`

Cooke County EMS

Protocols

Effective Date March 5, 2026
Thru
August 31, 2026

Index

Cooke County

Clinical Guideline

Table of Contents

Cooke County

Clinical Guideline:

Table of Contents

Geographical Responsibility and Status of Personnel

Cooke County Emergency Medical Services covers 874 Sq. Miles of Cooke County. We are a rural EMS provider with pockets of dense population. This protocol is to clarify when an EMT, EMT-P, Licensed Paramedic or Critical Care Paramedic may perform his or her protocols and in what areas they may utilize these protocols.

It is intended that these protocols are for on duty personnel. It is understood that there are times when the off-duty personnel respond to major incidents, and in this case, the off-duty personnel may utilize their skills. It is further understood that off duty personnel may come across incidents that may require them to utilize their skills. Within the operating area of Cooke County, the personnel may utilize their skills, but all must be documented in the Patient Care Report.

Off Duty personnel that are traveling outside of Cooke County, that come across an incident, may utilize all their skills within the guidelines of these protocols. An incident report must be completed and turned into the EMS Chief, and a copy must go to the Medical Director for review. On Duty personnel that are out of Cooke County EMS' operating area and come across an incident may utilize their skills to the certified level. All appropriate patient care documentation must be completed.

Online Medical Control

Due to the geography of Cooke County and the proximity of other hospitals in neighboring counties, the transporting unit will contact the destination hospital should they need online medical control.

ALS Medication Security

The Medical Director has delegated that all EMTs will have access to ALS medications.

Certification Levels

- EMT – Basic life support skills as outlined by the TDSH.
- Intermediate – Basic and advanced skills as outlined by the TDSH.
- Probationary Paramedic – May operate under level 1 status under supervision on an FTO.
- Paramedic I – Basic and advanced skills as outlined by the TDSH. Full use of department protocols excluding Paralytic Assisted Intubation.
- Paramedic II - Basic and advanced skills as outlined by the TDSH. Full use of department protocols.
- Paramedic III - Basic and advanced skills as outlined by TDSH. Full use of department protocols and the ability to utilize procedures below the Medical Control Line.

The initial assessment and treatment of all patients must be performed in a rapid, systematic, and thorough fashion. Evaluation of the patient according to established priorities will help one to identify serious life- threatening situations quickly, so that intervention can take place, possibly preventing further deterioration in the patient's status. The systematic evaluation of the trauma patient should be performed on all injured patients, even those with minor trauma.

The most important priorities in the evaluation and treatment of all patients are found in the **primary survey** of the patient. Frequently, patient assessment must occur simultaneously with patient treatment during this phase of the patient's evaluation. At times, invasive procedures (e.g., intubation with in-line cervical stabilization) or initiation of rapid transport may be required before the complete, overall patient assessment is achieved. The **primary survey** in a patient includes assessment and treatment of the following:

Airway: Evaluation, establishment, and maintenance of an airway using C-spine precautions; determination of the patient's level of consciousness to provide additional information concerning the patient's airway status.

Breathing: Determination of whether a patient is adequately breathing and oxygenating.

- Serious chest injuries may rapidly progress to cardio-respiratory arrest, and certain chest injuries that may require immediate intervention (sucking chest wounds, tension pneumothorax).

Circulation: Determination if a pulse is present, controlling external bleeding, and identification of injuries that may cause significant blood loss. Initiation of rapid transport and intravenous fluids play a role in the treatment of the patient at this stage.

Disability: Performance of a rapid neurological evaluation to establish a patient's level of consciousness and pupillary size and reaction.

Exposure: The clothing is removed to identify all injured areas with special care to avoid hypothermia.

1. Survey the scene for possible hazards and resurvey periodically.
2. Secure the scene.
3. Protect yourself first, then victims from hazards.
4. Identify the mechanism of injury.
5. Identify all potential patients. Notify **Receiving Hospital** of victim count.
6. Prioritize patients, if more than one, using the same ABC system.
7. If MCI, triage using START.
8. Notify **Receiving Hospital** of victim count.

The following are guidelines regarding the decision to attempt resuscitation in the field. Good judgment and common sense shall be used in the application of these guidelines.

1. In all situations where there is **any** possibility that life exists, every effort should be made to resuscitate the patient and transport them to the hospital.

2. The paramedic should be aware of the following facts:
   - Those people in VF, PEA, and Asystole can potentially be resuscitated.
   - "Time Down" is an inaccurate parameter of resuscitation, as the patient could have been in bradycardia or simply unconscious for all that time, yet still perfusing blood to the brain. Additionally, information received from bystanders regarding time is often inaccurate.
   - Pupil size and response to light can be inaccurate as medications taken orally or intraocular can affect them.
   - Children and hypothermic patients may have fixed and dilated pupils from anoxia and yet be resuscitated without neurological deficit.

3. Resuscitation need not be attempted in the field in cases of:
   a. Decapitation
   b. Decomposition
   c. Rigor mortis
   d. Dependent lividity
   e. Visual massive trauma to the brain or heart conclusively incompatible with life
   f. Massive blunt mechanism of injury in cardiac arrest
   g. Valid Out of Hospital DNR form or Identification item

4. Mass Casualty Incidents - In these situations, the department triage protocol will apply.

5. Living Wills - The paramedic's actions should not be changed by a Living Will described or produced by the family or bystanders.

6. If unclear, error on the side of caution and initiate resuscitation and refer to appropriate protocol.

Note: Since it is usually not possible to predict no recoverability of a brain acutely insulted by cardiac arrest and attempts to do so increase anoxia time with the likelihood of further permanent brain damage, the responsible paramedic is usually obligated to start CPR. Paramedics should keep in mind that they may be held liable if they elect not to do so, on an arbitrary basis.

Clinical Definition: This guideline establishes priorities in the initial assessment and treatment of patients. The patient must be evaluated and treated in a rapid and orderly fashion to achieve the best patient outcome. When a life-threatening problem is identified, treatment is initiated for that problem before proceeding with the next step in the guideline. Using this approach, life-threatening injuries or conditions are identified and treated in a stepwise manner.

NOTE:

Assume the following in ALL severely injured patients:

- The patient has a spinal injury until proven otherwise.
- The patient has an immediate threat to life that has not yet been found.
- The patient may decompensate at any moment.

The only aspects of patient care that, in most cases, would be performed prior to the initiation of patient transport which includes establishing and maintaining an adequate and appropriate airway with oxygenation and ventilation as required. Immobilize and protect the spine as indicated and required. Initial attempts to control significant external hemorrhage.

The FIRST set of vital signs will be manual within 5 minutes of patient contact. Vital signs will be monitored in an interval appropriate for patient condition. Vital signs will be defined as at a minimum; pulse, respiratory rate, blood pressure, Sp02, and Temperature. EtC02 as indicated per protocol.

AIRWAY:

EMT:

1. Assess level of consciousness.
2. Assess, establish, and/or maintain an adequate airway, while also observing C-spine precautions. Apply cervical collar if indicated and while doing so, note:
    a. Is trachea midline?
    b. Any bruises, swelling or crepitus in the neck?
    c. Is carotid pulse present?
    d. If no pulse is present, begin CPR and immediately refer to Traumatic Arrest Protocol.
3. Insert oral or nasopharyngeal airway as indicated.
4. Reassess patients frequently.

Intermediate and Paramedic I:

5. Establish need for in-line endotracheal intubation. Observe C-spine precautions.
6. If intubation is necessary, it should be performed using the two-man technique with one person stabilizing the cervical spine while the other person performs the intubation. Extreme care must be taken to avoid flexion or extension of the neck.

Continued next page

7. If intubation is performed, endotracheal tube placement should be assessed and documented using three or more of the following techniques:
    a. Visualization of endotracheal tube passing through vocal cords.
    b. Equal breath sounds.
    c. Absence of ventilated air in the epigastrium
    d. Rise and fall of chest wall.
    e. Fogging of the Endotracheal Tube
    f. Capnography waveform confirmation
8. Continuous Capnography - End-tidal CO2 monitor. If the patient has a decreased level of consciousness, ventilate to maintain an **EtCo2 of 35 – 45 mmHg**
9. If the tube cannot be confirmed in the proper position, it should be removed and the patient re-intubated.
10. When proper placement is confirmed, the tube should be properly secured with a tube holder and c-collar and CID to minimize the chances of dislodgment. (If you are unable to fit patient with c-collar, secure head with CID).
11. Reassess patient's airway/ventilation frequently.

NOTE: Failure to provide and maintain an adequate airway is the most common cause of preventable pre- hospital morbidity and mortality. The airway should be carefully assessed initially and frequently reassessed to ensure a competent airway is maintained during the pre-hospital phase of treatment.

BREATHING:

EMT:

1. Administer oxygen per patient and assist patient's ventilation as needed. If the patient has a decreased level of consciousness, ventilate:
    ≥ 13 y/o: 10–18 breaths/min
    ≥ 5 – 12 y/o: 20–25 breaths/min
    0 – 4 y/o: 30–40 breaths/min
    If the patient has a decreased LOC or other signs of a traumatic brain injury: refer to the **Traumatic Brain Injury Protocol** (18), after completion of the **Initial Trauma Assessment and Treatment Protocol.** (8-11)
2. Observe chest wall movement for symmetrical and auscultate breath sounds on both sides of the chest. Rate, depth, and pattern of breathing as well as the integrity of the chest wall should be assessed.
3. If a sucking chest wound has been identified, apply dressing as described in **Sucking Chest Wound Protocol**. (17)

Intermediate:

4. If patient is breathing inadequately, assist ventilations with 100% oxygen through mask or endotracheal tube to maintain a **EtCo2 of 35 – 45 mmHg.**

Paramedic I:

5. If signs of tension pneumothorax are present, refer to the **Needle Thoracostomy Protocol** (134)

Continued next page

CIRCULATION/ BLEEDING:

EMT

1. Control serious external bleeding by direct pressure, pressure dressings, or tourniquet.
2. If it's not already done, palpate for a pulse. If not present, initiate CPR and proceed to the **Traumatic Arrest Protocol** (pg15)
3. If pulse is present, then obtain pulse rate and BP. If systolic BP < 90, Heart Rate > 120, and/or clinical evidence of shock is present, refer to **Traumatic Shock Protocol**. (16)
4. Palpate abdomen for rigidity or tenderness and pelvis for pain or crepitus (identifying potential sources for significant blood loss).
5. Examine the patient's back, if possible, for gross deformities or penetrating injuries prior to placing the patient on the backboard.
6. For penetrating injuries, refer to **Penetrating Injuries Protocol.** (24-27)
7. Transport pregnant patients tilted 30 degrees to left laterally.
8. Maintain a high index of suspicion of Abruptio Placenta in all pregnant trauma patients.

Intermediate and Paramedic I:

9. If there is evidence of a significant mechanism of injury, external blood loss, or evidence of possible pelvic or femur fracture or other significant injuries, attempt to establish 2 large bore IVs and refer to **Fluid Resuscitation Protocol.** (12-13)
    - Attempts to establish IV access are usually made enroute. Transport should not be delayed for multiple attempts at the initiation of an IV.

DISABILITY (Neurological Exam):

All Levels:

1. Evaluate neurological status by noting the following:
    A. Mental status/level of consciousness.
    B. Presence/absence of movement in extremities, either spontaneously or in response to pain
    D. Pupillary size and reactivity.
    E. Evidence of trauma to the head or neck.
2. If there is evidence of head trauma, have suction ready and observe for any seizure activity.
3. If there is evidence of closed head injury, see **Traumatic Brain Injury Protocol.** (18)

NOTE: The patient's status must be reassessed at frequent intervals to detect changes, and these changes should be immediately reported to Medical Control. The ABC's including vital signs should be repeated every 15 minutes in potentially stable patients and every 5 minutes in unstable patients.

Continued Next Page

EXPOSE AND EXAMINE:

1. Examine for specific injuries – burns, chemicals, drowning, eye, etc. If present, see specific protocol.
2. Assess extremities by inspection and palpation for presence of tenderness, gross deformity, soft tissue swelling, lacerations, or abrasions. Also, note motor, sensory, and vascular integrity in each extremity. Appropriately dress and splint extremity injuries as required and as time will allow. Elevate injured extremities when possible.
3. If possible, when the patient is log- rolled onto backboard, palpate, and inspect back for evidence of trauma.
4. Calculate Glasgow Coma Score and Revised Trauma Score.

TIME CRITERIA:

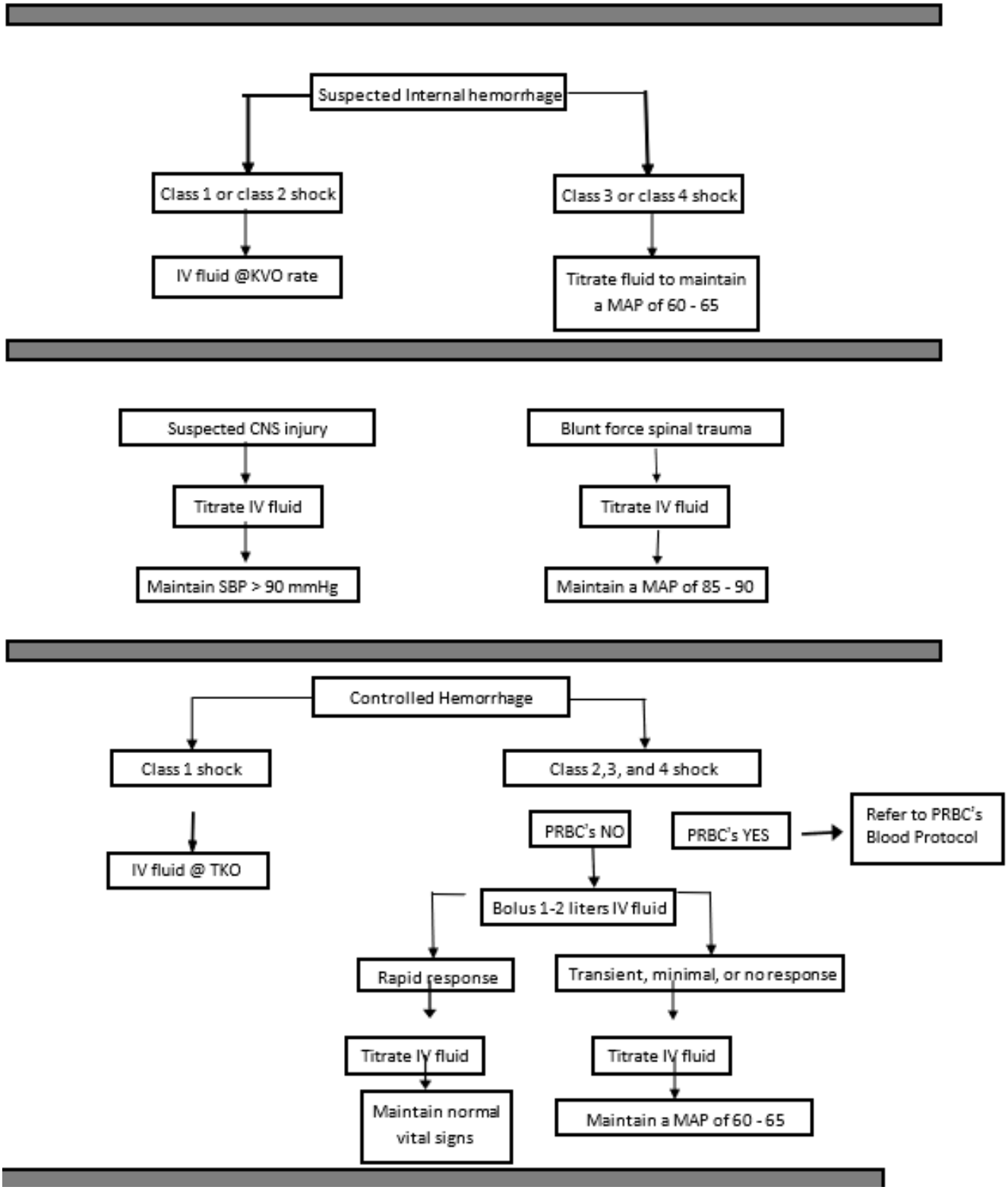
Medical Scene Times: goal 20 minutes
Critical Trauma patients Scene Times: goal 10 minutes
Chest pain or cardiac patient goal: 12-Lead within 10 minutes of patient contact
Manual vitals within 5 minutes of patient contact

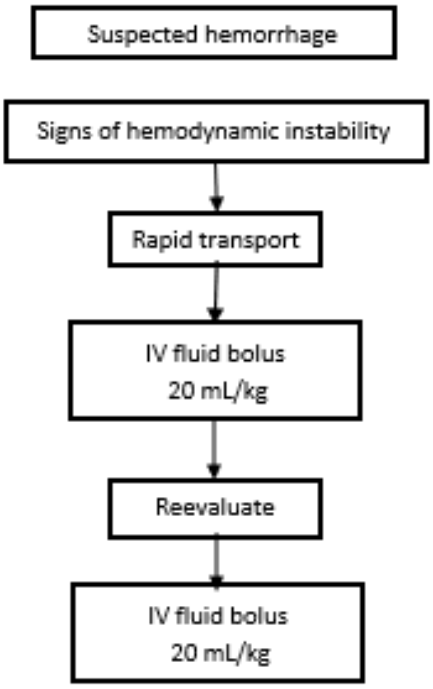
Glasgow Coma Scale

	Infants		Children / Adults
EYE	Spontaneous	4	Spontaneous
	To Speech/Sound	3	To Speech
	To Pain	2	To Pain
	No Response	1	No Response
MOTOR	Spontaneous	6	Obeys Commands
	Withdraws to Touch	5	Localizes Pain
	Withdraws to Pain	4	Withdraws to Pain
	Abnormal Flexion	3	Abnormal Flexion
	Abnormal Extension	2	Abnormal Extension
	None	1	None
VERBAL	Coos and Babbles	5	Oriented
	Irritable Cry	4	Confused
	Cries to Pain	3	Inappropriate Words
	Moans to Pain	2	Incomprehensible
	None	1	None

Revised Trauma Score - Adult

Glasgow Coma Scale	SBP	Respiratory Rate	Coded Points
13 - 15	>89	10 - 29	4
9 - 12	76 - 89	>29	3
6 - 8	50 - 75	6 - 9	2
4 - 5	1 - 49	1 - 5	1
3	0	0	0
GCS:	SBP:	Resp. Rate:	Total:


Suspected Internal hemorrhage
Class 1 or class 2 shock
IV fluid @KVO rate
Class 3 or class 4 shock
Titrate fluid to maintain a MAP of 60 - 65
Suspected CNS injury
Titrate IV fluid
Maintain SBP > 90 mmHg
Blunt force spinal trauma
Titrate IV fluid
Maintain a MAP of 85 - 90
Controlled Hemorrhage
Class 1 shock
IV fluid @ TKO
Class 2,3, and 4 shock
PRBC's NO
PRBC's YES
Refer to PRBC's Blood Protocol
Bolus 1-2 liters IV fluid
Rapid response
Titrate IV fluid
Maintain normal vital signs
Transient, minimal, or no response
Titrate IV fluid
Maintain a MAP of 60 - 65


Suspected hemorrhage
Signs of hemodynamic instability
Rapid transport
IV fluid bolus
20 mL/kg
Reevaluate
IV fluid bolus
20 mL/kg

Trauma

Signs incompatible with life - DOA.
If these signs are not present, then assess rhythm
If initial rhythm is Asystole – STOP do not attempt resuscitation

If there is any other rhythm:

Blunt Trauma and Penetrating Body Trauma

1. Stop hemorrhage
2. Manage airway
3. Volume resuscitation
    a. **Consider Blood / Blood Product** (105)
4. Defibrillate
5. Bilateral needle decompression/finger thoracostomies,
    a. **refer to Needle / Finger Thoracostomy Procedures** (134-135)
6. Chest Compressions once above have all been accomplished.
    a. NO ACLS drugs unless medical cause suspected

Penetrating Head Trauma

1. Stop Hemorrhage
2. Chest compressions
3. Manage airway
4. Volume resuscitation
5. Defibrillation

    a. NO ACLS drugs unless medical cause suspected

All traumatic arrests that receive resuscitation efforts must be transported.

Adult	Pediatric
Clinical Presentation: Frequently, shock in a trauma patient is due to internal or external bleeding. **Hemorrhagic shock can be recognized by hypotension, tachycardia, diaphoresis, pallor, cyanosis, tachypnea, and other clinical signs of shock.**	**Clinical Presentation:** Frequently, shock in a trauma patient is due to internal or external bleeding. **Hemorrhagic shock can be recognized by hypotension, tachycardia, diaphoresis, pallor, cyanosis, tachypnea, and other clinical signs of shock.**
Interventions: **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Prepare for rapid transport. **Intermediate:** 3. Establish a patent airway using C-spine precautions. Target **EtCO2 at 35 – 45 mmHg**, otherwise 12 – 20 bpm. 4. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol** (12-13) 5. Continue evaluation as per **Initial Trauma Assessment and Treatment Protocol.** (8-11) **Paramedic I:** 6. Evaluate the need for **TXA and/or Blood / Blood Product Protocol:** **TXA: Loading dose: 2 G IVP** **(may repeat 1 G IVP in 30 minutes)** 7. Apply ECG 8. **Refer to Blood / Blood Product Protocol (105)**	**Interventions:** **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Prepare for rapid transport. **Intermediate:** 3. Establish a patent airway using C-spine precautions. Target EtCo2 at 35 – 45 mmHg, otherwise 20 – 30 breaths/min for children less than 4 years of age. 4. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol** (12-13) 5. Continue evaluation as per **Initial Trauma Assessment and Treatment Protocol**. (8-11) **Paramedic I:** 6. Evaluate the need for **TXA and/or Blood / Blood Product Protocol** **TXA: Loading Dose: 2-12 yrs old: 15 mg/kg (Max 1 G)** Less than 2 y/o **Contact Medical Control** 7. Apply ECG 8. **Refer to Blood / Blood Product Protocol (105)**

Adult	Pediatric
Clinical Presentation: Any open wound to the anterior and posterior thoracic cage you should suspect sucking chest wound.	**Clinical Presentation:** Any open wound to the anterior and posterior thoracic cage you should suspect sucking chest wound.
Interventions: **EMT:** 1. Evaluate patient according to **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. If the patient is breathing inadequately, assist ventilation with 100% oxygen through BVM 3. Seal the wounds as rapidly as possible, using a Vaseline-coated gauze or chest seal. ***Note**: If patient is awake and cooperative, have him/ her cough (this removes as much air as possible from the chest cavity), and then apply the Vaseline gauze or Chest Seal immediately afterwards. 4. Watch closely for signs and symptoms of tension pneumothorax. 5. Prepare for rapid transport. 6. Re-evaluate **Intermediate:** 7. If patent's airway is not patent or ventilations are inadequate, secure the airway using C-spine precautions. Target **EtCO2 at 35 – 45 mmHg**, otherwise ventilate at 12 – 20 breaths/minute. 8. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per volume Resuscitation Protocol** (12-13) **Paramedic I:** 9. Apply ECG 10. Prophylactic intubation, **MAI** (103) may be required if airway compromise occurs	**Interventions:** **EMT:** 1.Evaluate patient according to **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. If patients are breathing inadequately, assist ventilation with 100% oxygen through BVM 3. Seal the wounds as rapidly as possible, using a Vaseline-coated gauze or chest seal. ***Note**: If patient is awake and cooperative, have him/ her cough (this removes as much air as possible from the chest cavity), and then apply the Vaseline gauze or Chest Seal immediately afterwards. 4. Watch closely for signs and symptoms of tension pneumothorax. 5. Prepare for rapid transport. 6. Re-evaluate **Intermediate:** 7. If the patent's airway is not patent or ventilations are inadequate, secure the airway using C-spine precautions. Target **EtCo2 at 35 – 45 mmHg**, otherwise ventilate at 20 - 30 breaths/minute. 8. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol** (12-13) **Paramedic I:** 9. Apply ECG electrodes and determine cardiac rhythm. 10. Prophylactic intubation **MAI** (103) may be required if airway compromise occurs

Adult	Pediatric
Clinical Presentation: Any traumatic injury to the face or head resulting in TBI is manifested by some degree of impairment in mental function. Typically, these patients range from being comatose to wild and combative.	**Clinical Presentation:** Any traumatic injury to the face or head resulting in TBI is manifested by some degree of impairment in mental function. Typically, these patients range from being comatose to wild and combative.
Interventions: **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol**. (8-11) Maintain high index of suspicion for C-spine injury. 2. Provide supplemental oxygen. 3. If patient is hypoventilating, assist ventilations, target **EtCo2 at 30– 40 mmHg**, otherwise ventilate at 12–20 bpm. 4. Have suction readily available. 5. Monitor EtC02. 6. Monitor Oxygen Saturation. 7. Take seizure precautions. 8. Prepare for rapid transport. 9. **Elevate head 15 to 30 degrees.** **Paramedic 1:** 10. If the patent's airway is not patent or ventilations are inadequate, secure the airway using C-spine precautions. Target **EtCo2 at 30 – 40 mmHg**, otherwise ventilate at 12–20 bpm. 11. IV access enroute, refer to **Volume Resuscitation Protocol.** (12-13) 12. Administer **2 G TXA IVP** 13. If seizures occur and are prolonged (greater than 30 seconds) administer **Ativan: 4mg SIVP or IN** may repeat as needed 2mg q 5 minutes (MAX 8mg) OR **Versed: 5mg IVP** 14. Prophylactic intubation, **MAI** (103) may be required if airway compromise occurs.	**Interventions:** **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol**. (8-11) Maintain high index of suspicion for C-spine injury. 2. Provide supplemental oxygen. 3. If the patient is hypoventilating, assist ventilations, target **EtCo2 at 30 – 40 mmHg**, otherwise ventilate at 25 bpm. 4. Have suction readily available. 5. Monitor EtC02. 6. Monitor Oxygen Saturation. 7. Take seizure precautions. 8. Prepare for rapid transport. 9. **Elevate head 15 to 30 degrees.** **Paramedic 1:** 10. If the patent's airway is not patent or ventilations are inadequate, secure the airway using C-spine precautions. Target **EtCO2 at 30 – 40 mmHg**, otherwise ventilate at 25 bpm. 11. IV access enroute, refer to **Volume Resuscitation Protocol** (12-13) 12. ECG. 13. If seizures occur and are prolonged (greater than 15– 30 seconds), administer: **Ativan:** 0.05-0.1mg/kg SIVP, over 2 min or IN/Rectal 0.1 – 0.2 mg/kg, Max single dose of 4mg. 14. Prophylactic intubation, **MAI** (103) may be required if airway compromise occurs.

Adult	Pediatric
Interventions: **EMT:** 1.Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Hemorrhage control. 3. Oxygen per patient. 4. If the patient c-spine cannot be cleared refer to **Spinal Motion Restriction Protocol.** (130) - **Intermediate:** 5. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol.** (12-13) **Paramedic I:** 6. ECG 7. **Consider Pain Management.** (102) 8. If the extremity has a displaced fracture and there is no pulse distal to the injury. Apply traction to the extremity and attempt to reduce the fracture with **1 attempt**, then splint. 9. Open fractures: **Cefepime 2 G IVP** 10. **Crush injuries refer to Hyperkalemia protocol.** (47)	**Interventions:** **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Hemorrhage control. 3. Oxygen per patient. 4. If the patient c-spine cannot be cleared refer to **Spinal Motion Restriction Protocol.** (130) **Intermediate:** 5. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol.** (12-13) **Paramedic I:** 6. ECG. 7. **Consider Pain Management.** (102) 8. If the extremity has a displaced fracture and there is no pulse distal to the injury. Apply traction to the extremity and attempt to reduce the fracture with **1 attempt**, then splint. 9. Open fractures: **Cefepime 50mg/kg IVP (Max 1G)**

Adult	Pediatric
Interventions: **EMT:** **1.** Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Immobilize and stabilize spine. 3. Prepare for rapid transport. **Intermediate:** **4.** Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol** (12-13) **Paramedic I:** 5. If patient's airway is not patent or ventilations are inadequate, secure the airway using C-spine precautions. Target **EtCO2 at 35 – 45 mmHg**, otherwise ventilate at 12 – 20 bpm. 6. Apply ECG electrodes and determine cardiac rhythm, treat per arrhythmia protocol if indicated. 7. Continue evaluation as per the **Initial Trauma Assessment and Treatment Protocol** (8-11), with frequent neurologic assessments. 8. Prophylactic intubation **MAI** (103) may be required if an airway compromise occurs. 9. Monitor for neurogenic shock (bradycardia). **Atropine 1mg (Max 3mg)**	**Interventions:** **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Immobilize and stabilize spine. 3. Prepare for rapid transport. **Intermediate:** 4. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol** (12-13) **Paramedic I:** 5. If patient's airway is not patent or ventilations are inadequate, secure the airway using C-spine precautions. Target **EtCO2 at 35 – 45 mmHg**, otherwise ventilate at 20 – 30 bpm. 6. Apply ECG electrodes and determine cardiac rhythm, treat per arrhythmia protocol if indicated. 7. Continue evaluation as per the **Initial Trauma Assessment and Treatment Protocol** (8-11), with frequent neurologic assessments. 8. Prophylactic intubation **MAI** (103) may be required if an airway compromise occurs. 9. Monitor for neurogenic shock (bradycardia). Contact receiving facility.

Adult	Pediatric
Interventions: **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Control bleeding with direct pressure, pressure dressing, or tourniquet. 3. Remove gross contaminants on part by rinsing with saline solution. No other attempt should be made to debride the part. 4. Wrap the amputated part in moistened saline gauze and place in plastic bag or container. Seal the plastic bag tightly, so fluid does not contact with the amputated part. Place sealed container in iced solution of water or saline. **Intermediate:** 5. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol.** (12-13) **Paramedic I:** 6. Apply ECG electrodes and determine cardiac rhythm. 7. Administer: **Cefepime 2 G IVP.** 8. **Consider Pain Management.** (102)	**Interventions:** **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Control bleeding with direct pressure, pressure dressing, or tourniquet. 3. Remove gross contaminants on part by rinsing with saline solution. No other attempt should be made to debride the part. 4. Wrap the amputated part in moistened saline gauze and place in plastic bag or container. Seal the plastic bag tightly, so fluid does not contact the amputated part. Place sealed container in iced solution of water or saline. **Intermediate:** 5. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol.** (12-13) **Paramedic I:** 6. Apply ECG electrodes and determine cardiac rhythm. 7. Administer: **Cefepime 50 mg/kg IVP (Max 1G)** 8. **Consider Pain Management.** (102)

Adult	Pediatric
Clinical Presentation: Call for law enforcement support, stage, if necessary, until law enforcement secures the scene. Do not enter an unsecured scene.	**Clinical Presentation:** Call for law enforcement support, stage, if necessary, until law enforcement secures the scene. Do not enter an unsecured scene.
Interventions: 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Interview the patient alone in a safe, private environment. 3. Treat specific injuries per the appropriate trauma protocol. 4. Look for a history of domestic violence, behavioral and physical clues.	**Interventions:** **1.** Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Interview the patient alone in a safe, private environment. 3. Treat specific injuries per the appropriate trauma protocol 4. Look for a history of domestic violence, behavioral and physical clues.

Adult / Pediatric

Interventions:

EMT:

1. Assess scene, patient, contact control hospital, and contact law enforcement with patient permission or to protect crew safety. The patient does not have to notify law enforcement to have a SANE exam.
2. Treat life-threatening injuries.
3. Offer emotional support. Concentrate history on medical aspects.
4. Search for and treat other injuries. (If possible, do not disturb the scene of assault or remove any clothing.)
5. When contacting law enforcement and the control hospital, do not identify the victim by name. Do your utmost to protect the patient's privacy.
6. Before transporting the patient to the hospital, discourage them from taking a shower, bath or douche, brush teeth or change their clothing.
7. ***Contact the receiving facility to confirm they have sane nurse availability.**

- **NOTE: Pediatric Sexual Assaults should be transported directly to a Children's Facility with Pediatric Sane Nurse Availability (to limit transfers and examination from different facilities under these circumstances).**
  Consult on duty Captain prior to transport.

Adult	Pediatric
Clinical Presentation: Any injury in which there is evidence for penetration of the skin by an object could result in injury to underlying structures. Other protocols may apply in cases of penetrating injuries, such as traumatic shock and traumatic arrest. Refer to all the appropriate protocols that apply.	**Clinical Presentation:** Any injury in which there is evidence for penetration of the skin by an object could result in injury to underlying structures. Other protocols may apply in cases of penetrating injuries, such as traumatic shock and traumatic arrest. Refer to all the appropriate protocols that apply.
Interventions: **EMT:** 1. Evaluate patient according to Initial **Trauma Assessment and Treatment Protocol.** (8-11) 2. Prepare for rapid transport, even if vital signs are stable. 3. If impaled object - do not remove; refer to **Impaled Object Protocol.** (28) 4. Treat open chest wounds according to guidelines for sucking chest wounds; refer to Sucking **Chest Wounds Protocol.** (24) 5. Treat evisceration of abdominal contents by covering tissue with saline-moistened gauze sponges or sterile towels. **Intermediate:** 6. Establish IV access enroute, **Warmed Lactated Ringers** per volume resuscitation protocol. (12-13) **Paramedic I:** 7. Apply ECG 8. Penetrating injuries to **chest/abdomen: Administer Cefepime 2 G IV**	**Interventions:** **EMT:** 1. Evaluate patient according to **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Prepare for rapid transport, even if vital signs are stable. 3. If impaled object - do not remove; refer to **Impaled Object Protocol.** (28) 4. Treat open chest wounds according to guidelines for sucking chest wounds; refer to **Sucking Chest Wounds Protocol.** (24) 5. Treat evisceration of abdominal contents by covering tissue with saline-moistened gauze sponges or sterile towels. **Intermediate:** 6. Establish vascular access enroute, **Warmed Lactated Ringers.** Infuse per Volume Resuscitation Protocol. (12-13) **Paramedic I:** 7. Apply ECG 8. Penetrating injuries to **chest/abdomen: Administer Cefepime 50mg/kg IV (**Max 1G)

Adult	Pediatric
Clinical Presentation: Any injury in which there is evidence for penetration of the skin by an object that could result in injury to underlying structures.	**Clinical Presentation:** Any injury in which there is evidence for penetration of the skin by an object that could result in injury to underlying structures.
Interventions: **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol**. (8-11) Maintain high index of suspicion for C-spine injury, tracheal injury, blood vessel injury, and lung injury. 2. Prepare for rapid transport, even if vital signs are stable. 3. If impaled object - do not remove; refer to **Impaled Object Protocol.** (28) 4. Monitor closely for signs of soft tissue swelling in the neck that could lead to airway obstruction. 5. Have suction set up and ready to clear the airway of blood or secretions. 6. Observe closely for signs of a tension pneumothorax. **Intermediate:** 7. If patents airway is not patent, secure the airway using C-spine precautions. 8. Target **EtCO2 at 35 – 45 mmHg**, otherwise ventilate at 12 –20 bpm. 9. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol** (12-13) **Paramedic I:** 10. Apply ECG electrodes and determine cardiac rhythm. 11. Prophylactic intubation **MAI** (103) may be required if airway compromise from neck swelling occurs.	**Interventions:** **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol**. (8-11) Maintain high index of suspicion for C-spine injury, tracheal injury, blood vessel injury, and lung injury. 2. Prepare for rapid transport, even if vital signs are stable. 3. If impaled object - do not remove; refer to **Impaled Object Protocol.** (28) 4. Monitor closely for signs of soft tissue swelling in the neck that could lead to airway obstruction. 5. Have suction set up and ready to clear the airway of blood or secretions. 6. Observe closely for signs of a tension pneumothorax. **Intermediate:** 7. If patents airway is not patent, secure the airway using C-spine precautions. 8. Target **EtCO2 at 35 – 45 mmHg**, otherwise ventilate at 20–30 bpm. 9. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol** (12-13) **Paramedic I:** 10. Apply ECG electrodes and determine cardiac rhythm. 11. Prophylactic intubation **MAI** (103) may be required if airway compromise from neck swelling.

Adult	Pediatric
Clinical Presentation: Any injury in which there is evidence of penetration of the skin by an object that could result in injury to underlying structures.	**Clinical Presentation:** Any injury in which there is evidence of penetration of the skin by an object that could result in injury to underlying structures.
Interventions: **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) Maintain high index of suspicion for C-spine injury, tracheal injury, and/or blood vessel injury. 2. Prepare for rapid transport, even if vital signs are stable. 3. If impaled object - do not remove; refer to **Impaled Object Protocol.** (28) 4. Have suction set up and ready to clear the airway of blood or secretions. 5. Elevate the head 15 to 30 degrees. **DO NOT elevate head by flexing neck!** **Intermediate:** 6. If patient's airway is not patent, secure the airway using C-spine precautions. 7. Target **EtCO2 at 35 – 45 mmHg**, otherwise ventilate at 12 – 20 bpm. 8. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol.** (12-13) **Paramedic I:** 9. Apply ECG. 10. Prophylactic intubation **MAI** (103) may be required if an airway compromise occurs.	**Interventions:** **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) Maintain high index of suspicion for C-spine injury, tracheal injury, and/or blood vessel injury. 2. Prepare for rapid transport, even if vital signs are stable. 3. If impaled object - do not remove; refer to **Impaled Object Protocol.** (28) 4. Have suction set up and ready to clear airway of blood or secretions. 5. Elevate head of backboard 15 to 30 degrees. **DO NOT elevate head by flexing neck!** **Intermediate:** 6. If patients' airway is not patent, secure the airway using C-spine precautions. 7. Target **EtCO2 at 35 – 45 mmHg**, otherwise ventilate at 20 – 30 bpm for children less than 4 years of age. 8. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol.** (12-13) **Paramedic I:** 9. Apply ECG. 10. Prophylactic intubation **MAI** (103) may be required if an airway compromise occurs.

Adult	Pediatric
Clinical Presentation: Isolated Extremity Wounds	**Clinical Presentation:** Isolated Extremity Wounds
Interventions: **EMT:** 1. Evaluate patient according to **the Initial Trauma Assessment and Treatment Protocol.** (8-11) Check neurovascular status distal to wound (presence of pulse, feeling, and movement). 2. If impaled object – **do not remove;** refer to **Impaled Object Protocol.** (28) 3. Control external bleeding with direct pressure, pressure dressings, or tourniquet. 4. Splint affected extremity. 5. Prepare for rapid transport. **Intermediate:** 6. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol.** (12-13) **Paramedic I:** 7. Apply ECG. 8. For open contaminated open wounds or open fractures administer: **Cefepime 2 G IVP** 9. **Consider Pain Management.** (102)	**Interventions:** **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol**. (8-11) Check neurovascular status distal to wound (presence of pulse, feeling, and movement). 2. If impaled object – **do not remove;** refer to **Impaled Object Protocol.** (28) 3. Control external bleeding with direct pressure first, pressure dressings, or tourniquet. 4. Splint affected extremity. 5. Prepare for rapid transport, even if vital signs are stable. **Intermediate:** 6. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol.** (12-13) **Paramedic I:** 7. Apply ECG. 8. For open contaminated open wounds or open fractures: **Cefepime 50 mg/kg, IVP (Max 1 G)** 9. **Consider Pain Management.** (102)

Adult	Pediatric
Interventions: **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol** (8-11). In general, do not remove impaled objects. If an impaled object is causing airway compromise resulting in respiratory distress, and this distress cannot be corrected without removal of the foreign body, remove the foreign object. 2. Stabilize the impaled object so that it does not move around and cause more internal injury. 3. Impaled object to the torso (chest, abdomen, back, lower neck, or proximal extremities) should be considered a potentially life-threatening injury. **Intermediate:** 4. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol.** (12-13) **Paramedic I:** 5. Apply ECG. 6. **Consider Pain Management.** (102) 7. **Cefepime 2G IVP.**	**Interventions:** **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol** (8-11). In general, do not remove impaled objects. If an impaled object is causing airway compromise resulting in respiratory distress, and this distress cannot be corrected without removal of the foreign body, remove the foreign object. 2. Stabilize the impaled object so that it does not move around and cause more internal injury. 3. Impaled object to the torso (chest, abdomen, back, lower neck, or proximal extremities) should be considered a potentially life-threatening injury. **Intermediate:** 4. Establish vascular access enroute, **Warmed Lactated Ringers. Infuse per Volume Resuscitation Protocol** (12-13) **Paramedic I:** 5. Apply ECG. 6. **Consider Pain Management.** (102) 7. **Cefepime 50 mg/kg (Max 1 G).**

Adult	Pediatric
Clinical Presentation: These injuries usually occur when the eye is exposed to sources of high intensity light or ultraviolet radiation such as associated with tanning booths, or sun lamps, also corneal injuries may be produced by prolonged wearing of contact lenses.	**Clinical Presentation:** These injuries usually occur when the eye is exposed to sources of high intensity light or ultraviolet radiation such as associated with tanning booths, or sun lamps, also corneal injuries may be produced by pro- longed wearing of contact lenses.
Interventions: **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Lie patient down and have them close both eyes. 3. Bandage as necessary. **Paramedic I:** 4. Transport patient. 5. **Consider Pain Management.** (102)	**Interventions:** **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Lie patient down and have them close both eyes. 3. Bandage as necessary. **Paramedic I:** 4. Transport patient. 5. **Consider Pain Management. (**102)

Adult	Pediatric
Interventions: **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Flush the affected eye(s) with copious amounts of water or Lactated Ringers, using a minimum of **2 liters** or more for each eye continued throughout transport. If the substance is alkaline in nature, perform continuous irrigation during transport. • Contact lenses should be removed if present. 3. Transport patient. 4. **Consider Pain Management (**102)	**Interventions:** **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Flush the affected eye(s) with copious amounts of water or Lactated Ringers, using a minimum of **2 liters** or more for each eye continued throughout transport. If the substance is alkaline in nature, perform continuous irrigation during transport. • Contact lenses should be removed if present. 3. Transport patient. 4. **Consider Pain Management** (102)

Adult	Pediatric
Interventions: **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Have the patient lying flat or with the head slightly elevated. 3. DO NOT attempt to open the injured eye(s). 4. Instruct the patient to close both eyes. 5. Bandage as necessary. 6. **DO NOT** place any type of compressive dressing over the injured eye(s) and be careful not to apply pressure to the eye(s). 7. **DO NOT REMOVE** any penetrating object from the eye (unless ordered by medical control) **Paramedic** 8. For grossly contaminated wounds administer**: Cefepime 2 G IVP** 9. Transport the patient. 10. **Consider Pain Management** (102)	**Interventions:** **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Have the patient lay flat or slightly elevate head of stretcher. 3. DO NOT attempt to open the injured eye(s). 4. Instruct the patient to close both eyes. 5. Bandage as necessary. 6. **DO NOT** place any type of compressive dressing over the injured eye(s) and be careful not to apply pressure to the eye(s). 7. **DO NOT REMOVE** any penetrating object from the eye (unless ordered by medical control) 8. Transport the patient. 9. **Consider Pain Management** (102)

Adult	Pediatric
Interventions: **EMT** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Remove contaminated clothing, brush off any dry chemical, if present, and flush all exposed skin for a minimum of 20 minutes, unless Lye exposure is suspected. **DO NOT USE WATER ON LYE.** 3. Assess the depth of burn (first, second, third) as well as the total area of the burn using rule of nines. Include only second and third degree burns in the per-centage of body surface area (BSA) burnt. 4. **Contact Poison Control (1-800-222-1222).** 5. Splint any fractures or deformities as required. **Intermediate:** 6. Establish vascular access during transport, IV/IO, warmed **Lactated Ringers**. 7. Infuse for 2nd and 3rd degree burns when > 10% of TBSA: **Run IV (mL/h) at a rate equal to (1/4) X (Weight in kg) X (% BSA).** **Paramedic I:** 8. Apply ECG. 9. **Consider Pain Management. (**102)	**Interventions:** **EMT:** 1. Evaluate patient according to the **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Remove contaminated clothing, brush off any dry chemical, if present, and flush all exposed skin for a minimum of 20 minutes, unless Lye exposure is suspected. **DO NOT USE WATER ON LYE.** 3. Assess the depth of burn (first, second, third) as well as the total area of the burn using rule of nines. Include only second and third degree burns in the percentage of body surface area (BSA) burnt. 4. **Contact Poison Control (1-800-222-1222).** 5. Splint any fractures or deformities as required. **Intermediate:** 6. Establish vascular access, IV/IO, during transport of **warmed Lactated Ringers**. 7. Infuse for 2nd and 3rd degree burns when > 10% of TBSA: **Run IV (mL/h) at a rate equal to (1/4) X (Weight in kg) X (% BSA).** **Paramedic I:** 8. Apply ECG. 9. **Consider Pain Management. (**102)

Adult	Pediatric
Interventions: **EMT:** 1. Evaluate according to **Initial Trauma Assessment and Treatment Protocol.** (8-11) Look closely for any evidence of inhalation injury (hoarseness, stridor, sooty sputum, facial burns, and singed facial hair). If present, provide humidified supplemental oxygen. 2. **Utilize air transport if there is a significant burn or inhalation injury.** 3. Remove any jewelry, belts, shoes, clothing, etc. from areas of burns utilize caution if stuck to underlying skin. 4. Determine BSA based on rule of 9's with 2nd and 3rd degree burns. 5. Perform local burn care as follows: a. Do not apply ice to the burned area. b. Do not apply ointments or solutions to burns. c. Do not attempt to open blisters. d. Small burns (<10% of BSA): 6. Cover large burns with dry, sterile, or clean sheets. **Do not use wet dressings** since they may cause hypothermia on large burns. 7. Cover patients who have large burns with additional sterile or clean sheets or blankets to prevent loss of body heat. 8. Treat any associated injuries (bandage and splint). 9. If eyes are affected, refer to **Eye Injury Protocol**. (29-31) **Continue next page**	**Interventions:** **EMT:** 1. Evaluate according to **Initial Trauma Assessment and Treatment Protocol.** (8-11) Look closely for any evidence of inhalation injury (hoarseness, stridor, sooty sputum, facial burns, and signed facial hair). If present, provide humidified supplemental oxygen. 2. **Utilize air transport if there is a significant burn or inhalation injury.** 3. Remove any jewelry, belts, shoes, clothing, etc. from areas of burns utilize caution if stuck to underlying skin. 4. Determine BSA based on rule of 9's with 2nd and 3rd degree burns. 5. Perform local burn care as follows: a. Do not apply ice to the burned area. b. Do not apply ointments or solutions to burns. c. Do not attempt to open blisters. d. Small burns (<10% of BSA): 6. Cover large burns with dry, sterile, or clean sheets. **Do not use wet dressings** since they may cause hypothermia on large burns. 7. Cover patients who have large burns with additional sterile or clean sheets or blankets to prevent loss of body heat. 8. Treat any associated injuries (bandage and splint). 9. If eyes are affected, refer to **Eye Injury Protocol**. (29-31) **Continue next page**

Adult	Pediatric
Interventions: **Intermediate:** 10. IV therapy with warmed Lactated Ringers should be initiated in patients with the following: a. Evidence of inhalation injury. b. Elderly or underlying chronic illnesses or other associated injuries that require an IV. c. Burn exceeds 10% BSA. d. Electrical burns. 11. Run IV (mL/h) at a rate equal to (1/4) X (Weight in kg) X (% BSA). **Paramedic I:** 12. Apply ECG. 13. Monitor EtCo2. 14. **Consider Pain Management.** (102) 15. **MAI** may be required. (103)	**Interventions:** **Intermediate:** 10. IV therapy with warmed Lactated Ringers should be initiated in patients with the following: a. Evidence of inhalation injury. b. Elderly or underlying chronic illnesses or other associated injuries that require an IV. c. Burn exceeds 10% BSA. d. Electrical burns. 11. Run IV (mL/h) at a rate equal to (1/4) X (Weight in kg) X (% BSA). **Paramedic I:** 12. Apply ECG. 13. Monitor EtCo2. 14. **Consider Pain Management.** (102) 15. **MAI** may be required. (103)

Adult	Pediatric
Interventions: **EMT:** 1. Evaluate patient according to **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Cover entrance and/or exit wounds with dry sterile dressings. 3. Splint any fractures or deformities as required. **Intermediate:** 4. Establish vascular access, IV/IO, during transport of warmed Lactated Ringers. If the patient exhibits signs of shock. Infuse using the formula below. 5. Run IV (mL/h) at a rate equal to (1/4) X (Weight in kg) X (% BSA). **Paramedic I:** 6. Apply ECG. 7. **Consider Pain Management.** (102)	**Interventions:** **EMT:** **1.** Evaluate patient according to **Initial Trauma Assessment and Treatment Protocol.** (8-11) 2. Cover entrance and/or exit wounds with dry sterile dressings. 3. Splint any fractures or deformities as required. **Intermediate:** 4. Establish vascular access, IV/IO, during transport of warmed Lactated Ringers. If the patients exhibit signs of shock Infuse using the formula below. 5. Run IV (mL/h) at a rate equal to (1/4) X (Weight in kg) X (% BSA). **Paramedic I:** **6.** Apply ECG. 7. **Consider Pain Management.** (102)

Cardiac
Medical
Respiratory
Environmental

Cooke County

Clinical Guideline -

Table of Contents - Cardiac

Index

Cooke County

Clinical Guideline -

Table of Contents - Medical

Cooke County

Clinical Guideline -

Table of Contents - Respiratory

Cooke County

Clinical Guideline -

Table of Contents - Environmental

Adult

Clinical Presentation: Chest, back, neck, jaw pain, dyspnea, diaphoresis, syncope or cyanosis with N/V, or dizziness.

Interventions:

EMT:

1. Assess and treat ABC's
2. VS, including SpO2 and EtC02
3. O2 per patient
4. **ASA 324 mg PO**
   - NOTE: If taken ASA within 12 hours, give dose to equal total of 324mg.

Intermediate:

5. Establish vascular access

Paramedic I:

6. EKG, 12 & 15 Lead
   - ST elevation in 2 or more contiguous leads with reciprocal changes or a new onset LBBB refer to **STEMI** protocol
   - Serial EKGs to identify trends.
   - TIMI score ≥5, transport to Cardiac Cath Lab

Risk indicator	Points
Historical	
Age ⩾ 75 years	3
65–74 years	2
History of DM, HTN or angina	1
Exam	
SBP <100 mm Hg	3
Heart rate >100 bpm	2
Killip class >I	2
Weight <67 kg	1

Killip Class: No CHF-1, RHF-2, LHF w/ pulmonary edema-3, Cardiogenic Shock-4

7. **Nitroglycerin (for venous dilation) 0.4 mg SL,** q 5minutes x3 doses
8. If hypotensive LR **250 – 500 mL Bolus**
9. If anxious, consider **Ativan 1-2mg SIVP or Versed 1-2mg SIVP**
10. For vasodilation & pain **Morphine: 2–10mgIVP**
    - repeat 2 mg q 5 min (Max dose 10 mg**)**
11. For pain management only (Goal is rating of 0)
    Fentanyl: 25 – 50 mcg IVP (repeat 25mcg q 5 minutes to Max 100 mcg)
    OR
    Dilaudid: 0.5 mg – 1 mg (repeat 15 minutes to Max 2 mg)
12. For Nausea and / or vomiting. (refer to N/V protocol pg. 58)
13. If pain does not alleviate with above interventions, consider:
    Metoprolol: 5 mg SIVP (q 5 minutes to Max 15mg) **Hold if SBP <100 or HR<55**
    OR
    Nitro Drip: 5 mcg/min; titrate by 5 mcg q 5 minutes until chest pain is alleviated or Max of 200mcg/min. (IV PUMP ONLY)

Contact Receiving Hospital
Paramedic III may proceed

14. If hypotensive**:**
    Dobutamine: 5 mcg/kg/min, GOAL to raise BP > 100 systolic
    Titrate 2 mcg q 5 minutes (Maximum 20mcg/kg/min)
    - Mix 250 mg/250mL NS
    - IV PUMP ONLY

Cooke County EMS

TOC

Clinical Guideline - Cardiac

STEMI

C02

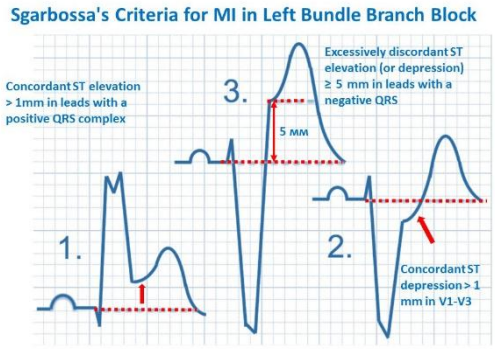
Adult

Clinical Presentation: Patients with non-traumatic chest, back, neck and /or jaw pain with **ST-segment elevation in 2 or more contiguous leads and reciprocal changes are present, a new onset LBBB or a bi-fascular block.**

Interventions:

EMT:

1. ABC's
2. VS every 5 minutes
3. SpO2 & EtC02
4. Oxygen per patient (maintain a Sp02 of 94 mmHg)
5. **ASA: 324 mg PO**
   NOTE: If taken ASA within 12 hours, give dose to equal total of 324mg.



Intermediate:

6. Establish vascular access
   2 large bore IV's; at least one antecubital vein; preferably in the same arm.

Paramedic I: Transport to the closest hospital with CARDIAC CATH LAB

7. **Transmit 12-Lead immediately and contact appropriate HOSPITAL FOR STEMI ALERT**
8. **Nitroglycerine: 0.4 mg SL;** q 5 minutes x 3 doses *UNLESS RIGHT SIDED INVOLVEMENT
9. **RIGHT Sided involvement**
   - Consider Nitro Drip
   - **250–500 mL fluid bolus Lactated Ringers**
10. For Vasodilation/Pain: **Morphine: 2 – 10 mg IVP; q** 5 minutes, (Max 10 mg)
11. For Pain Management Only or if Morphine is contraindicated:
    Fentanyl: 25 – 50 mcg IVP; q 5 minutes (Max 100 mcg)
    OR
    Dilaudid: 0.5 mg – 1 mg; repeat 15 minutes (Max 2mg)
12. If pain does not alleviate with above interventions, consider:
    Metoprolol: 5 mg SIVP (q 5 minutes to Max 15mg) **Hold if SBP <100 or HR<55**
    OR
    Nitro Drip: 5 mcg/min; titrate by 5 mcg q 5 minutes until chest pain is alleviated or Max of 200mcg/min. (IV PUMP ONLY)
13. If hypotensive:

Epi push dose while preparing for pressor infusion, 2 mL (20mcg) every 2-5 minutes
Mix: 1mg (1:1000) in 100mL NS OR Mix: 0.1mg (1:10,000) in 9mL NS flush

Dobutamine: 5mcg/kg/min; titrate by 2mcg every 5 minutes (Maximum 20mcg/kg/min)
Preferred for hypotensive cardiac patients (with tachycardia)
Mix 250mg/250mL NS

Epi Drip – 2 mcg/min titrate by 2 mcg every 5 minutes (Maximum 20mcg/min)
Preferred for hypotensive cardiac patients (with bradycardia)
Mix 1mg 1:1000 in 100mL NS

Cooke County EMS

TOC

Clinical Guideline - Cardiac

Bradycardia

C03

Adult	Pediatric
Clinical Presentation: HR<60 with one or more of the following: SBP<90, PVC's, altered LOC, chest pain and dyspnea	**Clinical Presentation:** Up to one year with ventricular rate < 80. One to eight years with a ventricular rate < 60.
Interventions: **EMT:** 1. Assess and treat ABC's 2. VS, including SpO2 3. Oxygen per patient 4. EtCo2 monitoring **Intermediate:** 5. Establish vascular access **Paramedic I:** 6. EKG, 12 & 15 Lead 7. **Atropine: 1.0 mg Rapid IVP.** repeat q 3 – 5 min to Max 3 mg 8. For refractory bradycardia and confirmed Beta Blockers: **Glucagon: 1mg IV/IM q 2 min** and **10% Calcium Chloride: 1 G SIVP** 9. For refractory bradycardia and confirmed history of calcium channel blocker: **10% Calcium Chloride: 1G SIVP** 10. **TCP (external pacing):** pre-medicate if time permits: **Ativan: 1–2 mg IVP or IN** OR **Versed: 2-5 mg IVP or IM** 11. If hypotensive **Dobutamine:** 5 mcg/kg/min, titrate 2mcg q 5min. Max 20mcg/kg/min Mix 250mg in 250 mL NS **Epi Drip:** 2mcg/min titrate 2mcg q 5 min Max 20mcg/min Mix 1mg 1:1,000 in 100mL 12. **Consider Pain Management with chest pain.** (102)	**Interventions:** **EMT:** 1. Ensure patent airway 2. VS, including SpO2 3. Oxygen per patient 4. EtCo2 monitoring **Intermediate:** 3. Establish vascular access **Paramedic I:** 4. EKG 5. **Epinephrine (1:10,000): 0.01 mg/kg IV/IO/ET/IN;** repeat ever 3 – 5 min 6. Consider possible causes: • Respiratory Compromise • Hypoglycemia • Acidosis • Medical History • Ingested overdose (Betablockers) 7**. Atropine: 0.02 mg/kg IV/IO/ET** Repeat q3–5 min Max of 0.04 mg/kg. Minimum single dose: 0.1 mg Maximum single dose: 0.5 mg **Fluid challenge: LR 10 mL/kg** If severe respiratory compromise intubation may be necessary.

Adult

Clinical Presentation:

Asymptomatic tachycardia ≥ 150

Interventions:

EMT:

1. Assess and treat ABC's
2. VS, including SpO2
3. Oxygen per patient
4. Vagal maneuvers

Intermediate:

5. Establish vascular access

Paramedic I:

6. EKG, 12 & 15 Lead

7. **Adenosine: 6 mg rapid IVP followed by a flush.**
   - Repeat at 12 mg q 1 – 2 min (Max 30 mg)
   - **Adenosine is contraindicated in patients taking TEGRITOL and PERSANTIN***

Contact Receiving Hospital
Paramedic III may proceed

If wide complex SVT:
Cordarone: 150 mg Diluted in 100mL D5W infuse over 10 minutes. (600mL/hr)

Cooke County EMS

TOC

Clinical Guideline – Cardiac

SVT – Unstable

C05

Adult	Pediatric
Clinical Presentation: Symptomatic Tachycardia > 150	**Clinical Presentation:** Symptomatic narrow complex Tachycardia (<0.08 sec) infants > 220 bpm, children >180 bpm. Consider underlying causes of tachy-dysrhythmias.
Interventions: **EMT:** 1. Assess and treat ABC's 2. VS, including SpO2 3. Oxygen per patient 4. Vagal maneuvers **Intermediate:** 5. Establish vascular access, antecubital vein **Paramedic I:** 6. EKG, 12 & 15 Lead 7. **Synchronized cardioversion: 100j, 200j** Pre-medicate if time permits **Ativan: 1–2 mg IV, IO, IM or IN** **or** **Versed: 2-5 mg IV, IO, IN, or IM** **Contact Receiving Hospital** **Paramedic III may proceed** **Cordarone: 150 mg IV/IO over 10 minutes.** **Diluted in 100 mL of D5W: (600 mL/hr)** **May repeat in 10 minutes (Max 300 mg)**	**Interventions:** **EMT:** 1. Assess and treat ABC's 2. Oxygen per patient 3. Complete VS, SpO2 monitor if available 4. Check dextrose stick **Intermediate:** 5. Establish vascular access **Paramedic I:** 6. ECG 12 Lead if practical 7. Vagal Maneuvers May pre-medicate with **Ativan:** 0.05-0.1mg/kg SIVP, over 2 min or IN, Rectal 0.1 – 0.2 mg/kg Max single dose of 4mg 8. **Synchronized cardioversion 0.5–1.0 j/kg** may repeat at 2 j/kg 9. **Adenosine: 0.1 mg/kg rapid IV push** (Max first dose 6 mg) Can repeat 0.2 mg/kg (Max 12mg) **Contact Receiving Hospital** **Paramedic III may proceed** **Cordarone: 5 mg/kg IV over 20 minutes** **diluted in 100 mL of D5W (300mL/hr)**

Clinical Guideline - Cardiac

Atrial Fibrillation with RVR

C06

Adult

Clinical Presentation:

Confirmed Atrial Fibrillation (A-Fib) with a rapid ventricular response (RVR), HR ≥ 120, and the patient is symptomatic for hypo perfusion.

Interventions:

EMT:

1. Assess and treat ABC's
2. VS, including SpO2
3. Oxygen per patient
4. EtCO2

Intermediate:

5. Establish vascular access
6. Fluid Bolus

Lactated Ringers 500 mL IV; monitor for signs of pulmonary edema

Paramedic I:

6. EKG, 12 & 15 Lead
7. If rate not resolved with fluid bolus:

Cardizem: 20 mg IV; repeat once in 10 minutes; (Max dose 40mg)

or

Cordarone: 150 mg IV, diluted in 100 mL D5W infuse over 10 minutes (600mL/hr)

- Preferred for CHF
- May repeat once
- **CAUTION: NOT INDICATED IN NEW ONSET AFIB & PT'S NOT ANTICOAGULATED.**

Cooke County EMS

TOC

Clinical Guideline - Cardiac

Hyperkalemia

C07

Adult

Clinical Presentation:

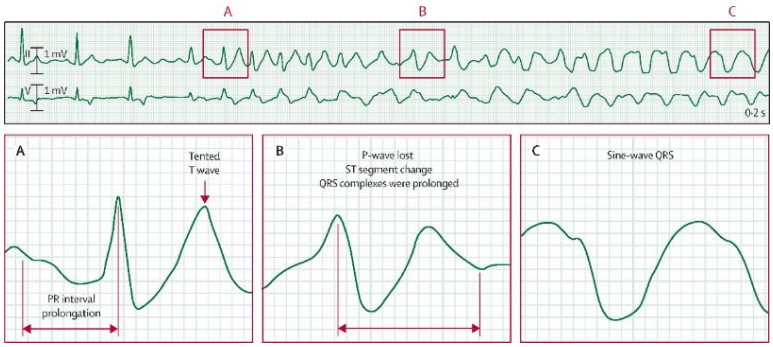
Consider patients with suspected electrolyte imbalances, prolonged crush injuries, dialysis patients that missed treatment and H's and T's for cardiac arrest. **MUST BE symptomatic with widening QRS (SINE wave) if not already cardiac arrest.**

- Treatment is **NOT** indicated for peaked T waves alone.

Interventions:

EMT:

1. Assess and treat ABC's
2. VS, including SpO2
3. Oxygen per patient
4. EtCO2



Intermediate:

5. Establish vascular access
6. Fluid Bolus Lactated **Ringers 500 mL IV;** monitor for signs of pulmonary edema

Paramedic I:

7. EKG, 12 & 15 Lead
8. **Calcium Chloride**: 1 G, repeat 10 minutes
9. **Sodium bicarbonate**: 1 amp, repeat once in 10 minutes if no EKG change
10. Continuous **Albuterol** updraft

Cooke County EMS

TOC

Clinical Guideline - Cardiac

Ventricular Tachycardia - Stable

C08

Adult	Pediatric
Clinical Presentation: BP > 90 without serious S/S	**Clinical Presentation:** Monitor presentation without serious S/S
Interventions: **EMT:** 1. Assess and treat ABC's 2. Encourage the patient to cough 3. Oxygen per patient 4. VS, including SpO2 & EtCO2 **Intermediate:** 5. Establish vascular access **Paramedic I:** 6. EKG, 12 & 15 Lead 7. **Cordarone: 150 mg over 10 minutes.** Diluted in 100mL of D5W (600mL/hr) Max 300 mg May repeat in 10 minutes 8. For Torsades de Pointes ONLY**:** **Magnesium Sulfate 1–2G IVP** 9. Synchronized cardioversion: **100j, 200j** Premedicate if time permits **Ativan: 1–2 mg IVP/IM** OR **Versed: 2-5 mg IVP/IM**	**Interventions:** **EMT:** 1. Assess and treat ABC's 2. Encourage the patient to cough 3. Oxygen per patient 4. VS, including SpO2 & EtCO2 **Intermediate:** 5. Establish vascular access **Paramedic I:** 6. EKG, 12 & 15 Lead 7. Synchronized cardioversion if becomes altered or unstable: **0.5J/kg to 1.0 J/kg to 2J/kg** Premedicate if time permits **Ativan:** 0.05-0.1mg/kg SIVP, over 2 min or IN, Rectal 0.1 – 0.2 mg/kg Max single dose of 4mg OR **Versed: 0.3 mg/kg IV** **Contact Receiving Hospital** **Cordarone: 5 mg/kg IVP**

Ventricular Tachycardia - Unstable

C09

Adult	Pediatric
Clinical Presentation: BP < 90 systolic altered LOC, dyspnea, diaphoresis or chest pain	**Clinical Presentation:** Altered LOC, dyspnea, diaphoresis or chest pain
Interventions: **EMT:** 1. Assess and treat ABC's 2. VS, including SpO2 & EtCO2 3. Oxygen per patient **Intermediate:** 4. Establish vascular access **Paramedic I:** 5. EKG, 12 & 15 Lead if available • If ventricular rate >150 Immediate cardioversion is indicated • If delays in synchronization occur and clinical condition is critical, go immediately to defibrillation **200J** 6. Synchronized cardioversion: **100J, 200J** Pre-medicate if time permits: **Ativan: 1–2 mg SIVP/IM** **or** **Versed: 2-5 mg IVP/IM** 7. If refractory **Cordarone: 150 mg over 10 minutes (600mL/hr)** 8. If converts initiate maintenance drip **Cordarone 150mg/100mL D5W@50mL/hr** 9. Torsades de Pointes only **Magnesium Sulfate: 1–2 G IVP**	**Interventions:** **EMT:** 1. Assess and treat ABC's 2. Oxygen per patient 3. VS, including SpO2 & EtCO2 **Intermediate:** 4. Establish vascular access **Paramedic I:** 5. EKG, 12 & 15 Lead 6. Synchronized cardioversion: **0.5J/kg to 1.0 J/kg to 2J/kg** Premedicate if time permits **Ativan:** 0.05-0.1mg/kg SIVP, over 2 min or IN, Rectal 0.1 – 0.2 mg/kg Max single dose of 4mg OR **Versed: 0.3 mg/kg IV (Max 2mg)** 7. **Cordarone: 5 mg/kg IV bolus** 8. For Torsades De Pointes ONLY **Magnesium Sulfate: 50 mg/kg IV, IO** (Max dose 2G)

Adult

Clinical Presentation:

SBP < 90 systolic in the absence of trauma. Patients may present with altered LOC, tachycardia or other arrhythmias, diaphoresis, pulmonary congestion and tachypnea.

Interventions:

EMT:

1. Assess and treat ABC's
2. VS, including SpO2 and EtC02
3. Oxygen per patient

Intermediate:

4. Establish vascular access

Paramedic I:

5. EKG, 12 & 15 Lead
6. Administer a Pressor: **MUST USE IV PUMP** for infusions & **Label bags**

- **Epi push dose** while preparing for pressor infusion, 2 mL (20mcg) every 2-5 minutes
  Mix: 1mg (1:1000) in 100mL NS
  OR
  Mix: 0.1mg (1:10,000) in 9mL NS flush

- **Dobutamine:** 5mcg/kg/min; titrate by 2-5mcg every 5 minutes (Maximum 20mcg/kg/min)
  Preferred for hypotensive cardiac patients (with tachycardia)
  Mix: 250mg/250mL NS

- **Epi Drip –** 2 mcg/min titrate by 2 mcg every 5 minutes (Maximum 20mcg/min)
  Preferred for hypotensive cardiac patients (with bradycardia)
  Mix: 1mg (1:1000) in 100mL NS

Interventions:

Lead (airway bag)

- Move the patient to clear open area.
- Initiate chest compressions and SGA for 1 person CPR (30/2)
  - **Complete 2 min of CPR prior to rhythm check if CPR is not initiated prior to arrival**.
- Once Lucas has been deployed initiate IV/IO & first round ACLS drugs after 2 shocks if indicated.
- ET tube considered AFTER good ACLS and CPR
  - DO NOT stop chest compressions for intubation.
  - Consider transport
- Precharge monitor prior to rhythm checks.

Partner (Lucas & Monitor)

- Monitor – pads & 3 Lead
  - **Is shock indicated?**
  - Rhythm check q 2 minutes
  - Precharge monitor prior to rhythm checks
- Deploy Lucas
- Take over ventilation (10bpm)

Refer to appropriate arrest protocol

Capnography Goal: > 20 mmHg

- If less than 10mmHg – reevaluate CPR/ventilation efficiency.
- No pulse checks necessary prior to shocking unless significant elevation in capnography.

Transport considerations

- If scene is safe stay put for min 10 minutes
- If patient presents with asystole and no changes, WORK an additional 10 minutes.
- Consider **Termination Protocol** (129) **AFTER** 20 minutes.
- If ROSC initiate resuscitation and stabilization **BEFORE** moving patient.

Conscious CPR:

- **Ketamine:** 1mg/kg Max 100mg, may repeat after 2-3 minutes
  OR
- **Etomidate:** 10mg, repeat in 5-10 minutes

Clinical Guideline -

Termination of Prehospital Resuscitation

P23

Adult

Purpose:
The purpose of this policy is to:
Allow discontinuation of prehospital resuscitation after delivery of adequate and appropriate ALS therapy.

Procedure:
CPR and ALS therapy may be discontinued by EMS personnel when the following criteria are met:

1. **The initial and ending rhythm must be Asystole with no change during resuscitative efforts.**
2. Patients are >18 years of age.
3. Patients cannot be pregnant.
4. The situation is not related to hypothermic causes
5. ETCO2 remains < 20 mmHg after early successful advanced airway placement and 10 minutes of Advanced Life Support.
6. There has been absolutely no return of pulse, spontaneous respirations, eyes opening or movement, no motor response and no neurological activity.

Determination of resuscitation efforts must be determined prior to transport

Note: Documentation should include initial and ending rhythm, time ALS was started and stopped. These events will be needed to record time of death.

Adult

Clinical Presentation:

Cardiac Arrest of unknown origin

Interventions:

1. Hypoxia
    a. ventilate
2. Acidosis (Hydrogen)- down time > 20 minutes
    a. ventilate at higher rate (max 20bpm)
    b. **Sodium Bicarbonate 1 amp IV/IO**
3. Overdose
    a. **Narcan** if suspected narcotic overdose
    b. Refer to **Overdose Protocol**
4. Tricyclics, digitalis, beta-blockers, and calcium channel blockers
    a. Refer to **Bradycardia** Protocol. (43)
5. Diabetic reactions
    a. Refer to **Diabetic Emergencies** (62)
6. Hyperkalemia – ALL known cardiac arrest dialysis patients
    a. **Calcium Chloride: 1 G, repeat 10 minutes**
    b. **Sodium bicarbonate: 1amp, repeat once in 10 minutes**
    c. **Continuous Albuterol updraft (if ROSC)**
7. Hypovolemia
    a. Fluid challenge
8. Hypothermia
    a. Passive re-warming, warmed fluids
9. Hyperthermia
    a. Aggressive external cooling, cooled fluids
10. Tension Pneumothorax
    a. Pleural Decompression
11. Cardiac Tamponade
12. Pulmonary Embolism

Adult	Pediatric
Interventions: **Paramedic I: (cont. from Cardiac Arrest Protocol)** 1. CPR 2. **Confirm asystole in two leads** 3. **Epinephrine (1:10,000): 1mg IVP, IO**; repeat q 3 – 5 minutes (Max 5mg) 4. Shall place NG tube after placement of advanced airway. 5. Consider H's & T's protocol (53) **Refer to the Termination of Pre-hospital Resuscitation Procedure (52)**	**Interventions:** **Paramedic I:(cont. from Cardiac Arrest Protocol)** 1. CPR 2. **Confirm Asystole in two leads** 3. Place an advanced airway and ventilate with supplemental oxygen, target EtCO2 at 35–45 4. **Epinephrine (1:10,000) 0.01 mg/kg IV/IO/ET,** repeat q 3 – 5 minutes Max 5mg

Cooke County EMS

TOC

Clinical Guideline - Cardiac

Pulseless Electrical Activity

C12

Adult	Pediatric
Clinical Presentation: Presentation of an organized cardiac rhythm with no mechanical pulse	**Clinical Presentation:** Presentation of an organized cardiac rhythm with no mechanical pulse
Paramedic I: (cont. from Cardiac Arrest Protocol) 1. CPR 2. **Epinephrine (1:10,000): 1mg IVP, IO**; repeat q 3–5 minutes (Max 5mg) 3. Shall place NG tube after placement of advanced airway. 4. Consider H's & T's protocol (53) **Refer to the Termination of Pre-hospital Resuscitation Procedure (52)**	**Paramedic I:(cont. from Cardiac Arrest Protocol)** 1. CPR 2. Place an advanced airway and ventilate with supplemental oxygen, target EtCO2 at 35–45 3. **Epinephrine (1:10,000) 0.01 mg/kg IV/IO/ET,** repeat q 3 – 5 minutes (Max 5mg) 4. Consider H's & T's Protocol (53)

Adult	Pediatric
Interventions: **Paramedic I: (cont. from Cardiac Arrest Protocol)** 1. CPR continuous 2. V-Fib / pulseless V-Tach 3. **If EtC02 is > 20** Defibrillate **150j** 4. **If EtC02 is < 20** provide 5 minutes of CPR with Lucas prior to defibrillation. 5. Repeat after every 5 cycles if refractory 6. **Epinephrine (1:10,000): 1mg IVP, IO,** repeat every 3 – 5 minutes (Max 5 mg) 3. After 2 defibrillations administer **Cordarone: 300 mg IVP/IO** 7. Repeat after next defibrillation with **150mg IVP/IO**. 8. If converts initiate maintenance drip: **Cordarone 150mg/100 D5W@50mL/hr** 9. For Torsades De Pointes: **Magnesium Sulfate 1–2G IV/IO** dilute in 10 mL of D5W 10. Shall place NG tube after placement of advanced airway. 11. Continued CPR	**Interventions:** **Paramedic I: (cont. from Cardiac Arrest Protocol)** 1. CPR continuous 2. V-Fib / pulseless V-Tach • **Defibrillate 2 j/kg, 4j/kg** 3. Place an advanced airway, and ventilate with supplemental oxygen, target EtCO2 at 35 – 45, chest compression should not be interrupted to place the airway. 4. **Epinephrine (1:10,000): 0.01mg/kg IV/IO/ET,** repeat every 3 – 5, Max 5 mg 5. If persistent Vfib or pulseless Vtach **Cordarone: 5 mg/kg IV bolus** (Max dose 300mg) 6. For Torsades D Pointes: **Magnesium Sulfate: 50mg/kg IV/IO** (Max dose 2G)

Adult	Pediatric
Interventions: Continued from rhythm specific guideline **Paramedic** 1. EKG, 12 & 15 Lead 2. Attempt peripheral IV if still using IO. 3. If converted after defibrillation or cardioversion ONLY: **Watch closely for lethal dysrhythmia.** 4. If converted after medication, follow bolus with appropriate drip: **Cordarone: 150 mg in 100 cc D5W at 50 mL/hour.** 5. If hypotensive **250-500mL bolus** (monitor for pulmonary edema) 6. **Epi push dose** while preparing for pressor infusion, 2 mL (20mcg) every 2-5 minutes • Mix: 1mg (1:1000) in 100mL NS OR • Mix: 0.1mg (1:10,000) in 9mL NS flush **Dobutamine** 5 mg/kg/min; titrate 2mg q 5 minutes (Maximum 20mg/kg/min) • Preferred for hypotensive cardiac patients (with tachycardia) • Mix 250mg/250mL NS **Epi Drip** 2mcg/min titrate by 2mcg q 5 minutes (Maximum 20mcg/min) • Preferred for hypotensive cardiac patients (with bradycardia) • Mix 1:1,000 Epi in 100mL NS **Levophed:** 5mcg/min; titrate 5mcg q 5 minutes (Maximum 50mcg/min) **(DO NOT ADMINISTER PRIOR TO FLUID BOLUS)** • Preferred for sepsis • Mix 2mg in 250 mL D5W	**Interventions:** Continued from rhythm specific guideline **Paramedic I:** 1. If bradycardic, see Bradycardia Protocol (43) • **Up to one year: rate < 80** • **One to eight years: rate < 60** **Pediatric lowest acceptable systolic BP:** **Birth to 1 month = 60mmHg** **1 month to 1 year = 70 mmHg** **1 year to 10 years is = 70mmHg + (age x 2)** **Contact Receiving Hospital** **Paramedic III may proceed** If converted from ventricular rhythm and without antiarrhythmic given and patient is still hypotensive after 5 minutes. **Epi Drip: 0.05 mcg/kg/min** **Titrate by 0.05 mcg/kg/min** **(every 3-5 min)** **Max dose 0.3 mcg/kg/min** • **Mix 1:1,000 Epi in 100mL NS** **age- appropriate SBP = 2(age)+70** Must use pump

Adult	Pediatric
Clinical Presentation: Non-traumatic abdominal pain. Any type of bleeding that originates in GI tract with symptomatic patient.	**Clinical Presentation:** Non-traumatic abdominal pain.
Interventions: **EMT:** 1. Assess and treat ABC's 2. Oxygen per patient 3. VS, including SpO2 4. Consider Orthostatic VS (if possible) **Intermediate:** 5. Establish vascular access **Paramedic I:** 6. EKG, 12 & 15-Lead 7. **Consider Pain Management** (102) 8. If patients have S/S of shock due to GI bleed: **TXA 2G IV/IO/IM** 9. **Refer to Blood Product Protocol (105)** **or** **Volume Resuscitation Protocol (12-13)**	**Interventions:** **EMT:** 1. Assess and treat ABC's 2. Oxygen per patient 3. VS, including SpO2 **Intermediate:** 4. Establish vascular access **Paramedic I:** 5. EKG 6. For severe nausea and vomiting: **Zofran** **Ages 2 – 6 1 mg IVP, IM** May repeat in 15 minutes (Max 2mg q 4 hrs) **Ages 7 – 12: 2 mg IVP, IM** May repeat in 15 minutes (Max 4 mg q 4 hours) **Contact Receiving Hospital** **Paramedic III may proceed:** **Zofran: Ages < 2: 0.15 mg/kg IV**

Adult	Pediatric
Clinical Presentation: For nausea and/or vomiting. **QTc > 500 avoid Zofran and Promethazine.**	**Clinical Presentation:** For nausea and/or vomiting
Interventions: **EMT:** 1. Assess and treat ABC's 2. Oxygen per patient 3. VS, including SpO2 4. Consider Orthostatic VS **Intermediate:** 5. Establish vascular access **Paramedic I:** 6. EKG, 12-Lead (QTc>500 avoid Zofran & Promethazine) 7. For severe nausea and vomiting: **Zofran: 4mg IV, IM, ODT** • May repeat in 15 minutes • Max 8mg q 4 hours OR **Promethazine Drip 25mg IV** • Mix in 100mL D5W **As adjunct to antiemetic** 8. For pregnant hyperemesis **Benadryl: 25 mg IVP** • May repeat 1X in 5 minutes • Maximum 50 mg 9. For cannabis hyperemesis **Haldol: 1 mg IV** OR **5mg IM** • May repeat IV in 5 minutes • Maximum 5mg	**Interventions:** **EMT:** 1. Assess and treat ABC's 2. Oxygen per patient 3. VS, including SpO2 **Intermediate:** 4. Establish vascular access **Paramedic I:** 5. EKG 6. For severe nausea and vomiting: **Zofran:** **Ages 2 – 6 1 mg IVP, IM** May repeat in 15 minutes (Max 2 mg Q 4 Hours) **Ages 7 – 12: 2 mg IVP, IM** May repeat in 15 minutes (Max 4 mg Q 4 Hours) **Contact Receiving Hospital** **Paramedic III may proceed** **Zofran: Ages < 2: 0.15 mg/kg IV**

Adult	Pediatric
Clinical Presentation: Unresponsive or disoriented patients without a clear mechanism for altered mental status. Refer to appropriate protocols as needed (diabetes, head injury, etc.)	**Clinical Presentation:** Unresponsive or disoriented patients without a clear mechanism for altered mental status. Refer to appropriate protocols as needed (diabetes, head injury, etc.)
Interventions: **EMT:** 1. Assess and treat ABC's 2. VS, including SpO2 & EtCO2 3. Oxygen per patient 4. Obtain blood glucose if signs of hypoglycemia **Intermediate:** 5. If BG < 80 refer to **Diabetic Emergency Protocol** (62) 6. Establish vascular access 7. **Thiamine 200 mg** in 100mL D5W (new onset elderly pt declining and malnourished) **Paramedic I:** 8. Consider causes (AEIOU TIPS) and treat. 9. If pupils are constricted and/or respiratory depression: Narcan**: 0.5 - 2 mg IVP/IN,** to improve respirations, may repeat as needed 10. EKG, 12 & 15 Lead **Altered Mental Status: AEIOU TIPS** **A**: alcohol, acidosis **E**: endocrine, epilepsy, electrolytes, encephalopathy **I**: infection **O**: opiates, overdose **U**: uremia **T**: trauma **I**: insulin **P**: poisoning, psychosis, pharmacology **S**: stroke, seizure, syncope	**Interventions:** **EMT:** 1. Ensure patent airway 2. VS, including SpO2 & EtCO2 3. High flow oxygen, assist respirations via BVM, if needed 4. Obtain blood glucose if signs of hypoglycemia **Intermediate:** 5. Establish vascular access 6. If S/S hypoglycemia with BG < 80 refer to **Pediatric Diabetic Emergency Protocol** (62) **Paramedic I:** 7. EKG **Contact Receiving Hospital** **Paramedic III may proceed** **Narcan: 0.1 mg/kg IV/IO/IN;** **Max single dose 2.0 mg**

Adult

Clinical Presentation:

Patients present with a diminished cognitive state that may represent a danger to them self or others.

First Responder safety is paramount; do not enter an unsecured scene.

Interventions:

EMT / Intermediate:

1. Assess patient's current mental state
   - Approach the patient in a calm, courteous, direct, and honest manner.
   - Maintain continuous contact with the patient.
   - Encourage the patient to discuss situational stresses.
   - Check for emotional instability (mood swings), paranoid delusions, and depression.
2. ABCs to the extent allowed.
3. Treat apparent life-threatening injuries.
4. Continue to assess possible causes for the current behavior.
5. Treat non-life-threatening injuries as the patient allows.
6. If signs of hypoglycemia refer to **Diabetic Emergency Protocol**.
7. **Use restraints as needed to protect responders and patients.**
   - **If mechanical restraints are used, only remove at receiving facility.**
   - **If chemically restrained patient MUST be transported to TMC or THR Denton**

Paramedic I:

8. EKG if tolerated, **ETCO2**
9. For anxiety or panic attack, only consider **Ativan 1-2mg IV/IM** or **Versed 2-5mg IV/IM**

10. **If patients cannot be controlled with physical or mechanical restraints, consider chemical restraint AND be prepared to manage airway and ventilations.**
    MUST monitor EtCo2

Ativan: 1-2 mg IV, 2 mg IM (can substitute Versed 2mg IV/IN for Ativan)
AND
Haldol: 5 mg IV, over 1 minute or 10 mg IM
AND
Benadryl: 50 mg IV/IM
OR
Ativan: 2mg IM; (can substitute Versed 2mg IV/IN for Ativan)
AND
Ketamine: 2.5 mg/kg **IM ONLY**

Adult/Pediatric

Clinical Presentation:

Normotensive or hypotensive **with** tachycardia and other signs/symptoms including poor skin turgor with little or no urine output, dry mucous membrane and evidence of a dehydration mechanism (vomiting, diarrhea, fever, poor oral intake).

Interventions:

EMT:

1. Assess and treat ABC'S
2. VS including SpO2
3. Oxygen per patient
4. Consider orthostatic VS (if possible)
    - Positive tilt: patient becomes dizzy with change of position OR Systolic BP drops 20 points or Diastolic increases 10 points with increase in HR

Intermediate:

5. Establish vascular access
6. Fluid bolus:

    Adult**: LR: 250 – 500mL;** consider repeating bolus (Max 1000mL)

    Pedi: **LR: 20mL/Kg (no repeat) (**Max 1000mL)

Paramedic I:

7. EKG, 12 & 15-Lead

Adult / Pediatric Diabetic Emergencies

M06

Adult	Pediatric
Clinical Presentation: Symptoms related to blood glucose level < 80 mg/dL – hypo >250mg/dL - hyper	**Clinical Presentation:** Blood glucose levels • < 80mg/dL if > 2yrs of age is hypo • < 60 mg/dL if < 2yrs of age is hypo • < 40 mg/dL if neonate is hypo • >250mg/dL confirmed Type I - hyper
Interventions: **EMT:** 1. Assess and treat ABC's 2. VS, including SpO2 & EtCO2 3. O2 per patient 4. If alert, and suspected hypoglycemia 5. Obtain blood glucose 6. If patient is conscious and able to maintain own airway administer: **15 grams Oral Glucose** **Intermediate:** 7. Establish vascular access 8. If altered LOC administer: **Thiamine: 100mg** (may be mixed with D10) **D10 25G IV** 9. If no IV access administer: **Glucagon: 1 mg IM/IN** 10. Repeat dextrose stick in 3 – 5 minutes 11. If BGL > 250mg/dL **AND** symptomatic: **LR 500 mL bolus** **Paramedic I:** 12. EKG	**Interventions:** **EMT:** 1. Ensure patent airway 2. VS, including SpO2 & EtCO2 3. Oxygen as tolerated 4. If alert, and suspected hypoglycemia 5. Obtain blood glucose 6. If BG < 80 and patient is conscious and able to maintain own airway, assist with administration of **15 grams Oral Glucose.** **Intermediate:** 7. Establish vascular access **D10: 5-10 mL/kg** Max 25G 8. No IV access: Glucagon**: 1 mg IM/IN** 9. If BGL > 250mg/dL **AND** confirmed Type I: 10mg/kg bolus **Paramedic I:** 10. EKG

Adult

Clinical Presentation:
Systolic BP > 200 **or** Diastolic >120 with headache, blurred vision, numbness, dyspnea, or chest pain.

Interventions:

EMT:

1. Assess and treat ABC's
2. VS, including SpO2
3. Oxygen per patient
4. Evaluate arm drift, facial droop, and speech impairment for stroke. If present, refer to Stroke Protocol

Intermediate:

5. Establish vascular access

Paramedic I:

6. EKG, 12 & 15 Lead
7. **Nitroglycerine: 0.4 mg SL;** repeat every 5 minutes x 3 doses
8. **Labetalol: 10 mg IVP**

Contact Receiving Hospital
Paramedic III may proceed

Nitro Drip: 2 mcg/min; titrate by 2 mcg q 5 minutes (max 200 mcg/min)
GOAL: SBP <200 or DBP<120, **Must use IV pump.**
OR
Labetalol: 10 mg IVP (Max dose 20 mg)
OR
Metoprolol: 5 mg; repeat every 5 minutes x 3; Hold if HR <55

Clinical Guideline - Medical

Hypotension/Shock - Unexplained

M08

Adult

Clinical Presentation:

BP < 90 systolic, with S/S: pale, cold, clammy skin, syncope, vomiting and/or diarrhea with decreased intake and output.

Interventions:

EMT:

1. Assess and treat ABC's
2. VS, including SpO2 & EtC02
3. O2 per patient
4. Place patient in "legs Up" Position
5. Consider orthostatic VS (if possible)
    - Positive tilt = BP drops 20 Systolic or elevates 10 diastolic with an increase in HR

Intermediate:

6. Establish vascular access
7. Fluid challenge: **LR: 250 – 500 mL**
    - If hypotensive after 10 minutes, repeat fluid challenge
    - Discontinue fluid challenge if S/S of Pulmonary Edema arises.
8. Second IV optional

Paramedic I:

9. EKG, 12 & 15 Lead
10. **If still hypotensive after adequate volume resuscitation:**

- **Epi push dose** while preparing for pressor infusion, 2 mL (20mcg) every 2-5 minutes
  Mix: 1mg (1:1000) in 100mL NS
  OR
  Mix: 0.1mg (1:10,000) in 9mL NS flush

- **Levophed:** 5mcg/min; titrate 5mcg q 5 minutes (Maximum 50mcg/min)
  (DO NOT ADMINISTER PRIOR TO FLUID BOLUS)
    - Preferred for sepsis
    - Mix 2mg in 250 mL D5W
      Preferred for sepsis
      Mix: 2mg in 250 mL D5W

- **Epi Drip –** 2 mcg/min titrate by 2 mcg every 5 minutes (Maximum 20mcg/min)
  Preferred for hypotensive cardiac patients (with bradycardia)
  Mix 1mg 1:1000 in 100mL NS

- **Dobutamine:** 5mcg/kg/min; titrate by 2mcg every 5 minutes (Maximum 20mcg/kg/min)
  Preferred for hypotensive cardiac patients (with tachycardia)
  Mix: 250mg/250mL NS

Clinical Guideline - Medical

Epistaxis / Tonsillar Bleed

M09

Adult/Pedi

Clinical Presentation:
Uncontrolled bleeding from nasal passages or uncontrolled hemoptysis or bleeding after tonsillectomy.

Interventions:

EMT:

1. Ensure patent airway
2. V/S, including, SpO2 and ETCO2
3. Place in upright position
4. Help keep patient calm

Intermediate:

5. Establish vascular access

Paramedic:

6. Establish and maintain EKG monitoring:

For uncontrolled bleeding consider:

7. **TXA** soaked gauze, pack nostrils and apply pressure
8. **TXA** MAD atomized, do not exceed 3mL per nostril

If recent tonsillectomy with uncontrolled bleeding or hemoptysis, consider

9. Administer **TXA 1G** in continuous nebulizer

Cooke County EMS

TOC

Clinical Guideline - Medical

Overdose/Poisoning

M10

Adult	Pediatric
Clinical Presentation: Known/suspected ingestion, injection, inhalation, or absorption of harmful substances. **Poison Control: 1-800-222-1222**	**Clinical Presentation:** Known/ suspected ingestion, injection, inhalation, or absorption of harmful substances. **Poison Control: 1-800-222-1222**
Interventions: **EMT:** 1. Assess and treat ABC's 2. Oxygen per patient 3. If contact poisoning, brush off or flush with H_2O immediately 4. VS, including SpO2 & EtCO2 **Intermediate:** 5. Establish vascular access **Paramedic I:** 6. EKG, 12 & 15 Lead 7. Organophosphate: **Atropine 2 mg IVP or IM, repeat q 5 min. as needed** 8. Ingested within 1 hour **Charcoal 50 G PO** (only if alert) 9. Dystonic Reaction: **Benadryl 50 mg IV/IM** 10. Tricyclic Antidepressant / Cocaine/Salicylate (ASA) with QRS>100ms **Sodium Bicarbonate 1 mEq/kg minimum 50 mEq IVP may repeat to maintain QRS<100ms** 11. ETOH poisoning: **LR 250cc over 20 minutes** 12. Opioid Overdose: **Narcan 0.5 - 2 mg IVP/IN** to improve Ventilations, Repeat as needed 13. Carbon Monoxide: **Oxygen 15Lpm, consider CPAP** consider hyperbaric therapy	**Interventions:** **EMT:** 1. Ensure patent airway 2. Determine overdose substance 3. VS, including SpO2 & EtCO2 4. If contact poisoning, brush off or flush with H_2O Immediately 5. High flow oxygen, assist respirations via BVM, if needed 6. If mental status refer to **Pediatric Altered Mental Status Protocol** (62) **Intermediate:** 7. Establish vascular access **Paramedic I:** 8. EKG 9. If ingested poisoning within 1 hour **Charcoal: < 1 year: 1 G/kg** **> 1 year: 25–50G** 10. Opioids: to improve ventilation **Narcan 0.1 mg/kg - 2 mg IVP/IN** 11. Tricyclic Antidepressant / Cocaine/Salicylate (ASA) with QRS>100ms **Sodium Bicarbonate 1 mEq/kg may repeat to maintain QRS<100ms** 12. Cardon Monoxide **Oxygen 15 Lpm** consider hyperbaric therapy 13. Organophosphate **Atropine 0.02mg/kg IV/IO**, repeat as needed to dry secretions and ease of breathing. 14. Beta Blocker & Calcium Channel Overdose: 0.05**mg/kg Glucagon IV/IO** If hypotensive 20mL/kg LR bolus

Cooke County EMS

TOC

Clinical Guideline - Medical

Seizures

M11

Adult	Pediatric
Clinical Presentation: Active seizures (tonic/clonic) and/or postictal	**Clinical Presentation:** Active seizures (tonic/clonic) or postictal.
Interventions: **EMT:** 1. Assess and treat ABC's 2. VS, including SpO_2 3. O2 per patient, as tolerated 4. Obtain blood glucose 5. Lactate for New Onset **Intermediate:** 6. Establish vascular access 7. If BG <80 refer to **Diabetic Emergency** (62) **Paramedic I:** 8. EKG **If seizures are prolonged or recurrent consider:** 9. **Ativan 1 mg SIVP/IN** may repeat 2 mg every 5 minutes MAX 8 mg **or** **Versed 2–5 mg IVP/IN** may repeat in 20 minutes MAX 10mg **or** **Ketamine 2 mg/kg IV/IO** **or** **4 mg/kg IM**	**Interventions:** **EMT:** 1. Ensure patent airway. 2. Determine possible cause: Elevated Temperature; Head Injury; Medical History 3. Protect patient from injury. 4. VS, including SpO2 5. Oxygen as tolerated. 6. Obtain blood glucose 7. Dextrose stick **Intermediate:** 8. Establish vascular access 9. If hypoglycemic refer to **Diabetic Emergency** (62) **Paramedic I:** 10. EKG 11. **Ativan 0.05-0.1mg/kg** SIVP over 2 minutes or 0.05-0.1mg/kg IN or Rectal 0.1–0.2mg/kg or **Versed 0.1 mg/kg IV**, single dose of 5 mg, may repeat in 2-5 min: **IM/IN 0.2 mg/kg** max 10 mg, (IN split dose between nostrils). **Rectal: 0.3 mg/kg**, max 10 mg 12. If febrile: **Tylenol 15mg/kg Rectal** 13. If Opioid overdose: **Narcan 0.1 mg/kg, IVP or 2mg IN** **Contact Receiving Hospital** **Paramedic III may proceed** **Ativan: Repeat dose (Max dose 4 mg)**

Sepsis

M12

Adult

Clinical Presentation: (Not pertinent if patient is pregnant or in trauma patients.)

MAP < 65 **or** HR > 90; **AND any 2 for the following**

- **Acute** altered mental status
- Temperature > 101 or < 96.8
- Resp. rate > 20
- Requires ventilatory support
- Lactate levels > 4 mmol/L
- Suspected or documented infection
- Capnography < 25

Interventions:

EMT:

1. Assess and treat ABC's
2. VS, including SpO2 and EtC02
3. Oxygen, high flow
4. Assess lactate level
5. Dextrose stick

Intermediate:

6. Establish vascular access, 2 large bore cath
   LR 20 mL/kg in 500 mL bolus increments; Monitor for pulmonary edema
7. If BG < 80 refer to **Diabetic Emergencies** (62)
8. For Fever greater than 101 administer:
   Tylenol Infusion **1000mg (100mL) over 15** minutes (400 mL/hr**)** (must use pump)
9. For Septic Shock with **Hypotension ONLY**
   Cefepime 2 G IVP

Paramedic I:

10. EKG, 12 & 15 Lead
11. **If you are unable to maintain MAP >65, consider pressor**

Epi push dose while preparing for pressor infusion, 2 mL (20mcg) every 2-5 minutes
Mix: 1mg (1:1000) in 100mL NS
or
Mix: 0.1mg (1:10,000) in 9mL NS flush

Levophed: 5mcg/min; titrate 5mcg q 5 minutes (Maximum 50mcg/min)
(DO NOT ADMINISTER PRIOR TO FLUID BOLUS)

- Preferred for sepsis
- Mix 2mg in 250 mL D5W

Epi Drip: 2 mcg/min titrate by 2 mcg every 5 minutes (Maximum 20mcg/min)
Preferred for hypotensive cardiac patients (with bradycardia)
Mix: 1mg (1:1000) in 100mL NS

Adult

Clinical Presentation:

Unilateral weakness, paralysis, facial droop and speech impairment

Interventions:

EMT:

1. Assess and treat ABC's
2. VS, including SpO2
3. O2 per patient
4. Dextrose stick: If < 80 or signs of hypoglycemia
5. **Elevate head of bed 30 degrees**

Intermediate:

6. Establish vascular access
- If Dextrose Stick < 80 with signs of hypoglycemia refer to **Diabetic Emergencies** (62)

Paramedic I:

7. Confirm the presence of stroke type symptoms.
8. **Determine and document the time of last known normal (LKN)**
9. Perform the Rapid NIH Stroke Score exam.
   - LKN less than 4.5 hours, NIHSS of 8 or less, no contraindications to thrombolytic therapy - closest **Stroke Facility**.
   - LKN is greater than 4.5 hours, or an NIHSS greater than 8, or absolute contraindication – **Comprehensive Stroke Center** (if arrival in less than 24 hours from LKN)
   - **If you are unable to complete the NIHSS consider air transport**
10. If air transport is used, send a copy of completed Rapid NIHSS form with patient.
11. EKG, 12 & 15-Lead

Contact Receiving Hospital
Paramedic III may proceed

12. BP > 180 **Labetalol: 10mg IVP, repeat after 15 minutes**
    Max 20mg to TARGET Systolic BP of 160
13. Profound HTN: BP > 220 **Labetalol Drip mixture 100mg/50 mL NS,** (2:1 concentration)
    Starting Dose: 0.5 mg/min titrate q 5 min by 0.5 mg (Max dose 2.0 mg/min)
    Target Systolic BP of 180

Asthma

R01

Adult	Pediatric
Clinical Presentation: Respiratory distress, wheezing on expiration, coughing, tripod positioning and/ or accessory muscle use.	**Clinical Presentation:** Respiratory distress, wheezing on expiration, coughing, tripod positioning and / or accessory muscle use.
Interventions: **EMT:** 1. Assess and treat ABC's 2. VS, including SpO2 & EtCO2 3. O2 per patient 4. **Albuterol 2.5 mg nebulized updraft** may repeat once in 10 min **Intermediate:** 5. Establish vascular access 6. Fluid bolus **Lactated Ringers 250mL;** may repeat **Paramedic I:** 7. EKG 8. **Terbutaline 0.25 mg SQ** 9. **Magnesium Sulfate 1G IVP** 10. **Dexamethasone 4mg IVP/Nebulized** or **Methylprednisolone 125 mg IV** 11. **Ketamine 0.5 mg/kg IV or** nebulized 12. **Morphine 4 mg nebulized** can be added to DuoNeb 13. Continuous updraft 14. **Epinephrine (1:1,000): 0.3 mg IM** 15. Consider CPAP **IF STATUS ASTHMATICUS BE PREPARED TO INTUBATE**	**Interventions:** **EMT:** 1. Assess and treat ABC's 2. VS, including SpO2 & EtCO2 3. Oxygen per patient **Albuterol: 2.5 mg nebulized updraft;** **ONLY HALF dose if under 2 years;** may be repeated once in 10 minutes; only with Medical Control Permission **Intermediate** 5. Establish vascular access 6. Fluid 20ml/kg/hr **Paramedic I:** 7. EKG 8. **Dexamethasone**: **0.1 mg/kg IV/IO/IM** OR **nebulized updraft. (Max dose 4 mg)** 9. **Continuous updraft** 10. **Epinephrine (1:1,000):0.01 mg/kg IM** OR **0.5 mg nebulize** MAX single dose IM 0.3 mg 11. **Terbutaline: 0.25 mg SQ** OR **nebulized in 2 mL NS**

Bronchiolitis / RSV

R02

Pediatric

Clinical Presentation:

History of upper respiratory infection, rapid onset, hacking cough, rhinorrhea, audible wheezing, lethargy and, possibly febrile. Under 2 years of age.

Interventions:

EMT:

1. Ensure patent airway
2. VS, including SpO2 & EtCO2 (if tolerated)
3. Oxygen, humidified (blow-by if delivery device not tolerated)
4. Position of comfort
5. If febrile: **Tylenol Suspension: 15 mg/kg PO or RECTAL**
6. **Albuterol: > 2yrs of age 2.5 mg nebulized updraft**
   < 2 yrs of age 1.25 mg nebulized updraft

Intermediate:

7. Establish vascular access
   Lactated Ringers 20ml/kg/hr

Paramedic I:

8. EKG
9. **Epinephrine (1:1000) .5 mg nebulized updraft;** may repeat after 10 min

Contact Receiving Hospital
Paramedic III may proceed

Albuterol: (repeat dose): **2.5 mg nebulized updraft.**
1.25 mg nebulized updraft if under 2 years

Epinephrine (1:1,000): **0.01 mg/kg SQ**

CHF / Pulmonary Edema

R03

Adult

Clinical Presentation:

Severe respiratory distress, cyanosis, diaphoresis, adventitious lung sounds, JVD, altered LOC and chest pain.

Interventions:

EMT:

1. Assess and treat ABC's
2. VS, including SpO2, and EtC02
3. Oxygen per patient, consider BVM
4. Elevate head 30 degrees from supine

Intermediate:

5. Establish vascular access

Paramedic I:

6. EKG, 12 & 15 Lead

7. **Nitroglycerin: 0.4 mg SL;** repeat every 5 minutes x 3 doses

8. **Consider CPAP**
   Consider Nitro Drip with CPAP
9. **Nitro Drip: 5 mcg/min; titrate 5 mcg every 5 minutes** until symptoms improve (Max dose, 200 mcg/min), MUST USE IV PUMP
10. **Morphine 2–5 mg IVP;** repeat @ 2mg q 5 minutes (Max dose of 10 mg)
11. **Lasix 20mg IVP** unless patient already takes Lasix then administer **40mg IVP**

BE PREPARED TO INTUBATE

Contact Receiving Hospital
Paramedic III may proceed:

Dobutamine: 5mcg/kg/min; titrate by 2mcg q 5 minutes
(Max 20mcg/kg/min)
Preferred for hypotensive cardiac patients (with tachycardia)
Mix 250mg/250mL

Cooke County EMS

TOC

Clinical Guideline -Respiratory

COPD

R04

Adult

Clinical Presentation:

Dyspnea with history of chronic bronchitis and / or emphysema

Interventions:

EMT:

1. Assess and treat ABC's
2. VS, including SpO2 and EtC02
3. Oxygen per patient

Intermediate:

4. Establish vascular access

Paramedic I:

5. EKG, 12 & 15 Lead

6. **Albuterol** for bronchospasm **2.5 mg nebulized updraft,** may repeat once in 10 min
   OR
   DuoNeb for bronchospasm and mucus **3 mL nebulized updraft,** may repeat once in 10 min

7. **Terbutaline: 0.25 mg SQ**

8. **Dexamethasone**: **4 mg IVP**
   or
9. **Methylprednisolone: 125 mg IV**

10. Consider CPAP

11. For Anxious Patient's may consider: (must use with caution)
    Ativan: 1 mg SIVP
    or
    Versed 1-2 mg IVP

Pediatric

Clinical Presentation:
History of upper respiratory infection, "barking" cough, common at night, ages 6 months-4 yrs.

Interventions:
EMT:

1. Insure patent airway
2. VS, including SpO2 & EtCO2 (if tolerated)
3. Oxygen, humidified (blow-by if delivery device not tolerated)
4. Position of comfort
5. If febrile: **Tylenol Suspension 15mg/kg PO/Rectal**
6. **Dexamethasone**: **0.6 mg/kg PO** OR **0.1mg/kg nebulized**

Paramedic I:
7. EKG

Consideration:
8. **Epinephrine (1:1000): 0.5 mg nebulized updraft;** may repeat after 10 min

Epiglottitis

R06

Pediatric
Clinical Presentation: Rapid onset, high fever, sore throat, drooling, inspiratory stridor, tri-pod positioning. **DO NOT** examine throat or place anything in mouth. **These patients require rapid transport.**
Interventions: **Agitation can increase edema or swelling.** ***AVOID IV IF POSSIBLE*** **EMT / Intermediate:** 1. Ensure patent airway 2. VS, including SpO2 3. Oxygen, humidified (blow-by if delivery device not tolerated) 4. Position of comfort **Paramedic I:** 5. EKG 6. **Dexamethasone 0.1 mg/kg, nebulized updraft** **Contact Receiving Hospital** **Paramedic III may proceed:** **If complete airway obstruction:** **Attempt intubation** if unable to: **Adults cricothyrotomy procedure** **Pediatrics transtracheal jet procedure.**

Obstructed Airway / Foreign Body

R07

Adult/Pediatric
Interventions: **EMT:** 1. If patient able to cough, allow patient to relieve obstruction on his / her own 2. If the patient is unable to relieve obstruction, perform abdominal thrusts or back blows as appropriate **Intermediate:** 3. Attempt to visualize obstruction and remove with Magill Forceps 4. Oxygen and intubation, as needed 5. Transport immediately **Paramedic I:** 6. Establish vascular access only in deteriorating patients 7. Cricothyroidotomy, only if all other efforts fail

Cooke County EMS

TOC

Clinical Guideline - Respiratory

Pneumonia / Bronchitis

R08

Adult	Pediatric
Clinical Presentation: Dyspnea with adventitious breath sounds and history of respiratory infection, productive purulent cough, fever, chest wall pain, and no evidence of CHF (pedal edema, JVD, pertinent cardiac history).	**Clinical Presentation:** Dyspnea with adventitious breath sounds and history of respiratory infection, productive purulent cough, fever,
Interventions: **EMT:** 1.Assess and treat ABC's 2. VS, including SpO2 and EtC02 3. Oxygen per patient 4. Encourage productive coughing Suction as needed **Intermediate:** 7. Establish vascular access 8. **Lactated Ringers 250 mL/hour** **Paramedic I:** 9. EKG, 12 & 15 lead 10. **Albuterol:** for bronchospasm **2.5 mg nebulized updraft;** may repeat once in **10 in minutes** 10 **DuoNeb**: for mucus and bronchospasm **3mL nebulized updraft;** may repeat in 10 min. 12. **Consider CPAP** For anxious patient may consider: (use with caution) **Ativan .05 – 1 mg IVP** **or** **Versed 1 – 2 mg IVP**	**Interventions:** **EMT:** 1. Assess and treat ABC's 2. VS, including SpO2 and EtC02 3. Oxygen per patient 4. Encourage productive coughing. Suction as needed. 5. If febrile: **Tylenol Suspension 15mg/kg PO/Rectal** **Intermediate:** 6. Establish vascular access 7. Lactated Ringers 20mL/kg/hr **Paramedic I:** 8. EKG, 12 & 15 lead 9. **>2 yrs of age: Albuterol:** for bronchospasm **2.5 mg nebulized** **<2yrs of age: 1.25mg nebulized** May repeat once **Contact Medical Control** **Paramedic III may proceed** 10. **Albuterol** may repeat 1 time in 10 minutes.

Clinical Guideline - Environmental

Allergic Reaction (Mild)

E01

Adult	Pediatric
Clinical Presentation: Urticaria and itching without dyspnea or hypotension.	**Clinical Presentation:** Urticaria and itching without dyspnea or hypotension.
Interventions: **EMT:** 1. Assess and treat ABC's 2. VS, including SpO2 3. Oxygen per patient **Intermediate:** 4. Establish vascular access **Paramedic I:** 5. EKG 6. **Benadryl: 25 mg IVP** OR **50 mg IM**	**Interventions:** **EMT and Intermediate:** 1. Ensure patent airway 2. VS, including SpO2 3. Oxygen per patient **Paramedic I:** 4. EKG 5. **Benadryl: 1.0 mg/kg IM**; (MAX 25 mg)

Cooke County EMS

TOC

Clinical Guideline - Environmental

Allergic Reaction (Moderate)

E02

Adult	Pediatric
Clinical Presentation: Urticaria, itching and dyspnea without hypotension **Note:** If significant wheezes see **Asthma Protocol** (70)	**Clinical Presentation:** Urticaria, itching, dyspnea without hypotension. **Note:** If significant wheezes: see **Pediatric Asthma Protocol** (70)
Interventions: **EMT:** 1.Assess and treat ABC's 2. VS, including SpO2 & EtCO2 3. Oxygen per patient 4. EPIPEN, if patient prescribed **Intermediate:** 5. Establish vascular access **Paramedic I:** 6. EKG 7. **Epinephrine (1:1,000): 0.5 mg IM** **Cardiac hx. /Age > 65 0.3 mg IM** 8. **Benadryl: 50 mg IVP or 50 mg IM** 7. **Dexamethasone: 8 mg IVP/ IM** OR **Methylprednisolone: 125 mg IVP/IM** **Contact Receiving Hospital** **Paramedic III may proceed** **Repeat Epinephrine (1:1,000): 0.3 mg IM**	**Interventions:** **EMT:** 1. Ensure patent airway 2. VS, including SpO2 & EtCO2 3. O2 per patient 4. EPIPEN, if patient prescribed **Intermediate:** 5. Establish vascular access **Paramedic I:** 6. **Benadryl: 1.0 mg/kg IV/IM** (Max 25 mg) 7. **Epinephrine (1:1,000) 0.005 mg/kg IM** **(**Max 0.3 mg) 8. EKG **If a patient has moderate to severe dyspnea, meds may be given prior to IV access.** 9. **Dexamethasone: 0.1 mg/kg IVP,** **(**Max dose 4 mg) OR **Methylprednisolone: 1mg/kg IVP** **Contact Receiving Hospital** **Paramedic III may proceed** **Repeat Epinephrine (1:1,000): 0.01 mg/kg IM**

Clinical Guideline - Environmental

Allergic Reaction - Anaphylaxis

E03

Adult	Pediatric
Clinical Presentation: Urticaria, edema, dyspnea, and hypotension (BP < 90 systolic). **Note:** if significant wheezes see **Asthma Protocol**.	**Clinical Presentation:** Urticaria, edema, dyspnea, and hypotension. **NOTE:** If significant wheezes refer to **Pediatric Asthma Protocol.**
Interventions: **EMT:** 1. Assess and treat ABC's 2. VS, including SpO2 & EtC02 3. Oxygen per patient 4. EPIPEN, if patient prescribed **Intermediate:** 5. When time permits establish IV **Paramedic I:** 6. EKG 7. **Epinephrine (1:1000): 0.5 mg IM** **Cardiac hx / Age > 65 0.3 mg IM** may repeat once 8. If IV already established **Epinephrine (1:10,000): 0.5 mg IV** **Cardiac hx / Age > 65 0.3 mg IV** may repeat once 9. **Benadryl: 50 mg IVP/IM** **Dexamethasone: 8 mg IV/IM** OR **Methylprednisolone 125 mg IV/IM** **Be prepared to intubate should patient's condition decline.**	**Interventions:** **EMT:** 1. Ensure patent airway 2. VS, including SpO2 & EtC02 3. O2 per patient 3. EPIPEN, if patient prescribed **Intermediate:** 4. When time permits establish IV **Paramedic I:** 5. **Benadryl: 1.0 mg/kg IV/IM** (Max 25 mg) 6. **Epinephrine (1:1,000): 0.005 mg/kg IM** (Max 0.3 mg) 7. EKG 8. **Dexamethasone: 0.1 mg/kg IV/IM** (Max 4 mg) OR **Methylprednisolone: 1.0 mg/kg IV/IM** **(**Max 125mg)

Clinical Guideline - Environmental

Heat Cramps/Exhaustion

E04

Adult	Pediatric
Clinical Presentation: Hot and humid weather with cramping in the extremities with associated nausea, vomiting, syncope episode with profuse sweating and tachycardia.	**Clinical Presentation:** Hot and humid weather with cramping in the extremities with associated nausea, vomiting, syncope episode with profuse sweating and tachycardia.
Interventions: **EMT:** 1. Assess and treat ABC's 2. VS, including SpO2 and temperature 3. O2 per patient 4. External cooling: Remove to cool environment Remove excessive clothing Cover with wet sheets Fan patient Ice packs to groin, axilla, and neck 5. If shivering occurs slow cooling, cover patient. 6. If alert, administer electrolyte drink, PO 7. If blood glucose < 80 refer to **Diabetic Protocol** (62) **Intermediate:** 8. Establish vascular access 9. Fluid Bolus of **Cooled LR 250-500mL** may repeat bolus Max 1000mL **Paramedic I:** 9. EKG	**Interventions:** **EMT:** 1. Assess and treat ABC's 2. VS, including SpO2 & temperature 3. O2 per patient 4. External cooling: Remove to cool environment Remove excessive clothing Cover with wet sheets Fan patient Ice packs to groin, axilla, and neck 5. If shivering occurs slow cooling and lightly cover patient 6. If alert, administer electrolyte drink, PO 7. If blood glucose < 80 refer to **Diabetic Protocol** (62) **Intermediate:** 8. Establish vascular access 9. **Cooled LR 20 mL/kg/hr** **Paramedic I:** 10. EKG

Adult	*Pediatric*
Clinical Presentation: Absence of sweating, reddened skin altered LOC, seizures and core temp > 105F. ***Consider Comprehensive Center**	**Clinical Presentation:** Absence of sweating, reddened skin altered LOC, seizures and core temp >105 F ***Consider Comprehensive Center**
Interventions: **EMT:** 1. Assess and treat ABC's 2. VS, including SpO2 & Core Temp 3. O2 per patient 4. Check blood glucose 5. Aggressive external cooling: Remove to cool environment Remove excessive clothing Cover with wet sheet Fan patient Ice packs to groin, axilla, and neck 6**. Do not allow patient to shiver. If shivering occurs slow cooling and lightly cover patient.** **Intermediate:** 6. Establish vascular access 7**. Cooled LR 250 – 500cc Bolus** may repeat bolus (Max 1000cc) 8. Dextrose stick: if < 80 *refer* to **Diabetic Emergencies** (62) **Paramedic I:** 9. To stop shivering or seizure activity **Ativan: 1 – 2 mg IV/IM** or **Versed: 5 mg IV/IM** may repeat after 20 minutes 10. EKG	**Interventions:** **EMT:** 1. Ensure patent airway 2. VS, including SpO2 & Core Temp 3. High flow oxygen 4. Check blood glucose 5. Rapid external cooling: Remove to cool environment. Remove all clothing. Sponge with cool water. Avoid large amounts of fluid PO Fan patient. 6. **Do not allow patient to shiver. If shivering occurs stop cooling and lightly cover patient.** ***Intermediate:*** 7. Establish IV 8. **Cooled LR 20 mL/kg/hr.** ***Paramedic I:*** 9. To stop shivering or seizure activity **Ativan: 0.05 – 0.1 mg/kg IV** **Rectal 0.1 – 0.2 mg/kg** Max dose 4 mg **OR** **Versed 0.1 mg/kg IV**, single dose of 5 mg, may repeat in 2-5 min: **IM/IN 0.2 mg/kg** max 10 mg, (IN split dose between nostrils) cannot repeat **Rectal: 0.3 mg/kg**, max 10 mg

Cooke County EMS

TOC

Clinical Guideline - Environmental

Hypothermia

E06

Adult	Pediatric
Clinical Presentation: Core temperature (rectal) of 90º - 95ºF, shivering and possibly altered LOC.	**Clinical Presentation:** Core temperature < 90 degrees, cessation of shivering activity and / or altered mental status.
Interventions: **EMT:** 1. Assess and treat ABC's 2. VS, including SpO_2 3. Oxygen per patient 4. Begin external warming: Remove wet clothing Wrap in blanket Heat packs to groin, axilla, neck, lateral Chest 5. Minimize rough handling or agitation of patients 6. Check Dextrose Stick: refer to **Diabetic Protocol** **Intermediate:** 7.Establish vascular access 8. **Warmed LR 250–500mL Bolus** may repeat bolus, Max 1000cc **Paramedic I:** 9. EKG 10. Consider Pain management (102) **Severe:** core temp < 90º, no shivering, cyanosis, altered LOC and apnea, treat as mild or moderate except: **If pulseless or BP < 60 systolic, begin CPR.** **Maintain good basic life support.** **Contact Receiving Hospital** **Paramedic III may proceed:** **Begin Advanced Life Support**	**Interventions:** **EMT:** 1. Ensure patent airway 2. VS, including SpO2 3. Oxygen per patient Wrap heat packs around tubing 4. Cardiac arrest treated with CPR only 5. External warming: Move to a warm environment Remove wet clothing. Wrap in blankets. Heat packs to neck, groin, and axilla. 6. Minimize rough handling or agitation of patients. 7. Check Dextrose Stick **Intermediate:** 8. Establish vascular access **Warmed Lactated Ringers 10mL/kg bolus** **May repeat one time** **Paramedic I:** 9. EKG **Maintain good basic life support.** **Contact Receiving Hospital:** **Paramedic III may proceed:** **Cardiac drugs only on medical control order.**

Adult	Pediatric
Clinical Presentation: Water submersion without cardiopulmonary arrest and without evidence of hypothermia	**Clinical Presentation:** Drowning refers to injuries, after partial or complete submersion, in which the child did not die or where the death occurred more than 24 hours after the incident.
Interventions: **EMT:** 1. C-spine precautions 2. Ensure patent airway 3. Suction as needed 4. VS, including SpO2 & EtCO2 5. Oxygen per patient 6. Begin external warming if appropriate: Remove wet clothing Wrap in blanket Heat packs to neck, groin, and axilla **Intermediate:** 7. Establish vascular access 8. Airway management as necessary 9. **Consider CPAP** For anxious patient may consider: (use with caution) **Ativan .05 – 1 mg IVP** **or** **Versed 1 – 2 mg IVP** **Paramedic I:** 10. EKG (see appropriate protocol) Consider water temperature and possible hypothermia **Transportation is necessary due to complications that may arise later**	**Interventions:** **EMT:** 1. C-spine precautions 2. Ensure patent airway 3. Suction as needed 4. VS, including SpO2 & EtCO2 5. Oxygen per patient 6. External warming if appropriate: Remove wet clothing Wrap in blankets Heat packs to neck, groin, and axilla **Intermediate:** 7. Establish vascular access 8. Airway management as necessary 9. **Consider CPAP** For Anxious Patient may consider: (use with caution) **Ativan 0.025 – 0.05 mg/kg** **or** **Versed 0.05 mg/kg – 0.1 mg/kg** **(Max 2 per dose)** **Paramedic I:** 10. EKG (see appropriate protocol) Consider water temperature and possible hypothermia **Transportation is necessary due to complications that may arise later**

Adult	Pediatric
Clinical Presentation: Ensure receiving facility has the capability to treat the patient.	**Clinical Presentation:** Ensure receiving facility has the capability to treat the patient.
Interventions: **EMT:** 1. Assess and treat ABC's 2. VS, including SpO2 3. Oxygen per patient 4. Keep victim quiet 5. Remove all jewelry and tight clothing from the affected limb which is maintained at heart level 6. Treat for shock 7. Immobilize the affected part at heart level 8. If available, the dead snake should be transported to the hospital for proper identification 9. Outline the effective site and note the time of out- line to assist with watching for swelling (note the time of marking) **Intermediate:** 10. Establish vascular access **Paramedic I:** 11. EKG, 12 & 15 Lead, if appropriate 12. Consider Pain management (102) 13. **Contact receiving facility about antivenom**	**Interventions:** **EMT:** 1. Assess and treat ABC's 2. VS, including SpO2 3. Oxygen per patient 4. Keep victim quiet 5. Remove all jewelry and tight clothing from the affected limb which is maintained at heart level 6. Treat for shock 7. Immobilize the affected part at heart level 8. If available, the dead snake should be transported to the hospital for proper identification 9. Outline the effective site and note the time of outline to assist with watching for swelling **Intermediate:** 10. Establish vascular access **Paramedic I:** 11. EKG 12. Consider Pain management (102) 13. **Contact receiving facility about antivenom**

OB / GYN

Cooke County

Clinical Guideline - Obstetrics

Table of Contents

Clinical Guideline - Obstetrics

Vaginal Bleeding

OB01

Clinical Presentation:

Non-traumatic vaginal bleeding in the absence of labor.

Possible causes:

- Abruptio Placenta: Pain, uterine contractions may appear to be normal labor.
- Placenta Previa: Painless, bright red hemorrhaging, usually at end of second trimester.
- Spontaneous Abortion: Abdominal cramps, vaginal hemorrhage, back pain, presence of tissue of fetus. Do not attempt placental delivery.

Interventions:

EMT:

1. Assess and treat ABC's
2. Oxygen per patient
3. VS, including SpO2
4. If it is severe bleeding, examine vaginal area and retain any tissue or clots.
5. Place a sterile dressing over vaginal opening and leave loose.
6. **TRANSPORT IMMEDIATELY**

Intermediate:

7. Establish vascular access
8. **LR Infuse per Volume Resuscitation Protocol**

Paramedic I:

9. EKG
10. Consider **TXA** 2G IVP

    Contraindicated in spontaneous abortion

11. Consider **Blood Protocol** (105)

Clinical Guideline - Obstetrics

Pre-Eclampsia / Eclampsia

OB02

Clinical Presentation:

Gestation > 20 weeks and hypertension (BP > 140 systolic and/or > 90 diastolic) with peripheral edema, moderate to severe nausea/vomiting, severe headache,

Interventions:

EMT:

1. Assess and treat ABC's
2. Oxygen per patient
3. Assess VS, including SpO2, with patient on left side, every 5 minutes

Intermediate:

4. Establish vascular access

Paramedic I:

5. EKG
6. **Magnesium Sulfate: 5 grams in 50mL of NS over 20 min IV (2.5mL/min)**
   OR **2G IM**
   Always be prepared with Calcium Chloride for Mag Toxicity 500mg over 5 minutes
   DO NOT EXCEED 100mg/min

Contact Receiving Hospital
Paramedic III may proceed

7. Consider repeating: **Magnesium Sulfate: 2 G in 50mL of NS IV over 20 minutes (2.5mL/min)**
8. Consider if it is hypertensive**: Labetalol: 20 mg IVP**
9. For seizures refractory to Mag Sulfate consider**: Ativan: 1 mg IVP/IN**
   - **repeat as needed every 5 minutes Max. 2 mg**
   - **can substitute 2mg Versed IV/IN for Ativan**

Clinical Presentation:

Labor prior to 34 weeks gestation.

Interventions:

EMT:

1. Assess and treat ABC's
2. Perform visual exam; check for crowning (if present, prepare for delivery)
3. Oxygen per patient
4. VS, including SpO2

Intermediate:

Establish vascular access

Paramedic I:

5. EKG
6. **Transport as soon as possible, if delivery is not imminent**
7. If delivery is imminent, prepare for delivery

Contact Receiving Hospital
Paramedic III may proceed:

If pre-term labor is less than 34 weeks gestation, then consider:
Terbutaline: .25 mg SQ.

Magnesium Sulfate: 5 G in 50 mL NS over 20 min IV (2.5 mL/min)
OR 2G IM
Always be prepared with Calcium Chloride for Mag Toxicity 500mg over 5 minutes
DO NOT EXCEED 100mg/min

Morphine: 2 – 10 mg IVP. repeat every 5 minutes at 2 mg increments
Max 10 mg

Labor

Clinical Presentation:

Back and /or abdominal cramping or pain with gestation > 20 weeks.

Interventions:

EMT:

1. Assess and treat ABC's
2. Perform visual exam; check for crowning (if present, prepare for delivery)
3. Oxygen per patient
4. VS, including SpO2

Intermediate:

Establish vascular access

Paramedic I:

5. EKG
6. **Transport as soon as possible, if delivery is not imminent**
7. If delivery is imminent, prepare for delivery

Delivery / Cephalic Presentation

OB05

Clinical Presentation:

Active labor with presentation of fetus, delivery of the infant and placenta.

Interventions:

EMT:

Preparations:

Open OB kit
Place mom supine with knees bent
Place clean sheet under buttocks
Have mom pant between contractions
Inspect for crowning
Oxygen per patient

Procedure:

- As crowning begins, apply gentle pressure to infant's head (take caution of fontanelle).
- Continue gentle pressure as head delivers.
- Suction only if fetal distress with blub syringe. (mouth then nose)
- Check for umbilical cord around neck.
- If present, gently slip the cord from around neck.
- If unable to slip around head, apply clamps 2" apart and cut in between, then unwrap.
- The infant will naturally rotate 45° for shoulder delivery.
- Gently guide head downward to assist shoulder delivery.
- Be prepared to support the infant, delivery is quicker at this point.
- Suction if fetal distress, Note time of delivery.
- Dry infant and wrap in infant insulating blanket to keep warm.
- Clamp cord 6" from infant and another 2" distal from the first clamp, cut between.
    - Uncomplicated delivery can honor delayed clamping per mother.
- Perform APGAR scoring at 1 and 5 minutes (treat infant per score).
- Refer to Pediatric Post Delivery Protocol.

Placenta:

- Do not wait for placenta to deliver before transport.
- Placenta will deliver approx 20 minutes after birth
- Do not pull-on umbilical cord.
- If severe bleeding persists:
- Treat for shock.
- Gentle fundal massage to cause contractions and aid in placenta delivery.
- Retain placenta with transport to hospital.

APGAR SCORING SYSTEM

Indicator		0 Points	1 Point	2 Points
A	Activity (muscle tone)	Absent	Flexed arms and legs	Active
P	Pulse	Absent	Below 100 bpm	Over 100 bpm
G	Grimace (reflex irritability)	Floppy	Minimal response to stimulation	Prompt response to stimulation
A	Appearance (skin color)	Blue; pale	Pink body, Blue extremeties	Pink
R	Respiration	Absent	Slow and irregular	Vigorous cry

Delivery / Breech Presentation

Clinical Presentation:

Presentation of buttocks or feet first.

Interventions:

EMT:

1. Assess and treat ABCs
2. VS, including SpO2
3. O2 per patient

Intermediate:

4. Establish vascular access

Procedure:

- Prepare mother for delivery as described in the Delivery Protocol.
- Allow fetus to deliver spontaneously up to the level of the umbilicus. If the fetus is in a front presentation, gently extract the legs downward after the buttocks are delivered.
- After the legs are clear, support the baby's body with the palm of the hand and volar surface of the arm.
- After the umbilicus is visualized, gently extract 4 – 6 inches of cord to allow delivery without traction on the cord.
- Gently rotate the fetus to align the shoulders in an anterior-posterior position. Continue with gentle traction until the axilla is visible.
- Gently guide the infant upward to allow delivery of the posterior shoulder then gently guide the infant downward to deliver the anterior shoulder.
- Be aware that the head is often delivered without difficulty. If the head is not delivered in 2–3 minutes, use two fingers in a "V" on either side of the nose to provide an airway and transport immediately.
- Complete delivery procedure as described in the **Delivery Protocol**.

Delivery / Cord Presentation

OB07

Clinical Presentation:

Umbilical cord presents with or before presenting part of fetus.

Interventions:

EMT:

1.Assess and treat ABCs
2. Oxygen via non-rebreather
3. VS, including SpO2
4. Place mother in knee-chest or Trendelenburg position on left side
5. **TRANSPORT IMMEDIATELY**

Intermediate:

- Establish vascular access
- Instruct mother to “pant” with each contraction to prevent bearing down.
- Apply moist sterile dressing to the exposed cord to minimize temperature changes that may cause umbilical artery spasm.
- Palpate the cord to evaluate the presence or absence of a pulse.
- With a gloved hand, gently place one finger on each side of the cord and between the presenting part and the cord, to relieve pressure on the cord.
- Reevaluate the cord for a pulse. The cord may spontaneously retract
- **NO ATTEMPT SHOULD BE MADE TO REPOSITION THE CORD.**
- **DO NOT REMOVE HAND.**

Delivery / Limb Presentation

OB08

Clinical Presentation:

Presentation of an extremity.

Interventions:

EMT:

1. Assess and treat ABCs
2. Oxygen via non-rebreather
3. VS, including SpO2
4. Place mother in knee-chest or Trendelenburg position on left side.
5. **TRANSPORT IMMEDIATELY**.

Intermediate:

- Establish vascular access
- Rapid Transport

Post Delivery

Clinical Presentation:

Care and evaluation of the newborn infant.

Interventions:

EMT:

1. Ensure patent airway, suctioning mouth, and nose.
2. Prevent heat loss. Dry neonate, keep warm, cover with dry wrappings.
   Be sure to cover the head.
3. Place an infant on the back or side with the neck slightly extended in the sniffing position.
4. Provide tactile stimulation to induce respirations if necessary.
   Appropriate methods: flicking the soles of the feet and rubbing the infant's back.
5. Perform APGAR scoring at 1 and 5 minutes.
6. **Assess Breathing and HR (if distress refer to Neonatal Resuscitation)**
   - HR >100 with distress, nasal flaring, grunting or retractions and SpO2 < 96% O2 administration. **Blow – by O_2 at 10 LPM**
   - HR < 100: **O2 via BVM @ 30-60bpm**
   - HR < 80 after 30 seconds of BVM: **Start chest compressions**
     3:1 compression/breath ratio

APGAR SCORING SYSTEM

Indicator		0 Points	1 Point	2 Points
A	Activity (muscle tone)	Absent	Flexed arms and legs	Active
P	Pulse	Absent	Below 100 bpm	Over 100 bpm
G	Grimace (reflex irritability)	Floppy	Minimal response to stimulation	Prompt response to stimulation
A	Appearance (skin color)	Blue; pale	Pink body, Blue extremeties	Pink
R	Respiration	Absent	Slow and irregular	Vigorous cry

Neonatal Resuscitation

Clinical Presentation:

Resuscitation of the depressed neonate (infant born at >38 weeks gestation, less than 30 post-partum).

Interventions:

EMT:

1. Assess and treat ABCs.
2. Dry and keep infants warm.
3. Place the infant on back with neck in a sniffing position.
4. If meconium is present refer to the Meconium Staining Protocol.
5. After delivery, use mild stimulation (drying, warming, suctioning) to induce respirations.
6. If respirations are slow, shallow, or absent begin BVM 40-60bpm.
7. If HR >100 with distress, nasal flaring, grunting or retractions and SpO2 < 96% O2 administration. **Blow – by O_2 at 5-10 LPM**
8. If HR < 100: **O2 via BVM at 30-60bpm**
9. If HR < 80 after 30 seconds of BVM: **Start chest compressions**
   3:1 compression/breath ratio

Intermediate:

10. Place an advanced airway if BVM ventilation is ineffective.
    40-60bpm target **EtCO2 between 35 – 45 mmHg.**
11. Establish vascular access
12. **If shock is present: Lactated Ringers 10 mL/kg fluid bolus,**
    may repeat at 10 mL/kg

Paramedic I:

13. EKG. Refer (appropriate protocol)

Meconium Staining

OB11

Clinical Presentation:
Presence of fetal stool in ammonitic fluid **WITH** distressed neonate

Interventions:

EMT:

1. Suction mouth, pharynx, and nose in that order.
2. Provide blow-by oxygen.

Intermediate and Paramedic I:

3. Suction hypopharynx under direct visualization.
4. If the neonate is depressed or the meconium is thick or particulate, perform direct endotracheal suctioning using the ET tube as a suction catheter.
5. Quickly intubate the trachea and apply suction to the proximal end of the endotracheal tube while withdrawing the tube.
6. Repeat the intubation-suction-extubation cycle until no further meconium is obtained.
7. Do not ventilate between intubations.
8. Continue resuscitative measures as needed.

Procedures

Cooke County

Clinical Guideline - Procedures

Procedures Table of Contents Index

Cooke County

Clinical Guideline - Procedures

Procedures Table of Contents

Adult	Pediatric
Pain Scale >4 on a 0-10 scale. Ask the patient if they want pain management. **If possibility a TBI or multi-systems trauma, Contact Receiving Hospital prior to medication administration.**	Pain Scale > 4 on a 0 - 10 scale. Ask the patient if they want pain management. **If possibility a TBI or multi-systems trauma, Contact Receiving Hospital prior to medication administration.**
Use EtC02 on all pain management patients NSAID For inflammation, soft tissue, or kidney and gall stones Can be used as initial pain management or in conjunction with analgesics. **Toradol: 30mg IV** OR **60mg IM** 65 years of age or renal patients **15mg IV** OR **30mg IM** Analgesia For severe pain rated above 4. **Morphine: 2–5 mg Slow IVP q 5 minutes** Max 20mg **Fentanyl: Adult: 25–100 mcg Slow IVP** May repeat after 5 minutes, Max 200 mcg **Dilaudid: 0.5–1 mg IVP q 15 min** Max 2 mg **As an adjunct to pain medication** **Versed 1–2 mg IV,** may repeat 1 time OR **Ativan 1 – 2 mg SIVP** OR **Promethazine 25mg in 100mL D5W IV** OR **Ketamine 0.5mg/kg IV OR 1mg/kg IM** may repeat **IV dose only** in 10 min	**Use EtC02 on all pain management patients** **< 2 yrs** **Morphine: 0.1mg/kg Slow IVP q 5 minutes** Max 10 mg **Fentanyl: 0.5 mcg/kg Slow IVP** May repeat 1 time after 5 minutes Max 100mcg **2-12yrs** **Morphine: 0.1mg/kg Slow IVP q 5 Minutes,** Max 10 mg **Dilaudid: 0.01 mg/kg, Slow IVP q 15 min** Max single dose 0.5 mg, Max dose 2mg **Fentanyl 1.0-2.0mcg/kg IVP** May repeat 1 time after 5 minutes, Max 100mcg For inflammation and soft tissue **Toradol: 0.5mg/kg IV, 0.1mg/kg IM** Max 15mg IV, Max 30mg IM **As an adjunct to pain medication** **Ativan 0.1 mg/kg SIVP (max 2mg)** **OR** **Versed 0.05-0.1mg/kg (Max 2mg)** **OR** **Ketamine: >1 year: 0.1-0.2 mg/kg IV may repeat in 10 min OR 2mg/kg IM/IN (1/2 dose in each nostril) CANNOT REPEAT**

Cooke County EMS

TOC

Clinical Guideline -

Medication Assisted Intubation

P02a

Adult	Pediatric
Clinical Presentation: Glasgow Coma Score of < 8, impending respiratory failure/arrest or airway obstruction, or an intact gag reflex.	**Clinical Presentation:** Glasgow Coma Score of < 8, impending respiratory failure/arrest or airway obstruction, or an intact gag reflex. **REFER TO BROSLOW for volume administration.**
Airway evaluation is required prior to procedure **Paramedic I:** 1. For patients with suspected head injury pre-medicate with: **Lidocaine: 1mg/kg** 12. For Induction: **Etomidate: 0.3mg/kg IVP over 2 min** OR **Ketamine 2 mg/kg SIVP over 1 min** OR **Versed: 5 mg IVP** 13. In addition to any of the above you can administer **Fentanyl 50–100mcg** ***If sedation is adequate proceed with intubation*** 14. If sedation is not adequate **Etomidate: 0.3 mg/kg IVP** OR **Fentanyl: 50 – 100 mcg IVP** **Paramedic II can progress to paralytic:** **Rocuronium (ROC); 1-1.5 mg/kg** **Effective ventilation of some form MUST BE ACHIEVED**	**Airway evaluation is required prior to procedure** **Paramedic I:** 1. Be prepared for bradycardia **Atropine 1mg IV** 2. For Induction **Ketamine 2mg/kg SIVP** over 1 minute Dilute with 2-5mL NS OR **Etomidate 0.3mg/kg IV** over 30 secs 3. For analgesia **Fentanyl: 1mcg/kg SIVP** ***If sedation is adequate then proceed with intubation*** 4. If sedation is not adequate **Etomidate: 0.3 mg/kg IV** over 1 min OR **Fentanyl: 1mcg/kg Slow IV** **Paramedic II can progress to paralytic:** **Rocuronium (ROC); 1 mg/kg** **Effective ventilation of some form MUST BE ACHIEVED**

Cooke County EMS

TOC

Clinical Guideline -

Continued Sedation

P03

Adult	Pediatric
Sedation MUST be paired with analgesic: **Versed: 1–5 mg IVP** q 10 minutes (Max 20mg in 1 hr) OR **Ketamine: 1 mg/kg SIVP,** over 1 min May repeat in 10 minutes OR **Ketamine infusion** 0.1-0.5mg/min Mix 250mg/250mL D5W PUMP ONLY OR **Ativan: 1mg IVP q** 10 minutes (Max 8mg) **In addition to sedation** **Fentanyl: 25 – 50 mcg,** q 10 minutes OR **Morphine: 2 – 5 mg IV,** q 10 min If adequate sedation is difficult to achieve, assess your ventilator settings and other reasons for patient discomfort. Once you have ruled out any other causes you can consider Continued paralysis. Continued paralysis is only to be used when adequate sedation cannot be achieved. **Rocuronium (ROC): 1-1.5 mg/kg IV**	**Sedation MUST be paired with analgesic:** **Versed: 0.05 mg/kg IV,** Max single dose 2mg OR **Ativan 0.05mg/kg IV q 10 min** Max single dose of 2 Max cumulative dose of 5mg OR >6-month **Ketamine 1mg/kg q 5min** Max single dose of 100mg. For continued pain management: **Fentanyl 0.5 mcg/kg SIVP** OR **Morphine 0.1mg/kg if >5kg,** **0.5mg/kg if <5kg,** Max of 10 mg If adequate sedation is difficult to achieve, assess your ventilator settings and other reasons for patient discomfort. Once you have ruled out any other causes you can consider Continued paralysis. Continued paralysis is only to be used when adequate sedation cannot be achieved. **Rocuronium (ROC): 1 mg/kg IV**

Clinical Presentation
In the setting of hemorrhagic shock with suspected need for massive blood transfusion due to marked internal and / or external blood loss OR shock with presence of major hemorrhage:

- Greater than 13 y/o with SBP less than 70 mmHg
- Greater than 13 y/o with SBP less than 90 mmHg and HR greater than 110 beats/min
- Greater than 65 y/o with SBP less than 100 mmHg and HR greater than 100 beats /min
- Less than 13 y/o with SBP less than 70 + 2x age
- ETCO2 < 25 with presence of hemorrhage

Administration of Blood / Blood Products – MUST UTILIZE BLOOD WARMER

- Adult (13 and up)
  - 1 Units of Liquid Plasma
  - 1 Units PRBC's
  - Or 1 Unit of Whole Blood (only if available)
  - 1 G of Calcium Chloride IVP
  - **Goal SBP 90mmHg**
  - **May Repeat once**

- Pediatric (13 y/o and under) **(IV PUMP)**
  - 10 mL/kg Liquid Plasma and
  - 10 mL/kg PRBC's
  - Or 10 mL/kg of Whole Blood (only if available)
  - **May Repeat twice (Max 30mL/kg)**

- **Infusion Rates**
  - Traumatic Infusion rate: Bolus
  - Nontraumatic infusion rate: initiate at 75mL/hr, titrate by 25mL q 10 min to goal of 150 mL/hour / Monitor closely

- *Always pay close attention to amount infused to avoid over-resuscitation*

Must obtain all baseline vital signs including temperature prior to starting administration and upon completion

- **Any Transfusion Reaction Immediately refer to appropriate Mild / Moderate / Anaphylaxis Protocol:**
  - ***If febrile:***
  - Adult: **Tylenol 1000 mg (100mL) via Infusion over 15 minutes (400mL/hr)**
  - Pediatric: **Tylenol Suspension 15 mg/kg PO/ Rectal**

- For patients that cannot make decisions for themselves, the Paramedic believes the benefits outweigh the risks.
- Always get patients consent if the patients that have decision-making capacity should always receive informed consent.

We believe the patient has a life-threatening hemorrhage shock and the benefits of blood transfusion outweigh the risk. Risk includes allergic reactions, transfusion reactions and transmission of diseases such as HIV or Hepatitis. The risk of obtaining a disease is about 1 in 1 million. Do you consent to transfusion?

Procedure:

1. Obtain informed consent from patients with decision-making capacity
2. Establish IV / IO access:
   - Adult: 18g IV or greater or IO
   - Pediatric 22g IV or greater or IO
3. **Record all baseline vital signs including temperature and EKG (repeat temp every 5 minutes)**
4. Prior to administration **TWO** providers should verify the following information:
   - Blood Type
   - RH factor
   - Unit number
   - Expiration date
5. Document all the above information including the providers names in ePCR
6. Gently agitate the Plasma / RBC's / LTOWB
7. Spike and flush the tubing utilizing the following steps:
   - Close all clamps on blood "Y" tubing
   - Insert the tubing into warming device. **DO NOT ADMINSTER COLD BLOOD PRODUCTS.**
   - Spike the first side with 0.9% NS (DO NOT use Lactated Ringers)
   - Open the clamp and flush the first side of the "Y" side **ONLY** then close clamp
   - Spike the second side with blood / blood product which will be administered
   - Open both clamps (not the NS side of "Y" tubing) which will allow the entire length of tubing to become primed with the blood product; then close the clamp
8. Attach tubing to IV / IO site (always ensure Patency of site)
9. Ensure NS clamps remain closed and open the clamps to blood product to begin infusion
10. Upon infusion completion, clamp the blood side of the "Y" tubing and open clamp to NS side to deliver the remaining blood product that remains in tubing
11. If a second unit is needed, close the NS clamp, spike the blood "Y", again prime the tubing to the bottom then clamp, attach to IV/IO open the clamp and begin administration of second unit.

Continued Next Page

12. End goal should be titrated to parameters **for MAP of 60-64 or greater**.
13. Notify receiving hospital ASAP of blood product administration
14. Document the total amount of blood product administered along with response to each unit and complete set of vital signs including temperature.

Always Beware of Possible Transfusion Reactions:
While the risk of transfusion reaction is low, the providers should always be on constant alert for transfusion reaction and treat appropriately.

Common signs and symptoms of transfusion reaction may include (but not limited to):
- Fever (2 degrees F or more above baseline)
- Chills
- Hives
- Itching
- Headache
- Dizziness

More Severe Reaction may include (but not limited to):
- Respiratory Distress (Wheezing / Dyspnea)
- Nausea / Vomiting
- Swelling, soreness or hematoma at transfusion sites
- Bleeding from previously clotted sites
- Hypotension
- Chest / Back / Flank pain
- Tachycardia

For any sign or symptom of reaction:
- **IMMEDIATELY STOP THE TRANFUSION**
- Disconnect all tubing and flush the line with 0.9% NS
- **Immediately refer to Mild / Moderate / Anaphylaxis protocol**
- Immediately notify the receiving facility
    - Collect all blood / blood product bags, filters, tubing and IV solution place them in a bag together
    - Theses are to be given directly to the blood bank at receiving facility
    - Do not leave these products in pateint room or with hospital staff
    - Document the full name and titile of person taking possesion of these items.

Continued Next Page

Any adverse reaction MUST be thoroughly documented in ePCR and on Prehospital Blood Product Transfusion Record

Important Information:

- **Do not mix any mediations with blood products in the bag or IV line. This will cause hemolysis / clotting products.**
- Transport should not be delayed for initiation of blood / blood product. Should blood / blood product not be available on scene and rendezvous can occur without diverting transport route then request.
- Trauma patients that are receiving blood / blood products should be transported to Level I or Level II trauma facility
- Medical patients receiving blood / blood products should be transported to closet appropriate facility
- All blood / blood products may be administered through IV / IO line.
- Pressure Infuser may be utilized with Blood / Blood product administration. (set at 300 mmHg)

Additional Important Information:

- Known objection to receiving human blood products for religious, social or personal reasons and / or known allergies to blood or blood products
- **NOTE if there is any objection to the use of blood or blood product the patient must have decision making capabilities. Must get proper signature and document thoroughly in ePCR**

Procedure for medication administration while infusing blood product

- Stop administration of blood product
- Use port closest to patient to flush line with 10cc Saline
- Administer medication flush line again with 10cc Saline
- Resume with administration of blood / blood product

All blood / blood products and supplies will be carried on **SUPPORT VEHICLE**:

- Cooler (1)
- Blood Warmer (1)
- Plasma (2)
- PRBC's (2)
- Whole Blood 2 (only if available)

Adult

Clinical Presentation:
For temporary pacing in patients with symptomatic bradycardia.

Patient Prep & Pad Placement

- **Apply the pads**: to the patient in an anterior-posterior (AP) position for the most effective capture.
- **Connect the limb lead cables**: to monitor the patient's intrinsic heart rhythm.

Pacer Activation & Rate Setting

- **Turn the monitor into pacing mode**.
- **Set the pacing rate** 80 paces per minute.
- **Ensure the mode is active** by checking that the menu bar is blue or the "pacer" section on the dial is selected, not on "pause" or "off".

3. Achieving Electrical Capture

- **Turn the output (milliamps) dial clockwise** to slowly increase the power.
- **Watch for consistent electrical capture**, downward pacing spike immediately followed by a QRS complex on the ECG.
- **Find the patient's threshold** by continuing to increase the output until a QRS complex consistently follows each pacing spike.
- **Decrease the output** slowly until you just lose capture, then increase it again by approximately 10% to ensure capture.

4. Confirming Mechanical Capture & Further Steps

- **Confirm mechanical capture**.
- **Administer sedation or pain medication**: only after electrical and mechanical capture are confirmed and the patient is stable, as pacing can be uncomfortable.
- **Use the 4:1 button**: to suppress three out of every four pacer impulses and visualize the patient's underlying rhythm without losing capture.

Clinical Guideline -

Transtracheal Jet Ventilation

P07

Adult /Pediatric

Clinical Presentation:

Inability to open and maintain the airway and all other methods to obtain an airway have failed. **Only surgical option for patients under 8 years of age**.

Contraindications:

Transection of the trachea with significant damage to the cricoid cartilage; and the inability to palpate landmarks.

Procedure:

1. Maintain ventilation and airway clearance attempts while preparing equipment.

2. Assemble appropriate equipment, 13G cannula with 10mL syringe attached, oxygen tubing firmly connected to flow meter then connect with 10 – 15 LPM flow, Y piece regulator oxygen flow.

3. Identify the cricothyroid membrane in the midline between the thyroid cartilage (Adams Apple) and the cricoid cartilage (Next Prominent Cartilage down from the Thyroid Cartilage)

4. Cleanse site with alcohol prep.

5. Insert cannula tip through the skin and membrane in one firm push in the “Midline”, Angled at 45 degrees downward until a “give” is felt.

6. Aspirating on the syringe as the cannula is inserted; air will freely enter the syringe as the cannula enters the trachea, confirming tracheal entry.

7. Slide the cannula over the needle into the trachea and secure. Attach the high-pressure tubing to the catheter and oxygen source at 50 psi. Ventilate patient with 1 – 5 second burst at a rate of 12 – 20 per minute.

8. Secure Transtracheal Jet Ventilation device securely.

Adult / Pediatric > 8yrs of age

Clinical Presentation:

There are no absolute contraindications in the patient who will not survive without a definitive airway but remember that a patient who has sustained a trauma to the neck area may have hematoma and incision into this area can result in significant bleeding.

Contraindicated in patients under 8 years of age.

Procedure:

1. Patients should be placed in the supine position with the neck maximally exposed.

2. Locate the cricothyroid membrane utilizing anatomical landmarks.

3. Surgically prep the area with Alcohol/Betadine. Use aseptic technique if possible.

4. Stabilize thyroid cartilage with one hand, make a 2.5 cm vertically oriented incision and identify the membrane, it is imperative this entire procedure maintain itself in the midline of the neck.

5. Puncture the membrane with the scalpel and then pass a bougie into the trachea. Invert the scalpel, using the blunt end, to enlarge the opening.

6. Pass an ET tube of at least 6.0 in size or for pediatric appropriate size over bougie. Remove bougie and inflate the cuff.

7. Ventilate and check for correct placement with chest rise, breath sounds, end tidal CO2, and tube humidification.

8. If possible, inflate the cuff and secure the tube in place.

Complications:

Bleeding at the site
Aberrant placement of the tube into pre-tracheal fascia and dissection of subcutaneous air into soft tissues of neck.

Adult / Pediatric

Clinical Presentation:

To provide controlled, precise oxygenation and ventilation. To protect against aspiration and is a route for drug administration.

Indications:

Apnea, respirations <8 and/or GCS ≤ 8

Head injury with increased ICP

Pulse Oximetry <90% with respiratory distress

COPD unresponsive to CPAP

Evidence of airway burns

Considerations:

C-spine patients use video laryngoscope

Be prepared for possible surgical airway transition

Severe Facial Trauma

Unstable facial structures

LaForte fractures

Fracture of the larynx

Upper Airway Obstruction

Continued Next Page

1	Effective ventilations are established within 20 seconds of patient contact.
2	Effective ventilations with supplemental oxygen within 40 seconds of patient
3	Insert basic airway adjunct and attaches EtCO2 to BVM.
4	Evaluates patient's airway.
5	Decides on and articulates the airway management plan.
	a. Primary airway.
	b. Transition plan.
	c. Alternative airway.
6	Assembles primary airway management equipment.
	a. Selects the proper sized tube.
	b. Checks tube for adequate cuff function.
	c. Selects appropriate laryngoscope blade.
	d. Checks laryngoscope operational status.
	e. Places tube securing device on counter.
	f. Suctioned is prepared and placed by the patient’s head.
	g. Applies nasal cannula to patients and attaches to oxygen source.
7	Places alternative airway equipment on counter.
8	Ensures that patients have been pre-oxygenated prior to intubation attempt.
9	Places patient's head in optimal position for intubation.
10	Instructs partner to remove BVM.
11	Adjust flow rate for nasal cannula to 15 lpm.
12	Insert blade while displacing the tongue.
13	Elevates mandible anteriorly with laryngoscope.
14	Introduces ET tube and advances to proper depth.
15	Inflates cuff to proper pressure and disconnects syringe.
16	Reestablishes ventilations within 30 seconds.
17	Confirms tube placement (4 positive findings).
	a. Positive EtC02 wave form.
	b. Positive findings when auscultating lung fields bilaterally.
	c. Negative findings when auscultating the epigastrium.
	d. Tube fogging.
	e. Chest rise and fall with ventilations
	f. Visualization of ET tube pacing between the cords.
18	Maintains appropriate ventilation rate and tidal volume after intubation.
19	Secures tube.
20	Places patient in a cervical collar.
21	Place patient on ventilator

Clinical Guideline -

SGA Airway

P10a

Adult / Pediatric

INDICATIONS

1. For initial airway management while preparing for intubation.
2. Apneic patients when endotracheal intubation is not possible or not available.
3. Patient must be unconscious, without a gag reflex
4. No history of esophageal foreign body, disease, or caustic ingestion
5. Failed airway

CONTRAINDICATIONS-PRECAUTIONS

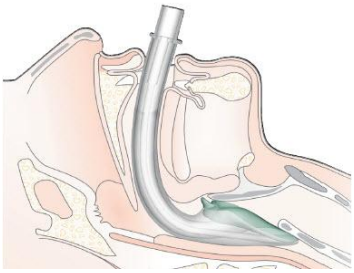
1. Obstructive lesions below the glottis.
2. Trismus, limited mouth opening, pharyngo-perilaryngeal abscess, trauma or mass.
3. Conscious or semi-conscious patients with an intact gag reflex
4. Do not allow peak airway pressure of ventilation to exceed 40cm H2O.
5. Do not use excessive force to insert the device.
6. Use care to avoid the introduction of lubricants in or near the ventilator openings

SGA Size	Patient size
1	Neonates
1.5	Infant
2	Small Pediatric
2.5	Large Pediatric
3	Small Adult
4	Medium Adult
5	Large Adult

Adult / Pediatric

Procedure:

1. Grasp the lubricated SGA firmly along the integral bite block (tube portion of the device). Position the device so that the SGA cuff outlet is facing toward the chin of the patient.
    a. NOTE: be sure that there is only a thin layer of lubricant on the end of the SGA to avoid blowing it into the lungs with bagging
    b. Suction of the upper airway PRIOR to insertion as needed
2. The patient should be in the "sniffing" position, with head extended and neck slightly flexed forward. If cervical injury is suspected, use modified "jaw thrust" instead of any flexion at the neck. The chin should be gently pressed down/inferior before proceeding to insert the SGA.
3. Introduce the leading soft tip into the mouth of the patient in a direction toward the hard palate.
4. Glide the device downwards and backwards along the hard palate with a continuous, but gentle push until a definitive resistance is felt.
   WARNING: Do not apply excessive force on the device during insertion. It is not necessary to insert your fingers or thumbs into the oral cavity of the patient during the insertion of this device. If there is resistance during insertion, a 'jaw thrust' and slight rotation of the device is recommended.
5. At this point, the tip of the device should be located into the upper esophageal opening and the cuff should be located against the laryngeal framework. The incisors should be resting on the integral bite block.
6. Confirm placement with 4 appropriate findings
7. Secure tube



Cooke County EMS

TOC

Clinical Guideline -

Adult Portable Ventilator

P11a

Clinical Presentation:

Any patient that has an invasive airway secured via **ETT** or **SGA**

Determining Ventilator Settings:

Utilize chart to determine IBW, Tidal Volume, and RR based on patients' height

Start with a Vt of **6mL/kg**. Can titrate from 4-8mL/kg as needed. Titrate RR appropriately

ADULT FEMALE

	Height	5'0	5'2	5'4	5'6	5'8	5'10	6'0	6'2	6'4	
	IBW	45KG	50KG	55KG	60KG	64KG	68KG	73KG	78KG	82KG	RESP RATE
Tidal Volume	4 ml/kg	180 ml	200 ml	220 ml	236 ml	256 ml	272 ml	292 ml	312 ml	328 ml	25
	6 ml/kg	270 ml	300 ml	330 ml	354 ml	384 ml	408 ml	438 ml	468 ml	492 ml	18
	8 ml/kg	360 ml	400 ml	440 ml	472 ml	512 ml	544 ml	584 ml	624 ml	658 ml	13

ADULT MALE

	Height	5'0	5'2	5'4	5'6	5'8	5'10	6'0	6'2	6'4	
	IBW	50KG	55KG	60KG	64KG	69KG	73KG	78KG	82KG	87KG	RESP RATE
Tidal Volume	4 ml/kg	200 ml	220 ml	236 ml	256 ml	272 ml	292 ml	312 ml	328 ml	348 ml	25
	6 ml/kg	300 ml	330 ml	354 ml	384 ml	408 ml	438 ml	468 ml	492 ml	522 ml	18
	8 ml/kg	400 ml	440 ml	472 ml	512 ml	544 ml	584 ml	624 ml	658 ml	696 ml	13

Determine FiO2 need:

CPR/Trauma/OB – 100% FiO2

All other patients – Titrate as needed

Formulas:

IBW Female: 45.5kg + 2.3kg for every inch over 5ft tall

IBW Male: 50kg + 2.3kg for every inch over 5ft tall

Tidal Volume (Vt): 6mL/kg of IBW

Calculate Minute Ventilation (Ve): 100mL/kg of IBW = Ve

Calculate Respiratory Rate: Minute Ventilation (Ve) ÷ Tidal Volume (Vt) = RR appropriate for patient

Clinical Guideline -

Adult Portable Ventilator

P11b

Clinical Presentation:

Any patient that has an invasive airway secured via **ETT** or **SGA**

Procedure:

1. Connect ventilator to oxygen supply
2. Connect vent circuit to ventilator and attach test lung
3. Turn on ventilator and select "Adult"
4. Place mode in AC (assist control)
    a. Select **Volume(v)** or **Pressure(p)** initiated ventilation
5. Titrate initial settings per patient
    a. FiO2
    b. Tidal Volume / Pressure
        i. Volume – reference chart
        ii. Pressure – PIP 20cmH2o
    c. Respiratory Rate
        i. Cardiac Arrest 8-10 breaths per minute
6. With test lung in place, verify acceptable ventilator operation
7. Connect vent circuit to patient
8. Monitor pulse oximetry and EtCO2 waveform for verification of tube placement as well as proper ventilatory support.
9. Titration of vent settings should **target the patient's physiological norm**, maintain an SpO2 above 93% and the patients compensatory EtCO2.
   (If unable to determine compensatory EtCO2, goal should be 35-45mmHg)
    a. Additional titratable considerations
        i. PEEP
        ii. I:E Ratio
        iii. Rise Time

Precautions:

Device failure and/or dislodgement are always possible. Have BVM w/ mask ready for use. **Monitor the patient continuously.** In the event of ventilator failure, disconnect patient from ventilator and provide respiratory support with BVM.

Monitor Patient for pneumothorax. If simple pneumothorax is present, consider pressure-initiated ventilation and continue with caution. If Tension Pneumothorax develops, refer to pneumothorax protocol.

Cooke County EMS

TOC

Clinical Guideline -

Pediatric Portable Ventilator

P12

Clinical Presentation:

Any patient that has an invasive airway secured via **ETT** or **SGA**

Procedure:

1. Connect ventilator to oxygen supply
2. Connect vent circuit to vent and connect test lung
3. Turn on ventilator and select “Pediatric”
4. Place mode in AC (assist control)
    - Confirm Pressure(p) initiated ventilation
5. Titrate initial settings per patient
    - FiO2
    - Pressure 10-15 cmH2O
    - Respiratory Rate
6. With test lung in place, verify acceptable ventilator operation
7. Connect vent circuit to patient
8. Monitor pulse oximetry and EtCO2 waveform for verification of tube placement as well as proper ventilatory support.
9. Titration of vent settings should **target the patient’s physiological norm,** maintain an SpO2 above 93% and the patients compensatory EtCO2.
   (If unable to determine compensatory EtCO2, goal should be 35-45mmHg)

Precautions:

Device failure and/or dislodgement are always possible. Have BVM w/ mask ready for use. **Monitor the patient continuously.** In the event of ventilator failure, disconnect patient from ventilator and provide respiratory support with BVM.

Monitor Patient for pneumothorax. If simple pneumothorax is present, consider pressure-initiated ventilation and continue with caution. If Tension Pneumothorax develops, refer to pneumothorax protocol.

PEDIATRIC PRESSURE REGULATED VOLUME TARGET

	GREY 3-5kg	PINK 6-7kg	RED 8-9kg	PURPLE 10-11kg	YELLOW 12-14kg	WHITE 15-18kg	BLUE 19-23kg	ORANGE 24-29kg	GREEN 30-36kg
6ml/kg	18-30 ml	36-42 ml	48-54 ml	60-66 ml	72-84 ml	90-108 ml	114-138 ml	144-174 ml	180-216 ml
8ml/kg	24-40 ml	48-56 ml	64-72 ml	80-88 ml	96-112 ml	120-144 ml	152-184 ml	192-232 ml	240-288 ml

Cooke County EMS

TOC

Clinical Guideline -

CPAP

P13

Adult

Clinical Presentation:

Respiratory Distress indicated by low O2 saturation, high CO2, increased RR.

Patient's respiratory distress is likely from COPD, CHF, asthma, drowning, or pneumonia.

Patients on CPAP or Bi-Pap at site of transfer.

Inclusion Criteria:

Awake and alert patients able to maintain airway.
Age >13 years
Use caution in hypotensive patients
May need to treat anxiety and coach patient to tolerate.

Exclusion Criteria:

Unable to follow commands
Unable to properly protect airway
Suspected Pneumothorax or Hemothorax
Significant chest wall trauma
Hypotension not responsive to minimal fluid resuscitation
Respiratory rate < 8 or near respiratory arrest
Unable to obtain proper seal of face mask

Procedure:

1. Follow initial steps in appropriate protocol
2. Select a proper mask.
3. Connect ventilator circuit
4. Connect oxygen hose to ventilator and to wall oxygen supply
5. Turn on ventilator – select Mask CPAP
6. Select the "MODE" parameter
7. Turn rotary Encoder/Selector to "CPAP"
8. Press the Selection Confirmation Button "√ "to accept change.
9. Adjust FiO2 per patient
10. The PEEP setting will default to 5 cm H20
11. Adjust PEEP as needed for patient
12. Explain procedure to patient. Ask the patient to hold the mask to their face initially to confirm tolerance; after at least 3 minutes, patient can then be converted to straps.
13. Monitor closely for deterioration in condition: decreased mental status, increased work of ventilation, increased respiratory rate, decreased O2 saturation, drop in SBP to <95 mmHg or increased agitation.
14. Pressure can be decreased for stable patients without signs of respiratory distress
15. May use inline nebulizer if needed: see specific protocol.
16. If the patient begin to deteriorate, consider MAI. (103)

Clinical Presentation:

BiPAP is indicated for use when the therapy has been established in the hospital, and the patient is being transferred to another facility.

Procedure:

1. Connect ventilator circuit
2. Connect oxygen hose to ventilator and to wall oxygen supply
3. Turn on ventilator
4. Select the "MODE" parameter
5. Turn rotary Encoder/Selector to "CPAP"
6. Press the Selection Confirmation Button "√ "to accept change
7. Adjust FiO2 to ordered concentration
8. Press and hold the PIP parameter button until Pressure support window opens in the left side of the screen
9. Adjust the pressure support to ordered value
10. Press the Selection Confirmation Button "√ "to accept change
11. Press the PIP parameter button sequentially until the PEEP value is highlighted
12. Adjust PEEP value to ordered value
13. Press the Selection Confirmation Button "√ "to accept change

	Cooke County EMS	TOC
	Clinical Guideline - **Intra – Nasal Mucosal Atomization Device (MAD)**	P15

Adult / Pediatric
Procedure: 1. Disconnect MAD from the included syringe 2. Fill syringe with the desired volume of solution and eliminate remaining air. 3. Connect MAD to the syringe. If using MAD with 6” extension, eliminate air in tubing and bend into position. Tubing will remain in fixed position. 4. Place MAD tip in the nostril or oropharyngeal cavity. 5. Compress the syringe plunger to spray atomized solution into the nasal or oropharyngeal cavity. 5. Re-use the MAD on the same patient as needed and then discard. 6. Do not place the MAD tip within the trachea. 7. Do not use the MAD on more than one patient.

Clinical Guideline -

EZ – IO – Intraosseous Infusion

P16

Adult / Pediatric

Clinical Presentation:

When IV is unobtainable and there is an immediate life threat.
Cardiac and/or respiratory arrest/failure

Contraindication:

Fractures proximal to proposed insertion site
Inability to locate landmark (significant edema)
Excessive tissue at insertion site (obesity)
Current or prior infection at proposed site
Previous IO insertion or joint replacement at the proposed site

Procedure:

1. Locate insertion site
    a. Distal Femur
    b. Humeral Head
    c. Proximal Tibia
2. Clean insertion site with aseptic technique
3. Prepare EZ-IO driver and needle
4. Stabilize site and insert EZ-IO needle
5. Stabilize catheter hub and remove EZ-IO driver from needle set
6. Confirm placement
7. If the patient is conscious, consider **Lidocaine**
    Adult 40 mg; wait three minutes before flush if possible
    Pedi 20 mg; wait three minutes before flush if possible
8. Flush with 10 mL of NS
9. Connect extension set and/or IV tubing
10. Place a pressure bag on solution (if needed)
11. Begin infusion (watch carefully for infiltration)
12. Apply dressing
13. Monitor EZ-IO site and patient condition

Site Identification and Preparation

- **Position the Arm:**
  Position the patient's arm with the hand on their abdomen or internally rotated to find the most prominent aspect of the greater tuberosity.
- **Locate the Site:**
  Place your thumbs together on the humerus to find the "ball" of the surgical neck. The insertion site is the most prominent aspect of the greater tuberosity, 1 to 2 cm above the surgical neck.
- **Clean the Site:**
  Use an antiseptic solution to clean the insertion site and allow it to dry.

Needle Insertion

- **Attach and Orient:**
  Attach the needle set to the power driver and remove the safety cap. Point the needle tip at a 45-degree angle to the anterior plane and posterior-medial direction, or towards the opposite hip.
- **Advance to Bone:**
  Gently advance the needle through the skin until the tip touches the bone, ensuring at least 5 mm of the black line is visible above the skin. This black line indicates the needle is long enough to reach the medullary space.
- **Penetrate the Bone:**
  Squeeze the trigger of the power driver, applying light, steady pressure to penetrate the bone.

Confirmation and Stabilization

- **Confirm "Give":** Release the trigger when you feel a sudden decrease in resistance or a "give".
- **Remove Driver and Stylet:** Wait for the driver to stop spinning, then remove the driver. While holding the needle set hub, twist the stylet counterclockwise to remove it.
- **Secure the Device:** Place the stabilizer dressing over the hub to secure the IO to the skin.

Line Patency and Connection

- **Attach Extension Set:** Attach the extension set to the IO hub.
- **Check for Bone Marrow:** Aspirate with a syringe to check for the presence of bone marrow, then flush the catheter with 5-10 mL of saline.
- **Connect and Monitor:** Once the site is confirmed, connect the fluid or medication line to the extension set. Continuously monitor the insertion site for leaking and the limb for coolness or swelling.

Patient Preparation and Positioning

- **Stabilize the extremity**: Place the patient's leg in full extension to ensure the knee doesn't bend, providing a stable and accessible site for the procedure.
- **Aseptic technique**: Perform the entire procedure using aseptic technique to prevent infection.

Site Identification and Skin Preparation

- **Palpate**: Locate the patella (kneecap) by palpation.
- **Identify the site**: The insertion site is just above the patella (Maximum 1 cm) and approximately 1-2 cm medial (toward the midline) of the patella.
- **Clean the site**: Clean the selected skin area with an appropriate antiseptic solution.
- **Local anesthetic**: If the patient is conscious and time permits, infiltrate the site with a local anesthetic.

Needle Insertion and Drilling

- **Attach the device**:
  Attach the IO needle set to the power driver (if using) and remove the safety cap.
- **Aim the needle**:
  Position the needle set at a 90-degree angle to the surface of the bone.
- **Advance to the bone**:
  Gently press the needle through the skin until the tip rests firmLy against the bone. At this point, the 5 mm marking should be visible above the skin.
- **Drill into the bone**:
  Apply steady, gentle pressure and operate the power driver. Release the trigger immediately when you feel a "pop" or sudden loss of resistance, indicating entry into the medullary space.

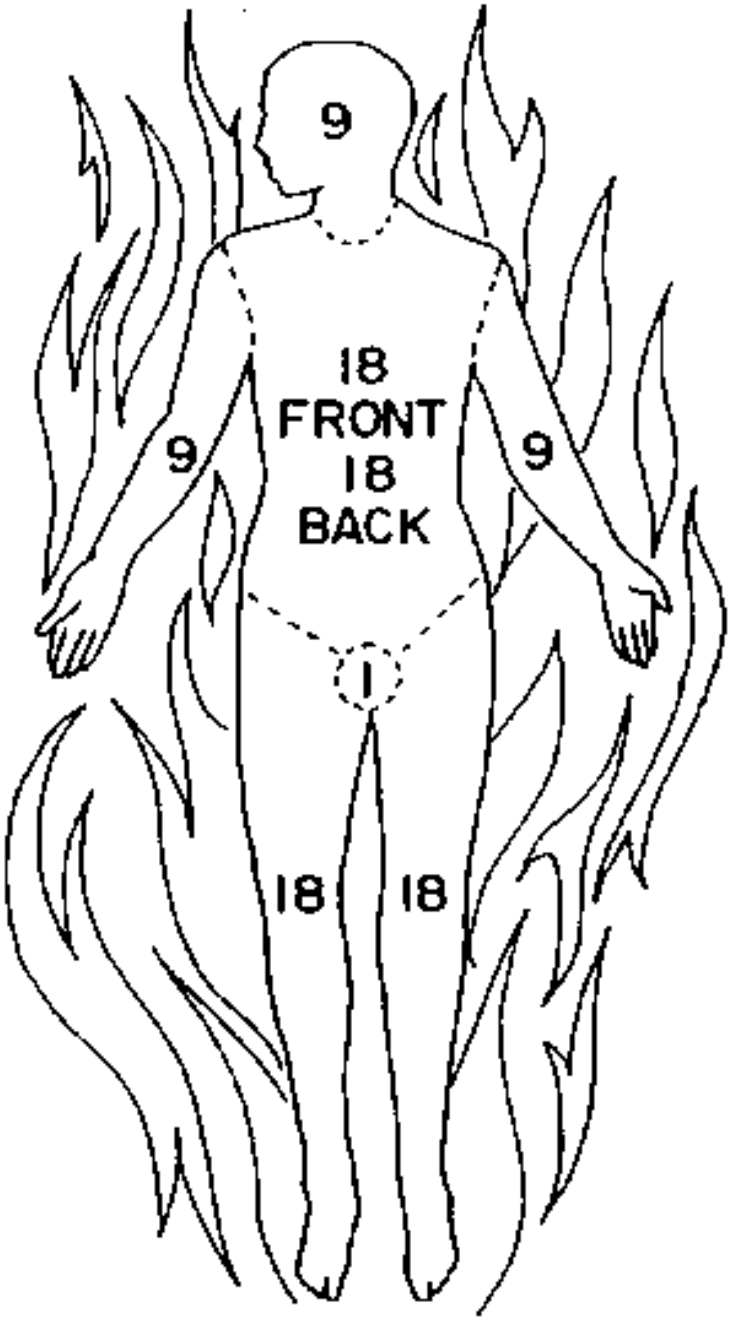
Confirmation of Placement and Securing

- **Detach the driver**:
  With one hand, hold the needle hub in place and use the other hand to pull the driver straight off.
- **Confirm placement**:
  Secure the hub and twist the stylet counterclockwise three times to remove it. The catheter should feel firmLy seated in the bone.
- **Aspirate**:
  To confirm placement, aspirate to check for the presence of blood or bone marrow.
- **Secure the IO**:
  Apply the manufacturer-provided stabilizer dressing over the catheter hub to firmly secure it to the skin.
- **Attach the infusion set**:
  Attach a primed EZ-Connect extension set to the catheter hub and secure it.

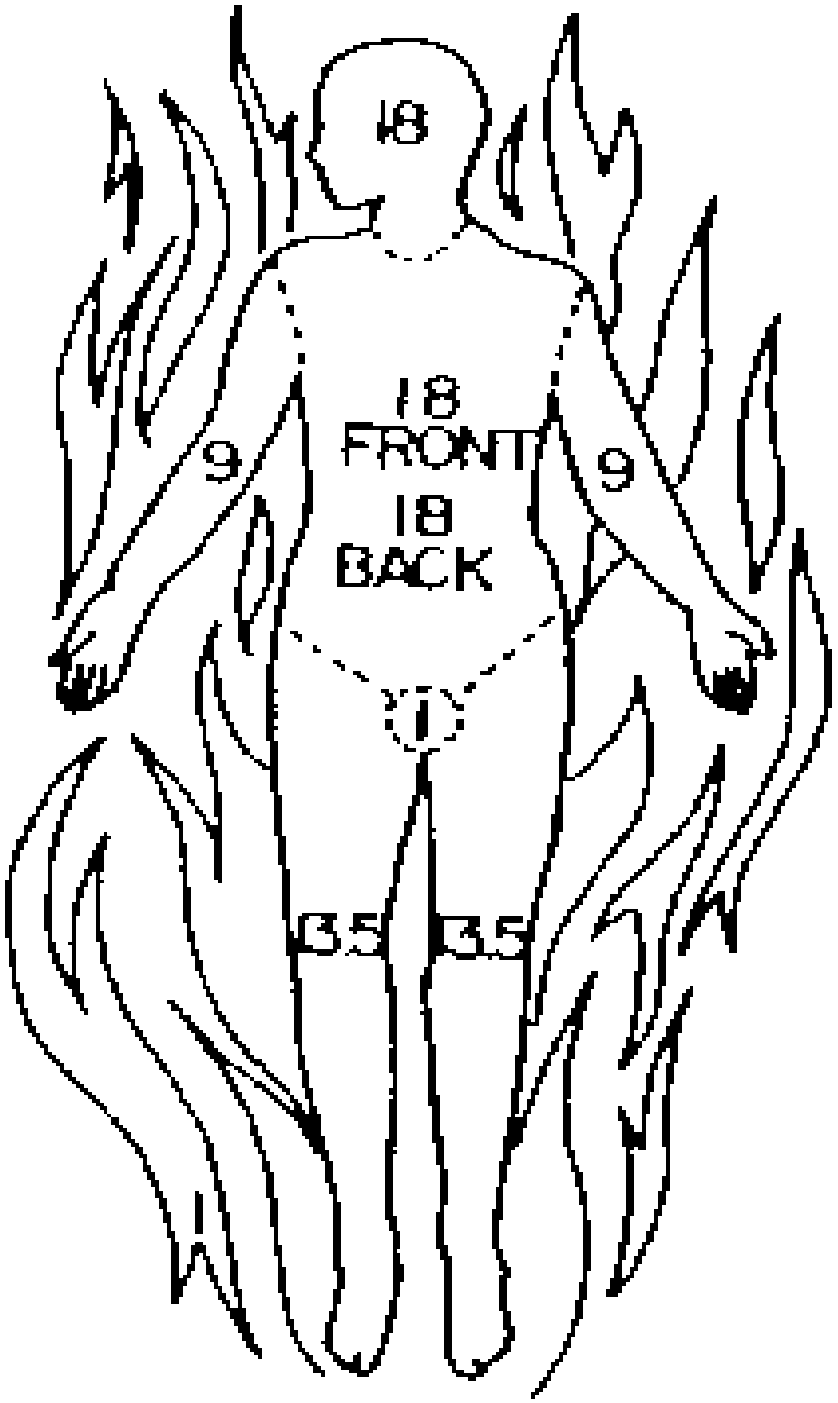
Administration and Monitoring

- **Infuse fluids**: Once placement is confirmed, fluids and medications can be infused.
- **Monitor the site**: Monitor the site for any signs of infiltration, swelling, or discomfort.

Adult



Pediatric



Clinical Guideline -

Classification of Burn Severity

P21

Adult / Pediatric

First degree burns are not used in the calculation of % of BSA

Major Burns

1. Burns greater than 10% of body surface area (BSA)
2. Any full-thickness burns
3. All burns involving the face, eyes, hands, feet or perineum
4. Burns caused by caustic chemical agents.
5. Burns complicated by inhalation injury, major trauma or high-risk patients.

Minor Burns

1. Burns less than 10% of BSA
2. No functional or cosmetic risk to special functional areas.

Cooke County EMS

TOC

Clinical Guideline -

Oral / Nasal Gastric Tube Insertion

P22

Adult

Clinical Presentation:

Gastric decompression for intubated patients.

Contraindications:

1. Suspected basilar skull fracture.
2. Facial trauma
3. Recent nasal surgery
4. Known or suspected esophageal varices
5. Ingestion of caustic poisoning

Complications:

1. Nasal tissue trauma/hemorrhage
2. Passage of tube into the trachea
3. Perforation of the esophagus
4. GI bleeding
5. Coiling of the tube into posterior pharynx
6. May induce gagging or vomiting, Aspiration

Equipment:

Personal protective equipment (gloves, mask, face shield)
NG tube, 60 mL catheter tip syringe
Water-soluble lubricant
Adhesive tape
Suction
Stethoscope

Procedure for Nasal

1. Prepare and assemble all equipment
2. Inspect the nares for deformity or obstructions to help determine the best side for insertion of the NG tube.
3. Measuring the NG tube from the tip of the nose to the earlobe and then to the xiphisternum Note the marks on the tube used to measure.
4. Liberally lubricate the tube tip with water-soluble lubricate (KY Jelly)
5. Insert the tube along the floor of the nasal passage
6. Continue to advance the tube until the appropriate distance is reached.
7. Confirm placement by using a 60-cc syringe and inject air and auscultate the epigastric area for a Whoosh" or bubbling of the air over the stomach.
8. Do not suction, allow to drain in suction canister if necessary.
9. Minimal suction may be used initially if full, then turned off.

Procedure for Oral

1. Prepare and assemble all equipment
2. Measure from patients' mouth to their earlobe, then down to the xiphoid process
3. Lubricate tube tip with water-based lubricant
4. Gently feed tube OG tube into gastric channel of SGA
5. Confirm placement by using 60-cc syringe inject air into the tube and auscultate the epigastric area with stethoscope for a "Whoosh" or bubbling of air over the stomach.

Termination of Prehospital Resuscitation

P23

Adult

Purpose:
The purpose of this policy is to:
Allow discontinuation of prehospital resuscitation after delivery of adequate and appropriate ALS therapy.

Procedure:
CPR and ALS therapy may be discontinued by EMS personnel when the following criteria are met:

7. **The initial and ending rhythm must be Asystole with no change during resuscitative efforts.**
8. Patients are >18 years of age.
9. Patients cannot be pregnant.
10. The situation is not related to hypothermic causes
11. ETCO2 remains < 20 mmHg after early successful advanced airway placement and 10 minutes of Advanced Life Support.
12. There has been absolutely no return of pulse, spontaneous respirations, eyes opening or movement, no motor response and no neurological activity.

Determination of resuscitation efforts must be determined prior to transport

Note: Documentation should include initial and ending rhythm, time ALS was started and stopped. These events will be needed to record time of death.

Clinical Guideline -

Spinal Motion Restriction

P24

NEXUS criteria: Patients for whom spinal motion restriction should be considered include those who have sustained **blunt trauma through a high-energy mechanism AND**

Altered level of consciousness

- Drug or alcohol intoxication
- Inability to communicate
- Spinal column pain and/or tenderness
- Neurologic complaints (e.g., numbness or motor weakness)
- Anatomic deformity of the spine
- Distracting injury (injuries so severely painful that neck examination is unreliable, [e.g., severe thoracic trauma, long bone fractures, crush injuries, large burns])

HIGH RISK factors: (c-collar & mattress)

- Age > 65
- Midline back or neck pain
- Paresthesia or weakness in extremities
- Unconscious
- < 16 yrs of age
- Communication or language barrier
- Previous c-spine surgery
- Evidence of intoxication

LOW RISK factors (c-collar & stretcher)

- Simple rear end MVC
- Ambulatory at any time
- Delayed onset neck pain
- Absence of midline c spine tenderness
- Can rotate neck 45 degrees left and right

Spinal restriction can be accomplished with

- Vacuum mattress & c-collar
- Stretcher and C-collar
- C-collar only

Back Boards should only be used for moving patient's, not for transporting patients.

The following criteria justifies but does not require air evacuation for *adult trauma patients*:

Estimated ground transport to the nearest Level I/II Trauma Center is **greater than the response and transport time for the helicopter** and the patient has one of the following injuries or conditions (The helicopter may carry blood, if requested. If so, only the response time should be considered.):

Injuries:

- Multisystem blunt or penetrating trauma with unstable vital signs.
- Penetrating injury to head, neck, chest, abdomen, or groin.
- Burns > 10% TBSA (2nd or 3rd degree)
- Burns involving face, airway, hands, feet or genitalia.
- Amputations with the potential for reimplantation.
- Paralysis or other signs of spinal cord injury.
- Flail chest.
- Open or suspected depressed skull fracture.
- Open or unstable pelvis fracture.
- Two or more proximal bone fractures

Operational Criteria:

- Patient extrication time greater than 20 minutes
- Number of critically injured patients exceeds capabilities of local EMS agencies.
- Closest hospital is on diversion for trauma patients.
- Ambulance access to the scene, or away from the scene, is impeded by road conditions, weather conditions, or traffic.

The following criteria justify air evacuation for *pediatric trauma patients*:

- Experienced or at risk for developing acute respiratory failure or respiratory arrest and not responsive to initial therapy.
- Invasive airway procedure with assisted ventilation
- Nonfatal Drowning with signs of hypoxia or altered mental status.
- Neonate SBP < 60
- Infant SBP < 65
- Child 2-5 SBP < 70
- Child 6-12 SBP < 80

Documentation in PCR (Use General comments to document and time stamp)

- Activation time with ETA
- On scene
- Transfer of Care with Depart Scene time in comments.

Cooke County EMS

TOC

Clinical Guideline -

Push Dose Pressor

P26

Clinical Presentation:

This procedure is to be used when the patient's blood pressure needs to be stabilized quickly while preparing the IV pump for a pressor infusion.

1. Fill a 10 mL syringe with 9 mL of Normal Saline.
2. Withdraw 1 mL from a 1:10,000 Epinephrine prefilled syringe.
3. Add it to the syringe with 9 mL of Normal Saline.
4. The syringe will now contain 10 mcg/ mL of epinephrine.
5. Dose: 0.5 – 2 mL every 2-5 minutes to achieve a MAP of 65.
6. Alternate mix is 1.0mg 1:1000 in 100 mL NS to prepare for epi infusion after push dose pressor.

Cooke County EMS

TOC

Clinical Guideline -

Wound Packing

P27

Clinical Indications:

1. Life threatening hemorrhage from a penetrating injury to a junctional area that cannot be controlled with direct pressure alone.
2. Junctional areas include the buttock, pelvis (pelvic girdle), axilla (armpit), or neck.
3. A penetrating injury to an extremity with significant hemorrhage that cannot be controlled with direct pressure alone.

Contraindications:

1. Wound packing is contraindicated for the chest, back, head, and abdomen.
2. Arterial hemorrhage in an extremity should be controlled with a tourniquet instead.
3. Dialysis graft bleeding.

Procedure:

1. Cut away clothing at the wound site and have wound packing supplies.
2. Maintain hemorrhage control with direct pressure.
3. This is a painful procedure. If readily available, request assistance to manually-stabilize the patient and administer analgesics if this does not delay life-threatening hemorrhage control.
4. Carefully remove any obvious foreign objects from the wound (splintered wood, etc.).
5. Use your non-dominant hand to apply direct pressure just proximally to the wound to help reduce bleeding.
6. With one finger of the other hand, push the end of the gauze as deeply into the wound as possible.
7. Continue to feed gauze deep into the wound in small increments only. Do not wrap gauze around your finger or attempt to feed in a large “bolus” of gauze all at once.
8. Continue to pack increments of gauze as deeply and tightly as possible to apply direct pressure over the source of the bleed. Once the packing reaches the level of the skin, apply any remaining gauze over the wound to help apply targeted pressure.
9. Hold direct pressure over the wound/gauze for at least 3 minutes for hemostatic or 10 minutes for plain gauze. Do not release this pressure to “check” for bleeding during this time. Consider taking extra responders for assistance during transport.
10. If possible, wrap the area with gauze to maintain pressure. Consider splinting the area to stabilize the injury.
11. If not already performed, provide analgesics as indicated in the Pain Management protocol.

Clinical Guideline -

Needle Thoracostomy

P28

Clinical Presentation:

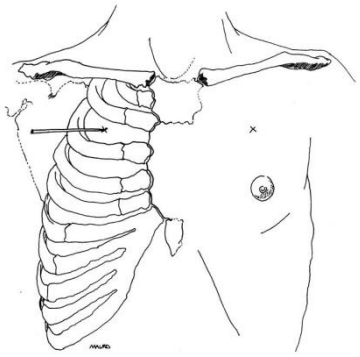
A. All the following clinical indicators must be present:

1. Severe respiratory distress
2. Hypotension
3. Unilateral absent or decreased breath sounds OR

B. Traumatic pulseless arrest with trauma to trunk

This procedure is **NOT** to be used on a simple pneumothorax, TENSION PNEUMO ONLY

1. Place the patient in a Supine position or (if possible) seated with head up at a 45º angle
2. Identify the second intercostal space on the affected side (the second intercostal space corresponds with the angle of Louis) Follow the second intercostal space to the mid-clavicular line.
3. Clean thoracostomy site
4. Insert thoracostomy needle at a 90º angle at the top of the third rib in the second intercostal space
5. A pop may be heard with pressure release from the pleural space
6. Retract stylet and secure cannula in place
7. Should the catheter occlude a second needle thoracostomy may be done adjacent to the first



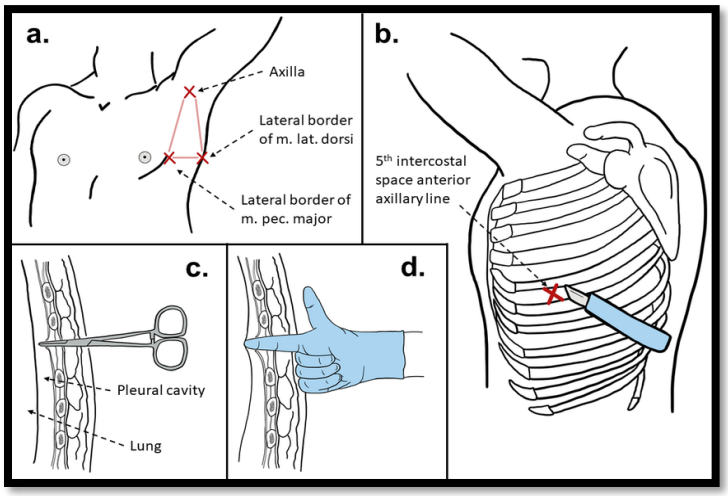
	Cooke County EMS	TOC
	Clinical Guideline - **Finger Thoracostomy**	P29

Clinical Presentation:
For use in **Traumatic Arrest ONLY** to relieve tension pneumothorax or hemothorax caused from blunt force trauma.

Paramedics (must be signed off on skill)

Equipment Needed:

- ChloraPrep
- Scalpel
- Kelly Clamp
- Occlusive Dressing



Procedure:

1. Prepare Equipment
2. Place patient supine with arm raised and externally rotated (place their hand under or above the head)
3. Prepare the area with ChloraPrep
4. Identify the 4th and 5th intercostal space, between the anterior axillary and midaxillary line
5. Use the scalpel to make a 3-4cm incision over the 4th and 5th in the direction from anterior axillary line to the midaxillary line
6. Using the Kelly clamp or finger, bluntly dissect through the intercostal tissue to spread open the 4th / 5th intercostal space and push through the pleura. You should feel a definitive pop once you have entered the space and there may be a rush of air or blood from the cavity (if a Kelly clamp is used place your index finger over the curve of the clamp to stabilize and prevent the clamp from damaging the lung)
7. Confirm the correct position by sweeping your finger between the lung and plural wall. Be sure not to damage the lung during this process.
8. Should ROSC be achieved during this process, cover the wound with occlusive dressing, burp as needed.

Clinical Guideline -

Implantable Cardioverter Defibrillator (ICD) Magnet

P30

Clinical Presentation:

The patient will present with an ICD that appears to be malfunctioning and defibrillating the patient when it is not needed.

1. Place patient on cardiac monitor
2. Observe ECG until defibrillation occurs
3. Verify there is no observed reason for the defibrillation
4. Place magnet over ICD
5. Observe ECG for irregularities
6. If any complications occur remove the magnet

I. PURPOSE

A. The purpose of this Protocol is to ensure that all employees of CCEMS conduct themselves accordingly when responding to a patient who has a TDSHS Out of Hospital DNR Order.

II. GUIDELINES

A. Pursuant to Title 25, Part 1, Chap 157.25 and Chap. 166.02 of the Texas Health and Safety Code, personnel shall honor out of hospital DNR orders encountered during their official duties.

B. Cardiopulmonary resuscitation means any medical intervention used to restore circulatory or respiratory function that has ceased. (Texas Health and Safety Code Sec. 166.02)

C. This guideline only applies to official TDSHS Out Of Hospital DNR Orders. We can accept out of state DNR's and jewelry identifiers.

III. REVOCATION OF DIRECTIVE.

A. A declarant may revoke a directive at any time without regard to the declarant's mental state or competency. A directive may be revoked by:

1. the declarant or someone in the declarant's presence and at the declarant's direction canceling, defacing, obliterating, burning, tearing, or otherwise destroying the directive.
2. the declarant signing and dating a written revocation that expresses the declarant's intent to revoke the directive; or
3. the declarant orally stating the declarant's intent to revoke the directive.

IV. DOCUMENTATION

A. Record keeping - Records shall be maintained on each incident in which an out-of-hospital order or DNR identification device is encountered by EMS personnel, and the number of cases in which there is an on-site revocation of the DNR order shall be recorded.

1. The data documented shall include:
   a. An assessment of the patient's condition.
   b. Whether an identification device and a DNR form was used to confirm DNR status and patient identification number.
   c. Any problems relating to the implementation of the DNR order.
   d. The name of the patient's attending physician.

Figure: 25 TAC §157.25 (h)(2)

STOP DO NOT RESUSCITATE

OUT-OF-HOSPITAL DO-NOT-RESUSCITATE (OOH-DNR) ORDER

TEXAS DEPARTMENT OF STATE HEALTH SERVICES

Print Form

This document becomes effective immediately on the date of execution for health care professionals acting in out-of-hospital settings. It remains in effect until the person is pronounced dead by authorized medical or legal authority or the document is revoked. Comfort care will be given as needed.

Person's full legal name _____ Date of birth _____ ☐ Male ☐ Female

A. Declaration of the adult person: I am competent and at least 18 years of age. **I direct that none of the following resuscitation measures be initiated or continued for me: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Person's signature _____ Date _____ Printed name _____

B. Declaration by legal guardian, agent or proxy on behalf of the adult person who is incompetent or otherwise incapable of communication:

I am the: ☐ legal guardian; ☐ agent in a Medical Power of Attorney; OR ☐ proxy in a directive to physicians of the above-noted person who is incompetent or otherwise mentally or physically incapable of communication.

Based upon the known desires of the person, or a determination of the best interest of the person, **I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Signature _____ Date _____ Printed name _____

C. Declaration by a qualified relative of the adult person who is incompetent or otherwise incapable of communication: I am the above-noted person's:

☐ spouse, ☐ adult child, ☐ parent, OR ☐ nearest living relative, and I am qualified to make this treatment decision under Health and Safety Code §166.088.

To my knowledge the adult person is incompetent or otherwise mentally or physically incapable of communication and is without a legal guardian, agent or proxy. Based upon the known desires of the person or a determination of the best interests of the person, **I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Signature _____ Date _____ Printed name _____

D. Declaration by physician based on directive to physicians by a person now incompetent or nonwritten communication to the physician by a competent person: I am the above-noted person's attending physician and have:

☐ seen evidence of his/her previously issued directive to physicians by the adult, now incompetent; OR ☐ observed his/her issuance before two witnesses of an OOH-DNR in a nonwritten manner.

I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Attending physician's signature _____ Date _____ Printed name _____ Lic# _____

E. Declaration on behalf of the minor person: I am the minor's: ☐ parent; ☐ legal guardian; OR ☐ managing conservator.

A physician has diagnosed the minor as suffering from a terminal or irreversible condition. **I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Signature _____ Date _____

Printed name _____

TWO WITNESSES: (See qualifications on backside.) We have witnessed the above-noted competent adult person or authorized declarant making his/her signature above and, if applicable, the above-noted adult person making an OOH-DNR by nonwritten communication to the attending physician.

Witness 1 signature _____ Date _____ Printed name _____

Witness 2 signature _____ Date _____ Printed name _____

Notary in the State of Texas and County of _____. The above noted person personally appeared before me and signed the above noted declaration on this date: _____.

Signature & seal: _____ Notary's printed name: _____ *Notary Seal*

[Note: Notary cannot acknowledge the witnessing of the person making an OOH-DNR order in a nonwritten manner]

PHYSICIAN'S STATEMENT: I am the attending physician of the above-noted person and have noted the existence of this order in the person's medical records. **I direct health care professionals acting in out-of-hospital settings, including a hospital emergency department, not to initiate or continue for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Physician's signature _____ Date _____

Printed name _____ License # _____

F. Directive by two physicians on behalf of the adult, who is incompetent or unable to communicate and without guardian, agent, proxy or relative: The person's specific wishes are unknown, but resuscitation measures are, in reasonable medical judgment, considered ineffective or are otherwise not in the best interests of the person. **I direct health care professionals acting in out-of-hospital settings, including a hospital emergency department, not to initiate or continue for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Attending physician's signature _____ Date _____ Printed name _____ Lic# _____

Signature of second physician _____ Date _____ Printed name _____ Lic# _____

Physician's electronic or digital signature must meet criteria listed in Health and Safety Code §166.082(c).

All persons who have signed above must sign below, acknowledging that this document has been properly completed.

Person's signature _____ Guardian/Agent/Proxy/Relative signature _____

Attending physician's signature _____ Second physician's signature _____

Witness 1 signature _____ Witness 2 signature _____ Notary's signature _____

This document or a copy thereof must accompany the person during his/her medical transport.

I. PURPOSE

A. The purpose of this protocol to ensure that CCEMS employees take the right steps when encountering a deceased patient.

II. GUIDELINES

A. In the case of a clinically dead patient (absence of pulse and respiration), it is the responsibility of the on-scene EMS crew to determine whether resuscitative efforts should be started. That determination should be based on the extent of injury, and down time. If there is any doubt, resuscitate and transport the patient.

B. Should conflicts arise at the scene, contact the shift supervisor for instructions. In NO case should treatment be delayed reaching a decision.

C. CCEMS personnel shall use sound judgment in providing for their safety, preserving the scene as needed, and providing aid to survivors.

D. This is a sensitive matter to survivors. Careless statements, and/or actions, which may be misinterpreted, **WILL NOT BE TOLERATED**.

E. Absence of vital signs does not automatically authorize CCEMS personnel to assume that the patient is dead. Only a licensed physician or Justice of the Peace may legally pronounce death. However, in certain circumstances, death is obvious. Therefore, a patient may be considered DOS if any of the following are present.

1. Decapitation
2. Decomposition
3. Hemisection
4. Rigor Mortis
5. Lividity
6. Pulseless patient with significant blunt force trauma

F. Documented prolonged (>20 minutes) down time, except in cold temperature deaths. This information will be from a reliable source with firsthand observation, i.e., law enforcement, fire service.

G. Extenuating circumstances; Hazmat, or MCI.

H. Out of Hospital DNR's shall be honored according to the **Out of Hospital DNR SOG #310**.

III. PROCEDURES

A. In the above circumstances the following procedure will be followed.

1. Document the absence of vital signs (pulse, respiration, blood pressure).
2. After determination of a patient as DOS, the EMS crew shall return their unit to an in-service condition.
3. Law Enforcement will take over the scene
4. Careful consideration shall be given to the preservation of the scene of any death. You should move the body only what is necessary to determine ECG rhythm or the presence of lividity. ECG electrodes shall be left in place after application.

Cooke County EMS

Prehospital Drug Guide

Clinical Guidelines – Medications Reference

Table of Contents

Pregnancy Class

Class A: no risk to fetus
Class B: no evidence of risk
Class C: Risk cannot be ruled out
Class D: positive risk to fetus
Class X: contraindicated in pregnancy

Adenosine (Adenocard)

Class: Antiarrhythmic Pregnancy Class: C

Action:
Slows atrioventricular conduction

Pharmacokinetics:
Onset: 20–30 seconds
Peak Effects: 20–30 seconds Duration: 30 seconds
Half-Life: 10 seconds

Indications:
SVT Stable (pg. 44)
SVT Unstable (pg. 45)

Contraindications:
Torsades de pointes (polymorphic ventricular tachycardia)
Second- or third-degree heart block
Patients taking Tegretol (Carbamazepine) or Persantin (Dipyridamole)

Precautions:
Arrhythmias, including blocks, are common at the time of cardioversion.
Use with caution in patients with asthma.

Side Effects:
Facial flushing Nausea
Shortness of breath
Headache
Dizziness

Routes:
IV; AC or higher, followed by a rapid 20cc flush.

Albuterol (Proventil)

Class: Sympathomimetic (2 selective) Pregnancy Class: C

Action:
Bronchodilation

Pharmacokinetics:
Onset: 5–15 minutes (inhaled)
Peak Effects: 1.0–1.5 hours
Duration: 3–6 hours
Half-Life: < 3 hours

Indications:
Hyperkalemia (pg. 47)
H's & T's (pg. 52)
Asthma (pg. 70)
Bronchiolitis (pg. 71)
COPD (pg. 73)
Pneumonia (pg. 77)

Contraindications:
Known hypersensitivity to the medication Symptomatic tachycardia

Precautions:
Blood pressure, pulse, and electrocardiogram (ECG) results should be monitored
Use caution in patients with known heart disease

Side Effects:
Palpitations
Anxiety
Headache
Dizziness
Sweating

Routes:
Inhalation

Ammonia Inhalants

Class: Sympathomimetic (2 selective)

Pregnancy Class: not assigned

Action:
Triggers an inhalation reflex (that is, cause the muscles that control breathing to work faster) by irritating the mucous membranes of the nose and lungs. Additionally, the irritant elevates the heart rate, blood pressure, and brain activity by activating the sympathetic nervous system

Indications:
Syncope

Contraindications:
Respiratory Distress
Asthma

Side Effects:
Coughing
Vomiting
Headache
Eye Pain

Routes:
Inhalation

Aspirin (Acetylsalicylic Acid, ASA)

Class: Platelet aggregation inhibitor and anti-inflammatory agent

Pregnancy Class: D

Action:
Aspirin blocks the formation of the substance thromboxane A2, which causes platelets to aggregate and arteries to constrict. This results in an overall reduction in mortality associated with myocardial infarction. It also appears to reduce the rate of nonfatal reinfarction and nonfatal stroke.

Pharmacokinetics:
Onset: 5–30 minutes
Peak Effects: 15–120 minutes
Duration: 1–4 hours
Half-Life: 15–20 minutes

Indications:
Chest Pain (pg. 41)
STEMI (pg. 42)

Contraindications:
It is relatively contraindicated in patients with active ulcer disease and asthma.

Precautions:
Aspirin can cause gastrointestinal upset and bleeding.
Aspirin should be used with caution in patients who report allergies to the nonsteroidal anti-inflammatory (NSAID) class of medications.
Doses higher than recommended can interfere with possible benefits.

Side Effects:
Heartburn
Gastrointestinal bleeding
N/V
Wheezing
Prolonged bleeding.

Routes:
PO

Ativan (Lorazepam)

Class: Tranquilizer (benzodiazepine) **Pregnancy Class: D**

Action:
Anticonvulsant Sedative

Pharmacokinetics:
Onset: 1 – 5 minutes (IV), 15 – 30 minutes (IM),
Duration: 15-60 minutes
Peak Effects: 15 minutes (IV), 30 – 45 minutes (IM)
Half-Life: 20-50 hours

Indications:
Traumatic Brain Injury (pg. 18)
Chest Pain (pg. 41)
Bradycardia (pg. 43)
SVT Unstable (pg. 45)
Vtach Stable (pg. 48)
Vtach Unstable (pg. 49)
Behavior (pg. 60)
Seizure (pg. 67)
COPD (pg. 73)
Preeclampsia (pg. 89)
Pain Management (pg. 102)
Continued Sedation (pg. 104)

Contraindications:
Patients with a history of hypersensitivity to medication

Precautions:
Has short duration of effect
Do not mix with other medications because of possible precipitation problems

Side Effects:
Drowsiness
Hypotension
Respiratory depression
Apnea

Routes:
IV, IM, IN, IO, Rectal

Atropine

Class: Parasympatholytic (anticholinergic) Pregnancy Class: C

Action:
Blocks acetylcholine receptors, increases heart rate, decreases gastrointestinal secretions

Pharmacokinetics:
Onset: <2 minutes
Peak Effects: < 5 minutes
Duration: 5-10 minutes
Half-Life: 5 minutes

Indications:
Bradycardia (pg. 43)
Overdose (pg. 66)

Contraindications:
None when used in emergency situations

Precautions:
Dose of 3 mg should not be exceeded except in cases of organophosphate poisoning

Side Effects:
Palpitations
Tachycardia
Headache or Dizziness
Dry Mouth
Pupillary Dilation
Blurred Vision
Urinary retention (especially in older men)

Routes:
IV, ET, IO

Benadryl (Diphenhydramine)

Class: Antihistamine Pregnancy Class: B

Action:
Blocks histamine receptors Allergic reactions Has some sedative effects Dystonic reactions due to phenothiazines

Pharmacokinetics:
Onset: 10–15 minutes (IV)
Peak Effects: 1 hour
Duration: 6–8 hours
Half-Life: 1–4 hours

Indications:
Nausea and Vomiting (pg. 58)
Behavioral (pg. 60)
Overdose (pg. 66)
Allergic Reaction Mild (pg. 78)
Allergic Reaction Moderate (pg. 79)
Anaphylaxis (pg. 80)
Blood Protocol (pg. 105)

Contraindications:
Asthma
Nursing mothers

Precautions:
Hypotension

Side Effects:
Sedation
Headache
Dries bronchial secretions
Palpitations
Blurred vision

Routes:
SIVP, deep IM, IO

Calcium Chloride

Class: Electrolyte (anion) Pregnancy Class: C

Action:
Increases cardiac contractility

Pharmacokinetics:
Onset: Immediate
Peak Effects: 2 – 4 minutes
Duration: Unknown
Half-Life: Varies

Indications:
Bradycardia (pg. 43)
Hyperkalemia (pg. 47)
H's & T's (pg. 52)
Preeclampsia (pg. 89)
Preterm Labor (pg. 90)
Blood protocol (pg. 105) & 106

Contraindications:
Patients receiving digitalis (may cause severe bradycardia)

Precautions:
Use with caution with patients taking digitalis
Use with caution with patients in renal failure

Side Effects:
Arrhythmias (bradycardia and asystole)
Hypotension

Routes:
IV/IO

Cardizem (Diltiazem)

Class: Calcium Channel Blocker, Antiarrhythmic, Antihypertensive

Pregnancy Class: C

Action:
relaxation of vascular smooth muscle and the resultant decrease in peripheral vascular resistance.

Pharmacokinetics:
Onset: 2-5 minutes
Peak Effects: 2-4 hours
Duration: Unknown
Half-Life: 3.5-9hours

Indications:
AFIB with RVR (pg. 46)

Contraindications:
Sick sinus syndrome or AV block (unless you have a pacemaker)
Recent heart attack with pulmonary edema.

Precautions:
Cardizem will potentiate Versed 2 to 3-fold.
Hypotension

Side Effects:
Dizziness
Headache
Bradycardia

Routes:
IV

Cefepime (Maxipime)

Class: Antibiotic Pregnancy Class: B

Action:
Cephalosporin antibiotics work by disrupting the formation of bacterial cells (ultimately killing bacteria)

Pharmacokinetics:
Onset: 30 minutes
Peak Effects: 30 minutes
Duration: 7 – 14 days
Half-Life: 2hours

Indications:
Open fractures (pg. 19)
Amputations (pg. 21)
Penetrating chest trauma (pg. 24)
Open wounds extremities (pg. 28)
Impaled objects (pg. 29)
Open eye injuries (pg. 32)
Sepsis (pg. 68)

Contraindications:
Patients with known hypersensitivity

Precautions:
Use with caution in patients with renal impairment

Side Effects:
Neurotoxicity with renal impairment
C-diff
Abdominal pain
N/V

Routes:
IVP

Charcoal (Activated Charcoal)

Class: Poison Antidote (GI) Pregnancy Class: C

Action:
Activated Charcoal is a fine black powder that binds and absorbs ingested toxins, once bound to the activated charcoal, the combined complex is excreted from the body. Must have ingested poison in less than 1 hour.

Pharmacokinetics:
Onset: Immediate
Peak Effects: No documentation
Duration: Continual while in GI tract
Half-Life: based on peristalsis

Indications:
Overdose (pg. 66)

Contraindications:
Corrosives, caustics, or petroleum distillates

Precautions:
May induce vomiting, aspirations precautions

Side Effects:
Constipation or Diarrhea
Temporary darkening of the stool
Vomiting

Routes:
PO

Cordarone (Amiodarone HCL)

Class: Antiarrhythmic (Class III) **Pregnancy Class: D**

Action:
Prolongs action potential and refractory period Slows the sinus rate; increases PR and QT intervals Decreases peripheral vascular resistance (and adrenergic blockade)

Pharmacokinetics:
Peak Effects: 10 - 15 minutes
Half-Life: 2.5 – 10 days

Indications:
SVT Stable (pg. 44)
SVT Unstable (pg. 45)
AFIB w RVR (pg. 46)
Vtach Stable (pg. 48)
Vtach unstable (pg. 49)
VFIB (pg. 55)
ROSC (pg. 56)

Routes:
IV, IO

Dexamethasone (Decadron, Haxadrol)

Class: Steroid Pregnancy Class: C

Action:
Possibly decreases cerebral edema Anti-inflammatory Suppresses immune response (especially in allergic reactions)

Pharmacokinetics:
Onset: Immediate
Peak Effects: 1 – 2 hours
Duration: 2.75 days
Half-Life: 3 – 4.5 hours

Indications:
Asthma (pg. 70)
COPD (pg. 73)
Croup (pg. 74)
Epiglottitis (pg. 75)
Allergic Reaction Moderate (pg. 79)
Anaphylaxis (pg. 80)

Contraindications:
None in the emergency setting

Precautions:
Should be protected from heat

Side Effects:
Gastrointestinal bleeding
Prolonged wound healing

Routes:
IV, Inhalation, IO, IM, IN

Dextrose (10%, 5%, 50%)

Class: Carbohydrate Pregnancy Class: C

Action:
Elevates blood glucose level rapidly, short term osmotic diuresis. Used in protocols and mix infusions.

Pharmacokinetics:
Onset: < 1 minute
Peak Effects: Varies Duration: Varies
Half-Life: Not applicable

Indications:
SVT Stable (pg. 44)
SVT Unstable (pg. 45)
Vtach stable (pg. 48)
Vtach unstable (pg. 49)
VFIB (pg. 55)
ROSC (pg. 56)
Nausea and Vomiting (pg. 58)
Altered Mental Status (pg. 59)
Diabetic Emergencies (pg. 62)
Hypotension (pg. 64)
Sepsis (pg. 68)
Pain Management (pg. 102)
Continued Sedation (pg. 104)

Contraindications:
None in the emergency setting

Precautions:
A blood sample should be drawn before administering 50 percent dextrose

Side Effects:
Local venous irritation (tissue necrosis)

Routes:
IV, IO

D10 from D50: mix a full ampule of D50 in 250 mL of NS (draw out 50mL of NS before mixing)
D5 from D50: mix a 1/2 ampule of D50 in 250mL NS (draw out 25mL of NS before mixing)

Dilaudid (Hydromorphone)

Class: Narcotic analgesic (Schedule II) Pregnancy Class: C

Action:
A CNS depressant and a potent analgesic and sedative

Pharmacokinetics:
Onset: 15 – 30 minutes
Peak Effects: 30 – 90 minutes
Duration: 4 – 5 hours
Half-Life: 2.6 hours

Indications:
Chest pain (pg. 41)
STEMI (pg. 42)
Pain Management (pg. 102)

Contraindications:
Head injury

Precautions:
Will cause respiratory depression and hypotension.
Effects will be enhanced by antihistamines, antiemetics, sedatives, hypnotics, barbiturates, and alcohol.

Side Effects:
N/V
Abdominal cramps
Altered mental status
Headache

Routes:
IV, IO, IM, IN

Dobutamine (Dobutrex)

Class: Sympathetic agonist **Pregnancy Class: D**

Action:
Dobutamine increases the force of the systolic contraction (positive inotropic effect) with little chronotropic activity.

Pharmacokinetics:
Onset: 2–10 minutes
Peak Effects: 10–20 minutes
Half-Life: 2 minutes

Indications:
Chest Pain (pg. 41)
STEMI (pg. 42)
Bradycardia (pg. 43)
Cardiogenic Shock (pg. 50)
ROSC (pg. 56)
Hypotension Shock (pg. 64)
CHF (pg. 72)

Contraindications:
Hypovolemic shock unless fluid resuscitation is well under way.

Precautions:
Tachycardia and an increase in systolic blood pressure are common following administration.
Increases in heart rate of more than 10 percent may induce or exacerbate myocardial ischemia.
Premature ventricular contractions (PVCs) can occur in conjunction with dobutamine administration.
As with any sympathomimetic, blood pressure should be monitored.
Dobutamine may be ineffective when administered to patients taking beta-blockers
Patients taking TCAs are at increased risk of hypertension with Dobutamine administration.

Side Effects:
Nervousness
Headache
Hypertension
Dyspnea
Arrhythmias or Palpations
Chest Pain
Nausea and vomiting

Routes:
IV Pump
Mix 250 mg/250mL NS

DuoNeb

Class: Anticholinergic, Sympathomimetic Pregnancy Class: C

Action:
DuoNeb contains Ipratropium Bromide and Albuterol Sulfate an anticholinergic (parasympatholytic) bronchodilator that is chemically related to atropine. It causes bronchodilation and dries respiratory tract secretions.

Pharmacokinetics:
Onset: Varies
Peak Effects: 1.5–2.0 hours
Duration: 4–6 hours
Half-Life: 1.5–2.0 hours

Indications:
Asthma (pg. 70)
COPD (pg. 73)
Pneumonia & Bronchitis (pg. 77)

Contraindications:
Patients with known hypersensitivity to Albuterol, Proventil, Atrovent or Atropine

Precautions:
Use with cautious for patients with HTN; Coronary artery disease and seizures Monitor BP, Pulse and EKG when administering

Side Effects:
Palpations
Anxiety
Headache
Dizziness
Sweating
Chest pain
Irregular heartbeat

Routes:
Inhalation

Epinephrine 1:1000

Class: Sympathomimetic Pregnancy Class: C

Action:
Increases heart rate and automaticity Increases cardiac contractile force Increases myocardial electrical activity Increases blood pressure Causes bronchodilation

Pharmacokinetics:
Onset: 3–10 minutes (IM)
Peak Effects: 20 minutes (IM)
Duration: 20–30 minutes (IM)
Half-Life: Not applicable

Indications:
STEMI (pg. 42)
Cardiogenic Shock (pg. 50)
ROSC (pg. 56)
Hypotension Shock (pg. 64)
Sepsis (pg. 68)
Bronchiolitis / RSV (pg. 71)
Croup (pg. 74)
Anaphylaxis (pg. 80)
Epi Push Dose Pressor (pg. 134)

Contraindications:
Patients with underlying cardiovascular disease
Hypertension
Patients with tachy-arrhythmias
Pregnancy

Precautions:
Blood pressure, pulse, and electrocardiogram (ECG) must be constantly monitored

Side Effects:
Palpitations and tachycardia
Anxiousness
Headache
Tremor

Routes:
SQ, Inhalation, Drip

Push Dose Mix: 1mg (1:1000) in 100mL NS

Epinephrine 1:10,000

Class: Sympathomimetic Pregnancy Class: C

Action:
Increases heart rate and automaticity Increases cardiac contractile force Increases myocardial electrical activity Increases blood pressure Causes bronchodilation

Pharmacokinetics:
Onset: 3–10 minutes (IM)
Peak Effects: 20 minutes (IM)
Duration: 20–30 minutes (IM)
Half-Life: Not applicable

Indications:
STEMI (pg. 42)
Brady (pg. 43)
Cardiogenic Shock (pg. 50)
H's & T's (pg. 52)
Asystole (pg. 53)
PEA (pg. 54)
VF/Vtach (pg. 55)
ROSC (pg. 56)
Hypotension (pg. 64)
Sepsis (pg. 68)
Anaphylaxis (pg. 80)

Contraindications:
Epinephrine 1:10 000 is for intravenous (IV) or endotracheal use
Should not be used in patients who do not require extensive resuscitative efforts

Precautions:
Should be protected from light
Can be deactivated by alkaline solutions

Side Effects:
Palpitations
Tremulousness

Routes:
IV, IO, ET,

Push Dose Mix: 0.1mg (1:10,000) in 9mL NS flush

Epinephrine Infusion

Class: Sympathomimetic Pregnancy Class: C

Action:
Increases heart rate and automaticity Increases cardiac contractile force Increases myocardial electrical activity Increases blood pressure Causes bronchodilation

Pharmacokinetics:
Onset: 3–10 minutes (IM)
Peak Effects: 20 minutes (IM)
Duration: 20–30 minutes (IM)
Half-Life: Not applicable

Indications:
STEMI (pg. 42)
Bradycardia (pg. 43)
Cardiogenic Shock (pg. 50)
ROSC (pg. 56)
Hypotension (pg. 64)
Sepsis (pg. 68)

Contraindications:
Should not be used in patients who do not require extensive resuscitative efforts

Precautions:
Should be protected from light
Can be deactivated by alkaline solutions

Side Effects:
Palpitations
Anxiety
Tremulousness

Routes:
IV, IO, ET, IN

Mix Epinephrine 1mg of 1:1000 in 100mL NS

Etomidate (Amidate)

Class: Sedative/hypnotic

Pregnancy Class: C

Action:
Creates an ultra-short-acting sedative/hypnotic effect

Pharmacokinetics:
Onset: 10–20 seconds
Peak Effects: < 1 minute
Duration: 3–5 minutes
Half-Life: 30–70 minutes

Indications:
Cardiac Arrest (pg. 51)
MAI (pg. 103)

Contraindications:
Known hypersensitivity to the medication

Precautions:
Marked hypotension
Severe asthma
Severe cardiovascular disease

Side Effects:
Myoclonic skeletal muscle movement
Laryngospasm
Apnea
Trisumus with rapid administration (SLOW PUSH)

Routes:
IV, IM (slow push over 1-2 minutes)

Fentanyl

Class: Narcotic Pregnancy Class: C

Action:
Central nervous system depressant, Decreases sensitivity to pain

Pharmacokinetics:
Onset: Immediate
Peak Effects: 3–5 minutes (IV)
Duration: 30–60 minutes
Half-Life: 6–8 hours

Indications:
Chest Pain (pg. 41)
STEMI (pg. 42)
Pain Management (pg. 102)
Continued Sedation (pg. 104)

Contraindications:
Shock Severe hemorrhage
Head injury
Altered Mental Status

Precautions:
Respiratory depression
Hypotension
Nausea

Side Effects:
Dizziness
Bradycardia
Altered level of consciousness

Routes:
IV, IN, IM, IO

Glucagon

Class: Hormone (antihypoglycemic agent) Pregnancy Class: B

Action:
Causes breakdown of glycogen to glucose Inhibits glycogen synthesis Elevates blood glucose level Increases cardiac contractile force Increases heart rate

Pharmacokinetics:
Onset: 5–20 minutes
Peak Effects: 30 minutes
Duration: 1–2 hours
Half-life: Variable

Indications:
Bradycardia (pg. 43)
Diabetic Emergencies (pg. 62)
Seizure (pg. 67)

Contraindications:
Hypersensitivity to the medication

Precautions:
Effective only if there are sufficient stores of glycogen within the liver
Use with caution in patients with cardiovascular or renal disease
Draw blood for glucose test before administration

Side Effects:
Few in emergency situations

Routes:
IM, IV

Haldol (Haloperidol)

Class: Antipsychotic and neuroleptic Pregnancy Class: C

Action:
Haloperidol is a major tranquilizer of the butyrophenone class that has proved effective in the management of acute psychotic episodes. It has pharmacological properties like those of the phenothiazine class of medications (e.g., chlorpromazine [Thorazine]).

Pharmacokinetics:
Onset: 30–45 minutes
Peak Effects: 10–20 minutes
Duration: Varies
Half-Life: 3–35 hours

Indications:
Nausea and Vomiting (pg. 58)
Behavioral (pg. 60)

Contraindications:
Haloperidol should not be administered in cases in which other medications, especially sedatives, may be present.
It should not be used in the management of dysphoria caused by Talwin because it may promote sedation and anesthesia.
Haloperidol should be used with caution in patients taking antihypertensive medications or lithium, because irreversible brain damage (encephalopathic syndrome) has been reported when these two medications are used together.

Side Effects:
Extrapyramidal symptoms (EPS) Insomnia Restlessness Drowsiness
Seizures Respiratory depression Dry mouth Constipation
Hypotension Tachycardia Prolonged QT/QTc Dystonic reactions
Torsade de pointes Interactions:

Routes:
IV, IM

Ketamine (Ketalar)

Class: Pregnancy Class: not assigned Sedative/hypnotic and analgesic Pregnancy Class: Not assigned

Action:
Causes dissociative state

Pharmacokinetics:
Onset: < 1 minute (IV), < 5 minutes (IM)
Peak Effects: Varies
Duration: 10–15 minutes (IV), 20–30 minutes (IM)
Half-Life: 1–2 hours

Indications:
Cardiac Arrest (pg. 51)
Behavioral (pg. 60)
Seizures (pg. 67)
Asthma (pg. 70)
Pain Management (pg. 102)
MAI (pg. 103)
Continued Sedation (pg. 104)

Contraindications:
Patients with hypersensitivity to the medication Significantly elevated blood pressure

Precautions:
Hallucinations can occur, particularly in emergency
Can increase ICP
Can increase myocardial oxygen demand
Emergency airway and resuscitative equipment and medications must be available

Side Effects:
Hallucinations
Increased skeletal muscle tone

Routes:
IV, IM, IN, Infusion, nebulized

Labetalol (Trandate, Normodyne)

Class: Sympathetic blocker Pregnancy Class: C

Action:
Non-selective beta agonist, blocks alpha 1 receptors inhibiting vasoconstriction.

Pharmacokinetics:
Onset: 2-5 min IV
Peak Effects: 5-15 min IV
Duration: 2-4 hrs IV
Half-Life: 3-8 hrs

Indications:
HTN (pg. 63)
Stroke (pg. 69)
Preeclampsia (pg. 89)

Contraindications:
Bronchial asthma CHF
Heart Block Bradycardia
Cardiogenic Shock

Precautions:
Blood pressure, pulse, and electrocardiogram results must be constantly monitored.
Atropine should be available.

Side Effects:
Bradycardia
Bronchospasm
CHF
Heart Block
Postural Hypotension

Routes:
IV, Infusion

Lasix (Furosemide)

Class: Potent diuretic Pregnancy Class: C

Action:
Inhibits reabsorption of sodium chloride Promotes prompt diuresis Vasodilation

Pharmacokinetics:
Onset: 5–10 minutes (vasodilation), 5–30 minutes (diuresis)
Peak Effects: 30 minutes (vasodilation), 20–60 minutes (diuresis)
Duration: 2 hours (vasodilation), 6 hours (diuresis)
Half-Life: 30 minutes

Indications:
CHF (pg. 72)

Contraindications:
Pregnancy
Dehydration

Precautions:
Should be protected from light Dehydration

Side Effects:
Few in emergency usage

Routes:
IV, IM

Levophed (Norepinephrine)

Class: Sympathomimetic Pregnancy Class: C

Action:
Causes peripheral vasoconstriction

Pharmacokinetics:
Onset: Immediate
Peak Effects: < 1 minute
Duration: 1 – 2 minutes
Half-Life: 3 minutes

Indications:
ROSC (pg. 56)
Hypotension (pg. 64)
Sepsis (pg. 68)

Contraindications:
Hypotensive states due to hypovolemia
Administration prior to fluid administration

Precautions:
Can be deactivated by alkaline solutions
Constant monitoring of blood pressure is essential Extravasation can cause tissue necrosis

Side Effects:
Anxiety
Headache
Hypertension
Palpitations

Routes:
IV pump
Mix 2mg in 250 mL D5W

2% Lidocaine (Xylocaine)

Class: Antiarrhythmic (Class IB) Pregnancy Class: B

Action:
Suppresses ventricular ectopic activity Increases ventricular fibrillation threshold Reduces velocity of electrical impulse through conductive system

Pharmacokinetics:
Onset: < 3 minutes
Peak Effects: 5 – 7 minutes
Duration: 10 – 20 minutes
Half-Life: 1.5 – 2.0 hours

Indications:
MAI (pg. 103)
IO (pg. 122)

Contraindications:
High-degree heart blocks
PVCs in conjunction with bradycardia

Precautions:
Dosage should be reduced by 50 percent in patients older than 70 years of age.

Side Effects:
Anxiety or Drowsiness
Dizziness
Confusion
Widening of QRS
Nausea and vomiting
Convulsions

Routes:
IV, IO

Magnesium Sulfate

Class: Anticonvulsant and antiarrhythmic **Pregnancy Class: D**

Action:
Central nervous system depressant; Anticonvulsant; Antiarrhythmic

Pharmacokinetics:
Onset: Immediate (IV, IO), 1 hour (IM)
Peak Effects: Varies
Duration: 1 hour
Half-Life: Not Applicable

Indications:
Vtach stable (pg. 48)
Vtach unstable (pg. 49)
VFIB (pg. 55)
Asthma (pg. 70)
Preeclampsia (pg. 89)
Preterm Labor (pg. 90)

Contraindications:
Shock Heart block

Precautions:
Caution should be used in patients receiving digitalis, Hypotension
Calcium chloride should be readily available as an antidote if respiratory depression ensues
Use with caution in patients with renal failure

Side Effects:
Flushing
Drowsiness
Respiratory Depression

Routes:
IV, IM, Infusion

ANTIDOTE: Calcium Chloride

Methylprednisone (Solu-Medrol)

Class: Steroid Pregnancy Class: C

Action:
Anti-inflammatory Suppresses immune response (especially in allergic reactions)

Pharmacokinetics:
Onset: Varies
Peak Effects: 4 – 8 days
Duration: 1 – 5 weeks
Half-Life: 3.5 hours

Indications:
Asthma (pg. 70)
COPD (pg. 73)
Allergy Moderate (pg. 79)
Anaphylaxis (pg. 80)

Contraindications:
None in the emergency setting

Precautions:
Must be reconstituted and used promptly
Onset: May be 2–6 hours, and thus the medication should not be expected to be of use in the critical first hour following an anaphylactic reaction

Side Effects:
Gastrointestinal bleeding
Suppression of natural steroids
Prolonged wound healing

Routes:
IV, IM

Metoprolol (Lopressor)

Class: Selective beta-blocker (Class II antiarrhythmic)

Pregnancy Class: C

Action:
Metoprolol is a ß antagonist that blocks both ß1 and ß2 adrenergic receptors. Unlike propranolol, however, metoprolol is selective for ß1 adrenergic receptors. It has minimal, if any, effect on ß2 adrenergic receptors at doses less than 100 mg.

Pharmacokinetics:
Onset: Immediate (IV)
Peak Effects: 20 minutes (IV)
Duration: 5–8 hours
Half-Life: 3–4 hours

Indications:
Chest pain (pg. 41)
STEMI (pg. 42)
Hypertension (pg. 63)

Contraindications:
Heart rate of less than 55 beats per minute, a systolic blood pressure less than 100 mmHg
Congestive heart failure
First-degree heart block with a PR interval greater than 0.24 second (only in ACS patients)
Second-degree heart block (either Mobitz I or Mobitz II), or third-degree block
Metoprolol should not be administered to any patient with a history of asthma or bronchospastic disease in the prehospital setting.

Precautions:
The blood pressure, pulse rate, ECG, and respiratory status should be continuously monitored. Prehospital personnel should be alert for signs and symptoms of congestive heart failure, bradycardia, shock, heart block, or bronchospasm when administering metoprolol.

Side Effects:
Bradycardia
Hypotension
Congestive heart failure
Dyspnea
Wheezing

Routes:
IV

Morphine

Class: Narcotic Pregnancy Class: C

Action:
Central nervous system depressant, Causes peripheral vasodilation Decreases sensitivity to pain

Pharmacokinetics:
Onset: Immediate (IV), 15–30 minutes (IM)
Duration: 2-7 hours
Peak Effects: 20 minutes (IV), 30–60 minutes (IM)
Duration: 1-7 hours

Indications:
Chest Pain (pg. 41)
STEMI (pg. 42)
Asthma (pg. 70)
CHF (pg. 72)
Pre Term Labor (pg. 90)
Pain Management (pg. 102)
Continued Sedation (pg. 104)

Contraindications:
Undiagnosed abdominal pain
Head Injury
History of hypersensitivity to medication
Volume depletion

Precautions:
Respiratory depression
Altered level of consciousness
Hypotension

Side Effects
Dizziness
Nausea

Routes:
IV, IM, IO, Inhalation

Narcan (Naloxone)

Class: Narcotic antagonist

Pregnancy Class: C

Action:
Reverses effects of narcotics

Pharmacokinetics:
Onset: < 2 minutes (IV, IO), 2-10 minutes (IM, ET)
Peak Effects: < 2 minutes, (IV, IO), 2 – 10 minutes (IM, ET)
Duration: 20 – 120 minutes
Half-Life: 30 – 90 minutes

Indications:
H's & T's (pg. 52)
Altered Mental Status (pg. 59)
Overdose (pg. 66)
Seizures (pg. 67)

Contraindications:
Patients with a history of hypersensitivity to medication

Precautions:
May cause withdrawal effects in patients dependent on narcotics
Short acting; should be augmented every 5 minutes

Side Effects:
Projectile vomiting
Severe headache
Confusion
Chest pain, fast or irregular heartbeat
Seizures or convulsions
Violent and agitated behavior

Routes:
IV, IM, IN, endotracheal

Nitroglycerin Spray (Nitrolingual Spray)

Class: Antianginal Pregnancy Class: C

Action:
Smooth muscle relaxant Decreases cardiac work Dilates coronary arteries Dilates systemic arteries

Pharmacokinetics:
Onset: 1 – 3 minutes
Peak Effects: 5 – 10 minutes
Duration: 20 – 30 minutes
Half-Life: 1 – 4 hours

Indications:
Chest pain (pg. 41)
STEMI (pg. 42)
Hypertension (pg. 63)
CHF (pg. 72)

Contraindications:
Hypotension

Precautions:
Constantly monitor vital signs
Syncope can occur

Side Effects:
Dizziness
Hypotension
Headache

Routes:
SL

Nitroglycerin infusion (Nitril)

Class: Nitrate Pregnancy Class: C

Action:
Nitroglycerin is an antianginal/cardiac workload–reducing agent. It appears to reduce myocardial oxygen demand due to a reduction in left ventricular preload and afterload because of venous and arterial dilation (venous vasodilation is more pronounced). Nitroglycerin causes a more efficient redistribution of blood flow within the myocardium.

Pharmacokinetics:
Onset: Immediate
Peak Effects: 1–2 minutes
Duration: 3–5 minutes
Half-Life: 1–4 minutes

Indications:
Chest Pain (pg. 41)
STEMI (pg. 42)
Hypertension (pg. 63)
CHF (pg. 72)

Contraindications:
Nitroglycerin is contraindicated in patients who are hypotensive, who are in shock, or who may have increased intracranial pressure.

Precautions
Nitroglycerin can cause severe hypotension when administered to patients who have recently ingested alcohol. It can cause orthostatic hypotension when used in conjunction with beta-blockers.

Side Effects:
Dizziness
Hypotension
Headache

Routes:
IV Pump

Oral Glucose

Class: Simple Sugar Pregnancy Class: A

Action:
Glucose, also known as dextrose, is a simple (monosaccharide) that is used to increase the level of (glucose)

Indications:
Diabetic Emergencies (pg. 62)

Contraindications:
Unconscious person

Precautions:
Altered mental status

Side Effects:
Nausea

Routes:
PO, Buccal

Oxygen

Class: Gas

Pregnancy Class: A

Action:
Necessary for cellular metabolism

Indications:
Hypoxia

Contraindications:
Non-hypoxic patients

Precautions:
Avoid hyperoxia
Humidify when providing high-flow rates

Side Effects:
Drying of mucous membranes

Routes:
Inhalation

Promethazine Drip (Phenergan)

Class: Phenothiazine antihistamine (H1 antagonist) Pregnancy Class: C

Action:
Mild anticholinergic activity Antiemetic Potentiates actions of analgesics

Pharmacokinetics:
Onset: 5 minutes (IV), 20 minutes (IM) Peak Effects: Varies
Duration: 4 – 6 hours
Half-Life: 10 – 14 days

Indications:
Nausea & Vomiting (pg. 58)
Pain Management (pg. 102)

Contraindications:
Comatose states
Patients who have received many depressants (including alcohol)

Precautions:
Extravasation can cause tissue damage ("Black Box" warning)

Side Effects:
May impair mental and physical ability
Drowsiness

Routes:
IV

Rocuronium Bromide (Zemuron)

Class: Nondepolarizing neuromuscular blocker

Pregnancy Class: B

Action:
Prevents neuromuscular transmission by blocking the effect of acetylcholine Skeletal muscle paralysis

Pharmacokinetics:
Onset: 30 – 60 seconds
Peak Effects: 1 – 3 minutes
Duration: 30 – 60 minutes
Half-Life: 14 – 18 minutes

Indications:
MAI (pg. 103)
Continued Sedation (pg. 104)

Contraindications:
Hypersensitivity to the medication

Precautions:
Underlying cardiovascular disease
Dehydration or electrolyte abnormalities

Side Effects:
Bronchospasm

Routes:
IV

Sodium Bicarbonate

Class: Alkalinizing agent Pregnancy Class: C

Action:
Combines with excessive acids to form a weak volatile acid Increases pH

Pharmacokinetics:
Onset: Immediate
Peak Effects: < 15 minutes
Duration: 1 – 2 hours
Half-Life: Not applicable

Indications:
Hyperkalemia (pg. 47)
H's & T's (pg. 52)
Overdose (pg. 66)

Contraindications:
Alkalotic states

Precautions:
Correct dosage is essential to avoid overcompensation of pH
Can deactivate catecholamines
Can precipitate with calcium
Delivers large sodium load

Side Effects:
Alkalosis

Routes:
IV, IO

Terbutaline (Brethine)

Class: Sympathomimetic Pregnancy Class: B

Action:
Bronchodilator Increases heart rate

Pharmacokinetics:
Onset: < 5 minutes
Peak Effects: 30 – 60 minutes
Duration: 1.5 – 4.0 hours
Half-Life: 3 – 4 hours

Indications:
Asthma (pg. 70)
COPD (pg. 73)
Pre Term Labor (pg. 90)

Contraindications:
Patients with known hypersensitivity to the medication

Precautions:
Blood pressure, pulse, and electrocardiogram (ECG) results must be constantly monitored

Side Effects:
Palpitations
Premature ventricular contractions
Tremors
Headache
Tachycardia
Anxiety

Routes:
SQ, Inhaled

Thiamine (Vitamin B1)

Class: Vitamin

Pregnancy Class: A

Action:
Allows normal breakdown of glucose

Pharmacokinetics:
Onset: Rapid
Peak Effects: Varies
Duration: Varies
Half-Life: Not applicable

Indications:
Altered Mental Status (pg. 59)
Diabetics (pg. 62)

Contraindications:
None in the emergency setting

Precautions:
Rare anaphylactic reactions have been reported Should not be used as part of a “coma cocktail”

Side Effects:
Rare, if any

Routes:
IV, IM, IO

Toradol (Ketorolac)

Class: Non-steroid anti-inflammatory drug (NSAID) Pregnancy Class: C

Action:
Toradol is a nonsteroidal anti-inflammatory medication (NSAID). It has analgesic, anti-inflammatory, and antipyretic effects. Unlike narcotics, which act on the central nervous system, ketorolac is considered a peripherally acting analgesic.

Pharmacokinetics:
Onset: 30 minutes
Peak Effects: 45-60 minutes
Duration: Varies
Half-Life: 4-6 hours

Indications:
Pain Management (pg. 102)

Contraindications:
ACS
Stroke
Trauma with hemorrhage
Severe ASA allergies

Precautions:
Avoid using Toradol with other NSAIDs
Long-term usage increases the incidence of serious GI side effects and renal impairment.
Use with caution in patients with renal insufficiency.

Side Effects:
Edema
Hypertension
Rash, itching
Nausea
Heartburn
Constipation or diarrhea
gastrointestinal hemorrhage
Drowsiness
Dizziness.

Routes:
IV, IM

Tranexamic Acid

Class: Carboxylic Acids Pregnancy Class: A

Action:
Inhibits activation of plasminogen (via binding to the kringle domain), thereby reducing conversion of plasminogen to plasmin (fibrinolysin), an enzyme that degrades fibrin clots, fibrinogen, and other plasma proteins, including the procoagulant factors V and VIII.

Indications:
Traumatic Shock (pg. 16)
Traumatic Brain Injury (pg. 18)
GI Bleed (pg. 57)
Epistaxis (pg. 65)
Vaginal Bleeding (pg. 88)

Contraindications:
None in a hypovolemic trauma setting
No for use in miscarriage

Side Effects:
Headaches
Backaches
Abdominal Pain
Diarrhea
Fatigue
Anemia

Routes:
IM, IV, IO, Topical, Nebulized

Tylenol IV Infusion (Acetaminophen)

Class: Nonnarcotic analgesic, antipyretic Pregnancy Class: B

Action:
Inhibits cyclooxygenase

Pharmacokinetics:
Onset: 10 minutes
Peak Effects: 10 -20 minutes
Duration: 4 – 6 hours
Half-Life: 1 – 4 hours

Indications:
Sepsis (pg. 68)
Blood Protocol (pg. 105)

Contraindications:
Known hypersensitivity to the medication.

Precautions:
Patients with known liver impairment or severe active liver disease

Side Effects:
Minimal within recommended dosage range

Routes:
IV Infusion over 15 minutes

Tylenol (Acetaminophen, Paracetamol)

Class: Nonnarcotic analgesic, antipyretic Pregnancy Class: B

Action:
Inhibits cyclooxygenase

Pharmacokinetics:
Onset: 15-30 minutes
Peak Effects: 30 - 102 minutes
Duration: 3 – 4 hours
Half-Life: 1 – 3 hours

Indications:
Seizure (pg. 67)
RSV (pg. 71)
Croup (pg. 74)

Contraindications:
Known hypersensitivity to the medication.

Precautions:
Use with caution in children < 3 years Patients with known liver disease

Side Effects:
Minimal within recommended dosage range

Routes:
PO, Rectal

Versed (Midazolam)

Class: Tranquilizer (benzodiazepine) Pregnancy Class: D

Action:
Hypnotic, Sedative

Pharmacokinetics:
Onset: 1.5 minutes (IV), 15 minutes (IM)
Peak Effects: 20–60 minutes
Duration: 2 hours (IV), 1–6 hours (IM)
Half-Life: 1–4 hours

Indications:
Traumatic Brain Injury (pg. 18)
Bradycardia (pg. 43)
SVT Unstable (pg. 44)
Vtach Stable (pg. 48)
Vtach Unstable (pg. 49)
Seizure (pg. 67)
Pain Management (pg. 102)
MAI (pg. 103)
Continued Sedation (pg. 104)

Contraindications:
History of hypersensitivity to medication, Narrow-angle glaucoma, Shock

Precautions:
Emergency resuscitative equipment must be available Respiratory depression is more common
Myocardial depression and hypotension

Side Effects:
Drowsiness
Potential for abuse
Tolerance development
Amnesia
Alcohol and barbiturate potentiation
Hypotension
Ataxia
Apnea
Respiratory depression
Sedation

Routes:
IV, IM, IO, IN

Zofran (Ondansetron)

Class: Antiemetic Pregnancy Class: B

Action:
Blocks the serotonin receptors in the CTZ, the stomach, and the small intestines

Pharmacokinetics:
Onset: 10 – 30 minutes
Peak Effects: 1.5 hours
Duration: 8 hours
Half-Life: 3 hours

Indications:
GI Bleed (pg. 57)
Nausea and Vomiting (pg. 58)
Preterm Labor (pg. 90)
Labor (pg. 91)
Pain Management (pg. 102)

Contraindications:
Known hypersensitivity to the medicine

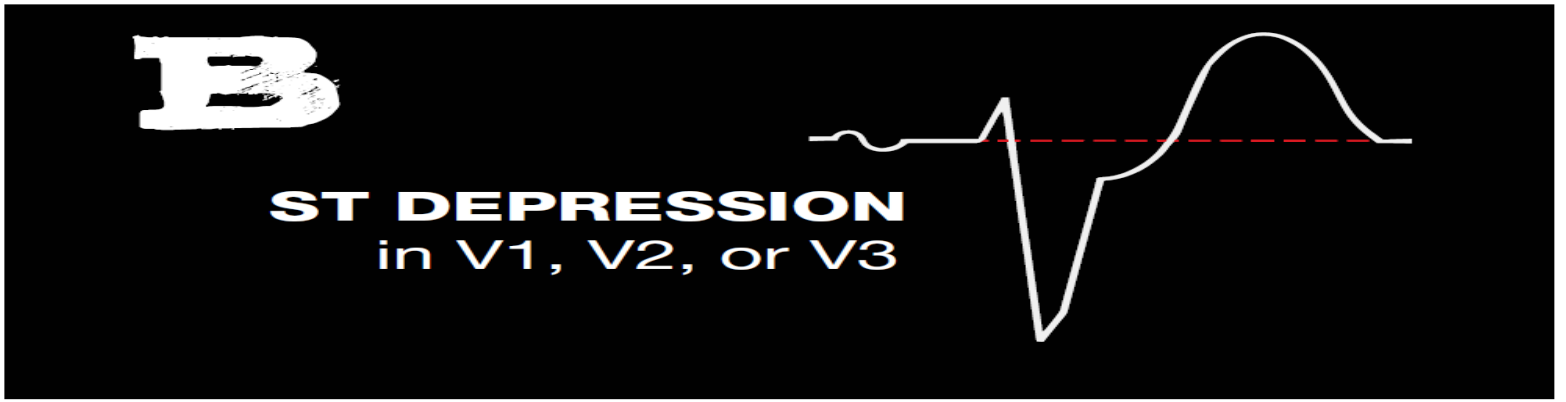
Precautions:
Use with caution in patients taking serotonin blockers

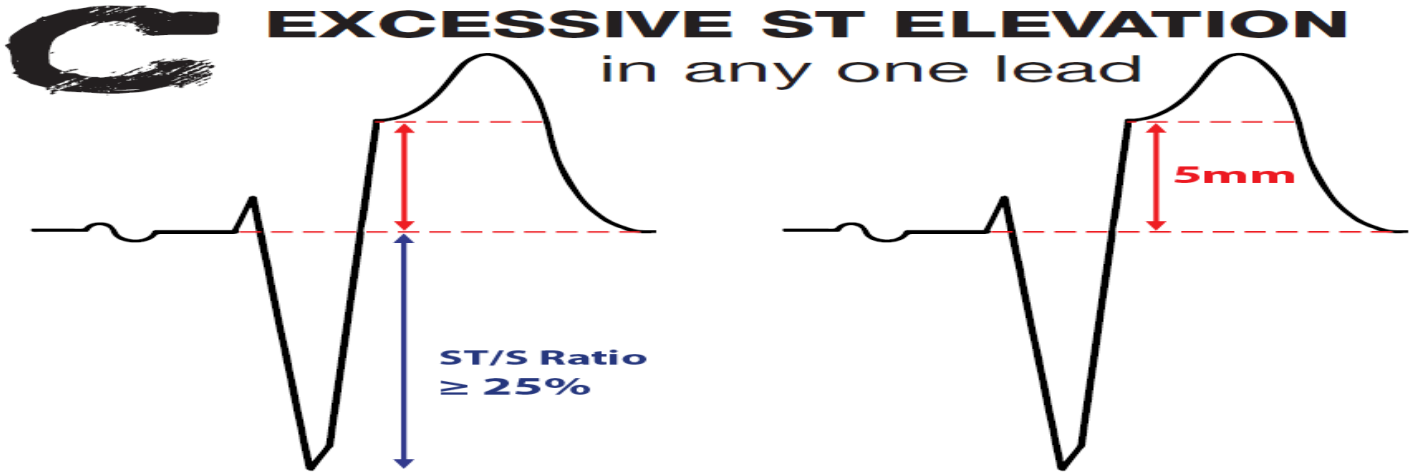
Side Effects:
Headache
Lightheadedness
Dizziness

Routes:
IV, IM, PO, Rectal

Appendix


A
CONCORDANT
ST ELEVATION
in any one lead


B
ST DEPRESSION
in V1, V2, or V3


C
EXCESSIVE ST ELEVATION
in any one lead
ST/S Ratio
≥ 25%
5mm