15   | Added indication for Protocol 6-025 - Cardiopulmonary Resuscitation (CPR).   |
| Section 8-125 - Hemostatic Agent                               | 12/29/14 | Added this protocol.   |
|  | 5/31/15  | Added content.   |
| Section 8-160 - King LTSD Airway                               | 5/5/15   | Added mandatory statement for inserting gastric tube for confirmation.   |
| Section 8-170 - Laryngeal Mask Airway (LMA) Supreme            | 5/5/15   | Updated this protocol from basic LMA to LMA supreme with specific procedure from manufacturer and included mandatory statement for gastric tube similar to King airway.  |
|  | 6/1/15   | Added indications in Protocol 6-025 - Cardiopulmonary Resuscitation (CPR), Protocol 6-110 - Rapid Sequence Intubation (RSI), and Section 8-080 - Endotracheal Tube (ET). |
| Section 8-190 - LifePak  | 6/1/15   | Added indications for Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) in defibrillation and pacing.   |
|  | 11/17/15 | Added comment to consider biphasic energy doses.   |
| Section 8-375  | 11/17/15 | Removed this section due to removing tablets from ambulances.  |

| Protocol                               | Date     | Version 5 changes description                               |
|--|----------|---|
| Tablet                                 |          |   |
| Section 8-380 - Thermometer            | 11/29/15 | Added a lot of content based on manufacturer documentation. |
| Section 8-390 - Tourniquet             | 6/1/15   | Added indication for Protocol 6-085 - High-Threat Response. |
| Section 9-020 - Change Log             | 5/8/15   | Reduced the text size to shorten this section.              |
| Section 9-030 - Subject Matter Experts | 11/17/15 | Removed this section.                                       |

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**Section 9-050 - Glossary of Abbreviations**

|   |  |
|---|--|
| ABC - Airway, Breathing, Circulation.   | GI - Gastrointestinal.   |
| AC - Antecubital space for IV access. Interior of elbow.  | HR - Heart Rate. Beats per minute.   |
| ACLS - Advanced Cardiac Life Support.   | IDLH - Immediately Dangerous to Life and Health.   |
| ADLS - Advanced Disaster Life Support.  | IM - Intramuscular. Medication access through muscle.  |
| AED - Automated External Defibrillator.   | IN - Intranasal. Medication access through capillaries of the nose.  |
| A-Fib - Atrial Fibrillation.  | IO - Intraosseous. Medication access through a bone.   |
| ALS - Advanced Life Support. Usually provided by paramedics and RNs.  | ITLS - International Trauma Life Support.  |
| AOTB - Smell of Alcohol On The Breath.  | IV - Intravenous. Medication access through a vein.  |
| APGAR - Activity, Pulse, Grimace, Appearance, and Respiration. Assessment tool for newborns.  | J - Joules. Measurement of energy.   |
| ATLS - Advanced Trauma Life Support.  | KED - Kendrick Extrication Device.   |
| BDLS - Basic Disaster Life Support.   | kg - Kilogram. Measurement of mass.  |
| BLS - Basic Life Support. Usually provided by EMRs and EMTs.  | L - Liter. Measurement of volume.  |
| BSA - Body Surface Area. Percent of skin usually used to measure burns.   | LBBS - Left Bundle Branch Block.   |
| BSI - Body Substance Isolation. To protect against blood borne and other pathogens and infectious agents. Usually includes gloves and eye protection but may include masks and gowns. | LEO - Law Enforcement Officer. See TES.  |
| BTLS - Basic Trauma Life Support. See ITLS.   | LMA - Laryngeal Mask Airway.   |
| CCR - Cardio Cerebral Resuscitation. Similar to CPR but through the use of compressions only.   | LOC - Level of Consciousness.  |
| CHF - Congestive Heart Failure.   | LR - Lactated Ringers.   |
| CMH - Citizens Memorial Hospital.   | MAP - Mean Arterial Pressure.  |
| COPD - Chronic Obstructive Pulmonary Disease.   | mcg - Microgram. Measurement of mass.  |
| CPAP - Continuous Positive Airway Pressure.   | mEq - Milliequivalent. Measurement of medication.  |
| CPR - Cardio Pulmonary Resuscitation.   | MFR - See EMR.   |
| CSR - Code of State Regulations.  | mg - Milligram. Measurement of mass.   |
| CVA - Cardiovascular Accident. Stroke.  | mi - Miles. Measurement of distance.   |
| dl - Deciliter. Measurement of volume.  | MI - Myocardial Infarction. See STEMI.   |
| DNR - Do Not Resuscitate. Legal document stating the patient's wishes if they are unable to communicate them.   | min - Minute. Measurement of time.   |
| ECG - See EKG.  | ml - Milliliter. Measurement of volume.  |
| ED - See ER.  | mm - Millimeter. Measurement of distance.  |
| EKG - Electrocardiogram. Measurement of the electrical activity of the heart using limb leads to produce the equivalent of a 6-Lead. Synonymous with ECG.                             | MOI - Mechanism of Injury.   |
| EMR - Emergency Medical Responder. Also synonymous with MFR (Medical First Responder).  | mph - Miles Per Hour. Measurement of speed.  |
| EMS - Emergency Medical Services. Usually associated with transport of sick or injured patients.  | MV - Microvolt.  |
| EMT - Emergency Medical Technician. Also synonymous with EMT-B (Emergency Medical Technician - Basic).  | NCN - No Care Needed.  |
| ePCR - Electronic Patient Care Report.  | neb - Nebulized. Medication access through the lungs and airway passages.  |
| Epi - Epinephrine.  | NIH - National Institute of Health.  |
| ER - Emergency Room. Also known as ED (Emergency Department).   | NIHSS - National Institute of Health Stroke Screen.  |
| ET - Endotracheal Tube.   | NOI - Nature of Illness.   |
| ETCO <sub>2</sub> - End-Tidal Carbon Dioxide. Level of CO <sub>2</sub> exhaled. Also known as capnography.  | NPA - Nasopharyngeal Airway.   |
| ETOH - Alcohol.   | NS - Normal Saline.  |
| F - Fahrenheit. Measurement of temperature.   | OB - Obstetrics.   |
| g - Gram. Measurement of mass.  | OPA - Oropharyngeal Airway.  |
| GCS - Glasgow Comma Scale.  | PEA - Pulseless Electrical Activity. Electrical activity is seen on the EKG but not enough mechanical activity of the heart to produce a pulse.                            |
|   | PHS - Pre-Hospital Services. See EMS.  |
|   | PO - Medication access through ingestion in the stomach.   |
|   | PPE - Personal Protective Equipment. May include contact precautions such as gloves, thermal protection such as firefighting gear, or respiratory protection such as SCBA. |
|   | PRC - Patient Refusal of Care.   |
|   | QRS - Ventricular depolarization electrical activity of the heart that includes the Q-wave, R-wave, and S-wave.  |
|   | QT - Portion of the EKG that is measured between the Q-wave and the T-wave.  |
|   | RBBB - Right Bundle Branch Block.  |

## Section 9-050 - Glossary of Abbreviations

|   |   |
|---|---|
| RN - Registered Nurse.  | SQ - Subcutaneous. Medication access through fatty layer between skin and muscle.   |
| RR - Portion of the EKG that is measured from R-wave to R-wave. One beat.   | STEMI - ST-segment Elevated Myocardial Infarction. Also known as a heart attack that can be seen on an EKG.   |
| RSI - Rapid Sequence Intubation.  | TES - Threat Elimination Specialist. Could be a law enforcement officer, firefighter, rescue technician, hazmat technician, or other individual whose primary responsibility is to reduce or eliminate the threat so medical care can be given to those sick or injured by that threat. |
| SAMPLE - Signs/Symptoms, Allergies, Medications, Past Pertinent history, Last oral intake, Events leading up to the current condition. Assessment tool. | TXA - Tranexamic Acid.  |
| SBP - Systolic Blood Pressure. Top number in a blood pressure measurement. Measures the contraction of the heart.                                       | VF - See V-Fib.   |
| SCBA - Self-Contained Breathing Apparatus.  | V-Fib - Ventricular Fibrillation.   |
| SL - Sub Lingual. Medication access through capillaries of the mouth under the tongue.  | VT - See V-Tach.  |
| SME - Subject Matter Expert.  | V-Tach - Ventricular Tachycardia.   |
| SMR - Spinal Motion Restriction. Usually involve a c-collar and possible a backboard.   | WPW - Wolff Parkinson White. Specific EKG interpretation.   |
| SpO <sub>2</sub> - Saturation of Peripheral Oxygen. Percent of hemoglobin saturated (usually saturated by Oxygen).                                      | yr - Year. Measurement of time.   |
|   | yrs - Years. Measurement of time.   |