Citizens Memorial Hospital EMS Protocols

Part 0 - Front Matter

Section 0-010 - Citizens Signature Page

Version Number: v 6

Version Date: January 1st, 2016

Citizens EMS Director: _____ (Neal Taylor)

Citizens EMS Medical Director: _____ (Roger Merk, MD)

Citizens EMS Clinical Officer: _____ (Theron Becker)

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

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

Medications and equipment listed in these protocols may not reflect actual medications and equipment available due to drug shortages and other considerations. Refer to Section 7-001 - Medications Currently on Ambulances (page 91) and Section 8-001 - Equipment Currently on Ambulances (page 159).

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

This copy is issued to: _____

Ellett Memorial Hospital EMS Protocols

Section 0-020 - Ellett Signature Page

Version Number: v 5

Version Date: December 1st, 2015

Ellett EMS Director: _____ (Cathy Menninga)

Ellett EMS Medical Director: _____ (Dr. Paul Kramer)

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

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

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

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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.

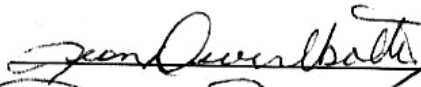
This copy is issued to:_____

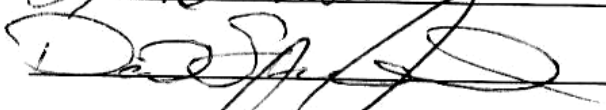
Cedar County Sheriff's Department - EMD Protocols

Section 0-030 - Cedar Dispatch Signature Page

Version Number: v 6

Version Date: January 1st, 2016

Cedar County Sheriff:  (Leon Dwerlkotte)

Cedar Co Dispatch Director:  (David Shoemaker)

Cedar EMD Medical Director:  (Roger Merk, MD)

These protocols are designed to provide Emergency Medical Dispatchers (EMD) employed with Cedar County Sheriff's Department with standing written orders to 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. This document will be reviewed annually.

The following acuity levels are defined for using the 33 protocol (Transfer) where the transfer is originating within a hospital. All other locations such as long term care or clinics shall use the 33 protocol 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 medical condition.
- 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 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 Obstetrics Department (OB).
    - The patient is located in the Intensive Care Unit (ICU).
    - The patient is located in 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 dispatch 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 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, Select Specialty or similar rehab facility.

Polk County Central Dispatch - EMD Protocols

Section 0-040 - Polk Dispatch Signature Page

Version Number: v 6

Version Date: January 1st, 2016

Polk Co Dispatch Director: _____ (Sarah Newell)

Polk EMD Medical Director: _____ (Roger Merk, MD)

These protocols are designed to provide Emergency Medical Dispatchers (EMD) employed with Polk County Central Dispatch with standing written orders to 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.

The following acuity levels are defined for using the 33 protocol (Transfer) where the transfer is originating within a hospital. All other locations such as long term care or clinics shall use the 33 protocol 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.
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- The patient is being transferred for immediate surgery or treatment for medical condition.
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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 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 Obstetrics Department (OB).
    - The patient is located in the Intensive Care Unit (ICU).
    - The patient is located in Medical Surgical Unit (MS).

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- The patient is very stable and a lengthy delay in transfer will not jeopardize the patient.
- The patient is being transferred for 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.
- The transfer is to a Veterans Administration (VA) hospital, Select Specialty or similar rehab facility.

Bolivar City Fire Department - EMS Protocols

Section 0-050 - Bolivar Fire Signature Page

Version Number: v 6

Version Date: January 1st, 2016

Bolivar Fire Chief: _____ (James Ludden)

Bolivar Fire Medical Director: _____ (Roger Merk, MD)

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

While utilizing these protocols, RNs and Paramedics are limited to performing BLS procedures.

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

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This copy is issued to: _____

Morrisville Fire Protection District - EMS Protocols

Section 0-060 - Morrisville Fire Signature Page

Version Number: v 6

Version Date: January 1st, 2016

Morrisville Fire Chief: _____ (William Proctor)

Morrisville Medical Director: _____ (Roger Merk, MD)

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

While utilizing these protocols, RNs and Paramedics are limited to performing BLS procedures.

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This copy is issued to: _____

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.

Section 0-300 - Table of Contents

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Part 1 - Assessment Protocols

Protocol 1-010 - General Assessment and Treatment - Medical

BLS - EMR

- ✱ 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.
  - ✱ Two sets of vitals should be obtained that include time, blood pressure, pulse, respirations, SpO_2, and Pain level.
    - ✚ If patient contact time is less than 15 minutes (i.e. very short transport time with a critical patient), one set of vitals may be appropriate.
  - ✱ When appropriate, additional vitals may include temperature, orthostatic blood pressure, and Glucose. Consider assisting ALS with $ETCO_2$.

BLS - EMT

- ✱ 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.

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ ALS indicated when:
  - ✱ Unresponsive.
  - ✱ Responsive meeting one of the following:
    - ✚ Altered mental status.
    - ✚ GCS less than 13.
    - ✚ Respiratory distress.
    - ✚ Signs of shock.
    - ✚ PulseOx less than 88.
    - ✚ Need for IV/IO or medications.
    - ✚ Chest discomfort.
    - ✚ *Adult* vitals:
      - ✖ SBP less than 100 or greater than 180
      - ✖ Pulse less than 60 or greater than 120
      - ✖ Respirations less than 12 or greater than 30
    - ✚ *Pediatric* vitals:
      - ✖ SBP less than 70 + 2 x (age yrs)
      - ✖ Pulse less than 60 or greater than 140
      - ✖ Respirations greater than 30
- ✱ *Pediatric*: Utilize Broslow tape for equipment and drug dosages.
- ✱ Rapid medical assessment.
- ✱ Treat per appropriate protocol.
- ✱ Transport.

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

BLS - EMR

- ✱ Scene safety.
- ✱ Coordinate with or establish incident command.
- ✱ BSI.
- ✱ Mechanism of Injury (MOI).
- ✱ Number of patients.
- ✱ Need for additional resources
- ✱ ABCs.
- ✱ LOC.
- ✱ Consider SMR.
- ✱ Control bleeding. If bleeding cannot be controlled by simple means:
  - ✱ Consider **Tourniquet**.
  - ✱ Consider **Hemostatic Agent**.
- ✱ Maintain patient temperature between 91-99 degrees F.
- ✱ SAMPLE history.
- ✱ Focused assessment.
- ✱ Baseline vitals.
  - ✱ Two sets of vitals should be obtained that include time, blood pressure, pulse, respirations, SpO_2, and Pain level.
    - ✚ If patient contact time is less than 15 minutes (i.e. very short transport time with a critical patient), one set of vitals may be appropriate.
  - ✱ When appropriate, additional vitals may include temp, and Glucose. Consider assisting ALS with $ETCO_2$.

BLS - EMT

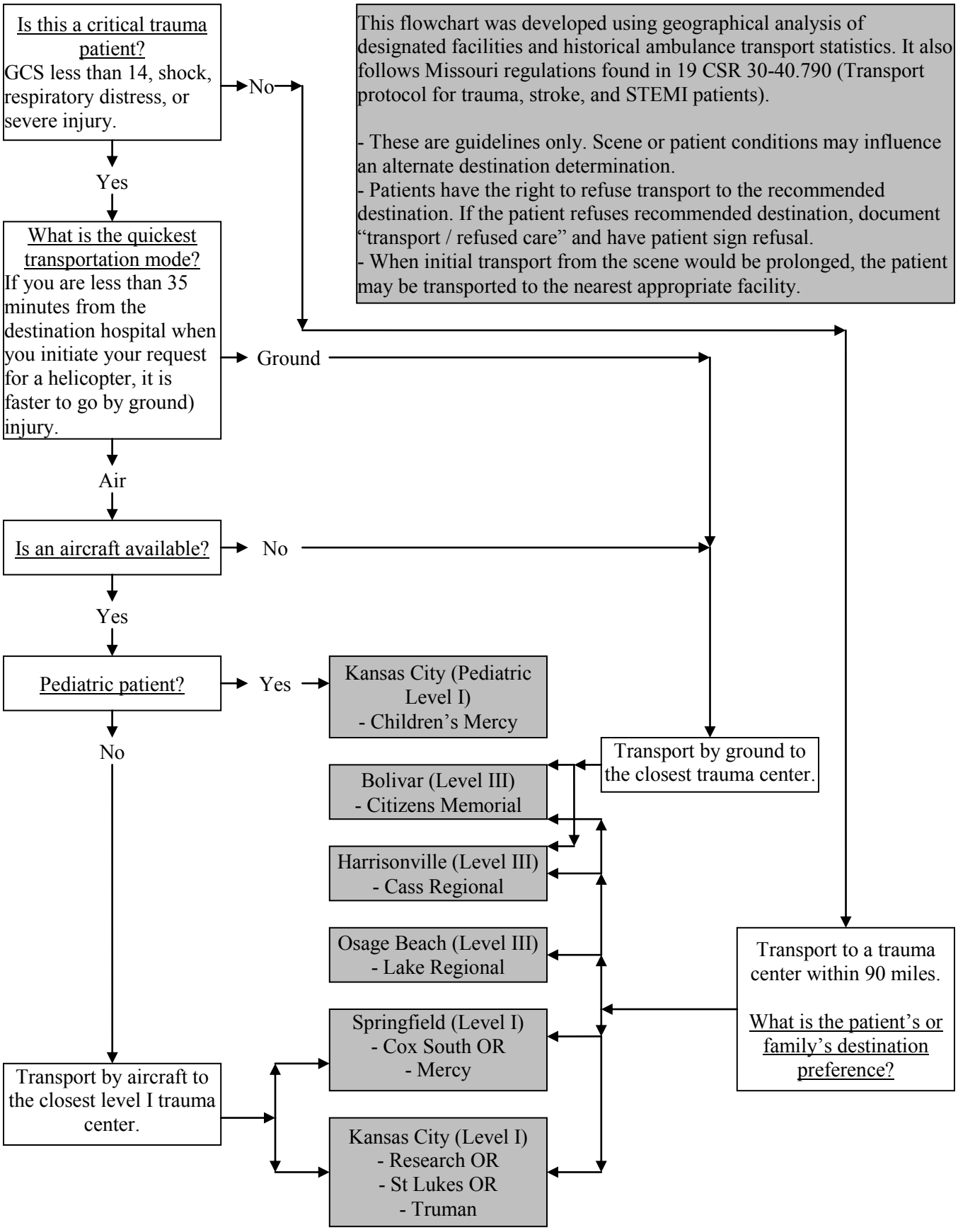
- ✱ Ensure completion of applicable EMR items above.
- ✱ No significant MOI:
  - ✱ Treatment decision (BLS/ALS).
- ✱ Transfer of patients meeting BLS criteria with the only exception of Heparin or Saline locked IV may be transported BLS.

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ ALS indicated when:
  - ✱ Significant MOI.
  - ✱ Unresponsive.
  - ✱ Responsive meeting one of the following:
    - ✚ Altered mental status.
    - ✚ GCS less than 13.
    - ✚ Respiratory distress.
    - ✚ Signs of shock.
    - ✚ PulseOx less than 90.
    - ✚ Need for IV/IO or medications.
    - ✚ Chest discomfort.
    - ✚ Severe Pain.
    - ✚ *Adult* vitals:
      - ✖ SBP less than 100 or greater than 180
      - ✖ Pulse less than 60 or greater than 120
      - ✖ Respirations less than 12 or greater than 30
    - ✚ *Pediatric* vitals:
      - ✖ SBP less than 70 + 2 x (age yrs)
      - ✖ Pulse less than 60 or greater than 140
      - ✖ Respirations greater than 30
- ✱ *Pediatric*: Utilize Broslow tape for equipment and drug dosages.
- ✱ Rapid trauma assessment.
- ✱ Treat per appropriate protocol.
- ✱ Transport according to Section 1-021 - Trauma Destination Determination Flowchart (page 17).

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

BLS - EMR

- Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 74).

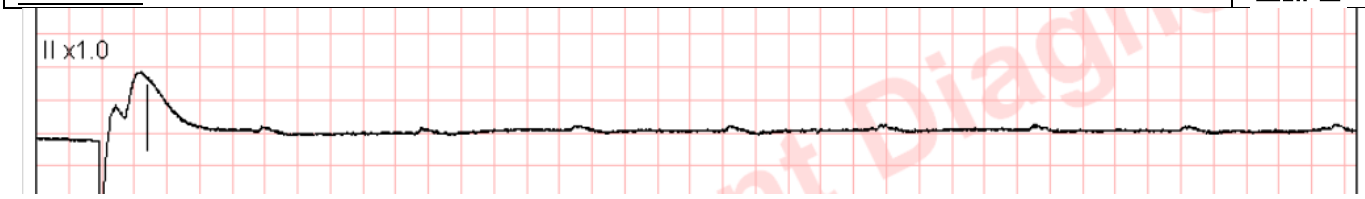
BLS - EMT

- Ensure completion of applicable EMR items above.

ALS - RN/Paramedic

- Ensure completion of all applicable BLS items on the left.
- Confirm in 2 leads.
- Consider **Intubation**.
- IV/IO **NS**.
- *Adult*:
  - **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*:
  - **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 $ETCO_2$ 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

BLS - EMR

- ✱ Calm and reassure patient. Ensure patient does not exert themselves.
- ✱ **Oxygen** to maintain SpO_2 between 94-99%.
- ✱ Apply cardiac monitor limb leads.
- ✱ *Adult*: Rate greater than 150: Apply **Combo Pads** anterior / posterior.
- ✱ *Pediatric (child)*: Rate greater than 160: Apply **Combo Pads** anterior / posterior.
- ✱ *Pediatric (infant)*: Rate greater than 220: Apply **Combo Pads** anterior / posterior.
- ✱ Monitor pulseoximetry.
- ✱ Obtain vital signs.

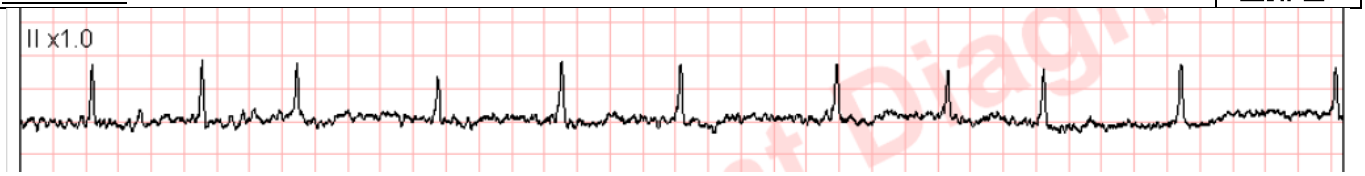
BLS - EMT

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

ALS - RN/Paramedic

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

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



Protocol 2-030 - Automated External Defibrillation (AED)

BLS - EMR

- ✱ Request **ALS** support if not already en route.
- ✱ Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 74).

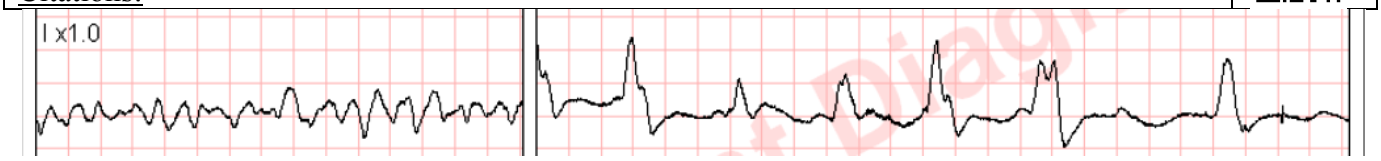
BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

ALS - RN/Paramedic

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

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



Protocol 2-040 - Bradycardia

BLS - EMR

- ✱ Calm and reassure patient. Ensure patient does not exert themselves.
- ✱ **Oxygen** to maintain SpO_2 between 94-99%.
- ✱ Apply cardiac monitor limb leads.
- ✱ Rate less than 60: Apply **Combo Pads** anterior / posterior.
- ✱ *Pediatric*: HR less than 50: **Ventilate**. Initiate Chest compressions if ventilation does not raise HR above 60.
- ✱ Monitor pulseoximetry.
- ✱ Obtain vital signs.

BLS - EMT

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

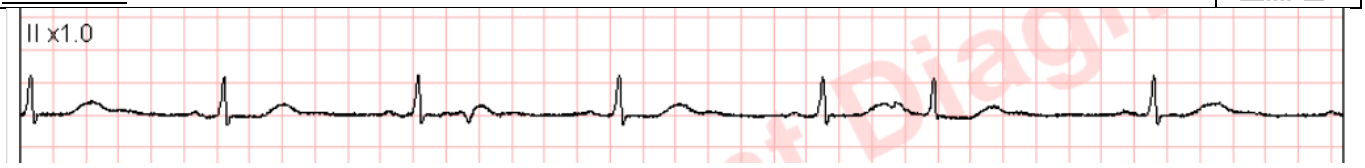
ALS - RN/Paramedic

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

0-1yr: **135**	2-3yr: **130**	4-5yr: **105**	6-9yr: **90**	10-18yr: **80**

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

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



Protocol 2-050 - Chest Discomfort

BLS - EMR

- ✱ Calm and reassure patient. Ensure patient does not exert themselves.
- ✱ **Oxygen** to maintain SpO_2 between 94-99%.
- ✱ Apply cardiac monitor limb leads.
- ✱ Monitor pulseoximetry.
- ✱ Obtain vital signs.
- ✱ STEMI: Consider **Combo Pads** anterior / posterior.
- ✱ *Adult*: **Aspirin** 324 mg (4 chewable tablets) within 5 minutes of patient contact.

BLS - EMT

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

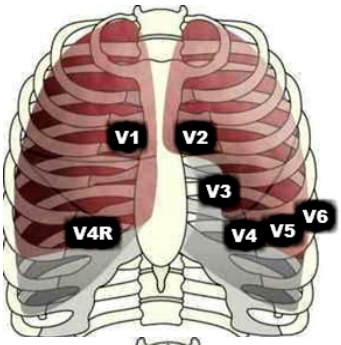
ALS - RN/Paramedic

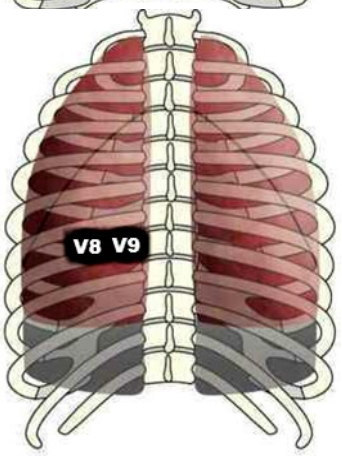
- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ IV/IO **NS**. Preferred left AC (not distal of right AC). Use pigtail extension.
- ✱ Obtain **12-Lead EKG** within 10 minutes of patient contact.
  - ✱ **15-Lead EKG** indicated when: normal EKG, inferior MI, ST depression in V-leads.
  - ✱ STEMI (ST elevation greater than 0.1 MV in at least 2 contiguous leads OR new LBBB):
    - ✚ 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).
- ✱ *Adult*:
  - ✱ Pulmonary edema: Refer to Protocol 4-070 - Congestive Heart Failure (CHF) (page 50).
  - ✱ 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 76).
  - ✱ Continued discomfort/pain:
    - ✚ 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.
- ✱ Transport according to Section 2-052 - STEMI Destination Determination Flowchart (page 25).

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**

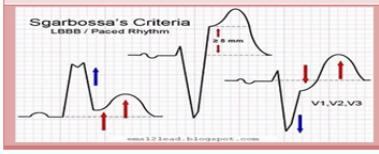
Sgarbossa Criteria (LBBB or Pacing):

✱ 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

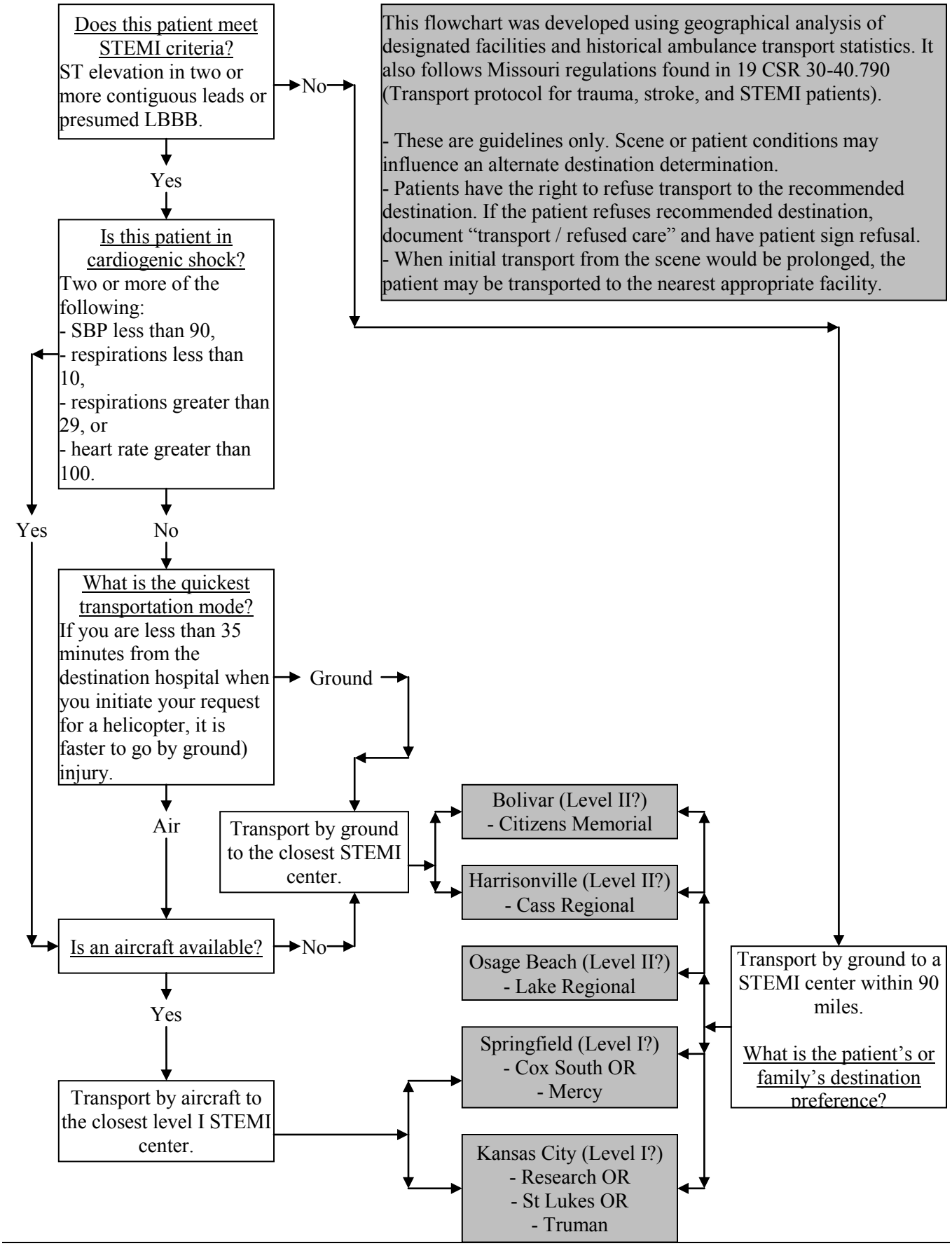
I Lateral • LAD & LCX *Reciprocal :* II , III , AVF	aVR	**V1** Septal • LAD	**V4** Anterior • LAD	**V4R** Right • RMA
II Inferior • RCA *Reciprocal :* I , aVL	**aVL** Lateral • LAD & LCX *Reciprocal :* II , III , AVF	**V2** Septal • LAD	**V5** Lateral • LAD & LCX *Reciprocal :* II , III , AVF	**V8** 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. ↑ 1mm in QRS with Pos. Deflection	+5	+0	✓	✓	✓	✓				
ST Depression ↑ 1mm in V1 , V2, V3	+3	+0	✓	✓			✓	✓		
ST Elev. ↑ 5mm in WRS with Neg. Deflection	+2	+0	✓		✓		✓		✓	
		Score Total:	10	8	7	5	5	3	2	0
		% MI Probability	100	92	93	88	100	66	50	16



Section 2-052 - STEMI Destination Determination Flowchart



Protocol 2-060 - Post Resuscitative Care

BLS - EMR

- ✱ Establish and maintain Airway and Ventilate with **Oxygen**.
  - ✱ Avoid hyperventilation.
  - ✱ Conscious: Attempt to maintain SpO_2 between 92-96%.
  - ✱ Unconscious: Attempt to maintain SpO_2 between 88-92%.
- ✱ Monitor pulseoximetry.
- ✱ Apply cardiac monitor **Combo Pads** and limb leads.
- ✱ Obtain vital signs.

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.
- ✱ Obtain **12-Lead EKG**.
- ✱ Treat rate and rhythm per protocol.
- ✱ Secure Airway if necessary.
- ✱ IV/IO **NS**.

- ✱ *Adult*:
  - ✱ Hypotension: Assess lung sounds for pulmonary edema.
    - ✚ 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.
    - ✚ 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).

- ✱ *Pediatric*:
  - ✱ Hypotension: Assess lung sounds for pulmonary edema.
    - ✚ 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.
    - ✖ Over 12 yrs: Same as adult.
    - ✖ Between 6 yrs and 12 yrs: 0.05 mg/kg.
    - ✖ Under 6 yrs: 0.05-0.1 mg/kg.
    - ✚ OR **Ativan** 0.05 mg/kg IV/IO.
    - ✚ Consider **Fentanyl** 2-3 mcg/kg IV/IO/IN (max 150 mcg).

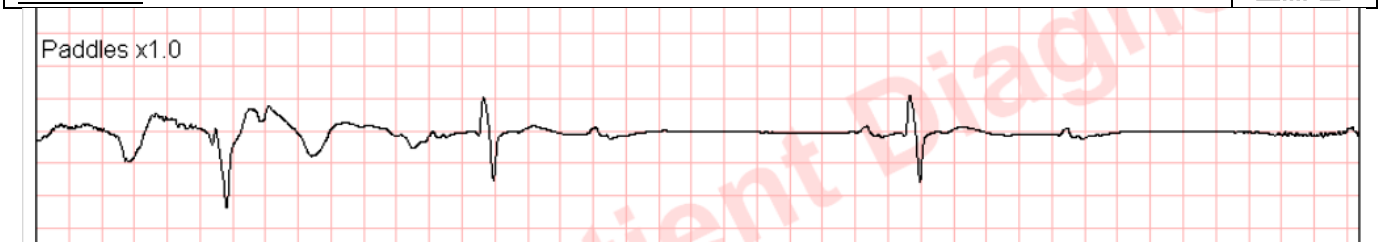
- ✱ Consider **Air Ambulance** to expedite transport.
- ✱ Consider **RSI** and **Cooling** with cold packs and cold IV fluids if:
  - ✱ No trauma,
  - ✱ No purposeful movement, AND
  - ✱ SBP greater than 90.

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

Protocol 2-070 - Pulseless Electrical Activity (PEA)

BLS - EMR	**ALS - RN/Paramedic**
✱ Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 74).	✱ Ensure completion of all applicable BLS items on the left. ✱ Consider **Intubation**. ✱ IV/IO **NS**.
BLS - EMT ✱ Ensure completion of applicable EMR items above.	✱ *Adult*: ✱ **Epinephrine 1:10,000** 1 mg IV/IO every 3-5 min. ✱ Slow PEA rate: ✚ Consider **Atropine** 1 mg IV/IO every 3-5 min (max 3 mg). ✚ Consider **Pacing**. ✱ Consider **Sodium Bicarbonate** 1 mEq/kg IV/IO.
	✱ *Pediatric*: **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. ✱ *Adult*: Contact **MEDICAL CONTROL** if $ETCO_2$ 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:



Protocol 2-080 - Tachycardia Narrow Stable

BLS - EMR

- ✱ Calm and reassure patient. Ensure patient does not exert themselves.
- ✱ **Oxygen** to maintain SpO_2 between 94-99%.
- ✱ Apply cardiac monitor limb leads.
- ✱ *Adult*: Rate greater than 150 OR *Pediatric*: Rate greater than 160 (child), greater than 220 (infant):
  - ✱ Consider: apply **Combo Pads** anterior / posterior.
- ✱ Monitor pulseoximetry.
- ✱ Obtain vital signs.

BLS - EMT

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

ALS - RN/Paramedic

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

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

Protocol 2-090 - Tachycardia Narrow Unstable

BLS - EMR

- ✱ Calm and reassure patient. Ensure patient does not exert themselves.
- ✱ **Oxygen** to maintain SpO_2 between 94-99%.
- ✱ Apply cardiac monitor limb leads.
- ✱ *Adult*: Rate greater than 150 OR *Pediatric*: Rate greater than 160 (child), greater than 220 (infant):
  - ✱ Apply **Combo Pads** anterior / posterior.
- ✱ Monitor pulseoximetry.
- ✱ Obtain vital signs.

BLS - EMT

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

ALS - RN/Paramedic

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

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

Protocol 2-100 - Tachycardia Wide Stable

BLS - EMR

- ✱ Calm and reassure patient. Ensure patient does not exert themselves.
- ✱ **Oxygen** to maintain SpO_2 between 94-99%.
- ✱ Apply cardiac monitor limb leads.
- ✱ *Adult*: Rate greater than 150: Apply **Combo Pads** anterior / posterior.
- ✱ *Pediatric (Child)*: Rate greater than 160: Consider: Apply **Combo Pads** anterior / posterior.
- ✱ *Pediatric (Infant)*: Rate greater than 220: Consider: Apply **Combo Pads** anterior / posterior.
- ✱ Monitor pulseoximetry.
- ✱ Obtain vital signs.

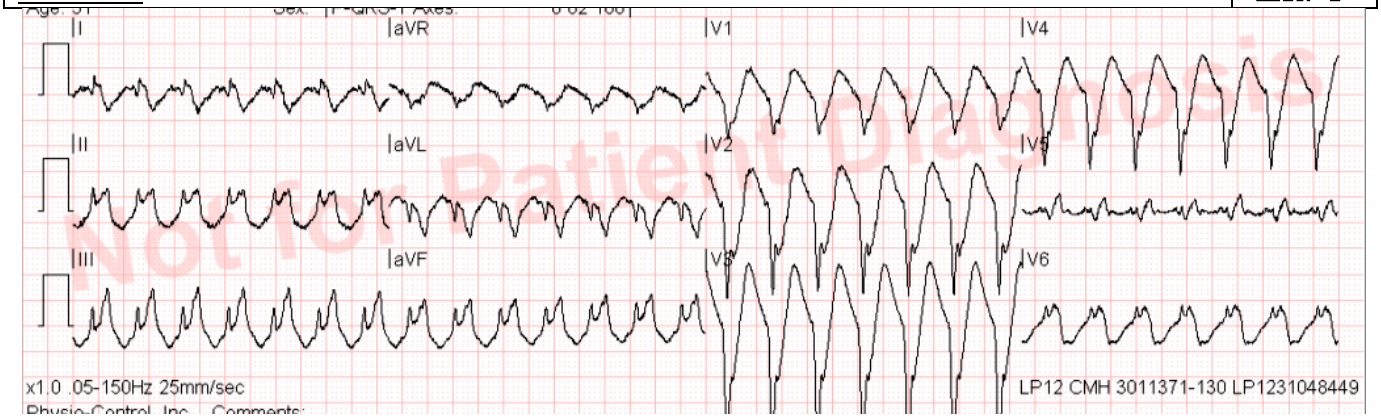
BLS - EMT

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

ALS - RN/Paramedic

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

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



Protocol 2-110 - Tachycardia Wide Unstable

BLS - EMR

- ✱ Calm and reassure patient. Ensure patient does not exert themselves.
- ✱ **Oxygen** to maintain SpO_2 between 94-99%.
- ✱ Apply cardiac monitor limb leads.

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

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

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

- ✱ Monitor pulseoximetry.
- ✱ Obtain vital signs.

BLS - EMT

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

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ Obtain **12-Lead EKG**.
- ✱ IV/IO **NS**. Do not delay for IV if symptomatic.

- ✱ *Adult*: Rate greater than 150 and symptomatic:
  - ✱ Conscious: Consider **Versed** 2.5-5 mg IV/IO/IN.
    - ✚ OR **Ativan** 2 mg IV/IO.
    - ✚ Consider **Fentanyl** 50-100 mcg IV/IO/IN (max 300 mcg). Over 65 yr old: 0.5-2 mcg/kg.
  - ✱ Synchronized **Cardioversion** 125 J (if unsuccessful, increase to 200 J).
  - ✱ QT/RR greater than 0.4: **Magnesium Sulfate** 1-2 g IV/IO over 15-20 min. Mix 1-2 g in 100 ml **D5W**.

- ✱ *Pediatric*: Rate greater than 180 (child), greater than 220 (infant) and symptomatic:
  - ✱ Conscious: Consider **Versed** IV/IO/IN.
    - ✖ Over 12 yrs: Same as adult.
    - ✖ Between 6 yrs and 12 yrs: 0.05 mg/kg.
    - ✖ Under 6 yrs: 0.05-0.1 mg/kg.
  - ✚ OR **Ativan** 0.05 mg/kg (max 2 mg) IV/IO.
  - ✚ Consider **Fentanyl** 2-3 mcg/kg IV/IO/IN (max 150 mcg).
  - ✱ Synchronized **Cardioversion** 0.5-1 J/kg.
  - ✱ Contact **MEDICAL CONTROL**:
    - ✚ **Amiodarone** 5 mg/kg IV/IO over 20-60 min.
    - ✚ OR **Procainamide** 15 mg/kg IV/IO over 30-60 min.

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

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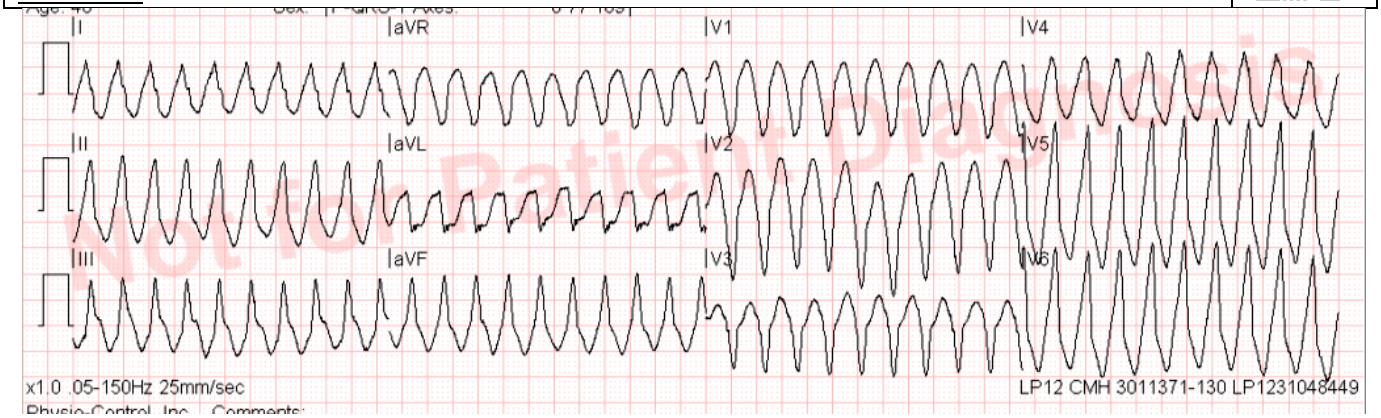
Citations:



Protocol 2-120 - Torsades de Pointes

BLS - EMR

- ✱ Calm and reassure patient. Ensure patient does not exert themselves.
- ✱ **Oxygen** to maintain SpO_2 between 94-99%.
- ✱ Apply cardiac monitor limb leads. Apply **Combo Pads** anterior / posterior.
- ✱ Monitor pulseoximetry.
- ✱ Obtain vital signs.

BLS - EMT

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

ALS - RN/Paramedic

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

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

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

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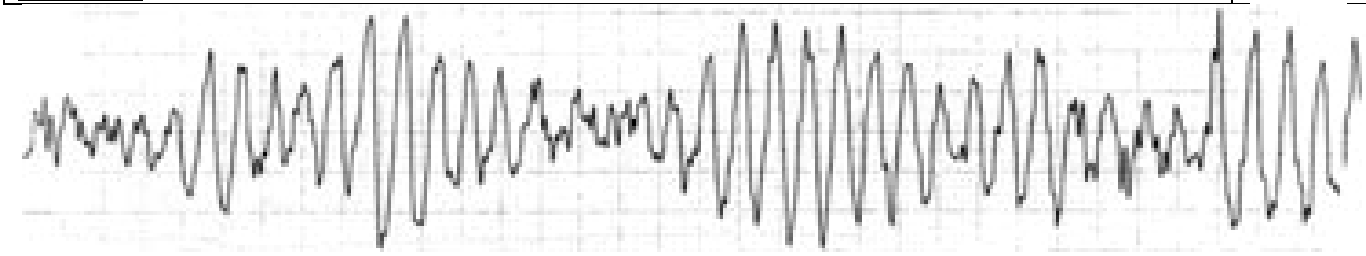
Citations:



Protocol 2-130 - Ventricular Ectopy

BLS - EMR

- ✱ Calm and reassure patient. Ensure patient does not exert themselves.
- ✱ **Oxygen** to maintain SpO_2 between 94-99%.
- ✱ Apply cardiac monitor limb leads.
- ✱ Consider apply **Combo Pads** anterior / posterior.
- ✱ Monitor pulseoximetry.
- ✱ Obtain vital signs.

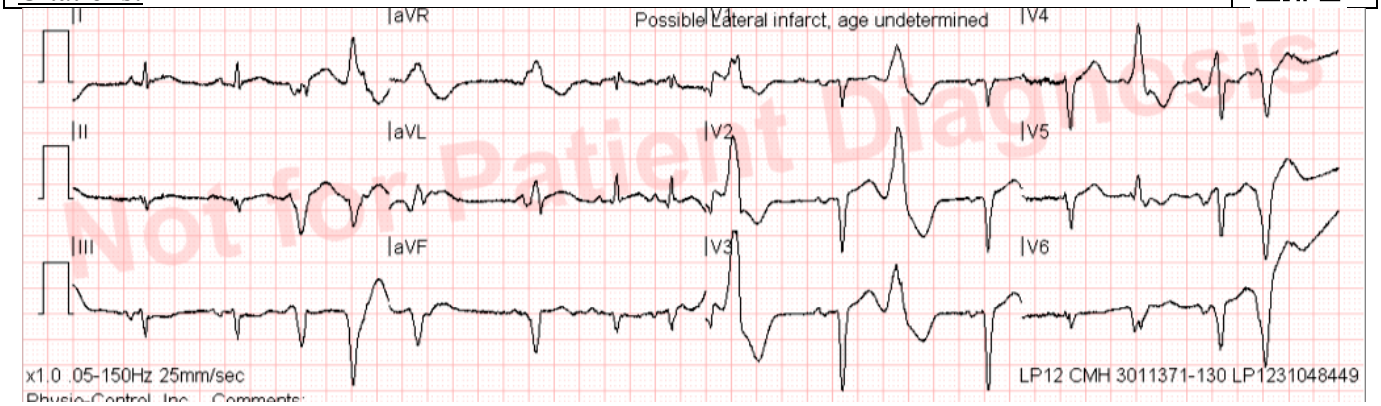
BLS - EMT

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

ALS - RN/Paramedic

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

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



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

BLS - EMR

- ✱ Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 74).

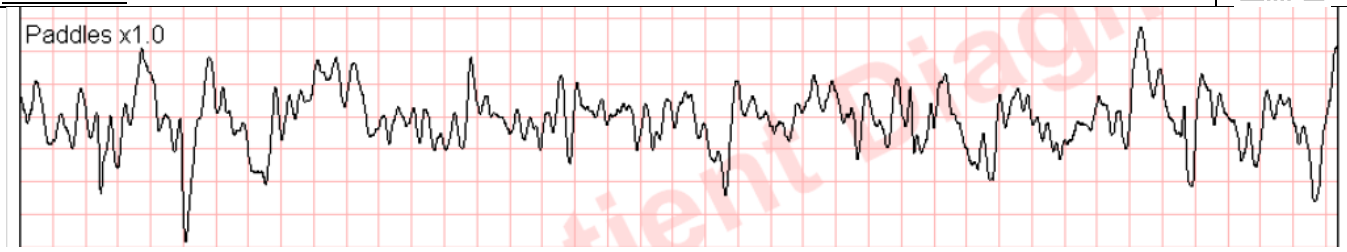
BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

ALS - RN/Paramedic

- ✱ 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.
  - ✱ *Adult*: 360 J (OR consider biphasic dose of 200 J).
  - ✱ *Pediatric*: 4 J/kg.
- ✱ Consider **Intubation**.
- ✱ IV/IO **NS**.
- ✱ *Adult*:
  - ✱ **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).
    - ✚ 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 32).
- ✱ *Pediatric*:
  - ✱ **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).
    - ✚ 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 32).
- ✱ Consider **Sodium Bicarbonate** 1 mEq/kg IV/IO every 10 min (ensure adequate ventilations)
- ✱ Consider and correct treatable causes.
- ✱ *Adult*: Contact **MEDICAL CONTROL** If $ETCO_2$ 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/1BRqhpT
Citations:



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

BLS - EMR

- ✱ Calm and reassure patient. Ensure patient does not exert themselves.
- ✱ **Oxygen** to maintain SpO_2 between 94-99%.
- ✱ Apply cardiac monitor limb leads.
- ✱ Consider apply **Combo Pads** anterior / posterior.
- ✱ Monitor pulseoximetry.
- ✱ Obtain vital signs.

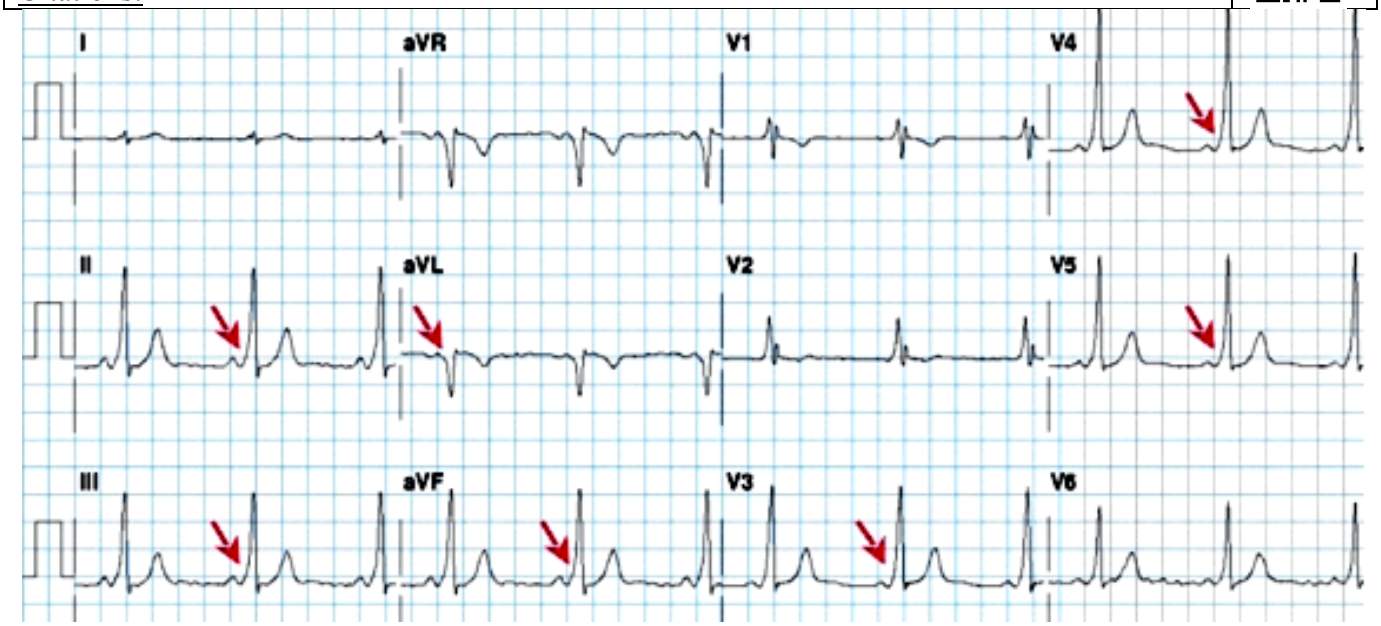
BLS - EMT

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

ALS - RN/Paramedic

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

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



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Part 3 - Environmental Protocols

Protocol 3-010 - Drowning

BLS - EMR

- ✱ Remove from water.
- ✱ Open and maintain Airway.
  - ✱ Be prepared to **Suction** Airway.
- ✱ Pulseless: Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 74).
- ✱ Dry and warm patient.
- ✱ Obtain core body temperature.
- ✱ Monitor pulseoximetry.
- ✱ Consider: Apply cardiac monitor limb leads.
- ✱ Consider apply **Combo Pads**.
- ✱ Obtain vital signs.
- ✱ Attempt to determine down-time, and history.

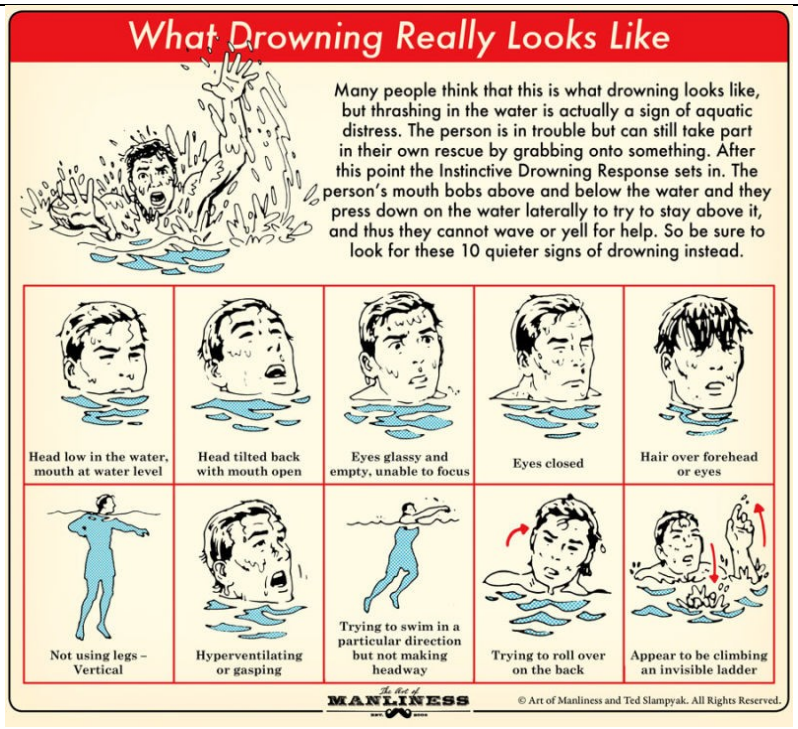
BLS - EMT

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

ALS - RN/Paramedic

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

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



Protocol 3-020 - Hyperthermia

BLS - EMR

- ✱ Remove from exposure.
- ✱ Open and maintain Airway.
- ✱ Attempt to determine down-time, and history.
- ✱ Consider **Oxygen** if SpO_2 less than 88%.
- ✱ Passively **Cool** patient.
- ✱ Obtain core body temperature.
- ✱ Monitor pulseoximetry.
- ✱ Consider: Apply cardiac monitor limb leads.
- ✱ Obtain vital signs.
- ✱ Normal mentation: Heat exhaustion. Treat specific complaints per protocol.
- ✱ Altered mentation: Heat stroke. Rapid **Cooling** is indicated. Attempt to cool to 102 F.

BLS - EMT

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

ALS - RN/Paramedic

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

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

Heat Index Chart

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

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

Protocol 3-030 - Hypothermia

BLS - EMR

- ✱ Remove from exposure.
- ✱ Open and maintain Airway.
- ✱ Be prepared to **Suction** Airway.
- ✱ Pulseless: Refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (page 74).
- ✱ **Dry** and **warm** patient.
- ✱ Remove constricting or wet clothing and jewelry.
- ✱ Cover affected tissue with loose, dry, sterile dressing.
- ✱ Obtain core body temperature.
- ✱ Monitor pulseoximetry.
- ✱ Consider: Apply cardiac monitor limb leads.
- ✱ Consider: Apply **Combo Pads**.
- ✱ Obtain vital signs.
- ✱ Attempt to determine down-time, and history.

BLS - EMT

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

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ IV/IO warm **NS**.
- ✱ Consider **Intubation**.
- ✱ Pulseless: V-Fib:
  - ✱ **Defibrillation** once.
    - ✚ *Adult*: 360 J (OR consider biphasic dose of 200 J).
    - ✚ *Pediatric*: 2 J/kg.
  - ✱ Core temp greater than 86 F: **ACLS** per protocol. Remember, Hypothermia patients require longer intervals between drugs due to slower absorption and metabolism rates.
  - ✱ Core temp less than 86 F: **CPR** only.
  - ✱ Do not delay transport for rewarming.
  - ✱ **Rapid transport** to hospital.
- ✱ Pain: Refer to Protocol 6-050 - Control of Pain (page 77).
- ✱ Nausea: Refer to Protocol 6-040 - Control of Nausea (page 76).

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

BLS - EMR

- ✱ Consider **Oxygen** if SpO_2 less than 88%.
- ✱ Obtain vital signs.
- ✱ Monitor pulseoximetry.
- ✱ Apply cardiac monitor limb leads.
- ✱ Identify possible causes.

BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ IV/IO **NS**.
- ✱ Refer to Protocol 6-050 - Control of Pain (page 77).
- ✱ Nausea: Refer to Protocol 6-040 - Control of Nausea (page 76).

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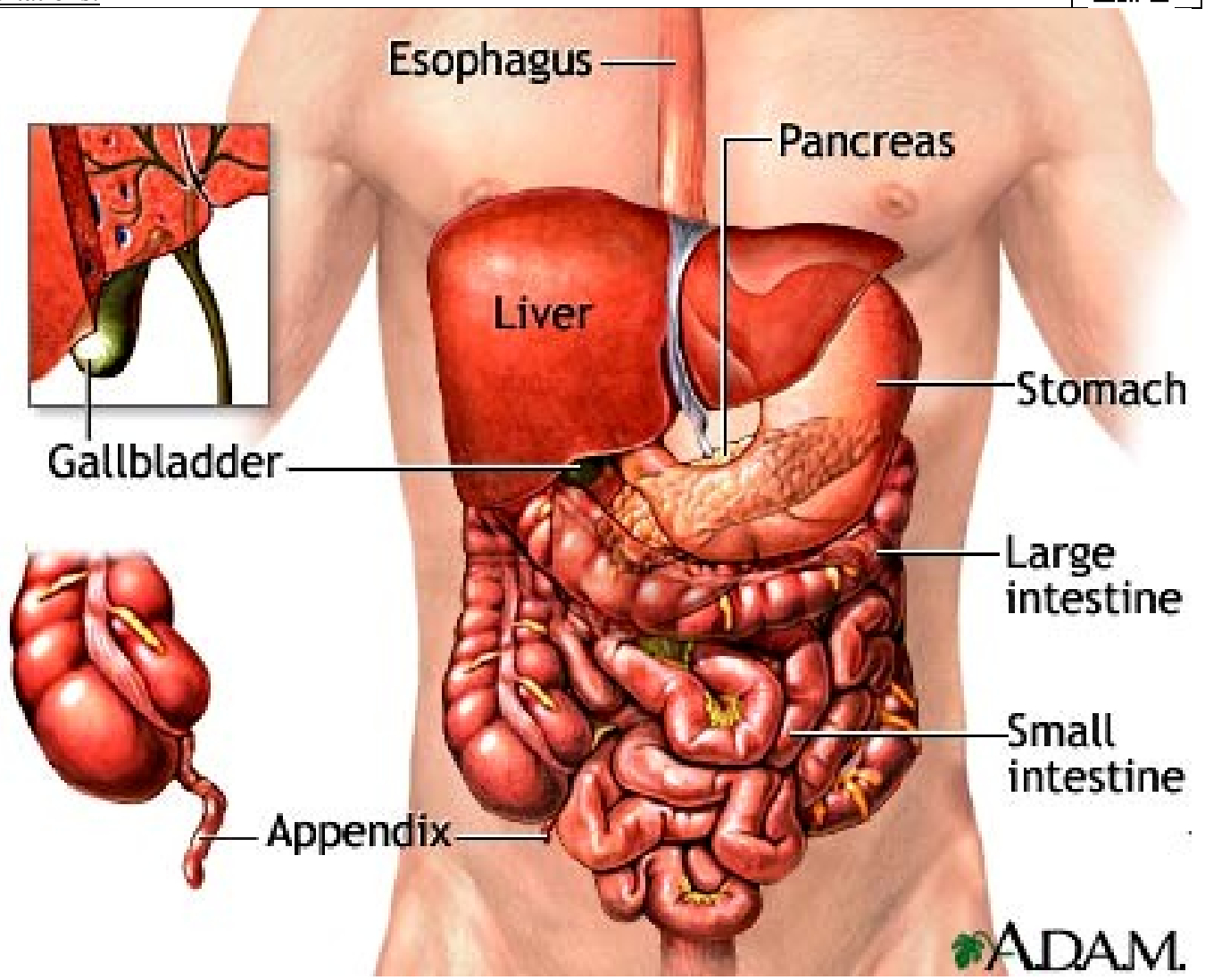
Citations:



Protocol 4-020 - Anaphylaxis

BLS - EMR

- Remove allergen.
- Obtain vital signs.
- **Oxygen** to maintain SpO_2 at 100%.
- Monitor pulseoximetry.
- Consider: Apply cardiac monitor limb leads.
- Identify possible causes.

BLS - EMT

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

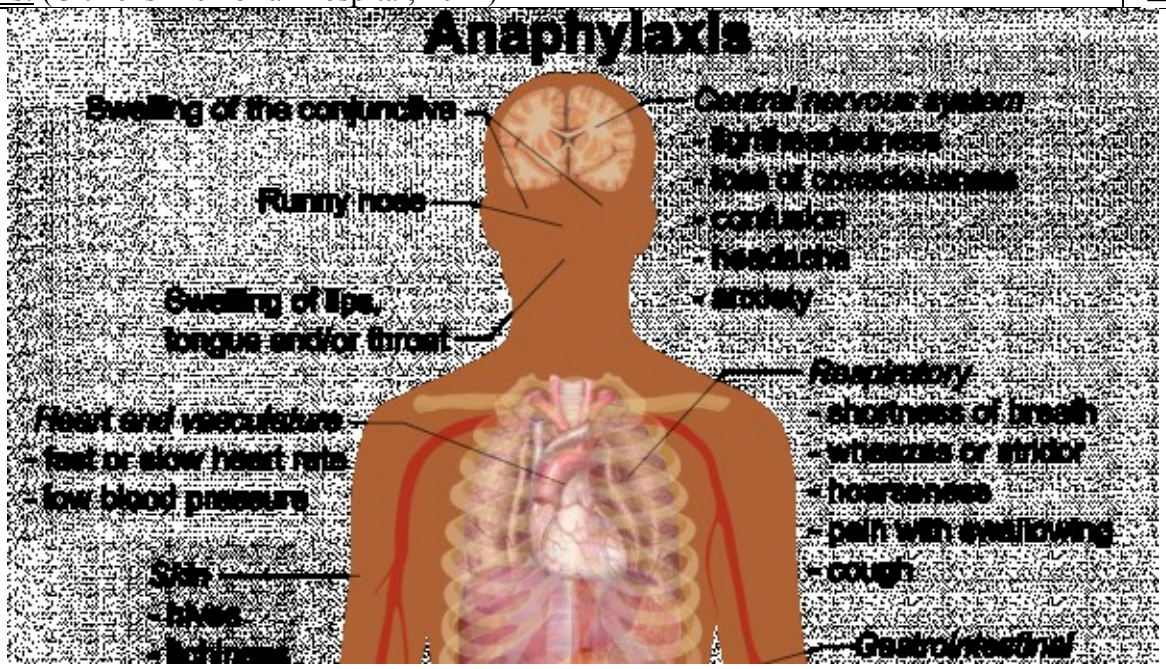
ALS - RN/Paramedic

- Ensure completion of all applicable BLS items on the left.
- IV/IO NS.

- *Adult*:
  - Uncompensated shock: **Epinephrine 1:10,000** 0.1 mg IV/IO. Repeat every 15 min as needed.
    - OR **Epinephrine 1:1,000** 0.3-0.5 mg IM/SQ.
  - **Benadryl** 25-50 mg IV/IO/IM.
  - **Solu-Medrol** 125 mg IV/IO.
  - Wheezing or obstructed $ETCO_2$ waveform: Consider **Duoneb** Nebulized (max 1 dose). 0.5 mg **Ipratropium** + 1.5mg **Albuterol**.
    - Consider **Albuterol** 2.5 mg Nebulized.
    - Consider **Xopenex** 0.63-1.25 mg Nebulized.

- *Pediatric*:
  - **Epinephrine 1:1,000** 0.01 mg/kg IM/SQ (max 0.3 mg) repeat every 15 min as needed.
  - **Benadryl** 1 mg/kg IV/IO/IM (max 50 mg).
  - **Solu-Medrol** 1-2 mg/kg IV/IO (max 125 mg).
  - Wheezing or obstructed $ETCO_2$ waveform: Consider **Albuterol** 2.5 mg Nebulized.
    - Greater than 6 yr old: Consider **Duoneb** Nebulized (max 1 dose). 0.25 mg **Ipratropium** + 1.5mg **Albuterol**.

Link to research articles (QR code on right): http://1drv.ms/1EyXh7a
Citations: (Citizens Memorial Hospital, 2014)



Protocol 4-030 - Asthma

BLS - EMR

- **Oxygen** to maintain SpO_2 between 88-92%.
- Monitor pulseoximetry.
- Apply cardiac monitor limb leads.
- Obtain vital signs.

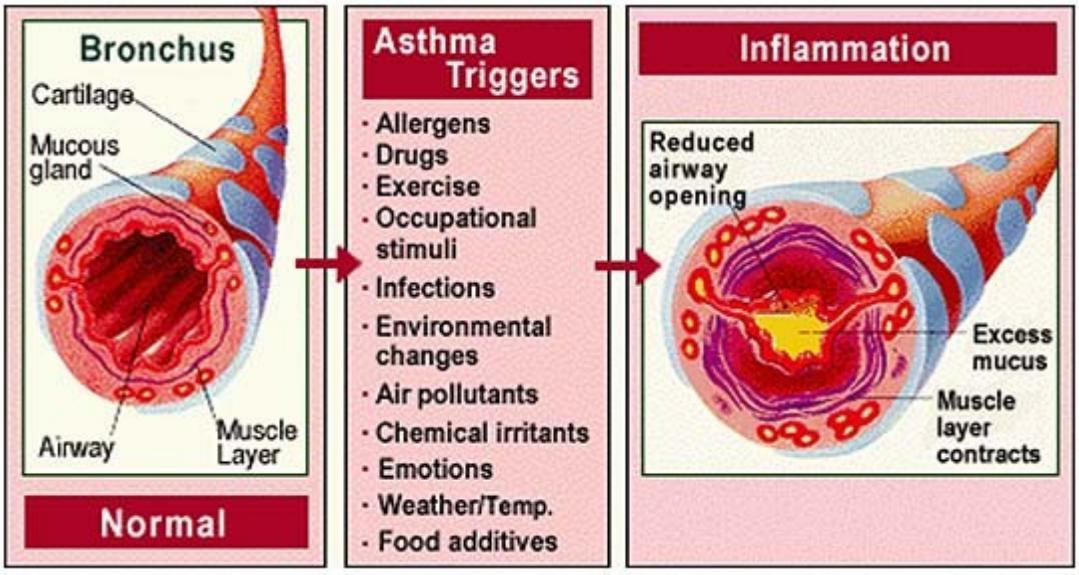
BLS - EMT

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

ALS - RN/Paramedic

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

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



Protocol 4-040 - Behavioral

BLS - EMR

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

BLS - EMT

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

ALS - RN/Paramedic

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

Link to research articles (QR code on right): http://1drv.ms/1ADwNJE
Citations: (Citizens Memorial Hospital, 2012), (Missouri Department of Mental Health, 2013), (Taney County Ambulance District, 2014)

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

BLS - EMR

- ✱ Complete **Cincinnati Stroke Scale** (facial droop, arm drift, speech).
- ✱ Consider completing Section 4-051 - NIH Stroke Scale (page 46).
- ✱ **Oxygen** to maintain SpO_2 between 94-99%.
- ✱ Monitor pulseoximetry.
- ✱ Apply cardiac monitor limb leads.
- ✱ Obtain vital signs.
- ✱ Elevate Head of cot.

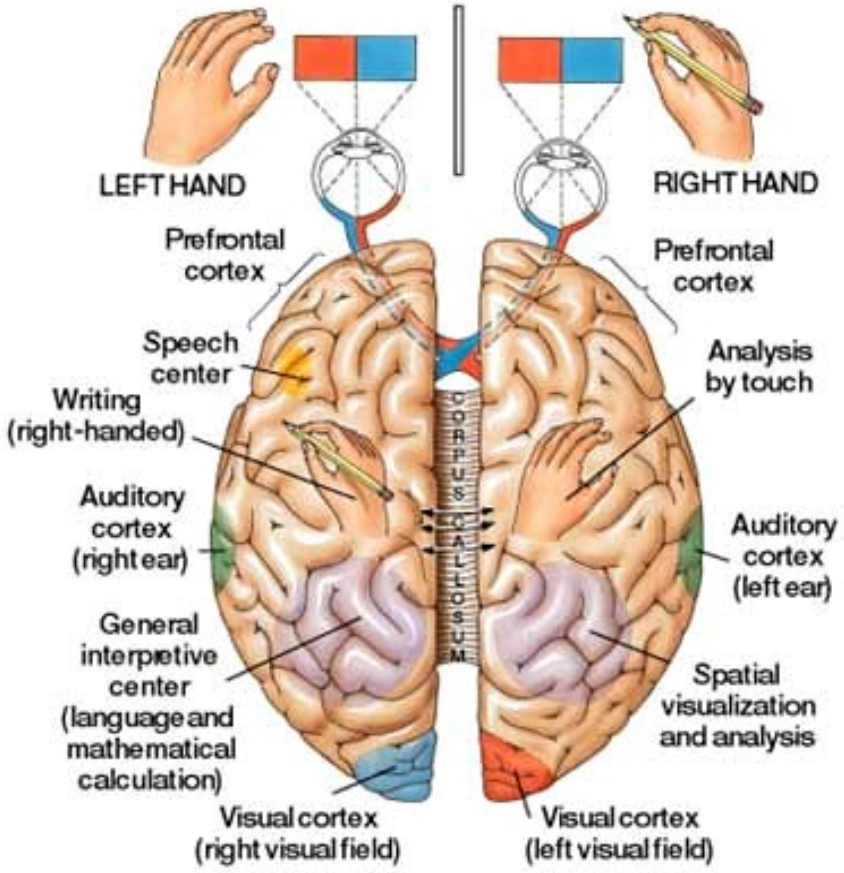
BLS - EMT

- ✱ Ensure completion of applicable EMR items above.
- ✱ Perform **Glucose check**.
  - ✱ Glucose less than 70 mg/dl: Refer to Protocol 4-120 - Hypoglycemia (page 56).

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ IV/IO **NS**.
- ✱ Obtain **12-Lead EKG**.
- ✱ Obtain and record contact information for family and/or witness.
- ✱ Transport according to Section 4-053 - Stroke Destination Determination Flowchart (page 48).
- ✱ If receiving facility has cot scales, weigh pt and cot upon entry to ER and weigh empty cot after transfer. Report pt net weight to receiving RN.

Link to research articles (QR code on right): http://1drv.ms/1BRr2PT
Citations: (Chapter 190 - Emergency services, 2012), (Designated hospitals), (NIH stroke scale international, 2003), (Proposed regulations, 2010), (University of Kansas Hospital)



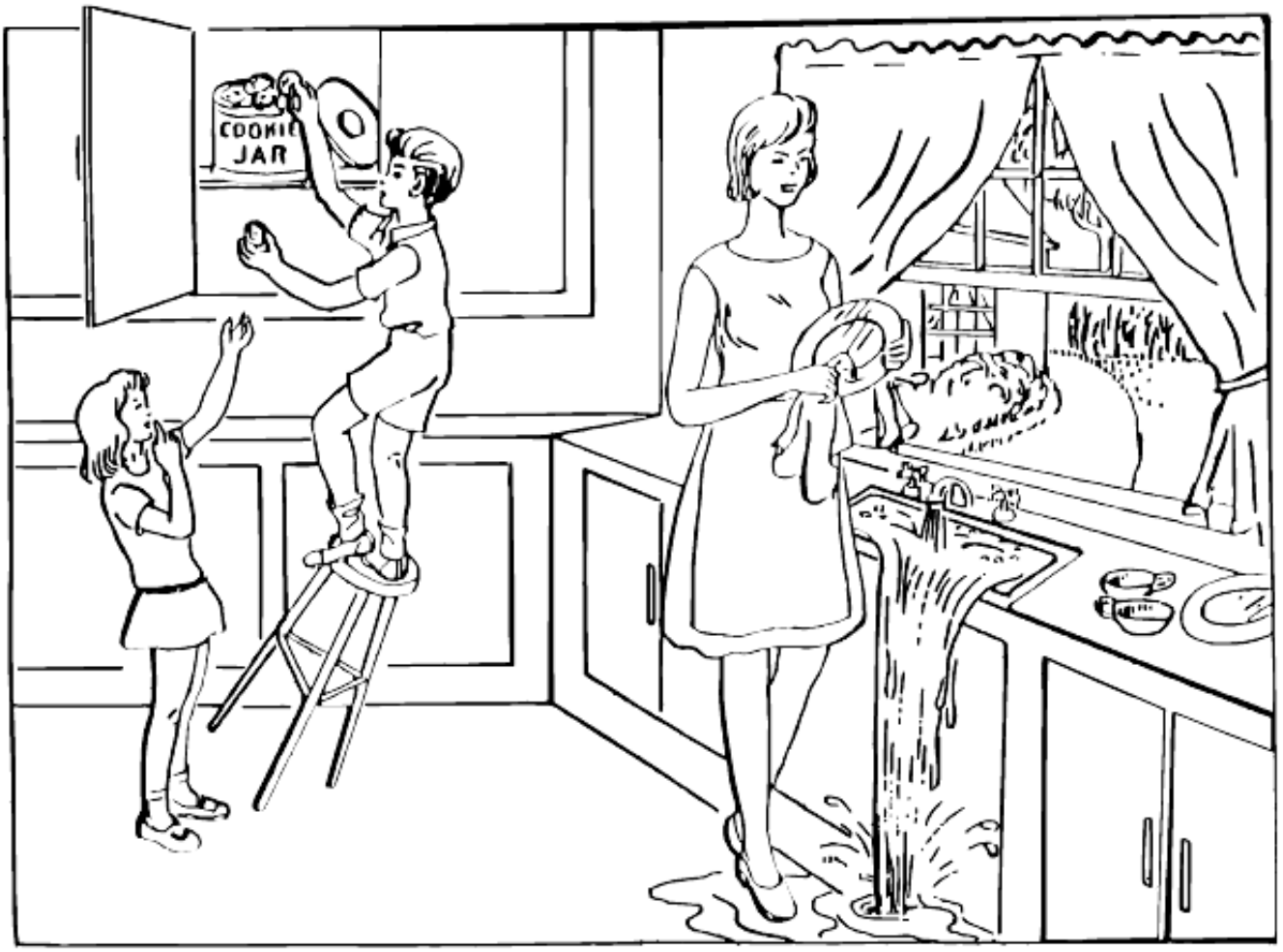
Section 4-051 - NIH Stroke Scale Questions

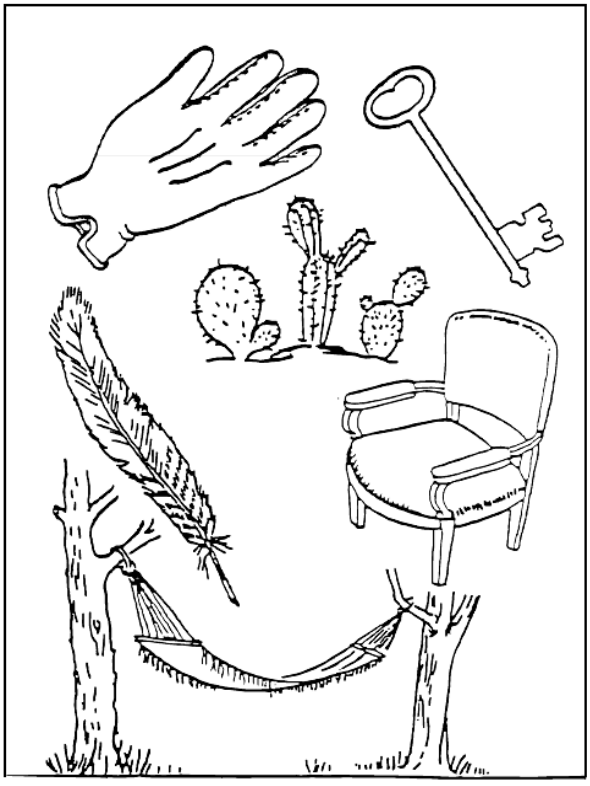
Score only first attempt. Do not coach. Do not go back and re-score.

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.

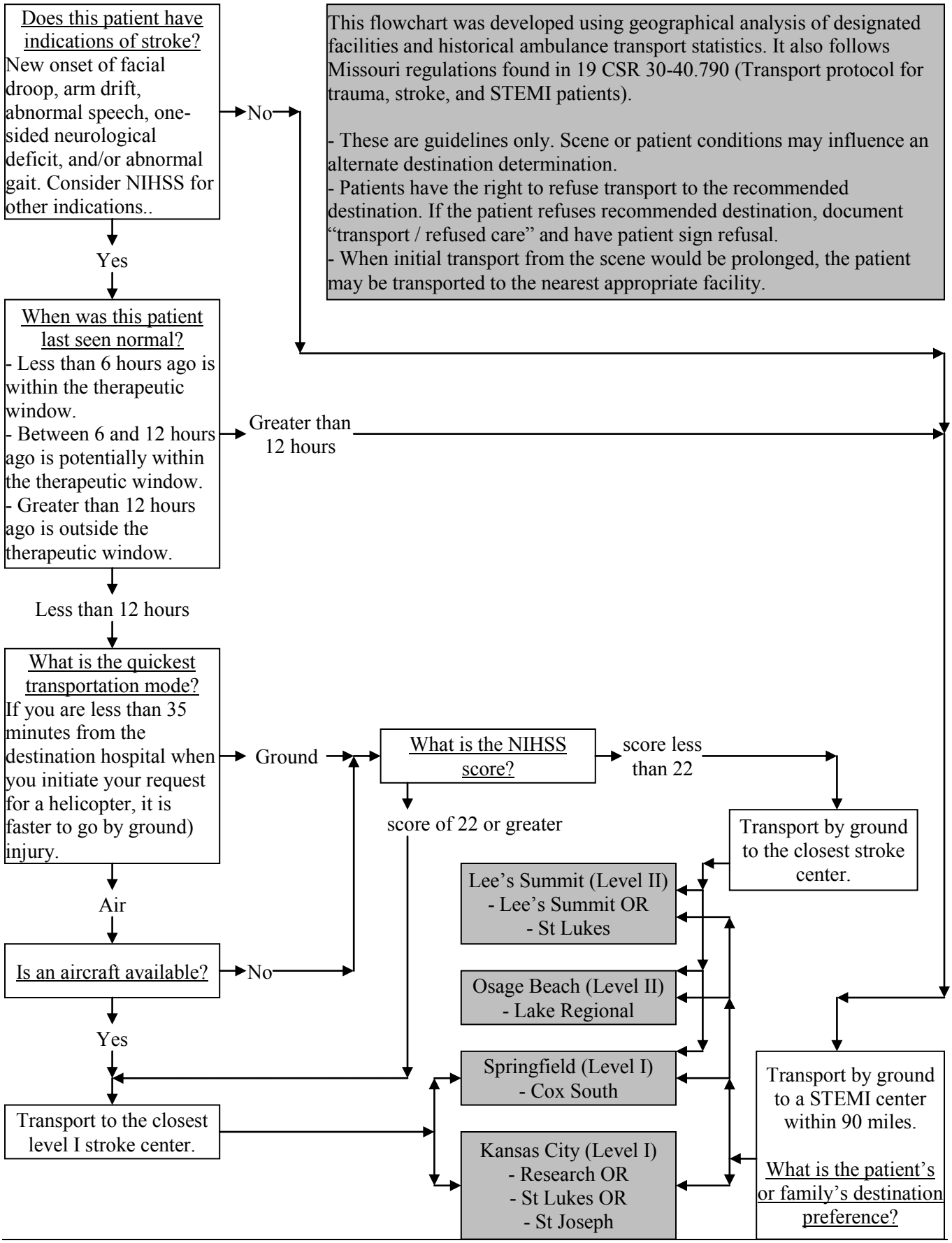
Section 4-052 - NIH Stroke Scale Images





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

Section 4-053 - Stroke Destination Determination Flowchart



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

BLS - EMR

- ✱ **Oxygen** to maintain SpO_2 between 88-92%.
- ✱ Monitor pulseoximetry.
- ✱ Apply cardiac monitor limb leads.
- ✱ Obtain vital signs.

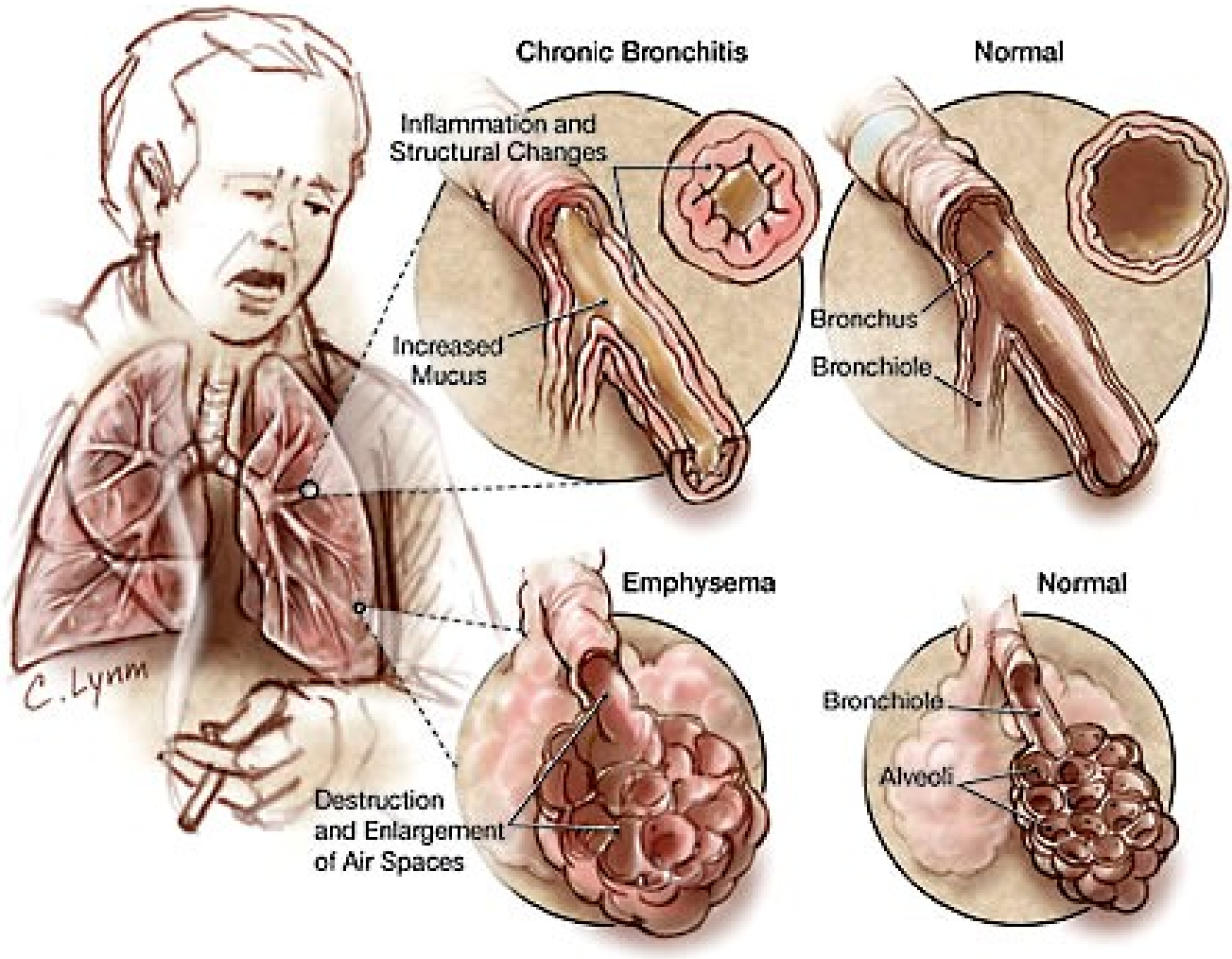
BLS - EMT

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

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ Consider Intubation.
- ✱ IV/IO **NS**.
- ✱ Consider **12-Lead EKG**.
- ✱ *Adult*:
  - ✱ 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)

BLS - EMR

- ✱ **Oxygen** to maintain SpO_2 between 94-99%.
- ✱ Monitor pulseoximetry.
- ✱ Apply cardiac monitor limb leads.
- ✱ Obtain vital signs.
- ✱ Elevate Head of cot.

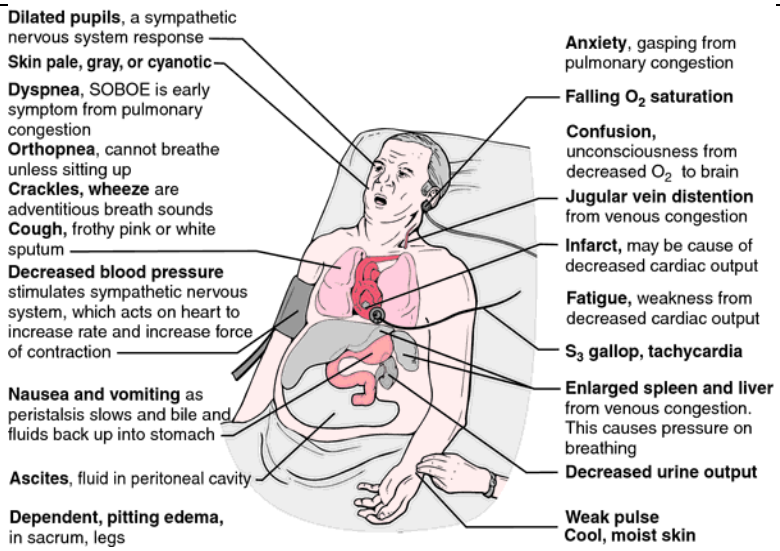
BLS - EMT

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

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ Consider **Intubation**.
- ✱ IV/IO **Saline LOCK**.
- ✱ Obtain **12-Lead EKG**.
  - ✱ Consider **15-Lead EKG**.
- ✱ *Adult*:
  - ✱ Consider **CPAP**.
  - ✱ SBP greater than 100: **Nitroglycerin** 0.4-0.8 mg SL every 3-5 min until no dyspnea or SBP less than 90.
    - ✚ Consider **Nitroglycerin** 50+ mcg/min titrate to SBP greater than 100 and dyspnea Pain.
  - ✱ SBP less than 100: **Dopamine** 5-15 mcg/kg/min.
  - ✱ Consider **Lasix** 40 mg IV/IO/IM.
    - ✚ Patient currently on diuretics: **Lasix** double prescribed dose.
  - ✱ Wheezing or obstructed $ETCO_2$ waveform:
    - ✚ Consider **Duoneb**. 0.5 mg **Ipratropium** + 2.5 mg **Albuterol** Nebulized (max 1 dose).
    - ✚ Consider **Albuterol** 2.5 mg in NS 3 ml Nebulized.
    - ✚ Consider **Xopenex** 0.63-1.25 mg Nebulized.
- ✱ *Pediatric*:
  - ✱ Consider **Lasix** 1-2 mg/kg IV/IO/IM (max 40 mg).
  - ✱ Wheezing or obstructed $ETCO_2$ waveform:
    - ✚ Consider **Duoneb**. 0.25 mg **Ipratropium** + 2.5 mg **Albuterol** Nebulized (max 1 dose).
    - ✚ Consider **Albuterol** 2.5 mg in NS 3 ml Nebulized.
    - ✚ Greater than 6 yr old: Consider **Xopenex** 0.31-0.63 mg Nebulized.

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



Protocol 4-080 - Croup

BLS - EMR

- ✱ **Oxygen** to maintain SpO_2 between 88-92%.
- ✱ Monitor pulseoximetry.
- ✱ Consider: Apply cardiac monitor limb leads.
- ✱ Obtain vital signs.

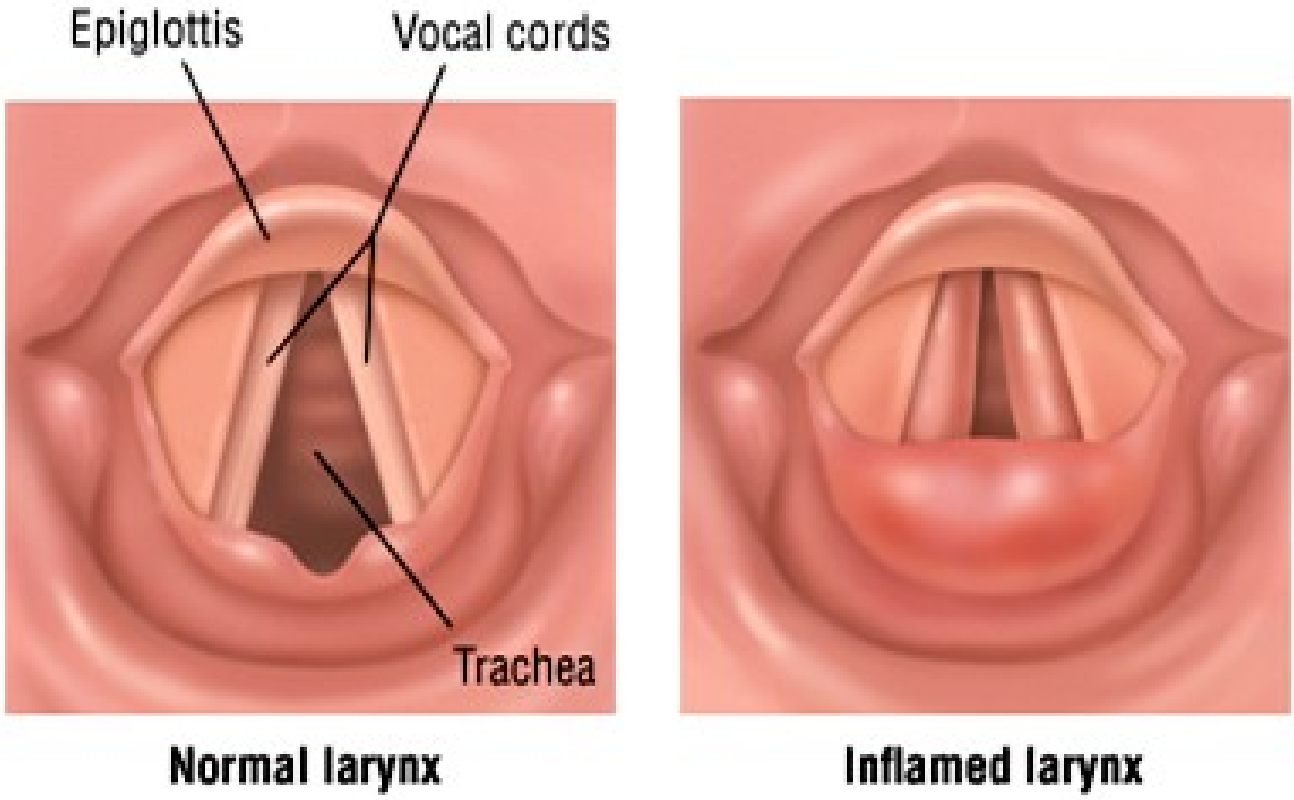
BLS - EMT

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

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ **Decadron** 0.6 mg/kg PO/Neb (max 20 mg).
  - ✱ 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.
  - ✱ In the absence of Racemic Epinephrine, **Epinephrine 1:1,000** may be used 0.5 ml/kg (max 5 ml) Nebulized.

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



Protocol 4-090 - Childbirth

BLS - EMR

- ✱ Consider **Oxygen** if SpO_2 less than 88%.
- ✱ Inspect for active bleeding / crowning. Determine amount of blood loss.
- ✱ Monitor pulseoximetry.
- ✱ Apply cardiac monitor limb leads.
- ✱ Obtain vital signs.
- ✱ Crowning: Stop transport and **Deliver** infant. Both crew members should be available during delivery.
  - ✱ Consider cleaning Vaginal area prior to birth.
  - ✱ Inspect for prolapsed cord.
    - ✚ Breech: **Deliver** as best you can (see below).
    - ✚ No complications:
      - ✖ Provide **peritoneal pressure** during delivery to prevent tearing.
      - ✖ Only Suction Airway if infant is in distress.
      - ✖ **Dry**, **warm**, and **stimulate**.
      - ✖ Place infant skin-to-skin with mother while she **breastfeeds**, if possible.
      - ✖ **Clamp and cut cord** halfway between mother and infant. Only clamp cord if full-term gestation baby.
      - ✖ Assess Section 4-091 - APGAR Scoring System (page 53) at 1 min.
      - ✖ Expect placenta within 5 min and transport it with patients.
      - ✖ **Fundal massage**.
      - ✖ Targeted Pre-Ductal SpO_2 After Birth:
        - ✳ 1 min = 60-65%
        - ✳ 2 min = 65-70%
        - ✳ 3 min = 70-75%
        - ✳ 4 min = 75-80%
        - ✳ 5 min = 80-85%
        - ✳ 10 min = 85-95%
      - ✖ Assess Section 4-091 - APGAR Scoring System (page 53) at 5 min intervals.
    - ✚ Prolapsed cord:
      - ✖ Place mother on hands and knees.
      - ✖ Do not handle cord. Cover it with moist dressing.
      - ✖ Protect cord from compression with fingers.
      - ✖ Rapid transport to nearest hospital with OB department.

BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

ALS - RN/Paramedic

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

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

Section 4-091 - APGAR Scoring System

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

BLS - EMR

- ✱ Consider **Oxygen** if SpO_2 less than 88%.
- ✱ Remove excess clothing / blankets.
- ✱ Monitor pulseoximetry.
- ✱ Consider: Apply cardiac monitor limb leads.
- ✱ Obtain vital signs.

BLS - EMT

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

ALS - RN/Paramedic

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

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

Protocol 4-110 - Hypertension

BLS - EMR

- ✱ Calm and reassure the patient.
- ✱ Identify possible causes.
- ✱ Consider **Oxygen** if SpO_2 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:
  - ✱ Inspect for active bleeding / crowning. Determine amount of blood loss.
  - ✱ Consider transport in left lateral recumbent position to reduce risk of Vena Cava compression.

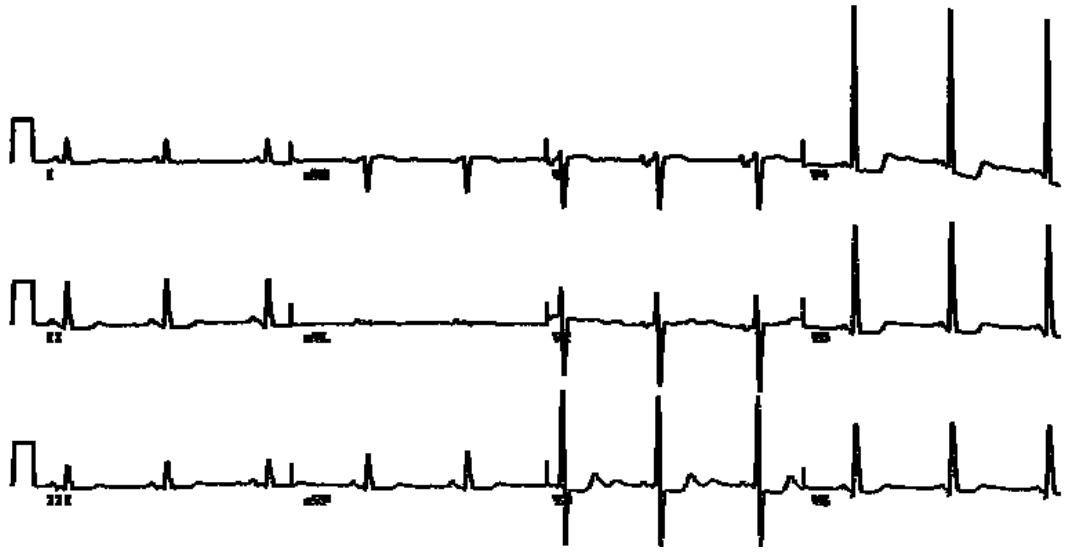
BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ IV/IO **NS**.
- ✱ Diastolic greater than 115 with Nausea, ALOC, blurred vision, Headache, or Chest Pain: Contact **MEDICAL CONTROL** for:
  - ✱ *Adult*:
    - ✚ Consider **Labetalol** 20 mg over 2 min IV/IO.
    - ✚ Consider **Hydralazine** 10-20 mg IV/IO/IM.
    - ✚ Consider **Nitroglycerin** sublingual.
    - ✚ Consider **Nitroglycerin** drip IV/IO.
  - ✱ *Pediatric*:
    - ✚ Consider **Labetalol** 0.4-1 mg/kg/hr IV/IO.
    - ✚ Consider **Hydralazine** 0.1-0.2 mg/kg (max 20 mg) IV/IO/IM.
- ✱ Pregnant:
  - ✱ Actively seizing: **Magnesium Sulfate** 4 g IM/IV/IO (IV/IO over 5 min) and refer to Protocol 4-170 - Seizures (page 60).
  - ✱ Contact **MEDICAL CONTROL** for:
    - ✚ Consider **Magnesium Sulfate** 4-6 g IV/IO over 20 min or 2 g/hr.
    - ✚ Consider **Labetalol** 20 mg IV/IO over 2 min.
    - ✚ Consider **Hydralazine** 10-20 mg IV/IO/IM.
- ✱ Do not reduce Mean Arterial Pressure (MAP) lower than 20% of the original.
  - ✱ $(MAP) = (Diastolic) + \frac{(Systolic) - (Diastolic)}{3}$

Link to research articles (QR code on right): http://1drv.ms/1BRri1i
Citations: (Cox Paramedics, 2014)



Protocol 4-120 - Hypoglycemia

BLS - EMR

- ✱ Identify possible causes.
- ✱ Consider **Oxygen** if SpO_2 less than 88%.
- ✱ Monitor pulseoximetry.
- ✱ Consider: Consider cardiac monitor limb leads.
- ✱ Obtain vital signs.

BLS - EMT

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

ALS - RN/Paramedic

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

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

Protocol 4-130 - Neonatal Resuscitation

BLS - EMR

- ✱ Confirm ABCs.
- ✱ Establish and maintain Airway.
- ✱ Suction thoroughly.
- ✱ Use **BVM** on room air unless you suspect hypoxic event. Maintain SpO_2 according to chart below.
  - ✱ Targeted Pre-Ductal SpO_2 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 56).

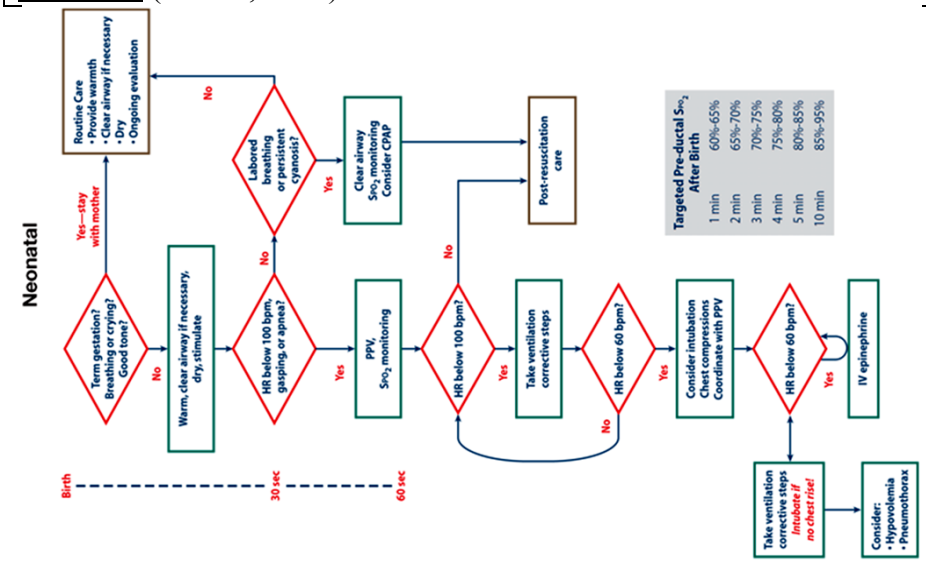
ALS - RN/Paramedic

- ✱ 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

BLS - EMR

- Consider hazmat. Refer to Protocol 6-055 - Decontamination (page 78).
- Identify possible causes.
- Identify substance.
- Consider **Oxygen** 100%.
  - Paraquat Poisoning: Only administer **Oxygen** if SpO_2 less than 88%.
- Monitor pulseoximetry.
- Apply cardiac monitor limb leads.
- Obtain vital signs.

BLS - EMT

- Ensure completion of applicable EMR items above.
- Assist ALS with **Capnography**.
- Perform **Glucose check**.
  - Glucose less than 70 mg/dl: Refer to Protocol 4-120 - Hypoglycemia (page 56).

ALS - RN/Paramedic

- Ensure completion of all applicable BLS items on the left.
- IV/IO **NS**.
  - If suspected intentional Poisoning or Overdose: Mandatory **ALS patient** and pre-hospital **IV access** is required.
- Consider **Intubation**.

- Beta-Blocker Overdose:
  - Refer to Protocol 2-040 - Bradycardia (page 22)..
  - Contact **MEDICAL CONTROL** for **Glucagon**:
    - *Adult*: 2-5 mg IV/IO. Repeat at 10 mg if Bradycardia and hypotension recur.
    - *Pediatric*: 0.5 mg IV/IO.

- Calcium channel blocker Overdose:
  - Contact **MEDICAL CONTROL** for **Calcium Chloride**.

- Cyanide Poisoning (structure/vehicle fire smoke inhalation with altered mental status):
  - **Decontamination** with water.
  - **Cyanokit**:
    - *Adult*: 5 g IV/IO over 15 min.
    - *Pediatric*: 70 mg/kg IV/IO over 15 min.

- Illegal drug Overdose with excited delirium (i.e. Bath Salts): Refer to Protocol 4-040 - Behavioral (page 44).

- Narcotic Overdose:
  - *Adult*: **Narcan** 0.2-0.4 mg (max 2 mg) to maintain Airway, SpO_2, and $ETCO_2$ IV/IO/IN/IM/SQ.
    - OR **Narcan** 2 mg in 3 ml **NS** ET.
  - *Pediatric*: **Narcan** 0.1 mg/kg IV/IO/IN/IM/SQ/ET (max 2 mg).

- Organophosphate Poisoning:
  - **Decontamination** with water.
  - *Adult*: **Atropine** 1-2+ mg IV/IO. If **Intubation** needed: 6 mg IV/IO.
  - *Pediatric*: **Atropine** 0.02-0.05 mg/kg IV/IO.
  - Seizing: Refer to Protocol 4-170 - Seizures (page 60) (**Valium** preferred).

- Hydrofluoric acid contact:
  - **Decontamination** with water.
  - Contact **MEDICAL CONTROL** for **Calcium Gluconate / KY Jelly** applied to exposed contact area.

- Contact **POISON CONTROL**: **888-268-4195**.
- Contact **MEDICAL CONTROL**.
  - If patient can protect their Airway: Consider **Activated Charcoal** 0.5-1 g/kg PO.

Link to research articles (QR code on right): http://1drv.ms/1BRrtd3
Citations: (Citizens Memorial Hospital, 2014), (Clarke, Dargan, & Jones, 2005), (Cyanokit, 2012)

Protocol 4-160 - Pre-Term Labor

BLS - EMR

- ✱ Consider **Oxygen** if SpO_2 less than 88%.
- ✱ Inspect for active bleeding / crowning.
- ✱ Determine amount of blood loss.
- ✱ Monitor pulseoximetry.
- ✱ Apply cardiac monitor limb leads.
- ✱ Obtain vital signs.
- ✱ Consider orthostatic vital signs.
- ✱ Consider transport in left lateral recumbent position to reduce risk of Vena Cava compression.

BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

ALS - RN/Paramedic

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

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

Protocol 4-170 - Seizures

BLS - EMR

- ✱ Ensure open Airway.
- ✱ Identify possible **causes**.
- ✱ Clear area to decrease chance of injury.
- ✱ Consider **Oxygen** if SpO_2 less than 88%.
- ✱ Monitor pulseoximetry.
- ✱ Apply cardiac monitor limb leads.
- ✱ Obtain vital signs.

BLS - EMT

- ✱ Ensure completion of applicable EMR items above.
- ✱ Assist ALS with **Capnography**.
- ✱ Perform **Glucose check**.
  - ✱ Glucose less than 70 mg/dl: Refer to Protocol 4-120 - Hypoglycemia (page 56).

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ IV/IO **NS**.
- ✱ Actively seizing:
  - ✱ *Adult*:
    - ✚ **Valium** 5-10 mg (max 30 mg) IV/IO.
      - ✖ OR **Ativan** 4 mg (max 8 mg) IV/IO.
      - ✖ OR **Versed** 2.5-5 mg IV/IO/IN.
      - ✖ OR **Valium** 2.5-5 mg IN.
      - ✖ OR **Versed** 10 mg IM.
    - ✚ Pregnant hypertension: Refer to Protocol 4-110 - Hypertension (page 55)
  - ✱ *Pediatric (5-18 yr)*:
    - ✚ **Valium** 1 mg (max 10 mg) IV/IO.
      - ✖ OR **Valium** 0.3 mg/kg (max 20 mg) PR.
      - ✖ OR **Ativan** 0.07 mg/kg over 5 min IV/IO. May repeat in 15 min (max 8 mg).
      - ✖ OR **Versed** 5 mg IM.
      - ✖ OR **Versed** IV/IO/IN.
        - ✳ Over 12 yrs: Same as adult.
        - ✳ Between 6 yrs and 12 yrs: 0.05 mg/kg.
        - ✳ Under 6 yrs: 0.05-0.1 mg/kg.
  - ✱ *Pediatric (6 mo-5 yr)*:
    - ✚ **Valium** 0.2-0.5 mg/kg (max 5 mg) IV/IO.
      - ✖ OR **Valium** 0.5 mg/kg (max 20 mg) PR.
      - ✖ OR **Ativan** 0.1 mg/kg over 5 min IV/IO. May repeat half dose in 15 min.
      - ✖ OR **Versed** 0.05-0.1 mg/kg IV/IO/IN.
  - ✱ *Pediatric (0-6 mo)*:
    - ✚ **Valium** 0.1-0.3 mg/kg over 5 min (max 2 mg).
      - ✖ OR **Ativan** 0.05 mg/kg over 5 min IV/IO. May repeat in 15 min.
  - ✱ Contact **MEDICAL CONTROL** for: Valium, Versed, or Ativan higher dose.
- ✱ Use RSI with caution in Seizure patients. Paralysis only masks the manifestation of Seizure.
  - ✱ Continued sedation for intubated patient: **Ativan** 1 mg.

Link to research articles (QR code on right): http://1drv.ms/1ADzj2x
Citations: (Bhattacharyya, Kalra, & Gulati, 2006), (Holsti, et al., 2007), (Silbergleit, et al., 2012)

Protocol 4-175 - Sepsis

BLS - EMR

- ✱ Obtain vital signs.
- ✱ Apply cardiac monitor limb leads.
- ✱ Consider treating for shock.
- ✱ Notify incoming ambulance of possible SEPSIS (include accurate blood pressure).
  - ✱ Definition of SEPSIS:
    - ✚ Suspected infection AND
    - ✚ At least two of the following:
      - ✖ Temperature greater than 100.9°F.
      - ✖ Temperature less than 96.8°F.
      - ✖ Heart rate greater than 90.
      - ✖ Respiratory rate greater than 20.
      - ✖ $EtCO_2$ 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.

BLS - EMT

- ✱ Ensure completion of applicable EMR items above.
- ✱ Assist ALS with **Capnography**.
- ✱ Perform **Glucose check**.
  - ✱ Glucose less than 70 mg/dl: Refer to Protocol 4-120 - Hypoglycemia (page 56).

ALS - RN/Paramedic

- ✱ 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 56) to meet target blood glucose level of 180.
- ✱ Notify Emergency Room of incoming SEPSIS patient.

Link to research articles (QR code on right):
Citations:

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

BLS - EMR

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

BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

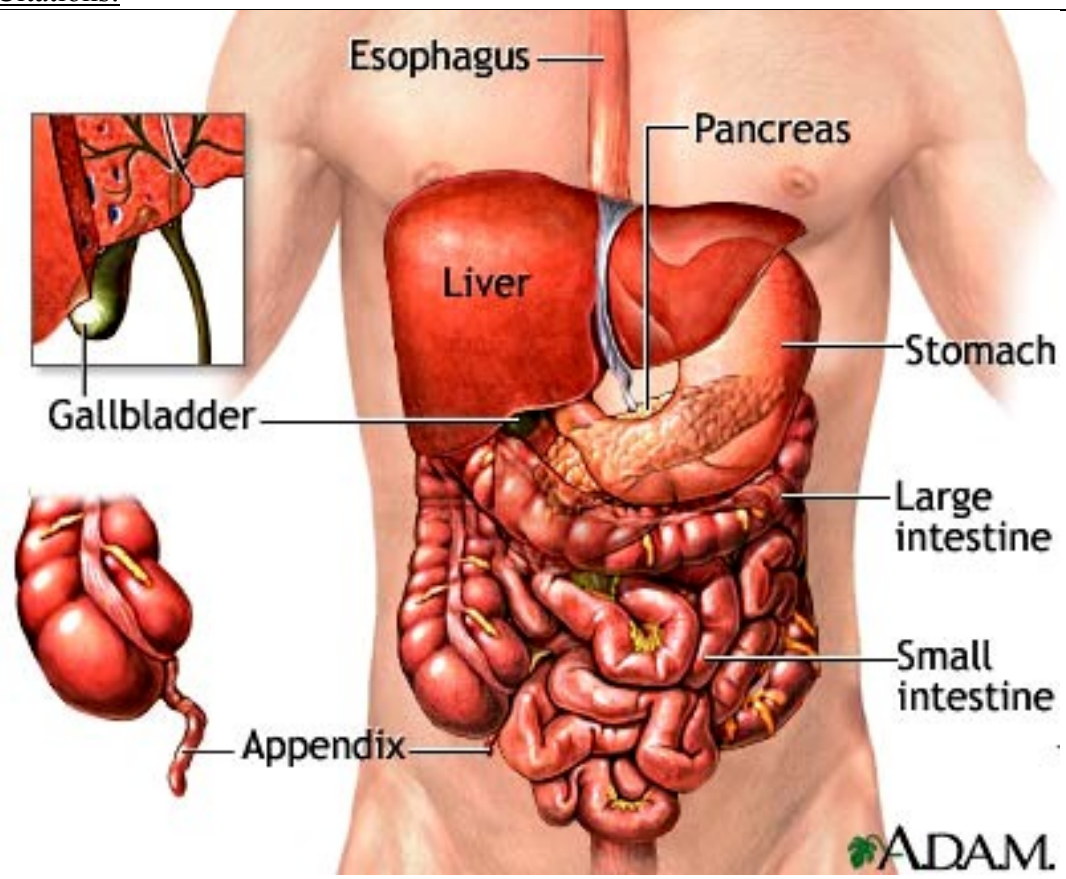
ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ IV/IO **LR** titrated to SBP greater than 80.
- ✱ **Intubate** as necessary.
- ✱ Pain: Refer to Protocol 6-050 - Control of Pain (page 77).
- ✱ Nausea: Refer to Protocol 6-040 - Control of Nausea (page 76).

- ✱ *Adult*:
  - ✱ Consider **TXA** 1 g in 100 ml NS over 10 min if all of the following:
    - ✚ Major injury AND
    - ✚ Signs of shock (SBP less than 90 OR HR greater than 115 that is persistent after at least 1 L fluid bolus) AND
    - ✚ Recent injury (less than 3 hrs ago).

- ✱ *Pediatric*:
  - ✱ Consider **MEDICAL CONTROL**.

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



Protocol 5-030 - Burns

BLS - EMR

- Stop the burning process.
- Chemical burn: Refer to Protocol 6-055 - Decontamination (page 78)
- 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.

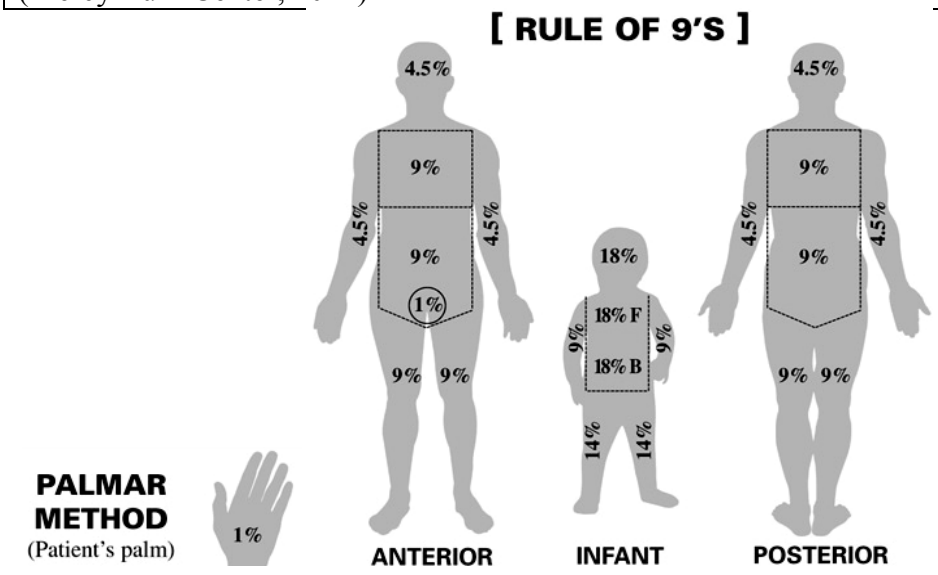
BLS - EMT

- 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 77).
- Nausea: Refer to Protocol 6-040 - Control of Nausea (page 76).
- Smoke inhalation with altered mental status: Refer to Protocol 4-140 - Poisoning or Overdose (page 58).

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)



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**.

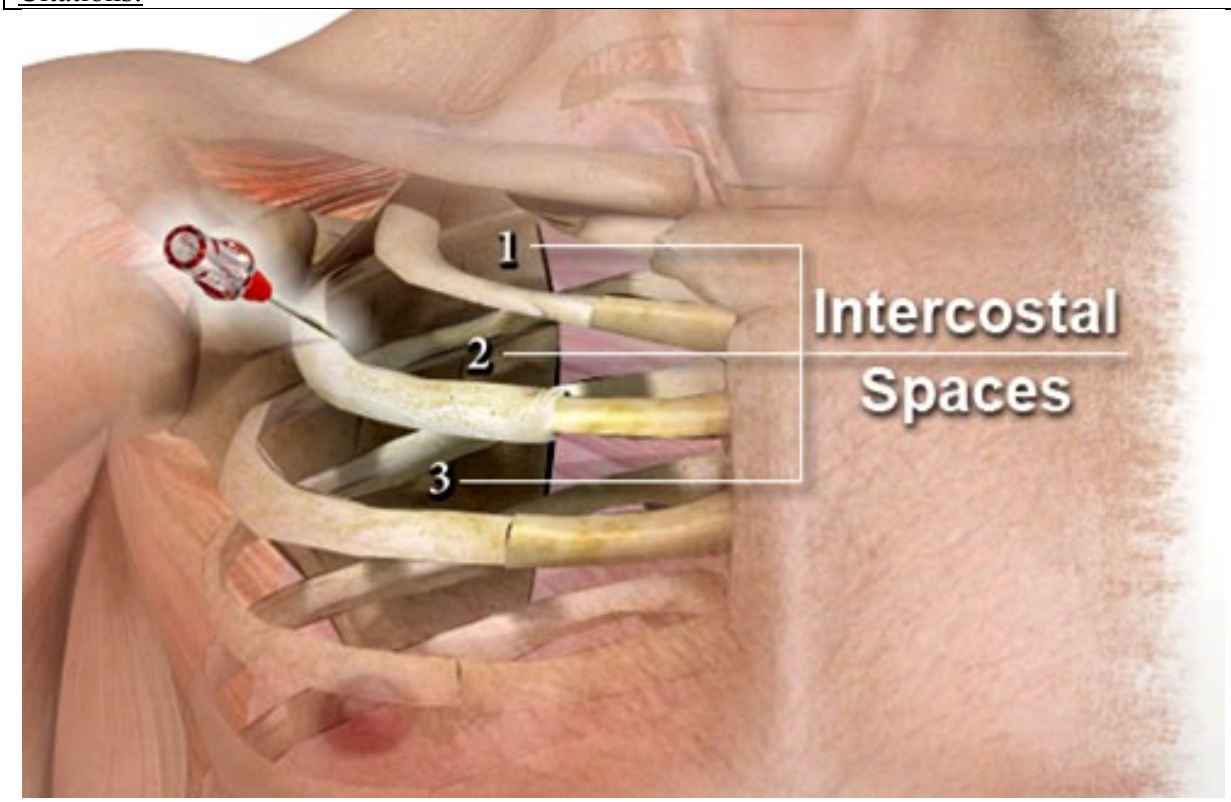
ALS - RN/Paramedic

- 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 77).
- Nausea: Refer to Protocol 6-040 - Control of Nausea (page 76).

- *Adult*:
  - Consider **TXA** 1 g in 100 ml NS over 10 min if all of the following:
    - Major injury AND
    - Signs of shock (SBP less than 90 OR HR greater than 115 that is persistent after at least 1 L fluid bolus) AND
    - Recent injury (less than 3 hrs ago).

- *Pediatric*:
  - Consider **MEDICAL CONTROL**.

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



Protocol 5-050 - Extremity Trauma

BLS - EMR

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

BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ No crush injury: IV/IO **LR** titrated to SBP greater than 80.
- ✱ **Intubate** as necessary.
- ✱ Pain: Refer to Protocol 6-050 - Control of Pain (page 77).
- ✱ Nausea: Refer to Protocol 6-040 - Control of Nausea (page 76).
- ✱ *Adult*:
  - ✱ Consider **TXA** 1 g in 100 ml NS over 10 min if all of the following:
    - ✚ Major injury AND
    - ✚ Signs of shock (SBP less than 90 OR HR greater than 115 that is persistent after at least 1 L fluid bolus) AND
    - ✚ Recent injury (less than 3 hrs ago).
- ✱ *Pediatric*:
  - ✱ Consider **MEDICAL CONTROL**.
- ✱ Extremity crush injury (suspected compartment and/or crush syndrome if Extremity pinned for 15 minutes to 6 hours depending on weight and other factors):
- ✱ IV/IO **NS**. Two large bore IVs wide open.
  - ✱ Contact **MEDICAL CONTROL**:
    - ✚ Consider **Tourniquet**.
      - ✖ (To limit acid and Potassium release).
    - ✚ Consider **NS** 2 L prior to release, then 500 ml/hr after.
    - ✚ Consider **Sodium Bicarbonate** 1 mEq/kg (max 100 mEq) IV/IO prior to release, then add 100 mEq to 1 L **NS** and drip at 100 ml/hr.
      - ✖ (To alkalize blood and urine).
    - ✚ Consider **Calcium Chloride** 1g IV/IO over 10-15 min. Do not mix with Sodium Bicarbonate.
      - ✖ (To decrease cell membrane permeability).
    - ✚ Consider **Albuterol** neb high dose (10-20 mg).
      - ✖ (To lower Potassium).
    - ✚ Consider **Dextrose** IV/IO.
      - ✖ (To facilitate insulin administration in ER).

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

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

Protocol 5-060 - Eye Injury

BLS - EMR

- ✱ Consider **Oxygen** if SpO_2 less than 88%.
- ✱ Control bleeding / bandage / stabilize impaled objects as required.
- ✱ Monitor pulseoximetry.
- ✱ Obtain vital signs.
- ✱ Foreign substance:
  - ✱ Non-penetrating injuries: Flush Eye with at least 1 L **NS** over 20 min.

BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ Consider IV/IO **Saline lock**.
- ✱ Trauma:
  - ✱ Cover open wounds.
  - ✱ Do not apply pressure to Eye.
  - ✱ **Cover** both eyes.
- ✱ Foreign substance:
  - ✱ Consider **Tetracaine** 1-2 drops in affected Eye.
  - ✱ Non-penetrating injuries: Flush Eye with at least 1 L **NS** over 20 min.
    - ✚ Consider **Morgan Lens**.
- ✱ Pain: Refer to Protocol 6-050 - Control of Pain (page 77).
- ✱ Nausea: Refer to Protocol 6-040 - Control of Nausea (page 76).
- ✱ *Pediatric*:
  - ✱ Consider **MEDICAL CONTROL**.

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.

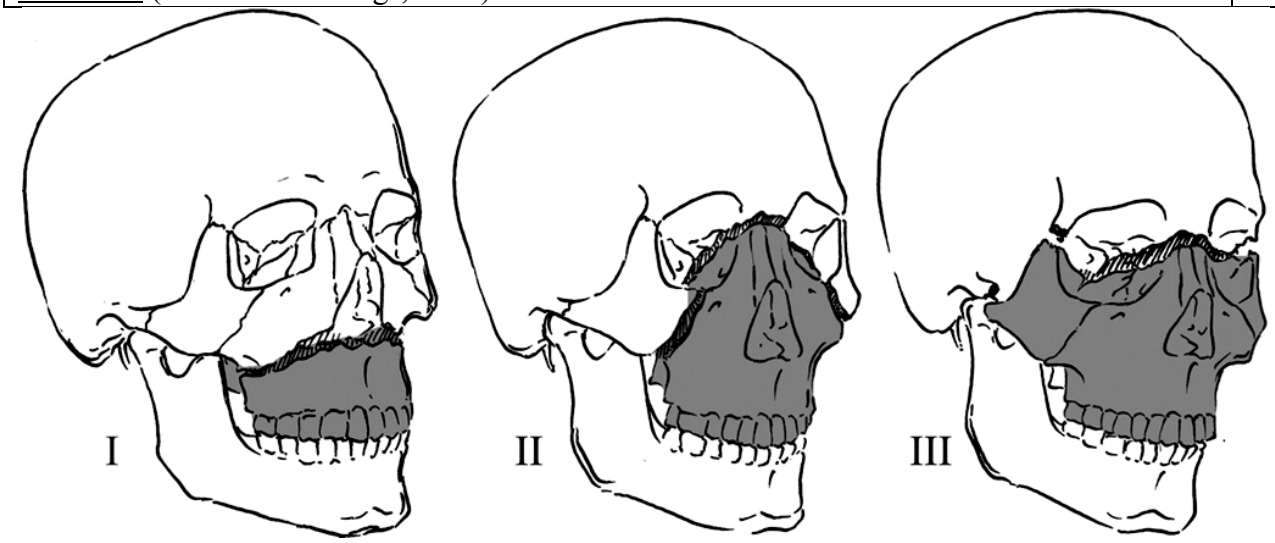
BLS - EMT

- 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 x age) SBP.
  - 1-12 mo: Greater than 70 SBP.
  - 0-28 days: Greater than 60 SBP.
- GCS less than 8 OR Cushing's Triad (abnormal breathing AND bradycardia AND hypertension): Consider **RSI**.
- *Adult*:
  - **Lidocaine** 1.5 mg/kg IV/IO prior to **Intubation**.
  - Consider **Fentanyl** 50-100 mcg every 5-20 min (max 300 mcg) IV/IO/IN. Over 65 yr old: 0.5-2 mcg/kg.
  - Nausea: Consider **Zofran** 4mg IV/IM/IN (max 8 mg).
- *Pediatric*:
  - **Lidocaine** 1 mg/kg IV/IO prior to **Intubation**.
  - Age less than 3 yrs: **Atropine** 0.02 mg/kg (min 0.1 mg) IV.
  - Consider **Fentanyl** 1-2 mcg/kg may repeat (max 150 mcg) IV/IO/IN. (Morphine is contraindicated for Head injury.)
  - Contact **MEDICAL CONTROL**.

Link to research articles (QR code on right): http://1drv.ms/1EKEdkX
Citations: (Flower & Hellings, 2012)



Protocol 5-080 - Spinal Trauma

BLS - EMR

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

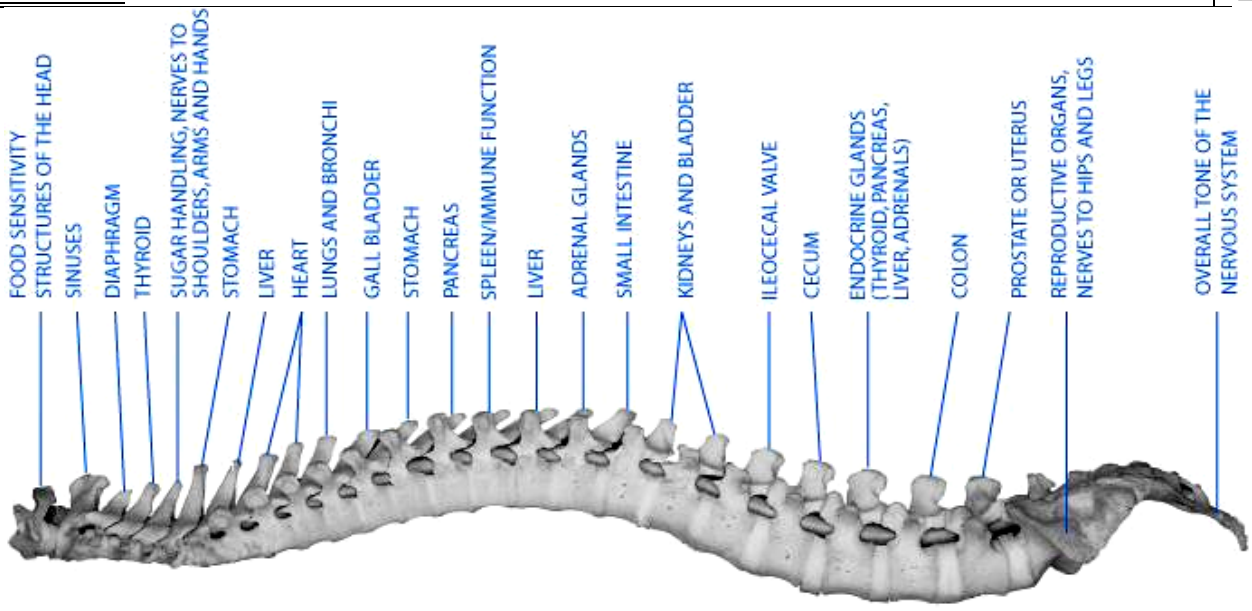
BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

ALS - 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 **RSI**.
- ✱ Pain: Refer to Protocol 6-050 - Control of Pain (page 77).
- ✱ Nausea: Refer to Protocol 6-040 - Control of Nausea (page 76).
- ✱ *Pediatric*:
  - ✱ Consider **MEDICAL CONTROL**.

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



Protocol 5-090 - Trauma Arrest

BLS - EMR

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

BLS - EMT

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

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ IV/IO **LR** wide open (x2 large bore).
- ✱ Consider **Intubation**.
- ✱ Treat rhythm per protocol.
- ✱ Bilateral **Chest Decompression** if Chest trauma etiology.

- ✱ *Adult*: Field termination may be requested from **MEDICAL CONTROL** regardless of how long **ACLS** efforts have been underway.

- ✱ *Pediatric*: Contact **MEDICAL CONTROL**.
  - ✱ Immediate **transport**.

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

Part 6 - General Protocols

Section 6-010 - Acquisition of Medical Control

BLS - EMR

- 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.

BLS - EMT

- Ensure completion of applicable EMR items above.

ALS - RN/Paramedic

- Ensure completion of all applicable BLS items on the left.
- Medical control shall only be provided by a **Physician**. Medical control shall not accepted from nurses, nurse practitioners, Physician assistants, midwifes, 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.

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

Link to research articles (QR code on right): http://1drv.ms/1Do4yoF
Citations: (Citizens Memorial Hospital, 2013)

Section 6-020 - Air Ambulance

BLS - EMR

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

BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

ALS - RN/Paramedic

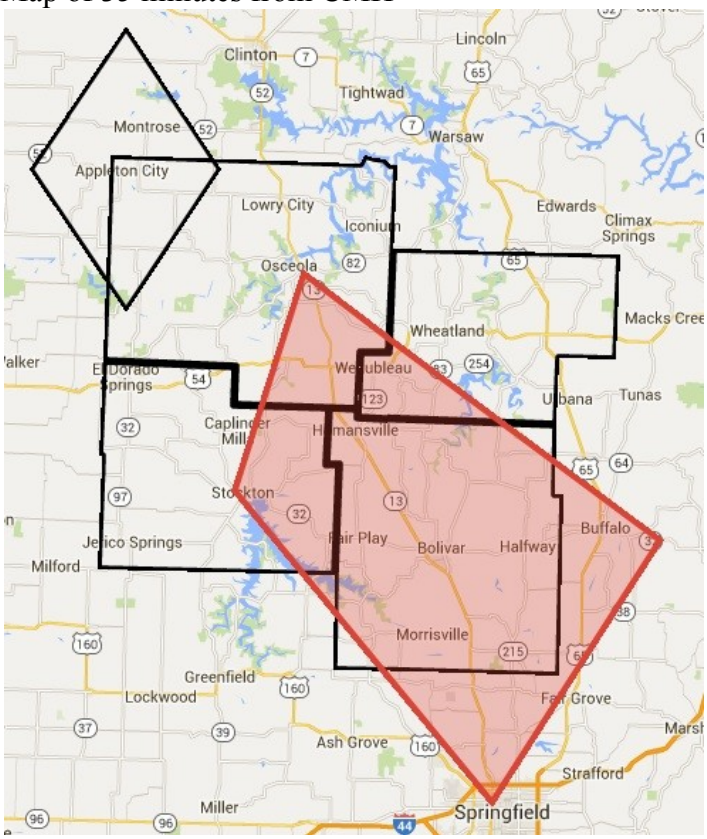
- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ Consider Air Ambulance if **ONE** or more of the following are true:
  - ✱ Uncontrollable cardiac dysrhythmias;
  - ✱ Airway control intervention;
- ✱ Consider Air Ambulance if **TWO** or more of the following are true (also includes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

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

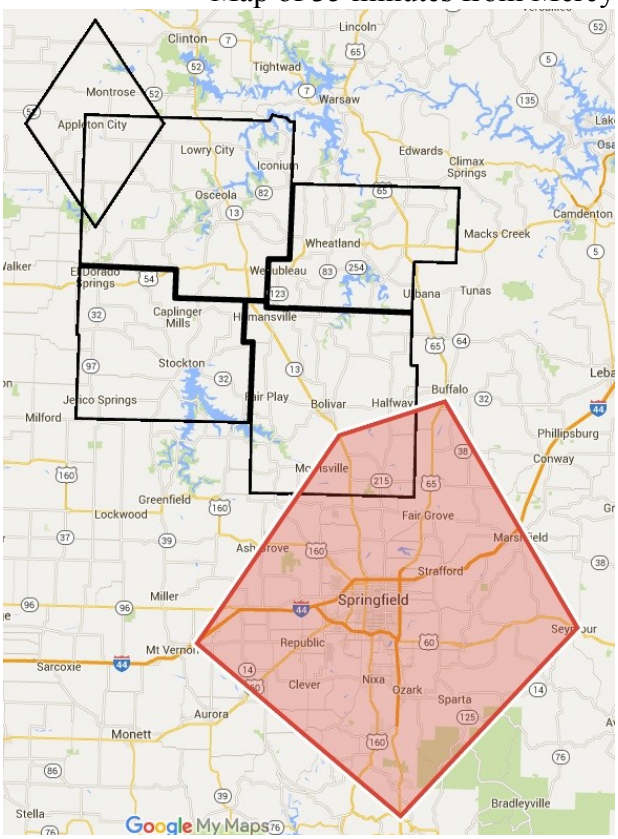
Section 6-021 - No Fly Zone

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

Map of 35 minutes from CMH



Map of 35 minutes from Mercy



Protocol 6-025 - Cardiopulmonary Resuscitation (CPR)

BLS - EMR

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

BLS - EMT

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

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ Every 2 minutes, **Charge** monitor in anticipation of shock able rhythm.
  - ✱ *Adult*: 360 J (OR consider biphasic dose of 200 J).
  - ✱ *PEDIATRIC*: 4 J/kg
  - ✱ During pause in compressions, **Defibrillate** or **Dump Charge**.
- ✱ Consider immediate Intubation without interruption of compressions to facilitate continuous compressions.
- ✱ Start **IV/IO** with **Fluid Bolus**.
- ✱ **Epinephrine 1:10,000** IV/IO every 3-5 min.
  - ✱ *Adult*: 1 mg.
  - ✱ *Pediatric*: 0.01 mg/kg.
- ✱ Consider **Atropine** 1 mg for Bradycardia every 3-5 min.
- ✱ Consider **Sodium Bicarbonate** 1 mEq/kg for acidosis.
- ✱ Consider **Lidocaine** 1 mg/kg for Ventricular Ectopy.
  - ✱ OR **Amiodarone** 300 mg.
- ✱ Consider **Pacing**.
- ✱ Consider **Dextrose** for Hypoglycemia.
- ✱ Consider **Narcan** for Overdose.
- ✱ Perform **Physical Exam**.
- ✱ Begin termination/transportation conversation.
  - ✱ Consider full ACLS efforts for adult, non-trauma, non-poisoning arrest patients for 20 minutes prior to movement.
  - ✱ Refer to Section 6-140 - Termination of Resuscitation (page 90).

Link to research articles (QR code on right): http://1drv.ms/1EKFoke
Citations: (Taney County Ambulance District, 2014), (Wake County EMS System, 2010)

Section 6-030 - Competencies and Education

BLS - EMR

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

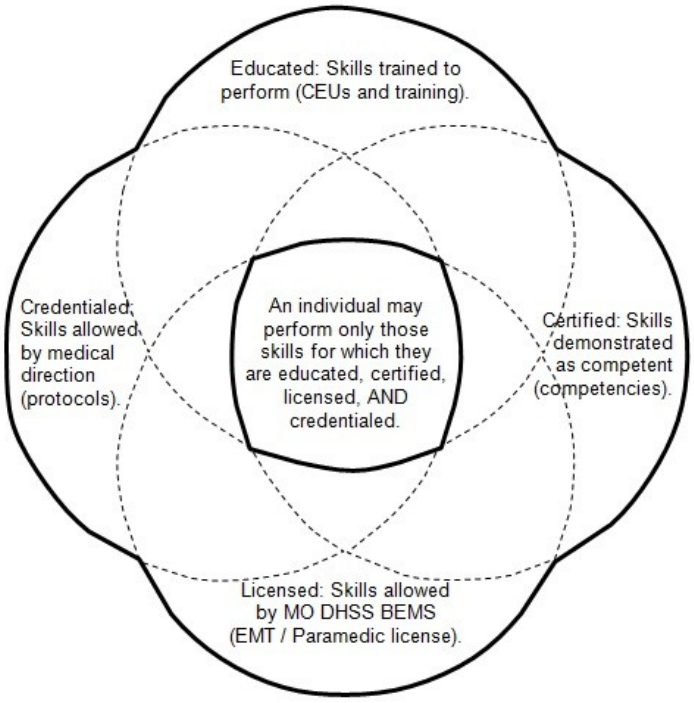
BLS - EMT

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

ALS - RN/Paramedic

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

Link to research articles (QR code on right): http://1drv.ms/1EKFAQH
Citations: (Citizens Memorial Hospital, 2013), (National Highway Traffic Safety Administration, 2007)



Protocol 6-040 - Control of Nausea

BLS - EMR

- ✱ Identify possible causes.
- ✱ Consider **Oxygen** if SpO_2 less than 88%.
- ✱ Monitor pulseoximetry.
- ✱ Apply cardiac monitor limb leads.
- ✱ Obtain vital signs.

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** or **LR**.
- ✱ Note: Antiemetic medications are not to be used as a prophylactic to prevent possible nausea.

- ✱ *Adult (greater than 27 kg)*:
  - ✱ 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.
- ✱ *Pediatric (greater than 27 kg)*: Use adult dosage.
- ✱ *Pediatric (greater than 2 yr & less than 27 kg)*:
  - ✱ 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.
- ✱ *Pediatric (less than 2 yr)*: 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

BLS - EMR

- ✱ Identify possible causes.
- ✱ Consider **Oxygen** if SpO_2 less than 88%.
- ✱ Monitor pulseoximetry.
- ✱ Apply cardiac monitor limb leads.
- ✱ Obtain vital signs.

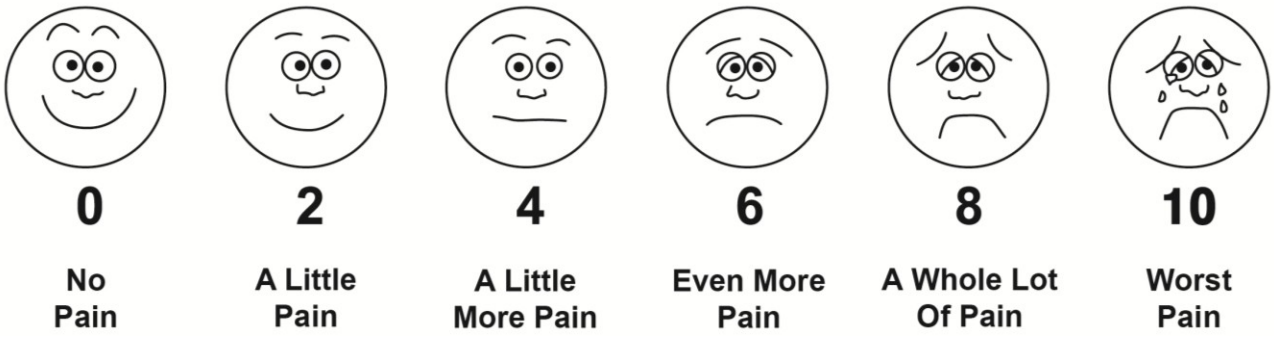
BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ IV/IO **NS** or **LR**.
- ✱ Acute (non traumatic) or chronic (acute exacerbation) with autonomic signs and symptoms:
  - ✱ *Adult*:
    - ✚ Consider **Fentanyl** 50-100 mcg may repeat every 5 min (max 300 mcg) IV/IO/IM/IN. Over 65 yr old: 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).
        - ✳ Over 65 yr old: Max 0.5 mg.
  - ✱ *Pediatric*:
    - ✚ 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.
        - ✳ 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.
      - ✖ Consider: **Ativan** 0.05 mg/kg (max 2 mg) IV/IO.
  - ✱ Severe pain: 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.
  - ✱ Painful procedure of short duration (i.e. extrication): Consider **Ketamine** (dissociative dose) 1-2 mg/kg IV/IO OR 4-5 mg/kg IM. Half dose if age greater than 65 yr.
- ✱ Chronic without autonomic signs and symptoms: Transport in position of comfort.
- ✱ Any patient receiving Narcotics must be transported.

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 89).
- ✱ 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)

BLS - EMR

- 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:
  - 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.

BLS - EMT

- Ensure completion of applicable EMR items above.

ALS - RN/Paramedic

- 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.

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

Section 6-070 - Documentation

BLS - EMR

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

BLS - EMT

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

ALS - 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.

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

Protocol 6-080 - Event Standby

BLS - EMR

- ✱ Treat illnesses and injuries per appropriate protocol.

BLS - EMT

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

ALS - RN/Paramedic

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

Link to research articles (QR code on right): http://1drv.ms/1F6d5e5
Citations: (Citizens Memorial Hospital, 2012), (National Athletic Trainers Association, 2015)

Protocol 6-085 - High-Threat Response

BLS - EMR

- ✱ EMS does not have an obligation to put themselves in danger. It is the discretion of the crew to enter an unsafe scene 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 89).

BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

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 77).

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 witten based on guidelines and principles established by the Committee of Tactical Emergency Casualty Care."

Protocol 6-090 - IDLH Standby

BLS - EMR

- ✱ Treat illnesses and injuries per appropriate protocol.
- ✱ Refer to Protocol 6-055 - Decontamination (page 78) as appropriate prior to contaminating personnel, equipment, and ambulance.

BLS - EMT

- ✱ 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.
  - ✱ 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**.
  - ✱ 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.
  - ✱ 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:
    - ✚ 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:
      - ✖ SBP greater than 200.
      - ✖ Pulse greater than 110.
      - ✖ Respirations greater than 40.
      - ✖ Temperature greater than 101.
      - ✖ PulseOx less than 90%.

ALS - RN/Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ Treat illnesses and injuries according to appropriate protocol.

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

Section 6-100 - Off-Duty Protocols

BLS - EMR

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

BLS - EMT

- While off duty: EMTs, 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.

ALS - RN/Paramedic

- Ensure completion of all applicable BLS items on the left.
- 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:
  - 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 - EMR

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

BLS - EMT

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

ALS - 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)

BLS - EMR

- ✱ Maintain Airway and Ventilate with 100% **Oxygen** for 5 min, if possible.
  - ✱ Attempt to maintain SpO_2 above 90% at all times.
  - ✱ Consider nasal cannula at 15 LPM after sedation.
  - ✱ Avoid BVM prior to intubation if SpO_2 above 90%.
- ✱ Monitor pulseoximetry.
- ✱ Attach cardiac monitor.

BLS - EMT

- ✱ Ensure completion of applicable EMR items above.
- ✱ Request **second ALS unit** or **supervisor**, if possible.
- ✱ Assist ALS with **Capnography**.
- ✱ RSI contraindications:
  - ✱ 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.

ALS - RN/Paramedic

- ✱ 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:
  - ✱ Head injury: **Lidocaine** 1.5 mg/kg IV/IO (2-3 min before intubation).
  - ✱ *Adult*:
    - ✚ Bradycardic: **Atropine** 0.5 mg IV/IO.
    - ✚ Seizing: Refer to Protocol 4-170 - Seizures (page 60).
    - ✚ Pain or tachycardic: Consider **Fentanyl** 3 mcg/kg IV/IO/IN (max 300 mcg).
  - ✱ *Pediatric*:
    - ✚ Consider **Atropine** 0.02 mg/kg IV/IO (min 0.1 mg) (max 0.5 mg).
    - ✚ Seizing: Refer to Protocol 4-170 - Seizures (page 60).
    - ✚ Consider **Fentanyl** 1-2 mcg/kg IV/IO/IN (max 150 mcg).

- ✱ Sedate:
  - ✱ **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.
  - ✱ **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.
  - ✱ Consider **Suction**, **Bougie**, **Gastric Tube**, **King**, and/or **LMA** .

- ✱ Continued sedation:
  - ✱ *Adult*: **Versed** 2.5-5 mg IV/IO every 5 min as needed maintaining SBP greater than 100.
    - ✚ 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.
    - ✖ 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):
  - ✱ **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	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
RSI - Prepare Equipment															
Laryngoscope	1 mil	1 mil	1 mil	1.5 mil	2 mil	2 mil	2	2	3	3	4	4	4	4	4
ET Size	3.5	3.5	3.5	4	4.5	5	5.5	6	6.5	7	7.5	7.5	8	8	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 (gm)	2 (gm)	2.5 (org)	2.5 (org)	3 (yel)	3 (yel)	4 (red)	4 (red)	4 (red)	5 (pur)	5 (pur)
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	6.9 ml	8.6 ml	10.2 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	2.0 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	5.0 ml	5.0 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	1.4 ml	1.9 ml	2.3 ml	2.8 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	13.7 ml	17.1 ml	20.4 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	5.5 ml	6.9 ml	8.2 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	6.9 ml	8.6 ml	10.2 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	1.9 ml	2.3 ml	2.8 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	5.0 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	2.0 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	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

BLS - EMR

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

BLS - EMT

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

ALS - RN/Paramedic

- Ensure completion of all applicable BLS items on the left.
- In the event of mechanical difficulty or other situation requiring transferring ALS patient to another ambulance, CMH or EMH 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 in-coming ambulance with face-to-face verbal report.

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

Protocol 6-130 - Triage

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

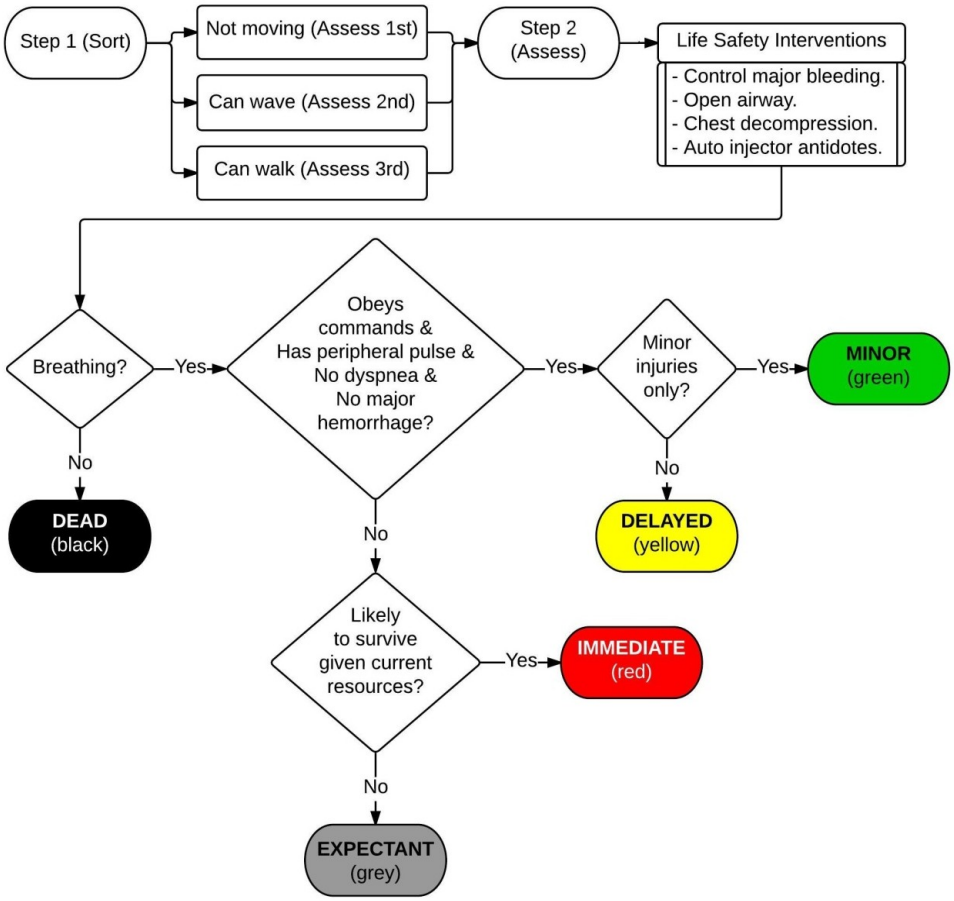
HEAR Report:

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

Mass casualty incident:

- Defined as greater than **five patients**.
- Notify ER as soon as possible (include number of patients, if known).
- First arriving ambulance assignments:
  - 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

BLS - EMR

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

BLS - EMT

- Ensure completion of applicable EMR items above.

ALS - RN/Paramedic

- Ensure completion of all applicable BLS items on the left.
- The following scenarios should always be transported to the closest appropriate facility as soon as possible and field termination is not an option:
  - Pediatrics, Drownings, Poisonings, or Hypothermia.
  - If Airway cannot be maintained and/or IV/IO cannot be accessed.
  - If none of the above apply: Patients should receive at least 20 minutes of ACLS resuscitative efforts on the scene prior to considering movement.
- If witnessed, non-trauma Arrest: full **ACLS** resuscitation efforts should continue for at least 20 minutes prior to consideration of field termination.
- When considering termination, 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:
  - CMH providing medical control to CMH ambulance OR
  - EMH providing medical control to EMH ambulance.

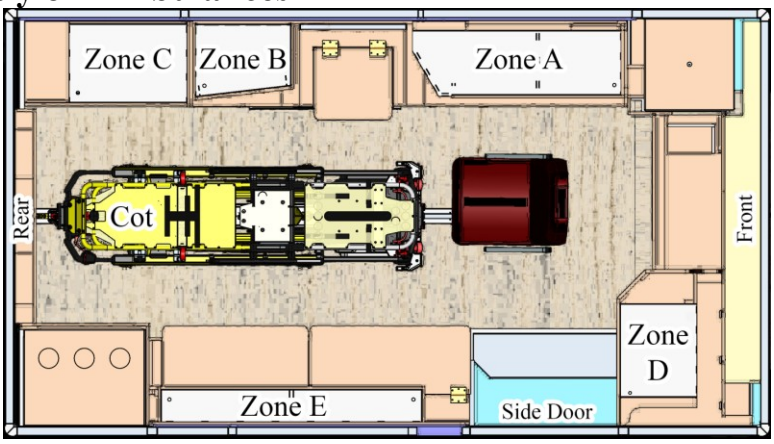
Link to research articles (QR code on right): http://1drv.ms/19zcgQK
Citations: (Citizens Memorial Hospital, 2013)

Part 7 - Medication Protocols

Section 7-001 - Medications Currently on Ambulances

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

Refer to Section 8-001 - Equipment Currently on Ambulances (page 159) 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 99)
				Section 7-460 - Oxygen (page 138)
		1	1.25 mg	Section 7-610 - Xopenex (Levalbuterol) (page 156)
Cot - Bag LifePak		4	81 mg	Section 7-060 - Aspirin (Bayer) (page 101)
		1	6 g	Section 7-420 - Nitroglycerin (Nitrostat, Nitolingual, Tridil) (page 136)
Narcotic Box			100 mcg	Section 7-230 - Fentanyl (Sublimaze) (page 119)
			10 mg	Section 7-390 - Morphine (page 133)
			10 mg	Section 7-580 - Valium (Diazepam) (page 153)
			5 mg	Section 7-600 - Versed (Midazolam) (page 155)
			150 mg	Section 7-330 - Ketamine (Ketalar) (page 127)
RSI Box			200 mg	Section 7-370 - Lidocaine (Xylocaine) (page 131)
			0.5 mg	Section 7-080 - Atropine (Sal-Tropine) (page 103)
			150 mg	Section 7-330 - Ketamine (Ketalar) (page 127)
			100 mg	Section 7-520 - Rocuronium (Zemuron) (page 144)
		4		Draw needles
		2		10 ml Syringes
Zone A - Above Action Area		6	2.5 mg	Section 7-040 - Albuterol (Proventil, Ventolin) (page 99)
		4	0.5 mg	Section 7-180 - Duoneb (Ipratropium and Albuterol, Combivent) (page 114)
		4	11.25 mg	Section 7-210 - Epinephrine Racemic (Micronefrin) (page 117)
		4		Section 7-320 - Ipratropium (Atrovent) (page 126)
		6	1.25 mg	Section 7-610 - Xopenex (Levalbuterol) (page 156)
Zone A - Action Area				Section 7-460 - Oxygen (page 138)
Zone A - Below Action Area				
Zone B				
Zone C		2	1,000 ml	Section 7-440 - Normal Saline (NS, Sodium Chloride) (page 137) - Irrigation
		2	1,000 ml	Sterile water - Irrigation
Zone D		1	400 mg	Section 7-170 - Dopamine (Intropin) (page 113) 1 - Pump tubing 1 - Reference card
		1	2 g	Section 7-370 - Lidocaine (Xylocaine) - Drip (page 131) 1 - Pump tubing 1 - Reference card
		1	150 mg	Section 7-420 - Nitroglycerin (Nitrostat, Nitolingual, Tridil) - Drip (page 136) 1 - Pump tubing 1 - Reference card
		2	2 L	Section 7-350 - Lactated Ringers (LR) (page 129)
		6	2 L	Section 7-440 - Normal Saline (NS, Sodium Chloride) (page 137)

Location	✓	Qty	Dose	Description
Zone D - Bag Adult				
Zone D - Bag Adult - Airway				
Zone D - Bag Adult - Medication		3	6 mg	Section 7-030 - Adenosine (Adenocard) (page 98)
		2	150 mg	Section 7-050 - Amiodarone (Cordarone) (page 100)
		3	1 mg	Section 7-080 - Atropine (Sal-Tropine) (page 103)
		1	50 mg	Section 7-090 - Benadryl (Diphenhydramine) (page 104)
		*		Section 7-150 - Dextrose (page 111) 1 - 100 ml - D-5-W 1 - 25 g - D-50-W
		2		Section 7-190 - Epinephrine 1:1,000 (page 115)
		4		Section 7-200 - Epinephrine 1:10,000 (page 116)
		1		Section 7-240 - Glucagon (page 120)
		2	40 mg	Section 7-360 - Lasix (Furosemide) (page 130)
		2	100 mg	Section 7-370 - Lidocaine (Xylocaine) (page 131)
		4	1 g	Section 7-380 - Magnesium Sulfate (page 132)
		1	2 mg	Section 7-400 - Narcan (Naloxone) (page 134)
		1	100 ml	Section 7-440 - Normal Saline (NS, Sodium Chloride) (page 137)
		2	50 mEq	Section 7-530 - Sodium Bicarbonate (Soda) (page 146)
		1	100 mg	Section 7-570 - Thiamine (Vitamin B1) (page 150)
Zone D - Bag Medication		3	6 mg	Section 7-030 - Adenosine (Adenocard) (page 98)
		2	150 mg	Section 7-050 - Amiodarone (Cordarone) (page 100)
		3	1 mg	Section 7-080 - Atropine (Sal-Tropine) (page 103)
		1	50 mg	Section 7-090 - Benadryl (Diphenhydramine) (page 104)
		*		Section 7-150 - Dextrose (page 111) 1 - 100 ml - D-5-W 1 - 25 g - D-50-W
		2		Section 7-190 - Epinephrine 1:1,000 (page 115)
		4		Section 7-200 - Epinephrine 1:10,000 (page 116)
		1		Section 7-240 - Glucagon (page 120)
		2	40 mg	Section 7-360 - Lasix (Furosemide) (page 130)
		2	100 mg	Section 7-370 - Lidocaine (Xylocaine) (page 131)
		4	1 g	Section 7-380 - Magnesium Sulfate (page 132)
		1	2 mg	Section 7-400 - Narcan (Naloxone) (page 134)
		1	100 ml	Section 7-440 - Normal Saline (NS, Sodium Chloride) (page 137)
		2	50 mEq	Section 7-530 - Sodium Bicarbonate (Soda) (page 146)
		1	100 mg	Section 7-570 - Thiamine (Vitamin B1) (page 150)
Zone D - Bag Ped				
Zone D - Box Medication		1	160 mg	Section 7-010 - Acetaminophen (Tylenol) (page 96)
		1		Section 7-020 - Activated Charcoal (Actidose) (page 97)
		16	81 mg	Section 7-060 - Aspirin (Bayer) (page 101)
		1		Section 7-080 - Atropine (Sal-Tropine) (page 103)
		1		Section 7-100 - Calcium Chloride (Calciject) (page 105)
		1	100 mg	Section 7-120 - Cardizem (Diltiazem) (page 107)
		2	20 mg	Section 7-140 - Decadron (Dexamethasone) (page 110)
		1		Section 7-260 - Haldol (Haloperidol) (page 122)
		1	5,000 u	Section 7-270 - Heparin (page 123)
		1	20 mg	Section 7-280 - Hydralazine (Apresoline) (page 124)
		1	100 mg	Section 7-300 - Ibuprofen (Advil, Pediaprofen) (page 125)
		1	40 mg	Section 7-340 - Labetalol (Nomadyne) (page 128)
		2		Section 7-250 - Glucose (page 121) - Oral
		1		Section 7-410 - Neo-Synephrine (Phenylephrine) (page 135)
		2	10 u	Section 7-470 - Oxytocin (Pitocin) (page 139)
		4	25 mg	Section 7-480 - Phenergan (Promethazine) (page 140)
		1		Section 7-490 - Procainamide (Pronestyl) (page 141)
		2	125 mg	Section 7-540 - Solu-Medrol (Methylprednisolone) (page 147)
		1		Section 7-560 - Tetracaine (page 149)
		2	500 mg	Section 7-578 - TXA (Tranexamic Acid) (page 152)
		6	4 mg	Section 7-620 - Zofran (Ondansetron) (page 157)
Zone D - IV Tray		6	10 ml	Section 7-440 - Normal Saline (NS, Sodium Chloride) (page 137)
Zone E - Above Bench (if exist)				
Zone E - Below Bench		2		Section 7-460 - Oxygen (page 138)

Location	✓	Qty	Dose	Description
Exterior Compartment				

Medications in protocols but currently not on ambulances:

Section 7-005 - Medications that prolong QT interval

- Abilify
- Agrylin
- Alfuzosin
- Amantadine
- **Amiodarone** (page 100)
- Amisulpride
- Amitriptyline
- Amoxapine
- Anafranil
- Anagrelide
- Anzemet
- Apo-Hydro
- Apokyn
- Apomorphine
- Aquachloral
- Aralen
- Aripiprazole
- Arsenic trioxide
- Asenapine
- Asendin
- Astemizole
- Atazanavir
- Avelox
- Azithromycin
- Bedaquiline
- **Benadryl** (page 104)
- Bepridil
- Betapace
- Biaxin
- Bortezomib
- Bosulif
- Bosutinib
- Caprelsa
- Cardene
- Celexa
- Cerebyx
- Chloral hydrate
- Chloroquine
- Chlorpromazine
- Cipralex
- Cipro
- Ciprofloxacin
- Cisapride
- Citalopram
- Clarithromycin
- Clomipramine
- Clozapine
- Clozaril
- Cocaine
- **Cordarone** (page 100)
- Corvert
- Crizotinib
- Dabrafenib
- Dasatinib
- Definity
- Delamanid
- Deltyba
- Desipramine
- Desyrel
- Detrol
- Dexmedetomidine
- Diflucan
- Dihydroartemisinin +piperaquine
- **Diphenhydramine** (page 104)
- Dipiperon
- Disopyramide
- Dofetilide
- Dogmatil
- Dolasetron
- Dolophine
- Domperidone
- Doxepin
- Dronedarone
- Droperidol
- Dynacirc
- Edurant
- Effexor
- Elavil
- Eloxatin
- Eribulin
- Erythromycin
- Escitalopram
- Eskalith
- Eurartesim
- Factive
- Famotidine
- Fanapt
- Fareston
- Felbamate
- Felbatol
- Fingolimod
- Flagyl
- Flecainide
- Floxin
- Fluconazole
- Fluoxetine
- Foscarnet
- Foscavir
- Fosphenytoin
- **Furosemide** (page 130)
- Galantamine
- Gatifloxacin
- Gemifloxacin
- Geodon
- Gilenya
- Granisetron
- Halaven
- **Haldol** (page 122)
- Halfan
- Halofantrine
- **Haloperidol** (page 122)
- Hismanal
- Hydrochlorothiazide
- Hydrocodone
- Hysingla
- Ibutilide
- Iloperidone
- Imipramine
- Inapsine
- Incivek
- Indapamide
- Invega
- Invirase
- Isradipine
- Itraconazole
- Ivabradine
- Ketek
- Ketoconazole
- Korlym
- Kytril
- Lapatinib
- **Lasix** (page 130)
- 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

- **Ondansetron** (page 157)
- Orap
- Orlaam
- Oxaliplatin
- **Oxytocin** (page 139)
- Paliperidone
- Pamelor
- Papaverine
- Paroxetine
- Pasireotide
- Paxil
- Pazopanib
- Pentam
- Pentamidine
- Pepcid
- Perflutren
- Pertofrane
- **Phenergan** (page 140)
- Pimozide
- Pipamperone
- **Pitocin** (page 139)
- Posaconazole
- Precedex
- Probucol
- **Procainamide** (page 141)
- Procoralan
- Prograf
- **Promethazine** (page 140)
- **Pronestyl** (page 141)
- Propulsid
- Protriptyline
- Prozac
- Qualaquin
- Quetiapine
- Quinaglute
- Quinidine
- Quinine sulfate
- Ranexa
- Ranolazine
- Remeron
- Reminyl
- Reyataz
- Rilpivirine
- Risperdal
- Risperidone
- Ritonavir
- Roxithromycin
- Rulide
- Saphris
- Saquinavir
- Seldane
- Septra
- Serdolect
- Serentil
- Seroquel
- Sertindole
- Sertraline
- Sevoflurane
- Signifor
- Sinequan
- Sirturo
- Solian
- Solifenacin
- Sorafenib
- Sotalol
- Sparfloxacin
- Sporanox
- Sprycel
- Sulpiride
- Sunitinib
- Surmontil
- Sutent
- Sycrest
- Symmetrel
- Tacrolimus
- Tafinlar
- Tambocor
- Tamoxifen
- Tasigna
- Telaprevir
- Telavancin
- Telithromycin
- Tequin
- Terfenadine
- Tetrabenazine
- Thioridazine
- Thorazine
- Tikosyn
- Tizanidine
- Tofranil
- Tolterodine
- Toremifene
- Trazodone
- Trimethoprim-Sulfa
- Trimipramine
- Trisenox
- Tykerb
- Ulane
- Uniretic
- Uroxatral
- Vandetanib
- Vardenafil
- Vascor
- Velcade
- Vemurafenib
- Venlafaxine
- VESIcare
- VFend
- Vibativ
- Viracept
- Vivactil
- Voriconazole
- Vorinostat
- Votrient
- Xalkori
- Zagam
- Zanaflex
- Zelboraf
- Ziprasidone
- Zithromax
- **Zofran** (page 157)
- Zohydro
- Zolinza
- Zoloft
- Zyprexa

Citations: (CredibleMeds, 2015)	

Section 7-010 - Acetaminophen (Tylenol)

Advanced Life Support

Class:
✱ Analgesic. Antipyretic.
Action:
✱ Analgesic mechanism unknown. Antipyretic is through direct action on hypothalmus.
Route:
✱ PO.

Half-Life:
✱ 1-4 hours.
Contraindications:
✱ Hypersensitivity.

Indications:
Protocol 4-100 - Fever (Fever greater than 102 degrees F) ..... page 54
Section 7-300 - Ibuprofen (Advil, Pediaprofen)
(has been ineffective or administered within 6 hours) ..... page 125

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, uticaria, 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)

Advanced Life Support	*Half-Life*:
Class: ✱ Adsorbent. *Action*: ✱ Adsorbs toxins by chemical binding and prevents gastrointestinal absorption. *Route*: ✱ Oral.	✱ *Contraindications*: ✱ No gag reflex. ✱ Any altered mental state. ✱ Ingestion of acids, alkalis, ethanol, methanol, Cyanide, iron salts, lithium, pesticides, petroleum products. ✱ Acetaminophen Overdose unless the receiving hospital has IV antidote. ✱ GI Obstruction.

Indications:
Protocol 4-140 - Poisoning or Overdose
(Poisoning following emesis or when emesis is contraindicated) ..... page 58

Adult dosage:	*Precautions*:
✱ 50-100 g mixed with glass of water to form slurry. *Pediatric dosage:* ✱ 0.5-1 g/kg mixed with glass of water to form slurry.	✱ Aspiration may cause pneumonitis. *Side effects*: ✱ Nausea, vomiting, constipation, diarrhea. *Antidote*: ✱

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

Section 7-030 - Adenosine (Adenocard)

Advanced Life Support

Class:
✱ Antiarrhythmic.
Action:
✱ Slows AV conduction.
Route:
✱ IV/IO slam followed by rapid flush.

Half-Life:
✱ less than 10 seconds.
Contraindications:
✱ 2nd or 3rd degree heart block.
✱ Sick Sinus Syndrome.
✱ Drug-induced Tachycardia.

Indications:
Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter (Symptomatic PSVT)..... page 20
Protocol 2-080 - Tachycardia Narrow Stable (Symptomatic PSVT)..... page 28
Protocol 2-090 - Tachycardia Narrow Unstable (Symptomatic PSVT) ..... page 29

Adult dosage:
✱ 6 mg.
✱ If ineffective, second and/or third dose at 12 mg.
Pediatric dosage:
✱ 0.1 mg/kg (max 6 mg/dose).
✱ If ineffective, second and/or third dose at 0.2 mg/kg (max 12 mg/dose).

Precautions:
✱ Arrhythmias, including blocks, are common at the time of Cardioversion. Use caution in patients with Asthma.
Side effects:
✱ Flushing, Headache, shortness of breath, dizziness, Nausea, sense of impending doom, Chest pressure, numbness. May be a brief episode of Asystole after administration.
Antidote:
✱

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

Section 7-040 - Albuterol (Proventil, Ventolin)

Advanced Life Support

Class:
✱ Beta-2 selective sympathomimetic.
Action:
✱ Binds and stimulates beta-2 receptors, resulting in relaxation of bronchial smooth muscle.
Route:
✱ Nebulized.

Half-Life:
✱ 1.6 hours.
Contraindications:
✱ Angioedema.

Indications:

Dosage:
✱ 2.5 mg in 2.5 ml **NS** over 5-15 min Nebulized.

Precautions:
✱ Blood pressure, pulse, and EKG should be monitored. Use caution in patients with known heart disease.
Side effects:
✱ Palpitations, anxiety, Headache, dizziness, sweating, hyperglycemia, hypokalemia, insomnia, Tachycardia, Nausea, vomiting, throat irritation, dry mouth, epistaxis, Hypertension, dyspepsia, and paradoxical bronchospasm.
Antidote:
✱

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

Section 7-050 - Amiodarone (Cordarone)

Advanced Life Support

Class:
- Class III antiarrhythmic.

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

Route:
- IV/IO.

Half-Life:
- 58 days.

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

Indications:

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 105).
- Section 7-240 - Glucagon (page 120).

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

Section 7-060 - Aspirin (Bayer)

Basic Life Support (EMT)

Class:
- Platelet inhibitor. Anti-inflammatory. Analgesic.

Action:
- Prevents formation of thromboxane A2. Blocks platelet aggregation.

Route:
- PO.

Half-Life:
- 3.1-3.2 hours.

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

Indications:
Protocol 2-050 - Chest Discomfort (New Chest Pain suggestive of AMI)..... page 23

Adult dosage:
- Chew 324 mg (four 81 mg "baby Aspirin").

Pediatric dosage:
- Not indicated.

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

Side effects:
- Heartburn, Nausea, vomiting, wheezing, Anaphylaxis, angioedema, bronchospasm, bleeding, stomach irritation.

Antidote:
-

Link to research articles (QR code on right): http://1drv.ms/1BEj3UC
Citations: (Carnahan, Title 19 - Rules of Department of Health and Senior Services Division 30 - Division of regulation and licensure Chapter 40 - Comprehensive emergency medical systems regulations, 2012)

Section 7-070 - Ativan (Lorazapam)

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:

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 145).

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, Offie of Diversion Control)

Section 7-080 - Atropine (Sal-Tropine)

Advanced Life Support

Class:
- Parasympatholytic (anticholinergic).

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

Route:
- IV/IO. ET at twice the dose.

Half-Life:
- 2 hours.

Contraindications:
- None when used in emergency situations.

Indications:

Adult dosage:
- Asystole/PEA: 1 mg every 3-5 min (max 3 mg).
- Bradycardia: 0.5 mg every 5 min (max 3 mg).
- Organophosphate Poisoning: 2-5 mg. May require greater than 10 mg.

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

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

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

Antidote:
- Physostigmine (Antilirium)

Link to research articles (QR code on right): http://1drv.ms/1BEjyOl
Citations: (Cox Paramedics, 2014)

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:

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)

Advanced Life Support	*Half-Life*:
Class: ✱ Electrolyte. *Action*: ✱ Increases cardiac contractility. *Route*: ✱ IV/IO.	✱ *Contraindications*: ✱ Patients on digitalis.

Indications:

Dosage:	*Precautions*:
✱ Contact medical control.	✱ IV line should be flushed between Calcium Chloride and Sodium Bicarbonate administration. *Side effects*: ✱ Arrhythmias (Bradycardia and Asystole), and hypotension. *Antidote*: ✱

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

Section 7-110 - Captopril (Capoten)

Advanced Life Support

Class:
- ACE inhibitor.

Action:
- Competitive inhibitor of Angiotension Converting Enzyme (ACE).

Route:
- SL.

Half-Life:
- 1.9 hours.

Contraindications:
- Hypersensitivity to any ACE inhibitor.

Indications:
Not in current protocols.

Adult dosage:
- SBP greater than 110: 25 mg.
- SBP 90-110: 12.5 mg.

Pediatric dosage:
- Not indicated.

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

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

Antidote:
-

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

Section 7-120 - Cardizem (Diltiazem)

Advanced Life Support

Class:
✱ Calcium channel blocker.
Action:
✱ Slows conduction through the AV node.
Route:
✱ IV/IO.

Half-Life:
✱ 3-4.5 hours.
Contraindications:
✱ Heart blocks.
✱ Conduction disturbances.
✱ WPW.
✱ Congestive heart failure (pulmonary edema).
✱ Hypotension.

Indications:
Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter (A-Fib with rapid Ventricular response)..... page 20
Protocol 2-080 - Tachycardia Narrow Stable ..... page 28

Adult dosage:
✱ 0.25 mg/kg (max 20 mg) over 2 min.
✱ May repeat at 0.35 mg/kg (max 25 mg) after 15 min.
✱ Infusion at 5-15 mg/hr.
Pediatric dosage:
✱ Call medical control.

Precautions:
✱ Hypotension. Should not be used in patients receiving IV Beta-Blockers.
Side effects:
✱ Nausea, vomiting, hypotension, dizziness, Bradycardia, flushing, Headache, heart block, cardiac Arrest.
Antidote:
✱ Section 7-100 - Calcium Chloride (Calciject) (page 105).
✱ Section 7-240 - Glucagon (page 120).

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

CMH/EMH EMS Cardizem Quick Reference Dosing/Sizing Sheet

Patient Age			New	3 mo	6 mo	1 yr	2 yr	4 yr	6 yr	8 yr	10 yr	12 yr	14 yr	adult	adult	adult	adult
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
Cardizem Bolus																	
First Dose	0.25 mg/kg		1.3 ml	1.8 ml	2.3 ml	2.8 ml	3.5 ml	4.5 ml	5.8 ml	6.8 ml	9.0 ml	10.3 ml	12.5 ml	17.0 ml	22.8 ml	28.5 ml	34.0 ml
Repeat Dose	0.35 mg/kg		1.8 ml	2.5 ml	3.2 ml	3.9 ml	4.9 ml	6.3 ml	8.1 ml	9.5 ml	12.6 ml	14.4 ml	17.5 ml	23.8 ml	31.9 ml	39.9 ml	47.6 ml
Cardizem Maintenance Infusion																	
Drip	5 mg/hr	5.0 ml/hr															
Drip	10 mg/hr	10.0 ml/hr															
Drip	15 mg/hr	15.0 ml/hr															

Section 7-130 - Compazine (Prochlorperazine)

Advanced Life Support

Class:
- Phenothyazine 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 104).

Antidote:
-

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

Section 7-135 - Cyanokit (Hydroxocobalamin, Vitamin B12)

Advanced Life Support	*Half-Life*:
Class: ✱ Antidote. *Action*: ✱ Cyanide ion binder. *Route*: ✱ IV/IO.	✱ 6 days. *Contraindications*: ✱ None.

Indications:
Protocol 4-140 - Poisoning or Overdose (AMS following exposure to smoke in confined space).. page 58

Adult dosage:	*Precautions*:
✱ 5 g IV/IO over 15 min. *Pediatric dosage:* ✱ 70 mg/kg IV/IO over 15 min (max 5 g total).	✱ 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/1BEl971
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.

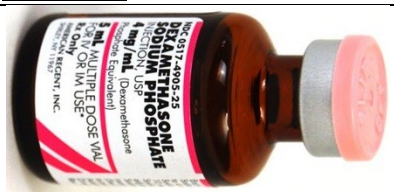
Half-Life:
✱ 190 minutes.
Contraindications:
✱ Fungal infections.

Indications:
Protocol 4-030 - Asthma ..... page 43
Protocol 4-080 - Croup ..... page 51

Adult dosage:
✱ 12-16 mg (once).
Pediatric dosage:
✱ 0.6 mg/kg (max 12 mg).

Precautions:
✱ None in emergency setting.
Side effects:
✱ Nausea, vomiting, Headache, vertigo, anxiety, hypokalemia, hyperglycemia, tremors, Hypertension, immunosuppression.
Antidote:
✱

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



Section 7-150 - Dextrose

Advanced Life Support	*Half-Life*:
Class: ✱ Carbohydrate. *Action*: ✱ Elevates blood Glucose level rapidly. *Route*: ✱ IV/IO.	✱ *Contraindications*: ✱ Intracranial hemorrhage.

Indications:

Adult dosage:	*Precautions*:
✱ **D50W**, **D25W**, or **D10W** 25 g. *Pediatric dosage:* ✱ **D25W** 0.5-1 g/kg. ✱ 5 ml **D50W** + 5 ml **NS** = 2.5 g **D25W**. *Neonate Dosage:* ✱ **D10W** 0.5-1 g/kg. ✱ 2 ml **D50W** + 8 ml **NS** = 1 g **D10W**.	✱ Blood sample should be drawn before administering. *Side effects*: ✱ Local venous irritation. Hyperglycemia, warmth, thrombosis. *Antidote*: ✱

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

Section 7-160 - Dilaudid (Hydomorphone)

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 77

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 134).

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, Offie of Diversion Control)

Section 7-170 - Dopamine (Intropin)

Advanced Life Support

Class:
- Sympathomimetic.

Action:
- Stimulates alpha and beta adrenergic receptors. Increases cardiac contractility. Causes peripheral vasoconstriction.

Route:
- IV/IO.

Half-Life:
- 2 minutes.

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

Indications:

Protocol 2-040 - Bradycardia (Bradycardia unresponsive to Atropine) ..... page 22
Protocol 2-060 - Post Resuscitative Care
(Hypovolemic shock - only after complete fluid resuscitation)..... page 26
Protocol 4-070 - Congestive Heart Failure (CHF) (Cardiogenic shock) ..... page 50

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

Colorado down and dirty Dopamine dose:
- With 1600 mg/ml mixture only.
- $\frac{(Patient's weight\ in\ pounds)}{10} - 2 = ml/hr\ for\ 5\ mcg/kg/min$

Pediatric dosage:
- 5-20 mcg/kg/min.
  - Mix 6 mg/kg with enough D5W to make 100 ml.

Precautions:
- Ventricular irritability.

Side effects:
- Ventricular tachyarrhythmias. Hypertension. Angina, dyspnea, Headache, Nausea, vomiting.

Antidote:
- Rigitine.

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

CMH/EMH EMS Dopamine Quick Reference Dosing/Sizing Sheet

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

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

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:

Adult dosage:
- 3 ml = 0.5 mg Ipratropium + 2.5 mg Albuterol (max 1 dose).

Pediatric dosage:
- 3 ml = 0.25 mg Ipratropium + 2.5 mg Albuterol (max 1 dose).

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

Side effects:
- Palpitations, anxiety, Headache, dizziness, sweating, Tachycardia, cough, Nausea, arrhythmias, paradoxical acute bronchospasm.

Antidote:
- Physostigmine.

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

Section 7-190 - Epinephrine 1:1,000

Basic Life Support (EMT)

✱ Auto-injector pen indicated for Anaphylaxis if RN or Paramedic is unavailable.

Advanced Life Support

Class:
✱ Sympathomimetic.
Action:
✱ Binds with both alpha and beta receptors. Bronchodilation.
Route:
✱ SQ/IM/ET.

Half-Life:
✱ 2 minutes.
Contraindications:
✱ Cardiovascular disease.
✱ Hypertension.
✱ Pregnancy.
✱ Patients with tachyarrhythmias.
✱ CerebroVascular disease.
✱ Diabetes.

Indications:

Adult dosage:
✱ 0.3-0.5 mg (max 1 mg).
Pediatric dosage:
✱ 0.01 mg/kg (max 0.5 mg).
✱ ET dose where IV access for Section 7-200 - Epinephrine 1:10,000 (page 116) concentration unavailable: 0.1 mg/kg.

Precautions:
✱ Medication should be protected from light. Blood pressure, pulse and EKG must be constantly monitored.
Side effects:
✱ Palpitations, Tachycardia, anxiousness, Headache, tremor, myocardial ischemia in older patients. Anxiety, Chest Pain, cardiac arrhythmias, Hypertension, Nausea, vomiting.
Antidote:
✱

Link to research articles (QR code on right): http://1drv.ms/1FT3Aiy
Citations: (Carnahan, Title 19 - Rules of Department of Health and Senior Services Division 30 - Division of regulation and licensure Chapter 40 - Comprehensive emergency medical systems regulations, 2012)

Section 7-200 - Epinephrine 1:10,000

Advanced Life Support

Class:
✱ Sympathomimetic.
Action:
✱ Binds with both alpha and beta receptors. Increases heart rate. Increases cardiac contractility. Causes bronchodilation.
Route:
✱ IV/IO.
✱ ET: see Section 7-190 - Epinephrine 1:1,000 (page 115).

Half-Life:
✱ 2 minutes.
Contraindications:
✱ None when used in emergency setting.

Indications:

Adult dosage:
✱ Cardiac Arrest: 1 mg every 3-5 min.
✱ Bradycardia: 2-10 mcg/min.
  ✱ Mix 1 mg in 250 ml **NS**. 2 mcg/min = 30 ml/hr. 10 mcg/min = 150 ml/hr.
✱ Severe Anaphylaxis: 0.3 mg. Consider 05-15 mcg/min.
Pediatric dosage:
✱ Cardiac Arrest: 0.01 mg/kg every 3-5 min.
✱ Bradycardia: 0.01 mg/kg every 3-5 min.
✱ Severe Anaphylaxis: 0.1-1 mcg/kg/min.

Precautions:
✱ Medication should be protected from light. Can be deactivated by alkaline solutions.
Side effects:
✱ Tachyarrhythmias. Palpitations. Anxiety, Chest Pain, Hypertension, Nausea, vomiting, Headache.
Antidote:
✱

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

Section 7-210 - Epinephrine Racemic (Micronefrin)

Advanced Life Support

Class:
✱ Nonselective alpha and beta agonist.
Action:
✱ Arteriole constriction. Positive inotrope. Positive chronotrope. Bronchial smooth muscle relaxant. Blocks histamine release. Inhibits insulin secretion. Relaxes GI smooth muscle.
Route:
✱ Nebulized.

Half-Life:
✱ 2 minutes.
Contraindications:
✱ Glaucoma.
✱ Elderly.
✱ Cardiac disease.
✱ Hypertension.
✱ Thyroid disease.
✱ Diabetes.
✱ Sensitivity to sulfites.

Indications:
Protocol 4-080 - Croup (Croup with moderate to severe respiratory distress) ..... page 51

Dosage:
✱ 0.5 ml mixed with 3 ml **NS**.

Precautions:
✱ Observe 2-4hrs after administration.
Side effects:
✱ Palpitations, anxiety, Headache, Hypertension, Nausea, vomiting, arrhythmias, rebound edema. Dizziness, tremor, Tachycardia.
Antidote:
✱

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

Section 7-220 - Etomidate (Amidate)

Advanced Life Support

Class:
✱ Sedative, non-barbiturate hypnotic.
Action:
✱ Unknown GABA-like effects. No analgesic effects. Has few Cardiovascular or respiratory effects. Cerebro-protective decreases ICP, IOP.
Route:
✱ IV/IO.

Half-Life:
✱ 75 minutes.
Contraindications:
✱ Hypersensitivity.
✱ Sepsis.

Indications:
Protocol 6-110 - Rapid Sequence Intubation (RSI) (Sedation prior to Intubation) ..... page 86

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)

Advanced Life Support

Class:
- Narcotic analgesic.

Action:
- Binds to opiate receptors. Analgesia and sedation. Central nervous system depressant. Decreased sensitivity to Pain.

Route:
- IV/IN/IM/IO.

Half-Life:
- IV: 10-20 minutes
- IN: 6.5 minutes.

Contraindications:
- Hypersensitivity.

Indications:

Adult dosage:
- 50 mcg every 5-20 min PRN for Pain (max 300 mcg). Maximum of 50 mcg per dose.
- Greater than 65 yr: 25-50 mcg (max 150 mcg).

Pediatric dosage:
- 0.5-2 mcg/kg.

Precautions:
- 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.

Side effects:
- Bradycardia, respiratory depression, euphoria. Hypotension, Nausea, vomiting, dizziness, sedation, Bradycardia, Tachycardia, palpitations, Hypertension, diaphoresis, syncope. Possible beneficial effect in pulmonary edema.

Antidote:
- Section 7-400 - Narcan (Naloxone) (page 134).

DEA Number: 9801
Schedule: II - High potential for abuse with severe dependence.
Narcotic: Yes.

Street names:
- 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.

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, Offie of Diversion Control)

Section 7-240 - Glucagon

Advanced Life Support

Class:
✱ Other endocrine/metabolism.
Action:
✱ Converts hepatic glycogen to Glucose.
Route:
✱ IM/SQ/IV/IO.

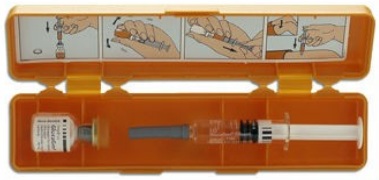
Half-Life:
✱
Contraindications:
✱ Pheochromocytoma.
✱ Insulinoma.

Indications:
Protocol 4-120 - Hypoglycemia
(Severe Hypoglycemia when unable to establish vascular access) .....page 56
Protocol 4-140 - Poisoning or Overdose (Beta-Blocker Overdose) .....page 58

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. Uticaria. Respiratory distress. Tachycardia.
Antidote:
✱

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



Section 7-250 - Glucose

Basic Life Support (EMT)	*Half-Life*:
Class: ✱ Carbohydrate. *Action*: ✱ Elevates blood sugar levels. *Route*: ✱ PO.	✱ *Contraindications*: ✱ Patients with altered level of consciousness that cannot protect Airway.

Indications:
Protocol 4-120 - Hypoglycemia..... page 56

Dosage:	*Precautions*:
✱ 15 g.	✱ If alcohol abuse is suspected, then Glucose should be given after 100mg of Thiamine is administered. *Side effects*: ✱ None. *Antidote*: ✱

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 44

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 104).
Antidote:
✱

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

Section 7-270 - Heparin

Advanced Life Support

Class:
✱ Anticoagulant.
Action:
✱ Inhibition of Thrombin. Acts on antithrombin III to reduce ability to clot.
Route:
✱ IV.

Half-Life:
✱ 1.5 hours.
Contraindications:
✱ Previously given low molecular weight Heparin.
✱ Dissecting thoracic aortic aneurysm.
✱ Peptic ulceration.

Indications:
Protocol 2-050 - Chest Discomfort
(New Chest Pain suggestive of an acute myocardial infarction) ..... page 23

Adult dosage:
✱ 60 u/kg followed by 12 u/kg/hr (max 4,000 u bolus and 1,000 u/hr).
Pediatric dosage:
✱ Not indicated.

Precautions:
✱ Oral anticoagulants.
Side effects:
✱ Bleeding.
Antidote:
✱ Protamine sulfate.

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

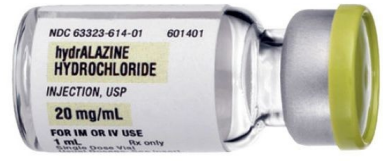
Section 7-280 - Hydralazine (Apresoline)

Advanced Life Support	*Half-Life*:
Class: ✱ Vasodilator. *Action*: ✱ Directly dilates peripheral blood vessels. *Route*: ✱ IV/IO/IM.	✱ 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 55

Adult dosage:	*Precautions*:
✱ 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).	✱ May cause reflex Tachycardia. *Side effects*: ✱ Headache, angina, flushing, palpitations, Tachycardia, anorexia, Nausea, vomiting, diarrhea, hypotension, syncope, vasodilation, edema, paresthesias. *Antidote*: ✱

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



Section 7-300 - Ibuprofen (Advil, Pediaprofen)

Advanced Life Support

Class:
✱ NSAID.
Action:
✱ Inhibits cyclooxygenase and lipoxygenase and reduces prostaglandin synthesis.
Route:
✱ PO.

Half-Life:
✱ 1.8-2 hours.
Contraindications:
✱ ASA/NSAID induced Asthma.
✱ History of GI bleeds.
✱ Renal insufficiency.

Indications:
Protocol 4-100 - Fever (Fever greater than 102 degrees F) ..... page 54
Section 7-010 - Acetaminophen (Tylenol)
(Acetaminophen has been ineffective or given within last 4hrs) ..... page 96

Adult dosage:
✱ 200-400 mg every 4-6 hrs.
Pediatric dosage:
✱ 10 mg/kg.

Precautions:
✱ Caution in Hypertension, CHF. Avoid in patients currently taking anticoagulants such as Coumadin.
Side effects:
✱ Anaphylaxis, Abdominal Pain, Nausea, Headache, dizziness, rash.
Antidote:
✱

Link to research articles (QR code on right): http://1drv.ms/1GOB3eV
Citations: (Cox Paramedics, 2014)

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 42
Protocol 4-030 - Asthma ..... page 43
Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) ..... page 49
Protocol 4-070 - Congestive Heart Failure (CHF) ..... page 50
Section 7-040 - Albuterol (Proventil, Ventolin) (Bronchoconstriction refractory to Albuterol) ..... page 99
Section 7-180 - Duoneb (Ipratropium and Albuterol, Combivent) ..... page 114

Adult dosage:
- 0.5 mg (max 1 dose).

Pediatric dosage:
- 0.25 mg (max 1 dose).

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

Side effects:
- Palpitations, anxiety, Headache, dizziness, sweating, Tachycardia, cough, Nausea, arrhythmias, paradoxical acute bronchospasm.

Antidote:
- Physostigmine (Antilirium).

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

Citations:

Section 7-330 - Ketamine (Ketalar)

Advanced Life Support

Class:
✱ Dissociative anesthetic. NMDA receptor antagonist.
Action:
✱ Produces state of anesthesia while maintaining Airway reflexes, heart rate, and blood pressure. Acts on cortex and limbic receptors, producing dissociative analgesia and sedation. Higher doses act on the Mu opiod receptor.
Route:
✱ IV/IO/IM.

Half-Life:
✱ 2.5-3 hours.
Contraindications:
✱ Hypersensitivity.

Indications:

Analgesic dosage:
✱ IV/IO: 0.1-0.2 mg/kg.
✱ IM: 0.8-1.0 mg/kg.
Dissociative dosage:
✱ IV/IO: 1-2 mg/kg. Produces dissociation within 30 sec lasting 5-10 min.
✱ IM: 4-5 mg/kg. Produces dissociation within 3-4 min lasting 12-25 min.
Over 65 yr old: Half doses above.

Precautions:
✱ Use caution in patients where significant hypertension would be hazardous (i.e. stroke, head trauma, ICP, MI).
✱ Glaucoma, hypovolemia, dehydration, cardiac disease.
Side effects:
✱ Emergence phenomena, Hypertension, Tachycardia, hypotension, Bradycardia, arrhythmias, respiratory depression, apnea, laryngospasms, tonic/clonic movements, vomiting.
Antidote:
✱

DEA Number: 7285
Schedule: III - Potential for abuse with moderate dependence.
Narcotic: No.

Street names:
✱ Black Hole, Bump, Cat Killer, Cat Valium, Coke, Green, Honey Oil, Jet, K Hole, K, Ket, Kit Kat, Kitty Flipping, Purple, Special K, Special LA, Super Acid, Super C, Vitamin K.

Link to research articles (QR code on right): http://1drv.ms/1BRznTI
Citations: (About Drugs), (Filanovsky, Miller, & Kao, 2010), (Flower & Hellings, 2012), (Sober Recovery), (Street Rx), (US Department of Justice, Drug Enforcement Administration, Offie of Diversion Control)

Section 7-340 - Labetalol (Nomadyne)

Advanced Life Support

Class:
- Antihypertensive.

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

Route:
- IV/IO.

Half-Life:
- 5.5 hours.

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

Indications:
Protocol 4-110 - Hypertension.....page 55

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 130).

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 116).
- Section 7-240 - Glucagon (page 120).

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

Section 7-350 - Lactated Ringers (LR)

Advanced Life Support *Class*: ✱ Crystalloid solution. *Action*: ✱ *Route*: ✱ IV/IO.	*Half-Life*: ✱ *Contraindications*: ✱ None.

Indications:

Adult dosage: ✱ 500-1,000 ml for volume replacement. *Pediatric dosage:* ✱ 20 ml/kg for volume replacement (max x3).	*Precautions*: ✱ NA. *Side effects*: ✱ Pulmonary Edema. *Antidote*: ✱

Link to research articles (QR code on right): http://1drv.ms/1BRzAq0
Citations: (Laszlo, et al., 2006), (Phillips, et al., 2009), (Schott, 2010), (Todd & Malinoski, 2007)

Section 7-360 - Lasix (Furosemide)

Advanced Life Support

Class:
✱ Potent diuretic.
Action:
✱ Inhibits reabsorption of sodium chloride. Promotes prompt diureses. Vasodilation. Decreases absorption of water and increased production of urine.
Route:
✱ IV/IO/IM.

Half-Life:
✱ 100 minutes.
Contraindications:
✱ Pregnancy.
✱ Dehydration.

Indications:
Protocol 4-070 - Congestive Heart Failure (CHF) (Pulmonary edema) ..... page 50

Adult dosage:
✱ 40 mg.
✱ If on oral diuretics: Double that prescribed dose and give IV.
Pediatric dosage:
✱ 1-2 mg/kg.

Precautions:
✱ Should be protected from light. Dehydration.
✱ May prolong QT interval. 12-lead is indicated after administration.
Side effects:
✱ Hypotension.
Antidote:
✱

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

Section 7-370 - Lidocaine (Xylocaine)

Advanced Life Support

Class:
- Antiarrhythmic.

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

Route:
- IV/IO/ET/topical.

Half-Life:
- 1.5-2 hours.

Contraindications:
- High degree heart blocks.
- PVCs in conjunction with Bradycardia.
- Bleeding.

Indications:

Protocol 2-100 - Tachycardia Wide Stable ..... page 30
Protocol 2-130 - Ventricular Ectopy
(Ventricular arrhythmias when Amiodarone is not available) ..... page 33
Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) (Cardiac Arrest from VF/VT) ..... page 34
Protocol 5-070 - Head Trauma (Premedication for **Intubation** to help prevent increased ICP) ..... page 68
Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) ..... page 74
Protocol 6-110 - Rapid Sequence Intubation (RSI) ..... page 86
Section 8-135 - Intraosseous (IO) Needle ..... page 179

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

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

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

Side effects:
- Anxiety, drowsiness, dizziness, confusion, Nausea, vomiting, convulsions, widening of QRS. Arrhythmias, hypotension.

Antidote:
-

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

CMH/EMH EMS Quick Ref Lidocaine Infusion		
Drip	1 mg/min	15.0 ml/hr
Drip	2 mg/min	30.0 ml/hr
Drip	3 mg/min	45.0 ml/hr
Drip	4 mg/min	60.0 ml/hr

Section 7-380 - Magnesium Sulfate

Advanced Life Support

Class:
- Anticonvulsant. Smooth muscle relaxer.

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

Route:
- IV/IO/IM.

Half-Life:
-

Contraindications:
- Heart block.
- Recent MI.
- Renal insufficiency or renal failure.
- GI obstruction.

Indications:

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 105).
- Section 7-240 - Glucagon (page 120).

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

Section 7-390 - Morphine

Advanced Life Support

Class:
- Opiate.

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

Route:
- IV/IO/IM/SQ.

Half-Life:
- 1-2 min onset.
- 2-3 hours.

Contraindications:
- Head injury.
- Volume depletion.
- Undiagnosed Abdominal Pain.

Indications:

Protocol 2-050 - Chest Discomfort ..... page 23
Protocol 6-050 - Control of Pain ..... page 77

Adult dosage:
- 2-5 mg (max 10 mg).

Pediatric dosage:
- 0.1-0.2 mg/kg.

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

Side effects:
- Dizziness. ALOC. Respiratory depression. Hypotension. Nausea. Vomiting, lightheadedness, sedation, diaphoresis, euphoria, dysphoria. Possible beneficial effect in pulmonary edema.

Antidote:
- Section 7-400 - Narcan (Naloxone) (page 134).

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

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

Link to research articles (QR code on right): http://1drv.ms/18iFVN6
Citations: (About Drugs), (Citizens Memorial Hospital, 2013), (Cox Paramedics, 2014), (Sober Recovery), (Street Rx), (US Department of Justice, Drug Enforcement Administration, Offie of Diversion Control)

Section 7-400 - Narcan (Naloxone)

Basic Life Support (EMT)

✱ An EMT may administer IN/IM/SQ in the absence of a RN or Paramedic in the case of narcotic overdose causing respiratory compromise.

Advanced Life Support

Class:
✱ Narcotic antagonist.
Action:
✱ Binds to opiod receptor and blocks the effect of Narcotics.
Route:
✱ IV/IO/IN/IM/SQ/ET.

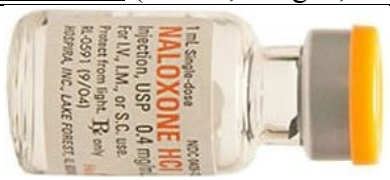
Half-Life:
✱ 1-1.5 hours.
Contraindications:
✱ Hypersensitivity.

Indications:

Adult dosage:
✱ 0.4 mg (max 2 mg).
Pediatric dosage:
✱ 0.1 mg/kg.

Precautions:
✱ May cause withdrawal effects. Short acting, should be augmented every 5min. Monitor Airway and ventilatory status. Patients who have gone from a state of somnolence from a Narcotic Overdose may become wide awake and combative.
Side effects:
✱ Nausea, vomiting, restlessness, diaphoresis, Tachycardia, Hypertension, tremulousness, Seizure, cardiac Arrest, withdrawal.
Antidote:
✱

Link to research articles (QR code on right): http://1drv.ms/18iFWRi
Citations: (Clarke, Dargan, & Jones, 2005), (Missouri revised statutes, 2014)



Section 7-410 - Neo-Synephrine (Phenylephrine)

Advanced Life Support

Class:
✱ Vasoconstrictor (alpha).
Action:
✱ Topical vasoconstriction.
Route:
✱ Topical.

Half-Life:
✱ 2.1-3.4 hours.
Contraindications:
✱ Hypertension.
✱ Thyroid disease.

Indications:
Section 8-080 - Endotracheal Tube (ET)
(Premedication for nasal **Intubation** to prevent epistaxis)..... page 174

Dosage:
✱ 2 sprays in each nare 1-2 min prior to **Intubation**.

Precautions:
✱ Enlarged prostate with dysuria.
Side effects:
✱ Nasal burning, stinging, sneezing, or increased nasal discharge.
Antidote:
✱

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

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

Advanced Life Support

Class:
- Nitrate vasodilator.

Action:
- Smooth muscle relaxant. Dilates coronary and systemic arteries.

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

Half-Life:
- 3 minutes.

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

Indications:

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

Pediatric dosage:
- Not indicated.

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

Side effects:
- Headache, dizziness, hypotension. Bradycardia, lightheadedness, flushing.

Antidote:
-

Link to research articles (QR code on right): http://1drv.ms/18iG3fJ
Citations: (Clemency, Thompson, Tundo, & Lindstrom, 2013)

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

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

Basic Life Support (EMR or EMT)

✱ EMRs and EMTs may utilize Normal Saline to irrigate wounds and Burns.

Advanced Life Support

Class:
✱ Crystalloid solution.
Action:
✱ NA.
Route:
✱ IV/IO/topical.

Half-Life:
✱
Contraindications:
✱ NA.

Indications:
Virtually all medical protocols. IV access for medical emergencies. Irrigation of open wound and Burns.

Adult dosage:
✱ IV/IO: 250-500 ml.
✱ Topical: 1,000 ml.
Pediatric dosage:
✱ IV/IO: 20 ml/kg (max x3).
✱ Topical: 500-1,000 ml.

Precautions:
✱ NA.
Side effects:
✱ IV: Pulmonary edema.
Antidote:
✱

Link to research articles (QR code on right): http://1drv.ms/18iG8jz
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)

Section 7-460 - Oxygen

Basic Life Support (EMR or EMT)

Class:
✱ Gas.
Action:
✱ Necessary for aerobic cellular metabolism.
Route:
✱ Inhalation.

Half-Life:
✱
Contraindications:
✱ Known Paraquat Poisoning unless SpO_2 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 SpO_2:

	SpO_2	
	100%	Anaphylaxis, anemia, CO, toxin, or trauma
	99%	Cardiac or stroke
	98%	
	97%	
Conscious ROSC	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)

Advanced Life Support

Class:
✱ Hormone.
Action:
✱ Causes uterine contraction. Causes lactation. Slows postpartum Vaginal bleeding.
Route:
✱ IV.

Half-Life:
✱ 1-6 minutes.
Contraindications:
✱ Any condition other than postpartum bleeding.
✱ Cesarean section.

Indications:
Protocol 4-175 - (Postpartum Vaginal bleeding) ..... page 61

Adult dosage:
✱ 10-20 u in 1000 ml LR.
Pediatric dosage:
✱ Not indicated.

Precautions:
✱ Essential to assure that the placenta has delivered and that there is not another fetus present before administering. Overdosage can cause uterine rupture. Hypertension.
✱ May prolong QT interval. 12-lead is indicated after administration.
Side effects:
✱ Anaphylaxis. Cardiac arrhythmias.
Antidote:
✱

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

Section 7-480 - Phenergan (Promethazine)

Advanced Life Support

Class:
✱ Anti-emetic.
Action:
✱ Decreases Nausea and vomiting by antagonizing H1 receptors.
Route:
✱ IM or IV/IO if infused in **NS** over 15-30 min.

Half-Life:
✱ 16-19 hours.
Contraindications:
✱ ALOC.
✱ Jaundice.

Indications:
Protocol 6-040 - Control of Nausea ..... page 76

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 104).
Antidote:
✱

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

Section 7-490 - Procainamide (Pronestyl)

Advanced Life Support

Class:
- Antiarrhythmic.

Action:
- Slows conduction through myocardium. Elevates Ventricular Fibrillation threshold. Suppresses Ventricular ectopy.

Route:
- IV/IO.

Half-Life:
- 2.5-4.5 hours.

Contraindications:
- High degree heart blocks.
- PVCs in conjunction with Bradycardia.

Indications:

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

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

Side effects:
- Anxiety, Nausea, convulsions, widening QRS.

Antidote:
-

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

Section 7-500 - Propofol (Diprivan)

Advanced Life Support

Class:
✱ Anesthetic.
Action:
✱ Produces rapid and brief state of general anesthesia.
Route:
✱ IV/IO.

Half-Life:
✱ 30-60 minutes.
Contraindications:
✱ Hypovolemia.
✱ Sensitivity to soybean oil or eggs.

Indications:
Not in current protocols.

Adult dosage:
✱ 1.5-3 mg/kg followed by 25-75 mcg/kg/min.
Pediatric dosage:
✱ 1.5-3 mg/kg followed by 125-300 mcg/kg/min.

Precautions:
✱
Side effects:
✱ Apnea, arrhythmias, Asystole, hypotension, Hypertension.
Antidote:
✱

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

Section 7-505 - Reglan (Metoclopramide)

Advanced Life Support *Class*: ✱ *Action*: ✱ *Route*: ✱	*Half-Life*: ✱ *Contraindications*: ✱

Indications: Not in current protocols.

Adult dosage: ✱ *Pediatric dosage:* ✱	*Precautions*: ✱ *Side effects*: ✱ *Antidote*: ✱

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 86

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, uticaria. *Antidote*: ✱

Link to research articles (QR code on right): http://1drv.ms/1aKvdAV
Citations: (Swaminathan, 2014)

Section 7-525 - Romazicon (Flumazenil)

Advanced Life Support *Class*: ✱ *Action*: ✱ *Route*: ✱	*Half-Life*: ✱ *Contraindications*: ✱

Indications:

Adult dosage: ✱ *Pediatric dosage:* ✱	*Precautions*: ✱ *Side effects*: ✱ *Antidote*: ✱

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

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:

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/1aKvljQ
Citations:

Section 7-540 - Solu-Medrol (Methylprednisolone)

Advanced Life Support

Class:
✱ Corticosteriod.
Action:
✱ Anti-inflammatory. Immune suppressant.
Route:
✱ IV/IO/IM.

Half-Life:
✱ 18-26 hours.
Contraindications:
✱ None in emergency setting.
✱ Cushing's syndrome.
✱ Fungal infection.
✱ Measles.
✱ Varicella.

Indications:

Adult dosage:
✱ 125-250 mg.
Pediatric dosage:
✱ 1-2 mg/kg.

Precautions:
✱ Must be reconstituted and used properly. Onset of action may be 2-5hrs. Active infections, renal disease, penetrating spinal cord injury, Hypertension, Seizure, CHF.
Side effects:
✱ GI bleeding. Prolonged wound healing. Suppression of natural steroids. Depression, euphoria, Headache, restlessness, Hypertension, Bradycardia, Nausea, vomiting, swelling, diarrhea, weakness.
Antidote:
✱

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

Section 7-550 - Succinylcholine (Anectine)

Advanced Life Support

Class:
- Depolarizing neuromuscular blocker. Ultra-short acting.

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

Route:
- IV/IO.

Half-Life:
- 24-70 seconds.

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

Indications:
Protocol 6-110 - Rapid Sequence Intubation (RSI)
(To achieve paralysis for endotracheal **Intubation)**.....page 86

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 154) for blocking fasciculations caused by Succinylcholine.

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

Section 7-560 - Tetracaine

Advanced Life Support

Class:
✱ Anesthetic.
Action:
✱ Local anesthesia.
Route:
✱ Topical.

Half-Life:
✱ 1.8 hours.
Contraindications:
✱ Hypersensitivity.

Indications:
Protocol 5-060 - Eye Injury (Need for Eye irrigation) ..... page 67
Section 8-210 - Morgan Lens ..... page 191

Dosage:
✱ 1-2 drops per Eye (max 2 drops)

Precautions:
✱ Patient will be unaware of objects touching their Eye. Be careful to protect the Eye from foreign debris and from the patient rubbing eyes.
Side effects:
✱ Burning, conjunctival redness, photophobia, lacrimation.
Antidote:
✱

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

Section 7-570 - Thiamine (Vitamin B1)

Advanced Life Support

Class:
✱ Vitamin.
Action:
✱ Allows normal breakdown of Glucose. Thiamine combines with Adenosine triphosphate to produce Thiamine diphosphate, which acts as a coenzyme in carbohydrate metabolism. 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 56
Section 7-150 - Dextrose (precedes Dextrose with suspected alcohol abuse or malnutrition)..... page 111

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/18Lbctl
Citations: (Cox Paramedics, 2014)

Section 7-575 - Toradol (Ketorolac)

Advanced Life Support

Class:
- Non-Steroidal Anti-Inflamatory (NSAID).

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

Route:
- IV, IO, IM.

Half-Life:
- 2.5-6 hours.

Contraindications:
- Allergies to Aspirin, Motrin, or NSAIDs.
- Advanced renal impairment.
- Suspected CVA.
- GI bleeds.
- Peptic ulcers.
- Surgical candidates.
- Pregnant or nursing women.

Indications:
Protocol 6-050 - Control of Pain (Acute exacerbation of chronic Pain)..... page 77

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

Pediatric dosage:
- Contraindicated

Precautions:
- Toradol inhibits platelet function. Hypersensitivity reactions have occurred (bronchospasm and Anaphylaxis). Avoid in patients currently taking anticoagulants such as Coumadin.

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

Antidote:
-

Link to research articles (QR code on right): http://1drv.ms/1AEdvnH
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 63
Protocol 5-040 - Chest Trauma ..... page 65
Protocol 5-050 - Extremity Trauma ..... page 66
Protocol 6-085 - High-Threat Response ..... page 82

Adult dosage:
- Reconstitute 1 gram in 100 ml NS and infuse over 10 min.

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

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

Side effects:
- Visual defects. Seizures. Nausea, vomiting, diarrhea.

Antidote:
-

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

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

Section 7-580 - Valium (Diazepam)

Advanced Life Support

Class:
✱ Tranquilizer. Anticonvulsant. Skeletal muscle relaxant. Sedative.
Action:
✱ Binds to benzodiazepine receptor and enhances effects of GABA.
Route:
✱ IV/IO/IM. PR at twice IV dose.

Half-Life:
✱ 20-100 hours.
Contraindications:
✱ Age less than 6 months.
✱ Acute-angle glaucoma.
✱ CNS depression.
✱ Alcohol intoxication.

Indications:

Adult dosage:
✱ Status epilepticus: 5-10 mg (max 30 mg).
✱ Acute anxiety: 2-5 mg.
✱ Premedication before Cardioversion: 5-15 mg.
Pediatric dosage:
✱ Status epilepticus (5-18 yr old): 1 mg (max 10 mg).
✱ Status epilepticus (6 mo-5 yr old): 0.2 mg/kg (max 5 mg).

Precautions:
✱ Local venous irritation. Short duration of effect. May precipitate with other drugs.
Side effects:
✱ Drowsiness. Hypotension. Respiratory depression. Fatigue, Headache, confusion, Nausea, sedation.
Antidote:
✱ Section 7-525 - Romazicon (Flumazenil) (page 145).

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

Street names:
✱ Benzos, Blue Vs, Dead Flower, Downers, Drunk Pills, FooFoo, Howards, Ludes, Old Joes, Powers, Sleep Away, Tranks, Vs, Yellows Vs.

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

Section 7-590 - Vecuronium (Norcuron)

Advanced Life Support

Class:
- Non-depolarizing neuromuscular blocker.

Action:
- Does not have any analgesic or sedative effects, sedation must accompany paralysis.
  - 1/10th dose: Blocks fasciculations caused by use of Section 7-550 - Succinylcholine (Anectine) (page 148).
  - 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 86
Section 7-550 - Succinylcholine (Anectine) (fasciculations) ..... page 148

Dosage:
- 0.1 mg/kg.

Precautions:
- Impaired liver function. Severe obesity. Impaired respiratory function.

Side effects:
- Arrhythmias, bronchospasm, Hypertension, hypotension. Apnea, dyspnea, Tachycardia, uticaria.

Antidote:
-

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

Section 7-600 - Versed (Midazolam)

Advanced Life Support

Class:
✱ Benzodiazepine.
Action:
✱ Sedative, anxiolytic, amnesic (2-3x more potent than Valium). Binds to benzodiazepine receptor and enhances effects of GABA.
Route:
✱ IV/IN/IO.

Half-Life:
✱ 1.8-6.4 hours.
Contraindications:
✱ Hypotension.
✱ Pregnancy.
✱ Acute-angle glaucoma.

Indications:

Adult dosage:
✱ 2.5-5 mg. Can be repeated once (max 10 mg).
Pediatric dosage:
✱ 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.

Precautions:
✱ COPD, acute alcohol intoxication, Narcotics, barbiturates, elderly, neonates.
Side effects:
✱ Hypoventilation, respiratory depression, respiratory Arrest, hypotension, laryngospasm. Nausea, vomiting, Headache, hiccups, cardiac Arrest.
Antidote:
✱ Section 7-525 - Romazicon (Flumazenil) (page 145).

DEA Number: 2884
Schedule: IV - Low potential for abuse.
Narcotic: No.

Street names:
✱ Dazzle.

Link to research articles (QR code on right): http://1drv.ms/18iHf2F
Citations: (Citizens Memorial Hospital, 2013), (Holsti, et al., 2007), (Silbergleit, et al., 2012)

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:

Adult dosage:
- 0.63-1.25 mg.

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

Precautions:
- Arrhythmias, Hypertension, paradoxical bronchospasm.

Side effects:
- Rhinitis, Headache, tremor, sinusitis, Tachycardia, nervousness, edema, hyperglycemia, hypokalemia.

Antidote:
-

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

Section 7-620 - Zofran (Ondansetron)

Advanced Life Support

Class:
✱ Antiemetic.
Action:
✱ Selective 5-HT receptor antagonist.
Route:
✱ IV/IM/IN.

Half-Life:
✱ 5.7 hours.
Contraindications:
✱ Hypersensitivity.

Indications:

Adult dosage:
✱ 4 mg (max 8 mg).
Pediatric dosage:
✱ 0.15 mg/kg.
- ✱ less than 2 yrs old: Contraindicated.
- ✱ greater than 27 kg: Use adult dose.

Precautions:
✱ May prolong QT interval. 12-lead is indicated after administration.
Side effects:
✱ None.
Antidote:
✱

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

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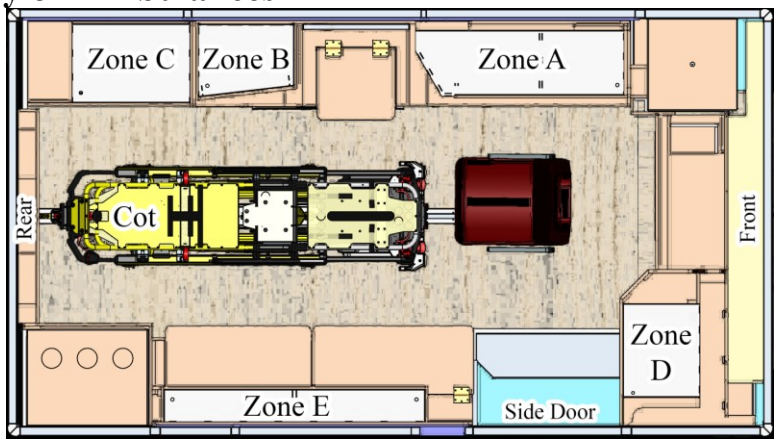
Part 8 - Equipment Protocols

Section 8-001 - Equipment Currently on Ambulances

19 CSR 30-40.303(2)(C) states "the medical director, in cooperation with the ambulance service administrator, shall develop, implement, and annually review medications and medical equipment to be utilized." This section fulfils that requirement for equipment.
Refer to Section 7-001 - Medications Currently on Ambulances (page 91) for medications.



Location	✓	Qty	Description
Cab			Book - Maps
			Book - Protocols
		1	Cellphone
		1	Cellphone charger
		1	Flashlight
		2	Fuel cards
		2	Garage opener
		1 box	Gloves - Small
		1 box	Gloves - Medium
		1 box	Gloves - Large
		1 box	Gloves - Extra Large
		1	GPS
		1	GPS charger
		1	Hand sanitizer
		4	Safety vest
Cab - Bag Triage #1		2	Sharpie
		10	Triage tags
Cab - Bag Triage #2		2	Sharpie
		10	Triage tags
Cot		1	Section 8-060 - Cot (page 170)
		1	Linen - Blanket
		1	Linen - Pillow w/case
		1	Linen - Sheet
Cot - Bag First-In			Section 8-120 - Glucometer (page 176)
Cot - Bag Oxygen		1	Section 8-240 - Nebulizer (page 193)
		1	NC adult
		1	NC capno
		1	NRB adult
		1	NRB ped
Cot - Bag LifePak		1	Section 8-010 - Automated External Defibrillator (AED) (page 164) [Only if LifePak not equipped]
		1	Section 8-190 - LifePak (page 186)
		1	BP cuff
		1	Cable 4-lead
		1	Cable 12-lead
		1	Cable download
		1	Cable spo2
		2	Combo pad adult
		1	Combo pad ped
		1	EKG patches bag
		1	Modem [Only if LifePak 12]

Location	✓	Qty	Description
		1	Monitor paper
		1	Razor
Narcotic Box			
RSI Box			
Zone A - Above Action Area		1	Section 8-030 - Bougie (page 166) - Adult
		*	Section 8-050 - Continuous Positive Airway Pressure (CPAP) (page 169) 1 - Medium kit 1 - Large mask 1 - Small mask
		1	Section 8-070 - Cricothyrotomy Kit (page 172)
		*	Section 8-110 - Gastric Tube (page 175) 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 192) - Set
		*	Section 8-240 - Nebulizer (page 193) 4 - Nebulizer 2 - Mask adult 2 - Mask ped
		1	Section 8-260 - Oro-Pharyngeal Airway (OPA) (page 194) - 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 167) [Only on vehicles without capnometer on LifePak]
		1	Section 8-075 - Decompression Needle (page 173)
			Section 8-380 - Thermometer (page 203) [Only on Cedar Co Ambulances]
		1	Hand sanitizer
Zone A - Below Action Area		*	Section 8-370 - Suction (page 202) 1 - Canister 1 - Tubing 1 - Yankauer
			Section 8-330 - Portable Ventilator (page 198) [Only on primary Cedar Co Ambulances]
Zone B		1	Section 8-142 - IV Pump (page 181)
		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]
		1	EKG patches bag
		1	Monitor paper
Zone C		1	Section 8-210 - Morgan Lens (page 191)
		4	Section 8-290 - Physical Restraint (page 195)

Location	✓	Qty	Description
		2	Section 8-360 - Splint (page 200) - SAM
		1	Section 8-125 - Hemostatic Agent (page 177)
		1	Section 8-390 - Tourniquet (page 207)
		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 196)
		1	Section 8-320 - Port Access Kit (page 197)
		*	Section 8-370 - Suction (page 202) 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 179)
			Section 8-160 - King LTSD Airway (page 183)
			Section 8-170 - Laryngeal Mask Airway (LMA) Supreme (page 184)
Zone D - Bag Adult - Airway		1	Section 8-230 - Naso-Pharyngeal Airway (NPA) (page 192) - Set
		1	Section 8-260 - Oro-Pharyngeal Airway (OPA) (page 194) - Set
			Section 8-080 - Endotracheal Tube (ET) (page 174)
			Section 8-180 - Laryngoscope (page 185)
Zone D - Bag Adult - Medication	1		3-way stopcock
	2		Syringe 5 ml
	2		Syringe 10 ml
	2		Syringe needle 22 g
	2		Syringe needle filter
	4		Syringe needle smart

Location	✓	Qty	Description
Zone D - Bag Medication	1		3-way stopcock
	2		Syringe 5 ml
	2		Syringe 10 ml
	2		Syringe needle 22 g
	2		Syringe needle filter
	4		Syringe needle smart
Zone D - Bag Ped			
Zone D - Box Medication			
Zone D - IV Tray		*	Section 8-140 - Intravascular (IV) Needle (page 180) 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 165)
		2	Section 8-130 - Intranasal (IN) Device (page 178)
		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 190)
Zone E - Above Bench (if exist)			
Zone E - Below Bench		*	Section 8-370 - Suction (page 202) 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 182)
		*	Section 8-400 - Traction Splint (page 208) 1 - Traction adult 1 - Traction ped
		1	Board - Scoop
		2	Board - Section 8-350 - Spinal Motion Restriction (SMR) (page 199)
		2	Hazmat suit
			Section 8-365 - Stair Chair (page 201) [Only on Cedar Co Ambulances and 702]
Exterior Compartment - Bag SMR #1		*	Section 8-350 - Spinal Motion Restriction (SMR) (page 199) 4 - Collar adult 1 - Collar ped 2 - Head bed
		1	Straps spider
		1	Tape 2”
		1	Towel

Location	✓	Qty	Description
Exterior Compartment - Bag SMR #2		*	Section 8-350 - Spinal Motion Restriction (SMR) (page 199) 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 168)

Section 8-010 - Automated External Defibrillator (AED)

*NOTE: When using LifePak in AED mode, use Section 8-190 - LifePak (page 186).

Basic Life Support (EMR or EMT)

Precautions:

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

Contraindications:

- ✱ Pulse.

Indications:

Protocol 2-030 - Automated External Defibrillation (AED) ..... page 21
Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) ..... page 74

Procedure:

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

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

Section 8-020 - Blood Draw Kit

Advanced Life Support

Precautions:
- ✱ Avoid venipuncure in arms with dialysis shunts or injuries proximal to insertion site.

Contraindications:
- ✱ None.

Indications:
Consider for all medical and trauma patients where time and resources allow and IV being started.
Section 8-140 - Intravascular (IV) Needle.....page 180

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

Blood draw for alcohol analysis Procedure:
- ✱ 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.

Link to research articles (QR code on right): http://1drv.ms/1zW988p
Citations: (Citizens Memorial Hospital, 2013)

Section 8-030 - Bougie

Advanced Life Support *Precautions:* ✱ None.	*Contraindications*: ✱ Age less than 8 years. ✱ Use of a 6.0 or smaller ETT.

Indications:
Protocol 6-110 - Rapid Sequence Intubation (RSI) (Predicted difficult **Intubation)** ..... page 86
Section 8-070 - Cricothyrotomy Kit ..... page 172

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

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

Contraindications:
- ✱ None.

Indications:
All ALS patients with cardiac or respiratory complaints.

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

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

Section 8-040 - Chest Compressor

Basic Life Support (EMR or EMT) *Precautions:* ✱	*Contraindications*: ✱

Indications:
Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) ..... page 74

Procedure:
✱

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

Section 8-050 - Continuous Positive Airway Pressure (CPAP)

Advanced Life Support

Precautions:

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

Contraindications:

- Less than 18 yrs old.
- Patient unable to protect Airway.
- Need for immediate **Intubation**.
- Ventilatory failure.
- Gastric distention (GI bleeding).
- Trauma (pneumothorax).
- Tracheostomy.
- Altered LOC.
- Do not secure straps if Nausea/vomiting.
- Increasing $ETCO_2$.

Indications:

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)

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.

Contraindications:
- ✱ 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 86

Quick Trach II Procedure:
- Prepare the device: Remove valve opener and completely evacuate the cuff with the included 10 ml syringe. Remove and fill syringe for inflating the cuff with 10 ml of air.
- Prepare the patient: Hyperextend the Head of the patient. Locate the cricothyroid membrane by palpation of the depression between the thyroid and cricoids cartilage. Stabilize this point with forefinger and thumb for puncture.
- Puncture the cricothyroid membrane and insert QuickTrach II until red stopper touches skin. An incision is not necessary.
- Aspirate syringe to determine position of cannula. Aspiration of air indicates proper placement in trachea. If no air is aspirated, remove red stopper and advance slowly until air can be aspirated.
- Remove red stopper.
- Push cannula forward into the trachea and remove metal needle.
- Inflate cuff with 10 ml of air.
- Secure with foam neck tape.
- Attach BVM with connector and verify placement with auscultation and **Capnography**.

Surgical Procedure:
- Call for order prior to attempting surgical cric.
- Have Suction equipment ready.
- Clean neck with antiseptic solution.
- Stabilize larynx with thumb and index finger of one hand.
- Palpate cricothyroid membrane.
- Pull skin taut.
- Make 2 cm VERTICAL incision at the cricothyroid membrane.
- Puncture through the cricothyroid membrane horizontally.
- Place Bougie with coude tip into trachea with a back-and-forth motion to feel tracheal clicking or carina.
- Place ET tube or Shiley over Bougie just enough for cuff to be inside trachea.
- Inflate cuff and secure tube.
- Ventilate at 100% Oxygen.
- Observe and auscultate for correct placement.
- Confirm with **Capnography**.
- Cover incision site with Occlusive dressing.

Link to research articles (QR code on right): http://1drv.ms/1zW9yLX
Citations:

Section 8-075 - Decompression Needle

Advanced Life Support

Precautions:
- Complications may include laceration of intercostals vessels, creation of pneumothorax, laceration of lung tissue, and risk of infection.

Contraindications:
- None in presence of tension pneumothorax.

Indications:
Protocol 5-040 - Chest Trauma (Absent lung sounds on affected side with respiratory distress)page 65
Protocol 6-085 - High-Threat Response ..... page 82

Turkel Procedure:
- Identify second intercostal space, midclavicular line, on affected side.
- Clean area with antiseptic.
- Insert Turkel into skin over just over superior border of third rib.
- Insert catheter through paretal pleura until air escapes.
- During insertion, the color band will show RED until through paretal pleura, and then it turns GREEN.
- Advance catheter off device.
- Air should exit under pressure.
- Close 3-way valve.
- Reassess frequently for redevelopment of pneumothorax.
- If tension pneumothorax returns, open 3-way valve to release pressure.

Gelco Procedure:
- Identify second or third intercostal space, midclavicular line, on affected side.
- Clean area with antiseptic.
- Insert Jelco into skin over just over superior border of third rib.
- Insert catheter through paretal pleura until air escapes.
- Air should exit under pressure.
- Remove needle and leave plastic catheter in place.
- Reassess frequently for redevelopment of pneumothorax.
- If tension pneumothorax returns, repeat procedure.

Link to research articles (QR code on right): http://1drv.ms/1zW9Geh
Citations:

Section 8-080 - Endotracheal Tube (ET)

Advanced Life Support

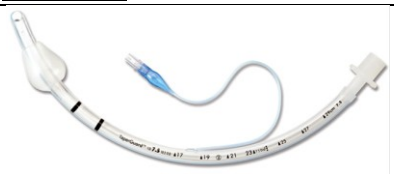
Precautions:
✱ Can induce Hypertension and increase ICP in Head injured patients. Can induce Vagal response and Bradycardia. Can induce hypoxia-related arrhythmias.

Contraindications:
✱

Indications:
Protocol 6-085 - High-Threat Response ..... page 82
Protocol 6-110 - Rapid Sequence Intubation (RSI) (Need for definitive Airway) ..... page 86

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.

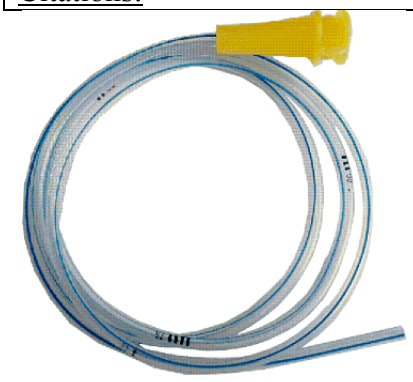
Indications:

Protocol 6-110 - Rapid Sequence Intubation (RSI) (Evacuation of air or fluids in stomach) ..... page 86
Section 8-080 - Endotracheal Tube (ET) (Evacuation of air or fluids in stomach) ..... page 174
Section 8-160 - King LTSD Airway (Evacuation of air or fluids in stomach) ..... page 183
Section 8-170 - Laryngeal Mask Airway (LMA) Supreme ..... page 184

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)

Precautions:
✱ Do not rely on readings of other entities or patient's own Glucometer.

Contraindications:
✱ None.

Indications:
Protocol 4-050 - Cardiovascular Accident (CVA) or Stroke
(Any patient that presents with ALOC) ..... page 45
Protocol 4-120 - Hypoglycemia (Any patient that presents with ALOC) ..... page 56
Protocol 4-140 - Poisoning or Overdose (Any patient that presents with ALOC) ..... page 58
Protocol 4-170 - Seizures (Any patient that presents with ALOC) ..... page 60
Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) ..... page 74

Procedure:
✱ Turn on and log into Glucometer.
✱ Obtain blood sample from IV start or finger stick.
  ✱ Avoid "milking" finger.
  ✱ Ensure skin is dry of alcohol wipe.
✱ Follow on-screen instructions.
✱ Dispose of sharp(s).

Link to research articles (QR code on right): http://1drv.ms/1zW9UC5
Citations:

Section 8-125 - Hemostatic Agent

Advanced Life Support *Precautions:* ✱ None.	*Contraindications*: ✱ None.

Indications:
Protocol 1-020 - General Assessment and Treatment - Trauma ..... page 16
Protocol 6-085 - High-Threat Response ..... page 82

Procedure:
✱ Apply gauze to open wound. Fill and tightly pack whole wound.
✱ Use direct pressure on gauze and wound for approximately three (3) minutes to help form clot.
✱ If bleeding continues, hold pressure for an additional three (3) minutes.
✱ Wrap over gauze for transport.

Link to research articles (QR code on right): http://1drv.ms/1xwHYJH
Citations: (Medtrade Products Ltd)

Section 8-130 - Intranasal (IN) Device

Advanced Life Support

Precautions:
- ✱ Mucous, blood, and vasoconstrictors reduce absorption.
- ✱ Minimize volume, maximum concentration.
  - ✱ 1/3 ml per nostril is ideal, 1 ml is max.
  - ✱ Use both nostrils to double surface area.

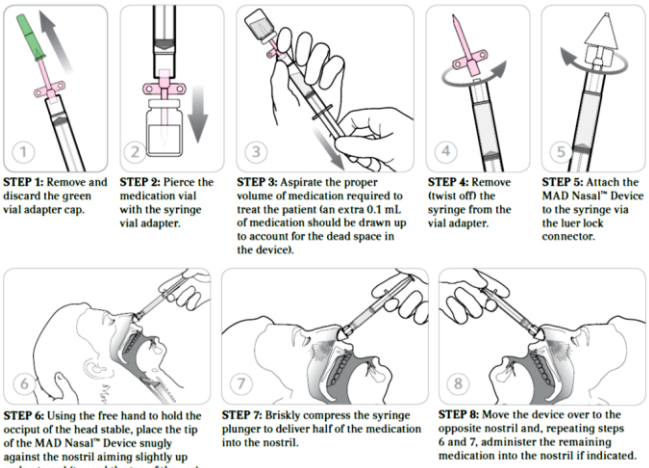
Contraindications:
- ✱ If IV access can be obtained, IV is preferred medication route.

Indications:
Medication administration without IV access.

Section 7-230 - Fentanyl (Sublimaze) ..... page 119
Section 7-400 - Narcan (Naloxone) ..... page 134
Section 7-600 - Versed (Midazolam) ..... page 155
Section 7-620 - Zofran (Ondansetron) ..... page 157

Procedure:
- ✱ Select correct medication at a high of a concentration as possible. Divide the dose between the two nares.
- ✱ Confirm orders, dosage, and expiration.
- ✱ Check patient allergies.
- ✱ Remove and discard the green vial adapter cap.
- ✱ Pierce the medication vial with the syringe vial adapter.
- ✱ Aspirate the proper volume of medication required to treat the patient (an extra 0.1ml of medication should be drawn up to account for the dead space in the device).
- ✱ Remove (twist off) the syringe from the vial adapter.
- ✱ Attach the MAD device to the syringe via the luer-lock connector.
- ✱ Using the free hand to hold the crown of the Head stable, place the tip of the MAD snugly against the nostril aiming slightly up and outward (toward the top of the ear).
- ✱ Briskly compress the syringe plunger to deliver half of the medication into the nostril.
- ✱ Move the device over to the opposite nostril and administer the remaining medication into that nostril.
- ✱ Observe patient for effects.

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

Precautions:
✱ Avoid venipuncuture in arms with dialysis shunts or distal to injuries.

Contraindications:
✱ None.

Indications:
Any patient requiring IV medications.

Procedure:
✱ Inform patient of procedure.
✱ Apply Tourniquet.
✱ Select and clean site.
✱ Stabilize vein.
✱ Pass needle into vein with bevel up, noting blood "flash."
✱ Advance needle 2 mm more.
✱ Slide catheter over needle into vein.
✱ Remove needle.
✱ Hold pressure over distal tip of catheter to prevent blood loss.
✱ Perform Blood Draw if indicated.
✱ Remove Tourniquet.
✱ Flush with Saline to ensure placement.
✱ Secure with dressing.

Link to research articles (QR code on right): http://1drv.ms/1zWbbt4
Citations: (Citizens Memorial Hospital, 2013)

Section 8-142 - IV Pump

Advanced Life Support *Precautions:* ✱	*Contraindications*: ✱

Indications:
Patient requiring drip medications.

Procedure:
✱ Cassette priming and loading:
- ✱ Make sure flow regulator is closed (white screw pushed in).
- ✱ Insert piercing pin with a twisting motion into medication.
- ✱ Fill drip chamber.
- ✱ Invert cassette.
- ✱ Turn flow regulator counterclockwise until a drop of fluid is seen in pumping chamber.
- ✱ Turn cassette upright and prime remainder of administration set.
- ✱ Push flow regulator closed.
- ✱ Make sure proximal clamp (above cassette) is open.
- ✱ Open cassette door and insert cassette.
- ✱ Close door.

✱ Infusion:
- ✱ Turn knob to "SET RATE."
- ✱ Use up, down, and/or "QUICKSET" buttons to select infusion rate.
- ✱ Turn knob to "SET VTBI."
- ✱ Use up, down, and/or "QUICKSET" buttons to select volume to be infused.
- ✱ Turn knob to "RUN."

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

Section 8-150 - Kendrick Extrication Device (KED)

Basic Life Support (EMR or EMT)	*Contraindications*:
Precautions: ✱	✱ Patients with easy access requiring rapid extrication.

Indications:
Section 8-350 - Spinal Motion Restriction (SMR)
(Patients that are seated and meet criteria for SMR) ..... page 199
Section 8-360 - Splint ..... page 200

Procedure:
✱ Maintain c-spine.
✱ Assess distal pulses, motor function, and sensation.
✱ Apply c-collar.
✱ Position device behind patient.
✱ Pull device up until it fits snugly in armpits.
✱ Apply Chest straps and tighten. Avoid restricting breathing.
✱ Apply leg straps and tighten. Avoid pinching or injuring genitals.
✱ Apply padding behind Head.
✱ Secure Head to device.
✱ Remove patient from entrapment (if applicable) and lay down on backboard.
✱ Release leg straps and secure patient and device to backboard.
✱ KED Chest straps may be loosened for comfort.
✱ Reassess distal pulses, motor function, and sensation.

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

Section 8-160 - King LTSD Airway

Basic Life Support (EMT) *Precautions:* ✱	*Contraindications*: ✱ Responsive patient with intact gag reflex. ✱ Known esophageal disease. ✱ Caustic substance ingestion.

Indications:

Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) ..... page 74
Protocol 6-110 - Rapid Sequence Intubation (RSI) ..... page 86
Section 8-080 - Endotracheal Tube (ET) (Considered alternate Airway to endotracheal tube) ..... page 174

Procedure:

✱ Choose size:
  ✱ Size 3 [yellow]: 4-5 ft tall,
  ✱ Size 4 [red]: 5-6 ft tall,
  ✱ Size 5 [purple]: greater than 6 ft tall.
✱ Test cuff inflation by injecting maximum recommended volume of air into cuffs. Remove all air from cuffs.
✱ Apply lubricant to beveled distal tip and posterior aspect of tube.
✱ Pre-Oxygenate.
✱ Position Head in "sniffing position" or neutral position.
✱ Hold King in dominant hand. Hold open mouth and lift chin with non-dominant hand.
✱ Rotate King 45-90 degrees to touch the corner of the mouth with the blue orientation line.
✱ Advance King behind base of tongue. Never force into position.
✱ As tip passes under tongue, rotate back to midline (blue orientation line faces chin).
✱ Advance King until base of connector aligns with teeth or gums.
✱ Inflate cuffs with minimum volume necessary to seal the Airway at peak ventilatory pressure.
✱ Attach resuscitation bag. While bagging, withdraw King until ventilation is easy and free flowing.
✱ Confirm proper position by auscultation, Chest movement, and $ETCO_2$.
✱ 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_2O	60 cm H_2O	60 cm H_2O	60 cm H_2O	60 cm H_2O
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
KLTSD Cuff Volume	n/a	n/a	40-55 ml	50-70 ml	60-80 ml

Section 8-170 - Laryngeal Mask Airway (LMA) Supreme

Basic Life Support (EMT)

Precautions:
✱

Contraindications:
✱ Swallow or gag reflex.

Indications:
Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) ..... page 74
Protocol 6-110 - Rapid Sequence Intubation (RSI) ..... page 86
Section 8-080 - Endotracheal Tube (ET) (Considered alternate Airway to endotracheal tube)..... page 174

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

Advanced Life Support *Precautions:* ✱	*Contraindications*: ✱

Indications:
Future location of video laryngoscope

Procedure:
✱

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

Section 8-190 - LifePak

Basic Life Support - AED (EMR or EMT)	*Contraindications*:
Precautions: ✱ Exercise safety precautions.	✱ If ALS is available, manual mode is preferred. ✱ None in cardiac Arrest.

Indications:

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)	*Contraindications*:
Precautions: ✱	✱

Indications:

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.

Basic Life Support - Vitals (EMR or EMT) *Precautions:* ✱	*Contraindications*: ✱ Do not attempt blood pressures on injured extremities, side of previous mastectomies, or dialysis shunts.

Indications:
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.

Procedure:
✱ 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.

Advanced Life Support - Defibrillation *Precautions:* ✱ Exercise safety precautions.	*Contraindications*: ✱ None in cardiac Arrest.

Indications:
Protocol 2-030 - Automated External Defibrillation (AED) ..... page 21
Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) ..... page 34
Protocol 3-010 - Drowning ..... page 37
Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) ..... page 74
Section 8-010 - Automated External Defibrillator (AED) ..... page 159

Procedure:
✱ Verify patient is in cardio-pulmonary Arrest.
✱ Record baseline rhythm.
✱ Apply combo-pads (anterior-posterior is preferred)
✱ Select appropriate energy.
  ✱ *Adult*: 360 J (OR consider biphasic dose of 200 J).
  ✱ *Pediatric*: 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.

Advanced 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."

Advanced Life Support - Synchronized Cardioversion	*Contraindications*:
Precautions: ✱ Exercise safety precautions. Cardiovert with extreme caution in patients on digitalis, Beta-Blockers, and Calcium channel blockers.	✱

Indications:

Procedure:
- ✱ Explain procedure to patient.
- ✱ If time permits, consider **Versed**.
- ✱ Record baseline rhythm.
- ✱ Select lead with tallest R-wave.
- ✱ Apply combo-pads (anterior-posterior is preferred).
- ✱ Select appropriate energy.
  - ✱ *Adult*: 120 J.
  - ✱ *Pediatric*: 0.5-1 J/kg.
- ✱ Synchronize ("SYNC") and observe markers on screen. If sense markers
- ✱ Charge ("CHARGE") and clear patient. To cancel charge, press speed dial. If "SHOCK" is not pressed within 60 sec, charge is cancelled.
- ✱ Call "CLEAR" and ensure patient is clear.
- ✱ Press "SHOCK."
- ✱ Reassess patient.

Advanced Life Support - Transcutaneous Pacing

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

Contraindications:
- ✱ None in emergency setting.

Indications:

Procedure:
- ✱ Explain procedure to patient.
- ✱ Connect 4-leads and record rhythm strip prior to Pacing.
- ✱ Select lead with tallest R-wave.
- ✱ Apply combo-pads (anterior-posterior is preferred).
- ✱ Turn pacer on and set rate to 80 bpm.
- ✱ Gradually increase energy until electrical capture is observed (usually wide, bizarre QRS).
- ✱ Check pulse for mechanical capture. If no mechanical capture, continue to increase energy until mechanical capture. If CPR is being conducted and no mechanical capture is detected at maximum energy, continue Pacing.
- ✱ Once mechanical capture is obtained, increase energy another 10%, assess blood pressure, and record rhythm strip.
- ✱ If CPR is being conducted, continue for another 2 minutes before discontinuing.
- ✱ Conscious: Consider **Versed** 2.5-5 mg for sedation if discomfort is intolerable.

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

Section 8-200 - Meconium Aspirator

Advanced Life Support *Indications*: ✱	*Contraindications*: ✱ *Precautions:* ✱

Indications:
Protocol 4-130 - Neonatal Resuscitation ..... page 57

Procedure:
✱

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

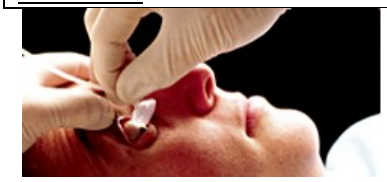
Section 8-210 - Morgan Lens

Advanced Life Support *Precautions:* ✱	*Contraindications*: ✱

Indications:
Protocol 5-060 - Eye Injury (need for Eye irrigation) ..... page 67

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:



Section 8-230 - Naso-Pharyngeal Airway (NPA)

Basic Life Support (EMR or EMT)

Precautions:
✱

Contraindications:
✱

Indications:
Patients unable to control their Airway.
Clinched jaws.
Altered LOC with gag reflex.

Procedure:
✱ Pre-Oxygenate if possible.
✱ Measure tube from tip of nose to the earlobe.
✱ Lube Airway with water-soluble jelly.
✱ Insert tube (right nare first) with bevel towards the septum.
✱ Reassess Airway.

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

Section 8-240 - Nebulizer

Advanced Life Support *Precautions:* ✱	*Contraindications*: ✱

Indications:

Procedure:

✱ Select correct medication.
✱ Confirm orders, dosage, and expiration.
✱ Check patient allergies.
✱ Add medication to reservoir of Nebulized. Add Saline if necessary to equal 3 ml total volume.
✱ Connect Oxygen tubing and set flow rate to 6-8 lpm.
✱ Have patient take deep breaths, holding for a second, and exhale through tube.
✱ If patient is unable to hold Nebulized, attach to mask.
✱ Medication is delivered in 5-10 min.
✱ Observe patient for effects.

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

Section 8-260 - Oro-Pharyngeal Airway (OPA)

Basic Life Support (EMR or EMT)

Precautions:
✱

Contraindications:
✱ Gag reflex.

Indications:
Unconscious or unresponsive.

Procedure:
✱ Pre-Oxygenate if possible.
✱ Measure Airway from corner of mouth to earlobe.
✱ Grasp tongue and jaw, lifting anterior.
✱ Insert Airway inverted and rotate 180 degrees into place.
✱ Reassess Airway.

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

Section 8-290 - Physical Restraint

Advanced Life Support	*Contraindications*:
Precautions: ✱ If restrained by law enforcement (i.e. hand-cuffs), an officer from the Arresting agency must be present throughout EMS transport.	✱

Indications:
Protocol 4-040 - Behavioral (Medical or Behavioral emergency endangering patient and/or EMS personnel or prohibiting appropriate medical evaluation and transport) ..... page 44

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:

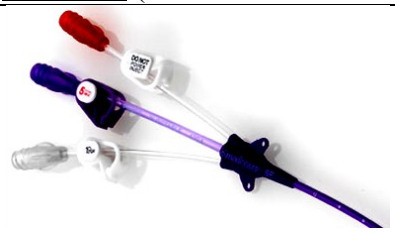
Section 8-295 - PICC and Central Line Access Kit

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

Precautions:
✱ Demand setting requires constant patient monitoring. If patient condition deteriorates, consider extubation and BVM.

Contraindications:
✱ None.

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 16
Protocol 5-020 - Abdominal Trauma ..... page 1663
Protocol 5-040 - Chest Trauma ..... page 1665
Protocol 5-050 - Extremity Trauma ..... page 1666
Protocol 5-070 - Head Trauma ..... page 1668
Protocol 5-080 - Spinal Trauma ..... page 1669
Protocol 5-090 - Trauma Arrest ..... page 1670
Protocol 6-080 - Event Standby ..... page 1681

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)

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.

Contraindications:

✱

Indications:

Protocol 5-050 - Extremity Trauma ..... page 66

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:* ✱	*Contraindications*: ✱

Indications:
Section 8-060 - Cot ..... page 170

Procedure:
✱

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

Section 8-370 - Suction

Basic Life Support (EMR or EMT)

Precautions:
✱ Be sure to switch off as soon as possible to avoid shorting batteries.

Contraindications:
✱

Indications:
Protocol 4-130 - Neonatal Resuscitation ..... page 57
Protocol 6-110 - Rapid Sequence Intubation (RSI) ..... page 86

Procedure:
✱ Place 2 fully charged batteries.
✱ Attach patient connecting tube to patient port on the canister.
✱ Turn switch on.
✱ Occlude end of patient connecting tube and keep it occluded for 10sec. Release occlusion and check for negative pressure. If no negative pressure, check to ensure canister lid is tight and connections are secure.
✱ Dispose of canister after use.

Link to research articles (QR code on right): http://1drv.ms/1zWdbl5
Citations:

Section 8-380 - Thermometer

Basic Life Support (EMR or EMT)

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.

Contraindications:

- ✱

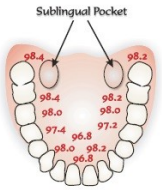
Indications:

Protocol 1-010 - General Assessment and Treatment - Medical ..... page 15
Protocol 1-020 - General Assessment and Treatment - Trauma ..... page 16

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.


Adult Axillary Mode Icon


Pediatric Axillary Mode Icon

- 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.

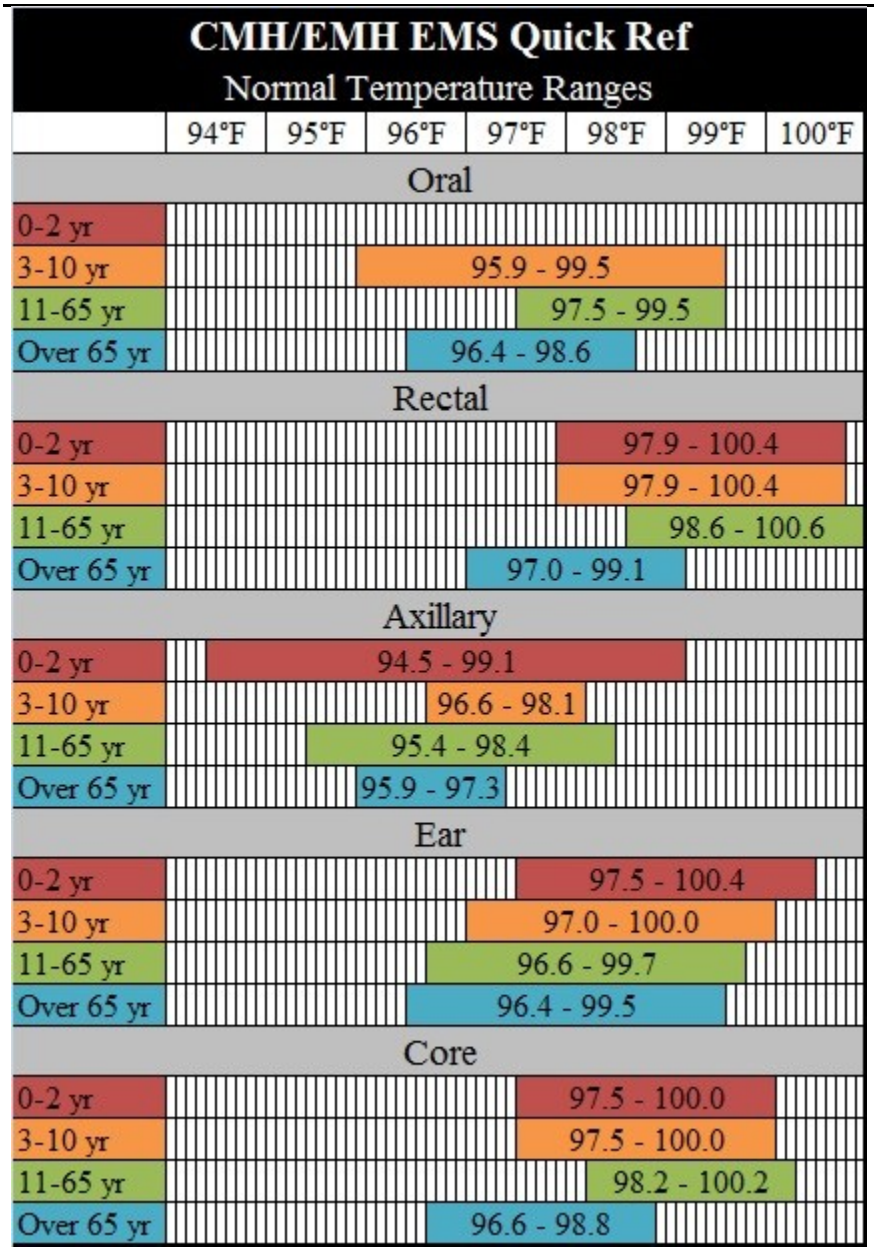
Rectal Temperature Procedure:

- 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)

Precautions:

- Prolonged Tourniquet application may result in nerve damage, rhabdomyolysis, compartment syndrome, ischemia, and re-profusion injury. Time of Tourniquet application MUST be reported to accepting ER.
- Do not apply Tourniquet over a joint.

Contraindications:

-

Indications:

Protocol 1-020 - General Assessment and Treatment - Trauma ..... page 16
Protocol 5-050 - Extremity Trauma
(Life-threatening limb hemorrhage uncontrolled by simple methods) ..... page 66
Protocol 6-085 - High-Threat Response ..... page 82

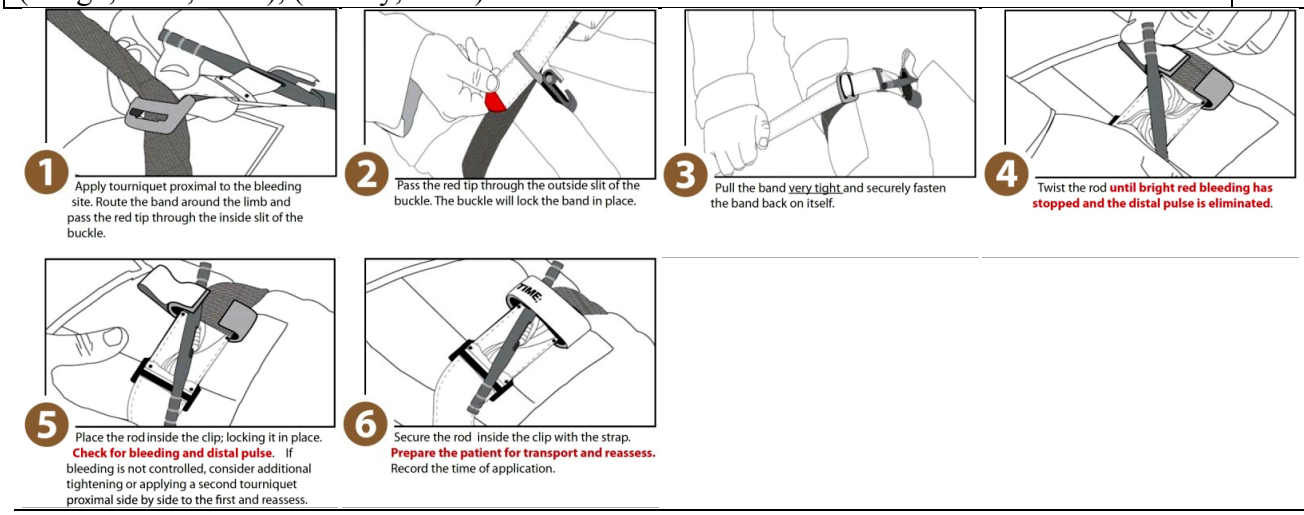
Procedure:

- 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 77) 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)

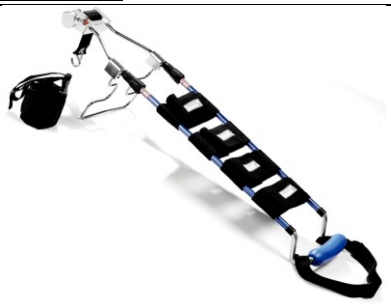
Precautions:
- In the case of open fracture with obvious contamination, loose debris should be brushed away and flushed with Saline prior to reduction.

Contraindications:
- Proximal femur fracture.
- Pelvic fracture.
- Tibia/fibula fracture.

Indications:
Protocol 5-050 - Extremity Trauma (Open or closed femur fracture) ..... page 66

Procedure:
- Assess distal pulse, motor, and sensation. If pulses are absent, apply manual, inline Traction. Pulseoximetry can help with distal pulse monitoring.
- Consider MEDICAL CONTROL for angulated or pulseless fractures.
- Stabilize limb manually.
- **ALS**: Consider sedation or analgesia prior to moving Extremity.
- In general, if distal pulses and sensation are present, field reduction should not be attempted.
- Reassess distal pulse, motor, and sensation.
- Patient destination should be a trauma center.
- In the event of bilateral femur fractures, consider MAST pants.

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



Part 9 - Appendix

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Section 9-020 - Change Log

Version 1 (Apgar)

Version One is named in dedication to Virginia Apgar who was an American obstetrical anesthesiologist who introduced obstetrical considerations to the field of neonatology.

Changes from version 1 to version 2 (Blalock)

Version Two is named in dedication to Alfred Blalock who was an American surgeon who conducted significant research on shock and blue baby syndrome.

Protocol	Date	Version 2 changes description
Entire document	06/01/12	6/1/12 version 1 approved by Roger Merk, MD.
	08/29/13	9/1/13 version 2 approved by Roger Merk, MD.

Changes from version 2 to version 3 (Cohn)

Version Three is named in dedication to Edwin Joseph Cohn who was an American scientist who developed the technique to separate blood plasma for transfusions.

Protocol	Date	Version 3 changes description
Entire document	10/09/13	Modification to most documents to include Oxygen titration based on Mercy Life Line protocols.
	12/13/13	Modification to most documents to remove Capnography as a BLS skill, now is "assist ALS."
	12/16/13	1/1/14 Version 3 approved by Roger Merk, MD.
	12/20/13	1/1/14 Version 3 re-approved by Roger Merk, MD (includes CVA and STEMI changes).
	2/10/14	Removed QR codes and re-released as version 3.
Protocol 1-010 - General Assessment and Treatment - Medical	10/04/13	Added orthostatic. Added 4-lead and 12-lead BLS vs ALS clarification.
	11/11/13	Added quote from MO Statutes on transporting TCD.
	1/28/14	Changed ALS indicated pulseox to reflect Oxygen titration changes.
Protocol 1-020 - General Assessment and Treatment - Trauma	11/11/13	Added quote from MO Statutes on transporting TCD trauma.
Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter	10/04/13	Added rates to BLS Combo Pads.
Protocol 2-040 - Bradycardia	10/04/13	Added rates to BLS Combo Pads. Added "unstable" to Pacing. Added "stable" to Atropine.
Protocol 2-050 - Chest Discomfort	10/07/13	Clarified image for 12- and 15-Lead placement.
	11/11/13	Added quote from MO Statues 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 ABLS fluid guidelines. Added consider direct transport to burn center guidelines. Added contraindication for King Airway and 7.5 ET tube desired.
Protocol 5-040 - Chest Trauma	10/04/13	Indented BLS CPAP under Flail Chest.
	12/13/13	Removed CPAP as BLS skill, now is "assist ALS."
Protocol 5-050 - Extremity Trauma	11/29/13	Added "consider Tourniquet" to BLS.
	1/29/14	Added cold pack and dressings from orthopedic injury CMH policy.
Protocol 5-060 - Eye Injury	10/04/13	Moved Morgan Lens from ALS to BLS.
Protocol 5-070 - Head Trauma	11/19/13	Changed SMR mandatory to SMR "as required."
Protocol 5-090 - Trauma Arrest	10/04/13	Removed need for 20 minutes of ACLS and added immediate trauma termination from 6-140.
Section 6-010 - Acquisition of Medical Control	1/29/14	Added comment if med control cannot be contacted from CMH policies.
Section 6-020 - Air Ambulance	1/29/14	Coordinated protocol with CMH policies.
Section 6-030 - Competencies and Education	12/13/13	Added National Scope of Practice graphic.
	1/29/14	Coordinated protocol with CMH policies.
Protocol 6-055 - Decontamination	1/29/14	Coordinated protocol with CMH policies.
Protocol 6-080 - Event Standby	10/04/13	Changed "ALS bag" to "first-in bag." Changed "will" to "may" provide ALS ambulance.
	1/29/14	Coordinated protocol with CMH policies.
Protocol 6-090 - IDLH Standby	1/29/14	Removed "rehabilitation" from title.
Protocol 6-110 - Rapid Sequence Intubation (RSI)	1/29/14	Added "request second unit if possible."
Section 6-120 - Transfer of Care	10/04/13	Added BLS section for EMT maintaining care in new ambulance after breakdown. Specified EMT/Medic maintains care even if new ambulance is not CMH.
	11/11/13	Changed "should maintain pt care" to "may maintain pt care."
Protocol 6-130 - Triage	1/29/14	Defined mass casualty from policy. Added first arriving crew's responsibilities from policies. Added when Triage tags used from policies.
Section 6-140 - Termination of Resuscitation	10/04/13	Specified faxing ePCR only to non-CMH facilities.
	1/29/14	Added if at healthcare facility, scene may be cleared. Coordinated with CMH policies.
Part 7 - Medication Protocols	10/07/13	Added images of typical medication (vials).
Section 7-010 - Acetaminophen (Tylenol)	11/11/13	Added adult dose.
Section 7-060 - Aspirin	12/20/13	Added EMT scope of practice statement.
Section 7-070 - Ativan (Lorazapam)	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-profusion injury. Added ALS analgesics and Tourniquet removal instructions. Added Combat Application Tourniquet instructional graphic.
	12/15/13	Added EMT scope of practice statement.
Section 8-400 - Traction Splint	12/15/13	Added EMT scope of practice statement.

Changes from version 3 to version 4 (Drew)

Version Four is named in dedication to Charles Richard Drew who was an American physician who developed techniques for blood storage and protested the practice of segregating blood supplied based on race of the donor.

Protocol	Date	Version 4 changes description
Entire document	12/12/14	Changed Pre-Hospital Services to Emergency Medical Services
	3/30/15	Added sections for EMR and changed BLS/ALS to EMT/Paramedic.
	3/31/15	Added QR codes and links to research articles.
	4/7/15	Changed several headings from “Protocol” to “Section” to indicate they are informational and not to be used in documentation as the protocol used to treat the patient.
	4/14/15	Changed “<” to “less than”, “>” to “greater than”, and “MFR” to “EMR” throughout document to reduce confusion and align with national terminology.
	4/14/15	4/1/15 version approved and signed by Dr. Merk and Neal Taylor.
Part 0 - Front Matter	12/12/14	Added definition of pediatric. Added DELIBERATE ACTIONS.
	3/2/15	Removed DELIBERATE ACTIONS.
	3/30/15	Added statement about EMR, EMT, and medic and the adoption of these protocols by first responder agencies.
Section 0-300 - 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 DELIBERATE ACTIONS.
Protocol 1-020 - General Assessment and Treatment - Trauma	12/12/14	Added comment to maintain patient temp. Added comment if patient contact time less than 15 min, only one set of vitals needed. Added definition of DELIBERATE ACTION. Removed list of trauma centers.
	3/2/15	Removed DELIBERATE ACTION. Moved location from 5-010 to 1-020 to keep general assessment protocols together.
	3/30/15	Added trauma destination determination flowchart.
	4/3/15	Added “consider SMR.”
Protocol 2-010 - Asystole	12/12/14	Added consider Gastric Tube.
	4/3/15	Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).
Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter	12/12/14	Added Procainamide if pulmonary edema based on Dr. Nix conversation about a specific patient.
	4/3/15	Removed Procainamide after conversation with Dr. Merk. Clarified when to apply Combo Pads according to age and rates.
Protocol 2-040 - Bradycardia	12/12/14	Added contact medical control for Pacing Hypothermia patient. Added weight-based Fentanyl dose for greater than 65 yr.
	12/15/14	Added “do not delay for IV.”
Protocol 2-050 - Chest Discomfort	12/12/14	Removed Blood Draw. Added Fentanyl if nitro and Morphine contraindicated.
	12/15/14	Added “within 5 min” for ASA administration.

Protocol	Date	Version 4 changes description
	3/30/15	Added STEMI destination determination flowchart.
	4/3/15	Added "Use Tablet" for STEMI transmission.
Protocol 2-070 - Pulseless Electrical Activity (PEA)	12/12/14	Added consider Gastric Tube.
	4/3/15	Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).
Protocol 2-090 - Tachycardia Narrow Unstable	12/12/14	Made Cardioversion a DELIBERATE ACTION.
	12/15/14	Added "do not delay for IV."
	3/2/15	Removed DELIBERATE ACTION.
Protocol 2-100 - Tachycardia Wide Stable	4/3/15	Clarified when to apply Combo Pads according to age and rates.
Protocol 2-110 - Tachycardia Wide Unstable	12/12/14	Made Cardioversion a DELIBERATE ACTION.
	12/15/14	Added "do not delay for IV."
	3/2/15	Removed DELIBERATE ACTION.
	4/3/15	Clarified when to apply Combo Pads according to age and rates.
Protocol 2-120 - Torsades de Pointes	12/12/14	Added consider Gastric Tube.
	4/3/15	Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).
Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach)	12/12/14	Added consider Gastric Tube.
	4/3/15	Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).
Protocol 3-010 - Drowning	4/3/15	Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).
	4/14/15	Added "consider" to limb leads.
Protocol 3-020 - Hyperthermia	12/29/14	Changed name from "Heat exhaustion / heat stroke" to "Hyperthermia."
	4/14/15	Added "consider" to limb leads. Moved heat exhaustion and heat stroke sections from ALS to EMR.
Protocol 3-030 - Hypothermia	12/12/14	Changed Fentanyl over 65 yr to weight-based dose.
	1/29/14	Changed name from "Hypothermia / frostbite" to "Hypothermia."
	4/3/15	Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).
	4/14/15	Added "consider" to limb leads.
Protocol 3-040 - Hypothermia Arrest	4/3/15	Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).
Protocol 4-010 - Abdominal Pain	12/12/14	Changed Fentanyl over 65 yr to weight-based dose. Clarified pediatric Zofran and Phenergan dosages.
Protocol 4-020 - Anaphylaxis	2/22/14	Changed Oxygen dose to maintain 100%.
	4/14/15	Added "consider" to limb leads.
Protocol 4-030 - Asthma	12/12/14	Made Intubation a DELIBERATE ACTION.
	3/2/15	Removed DELIBERATE ACTION.
Protocol 4-040 - Behavioral	1/20/15	Added emotional first aid steps.
Protocol 4-050 - Cardiovascular Accident (CVA) or Stroke	12/12/14	Removed Blood Draw. Removed pending list of stroke centers.
	3/30/15	Added stroke destination determination flowchart.
	3/31/15	Added NIH Stroke Scale.
	4/14/15	Moved Cincinatti and NIH stroke scales to EMR secion.
Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD)	12/12/14	Made Intubation a DELIBERATE ACTION.
	3/2/15	Removed DELIBERATE ACTION.
Protocol 4-070 - Congestive Heart Failure (CHF)	12/12/14	Added Capnography. Made Intubation a DELIBERATE ACTION. Increased nitro dose.
	3/2/15	Removed DELIBERATE ACTION.
Protocol 4-080 - Croup	12/12/14	Removed IV/IM from Decadron. Added comment to be cautious administering any medication IV/IM/IO.
	4/14/15	Added "consider" to limb leads.
Protocol 4-090 - Childbirth	12/12/14	Added detailed delivery instructions for normal, breech, and prolapsed cord. Added comments to only Suction if infant is in distress.
	4/14/15	Added comment to only clamp the cord if full-term delivery.
Protocol 4-100 - Fever	12/12/14	Removed Blood Draw.
	4/14/15	Added "consider" to limb leads.
Protocol 4-110 - Hypertension	12/15/14	Added mean arterial pressure comment.
Protocol 4-120 - Hypoglycemia	12/12/14	Removed Blood Draw.
	4/14/15	Added "consider" to limb leads.
Protocol 4-130 - Neonatal Resuscitation	12/12/14	Added consider IV/IO/Umbilical access. Added only to Suction if infant is in distress. Added ET size and depth table.
	4/14/15	Added comment to BVM with room air unless hypoxia.
Protocol 4-140 - Poisoning or Overdose	12/12/14	Removed Blood Draw. Added Dr. Merk comment about mandatory IV access if intentional. Made Intubation a DELIBERATE ACTION. Added comment to see Behavioral protocol for excited delirium.
	3/2/15	Removed DELIBERATE ACTION.
	4/3/15	Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).
Protocol 4-170 - Seizures	12/12/14	Removed Blood Draw.
Protocol 4-175 -	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. Added keep patient warm. Detailed fluid bolus dose for pediatrics greater than 6 yr and less than 6 yr. Added weight-based dose for greater than 65yr for Fentanyl. Added reference to Poisoning for smoke inhalation.
	4/14/15	Added "consider" to limb leads.
Protocol 5-040 - Chest Trauma	12/12/14	Made Intubation a DELIBERATE ACTION. Made Chest Decompression a DELIBERATE ACTION. Added

Protocol	Date	Version 4 changes description
		weight-based dose for greater than 65 yr for Fentanyl.
	3/2/15	Removed DELIBERATE ACTION.
	4/14/15	Added "consider" to occlusive dressing.
Protocol 5-050 - Extremity Trauma	12/12/14	Made Intubation a DELIBERATE ACTION. Added weight-based dose for greater than 65 yr for Fentanyl. Considered making crush injury a separate protocol, but then decided against it.
	4/14/15	Added "consider" to limb leads.
Protocol 5-060 - Eye Injury	12/12/14	Added consider IV/IO. Added weight-based dose for greater than 65 yr for Fentanyl.
	4/14/15	Added "consider" to limb leads.
Protocol 5-070 - Head Trauma	12/12/14	Changed target $ETCO_2$ from 30-35 to 40-45. Added comment to maintain patient temperature. Changed LR to NS. Added desired SBP table. Defined Cushing's Triad. Made Intubation and RSI DELIBERATE ACTIONS. Added weight-based dose for greater than 65 yr for Fentanyl.
	3/2/15	Removed DELIBERATE ACTIONS.
Protocol 5-080 - Spinal Trauma	12/12/14	Made Intubation and RSI DELIBERATE ACTIONS. Added weight-based dose for greater than 65 yr for Fentanyl.
	4/14/15	Added "consider" to limb leads.
Section 6-010 - Acquisition of Medical Control	12/12/14	Changed phone number for Golden Valley. Changed name for Mercy Joplin Psych. Removed Sac-Osage.
Section 6-020 - Air Ambulance	12/12/14	Added comment to not put aircraft on standby. Moved MVA with fatality from single to the double criteria. Added clarification to Burns that it must be 2nd or 3rd degree. Added Head injury with neuro deficits.
	12/26/14	Added no fly zone map within 23 minutes ground travel time to CMH.
Section 6-030 - Competencies and Education	12/12/14	Removed "quarterly" since we usually have five Competencies annually instead of four.
	3/31/15	Added competency requirements for EMR (1 competency). Added volunteer EMT requirements (2 Competencies). Modified career EMT requirements (4 Competencies). Clarified Paramedic requirements (all Competencies).
Protocol 6-040 - Control of Nausea	12/12/14	Added clarification for pediatric dosages of Zofran and Phenergan.
	12/15/14	Added Regalin medication.
	4/14/15	Added comment that medication is not prophylactic.
Protocol 6-050 - Control of Pain	2/22/14	Added medical control for Ketamine.
	12/12/14	Added weight-based dosage for greater than 65 yr for Fentanyl. Added IM option for Morphine. Added option for Toradol.
	12/15/14	Added Dilaudid medication.
Protocol 6-055 - Decontamination	12/12/14	Created Decontamination protocol.
Section 6-070 - Documentation	4/3/15	Modified this section to reflect requirements for volunteers vs. career users of this protocol.
	4/14/15	Added ePCR is required by CMH EMS.
Protocol 6-080 - Event Standby	4/3/15	Modified this section to reflect other vehicle standbys at events other than just an ambulance.
Protocol 6-090 - IDLH Standby	12/15/14	Added rehab suggestions.
Section 6-100 - Off-Duty Protocols	4/3/15	Clarified the application of this protocol on non-CMH employees.
Section 6-105 - Quality Improvement	12/29/14	Added placeholder for this protocol.
	3/31/15	Created content for this protocol with similar requirements to Section 6-030 - Competencies and Education.
Protocol 6-110 - Rapid Sequence Intubation (RSI)	2/22/14	Removed Ketamine contraindication to Head injury.
	12/15/14	Added 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 contraindication to precautions.
Section 7-070 - Ativan (Lorazapam)	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 (Hydomorphone)	12/29/14	Added DEA and street info. Clarified dosage.
Section 7-220 - Etomidate (Amidate)	2/22/14	Added contraindication of sepsis.
Section 7-230 - Fentanyl (Sublimaze)	12/29/14	Added DEA and street info. Added greater than 65 yr dose same as pediatric.
Section 7-260 - Haldol (Haloperidol)	4/1/15	Added comment about prolonging QT interval and the need for 12-lead.
Section 7-330 - Ketamine (Ketalar)	12/29/14	Added DEA and street info.
Section 7-360 - Lasix (Furosemide)	4/1/15	Added comment about prolonging QT interval and the need for 12-lead.
Section 7-390 - Morphine	12/29/14	Added DEA and street info.
Section 7-420 - Nitroglycerin (Nitrostat, Nitolingual, Tridil)	12/29/14	Added differentiation for Chest Pain dose and CHF dose.
Section 7-460 - Oxygen	2/22/14	Added unresponsive ROSC dosage and cleaned graphic of SpO_2 titration rates.

Protocol	Date	Version 4 changes description
Section 7-470 - Oxytocin (Pitocin)	4/1/15	Added comment about prolonging QT interval and the need for 12-lead.
Section 7-480 - Phenergan (Promethazine)	12/29/14	Added clarification for pediatric dosage.
	4/1/15	Added comment about prolonging QT interval and the need for 12-lead.
Section 7-490 - Procainamide (Pronestyl)	12/29/14	Added NS as option for WPW dilution.
	4/1/15	Added comment about prolonging QT interval and the need for 12-lead.
Section 7-505 - Reglan	12/29/14	Added protocol.
Section 7-525 - Romazicon	12/29/14	Added protocol.
Section 7-560 - Tetracaine	4/14/15	Added halflife.
Section 7-575 - Toradol (Ketorolac)	12/29/14	Added protocol.
Section 7-580 - Valium (Diazepam)	12/29/14	Added DEA and street info.
Section 7-600 - Versed (Midazolam)	12/29/14	Added DEA and street info.
Section 7-620 - Zofran (Ondansetron)	12/29/14	Added pediatric dosage clarification.
	4/1/15	Added comment about prolonging QT interval and the need for 12-lead.
Part 8 - Equipment Protocols	12/29/14	Removed “call for orders” from all titles.
Section 8-020 - Blood Draw Kit	12/29/14	Added “consider” to indications.
Section 8-032 - Capnometer	12/29/14	Moved Protocol 8-250 (Nellcor Capnometer) to this location and removed 8-250.
Section 8-060 - Cot	4/3/15	Added “Consider Stair Chair.”
Section 8-070 - Cricothyrotomy Kit	12/29/14	Added info from 8-330 (QuickTrach II) and removed 8-330.
Section 8-075 - Decompression Needle	12/29/14	Created this protocol from 8-380 (Thoracentesis) and 8-410 (Turkel Needle). Removed 8-380 and 8-410.
Section 8-080 - Endotracheal Tube (ET)	4/3/15	Added “Consider Neo-Synephrine” and “Consider King”
Section 8-135 - Intraosseous (IO) Needle	1/8/15	Moved Protocol 8-100 (EZ-IO) to this location and removed 8-100.
Section 8-142 - IV Pump	12/29/14	Added this protocol from 8-300 (Plum Pump) and removed 8-300.
Section 8-230 - Naso-Pharyngeal Airway (NPA)	1/5/14	Removed “Unconscious or unresponsive” from indications.
Section 8-330 - Portable Ventilator	12/29/14	Added this protocol from 8-270 (ParaPac Ventilator) and removed 8-270.
Section 8-350 - Spinal Motion Restriction (SMR)	4/3/15	Clarified indications and added “Consider KED.”
Section 8-370 - Suction	12/29/14	Removed “S-Scort” from the name of this protocol.
Section 8-400 - Traction Splint	12/29/14	Added info from 8-340 (Sager Splint) and removed 8-340.
Section 9-030 - Subject Matter Experts	4/3/15	Created this section to track SMEs.
Section 9-040 - Index	4/3/15	Created this section.
Section 9-050 - Glossary of Abbreviations	4/14/15	Created this section at the specific request of Dr. Merk.

Changes from version 4 to version 5 (Einthoven)

Version Five is named in dedication to Willem Einthoven who was a Dutch doctor who invented the first practical electrocardiogram (ECG).

Protocol	Date	Version 5 changes description
Entire document	11/17/15	Added EMH (Ellett Memorial Hospital) to each location where CMH (Citizens Memorial Hospital) is mentioned.
	11/18/15	Version 5 dated December 1st, 2015 approved and signed my Dr. Merk, Dr. Kramer, Neal Taylor, and Cathy Menninga. Created two cover pages (one for CMH and one for EMH) for signatures.
Part 0 - Front Matter	5/31/15	Added comments about medications and equipment currently available on ambulances can be found in Section 7-001 - Medications Currently on Ambulances and Section 8-001 - Equipment Currently on Ambulances. Also added space to fill in who the hard copy is issued to.
Section 0-100 - 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 Treatment - Trauma	12/26/14	Added Celox and Tourniquet to BLS if bleeding cannot be controlled by simple means.
	5/31/15	Added comment to maintain patient warmth.
Section 1-021 - Trauma Destination Determination Flowchart	9/16/15	Added option to consider bypassing closest trauma center if stable patient or head trauma. Per Dr. Merk’s specific request.
	11/17/15	Added northern destinations that might be closer to Ellett’s response area. Modified quickest transportation mode definition to 35 minutes.
Protocol 2-010 - Asystole	12/12/14	Added 20 min of CPR before movement.
	12/15/14	Replaced CPR with CCR.

Protocol	Date	Version 5 changes description
	3/31/15	Reverted to CPR per medical director.
	5/31/15	Replaced BLS sections with refer to Protocol 6-025 - Cardiopulmonary Resuscitation (CPR).
	11/17/15	Moved Atropine and Pacing to bottom of treatment list order.
Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter	11/17/5	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 brochodialator treatments to Albuterol unless over 6 yr old, then Duoneb.
Protocol 4-030 - Asthma	11/17/15	Increased Xopanex indication from heart rate of 100 to 110.
Protocol 4-040 - Behavioral	2/22/14	Added Ketamine after medical control for severe.
	12/15/14	Added greater than 65 Ketamine dose.
	11/17/15	Modified severe adult Haldol dose from 5 mg to 2-5 mg.
Section 4-052 - NIH Stroke Scale Images	5/5/15	Created this section for images to accompany NIHSS.
Section 4-053 - Stroke Destination Determination Flowchart	5/5/15	Changed this section from 4-052 to 4-053 to accommodate NIHSS images.
	11/17/15	Added northern destinations that might be closer to Ellett's response area. Modified quickest transportation mode definition to 35 minutes.
Protocol 4-090 - Childbirth	11/17/15	Added comment that patient should be transported to a hospital with an OB department.
Protocol 4-120 - Hypoglycemia	11/17/15	Added comment that medical control must be contacted if any ALS intervention has been performed prior to PRC.
Protocol 4-140 - Poisoning or Overdose	11/17/15	Modified adult Narcan administration to 0.2-0.4 mg with a max of 2 mg.
Protocol 4-170 - Seizures	8/6/15	Added reference to Protocol 4-110 - Hypertension protocol for the hypertensive, pregnant, seizing patient.

Protocol	Date	Version 5 changes description
Protocol 5-020 - Abdominal Trauma	12/26/14	Added TXA.
	5/31/15	Re-worded indications for TXA for better clarity.
	9/16/15	Added by request of Dr. Merk to TXA indications that signs of shock must still be present after 1 L fluid bolus.
Protocol 5-030 - Burns	12/12/14	Made Intubation and RSI DELIBERATE ACTIONS. Added indications for RSI.
	3/2/15	Removed DELIBERATE ACTIONS.
Protocol 5-040 - Chest Trauma	12/26/14	Added TXA.
	5/31/15	Re-worded indications for TXA for better clarity.
	9/16/15	Added by request of Dr. Merk to TXA indications that signs of shock must still be present after 1 L fluid bolus.
	11/17/15	Added “tension” pneumothorax as indication for decompression.
Protocol 5-050 - Extremity Trauma	12/26/14	Added TXA.
	5/31/15	Re-worded indications for TXA for better clarity.
	9/16/15	Added by request of Dr. Merk to TXA indications that signs of shock must still be present after 1 L fluid bolus.
Protocol 5-070 - Head Trauma	12/12/14	Added RSI indications.
	11/17/15	Removed comment that Morphine is contraindicated in head trauma.
Section 6-010 - Acquisition of Medical Control	11/17/15	Added PRC exception to rule that only paramedics can obtain medical control. Added medical control clarification for EMH vs CMH ambulances.
Section 6-021 - No Fly Zone	11/17/15	Modified maps to indicate 35 minute drive time instead of 23 minute to account for landing and patient report. Added EMH district to maps.
Protocol 6-025 - Cardiopulmonary Resuscitation (CPR)	12/12/14	Created cardio cerebral resuscitation protocol.
	12/26/14	Added Atropine, sodium bicarb, Amiodarone, Pacing, pediatric dosages.
	3/31/15	Reverted to CPR per medical director.
	5/31/15	Added comment to refer to Section 6-140 - Termination of Resuscitation.
	11/17/15	Added comment to perform continuous compressions with passive oxygen and basic airway for 3 cycles on witness arrest with a shockable rhythm based on 2015 AHA reccomendations. 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 disassociative 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 recoommendations 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 reccomendations 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 readibility.
	9/16/15	Updated chart to reflect new Rocuronium doses and concentrations from pharmacy.
Section 6-140 - Termination of Resuscitation	12/12/14	Added comment that adults should receive 20 min of CPR before movement.
	12/15/14	Changed CPR to CCR.
	3/31/15	Reverted to CPR per medical director.
	11/17/15	Added clarification for EMH vs CMH faxing ePCR after termination.
Section 7-001 - Medications Currently on Ambulances	5/31/15	Added this section to meet state requirement for medical director approval of what medications are currently carried on ambulances.
	9/16/15	Added Ketamine to narcotic box. Added contents of RSI box.
Section 7-005 - Medications that prolong QT	11/171/15	Added this section.
	11/24/15	Added levomepromazine, Nosinan, Nozinan, Levoprome, delamanid, Deltyba, and papaverine to the list.

Protocol	Date	Version 5 changes description
interval		
Section 7-020 - Activated Charcoal (Actidose)	11/17/15	Modified contraindication from unconsiousness to any altered mental state.
Section 7-080 - Atropine (Sal-Tropine)	5/5/15	Added Physostigmine as antidote.
	6/1/15	Added incidation for Protocol 6-025 - Cardiopulmonary Resuscitation (CPR).
Section 7-090 - Benadryl (Diphenhydramine)	5/5/15	Added Physostigmine as antidote.
Section 7-120 - Cardizem (Diltiazem)	6/8/15	Added quick reference dosage chart.
Section 7-170 - Dopamine (Intropin)	6/8/15	Added quick reference dosage chart.
Section 7-230 - Fentanyl (Sublimaze)	10/21/15	Added comment that rigid chest syndrome precaution usually occurs with doses greater than 200 mcg.
	11/17/15	Added comment for maximum single dose to be 50 mcg for adults. Clarified over 65 yr old dosage is 25-50 mcg with a max dose of 150 mcg.
Section 7-320 - Ipratropium (Atrovent)	5/5/15	Added Physostigmine as antidote.
Section 7-330 - Ketamine (Ketalar)	8/6/15	Removed pediatric dosages. Added analgesic vs. dissociative doses. Reduced dissociative dosages. Added comment to half the dose if age over 65 yr.
Section 7-370 - Lidocaine (Xylocaine)	6/1/15	Added indication for Protocol 6-110 - Rapid Sequence Intubation (RSI).
	6/8/15	Added quick reference dosage chart.
Section 7-390 - Morphine	10/21/15	Added 1-2 minute onset time.
Section 7-400 - Narcan (Naloxone)	6/1/15	Added indication for Protocol 6-025 - Cardiopulmonary Resuscitation (CPR).
Section 7-420 - Nitroglycerin (Nitrostat, Nitolingual, Tridil)	6/8/15	Added quick reference dosage chart.
Section 7-575 - Toradol (Ketorolac)	9/16/15	Corrected misspelling of Ketorolac.
Section 7-578 - TXA (Tranexamic Acid)	12/29/14	Added protocol.
	5/31/15	Added content.
	8/6/15	Added colorblindness contraindication. Added precaution for rapid infusion. Added requirement to transport to LI, LII, or LIII trauma center.
Section 8-001 - Equipment Currently on Ambulances	5/31/15	Added this section to meet state requirements for medical director approval of what equipment are currently carried on ambulances.
Section 8-070 - Cricothyrotomy Kit	9/16/15	Added comment that surgical cric must have physician orders.
Section 8-075 - Decompression Needle	6/1/15	Added indication for Protocol 6-085 - High-Threat Response.
Section 8-080 - Endotracheal Tube (ET)	6/1/15	Added indication for Protocol 6-085 - High-Threat Response.
Section 8-110 - Gastric Tube	6/1/15	Added indication for Section 8-170 - Laryngeal Mask Airway (LMA) Supreme.
Section 8-120 - Glucometer	6/1/15	Added incidation for Protocol 6-025 - Cardiopulmonary Resuscitation (CPR).
Section 8-125 - Hemostatic Agent	12/29/14	Added this protocol.
	5/31/15	Added content.
Section 8-160 - King LTSD Airway	5/5/15	Added mandatory statement for inserting gastric tube for confirmation.
Section 8-170 - Laryngeal Mask Airway (LMA) Supreme	5/5/15	Updated this protocol from basic LMA to LMA supreme with specific procedure from manufacturer and included mandatory statement for gastric tube similar to King airway.
	6/1/15	Added indications in Protocol 6-025 - Cardiopulmonary Resuscitation (CPR), Protocol 6-110 - Rapid Sequence Intubation (RSI), and Section 8-080 - Endotracheal Tube (ET).
Section 8-190 - LifePak	6/1/15	Added indications for Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) in defibrillation and pacing.
	11/17/15	Added comment to consider biphasic energy doses.
Section 8-375	11/17/15	Removed this section due to removing tablets from ambulances.

Protocol	Date	Version 5 changes description
Tablet		
Section 8-380 - Thermometer	11/29/15	Added a lot of content based on manufacturer documentation.
Section 8-390 - Tourniquet	6/1/15	Added indication for Protocol 6-085 - High-Threat Response.
Section 9-020 - Change Log	5/8/15	Reduced the text size to shorten this section.
Section 9-030 - Subject Matter Experts	11/17/15	Removed this section.

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.

Section 9-040 - Index

Section 9-050 - Glossary of Abbreviations

ABC - Airway, Breathing, Circulation.
AC - Antecubital space for IV access. Interior of elbow.
ACLS - Advanced Cardiac Life Support.
ADLS - Advanced Disaster Life Support.
AED - Automated External Defibrillator.
A-Fib - Atrial Fibrillation.
ALOC - Altered Level Of Consciousness.
ALS - Advanced Life Support. Usually provided by paramedics and RNs.
AOTB - Smell of Alcohol On The Breath.
APGAR - Activity, Pulse, Grimace, Appearance, and Respiration. Assessment tool for newborns.
ATLS - Advanced Trauma Life Support.
AVPU - Level of consciousness measurement meaning Alert, Verbal, Painful, Unresponsive.
BCFD - Bolivar City Fire Department.
BDLS - Basic Disaster Life Support.
BLS - Basic Life Support. Usually provided by EMRs and EMTs.
BP - Blood Pressure.
BSA - Body Surface Area. Percent of skin usually used to measure burns.
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.
BTLS - Basic Trauma Life Support. See ITLS.
CAD - Coronary Artery Disease. OR Computer Aided Dispatch.
CAT - Computerized Axial Tomography scan.
CCR - Cardio Cerebral Resuscitation. Similar to CPR but through the use of compressions only.
CCSO - Cedar County Sheriff's Office. 9-1-1 PSAP.
CHF - Congestive Heart Failure.
CMH - Citizens Memorial Hospital.
CO - Carbon Monoxide.
CO_2 - Carbon Dioxide.
COPD - Chronic Obstructive Pulmonary Disease.
CPAP - Continuous Positive Airway Pressure.
CPR - Cardio Pulmonary Resuscitation.
CSR - Code of State Regulations.
CT - X-Ray Computed Tomography imaging.
CVA - Cardiovascular Accident. Stroke.
D10W - 10% Dextrose in Water.
D25W - 25% Dextrose in Water.
D50W - 50% Dextrose in Water.
D5W - 5% Dextrose in Water.
DAI - Drug Assisted Intubation. Similar to RSI.
dl - Deciliter. Measurement of volume.
DNR - Do Not Resuscitate. Legal document stating the patient's wishes if they are unable to communicate them.
ECG - See EKG.
ED - See ER.
EKG - Electrocardiogram. Measurement of the electrical activity of the heart using limb leads to produce the equivalent of a 6-Lead. Synonymous with ECG.
EMD - Emergency Medical Dispatcher.
EMH - Ellett Memorial Hospital.
EMR - Emergency Medical Responder. Also synonymous with MFR (Medical First Responder).
EMS - Emergency Medical Services. Usually associated with transport of sick or injured patients.
EMT - Emergency Medical Technician. Also synonymous with EMT-B (Emergency Medical Technician - Basic).
ePCR - Electronic Patient Care Report.
Epi - Epinephrine.
ER - Emergency Room. Also known as ED (Emergency Department).
ET - Endotracheal Tube.
$ETCO_2$ - End-Tidal Carbon Dioxide. Level of CO_2 exhaled. Also known as capnography.
ETOH - Alcohol.
ETT - Endotracheal Tube.
F - Fahrenheit. Measurement of temperature.
g - Gram. Measurement of mass.
GCS - Glasgow Comma Scale.
GI - Gastrointestinal.
gm - Gram. See g.
HR - Heart Rate. Beats per minute.
IAEMD - International Academies of Emergency Medical Dispatch.
ICU - Intensive Care Unit.
IDLH - Immediately Dangerous to Life and Health.
IM - Intramuscular. Medication access through muscle.
IN - Intranasal. Medication access through capillaries of the nose.
IO - Intraosseous. Medication access through a bone.
ITLS - International Trauma Life Support.
IV - Intravenous. Medication access through a vein.
J - Joules. Measurement of energy.
KED - Kendrick Extrication Device.
kg - Kilogram. Measurement of mass.
L - Liter. Measurement of volume.
LBBB - Left Bundle Branch Block.
LEO - Law Enforcement Officer. See TES.
LMA - Laryngeal Mask Airway.
LOC - Level of Consciousness.
LR - Lactated Ringers.
MAP - Mean Arterial Pressure.
max - Maximum.
mcg - Microgram. Measurement of mass.
MD - Medical Doctor.
mEq - Milliequivalent. Measurement of medication.
MFPD - Morrisville Fire Protection District.
MFR - See EMR.
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.

MPDS - Medical Priority Dispatch System.
mph - Miles Per Hour. Measurement of speed.
MS - Medical Surgery (Med-Surg) Unit.
MV - Mircovolt.
NCN - No Care Needed.
neb - Nebulized. Medication access through the lungs and airway passages.
NIH - National Institute of Health.
NIHSS - National Institute of Health Stroke Screen.
NOI - Nature of Illness.
NPA - Nasopharyngeal Airway.
NS - Normal Saline.
OB - Obstetrics.
OPA - Oropharyngeal Airway.
PCCD - Polk County Central Dispatch. 9-1-1 PSAP.
PCR - Patient Care Report.
PEA - Pulseless Electrical Activity. Electrical activity is seen on the EKG but not enough mechanical activity of the heart to produce a pulse.
PHS - Pre-Hospital Services. See EMS.
PO - Medication access through ingestion in the stomach.
PPE - Personal Protective Equipment. May include contact precautions such as gloves, thermal protection such as firefighting gear, or respiratory protection such as SCBA.
PRC - Patient Refusal of Care.
PSAP - Public Safety Answering Point.
QR - Quick Response code. Type of barcode.
QRS - Ventricular depolarization electrical activity of the heart that includes the Q-wave, R-wave, and S-wave.
QT - Portion of the EKG that is measured between the Q-wave and the T-wave.
RBBB - Right Bundle Branch Block.
RN - Registered Nurse.
RR - Portion of the EKG that is measured from R-wave to R-wave. One beat.
RSI - Rapid Sequence Intubation.
RTF - Rescue Task Force.
SAMPLE - Signs/Symptoms, Allergies, Medications, Past Pertinent history, Last oral intake, Events leading up to the current condition. Assessment tool.
SBP - Systolic Blood Pressure. Top number in a blood pressure measurement. Measures the contraction of the heart.
SCBA - Self-Contained Breathing Apparatus.
SL - Sub Lingual. Medication access through capillaries of the mouth under the tongue.
SME - Subject Matter Expert.
SMR - Spinal Motion Restriction. Usually involve a c-collar and possible a backboard.
SpO_2 - Saturation of Peripheral Oxygen. Percent of hemoglobin saturated (usually saturated by Oxygen).
SQ - Subcutaneous. Medication access through fatty later between skin and muscle.
STEMI - ST-segment Elevated Myocardial Infarction. Also known as a heart attack that can be seen on an EKG.
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.
TXA - Tranexamic Acid.
VA - Veterans Administration.
VF - See V-Fib.
V-Fib - Ventricular Fibrillation.
VT - See V-Tach.
V-Tach - Ventricular Tachycardia.
WBC - White Blood Count.
WPW - Wolff Parkinson White. Specific EKG interpretation.
yr - Year. Measurement of time.
yrs - Years. Measurement of time.