

Cedar, Hickory, Polk, & St Clair EMS Protocols

Part 0 - Front Matter

Section 0-010 - Master Signature Page

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Medical direction for Bolivar City Fire Department,
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Hospital EMS, Community AEDs, Morrisville Fire
Protection District, Polk County Dispatch Center:

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Morrisville Fire Protection District Chief:

(William Proctor)

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(Sarah Newell)

These protocols are designed to provide Community Responders using AEDs and Emergency Medical Dispatchers (EMD), Emergency Medical Responders (EMR), Emergency Medical Technicians (EMT), Registered Nurses (RN), and Paramedics employed with Bolivar City Fire Department, Cedar County Dispatch Center, Citizens Memorial Hospital, Ellett Memorial Hospital, Morrisville Fire Protection District, and Polk County Dispatch Center with standing written orders to provide patient care. Refer to the next page (Section 0-020 - Standing Orders for Agency Type - Page 2) for specific standing order definitions based on the type of agency represented. This document will be reviewed annually.

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 Response Vehicles (page 93) and Section 8-001 - Equipment Currently on Response Vehicles (page 161).

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 0-020 - Standing Orders for Agency Type

EMS Transport Agencies:

EMT, RN, and Paramedic providers will utilize the following protocols while on scene and during transport to coordinate care, stabilize the patient, and improve their condition where possible. The transporting RN or Paramedic is ultimately responsible to ensure complete patient care, including BLS-level procedures.

First Response Agencies:

EMR and EMT providers will utilize the following protocols while on scene of an illness or injury to coordinate care and stabilize the patient. While utilizing these protocols responding with a fire department or first responder agency, responders are limited to performing BLS skills and procedures.

Dispatch Centers:

EMD providers will utilize Medical Priority Dispatch System (MPDS) version 13 approved by the International Academy of Emergency Medical Dispatch (IAEMD) to provide emergency medical instructions to 9-1-1 callers. This includes protocols 1 through 33 and associated determinate codes, pre-arrival instructions, and diagnostic tools. Specific EMD medical direction can be found in the following locations:

MPDS Card	Protocol Title	Page
All 9-1-1 calls	Section 6-095 - Mutual Aid Maps	82
	Protocol 1-010 - General Assessment and Treatment - Medical	11
	Protocol 1-020 - General Assessment and Treatment - Trauma	12
Aspirin Diagnostic	Protocol 2-050 - Chest Discomfort	19
Protocol 7 (Burns)	Protocol 5-030 - Burns	60
Protocol 8 (Hazmat)	Protocol 4-140 - Poisoning or Overdose	54
Protocol 9 (Cardiac Arrest) - Obvious death	Section 6-140 - Termination of Resuscitation	92
Protocol 9 (Cardiac Arrest) - Expected death	Section 6-140 - Termination of Resuscitation	92
Protocol 9 (Cardiac Arrest) - Cardiac arrest pathway	Protocol 6-025 - Cardiopulmonary Resuscitation (CPR)	72
Protocol 14 (Drowning) - Obvious death	Protocol 3-010 - Drowning	33
Protocol 18 (Headache) - Stroke time window	Protocol 4-050 - Cardiovascular Accident (CVA) or Stroke	41
Protocol 24 (Pregnancy) - High risk complications	Protocol 4-090 - Childbirth	48
Protocol 28 (Stroke) - Stroke time window	Protocol 4-050 - Cardiovascular Accident (CVA) or Stroke	41
Protocol 33 (Transfer) - Acuity levels	Section 6-125 - Transfer Out of Hospital	90

Community Responders:

Persons in the communities served by Citizens Memorial Hospital using or maintaining Automated External Defibrillators (AED) will utilize the following protocols to enhance survivability from cardiac arrest:

- Protocol 2-030 - Automated External Defibrillation (AED) (page 17).
- Section 8-010 - Automated External Defibrillator (AED) (page 166).

Section 0-100 - 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 0-200 - 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

<p><u>BLS - EMD</u></p> <ul style="list-style-type: none"> * Utilize appropriate MPDS protocol for all calls where a patient may be ill. <hr/> <p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Scene safety. * Coordinate with or establish incident command. * BSI. * Determine nature of illness. * Determine number of patients. * Determine need for additional resources. * ABCs. * LOC. * SAMPLE history. * Focused assessment. * Baseline vitals. <ul style="list-style-type: none"> * Two sets of vitals should be obtained that include time, blood pressure, pulse, respirations, SpO₂, and Pain level. <ul style="list-style-type: none"> ✦ 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 temperature, orthostatic blood pressure, and Glucose. Consider assisting ALS with ETCO₂. <hr/> <p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Responsive: Treatment decision (BLS / ALS). * Interfacility transfer of patients meeting BLS criteria with the only exception of Heparin- or Saline-locked IV may be transported BLS. * 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. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * <u>ALS indicated when:</u> <ul style="list-style-type: none"> * Unresponsive. * Responsive meeting one of the following: <ul style="list-style-type: none"> ✦ Altered mental status. ✦ GCS less than 13. ✦ Respiratory distress. ✦ Signs of shock. ✦ PulseOx less than 88. ✦ Need for IV/IO or medications. ✦ Chest discomfort. <hr/> <ul style="list-style-type: none"> ✦ <u>Adult</u> vitals: <ul style="list-style-type: none"> ✦ SBP less than 100 or greater than 180 ✦ Pulse less than 60 or greater than 120 ✦ Respirations less than 12 or greater than 30 <hr/> <ul style="list-style-type: none"> ✦ <u>Pediatric</u> vitals: <ul style="list-style-type: none"> ✦ SBP less than 70 + 2 x (age yrs) ✦ Pulse less than 60 or greater than 140 ✦ Respirations greater than 30 <hr/> <ul style="list-style-type: none"> * <u>Pediatric:</u> Utilize Broslow tape for equipment and drug dosages. <hr/> <ul style="list-style-type: none"> * Rapid medical assessment. * Treat per appropriate protocol. * Transport.
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Link to research articles (QR code on right): <http://1drv.ms/1KerUBT>
 Citations: (Chapter 190 - Emergency services, 2012)



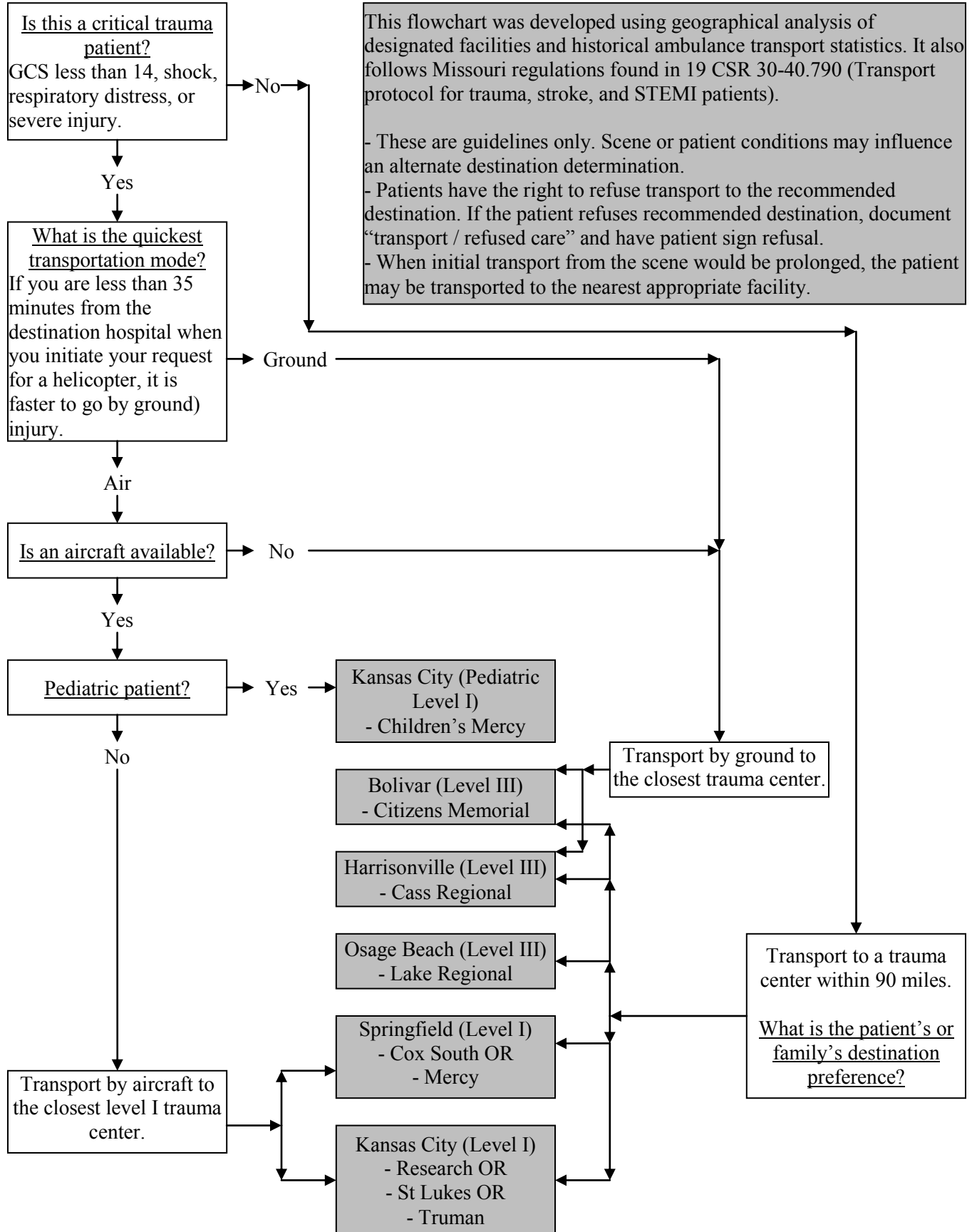
Protocol 1-020 - General Assessment and Treatment - Trauma

<p><u>BLS - EMD</u></p> <ul style="list-style-type: none"> * Utilize appropriate MPDS protocol for all calls where a patient may be injured. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left.
<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * 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: <ul style="list-style-type: none"> * Consider Tourniquet. * Consider Hemostatic Agent. * Maintain patient temperature between 91-99 degrees F. * SAMPLE history. * Focused assessment. * Baseline vitals. <ul style="list-style-type: none"> * Two sets of vitals should be obtained that include time, blood pressure, pulse, respirations, SpO₂, and Pain level. <ul style="list-style-type: none"> + 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 ETCO₂. 	<ul style="list-style-type: none"> * <u>ALS indicated when:</u> <ul style="list-style-type: none"> * Significant MOI. * Unresponsive. * Responsive meeting one of the following: <ul style="list-style-type: none"> + 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. + <u>Adult</u> vitals: <ul style="list-style-type: none"> * SBP less than 100 or greater than 180 * Pulse less than 60 or greater than 120 * Respirations less than 12 or greater than 30 + <u>Pediatric</u> vitals: <ul style="list-style-type: none"> * SBP less than 70 + 2 x (age yrs) * Pulse less than 60 or greater than 140 * Respirations greater than 30
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * <u>No significant MOI:</u> <ul style="list-style-type: none"> * Treatment decision (BLS/ALS). * Transfer of patients meeting BLS criteria with the only exception of Heparin or Saline locked IV may be transported BLS. 	<ul style="list-style-type: none"> * <u>Pediatric:</u> 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

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 72). 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Confirm in 2 leads. * Consider Intubation. * IV/IO NS.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	<ul style="list-style-type: none"> * Adult: <ul style="list-style-type: none"> * Epinephrine 1:10,000 1 mg IV/IO every 3-5 min. * Consider Sodium Bicarbonate 1 mEq/kg IV/IO every 10 min (ensure adequate ventilations). * Consider Pacing. * Consider Atropine 1 mg IV/IO every 3-5 min (max 3 mg). * Pediatric: <ul style="list-style-type: none"> * Epinephrine 1:10,000 0.01 mg/kg IV/IO every 3-5 min (max 1 mg/dose). * OR Epinephrine 1:1,000 0.1 mg/kg ETT (max 2.5 mg/dose). * Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade. * Adult: Contact MEDICAL CONTROL if ETCO₂ less than 10 for 10 min or no response after 20 min, consider termination of resuscitation.

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



Citations:



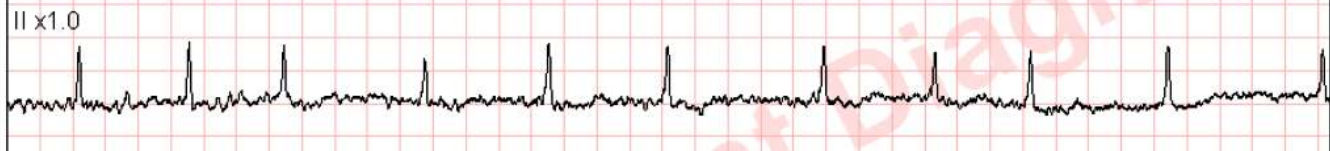
Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Calm and reassure patient. Ensure patient does not exert themselves. * Oxygen to maintain SpO₂ between 94-99%. * Apply cardiac monitor limb leads. <hr/> <p>* <u>Adult: Rate greater than 150:</u> Apply Combo Pads anterior / posterior.</p> <hr/> <p>* <u>Pediatric (child): Rate greater than 160:</u> Apply Combo Pads anterior / posterior.</p> <hr/> <p>* <u>Pediatric (infant): Rate greater than 220:</u> Apply Combo Pads anterior / posterior.</p> <hr/> <ul style="list-style-type: none"> * Monitor pulseoximetry. * Obtain vital signs. <p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Obtain 12-Lead EKG. * IV/IO NS. <hr/> <p>* <u>Adult: Rate greater than 150:</u></p> <ul style="list-style-type: none"> * <u>Pulmonary edema:</u> Amiodarone 150 mg over 10 min. May repeat at 150 mg over 10 min if Tachycardia returns. * <u>No pulmonary edema:</u> 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. <ul style="list-style-type: none"> ✦ If converted, Cardizem drip at 10 mg/hr. <hr/> <p>* <u>Pediatric: Rate greater than 160 (child), greater than 220 (infant):</u></p> <p>Contact MEDICAL CONTROL:</p> <ul style="list-style-type: none"> * 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. <ul style="list-style-type: none"> ✦ 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. <hr/> <ul style="list-style-type: none"> * Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade.
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Link to research articles (QR code on right): <http://1drv.ms/1GgDmKu>



Citations:



Protocol 2-030 - Automated External Defibrillation (AED)

Community Responders

- * Call or have someone call 9-1-1. Follow the instructions given by the dispatcher.
- * Ensure the scene is safe and protect yourself from body substances.
- * If the patient is unresponsive and not breathing (or only gasping):
 - * Get or have someone get the AED. Follow the instructions given by the AED once it arrives.
 - * Lay the patient flat on his/her back on the ground and remove any pillows.
 - * Place the heel of your hand on the breastbone and put your other hand on top of that hand.
 - * Pump the chest hard and fast at a rate of about 100 compressions per minute. Compressions should be about 2 inches deep on an adult or 1/3 the depth of the chest on a child.
 - * Rotate compressors (if possible) after 200 compressions (about 2 minutes).
 - * Continue compressing at a rate of at least 100 per minute until emergency responders relieve you.
- * As soon as the AED is available:
 - * Put the AED on the ground next to the patient’s head on the side closest to you.
 - * Undo or remove any clothing from his/her chest. If the chest is wet, dry it off.
 - * Open the AED (if necessary) and press the “ON” button (if there is one).
 - * Open the pads package and plug them into the machine.
 - * Peel off the pad backing and apply them to his/her bare chest as shown on the pads.
 - * Follow the AED’s instructions.
- * Refer to Section 8-010 - Automated External Defibrillator (AED) (page 166) for AED accessibility, supplies, maintenance, and instructions after use.

BLS - EMR

- * Ensure completion of applicable Community Responder items above.
- * Request **ALS** support if not already en route.
- * Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 72).

ALS - RN/Paramedic

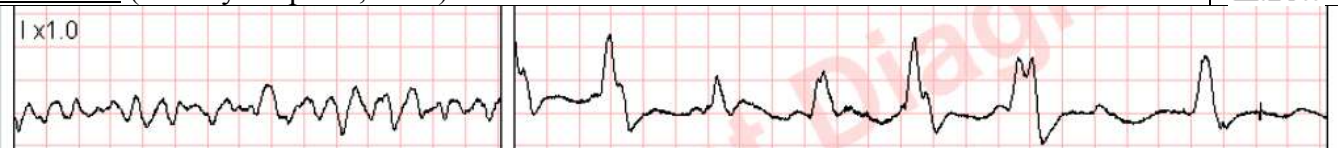
- * Ensure completion of all applicable BLS items on the left.
- * If ALS and LifePak 12/15 available, manual **Defibrillation** is preferred.

BLS - EMT

- * Ensure completion of applicable EMR items above.

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

Citations: (Priority Dispatch, 2012)



Protocol 2-040 - Bradycardia

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Calm and reassure patient. Ensure patient does not exert themselves. * Oxygen to maintain SpO₂ between 94-99%. * Apply cardiac monitor limb leads. * <u>Rate less than 60:</u> Apply Combo Pads anterior / posterior. * <u>Pediatric: HR less than 50: Ventilate.</u> Initiate Chest compressions if ventilation does not raise HR above 60. * Monitor pulseoximetry. * Obtain vital signs. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Obtain 12-Lead EKG. * IV/IO NS. Do not delay for IV if symptomatic. <hr/> <p>* <u>Adult: Rate less than 50 and symptomatic:</u></p> <ul style="list-style-type: none"> * Contact Medical Control if Hypothermia patient. * <u>Unstable: Pacing.</u> <ul style="list-style-type: none"> + 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. * <u>Stable: Atropine</u> 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. <ul style="list-style-type: none"> + Mix 1 mg in 250 ml NS. + 2 mcg/min = 30 ml/hr. + 10 mcg/min = 150 ml/hr. <hr/> <p>* <u>Pediatric: Rate less than 60 and symptomatic:</u></p> <ul style="list-style-type: none"> * 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: <table border="1" style="width: 100%; text-align: center;"> <tr> <td>0-1yr: 135</td> <td>2-3yr: 130</td> <td>4-5yr: 105</td> <td>6-9yr: 90</td> <td>10-18yr: 80</td> </tr> </table> <ul style="list-style-type: none"> + Versed IV/IO/IN. <ul style="list-style-type: none"> * 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). <hr/> <p>* Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade.</p>	0-1yr: 135	2-3yr: 130	4-5yr: 105	6-9yr: 90	10-18yr: 80
0-1yr: 135	2-3yr: 130	4-5yr: 105	6-9yr: 90	10-18yr: 80		
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 						

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



Citations:



Protocol 2-050 - Chest Discomfort

<p><u>BLS - EMD</u></p> <ul style="list-style-type: none"> * MPDS Aspirin <u>Diagnostic:</u> EMDs are authorized to evaluate and administer Aspirin in patients presenting with chest pain according to MPDS guidelines. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * IV/IO NS. Preferred left AC (not distal of right AC). Use pigtail extension. * Obtain 12-Lead EKG within 10 minutes of patient contact. <ul style="list-style-type: none"> * 15-Lead EKG indicated when: normal EKG, inferior MI, ST depression in V-leads. * STEMI (ST elevation greater than 0.1 MV in at least 2 contiguous leads OR new LBBB): <ul style="list-style-type: none"> + Contact ER to activate STEMI as early as possible. (CMH ER Charge Nurse: 417-328-6923). * Include name, age, time of onset, assessment, treatment, response to treatment, vitals, cardiac/bleeding history. Provide your contact phone number. + Transmit EKG to receiving facility (if possible).
<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Calm and reassure patient. Ensure patient does not exert themselves. * Oxygen to maintain SpO₂ between 94-99%. * Apply cardiac monitor limb leads. * Monitor pulseoximetry. * Obtain vital signs. * STEMI: Consider Combo Pads anterior / posterior. 	<ul style="list-style-type: none"> * <u>Adult:</u> <ul style="list-style-type: none"> * Pulmonary edema: Refer to Protocol 4-070 - Congestive Heart Failure (CHF) (page 46). * Right-sided MI (ST elevation in V4R): NS 1-2 L followed by Nitroglycerin 5+ mcg/min IV/IO. * SBP greater than 100: Nitroglycerin 0.4 mg SL (1 spray or 1 tablet). Every 5 min until no Pain or SBP less than 90. * SBP less than 100: Consider Nitroglycerin 10+ mcg/min IV/IO titrated to blood pressure and Pain. * Nausea/Vomiting: See Protocol 6-040 - Control of Nausea (page 74). * Continued discomfort/pain: <ul style="list-style-type: none"> + Consider Morphine 2 mg IV/IO (max 10 mg). Maintain SBP greater than 100. + Consider Fentanyl 50-100 mcg every 5-20 min (max 300 mcg) IV/IO/IN. Over 65 yr old: 0.5-2 mcg/kg. * Contact MEDICAL CONTROL: Consider Heparin 4,000 u.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 	<ul style="list-style-type: none"> * Transport according to Section 2-052 - STEMI Destination Determination Flowchart (page 21).

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.

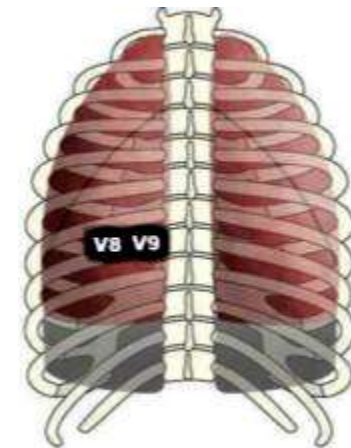
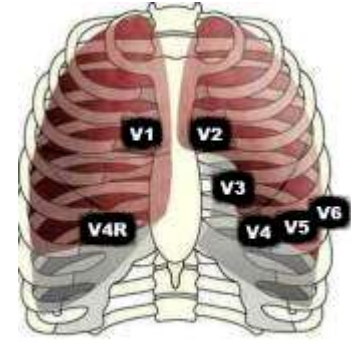
- * Lead I positive and aVR negative: Good placement

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

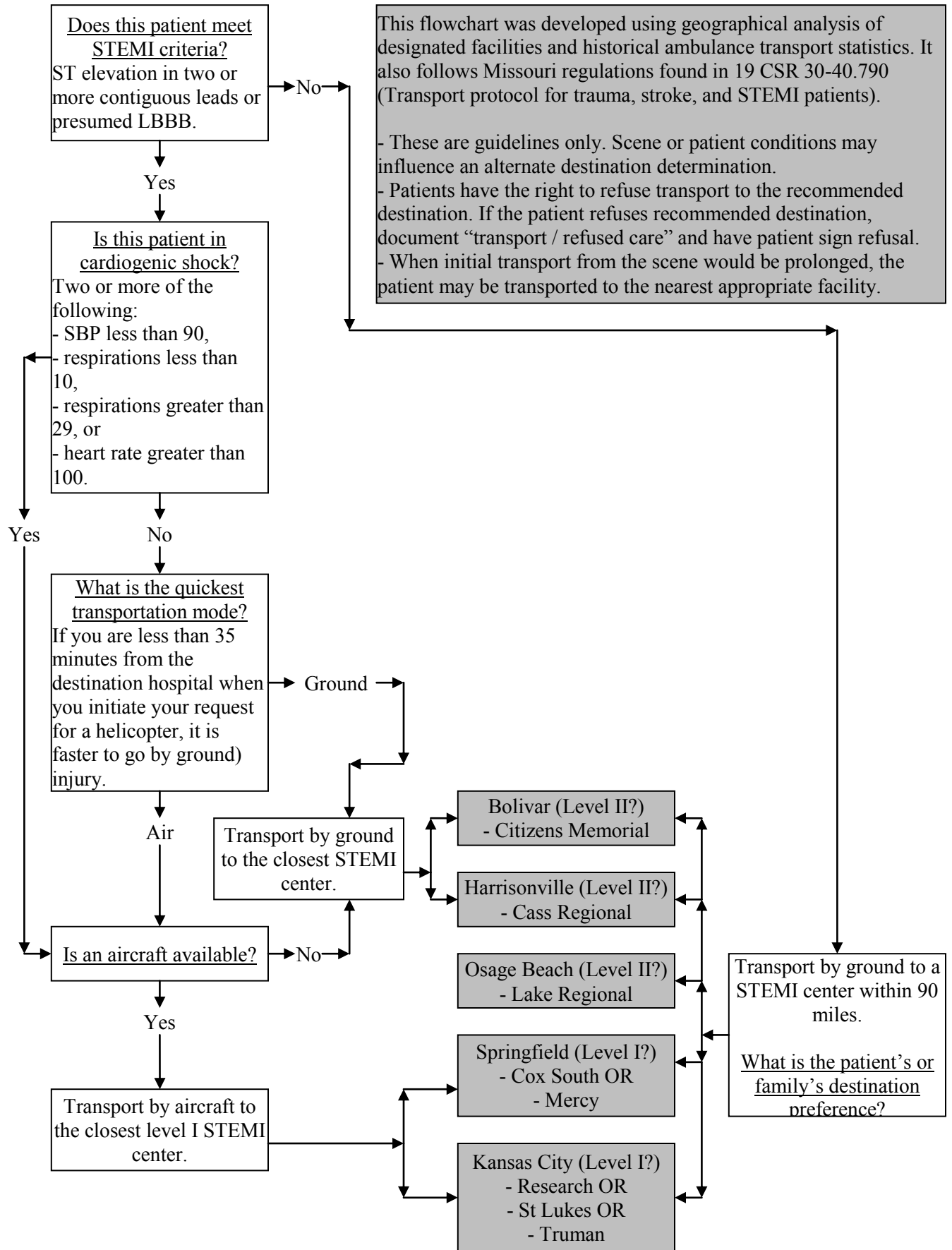
I Lateral • LAD & LCX Reciprocal: II, III, AVF	aVR	V1 Septal • LAD	V4 Anterior • LAD	V4R Right • RMA
II Inferior • RCA Reciprocal: I, aVL	aVL Lateral • LAD & LCX Reciprocal: II, III, AVF	V2 Septal • LAD	V5 Lateral • LAD & LCX Reciprocal: II, III, AVF	V8 Posterior • Post. branch of RCA Reciprocal: V1-V4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

Sgarbossa Scoring – AMI in LBBB & Ventricular Pacing

Question	Yes	No	Answers						
ST Elev. \uparrow 1mm in QRS with Pos. Deflection	+5	+0	✓	✓	✓	✓			
ST Depression \uparrow 1mm in V1, V2, V3	+3	+0	✓	✓	✓	✓			
ST Elev. \uparrow 5mm in WRS with Neg. Deflection	+2	+0	✓	✓	✓	✓			
Score Total:	10	8	7	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><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Establish and maintain Airway and Ventilate with Oxygen. * Avoid hyperventilation. * Conscious: Attempt to maintain SpO₂ between 92-96%. * Unconscious: Attempt to maintain SpO₂ between 88-92%. * Monitor pulseoximetry. * Apply cardiac monitor Combo Pads and limb leads. * Obtain vital signs. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Obtain 12-Lead EKG. * Treat rate and rhythm per protocol. * Secure Airway if necessary. * IV/IO NS. <hr/> <p>* Adult:</p> <ul style="list-style-type: none"> * Hypotension: Assess lung sounds for pulmonary edema. <ul style="list-style-type: none"> + Clear lung sounds: NS 250-500 ml IV/IO. + Pulmonary edema: Consider Dopamine 5-20 mcg/kg/min IV/IO. * Continued sedation: Versed 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"> + OR Ativan 1-2 mg IV/IO every 5 min (max 4 mg). + Consider Fentanyl 50-100 mcg IV/IO/IN every 10 min as needed (max 300 mcg). <hr/> <p>* Pediatric:</p> <ul style="list-style-type: none"> * Hypotension: Assess lung sounds for pulmonary edema. <ul style="list-style-type: none"> + Clear lung sounds: Consider 20 ml/kg NS. + Pulmonary edema: Contact MEDICAL CONTROL: Dopamine 5-20 mcg/kg/min IV/IO. * Continued sedation: Versed IV/IO/IN. <ul style="list-style-type: none"> ✗ 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). <hr/> <ul style="list-style-type: none"> * Consider Air Ambulance to expedite transport. * Consider RSI and Cooling with cold packs and cold IV fluids if: <ul style="list-style-type: none"> * No trauma, * No purposeful movement, AND * SBP greater than 90.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 	

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

Citations:



Protocol 2-070 - Pulseless Electrical Activity (PEA)

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 72). 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Consider Intubation. * IV/IO NS.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	<ul style="list-style-type: none"> * <u>Adult</u>: <ul style="list-style-type: none"> * Epinephrine 1:10,000 1 mg IV/IO every 3-5 min. * <u>Slow PEA rate</u>: <ul style="list-style-type: none"> + Consider Atropine 1 mg IV/IO every 3-5 min (max 3 mg). + Consider Pacing. * Consider Sodium Bicarbonate 1 mEq/kg IV/IO. * <u>Pediatric</u>: Epinephrine 1:10,000 0.01 mg/kg IV/IO every 3-5 min (max 1 mg/dose). OR 1:1,000 0.1 mg/kg ET. * Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade. * <u>Adult</u>: Contact MEDICAL CONTROL if ETCO₂ less than 10 for 10 min or no response after 20 min, consider termination of resuscitation.

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



Citations:

Paddles x1.0



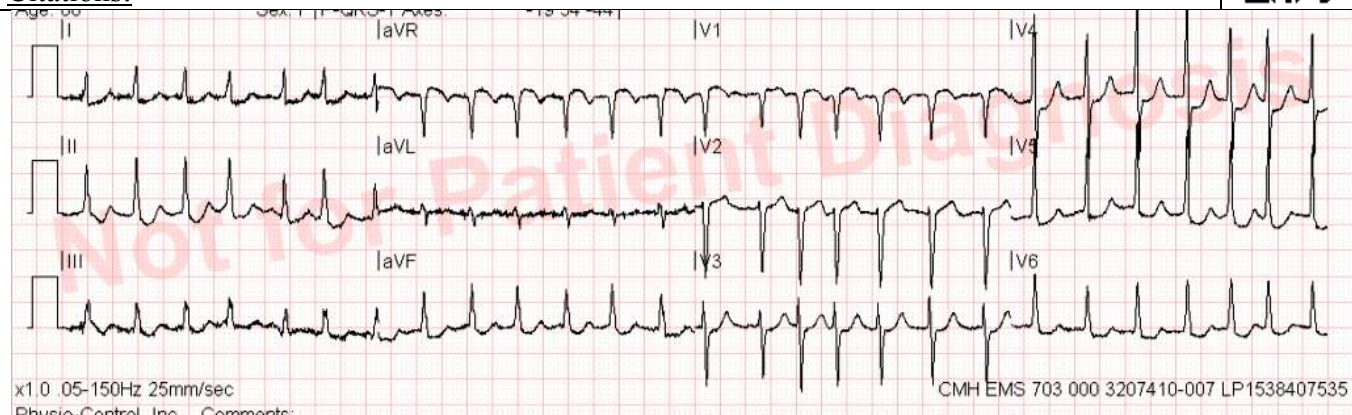
Protocol 2-080 - Tachycardia Narrow Stable

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Calm and reassure patient. Ensure patient does not exert themselves. * Oxygen to maintain SpO₂ between 94-99%. * Apply cardiac monitor limb leads. <hr/> <p>* <u>Adult</u>: Rate greater than 150 OR <u>Pediatric</u>: Rate greater than 160 (child), greater than 220 (infant):</p> <ul style="list-style-type: none"> * Consider: apply Combo Pads anterior / posterior. * Monitor pulseoximetry. * Obtain vital signs. <hr/> <p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Obtain 12-Lead EKG. * Vagal maneuvers. (Contraindicated for CAD and stroke). * IV/IO NS. <hr/> <p>* <u>Adult</u>: Rate greater than 150:</p> <ul style="list-style-type: none"> * 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. <ul style="list-style-type: none"> + If converted: Cardizem drip at 10 mg/hr. <hr/> <p>* <u>Pediatric</u>: Rate greater than 160 (child), greater than 220 (infant):</p> <p>Contact MEDICAL CONTROL:</p> <ul style="list-style-type: none"> * 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. <ul style="list-style-type: none"> ✗ 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. <hr/> <p>* Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade.</p>
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Link to research articles (QR code on right): <http://1drv.ms/1xUeshs>



Citations:



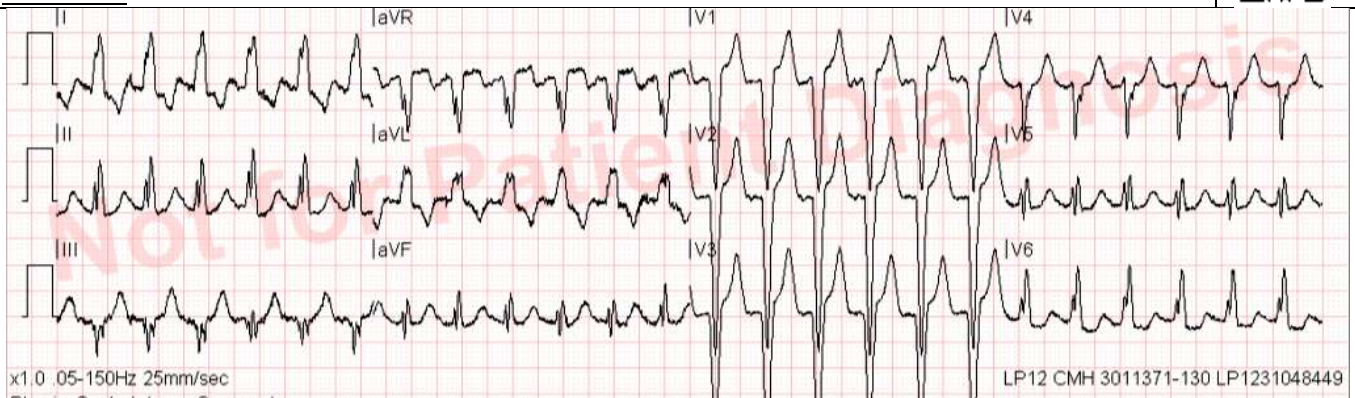
Protocol 2-090 - Tachycardia Narrow Unstable

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Calm and reassure patient. Ensure patient does not exert themselves. * Oxygen to maintain SpO₂ between 94-99%. * Apply cardiac monitor limb leads. <hr/> <p>* <u>Adult</u>: Rate greater than 150 OR <u>Pediatric</u>: Rate greater than 160 (child), greater than 220 (infant):</p> <ul style="list-style-type: none"> * Apply Combo Pads anterior / posterior. <ul style="list-style-type: none"> * Monitor pulseoximetry. * Obtain vital signs. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Obtain 12-Lead EKG. * IV/IO NS. Do not delay for IV if symptomatic. <hr/> <p>* <u>Adult</u>: Rate greater than 150 and symptomatic:</p> <ul style="list-style-type: none"> * <u>Conscious</u>: Consider Versed 2.5-5 mg IV/IO/IN. <ul style="list-style-type: none"> + 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). <hr/> <p>* <u>Pediatric</u>: Rate greater than 180 (child), greater than 220 (infant) and symptomatic:</p> <ul style="list-style-type: none"> * Consider Vagal maneuvers. * Adenosine 0.1 mg/kg RAPID IV/IO (max 6 mg). <ul style="list-style-type: none"> + If ineffective, 2nd and/or 3rd dose at 0.2 mg/kg (max 12 mg). * <u>Conscious</u>: Consider Versed IV/IO/IN. <ul style="list-style-type: none"> ✗ 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. <hr/> <p>* Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade.</p>
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 	

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



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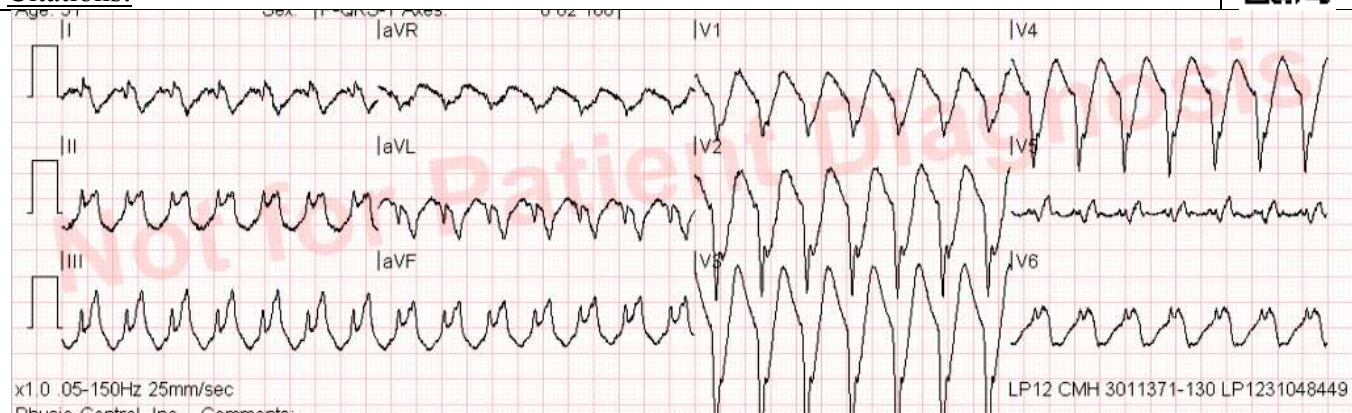
Protocol 2-100 - Tachycardia Wide Stable

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Calm and reassure patient. Ensure patient does not exert themselves. * Oxygen to maintain SpO₂ between 94-99%. * Apply cardiac monitor limb leads. <hr/> <p>* <u>Adult: Rate greater than 150:</u> Apply Combo Pads anterior / posterior.</p> <hr/> <p>* <u>Pediatric (Child): Rate greater than 160:</u> Consider: Apply Combo Pads anterior / posterior.</p> <hr/> <p>* <u>Pediatric (Infant): Rate greater than 220:</u> Consider: Apply Combo Pads anterior / posterior.</p> <hr/> <ul style="list-style-type: none"> * Monitor pulseoximetry. * Obtain vital signs. <p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Obtain 12-Lead EKG. * IV/IO NS. <hr/> <p>* <u>Adult: Rate greater than 150:</u></p> <ul style="list-style-type: none"> * 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. * <u>QT/RR greater than 0.4: Magnesium Sulfate</u> 1-2 g IV/IO over 15-20 min. Mix 1-2 g in 100 ml D5W. <hr/> <p>* <u>Pediatric: Rate greater than 160 (child), greater than 220 (infant): Contact MEDICAL CONTROL:</u></p> <ul style="list-style-type: none"> * 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. <ul style="list-style-type: none"> ✗ 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. <hr/> <p>* Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade.</p>
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Link to research articles (QR code on right): <http://1drv.ms/1BRq3iK>



Citations:



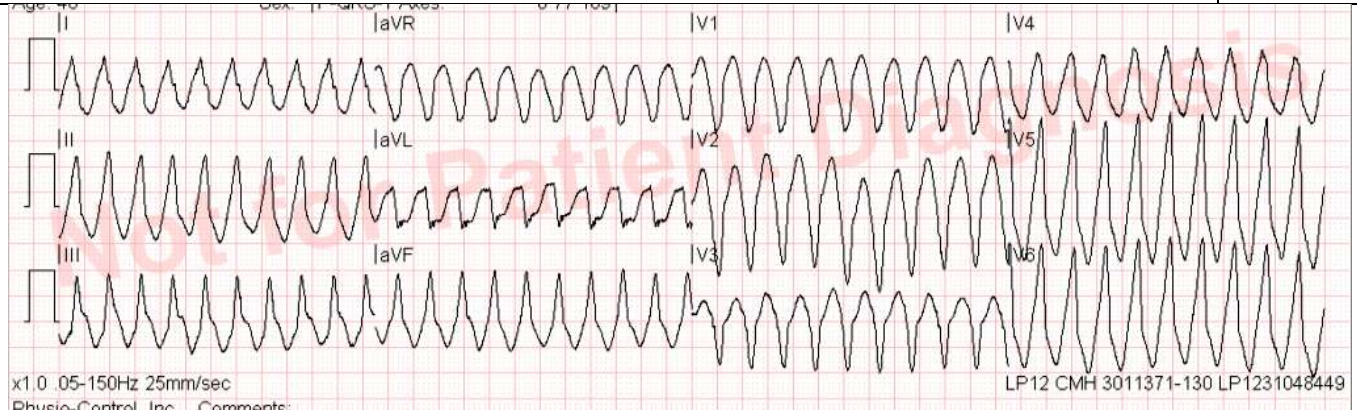
Protocol 2-110 - Tachycardia Wide Unstable

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Calm and reassure patient. Ensure patient does not exert themselves. * Oxygen to maintain SpO₂ between 94-99%. * Apply cardiac monitor limb leads. <hr/> <p>* <u>Adult: Rate greater than 150:</u> Apply Combo Pads anterior / posterior.</p> <hr/> <p>* <u>Pediatric (Child): Rate greater than 160:</u> Consider: Apply Combo Pads anterior / posterior.</p> <hr/> <p>* <u>Pediatric (Infant): Rate greater than 220:</u> Consider: Apply Combo Pads anterior / posterior.</p> <hr/> <ul style="list-style-type: none"> * Monitor pulseoximetry. * Obtain vital signs. <p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Obtain 12-Lead EKG. * IV/IO NS. Do not delay for IV if symptomatic. <hr/> <p>* <u>Adult: Rate greater than 150 and symptomatic:</u></p> <ul style="list-style-type: none"> * <u>Conscious:</u> Consider Versed 2.5-5 mg IV/IO/IN. <ul style="list-style-type: none"> + 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. <hr/> <p>* <u>Pediatric: Rate greater than 180 (child), greater than 220 (infant) and symptomatic:</u></p> <ul style="list-style-type: none"> * <u>Conscious:</u> Consider Versed IV/IO/IN. <ul style="list-style-type: none"> ✖ 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: <ul style="list-style-type: none"> + Amiodarone 5 mg/kg IV/IO over 20-60 min. + OR Procainamide 15 mg/kg IV/IO over 30-60 min. <hr/> <p>* Consider and correct treatable causes: Hypovolemia, hypoxia, hypo/hyperkalemia, Hypothermia, Hypoglycemia, acidosis, tension pneumothorax, toxins, thrombosis, and cardiac tamponade.</p>
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Citations:



Protocol 2-120 - Torsades de Pointes

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Calm and reassure patient. Ensure patient does not exert themselves. * Oxygen to maintain SpO₂ between 94-99%. * Apply cardiac monitor limb leads. Apply Combo Pads anterior / posterior. * Monitor pulseoximetry. * Obtain vital signs. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Obtain 12-Lead EKG. * Consider Intubation. * IV/IO NS. <hr/> <p>* <u>Adult:</u></p> <ul style="list-style-type: none"> * 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. * <u>Conscious:</u> Consider Versed 2.5-5 mg IV/IO/IN. <ul style="list-style-type: none"> + OR Ativan 2 mg IV/IO. + Consider Fentanyl 50-100 mcg IV/IO/IN (max 300 mcg). * Synchronized Cardioversion 200 J. <hr/> <p>* <u>Pediatric:</u></p> <ul style="list-style-type: none"> * Magnesium Sulfate 25-50 mg/kg over 15-20 min. Mix in 100 ml D5W (max 2 g). * <u>Conscious:</u> Consider Versed IV/IO/IN. <ul style="list-style-type: none"> ✗ 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.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 	

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



Citations:



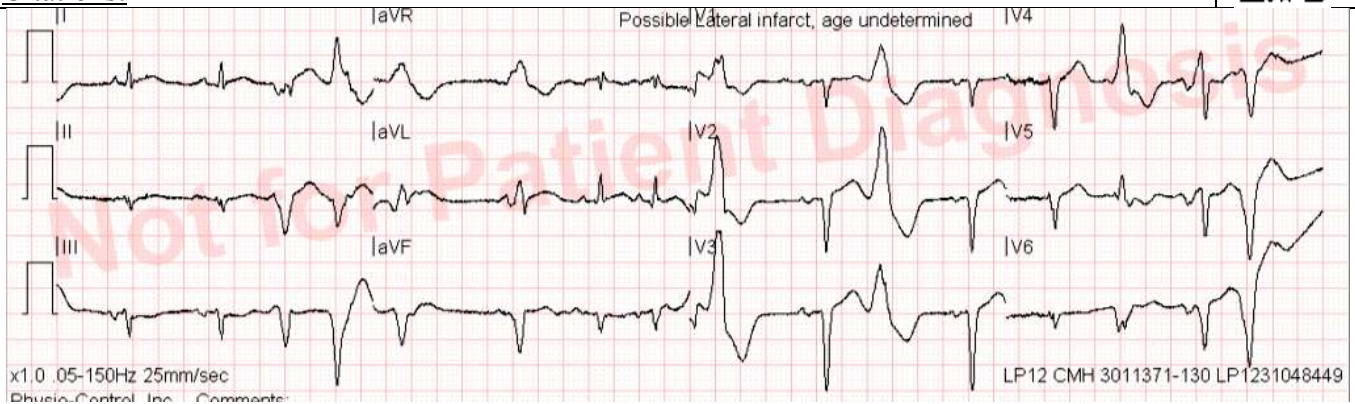
Protocol 2-130 - Ventricular Ectopy

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Calm and reassure patient. Ensure patient does not exert themselves. * Oxygen to maintain SpO₂ between 94-99%. * Apply cardiac monitor limb leads. * Consider apply Combo Pads anterior / posterior. * Monitor pulseoximetry. * Obtain vital signs. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * 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: <ul style="list-style-type: none"> * Consider Lidocaine. * Consider Amiodarone.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 	

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



Citations:



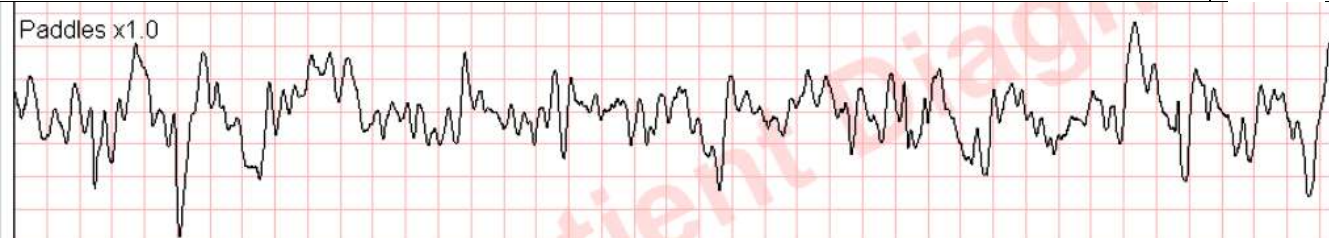
Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach)

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 72). 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Witnessed Arrest: Defibrillation immediately. Unwitnessed: 2 min of compressions, then Defibrillation. Immediately do compressions for 2 min after each shock before rhythm or pulse check. <hr/> <ul style="list-style-type: none"> * Adult: 360 J (OR consider biphasic dose of 200 J). * Pediatric: 4 J/kg. <hr/> <ul style="list-style-type: none"> * Consider Intubation. * IV/IO NS. <hr/> <ul style="list-style-type: none"> * Adult: <ul style="list-style-type: none"> * Epinephrine 1:10,000 1 mg IV/IO every 3-5 min. * Defibrillation 360 J (OR consider biphasic dose of 200 J) and immediately resume CPR. * Lidocaine 1-1.5 mg/kg IV/IO repeat 3-5 min at half dose (max 3 mg/kg). <ul style="list-style-type: none"> ✦ OR Amiodarone 300 mg IV/IO. Recurrent VF/VT: Additional 150 mg (total max 450 mg). * Torsades de points: Consider Magnesium Sulfate 1-2 g over 15-20 min IV/IO. Refer to Protocol 2-120 - Torsades de Pointes (page 28). <hr/> <ul style="list-style-type: none"> * Pediatric: <ul style="list-style-type: none"> * Epinephrine 1:10,000 0.01 mg/kg IV/IO OR 1:1,000 0.1 mg/kg ET every 3-5 min. * Defibrillation 4 J/kg, add 2 J/kg each shock (max 10 J/kg) and immediately resume CPR. * Lidocaine 1-1.5 mg/kg IV/IO repeat 3-5 min at half dose (max 3 mg/kg). <ul style="list-style-type: none"> ✦ OR Amiodarone 5 mg/kg (max 3 doses) IV/IO. * Torsades de points: Consider Magnesium Sulfate 25-50 mg/kg over 15-20 min IV/IO. Refer to Protocol 2-120 - Torsades de Pointes (page 28). <hr/> <ul style="list-style-type: none"> * Consider Sodium Bicarbonate 1 mEq/kg IV/IO every 10 min (ensure adequate ventilations) * Consider and correct treatable causes. * Adult: Contact MEDICAL CONTROL if ETCO₂ less than 10 for 10 min or no response after 20 min, consider termination of resuscitation.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	

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



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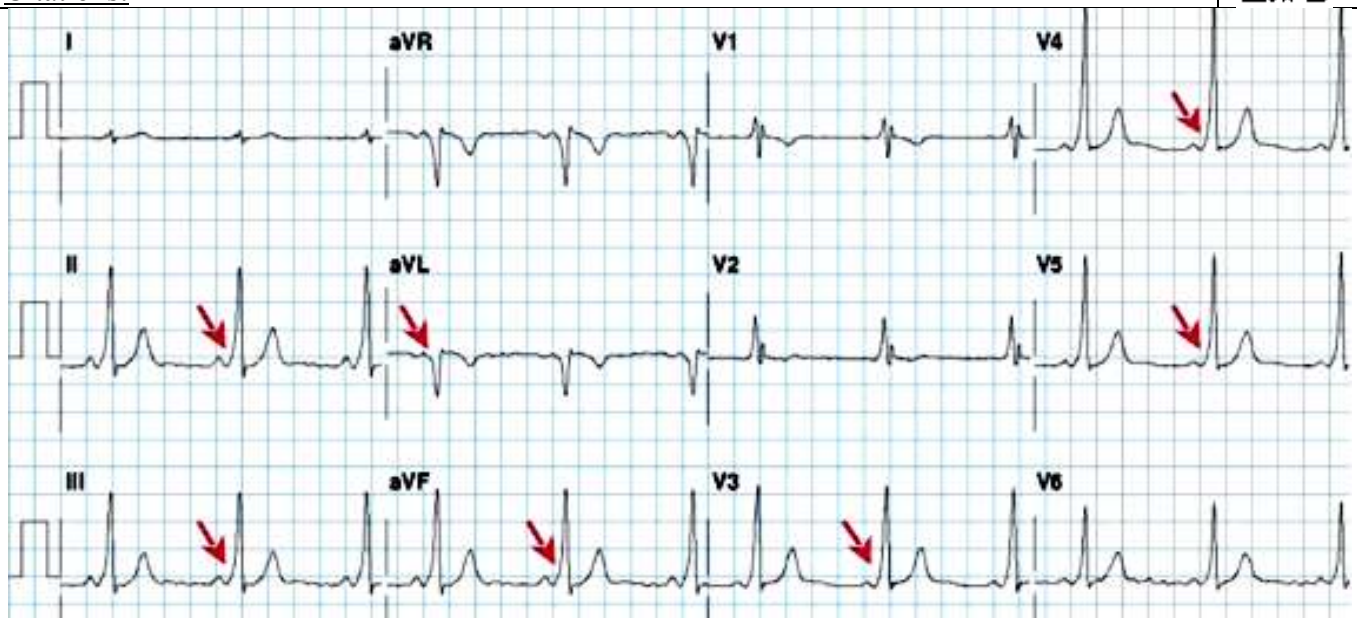
Protocol 2-150 - Wolff-Parkinson-White (WPW)

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Calm and reassure patient. Ensure patient does not exert themselves. * Oxygen to maintain SpO₂ between 94-99%. * Apply cardiac monitor limb leads. * Consider apply Combo Pads anterior / posterior. * Monitor pulseoximetry. * Obtain vital signs. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * <u>Heart rate greater than 150 and symptomatic:</u> <ul style="list-style-type: none"> * 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. <ul style="list-style-type: none"> + Mix 1 g in 250 ml D5W = 4 mg/ml. <ul style="list-style-type: none"> ✖ 5 ml/min = 20 mg/min = 300 ml/hr. + Post conversion: Procainamide 1-4 mg/min. <ul style="list-style-type: none"> ✖ 1 ml/min = 4 mg/min = 60 ml/hr. * OR Amiodarone 150 mg over 10 min.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 	

Link to research articles (QR code on right): <http://1drv.ms/1BRq1WK>



Citations:



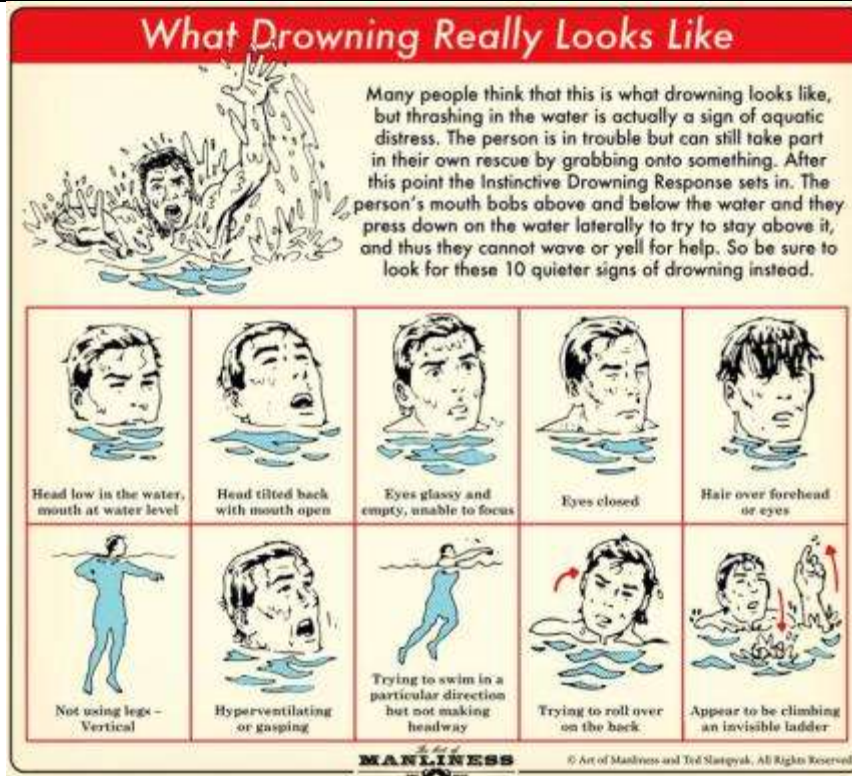
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Part 3 - Environmental Protocols

Protocol 3-010 - Drowning

<p><u>BLS - EMD</u></p> <ul style="list-style-type: none"> * MPDS Protocol 14 (Drowning) - Obvious death: Submersion time does not indicate obvious death. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * IV/IO warm NS.
<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Remove from water. * Open and maintain Airway. <ul style="list-style-type: none"> * Be prepared to Suction Airway. * Pulseless: Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 72). * 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. 	<ul style="list-style-type: none"> * Pulseless: <u>Adult:</u> V-Fib: Defibrillation 360 J (OR consider biphasic dose of 200 J) once. <ul style="list-style-type: none"> * 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.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * <u>Adult:</u> Consider assisting ALS with CPAP. * Assist ALS with Capnography. 	<ul style="list-style-type: none"> * 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/1ADvdrf>
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Protocol 3-020 - Hyperthermia

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Remove from exposure. * Open and maintain Airway. * Attempt to determine down-time, and history. * Consider Oxygen if SpO₂ less than 88%. * Passively Cool patient. * Obtain core body temperature. * Monitor pulseoximetry. * Consider: Apply cardiac monitor limb leads. * Obtain vital signs. * <u>Normal mentation</u>: Heat exhaustion. Treat specific complaints per protocol. * <u>Altered mentation</u>: Heat stroke. Rapid Cooling is indicated. Attempt to cool to 102 F. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * IV/IO cool NS or LR. <li style="padding-left: 20px;">* <u>Adult</u>: 125 ml/hr. <li style="padding-left: 20px;">* <u>Pediatric</u>: 20 ml/kg may repeat once. * Monitor closely for arrhythmias. Treat per protocol. * <u>Tremors</u>: Ativan 2 mg IV/IO.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 	

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Citations:



Heat Index Chart

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

		Temperature (°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

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Remove from exposure. * Open and maintain Airway. * Be prepared to Suction Airway. * Pulseless: Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 72). * 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. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * IV/IO warm NS. * Consider Intubation. * Pulseless: <u>V-Fib</u>: <ul style="list-style-type: none"> * Defibrillation once. <ul style="list-style-type: none"> + <u>Adult</u>: 360 J (OR consider biphasic dose of 200 J). + <u>Pediatric</u>: 2 J/kg. * <u>Core temp greater than 86 F</u>: ACLS per protocol. Remember, Hypothermia patients require longer intervals between drugs due to slower absorption and metabolism rates. * <u>Core temp less than 86 F</u>: CPR only. * Do not delay transport for rewarming. * Rapid transport to hospital. * Pain: Refer to Protocol 6-050 - Control of Pain (page 75). * Nausea: Refer to Protocol 6-040 - Control of Nausea (page 74).
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 	

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 (°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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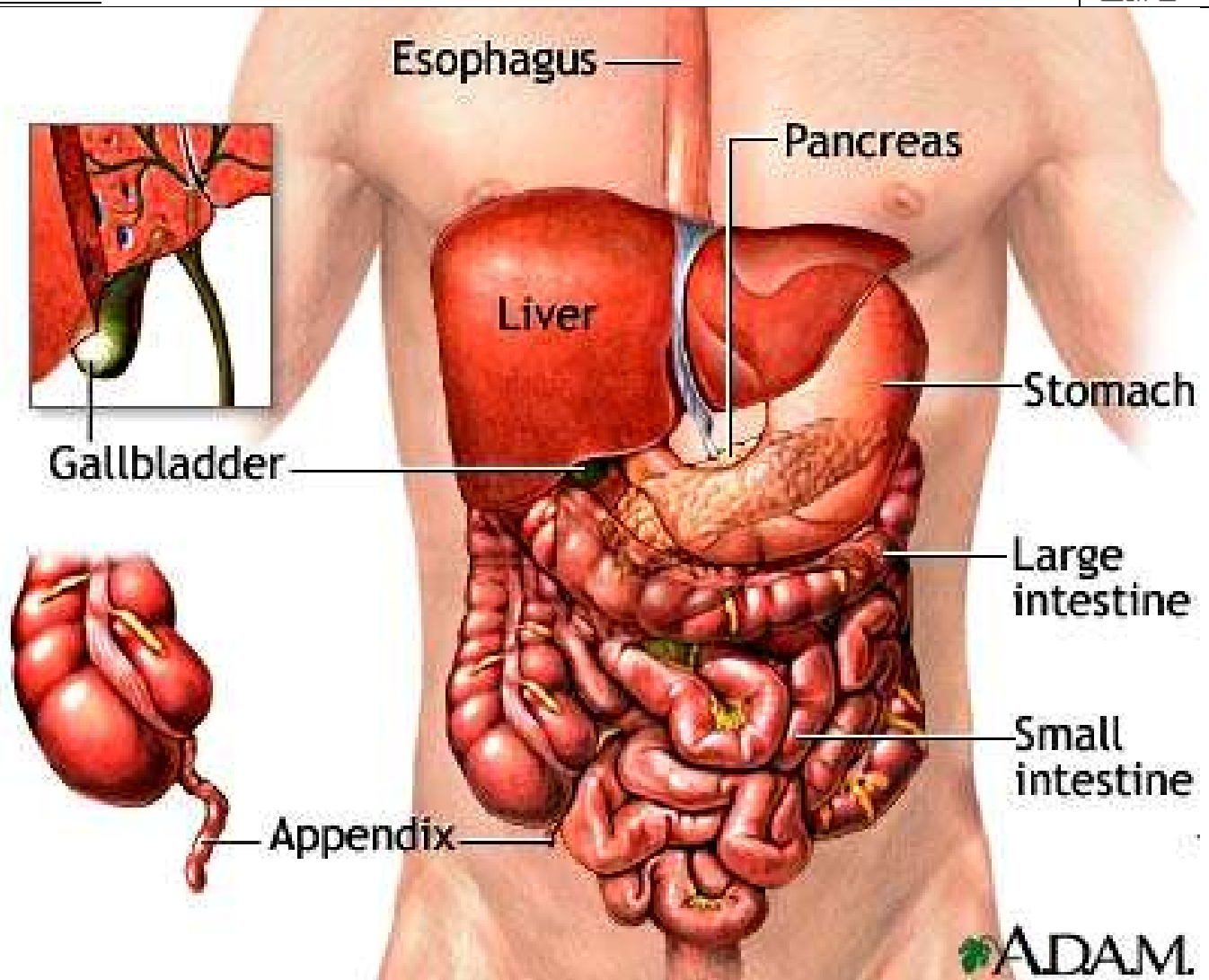
Part 4 - Medical Protocols

Protocol 4-010 - Abdominal Pain

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Consider Oxygen if SpO₂ less than 88%. * Obtain vital signs. * Monitor pulseoximetry. * Apply cardiac monitor limb leads. * Identify possible causes. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * IV/IO NS Preferred left AC. Use pigtail extension. * Refer to Protocol 6-050 - Control of Pain (page 75). * <u>Nausea</u>: Refer to Protocol 6-040 - Control of Nausea (page 74).
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	

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

Citations:

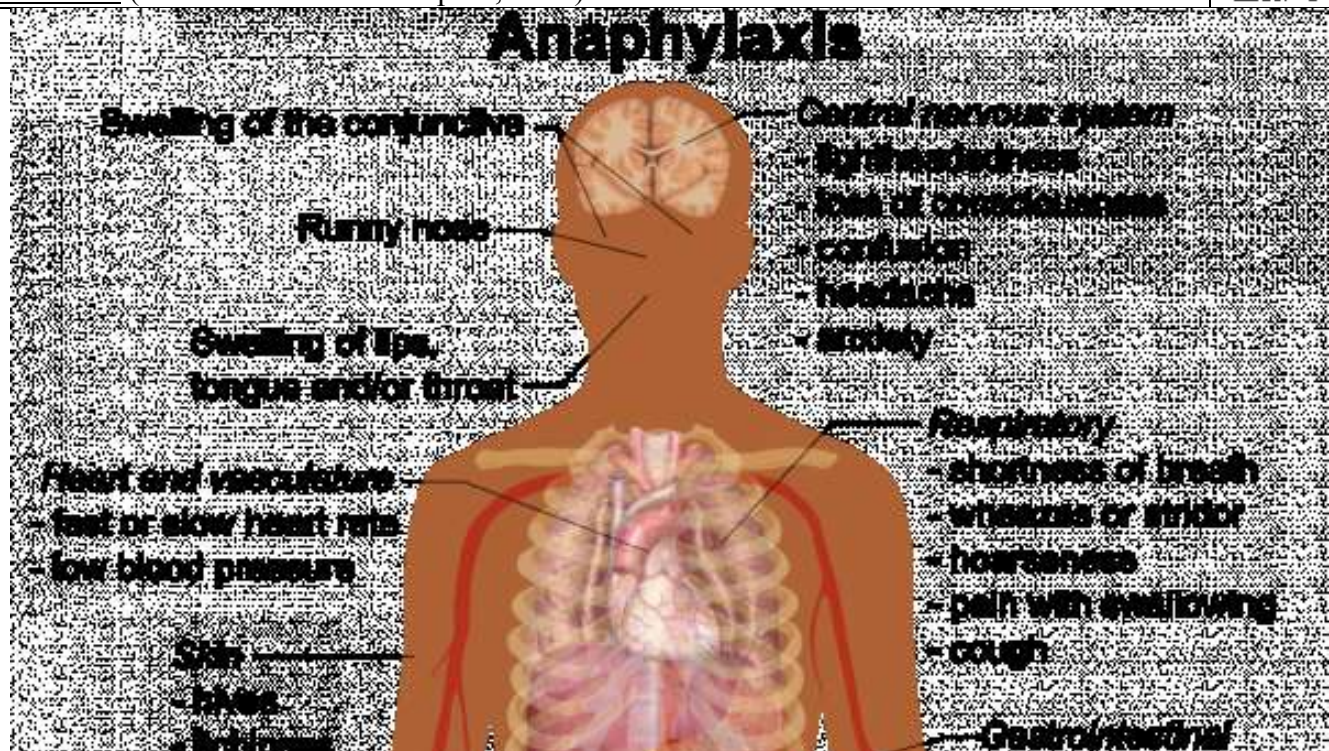


Protocol 4-020 - Anaphylaxis

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Remove allergen. * Obtain vital signs. * Oxygen to maintain SpO₂ at 100%. * Monitor pulseoximetry. * Consider: Apply cardiac monitor limb leads. * Identify possible causes. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * IV/IO NS.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. * <u>If RN or Paramedic unavailable and difficulty breathing, trouble swallowing, or hypotensive:</u> * Epinephrine Auto-Injector. * ALS unit should be en route. 	<ul style="list-style-type: none"> * <u>Adult:</u> <ul style="list-style-type: none"> * <u>Uncompensated shock:</u> Epinephrine 1:10,000 0.1 mg IV/IO. Repeat every 15 min as needed. <ul style="list-style-type: none"> + 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. * <u>Wheezing or obstructed ETCO₂ waveform:</u> Consider Duoneb Nebulized (max 1 dose). 0.5 mg Ipratropium + 1.5mg Albuterol. <ul style="list-style-type: none"> + Consider Albuterol 2.5 mg Nebulized. + Consider Xopenex 0.63-1.25 mg Nebulized. * <u>Pediatric:</u> <ul style="list-style-type: none"> * 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). * <u>Wheezing or obstructed ETCO₂ waveform:</u> Consider Albuterol 2.5 mg Nebulized. <ul style="list-style-type: none"> + 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)



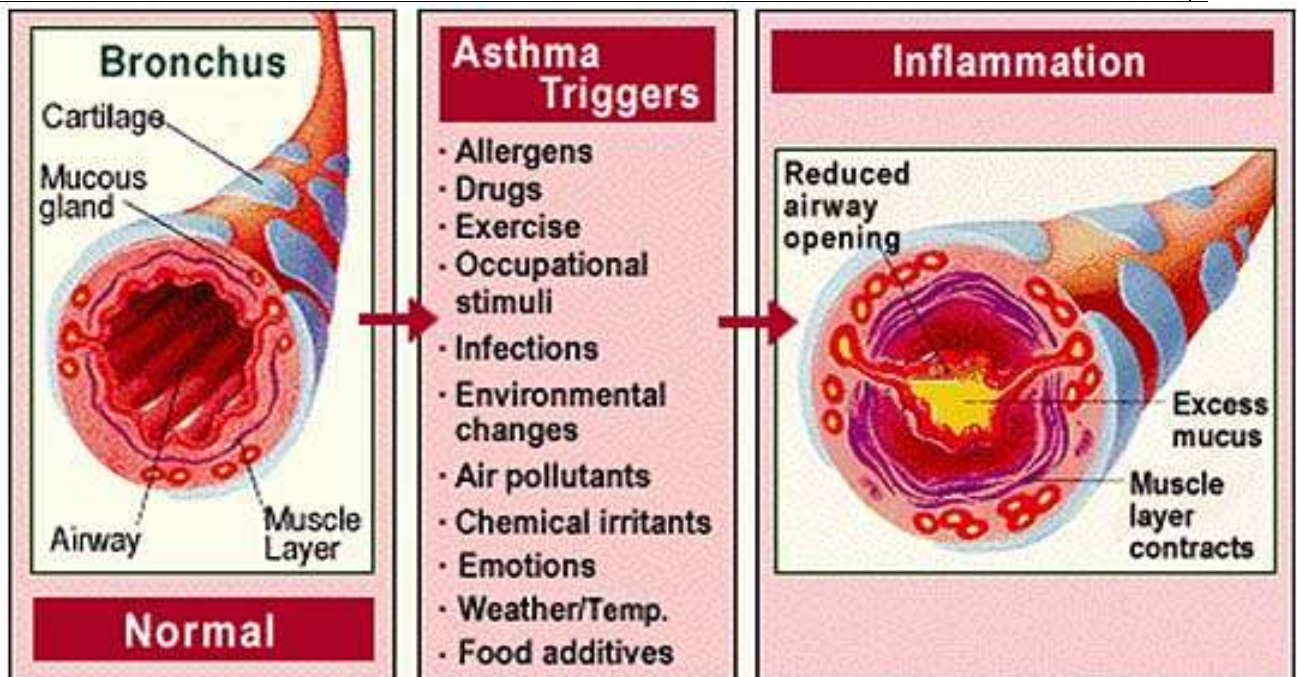
Protocol 4-030 - Asthma

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Oxygen to maintain SpO₂ between 88-92%. * Monitor pulseoximetry. * Apply cardiac monitor limb leads. * Obtain vital signs. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * IV/IO NS.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 	<ul style="list-style-type: none"> * Adult: <ul style="list-style-type: none"> * 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: <ul style="list-style-type: none"> * 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: <ul style="list-style-type: none"> + 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

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * 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: <ul style="list-style-type: none"> * Help meet basic needs. * Provide simple, clear, and accurate information. * Listen with compassion. * Be friendly and calm. * Provide support and “presence.” 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Mild (responds to verbal de-escalation): Contact MEDICAL CONTROL for: * Adult: <ul style="list-style-type: none"> + Anxiety: <ul style="list-style-type: none"> * Consider Valium 2 mg IV/IM. * Consider Ativan 2 mg IV/IO. + Agitation: Consider Haldol 2-5 mg IV/IM. * Pediatric: Anxiety: <ul style="list-style-type: none"> + 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: <ul style="list-style-type: none"> + Physical Restraint <ul style="list-style-type: none"> * 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: <ul style="list-style-type: none"> + 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.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Consider performing Glucose check. 	

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)

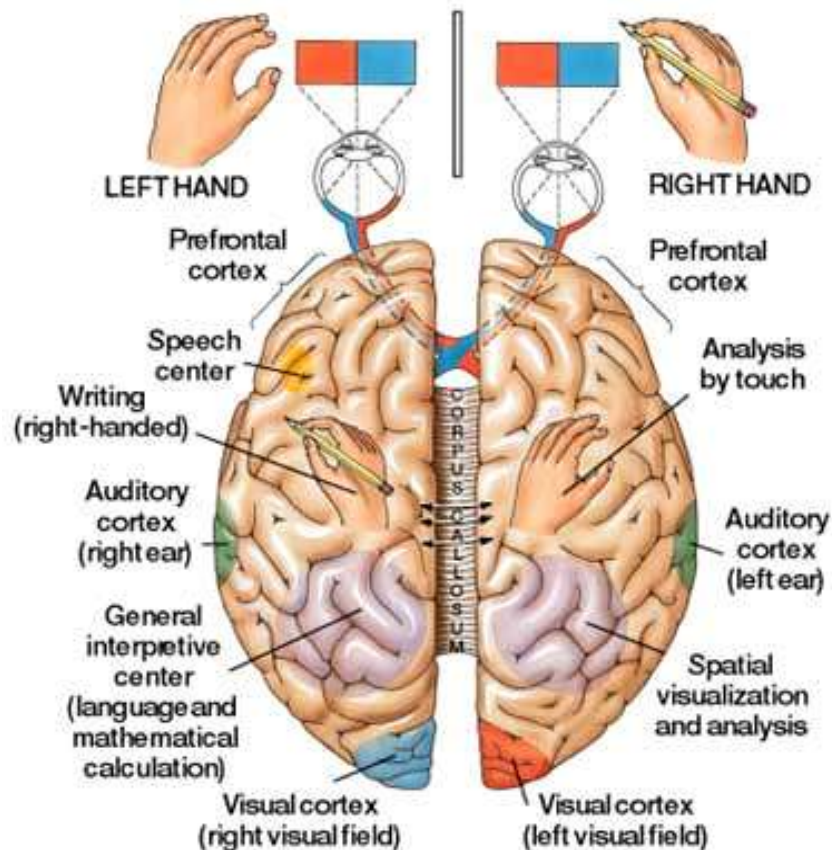


Protocol 4-050 - Cardiovascular Accident (CVA) or Stroke

<p><u>BLS - EMD</u></p> <ul style="list-style-type: none"> * MPDS Protocol 18 (Headache) and Protocol 28 (Stroke) - Stroke time window: Time window set by medical control is 12 hours. Greater than 12 hours since the patient was last seen normal is usually outside the therapeutic window. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * 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.
<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Complete Cincinnati Stroke Scale (facial droop, arm drift, speech). * Consider completing Section 4-051 - NIH Stroke Scale (page 42). * Oxygen to maintain SpO₂ between 94-99%. * Monitor pulseoximetry. * Apply cardiac monitor limb leads. * Obtain vital signs. * Elevate Head of cot. 	
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Perform Glucose check. <ul style="list-style-type: none"> * Glucose less than 70 mg/dl: Refer to Protocol 4-120 - Hypoglycemia (page 52). 	

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

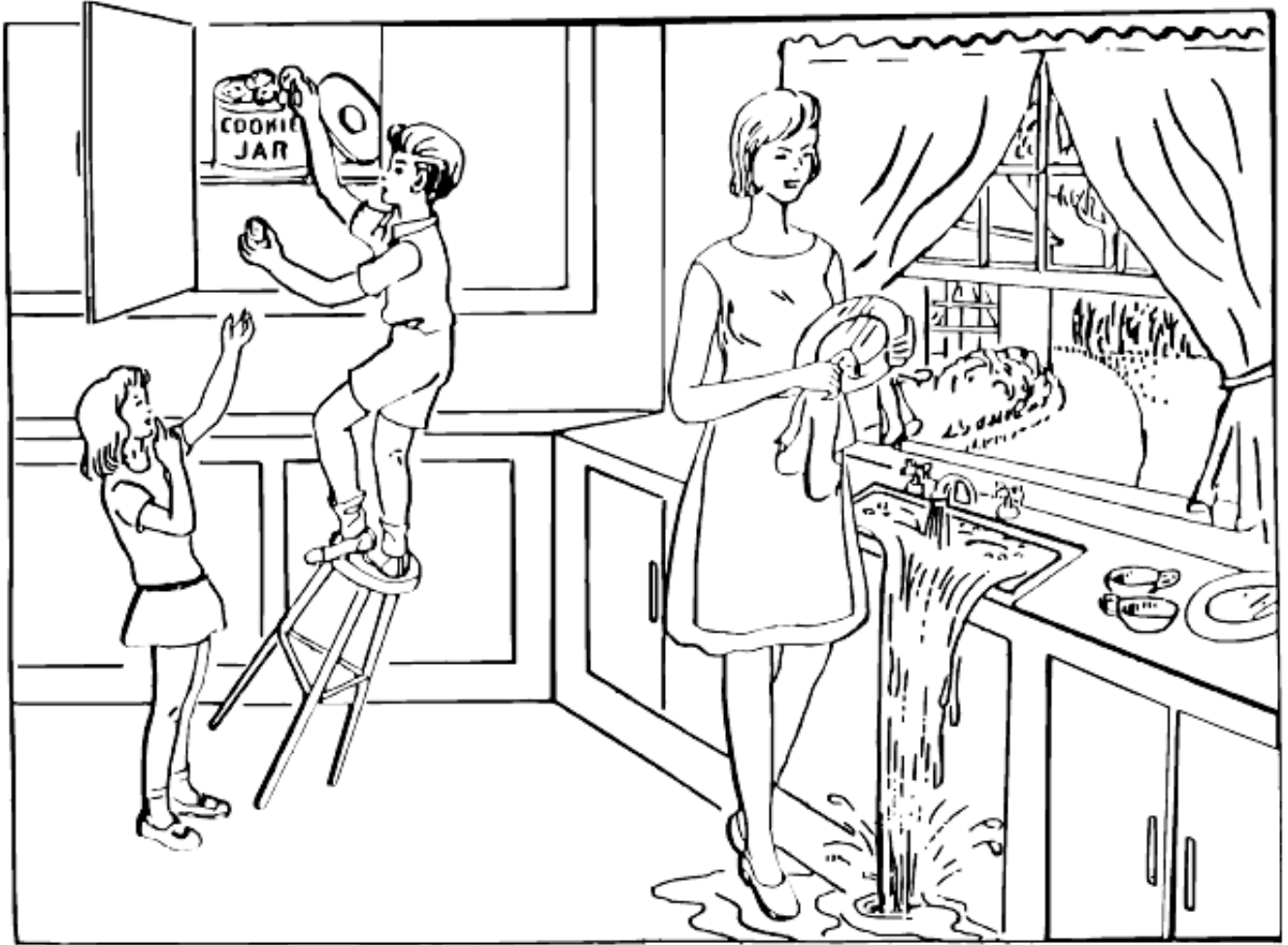
Score only first attempt. Do not coach. Do not go back and re-score.

1a. Level of consciousness (LOC). Is the patient alert, drowsy, etc.	Alert (A)	0
	Drowsy (V)	1
	Stuporous (P)	2
	Coma (U)	3
1b. LOC questions. 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
1c. LOC commands. Ask patient to open/close eyes and then grip/release nonparetic hand.	Performs both correctly	0
	Performs one correctly	1
	Both incorrect	2
2. Best gaze. 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
3. Visual. 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
4. Facial palsy. 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
5a. Motor arm left. 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
5b. Motor arm right. 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
6a. Motor leg left. 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
6b. Motor leg right. 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
7. Limb ataxia. 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
8. Sensory. 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
9. Best language. 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
10. Dysarthria. 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
11. Extinction and inattention. 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.

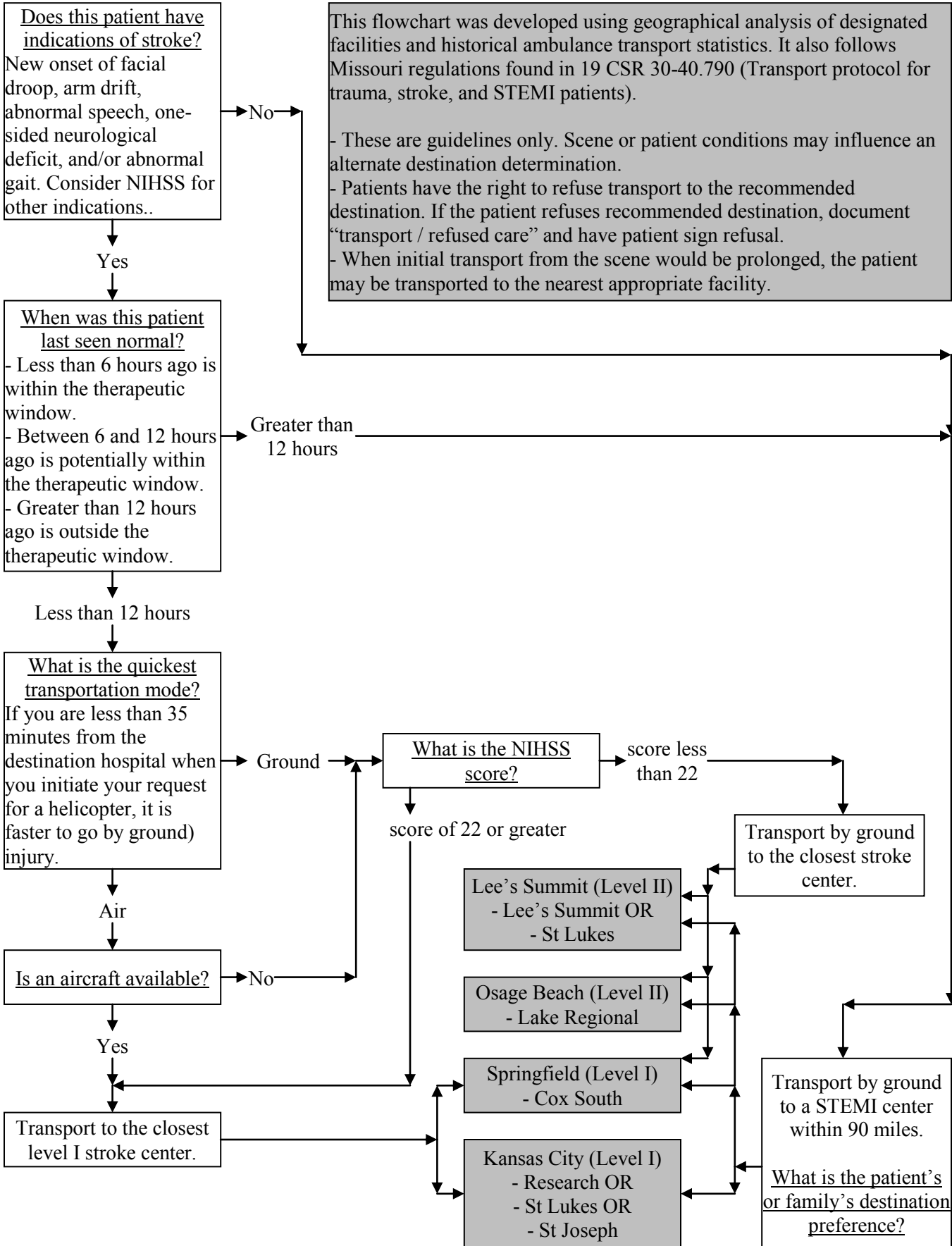
Total score greater than 21: TPA will likely worsen the condition.

Section 4-052 - NIH Stroke Scale Images



You know how.	MAMA
Down to earth.	TIP - TOP
I got home from work.	FIFTY - FIFTY
Near the table in the dining room.	THANKS
They heard him speak on the radio last night.	HUCKLEBERRY
	BASEBALL PLAYER

Section 4-053 - Stroke Destination Determination Flowchart



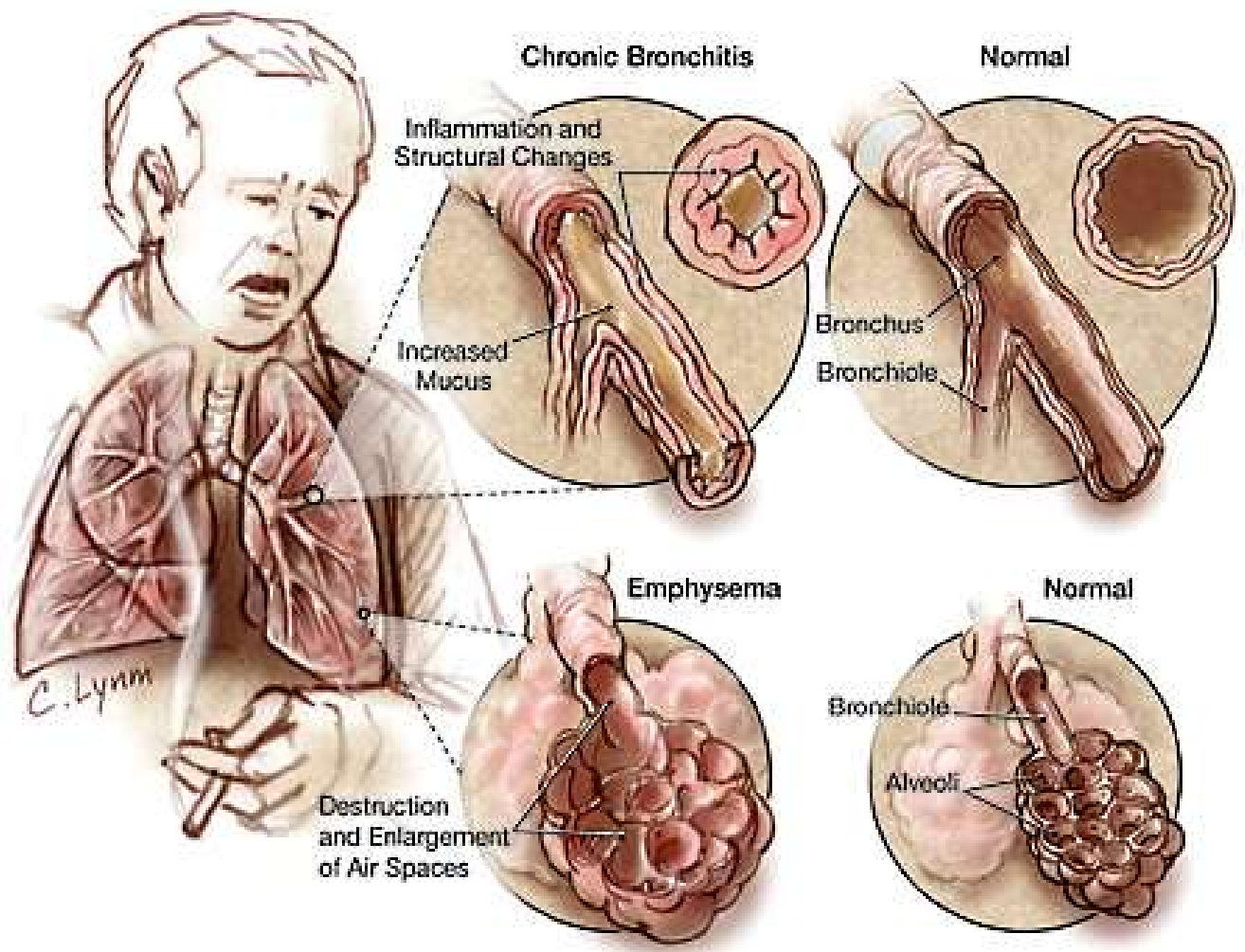
Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD)

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Oxygen to maintain SpO₂ between 88-92%. * Monitor pulseoximetry. * Apply cardiac monitor limb leads. * Obtain vital signs. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Consider Intubation. * IV/IO NS. * Consider 12-Lead EKG.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. * <u>Adult</u>: Consider assisting ALS with CPAP. 	<ul style="list-style-type: none"> * <u>Adult</u>: <ul style="list-style-type: none"> * Consider Duoneb Nebulized (max 1 dose). 0.5 mg Ipratropium + 2.5 mg Albuterol. * Consider Albuterol 2.5 mg in NS 3 ml Nebulized. Repeat continuously as needed. * Consider Xopenex 0.63-1.25 mg Nebulized. * Consider Solu-Medrol 125 mg IV/IO. * Contact MEDICAL CONTROL for: Consider Magnesium Sulfate 1-2 g IV/IO over 15-20 min.

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



Citations:



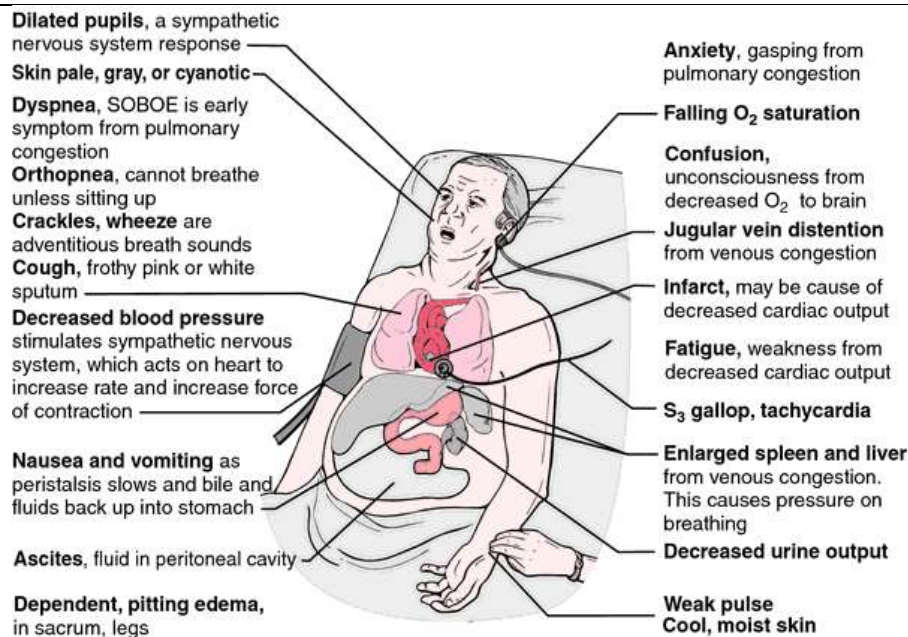
Protocol 4-070 - Congestive Heart Failure (CHF)

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Oxygen to maintain SpO₂ between 94-99%. * Monitor pulseoximetry. * Apply cardiac monitor limb leads. * Obtain vital signs. * Elevate Head of cot. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Consider Intubation. * IV/IO Saline LOCK. * Obtain 12-Lead EKG. <li style="padding-left: 20px;">* Consider 15-Lead EKG.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. * <u>Adult</u>: Consider assisting ALS with CPAP. 	<hr/> <ul style="list-style-type: none"> * <u>Adult</u>: <ul style="list-style-type: none"> * 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. <ul style="list-style-type: none"> + 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. <ul style="list-style-type: none"> + Patient currently on diuretics: Lasix double prescribed dose. * <u>Wheezing or obstructed ETCO₂ waveform</u>: <ul style="list-style-type: none"> + 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. * <u>Pediatric</u>: <ul style="list-style-type: none"> * Consider Lasix 1-2 mg/kg IV/IO/IM (max 40 mg). * <u>Wheezing or obstructed ETCO₂ waveform</u>: <ul style="list-style-type: none"> + Consider Duoneb. 0.25 mg Ipratropium + 2.5 mg Albuterol Nebulized (max 1 dose). + Consider Albuterol 2.5 mg in NS 3 ml Nebulized. + <u>Greater than 6 yr old</u>: Consider Xopenex 0.31-0.63 mg Nebulized.

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



Citations:

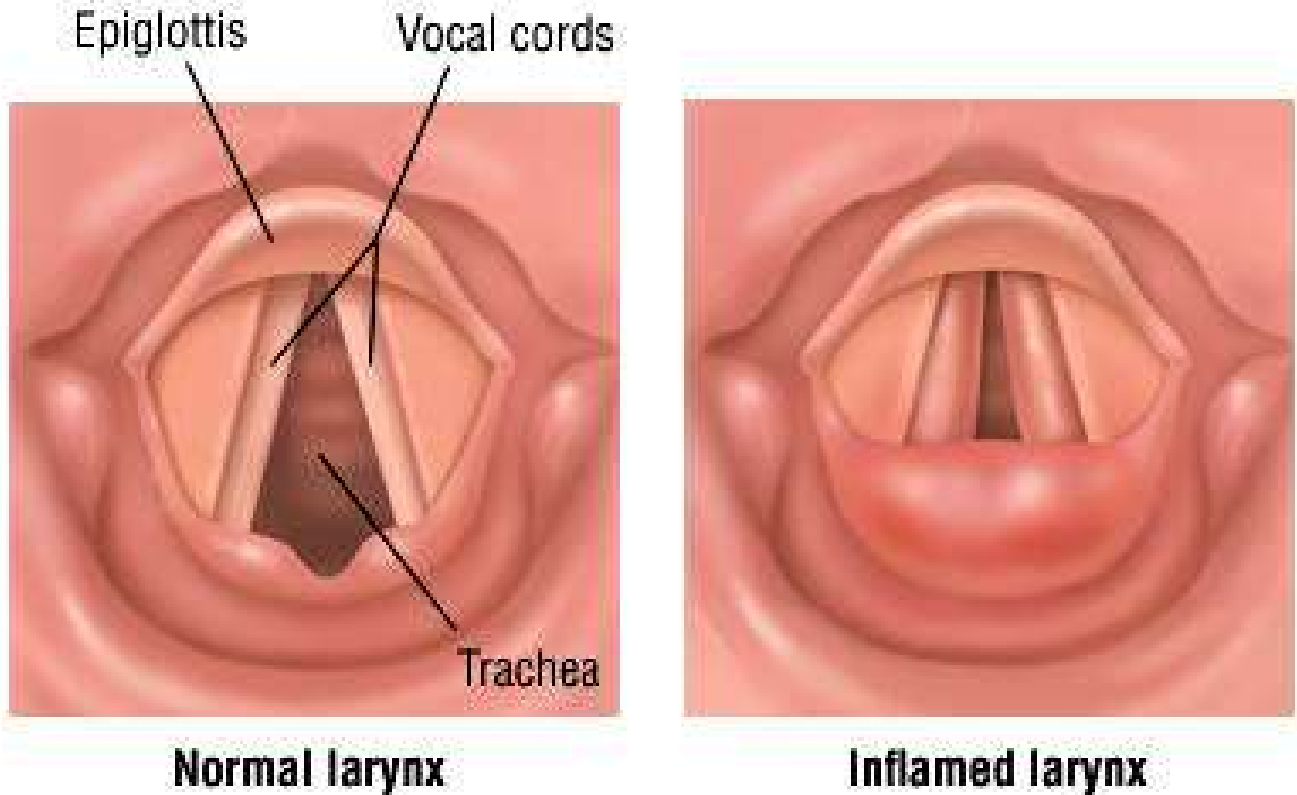


Protocol 4-080 - Croup

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Oxygen to maintain SpO₂ between 88-92%. * Monitor pulseoximetry. * Consider: Apply cardiac monitor limb leads. * Obtain vital signs. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Decadron 0.6 mg/kg PO/Neb (max 20 mg). <ul style="list-style-type: none"> * In the absence of Decadron, Solu-Medrol 2 mg/kg IV/IO/IM. Be cautious of inducing crying as aggravation may seriously worsen patient's condition. * Consider Racemic Epinephrine 0.5 ml with 3 ml NS Nebulized. <ul style="list-style-type: none"> * In the absence of Racemic Epinephrine, Epinephrine 1:1,000 may be used 0.5 ml/kg (max 5 ml) Nebulized.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 	

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

Citations:



Protocol 4-090 - Childbirth

<p><u>BLS - EMD</u></p> <ul style="list-style-type: none"> * <u>MPDS Protocol 24 (Pregnancy) - High risk complications:</u> The following conditions indicate a high-risk pregnancy or childbirth: <ul style="list-style-type: none"> * Premature birth, Multiple birth, Bleeding disorder, Placenta abruption, Placenta previa, Breech, OR Prolapsed cord. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * IV/IO NS titrated to blood pressure. * Treat any problems per appropriate protocol.
<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Consider Oxygen if SpO₂ 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. <ul style="list-style-type: none"> * Consider cleaning Vaginal area prior to birth. * Inspect for prolapsed cord. <ul style="list-style-type: none"> + Breech: Deliver as best you can (see below). + No complications: <ul style="list-style-type: none"> * 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 SpO₂ After Birth: <ul style="list-style-type: none"> * 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: <ul style="list-style-type: none"> * 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. 	
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	

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

Citations:



Section 4-091 - APGAR Scoring System

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

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none">* Consider Oxygen if SpO₂ less than 88%.* Remove excess clothing / blankets.* Monitor pulseoximetry.* Consider: Apply cardiac monitor limb leads.* Obtain vital signs.	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none">* Ensure completion of all applicable BLS items on the left.* IV/IO NS.* <u>Fever greater than 102 F: Begin cooling.</u> <hr/> <p>* <u>Adult:</u></p> <ul style="list-style-type: none">* <u>Acetaminophen NOT given within 4 hrs:</u> Acetaminophen 325-650 mg PO.* <u>Acetaminophen given within 4 hrs: Ibuprofen 200-400 mg PO.</u> <hr/> <p>* <u>Pediatric:</u></p> <ul style="list-style-type: none">* <u>Acetaminophen NOT given within 4 hrs:</u> Acetaminophen Elixir 15 mg/kg PO.* <u>Acetaminophen given within 4 hrs: Ibuprofen Elixir 10 mg/kg PO.</u>
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none">* Ensure completion of applicable EMR items above.* Assist ALS with Capnography.	

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

Citations:

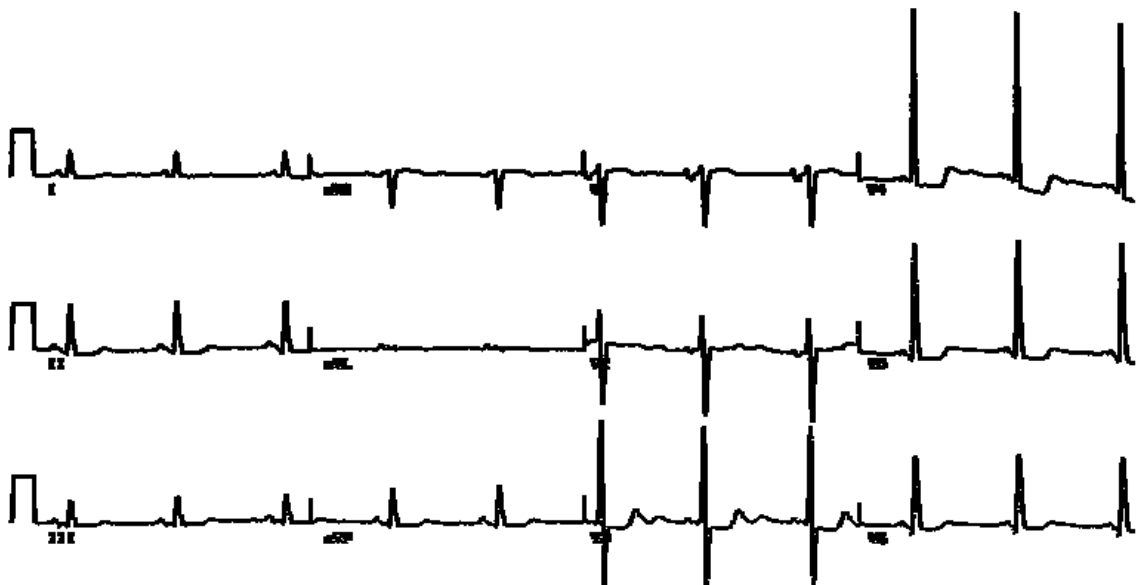


Protocol 4-110 - Hypertension

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Calm and reassure the patient. * Identify possible causes. * Consider Oxygen if SpO₂ less than 88%. * Monitor pulseoximetry. * Apply cardiac monitor limb leads. * Obtain vital signs. * Obtain and compare blood pressures in both arms. * Dim lights. Avoid loud noises and rough transport. * Transport with Head slightly elevated. * Pregnant: <ul style="list-style-type: none"> * Inspect for active bleeding / crowning. Determine amount of blood loss. * Consider transport in left lateral recumbent position to reduce risk of Vena Cava compression. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * 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: <ul style="list-style-type: none"> + 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: <ul style="list-style-type: none"> + 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: <ul style="list-style-type: none"> * 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: <ul style="list-style-type: none"> + 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. * $(MAP) = (Diastolic) + \frac{(Systolic) - (Diastolic)}{3}$
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	

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

Citations: (Cox Paramedics, 2014)



Protocol 4-120 - Hypoglycemia

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Identify possible causes. * Consider Oxygen if SpO₂ less than 88%. * Monitor pulseoximetry. * Consider: Consider cardiac monitor limb leads. * Obtain vital signs. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * <u>Glucose less than 40 mg/dl, Unconscious, and/or unable to swallow:</u> ALS patient. * IV/IO NS.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Perform Glucose check. <ul style="list-style-type: none"> * <u>Glucose less than 70 mg/dl:</u> Conscious and able to swallow: ORAL Glucose 15 g PO. * Have patient eat after treatment. 	<ul style="list-style-type: none"> * <u>Adult:</u> <u>Glucose less than 70 mg/dl:</u> <ul style="list-style-type: none"> * Thiamine 100 mg IM. If given IV, infuse in NS over 30 min. * Dextrose (D50W, D25W, or D10W) 25 g IV. * <u>If unable to obtain IV:</u> Glucagon 1 mg IM/SQ. * <u>Pediatric:</u> <u>Glucose less than 40 mg/dl:</u> <ul style="list-style-type: none"> * Dextrose (D25W) 0.5-1 g/kg IV/IO (repeat as needed). 5 ml D50W + 5 ml NS = 2.5 g D25W. * <u>If unable to obtain IV:</u> Glucagon 0.5 mg IM/SQ. * <u>Neonate:</u> 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: <ul style="list-style-type: none"> * 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 SpO₂ according to chart below.
 - * Targeted Pre-Ductal SpO₂ 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 - RN/Paramedic

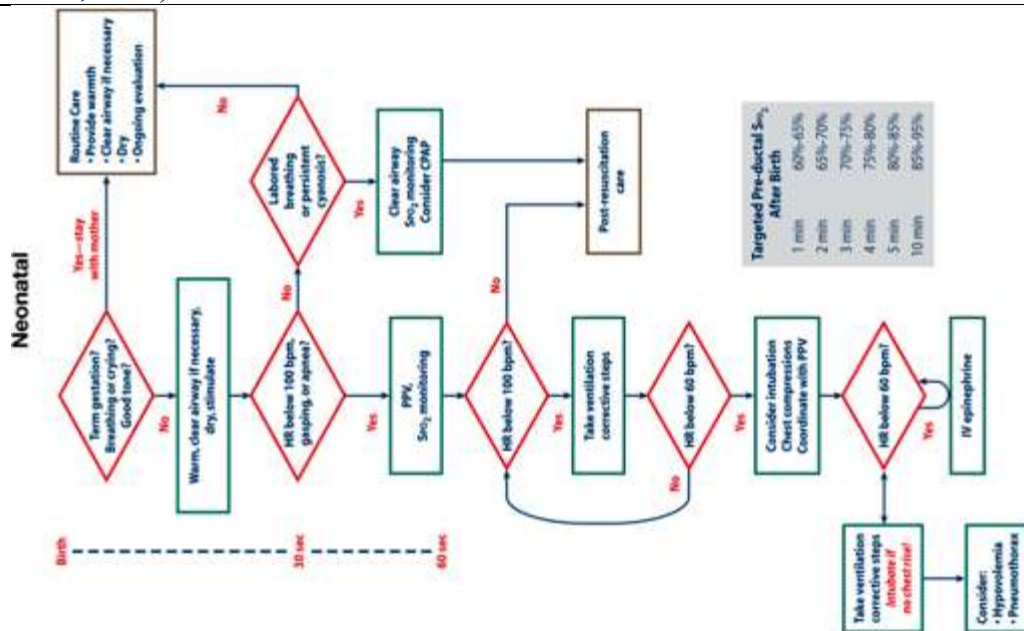
- * Ensure completion of all applicable BLS items on the left.
- * Consider IV/IO/Umbilical **Saline lock**.
- * Meconium present AND infant in distress: **Laryngoscopy** and **Suction** trachea with ET tube.
- * No Meconium present AND infant in distress: **Suction** mouth then nose with Meconium Aspirator 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

<p><u>BLS - EMD</u></p> <ul style="list-style-type: none"> * Dispatch a non-dedicated standby ambulance to all hazmat releases where emergency response is required. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * IV/IO NS. <ul style="list-style-type: none"> * <u>If suspected intentional Poisoning or Overdose: Mandatory ALS patient and pre-hospital IV access is required.</u> * Consider Intubation.
<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Consider hazmat. Refer to Protocol 6-055 - Decontamination (page 76). * Identify possible causes. * Identify substance. * Consider Oxygen 100%. <ul style="list-style-type: none"> * <u>Paraquat Poisoning:</u> Only administer Oxygen if SpO₂ less than 88%. * Monitor pulseoximetry. * Apply cardiac monitor limb leads. * Obtain vital signs. 	<p>* <u>Beta-Blocker Overdose:</u></p> <ul style="list-style-type: none"> * Refer to Protocol 2-040 - Bradycardia (page 18).. * Contact MEDICAL CONTROL for Glucagon: <ul style="list-style-type: none"> + <u>Adult:</u> 2-5 mg IV/IO. Repeat at 10 mg if Bradycardia and hypotension recur. + <u>Pediatric:</u> 0.5 mg IV/IO. <p>* <u>Calcium channel blocker Overdose:</u></p> <ul style="list-style-type: none"> * Contact MEDICAL CONTROL for Calcium Chloride. <p>* <u>Cyanide Poisoning (structure/vehicle fire smoke inhalation with altered mental status):</u></p> <ul style="list-style-type: none"> * Decontamination with water. * Cyanokit: <ul style="list-style-type: none"> + <u>Adult:</u> 5 g IV/IO over 15 min. + <u>Pediatric:</u> 70 mg/kg IV/IO over 15 min. <p>* <u>Illegal drug Overdose with excited delirium (i.e. Bath Salts):</u> Refer to Protocol 4-040 - Behavioral (page 40).</p> <p>* <u>Narcotic Overdose:</u></p> <ul style="list-style-type: none"> * <u>Adult:</u> Narcan 0.2-0.4 mg (max 2 mg) to maintain Airway, SpO₂, and ETCO₂ IV/IO/IN/IM/SQ. <ul style="list-style-type: none"> + OR Narcan 2 mg in 3 ml NS ET. * <u>Pediatric:</u> Narcan 0.1 mg/kg IV/IO/IN/IM/SQ/ET (max 2 mg).
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. * Perform Glucose check. <ul style="list-style-type: none"> * <u>Glucose less than 70 mg/dl:</u> Refer to Protocol 4-120 - Hypoglycemia (page 52). 	<p>* <u>Organophosphate Poisoning:</u></p> <ul style="list-style-type: none"> * Decontamination with water. * <u>Adult:</u> Atropine 1-2+ mg IV/IO. If Intubation needed: 6 mg IV/IO. * <u>Pediatric:</u> Atropine 0.02-0.05 mg/kg IV/IO. * <u>Seizing:</u> Refer to Protocol 4-170 - Seizures (page 56) (Valium preferred). <p>* <u>Hydrofluoric acid contact:</u></p> <ul style="list-style-type: none"> * Decontamination with water. * Contact MEDICAL CONTROL for Calcium Gluconate / KY Jelly applied to exposed contact area. <p>* Contact POISON CONTROL: 888-268-4195.</p> <p>* Contact MEDICAL CONTROL.</p> <ul style="list-style-type: none"> * <u>If patient can protect their Airway:</u> Consider Activated Charcoal 0.5-1 g/kg PO.

Link to research articles (QR code on right): <http://1drv.ms/1BRrtd3>

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



Protocol 4-160 - Pre-Term Labor

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Consider Oxygen if SpO₂ 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. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * IV/IO NS. * NS 500-1000 ml bolus.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	

<p><u>Link to research articles (QR code on right): http://1drv.ms/1ADz8o8</u> <u>Citations:</u></p>	
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Protocol 4-170 - Seizures

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Ensure open Airway. * Identify possible causes. * Clear area to decrease chance of injury. * Consider Oxygen if SpO₂ less than 88%. * Monitor pulseoximetry. * Apply cardiac monitor limb leads. * Obtain vital signs. <p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. * Perform Glucose check. <ul style="list-style-type: none"> * <u>Glucose less than 70 mg/dl</u>: Refer to Protocol 4-120 - Hypoglycemia (page 52). 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * IV/IO NS. * <u>Actively seizing</u>: <hr/> <ul style="list-style-type: none"> * <u>Adult</u>: <ul style="list-style-type: none"> + Valium 5-10 mg (max 30 mg) IV/IO. <ul style="list-style-type: none"> * 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. + <u>Pregnant hypertension</u>: Refer to Protocol 4-110 - Hypertension (page 51) <hr/> <ul style="list-style-type: none"> * <u>Pediatric (5-18 yr)</u>: <ul style="list-style-type: none"> + Valium 1 mg (max 10 mg) IV/IO. <ul style="list-style-type: none"> * 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. <ul style="list-style-type: none"> * 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. <hr/> <ul style="list-style-type: none"> * <u>Pediatric (6 mo-5 yr)</u>: <ul style="list-style-type: none"> + Valium 0.2-0.5 mg/kg (max 5 mg) IV/IO. <ul style="list-style-type: none"> * 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. <hr/> <ul style="list-style-type: none"> * <u>Pediatric (0-6 mo)</u>: <ul style="list-style-type: none"> + 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. <hr/> <ul style="list-style-type: none"> * 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.
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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 4-175 - Sepsis

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Obtain vital signs. * Apply cardiac monitor limb leads. * Consider treating for shock. * Notify incoming ambulance of possible SEPSIS (include accurate blood pressure). <ul style="list-style-type: none"> * Definition of SEPSIS: <ul style="list-style-type: none"> + Suspected infection AND + At least two of the following: <ul style="list-style-type: none"> ✗ Temperature greater than 100.9°F. ✗ Temperature less than 96.8°F. ✗ Heart rate greater than 90. ✗ Respiratory rate greater than 20. ✗ EtCO₂ less than 32. ✗ WBC greater than 12,000. ✗ WBC less than 4,000. ✗ Hypoglycemia or hyperglycemia without history of diabetes. ✗ New onset altered mental status. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * IV/IO LR repeat boluses of 30 ml/kg until either 2 L max or pulmonary edema. * Consider Glucose or Dextrose administration according to Protocol 4-120 - Hypoglycemia (page 52) to meet target blood glucose level of 180. * Notify Emergency Room of incoming SEPSIS patient.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. * Perform Glucose check. <ul style="list-style-type: none"> * <u>Glucose less than 70 mg/dl</u>: Refer to Protocol 4-120 - Hypoglycemia (page 52). 	
<p><u>Link to research articles (QR code on right):</u></p> <p><u>Citations:</u></p>	

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 - RN/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:



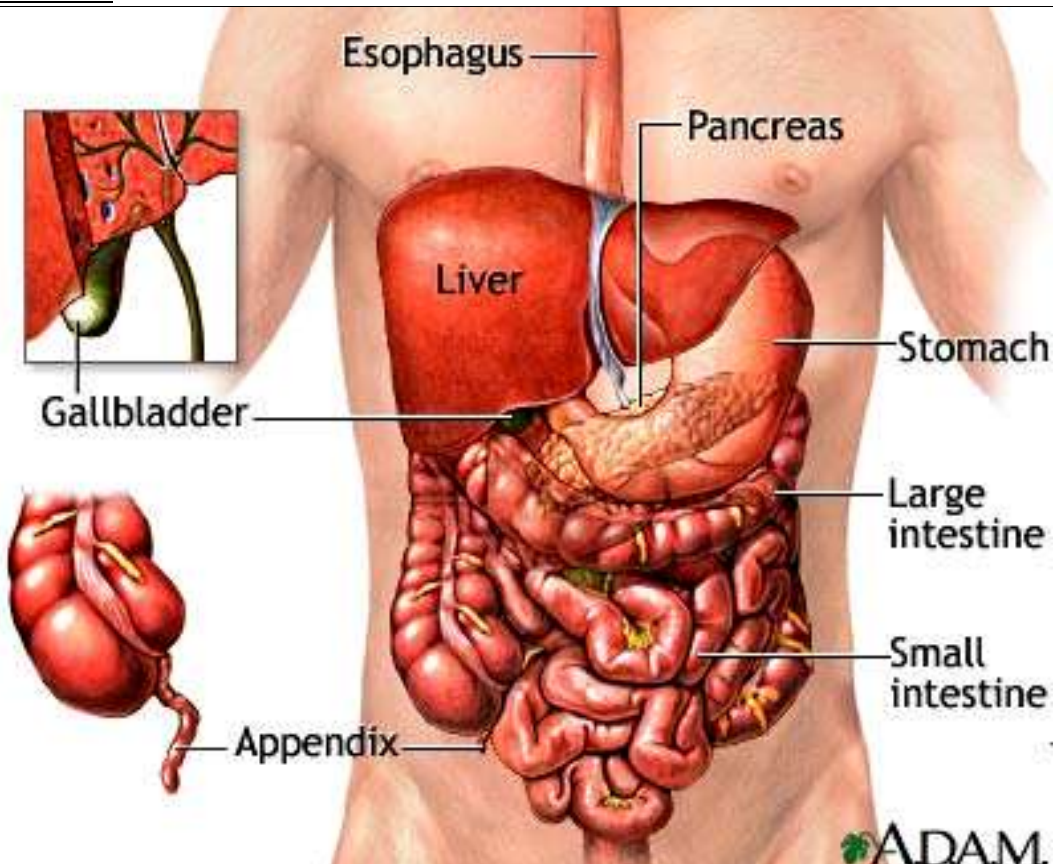
Part 5 - Trauma Protocols

Protocol 5-020 - Abdominal Trauma

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * 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. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * 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 75). * Nausea: Refer to Protocol 6-040 - Control of Nausea (page 74). <hr/> <p>* Adult:</p> <ul style="list-style-type: none"> * Consider TXA 1 g in 100 ml NS over 10 min if all of the following: <ul style="list-style-type: none"> + 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). <hr/> <p>* Pediatric:</p> <ul style="list-style-type: none"> * Consider MEDICAL CONTROL.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	

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

Citations:



Protocol 5-030 - Burns

BLS - EMD

- * Dispatch a non-dedicated standby ambulance to the following incident types:
 - * 1st alarm commercial structure fire.
 - * 2nd alarm residential structure fire.
 - * 2nd alarm natural cover fire.
 - * 2nd alarm vehicle fire.

BLS - EMR

- * Stop the burning process.
- * Chemical burn: Refer to Protocol 6-055 - Decontamination (page 76)
- * 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 - RN/Paramedic

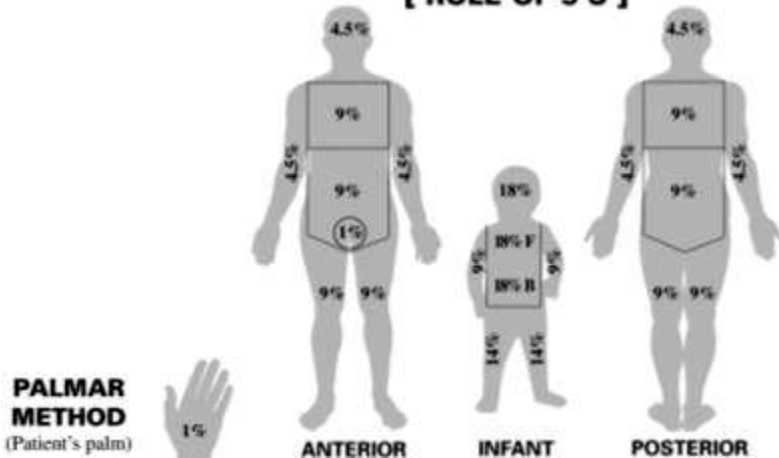
- * Ensure completion of all applicable BLS items on the left.
- * IV/IO LR titrated to SBP greater than 90.
 - * Adult (greater than 13 yr): 500 ml/hr.
 - * Pediatric (6-13 yr): 250 ml/hr.
 - * Pediatric (less than 6 yr): 125 ml/hr.
- * **Intubate** as necessary.
 - * Consider **RSI** if any of the 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 75).
- * Nausea: Refer to Protocol 6-040 - Control of Nausea (page 74).
- * 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), (Cox Paramedics, 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

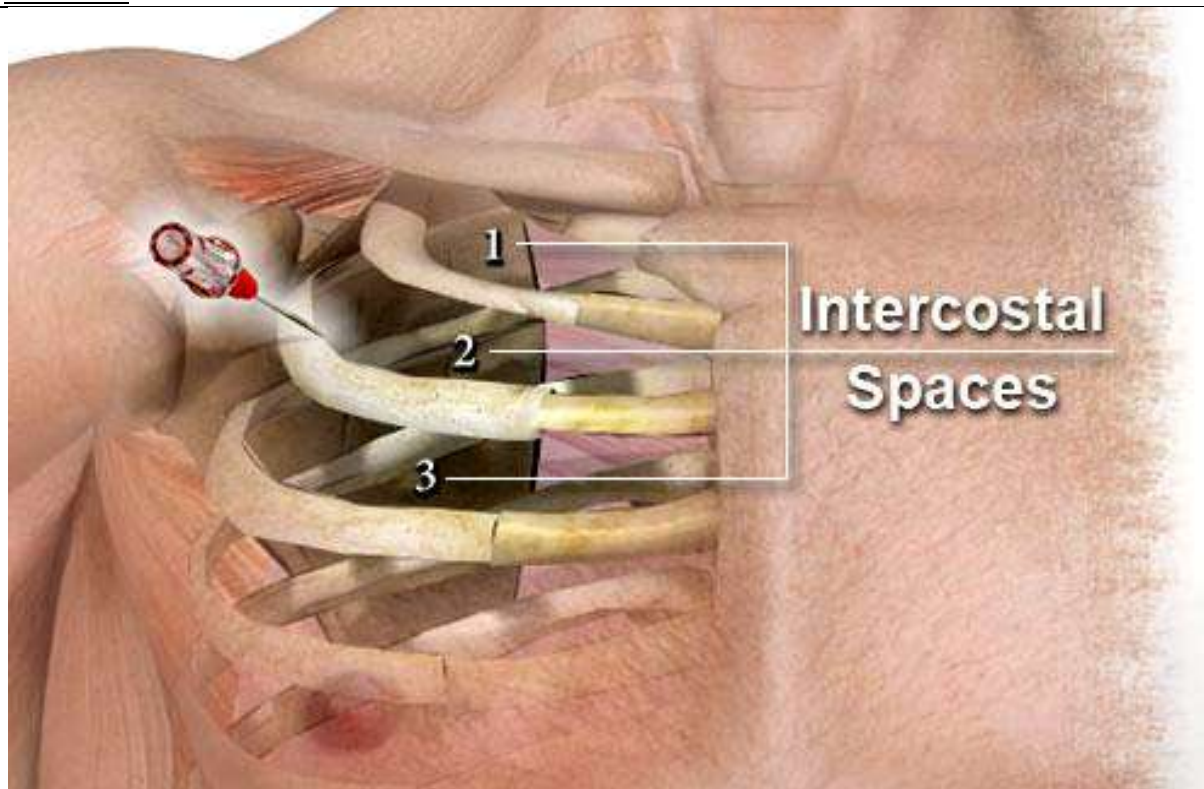
- * Ensure completion of applicable EMR items above.
- * Assist ALS with **Capnography**.
- * **Flail Chest**: Stabilize.
 - * **Adult**: Consider assisting ALS with **CPAP**.

ALS - RN/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 75).
- * **Nausea**: Refer to Protocol 6-040 - Control of Nausea (page 74).
- * **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

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * 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. <p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * 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 75). * Nausea: Refer to Protocol 6-040 - Control of Nausea (page 74). <hr/> <p>* Adult:</p> <ul style="list-style-type: none"> * Consider TXA 1 g in 100 ml NS over 10 min if all of the following: <ul style="list-style-type: none"> + 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). <hr/> <p>* Pediatric:</p> <ul style="list-style-type: none"> * Consider MEDICAL CONTROL. <hr/> <p>* Extremity crush injury (suspected compartment and/or crush syndrome if Extremity pinned for 15 minutes to 6 hours depending on weight and other factors):</p> <ul style="list-style-type: none"> * IV/IO NS. Two large bore IVs wide open. * Contact MEDICAL CONTROL: <ul style="list-style-type: none"> + Consider Tourniquet. <ul style="list-style-type: none"> ✗ (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. <ul style="list-style-type: none"> ✗ (To alkalize blood and urine). + Consider Calcium Chloride 1g IV/IO over 10-15 min. Do not mix with Sodium Bicarbonate. <ul style="list-style-type: none"> ✗ (To decrease cell membrane permeability). + Consider Albuterol neb high dose (10-20 mg). <ul style="list-style-type: none"> ✗ (To lower Potassium). + Consider Dextrose IV/IO. <ul style="list-style-type: none"> ✗ (To facilitate insulin administration in ER).
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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><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Consider Oxygen if SpO₂ less than 88%. * Control bleeding / bandage / stabilize impaled objects as required. * Monitor pulseoximetry. * Obtain vital signs. * <u>Foreign substance</u>: <ul style="list-style-type: none"> * <u>Non-penetrating injuries</u>: Flush Eye with at least 1 L NS over 20 min. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Consider IV/IO Saline lock. * <u>Trauma</u>: <ul style="list-style-type: none"> * Cover open wounds. * Do not apply pressure to Eye. * Cover both eyes. * <u>Foreign substance</u>: <ul style="list-style-type: none"> * Consider Tetracaine 1-2 drops in affected Eye. * <u>Non-penetrating injuries</u>: Flush Eye with at least 1 L NS over 20 min. <ul style="list-style-type: none"> ✚ Consider Morgan Lens. * <u>Pain</u>: Refer to Protocol 6-050 - Control of Pain (page 75). * <u>Nausea</u>: Refer to Protocol 6-040 - Control of Nausea (page 74). * <u>Pediatric</u>: <ul style="list-style-type: none"> * Consider MEDICAL CONTROL.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	

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

Citations:



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 $ETCO_2$ at 40-45.

ALS - RN/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).

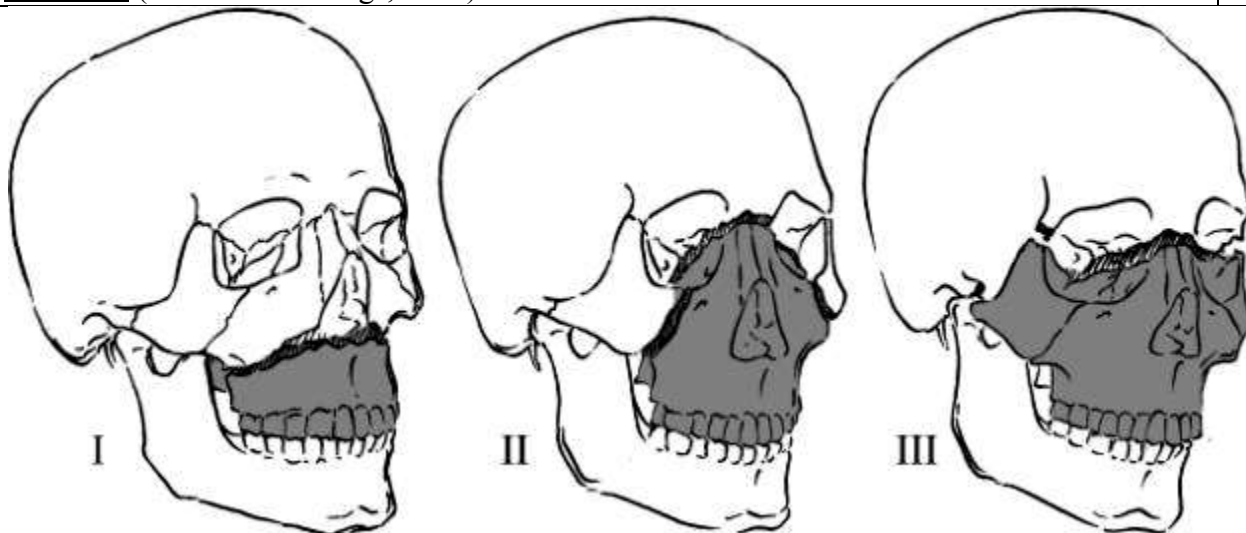
* Pediatric:

- * **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)

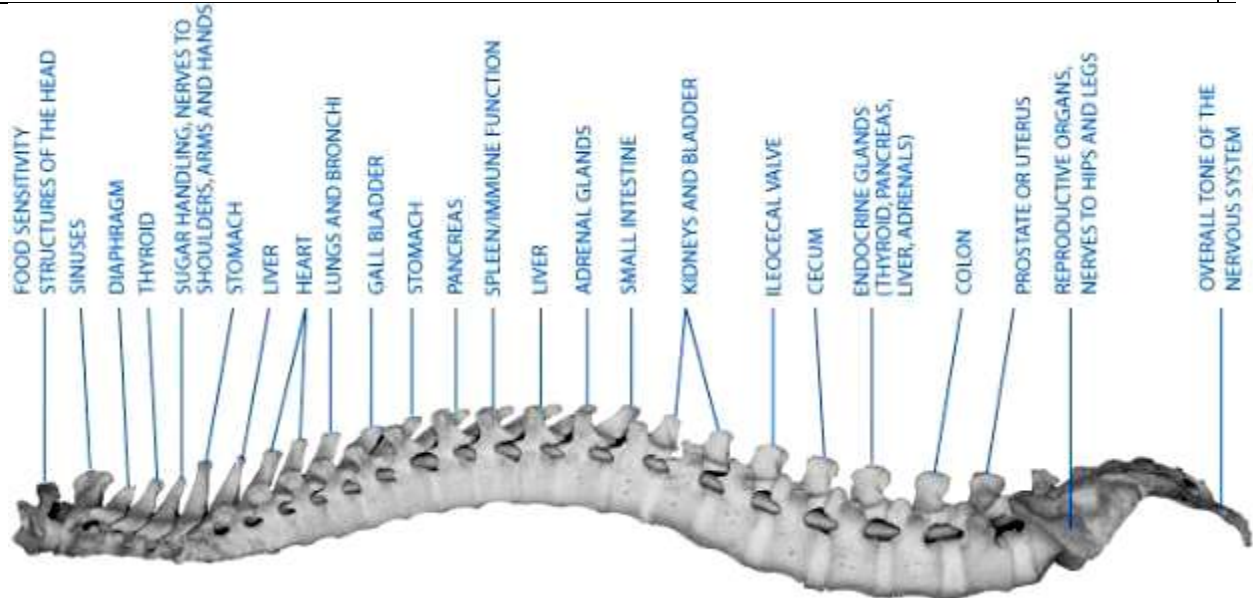


Protocol 5-080 - Spinal Trauma

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * 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. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * 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 75). * Nausea: Refer to Protocol 6-040 - Control of Nausea (page 74). * Pediatric: * Consider <u>MEDICAL CONTROL</u>.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	

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

Citations:



Protocol 5-085 - Superficial Penetrating Object Removal

BLS - EMR

- * If the injury meets any of the following, the patient should be transported and removed by ER staff:
 - * Facial involvement,
 - * Nipple area involvement,
 - * Genital area involvement,
 - * Severe pain,
 - * Uncooperative patient,
 - * Bone, tendon, or cartilage involvement,
 - * Spinal or nerve involvement,
 - * Vascular involvement, OR
 - * Deeper penetration than subcutaneous.
- * Small, penetrating objects such as Taser probes and fish hooks may be removed on the scene if all the following apply:
 - * The object is embedded superficially or subcutaneously,
 - * Isolated injury, AND
 - * The object is embedded in non-sensitive area.

- * To remove Taser probe:
 - * Disconnect wires from weapon.
 - * Stabilize skin around object using non-dominant hand.
 - * Grasp probe by metal body using dominant hand.
 - * Remove probe in a single, quick motion.
 - * Wipe wound with antiseptic wipe and apply a dressing.
 - * Instruct patient to follow up with their primary physician or public health agency for tetanus vaccination, if needed.

- * To remove Fish hook:
 - * Disconnect fishing line.
 - * If both ends of the fish hook are projecting from the skin: Cut either or both ends of the object to facilitate pulling it out without causing further injury.
 - * Stabilize skin around object using non-dominant hand.
 - * Grasp hook using dominant hand (pliers or locking forceps may be used to ensure solid grip).
 - * Remove hook in a single, quick motion.
 - * Wipe wound with antiseptic wipe and apply a dressing.
 - * Instruct patient to follow up with their primary physician or public health agency for tetanus vaccination, if needed.

BLS - EMT

- * Ensure completion of applicable EMR items above.


ALS - RN/Paramedic

- * Ensure completion of all applicable BLS items on the left.
- * Treat other injuries or illnesses according to applicable protocol.

Link to research articles (QR code on right):

Citations: (Cox Paramedics, 2014)

Protocol 5-090 - Trauma Arrest

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Confirm pulselessness and apnea. * Attempt to determine down-time, and history. * SMR. * Begin CPR. <ul style="list-style-type: none"> * 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. <ul style="list-style-type: none"> * 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. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * 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. 	
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Assist ALS with Capnography. 	<ul style="list-style-type: none"> * Adult: Field termination may be requested from MEDICAL CONTROL regardless of how long ACLS efforts have been underway. * Pediatric: Contact MEDICAL CONTROL. * Immediate transport. 	
<p>Link to research articles (QR code on right): http://1drv.ms/1EKESMT Citations:</p>		

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Part 6 - General Protocols

Section 6-010 - Acquisition of Medical Control

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Medical control is the responsibility of the CMH/EMH RN or Paramedic. The only exception is to obtain a PRC by a BLS-only crew. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Medical control shall only be provided by a Physician. Medical control shall not be accepted from nurses, nurse practitioners, Physician assistants, midwives, or any Physician extenders. * Medical control is preferred to be provided by receiving hospital. 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. * When transporting from another facility and treatment that deviates from protocol is suggested by transferring Physician, RN/Paramedic should contact receiving MEDICAL CONTROL in the ambulance to verify orders. * If medical control cannot be contacted, protocols should be utilized as standing orders including those designated as requiring medical control. Medical control should be contacted as soon as possible and attempts at contact shall be documented. * If an on-scene Physician gives orders, RN/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 RN/Paramedic.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	

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.

ALS - RN/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;

BLS - EMT

- * Ensure completion of applicable EMR items above.

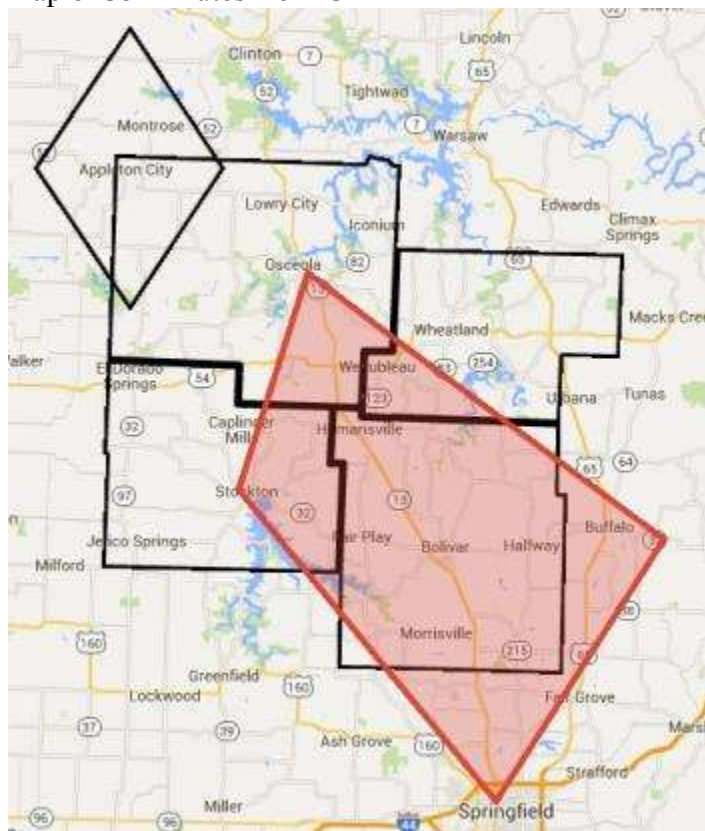
Link to research articles (QR code on right): <http://1drv.ms/1EKF4SD>
 Citations: (Citizens Memorial Hospital, 2013)



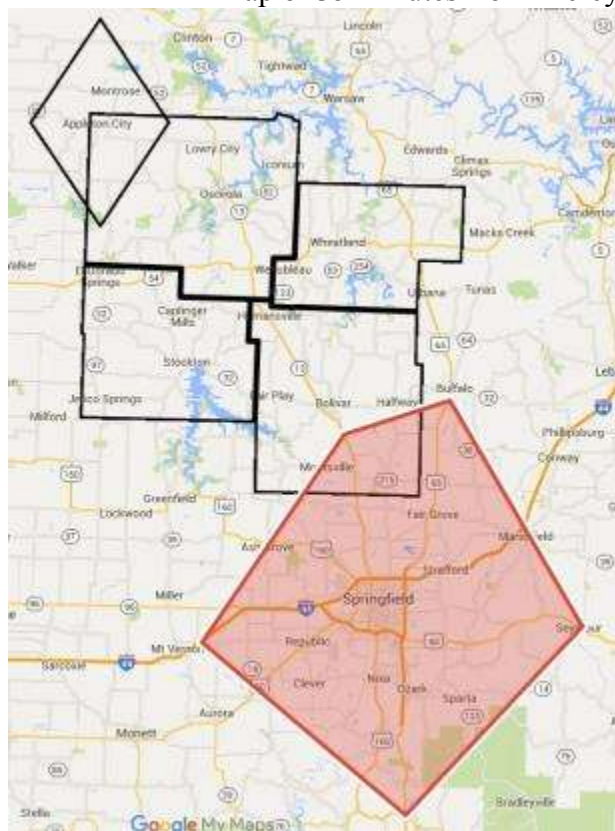
Section 6-021 - No Fly Zone

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)

<p><u>BLS - EMD</u></p> <ul style="list-style-type: none"> * <u>MPDS Protocol 9 (Cardiac Arrest) - Cardiac arrest pathway</u>: Continuous compressions instructions provided to callers until responder arrival is the treatment preference for adult arrest with suspected cardiac origin. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Every 2 minutes, Charge monitor in anticipation of shock able rhythm. <ul style="list-style-type: none"> * <i>Adult</i>: 360 J (OR consider biphasic dose of 200 J). * <i>PEDIATRIC</i>: 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. <ul style="list-style-type: none"> * <i>Adult</i>: 1 mg. * <i>Pediatric</i>: 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. <ul style="list-style-type: none"> * OR Amiodarone 300 mg. * Consider Pacing. * Consider Dextrose for Hypoglycemia. * Consider Narcan for Overdose. * Perform Physical Exam. * Begin termination/transportation conversation. <ul style="list-style-type: none"> * 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 92).
<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Confirm pulselessness and apnea. * Consider AED or LifePak in AED mode. Refer to Protocol 2-030 - Automated External Defibrillation (AED) (page 17). * Perform Compressions. <ul style="list-style-type: none"> * Consider Chest Compressor. * Minimize interruptions. * Use CPR metronome set at 110/min, if available or count out loud. * <u>No advanced airway in place</u>: <ul style="list-style-type: none"> + Compressions at 30:2 ratio at 110/min. <ul style="list-style-type: none"> * <u>Witness arrest with shock able rhythm</u>: Perform continuous compressions at 110/min with passive Oxygen and basic airway adjunct for 3 cycles. + Rotate compressors every 2 minutes. * <u>Advanced airway in place</u>: <ul style="list-style-type: none"> + 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. 	
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * 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. 	

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

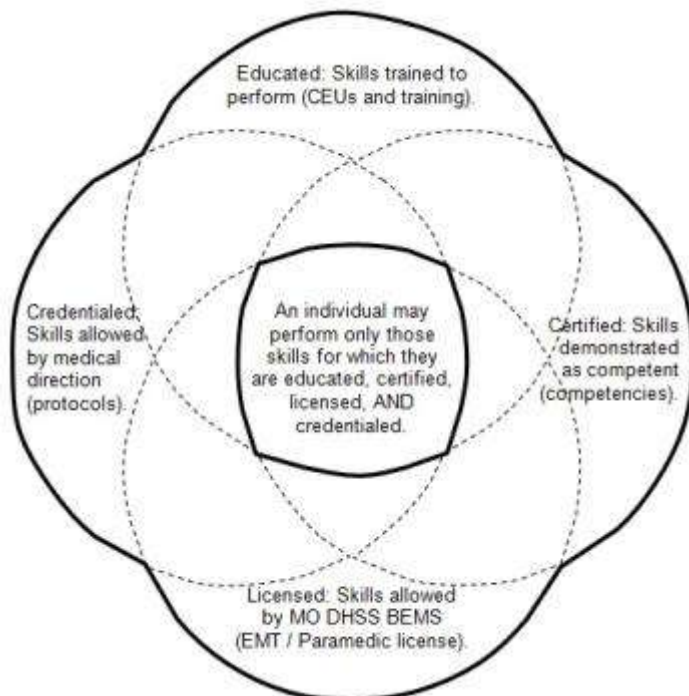
Citations: (Taney County Ambulance District, 2014), (Wake County EMS System, 2010)



Section 6-030 - Competencies and Education

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * 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. <ul style="list-style-type: none"> * First responder agencies may deliver the competency locally with the approval of CMH EMS. * Annually, each <u>EMR shall successfully complete at least one BLS competency with at least a 90% pass rate.</u> 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Annually, each <u>RN and Paramedic shall:</u> <ul style="list-style-type: none"> * <u>Successfully complete all BLS and ALS Competencies with at least a 90% pass rate.</u> * <u>Successfully complete at least one RSI Simulation Scenario.</u> * <u>Successfully intubate two live persons with a CRNA or an anesthesiologist during surgery rotation.</u>
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Annually, each <u>volunteer EMT shall successfully complete at least two BLS Competencies with at least a 90% pass rate.</u> * Annually, each <u>paid (career fire department, CMH, or EMH) employee shall:</u> <ul style="list-style-type: none"> * <u>Successfully complete all BLS Competencies with at least 90% pass rate.</u> * <u>Successfully complete at least one RSI Simulation Scenario with a high-fidelity manikin.</u> 	

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><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Identify possible causes. * Consider Oxygen if SpO₂ less than 88%. * Monitor pulseoximetry. * Apply cardiac monitor limb leads. * Obtain vital signs. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * IV/IO NS or LR. * Note: Antiemetic medications are not to be used as a prophylactic to prevent possible nausea.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	<ul style="list-style-type: none"> * <u>Adult (greater than 27 kg):</u> <ul style="list-style-type: none"> * Consider Zofran 4 mg IV/IO/IM/IN (max 8 mg). ✦ OR Phenergan 12.5-25 mg IM or IV/IO infused in NS over 15-30 min. * <u>Pediatric (greater than 27 kg):</u> Use adult dosage. * <u>Pediatric (greater than 2 yr & less than 27 kg):</u> <ul style="list-style-type: none"> * Consider Zofran 0.1-0.2 mg/kg IV/IO/IM/IN (max 8 mg). ✦ OR Phenergan 0.25-0.5 mg/kg IM or IV/IO infused in NS over 15-30 min. * <u>Pediatric (less than 2 yr):</u> Zofran and Phenergan contraindicated.

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><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Identify possible causes. * Consider Oxygen if SpO₂ less than 88%. * Monitor pulseoximetry. * Apply cardiac monitor limb leads. * Obtain vital signs. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * IV/IO NS or LR. * <u>Acute (non traumatic) or chronic (acute exacerbation) with autonomic signs and symptoms:</u> <hr/> <p>* <u>Adult:</u></p> <ul style="list-style-type: none"> + Consider Fentanyl 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). * OR Morphine 2-5 mg (max 10 mg) IV/IO/IM. Maintain SBP greater than 100. * OR Toradol 30 mg IV/IO or 60 mg IM. Over 65 yr: 15 mg IV/IO or 30 mg IM. * OR Dilaudid 0.5-1 mg IV/IO/IM may repeat 0.5 mg every 15 min (max 2 mg). * <u>Over 65 yr old:</u> Max 0.5 mg. <hr/> <p>* <u>Pediatric:</u></p> <ul style="list-style-type: none"> + Consider Fentanyl 1-2 mcg/kg may repeat every 5 min (max 150 mcg) IV/IO/IN. * OR Morphine 0.1-0.2 mg/kg IV/IO/IM. + Anxiety: Contact MEDICAL CONTROL for: * Consider: Versed IV/IO/IN. * <u>Over 12 yrs:</u> Same as adult. * <u>Between 6 yrs and 12 yrs:</u> 0.05 mg/kg. * <u>Under 6 yrs:</u> 0.05-0.1 mg/kg. * Consider: Ativan 0.05 mg/kg (max 2 mg) IV/IO. <hr/> <ul style="list-style-type: none"> * <u>Severe pain:</u> Consider Ketamine (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. * <u>Painful procedure of short duration (i.e. extrication):</u> Consider Ketamine (dissociative dose) 1-2 mg/kg IV/IO OR 4-5 mg/kg IM. Half dose if age greater than 65 yr. * <u>Chronic without autonomic signs and symptoms:</u> Transport in position of comfort. * Any patient receiving Narcotics must be transported.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	

Link to research articles (QR code on right): <http://1drv.ms/1EKG0GL>

Citations: (Boland, Satterlee, & Jansen, 2014), (Cox Paramedics, 2014), (Finn, et al., 2004), (Taney County Ambulance District, 2014)



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 91).
- * 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 - RN/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><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * The documented wishes of patients not wanting to be resuscitated shall be honored. * Original Documentation must be with patient or presented to EMS crew at time of arrival on the scene. * DNR Documentation must contain: <ul style="list-style-type: none"> * Patient signature. * Patient's Physician signature. * Dated within the last 365 days. * If any doubt exists regarding the validity of the Documentation, immediate resuscitation should be initiated. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * All therapeutic care and vigorous support (IVs, medications, etc.) shall be given until the point of cardiac respiratory Arrest. * 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. * DNR form shall remain with the patient. * Document DNR form number and signing Physician's name on ePCR. * <u>Peri-arrest TPOPP patient requiring comfort measures</u>: Use these guidelines for comfort interventions during transport or when providing interim comfort care on site. If additional comfort measure orders are specified on the form, contact Medical Control. Medications contained within the patient's comfort kit may be used as indicated below. Lights and sirens are not necessary for comfort transport. Do not give Narcan to comfort measures patients. If pt dies during transport, continue on to destination. <ul style="list-style-type: none"> * <u>Pain management</u>: <ul style="list-style-type: none"> + Consider Morphine 1-5 mg IV every 10 minutes PRN. + Consider Fentanyl 25-50 mcg IV/IN every 10 minutes PRN. * <u>Work of breathing</u>: Tachypnea, accessory muscle use, or hypoxia with agitation (Low SpO₂ alone does not indicate work of breathing). <ul style="list-style-type: none"> + Consider Oxygen NC max 10 LPM. + Alert patient with history of CPAP use: Consider CPAP. Do not BVM. * <u>Nausea</u>: <ul style="list-style-type: none"> + Consider Zofran 4-8 mg PO/IV. + Consider Ativan 0.5-2 mg PO. * <u>Anxiety</u>: <ul style="list-style-type: none"> + Consider Ativan 0.5-2 mg PO. + Consider Versed 1-3 mg IV/IN every 10 minutes PRN. * <u>Agitated delirium / hallucinations</u>: <ul style="list-style-type: none"> + Consider Haldol 2-5 mg PO. + Consider Ativan 0.5-2 mg PO. + Consider trial of Versed is increasing doses (max 3 mg). Watch for worsening of agitation. * <u>Fever</u>: <ul style="list-style-type: none"> + Consider Acetaminophen PO/suppository. + Cool cloth to forehead, neck, and/or underarms.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	

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.

ALS - RN/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 RN or Paramedic.


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.

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



Protocol 6-080 - Event Standby

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Treat illnesses and injuries per appropriate protocol. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * 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.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * 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. * <u>Dedicated standby:</u> <ul style="list-style-type: none"> * 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. * <u>Football player or other event with significant padding and helmet:</u> <ul style="list-style-type: none"> + Assist athletic trainers in removing athletic equipment prior to transport. <ul style="list-style-type: none"> ✗ 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. <ul style="list-style-type: none"> + 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. 	<p>Link to research articles (QR code on right): http://1drv.ms/1F6d5e5</p> <p>Citations: (Citizens Memorial Hospital, 2012), (National Athletic Trainers Association, 2015)</p> 

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 in coordination with unified command. Available information, resources, situational awareness, and a risk-vs-benefit analysis should determine actions.
- * **PREPARATION:**
 - * Assemble Rescue Task Force (RTF). Minimum of two Threat Elimination Specialists (TES) 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 91).

ALS - RN/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 75).

BLS - EMT

- * Ensure completion of applicable EMR items above.

Link to research articles (QR code on right): <http://1drv.ms/1KeKMka>
 Citations: (Committee for Tactical Emergency Casualty Care, 2014), (Joint Committee to Create a National Policy to Enhance Survivability from Mass-Casualty Shooting Events, 2013), (The InterAgency Board, 2015)
 “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><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Treat illnesses and injuries per appropriate protocol. * Refer to Protocol 6-055 - Decontamination (page 76) as appropriate prior to contaminating personnel, equipment, and ambulance. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * Treat illnesses and injuries according to appropriate protocol.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * 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"> * If Incident Commander requests ambulance to be dedicated and remain on the scene, contact the duty officer or supervisor on call. * Once on scene, check in with the Staging Officer or Incident Commander. <ul style="list-style-type: none"> * 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. * 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"> * Ambulance crew duties are to care for civilians, bystanders, and/or responders that require treatment and/or transport for an injury or illness. * 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. * Assist with rehab duties as assigned within fire department policies which may include: <ul style="list-style-type: none"> + Encourage removal of PPE, rest, passive cooling, and oral hydration. + 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"> ✗ SBP greater than 200. ✗ Pulse greater than 110. ✗ Respirations greater than 40. ✗ Temperature greater than 101. ✗ PulseOx less than 90%. 	

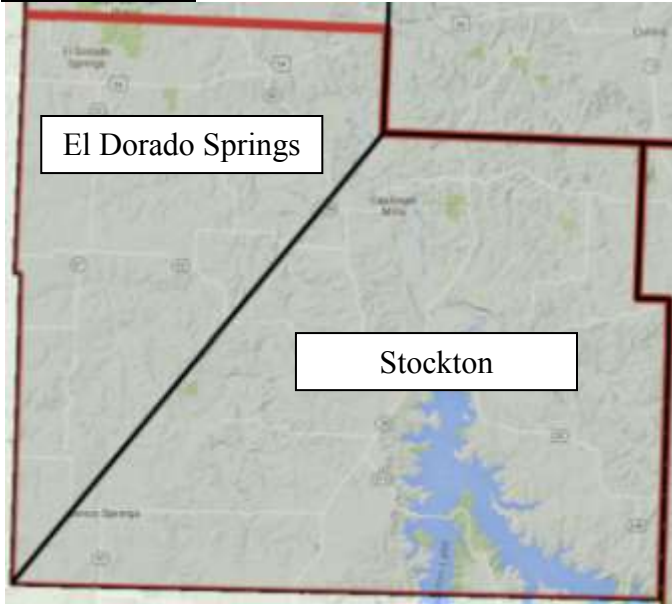
Link to research articles (QR code on right): <http://1drv.ms/1F6dbSY>
 Citations: (Wake County EMS System, 2010)



Section 6-095 - Mutual Aid Maps

When requesting resources, utilize the following maps to determine the closest, most appropriate ambulance. These are simplified boundaries based on response time calculations by Theron Becker in February 2016. KML files are available upon request for integration into GIS and CAD.

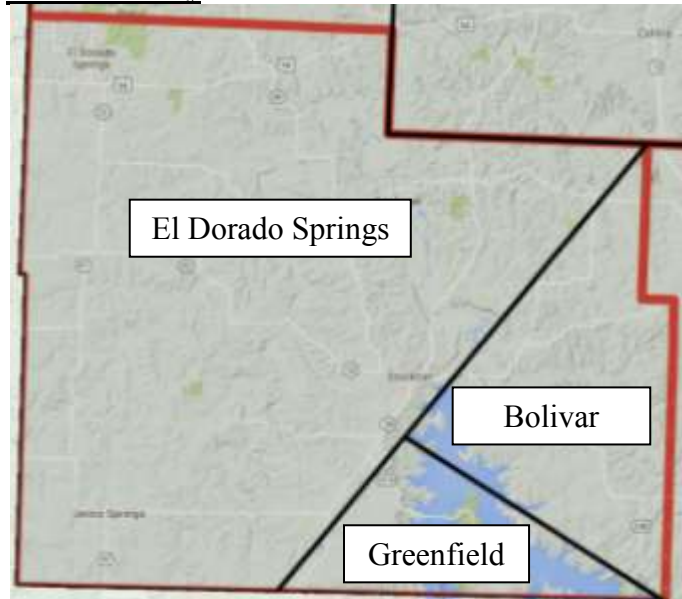
Cedar County - All ambulances available:

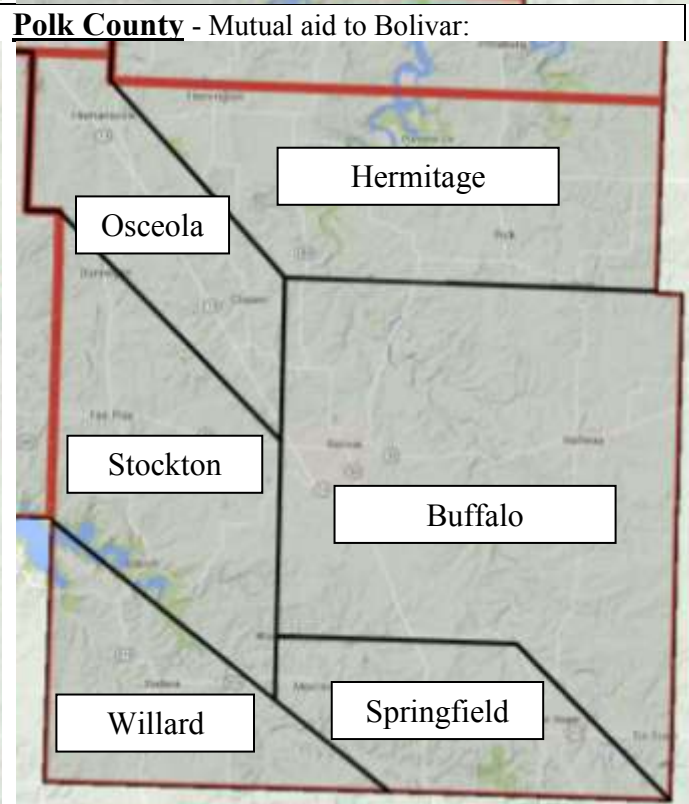
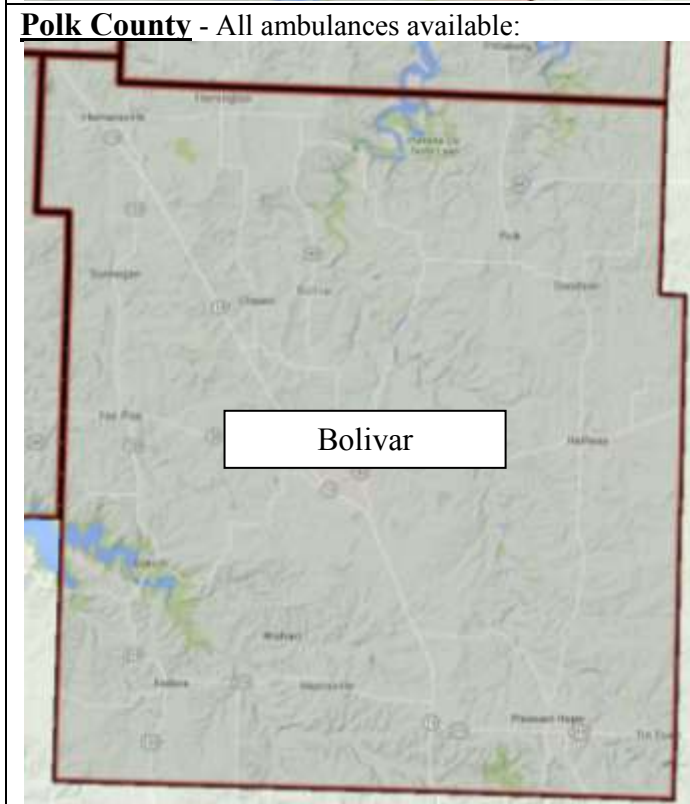
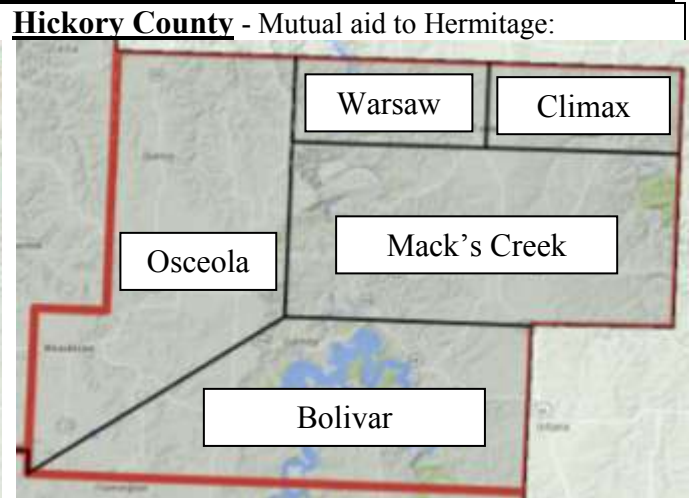
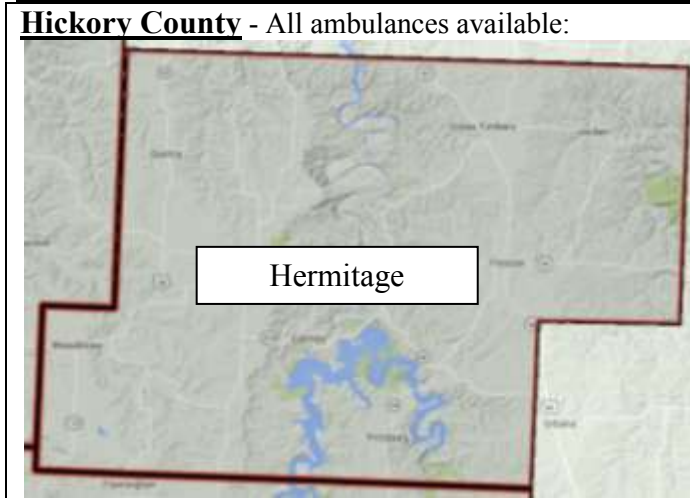


Cedar County - Mutual aid to El Dorado Springs:

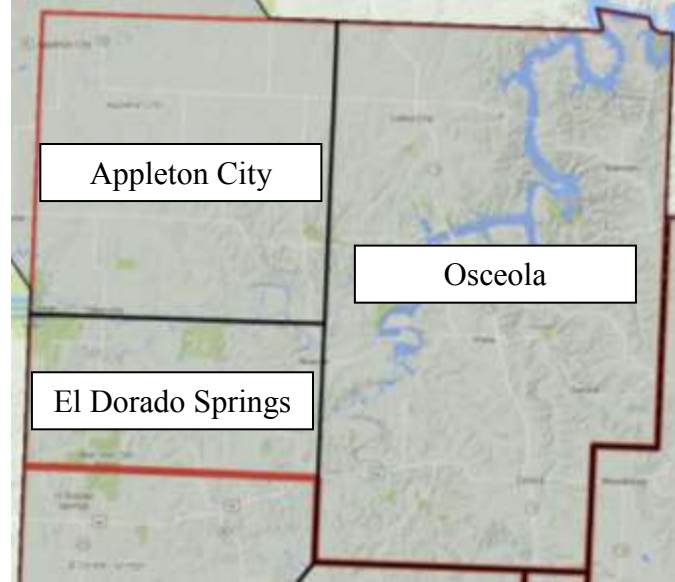


Cedar County - Mutual aid to Stockton:

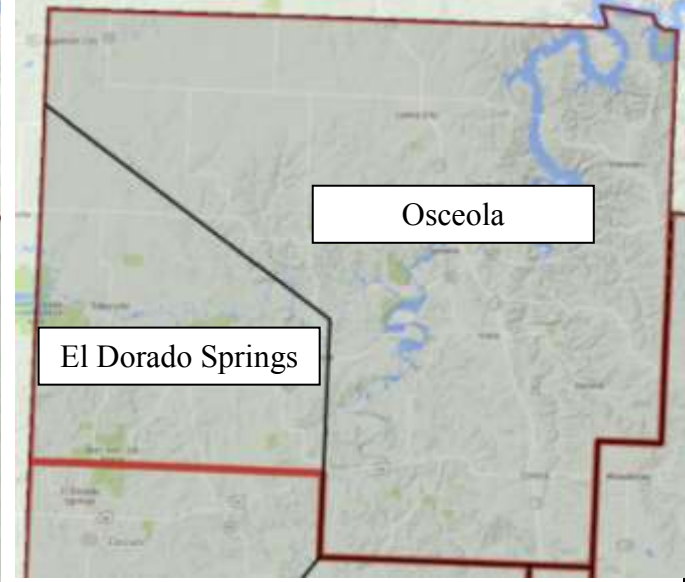




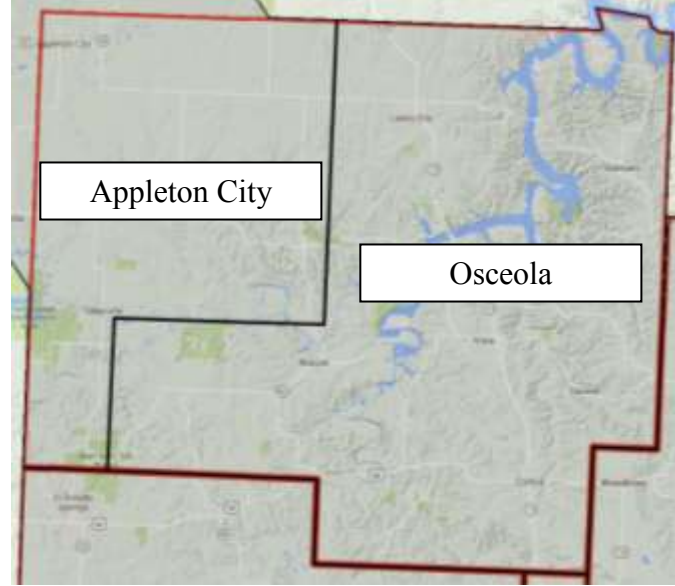
St Clair County - All ambulances available:



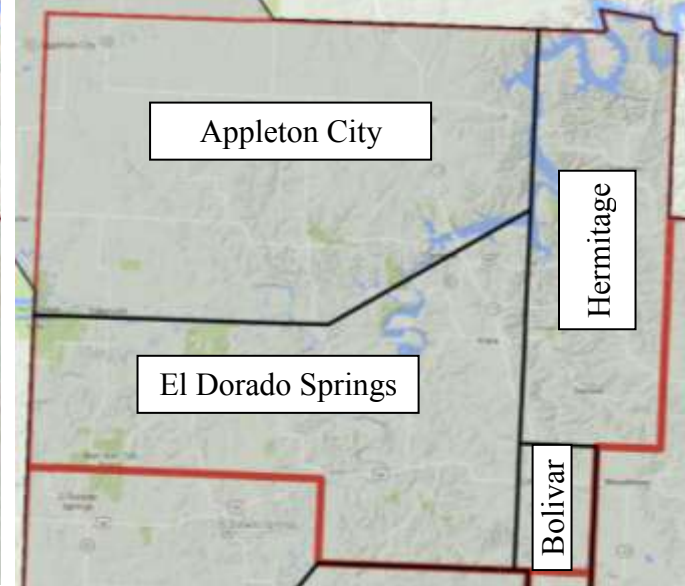
St Clair County - Mutual aid to Appleton City:



St Clair County - Mutual Aid to El Dorado Springs:



St Clair County - Mutual aid to Osceola:



Section 6-100 - Off-Duty Protocols

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * These protocols do not apply to EMR personnel while off-duty. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * While off duty: EMTs, RNs, and Paramedics 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. 	<ul style="list-style-type: none"> * While Off-Duty, current CMH or EMH Pre-Hospital or Emergency Department RNs and Paramedics may assist in providing Advanced Life Support according to these protocols if the following conditions are met: <ul style="list-style-type: none"> * A CMH or EMH ambulance must be the transporting unit and an on-duty CMH or EMH RN or 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 - EMD

- * Each month, a Quality meeting will be scheduled and held at CMH. Dispatchers, first responders, and ambulance crew involved in the call will be invited to attend.
 - * 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.
- * 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.
- * Annually, each dispatch agency must participate in **four** Quality meetings (preferably one every quarter).

BLS - EMR

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

BLS - EMT

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

ALS - RN/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><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Maintain Airway and Ventilate with 100% Oxygen for 5 min, if possible. * Attempt to maintain SpO₂ above 90% at all times. * Consider nasal cannula at 15 LPM after sedation. * Avoid BVM prior to intubation if SpO₂ above 90%. * Monitor pulseoximetry. * Attach cardiac monitor. 	<p><u>CMH ONLY (EMH is not authorized for RSI):</u></p>
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. * Request second ALS unit or supervisor, if possible. * Assist ALS with Capnography. * RSI contraindications: <ul style="list-style-type: none"> * Unable to Ventilate with BVM. * Facial or neck trauma. * Possibility of failure of backup Airways. * Cricothyrotomy would be difficult or impossible. * Acute epiglottitis. * Upper Airway obstruction. * Press "PRINT" on the monitor after Intubation and at transfer to ER/LZ to record Capnography waveform. * Maintain warmth for paralyzed patient. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * RSI is indicated for all patients with a pulse needing intubation. * Call Medical Control for permission to RSI. * IV/IO NS or LR. Consider 250 ml bolus. * Assign duties. * Premedicate: <ul style="list-style-type: none"> * Head injury: Lidocaine 1.5 mg/kg IV/IO (2-3 min before intubation). * Adult: <ul style="list-style-type: none"> + Bradycardic: Atropine 0.5 mg IV/IO. + Seizing: Refer to Protocol 4-170 - Seizures (page 56). + Pain or tachycardic: Consider Fentanyl 3 mcg/kg IV/IO/IN (max 300 mcg). * Pediatric: <ul style="list-style-type: none"> + Consider Atropine 0.02 mg/kg IV/IO (min 0.1 mg) (max 0.5 mg). + Seizing: Refer to Protocol 4-170 - Seizures (page 56). + Consider Fentanyl 1-2 mcg/kg IV/IO/IN (max 150 mcg). * Sedate: <ul style="list-style-type: none"> * Ketamine 1 mg/kg IV/IO (60 sec onset, 10 min duration). + OR Consider Etomidate 0.3 mg/kg IV/IO (contraindicated in sepsis). * Paralyze: Consider delayed paralysis to allow preoxygenation. <ul style="list-style-type: none"> * Rocuronium 0.6 mg/kg IV/IO (1 min onset, 30 min duration). + OR Rocuronium 0.1 mg/kg IV/IO (2 min onset, 10 min duration). + OR Vecuronium 0.1 mg/kg IV/IO. + OR Succinylcholine IV/IO (contraindicated in Burns or crush injuries greater than 48 hrs or rhabdomyolysis). * Adult: 1.5 mg/kg (45 sec onset, 2 min duration). * Pediatric: 2 mg/kg (45 sec onset, 2 min duration). * INTUBATE. Elevate head of cot. Confirm with Capnography. Maximum of three attempts, then BLS failed airway should be used. <ul style="list-style-type: none"> * Consider Suction, Bougie, Gastric Tube, King, and/or LMA. * Continued sedation: <ul style="list-style-type: none"> * Adult: Versed 2.5-5 mg IV/IO every 5 min as needed maintaining SBP greater than 100. <ul style="list-style-type: none"> + OR Ketamine 1 mg/kg IV/IO. + OR Ativan 2 mg IV/IO. (6 mg if seizing). + Consider Fentanyl 50-100 mcg IV/IO/IN (max 300 mcg). * Pediatric: Versed IV/IO/IN. <ul style="list-style-type: none"> * 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 Ketamine 1 mg/kg IV/IO. + OR Ativan 0.05 mg/kg IV/IO. (0.07 mg/kg if seizing). + Consider Fentanyl 1-2 mcg/kg IV/IO/IN (max 150 mcg). * Continued paralysis (consider if signs of patient movement): <ul style="list-style-type: none"> * Rocuronium 0.1 mg/kg IV/IO. * OR Vecuronium 0.1 mg/kg IV/IO.

Section 6-111 - RSI Dosing Sheet

CMH/EMH EMS RSI 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
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
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
RSI - Prepare Equipment												
Laryngoscope	1 ml	1 ml	1 ml	1.5 ml	2 ml	2 ml	2	2	3	3	4	4
ET Size	3.5	3.5	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8
ET Depth (cm)	10.0 cm	10.5 cm	11.0 cm	12.0 cm	13.5 cm	15.0 cm	16.5 cm	18.0 cm	19.5 cm			
King Size (LTS-D)					2 (grn)	2 (grn)	2.5 (org)	2.5 (org)	3 (yel)	3 (yel)	4 (red)	4 (red)
LMA Size (supreme)	1	1.5	1.5	2	2	2	2.5	2.5	3	3	3	4
RSI - Medicate Before Intubation (ml)												
Lidocaine (20 mg/ml)	0.4 ml	0.6 ml	0.7 ml	0.9 ml	1.1 ml	1.4 ml	1.8 ml	2.1 ml	2.7 ml	3.1 ml	3.8 ml	5.1 ml
Fentanyl (50 mcg/ml)	0.2 ml	0.3 ml	0.4 ml	0.5 ml	0.6 ml	0.8 ml	1.0 ml	1.1 ml	1.5 ml	1.7 ml	2.0 ml	2.0 ml
Atropine (0.1 mg/ml)	1.0 ml	1.4 ml	1.8 ml	2.2 ml	2.8 ml	3.6 ml	4.6 ml	5.4 ml	7.2 ml	8.2 ml	10.0 ml	5.0 ml
Ketamine (50 mg/ml)	0.1 ml	0.2 ml	0.2 ml	0.3 ml	0.3 ml	0.4 ml	0.5 ml	0.6 ml	0.8 ml	0.9 ml	1.0 ml	1.9 ml
Etomidate (2 mg/ml)	0.8 ml	1.1 ml	1.4 ml	1.7 ml	2.1 ml	2.7 ml	3.5 ml	4.1 ml	5.4 ml	6.2 ml	7.5 ml	10.2 ml
Rocuronium (10 mg/ml)	0.3 ml	0.5 ml	0.6 ml	0.7 ml	0.9 ml	1.1 ml	1.4 ml	1.7 ml	2.2 ml	2.5 ml	3.0 ml	4.1 ml
Succinylcholine (20 mg/ml)	0.5 ml	0.7 ml	0.9 ml	1.1 ml	1.4 ml	1.8 ml	2.3 ml	2.7 ml	3.6 ml	4.1 ml	5.0 ml	5.1 ml
RSI - Medicate After Intubation (ml)												
Ketamine (50 mg/ml)	0.1 ml	0.2 ml	0.2 ml	0.3 ml	0.3 ml	0.4 ml	0.5 ml	0.6 ml	0.8 ml	0.9 ml	1.0 ml	1.4 ml
Versed (1 mg/ml)	0.5 ml	0.7 ml	0.9 ml	1.1 ml	1.4 ml	1.8 ml	1.2 ml	1.4 ml	1.8 ml	2.1 ml	5.0 ml	5.0 ml
Fentanyl (50 mcg/ml)	0.2 ml	0.3 ml	0.4 ml	0.5 ml	0.6 ml	0.8 ml	1.0 ml	1.1 ml	1.5 ml	1.7 ml	2.0 ml	2.0 ml
Rocuronium (10 mg/ml)	0.1 ml	0.1 ml	0.1 ml	0.2 ml	0.2 ml	0.2 ml	0.3 ml	0.3 ml	0.4 ml	0.5 ml	0.5 ml	0.7 ml
												1.0 ml
												0.7 ml
												1.2 ml
												1.4 ml



Link to research articles (QR code on right): <http://1drv.ms/1KeKkCL>
 Citations: (Bernard, et al., 2015), (Filanovsky, Miller, & Kao, 2010), (Flower & Hellings, 2012), (Howard, 2015), (Swaminathan, 2014), (Taney County Ambulance District, 2014), (Weingart, et al., 2014), (Weingart & Levitan, 2012)

Section 6-120 - Transfer of Care

<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * First responder personnel will assume patient care from initial patient contact until face-to-face verbal report given to transporting ambulance crew. <ul style="list-style-type: none"> * 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.). 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * 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 RN or Paramedic may maintain patient care in the new ambulance (even if the new ambulance is not a CMH or EMH ambulance). * In a multi-patient incident, CMH or EMH RN or Paramedic will continue patient care until care can be transferred to appropriate incoming ambulance with face-to-face verbal report.
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * 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). 	

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

Citations:



Section 6-125 - Transfer Out of Hospital

BLS - EMD

- * **MPDS Protocol 33 (Transfer) - Acuity levels:** The following acuity levels are defined for using Protocol 33 (Transfer) where the transfer is originating within a hospital. All other locations such as long-term care or clinics shall use Protocol 33 (Transfer) Delta and Charlie levels.
 - * **Priority 1 (Lights and siren response by ambulance.):**
 - ✦ The patient has a time critical diagnosis such as STEMI, Stroke, or Trauma.
 - ✦ The patient has a life threat that has to be transported as soon as possible.
 - ✦ The patient is being transferred for immediate surgery or treatment for a medical condition. OR
 - ✦ The patient is a direct admit to an Intensive Care Unit (ICU).
 - * **Priority 3 (These will not be dispatched until an ambulance is available within the county to maintain 9-1-1 coverage. No lights and siren response by ambulance.):**
 - ✦ The patient does not have a Priority 1 or a Priority 4 complaint. These will be dispatched in the following order of importance:
 - ✖ The patient is located in the Emergency Department (ED).
 - ✖ The patient is located in the Cath Lab.
 - ✖ The patient is located in the Obstetrics Department (OB).
 - ✖ The patient is located in the Intensive Care Unit (ICU).
 - ✖ The patient is located in the Medical Surgical Unit (MS).
 - * **Priority 4 (These will not be dispatched until an ambulance is available within the county to maintain 9-1-1 coverage. No lights and siren response by ambulance. These transfers will be dispatched in the same order as Priority 3 based on location.):**
 - ✦ The patient is very stable and a lengthy delay in transfer will not jeopardize the patient.
 - ✦ The patient is being transferred for an ongoing chronic medical condition or surgery at a later date.
 - ✦ The patient is being transferred to a long term care facility or home.
 - ✦ The patient has a psychiatric-only diagnosis.
 - ✦ The transfer is to a Veterans Administration (VA) hospital or Select Specialty (similar rehab facility).

ALS -

RN/Paramedic

- * Ensure completion of all applicable BLS items on the left.
- * Priority 1 transfers shall be responded to in the same fashion and promptness as any other priority 1 dispatches.

BLS - EMR

- * Ensure completion of applicable EMD items above.

BLS - EMT

- * Ensure completion of applicable EMR items above.

Link to research articles (QR code on right):

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 Triage 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:
 - * **RN/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

<p><u>BLS - EMD</u></p> <ul style="list-style-type: none"> * <u>MPDS Protocol 9 (Cardiac Arrest) - Obvious death</u>: The following conditions indicate obvious death: <ul style="list-style-type: none"> * Decapitation, * Decomposition, OR * Incineration. * <u>MPDS Protocol 9 (Cardiac Arrest) - Expected death</u>: The following conditions indicate expected death: <ul style="list-style-type: none"> * DNR order, OR * Hospice care. 	<p><u>ALS - RN/Paramedic</u></p> <ul style="list-style-type: none"> * Ensure completion of all applicable BLS items on the left. * <u>The following scenarios should always be transported to the closest appropriate facility as soon as possible and field termination is not an option</u>: <ul style="list-style-type: none"> * Pediatrics, Drownings, Poisonings, or Hypothermia. * If Airway cannot be maintained and/or IV/IO cannot be accessed. * <u>If none of the above apply</u>: Patients should receive at least 20 minutes of ACLS resuscitative efforts on the scene prior to considering movement. * <u>If witnessed, non-trauma Arrest</u>: full ACLS resuscitation efforts should continue for at least 20 minutes prior to consideration of field termination. * When considering termination, RN/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: <ul style="list-style-type: none"> * CMH providing medical control to CMH ambulance OR * EMH providing medical control to EMH ambulance.
<p><u>BLS - EMR</u></p> <ul style="list-style-type: none"> * Initiate CPR immediately in the event of acute cardiac or respiratory Arrest if: <ul style="list-style-type: none"> * 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: <ul style="list-style-type: none"> * 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. 	
<p><u>BLS - EMT</u></p> <ul style="list-style-type: none"> * Ensure completion of applicable EMR items above. 	

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

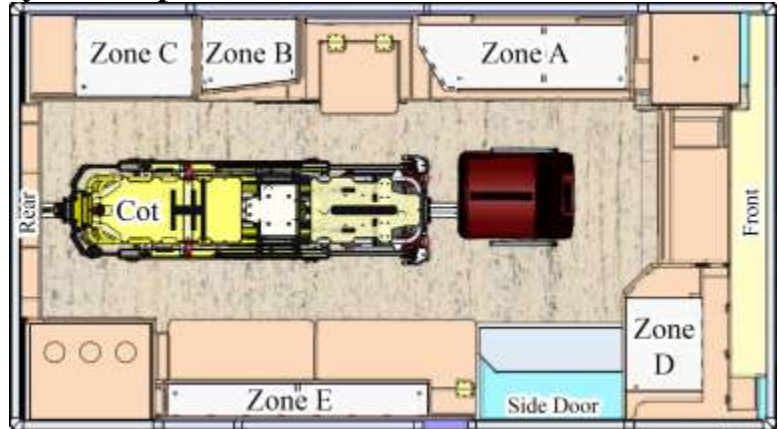


Part 7 - Medication Protocols

Section 7-001 - Medications Currently on Response Vehicles

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 Response Vehicles (page 161) 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 101)
				Section 7-460 - Oxygen (page 140)
Cot - Bag LifePak		1	1.25 mg	Section 7-610 - Xopenex (Levalbuterol) (page 158)
		4	81 mg	Section 7-060 - Aspirin (Bayer) (page 103)
Narcotic Box		1	6 g	Section 7-420 - Nitroglycerin (Nitrostat, Nitolingual, Tridil) (page 138)
			100 mcg	Section 7-230 - Fentanyl (Sublimaze) (page 121)
			10 mg	Section 7-390 - Morphine (page 135)
			10 mg	Section 7-580 - Valium (Diazepam) (page 155)
RSI Box			5 mg	Section 7-600 - Versed (Midazolam) (page 157)
			150 mg	Section 7-330 - Ketamine (Ketalar) (page 129) [CMH only - EMH is not authorized for Ketamine]
			200 mg	Section 7-370 - Lidocaine (Xylocaine) (page 133)
			0.5 mg	Section 7-080 - Atropine (Sal-Tropine) (page 105)
			100 mg	Section 7-220 - Etomidate (Amidate) (page 119) [CMH only - EMH is not authorized for Etomidate]
Zone A - Above Action Area				Section 7-520 - Rocuronium (Zemuron) (page 146) [CMH only - EMH is not authorized for Rocuronium]
		4		Draw needles
		2		10 ml Syringes
		6	2.5 mg	Section 7-040 - Albuterol (Proventil, Ventolin) (page 101)
		4	0.5 mg	Section 7-180 - Duoneb (Ipratropium and Albuterol, Combivent) (page 116)
Zone A - Action Area		4	11.25 mg	Section 7-210 - Epinephrine Racemic (Micronefrin) (page 119)
		4		Section 7-320 - Ipratropium (Atrovent) (page 128)
Zone A - Below Action Area		6	1.25 mg	Section 7-610 - Xopenex (Levalbuterol) (page 158)
Zone A - Action Area				Section 7-460 - Oxygen (page 140)
Zone A - Below Action Area				
Zone B				
Zone C		2	1,000 ml	Section 7-440 - Normal Saline (NS, Sodium Chloride) (page 139) - Irrigation
		2	1,000 ml	Sterile water - Irrigation
Zone D		1	400 mg	Section 7-170 - Dopamine (Intropin) (page 115)
				1 - Pump tubing
				1 - Reference card

Section 7-001 - Medications Currently on Response Vehicles

Location	✓	Qty	Dose	Description
		1	2 g	Section 7-370 - Lidocaine (Xylocaine) - Drip (page 133) 1 - Pump tubing 1 - Reference card
		1	150 mg	Section 7-420 - Nitroglycerin (Nitrostat, Nitolingual, Tridil) - Drip (page 138) 1 - Pump tubing 1 - Reference card
		2	2 L	Section 7-350 - Lactated Ringers (LR) (page 131)
		6	2 L	Section 7-440 - Normal Saline (NS, Sodium Chloride) (page 139)
Zone D - Bag Adult				
Zone D - Bag Adult - Airway				
Zone D - Bag Adult - Medication		3	6 mg	Section 7-030 - Adenosine (Adenocard) (page 100)
		2	150 mg	Section 7-050 - Amiodarone (Cordarone) (page 102)
		3	1 mg	Section 7-080 - Atropine (Sal-Tropine) (page 105)
		1	50 mg	Section 7-090 - Benadryl (Diphenhydramine) (page 106)
		*		Section 7-150 - Dextrose (page 113) 1 - 100 ml - D-5-W 1 - 25 g - D-50-W
		2		Section 7-190 - Epinephrine 1:1,000 (page 117)
		4		Section 7-200 - Epinephrine 1:10,000 (page 118)
		1		Section 7-240 - Glucagon (page 122)
		2	40 mg	Section 7-360 - Lasix (Furosemide) (page 132)
		2	100 mg	Section 7-370 - Lidocaine (Xylocaine) (page 133)
		4	1 g	Section 7-380 - Magnesium Sulfate (page 134)
		1	2 mg	Section 7-400 - Narcan (Naloxone) (page 136)
		1	100 ml	Section 7-440 - Normal Saline (NS, Sodium Chloride) (page 139)
		2	50 mEq	Section 7-530 - Sodium Bicarbonate (Soda) (page 148)
	Zone D - Bag Medication		1	100 mg
		3	6 mg	Section 7-030 - Adenosine (Adenocard) (page 100)
		2	150 mg	Section 7-050 - Amiodarone (Cordarone) (page 102)
		3	1 mg	Section 7-080 - Atropine (Sal-Tropine) (page 105)
		1	50 mg	Section 7-090 - Benadryl (Diphenhydramine) (page 106)
		*		Section 7-150 - Dextrose (page 113) 1 - 100 ml - D-5-W 1 - 25 g - D-50-W
		2		Section 7-190 - Epinephrine 1:1,000 (page 117)
		4		Section 7-200 - Epinephrine 1:10,000 (page 118)
		1		Section 7-240 - Glucagon (page 122)
		2	40 mg	Section 7-360 - Lasix (Furosemide) (page 132)
		2	100 mg	Section 7-370 - Lidocaine (Xylocaine) (page 133)
		4	1 g	Section 7-380 - Magnesium Sulfate (page 134)
		1	2 mg	Section 7-400 - Narcan (Naloxone) (page 136)
		1	100 ml	Section 7-440 - Normal Saline (NS, Sodium Chloride) (page 139)
		2	50 mEq	Section 7-530 - Sodium Bicarbonate (Soda) (page 148)
	1	100 mg	Section 7-570 - Thiamine (Vitamin B1) (page 152)	
Zone D - Bag Ped				
Zone D - Box Medication		1	160 mg	Section 7-010 - Acetaminophen (Tylenol) (page 98)
		1		Section 7-020 - Activated Charcoal (Actidose) (page 99)
		16	81 mg	Section 7-060 - Aspirin (Bayer) (page 103)
		1		Section 7-080 - Atropine (Sal-Tropine) (page 105)
		1		Section 7-100 - Calcium Chloride (Calciject) (page 107)
		1	100 mg	Section 7-120 - Cardizem (Diltiazem) (page 109) [CMH only - EMH is not authorized for Cardizem]
		2	20 mg	Section 7-140 - Decadron (Dexamethasone) (page 112) [CMH only - EMH is not authorized for Decadron]
		1		Section 7-260 - Haldol (Haloperidol) (page 124) [CMH only - EMH is not authorized for Haldol]
		1	5,000 u	Section 7-270 - Heparin (page 125) [CMH only - EMH is not authorized for Heparin]
		1	20 mg	Section 7-280 - Hydralazine (Apresoline) (page 126) [CMH only - EMH is not authorized for Hydralazine]
	1	100 mg	Section 7-300 - Ibuprofen (Advil, Pediaprofen) (page 127)	

Section 7-001 - Medications Currently on Response Vehicles

Location	✓	Qty	Dose	Description
		1	40 mg	Section 7-340 - Labetalol (Nomadyne) (page 130)
		2		Section 7-250 - Glucose (page 123) - Oral
		1		Section 7-410 - Neo-Synephrine (Phenylephrine) (page 137) [CMH only - EMH is not authorized for Neo-Synephrine]
		2	10 u	Section 7-470 - Oxytocin (Pitocin) (page 141)
		4	25 mg	Section 7-480 - Phenergan (Promethazine) (page 142)
		1		Section 7-490 - Procainamide (Pronestyl) (page 143)
		2	125 mg	Section 7-540 - Solu-Medrol (Methylprednisolone) (page 149)
		1		Section 7-560 - Tetracaine (page 151)
		2	500 mg	Section 7-578 - TXA (Tranexamic Acid) (page 154)
		6	4 mg	Section 7-620 - Zofran (Ondansetron) (page 159)
Zone D - IV Tray		6	10 ml	Section 7-440 - Normal Saline (NS, Sodium Chloride) (page 139)
Zone E - Above Bench (if exist)				
Zone E - Below Bench		2		Section 7-460 - Oxygen (page 140)
Exterior Compartment				

Medications in protocols but currently not on ambulances:

- * Section 7-070 - Ativan (Lorazepam) (page 104)
- * Section 7-110 - Captopril (Capoten) (page 108)
- * Section 7-130 - Compazine (Prochlorperazine) (page 110)
- * Section 7-135 - Cyanokit (Hydroxocobalamin, Vitamin B12) (page 111)
- * Section 7-160 - Dilaudid (Hydromorphone) (page 114)
- * Section 7-330 - Ketamine (Ketalar) (page 129)
- * Section 7-500 - Propofol (Diprivan) (page 144)
- * Section 7-505 - Reglan (Metoclopramide) (page 145)
- * Section 7-525 - Romazicon (Flumazenil) (page 147)
- * Section 7-550 - Succinylcholine (Anectine) (page 150)
- * Section 7-575 - Toradol (Ketorolac) (page 153)
- * Section 7-590 - Vecuronium (Norcuron) (page 156)

Section 7-005 - Medications that prolong QT interval

- | | | | |
|---|--|---|---|
| <ul style="list-style-type: none">• Abilify• Agrylin• Alfuzosin• Amantadine• Amiodarone (page 102)• Amisulpride• Amitriptyline• Amoxapine• Anafranil• Anagrelide• Anzemet• Apo-Hydro• Apokyn• Apomorphine• Aquachloral• Aralen• Aripiprazole• Arsenic trioxide• Asenapine• Asendin• Astemizole• Atazanavir• Avelox• Azithromycin• Bedaquiline• Benadryl (page 106)• Bepridil• Betapace• Biaxin• Bortezomib• Bosulif• Bosutinib• Caprelsa• Cardene• Celexa• Cerebyx• Chloral hydrate• Chloroquine• Chlorpromazine• Cipralax• Cipro• Ciprofloxacin• Cisapride | <ul style="list-style-type: none">• Citalopram• Clarithromycin• Clomipramine• Clozapine• Clozaril• Cocaine• Cordarone (page 102)• Corvert• Crizotinib• Dabrafenib• Dasatinib• Definity• Delamanid• Delytba• Desipramine• Desyrel• Detrol• Dexmedetomidine• Diflucan• Dihydroartemisinin +piperazine• Diphenhydramine (page 106)• Dipiperon• Disopyramide• Dofetilide• Dogmatil• Dolasetron• Dolophine• Domperidone• Doxepin• Dronedarone• Droperidol• Dynacirc• Edurant• Effexor• Elavil• Eloxatin• Eribulin• Erythromycin• Escitalopram• Eskalith• Eurartesim• Factive | <ul style="list-style-type: none">• Famotidine• Fanapt• Fareston• Felbamate• Felbatol• Fingolimod• Flagyl• Flecainide• Floxin• Fluconazole• Fluoxetine• Foscarnet• Foscavir• Fosphenytoin• Furosemide (page 132)• Galantamine• Gatifloxacin• Gemifloxacin• Geodon• Gilenya• Granisetron• Halaven• Haldol (page 124)• Halfan• Halofantrine• Haloperidol (page 124)• Hismanal• Hydrochlorothiazide• Hydrocodone• Hysingla• Ibutilide• Iloperidone• Imipramine• Inapsine• Incivek• Indapamide• Invega• Invirase• Isradipine• Itraconazole• Ivabradine• Ketek | <ul style="list-style-type: none">• Ketoconazole• Korlym• Kytril• Lapatinib• Lasix (page 132)• Levaquin• Levitra• Levofloxacin• Levomepromazine• Levomethadyl• Levoprome• Lithium• Lorelco• Lozol• Melipramine• Mellaril• Mesoridazine• Methadone• Metronidazole• Mifepristone• Mirabegron• Mirtazapine• Moexipril/HCTZ• Motilium• Moxifloxacin• Multaq• Myrbetriq• Nelfinavir• Nexavar• Nicardipine• Nilotinib• Nitoman• Nizoral• Nolvadex• Norfloxacin• Noroxin• Norpace• Nortriptyline• Norvir• Nosinan• Noxafil• Nozinan• Ofloxacin• Olanzapine |
|---|--|---|---|

<ul style="list-style-type: none"> • Ondansetron (page 159) • Orap • Orlaam • Oxaliplatin • Oxytocin (page 141) • Paliperidone • Pamelor • Papaverine • Paroxetine • Pasireotide • Paxil • Pazopanib • Pentam • Pentamidine • Pepcid • Perflutren • Pertofrane • Phenergan (page 142) • Pimozide • Pipamperone • Pitocin (page 141) • Posaconazole • Precedex • Probutol • Procainamide (page 143) • Procoralan • Prograf • Promethazine (page 142) 	<ul style="list-style-type: none"> • Pronestyl (page 143) • Propulsid • Protriptyline • Prozac • Quaaluan • Quetiapine • Quinaglute • Quinidine • Quinine sulfate • Ranexa • Ranolazine • Remeron • Reminyl • Reyataz • Rilpivirine • Risperdal • Risperidone • Ritonavir • Roxithromycin • Rulide • Saphris • Saquinavir • Seldane • Sepra • Serdolect • Serentil • Seroquel • Sertindole • Sertraline • Sevoflurane • Signifor • Sinequan 	<ul style="list-style-type: none"> • Sirturo • Solian • Solifenacin • Sorafenib • Sotalol • Sparfloxacin • Sporanox • Sprycel • Sulpiride • Sunitinib • Surmontil • Sutent • Sycrest • Symmetrel • Tacrolimus • Tafenlar • Tambocor • Tamoxifen • Tasigna • Telaprevir • Telavancin • Telithromycin • Tequin • Terfenadine • Tetrabenazine • Thioridazine • Thorazine • Tikosyn • Tizanidine • Tofranil • Tolterodine • Toremfene • Trazodone 	<ul style="list-style-type: none"> • Trimethoprim-Sulfa • Trimipramine • Trisenox • Tykerb • Ulane • Uniretic • Uroxatral • Vandetanib • Vardenafil • Vasacor • Velcade • Vemurafenib • Venlafaxine • VESicare • VFend • Vibativ • Viracept • Vivactil • Voriconazole • Vorinostat • Votrient • Xalkori • Zagam • Zanaflex • Zelboraf • Ziprasidone • Zithromax • Zofran (page 159) • Zohydro • Zolinza • Zolof • Zyprexa
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<u>Citations:</u> (CredibleMeds, 2015)	
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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 127

Adult dosage:

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

Pediatric dosage:

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

Precautions:

- * Avoid in patients with severe liver disease. 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: (Cox Paramedics, 2014)



Section 7-020 - Activated Charcoal (Actidose)

<p><u>Advanced Life Support</u></p> <p><u>Class:</u> * Adsorbent.</p> <p><u>Action:</u> * Adsorbs toxins by chemical binding and prevents gastrointestinal absorption.</p> <p><u>Route:</u> * Oral.</p>	<p><u>Half-Life:</u> *</p> <p><u>Contraindications:</u> * 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.</p>
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Indications:
Protocol 4-140 - Poisoning or Overdose
(Poisoning following emesis or when emesis is contraindicated) page 54

<p><u>Adult dosage:</u> * 50-100 g mixed with glass of water to form slurry.</p> <p><u>Pediatric dosage:</u> * 0.5-1 g/kg mixed with glass of water to form slurry.</p>	<p><u>Precautions:</u> * Aspiration may cause pneumonitis.</p> <p><u>Side effects:</u> * Nausea, vomiting, constipation, diarrhea.</p> <p><u>Antidote:</u> *</p>
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Link to research articles (QR code on right): <http://1drv.ms/1BEi5aZ>



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)

<p>Advanced Life Support</p> <p><u>Class:</u> * Beta-2 selective sympathomimetic.</p> <p><u>Action:</u> * Binds and stimulates beta-2 receptors, resulting in relaxation of bronchial smooth muscle.</p> <p><u>Route:</u> * Nebulized.</p>	<p><u>Half-Life:</u> * 1.6 hours.</p> <p><u>Contraindications:</u> * Angioedema.</p>
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<u>Indications:</u>	
Protocol 4-020 - Anaphylaxis	page 38
Protocol 4-030 - Asthma	page 39
Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) (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 116

<p><u>Dosage:</u> * 2.5 mg in 2.5 ml NS over 5-15 min Nebulized.</p>	<p><u>Precautions:</u> * Blood pressure, pulse, and EKG should be monitored. Use caution in patients with known heart disease.</p> <p><u>Side effects:</u> * Palpitations, anxiety, Headache, dizziness, sweating, hyperglycemia, hypokalemia, insomnia, Tachycardia, Nausea, vomiting, throat irritation, dry mouth, epistaxis, Hypertension, dyspepsia, and paradoxical bronchospasm.</p> <p><u>Antidote:</u> *</p>
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<p>Link to research articles (QR code on right): http://1drv.ms/1BEiBwk</p> <p>Citations:</p>	
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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 72

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 107).
- * Section 7-240 - Glucagon (page 122).

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

Citations:



Section 7-060 - Aspirin (Bayer)

<p>Basic Life Support (EMT)</p> <p><u>Class:</u> * Platelet inhibitor. Anti-inflammatory. Analgesic.</p> <p><u>Action:</u> * Prevents formation of thromboxane A2. Blocks platelet aggregation.</p> <p><u>Route:</u> * PO.</p>	<p><u>Half-Life:</u> * 3.1-3.2 hours.</p> <p><u>Contraindications:</u> * GI bleeding. * Active ulcer disease. * Hemorrhagic stroke. * Bleeding disorders. * Children with chickenpox or flu-like symptoms.</p>
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Indications:
Protocol 2-050 - Chest Discomfort (New Chest Pain suggestive of AMI)..... page 19

<p><u>Adult dosage:</u> * Chew 324 mg (four 81 mg “baby Aspirin”).</p> <p><u>Pediatric dosage:</u> * Not indicated.</p>	<p><u>Precautions:</u> * Aspirin may trigger Asthma attacks in certain individuals with sensitivity. GI bleeding and upset stomach, trauma, decreased LOC of unknown origin.</p> <p><u>Side effects:</u> * Heartburn, Nausea, vomiting, wheezing, Anaphylaxis, angioedema, bronchospasm, bleeding, stomach irritation.</p> <p><u>Antidote:</u> *</p>
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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 75
Protocol 6-110 - Rapid Sequence Intubation (RSI)	page 87
Section 8-050 - Continuous Positive Airway Pressure (CPAP)	page 171

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 147).

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)

<p>Advanced Life Support</p> <p><u>Class:</u> * Parasympatholytic (anticholinergic).</p> <p><u>Action:</u> * Competes with acetylcholine at the site of muscarinic receptor. Increases heart rate. Decreases gastrointestinal secretions.</p> <p><u>Route:</u> * IV/IO. ET at twice the dose.</p>	<p><u>Half-Life:</u> * 2 hours.</p> <p><u>Contraindications:</u> * None when used in emergency situations.</p>
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<p><u>Indications:</u></p> <p>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 72 Protocol 6-110 - Rapid Sequence Intubation (RSI) (RSI of pediatrics under 10 or any bradycardic patients) page 87</p>
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<p><u>Adult dosage:</u></p> <ul style="list-style-type: none"> * 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. May require greater than 10 mg. <p><u>Pediatric dosage:</u></p> <ul style="list-style-type: none"> * 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). 	<p><u>Precautions:</u></p> <ul style="list-style-type: none"> * 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. <p><u>Side effects:</u></p> <ul style="list-style-type: none"> * 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. <p><u>Antidote:</u></p> <ul style="list-style-type: none"> * Physostigmine (Antilirium)
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<p>Link to research articles (QR code on right): http://1drv.ms/1BEjyOI</p> <p>Citations: (Cox Paramedics, 2014)</p>	
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Section 7-090 - Benadryl (Diphenhydramine)

Advanced Life Support

Class:

- * Antihistamine.

Action:

- * Blocks H1 histamine receptors. Has some sedative effects.

Route:

- * IV/IO/IM.

Half-Life:

- * 8-17 hours.

Contraindications:

- * Asthma.
- * Nursing mothers.

Indications:

Protocol 4-020 - Anaphylaxis page 38
 Protocol 4-040 - Behavioral page 40
 Protocol 7-130 - Compazine (Prochlorperazine) (Extra Pyramidal Symptoms (EPS))..... page 91
 Protocol 7-260 - Haldol (Haloperidol) (Extra Pyramidal Symptoms (EPS)) page 105
 Protocol 7-480 - Phenergan (Promethazine) (Extra Pyramidal Symptoms (EPS)) page 123

Adult

dosage:

- * 25-50 mg.

Pediatric

dosage:

- * 1.25 mg/kg.

Precautions:

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

Side effects:

- * Sedation. Dries bronchial secretions. Blurred vision. Headache. Palpitations. Dizziness, excitability, wheezing, thickening of bronchial secretions, Chest tightness, hypotension, dry mouth, Nausea, vomiting, diarrhea.

Antidote:

- * Physostigmine (Antilirium)

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

Citations:



Section 7-100 - Calcium Chloride (Calciject)

<p>Advanced Life Support</p> <p><u>Class:</u> * Electrolyte.</p> <p><u>Action:</u> * Increases cardiac contractility.</p> <p><u>Route:</u> * IV/IO.</p>	<p><u>Half-Life:</u> *</p> <p><u>Contraindications:</u> * Patients on digitalis.</p>
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<p><u>Indications:</u> 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 102 Section 7-120 - Cardizem (Diltiazem)..... page 109 Section 7-380 - Magnesium Sulfate (antidote for Overdose)..... page 134</p>

<p><u>Dosage:</u> * Contact medical control.</p>	<p><u>Precautions:</u> * IV line should be flushed between Calcium Chloride and Sodium Bicarbonate administration.</p> <p><u>Side effects:</u> * Arrhythmias (Bradycardia and Asystole), and hypotension.</p> <p><u>Antidote:</u> *</p>
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<p>Link to research articles (QR code on right): http://1drv.ms/1BEkgeK</p> <p>Citations:</p>	
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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)

<p>Advanced Life Support</p> <p><u>Class:</u></p> <ul style="list-style-type: none"> * Calcium channel blocker. <p><u>Action:</u></p> <ul style="list-style-type: none"> * Slows conduction through the AV node. <p><u>Route:</u></p> <ul style="list-style-type: none"> * IV/IO. 	<p><u>Half-Life:</u></p> <ul style="list-style-type: none"> * 3-4.5 hours. <p><u>Contraindications:</u></p> <ul style="list-style-type: none"> * Heart blocks. * Conduction disturbances. * WPW. * Congestive heart failure (pulmonary edema). * Hypotension.
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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

<p><u>Adult dosage:</u></p> <ul style="list-style-type: none"> * 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. <p><u>Pediatric dosage:</u></p> <ul style="list-style-type: none"> * Call medical control. 	<p><u>Precautions:</u></p> <ul style="list-style-type: none"> * Hypotension. Should not be used in patients receiving IV Beta-Blockers. <p><u>Side effects:</u></p> <ul style="list-style-type: none"> * Nausea, vomiting, hypotension, dizziness, Bradycardia, flushing, Headache, heart block, cardiac Arrest. <p><u>Antidote:</u></p> <ul style="list-style-type: none"> * Section 7-100 - Calcium Chloride (Calciject) (page 107). * Section 7-240 - Glucagon (page 122).
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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
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
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
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
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
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)

Advanced Life Support

Class:

- * Phenothiazine antiemetic.

Action:

- * Antiemetic.

Route:

- * IV/IO.

Half-Life:

- * 4-8 hours.

Contraindications:

- * Comatose patients who have received a large amount of depressants (including alcohol).

Indications:

Not in current protocols.

Adult dosage:

- * 5-10 mg over 2 min.
 - * Each 5 mg must be diluted in 10 ml of NS.

Pediatric dosage:

- * Not indicated.

Precautions:

- * EPS.

Side effects:

- * May impair mental and physical ability, drowsiness, hypotension.
- * 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 106).

Antidote:

- *

Link to research articles (QR code on right): <http://1drv.ms/1BEkUc8>

Citations:



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/1BE1971>

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

<p><u>Advanced Life Support</u></p> <p><u>Class:</u> * Carbohydrate.</p> <p><u>Action:</u> * Elevates blood Glucose level rapidly.</p> <p><u>Route:</u> * IV/IO.</p>	<p><u>Half-Life:</u> *</p> <p><u>Contraindications:</u> * Intracranial hemorrhage.</p>
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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 72
Section 7-050 - Amiodarone (Cordarone)	page 102
Section 7-490 - Procainamide (Pronestyl)	page 143

<p><u>Adult dosage:</u> * D50W, D25W, or D10W 25 g.</p> <p><u>Pediatric dosage:</u> * D25W 0.5-1 g/kg. * 5 ml D50W + 5 ml NS = 2.5 g D25W.</p> <p><u>Neonate Dosage:</u> * D10W 0.5-1 g/kg. * 2 ml D50W + 8 ml NS = 1 g D10W.</p>	<p><u>Precautions:</u> * Blood sample should be drawn before administering.</p> <p><u>Side effects:</u> * Local venous irritation. Hyperglycemia, warmth, thrombosis.</p> <p><u>Antidote:</u> *</p>
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Link to research articles (QR code on right): <http://1drv.ms/1F6iySa>

Citations:



Section 7-160 - Dilaudid (Hydromorphone)

Advanced Life Support

Class:

- * Narcotic analgesic.

Action:

- * Analgesia and sedation. CNS depressant. Decreased sensitivity to Pain.

Route:

- * IV/IM/IO.

Half-Life:

- * 2-3 hours.

Contraindications:

- * Hypersensitivity.

Indications:

Protocol 6-050 - Control of Pain.....page 75

Adult dosage:

- * 0.5-1 mg. May repeat at 0.5 mg every 15 min (max 2 mg).
- * greater than 65 yr old: Max 0.5 mg.

Pediatric dosage:

- * Not indicated.

Precautions:

- * Respiratory depression may last longer than analgesia.

Side effects:

- * Bradycardia, respiratory depression, euphoria.

Antidote:

- * Section 7-400 - Narcan (Naloxone) (page 136).

DEA Number: 9150

Schedule: II - High potential for abuse with severe dependence.

Narcotic: Yes.

Street names:

- * 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.

Link to research articles (QR code on right): <http://1drv.ms/1F6iP7H>

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



Section 7-170 - Dopamine (Intropin)

<p>Advanced Life Support</p> <p><u>Class:</u></p> <ul style="list-style-type: none"> * Sympathomimetic. <p><u>Action:</u></p> <ul style="list-style-type: none"> * Stimulates alpha and beta adrenergic receptors. Increases cardiac contractility. Causes peripheral vasoconstriction. <p><u>Route:</u></p> <ul style="list-style-type: none"> * IV/IO. 	<p><u>Half-Life:</u></p> <ul style="list-style-type: none"> * 2 minutes. <p><u>Contraindications:</u></p> <ul style="list-style-type: none"> * Hypovolemic shock where complete fluid resuscitation has not occurred. * Severe tachyarrhythmias. * Ventricular Fibrillation or Ventricular arrhythmias.
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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

<p><u>Adult dosage:</u></p> <ul style="list-style-type: none"> * Beta effects (increased rate, contractility): 5-10 mcg/kg/min. * Alpha effects (vasoconstriction): 10-20 mcg/kg/min. <p><u>Colorado down and dirty Dopamine dose:</u></p> <ul style="list-style-type: none"> * With 1600 mg/ml mixture only. * $\frac{\text{(Patient's weight in pounds)}}{10} - 2 = \text{ml/hr for 5 mcg/kg/min}$ <p><u>Pediatric dosage:</u></p> <ul style="list-style-type: none"> * 5-20 mcg/kg/min. * Mix 6 mg/kg with enough D5W to make 100 ml. 	<p><u>Precautions:</u></p> <ul style="list-style-type: none"> * Ventricular irritability. <p><u>Side effects:</u></p> <ul style="list-style-type: none"> * Ventricular tachyarrhythmias. Hypertension. Angina, dyspnea, Headache, Nausea, vomiting. <p><u>Antidote:</u></p> <ul style="list-style-type: none"> * Rigitine.
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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)

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 101

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

<p><u>Basic Life Support (EMT)</u></p> <ul style="list-style-type: none"> * Auto-injector pen indicated for Anaphylaxis if RN or Paramedic is unavailable. <p><u>Advanced Life Support</u></p> <p><u>Class:</u></p> <ul style="list-style-type: none"> * Sympathomimetic. <p><u>Action:</u></p> <ul style="list-style-type: none"> * Binds with both alpha and beta receptors. Bronchodilation. <p><u>Route:</u></p> <ul style="list-style-type: none"> * SQ/IM/ET. 	<p><u>Half-Life:</u></p> <ul style="list-style-type: none"> * 2 minutes. <p><u>Contraindications:</u></p> <ul style="list-style-type: none"> * Cardiovascular disease. * Hypertension. * Pregnancy. * Patients with tachyarrhythmias. * CerebroVascular disease. * Diabetes.
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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 118

<p><u>Adult dosage:</u></p> <ul style="list-style-type: none"> * 0.3-0.5 mg (max 1 mg). <p><u>Pediatric dosage:</u></p> <ul style="list-style-type: none"> * 0.01 mg/kg (max 0.5 mg). * ET dose where IV access for Section 7-200 - Epinephrine 1:10,000 (page 118) concentration unavailable: 0.1 mg/kg. 	<p><u>Precautions:</u></p> <ul style="list-style-type: none"> * Medication should be protected from light. Blood pressure, pulse and EKG must be constantly monitored. <p><u>Side effects:</u></p> <ul style="list-style-type: none"> * Palpitations, Tachycardia, anxiousness, Headache, tremor, myocardial ischemia in older patients. Anxiety, Chest Pain, cardiac arrhythmias, Hypertension, Nausea, vomiting. <p><u>Antidote:</u></p> <ul style="list-style-type: none"> *
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<p><u>Link to research articles (QR code on right):</u> http://1drv.ms/1FT3Aiy</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)</p>	
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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 117).

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 72
Section 7-340 - Labetalol (Nomadyne) (Overdose).....	page 130

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)

<p><u>Advanced Life Support</u></p> <p><u>Class:</u> * Nonselective alpha and beta agonist.</p> <p><u>Action:</u> * Arteriole constriction. Positive inotrope. Positive chronotrope. Bronchial smooth muscle relaxant. Blocks histamine release. Inhibits insulin secretion. Relaxes GI smooth muscle.</p> <p><u>Route:</u> * Nebulized.</p>	<p><u>Half-Life:</u> * 2 minutes.</p> <p><u>Contraindications:</u> * Glaucoma. * Elderly. * Cardiac disease. * Hypertension. * Thyroid disease. * Diabetes. * Sensitivity to sulfites.</p>
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Indications:
 Protocol 4-080 - Croup (Croup with moderate to severe respiratory distress)..... page 47

<p><u>Dosage:</u> * 0.5 ml mixed with 3 ml NS.</p>	<p><u>Precautions:</u> * Observe 2-4hrs after administration.</p> <p><u>Side effects:</u> * Palpitations, anxiety, Headache, Hypertension, Nausea, vomiting, arrhythmias, rebound edema. Dizziness, tremor, Tachycardia.</p> <p><u>Antidote:</u> *</p>
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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 87

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>Advanced Life Support</p> <p><u>Class:</u> * Narcotic analgesic.</p> <p><u>Action:</u> * Binds to opiate receptors. Analgesia and sedation. Central nervous system depressant. Decreased sensitivity to Pain.</p> <p><u>Route:</u> * IV/IN/IM/IO.</p>	<p><u>Half-Life:</u> * IV: 10-20 minutes * IN: 6.5 minutes.</p> <p><u>Contraindications:</u> * Hypersensitivity.</p>
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<u>Indications:</u>	
Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter.....	page 16
Protocol 2-040 - Bradycardia.....	page 18
Protocol 2-050 - Chest Discomfort.....	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 3-030 - Hypothermia.....	page 35
Protocol 4-010 - Abdominal Pain.....	page 37
Protocol 5-070 - Head Trauma.....	page 64
Protocol 6-050 - Control of Pain.....	page 75
Protocol 6-110 - Rapid Sequence Intubation (RSI).....	page 87
Section 8-080 - Endotracheal Tube (ET).....	page 176
Section 8-160 - King LTSD Airway.....	page 185
Section 8-170 - Laryngeal Mask Airway (LMA) Supreme.....	page 186

<p><u>Adult dosage:</u> * 50 mcg every 5-20 min PRN for Pain (max 300 mcg). Maximum of 50 mcg per dose. * <u>Greater than 65 yr:</u> 25-50 mcg (max 150 mcg).</p> <p><u>Pediatric dosage:</u> * 0.5-2 mcg/kg.</p>	<p><u>Precautions:</u> * 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.</p> <p><u>Side effects:</u> * Bradycardia, respiratory depression, euphoria. Hypotension, Nausea, vomiting, dizziness, sedation, Bradycardia, Tachycardia, palpitations, Hypertension, diaphoresis, syncope. Possible beneficial effect in pulmonary edema.</p> <p><u>Antidote:</u> * Section 7-400 - Narcan (Naloxone) (page 136).</p>
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<p><u>DEA Number:</u> 9801 <u>Schedule:</u> II - High potential for abuse with severe dependence. <u>Narcotic:</u> Yes.</p>	<p><u>Street names:</u> * 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.</p>
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<p>Link to research articles (QR code on right): http://1drv.ms/1F6k5Yt Citations: (About Drugs), (Borland, Bergesio, Pascoe, Turner, & Woodger, 2005), (Citizens Memorial Hospital, 2013), (Cox Paramedics, 2014), (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>	
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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

<p>Basic Life Support (EMT)</p> <p><u>Class:</u> * Carbohydrate.</p> <p><u>Action:</u> * Elevates blood sugar levels.</p> <p><u>Route:</u> * PO.</p>	<p><u>Half-Life:</u> *</p> <p><u>Contraindications:</u> * Patients with altered level of consciousness that cannot protect Airway.</p>
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Indications:
Protocol 4-120 - Hypoglycemia..... page 52

<p><u>Dosage:</u> * 15 g.</p>	<p><u>Precautions:</u> * If alcohol abuse is suspected, then Glucose should be given after 100mg of Thiamine is administered.</p> <p><u>Side effects:</u> * None.</p> <p><u>Antidote:</u> *</p>
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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 106).

Antidote:

- *

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

Citations:



Section 7-270 - Heparin

<p>Advanced Life Support</p> <p><u>Class:</u> * Anticoagulant.</p> <p><u>Action:</u> * Inhibition of Thrombin. Acts on antithrombin III to reduce ability to clot.</p> <p><u>Route:</u> * IV.</p>	<p><u>Half-Life:</u> * 1.5 hours.</p> <p><u>Contraindications:</u> * Previously given low molecular weight Heparin. * Dissecting thoracic aortic aneurysm. * Peptic ulceration.</p>
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Indications:
Protocol 2-050 - Chest Discomfort
(New Chest Pain suggestive of an acute myocardial infarction) page 19

<p><u>Adult dosage:</u> * 60 u/kg followed by 12 u/kg/hr (max 4,000 u bolus and 1,000 u/hr).</p> <p><u>Pediatric dosage:</u> * Not indicated.</p>	<p><u>Precautions:</u> * Oral anticoagulants.</p> <p><u>Side effects:</u> * Bleeding.</p> <p><u>Antidote:</u> * Protamine sulfate.</p>
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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)

<p>Advanced Life Support</p> <p><u>Class:</u> * NSAID.</p> <p><u>Action:</u> * Inhibits cyclooxygenase and lipoxygenase and reduces prostaglandin synthesis.</p> <p><u>Route:</u> * PO.</p>	<p><u>Half-Life:</u> * 1.8-2 hours.</p> <p><u>Contraindications:</u> * ASA/NSAID induced Asthma. * History of GI bleeds. * Renal insufficiency.</p>
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<p><u>Indications:</u> 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 98</p>

<p><u>Adult dosage:</u> * 200-400 mg every 4-6 hrs.</p> <p><u>Pediatric dosage:</u> * 10 mg/kg.</p>	<p><u>Precautions:</u> * Caution in Hypertension, CHF. Avoid in patients currently taking anticoagulants such as Coumadin.</p> <p><u>Side effects:</u> * Anaphylaxis, Abdominal Pain, Nausea, Headache, dizziness, rash.</p> <p><u>Antidote:</u> *</p>
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<p>Link to research articles (QR code on right): http://1drv.ms/1GOB3eV Citations: (Cox Paramedics, 2014)</p>	
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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 101
Section 7-180 - Duoneb (Ipratropium and Albuterol, Combivent)	page 116

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)

<p>Advanced Life Support</p> <p><u>Class:</u> * Dissociative anesthetic. NMDA receptor antagonist.</p> <p><u>Action:</u> * 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.</p> <p><u>Route:</u> * IV/IO/IM.</p>	<p><u>Half-Life:</u> * 2.5-3 hours.</p> <p><u>Contraindications:</u> * Hypersensitivity.</p>
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<p><u>Indications:</u> Protocol 4-040 - Behavioral..... page 40 Protocol 6-050 - Control of Pain (Pain and anesthesia for procedures of short duration)..... page 75 Protocol 6-110 - Rapid Sequence Intubation (RSI)..... page 87</p>

<p><u>Analgesic dosage:</u> * <u>IV/IO:</u> 0.1-0.2 mg/kg. * <u>IM:</u> 0.8-1.0 mg/kg.</p> <p><u>Dissociative dosage:</u> * <u>IV/IO:</u> 1-2 mg/kg. Produces dissociation within 30 sec lasting 5-10 min. * <u>IM:</u> 4-5 mg/kg. Produces dissociation within 3-4 min lasting 12-25 min. Over 65 yr old: Half doses above.</p>	<p><u>Precautions:</u> * Use caution in patients where significant hypertension would be hazardous (i.e. stroke, head trauma, ICP, MI). * Glaucoma, hypovolemia, dehydration, cardiac disease.</p> <p><u>Side effects:</u> * Emergence phenomena, Hypertension, Tachycardia, hypotension, Bradycardia, arrhythmias, respiratory depression, apnea, laryngospasms, tonic/clonic movements, vomiting.</p> <p><u>Antidote:</u> *</p>
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<p><u>DEA Number:</u> 7285 <u>Schedule:</u> III - Potential for abuse with moderate dependence. <u>Narcotic:</u> No.</p>	<p><u>Street names:</u> * 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.</p>
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<p><u>Link to research articles (QR code on right):</u> http://1drv.ms/1BRznTI <u>Citations:</u> (About Drugs), (Filanovsky, Miller, & Kao, 2010), (Flower & Hellings, 2012), (Sober Recovery), (Street Rx), (US Department of Justice, Drug Enforcement Administration, Office of Diversion Control)</p>	
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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 132).

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 118).
- * Section 7-240 - Glucagon (page 122).

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

Citations:




Section 7-350 - Lactated Ringers (LR)

<p><u>Advanced Life Support</u></p> <p><u>Class:</u> * Crystalloid solution.</p> <p><u>Action:</u> *</p> <p><u>Route:</u> * IV/IO.</p>	<p><u>Half-Life:</u> *</p> <p><u>Contraindications:</u> * None.</p>
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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 67
Protocol 6-040 - Control of Nausea	page 74
Protocol 6-050 - Control of Pain	page 75
Protocol 6-110 - Rapid Sequence Intubation (RSI)	page 87
Section 7-470 - Oxytocin (Pitocin)	page 141

<p><u>Adult dosage:</u> * 500-1,000 ml for volume replacement.</p> <p><u>Pediatric dosage:</u> * 20 ml/kg for volume replacement (max x3).</p>	<p><u>Precautions:</u> * NA.</p> <p><u>Side effects:</u> * Pulmonary Edema.</p> <p><u>Antidote:</u> *</p>
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<p>Link to research articles (QR code on right): http://1drv.ms/1BRzAq0</p> <p><u>Citations:</u> (Laszlo, et al., 2006), (Phillips, et al., 2009), (Schott, 2010), (Todd & Malinoski, 2007)</p>	
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Section 7-360 - Lasix (Furosemide)

Advanced Life Support

Class:

- * Potent diuretic.

Action:

- * Inhibits reabsorption of sodium chloride. Promotes prompt diuresis. 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)

<p>Advanced Life Support</p> <p><u>Class:</u></p> <ul style="list-style-type: none"> * Antiarrhythmic. <p><u>Action:</u></p> <ul style="list-style-type: none"> * Blocks sodium channels, increasing recovery period after repolarization. Suppresses automaticity in the His-Purkinje system and depolarization in the ventricles. <p><u>Route:</u></p> <ul style="list-style-type: none"> * IV/IO/ET/topical. 	<p><u>Half-Life:</u></p> <ul style="list-style-type: none"> * 1.5-2 hours. <p><u>Contraindications:</u></p> <ul style="list-style-type: none"> * High degree heart blocks. * PVCs in conjunction with Bradycardia. * Bleeding.
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<p><u>Indications:</u></p> <p>Protocol 2-100 - Tachycardia Wide Stable..... page 26</p> <p>Protocol 2-130 - Ventricular Ectopy (Ventricular arrhythmias when Amiodarone is not available)..... page 29</p> <p>Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) (Cardiac Arrest from VF/VT)..... page 30</p> <p>Protocol 5-070 - Head Trauma (Premedication for Intubation to help prevent increased ICP) page 64</p> <p>Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) page 72</p> <p>Protocol 6-110 - Rapid Sequence Intubation (RSI) page 87</p> <p>Section 8-135 - Intraosseous (IO) Needle..... page 181</p>
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<p><u>Adult dosage:</u></p> <ul style="list-style-type: none"> * 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. <p><u>Pediatric dosage:</u></p> <ul style="list-style-type: none"> * 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. 	<p><u>Precautions:</u></p> <ul style="list-style-type: none"> * 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. <p><u>Side effects:</u></p> <ul style="list-style-type: none"> * Anxiety, drowsiness, dizziness, confusion, Nausea, vomiting, convulsions, widening of QRS. Arrhythmias, hypotension. <p><u>Antidote:</u></p> <ul style="list-style-type: none"> *
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<p>Link to research articles (QR code on right): http://1drv.ms/18iFNNG</p> <p>Citations:</p>	
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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 101

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 107).
- * Section 7-240 - Glucagon (page 122).

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

Citations:




Section 7-390 - Morphine

<p>Advanced Life Support</p> <p><u>Class:</u> * Opiate.</p> <p><u>Action:</u> * 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.</p> <p><u>Route:</u> * IV/IO/IM/SQ.</p>	<p><u>Half-Life:</u> * 1-2 min onset. * 2-3 hours.</p> <p><u>Contraindications:</u> * Head injury. * Volume depletion. * Undiagnosed Abdominal Pain.</p>
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<p><u>Indications:</u> Protocol 2-050 - Chest Discomfort..... page 19 Protocol 6-050 - Control of Pain..... page 75</p>

<p><u>Adult dosage:</u> * 2-5 mg (max 10 mg).</p> <p><u>Pediatric dosage:</u> * 0.1-0.2 mg/kg.</p>	<p><u>Precautions:</u> * May worsen Bradycardia and heart block in patients with acute inferior wall MI. Acute Asthma.</p> <p><u>Side effects:</u> * Dizziness. ALOC. Respiratory depression. Hypotension. Nausea. Vomiting, lightheadedness, sedation, diaphoresis, euphoria, dysphoria. Possible beneficial effect in pulmonary edema.</p> <p><u>Antidote:</u> * Section 7-400 - Narcan (Naloxone) (page 136).</p>
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<p><u>DEA Number:</u> 9300 <u>Schedule:</u> II - High potential for abuse with severe dependence. <u>Narcotic:</u> Yes.</p>	<p><u>Street names:</u> * C & M, Cotton Brothers, Dreamer, Emsel, First Line, God's Drug, Hows, M, Miss Emma, Mister Blue, Morf, Morpho, MS, New Jack Swing, Unkie.</p>
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<p>Link to research articles (QR code on right): http://1drv.ms/18iFVN6 Citations: (About Drugs), (Citizens Memorial Hospital, 2013), (Cox Paramedics, 2014), (Sober Recovery), (Street Rx), (US Department of Justice, Drug Enforcement Administration, Office of Diversion Control)</p>	
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Section 7-400 - Narcan (Naloxone)

<p><u>Basic Life Support (EMT)</u></p> <ul style="list-style-type: none"> * An EMT may administer IN/IM/SQ in the absence of a RN or Paramedic in the case of narcotic overdose causing respiratory compromise. <p><u>Advanced Life Support</u></p> <p><u>Class:</u></p> <ul style="list-style-type: none"> * Narcotic antagonist. <p><u>Action:</u></p> <ul style="list-style-type: none"> * Binds to opioid receptor and blocks the effect of Narcotics. <p><u>Route:</u></p> <ul style="list-style-type: none"> * IV/IO/IN/IM/SQ/ET. 	<p><u>Half-Life:</u></p> <ul style="list-style-type: none"> * 1-1.5 hours. <p><u>Contraindications:</u></p> <ul style="list-style-type: none"> * Hypersensitivity.
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<p><u>Indications:</u></p> <p>Protocol 4-130 - Neonatal Resuscitation page 53</p> <p>Protocol 4-140 - Poisoning or Overdose (Narcotic Overdoses) page 54</p> <p> Can include: Darvon, Demerol, Dilaudid, Fentanyl, Heroin, Methadone, Morphine, Nubain, Paregoric, Percodan, Stadol, Talwin, Tylenol 3, Tylox.</p> <p>Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) page 72</p> <p>Section 7-160 - Dilaudid (Hydromorphone) (Overdose) page 114</p> <p>Section 7-230 - Fentanyl (Sublimaze) (Overdose) page 121</p> <p>Section 7-390 - Morphine (Overdose) page 135</p>	
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<p><u>Adult dosage:</u></p> <ul style="list-style-type: none"> * 0.4 mg (max 2 mg). <p><u>Pediatric dosage:</u></p> <ul style="list-style-type: none"> * 0.1 mg/kg. 	<p><u>Precautions:</u></p> <ul style="list-style-type: none"> * 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. <p><u>Side effects:</u></p> <ul style="list-style-type: none"> * Nausea, vomiting, restlessness, diaphoresis, Tachycardia, Hypertension, tremulousness, Seizure, cardiac Arrest, withdrawal. <p><u>Antidote:</u></p> <ul style="list-style-type: none"> *
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<p>Link to research articles (QR code on right): http://1drv.ms/18iFWRi</p> <p>Citations: (Clarke, Dargan, & Jones, 2005), (Missouri revised statutes, 2014)</p>	
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Section 7-410 - Neo-Synephrine (Phenylephrine)

<p>Advanced Life Support</p> <p><u>Class:</u> * Vasoconstrictor (alpha).</p> <p><u>Action:</u> * Topical vasoconstriction.</p> <p><u>Route:</u> * Topical.</p>	<p><u>Half-Life:</u> * 2.1-3.4 hours.</p> <p><u>Contraindications:</u> * Hypertension. * Thyroid disease.</p>
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Indications:
Section 8-080 - Endotracheal Tube (ET)
(Premedication for nasal **Intubation** to prevent epistaxis)..... page 176

<p><u>Dosage:</u> * 2 sprays in each nare 1-2 min prior to Intubation.</p>	<p><u>Precautions:</u> * Enlarged prostate with dysuria.</p> <p><u>Side effects:</u> * Nasal burning, stinging, sneezing, or increased nasal discharge.</p> <p><u>Antidote:</u> *</p>
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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	3.0 ml/hr
Drip	6.0 ml/hr
Drip	9.0 ml/hr
Drip	12.0 ml/hr
Drip	15.0 ml/hr
Drip	18.0 ml/hr
Drip	21.0 ml/hr
Drip	24.0 ml/hr
Drip	27.0 ml/hr
Drip	30.0 ml/hr
Drip	33.0 ml/hr
Drip	36.0 ml/hr
Drip	39.0 ml/hr
Drip	42.0 ml/hr
Drip	45.0 ml/hr
Drip	48.0 ml/hr
Drip	51.0 ml/hr
Drip	54.0 ml/hr
Drip	57.0 ml/hr
Drip	60.0 ml/hr

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

<p>Basic Life Support (EMR or EMT)</p> <p>* EMRs and EMTs may utilize Normal Saline to irrigate wounds and Burns.</p> <p>Advanced Life Support</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): http://1drv.ms/18iG8jz</p> <p>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), (Laszlo, et al., 2006), (Phillips, et al., 2009), (Schott, 2010), (Todd & 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 SpO₂ is less than 88%.

Indications:

Virtually all protocols. SpO₂ 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 SpO₂:

		SpO ₂	
Conscious ROSC		100%	Anaphylaxis, anemia, CO, toxin, or trauma
		99%	Cardiac or stroke
		98%	
		97%	
		96%	
		95%	
		94%	
		93%	
		92%	Dyspnea or Unconscious ROSC
		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 FiO₂ 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 PCO₂.

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)

<p>Advanced Life Support</p> <p><u>Class:</u> * Hormone.</p> <p><u>Action:</u> * Causes uterine contraction. Causes lactation. Slows postpartum Vaginal bleeding.</p> <p><u>Route:</u> * IV.</p>	<p><u>Half-Life:</u> * 1-6 minutes.</p> <p><u>Contraindications:</u> * Any condition other than postpartum bleeding. * Cesarean section.</p>
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Indications:
Protocol 4-175 - (Postpartum Vaginal bleeding)..... page 57

<p><u>Adult dosage:</u> * 10-20 u in 1000 ml LR.</p> <p><u>Pediatric dosage:</u> * Not indicated.</p>	<p><u>Precautions:</u> * 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.</p> <p><u>Side effects:</u> * Anaphylaxis. Cardiac arrhythmias.</p> <p><u>Antidote:</u> *</p>
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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 74

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 106).

Antidote:

- *

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

Citations:



Section 7-490 - Procainamide (Pronestyl)

<p>Advanced Life Support</p> <p><u>Class:</u> * Antiarrhythmic.</p> <p><u>Action:</u> * Slows conduction through myocardium. Elevates Ventricular Fibrillation threshold. Suppresses Ventricular ectopy.</p> <p><u>Route:</u> * IV/IO.</p>	<p><u>Half-Life:</u> * 2.5-4.5 hours.</p> <p><u>Contraindications:</u> * High degree heart blocks. * PVCs in conjunction with Bradycardia.</p>
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<p><u>Indications:</u></p> <p>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</p>

<p><u>Dosage:</u></p> <ul style="list-style-type: none"> * WPW initial: 20 mg/min until: <ul style="list-style-type: none"> * 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. <ul style="list-style-type: none"> * 60 ml/hr at 4 mg/ml = 4 mg/min. * Tachycardia: 15 mg/kg over 30-60 min. 	<p><u>Precautions:</u></p> <ul style="list-style-type: none"> * Dosage should not exceed 17mg/kg. Monitor for CNS toxicity. * May prolong QT interval. 12-lead is indicated after administration. <p><u>Side effects:</u></p> <ul style="list-style-type: none"> * Anxiety, Nausea, convulsions, widening QRS. <p><u>Antidote:</u></p> <ul style="list-style-type: none"> *
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<p><u>Link to research articles (QR code on right):</u> http://1drv.ms/18iGoin</p> <p><u>Citations:</u></p>	
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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)

<p><u>Advanced Life Support</u></p> <p><u>Class:</u> *</p> <p><u>Action:</u> *</p> <p><u>Route:</u> *</p>	<p><u>Half-Life:</u> *</p> <p><u>Contraindications:</u> *</p>
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Indications:
 Not in current protocols.

<p><u>Adult dosage:</u> *</p> <p><u>Pediatric dosage:</u> *</p>	<p><u>Precautions:</u> *</p> <p><u>Side effects:</u> *</p> <p><u>Antidote:</u> *</p>
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Link to research articles (QR code on right): <http://1drv.ms/18iGwhY>

Citations:



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 87

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)

<p><u>Advanced Life Support</u></p> <p><u>Class:</u> *</p> <p><u>Action:</u> *</p> <p><u>Route:</u> *</p>	<p><u>Half-Life:</u> *</p> <p><u>Contraindications:</u> *</p>
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<p><u>Indications:</u></p> <p>Section 7-070 - Ativan (Lorazepam) page 104</p> <p>Section 7-580 - Valium (Diazepam) page 155</p> <p>Section 7-600 - Versed (Midazolam)..... page 157</p>

<p><u>Adult dosage:</u> *</p> <p><u>Pediatric dosage:</u> *</p>	<p><u>Precautions:</u> *</p> <p><u>Side effects:</u> *</p> <p><u>Antidote:</u> *</p>
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<p>Link to research articles (QR code on right): http://1drv.ms/1aKvhRf</p> <p>Citations:</p>	
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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 72

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)

<p>Advanced Life Support</p> <p><u>Class:</u> * Corticosteriod.</p> <p><u>Action:</u> * Anti-inflammatory. Immune suppressant.</p> <p><u>Route:</u> * IV/IO/IM.</p>	<p><u>Half-Life:</u> * 18-26 hours.</p> <p><u>Contraindications:</u> * None in emergency setting. * Cushing's syndrome. * Fungal infection. * Measles. * Varicella.</p>
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<p><u>Indications:</u> 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</p>
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<p><u>Adult dosage:</u> * 125-250 mg.</p> <p><u>Pediatric dosage:</u> * 1-2 mg/kg.</p>	<p><u>Precautions:</u> * Must be reconstituted and used properly. Onset of action may be 2-5hrs. Active infections, renal disease, penetrating spinal cord injury, Hypertension, Seizure, CHF.</p> <p><u>Side effects:</u> * GI bleeding. Prolonged wound healing. Suppression of natural steroids. Depression, euphoria, Headache, restlessness, Hypertension, Bradycardia, Nausea, vomiting, swelling, diarrhea, weakness.</p> <p><u>Antidote:</u> *</p>
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<p>Link to research articles (QR code on right): http://1drv.ms/1aKvp36</p> <p>Citations:</p>	
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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 87

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 156) for blocking fasciculations caused by Succinylcholine.

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

Citations:



Section 7-560 - Tetracaine

<p><u>Advanced Life Support</u></p> <p><u>Class:</u> * Anesthetic.</p> <p><u>Action:</u> * Local anesthesia.</p> <p><u>Route:</u> * Topical.</p>	<p><u>Half-Life:</u> * 1.8 hours.</p> <p><u>Contraindications:</u> * Hypersensitivity.</p>
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<p><u>Indications:</u> Protocol 5-060 - Eye Injury (Need for Eye irrigation) page 63 Section 8-210 - Morgan Lens page 196</p>

<p><u>Dosage:</u> * 1-2 drops per Eye (max 2 drops)</p>	<p><u>Precautions:</u> * Patient will be unaware of objects touching their Eye. Be careful to protect the Eye from foreign debris and from the patient rubbing eyes.</p> <p><u>Side effects:</u> * Burning, conjunctival redness, photophobia, lacrimation.</p> <p><u>Antidote:</u> *</p>
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<p>Link to research articles (QR code on right): http://1drv.ms/1aKvrb1</p> <p>Citations:</p>	
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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. Used to prevent Wernicke's encephalopathy in patients with a history of alcohol dependence and hypoglycemia.

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 113

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: (Cox Paramedics, 2014)



Section 7-575 - Toradol (Ketorolac)

<p>Advanced Life Support</p> <p><u>Class:</u> * Non-Steroidal Anti-Inflammatory (NSAID).</p> <p><u>Action:</u> * Inhibit prostaglandin synthesis by decreasing the activity of the enzyme, cyclooxygenase, which results in decreased formation of prostaglandin precursors.</p> <p><u>Route:</u> * IV, IO, IM.</p>	<p><u>Half-Life:</u> * 2.5-6 hours.</p> <p><u>Contraindications:</u> * Allergies to Aspirin, Motrin, or NSAIDs. * Advanced renal impairment. * Suspected CVA. * GI bleeds. * Peptic ulcers. * Surgical candidates. * Pregnant or nursing women.</p>
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Indications:
Protocol 6-050 - Control of Pain (Acute exacerbation of chronic Pain)..... page 75

<p><u>Adult dosage:</u> * 30 mg IV/IO or 60 mg IM. * greater than 65 yr old: half the above dosage due to kidney dysfunction.</p> <p><u>Pediatric dosage:</u> * Contraindicated</p>	<p><u>Precautions:</u> * Toradol inhibits platelet function. Hypersensitivity reactions have occurred (bronchospasm and Anaphylaxis). Avoid in patients currently taking anticoagulants such as Coumadin.</p> <p><u>Side effects:</u> * Can cause peptic ulcers, gastrointestinal bleeding and/or perforation. May adversely affect fetal circulation and the uterus.</p> <p><u>Antidote:</u> *</p>
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Link to research articles (QR code on right): <http://1drv.ms/1AEvnh>

Citations: (Cox Paramedics, 2014), (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 80

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)

<p>Advanced Life Support</p> <p><u>Class:</u> * Tranquilizer. Anticonvulsant. Skeletal muscle relaxant. Sedative.</p> <p><u>Action:</u> * Binds to benzodiazepine receptor and enhances effects of GABA.</p> <p><u>Route:</u> * IV/IO/IM. PR at twice IV dose.</p>	<p><u>Half-Life:</u> * 20-100 hours.</p> <p><u>Contraindications:</u> * Age less than 6 months. * Acute-angle glaucoma. * CNS depression. * Alcohol intoxication.</p>
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<p><u>Indications:</u> 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</p>

<p><u>Adult dosage:</u> * Status epilepticus: 5-10 mg (max 30 mg). * Acute anxiety: 2-5 mg. * Premedication before Cardioversion: 5-15 mg.</p> <p><u>Pediatric dosage:</u> * 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).</p>	<p><u>Precautions:</u> * Local venous irritation. Short duration of effect. May precipitate with other drugs.</p> <p><u>Side effects:</u> * Drowsiness. Hypotension. Respiratory depression. Fatigue, Headache, confusion, Nausea, sedation.</p> <p><u>Antidote:</u> * Section 7-525 - Romazicon (Flumazenil) (page 147).</p>
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<p><u>DEA Number:</u> 2765 <u>Schedule:</u> IV - Low potential for abuse. <u>Narcotic:</u> No.</p>	<p><u>Street names:</u> * Benzos, Blue Vs, Dead Flower, Downers, Drunk Pills, FooFoo, Howards, Ludes, Old Joes, Powers, Sleep Away, Tranks, Vs, Yellows Vs.</p>
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<p><u>Link to research articles (QR code on right):</u> http://1drv.ms/18LbG2F</p> <p><u>Citations:</u></p>	
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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 150).
 - * 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 87

Section 7-550 - Succinylcholine (Anectine) (fasciculations) page 150

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>Advanced Life Support</p> <p><u>Class:</u> * Benzodiazepine.</p> <p><u>Action:</u> * Sedative, anxiolytic, amnesic (2-3x more potent than Valium). Binds to benzodiazepine receptor and enhances effects of GABA.</p> <p><u>Route:</u> * IV/IN/IO.</p>	<p><u>Half-Life:</u> * 1.8-6.4 hours.</p> <p><u>Contraindications:</u> * Hypotension. * Pregnancy. * Acute-angle glaucoma.</p>
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<u>Indications:</u>	
Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter.....	page 16
Protocol 2-040 - Bradycardia (Premedication prior to Cardioversion or Pacing).....	page 18
Protocol 2-060 - Post Resuscitative Care.....	page 22
Protocol 2-080 - Tachycardia Narrow Stable (Premedication prior to Cardioversion or Pacing).....	page 24
Protocol 2-090 - Tachycardia Narrow Unstable (Premedication prior to Cardioversion or Pacing).....	page 25
Protocol 2-100 - Tachycardia Wide Stable (Premedication prior to Cardioversion or Pacing).....	page 26
Protocol 2-110 - Tachycardia Wide Unstable (Premedication prior to Cardioversion or Pacing).....	page 27
Protocol 2-120 - Torsades de Pointes	page 28
Protocol 4-170 - Seizures.....	page 56
Protocol 6-050 - Control of Pain.....	page 75
Protocol 6-110 - Rapid Sequence Intubation (RSI)	page 87
Section 8-050 - Continuous Positive Airway Pressure (CPAP).....	page 171
Section 8-080 - Endotracheal Tube (ET) (Endotracheal tube tolerance).....	page 176
Section 8-160 - King LTSD Airway	page 185
Section 8-190 - LifePak	page 188

<p><u>Adult dosage:</u> * 2.5-5 mg. Can be repeated once (max 10 mg).</p> <p><u>Pediatric dosage:</u> * 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.</p>	<p><u>Precautions:</u> * COPD, acute alcohol intoxication, Narcotics, barbiturates, elderly, neonates.</p> <p><u>Side effects:</u> * Hypoventilation, respiratory depression, respiratory Arrest, hypotension, laryngospasm. Nausea, vomiting, Headache, hiccups, cardiac Arrest.</p> <p><u>Antidote:</u> * Section 7-525 - Romazicon (Flumazenil) (page 147).</p>
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<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> * Dazzle.</p>
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<p>Link to research articles (QR code on right): http://1drv.ms/18iHf2F</p> <p>Citations: (Citizens Memorial Hospital, 2013), (Holsti, et al., 2007), (Silbergleit, et al., 2012)</p>	
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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)

<p>Advanced Life Support</p> <p><u>Class:</u> * Antiemetic.</p> <p><u>Action:</u> * Selective 5-HT receptor antagonist.</p> <p><u>Route:</u> * IV/IM/IN.</p>	<p><u>Half-Life:</u> * 5.7 hours.</p> <p><u>Contraindications:</u> * Hypersensitivity.</p>
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<p><u>Indications:</u></p> <p>Protocol 2-050 - Chest Discomfort page 19</p> <p>Protocol 5-070 - Head Trauma page 64</p> <p>Protocol 6-040 - Control of Nausea page 74</p>

<p><u>Adult dosage:</u> * 4 mg (max 8 mg).</p> <p><u>Pediatric dosage:</u> * 0.15 mg/kg. * less than 2 yrs old: Contraindicated. * greater than 27 kg: Use adult dose.</p>	<p><u>Precautions:</u> * May prolong QT interval. 12-lead is indicated after administration.</p> <p><u>Side effects:</u> * None.</p> <p><u>Antidote:</u> *</p>
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<p>Link to research articles (QR code on right): http://1drv.ms/18Lcm86</p> <p>Citations:</p>	
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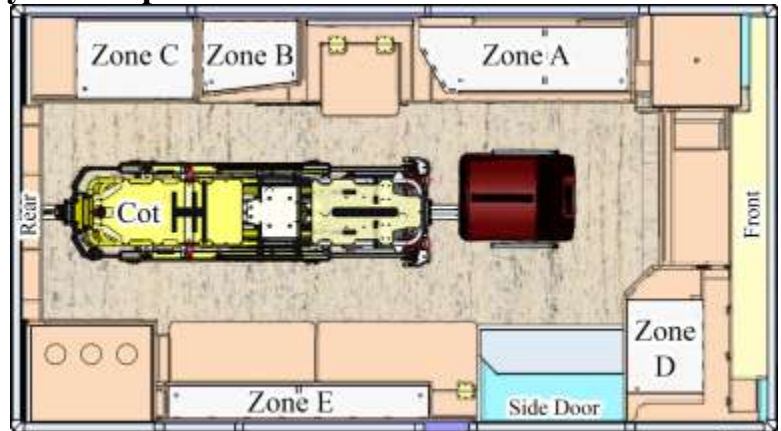
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Part 8 - Equipment Protocols

Section 8-001 - Equipment Currently on Response Vehicles

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 Response Vehicles (page 93) for medications.



Non-medication supplies that are still within a sealed package and do not appear damaged or aged may still be used up to five (5) years after the package expiration date.

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 172)
	1	Linen - Blanket
	1	Linen - Pillow w/case
Cot - Bag First-In	1	Linen - Sheet
		Section 8-120 - Glucometer (page 178)
Cot - Bag Oxygen	1	Section 8-240 - Nebulizer (page 198)
	1	NC adult
	1	NC capno
	1	NRB adult
	1	NRB ped
Cot - Bag LifePak	1	Section 8-010 - Automated External Defibrillator (AED) (page 166) [Only if LifePak not equipped]
	1	Section 8-190 - LifePak (page 188)
	1	BP cuff
	1	Cable 4-lead
	1	Cable 12-lead
	1	Cable download
	1	Cable spo2
	2	Combo pad adult

Location	✓ Qty	Description
	1	Combo pad ped
	1	EKG patches bag
	1	Modem [Only if LifePak 12]
	1	Monitor paper
	1	Razor
Narcotic Box		
RSI Box		
Zone A - Above Action Area	1	Section 8-030 - Bougie (page 168) - Adult
	*	Section 8-050 - Continuous Positive Airway Pressure (CPAP) (page 171) 1 - Medium kit 1 - Large mask 1 - Small mask
	1	Section 8-070 - Cricothyrotomy Kit (page 174)
	*	Section 8-110 - Gastric Tube (page 177) 1 - NG 14 fr 1 - NG 16 fr 1 - suction cath 14 fr 1 - suction cath 16 fr 1 - Toomey syringe
	1	Section 8-230 - Naso-Pharyngeal Airway (NPA) (page 197) - Set
	*	Section 8-240 - Nebulizer (page 198) 4 - Nebulizer 2 - Mask adult 2 - Mask ped
	1	Section 8-260 - Oro-Pharyngeal Airway (OPA) (page 199) - 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 169) [Only on vehicles without capnometer on LifePak]
	1	Section 8-075 - Decompression Needle (page 175)
		Section 8-380 - Thermometer (page 208) [Only on Cedar Co Ambulances]
	1	Hand sanitizer
Zone A - Below Action Area	*	Section 8-370 - Suction (page 207) 1 - Canister 1 - Tubing 1 - Yankauer
		Section 8-330 - Portable Ventilator (page 203) [Only on primary Cedar Co Ambulances]
Zone B	1	Section 8-142 - IV Pump (page 183)
	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 [Only on Cedar and Hickory ambulances]
	1	Doppler Gel [Only on Cedar and Hickory ambulances]

Location	✓	Qty	Description
Zone C		1	EKG patches bag
		1	Monitor paper
		1	Section 8-210 - Morgan Lens (page 196)
		4	Section 8-290 - Physical Restraint (page 200)
		2	Section 8-360 - Splint (page 205) - SAM
		1	Section 8-125 - Hemostatic Agent (page 179)
		1	Section 8-390 - Tourniquet (page 212)
		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 201)
		1	Section 8-320 - Port Access Kit (page 202)
		*	Section 8-370 - Suction (page 207) 2 - Batteries 1 - Canister 1 - Pump 1 - Tubing 1 - Yankauer
		6	Primary tubing
		2	Pump tubing
Zone D - Bag Adult			Section 8-135 - Intraosseous (IO) Needle (page 181)
		1 size 3, 1 size 4, and 1 size 5	Section 8-160 - King LTSD Airway (page 185) [CMH only - EMH is not authorized for King]
Zone D - Bag Adult - Airway		1 size 1 and 1 size 2	Section 8-170 - Laryngeal Mask Airway (LMA) Supreme (page 186) [CMH only - EMH is not authorized for LMA]
		1	Section 8-230 - Naso-Pharyngeal Airway (NPA) (page 197) - Set
	1	Section 8-260 - Oro-Pharyngeal Airway (OPA) (page 199) - Set	

Location	✓	Qty	Description
			Section 8-080 - Endotracheal Tube (ET) (page 176)
			Section 8-180 - Laryngoscope (page 187)
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
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 182) 6 - 14 g 6 - 16 g 6 - 18 g 6 - 20 g 6 - 22 g 6 - 24 g
		1	Section 8-020 - Blood Draw Kit (page 167)
		2	Section 8-130 - Intranasal (IN) Device (page 180)
		20	4x4s
		10	Bandaid
		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 195)
Zone E - Above Bench (if exist)			
Zone E - Below Bench		*	Section 8-370 - Suction (page 207) 2 - Canister 2 - Tubing 2 - Yankauer
		1 set	Cot straps
		2	Linen - Pillow
		6	Trash bags
Exterior Compartment		1	Section 8-150 - Kendrick Extrication Device (KED) (page 184)
		*	Section 8-400 - Traction Splint (page 213) 1 - Traction adult 1 - Traction ped
		1	Board - Scoop
		2	Board - Section 8-350 - Spinal Motion Restriction (SMR) (page 204)
		2	Hazmat suit

Location	✓	Qty	Description
			Section 8-365 - Stair Chair (page 206) [Only on Cedar Co Ambulances and 702]
Exterior Compartment - Bag SMR #1		*	Section 8-350 - Spinal Motion Restriction (SMR) (page 204) 4 - Collar adult 1 - Collar ped 2 - Head bed
		1	Straps spider
		1	Tape 2"
		1	Towel
Exterior Compartment - Bag SMR #2		*	Section 8-350 - Spinal Motion Restriction (SMR) (page 204) 4 - Collar adult 1 - Collar ped 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 170)

Section 8-010 - Automated External Defibrillator (AED)

*NOTE: When using LifePak in AED mode, use Section 8-190 - LifePak (page 188).

Community Responders

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 72

Procedure:

- * Refer to Protocol 2-030 - Automated External Defibrillation (AED) (page 17) for using the AED.
- *

Accessibility:

- * AED must be available for use any time the building is occupied.
- * Location should be obvious and labeled to allow any person who is not familiar with its location to find it.
- * Train as many community or staff members as possible in CPR and AED use.
- * Contact CMH EMS (417-328-6358) for assistance with training and to report the location of your AED.

Supplies to be kept with AED:

- * Dry wash cloth.
- * Safety razor.
- * At least one set of compatible pads. Prefer to have two adult and two pediatric compatible pads.

Monthly maintenance:

- * Refer to manufacturer user manual.
- * Check AED battery function according to manufacturer.
- * Check supplies are usable and not expired.

After using the AED:

- * Contact CMH EMS (417-328-6358) to download data and request assistance (if needed) for Critical Incident Stress Debriefing (CISD).
- * Document event according to your agency policies.
- * Replace equipment used.

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

Citations:



Section 8-020 - Blood Draw Kit

<p><u>Advanced Life Support</u></p> <p><u>Precautions:</u></p> <ul style="list-style-type: none"> * Avoid venipuncture in arms with dialysis shunts or injuries proximal to insertion site. 	<p><u>Contraindications:</u></p> <ul style="list-style-type: none"> * None.
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<p><u>Indications:</u></p> <p>Consider for all medical and trauma patients where time and resources allow and IV being started. Section 8-140 - Intravascular (IV) Needle..... page 182</p>

<p><u>Procedure:</u></p> <ul style="list-style-type: none"> * 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: <ul style="list-style-type: none"> * 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. <ul style="list-style-type: none"> * 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.

<p><u>Blood draw for alcohol analysis Procedure:</u></p> <ul style="list-style-type: none"> * RNs or 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.
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<p>Link to research articles (QR code on right): http://1drv.ms/1zW988p Citations: (Citizens Memorial Hospital, 2013)</p>	
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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 87
Section 8-070 - Cricothyrotomy Kit page 174

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

<u>Basic Life Support (EMR or EMT)</u>	<u>Contraindications:</u>
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Precautions:

*

*

Indications:

Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) page 72

Procedure:

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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 ETCO₂.

Indications:

Protocol 3-010 - Drowning (Near Drowning - awake and alert) page 33
 Protocol 4-030 - Asthma (Consider trial prior to **Intubation** 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 H₂O (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:

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.

- * None.

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 87

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

<p>Advanced Life Support</p> <p><u>Precautions:</u></p> <ul style="list-style-type: none"> * Complications may include laceration of intercostals vessels, creation of pneumothorax, laceration of lung tissue, and risk of infection. 	<p><u>Contraindications:</u></p> <ul style="list-style-type: none"> * None in presence of tension pneumothorax.
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<p><u>Indications:</u></p> <p>Protocol 5-040 - Chest Trauma (Absent lung sounds on affected side with respiratory distress)page 61 Protocol 6-085 - High-Threat Responsepage 80</p>

<p><u>Turkel Procedure:</u></p> <ul style="list-style-type: none"> * 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 paratal pleura until air escapes. * During insertion, the color band will show RED until through paratal 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.
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<p><u>Gelco Procedure:</u></p> <ul style="list-style-type: none"> * 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 paratal 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.
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<p><u>Link to research articles (QR code on right):</u> http://1drv.ms/1zW9Geh</p> <p><u>Citations:</u></p>	
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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 80
Protocol 6-110 - Rapid Sequence Intubation (RSI) (Need for definitive Airway)..... page 87

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 87
 Section 8-080 - Endotracheal Tube (ET) (Evacuation of air or fluids in stomach) page 176
 Section 8-160 - King LTSD Airway (Evacuation of air or fluids in stomach) page 185
 Section 8-170 - Laryngeal Mask Airway (LMA) Supreme page 186

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 72

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

<p><u>Advanced Life Support</u></p> <p><u>Precautions:</u> * None.</p>	<p><u>Contraindications:</u> * None.</p>
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<p><u>Indications:</u> Protocol 1-020 - General Assessment and Treatment - Trauma..... page 12 Protocol 6-085 - High-Threat Response page 80</p>
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<p><u>Procedure:</u></p> <ul style="list-style-type: none"> * 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.
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<p><u>Link to research articles (QR code on right):</u> http://1drv.ms/1xwHYJH Citations: (Medtrade Products Ltd)</p>	
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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.

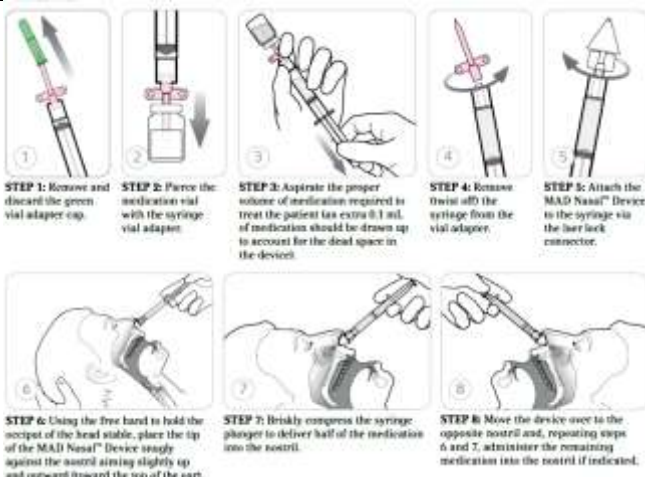
Section 7-230 - Fentanyl (Sublimaze)	page 121
Section 7-400 - Narcan (Naloxone)	page 136
Section 7-600 - Versed (Midazolam).....	page 157
Section 7-620 - Zofran (Ondansetron).....	page 159

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 0.1 ml 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. Preferred needle size is 18 to 20. Preferred site is left AC or (secondary) right AC.
- * 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. Use pigtail extension.
- * 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)

Contraindications:

- * Patients with easy access requiring rapid extrication.

Precautions:

- *

Indications:

Section 8-350 - Spinal Motion Restriction (SMR)
(Patients that are seated and meet criteria for SMR) page 204
Section 8-360 - Splint page 205

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)	<i>Contraindications:</i>
<i>Precautions:</i>	<ul style="list-style-type: none"> * Responsive patient with intact gag reflex. * Known esophageal disease. * Caustic substance ingestion.
*	

Indications:

Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) page 72
 Protocol 6-110 - Rapid Sequence Intubation (RSI) page 87
 Section 8-080 - Endotracheal Tube (ET) (Considered alternate Airway to endotracheal tube)..... page 176

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 ETCO₂.
- * 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 (90-115 cm) or 12-25 kg	41-51 inches (105-130 cm) or 25-35 kg	4-5 feet (122-155 cm)	5-6 feet (155-180 cm)	greater than 6 feet (>180 cm)
Cuff Pressure	60 cm H ₂ O	60 cm H ₂ O	60 cm H ₂ O	60 cm H ₂ O	60 cm H ₂ 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)

Contraindications:

- * Swallow or gag reflex.

Precautions:

- *

Indications:

Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) page 72
 Protocol 6-110 - Rapid Sequence Intubation (RSI) page 87
 Section 8-080 - Endotracheal Tube (ET) (Considered alternate Airway to endotracheal tube)..... page 176

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

<p><u>Advanced Life Support</u></p> <p><u>Precautions:</u> *</p>	<p><u>Contraindications:</u> *</p>
<p><u>Indications:</u> Future location of video laryngoscope</p>	
<p><u>Procedure:</u> *</p>	
<p>Link to research articles (QR code on right): http://1drv.ms/1zWdHzq <u>Citations:</u></p>	

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)
(Cardiac Arrest without ALS assistance)..... page 17

Protocol 6-025 - Cardiopulmonary Resuscitation (CPR)
(Cardiac Arrest without ALS assistance)..... page 72

Section 8-010 - Automated External Defibrillator (AED)
(Cardiac Arrest without ALS assistance)..... page 161

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)	<u>Contraindications:</u> *
<u>Precautions:</u> *	

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.

<p><u>Basic Life Support - Vitals</u> <u>(EMR or EMT)</u></p> <p><u>Precautions:</u> *</p>	<p><u>Contraindications:</u> * Do not attempt blood pressures on injured extremities, side of previous mastectomies, or dialysis shunts.</p>
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<p><u>Indications:</u> All patient contacts. Minimum of 2 sets of vitals required for all transported patients. Before and after medication administration. Every 5-10min in critical patients.....</p>

<p><u>Procedure:</u> * Choose and apply appropriately sized cuff. Auscultated blood pressure is required as a baseline to verify LifePak before medication administration. * Attach pulse-ox probe. * If patient is being transported ALS: Connect 4-lead cardiac monitor.</p>
--

<p><u>Advanced Life Support - Defibrillation</u></p> <p><u>Precautions:</u></p> <ul style="list-style-type: none"> * Exercise safety precautions. 	<p><u>Contraindications:</u></p> <ul style="list-style-type: none"> * None in cardiac Arrest.
<p><u>Indications:</u></p> <p>Protocol 2-030 - Automated External Defibrillation (AED) page 17</p> <p>Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) page 30</p> <p>Protocol 3-010 - Drowning page 33</p> <p>Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) page 72</p> <p>Section 8-010 - Automated External Defibrillator (AED)..... page 161</p>	
<p><u>Procedure:</u></p> <ul style="list-style-type: none"> * Verify patient is in cardio-pulmonary Arrest. * Record baseline rhythm. * Apply combo-pads (anterior-posterior is preferred) * Select appropriate energy. <ul style="list-style-type: none"> * <u>Adult</u>: 360 J (OR consider biphasic dose of 200 J). * <u>Pediatric</u>: 2 J/kg (first shock), 4 J/kg (subsequent shocks). * Charge and clear patient. * Call “CLEAR” and ensure patient is clear. * Press “SHOCK.” * Reassess patient. 	

Basic Life Support - Download to ePCR

Contraindications:

Precautions:

*
*

*

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><u>Advanced Life Support - Synchronized Cardioversion</u></p> <p><u>Precautions:</u></p> <ul style="list-style-type: none"> * Exercise safety precautions. Cardiovert with extreme caution in patients on digitalis, Beta-Blockers, and Calcium channel blockers. 	<p><u>Contraindications:</u></p> <ul style="list-style-type: none"> *
<p><u>Indications:</u></p> <p>Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter page 16</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><u>Procedure:</u></p> <ul style="list-style-type: none"> * 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. <ul style="list-style-type: none"> * <u>Adult</u>: 120 J. * <u>Pediatric</u>: 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

Contraindications:

Precautions:

- * Exercise safety precautions. Do not place pacer electrodes directly over implanted pacemaker or AICD.

- * 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 72

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:

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Contraindications:

*

Precautions:

*

Indications:

Protocol 4-130 - Neonatal Resuscitation page 53

Procedure:

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Link to research articles (QR code on right): <http://1drv.ms/1zWc7h1>

Citations:



Section 8-210 - Morgan Lens

Advanced Life Support

Precautions:

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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)

<p><u>Basic Life Support (EMR or EMT)</u></p> <p><u>Precautions:</u> *</p>	<p><u>Contraindications:</u> *</p>
<p><u>Indications:</u> Patients unable to control their Airway. Clinched jaws. Altered LOC with gag reflex.</p>	
<p><u>Procedure:</u></p> <ul style="list-style-type: none"> * 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. 	
<p>Link to research articles (QR code on right): http://1drv.ms/1zWcmbQ</p> <p><u>Citations:</u></p>	



Section 8-240 - Nebulizer

Advanced Life Support

Precautions:

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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 101
Section 7-140 - Decadron (Dexamethasone)	page 112
Section 7-180 - Duoneb (Ipratropium and Albuterol, Combivent)	page 116
Section 7-210 - Epinephrine Racemic (Micronefrin)	page 119
Section 7-320 - Ipratropium (Atrovent)	page 128
Section 7-610 - Xopenex (Levalbuterol)	page 158

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)

<p>Basic Life Support (EMR or EMT)</p> <p><u>Precautions:</u></p> <ul style="list-style-type: none"> * 	<p><u>Contraindications:</u></p> <ul style="list-style-type: none"> * Gag reflex.
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<p><u>Indications:</u></p> <p>Unconscious or unresponsive.</p>
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<p><u>Procedure:</u></p> <ul style="list-style-type: none"> * 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.
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<p>Link to research articles (QR code on right): http://1drv.ms/1zWcxDW</p> <p>Citations:</p>	
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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.

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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 1267
Protocol 6-080 - Event Standby	page 1279

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:

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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

Basic Life Support (EMR or EMT)

Precautions:

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Contraindications:

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Indications:

Section 8-060 - Cotpage 172

Procedure:

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

Citations:



Section 8-370 - Suction

<p>Basic Life Support (EMR or EMT)</p> <p><u>Precautions:</u></p> <ul style="list-style-type: none"> * Be sure to switch off as soon as possible to avoid shorting batteries. 	<p><u>Contraindications:</u></p> <ul style="list-style-type: none"> *
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<p><u>Indications:</u></p> <p>Protocol 4-130 - Neonatal Resuscitation page 53</p> <p>Protocol 6-110 - Rapid Sequence Intubation (RSI) page 87</p>

<p><u>Procedure:</u></p> <ul style="list-style-type: none"> * 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.

<p>Link to research articles (QR code on right): http://1drv.ms/1zWdb15</p> <p><u>Citations:</u></p>	
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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.

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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 IconPediatric Axillary
Mode Icon

MONITOR

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 80

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

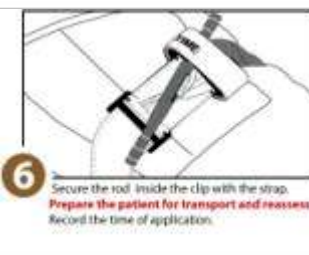
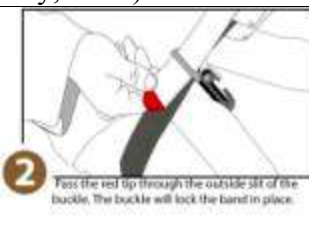
- * Application of Tourniquets typically results in severe Pain. Consider referring to Protocol 6-050 - Control of Pain (page 75) after bleeding control and fluid administration.
- * If prolonged transport time, consider Tourniquet removal if all of the following are met:
 - * Not in circulatory shock.
 - * 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:



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Part 9 - Appendix

Section 9-010 - References

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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 4-175 -	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 ABLIS 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-profufusion 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

Protocol	Date	Version 4 changes description
		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 0-300 - 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

Protocol	Date	Version 4 changes description
Protocol 1-020 - General Assessment and Treatment - Trauma		DELIBERATE ACTIONS.
	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.
Protocol 2-010 - Asystole	4/3/15	Added "consider SMR."
	12/12/14	Added consider Gastric Tube.
Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter	4/3/15	Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).
	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

Protocol	Date	Version 4 changes description
		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.
	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

Protocol	Date	Version 4 changes description
		na 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

Protocol	Date	Version 4 changes description
		“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

Protocol	Date	Version 4 changes description
		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




Protocol	Date	Version 4 changes description
		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 4-175 -	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.


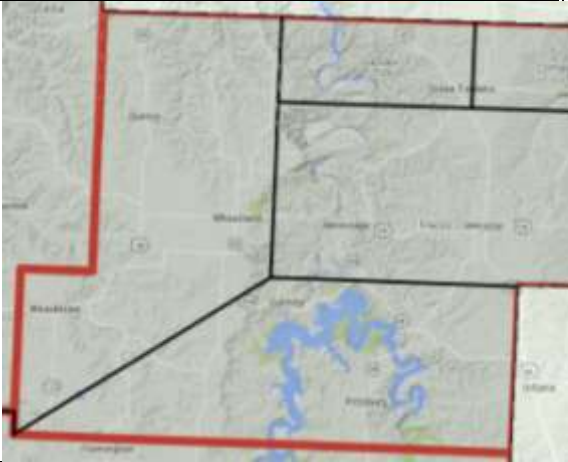

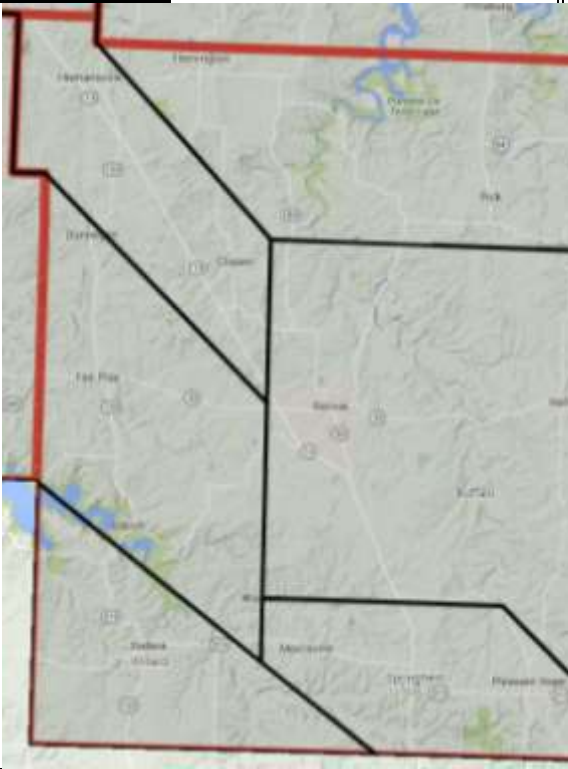
Protocol	Date	Version 4 changes description
		Added keep patient warm. Detailed fluid bolus dose for pediatrics greater than 6 yr and less than 6 yr. Added weight-based dose for greater than 65yr for Fentanyl. Added reference to Poisoning for smoke inhalation.
	4/14/15	Added "consider" to limb leads.
Protocol 5-040 - Chest Trauma	12/12/14	Made Intubation a DELIBERATE ACTION. Made Chest Decompression a DELIBERATE ACTION. Added 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



Protocol	Date	Version 4 changes description
		greater than 65 yr for Fentanyl.
Protocol 5-070 - Head Trauma	4/14/15	Added "consider" to limb leads.
Protocol 5-080 - Spinal Trauma	12/12/14	Changed target ET _{CO₂} from 30-35 to 40-45. Added comment to maintain patient temperature. Changed LR to NS. Added desired SBP table.
Section 6-010 - Acquisition of Medical Control	3/2/15	Defined Cushing's Triad. Made Intubation and RSI DELIBERATE ACTIONS. Added weight-based dose for greater than 65 yr for Fentanyl.
Section 6-020 - Air Ambulance	12/12/14	Removed DELIBERATE ACTIONS. Made Intubation and RSI DELIBERATE ACTIONS. Added weight-based dose for greater than 65 yr for Fentanyl.
Section 6-010 - Acquisition of Medical Control	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

Protocol	Date	Version 4 changes description
		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

Protocol	Date	Version 4 changes description
	14	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 6-095 - Mutual Aid Maps When requesting resources, utilize the following maps to determine the closest, most appropriate ambulance. These are simplified boundaries based on response time calculations by Theron Becker in February 2016. KML files are available upon request for integration into GIS and CAD. Cedar County - All ambulances available:	4/3/15	Clarified the application of this protocol on non-CMH employees.

Protocol	Date	Version 4 changes description
		
<p><u>Cedar County</u> - Mutual aid to El Dorado Springs:</p> 		
<p><u>Hickory County</u> - All ambulances available:</p>		<p><u>Cedar County</u> - Mutual aid to Stockton:</p> 

Protocol		Date	Version 4 changes description
			
			
<p><u>Polk County</u> - All ambulances available:</p> 		<p><u>Polk County</u> - Mutual aid to Bolivar:</p> 	
<p><u>St Clair County</u> - All ambulances available:</p>		<p><u>St Clair County</u> - Mutual aid to Appleton City:</p>	

Protocol	Date	Version 4 changes description
		
<p>St Clair County - Mutual Aid to El Dorado Springs:</p>		
<p>St Clair County - Mutual aid to Osceola:</p>		
		
<p>Section 6-100 - Off-Duty Protocols</p>		
<p>Section 6-105 - Quality Improvement</p>	<p>12/29/14</p>	<p>Added placeholder for this protocol.</p>
<p>Protocol 6-110 - Rapid Sequence Intubation (RSI)</p>	<p>3/31/15</p>	<p>Created content for this protocol with similar requirements to Section 6-030 - Competencies and Education.</p>
<p>Protocol 6-110 - Rapid Sequence Intubation (RSI)</p>	<p>2/22/14</p>	<p>Removed Ketamine contraindications</p>

Protocol	Date	Version 4 changes description
		on to Head injury.
	12/15/14	Added O2 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 contraindications 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.

Protocol	Date	Version 4 changes description
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 ₂ titration rates.
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.

Protocol	Date	Version 4 changes description
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 half-life.
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

Protocol	Date	Version 4 changes description
		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 currently available on ambulances can be found in Section 7-001 - Medications Currently on Response Vehicles and Section 8-001 - Equipment Currently on Response Vehicles . Also added space to fill in who the hard copy is issued to.
Section 0-100 - 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	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.

Protocol	Date	Version 5 changes description
Treatment - Trauma		
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.
	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	Date	Version 5 changes description
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 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	12/12/14	Added comment that adults should receive 20 min of CPR before movement.
	12/15/14	Changed CPR to CCR.

Protocol	Date	Version 5 changes description
Resuscitation	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 Response Vehicles	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 interval	11/17/15	Added this section.
	11/24/15	Added levomepromazine, Nosinan, Nozinan, Levoprome, delamanid, Delytba, and papaverine to the list.
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 Response Vehicles	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).

Protocol	Date	Version 5 changes description
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 Tablet	11/17/15	Removed this section due to removing tablets from ambulances.
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.

Changes from version 5 to version 6 (Flemming)

Version Six is named in dedication to Sir Alexander Flemming who was a Scottish biologist and pharmacologist who discovered penicillin.

Protocol	Date	Version 5 changes description
Entire document	12/28/15	Added RN wherever Paramedic was listed to facilitate RNs working in the paramedic role on an ambulance.
Protocol 4-175 - Sepsis	12/4/15	Created this protocol.
Section 6-010 - Acquisition of Medical Control	12/4/15	Modified "Medical control SHALL be provided by receiving hospital" to "is preferred to."
Protocol 6-085 - High-Threat Response	12/2/15	Added comment that crews should enter high-threat situations in coordination with incident command.
Section 7-005 - Medications that prolong QT interval	12/22/15	Added Oxaliplatin, Eloxatin, Asenapine, Saphris, Sycrest, Hydrocodone, Hysingla, and Zohydro.

Changes from version 6 to version 7 (Gause)

Version Seven is named in dedication to Gregory Gause who was a Russian biologist who dedicated most of his later life to the research of antibiotics.

Protocol	Date	Version 5 changes description
Section 0-010 - Master Signature Page	1/27/16	Added MPDS medical direction details for sections requiring specific instructions in card set.
	2/3/16	Combined all signature pages into one page for ease of maintaining.
	2/6/16	Added community responder AED content.
Section 0-020 - Standing Orders for Agency Type	2/3/16	Added this section to handle specifics for each agency that were previously handled on separate signature pages.
	2/6/16	Added community responder AED content.
Protocol 2-030 - Automated External Defibrillation (AED)	2/6/16	Added section for community responders. The intent of this addition is to provide standing protocols for community agencies and organizations to utilize for the use of their AEDs.
Protocol 1-010 - General Assessment and Treatment - Medical	2/3/16	Added EMD section.
Protocol 1-020 - General Assessment and Treatment - Trauma	2/3/16	Added EMD section.
Protocol 2-050 - Chest Discomfort	2/3/16	Added EMD section for MPDS medical direction.
Protocol 3-010 - Drowning	2/3/16	Added EMD section for MPDS medical direction.
Protocol 4-010 - Abdominal Pain	2/3/16	Added comment that IV preferred location is in left AC and to use pigtail extension.
Protocol 4-050 - Cardiovascular Accident (CVA) or Stroke	2/3/16	Added EMD section for MPDS medical direction.
Protocol 4-090 - Childbirth	2/3/16	Added EMD section for MPDS medical direction.
Protocol 5-030 - Burns	2/3/16	Added EMD section.
Protocol 5-085 - Superficial Penetrating Object Removal	1/28/16	Created this section.
Protocol 6-025 - Cardiopulmonary Resuscitation (CPR)	2/3/16	Added EMD section for MPDS medical direction.
	2/6/16	Added reference to AED protocol.
Section 6-030 - Competencies and Education	1/28/16	Added option for CRNA to verify intubations instead of just an anesthesiologist.
Section 6-060 - Do Not Resuscitate (DNR)	2/3/16	Added TPOPP comfort measures.

Protocol	Date	Version 5 changes description
Section 6-105 - Quality Improvement	2/3/16	Added EMD section with dispatch center requirements.
Protocol 6-110 - Rapid Sequence Intubation (RSI)	1/26/16	Added comment that EMH is not authorized for RSI.
Section 6-125 - Transfer Out of Hospital	2/3/16	Created this section.
Section 6-140 - Termination of Resuscitation	2/3/16	Added EMD section for MPDS medical direction.
Section 7-001 - Medications Currently on Response Vehicles	1/26/16	Added comments that the following are not authorized for EMH and not carried on their ambulances: - Cardizem - Decadron - Etomidate - Haldol - Heparin - Hydralazine - Ketamine - Neo-Synephrine - Rocuronium
	2/3/16	Changed section title from "currently on ambulances" to "currently on response vehicles"
Section 8-001 - Equipment Currently on Response Vehicles	1/26/16	Added comments that the following are not authorized for EMH and not carried on their ambulances: - King Airway - LMA
	2/3/16	Changed section title from "currently on ambulances" to "currently on response vehicles" Added comment that equipment can be used up to 5 years past expiration date if unopened and undamaged.
Section 8-010 - Automated External Defibrillator (AED)	2/6/16	Added content for AED accessibility, supplies, maintenance, and what to do if the AED is used. The intent of these additions is to provide standing protocols for community agencies and organizations to utilize for the use of their AEDs.
Section 8-140 - Intravascular (IV) Needle	2/3/16	Added comments for preferred size (18-20), preferred site (left or right AC), and to use a pigtail extension.
Section 8-190 - LifePak	1/20/16	Changed Downloading ePCR from ALS to BLS procedure.

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Section 9-050 - Glossary of Abbreviations

ABC - Airway, Breathing, Circulation.	EMD - Emergency Medical Dispatcher.
AC - Antecubital space for IV access. Interior of elbow.	EMH - Ellett Memorial Hospital.
ACLS - Advanced Cardiac Life Support.	EMR - Emergency Medical Responder. Also synonymous with MFR (Medical First Responder).
ADLS - Advanced Disaster Life Support.	EMS - Emergency Medical Services. Usually associated with transport of sick or injured patients.
AED - Automated External Defibrillator.	EMT - Emergency Medical Technician. Also synonymous with EMT-B (Emergency Medical Technician - Basic).
A-Fib - Atrial Fibrillation.	ePCR - Electronic Patient Care Report.
ALOC - Altered Level Of Consciousness.	Epi - Epinephrine.
ALS - Advanced Life Support. Usually provided by paramedics and RNs.	ER - Emergency Room. Also known as ED (Emergency Department).
AOTB - Smell of Alcohol On The Breath.	ET - Endotracheal Tube.
APGAR - Activity, Pulse, Grimace, Appearance, and Respiration. Assessment tool for newborns.	ETCO ₂ - End-Tidal Carbon Dioxide. Level of CO ₂ exhaled. Also known as capnography.
ATLS - Advanced Trauma Life Support.	ETOH - Alcohol.
AVPU - Level of consciousness measurement meaning Alert, Verbal, Painful, Unresponsive.	ETT - Endotracheal Tube.
BCFD - Bolivar City Fire Department.	F - Fahrenheit. Measurement of temperature.
BDLS - Basic Disaster Life Support.	g - Gram. Measurement of mass.
BLS - Basic Life Support. Usually provided by EMRs and EMTs.	GCS - Glasgow Comma Scale.
BP - Blood Pressure.	GI - Gastrointestinal.
BSA - Body Surface Area. Percent of skin usually used to measure burns.	gm - Gram. See g.
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.	HR - Heart Rate. Beats per minute.
BTLS - Basic Trauma Life Support. See ITLS.	IAEMD - International Academies of Emergency Medical Dispatch.
CAD - Coronary Artery Disease. OR Computer Aided Dispatch.	ICU - Intensive Care Unit.
CAT - Computerized Axial Tomography scan.	IDLH - Immediately Dangerous to Life and Health.
CCR - Cardio Cerebral Resuscitation. Similar to CPR but through the use of compressions only.	IM - Intramuscular. Medication access through muscle.
CCSO - Cedar County Sheriff's Office. 9-1-1 PSAP.	IN - Intranasal. Medication access through capillaries of the nose.
CHF - Congestive Heart Failure.	IO - Intraosseous. Medication access through a bone.
CMH - Citizens Memorial Hospital.	ITLS - International Trauma Life Support.
CO - Carbon Monoxide.	IV - Intravenous. Medication access through a vein.
CO ₂ - Carbon Dioxide.	J - Joules. Measurement of energy.
COPD - Chronic Obstructive Pulmonary Disease.	KED - Kendrick Extrication Device.
CPAP - Continuous Positive Airway Pressure.	kg - Kilogram. Measurement of mass.
CPR - Cardio Pulmonary Resuscitation.	L - Liter. Measurement of volume.
CSR - Code of State Regulations.	LBBB - Left Bundle Branch Block.
CT - X-Ray Computed Tomography imaging.	LEO - Law Enforcement Officer. See TES.
CVA - Cardiovascular Accident. Stroke.	LMA - Laryngeal Mask Airway.
D10W - 10% Dextrose in Water.	LOC - Level of Consciousness.
D25W - 25% Dextrose in Water.	LR - Lactated Ringers.
D50W - 50% Dextrose in Water.	MAP - Mean Arterial Pressure.
D5W - 5% Dextrose in Water.	max - Maximum.
DAI - Drug Assisted Intubation. Similar to RSI.	mcg - Microgram. Measurement of mass.
dl - Deciliter. Measurement of volume.	MD - Medical Doctor.
DNR - Do Not Resuscitate. Legal document stating the patient's wishes if they are unable to communicate them.	mEq - Milliequivalent. Measurement of medication.
ECG - See EKG.	MFPD - Morrisville Fire Protection District.
ED - See ER.	MFR - See EMR.
EKG - Electrocardiogram. Measurement of the electrical activity of the heart using limb leads to produce the equivalent of a 6-Lead. Synonymous with ECG.	mg - Milligram. Measurement of mass.
	mi - Miles. Measurement of distance.
	MI - Myocardial Infarction. See STEMI.
	min - Minute. Measurement of time. OR Minimum.
	ml - Milliliter. Measurement of volume.
	mm - Millimeter. Measurement of distance.
	MOI - Mechanism of Injury.

Section 9-050 - Glossary of Abbreviations

<p>MPDS - Medical Priority Dispatch System.</p> <p>mph - Miles Per Hour. Measurement of speed.</p> <p>MS - Medical Surgery (Med-Surg) Unit.</p> <p>MV - Mircovolt.</p> <p>NCN - No Care Needed.</p> <p>neb - Nebulized. Medication access through the lungs and airway passages.</p> <p>NIH - National Institute of Health.</p> <p>NIHSS - National Institute of Health Stroke Screen.</p> <p>NOI - Nature of Illness.</p> <p>NPA - Nasopharyngeal Airway.</p> <p>NS - Normal Saline.</p> <p>OB - Obstetrics.</p> <p>OPA - Oropharyngeal Airway.</p> <p>PCCD - Polk County Central Dispatch. 9-1-1 PSAP.</p> <p>PCR - Patient Care Report.</p> <p>PEA - Pulseless Electrical Activity. Electrical activity is seen on the EKG but not enough mechanical activity of the heart to produce a pulse.</p> <p>PHS - Pre-Hospital Services. See EMS.</p> <p>PO - Medication access through ingestion in the stomach.</p> <p>PPE - Personal Protective Equipment. May include contact precautions such as gloves, thermal protection such as firefighting gear, or respiratory protection such as SCBA.</p> <p>PRC - Patient Refusal of Care.</p> <p>PSAP - Public Safety Answering Point.</p> <p>QR - Quick Response code. Type of barcode.</p> <p>QRS - Ventricular depolarization electrical activity of the heart that includes the Q-wave, R-wave, and S-wave.</p> <p>QT - Portion of the EKG that is measured between the Q-wave and the T-wave.</p> <p>RBBB - Right Bundle Branch Block.</p> <p>RN - Registered Nurse.</p> <p>RR - Portion of the EKG that is measured from R-wave to R-wave. One beat.</p> <p>RSI - Rapid Sequence Intubation.</p>	<p>RTF - Rescue Task Force.</p> <p>SAMPLE - Signs/Symptoms, Allergies, Medications, Past Pertinent history, Last oral intake, Events leading up to the current condition. Assessment tool.</p> <p>SBP - Systolic Blood Pressure. Top number in a blood pressure measurement. Measures the contraction of the heart.</p> <p>SCBA - Self-Contained Breathing Apparatus.</p> <p>SL - Sub Lingual. Medication access through capillaries of the mouth under the tongue.</p> <p>SME - Subject Matter Expert.</p> <p>SMR - Spinal Motion Restriction. Usually involve a c-collar and possible a backboard.</p> <p>SpO₂ - Saturation of Peripheral Oxygen. Percent of hemoglobin saturated (usually saturated by Oxygen).</p> <p>SQ - Subcutaneous. Medication access through fatty later between skin and muscle.</p> <p>STEMI - ST-segment Elevated Myocardial Infarction. Also known as a heart attack that can be seen on an EKG.</p> <p>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.</p> <p>TXA - Tranexamic Acid.</p> <p>VA - Veterans Administration.</p> <p>VF - See V-Fib.</p> <p>V-Fib - Ventricular Fibrillation.</p> <p>VT - See V-Tach.</p> <p>V-Tach - Ventricular Tachycardia.</p> <p>WBC - White Blood Count.</p> <p>WPW - Wolff Parkinson White. Specific EKG interpretation.</p> <p>yr - Year. Measurement of time.</p> <p>yrs - Years. Measurement of time.</p>
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