Citizens Memorial Hospital EMS Protocols

Part 0 - Front Matter

Version Number: 4

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EMS Clinical Officer: Digitally signed by Theron Becker Date: 2015.04.14 17:15:17 -05'00' (Theron Becker)

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

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

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.

Section 0-010 - Document Style Standards

- *Adult* or *Pediatric* orders.
- **Medication** or **Procedure** order.
- MEDICAL CONTROL order.
- Revisions to the current document that have yet to be approved.

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Section 0-020 - Table of Contents

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 - 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.
- [PENDING version 6 update (Tourniquet, Hemostatic, maintain temperature)].
- 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

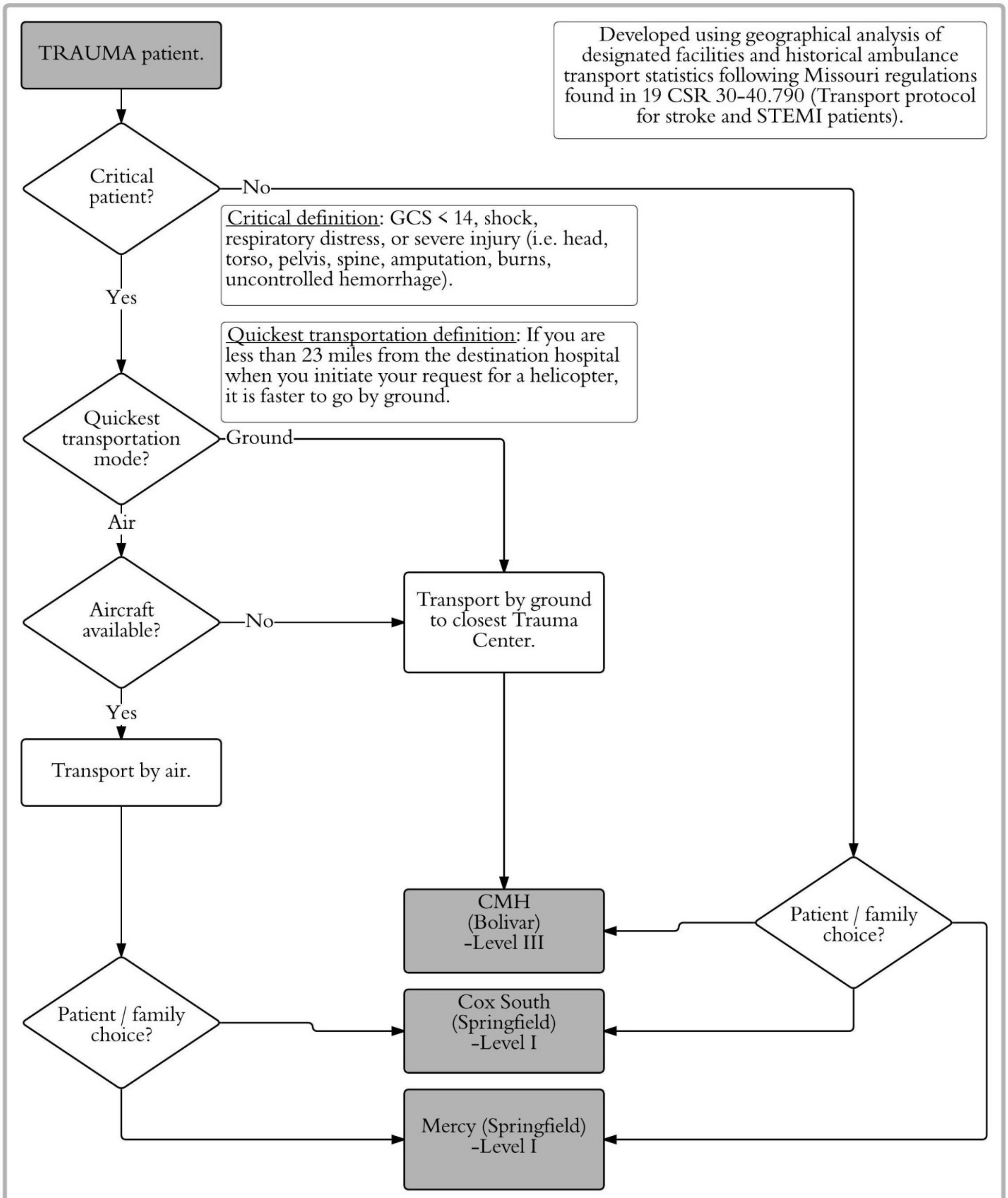
- Ensure completion of applicable EMR items above.
- No significant MOI:
  - Treatment decision (BLS/ALS).
- Transfer of patients meeting BLS criteria with the only exception of Heparin or Saline locked IV may be transported BLS.

ALS - 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 9).

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



Notes:
- These are guidelines only. Scene or patient conditions may influence an alternate destination determination.
- Patients have the right to refuse transport to the recommended destination. If the patient refuses recommended destination, document "transport/refused care" and have patient sign refusal.
- When initial transport from the scene would be prolonged, the patient may be transported to the nearest appropriate facility for stabilization.

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Part 2 - Cardiac Protocols

Protocol 2-010 - Asystole

BLS - EMR

- Confirm pulselessness and apnea.
- Attempt to determine down-time, history, and DNR status.
- Begin **CPR**.
  - Push hard and fast at 100/min.
  - Minimize compression interruptions.
  - Rotate compressors every 2 minutes at rhythm check.
- 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.
- Monitor pulseoximetry.
- Apply cardiac monitor **Combo Pads** and limb leads.
- [PENDING version 5 update (CPR)].

BLS - EMT

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

ALS - Paramedic

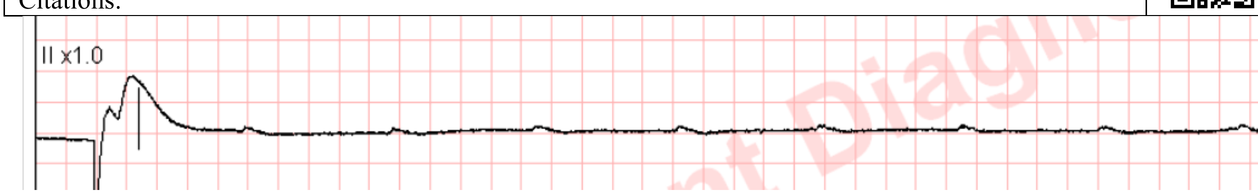
- Ensure completion of all applicable BLS items on the left.
- Confirm in 2 leads.
- Consider **Intubation**.
- IV/IO **NS**.

- *Adult*:
  - Consider **Pacing**.
  - **Epinephrine 1:10,000** 1 mg IV/IO every 3-5 min.
  - Consider **Atropine** 1 mg IV/IO every 3-5 min (max 3 mg).
  - Consider **Sodium Bicarbonate** 1 mEq/kg IV/IO every 10 min (ensure adequate ventilations)

- *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 130: Apply **Combo Pads** anterior / posterior.

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

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

- ✱ Monitor pulseoximetry.
- ✱ Obtain vital signs.

BLS - EMT

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

ALS - Paramedic

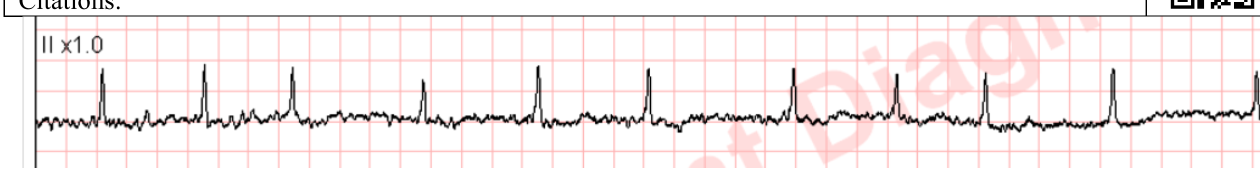
- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ Obtain **12-Lead EKG**.
- ✱ IV/IO **NS**.

- ✱ *Adult*: Rate greater than 130:
  - ✱ 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.
- Confirm pulselessness and apnea.
- Attempt to determine down-time, history, and DNR status.
- 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.
- Apply cardiac monitor (in **AED** mode) **Combo Pads**.
  - Press **ANALYZE** and clear patient.
  - Shock indicated: clear and **SHOCK**. Continue compressions while charging.
- Monitor pulseoximetry.
- [PENDING version 5 update (CPR)].

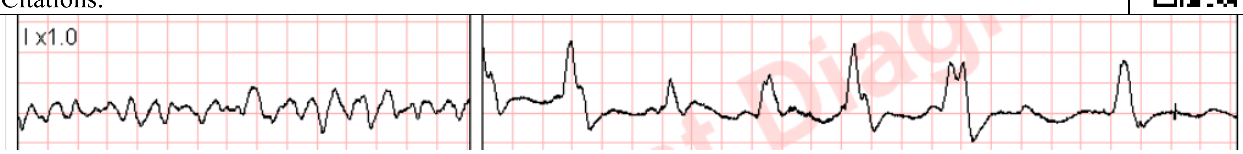
BLS - EMT

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

ALS - Paramedic

- Ensure completion of all applicable BLS items on the left.
- 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 60: **Ventilate**. Initiate Chest compressions if ventilation does not raise HR above 60.

- Monitor pulseoximetry.
- Obtain vital signs.

BLS - EMT

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

ALS - Paramedic

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

- *Adult*: Rate less than 60 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.

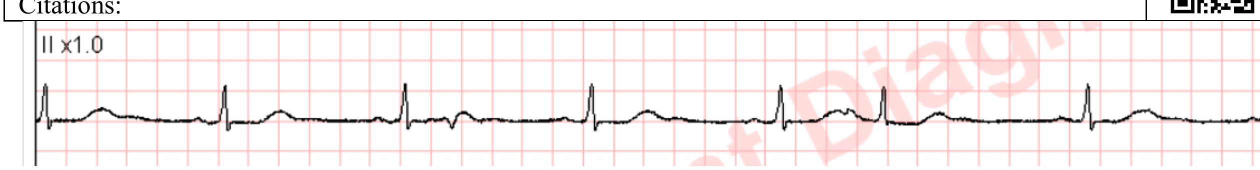
- *Pediatric*: Rate less than 60 and symptomatic:
  - **Epinephrine 1:10,000** 0.01 mg/kg IV/IO repeat every 3-5 min.
  - **Atropine** 0.02 mg/kg IV/IO may repeat once (min 0.1 mg) (max 0.5 mg).
  - Consider **Pacing** at age appropriate rate:

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.

BLS - EMT

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

- *Adult*: **Aspirin** 324 mg (4 chewable tablets) within 5 minutes of patient contact.

ALS - Paramedic

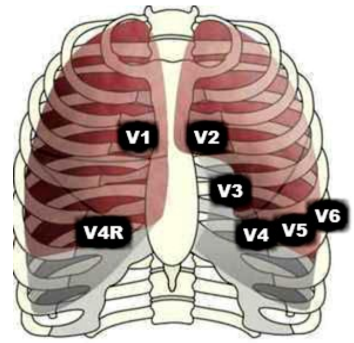
- Ensure completion of all applicable BLS items on the left.
- IV/IO **NS**. Preferred left AC (not distal of right AC). Use pigtail extension.
- Obtain **12-Lead EKG** within 10 minutes of patient contact.
  - **15-Lead EKG** indicated when: normal EKG, inferior MI, ST depression in V-leads.
  - STEMI (ST elevation greater than 0.1 MV in at least 2 contiguous leads OR new LBBB):
    - Begin transport and 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).
      - Utilize Section 8-375 - Tablet (page 182) if possible.
      - If CMH, email to **ekg_hospital@citizensmemorial.com**.

- *Adult*:
  - Inferior MI (ST elevation in II, III, aVF):
    - Pulmonary edema: Refer to Protocol 4-070 - Congestive Heart Failure (CHF) (page 41).
    - **NS** 250 ml fluid bolus. Repeat as long as no pulmonary edema.
    - Contact **MEDICAL CONTROL**:
      - SBP greater than 120: Consider **Nitroglycerin** 0.4 mg SL (1 spray or 1 tablet). Every 5 min until no Pain or SBP less than 90.
      - Consider **Nitroglycerin** initiate at 10 mcg/min IV/IO titrated to blood pressure and Pain.
  - Not Inferior MI AND 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.
    - Consider **Nitroglycerin** initiate at 10 mcg/min IV/IO titrated to blood pressure and Pain.
  - Nausea/Vomiting: See Protocol 6-040 - Control of Nausea (page 66).
  - Continued discomfort/pain: **Morphine** 2 mg IV/IO (max 10 mg). Maintain SBP greater than 100.
  - If Nitroglycerine and Morphine contraindicated: 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 17).

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

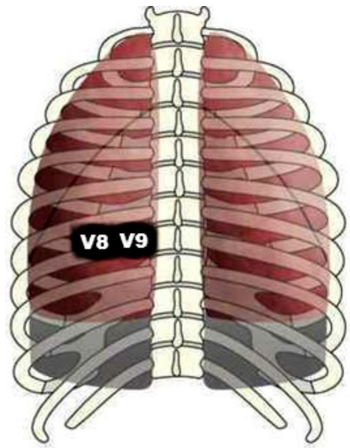


Check lead placement.

✱ 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**

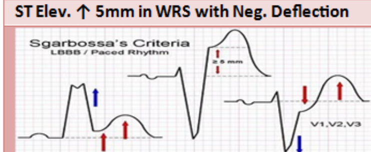
Sgarbossa Criteria (LBBB or Pacing):

✱ 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

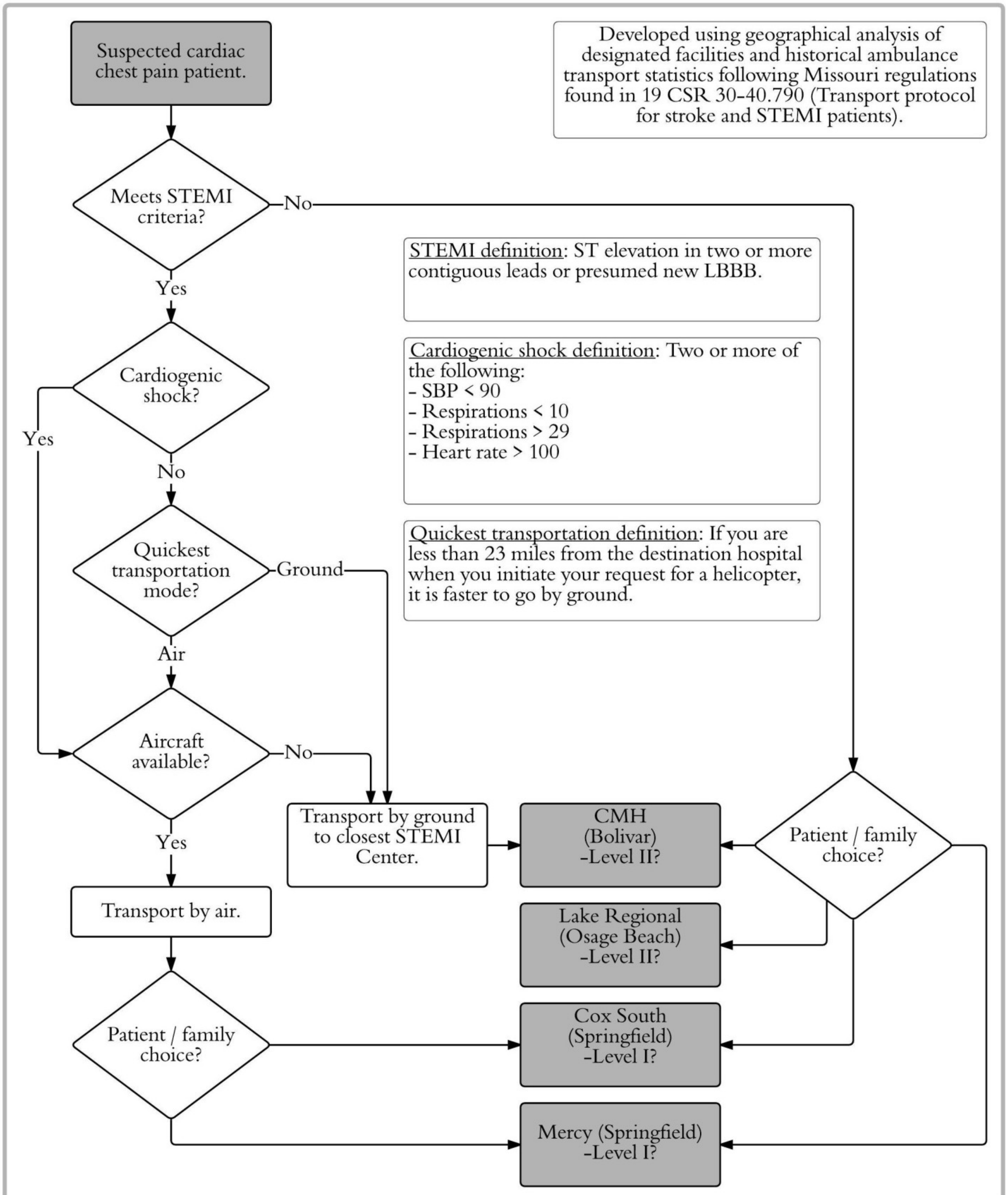
I Lateral • LAD & LCX Reciprocal : II , III , AVF	aVR	V1 Septal • LAD	V4 Anterior • LAD	V4R Right • RMA
II Inferior • RCA *Reciprocal :* I , aVL	aVL Lateral • LAD & LCX *Reciprocal :* II , III , AVF	V2 Septal • LAD	V5 Lateral • LAD & LCX *Reciprocal :* II , III , AVF	V8 Posterior • Post. branch of RCA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



Notes:
- These are guidelines only. Scene or patient conditions may influence an alternate destination determination.
- Patients have the right to refuse transport to the recommended destination. If the patient refuses recommended destination, document "transport/refused care" and have patient sign refusal.
- When initial transport from the scene would be prolonged, the patient may be transported to the nearest appropriate facility for stabilization.

Protocol 2-060 - Post Resuscitative Care

<u>BLS - EMR</u>

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

<u>BLS - EMT</u>

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

<u>ALS - Paramedic</u>

- ✱ 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**.

- ✱ *<u>Adult</u>*:
  - ✱ <u>Hypotension</u>: Assess lung sounds for pulmonary edema.
    - ✚ <u>Clear lung sounds</u>: **NS** 250-500 ml IV/IO.
    - ✚ <u>Pulmonary edema</u>: Consider **Dopamine** 5-20 mcg/kg/min IV/IO.
  - ✱ <u>Continued sedation</u>: **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).

- ✱ *<u>Pediatric</u>*:
  - ✱ <u>Hypotension</u>: Assess lung sounds for pulmonary edema.
    - ✚ <u>Clear lung sounds</u>: Consider 20 ml/kg **NS**.
    - ✚ <u>Pulmonary edema</u>: Contact **MEDICAL CONTROL: Dopamine** 5-20 mcg/kg/min IV/IO.
  - ✱ <u>Continued sedation</u>: **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.
- ✱ <u>[PENDING version 7 update (RSI)].</u>

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

Protocol 2-070 - Pulseless Electrical Activity (PEA)

BLS - EMR

- Confirm pulselessness and apnea.
- Attempt to determine down-time, history, and DNR status.
- Begin **CPR**.
  - Push hard and fast at 100/min.
  - Minimize compression interruptions.
  - Rotate compressors every 2 minutes at rhythm check.
- 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.
- Monitor pulseoximetry.
- Apply cardiac monitor **Combo Pads** and limb leads.
- [PENDING version 5 update (CPR)].

BLS - EMT

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

ALS - Paramedic

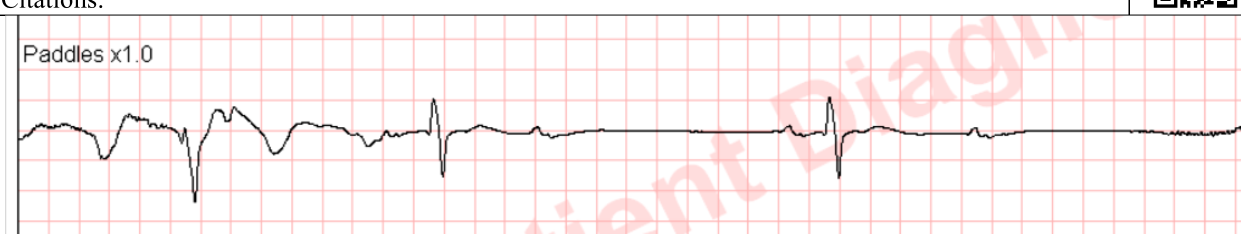
- Ensure completion of all applicable BLS items on the left.
- Consider **Intubation**.
- IV/IO **NS**.

- *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 - Paramedic

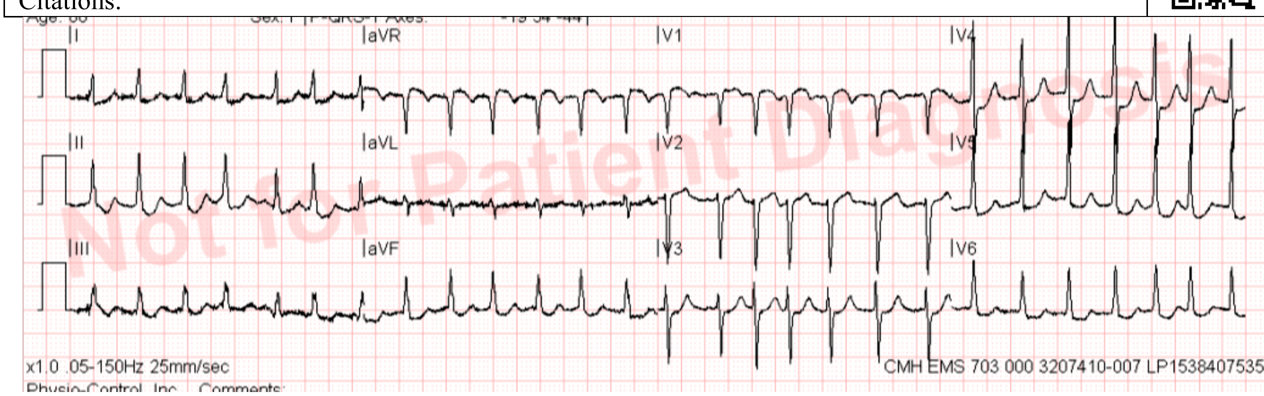
- Ensure completion of all applicable BLS items on the left.
- Obtain **12-Lead EKG**.
- **Vagal** maneuvers. (Contraindicated for CAD and stroke).
- IV/IO **NS**.

- *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 - Paramedic

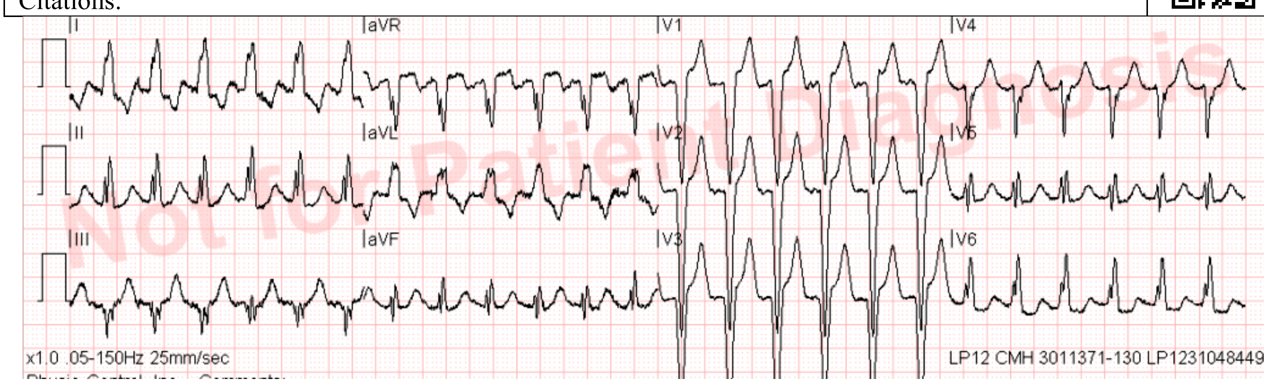
- Ensure completion of all applicable BLS items on the left.
- Obtain **12-Lead EKG**.
- IV/IO **NS**. Do not delay for IV if symptomatic.

- *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 - Paramedic

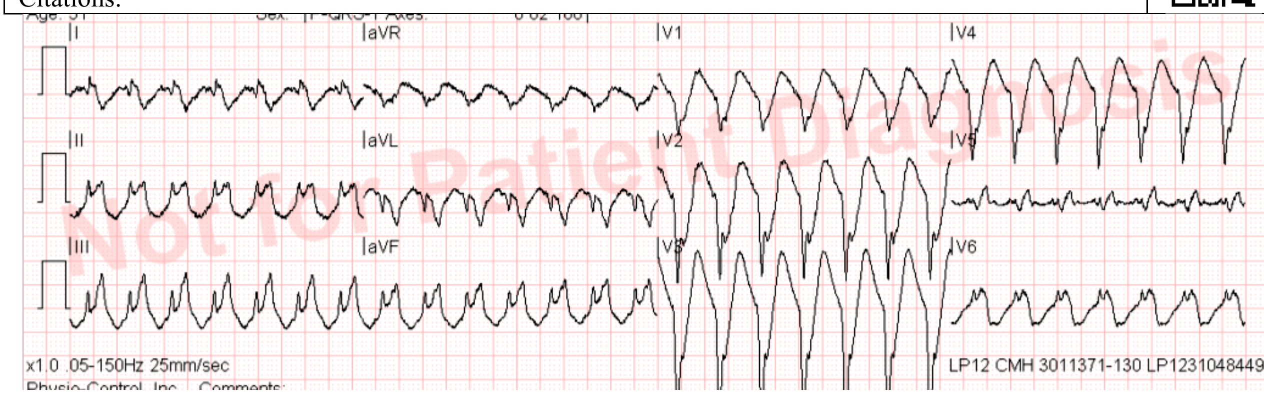
- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ Obtain **12-Lead EKG**.
- ✱ IV/IO **NS**.

- ✱ *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 - Paramedic

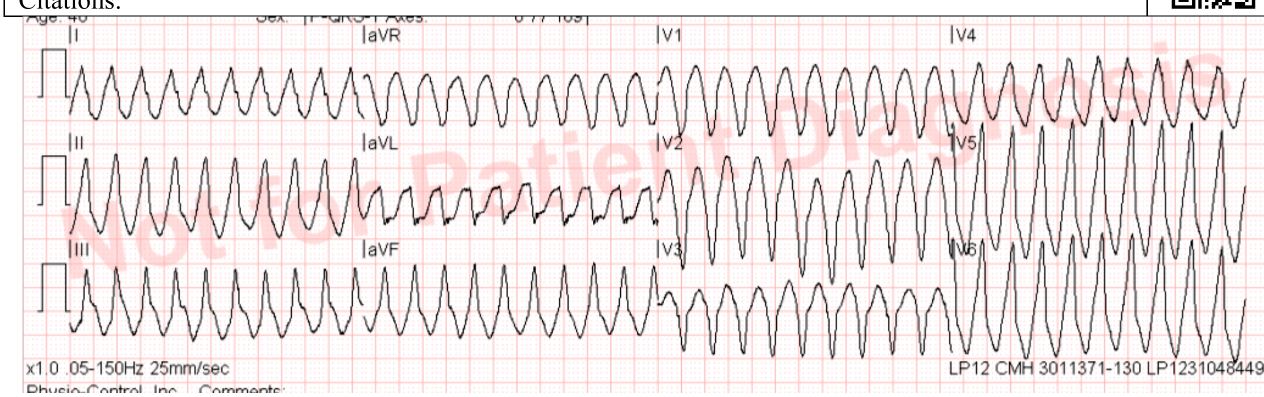
- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ Obtain **12-Lead EKG**.
- ✱ IV/IO **NS**. Do not delay for IV if symptomatic.

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

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

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

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



Protocol 2-120 - Torsades de Pointes

BLS - EMR

- Calm and reassure patient. Ensure patient does not exert themselves.
- **Oxygen** to maintain SpO_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 capnograpny.

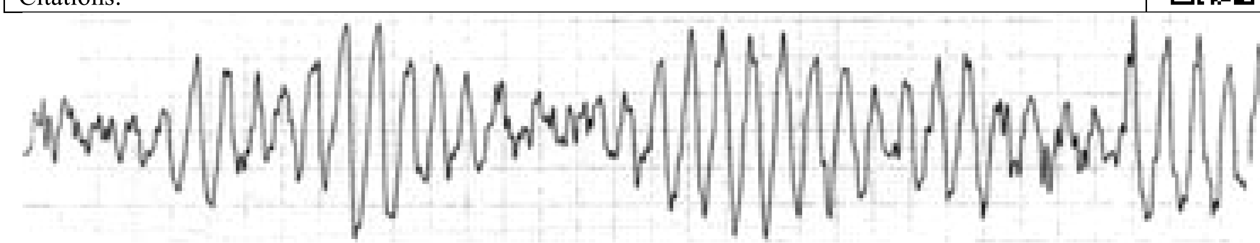
ALS - Paramedic

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

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

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

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



Protocol 2-130 - Ventricular Ectopy

BLS - EMR

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

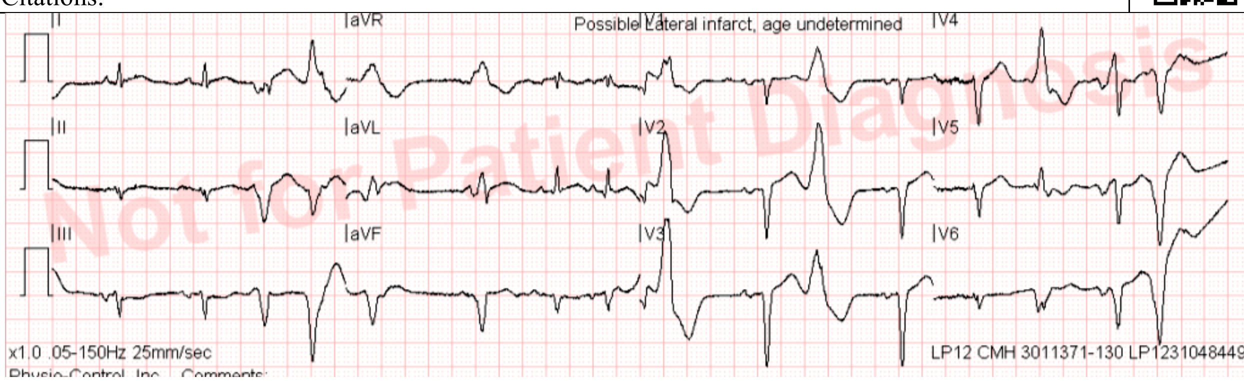
BLS - EMT

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

ALS - 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

- Confirm pulselessness and apnea.
- Attempt to determine down-time, history, and DNR status.
- Begin **CPR**.
  - Push hard and fast at 100/min.
  - Minimize compression interruptions.
  - Rotate compressors every 2 minutes at rhythm check.
- 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.
- Monitor pulseoximetry.
- Apply cardiac monitor **Combo Pads** and limb leads.
- [PENDING version 5 update (CPR)].

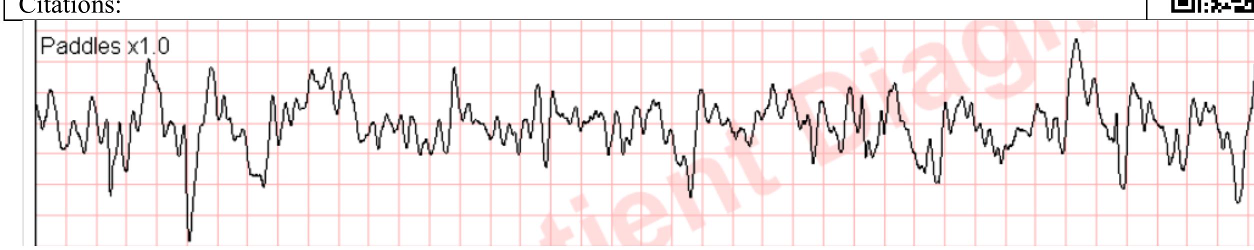
BLS - EMT

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

ALS - Paramedic

- Ensure completion of all applicable BLS items on the left.
- 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.
  - *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 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 24).
- *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 24).
- 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.

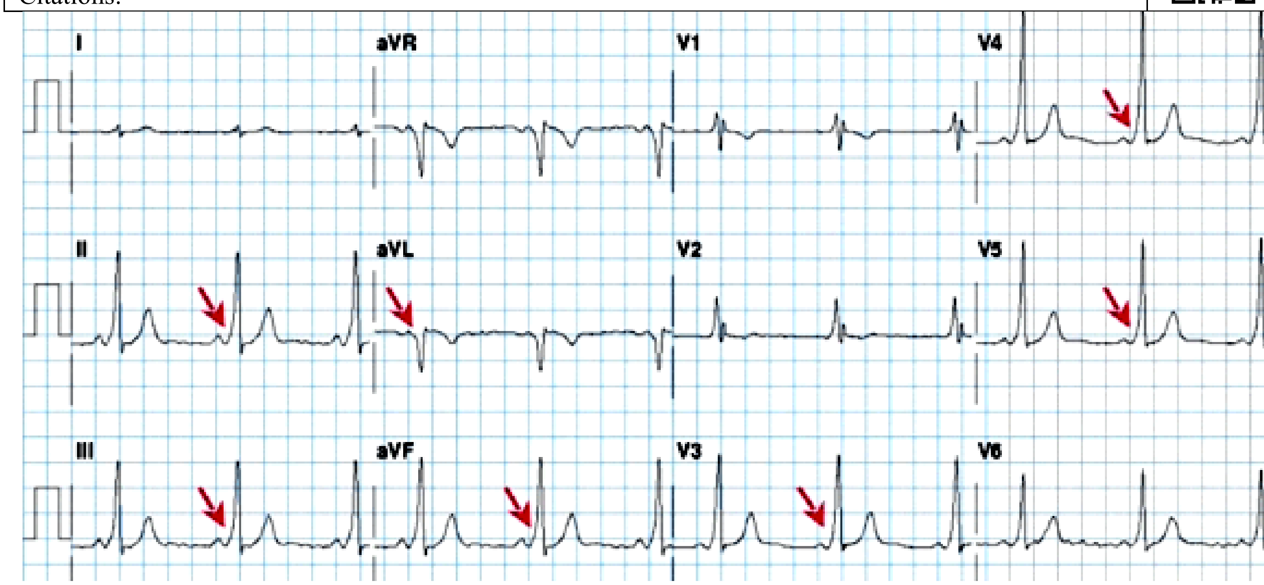
BLS - EMT

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

ALS - Paramedic

- ✱ 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.

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	ALS - Paramedic

✱ Remove from water.
✱ Open and maintain Airway.
  ✱ Be prepared to **Suction** Airway.
✱ Pulseless: 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.
  ✱ [PENDING version 5 update (CPR)].
✱ 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.
	✱ Ensure completion of all applicable BLS items on the left.
	✱ IV/IO warm **NS**.
	✱ Pulseless: *Adult*: V-Fib: **Defibrillation** 360 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.

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

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 - Paramedic

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

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

Heat Index Chart

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

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

Protocol 3-030 - Hypothermia

BLS - EMR

- Remove from exposure.
- Open and maintain Airway.
- Be prepared to **Suction** Airway.
- Pulseless: 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.
  - [PENDING version 5 update (CPR)].
- **Dry** and **warm** patient.
- Remove constricting or wet clothing and jewelry.
- Cover affected tissue with loose, dry, sterile dressing.
- Obtain core body temperature.
- Monitor pulseoximetry.
- Consider: Apply cardiac monitor limb leads.
- Consider: Apply **Combo Pads**.
- Obtain vital signs.
- Attempt to determine down-time, and history.

BLS - EMT

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

ALS - Paramedic

- Ensure completion of all applicable BLS items on the left.
- IV/IO warm **NS**.
- Consider **Intubation**.
- Pain: Refer to Protocol 6-050 - Control of Pain (page 67).
- Nausea: Refer to Protocol 6-040 - Control of Nausea (page 66).

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

Wind Chill Chart

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

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

Protocol 3-040 - Hypothermia Arrest

BLS - EMR

- ✱ Remove from exposure.
- ✱ Open and maintain Airway.
- ✱ Pulseless: 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.
  - ✱ [PENDING version 5 update (CPR)].
- ✱ **Dry** patient.
- ✱ **Warm** patient with blankets and warming packs in arm pits and groin.
- ✱ Obtain core body temperature.
- ✱ Monitor pulseoximetry.
- ✱ Apply cardiac monitor **Combo Pads** and limb leads.
- ✱ Obtain vital signs.
- ✱ Attempt to determine down-time, and history.

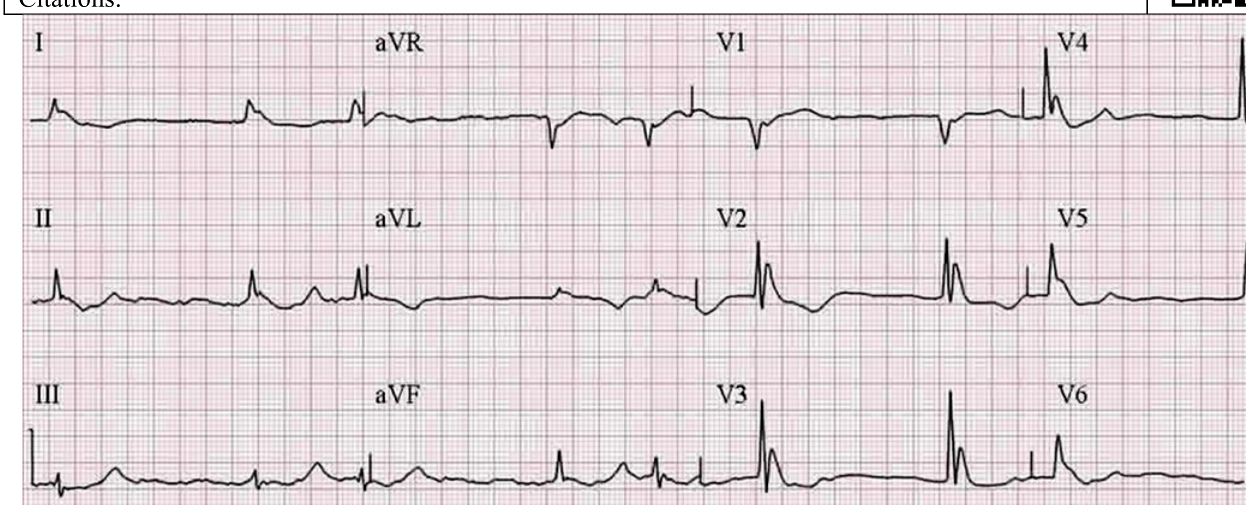
BLS - EMT

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

ALS - Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ V-Fib: **Defibrillation** once.
  - ✱ *Adult*: 360 J.
  - ✱ *Pediatric*: 2 J/kg.
- ✱ Consider **Intubation**.
- ✱ IV/IO warm **NS**.
- ✱ 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.

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

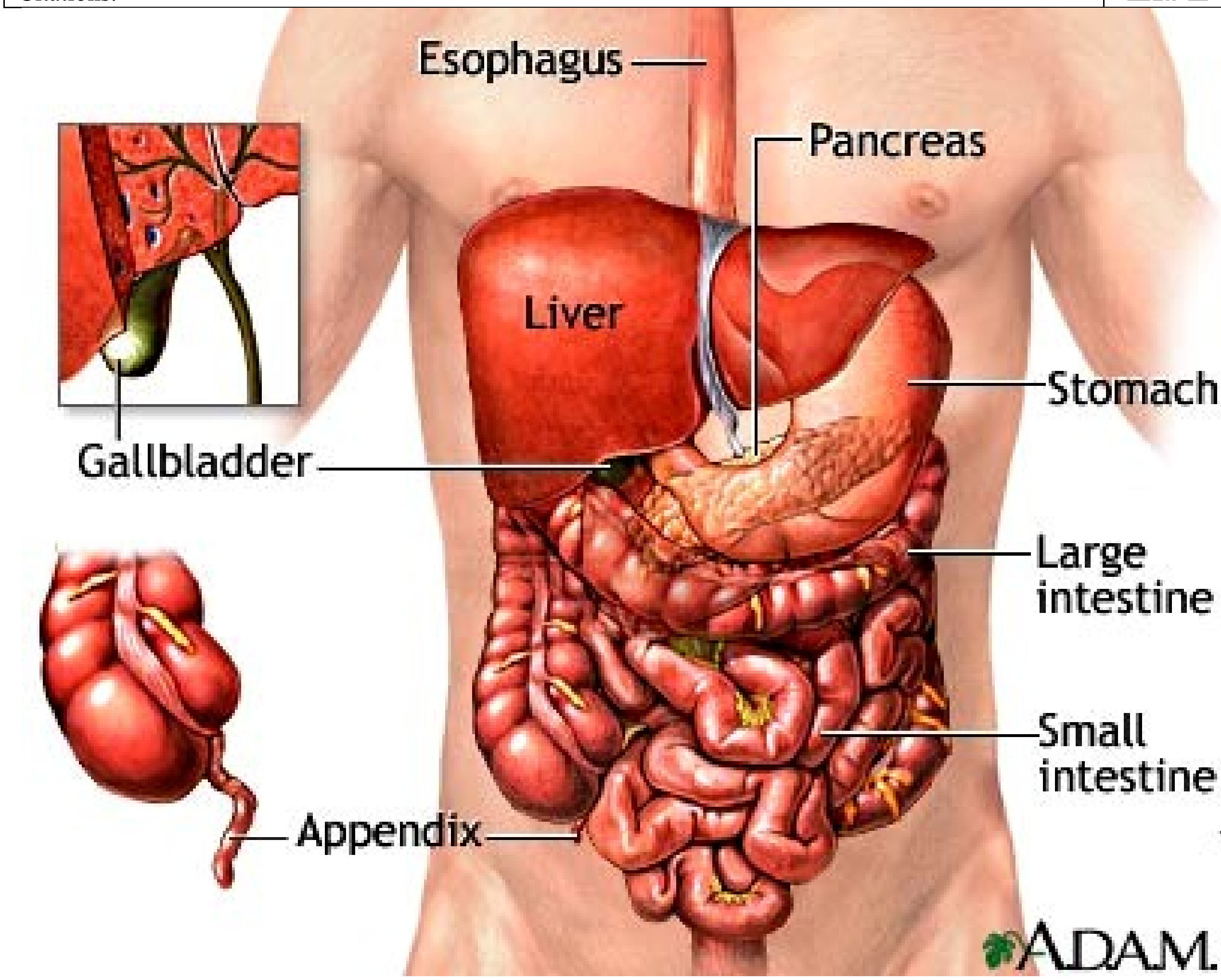


Part 4 - Medical Protocols

Protocol 4-010 - Abdominal Pain

BLS - EMR	ALS - Paramedic
✱ Consider **Oxygen** if SpO_2 less than 88%. ✱ Obtain vital signs. ✱ Monitor pulseoximetry. ✱ Apply cardiac monitor limb leads. ✱ Identify possible causes.	✱ Ensure completion of all applicable BLS items on the left. ✱ IV/IO **NS**. ✱ Refer to Protocol 6-050 - Control of Pain (page 67). ✱ Nausea: Refer to Protocol 6-040 - Control of Nausea (page 66).
BLS - EMT ✱ Ensure completion of applicable EMR items above.	

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



Protocol 4-020 - Anaphylaxis

BLS - EMR

- Remove allergen.
- Obtain vital signs.
- **Oxygen** to maintain SpO_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 Paramedic unavailable and difficulty breathing, trouble swallowing, or hypotensive:
  - **Epinephrine Auto-Injector**.
  - ALS unit should be en route.

ALS - Paramedic

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

- *Adult*:
  - Uncompensated shock: **Epinephrine 1:10,000** 0.3 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** 1.25 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 **Duoneb** Nebulized (max 1 dose). 0.25 mg **Ipratropium** + 1.5mg **Albuterol**.
    - Consider **Albuterol** 2.5 mg 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/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 - 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 100: Consider **Xopenex** 0.63-1.25 mg Nebulized.
  - ✱ Consider **Solu-Medrol** 125 mg IV/IO.
  - ✱ Decompensating: Consider **Decadron** 12 mg Nebulized (max 1 dose).
  - ✱ Consider **Epinephrine 1:1,000** 0.3-0.5 mg IM/SQ. Caution when greater than 55 yr old with cardiac history.
  - ✱ Contact **MEDICAL CONTROL** for: Consider **Magnesium Sulfate** 1-2 g IV/IO over 15-20 min.
  - ✱ Consider trial of **CPAP** Nebulized.

- ✱ *Pediatric*:
  - ✱ Consider **Duoneb**. 0.25 mg **Ipratropium** + 2.5 mg **Albuterol** Nebulized (max 1 dose).
  - ✱ Consider **Albuterol** 2.5mg in NS 3 ml Nebulized.
  - ✱ Greater than 6 yr old: Consider **Xopenex** 0.31-0.63 mg Nebulized.
  - ✱ Contact **MEDICAL CONTROL**:
    - ✚ Consider **Solu-Medrol** 1-2 mg/kg IV/IO.
    - ✚ Consider **Magnesium Sulfate** 25-50 mg/kg IV/IO in D5W over 15-20 min.

- ✱ Consider **Intubation** only as a last resort.

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

Protocol 4-040 - Behavioral

BLS - EMR

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

BLS - EMT

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

ALS - Paramedic

- Ensure completion of all applicable BLS items on the left.
- Mild (responds to verbal de-escalation): Contact **MEDICAL CONTROL** for:
  - *Adult*:
    - Anxiety:
      - Consider **Valium** 2 mg IV/IM.
      - Consider **Ativan** 2 mg IV/IO.
    - Agitation: Consider **Haldol** 2-5 mg IV/IM.
  - *Pediatric*: Anxiety:
    - Consider **Valium** 0.2 mg/kg IV/IM.
    - Consider **Ativan** 0.05 mg/kg (max 2 mg) IV/IO.
  - Transport in **position of comfort**.
- Moderate to severe (requires Restraint for crew/patient safety):
  - *Adult*:
    - **Physical Restraint**
      - Least restrictive: manual Restraint OR four-point soft Restraint.
      - If handcuffed by law enforcement, they must be present throughout entire transport.
    - Consider **Haldol** 5 mg IV/IM.
    - Consider **Valium** 2-5 mg IV/IM.
    - Consider **Ativan** 2 mg IV/IO.
    - Consider **Benadryl** 50 mg IV/IM.
    - [PENDING version 7 update (Ketamine)].
  - *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 38).
✱ **Oxygen** to maintain SpO_2 between 94-99%.
✱ Monitor pulseoximetry.
✱ Apply cardiac monitor limb leads.
✱ Obtain vital signs.
✱ Elevate Head of cot.

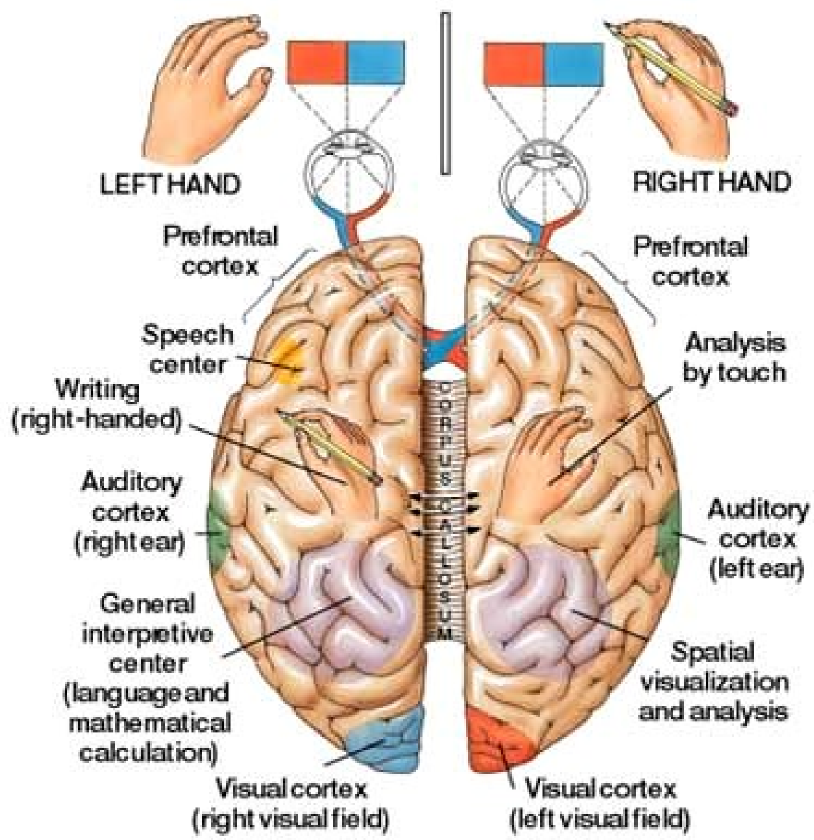
BLS - EMT

✱ Ensure completion of applicable EMR items above.
✱ Perform **Glucose check**.
  ✱ Glucose less than 70 mg/dl: Refer to Protocol 4-120 - Hypoglycemia (page 47).

ALS - Paramedic

✱ Ensure completion of all applicable BLS items on the left.
✱ IV/IO **NS**.
✱ Obtain **12-Lead EKG**.
✱ Obtain and record contact information for family and/or witness.
✱ Transport according to Section 4-052 - Stroke Destination Determination Flowchart (page 39).
✱ 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)



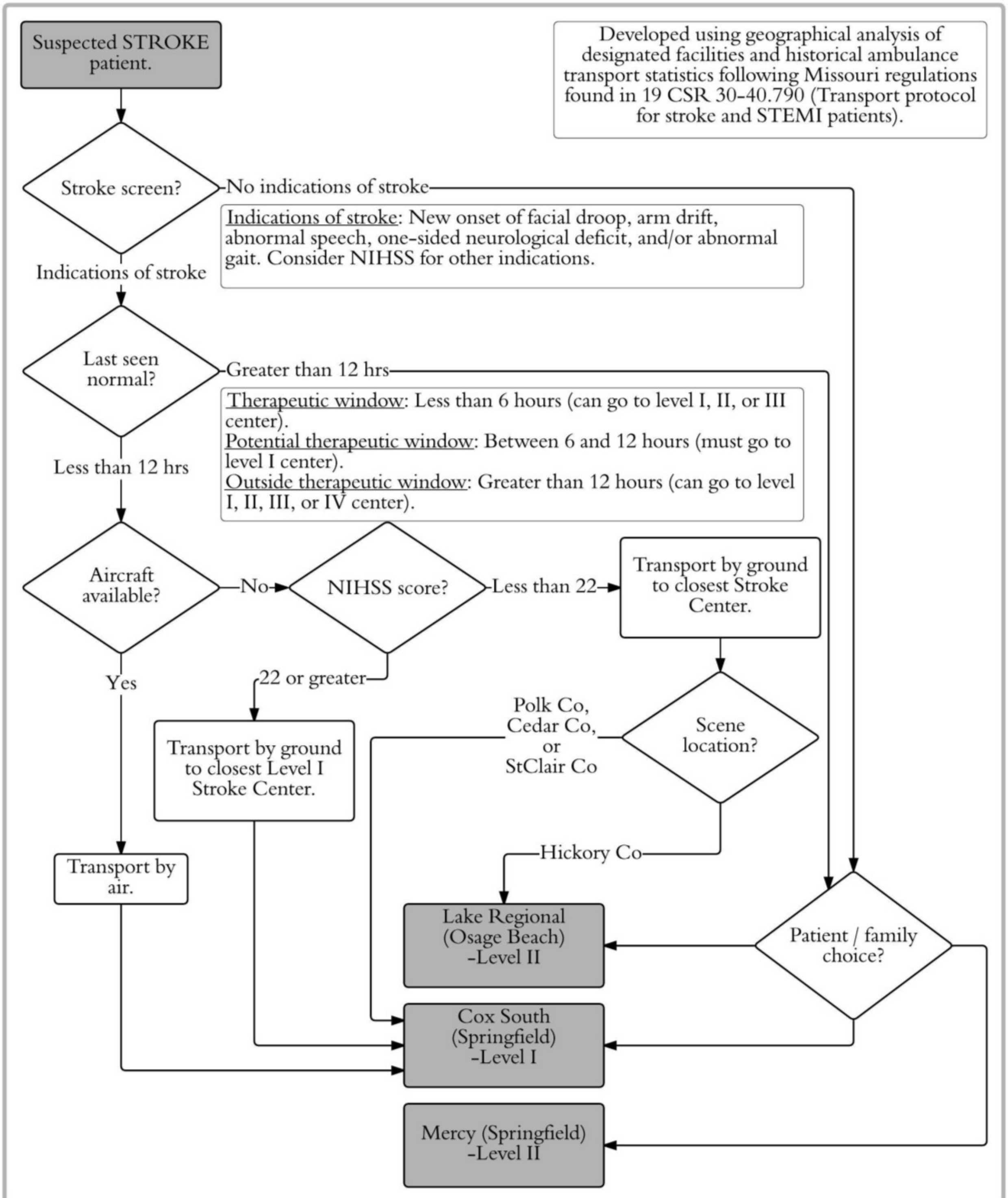
Section 4-051 - NIH Stroke Scale

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

<u>Total score less than **4**</u>: Favorable outcome with complete recovery is probable.
<u>Total score greater than **21**</u>: TPA will likely worsen the condition.

Section 4-052 - Stroke Destination Determination Flowchart



Notes:
- These are guidelines only. Scene or patient conditions may influence an alternate destination determination.
- Patients have the right to refuse transport to the recommended destination. If the patient refuses recommended destination, document "transport/refused care" and have patient sign refusal.
- When initial transport from the scene would be prolonged, the patient may be transported to the nearest appropriate facility for stabilization.

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.

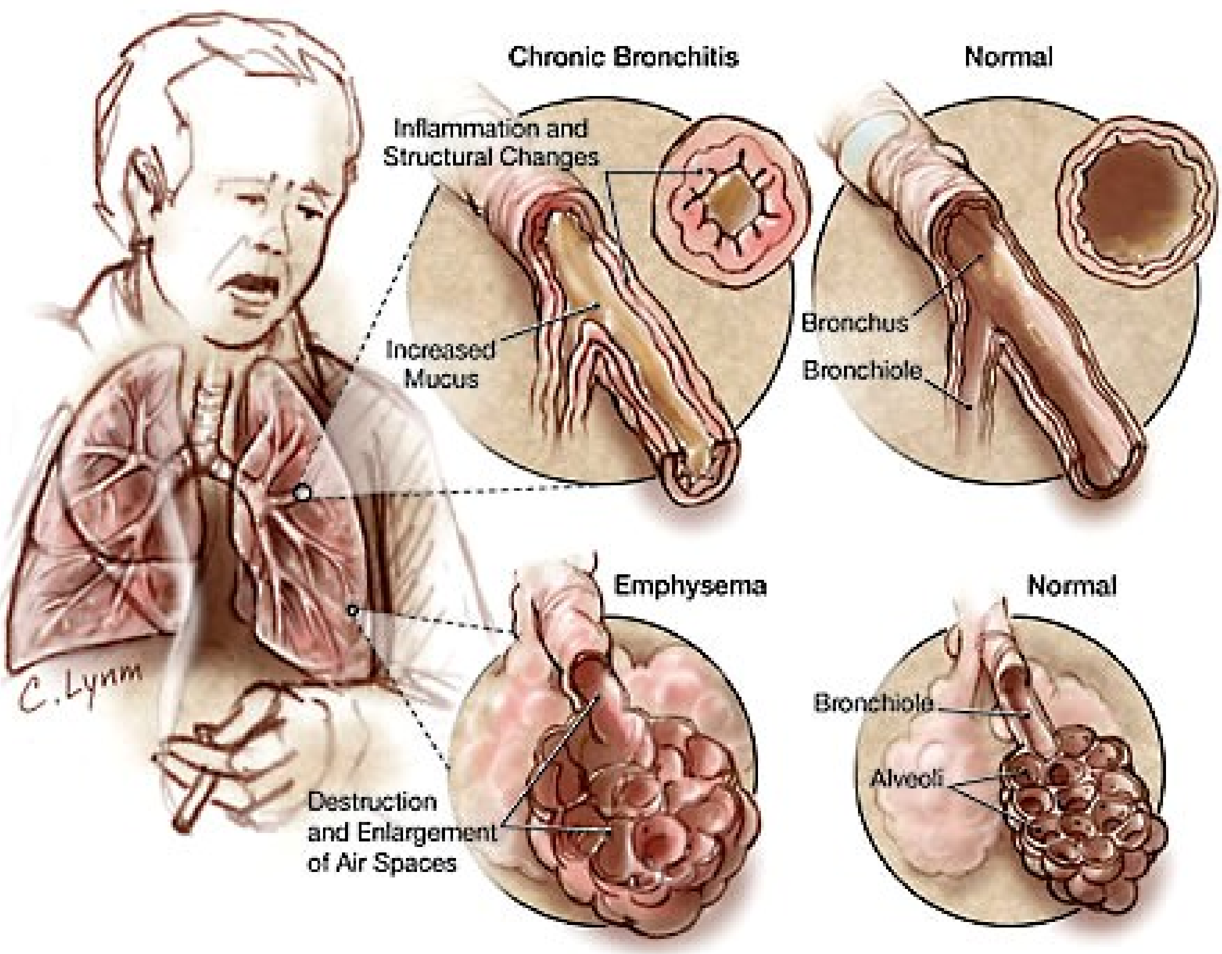
BLS - EMT

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

ALS - 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 - 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.

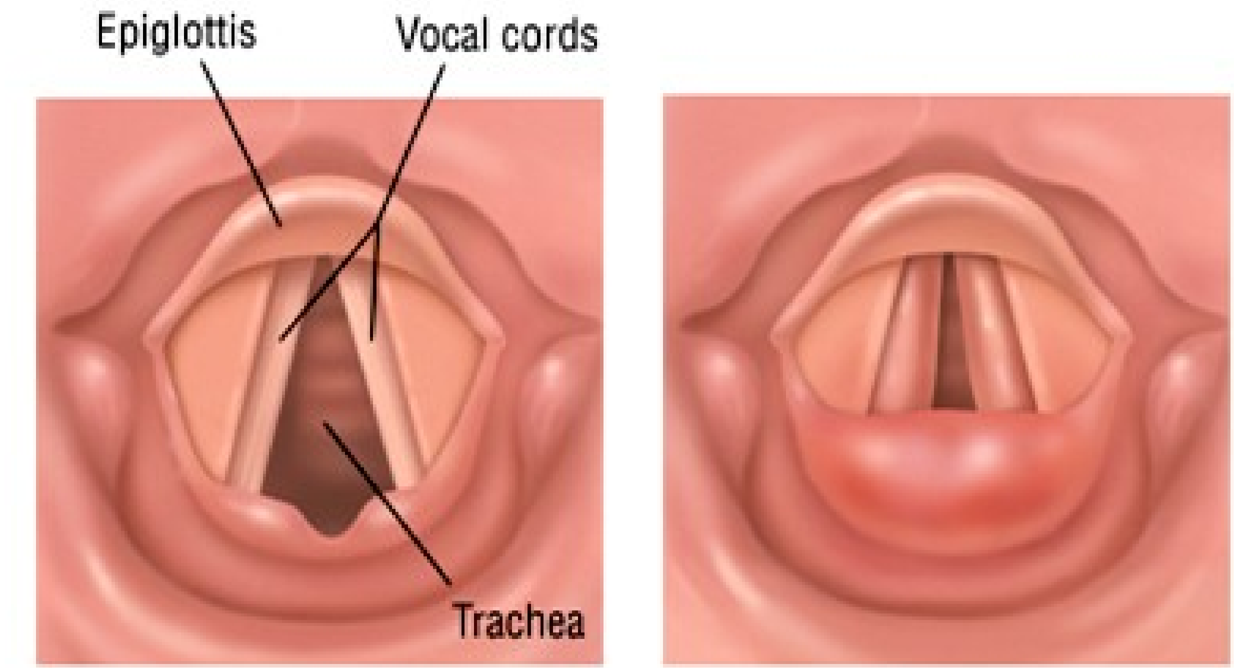
BLS - EMT

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

ALS - 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:



Normal larynx

Inflamed larynx

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 44) 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 44) 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.

BLS - EMT

- Ensure completion of applicable EMR items above.

ALS - Paramedic

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

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

Section 4-091 - APGAR Scoring System

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 - 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.
- Dim lights. Avoid loud noises and rough transport.
- Transport with Head slightly elevated.
- Pregnant:
  - Inspect for active bleeding / crowning. Determine amount of blood loss.
  - Consider transport in left lateral recumbent position to reduce risk of Vena Cava compression.

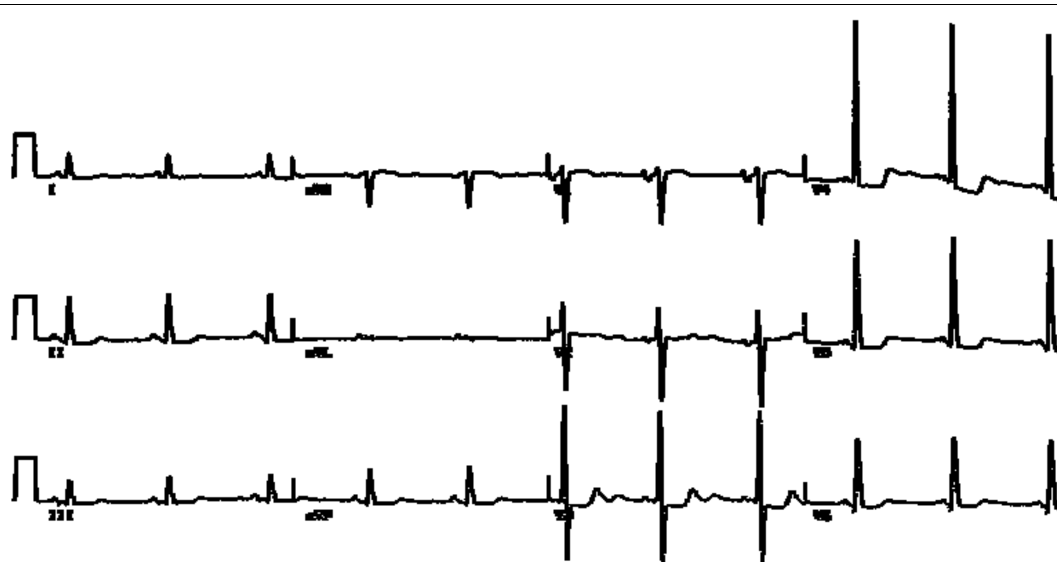
BLS - EMT

- Ensure completion of applicable EMR items above.

ALS - Paramedic

- Ensure completion of all applicable BLS items on the left.
- IV/IO **NS**.
- Diastolic greater than 115 with Nausea, ALOC, blurred vision, Headache, or Chest Pain: Contact **MEDICAL CONTROL** for:
  - *Adult*:
    - Consider **Labetalol** 20 mg over 2 min IV/IO.
    - Consider **Hydralazine** 10-20 mg IV/IO/IM.
    - Consider **Nitroglycerin** sublingual.
    - Consider **Nitroglycerin** drip IV/IO.
  - *Pediatric*:
    - Consider **Labetalol** 0.4-1 mg/kg/hr IV/IO.
    - Consider **Hydralazine** 0.1-0.2 mg/kg (max 20 mg) IV/IO/IM.
- Pregnant:
  - Actively seizing: **Magnesium Sulfate** 4 g IM/IV/IO (IV/IO over 5 min) and refer to Protocol 4-170 - Seizures (page 51).
  - Contact **MEDICAL CONTROL** for:
    - Consider **Magnesium Sulfate** 4-6 g IV/IO over 20 min or 2 g/hr.
    - Consider **Labetalol** 20 mg IV/IO over 2 min.
    - Consider **Hydralazine** 10-20 mg IV/IO/IM.
- Do not reduce Mean Arterial Pressure (MAP) lower than 20% of the original.
  - $(MAP) = (Diastolic) + \frac{(Systolic) - (Diastolic)}{3}$

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



Protocol 4-120 - Hypoglycemia

BLS - EMR

- Identify possible causes.
- Consider **Oxygen** if SpO_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 - 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:
  - 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 47).

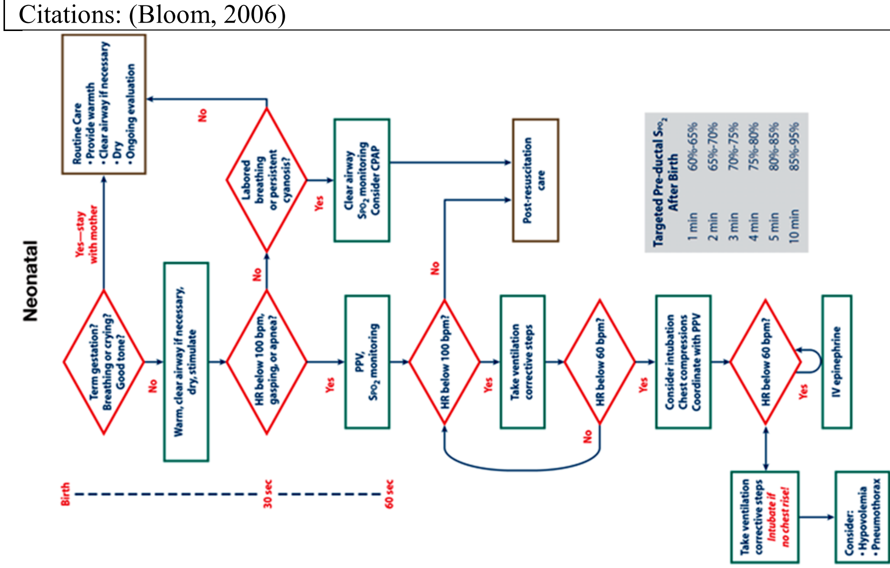
ALS - Paramedic

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

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

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

Link to research articles (QR code on right): http://1drv.ms/1ADyEyd
Citations: (Bloom, 2006)



Protocol 4-140 - Poisoning or Overdose

BLS - EMR

- Consider hazmat. Refer to Protocol 6-055 - Decontamination (page 68).
- 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 47).

ALS - Paramedic

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

- Beta-Blocker Overdose:
  - Refer to Protocol 2-040 - Bradycardia (page 14)..
  - 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 36).

- Narcotic Overdose:
  - *Adult*: **Narcan** 2 mg given at 0.4 mg increments to maintain Airway 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 51) (**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), (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 - 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 47).

ALS - Paramedic

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

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

Protocol 4-180 - Vaginal Bleeding

BLS - EMR

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

BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

ALS - Paramedic

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

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

Part 5 - Trauma Protocols

Protocol 5-020 - Abdominal Trauma

BLS - EMR

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

BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

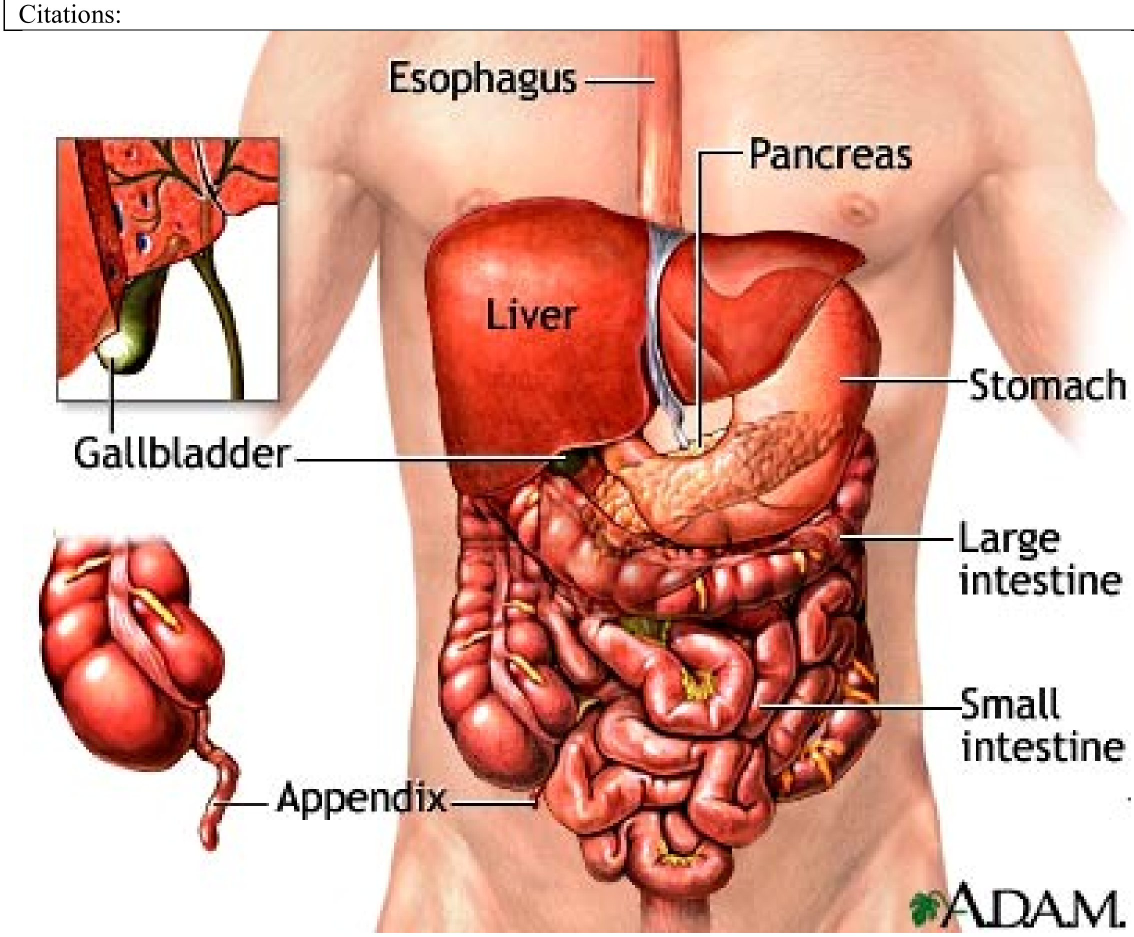
ALS - Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ IV/IO **LR** titrated to SBP greater than 80.
- ✱ **Intubate** as necessary.
- ✱ Pain: Refer to Protocol 6-050 - Control of Pain (page 67).
- ✱ Nausea: Refer to Protocol 6-040 - Control of Nausea (page 66).

- ✱ *Adult*:
  - ✱ [PENDING version 6 update (TXA)].

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

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



Protocol 5-030 - Burns

BLS - EMR

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

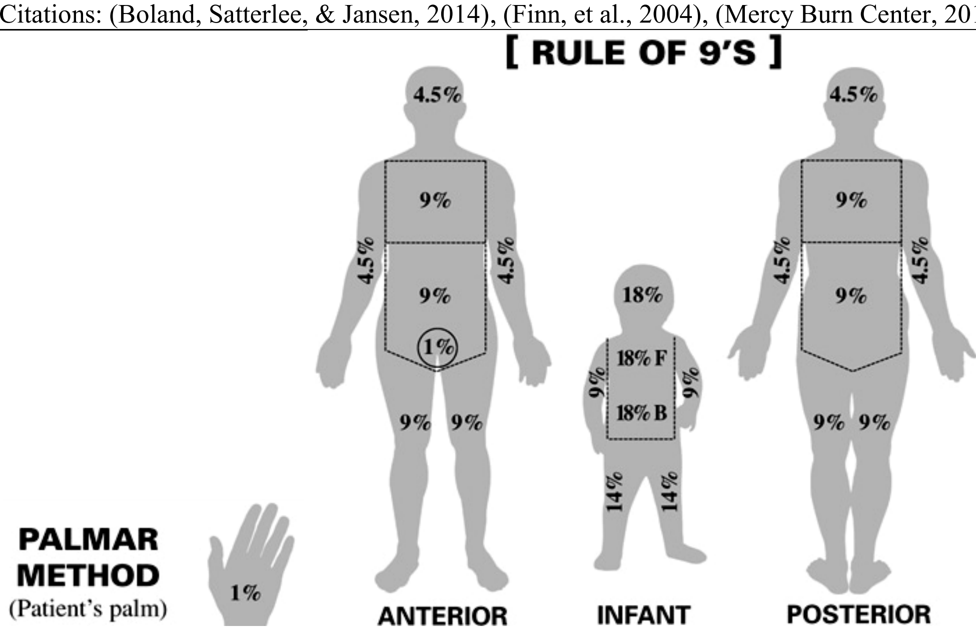
BLS - EMT

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

ALS - Paramedic

- Ensure completion of all applicable BLS items on the left.
- IV/IO **LR** titrated to SBP greater than 90.
  - *Adult(greater than 13 yr)*: 500 ml/hr.
  - *Pediatric(6-13 yr)*: 250 ml/hr.
  - *Pediatric (less than 6 yr)*: 125 ml/hr.
- **Intubate** as necessary.
  - [PENDING version 7 update (RSI)].
  - Be alert for Airway Burns.
  - King Airway contraindicated
  - ET 7.5 or larger desired.
- Pain: Refer to Protocol 6-050 - Control of Pain (page 67).
- Nausea: Refer to Protocol 6-040 - Control of Nausea (page 66).
- Smoke inhalation with altered mental status: Refer to Protocol 4-140 - Poisoning or Overdose (page 49).

Link to research articles (QR code on right): http://1drv.ms/1EKDuAb
Citations: (Boland, Satterlee, & Jansen, 2014), (Finn, et al., 2004), (Mercy Burn Center, 2014)



Protocol 5-040 - Chest Trauma

BLS - EMR

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

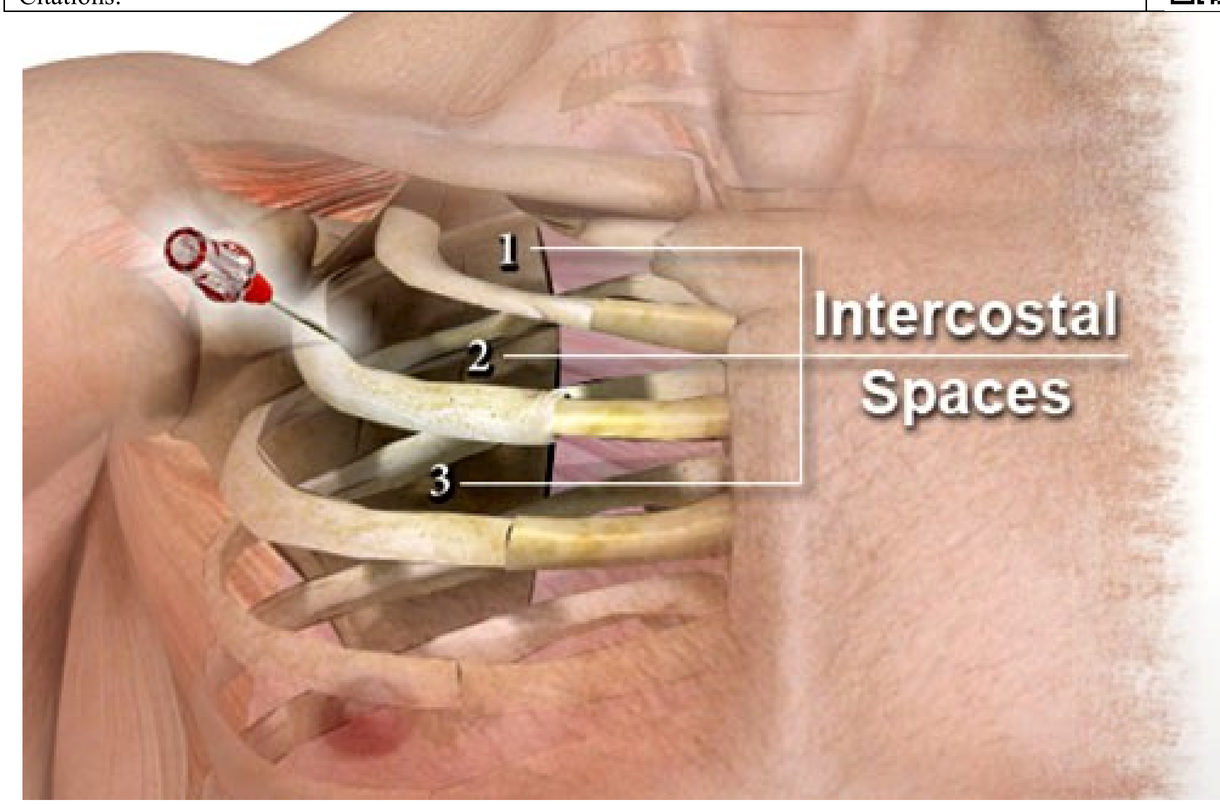
BLS - EMT

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

ALS - Paramedic

* Ensure completion of all applicable BLS items on the left.
* IV/IO **LR** titrated to SBP greater than 80.
* **Intubate** as necessary.
* Consider **Chest Decompression** (at 2nd intercostal space, mid-clavicular line) if respiratory compromise and suspect pneumothorax.
* Pain: Refer to Protocol 6-050 - Control of Pain (page 67).
* Nausea: Refer to Protocol 6-040 - Control of Nausea (page 66).
* *Adult*:
    * [PENDING version 6 update (TXA)].
* *Pediatric*:
    * Consider **MEDICAL CONTROL.**

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



Protocol 5-050 - Extremity Trauma

BLS - EMR

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

BLS - EMT

- Ensure completion of applicable EMR items above.

ALS - Paramedic

- Ensure completion of all applicable BLS items on the left.
- No crush injury: IV/IO **LR** titrated to SBP greater than 80.
- **Intubate** as necessary.
- Pain: Refer to Protocol 6-050 - Control of Pain (page 67).
- Nausea: Refer to Protocol 6-040 - Control of Nausea (page 66).

- *Adult*:
  - [PENDING version 6 update (TXA)].

- *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 - 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 67).
- Nausea: Refer to Protocol 6-040 - Control of Nausea (page 66).

- *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.
- ✱ <u>Head crush injury</u>: Immediate release and rapid transport.
- ✱ Maintain body temperature between 91 and 99 degrees F.

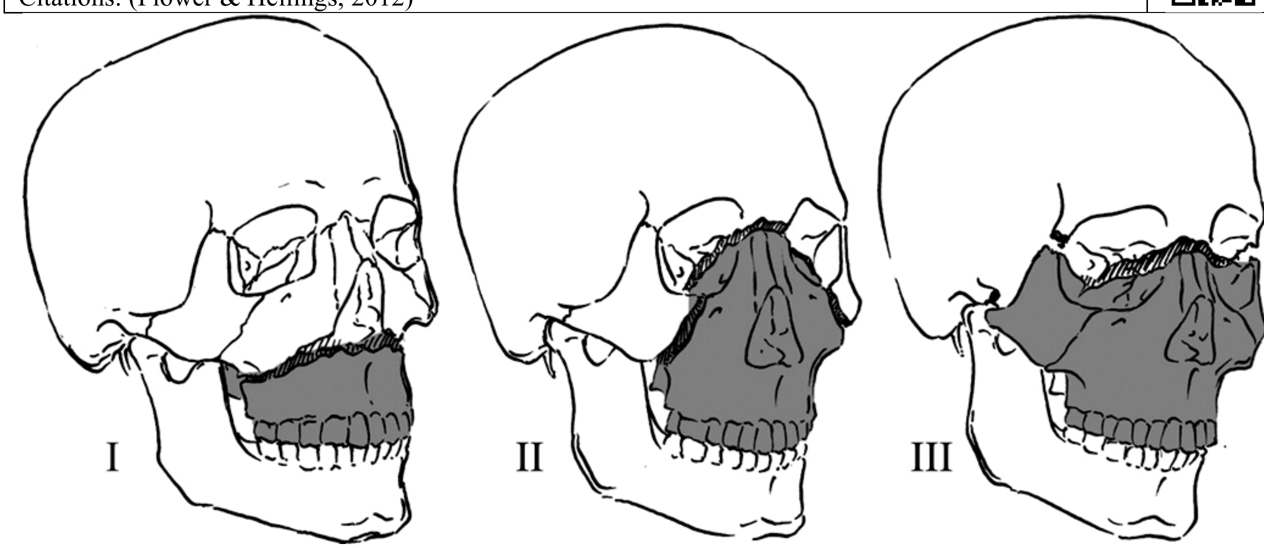
BLS - EMT

- ✱ 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 - 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:
  - ✱ <u>Greater than 10 yr</u>: Greater than 90 SBP.
  - ✱ <u>1-10 yr</u>: Greater than 70 + (2 x age) SBP.
  - ✱ <u>1-12 mo</u>: Greater than 70 SBP.
  - ✱ <u>0-28 days</u>: Greater than 60 SBP.
- ✱ <u>GCS less than 8</u>: Intubate as necessary.
  - ✱ <u>[PENDING version 7 update (RSI and Cushing's Triad)].</u>
- ✱ *<u>Adult</u>*:
  - ✱ **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. (Morphine is contraindicated for Head injury.)
  - ✱ <u>Nausea</u>: Consider **Zofran** 4mg IV/IM/IN (max 8 mg).
- ✱ *<u>Pediatric</u>*:
  - ✱ **Lidocaine** 1 mg/kg IV/IO prior to **Intubation**.
  - ✱ <u>Age less than 3 yrs</u>: **Atropine** 0.02 mg/kg (min 0.1 mg) IV.
  - ✱ Consider **Fentanyl** 1-2 mcg/kg may repeat (max 150 mcg) IV/IO/IN. (Morphine is contraindicated for Head injury.)
  - ✱ Contact **MEDICAL CONTROL.**

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



Protocol 5-080 - Spinal Trauma

BLS - EMR

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

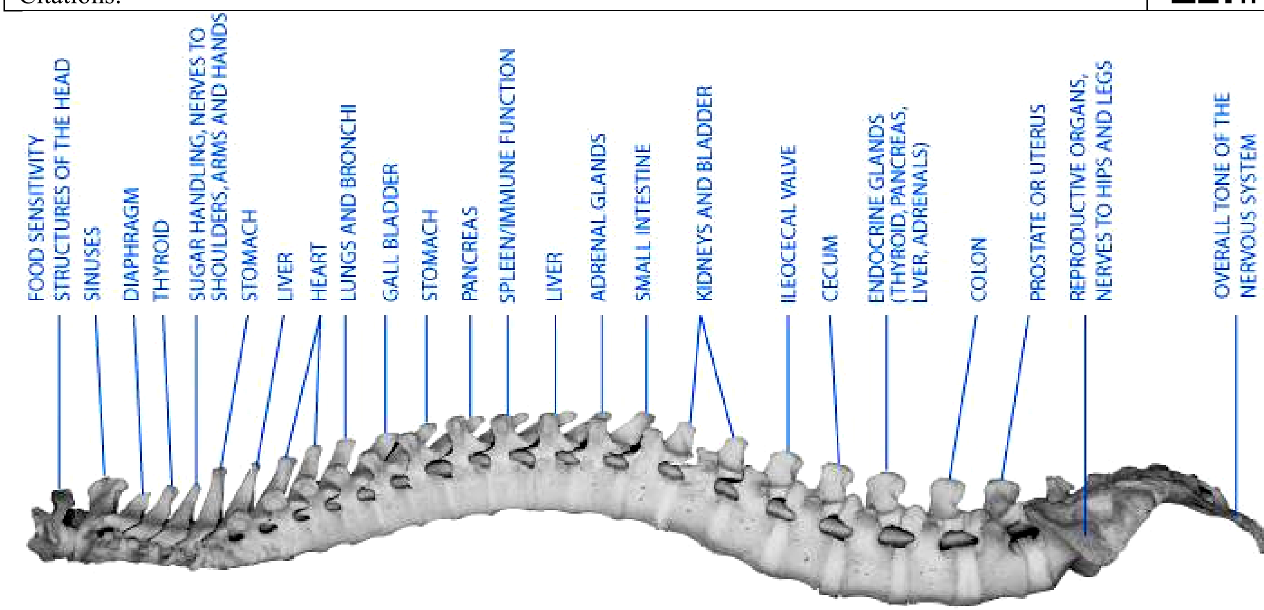
BLS - EMT

✱ Ensure completion of applicable EMR items above.

ALS - Paramedic

✱ Ensure completion of all applicable BLS items on the left.
✱ IV/IO **LR** titrated to SBP greater than 80.
✱ **Intubate** as necessary. Consider **RSI**.
✱ Pain: Refer to Protocol 6-050 - Control of Pain (page 67).
✱ Nausea: Refer to Protocol 6-040 - Control of Nausea (page 66).
✱ *Pediatric*:
  ✱ Consider **MEDICAL CONTROL.**

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



Protocol 5-090 - Trauma Arrest

BLS - EMR

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

BLS - EMT

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

ALS - Paramedic

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

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

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

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

Part 6 - General Protocols

Section 6-010 - Acquisition of Medical Control

BLS - EMR

- ✱ Medical control is the responsibility of the **CMH Paramedic**.

BLS - EMT

- ✱ Ensure completion of applicable EMR items above.

ALS - 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 shall be provided by **receiving hospital**. If contact cannot be made, CMH Emergency Room will be the default medical control.
- ✱ When transporting from another facility and treatment that deviates from protocol is suggested by transferring Physician, Paramedic should contact receiving MEDICAL CONTROL in the ambulance to verify orders.
- ✱ 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, Paramedic shall require credential evidence and the requesting Physician must accompany the patient in transport to the receiving facility. This process should not be considered if the Physician does not have the appropriate medical sub-specialties as determined by the Paramedic.

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
Joplin	Mercy Joplin Psych (Hawthorne)	417-625-2350
Joplin	Ozarks Community Hospital	417-837-4170
Kansas City	Veterans Hospital	800-525-1483
Lamar	Barton County Memorial Hospital	417-681-5100
Lebanon	Mercy	417-533-6350
Monett	Cox Monett Hospital	417-235-3144
Neosho	Freeman Neosho Hospital	417-451-1234
Nevada	Nevada Regional Medical Center	417-667-3355
Osage Beach	Lake Regional Health System	573-348-8000
Springfield	Cox North	417-269-3393
Springfield	Cox South	417-269-4983
Springfield	Mercy	417-820-2115
Springfield	Ozarks Community Hospital	417-874-4596
St Louis	Barnes Jewish Hospital	314-294-1403

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

Section 6-020 - Air Ambulance

BLS - EMR

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

BLS - EMT

- Ensure completion of applicable EMR items above.

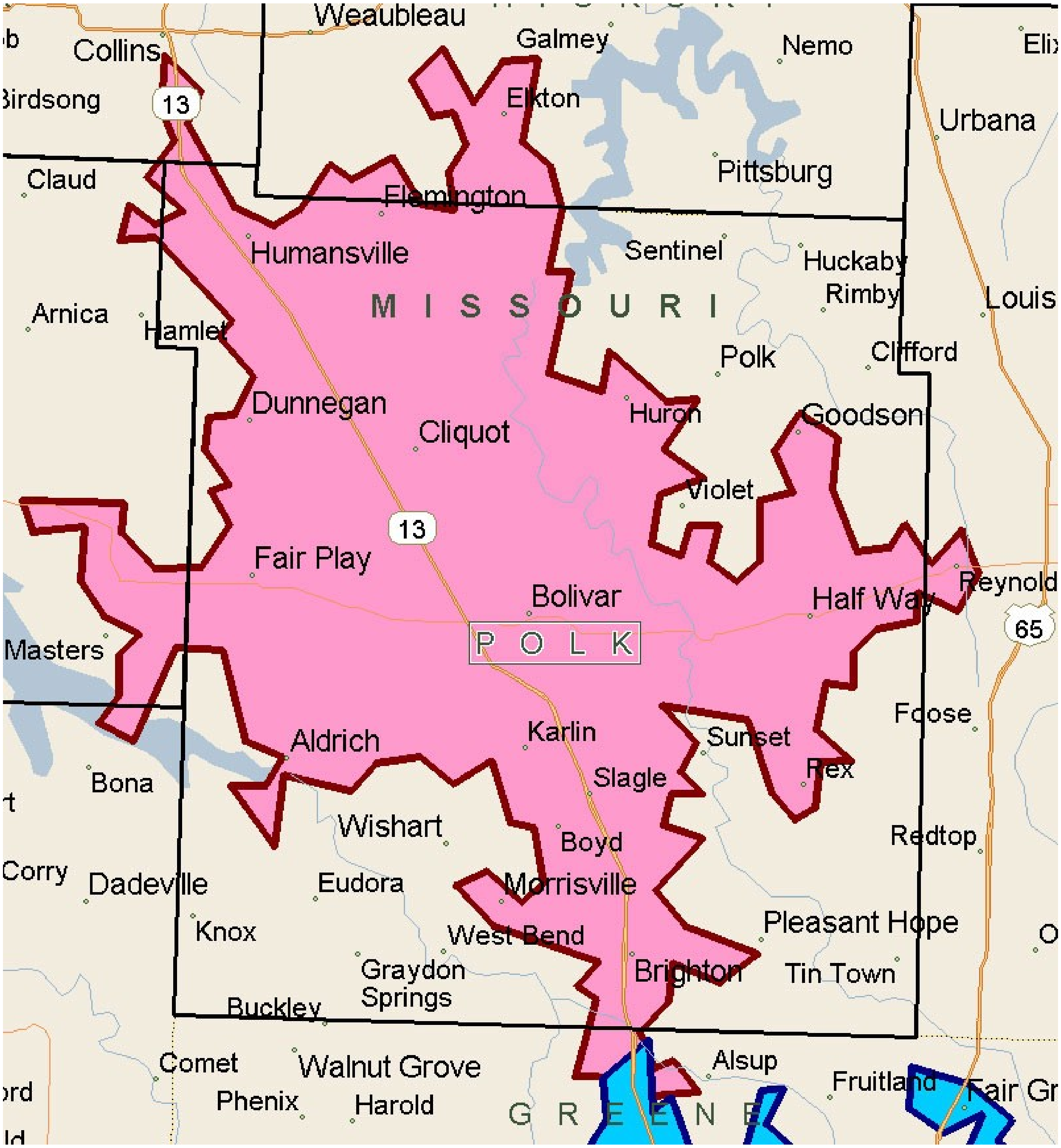
ALS - Paramedic

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

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

Section 6-021 - No Fly Zone

Based on actual run time data, travel times less than 23 minutes from the scene to the destination hospital should be transported by ground ambulance instead of Air Ambulance, except in the case of auto-lift aircraft at time of ambulance dispatch, prolonged scene times, or other resource considerations. Map below indicates 23-minute drive time from CMH ER.



Protocol 6-025 - Cardiopulmonary Resuscitation (CPR)

<table>
<tr>
<td><u>BLS - EMR</u>

✱ [PENDING version 5 update (CPR)].
✱ Consider AED.
✱ Consider Chest Compressor.</td>
<td rowspan="2"><u>ALS - Paramedic</u>

✱ Ensure completion of all applicable BLS items on the left.
✱ Consider Intubation.</td>
</tr>
<tr>
<td><u>BLS - EMT</u>

✱ Ensure completion of applicable EMR items above.
✱ Consider King Airway.</td>
</tr>
</table>

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 by CMH.
  - 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**.

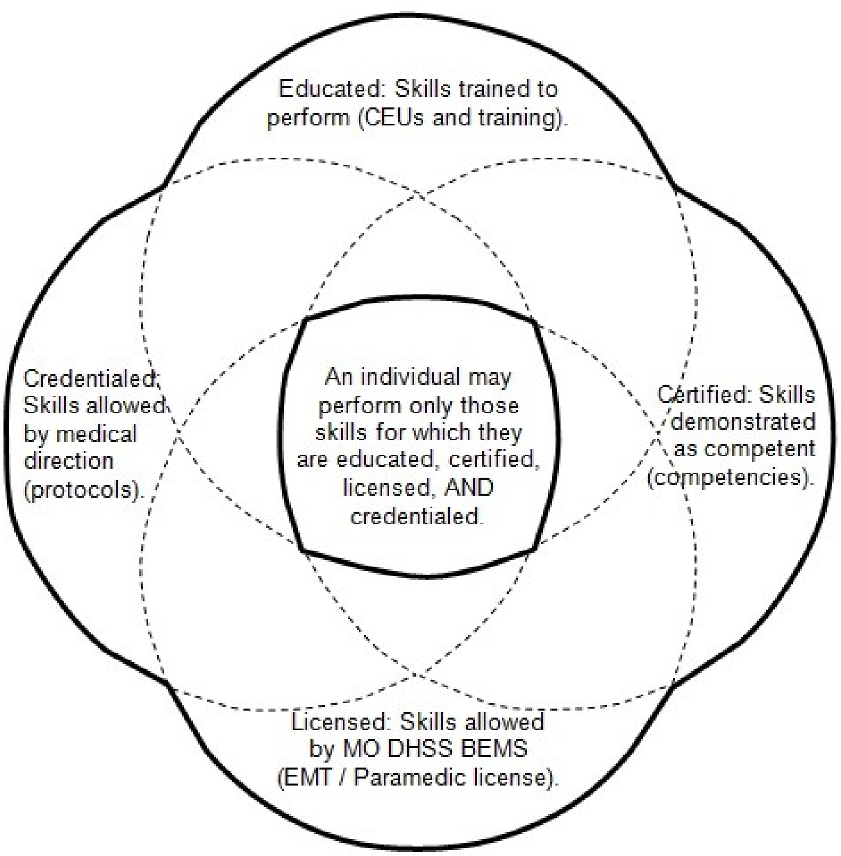
BLS - EMT

- 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 or CMH) shall successfully complete at least **four** BLS Competencies with at least **90% pass rate**.

ALS - Paramedic

- Ensure completion of all applicable BLS items on the left.
- Annually, each Paramedic shall successfully complete **all** BLS and ALS Competencies with at least a **90% pass rate**.

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 - 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.
    - OR **Regalin** 10 mg IV slow over 2 min or IM.

- *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 - 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/IN. Over 65 yr old: 0.5-2 mcg/kg.
      - ✖ OR **Morphine** 2-5 mg (max 10 mg) IV/IO. 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.
  - ✱ Consider **MEDICAL CONTROL** for **Ketamine** 1-4.5 mg/kg IV/IO/IM.
- ✱ 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), (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 78).
- Create transport plan.
- All persons leaving the warm zone must be technically decontaminated:
  - **Remove ALL clothing** and jewelry.
  - Gentle **washing** with soap and water.

BLS - EMT

- Ensure completion of applicable EMR items above.

ALS - Paramedic

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

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

Section 6-060 - Do Not Resuscitate (DNR)

BLS - EMR	ALS - Paramedic

✱ 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.
	✱ 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.

BLS - EMT ✱ Ensure completion of applicable EMR items above.	

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

Section 6-070 - Documentation

<table>
<tr>
<td>

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.
  - 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 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.

</td>
<td>

ALS - Paramedic

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

</td>
</tr>
</table>

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:
    - ✚ Only remove helmet and pads under extreme circumstances and under direction of athletic trainer.
      - ✖ Secure player to backboard with helmet and pads remaining in place.
      - ✖ If CPR is required, request athletic trainer to cut Chest pads and keep shoulder pads and helmet in place.
    - ✚ Request athletic trainer to remove face mask.
    - ✚ Utilize athletic trainer staff and equipment for Extremity splinting.
  - ✱ Preferred to request second unit to transport and standby unit remain at event.
    - ✚ Consider requesting a second unit to cover standby if critical patient.
    - ✚ Athletic training staff may ride with patient in back if requested.
    - ✚ Air ambulance landing zone should not be on the playing field.
  - ✱ A standby **ePCR report** shall be completed for all dedicated standbys. Be specific about which standby it is and which location.

ALS - Paramedic

- ✱ Ensure completion of all applicable BLS items on the left.
- ✱ When requested and approved by supervisor, CMH 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)

Protocol 6-085 - High-Threat Response

<table>
<tr><td><u>BLS - EMR</u>

✱ [PENDING version 6 update (Tactical protocol)].</td><td rowspan="2"><u>ALS - Paramedic</u>

✱ Ensure completion of all applicable BLS items on the left.</td></tr>
<tr><td><u>BLS - EMT</u>

✱ Ensure completion of applicable EMR items above.</td></tr>
</table>

Link to research articles (QR code on right): http://1drv.ms/1KeKMka
Citations: (Committee for Tactical Emergency Casualty Care, 2014)
"This protocol has been witten based on guidelines and principles established by the Committee of Tactical Emergency Casualty Care."

Protocol 6-090 - IDLH Standby

<table>
<tr><td>

BLS - EMR

- Treat illnesses and injuries per appropriate protocol.
- Refer to Protocol 6-055 - Decontamination (page 68) as appropriate prior to contaminating personnel, equipment, and ambulance.

</td><td rowspan="2">

ALS - Paramedic

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

</td></tr>
<tr><td>

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%.

</td></tr>
</table>

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	ALS - Paramedic
✱ These protocols do not apply to EMR personnel while off-duty. **BLS - EMT** ✱ While off duty: EMTs, Paramedics, and RNs currently employed with an agency that has adopted these protocols may provide **Basic Life Support** according to these protocols. ✱ Ensure **9-1-1** is contacted and an ambulance is responding as appropriate. ✱ Coordinate with responding emergency services.	✱ Ensure completion of all applicable BLS items on the left. ✱ While Off-Duty, current CMH Pre-Hospital Paramedics and CMH Emergency Department RNs may provide **Advanced Life Support** according to these protocols if the following conditions are met: ✱ A CMH ambulance must be the transporting unit and an on-duty CMH 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 in each county.
  - Demographic and statistical data from the previous months will be presented by all represented agencies.
    - This data may include, but not limited to:
      - Requests for service,
      - Dispatch times,
      - Turnout times,
      - Response times,
      - Specific protocol compliance, and
      - Specific Documentation requirements.
  - Additionally, any response agency or dispatch agency may request a detailed review of one or more specific calls.
- Ongoing in-house Quality improvement must include at least a 10% review rate of Documentation by management staff to ensure protocol compliance and appropriate patient care.

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) held in their county.
- Annually, each career BLS agency must participate in **four** Quality meetings (preferably one every quarter) held in their county.

ALS - Paramedic

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

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.
- 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 failed 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.

ALS - Paramedic

- Ensure completion of all applicable BLS items on the left.
- Call **Medical Control** for permission to RSI.
- IV/IO **NS** or **LR**.
- Assign duties.

- Premedicate:
  - *Adult*:
    - Bradycardic: **Atropine** 0.5 mg IV/IO.
    - Seizing: **Ativan** 2 mg IV/IO (may repeat).
  - *Pediatric*:
    - **Atropine** 0.01 mg/kg IV/IO (min 0.1 mg) (max 0.5 mg).
    - Seizing: **Ativan** 0.07 mg/kg IV/IO.

- Sedate:
  - **Ketamine** 1 mg/kg IV/IO.
    - OR Consider **Etomidate** 0.3 mg/kg IV/IO.

- Paralyze:
  - **Rocuronium** 1 mg/kg IV/IO (45 sec onset, 40 min duration).
    - OR Consider **Rocuronium** 0.1 mg/kg IV/IO (2 min onset, 10 min duration).
    - OR Consider **Vecuronium** 0.1 mg/kg IV/IO.
    - OR Consider **Succinylcholine** IV/IO (contraindicated in Burns or crush injuries greater than 48 hrs or rhabdomyolysis).
      - *Adult*: 1.5 mg/kg.
      - *Pediatric*: 2 mg/kg.

- INTUBATE. Confirm with **Capnography**. Maximum of three attempts, then BLS failed airway should be used.
  - Consider **Suction** and **Bougie**.
  - Consider Gastric Tube.

- Continued paralysis (consider if extended transport to ER):
  - **Vecuronium** 0.1 mg/kg IV/IO.
  - Consider **Rocuronium** 1 mg/kg IV/IO.

- Continued sedation:
  - *Adult*: **Versed** 2.5-5 mg IV/IO every 5 min as needed maintaining SBP greater than 100.
    - 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 **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).

Link to research articles (QR code on right): http://1drv.ms/1KeKkCL
Citations: (Filanovsky, Miller, & Kao, 2010), (Flower & Hellings, 2012), (Taney County Ambulance District, 2014)

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 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 EMT may maintain patient care in the new ambulance (even if the new ambulance is not a CMH ambulance).

ALS - Paramedic

✱ Ensure completion of all applicable BLS items on the left.

✱ In the event of mechanical difficulty or other situation requiring transferring ALS patient to another ambulance, CMH Paramedic may maintain patient care in the new ambulance (even if the new ambulance is not a CMH ambulance).

✱ In a multi-patient incident, CMH 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.

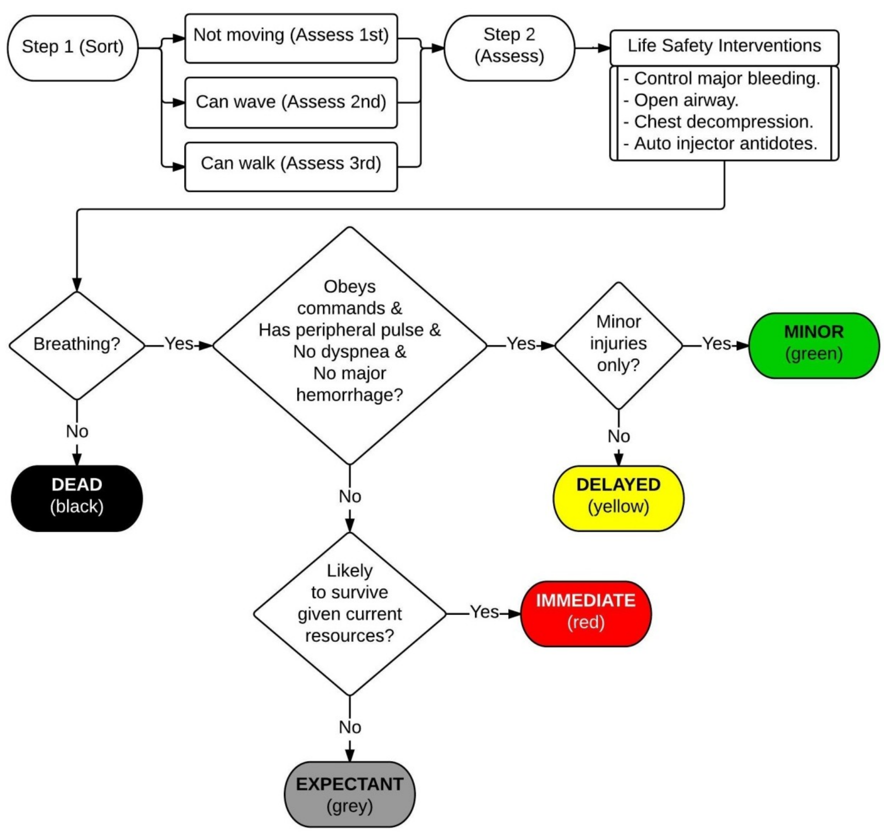
HEAR Report:

- 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:
  - Paramedic: Designated **TRIAGE OFFICER**.
    - Determine number of patients.
    - Establish Triage area(s).
    - Triage and tag patients.
  - EMT: Designated **TRANSPORTATION OFFICER**.
    - Communicate number of patients.
    - Establish staging area(s).
    - Coordinate patient transport.
- Second arriving ambulance assignment:
  - Establish treatment area(s).

SALT Mass Casualty Triage:



Link to research articles (QR code on right): http://1drv.ms/1KeLdex
Citations: (Citizens Memorial Hospital, 2012)

Section 6-140 - Termination of Resuscitation

BLS - EMR

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

BLS - EMT

- Ensure completion of applicable EMR items above.

ALS - Paramedic

- Ensure completion of all applicable BLS items on the left.
- The following scenarios should always be transported to the closest appropriate facility as soon as possible and field termination is not an option:
  - Pediatrics, Drownings, Poisonings, or Hypothermia.
  - If Airway cannot be maintained and/or IV/IO cannot be accessed.
  - [PENDING version 5 update (20 min of CPR prior to movement)].
- If witnessed, non-trauma Arrest, full **ACLS** resuscitation efforts should continue for at least 20 minutes prior to consideration of field termination.
- When considering termination, Paramedic should consult with the family. If family believes the patient would wish continued resuscitative efforts, resuscitation will continue and the patient shall be transported to closest appropriate facility.
- In the event there is no clear evidence to withhold CPR, however patient has a terminal condition and the patient's wishes have been conveyed by the family, contact **MEDICAL CONTROL** to withhold resuscitation.
- Field termination may be requested from **MEDICAL CONTROL** for victims of trauma with no signs of life regardless of how long **ACLS** efforts have been underway.
- If field termination is decided, contact **MEDICAL CONTROL**: Inform emergency Physician of patient, history, causes, efforts, and treatments.
- After resuscitation has been terminated, contact local law enforcement and remain on scene until at least law enforcement or coroner arrival on the scene. If at healthcare facility, scene may be cleared prior to body retrieval.
- Fax the ePCR to the facility providing medical control if the facility is not CMH.

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

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Part 7 - Medication Protocols

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 45
Section 7-300 - Ibuprofen (Advil, Pediaprofen) (has been ineffective or administered within 6 hours) .... page 110

Adult dosage:
✱ 325-650 mg every 4-6 hrs.

Pediatric dosage:
✱ 15 mg/kg every 4-6 hrs.

Precautions:
✱ Impaired liver function. Chronic alcohol use. Impaired renal function. PKU.

Side effects:
✱ Rash, uticaria, Nausea.

Antidote:
✱ Acetylcysteine or mucomyst.

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

Section 7-020 - Activated Charcoal (Actidose)

Advanced Life Support

Class:
✱ Adsorbent.

Action:
✱ Adsorbs toxins by chemical binding and prevents gastrointestinal absorption.

Route:
✱ Oral.

Half-Life:
✱

Contraindications:
✱ No gag reflex.
✱ Unconsciousness.
✱ 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 49

Adult dosage:
✱ 50-100 g mixed with glass of water to form slurry.

Pediatric dosage:
✱ 0.5-1 g/kg mixed with glass of water to form slurry.

Precautions:
✱ Aspiration may cause pneumonitis.

Side effects:
✱ Nausea, vomiting, constipation, diarrhea.

Antidote:
✱

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

Section 7-030 - Adenosine (Adenocard)

Advanced Life Support

Class:
✱ Antiarrhythmic.

Action:
✱ Slows AV conduction.

Route:
✱ IV/IO slam followed by rapid flush.

Half-Life:
✱ less than 10 seconds.

Contraindications:
✱ 2nd or 3rd degree heart block.
✱ Sick Sinus Syndrome.
✱ Drug-induced Tachycardia.

Indications:

Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter (Symptomatic PSVT) .... page 12
Protocol 2-080 - Tachycardia Narrow Stable (Symptomatic PSVT).. page 20
Protocol 2-090 - Tachycardia Narrow Unstable (Symptomatic PSVT).. page 21

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:
✱

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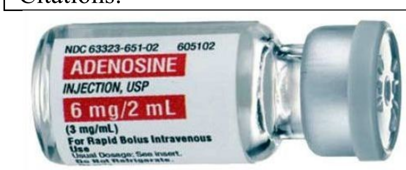
Citations:



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:

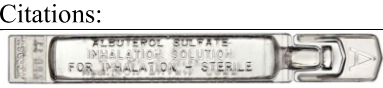
Dosage:
✱ 2.5 mg in 2.5 ml **NS** over 5-15 min Nebulized.

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)

<u>Advanced Life Support</u>

Class:
✱ Class III antiarrhythmic.

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

Route:
✱ IV/IO.

Half-Life:
✱ 58 days.

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

Indications:

Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter (Second-line agent for Atrial arrhythmias).......... page 12
Protocol 2-080 - Tachycardia Narrow Stable .... page 20
Protocol 2-100 - Tachycardia Wide Stable .... page 22
Protocol 2-110 - Tachycardia Wide Unstable .... page 23
Protocol 2-130 - Ventricular Ectopy .... page 25
Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) .... page 26
Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) .... page 64

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.

Side effects:
✱ Hypotension, Bradycardia (slow down the rate of infusion).

Antidote:
✱ Section 7-100 - Calcium Chloride (Calciject) (page 90).
✱ Section 7-240 - Glucagon (page 105).

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 15

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

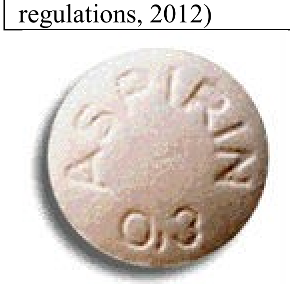
Pediatric dosage:
✱ Not indicated.

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:

Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter .... page 12
Protocol 2-040 - Bradycardia (Premedication before Cardioversion) .... page 14
Protocol 2-060 - Post Resuscitative Care .... page 18
Protocol 2-080 - Tachycardia Narrow Stable (Premedication before Cardioversion) .... page 20
Protocol 2-090 - Tachycardia Narrow Unstable (Premedication before Cardioversion) .... page 21
Protocol 2-100 - Tachycardia Wide Stable (Premedication before Cardioversion) .... page 22
Protocol 2-110 - Tachycardia Wide Unstable (Premedication before Cardioversion) .... page 23
Protocol 2-120 - Torsades de Pointes (Premedication before Cardioversion) .... page 24
Protocol 3-020 - Hyperthermia .... page 30
Protocol 4-040 - Behavioral (Acute anxiety) .... page 36
Protocol 4-170 - Seizures (Where Valium is indicated and not available) .... page 51
Protocol 6-050 - Control of Pain .... page 67
Protocol 6-110 - Rapid Sequence Intubation (RSI) .... page 76
Section 8-050 - Continuous Positive Airway Pressure (CPAP) .... page 148

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 130).

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:

Protocol 2-010 - Asystole .... page 11
Protocol 2-040 - Bradycardia........ page 14
Protocol 2-070 - Pulseless Electrical Activity (PEA) .... page 19
Protocol 4-140 - Poisoning or Overdose (Organophosphate Poisoning) (Nerve agent exposure)........ page 49
Protocol 5-070 - Head Trauma .... page 58
Protocol 6-110 - Rapid Sequence Intubation (RSI) (RSI of pediatrics under 10 or any bradycardic patients)... page 76

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

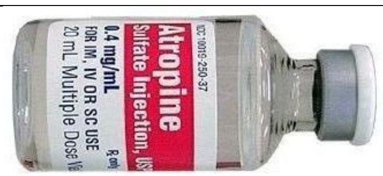
Pediatric dosage:
✱ Asystole/PEA: 1 mg every 3-5 min (max 3 mg).
✱ Bradycardia: 0.02 mg/kg (min 0.1 mg, max 0.5 mg per dose) (max 1 mg).
✱ Organophosphate Poisoning: 0.05 mg/kg.
✱ Head trauma: 0.02 mg/kg (min 0.1 mg).

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

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

Antidote:
✱

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



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:
✱

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

Section 7-100 - Calcium Chloride (Calciject)

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

Indications:

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

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

Section 7-110 - Captopril (Capoten)

<u>Advanced Life Support</u> *<u>Class</u>*: ✱ ACE inhibitor. *<u>Action</u>*: ✱ Competitive inhibitor of Angiotension Converting Enzyme (ACE). *<u>Route</u>*: ✱ SL.	*<u>Half-Life</u>*: ✱ 1.9 hours. *<u>Contraindications</u>*: ✱ Hypersensitivity to any ACE inhibitor.

<u>Indications:</u> Not in current protocols.

<u>Adult dosage:</u> ✱ SBP greater than 110: 25 mg. ✱ SBP 90-110: 12.5 mg. *<u>Pediatric dosage:</u>* ✱ Not indicated.	*<u>Precautions</u>*: ✱ 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. *<u>Side effects</u>*: ✱ Hypotension, angioedema, Headache, dizziness, fatigue, depression, Chest Pain, palpitations, cough, dyspnea, Nausea, vomiting, rash, pruritus, renal failure. *<u>Antidote</u>*: ✱

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 12
Protocol 2-080 - Tachycardia Narrow Stable 20

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 90).
✱ Section 7-240 - Glucagon (page 105).

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

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 89).

Antidote:
✱

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

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

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

Indications:

Protocol 4-140 - Poisoning or Overdose (AMS following exposure to smoke in confined space) .... page 49

Adult dosage: ✱ 5 g IV/IO over 15 min. *Pediatric dosage:* ✱ 70 mg/kg IV/IO over 15 min (max 5 g total).	*Precautions*: ✱ Substantial increases in blood pressure may occur following Cyanokit therapy. Based on animal studies, may cause fetal harm, however, treatment may be lifesaving. *Side effects*: ✱ Transient chromaturia, erythema, rash, increased blood pressure, Nausea, Headache. *Antidote*: ✱

Link to research articles (QR code on right): http://1drv.ms/1BEl971
Citations: (Cyanokit, 2012)

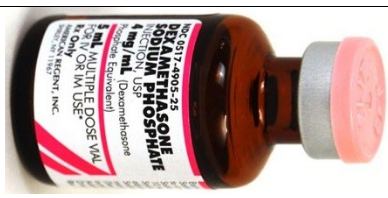
Section 7-140 - Decadron (Dexamethasone)

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:

Adult dosage: ✱ 12-16 mg (once). *Pediatric dosage:* ✱ 0.6 mg/kg (max 12 mg).	*Precautions*: ✱ None in emergency setting. *Side effects*: ✱ Nausea, vomiting, Headache, vertigo, anxiety, hypokalemia, hyperglycemia, tremors, Hypertension, immunosuppression. *Antidote*: ✱

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



Section 7-150 - Dextrose

Advanced Life Support

Class:
✱ Carbohydrate.
Action:
✱ Elevates blood Glucose level rapidly.
Route:
✱ IV/IO.

Half-Life:
✱
Contraindications:
✱ Intracranial hemorrhage.

Indications:

Adult dosage:
✱ **D50W**, **D25W**, or **D10W** 25 g.
Pediatric dosage:
✱ **D25W** 0.5-1 g/kg.
  ✱ 5 ml **D50W** + 5 ml **NS** = 2.5 g **D25W**.
Neonate Dosage:
✱ **D10W** 0.5-1 g/kg.
  ✱ 2 ml **D50W** + 8 ml **NS** = 1 g **D10W**.

Precautions:
✱ Blood sample should be drawn before administering.
Side effects:
✱ Local venous irritation. Hyperglycemia, warmth, thrombosis.
Antidote:
✱

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

Section 7-160 - Dilaudid (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 67

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 119).

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 14
Protocol 2-060 - Post Resuscitative Care (Hypovolemic shock - only after complete fluid resuscitation) .... page 18
Protocol 4-070 - Congestive Heart Failure (CHF) (Cardiogenic shock) .... page 41

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 1600mg/ml mixture only.
✱ [(patient's weight in pounds) / (10)] - (2) = (ml/hr for 5mcg/kg/min)

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

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:

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

Advanced Life Support

Class:
✱ Beta adrenergic. Anticholinergic.

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

Route:
✱ Nebulized.

Half-Life:
✱

Contraindications:
✱ Hypersensitivity to Ipratropium, Albuterol, or Atropine.
✱ Allergy to soybeans or peanuts.
✱ Closed angle glaucoma.
✱ Bladder neck obstruction.
✱ Prostatic hypertrophy.

Indications:
Protocol 4-020 - Anaphylaxis .... page 34
Protocol 4-030 - Asthma .... page 35
Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) .... page 40
Protocol 4-070 - Congestive Heart Failure (CHF) .... page 41
Section 7-040 - Albuterol (Proventil, Ventolin) (Bronchoconstriction refractory to Albuterol) .... page 84

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

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

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

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

Antidote:
✱ Physostigmine.

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

Section 7-190 - Epinephrine 1:1,000

Basic Life Support (EMT)

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

Advanced Life Support

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

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

Indications:
Protocol 2-010 - Asystole .... page 11
Protocol 2-070 - Pulseless Electrical Activity (PEA) .... page 19
Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) .... page 26
Protocol 4-020 - Anaphylaxis .... page 34
Protocol 4-030 - Asthma .... page 35
Protocol 4-080 - Croup .... page 42
Protocol 4-130 - Neonatal Resuscitation .... page 48
Section 7-200 - Epinephrine 1:10,000 .... page 101

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 101) 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 100).

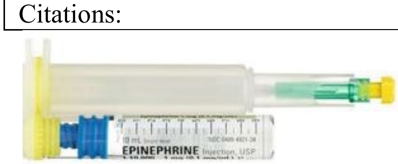
Half-Life:
✱ 2 minutes.
Contraindications:
✱ None when used in emergency setting.

Indications:
Protocol 2-010 - Asystole .... page 11
Protocol 2-040 - Bradycardia .... page 14
Protocol 2-070 - Pulseless Electrical Activity (PEA) .... page 19
Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) .... page 26
Protocol 4-020 - Anaphylaxis .... page 34
Protocol 4-130 - Neonatal Resuscitation .... page 48
Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) .... page 64
Section 7-340 - Labetalol (Nomadyne) (Overdose) .... page 113

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 42

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 76

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:

Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter .... page 12
Protocol 2-040 - Bradycardia .... page 14
Protocol 2-050 - Chest Discomfort .... page 15
Protocol 2-060 - Post Resuscitative Care .... page 18
Protocol 2-080 - Tachycardia Narrow Stable .... page 20
Protocol 2-090 - Tachycardia Narrow Unstable .... page 21
Protocol 2-100 - Tachycardia Wide Stable .... page 22
Protocol 2-110 - Tachycardia Wide Unstable .... page 23
Protocol 2-120 - Torsades de Pointes .... page 24
Protocol 3-030 - Hypothermia .... page 31
Protocol 4-010 - Abdominal Pain .... page 33
Protocol 5-070 - Head Trauma .... page 58
Protocol 6-050 - Control of Pain .... page 67
Protocol 6-110 - Rapid Sequence Intubation (RSI) .... page 76
Section 8-080 - Endotracheal Tube (ET) .... page 153
Section 8-160 - King LTSD Airway .... page 162
Section 8-170 - Laryngeal Mask Airway (LMA) .... page 163

Adult dosage:
- ✱ 50-100 mcg every 5-20 min PRN for Pain (max 300 mcg).
- ✱ greater than 65 yr: Use pediatric dosage.

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. Use with caution in traumatic brain injury.

Side effects:
- ✱ Bradycardia, respiratory depression, euphoria. Hypotension, Nausea, vomiting, dizziness, sedation, Bradycardia, Tachycardia, palpitations, Hypertension, diaphoresis, syncope.

Antidote:
- ✱ Section 7-400 - Narcan (Naloxone) (page 119).

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), (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.

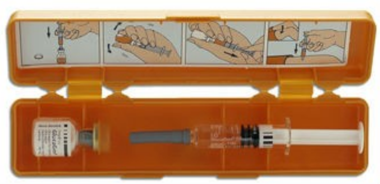
Half-Life:
✱
Contraindications:
✱ Pheochromocytoma.
✱ Insulinoma.

Indications:
Protocol 4-120 - Hypoglycemia (Severe Hypoglycemia when unable to establish vascular access) .... page 47
Protocol 4-140 - Poisoning or Overdose (Beta-Blocker Overdose)... page 49

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

Indications:

Dosage: ✱ 15 g.	*Precautions*: ✱ 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:

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 89).

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 15

Adult dosage:
- ✱ 60 u/kg followed by 12 u/kg/hr (max 4,000 u bolus and 1,000 u/hr).

Pediatric dosage:
- ✱ Not indicated.

Precautions:
- ✱ Oral anticoagulants.

Side effects:
- ✱ Bleeding.

Antidote:
- ✱ Protamine sulfate.

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

Section 7-280 - Hydralazine (Apresoline)

Advanced Life Support

Class:
✱ Vasodilator.
Action:
✱ Directly dilates peripheral blood vessels.
Route:
✱ IV/IO/IM.

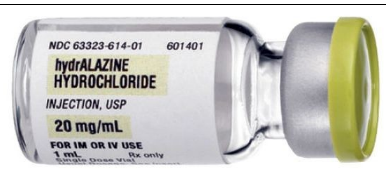
Half-Life:
✱ 2-8 hours.
Contraindications:
✱ Taking diazoxide or MAOIs.
✱ Coronary artery disease.
✱ Stroke.
✱ Angina
✱ Aortic aneurysm.
✱ Heart disease.

Indications:
Protocol 4-110 - Hypertension (Hypertensive crisis or associated with preeclampsia and eclampsia) .... page 46

Adult dosage:
✱ Preeclampsia and eclampsia: 5-10 mg. Repeat every 20-30 min until SBP less than 105.
✱ Hypertension: 10-20 mg.
Pediatric dosage:
✱ Hypertension: 0.1-0.2 mg/kg (max 20 mg).

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

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



Section 7-300 - Ibuprofen (Advil, Pediaprofen)

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

<u>Indications:</u>

<u>Adult dosage:</u> ✱ 200-400 mg every 4-6 hrs. *<u>Pediatric dosage:</u>* ✱ 10 mg/kg.	*<u>Precautions</u>*: ✱ Caution in Hypertension, CHF. *<u>Side effects</u>*: ✱ Anaphylaxis, Abdominal Pain, Nausea, Headache, dizziness, rash. *<u>Antidote</u>*: ✱

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

Section 7-320 - Ipratropium (Atrovent)

Advanced Life Support

Class:
✱ Beta adrenergic.

Action:
✱ Binds and stimulates beta-2 receptors, resulting in relaxation of bronchial smooth muscle, producing bronchodilation.

Route:
✱ Nebulized.

Half-Life:
✱ 2 hours.

Contraindications:
✱ Hypersensitivity to Ipratropium, Albuterol, or Atropine.
✱ Allergy to soybeans or peanuts.
✱ Closed angle glaucoma.
✱ Bladder neck obstruction.
✱ Prostatic hypertrophy.

Indications:

Protocol 4-020 - Anaphylaxis ..... page 34
Protocol 4-030 - Asthma ..... page 35
Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) ..... page 40
Protocol 4-070 - Congestive Heart Failure (CHF) ..... page 41
Section 7-040 - Albuterol (Proventil, Ventolin) (Bronchoconstriction refractory to Albuterol) ..... page 84
Section 7-180 - Duoneb (Ipratropium and Albuterol, Combivent) ..... page 99

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.

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:
✱ Significant Hypertension would be hazardous (stroke, Head trauma, ICP, MI).

Indications:

Adult dosage:
✱ IV/IO: 1-4.5 mg/kg. Produces anesthesia within 30 sec lasting 5-10 min.
✱ IM: 6.5-13 mg/kg. Produces anesthesia within 3-4 min lasting 12-25 min.

Pediatric dosage:
✱ IV/IO: 0.5-2 mg. Produces anesthesia within 30 sec lasting 5-10 min.
✱ IM: 3-7 mg. Produces anesthesia within 3-4 min lasting 12-25 min.

Precautions:
✱ 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 46

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 (Fuosemide) (page 115).

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 101).
✱ Section 7-240 - Glucagon (page 105).

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

Section 7-350 - Lactated Ringers (LR)

Advanced Life Support

Class:
✱ Crystalloid solution.

Action:
✱

Route:
✱ IV/IO.

Half-Life:
✱

Contraindications:
✱ None.

Indications:

Protocol 3-020 - Hyperthermia .... page 30
Protocol 5-020 - Abdominal Trauma .... page 53
Protocol 5-030 - Burns .... page 54
Protocol 5-040 - Chest Trauma .... page 55
Protocol 5-050 - Extremity Trauma .... page 56
Protocol 5-080 - Spinal Trauma .... page 59
Protocol 5-090 - Trauma Arrest .... page 60
Protocol 6-040 - Control of Nausea .... page 66
Protocol 6-050 - Control of Pain .... page 67
Protocol 6-110 - Rapid Sequence Intubation (RSI) .... page 76
Section 7-470 - Oxytocin (Pitocin) .... page 124

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 (Fuosemide)

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 41

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 22
Protocol 2-130 - Ventricular Ectopy (Ventricular arrhythmias when Amiodarone is not available) .... page 25
Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) (Cardiac Arrest from VF/VT) .... page 26
Protocol 5-070 - Head Trauma (Premedication for **Intubation** to help prevent increased ICP) .... page 58
Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) .... page 64
Section 8-135 - Intraosseous (IO) Needle .... page 158

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:

Section 7-380 - Magnesium Sulfate

Advanced Life Support

Class:
✱ Anticonvulsant. Smooth muscle relaxer.

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

Route:
✱ IV/IO/IM.

Half-Life:
✱

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

Indications:
Protocol 2-100 - Tachycardia Wide Stable .... page 22
Protocol 2-110 - Tachycardia Wide Unstable .... page 23
Protocol 2-120 - Torsades de Pointes .... page 24
Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) (Refractory V-Fib/ V-Tach) .... page 26
Protocol 4-030 - Asthma .... page 35
Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) .... page 40
Protocol 4-110 - Hypertension (Eclampsia) .... page 46
Section 7-040 - Albuterol (Proventil, Ventolin) (Asthma refractory to Albuterol) .... page 84

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 90).
✱ Section 7-240 - Glucagon (page 105).

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:
- ✱ 2-3 hours.

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

Indications:

Protocol 2-050 - Chest Discomfort .... page 15
Protocol 6-050 - Control of Pain .... page 67

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.

Antidote:
- ✱ Section 7-400 - Narcan (Naloxone) (page 119).

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), (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 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: (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 153

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:
Protocol 2-050 - Chest Discomfort (Unstable angina)........ page 15
Protocol 4-070 - Congestive Heart Failure (CHF) (Acute CHF secondary to AMI)........ page 41
Protocol 4-110 - Hypertension........ page 46

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.
- ✱ IV Desired dose with 200 mcg/ml concentration:
  - ✱ 5mcg/min = 1.5ml/hr
  - ✱ 10mcg/min = 3ml/hr
  - ✱ 15mcg/min = 4.5ml/hr
  - ✱ 20mcg/min = 6ml/hr
  - ✱ 25mcg/min = 7.5ml/hr
  - ✱ 30mcg/min = 9ml/hr
  - ✱ 35mcg/min = 10.5ml/hr
  - ✱ 40mcg/min = 12ml/hr
  - ✱ 45mcg/min = 13.5ml/hr
  - ✱ 50mcg/min = 15ml/hr

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)

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:

<table>
<tr><th></th><th>SpO₂</th><th></th></tr>
<tr><td></td><td>100%</td><td>Anaphylaxis, anemia, CO, toxin, or trauma</td></tr>
<tr><td></td><td>99%</td><td rowspan="6">Cardiac or stroke</td></tr>
<tr><td></td><td>98%</td></tr>
<tr><td></td><td>97%</td></tr>
<tr><td rowspan="5">Conscious ROSC</td><td>96%</td></tr>
<tr><td>95%</td></tr>
<tr><td>94%</td></tr>
<tr><td>93%</td><td></td></tr>
<tr><td>92%</td><td rowspan="5">Dyspnea or Unconscious ROSC</td></tr>
<tr><td></td><td>91%</td></tr>
<tr><td></td><td>90%</td></tr>
<tr><td></td><td>89%</td></tr>
<tr><td></td><td>88%</td></tr>
</table>

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 4-180 - Vaginal Bleeding (Postpartum Vaginal bleeding) .... page 52

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 66

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 89).

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 76

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:

Section 7-525 - Romazicon (Flumazenil)

Advanced Life Support

Class:
✱
Action:
✱
Route:
✱

Half-Life:
✱
Contraindications:
✱

Indications:
Section 7-070 - Ativan (Lorazapam) .... page 87
Section 7-580 - Valium (Diazepam) .... page 138
Section 7-600 - Versed (Midazolam) .... page 140

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:
Protocol 2-010 - Asystole (Late in management of cardiac Arrest) .... page 11
Protocol 2-070 - Pulseless Electrical Activity (PEA) (Late in management of cardiac Arrest) .... page 19
Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) (Late in management of cardiac Arrest) .... page 26
Protocol 5-050 - Extremity Trauma .... page 56
Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (Late in management of cardiac Arrest) .... page 64

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:
Protocol 4-020 - Anaphylaxis .... page 34
Protocol 4-030 - Asthma .... page 35
Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) .... page 40
Protocol 4-080 - Croup 42

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 76

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 139) 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 57
Section 8-210 - Morgan Lens .... page 170

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

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

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

Section 7-570 - Thiamine (Vitamin B1)

Advanced Life Support

Class:
✱ Vitamin.

Action:
✱ Allows normal breakdown of Glucose. Thiamine combines with Adenosine triphosphate to produce Thiamine diphosphate, which acts as a coenzyme in carbohydrate metabolism.

Route:
✱ IV/IO/IM.

Half-Life:
✱

Contraindications:
✱ Known sensitivity.

Indications:

Protocol 4-120 - Hypoglycemia (Coma of unknown origin) .... page 47
Section 7-150 - Dextrose (precedes Dextrose with suspected alcohol abuse or malnutrition) .... page 96

Adult dosage:
✱ 100 mg IM or 100 mg IV in **NS** over 15-30 min.

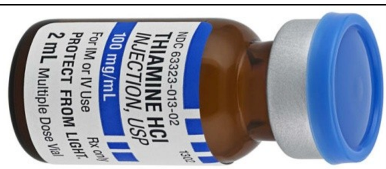
Pediatric dosage:
✱ Not recommended.

Precautions:
✱ Rare anaphylactic reactions.

Side effects:
✱ Itching, rash.

Antidote:
✱

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



Section 7-575 - Toradol (Kertoralac)

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:
✱ Advanced renal impairment.
✱ Suspected CVA.
✱ GI bleeds.
✱ Peptic ulcers.
✱ Surgical candidates.
✱ Pregnant or nursing women.

Indications:

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

Pediatric dosage:
✱ Contraindicated

Precautions:
✱ Toradol inhibits platelet function. Hypersensitivity reactions have occurred (bronchospasm and Anaphylaxis).

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

Antidote:
✱

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

Section 7-578 - TXA (Tranexamic Acid)

Advanced Life Support

Class:
✱
Action:
✱
Route:
✱

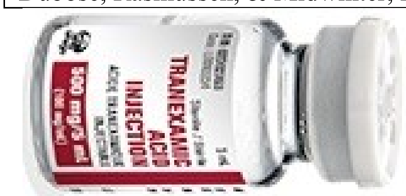
Half-Life:
✱
Contraindications:
✱

Indications:

Adult dosage:
✱ [PENDING version 6 update (TXA)].
Pediatric dosage:
✱

Precautions:
✱
Side effects:
✱
Antidote:
✱

Link to research articles (QR code on right): http://1drv.ms/1xwGSNX
Citations: (LeCong, 2012), (Maine EMS Trauma Advisory Committee, 2013), (Medical Control Board - EMS System for Metropolitan Oklahoma City and Tulsa, 2013), (Mercy Life Line, 2013), (Morrison, Dubose, Rasmussen, & Midwinter, 2011), (Roberts, Shakur, Ker, & Coats, 2012)



Section 7-580 - Valium (Diazepam)

Advanced Life Support

Class:
✱ Tranquilizer. Anticonvulsant. Skeletal muscle relaxant. Sedative.

Action:
✱ Binds to benzodiazepine receptor and enhances effects of GABA.

Route:
✱ IV/IO/IM. PR at twice IV dose.

Half-Life:
✱ 20-100 hours.

Contraindications:
✱ Age less than 6 months.
✱ Acute-angle glaucoma.
✱ CNS depression.
✱ Alcohol intoxication.

Indications:
Protocol 4-040 - Behavioral (Acute anxiety stress) .... page 36
Protocol 4-140 - Poisoning or Overdose .... page 49
Protocol 4-170 - Seizures (Status epilepticus) .... page 51

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 130).

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 133).
- ✱ 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 76
Section 7-550 - Succinylcholine (Anectine) (fasciculations).. page 133

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:
Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter .... page 12
Protocol 2-040 - Bradycardia (Premedication prior to Cardioversion or Pacing) .... page 14
Protocol 2-060 - Post Resuscitative Care .... page 18
Protocol 2-080 - Tachycardia Narrow Stable (Premedication prior to Cardioversion or Pacing) .... page 20
Protocol 2-090 - Tachycardia Narrow Unstable (Premedication prior to Cardioversion or Pacing) .... page 21
Protocol 2-100 - Tachycardia Wide Stable (Premedication prior to Cardioversion or Pacing) .... page 22
Protocol 2-110 - Tachycardia Wide Unstable (Premedication prior to Cardioversion or Pacing) .... page 23
Protocol 2-120 - Torsades de Pointes .... page 24
Protocol 4-170 - Seizures .... page 51
Protocol 6-050 - Control of Pain .... page 67
Protocol 6-110 - Rapid Sequence Intubation (RSI) .... page 76
Section 8-050 - Continuous Positive Airway Pressure (CPAP) .... page 148
Section 8-080 - Endotracheal Tube (ET) (Endotracheal tube tolerance) .... page 153
Section 8-160 - King LTSD Airway .... page 162
Section 8-190 - LifePak .... page 165

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 130).

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:

Protocol 4-020 - Anaphylaxis .... page 34
Protocol 4-030 - Asthma .... page 35
Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) .... page 40
Protocol 4-070 - Congestive Heart Failure (CHF) .... page 41

Adult dosage:
- ✱ 0.63-1.25 mg.

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

Precautions:
- ✱ Arrhythmias, Hypertension, paradoxical bronchospasm.

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

Antidote:
- ✱

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

Section 7-620 - Zofran (Ondansetron)

Advanced Life Support

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

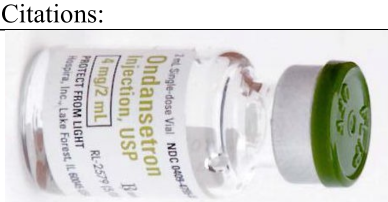
Half-Life:
✱ 5.7 hours.
Contraindications:
✱ Hypersensitivity.

Indications:
Protocol 2-050 - Chest Discomfort .... page 15
Protocol 5-070 - Head Trauma .... page 58
Protocol 6-040 - Control of Nausea .... page 66

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:



Part 8 - Equipment Protocols

Section 8-010 - Automated External Defibrillator (AED)

*NOTE: When using LifePak in AED mode, use Section 8-190 - LifePak (page 165).

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 13
Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) .... page 64

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 159

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

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

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

Section 8-030 - Bougie

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

Indications:

Protocol 6-110 - Rapid Sequence Intubation (RSI) (Predicted difficult **Intubation)**.. page 76
Section 8-070 - Cricothyrotomy Kit .... page 151

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 64

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:

Protocol 3-010 - Drowning (Near Drowning - awake and alert) .... page 29
Protocol 4-030 - Asthma (Consider trial prior to **Intubation** of severe Asthma patient) .... page 35
Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) .... page 40
Protocol 4-070 - Congestive Heart Failure (CHF) (Pulmonary edema) .... page 41
Protocol 5-040 - Chest Trauma (Pulmonary contusion or Flail Chest) .... page 55

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 76

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:

✱ 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 55

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.

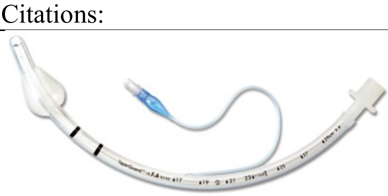
Contraindications:
✱

Indications:
Protocol 6-110 - Rapid Sequence Intubation (RSI) (Need for definitive Airway) .... page 76

Procedure:
✱ Hyperventilate with BVM and basic adjunct.
✱ Assemble, check, and prepare equipment.
✱ Consider Neo-Synephrine for nasal Intubation.
✱ Consider King 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.

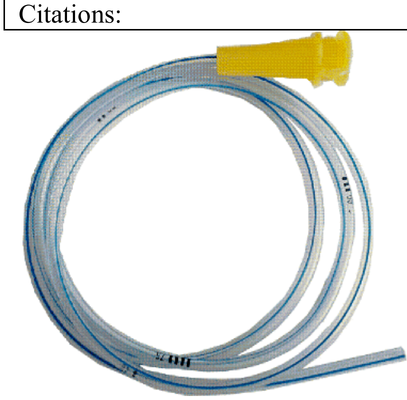
Indications:

Protocol 6-110 - Rapid Sequence Intubation (RSI) (Evacuation of air or fluids in stomach)............................ page 76
Section 8-080 - Endotracheal Tube (ET) (Evacuation of air or fluids in stomach) .... page 153
Section 8-160 - King LTSD Airway (Evacuation of air or fluids in stomach) .... page 162

Procedure:

- ✱ Assemble equipment.
- ✱ Explain procedure to patient.
- ✱ If possible, have patient sitting up.
- ✱ Use towel to protect patient's clothing.
- ✱ Measure tube from nose, around ear, and down to xiphoid process.
- ✱ Mark point at xiphoid process with tape.
- ✱ Lubricate distal end of tube 6-8 in with water-soluble lubricant.
- ✱ Insert tube in nostril and gently advance it towards posterior nasopharynx along nasal floor.
- ✱ When you feel tube at nasopharyngeal junction, rotate inward towards the other nostril.
- ✱ As tube enters oropharynx, instruct patient to swallow.
- ✱ Pass tube to pre-measured point.
- ✱ If resistance is met, back tube up and try again. Do not force tube.
- ✱ Check placement of tube by aspirating Gastric contents or auscultating air over epigastric region while injecting 20-30 ml of air.
- ✱ Tape tube in place and connect to low Suction if needed.

Link to research articles (QR code on right): http://1drv.ms/1zW9OdN
Citations:



Section 8-120 - Glucometer

Basic Life Support (EMT)	*Contraindications*:
Precautions: ✱ Do not rely on readings of other entities or patient's own Glucometer.	✱ None.

Indications:

Protocol 4-050 - Cardiovascular Accident (CVA) or Stroke (Any patient that presents with ALOC) .... page 37
Protocol 4-120 - Hypoglycemia (Any patient that presents with ALOC) .... page 47
Protocol 4-140 - Poisoning or Overdose (Any patient that presents with ALOC) .... page 49
Protocol 4-170 - Seizures (Any patient that presents with ALOC) .... page 51

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	*Contraindications*:
Precautions: ✱	✱

Indications:
....

Procedure:
✱ [PENDING version 6 update (Hemostatic)].

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:

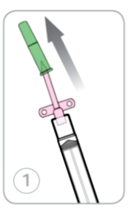
Medication administration without IV access.

Section 7-230 - Fentanyl (Sublimaze) .... page 104
Section 7-400 - Narcan (Naloxone) .... page 119
Section 7-600 - Versed (Midazolam).......... page 140
Section 7-620 - Zofran (Ondansetron).......... page 142

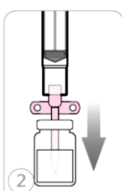
Procedure:

* 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.

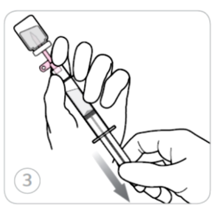
Link to research articles (QR code on right): http://1drv.ms/18iITRT
Citations: (Borland, Bergesio, Pascoe, Turner, & Woodger, 2005), (Finn, et al., 2004), (Holsti, et al., 2007), (O'Donnell, et al., 2013), (Teleflex Incorporated, 2013)



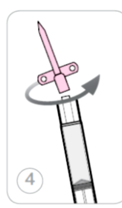
STEP 1: Remove and discard the green vial adapter cap.



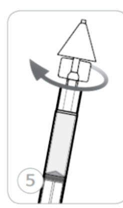
STEP 2: Pierce the medication vial with the syringe vial adapter.



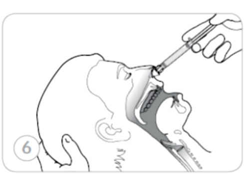
STEP 3: Aspirate the proper volume of medication required to treat the patient (an extra 0.1 mL of medication should be drawn up to account for the dead space in the device).



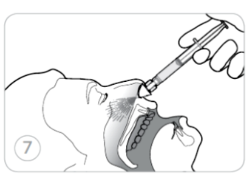
STEP 4: Remove (twist off) the syringe from the vial adapter.



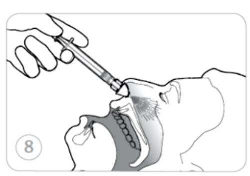
STEP 5: Attach the MAD Nasal™ Device to the syringe via the luer lock connector.



STEP 6: Using the free hand to hold the occiput of the head stable, place the tip of the MAD Nasal™ Device snugly against the nostril aiming slightly up and outward (toward the top of the ear).



STEP 7: Briskly compress the syringe plunger to deliver half of the medication into the nostril.



STEP 8: Move the device over to the opposite nostril and, repeating steps 6 and 7, administer the remaining medication into the nostril if indicated.

Section 8-135 - Intraosseous (IO) Needle

Advanced Life Support

Precautions:

- ✱ Shelf life for the EZ-IO G3 Power Driver is 10 years.

Contraindications:

- ✱ Fracture of target bone.
- ✱ Previous orthopedic procedure.
- ✱ Infection at insertion site.
- ✱ Inability to locate landmark due to edema or obesity.

Indications:

Any patient who needs IV access where IV attempts have failed or suspected to be unsuccessful.

Procedure:

- ✱ Prepare equipment.
- ✱ Identify landmark.
  - ✱ May use proximal tibia, distal tibia, or proximal humerus.
- ✱ Cleanse site.
- ✱ Stabilize site.
- ✱ Insert needle at 90 degree angle.
  - ✱ Insert needle without drilling until against bone.
  - ✱ If at least one black mark is visible on needle above skin, drill to appropriate depth.
  - ✱ If no black mark is visible on needle above skin, remove needle and re-attempt with longer needle. Re-attempts may be made at the same site only if bone was not drilled.
- ✱ Conscious: 2% **Lidocaine** 20-50 mg slow over 1-2 min. May repeat half dose after 30 min if Pain returns.
- ✱ Flush with **NS** 5-10 ml bolus.
- ✱ Connect tubing and apply pressure bag.
- ✱ Apply dressing.

Link to research articles (QR code on right): http://1drv.ms/1xwI9oi
Citations: (Vidacare Corporation, 2009)

Section 8-140 - Intravascular (IV) Needle

Advanced Life Support	*Contraindications*:
Precautions: ✱ Avoid venipuncuture in arms with dialysis shunts or distal to injuries.	✱ 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) *Precautions:* ✱	*Contraindications*: ✱ Patients with easy access requiring rapid extrication.

Indications:

Section 8-350 - Spinal Motion Restriction (SMR) (Patients that are seated and meet criteria for SMR)......... page 178
Section 8-360 - Splint .... page 179

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)	*Contraindications*:
Precautions:	✱ Responsive patient with intact gag reflex.
✱	✱ Known esophageal disease.
	✱ Caustic substance ingestion.

Indications:

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).
- ✱ Up to 18 fr **Gastric Tube** may be used in Suction lumen.

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

Section 8-170 - Laryngeal Mask Airway (LMA)

Basic Life Support (EMT)

Precautions:
✱

Contraindications:
✱ Swallow or gag reflex.

Indications:
Not in current protocols.

Procedure:
✱ Examine LMA for damage, leaks, and blockages.
✱ Inflate cuff with 150% that listed. Fully deflate.
✱ Lubricate posterior surface of cuff.
✱ Hold LMA with index finger at cuff-tube junction.
✱ Press mask against hard palate.
✱ Slide mask inward, extending index finger.
✱ Advance LMA into hypopharynx until resistance is felt.
✱ Hold outer end of LMA while removing index finger.
✱ Inflate cuff.
✱ Secure LMA.

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.

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

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) *Precautions:* ✱ Exercise safety precautions.	*Contraindications*: ✱ If ALS is available, manual mode is preferred. ✱ None in cardiac Arrest.

Indications:

Protocol 2-030 - Automated External Defibrillation (AED) (Cardiac Arrest without ALS assistance) .... page 13
Protocol 6-025 - Cardiopulmonary Resuscitation (CPR) (Cardiac Arrest without ALS assistance) .... page 64
Section 8-010 - Automated External Defibrillator (AED) (Cardiac Arrest without ALS assistance)............... page 143

Procedure:
- ✱ Confirm patient is in cardiac Arrest.
- ✱ Apply and connect combo-pads.
- ✱ Press “ANALYZE.”
- ✱ Follow on-screen messages and voice prompts.

Basic Life Support - 12/15-Lead acquisition (EMR or EMT) *Precautions:* ✱	*Contraindications*: ✱

Indications:

Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter.. page 12
Protocol 2-040 - Bradycardia .... page 14
Protocol 2-050 - Chest Discomfort (Suspected myocardial infarction) .... page 15
Protocol 2-060 - Post Resuscitative Care .... page 18
Protocol 2-080 - Tachycardia Narrow Stable .... page 20
Protocol 2-090 - Tachycardia Narrow Unstable .... page 21
Protocol 2-100 - Tachycardia Wide Stable .... page 22
Protocol 2-110 - Tachycardia Wide Unstable .... page 23
Protocol 2-120 - Torsades de Pointes .... page 24
Protocol 2-130 - Ventricular Ectopy .... page 25
Protocol 2-150 - Wolff-Parkinson-White (WPW) .... page 27
Protocol 4-040 - Behavioral (Non-specific complaints) .... page 36
Protocol 4-050 - Cardiovascular Accident (CVA) or Stroke (Non-specific complaints) .... page 37
Protocol 4-060 - Chronic Obstructive Pulmonary Disease (COPD) (Unexplained dyspnea)............................. page 40
Protocol 4-070 - Congestive Heart Failure (CHF) (Unexplained dyspnea)... page 41

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 13
Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach) .... page 26
Protocol 3-010 - Drowning .... page 29
Protocol 3-040 - Hypothermia Arrest .... page 32
Section 8-010 - Automated External Defibrillator (AED) .... page 143

Procedure:
- Verify patient is in cardio-pulmonary Arrest.
- Record baseline rhythm.
- Apply combo-pads (anterior-posterior is preferred)
- Select appropriate energy.
  - *Adult*: 360 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

Precautions:
✱

Contraindications:
✱

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

Precautions:
✱ Exercise safety precautions. Cardiovert with extreme caution in patients on digitalis, Beta-Blockers, and Calcium channel blockers.

Contraindications:
✱

Indications:
Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter .... page 12
Protocol 2-080 - Tachycardia Narrow Stable .... page 20
Protocol 2-090 - Tachycardia Narrow Unstable .... page 21
Protocol 2-100 - Tachycardia Wide Stable .... page 22
Protocol 2-110 - Tachycardia Wide Unstable .... page 23
Protocol 2-120 - Torsades de Pointes .... page 24

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

Advanced Life Support - Transcutaneous Pacing

Precautions:

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

Contraindications:

✱ None in emergency setting.

Indications:

Protocol 2-010 - Asystole .... page 11
Protocol 2-040 - Bradycardia .... page 14
Protocol 2-070 - Pulseless Electrical Activity (PEA) .... page 19

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 48

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) 57

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

Precautions:

- If restrained by law enforcement (i.e. hand-cuffs), an officer from the Arresting agency must be present throughout EMS transport.

Contraindications:

-

Indications:

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, OR
  ✱ Airway compromise when supine.
✱ Penetrating trauma and NO evidence of spinal injury should only be immobilized with a c-collar, if indicated (no backboard).

Indications:

✱ Avoid "routine" use of SMR.
✱ 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 8
Protocol 5-020 - Abdominal Trauma .... page 853
Protocol 5-040 - Chest Trauma .... page 855
Protocol 5-050 - Extremity Trauma .... page 856
Protocol 5-070 - Head Trauma .... page 858
Protocol 5-080 - Spinal Trauma .... page 859
Protocol 5-090 - Trauma Arrest .... page 860
Protocol 6-080 - Event Standby .... page 871

Procedure:

✱ Assess distal pulse, motor, and sensation.
✱ Maintain manual stabilization, measure, size, and secure cervical collar.
✱ Seated patient: Consider **KED**.
✱ Multi-person lift a few inches and slide board underneath.
  ✱ 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)

Section 8-360 - Splint

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

<u>Precautions:</u>
- 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.

<u>Contraindications</u>:
-

<u>Indications:</u>
Protocol 5-050 - Extremity Trauma 56

<u>Procedure:</u>
- 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.

<u>Evac-u-Splint Procedure:</u>
- 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:

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 48
Protocol 6-110 - Rapid Sequence Intubation (RSI) .... page 76

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 8-375 - Tablet

Basic Life Support (EMR or EMT)

Precautions:
✱ Do not transmit any patient identifying information.
✱ Do not delete or install any apps, contacts, etc.
✱ Do not alter any device settings.
  ✱ Changes to one device may affect all other devices in the fleet.

Contraindications:
✱ None.

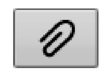
Indications:
Protocol 2-050 - Chest Discomfort (Need to activate Cath Lab by transmitting STEMI EKG)........................ page 15

Procedure:

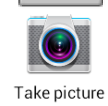
✱ Power on the device and enter the PIN, if requested. The PIN is the 4-digit number of the shift (i.e. “1770”).

✱ A menu option to send EKG will be presented.
  ✱ If device is being used for something other than transmitting a STEMI EKG, press the “back” button on the bottom right.
  ✱ To transmit an EKG, press “Send EKG.” Anew email will be generated and formatted.

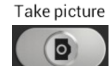
✱ Press the paperclip in top-right corner to attach a picture.



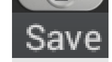
✱ Press “Take picture” to open camera.



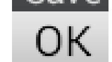
✱ Press the shutter button to take the picture with the EKG in the viewscreen.



✱ Press “Save” to attach the picture to the email.

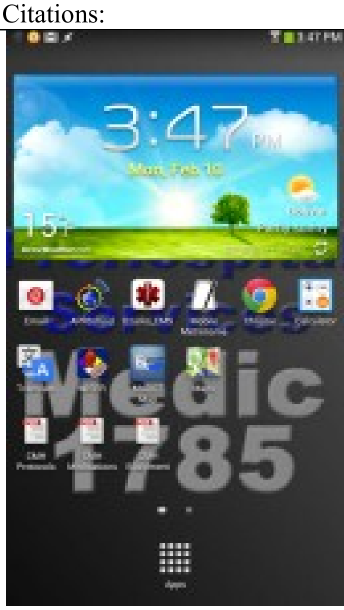


✱ Press “OK” to keep the original image size.



✱ Press “Send” to send the email.

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



Section 8-380 - Thermometer

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

Indications:

Procedure:

✱

Link to research articles (QR code on right): http://1drv.ms/1zWdUm5
Citations:

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 8
Protocol 5-050 - Extremity Trauma (Life-threatening limb hemorrhage uncontrolled by simple methods) ...... page 56

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.

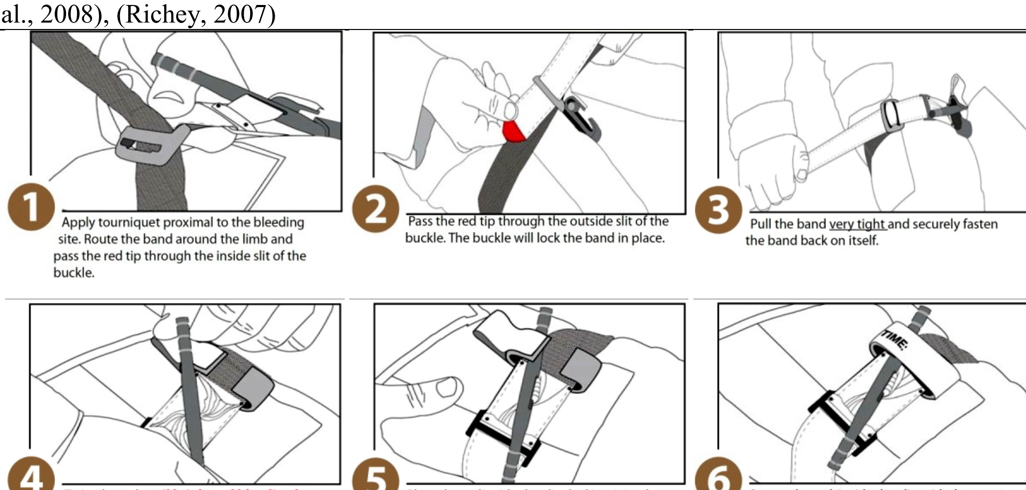
Advanced Life Support

✱ Application of Tourniquets typically results in severe Pain. Consider referring to 6-50 CONTROL OF PAIN protocol 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)



1 Apply tourniquet proximal to the bleeding site. Route the band around the limb and pass the red tip through the inside slit of the buckle.

2 Pass the red tip through the outside slit of the buckle. The buckle will lock the band in place.

3 Pull the band very tight and securely fasten the band back on itself.

4 Twist the rod **until bright red bleeding has stopped and the distal pulse is eliminated**.

5 Place the rod inside the clip; locking it in place. **Check for bleeding and distal pulse**. If bleeding is not controlled, consider additional tightening or applying a second tourniquet proximal side by side to the first and reassess.

6 Secure the rod inside the clip with the strap. **Prepare the patient for transport and reassess.** Record the time of application.

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.

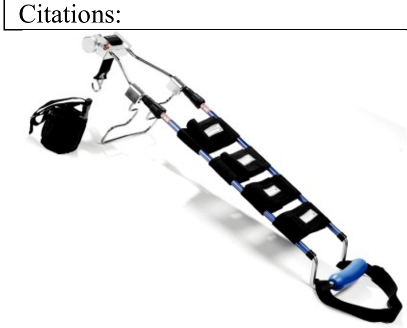
Indications:

Protocol 5-050 - Extremity Trauma (Open or closed femur fracture) .... page 56

Procedure:

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

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



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Part 9 - Appendix

Section 9-010 - References

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Section 9-020 - Change Log

Changes from Version 1 to version 2

Protocol	Page	Date	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

Protocol	Page	Date	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	7	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	8	11/11/13	Added quote from MO Statutes on transporting TCD trauma.
Protocol 2-020 - Atrial Fibrillation (A-Fib) or Atrial Flutter	12	10/04/13	Added rates to BLS Combo Pads.
Protocol 2-040 - Bradycardia	14	10/04/13	Added rates to BLS Combo Pads. Added "unstable" to Pacing. Added "stable" to Atropine.
Protocol 2-050 - Chest Discomfort	15	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	20	10/04/13	Added rates and "consider" to Combo Pads.
Protocol 2-090 - Tachycardia Narrow Unstable	21	10/04/13	Added rates to Combo Pads.
Protocol 2-100 - Tachycardia Wide Stable	22	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	23	10/04/13	Added rates to Combo Pads. Added "symptomatic" to ALS treatments.
Protocol 2-130 - Ventricular Ectopy	25	10/04/13	Added "consider" to Combo Pads.
Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach)	26	10/04/13	Changed witnessed pediatric energy from 2 J/kg to 4 J/kg.
Protocol 2-150 - Wolff-	27	10/04/13	Added "consider" to Combo Pads.

Parkinson-White (WPW)			
Protocol 3-010 - Drowning	29	10/04/13	Added “consider Combo Pads.”
		12/13/13	Removed CPAP as BLS skill, now is “assist ALS.”
Protocol 3-030 - Hypothermia	31	10/04/13	Added “consider Combo Pads.”
Protocol 4-020 - Anaphylaxis	34	1/29/14	Coordinated protocol with CMH policies.
Protocol 4-040 - Behavioral	36	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	37	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)	40	12/13/13	Removed CPAP as BLS skill, now is “assist ALS.”
Protocol 4-070 - Congestive Heart Failure (CHF)	41	12/13/13	Removed CPAP as BLS skill, now is “assist ALS.”
Protocol 4-080 - Croup	42	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	43	10/04/13	Added “consider” to orthostatic.
Protocol 4-100 - Fever	45	11/11/13	Added adult doses of Acetaminophen and Ibuprofen.
Protocol 4-120 - Hypoglycemia	47	10/04/13	Removed “(entire tube)” from oral Glucose.
Protocol 4-140 - Poisoning or Overdose	49	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	50	10/04/13	Added “consider” to orthostatic.
Protocol 4-170 - Seizures	51	11/11/13	Added “ensure open Airway” to BLS. Moved IM Versed to bottom of options.
Protocol 4-180 - Vaginal Bleeding	52	10/04/13	Added “consider” to orthostatic.
		11/11/13	Changed “put baby to nurse” to “have mother breastfeed.”
Protocol 5-030 - Burns	54	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	55	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	56	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	57	10/04/13	Moved Morgan Lens from ALS to BLS.
Protocol 5-070 - Head Trauma	58	11/19/13	Changed SMR mandatory to SMR “as required.”
Protocol 5-090 - Trauma Arrest	60	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	61	1/29/14	Added comment if med control cannot be contacted from CMH policies.
Section 6-020 - Air Ambulance	62	1/29/14	Coordinated protocol with CMH policies.
Section 6-030 - Competencies and Education	65	12/13/13	Added National Scope of Practice graphic.
		1/29/14	Coordinated protocol with CMH policies.

Protocol 6-055 - Decontamination	68	1/29/14	Coordinated protocol with CMH policies.
Protocol 6-080 - Event Standby	71	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	72	1/29/14	Removed “rehabilitation” from title.
Protocol 6-110 - Rapid Sequence Intubation (RSI)	76	1/29/14	Added “request second unit if possible.”
Section 6-120 - Transfer of Care	77	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	78	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	79	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	81	10/07/13	Added images of typical medication (vials).
Section 7-010 - Acetaminophen (Tylenol)	81	11/11/13	Added adult dose.
Section 7-060 - Aspirin	86	12/20/13	Added EMT scope of practice statement.
Section 7-070 - Ativan (Lorazapam)	87	10/09/13	Added option for SL tablet.
Section 7-140 - Decadron (Dexamethasone)	95	11/11/13	Added IV/IO/IM/PO and moved Neb to last resort.
Section 7-190 - Epinephrine 1:1,000	100	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	101	10/06/13	Added “medication” should be protected from light.
Section 7-230 - Fentanyl (Sublimaze)	104	1/29/14	Coordinated with CMH policies.
Section 7-250 - Glucose	106	12/20/13	Added EMT scope of practice statement.
Section 7-280 - Hydralazine (Apresoline)	109	11/11/13	Added adult dose.
Section 7-390 - Morphine	118	1/29/14	Coordinated with CMH policies.
Section 7-440 - Normal Saline (NS, Sodium Chloride)	122	12/20/13	Added EMT scope of practice statement.
Section 7-460 - Oxygen	123	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)	138	1/29/14	Coordinated with CMH policies.
Section 7-600 - Versed (Midazolam)	140	1/29/14	Coordinated with CMH policies.
Section 8-010 - Automated External Defibrillator (AED)	143	12/15/13	Added EMT scope of practice statement.
Section 8-020 - Blood Draw Kit	144	1/29/14	Coordinated with CMH policies.
Section 8-032 - Capnometer	146	12/15/13	Changed to ALS skill.

Protocol 8-040 CombiTube	NA	12/15/13	Added EMT scope of practice statement.
Section 8-050 - Continuous Positive Airway Pressure (CPAP)	147	12/15/13	Changed to ALS skill.
Section 8-060 - Cot	149	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	155	12/15/13	Added EMT scope of practice statement.
Section 8-130 - Intranasal (IN) Device	157	11/11/13	Added comment that IV route is preferred.
Section 8-150 - Kendrick Extrication Device (KED)	161	12/15/13	Added EMT scope of practice statement.
Section 8-160 - King LTSD Airway	162	12/15/13	Added EMT scope of practice statement.
Section 8-170 - Laryngeal Mask Airway (LMA)	163	12/15/13	Added EMT scope of practice statement.
Section 8-190 - LifePak	164	12/15/13	Added EMT scope of practice statements.
Section 8-210 - Morgan Lens	170	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)	171	12/15/13	Added EMT scope of practice statement.
Section 8-260 - Oro-Pharyngeal Airway (OPA)	173	12/15/13	Added EMT scope of practice statement.
Protocol - 8-310 MAST	NA	12/15/13	Added EMT scope of practice statement.
Section 8-330 - Portable Ventilator	177	12/15/13	Changed to BLS skill
		1/29/14	Changed back to ALS skill.
Section 8-350 - Spinal Motion Restriction (SMR)	178	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	179	12/15/13	Added EMT scope of practice statement.
Section 8-370 - Suction	180	12/15/13	Added EMT scope of practice statement.
Section 8-375 - Tablet	182	12/10/13	Added Tablet protocol (for STEMI transmission).
Section 8-390 - Tourniquet	183	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	185	12/15/13	Added EMT scope of practice statement.

changes from version 3 to version 4

Protocol	Page	Date	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	1	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 0-020 - Table of Contents	3	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	7	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	8	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	11	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	12/12/14	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	14	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	15	12/12/14	Removed Blood Draw. Added Fentanyl if nitro and Morphine contraindicated.
		12/15/14	Added “within 5 min” for ASA administration.
		3/30/15	Added STEMI destination determination flowchart.
		4/3/15	Added “Use Tablet” for STEMI transmission.
Protocol 2-070 - Pulseless Electrical Activity (PEA)	19	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	21	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	22	4/3/15	Clarified when to apply Combo Pads according to age and rates.
Protocol 2-110 - Tachycardia Wide Unstable	23	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	24	12/12/14	Added consider Gastric Tube.
		4/3/15	Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).
Protocol 2-140 -	26	12/12/14	Added consider Gastric Tube.

Ventricular Fibrillation (V-Fib or V-Tach)		4/3/15	Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).
Protocol 3-010 - Drowning	29	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	30	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	31	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	32	4/3/15	Moved Gastric Tube to Protocol 6-110 - Rapid Sequence Intubation (RSI).
Protocol 4-010 - Abdominal Pain	33	12/12/14	Changed Fentanyl over 65 yr to weight-based dose. Clarified pediatric Zofran and Phenergan dosages.
Protocol 4-020 - Anaphylaxis	34	2/22/14	Changed Oxygen dose to maintain 100%.
		4/14/15	Added “consider” to limb leads.
Protocol 4-030 - Asthma	35	12/12/14	Made Intubation a DELIBERATE ACTION.
		3/2/15	Removed DELIBERATE ACTION.
Protocol 4-040 - Behavioral	36	1/20/15	Added emotional first aid steps.
Protocol 4-050 - Cardiovascular Accident (CVA) or Stroke	37	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)	40	12/12/14	Made Intubation a DELIBERATE ACTION.
		3/2/15	Removed DELIBERATE ACTION.
Protocol 4-070 - Congestive Heart Failure (CHF)	41	12/12/14	Added Capnography. Made Intubation a DELIBERATE ACTION. Increased nitro dose.
		3/2/15	Removed DELIBERATE ACTION.
Protocol 4-080 - Croup	42	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	43	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	45	12/12/14	Removed Blood Draw.
		4/14/15	Added “consider” to limb leads.
Protocol 4-110 - Hypertension	46	12/15/14	Added mean arterial pressure comment.
Protocol 4-120 - Hypoglycemia	47	12/12/14	Removed Blood Draw.
		4/14/15	Added “consider” to limb leads.
Protocol 4-130 - Neonatal Resuscitation	48	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	49	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	51	12/12/14	Removed Blood Draw.
Protocol 4-180 - Vaginal Bleeding	52	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	53	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	54	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	55	12/12/14	Made Intubation a DELIBERATE ACTION. Made Chest Decompression a DELIBERATE ACTION. Added weight-based dose for greater than 65 yr for Fentanyl.
		3/2/15	Removed DELIBERATE ACTION.
		4/14/15	Added “consider” to occlusive dressing.
Protocol 5-050 - Extremity Trauma	56	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	57	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	58	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	59	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	61	12/12/14	Changed phone number for Golden Valley. Changed name for Mercy Joplin Psych. Removed Sac-Osage.
Section 6-020 - Air Ambulance	62	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	65	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	66	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	67	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	68	12/12/14	Created Decontamination protocol.
Section 6-070 - Documentation	70	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	71	4/3/15	Modified this section to reflect other vehicle standbys at events other than just an ambulance.
Protocol 6-090 - IDLH Standby	72	12/15/14	Added rehab suggestions.
Section 6-100 - Off-Duty Protocols	74	4/3/15	Clarified the application of this protocol on non-CMH employees.
Section 6-105 - Quality Improvement	75	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)	76	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	77	12/12/14	Removed Blood Draw.
Protocol 6-130 - Triage	78	12/12/14	New, clearer image for SALT Triage algorithm.
Part 7 - Medication Protocols	81	2/24/14	Added half-life of most medications.
		12/29/14	Removed “call for orders” from all titles.
Section 7-050 - Amiodarone (Cordarone)	85	4/1/15	Added comment about prolonging QT interval and the need for 12-lead.
Section 7-060 - Aspirin (Bayer)	86	3/31/15	Moved Asthma from contraindication to precautions.
Section 7-070 - Ativan (Lorazapam)	87	12/29/14	Added DEA and street info.
Section 7-090 - Benadryl (Diphenhydramine)	89	4/1/15	Added comment about prolonging QT interval and the need for 12-lead.
Section 7-160 - Dilaudid (Hydomorphone)	97	12/29/14	Added DEA and street info. Clarified dosage.
Section 7-220 - Etomidate (Amidate)	103	2/22/14	Added contraindication of sepsis.
Section 7-230 - Fentanyl (Sublimaze)	104	12/29/14	Added DEA and street info. Added greater than 65 yr dose same as pediatric.
Section 7-260 - Haldol (Haloperidol)	107	4/1/15	Added comment about prolonging QT interval and the need for 12-lead.
Section 7-330 - Ketamine (Ketalar)	112	12/29/14	Added DEA and street info.
Section 7-360 - Lasix (Fuosemide)	115	4/1/15	Added comment about prolonging QT interval and the need for 12-lead.
Section 7-390 - Morphine	118	12/29/14	Added DEA and street info.
Section 7-420 - Nitroglycerin (Nitrostat, Nitolingual, Tridil)	121	12/29/14	Added differentiation for Chest Pain dose and CHF dose.

Section 7-460 - Oxygen	123	2/22/14	Added unresponsive ROSC dosage and cleaned graphic of SpO_2 titration rates.
Section 7-470 - Oxytocin (Pitocin)	124	4/1/15	Added comment about prolonging QT interval and the need for 12-lead.
Section 7-480 - Phenergan (Promethazine)	125	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)	126	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	128	12/29/14	Added protocol.
Section 7-525 - Romazicon	130	12/29/14	Added protocol.
Section 7-560 - Tetracaine	134	4/14/15	Added halflife.
Section 7-575 - Toradol (Kertoralac)	136	12/29/14	Added protocol.
Section 7-580 - Valium (Diazepam)	138	12/29/14	Added DEA and street info.
Section 7-600 - Versed (Midazolam)	140	12/29/14	Added DEA and street info.
Section 7-620 - Zofran (Ondansetron)	142	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	143	12/29/14	Removed “call for orders” from all titles.
Section 8-020 - Blood Draw Kit	144	12/29/14	Added “consider” to indications.
Section 8-032 - Capnometer	146	12/29/14	Moved Protocol 8-250 (Nellcor Capnometer) to this location and removed 8-250.
Section 8-060 - Cot	149	4/3/15	Added “Consider Stair Chair.”
Section 8-070 - Cricothyrotomy Kit	151	12/29/14	Added info from 8-330 (QuickTrach II) and removed 8-330.
Section 8-075 - Decompression Needle	152	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)	153	4/3/15	Added “Consider Neo-Synephrine” and “Consider King”
Section 8-135 - Intraosseous (IO) Needle	158	1/8/15	Moved Protocol 8-100 (EZ-IO) to this location and removed 8-100.
Section 8-142 - IV Pump	160	12/29/14	Added this protocol from 8-300 (Plum Pump) and removed 8-300.
Section 8-230 - Naso-Pharyngeal Airway (NPA)	171	1/5/14	Removed “Unconscious or unresponsive” from indications.
Section 8-330 - Portable Ventilator	177	12/29/14	Added this protocol from 8-270 (ParaPac Ventilator) and removed 8-270.
Section 8-350 - Spinal Motion Restriction (SMR)	178	4/3/15	Clarified indications and added “Consider KED.”
Section 8-370 - Suction	180	12/29/14	Removed “S-Scort” from the name of this protocol.
Section 8-400 - Traction Splint	185	12/29/14	Added info from 8-340 (Sager Splint) and removed 8-340.
Section 9-030 - Subject Matter Experts	202	4/3/15	Created this section to track SMEs.
Section 9-040 - Index	206	4/3/15	Created this section.
Section 9-050 - Glossary of Abbreviations	209	4/14/15	Created this section at the specific request of Dr. Merk.

Pending changes from version 4 to version 5 (expected release date of 5/1/15)

Protocol	Page	Date	Description
Protocol 2-010 - Asystole	11	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.
Protocol 2-030 - Automated External Defibrillation (AED)	13	12/14/14	Replace CPR with CCR.
		3/31/15	Reverted to CPR per medical director.
Protocol 2-070 - Pulseless Electrical Activity (PEA)	19	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.
Protocol 2-140 - Ventricular Fibrillation (V-Fib or V-Tach)	26	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.
Protocol 3-010 - Drowning	29	12/14/14	Replaced CPR with CCR.
		3/31/15	Reverted to CPR per medical director.
Protocol 3-030 - Hypothermia	31	12/15/14	Replaced CPR with CCR.
		3/31/15	Reverted to CPR per medical director.
Protocol 3-040 - Hypothermia Arrest	32	12/15/14	Replaced CPR with CCR.
		3/31/15	Reverted to CPR per medical director.
Protocol 6-025 - Cardiopulmonary Resuscitation (CPR)	64	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.
Section 6-140 - Termination of Resuscitation	79	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.

Pending changes from version 5 to version 6 (expected release date of 7/1/15)

Protocol	Page	Date	Description
Protocol 1-020 - General Assessment and Treatment - Trauma	8	12/26/14	Added Celox and Tourniquet to BLS if bleeding cannot be controlled by simple means.
Protocol 5-020 - Abdominal Trauma	53	12/26/14	Added TXA.
Protocol 5-040 - Chest Trauma	55	12/26/14	Added TXA.
Protocol 5-050 - Extremity Trauma	56	12/26/14	Added TXA.
Protocol 6-085 - High-Threat Response	72	12/29/14	Added placeholder for this protocol.
		4/14/15	Renamed this protocol from Tactical Response to High-Threat Response.
Section 7-578 - TXA (Tranexamic Acid)	137	12/29/14	Added protocol.
Section 8-125 - Hemostatic Agent	156	12/29/14	Added this protocol.

Pending changes from version 6 to version 7 (expected release date of 9/1/15)

Protocol	Page	Date	Description
Protocol 2-060 - Post Resuscitative Care	18	12/12/14	Added consider RSI and cooling.
Protocol 4-040 - Behavioral	36	2/22/14	Added Ketamine after medical control for severe.
		12/15/14	Added greater than 65 Ketamine dose.
Protocol 5-030 - Burns	54	12/12/14	Made Intubation and RSI DELIBERATE ACTIONS. Added indications for RSI.
		3/2/15	Removed DELIBERATE ACTIONS.

Protocol 5-070 - Head Trauma	58	12/12/14	Added RSI indications.

Section 9-030 - Subject Matter Experts

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Part 0 - Front Matter	Section 0-010 - Document Style Standards	1	Theron Becker
	Section 0-020 - Table of Contents	3	Theron Becker
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	Protocol 2-050 - Chest Discomfort	15	Alice Roberts
	Section 2-051 - EKG Interpretation Guide	16	Alice Roberts
	Section 2-052 - STEMI Destination Determination Flowchart	17	Alice Roberts
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	Protocol 3-030 - Hypothermia	31	Cheryl Rhodes
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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.
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.
BDLS - Basic Disaster Life Support.
BLS - Basic Life Support. Usually provided by EMRs and EMTs.
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.
CCR - Cardio Cerebral Resuscitation. Similar to CPR but through the use of compressions only.
CHF - Congestive Heart Failure.
CMH - Citizens Memorial Hospital.
COPD - Chronic Obstructive Pulmonary Disease.
CPAP - Continuous Positive Airway Pressure.
CPR - Cardio Pulmonary Resuscitation.
CSR - Code of State Regulations.
CVA - Cardiovascular Accident. Stroke.
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.
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.
F - Fahrenheit. Measurement of temperature.
g - Gram. Measurement of mass.
GCS - Glasgow Comma Scale.
GI - Gastrointestinal.
HR - Heart Rate. Beats per minute.
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.
LMA - Laryngeal Mask Airway.
LOC - Level of Consciousness.
LR - Lactated Ringers.
MAP - Mean Arterial Pressure.
mcg - Microgram. Measurement of mass.
mEq - Milliequivalent. Measurement of medication.
MFR - See EMR.
mg - Milligram. Measurement of mass.
mi - Miles. Measurement of distance.
MI - Myocardial Infarction. See STEMI.
min - Minute. Measurement of time.
ml - Milliliter. Measurement of volume.
mm - Millimeter. Measurement of distance.
MOI - Mechanism of Injury.
mph - Miles Per Hour. Measurement of speed.
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.
PEA - Pulseless Electrical Activity. Electrical activity is seen on the EKG but not enough mechanical activity of the heart to produce a pulse.
PHS - Pre-Hospital Services. See EMS.
PO - Medication access through ingestion in the stomach.
PPE - Personal Protective Equipment. May include contact precautions such as gloves, thermal protection such as firefighting gear, or respiratory protection such as SCBA.
PRC - Patient Refusal of Care.
QRS - Ventricular depolarization electrical activity of the heart that includes the Q-wave, R-wave, and S-wave.
QT - Portion of the EKG that is measured between the Q-wave and the T-wave.
RBBB - Right Bundle Branch Block.
RN - Registered Nurse.
RR - Portion of the EKG that is measured from R-wave to R-wave. One beat.
RSI - Rapid Sequence Intubation.
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.
TXA - Tranexamic Acid.
VF - See V-Fib.
V-Fib - Ventricular Fibrillation.
VT - See V-Tach.
V-Tach - Ventricular Tachycardia.
WPW - Wolff Parkinson White. Specific EKG interpretation.
yr - Year. Measurement of time.
yrs - Years. Measurement of time.