



Trauma
Medical
Obstetrics
Procedures
Med. Reference



Cooke County EMS

Clinical Guideline

Table of Contents

Page 1

Page #	Guideline Name	Ref. #	Last Update
General			
3	<u>Geographical Responsibility and Status of Personnel</u>	G01	April 15, 2016
4	<u>Introduction</u>	G02	April 15, 2016
5	<u>Initial Survey</u>	G03	April 15, 2016
6	<u>Decision to Attempt Resuscitation</u>	G04	April 15, 2016
7-10	<u>Initial Assessment and Treatment</u>	G05 a,b,c,d	April 15, 2016
11	<u>Volume Resuscitation—Adult</u>	G06	April 15, 2016
12	<u>Volume Resuscitation— Pediatric</u>	G07	April 15, 2016
Trauma			
13	<u>Traumatic Arrest</u>	T01	April 15, 2016
14	<u>Traumatic Shock</u>	T02	April 15, 2016
15	<u>Sucking Chest Wound</u>	T03	April 15, 2016
16 - 17	<u>Traumatic Brain Injury</u>	T04 a,b	April 15, 2016
18	<u>Isolated Musculoskeletal Injury</u>	T05	April 15, 2016
19	<u>Acute Blunt Spinal Cord Injury</u>	T06	April 15, 2016
20	<u>Amputation</u>	T07	April 15, 2016
21	<u>Domestic Violence</u>	T08	
22	<u>Sexual Assault</u>	T09	



Cooke County EMS

Clinical Guideline

Table of Contents

Page 2

Page #	Guideline Name	Ref. #	Last Update
Trauma / Penetrating Injuries			
23	<u>Chest / Abdomen / Back / Proximal Extremities</u>	TPI01	April 15, 2016
24	<u>Neck</u>	TPI02	April 15, 2016
25	<u>Head and face</u>	TPI03	April 15, 2016
26	<u>Isolated Extremity Wounds</u>	TPI04	April 15, 2016
27	<u>Impaled Object</u>	TPI05	April 15, 2016
Trauma / Eye Injuries			
28	<u>Corneal Burns and Abrasions</u>	TEI01	April 15, 2016
29	<u>Chemical</u>	TEI02	April 15, 2016
30	<u>Blunt or Penetrating injuries</u>	TEI03	April 15, 2016
Trauma / Burns			
31 - 32	<u>Chemical</u>	TB01a,b	April 15, 2016
33 - 34	<u>Thermal</u>	TB02 a,b	April 15, 2016
35	<u>Electrical & Electrocutation</u>	TB03	April 15, 2016

	Cooke County EMS	TOC	
	Clinical Guideline - General Geographical and Status of Personnel	G01	Page 3

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 hers 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 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 for them to utilize their skills. Within the operating area of Cooke County, the personnel may utilize their skills, but all must be documented on 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 Administrator, 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.

	Cooke County EMS	<u>TOC</u>	
	Trauma Clinical Guideline - General Introduction	G02	Page 4

The initial assessment and treatment of a trauma patient 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 the trauma patient 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 trauma 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 in order to provide additional information concerning the patient's airway status.

Breathing: Determination of whether or not a trauma 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.

	Cooke County EMS		<u>TOC</u>
	Trauma Clinical Guideline - General Initial Scene Survey	G03	Page 5

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

	Cooke County EMS	<u>TOC</u>	
	Trauma Clinical Guideline - General Decision to Attempt Resuscitation	G04	Page 6

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 to the hospital.

2. The paramedic should be aware of the following facts:

Those persons in VF, PEA, and Asystole can potentially be resuscitated.

That “time down” is an inaccurate parameter of resuscitation, as the patient could have been in bradycardia or simply unconscious for all of that time, yet still perfusing blood to the brain. Additionally, information received from bystanders in regard to time is often inaccurate.

That pupil size and response to light can be inaccurate as medications taken orally or intraocular can affect them. Additionally, 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. “NO TRANSPORT” Decisions to not transport must be approved through MEDICAL CONTROL.

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.

	Cooke County EMS		TOC
	Trauma Clinical Guideline - General	G05a	Page 7
Initial Assessment and Treatment			

Clinical Definition: This guideline establishes priorities in the initial assessment and treatment of trauma patients. The trauma patient must be evaluated and treated in a rapid and orderly fashion in order 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 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 is going to decompensate at any moment.

The only aspects of patient care that, in most cases, would be performed prior to the initiation of patient transport include: Establish and maintain 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

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 bruising, swelling, or crepitus in the neck?
 - c. Is carotid pulse present?
 - d. If no pulse present, begin CPR and immediately refer to *Traumatic Arrest Protocol*.
3. Insert oral or nasopharyngeal airway as indicated.
4. Administer high flow oxygen (100% by face mask or BVM) 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 *Traumatic Brain Injury Protocol*, after completion of the *Initial Trauma Assessment and Treatment Protocol*.
5. Reassess patient frequently including adequacy of ventilations.

Intermediate and Paramedic I:

6. Establish need for in-line endotracheal intubation. Observe C-spine precautions.
7. 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.
8. If intubation is performed, endotracheal tube placement should be assessed and documented using three or more of the

Continued Next Page

	Cooke County EMS	TOC	
	Trauma Clinical Guideline - General	G05b	Page 8
Initial Assessment and Treatment			

8. 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. Continuous wave form Capnography

9. End-tidal CO₂ monitor. If the patient has a decreased level of consciousness, ventilate to maintain an **EtCo₂ of 35–45 mmHg**, otherwise *ventilate at a rate of 12–20 breaths/minute for adults and children at a rate of 20–30 breaths/min for children less than 4 years of age*. If the tube cannot be confirmed in the proper position, it should be removed and the patient re-intubated. When proper placement is confirmed, the tube should be properly secured with tube holder and c-collar and CID to minimize the chances of dislodgment. (If unable to fit patient with c-collar, secure head with CID).

10. 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 assure a competent airway is maintained during the pre-hospital phase of treatment.

BREATHING:

EMT:

Observe chest wall movement for symmetry 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.

Assist or deliver ventilations as required. All patients with a decreased level of consciousness ventilate:

- ≥ 13 y/o – 16 – 18 breaths/min
- ≥ 5 – 12 – 20 – 24 breaths/min
- 0 – 4 y/o – 20 – 30 breaths/min

3. Oxygen per patient

4. If sucking chest wound has been identified, apply dressing as described in *Sucking Chest Wound Protocol*.

Intermediate:

5. 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:

6. If signs of tension pneumothorax are present, refer to the *Needle Chest Decompression Protocol*

Continued Next Page

	Cooke County EMS		TOC
	Trauma Clinical Guideline - General Initial Assessment and Treatment		G05c
			Page 9

CIRCULATION/ BLEEDING:

EMT:

1. Control serious external bleeding by direct pressure, pressure dressings, or tourniquet
2. If not already done, palpate for a pulse. If not present, initiate CPR and proceed to the *Traumatic Arrest Protocol*
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.*
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, also see *Penetrating Injuries Protocol*.
7. Transport pregnant patients with the backboard tilted 30 degrees, laterally.
8. Maintain a high index of suspicion of Abrupto Placenta in all pregnant trauma patients.

Intermediate and Paramedic I:

7. 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 with NS and run wide open if the patient's SBP is less than 90 mmHg systolic. Run IV at TKO rates or at the direction of MEDICAL CONTROL. Attempts to establish IV access are usually made en route. Transport should not be delayed for multiple attempts at initiation of an IV. If long transports are necessary, maximum volumes and flow rates should be determined by MEDICAL CONTROL. Pressurized infusion devices may be used. *If the patient has a SBP < 90 or heart rate > 120, see the Traumatic Shock Protocol.*

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 evidence of head trauma, have suction ready and observe for any seizure activity.
3. If altered level of consciousness, assist or ventilate patient (*if patient will allow*).

≥ 13 y/o	16 – 18 breaths/min
≥ 5 – 12 y/o	20 – 26 breaths/min
0 – 4 y/o	30 – 40 breaths/min

End-tidal CO2 monitor, ventilate to target an ***EtCo2 of 35 – 45 mmHg***

4. If evidence of closed head injury, see *Traumatic Brain Injury Protocol*.

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



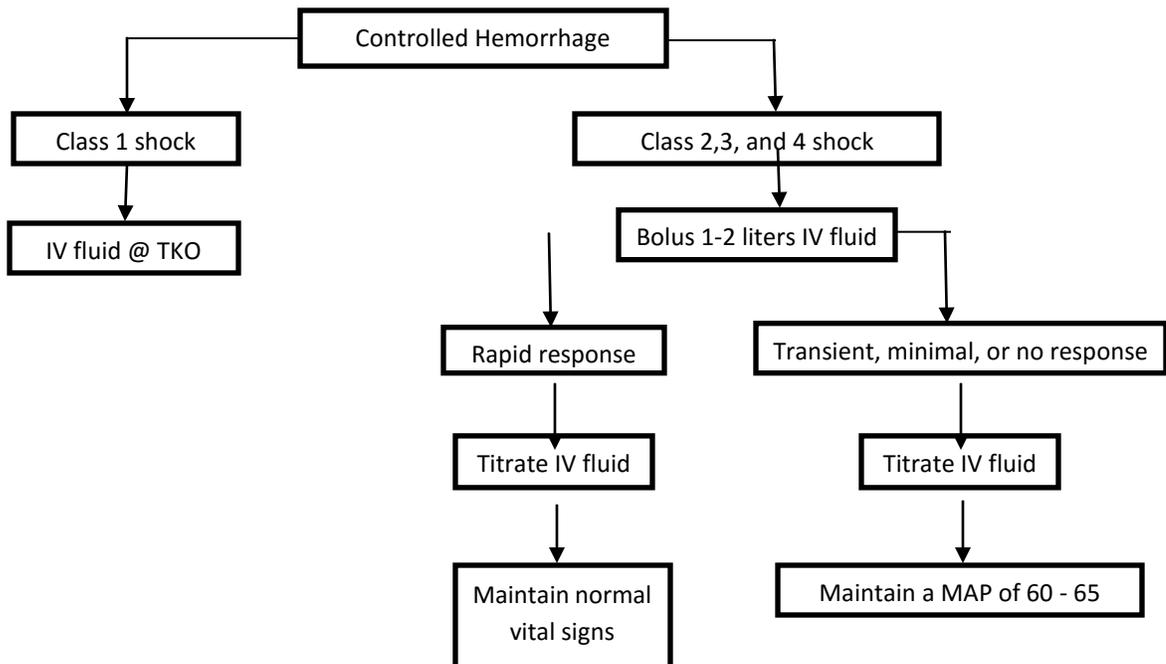
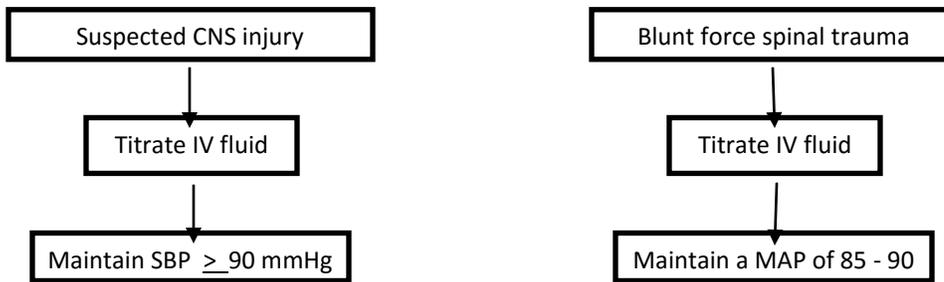
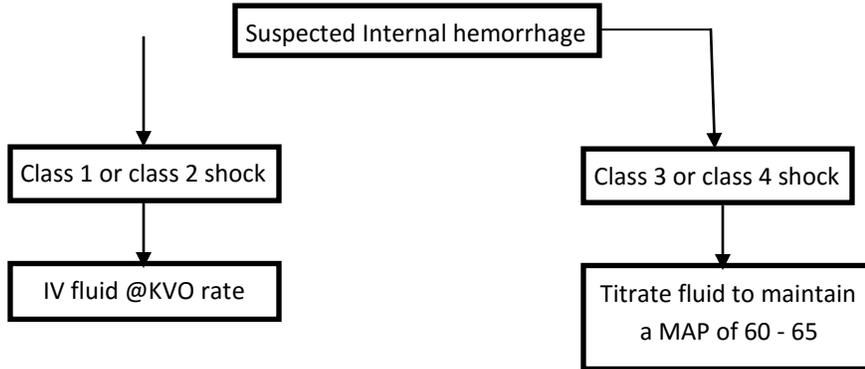
EXPOSE AND EXAMINE:

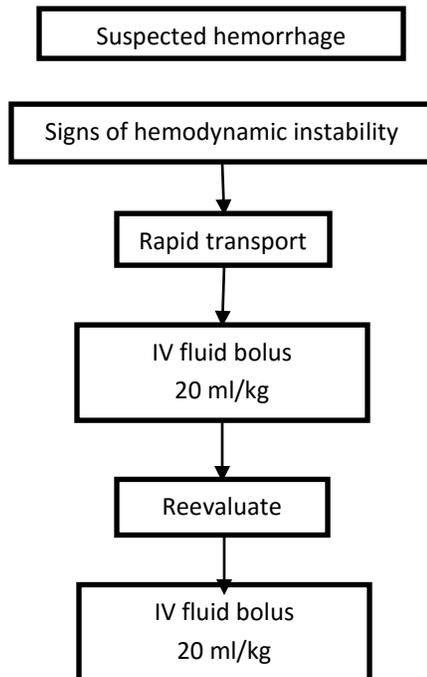
1. Examine for specific injuries – burns, chemicals, drowning, eye, etc. If present, see specific protocol.
2. Assess extremities by inspection and palpation for presence of tenderness, gross deformity, soft tissue swelling, lacerations, or abrasions. Also, note motor, sensory, and vascular integrity 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 patient is log rolled onto backboard, palpate and inspect back for evidence of trauma.
4. Calculate Glasgow Coma Score and Revised Trauma Score.

Glasgow Coma Scale

Revised Trauma Score

		Score			Score
Eye Opening			Respiratory Rate		
Spontaneously	4		10 – 29 =	4	
To verbal Command	3		> 29 =	3	
To Pain	2		6 – 9 =	2	
No Response	1		1 – 5 =	1	
			0 =	0	
Score:			Score:		
Best Verbal Response			Systolic Blood Pressure		
Oriented	5		> 89 =	4	
Confused	4		76 – 89 =	3	
Inappropriate words	3		50 – 75 =	2	
Incomprehensible sounds	2		1 – 49 =	1	
No Response	1		0 =	0	
Score:			Score:		
Best Motor Response			Glasgow Coma Score		
Obeys	6		13 – 15 =	4	
Localized Pain	5		9 – 12 =	3	
Withdraws to pain	4		6 – 8 =	2	
Abnormal Flexion to pain	3		4 – 5 =	1	
Extension to pain	2		3 =	0	
No Response	1		Score:		
Score:			Total		_____
Total		_____			







<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u> Apneic and Pulseless due to trauma</p>	<p><u>Clinical Presentation:</u> Apneic and Pulseless due to trauma</p>
<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Evaluate patient according to <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. Initiate CPR and prepare for rapid transport. Immobilize spine, if appropriate. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 3. Identify correctable causes of hypoxia and initiate treatment. 4. Establish a patent airway using C-spine precautions. Target EtCO₂ at 35 – 45 mmHg, otherwise ventilate at 12 – 20 breaths/minute. 5. Establish vascular access en route, <u>Warmed Normal Saline:</u> <u>Infuse per Volume Resuscitation Protocol</u> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 6. Apply ECG electrodes and determine cardiac rhythm. 7. If rhythm other than PEA, treat cardiac arrhythmia per appropriate protocol during transport. 8. Continue evaluation as per <i>Initial Trauma Assessment and Treatment Protocol</i>. 9. Evaluate for tension pneumothorax. 	<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Evaluate patient according to <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. Initiate CPR and prepare for rapid transport. Immobilize spine, if appropriate. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 3. Identify correctable causes of hypoxia and initiate treatment. 4. Establish a patent airway using C-spine precautions. Target EtCO₂ at 35 – 45 mmHg, otherwise ventilate at 20 – 30 breaths/minute. 5. Establish vascular access en route, <u>Warmed Normal Saline:</u> <u>Infuse per Volume Resuscitation Protocol</u> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 6. Apply ECG electrodes and determine cardiac rhythm. 7. If rhythm other than PEA, treat cardiac arrhythmia per appropriate protocol during transport. 8. Continue evaluation as per <i>Initial Trauma Assessment and Treatment Protocol</i>. 9. Evaluate for tension pneumothorax.



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u> This protocol should be used for the treatment of patients with traumatic shock SBP < 90 & HR > 120, but with a palpable pulse. 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.</p>	<p><u>Clinical Presentation:</u> This protocol should be used for the treatment of patients with traumatic shock SBP < 90 & HR > 120, but with a palpable pulse. 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.</p>
<p><u>Interventions:</u> <u>EMT:</u> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. Prepare for rapid transport.</p> <p><u>Intermediate:</u> 3. Establish a patent airway using C-spine precautions. Target <i>EtCO2 at 35– 45 mmHg</i>, otherwise <i>12 – 20 breaths/minute</i>. 4. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u></p> <p>5. Continue evaluation as per <i>Initial Trauma Assessment and Treatment Protocol</i>.</p> <p><u>Paramedic I:</u> 6. Evaluate the need for <u>Tranexamic acid (TXA)</u> infusion:</p> <p style="padding-left: 40px;"><i>TXA: Loading dose: 1 G in 100ml D5W infuse over 10 min. (660 ml/hr)</i></p> <p style="padding-left: 40px;"><i>TXA maintenance 1 G in 250ml D5W Infuse over 8 hours 33 ml/hr</i></p> <p>7. Apply ECG electrodes and determine cardiac rhythm.</p>	<p><u>Interventions:</u> <u>EMT:</u> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. Prepare for rapid transport.</p> <p><u>Intermediate:</u> 3. Establish a patent airway using C-spine precautions. Target <i>EtCo2 at 35– 45 mmHg</i>, otherwise <i>20– 30 breaths/min for children less than 4 years of age</i>. 4. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u></p> <p>5. Continue evaluation as per <i>Initial Trauma Assessment and Treatment Protocol</i>.</p> <p><u>Paramedic I:</u> 6. Apply ECG electrodes and determine cardiac rhythm.</p>



<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u>	<u>Clinical Presentation:</u>
<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Evaluate patient according to <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. If patient is breathing inadequately, assist ventilations with 100% oxygen through mask 3. Seal the wounds as rapidly as possible, using a Vaseline-coated gauze or Asherman 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 Asherman Chest Seal System immediately afterwards. 4. Watch closely for signs and symptoms of a tension pneumothorax. 5. Prepare for rapid transport. 6. Reevaluate <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 7. If patient's airway is not patent or ventilations are inadequate, secure the airway using C-spine precautions. Target <i>EtCO₂ at 35–45 mmHg</i>, otherwise ventilate at 12–20 breaths/minute. 8. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 9. Apply ECG electrodes and determine cardiac rhythm. 10. Prophylactic intubation, <u>MAI</u>, may be required if airway compromise occurs <p><u>Paramedic II:</u></p> <p>Prophylactic intubation, MAI or <u>RSI</u>, may be required if airway compromise occurs</p>	<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Evaluate patient according to <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. If patient is breathing inadequately, assist ventilations with 100% oxygen through mask 3. Seal the wounds as rapidly as possible, using a Vaseline-coated gauze or Asherman 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 Asherman Chest Seal System immediately afterwards. 4. Watch closely for signs and symptoms of a tension pneumothorax. 5. Prepare for rapid transport. 6. Reevaluate <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 7. If patient's airway is not patent or ventilations are inadequate, secure the airway using C-spine precautions. Target <i>EtCo₂ at 35–45 mmHg</i>, otherwise ventilate at 20-30 breaths/minute. 8. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 9. Apply ECG electrodes and determine cardiac rhythm. 10. Prophylactic intubation, <u>MAI</u>, may be required if airway compromise occurs <p><u>Paramedic II:</u></p> <p>Prophylactic intubation, MAI or <u>RSI</u>, may be required if airway compromise occurs</p>



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u> Any traumatic injury to the face or head which results in an injury to the brain, as manifested by some degree of impairment in mental function. Typically, these patients range from being comatose to wild and combative.</p>	<p><u>Clinical Presentation:</u> Any traumatic injury to the face or head which results in an injury to the brain, as manifested by some degree of impairment in mental function. Typically, these patients range from being comatose to wild and combative.</p>
<p><u>Interventions:</u> <u>EMT:</u></p> <ol style="list-style-type: none"> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. Maintain high index of suspicion for C-spine injury. 2. Provide supplemental oxygen. 3. If patient is hypoventilating, assist ventilations, target <i>EtCo2 at 35 – 40 mmHg</i>, otherwise ventilate at 12 – 20 bpm. 4. Have suction readily available. Be prepared to roll patient, if necessary, should vomiting occur. 4. Monitor EtCO2 5. Monitor Oxygen Saturation 6. Take seizure precautions. 7. Prepare for rapid transport. 8. Elevate head of backboard 15 to 30 degrees. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 9. If the patient's airway is not patent or ventilations are inadequate, secure the airway using C-spine precautions. Target <i>EtCO2 at 35 – 40 mmHg</i>, otherwise ventilate at 12 – 20 breaths/minute. 10. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u> <p style="text-align: center;">Continued next page</p>	<p><u>Interventions:</u> <u>EMT:</u></p> <ol style="list-style-type: none"> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. Maintain high index of suspicion for C-spine injury. 2. Provide supplemental oxygen. 3. If patient is hypoventilating, assist ventilations, target <i>EtCo2 at 35 – 40 mmHg</i>, otherwise ventilate at 25 bpm. 4. Have suction readily available. Be prepared to roll patient, if necessary, should vomiting occur. 4. Monitor EtCO2 5. Monitor Oxygen Saturation 6. Take seizure precautions. 7. Prepare for rapid transport. 8. Elevate head of backboard 15 to 30 degrees. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 9. If the patient's airway is not patent or ventilations are inadequate, secure the airway using C-spine precautions. Target <i>EtCO2 at 35 – 40 mmHg</i>, otherwise ventilate at 25 bpm. 10. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u> <p style="text-align: center;">Continued next page</p>



<i>Adult</i>	<i>Pediatric</i>
<p><u>Interventions (cont.):</u> <u>Paramedic I:</u> 11. Apply ECG electrodes and determine cardiac rhythm. 12. If seizures occur and are prolonged (greater than 15–30 seconds), administer:</p> <p><u>Valium:</u> 2mg SIVP; 2 mg increments, (10mg maximum) Or until seizure stops</p> <p>13. If nausea/vomiting:</p> <p><u>Zofran:</u> 4 mg IVP, IM or ODT; (Max 8 mg Q 4 hours); may repeat in 15 minutes if no improvement</p> <p>14. Prophylactic intubation, <u>MAI</u>, may be required if airway compromise occurs</p> <p><u>Paramedic II:</u> 15. Prophylactic intubation (MAI or <u>RSI</u>) may be required if airway compromise occurs</p>	<p><u>Interventions (cont.):</u> <u>Paramedic I:</u> 11. Apply ECG electrodes and determine cardiac rhythm. 12. If seizures occur and are prolonged (greater than 15 – 30 seconds), administer:</p> <p><u>Valium:</u> 0.1 mg/kg IV/IO/IN, or 0.5 mg/kg RECTAL; may repeat in 5 min</p> <p>13. If nausea / vomiting:</p> <p><u>Zofran:</u></p> <p> 2 –7 years 1 mg IVP/IM or Oral ODT; (Max 2mg Q 4 Hours); may repeat in 15 minutes if no improvement</p> <p> 7 –12 years 2mg IVP, IM or Oral ODT; (Max 4mg Q 4 Hours); may repeat in 15 minutes if no Improvement</p> <p>14. Prophylactic intubation, <u>MAI</u>, may be required if airway compromise occurs</p> <p><u>Paramedic II:</u> 15. Prophylactic intubation (MAI or <u>RSI</u>) may be required if airway compromise occurs</p> <p><u>Contact Medical Control</u></p> <p><u>Zofran:</u></p> <p><2 years .15 mg/kg IVP or Oral ODT; may repeat in 15 minutes if no improvement</p>



<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u>	<u>Clinical Presentation:</u>
<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. Hemorrhage control 3. Oxygen per patient 4. If the patient c-spine cannot be cleared utilizing the criteria in the <i>Spinal Immobilization Clearance Guideline</i> then FULL C-SPINE PRECAUTIONS, INCLUDING C-COLLAR AND FULL BODY SPINAL RESTRICTION DEVICE must be utilized. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 5. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 6. ECG 7. Consider <u>Pain Management</u> 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, 1 attempt, then splint. 	<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. Hemorrhage control 3. Oxygen per patient 4. If the patient c-spine cannot be cleared utilizing the criteria in the <i>Spinal Immobilization Clearance Guideline</i> then FULL C-SPINE PRECAUTIONS, INCLUDING C-COLLAR AND FULL BODY SPINAL RESTRICTION DEVICE must be utilized. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 5. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 6. ECG 7. Consider <u>Pain Management</u> 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, 1 attempt, then splint.



<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u>	<u>Clinical Presentation:</u>
<p><u>Interventions:</u> <u>EMT:</u> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. Immobilize and stabilize spine. 3. Prepare for rapid transport.</p> <p><u>Intermediate:</u> 4. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u></p> <p><u>Paramedic I:</u> 5. If patient's airway is not patent or ventilations are inadequate, secure the airway using C-spine precautions. Target <i>EtCO₂ at 35 – 45 mmHg</i>, otherwise <i>ventilate at 12 – 20 bpm</i>. 6. Apply ECG electrodes and determine cardiac rhythm, treat per arrhythmia protocol if indicated. 7. Continue evaluation as per the <i>Initial Trauma Assessment and Treatment Protocol</i>, with frequent neurologic assessments. 8. Prophylactic intubation (<u>MAI</u>) may be required if airway compromise occurs.</p> <p><u>Paramedic II:</u> 9. Prophylactic intubation (<u>MAI/RSI</u>) may be required if airway compromise occurs.</p>	<p><u>Interventions:</u> <u>EMT:</u> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. Immobilize and stabilize spine. 3. Prepare for rapid transport.</p> <p><u>Intermediate:</u> 4. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u></p> <p><u>Paramedic I:</u> 5. If patient's airway is not patent or ventilations are inadequate, secure the airway using C-spine precautions. Target <i>EtCO₂ at 35 – 45 mmHg</i>, otherwise <i>ventilate at 20 – 30 bpm</i>. 6. Apply ECG electrodes and determine cardiac rhythm, treat per arrhythmia protocol if indicated. 7. Continue evaluation as per the <i>Initial Trauma Assessment and Treatment Protocol</i>, with frequent neurologic assessments. 8. Prophylactic intubation (<u>MAI</u>) may be required if airway compromise occurs.</p> <p><u>Paramedic II:</u> 9. Prophylactic intubation (<u>MAI/RSI</u>) may be required if airway compromise occurs.</p>



<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u>	<u>Clinical Presentation:</u>
<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 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 amputated part in moistened saline gauze and place in plastic bag or container. <u>Seal</u> the plastic tightly, so fluid cannot come in contact with the amputated part. Place sealed container in iced solution of water or saline. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 5. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 6. Apply ECG electrodes and determine cardiac rhythm. 7. Consider Pain Management; refer to the <u>Pain Management Protocol</u>. 	<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 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 amputated part in moistened saline gauze and place in plastic bag or container. <u>Seal</u> the plastic tightly, so fluid cannot come in contact with the amputated part. Place sealed container in iced solution of water or saline. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 5. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 6. Apply ECG electrodes and determine cardiac rhythm. 7. Consider Pain Management; refer to the <u>Pain Management Protocol</u>.



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



Sexual Assault

<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u>	<u>Clinical Presentation:</u>
<p><u>Interventions:</u> <u>EMT:</u> <u>Interventions:</u> <u>EMT:</u></p> <ol style="list-style-type: none"> 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, <u>discourage</u> them from taking a shower, bath or douche, brush teeth or changing their clothing. <p><i>Arrangements may need to be made for additional clothing that the patient can wear home.</i></p> <p>Patients 16 years of age and older can be seen by a SANE nurse at NTMC</p> <p>Patients less than 16 years of age must be transported to DRMC</p>	<u>Interventions:</u>



Adult	Pediatric
<p><u>Clinical Presentation:</u> Any injury in which there is evidence for penetration of the skin by an object that could result in injury to underlying structures. <i>Examples</i> include gunshot wounds, stab wounds, ice pick wounds, impaled objects, sucking chest wounds, etc. Other protocols may apply in cases of penetrating injuries, such as traumatic shock and traumatic arrest. Refer to all of the appropriate protocols that apply.</p>	<p><u>Clinical Presentation:</u> Any injury in which there is evidence for penetration of the skin by an object that could result in injury to underlying structures. <i>Examples</i> include gunshot wounds, stab wounds, ice pick wounds, impaled objects, sucking chest wounds, etc. Other protocols may apply in cases of penetrating injuries, such as traumatic shock and traumatic arrest. Refer to all of the appropriate protocols that apply.</p>
<p><u>Interventions:</u> <u>EMT:</u></p> <ol style="list-style-type: none"> 1. Evaluate patient according to <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. Prepare for rapid transport, even if vital signs are stable. 3. If impaled object - do not remove; refer to <i>Impaled Object Protocol</i>. 4. Treat open chest wounds according to guidelines for sucking chest wounds; refer to <i>Sucking Chest Wounds Protocol</i> 5. Treat evisceration of abdominal contents by covering tissue with saline-moistened gauze sponges or sterile towels. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 5. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 7. Apply ECG electrodes and determine cardiac rhythm. 	<p><u>Interventions:</u> <u>EMT:</u></p> <ol style="list-style-type: none"> 1. Evaluate patient according to <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. Prepare for rapid transport, even if vital signs are stable. 3. If impaled object - do not remove; refer to <i>Impaled Object Protocol</i>. 4. Treat open chest wounds according to guidelines for sucking chest wounds; refer to <i>Sucking Chest Wounds Protocol</i> 5. Treat evisceration of abdominal contents by covering tissue with saline-moistened gauze sponges or sterile towels. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 6. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 7. Apply ECG electrodes and determine cardiac rhythm.



Neck

<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u> Any injury in which there is evidence for penetration of the skin by an object that could result in injury to underlying structures.</p>	<p><u>Clinical Presentation:</u> Any injury in which there is evidence for penetration of the skin by an object that could result in injury to underlying structures.</p>
<p><u>Interventions:</u> <u>EMT:</u></p> <ol style="list-style-type: none"> Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. Maintain high index of suspicion for C-spine injury, tracheal injury, blood vessel injury, and lung injury. Prepare for rapid transport, even if vital signs are stable. If impaled object - do not remove; refer to <i>Impaled Object Protocol</i>. Monitor closely for signs of soft tissue swelling in the neck that could lead to airway obstruction. Have suction set up and ready to clear airway of blood or secretions. Observe closely for signs of a tension pneumothorax. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> If patient's airway is not patent, secure the airway using C-spine precautions. Target <i>EtCO₂ at 35 – 45 mmHg</i>, otherwise <i>ventilate at 12 – 20 breaths/minute</i>. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> Apply ECG electrodes and determine cardiac rhythm. Prophylactic intubation (<u>MAI</u>) may be required if airway compromise from neck swelling occurs. <p><u>Paramedic II:</u></p> <ol style="list-style-type: none"> Prophylactic intubation (MAI or <u>RSI</u>) may be required if airway compromise from neck swelling occurs. 	<p><u>Interventions:</u> <u>EMT:</u></p> <ol style="list-style-type: none"> Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. Maintain high index of suspicion for C-spine injury, tracheal injury, blood vessel injury, and lung injury. Prepare for rapid transport, even if vital signs are stable. If impaled object - do not remove; refer to <i>Impaled Object Protocol</i>. Monitor closely for signs of soft tissue swelling in the neck that could lead to airway obstruction. Have suction set up and ready to clear airway of blood or secretions. Observe closely for signs of a tension pneumothorax. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> If patient's airway is not patent, secure the airway using C-spine precautions. Target <i>EtCO₂ at 35– 45 mmHg</i>, otherwise <i>ventilate at 20 – 30 breaths/minute</i>. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> Apply ECG electrodes and determine cardiac rhythm. Prophylactic intubation (<u>MAI</u>) may be required if airway compromise from neck swelling occurs. <p><u>Paramedic II:</u></p> <ol style="list-style-type: none"> Prophylactic intubation (MAI or <u>RSI</u>) may be required if airway compromise from neck swelling occurs.



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u> Any injury in which there is evidence of penetration of the skin by an object that could result in injury to underlying structures.</p>	<p><u>Clinical Presentation:</u> Any injury in which there is evidence of penetration of the skin by an object that could result in injury to underlying structures.</p>
<p><u>Interventions:</u> <u>EMT:</u> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 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 <i>Impaled Object Protocol</i>. 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!</p> <p><u>Intermediate:</u> 6. If patient's airway is not patent, secure the airway using C-spine precautions. Target <i>EtCO2 at 35 – 45 mmHg</i>, otherwise ventilate at 12 – 20 breaths/minute. 7. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u></p> <p><u>Paramedic I:</u> 8. Apply ECG electrodes and determine cardiac rhythm. 9. Prophylactic intubation (<u>MAI</u>) may be required if airway compromise occurs.</p> <p><u>Paramedic II:</u> 10. Prophylactic intubation (MAI or <u>RSI</u>) may be required if airway compromise occurs.</p>	<p><u>Interventions:</u> <u>EMT:</u> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 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 <i>Impaled Object Protocol</i>. 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!</p> <p><u>Intermediate:</u> 6. 6. If patient's airway is not patent, secure the airway using C-spine precautions. Target <i>EtCO2 at 35 – 45 mmHg</i>, otherwise ventilate at 20 – 30 breaths/min for children less than 4 years of age. 7. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u></p> <p><u>Paramedic I:</u> 8. Apply ECG electrodes and determine cardiac rhythm. 9. Prophylactic intubation (<u>MAI</u>) may be required if airway compromise occurs.</p> <p><u>Paramedic II:</u> 10. Prophylactic intubation (MAI or <u>RSI</u>) may be required if airway compromise occurs.</p>



Isolated Extremity Wounds

<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u> <i>Isolated Extremity Wounds</i></p>	<p><u>Clinical Presentation:</u> <i>Isolated Extremity Wounds</i></p>
<p><u>Interventions:</u> <u>EMT:</u> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. Check neurovascular status distal to wound (presence of pulse, feeling, and movement). 2. If impaled object – do not remove; refer to <i>Impaled Object Protocol</i>. 3. Control external bleeding with direct pressure, pressure dressings, or tourniquet. 4. Splint affected extremity. 5. Prepare for rapid transport</p> <p><u>Intermediate:</u> 6. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation</u> <u>Protocol</u></p> <p><u>Paramedic I:</u> 7. Apply ECG electrodes and determine cardiac rhythm. 8. <u>Consider Pain Management</u></p>	<p><u>Interventions:</u> <u>EMT:</u> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. Check neurovascular status distal to wound (presence of pulse, feeling, and movement). 2. If impaled object – do not remove; refer to <i>Impaled Object Protocol</i>. 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.</p> <p><u>Intermediate:</u> 6. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation</u> <u>Protocol</u></p> <p><u>Paramedic I:</u> 7. Apply ECG electrodes and determine cardiac rhythm. 8. <u>Consider Pain Management Protocol.</u></p>



Impaled Object

<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u>	<u>Clinical Presentation:</u>
<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <p>1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. In general, do not remove impaled object. If impaled object is causing airway compromise resulting in respiratory distress, and this distress cannot be corrected without removal of the foreign body, contact MEDICAL CONTROL immediately for further orders.</p> <p>2. Stabilize the impaled object so that it does not move around and cause more internal injury.</p> <p>3. Impaled object to the torso (chest, abdomen, back, lower neck, or proximal extremities) should be considered a potentially life-threatening injury.</p> <p><u>Intermediate:</u></p> <p>7. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u></p> <p><u>Paramedic I:</u></p> <p>8. Apply ECG electrodes and determine cardiac rhythm.</p> <p>9. Consider <u>Pain Management Protocol</u></p>	<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <p>1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. In general, do not remove impaled object. If impaled object is causing airway compromise resulting in respiratory distress, and this distress cannot be corrected without removal of the foreign body, contact MEDICAL CONTROL immediately for further orders.</p> <p>2. Stabilize the impaled object so that it does not move around and cause more internal injury.</p> <p>3. Impaled object to the torso (chest, abdomen, back, lower neck, or proximal extremities) should be considered a potentially life-threatening injury.</p> <p><u>Intermediate:</u></p> <p>7. Establish vascular access en route, <u>Warmed Normal Saline.</u> <u>Infuse per Volume Resuscitation Protocol</u></p> <p><u>Paramedic I:</u></p> <p>8. Apply ECG electrodes and determine cardiac rhythm.</p> <p>9. <u>Consider Pain Management Protocol</u></p>



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u> 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.</p>	<p><u>Clinical Presentation:</u> 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.</p>
<p><u>Interventions:</u> <u>EMT:</u></p> <ol style="list-style-type: none"> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. Lie patient down and have them close both eyes. 3. Bandage as necessary. <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 4. Transport patient. 	<p><u>Interventions:</u></p> <ol style="list-style-type: none"> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. Lie patient down and have them close both eyes. 3. Bandage as necessary. <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 4. Transport patient.



Cooke County EMS

TOC

Clinical Guideline - Trauma / Eye Injuries

TEI02

Page 29

Chemical

<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u>	<u>Clinical Presentation:</u>
<u>Interventions:</u> <u>EMT:</u> <ol style="list-style-type: none"> Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. Flush the affected eye(s) with copious amounts of water or Normal Saline, 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. Transport patient. 	<u>Interventions:</u> <u>EMT:</u> <ol style="list-style-type: none"> Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. Flush the affected eye(s) with copious amounts of water or Normal Saline, 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. Transport patient.



<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u>	<u>Clinical Presentation:</u>
<u>Interventions:</u> <u>EMT:</u> <ol style="list-style-type: none"> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. Have the patient lie 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) 8. Transport the patient. 	<u>Interventions:</u> <u>EMT:</u> <ol style="list-style-type: none"> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 2. Have the patient lie 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) 8. Transport the patient.



Chemical

<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u>	<u>Clinical Presentation:</u>
<p><u>Interventions:</u> <u>EMT</u> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 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 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) and Medical Control for instructions on specific chemicals. 5. Splint any fractures or deformities as required.</p> <p><u>Intermediate:</u> 6. Establish vascular access, IV/IO, during transport of warmed Normal Saline. Infuse using the formula below if 2nd and 3rd degree burns account for > 10% of TBSA: Run IV (mL/h) at rate equal to $(\frac{1}{4}) \times (\text{Weight in kg}) \times (\% \text{ BSA})$.</p> <p style="text-align: center;">Continued next page</p>	<p><u>Interventions:</u> <u>EMT:</u> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i>. 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 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) and Medical Control for instructions on specific chemicals. 5. Splint any fractures or deformities as required.</p> <p><u>Intermediate:</u> 6. Establish vascular access, IV/IO, during transport of warmed Normal Saline. Infuse using the formula below if 2nd and 3rd degree burns account for > 10% of TBSA: Run IV (mL/h) at rate equal to $(\frac{1}{4}) \times (\text{Weight in kg}) \times (\% \text{ BSA})$.</p> <p style="text-align: center;">Continued next page</p>



Thermal

<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u>	<u>Clinical Presentation:</u>
<u>Interventions:</u> <u>EMT:</u> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i> . Look closely for any evidence of inhalation injury (hoarseness, stridor, sooty sputum, facial burns, and singed facial hair). If present, provide supplemental oxygen, preferably humidified. 2. Prepare for air transport, if significant burn or inhalation injury. 3. Remove any jewelry, belts, shoes, etc. from areas of burns as these objects may retain heat and increase the burn; also swelling of burned areas may make subsequent removal difficult. In addition, remove any burned or singed clothing that is not stuck to the underlying skin of the patient. 4. Assess 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. 5. Perform local burn care as follows: a. Do not apply ice to burned area. b. Do not apply ointments or solutions to burns. c. Do not attempt to open blisters. d. Small burns (<10% of BSA): If burn occurred less than 15 minutes prior to your arrival, cover burn with sterile towels or gauze sponges soaked with saline. e. Large burns (>10% BSA): Cover large burns with dry, sterile, or clean sheets. Do not use wet dressings since they may cause hypothermia on large burns. Cover patients who have large burns with additional sterile or clean sheets or blankets to prevent loss of body heat. 6. Treat any associated injuries (bandage and splint). 7. If eyes are affected, refer to <i>Eye Injury Protocol</i> . <p style="text-align: center;"><u>Continued next page</u></p>	<u>Interventions:</u> <u>EMT:</u> 1. Evaluate patient according to the <i>Initial Trauma Assessment and Treatment Protocol</i> . Look closely for any evidence of inhalation injury (hoarseness, stridor, sooty sputum, facial burns, and singed facial hair). If present, provide supplemental oxygen, preferably humidified. 2. Prepare for air transport, if significant burn or inhalation injury. 3. Remove any jewelry, belts, shoes, etc. from areas of burns as these objects may retain heat and increase the burn; also swelling of burned areas may make subsequent removal difficult. In addition, remove any burned or singed clothing that is not stuck to the underlying skin of the patient. 4. Assess 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. 5. Perform local burn care as follows: a. Do not apply ice to burned area. b. Do not apply ointments or solutions to burns. c. Do not attempt to open blisters. d. Small burns (<10% of BSA): If burn occurred less than 15 minutes prior to your arrival, cover burn with sterile towels or gauze sponges soaked with saline. e. Large burns (>10% BSA): Cover large burns with dry, sterile, or clean sheets. Do not use wet dressings since they may cause hypothermia on large burns. Cover patients who have large burns with additional sterile or clean sheets or blankets to prevent loss of body heat. 6. Treat any associated injuries (bandage and splint). 7. If eyes are affected, refer to <i>Eye Injury Protocol</i> . <p style="text-align: center;"><u>Continued next page</u></p>



Adult	Pediatric
<u>Clinical Presentation:</u>	<u>Clinical Presentation:</u>
<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> Evaluate patient according to <i>Initial Trauma Assessment and Treatment Protocol</i>. Cover entrance and/or exit wounds with dry sterile dressings. Splint any fractures or deformities as required. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> Establish vascular access, IV/IO, during transport of warmed Normal Saline. If patient exhibits signs of shock. Infuse using the formula below <p>Run IV (mL/h) at rate equal to $(1/4) \times (\text{Weight in kg}) \times (\% \text{ BSA})$.</p> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> Apply cardiac monitor and determine rhythm. Refer to appropriate arrhythmia protocol as required. Consider Pain Management: <ul style="list-style-type: none"> <u>Morphine:</u> 10 mg SIVP (Max Dose 40 mg) AND <u>Valium:</u> 10 mg SIVP (Max Dose 20 mg) <p>May be repeated only if SBP is maintained >90 mmHg</p>	<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> Evaluate patient according to <i>Initial Trauma Assessment and Treatment Protocol</i>. Cover entrance and/or exit wounds with dry sterile dressings. Splint any fractures or deformities as required. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> Establish vascular access, IV/IO, during transport of warmed Normal Saline. If patient exhibits signs of shock Infuse using the formula below. <p>Run IV (mL/h) at rate equal to $(1/4) \times (\text{Weight in kg}) \times (\% \text{ BSA})$.</p> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> Apply cardiac monitor and determine rhythm. Refer to appropriate arrhythmia protocol as required. Consider Pain Management: <ul style="list-style-type: none"> <u>Morphine:</u> < 2 years: 0.1mg/kg SIVP Q 5 minutes (MAX of 10 mg) AND <u>Valium:</u> 0.1 mg/kg SIVP (MAX of .5mg/kg) <p>May be repeated only if SBP is maintained >90 mmHg</p>



Cooke County EMS

Clinical Guideline -

Table of Contents - Cardiac

Page 1

Page #	Guideline Name	Ref. #	Last Update
5-6	<u>Acute Coronary Syndrome</u>	C01a,b	April 15, 2016
7-8	<u>STEMI</u>	C02a,b	April 15, 2016
9	<u>Bradycardia</u>	C03	April 15, 2016
10	<u>SVT Stable</u>	C04	April 15, 2016
11	<u>SVT Unstable</u>	C05	April 15, 2016
12	<u>Atrial Fibrillation</u>	C06	April 15, 2016
13	<u>Ventricular Tachycardia Stable</u>	C07	April 15, 2016
14	<u>Ventricular Tachycardia Unstable</u>	C08	April 15, 2016
15	<u>Cardiogenic Shock</u>	C09	April 15, 2016
16	<u>Cardiac Arrest</u>	C10	April 15, 2016
17	<u>Asystole</u>	C11	April 15, 2016
18	<u>Pulseless Electrical Activity</u>	C12	April 15, 2016
19	<u>Ventricular Fibrillation and Pulseless Ventricular Tachycardia</u>	C13	April 15, 2016
20	<u>Return of Spontaneous Circulation (ROSC)</u>	C14	April 15, 2016
21-22	<u>Induced Hypothermia</u>	C15a,b	April 15, 2016



Cooke County EMS

Clinical Guideline -

Table of Contents - Medical

Page 2

Page #	Guideline Name	Ref. #	Last Update
23	<u>Abdominal Pain</u>	M01	April 15, 2016
24	<u>Altered Mental Status</u>	M02	April 15, 2016
25	<u>Behavioral</u>	M03	April 15, 2016
26	<u>Dehydration</u>	M04	April 15, 2016
27	<u>Diabetic Emergencies</u>	M05	April 15, 2016
28	<u>Hypertensive Crisis</u>	M06	April 15, 2016
29	<u>Hypotension / Shock Unexplained</u>	M07	April 15, 2016
30	<u>Overdose</u>	M08	April 15, 2016
31	<u>Seizure</u>	M09	April 15, 2016
32	<u>Sepsis</u>	M10	April 15, 2016
33	<u>Stroke</u>	M11	April 15, 2016



Cooke County EMS

Clinical Guideline -

Table of Contents - Respiratory

Page 3

Page #	Guideline Name	Ref. #	Last Update
34	<u>Asthma</u>	R01	April 15, 2016
35	<u>Bronchiolitis</u>	R02	April 15, 2016
36	<u>Congested Heart Failure/Pulmonary Edema</u>	R03	April 15, 2016
37	<u>Chronic Obstructive Pulmonary Disease</u>	R04	April 15, 2016
38	<u>Croup</u>	R05	April 15, 2016
39	<u>Epiglottitis</u>	R06	April 15, 2016
40	<u>Obstructed Airway</u>	R07	April 15, 2016
41	<u>Pneumonia</u>	R08	April 15, 2016



Cooke County EMS

Clinical Guideline -

Table of Contents - Environmental

Page 4

Page #	Guideline Name	Ref. #	Last Update
42	<u>Allergic Reaction (Mild)</u>	E01	April 15, 2016
43	<u>Allergic Reaction (Moderate)</u>	E02	April 15, 2016
44	<u>Allergic Reaction (Severe) Anaphylaxis</u>	E03	April 15, 2016
45	<u>Heat Cramps/Exhaustion</u>	E04	April 15, 2016
46	<u>Heat Stroke</u>	E05	April 15, 2016
47	<u>Hypothermia</u>	E06	April 15, 2016
48	<u>Near Drowning</u>	E07	April 15, 2016
49	<u>Snake Bite</u>	E08	April 15, 2016



Adult

Clinical Presentation:

Chest, back, neck, jaw pain indicative of myocardial ischemia, dyspnea, diaphoresis, syncope, and cyanosis with nausea, vomiting and dizziness.

Interventions:

EMT:

- 1. Assess and treat ABC's
- 2. VS, including SpO₂ and EtCO₂
- 3. O₂ per pt

4. ASA 324 mg PO

NOTE: If the patient has taken 325 mg within the last twelve (12) hours, do not give more ASA

Intermediate:

- 5. Establish vascular access

Paramedic I:

- 6. 15 Lead EKG ST elevation in two or more contiguous leads with reciprocal changes or a new onset LBBB move to **STEMI** protocol
Serial EKGs to identify trends.

**Symptoms with a TIMI Score of 5 or greater
Transport to the closest hospital with a CARDIAC CATH LAB.**

7. Nitroglycerin: 0.4 mg SL; repeat every 5 minutes x 3 doses
****Nitrates are given for venous dilation not for Analgesia****

- 8. If hypotensive (SBP < 90)

Normal Saline 250 – 500 ml Bolus

- 9. If patient is anxious may consider:

Ativan: 1 – 2 mg SIVP

OR

Valium: 2 – 10 mg

TIMI Score	
Age 65-74	2
Age 75 or greater	3
DM/HTN or angina	1
SBP < 100	3
HR > 100	2
Weight < 67kg	1

Continued on next page



Adult

Interventions:

Paramedic I

12. For Vasodilation/Pain consider:

Morphine: **2–10mg IVP; repeat @ 2mg increments every 5 min (Max dose of 10mg)**

13. Pain Management

Fentanyl: **25 – 50 mcg IVP; repeat @ 25 mcg increments every 5 minutes (Max 100 mcg)**

14. For Nausea and/or vomiting

Zofran: **4mg IVP, IM or Oral ODT (Max 8mg; every 4 hours)**

OR

Promethazine: **12.5mg - 25mg (start with lowest dose) IVP; 25 IM**

15. Cardiac Chest Pain

Metoprolol: **5 mg SIVP; repeat every 5 minutes (Max dose 15mg)
*Hold if SBP <100 and/or HR <55***

OR

Nitro Drip: **2 – 20 mcg/min; *Maintain Systolic >90 mmHg; titrate to effect*
MUST USE IV PUMP (Drip Chart)**

Contact Medical Control

If hypotensive:

Dopamine: **5 - 20 mcg/kg/min to raise BP > 100 systolic; titrated to effect
MUST USE IV PUMP**

OR

Dobutamine: **2 – 20 mcg/kg/min
MUST USE IV PUMP**



Adult

Interventions:

Paramedic I:

Cardiac Chest Pain

Metoprolol:

**5 mg SIVP; repeat every 5 minutes (Max 15 mg)
Hold if SBP <100 and/or HR <55**

OR

Nitro Drip:

**2—20 mcg/min; *Maintain Systolic >90 mmHg*; titrate to effect
Max 20 mcg; MUST USE IV PUMP (Drip Chart)**

Contact Medical Control:

If hypotensive

Dobutamine:

**2 – 20 mcg/kg/min IVPB
MUST USE IV PUMP**

Dopamine:

**5 - 20 mcg/kg/min to raise BP >100 systolic; titrate to effect
MUST USE IV PUMP**



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u></p> <p>HR < 60 with one or more of the following: SBP < 90, PVC's, altered LOC, chest pain and dyspnea</p>	<p><u>Clinical Presentation:</u></p> <p>Up to one year with ventricular rate < 80. One to eight years with ventricular rate < 60.</p>
<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Assess and treat ABC's 2. VS, including SpO2 3. Oxygen per patient <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 4. Establish vascular access <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 5. EKG, 15-lead <p>6. <u>Atropine:</u> 1.0 mg Rapid IVP; repeat every 3–5 min to Max 0.04 mg/kg or 3 mg</p> <p>7. If you have refractory bradycardia and the patient is on a Beta Blocker then: <u>Glucagon:</u> 1 mg IV or IM every 2 min. (max. dose 5 mg)</p> <p>And <u>10% Calcium Chloride: 1 g SIVP</u></p> <p>8. If you have refractory bradycardia and the patient is on a calcium channel blocker then: <u>10% Calcium Chloride: 1 g SIVP</u></p> <p>9. <u>TCP (external pacing)</u></p> <p>Pre-medicate if time permits <u>Valium:</u> 2–10 mg IVP or IN OR <u>Ativan:</u> 1–2 mg IVP or IN OR <u>Versed:</u> 5 mg IVP or IM</p> <p>10. If hypotensive: <u>Dopamine:</u> 5- 20 mcg/kg/min IVPB titrated to raise BP > 100 Systolic; MUST USE IV PUMP</p>	<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Ensure patent airway 2. VS, including SpO2 3. Oxygen per patient <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 3. Establish vascular access <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 4. EKG <p>5. <u>Epinephrine (1:10,000):</u> 0.01 mg/kg IV/IO/ET/IN; repeat ever 3 – 5 min</p> <p>6. Consider possible causes: Hypoglycemia Respiratory Compromise Acidosis Medical History</p> <p>7. <u>Atropine:</u> 0.02 mg/kg IV/IO/ET IN; repeat in 3 – 5 min Max of 0.04 mg/kg; Minimum single dose: 0.1 mg; Maximum single dose: 0.5 mg</p> <p>Fluid challenge: Normal Saline 10ml/kg</p> <p>If severe respiratory compromise, intubation may be necessary. ETCO2</p>



Cooke County EMS

TOC

Clinical Guideline - Cardiac

SVT - Stable

C04

Page 10

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-lead

7. Adenosine:

**6 mg rapid IVP
followed by a flush;
Repeat at 12 mg every 1 – 2 min
(Max 30 mg)**

****Adenosine is contraindicated in patients taking TEGRITOL and PERSANTIN****

Contact Medical Control:

If wide complex SVT:

Cordarone:

**150 mg Diluted in 20cc D5W infuse over 10 minutes
(120 ml/hr)**



Cooke County EMS

TOC

Clinical Guideline - Cardiac
Adult— SVT - Unstable

C05

Page 11

<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u> Symptomatic Tachycardia \geq 150	<u>Clinical Presentation:</u> Symptomatic narrow complex Tachycardia (<0.08 sec) infants > 220 bpm, children >180 bpm. Consider underlying causes of tachy-dysrhythmias.
<u>Interventions:</u> <u>EMT:</u> 1. Assess and treat ABC's 2. VS, including SpO2 3. Oxygen per patient 4. Vagal maneuvers <u>Intermediate:</u> 5. Establish vascular access, antecubital vein <u>Paramedic I:</u> 6. EKG, 12-lead 7. Synchronized cardioversion: 100j, 200j <i>Premedicate if time permits</i> <u>Valium:</u> 2–10 mg IV, IO, IM or IN OR <u>Ativan:</u> 1–2 mg IV, IO, IM or IN OR <u>Versed:</u> 5 mg IV, IO, IN, or IM <u>Contact Medical Control:</u> <u>Cordarone:</u> 150 mg IV/IO over 10 minutes; Diluted in 20 cc of D5W; (120ml/hr) May repeat in 10 minutes if needed (max 300 mg)	<u>Interventions:</u> <u>EMT:</u> 1. Ensure airway patency 2. Oxygen per patient 3. Complete VS, SpO2 monitor if available <u>Intermediate:</u> 4. Establish vascular access 5. Dextrose-stick if <80 see hypoglycemia protocol <u>Paramedic I:</u> 6. ECG 12 lead if practical 7. Vagal Maneuvers (if this can be done in a timely manner) May pre-medicate with <u>Ativan</u> or <u>Valium</u> if time permits. Dosing per Broselow tape 8. Synchronous Cardioversion 0.5 – 1.0 j/kg, may repeat at 2 j/kg <u>Adenosine:</u> 0.1 mg/kg rapid IV push (max first dose 6 mg); may double the dose once and then may repeat <u>Contact Medical Control:</u> <u>Cordarone:</u> 5 mg/kg IV over 20 – 60 minutes



Adult

Clinical Presentation:

Confirmed Atrial Fibrillation (A-Fib) with a rapid ventricular response (RVR), HR \geq 150, 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

Normal Saline

500 ml IV

monitor for signs
of pulmonary edema

Paramedic I:

6. EKG, 12 lead
7. If rate not resolved with fluid bolus:

Cardizem:

20mg IV

repeat once in 10 minutes
Max. dose 40mg

Or

Cordarone:

**150 mg IV, Diluted in 20cc in D5W infuse over 10 minutes
(120ml/hr)**



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u> BP > 90 without serious S/S</p>	<p><u>Clinical Presentation:</u> Monitor presentation without serious S/S</p>
<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Assess and treat ABC's 2. Encourage the patient to cough 3. Oxygen per patient 4. VS, including SpO2 & EtCO2 <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 5. Establish vascular access <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 6. EKG, 15-lead <p>7. <u>Cordarone:</u> 150 mg over 10 minutes; Diluted in 20cc of D5W (120 ml/hr) Max 300 mg May repeat in 10 minutes if needed</p> <p>OR</p> <p><u>Magnesium Sulfate:</u> 1–2 grams IVP (For Torsades de Pointes only)</p> <p>8. Synchronized cardioversion: 100j, 200j <i>Premedicate if time permits</i></p> <p><u>Valium:</u> 2–10 mg IVP IM or IN</p> <p>OR</p> <p><u>Ativan:</u> 1–2 mg IVP IM or IN</p> <p>OR</p> <p><u>Versed:</u> 5mg IVP or IM</p>	<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Assess and treat ABC's 2. Encourage the patient to cough 3. Oxygen per patient 4. VS, including SpO2 & EtCO2 <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 5. Establish vascular access <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 6. EKG, 15-lead <p>7. <u>Cordarone:</u> 5 mg/kg IV bolus</p> <p>OR</p> <p><u>Magnesium Sulfate:</u> 50 mg/kg IV, IO (max dose 2g) (For Torsades de Pointes only)</p> <p>8. Synchronized cardioversion: 0.5–1.0 j/kg, may repeat at 2 j/kg <i>Premedicate if time permits</i></p> <p><u>Valium:</u> 0.1 mg/kg Slow IVP (MAX does of .5mg/kg)</p> <p>OR</p> <p><u>Ativan:</u> 0.1 mg/kg SIVP</p> <p>OR</p> <p><u>Versed:</u> 0.3 mg/kg IV</p>



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u> BP < 90 systolic altered LOC, dyspnea, diaphoresis or chest pain</p>	<p><u>Clinical Presentation:</u> Altered LOC, dyspnea, diaphoresis or chest pain</p>
<p><u>Interventions:</u></p> <p><u>EMT:</u> 1. Assess and treat ABC's 2. VS, including SpO2 & EtCO2 3. Oxygen per patient</p> <p><u>Intermediate:</u> 4. Establish vascular access</p> <p><u>Paramedic I:</u> 5. EKG, 12-lead if available</p> <p>6. Synchronized cardioversion: 100j, 200j <i>Pre-medicate if time permits:</i></p> <p><u>Valium:</u> 2–10 mg IVP IM or IN</p> <p>OR</p> <p><u>Ativan:</u> 1–2 mg SWIVP IM or IN</p> <p>OR</p> <p><u>Versed:</u> 5 mg IVP or IM</p> <p>If ventricular rate >150 Immediate cardioversion is indicated. Medications listed below are relatively low priority. If delays in synchronization occur and clinical condition is critical, go immediately to unsynchronized shocks.</p> <p><u>Cordarone:</u> 150 mg over 10 minutes; Diluted in 20cc in D5 (120 ml/hr)</p> <p>OR</p> <p><u>Magnesium Sulfate:</u> 1–2 g IVP (For Torsades de Pointes only)</p>	<p><u>Interventions:</u></p> <p><u>EMT:</u> 1. Assess and treat ABC's 2. Oxygen per patient 3. VS, including SpO2 & EtCO2</p> <p><u>Intermediate:</u> 4. Establish vascular access</p> <p><u>Paramedic I:</u> 5. EKG, 12-lead</p> <p>6. Synchronized cardioversion: 0.5–1.0 j/kg, may repeat at 2 j/kg <i>Premedicate if time permits</i></p> <p><u>Valium:</u> 0.1 mg/kg Slow IVP (MAX does of .5mg/kg)</p> <p>OR</p> <p><u>Ativan:</u> 0.1 mg/kg SIVP</p> <p>OR</p> <p><u>Versed:</u> 0.3 mg/kg IV</p> <p>7. <u>Cordarone:</u> 5 mg/kg IV bolus</p> <p>OR</p> <p><u>Magnesium Sulfate:</u> 50 mg/kg IV, IO (max dose 2g) (For Torsades de Pointes only)</p>



Adult

Clinical Presentation:

SBP < 90 systolic in the absence of trauma. Patient 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 EtCO2
3. Oxygen per patient

Intermediate:

4. Establish vascular access

Paramedic I:

EKG, 15 lead

Dobutamine:

**2– 20 mcg/kg/min IVPB; titrate SBP > 100
If known cardiogenic shock use 1st;
MUST USE IV PUMP**

OR

Levophed:

**0.1 – 0.5 mcg/kg/min IVPB; SBP > 100; titrate to effect (MAX dose 30 mcg/min)
MUST USE IV PUMP (Drip Chart)**

OR

Dopamine:

**5 - 20 mcg/kg/min IVPB; titrated to raise BP > 100 systolic;
MUST USE IV PUMP**



Cooke County EMS

TOC

Clinical Guideline - Cardiac

Cardiac Arrest

C10

Page 16

<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u> Unresponsive, no respirations, no pulse	<u>Clinical Presentation:</u> Unresponsive, no respirations, no pulse
<u>Interventions:</u> <u>EMT:</u> 1. Assess ABCs 2. CPR (Utilize Lucas as soon as possible) 3. Apply monitor pads 4. Maintain airway with appropriate adjunct and ventilate with supplemental oxygen, target EtCO ₂ at 35 - 45 <u>Intermediate:</u> 5. Establish vascular access <u>Paramedic I:</u> (Utilize Ventilator when possible) 6. EKG 7. For known dialysis patient: <u>Calcium Chloride:</u> 500 - 1000 mg IV ONLY 8. Refer to appropriate protocol: Asystole PEA VF and Pulseless VT	<u>Interventions:</u> <u>EMT:</u> 1. Assess ABCs 2. CPR 3. Apply monitor pads 4. Maintain airway with appropriate adjunct and ventilate with supplemental oxygen, target EtCO ₂ at 35 - 45 <u>Intermediate:</u> 4. Establish vascular access <u>Paramedic I:</u> 5. EKG 6. For known dialysis patient: <u>Calcium Chloride:</u> 10-20mg/kg IV ONLY 7. Refer to appropriate protocol: Asystole PEA VF and Pulseless VT



Adult	Pediatric
<p><u>Interventions:</u> <u>Paramedic I: (cont. from Cardiac Arrest Protocol)</u> 1. CPR (Utilize Lucas and Ventilator as soon as available) 2. Confirm asystole in two leads 3. <u>Epinephrine (1:10,000):</u> 1 mg IVP, IO or IN; 3–5 minutes apart; 2 mg via ET; repeat every 3–5 minutes 4. Place an advanced airway and ventilate at 6-8 breaths per minute, EtCO₂ target of 35-45, chest compressions should not be interrupted to place the airway. 5. Consider NG tube placement</p> <p><u>Consider causes:</u> Hypoxia.....ventilate Acidosis.....ventilate very well, <u>Sodium Bicarbonate 1 mEq/kg IVP</u> during prolonged CPR Overdose.....<u>Narcan</u> if suspected narcotic overdose Tricyclics, digitalis, beta-blockers, and calcium channel blockers <i>Refer to <u>Bradycardia</u> Protocol.</i> Diabetic reactions..... See diabetic emergencies Hyperkalemia..... <u>Sodium Bicarbonate 50 mEq</u> Hypovolemia.....Fluid challenge Hypokalemia Hypothermia.... Passive re-warming, warmed fluids Hyperthermia..... Aggressive external cooling, cooled fluids Tension Pneumothorax..... Pleural Decompression Cardiac Tamponade Pulmonary Embolism</p> <p><u>Contact Medical Control</u> After 10 minutes of EtCO₂ monitoring with persistent readings of less than 10 mmHg with confirmed tube placement consider referring to the <i>Termination of Pre-hospital Resuscitation</i></p>	<p><u>Interventions:</u> <u>Paramedic I:(cont. from Cardiac Arrest Protocol)</u> 1. CPR 2. Confirm Asystole in two leads 3. Place an advanced airway and ventilate with supplemental oxygen, target EtCO₂ at 35 - 45 4. <u>Epinephrine (1:10,000)</u> 0.01 mg/kg IV/IO/ET/IN; repeat every 3–5 minutes</p> <p><u>Consider causes:</u> Hypoxia.....ventilate Acidosis.....ventilate very well, <u>Sodium Bicarbonate 1 mEq/kg IVP</u> during prolonged CPR Overdose.....<u>Narcan</u> if suspected narcotic overdose Tricyclics, digitalis, beta-blockers, and calcium channel blockers <i>Refer to <u>Bradycardia</u> Protocol.</i> Diabetic reactions..... See diabetic emergencies Hyperkalemia Hypovolemia.....Fluid challenge Hypokalemia Hypothermia.... Passive re-warming, warmed fluids Hyperthermia..... Aggressive external cooling, cooled fluids Tension Pneumothorax..... Pleural Decompression Cardiac Tamponade Pulmonary Embolism</p>



<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u>	<u>Clinical Presentation:</u>
<p><u>Interventions:</u></p> <p><u>Paramedic I:(cont. from Cardiac Arrest Protocol)</u></p> <p>1. CPR (Utilize Lucas and Ventilator as soon as available)</p> <p>2. <u>Epinephrine (1:10,000):</u> 1 mg IV/IO or IN; 3–5 minutes apart; 2 mg via ET, may repeat every 3–5 minutes</p> <p>3. Place an advanced airway and ventilate at 6-8 breaths per minute, EtCO₂ target of 35-45, chest compressions should not be interrupted to place the airway.</p> <p>Consider and treat cause: Hypoxia.....ventilate Acidosis.....ventilate very well, Sodium Bicarbonate 1 meq/kg IVP during prolonged CPR Overdose.....Narcan if suspected narcotic overdose Tricyclics, digitalis, beta-blockers, and calcium channel blockers <i>Refer to Bradycardia Protocol.</i> Diabetic reactions..... See diabetic emergencies Hyperkalemia..... Sodium Bicarbonate 50 mEq Hypovolemia.....Fluid challenge Hypokalemia Hypothermia.... Passive re-warming, warmed fluids Hyperthermia..... Aggressive external cooling, cooled fluids Tension Pneumothorax..... Pleural Decompression Cardiac Tamponade Pulmonary Embolism</p>	<p><u>Interventions:</u></p> <p><u>Paramedic I:(cont. from Cardiac Arrest Protocol)</u></p> <p>1. CPR</p> <p>2. Place an advanced airway and ventilate with supplemental oxygen, target EtCO₂ at 35 - 45</p> <p>3. <u>Epinephrine (1:10,000)</u> 0.01 mg/kg IV/IO/ET/IN; repeat every 3–5 minutes</p> <p>Consider and treat cause: Hypoxia.....ventilate Acidosis.....ventilate very well, Sodium Bicarbonate 1 meq/kg IVP during prolonged CPR Overdose.....Narcan if suspected narcotic overdose Tricyclics, digitalis, beta-blockers, and calcium channel blockers <i>Refer to Bradycardia Protocol.</i> Diabetic reactions..... See diabetic emergencies Hyperkalemia Hypovolemia.....Fluid challenge Hypokalemia Hypothermia.... Passive re-warming, warmed fluids Hyperthermia..... Aggressive external cooling, cooled fluids Tension Pneumothorax..... Pleural Decompression Cardiac Tamponade Pulmonary Embolism</p>



<i>Adult</i>	<i>Pediatric</i>
<p><u>Interventions:</u></p> <p><u>Paramedic I:(cont. from Cardiac Arrest Protocol)</u></p> <p>1. CPR</p> <p>2. V-Fib/pulseless V-Tach</p> <p>Defibrillate 150j</p> <p>3. CPR (Utilize Lucas and Ventilator as soon as available)</p> <p>4. <u>Epinephrine (1:10,000):</u> 1 mg, IVP, IO or IN; 2 mg via ET, every 3–5 minutes</p> <p>5. Place an advanced airway and ventilate at 6-8 breaths per minute, EtCO₂ target of 35-45, chest compressions should not be interrupted to place the airway. After 2 minutes of CPR if persistent Vfib or pulseless Vtach</p> <p>6. Defibrillate 150j</p> <p>7. <u>Cordarone:</u> 300 MGIVP</p> <p>8. CPR, 2 minutes</p> <p>9. Consider 2nd dose of after 3 - 5 minutes</p> <p><u>Cordarone:</u> 150 mgIVP</p> <p>10. CPR, 2 minutes If persistent Vfib or pulseless Vtach</p> <p>11. Defibrillate 150j</p> <p>12. CPR, 2 minutes</p> <p><u>Magnesium Sulfate:</u> 1–2 g IV or IO (dilute in 10 ml of D5W for IV bolus, for Torsades only)</p> <p>If persistent Vfib or pulseless Vtach</p> <p>13. Defibrillate 150j</p> <p>14. Consider NG tube</p> <p>15. Continued CPR</p>	<p><u>Interventions:</u></p> <p><u>Paramedic I:(cont. from Cardiac Arrest Protocol)</u></p> <p>1. CPR</p> <p>2. V-Fib/pulseless V-Tach</p> <p>Defibrillate 2 j/kg</p> <p>3. CPR, 2 minutes</p> <p>4. Place an advanced airway, and ventilate with supplemental oxygen, target EtCO₂ at 35 - 45, chest compression should not be interrupted to place the airway.</p> <p>5. <u>Epinephrine (1:10,000):</u> 0.01 mg/kg IV/IO/ET/IN; repeat every 3–5 minutes</p> <p>If persistent Vfib or pulseless Vtach</p> <p>6. Defibrillate 4 j/kg</p> <p>7. CPR. 2 minute</p> <p>8. <u>Cordarone:</u> 5 mg/kg IV bolus</p> <p>9. CPR, 2 minutes If persistent Vfib or pulseless Vtach</p> <p>10. Defibrillate 4 j/kg</p> <p>11. Continue CPR</p> <p>12. <u>Magnesium Sulfate:</u> 50 mg/kg IV, IO (max dose 2g) (For torsades only)</p>



Cooke County EMS

TOC

Clinical Guideline - Cardiac

Post Resuscitation (ROSC)

C14

Page 20

<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u>	<u>Clinical Presentation:</u>
<p><u>Interventions:</u> <u>(Continued from rhythm specific guideline)</u></p> <p><u>Paramedic I:</u> 1. EKG, 12 lead</p> <p>If converted after defibrillation or cardioversion ONLY: Watch closely for lethal dysrhythmias. If converted after medication, follow bolus with appropriate drip:</p> <p>2. <u>Cordarone:</u> 150 mg in 100 cc D5W, run at 50 ml/hour</p> <p>If patient hypotensive (BP < 90 systolic) after 5 min:</p> <p>3. <u>Fluid challenge:</u> 250 cc IV Normal Saline</p> <p>4. <u>Dopamine:</u> 5-20 mcg/kg/min IVPB to raise BP >100 systolic; titrated to effect MUST USE IV PUMP</p> <p>OR</p> <p><u>Levophed:</u> 0.1 – 0.5 mcg/kg/min IVB; SBP >100 mmHg; <120 mmHg (Max 30 mcg/min) MUST USE IV PUMP <u>(Drip Chart)</u></p>	<p><u>Interventions:</u> <u>(Continued from rhythm specific guideline)</u></p> <p><u>Paramedic I:</u></p> <p>1. If bradycardic, see <i>Bradycardia Protocol</i> Up to one year: rate <80 One to eight years: rate <60</p> <p><u>Contact Medical Control:</u></p> <p>If converted from ventricular rhythm and no previous medications given and patient hypotensive after 5 minutes</p> <p>2. <u>Dopamine:</u> 5.0 – 10 mcg/kg/min IVPB; titrated to achieve age appropriate SBP Must use a Pump</p>



Adult

Clinical Presentation:

Return of spontaneous circulation after cardiac arrest. Intubated patients that are well ventilated with ETCO₂ >30.

Contraindications:

- Traumatic Arrest
- Apparent Pregnancy
- < than 18 years old

Interventions:

Paramedic I:

1. Assure patent ET airway
2. Place patient on ventilator
- 3. *MUST maintain continuous cardiac monitoring, O₂ saturation, and ETCO₂ monitoring at all times.***
4. Ensure vascular access with a minimum of 2 large bore IV's
5. Document an initial rectal temperature and continued monitoring every 10 minutes.

INVASIVE COOLING PROCEDURE:

6. Medicate for sedation (also for continued sedation) and shivering

Versed: 5 mg; may repeat only once in 20 minutes; maintain SBP ≥ 100

OR

Ativan: 1–2 mg SIVP

OR

Valium: 10 mg SIVP

OR

Etomidate: 0.3 mg/kg IVP, over 30 seconds

OR

Ketamine: 1–2mg/kg SIVP, over 1 minute

7. Remove clothing (Ensure privacy)
8. Apply Ice/cold packs directly on skin, axilla and groin for maximum cooling effects.

Continued on next page



Adult

Interventions:

Paramedic I:

9. Rapidly Infuse Cold Saline: 30 ml/kg IV/IO: max 2 Liters (2000 ml)

10. If hypotensive may consider:

Levophed:

0.1 – 0.5 mcg/kg/min IVPB; SBP \geq 100 (Max dose 30 mcg/min)

MUST USE IV PUMP (Drip Chart)

11. Temperature goal 32 – 34 C (89.6 to 93.2 F)

12. Reassess rectal temperature

Discontinue cooling measure if < 33C (91.4 F)

Continue to monitor temperature > 33C (91.4 F) and no shivering

**If the patient has return to spontaneous circulation while enroute to NTMC-ED;
Contact Medical Control immediately.**

DO NOT DELAY TRANSPORT TO COOL

If patient becomes pulseless again, discontinue cold saline infusion follow proper protocol. Ice packs may remain in place. Transport to the closest facility. **Remember:** Patient may develop metabolic alkalosis with cooling. **DO NOT HYPERVENTILIATE.**

**Patient must be transported to a hospital that will continue induced hypothermia;
transport to one of the following facilities:**

Denton Regional Medical Center - Denton

Texas Health Presbyterian – Denton

Wise Regional Medical Center – Decatur

Wilson and Jones – Sherman

Texoma Medical Center - Denison



<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u> Non-traumatic abdominal pain.	<u>Clinical Presentation:</u> Non-traumatic abdominal pain.
<u>Interventions:</u> <u>EMT:</u> 1. Assess and treat ABC's 2. Oxygen per patient 3. VS, including SpO2 4. Consider Orthostatic VS (if possible) <u>Intermediate:</u> 5. Establish vascular access <u>Paramedic I:</u> 6. EKG, 15 lead 7. For severe nausea and vomiting: <u>Zofran:</u> 4mg IV, IM, ODT May repeat in 15 minutes (Max 8mg every 4 hours); OR <u>Promethazine:</u> 12.5 IVP; 25 mg IM; (do not use if patient is >65 years old) <u>Contact Medical Control:</u> Must contact medical control for pain management consideration	<u>Interventions:</u> <u>EMT:</u> 1. Assess and treat ABC's 2. Oxygen per patient 3. VS, including SpO2 <u>Intermediate:</u> 4. Establish vascular access <u>Paramedic I:</u> 5. EKG 6. For severe nausea and vomiting: <u>Zofran:</u> Ages 2– 6 1 mg IVP, IM May repeat in 15 minutes Max 2 mg Q 4 Hours Ages 7– 12: 2mg IVP, IM May repeat in 15 minutes Max 4 mg Q 4 Hours <u>Contact Medical Control:</u> <u>Zofran:</u> Ages < 2: 0.15 mg/kg IV



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u></p> <p>Unresponsive or disoriented patient without a clear mechanism for altered mental status. Refer to appropriate protocols as needed (diabetes, head injury, etc.)</p>	<p><u>Clinical Presentation:</u></p> <p>Unresponsive or disoriented patient without a clear mechanism for altered mental status. Refer to appropriate protocols as needed (diabetes, head injury, etc.)</p>
<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Assess and treat ABC's 2. VS, including SpO2 & EtCO2 3. Oxygen per patient <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 4. Establish vascular access 5. Dextrose stick: if < 80 or signs of hypoglycemia: <p><u>Thiamine:</u> 100 mg</p> <p><u>D50:</u> 25g IVP</p> <p><u>Paramedic I:</u> If pupils are constricted and/or respiratory depression:</p> <p>6. <u>Narcan:</u> 0.5-2 mg IVP or IN, to improve respirations may repeat as needed</p> <p>7. EKG, 15 lead</p>	<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Ensure patent airway 2. VS, including SpO2 & EtCO2 3. High flow oxygen, assist respirations via BVM, if needed <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 4. Establish vascular access 5. Dextrose stick: if < 80 or if signs and symptoms of hypoglycemia: Infants: D10: 5-10 ml/kg IV <i>D10 may be prepared with D50 diluted 1:4 with sterile H₂O.</i> < 3 years old: D25: 2-4 ml/kg IV, slowly <i>D25 may be prepared with D50 diluted 1:1 with sterile H₂O.</i> ≥ 3 years or older: D50: 1 ml/kg IV <p>6. <u>Glucagon:</u> for confirmed hypoglycemia: 1 mg IM/IN, if IV not available</p> <p><u>Paramedic I:</u> 7. EKG</p> <p><u>Contact Medical Control:</u></p> <p><u>Narcan:</u> 0.1 mg/kg IV/IO/IN; MAX SINGLE DOSE 2.0 mg</p>



Adult

Clinical Presentation:

Responder safety is paramount, do not enter an unsecured scene.
Patient presents with a diminished cognitive state that may represent a danger to them self or others.

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 for possible causes for the current behavior.
5. Treat non-life-threatening injuries as the patient allows.
6. Dextrose stick: if < 80 or Signs of hypoglycemia:

Thiamine: **100 mg**

D50: **25g IVP**

7. Use restraints as needed to protect responders and patient.
If mechanical restraints are used they will only be removed at the receiving facility.

Paramedic I:

8. EKG if tolerated
9. If patient cannot be controlled with physical or mechanical restraints consider:

<u>Geodon:</u> 20 mg IM ONLY;	<u>Ativan:</u> 1 mg SIVP or 2 mg IM;
 DONOT REPEAT	(If normotensive, no respiratory distress)
OR	OR
<u>Haldol:</u> 5 mg SIVP, over 1 minute	<u>Versed:</u> 5 mg Slow IVP or IM
 (for severe agitation)	OR
 or 10 mg IM	<u>Valium</u> 5-10mg IV or IM
OR	
<u>Ketamine</u> 2.5mg/kg IV only	

10. The patient must be evaluated at an ER before transport to a psychiatric facility.

May repeat Haldol and / or Ativan in 10 minutes if not controlled



Adult

Clinical Presentation:

Normotensive 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)

Intermediate:

5. Establish vascular access
6. Fluid bolus:

Normal Saline

250 –500ml

consider repeating bolus (Max 1000ml)

Paramedic I:

7. EKG, 15 Lead



Cooke County EMS

TOC

Clinical Guideline - Medical

Adult - Diabetic Emergencies
Pedi - Hypoglycemia

M05

Page 27

<i>Adult</i>	<i>Pediatric</i>
<u>Clinical Presentation:</u> Symptoms related to altered blood glucose levels	<u>Clinical Presentation:</u> Blood glucose levels < 80 mg/dl
<u>Interventions:</u> <u>EMT:</u> 1. Assess and treat ABC's 2. VS, including SpO2 & EtCO2 3. O2 per patient 4. If alert, and suspected hypoglycemia, administer <u>Oral Glucose:</u> 15G <u>Intermediate:</u> 5. Establish vascular access 6. Dextrose stick If < 80 or signs of Hypoglycemia: 7. If altered LOC: <u>Thiamine:</u> 100 mg <u>D50:</u> 25g IVP 8. Repeat dextrose stick in 3– 5 minutes 9. If BGL > 250 and S/S of DKA: 10. Normal Saline 250ml/hr <u>Paramedic I:</u> If IV unobtainable: <u>Glucagon:</u> 1 mg IM or IN 11. EKG	<u>Interventions:</u> <u>EMT:</u> 1. Ensure patent airway 2. VS, including SpO2 & EtCO2 3. Oxygen as tolerated 4. If alert, and suspected hypoglycemia, administer <u>Oral Glucose:</u> 15G <u>Intermediate:</u> 5. Establish vascular access 6. Dextrose stick: if < 80: Infants: D10: 5– 10 ml/kg IV D10 may be prepared with <u>D50</u> diluted 1:4 with sterile H ₂ O. < 3 years old: D25: 2– 4 ml/kg IV, slowly D25 may be prepared with <u>D50</u> diluted 1:1 with sterile H ₂ O. ≥ 3 years or older: <u>D50: 1 ml/kg IV</u> 7. <u>Glucagon:</u> confirmed hypoglycemia: 1 mg IM/IN, if IV not available 8. EKG



Adult

Clinical Presentation:

Systolic BP > 200 or Diastolic > 120, headache, blurred vision, numbness and 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:

Establish vascular access

Paramedic I:

EKG, 15 lead

Nitroglycerine:

0.4 mg SL; repeat every 5 minutes x 3 doses

Contact Medical Control:

Nitro Drip:

**2 – 20 mcg/min; SBP >90 mmHg; titrate to effect;
MUST USE IV PUMP (Drip Chart)**

OR

Labetalol:

**10 mg IVP;
repeat after 10 minutes (max dose 20 mg)**

OR

Metoprolol:

**5 mg; repeat every 5 minutes x 3;
Hold if HR <55**



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u> Active seizures (tonic/ clonic) and / or postictal</p>	<p><u>Clinical Presentation:</u> Active seizures (tonic/ clonic) or postictal.</p>
<p><u>Interventions:</u></p> <p><u>EMT:</u> 1. Assess and treat ABC's 2. VS, including SpO₂ 3. O2 per patient, as tolerated.</p> <p><u>Intermediate:</u> 4. Establish vascular access 5. Dextrose stick: if < 80 or signs of Hypoglycemia:</p> <p><u>Thiamine:</u> 100 mg</p> <p><u>D50:</u> 25g IVP</p> <p><u>Paramedic I:</u> 6. EKG</p> <p>If seizures are prolonged or recurrent consider:</p> <p>7. <u>Valium:</u> 5mg IVP, IN, or rectal; may repeat as needed every 5 minutes until Max dose of 20 mg</p> <p>OR</p> <p><u>Ativan:</u> 1 mg SIVP or IN, may repeat as needed 2 mg every 5 minutes (MAX 8 mg)</p> <p>OR</p> <p><u>Versed:</u> 3–5 mg IVP or IN; may repeat in 20 minutes</p>	<p><u>Interventions:</u></p> <p><u>EMT:</u> 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.</p> <p><u>Intermediate:</u> 6. Establish vascular access 7. Dextrose stick: if < 80 or signs and symptoms of hypoglycemia: Infants: <u>D10: 5–10 cc/kg IV</u> <i>D10 may be prepared with <u>D50</u> diluted 1:4 with sterile H₂O.</i> < 3years old: <u>D25: 2–4 cc/kg IV, slowly</u> <i>D25 may be prepared with <u>D50</u> diluted 1:1 with sterile H₂O.</i> ≥ 3 years or older: <u>D50: 1 cc/kg IV</u></p> <p><u>Paramedic I:</u> 8. EKG</p> <p>9. <u>Valium:</u> 0.1 mg/kg IV/IO/IN, or 0.5 mg/kg RECTAL; may repeat in 5 min</p> <p>OR</p> <p><u>Ativan:</u> 0.05–0.1 mg/kg SIVP over 2 minutes; Rectal 0.1 – 0.2 mg/kg</p> <p><u>Tylenol:</u> 15mg/kg Rectal (If Febrile)</p> <p><u>Narcan:</u> 0.1 mg/kg IVP, or 2mg IM</p> <p><u>Glucagon:</u> .4 mg/ kg IM/IN; if IV not available</p> <p><u>Contact Medical Control:</u></p> <p><u>Ativan:</u> Repeat dose (Max dose 4 mg)</p>



Adult

Clinical Presentation:

NON-pregnant NON-Traumatic Adult

MAP < 65

HR > 90

And any 2 for the following

Acute altered mental status

Temperature > 100.4 or < 96.8

Resp. rate > 20 or requiring 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 EtCO2
3. Oxygen, high flow
4. Assess lactate level

Intermediate:

5. Establish vascular access, 2 large bore cath.

Normal Saline **20 ml/kg, 500 ml boluses**

Monitor for signs of pulmonary edema

5. Dextrose stick: if < 80 or signs of hypoglycemia:

Thiamine: **100 mg**

D50: **25g IVP**

Paramedic I:

6. EKG, 15 lead

7. If unable to maintain a MAP > 65 consider pressers:

Levophed: **0.1 – 0.5 mcg/kg/min**
IVPB; MAP > 65;
 (MAX dose 30 mcg/min)
MUST USE IV PUMP (Drip Chart)

OR

Dopamine: **5 - 20 mcg/kg/min to raise BPMAP > 65;**
MUST USE IV PUMP



Pediatric

Clinical Presentation:

History of upper respiratory infection, rapid onset, hacking cough, audible wheezing, lethargy and, may be 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: 2.5 mg nebulized updraft;
1.25 mg nebulized updraft if under 2 years;

Intermediate:

7. Establish vascular access

Paramedic I:

8. EKG

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

Contact Medical Control:

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



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 EtCO₂
3. Oxygen per patient, consider BVM
4. Elevate head 30 degrees from supine

Intermediate:

5. Establish vascular access

Paramedic I:

6. EKG, 15 Lead

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

8. Consider CPAP

Consider Nitro Drip with CPAP

Nitro Drip: **5-10 mcg/min; titrate up every 5 minutes**
maintain SBP >90 mmHg;
Max dose 200 mcg/min
MUST USE IV PUMP (Drip Chart)

Consider, with severe dyspnea and pulmonary edema:

9. **Morphine:** **2-5 mg IVP;** repeat @ 2mg increments every 5 minutes (Max dose of 10mg)

10. **Lasix:** **0.5-1 mg/kg IVP**

BE PREPARED TO INTUBATE

Contact Medical Control:

Dopamine: **5 - 20 mcg/kg/min to raise BP > 100 systolic;**
titrate to effect MUST USE IV PUMP (Drip Chart)



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 EtCO₂
3. Oxygen per patient
Mild dyspnea: 1–2 LPM via NC
Severe dyspnea: 10–15 LPM via NR or BVM

Intermediate:

4. Establish vascular access

Paramedic I:

5. EKG, 15 lead

6. **Albuterol:** 2.5 mg nebulized updraft, may repeat once in 10 min

OR

- DuoNeb:** 3 ml nebulized updraft; may repeat once in 10 min

7. **Terbutaline:** 0.25 mg SQ

8. **Dexamethasone:** 4mg IVP

OR

- Methylprednisone:** 125 mg IV

9. Consider CPAP
10. For Anxious Patient's consider: (must use with caution)

- Ativan:** 1 mg SIVP

OR

- Valium:** 2–5 mg SIVP



Pediatric

Clinical Presentation:

Rapid onset, high fever, sore throat, drooling, inspiratory stridor, tri-pod positioning. Less than 5 y/o, **do not** examine throat or place anything in mouth.

These patients require rapid transport.

Interventions:

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 Medical Control:

If complete airway obstruction:

Attempt intubation or Cricothyroidotomy

Agitation can increase edema or swelling.

AVOID IV IF POSSIBLE



Cooke County EMS

TOC

Clinical Guideline - Respiratory

Obstructed Airway / Foreign Body

R07

Page 40

Pediatric

Clinical Presentation:

Interventions:

EMT:

1. If patient able to cough, allow patient to relieve obstruction on his / her own
2. If patient unable to relieve obstruction, perform Heimlich maneuver appropriate to age

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

Contact Medical Control:

Cricothyroidotomy, only if all other efforts fail.....



Cooke County EMS

TOC

Clinical Guideline - Environmental

Allergic Reaction (Mild)

E01

Page 42

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



Adult	Pediatric
<p><u>Clinical Presentation:</u></p> <p>Urticaria, edema, dyspnea and hypotension (BP < 90 systolic). Note: if significant wheezes see <i>Asthma Protocol</i>.</p>	<p><u>Clinical Presentation:</u></p> <p>Urticaria, edema, dyspnea and hypotension. NOTE: If significant wheezes refer to <i>Pediatric Asthma Protocol</i>.</p>
<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Assess and treat ABC's 2. VS, including SpO2 & EtCO2 3. Oxygen per patient 4. EPIPEN, if patient prescribed. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 5. Establish vascular access <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 6. EKG 7. <u>Epinephrine (1:10, 000):</u> <div style="display: flex; justify-content: space-between;"> <div>Cardiac hx./Age > 65</div> <div>0.5 mg IVP or IN 0.3 mg IVP or IN may repeat once</div> </div> OR <div style="display: flex; justify-content: space-between;"> <div><u>Epinephrine (1:1000):</u></div> <div>0.5 mg IM 0.3 mg IM may repeat once</div> </div> <div style="display: flex; justify-content: space-between;"> <div>8. <u>Benadryl:</u></div> <div>50mg IVP or 50mg IM</div> </div> <div style="display: flex; justify-content: space-between;"> <div>9. <u>Dexamethasone:</u></div> <div>8 mg IVP</div> </div> OR <div style="display: flex; justify-content: space-between;"> <div><u>Methylprednisone:</u></div> <div>125 mg IVP</div> </div> <p style="text-align: center;">Be prepared to intubate should patient's condition decline.</p> 	<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Ensure patent airway 2. VS, including SpO2 & EtCO2 3. O2 per patient 3. EPIPEN, if patient prescribed. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 4. Establish vascular access <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 5. <u>Benadryl:</u> <div style="display: flex; justify-content: space-between;"> <div></div> <div>1.0 mg/kg IV/IM; MAX 25 mg</div> </div> 6. <u>Epinephrine (1:1,000):</u> <div style="display: flex; justify-content: space-between;"> <div></div> <div>0.005 mg/kg IM MAX 0.3 mg</div> </div> OR 7. <u>Epinephrine (1:10,000):</u> <div style="display: flex; justify-content: space-between;"> <div></div> <div>0.01 mg/kg slow IV/IO/IN; MAX 0.3 mg</div> </div> 8. EKG <p>If patient has moderate to severe dyspnea, meds may be given prior to IV access</p> <ol style="list-style-type: none"> 9. <u>Dexamethasone:</u> <div style="display: flex; justify-content: space-between;"> <div></div> <div>0.1 mg/kg IVP Max dose 4 mg</div> </div> OR <p><u>Methylprednisolone:</u> 1 mg/kg IVP</p>



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u></p> <p>Hot and humid weather with cramping in the extremities with associated nausea, vomiting, syncope episode with profuse sweating and tachycardia.</p>	<p><u>Clinical Presentation:</u></p> <p>Hot and humid weather with cramping in the extremities with associated nausea, vomiting, syncope episode with profuse sweating and tachycardia.</p>
<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> Assess and treat ABC's VS, including SpO2 and temperature O2 per patient External cooling: <ul style="list-style-type: none"> Remove to cool environment Remove excessive clothing Cover with wet sheet Fan patient Ice packs to groin, axilla, and neck <p>Do not allow patient to shiver. If shivering occurs stop cooling and lightly cover patient</p> <ol style="list-style-type: none"> If alert, administer electrolyte drink, PO <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> Establish vascular access Fluid Bolus <ul style="list-style-type: none"> Cooled Normal Saline: 250 – 500 ml; may repeat bolus (Max 1000cc) Dextrose stick: <ul style="list-style-type: none"> If < 80 or signs of Hypoglycemia: If alert: <ul style="list-style-type: none"> <u>Oral Glucose:</u> 15G <p>If altered LOC:</p> <ul style="list-style-type: none"> <u>Thiamine:</u> 100 mg <u>D50:</u> 25g IVP <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> EKG 	<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> Assess and treat ABC's VS, including SpO2 & temperature O2 per patient External cooling: <ul style="list-style-type: none"> Remove to cool environment Remove excessive clothing Cover with wet sheet Fan patient Ice packs to groin, axilla, and neck <p>Do not allow patient to shiver. If shivering occurs stop cooling and lightly cover patient</p> <ol style="list-style-type: none"> If alert, administer electrolyte drink, PO <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> Establish vascular access <ul style="list-style-type: none"> Cooled Normal Saline: 15 - 20 ml/kg/hr Dextrose stick: <ul style="list-style-type: none"> If < 80 or signs of Hypoglycemia: <ul style="list-style-type: none"> Infants: <u>D10: 5– 10 cc/kg IV</u> <i>D10 may be prepared with <u>D50</u> diluted 1:4 with sterile H₂O.</i> < 3years old: <u>D25: 2–4 cc/kg IV, slowly</u> <i>D25 may be prepared with <u>D50</u> diluted 1:1 with sterile H₂O.</i> ≥ 3 years or older: <u>D50: 1 cc/kg IV</u> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> EKG



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u></p> <p>Absence of sweating, reddened skin altered LOC, seizures and core temp > 105</p>	<p><u>Clinical Presentation:</u></p> <p>Absence of sweating, reddened skin altered LOC, seizures and core temp > 105</p>
<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Assess and treat ABC's 2. VS, including SpO2 3. O2 per patient 4. Aggressive external cooling: <ul style="list-style-type: none"> Remove to cool environment Remove excessive clothing Cover with wet sheet Fan patient Ice packs to groin, axilla, and neck <p>Do not allow patient to shiver. If shivering occurs stop cooling and lightly cover patient.</p> <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 5. Establish vascular access <p>Cooled Normal Saline 250 – 500cc Bolus; may repeat bolus (Max 1000cc)</p> <ol style="list-style-type: none"> 6. Dextrose stick: if < 80 or signs of Hypoglycemia: <p><u>Thiamine:</u> 100 mg</p> <p><u>D50:</u> 25g IVP</p> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 7. (to stop shivering or seizure activity) <p><u>Valium:</u> 5 – 10 mg IVP (Max 10 mg)</p> <p>OR</p> <p><u>Ativan:</u> 1 – 2 mg SIVP</p> <p>OR</p> <p><u>Versed:</u> 5 mg IVP or IM; may repeat after 20 minutes</p> <p>7. EKG</p>	<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Ensure patent airway 2. VS, including SpO2 3. High flow oxygen 4. Rapid external cooling: <ul style="list-style-type: none"> Remove to cool environment. Remove all clothing. Sponge with cool water. Avoid large amounts of fluid PO Fan patient. <p>Do not allow patient to shiver. If shivering occurs stop cooling and lightly cover patient.</p> <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 5. Establish vascular access <p>Cooled Normal Saline 15 – 20 ml/kg/hour</p> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 6. (to stop shivering or seizure activity) <p><u>Valium:</u> 0.2 – 0.3 mg/kg slow IV, IN, or Rectal</p> <p>If Valium is not available</p> <p><u>Ativan:</u> 0.05 – 0.1 mg/kg SIVP; Rectal 0.1 – 0.2 mg/kg Max dose 4 mg</p>

N
A
X
4
m
g



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u></p> <p>Core temperature (rectal) of 90° - 95°F, shivering and possible altered LOC.</p>	<p><u>Clinical Presentation:</u></p> <p>Core temperature < 90 degrees, cessation of shivering activity and / or altered mental status.</p>
<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Assess and treat ABC's 2. VS, including SpO₂ 3. Oxygen per patient 4. Begin external warming: <ul style="list-style-type: none"> Remove wet clothing Wrap in blanket Heat packs to groin, axilla, neck, lateral Chest 5. Minimize rough handling or agitation of patient. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 6. Establish vascular access <p>Warmed Normal Saline</p> <p style="padding-left: 150px;">250 – 500cc Bolus; may repeat bolus (Max 1000cc)</p> <ol style="list-style-type: none"> 7. Dextrose stick: if < 80 or Signs of hypoglycemia: <p><u>Thiamine:</u> 100 mg</p> <p><u>D50:</u> 25g IVP</p> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 8. EKG 9. Consider Pain management <p>Severe: core temp < 90°, no shivering, cyanosis, altered LOC and apnea, treat as mild or moderate except: If pulseless or BP < 60 systolic, begin CPR.</p> <p style="text-align: center;"><u>Maintain good basic life support.</u></p> <p><u>Contact Medical Control</u></p> <p>To begin Advanced Life Support</p>	<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 1. Ensure patent airway 2. VS, including SpO₂ 3. Oxygen per patient, assist ventilations as needed <ul style="list-style-type: none"> Wrap heat packs around oxygen tubing 4. Cardiac arrest should be treated with CPR only 5. External warming: <ul style="list-style-type: none"> Move to warm environment. Remove wet clothing. Wrap in blankets. Heat packs to neck, groin, and axilla. 6. Minimize rough handling or agitation of patient. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 7. Establish vascular access <p>Warmed Normal Saline 10ml/kg</p> <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 8. EKG 9. Dextrose stick: if < 80 or sign and symptoms of hypoglycemia: <p>Infants: D10: 5– 10 ml/kg IV <i>D10 may be prepared with <u>D50</u> diluted 1:4 with sterile H₂O.</i></p> <p>< 3years old: D25: 2–4 ml/kg IV, slowly <i>D25 may be prepared with <u>D50</u> diluted 1:1 with sterile H₂O.</i></p> <p>≥ 3 years or older: <u>D50: 1 ml/kg IV</u></p> <p style="text-align: center;"><u>Maintain good basic life support.</u></p> <p><u>Contact Medical Control:</u></p> <p>Use cardiac drugs only on medical control order.</p>



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u></p> <p>Water submersion without cardiopulmonary arrest and without evidence of hypothermia</p>	<p><u>Clinical Presentation:</u></p> <p><i>Near Drowning</i> 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.</p>
<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 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: <ul style="list-style-type: none"> Remove wet clothing Wrap in blanket Heat packs to neck, groin, and axilla. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 7. Establish vascular access 8. Airway management as necessary. ETCO2 <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 9. EKG (see appropriate protocol) <p>Consider water temperature and possible hypothermia. Transportation is necessary due to complications that may arise later.</p>	<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 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: <ul style="list-style-type: none"> Remove wet clothing. Wrap in blankets. Heat packs to neck, groin, and axilla. <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 7. Establish vascular access 8. Airway management as necessary. ETCO2 <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 9. EKG (see appropriate protocol) <p>Consider water temperature and possible hypothermia. Transportation is necessary due to complications that may arise later.</p>



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u></p> <p>Ensure receiving facility has the capability to treat the patient.</p>	<p><u>Clinical Presentation:</u></p> <p>Ensure receiving facility has the capability to treat the patient.</p>
<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 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 <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 10. Establish vascular access <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 11. EKG, 15 lead, if appropriate 12. <u>Consider Pain management</u> 	<p><u>Interventions:</u></p> <p><u>EMT:</u></p> <ol style="list-style-type: none"> 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 <p><u>Intermediate:</u></p> <ol style="list-style-type: none"> 10. Establish vascular access <p><u>Paramedic I:</u></p> <ol style="list-style-type: none"> 11. EKG 12. <u>Consider Pain management</u>



Cooke County EMS

Clinical Guideline - Obstetrics

Table of Contents

Page 1

Page #	Guideline Name	Ref. #	Last Update
2	<u>Vaginal Bleeding</u>	OB01	April 15, 2016
3	<u>Pre-Eclampsia / Eclampsia</u>	OB02	April 15, 2016
4	<u>Preterm Labor</u>	OB03	April 15, 2016
5	<u>Labor</u>	OB04	April 15, 2016
6	<u>Delivery / Cephalic Presentation</u>	OB05	April 15, 2016
7	<u>Delivery / Breech Presentation</u>	OB06	April 15, 2016
8	<u>Delivery / Cord Presentation</u>	OB07	April 15, 2016
9	<u>Delivery / Limb Presentation</u>	OB08	April 15, 2016
10	<u>Post Delivery</u>	OB09	April 15, 2016
11	<u>Neonatal Resuscitation</u>	OB10	April 15, 2016
11	<u>Meconium Staining</u>	OB11	April 15, 2016



Pre-Eclampsia / Eclampsia

Clinical Presentation:

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

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:** **4 - 6 g in 50 ml of Saline
over 20 min IVPB; or
2 g IM, if unable to obtain IV**

Contact Medical Control:

Consider repeating:

- Magnesium sulfate:** **2 grams IV**

Consider if hypertensive:

- Labetalol:** **20 mg IVP**

For seizures refractory to Mag Sulfate consider:

- Valium:** **2 - 10 mg IVP**

OR

- Ativan:** **1 mg IVP, IN; repeat as needed
every 5 minutes Max. 2 mg**

**Delivery / Cephalic Presentation****Clinical Presentation:**

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

Interventions:**EMT:****Preparations:**

Open OB kit.
Place mom supine with knees bent.
Place clean sheet under buttocks.
Put on sterile gloves, if possible.
Have mom pant between contractions.
Inspect for crowning.
Provide supplemental Oxygen to all delivery patients.

Procedure:

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

Placenta:

Placenta will deliver approximately 20 minutes after birth (do not pull on umbilical cord).
If severe bleeding persists:
Treat for shock to level of training.
Gently massage abdominal area over uterus to cause contractions and placenta delivery.
Transport.
Retain placenta and transport to hospital.



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.

5. 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 to 6 inch loop 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 often is 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*.



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 Trendelenberg position on left side.
5. **TRANSPORT IMMEDIATELY.**

Intermediate:

6. Establish vascular access
7. Instruct mother to "pant" with each contraction to prevent bearing down.
8. Apply moist sterile dressing to the exposed cord to minimize temperature changes that may cause umbilical artery spasm.
9. 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 presenting part and the cord, to relieve pressure on the cord. Reevaluate the cord for a pulse. The cord may spontaneously retract, but **NO ATTEMPT SHOULD BE MADE TO REPOSITION THE CORD. DO NOT REMOVE HAND.**



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 Trendelenberg position on left side.
5. **TRANSPORT IMMEDIATELY.**

Intermediate:

6. Establish vascular access



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 and keep warm. Cover with dry wrappings. Be sure to cover the head.
3. Place 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 are slapping or flicking the soles of the feet and rubbing the infant's back.
5. Perform APGAR scoring at 1 and 5 minutes.

6. If Respiratory Distress:

Rate > 80 consistently, nasal flaring, grunting or retractions and SpO2 < 96%, consistently:

Blow – by O₂ @ 10 LPM

Sat < 90, apnea:

O₂ via BVM @ 20 – 30 minute

7. If Bradycardia:

Rate 81 - 100:

Blow – by O₂ at 10 LPM

Rate < 80:

CPR, O₂ via BVM at 20 – 30 minute

APGAR Score

Sign	0	1	2	1 min	5 min
Appearance (skin color)	Blue, pale	Body pink, extremities blue	Completely pink		
Pulse rate (heart rate)	Absent	Below 100	Above 100		
Grimace (irritability)	No response	Grimaces	Cries		
Activity (muscle tone)	Limp	Some flexion of extremities	Active motion		
Respiratory (effort)	Absent	Slow and irregular	Strong cry		
			Total Score:		



Clinical Presentation:

Presence of fetal stool in amniotic fluid.

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. Quickly intubate the trachea and apply suction to the proximal end of the endotracheal tube while withdrawing the tube.
5. Repeat the intubation-suction-extubation cycle until no further meconium is obtained. Do not ventilate between intubations.
6. Continue resuscitative measures as needed.



Cooke County EMS

Clinical Guideline -

Table of Contents

Page 1

Page #	Guideline Name	Ref. #	Last Update
3	<u>Pain Management</u>	P01	
4	<u>Medication Assisted Intubation (MAI)</u>	P02	
5 - 6	<u>Rapid Sequence Induction for Intubation (RSI)</u>	P03a,b	
7	<u>Transcutaneous Pacing</u>	P04	
8	<u>Transtracheal Jet Ventilation</u>	P05	
9	<u>Surgical Cricothyroidotomy</u>	P06	
10	<u>Nasotracheal Intubation</u>	P07	
11 - 12	<u>Orotracheal Intubation</u>	P08a,b	
13 - 14	<u>King Airway</u>	P09a,b	
15	<u>Intra – Nasal Mucosal Atomization Device (MAD)</u>	P10	
16	<u>Portable Ventilator</u>	P11	
17	<u>Tidal Volumes Chart</u>	P12	
18	<u>Continuous Positive Airway Pressure</u>	P13	
19	<u>BiPAP</u>	P14	
20	<u>EZ – IO – Intraosseous Infusion</u>	P15	
21	<u>Rule of Nine's adult</u>	P16	
22	<u>Rule of Nine's pedi.</u>	P17	
23	<u>Classification of Burn Severity</u>	P18	
24	<u>Levophed (Norepinephrine) Drip Chart</u>	P19	
25	<u>Nitroglycerin Drip Chart</u>	P20	



<i>Adult</i>	<i>Pediatric</i>
Pain Scale > 4 on a 0 - 10 scale. Ask the patient if they want pain management. If a possibility of a head injury or multi-systems trauma, contact <u>Medical Control</u> prior to medication administration.	Pain Scale > 4 on a 0 - 10 scale. Ask the patient if they want pain management. If a possibility of a head injury or multi-systems trauma, contact <u>Medical Control</u> prior to medication administration.
<u>Morphine:</u> 2-5mg increments Slow IVP Q 5 minutes (MAX dose of 20mg)	<u>Morphine:</u> < 2 years: 0.1mg/kg Slow IVP Q 5 minutes (MAX of 10 mg)
<u>Fentanyl:</u> Adult: 25 - 50 mcg Slow IVP May repeat after 5 minutes (MAX of 100 mcg)	<u>Fentanyl:</u> <2 years: .5mcg/kg Slow IVP, may repeat after 5 minutes (MAX of .5mcg/kg)
<u>Valium:</u> 2 - 10mg SIVP	<u>Valium:</u> 0.1 mg/kg Slow IVP (MAX does of .5mg/kg)
<u>Ativan:</u> 1 - 2mg SIVP	<u>Ativan</u> .1 mg/kg SIVP
<u>Ketamine:</u> As an adjunct to pain medication or hypotensive patients. 0.5 mg/kg IV; may repeat in 10 min 2 mg/kg IM; no repeat dose 3 mg/kg IN; 1/2 dose in each nostril	For severe nausea and vomiting due the effect of pain meds: <u>Zofran:</u> Age: 2 - 7; 1 mg IVP, IM (MAX dose of 2 mg Q 4 hours) Age: 7 - 12; 2 mg IVP, IM (MAX dose of 4 mg Q 4 hours); May repeat in 15 min if no improvement May repeat if SBP is maintained > 90 mmHg
For severe nausea and vomiting due the effect of pain meds: Zofran: 4 - 8 mg IVP, IM ,ODT	
<u>Promethazine:</u> 12.5 IVP; 25 mg IM	<u>Medical Control;</u> <u>Ketamine:</u> > 1 year 0.5 mg/kg IV; may repeat in 10 min 2 mg/kg IM; no repeat dose 3 mg/kg IN; 1/2 dose in each nostril



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u> Glasgow Coma Score of < 8, impending respiratory failure/arrest or airway obstruction, or an intact gag reflex.</p>	<p><u>Clinical Presentation:</u></p>
<p><u>Airway evaluation is required prior to procedure</u></p> <p><u>Paramedic I:</u> <u>Ketamine:</u> 1 - 2 mg/kg SIVP over 1 minute</p> <p>OR</p> <p><u>Etomidate:</u> .3 mg/kg</p> <p>OR</p> <p><u>Fentanyl:</u> 50 - 100 mcg</p> <p>Consider Hurricane Spray</p> <p>*If sedation is adequate then proceed with intubation*</p> <p>Consideration:</p> <p>If at any time you feel you are losing control of the airway with this protocol, you may consider re-peating:</p> <p><u>Etomidate:</u> 0.3 mg/kg IVP</p> <p>OR</p> <p><u>Fentanyl:</u> 50 - 100 mcg IVP</p> <p><u>Paramedic II:</u> If still no success, then return to traditional RSI Protocol. Refer to RSI Protocol.</p>	<p><u>Airway evaluation is required prior to procedure</u></p> <p><u>Paramedic I:</u> <u>Ketamine</u> 2 mg/kg SIVP over 1 minutes</p> <p>OR</p> <p><u>Etomidate:</u> 0.3 mg/kg IV over 30 seconds</p> <p>OR</p> <p><u>Fentanyl:</u> <2 years: .5mcg/kg SIVP</p> <p>Consider Hurricane Spray</p> <p>*If sedation is adequate then proceed with intubation*</p> <p>Consideration:</p> <p>If at any time you feel you are losing control of the airway with this protocol, you may consider re-peating:</p> <p><u>Etomidate:</u> 0.3 mg/kg IV over 30 seconds</p> <p>OR</p> <p><u>Fentanyl:</u> <2 years: .5mcg/kg Slow IVP,</p> <p><u>Paramedic II:</u> If still no success, then return to traditional RSI Protocol. Refer to RSI Protocol.</p>



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u> Glasgow Coma Score of < 8, impending respiratory failure and, respiratory arrest, and/or airway obstruction.</p> <p><u>Contraindications:</u> Inability to ventilate the patient if paralyzed as in acetyl cholinesterase disorders, neuromuscular disorders (muscular dystrophies, MG, etc...)</p> <p>Only Paramedic II and above are to attempt RSI in the field.</p>	<p><u>Clinical Presentation:</u> Glasgow Coma Score of < 8, impending respiratory failure and, respiratory arrest, and/or airway obstruction.</p> <p><u>Contraindications:</u> Inability to ventilate the patient if paralyzed as in acetyl cholinesterase disorders, neuromuscular disorders (muscular dystrophies, MG, etc...)</p> <p>Only Paramedic II and above are to attempt RSI in the field.</p>
<p><u>Airway evaluation is required prior to procedure</u></p> <p>If patient is bradycardic pre-medicate with: <u>Atropine:</u> 0.5- 1.0mgIV</p> <p>For Sedation:</p> <p><u>Ketamine</u> 1 - 2 mg/kg SIVP over 1 minutes</p> <p>OR</p> <p><u>Etomidate:</u> 0.3 mg/kg IPV over 30 seconds</p> <p>OR</p> <p><u>Versed:</u> 5mgIVP</p> <p>When sedation is achieved:</p> <p><u>Succinycholine:</u> 1 - 1.5mg/kgIVP</p> <p>When patient is paralyzed and unable to intubate; place alternate airway (King Airway, TTJV, Cricothyroidotomy) and Ventilate with use of pulse ox and ETCO2. Secure and confirm tube placement and transport</p> <p>Effective ventilation of some form MUST BE ACHIEVED Continued Next page</p>	<p><u>Airway evaluation is required prior to procedure</u></p> <p>For Sedation:</p> <p><u>Ketamine</u> 2 mg/kg SIVP over 1 minutes</p> <p>OR</p> <p><u>Etomidate:</u> 0.3 mg/kgIV over 30 seconds</p> <p>OR</p> <p><u>Versed:</u> 0.3 mg/kg IV</p> <p>When sedation is achieved:</p> <p><u>Atropine:</u> 0.02 mg/kg IV</p> <p><u>Succinycholine:</u> 2 mg/kgIVP</p> <p>When patient is paralyzed and unable to intubate; place alternate airway (King Airway, TTJV, Cricothyroidotomy) and Ventilate with use of pulse ox and ETCO2. Secure and confirm tube placement and transport</p> <p>Effective ventilation of some form MUST BE ACHIEVED Continued Next page</p>



<i>Adult</i>	<i>Pediatric</i>
<p>For continued sedation:</p> <p><u>Versed:</u> 1 - 5 mg IVP every 10 minutes for a total of 20 mg in 1 hour</p> <p>OR</p> <p><u>Fentanyl:</u> 25 - 50 mcg every 5 minutes</p> <p>For continued pain management:</p> <p><u>Morphine:</u> 2 - 5 mg IVP, every 5 minutes or until pain is relieved</p> <p>For continued paralysis: Continued paralysis is only to be used when adequate sedation cannot be achieved.</p> <p><u>Rocuronium (ROC):</u> 1 - 1.5 mg/kg</p>	<p>For continued sedation:</p> <p><u>Versed:</u> 0.1 mg/kg IV</p> <p>OR</p> <p><u>Fentanyl:</u> < 2 years: .5 mcg/kg SIVP</p> <p>For continued pain management:</p> <p><u>Morphine:</u> < 2 years: 0.1 mg/kg Slow IVP Q 5 minutes (MAX of 10 mg)</p> <p>For continued paralysis: Continued paralysis is only to be used when adequate sedation cannot be achieved.</p> <p><u>Rocuronium (ROC):</u> 1 mg/kg IV</p>



Adult

Clinical Presentation:

For temporary pacing in patients with symptomatic bradycardia.

1. Attach limb leads.
2. Apply therapy/defibrillator pads
3. Turn pacer on. DO NOT start current flow.
4. Set pacer rate to **80**.
5. Increase milliamp setting by 5's until electrical capture is obtained or up to the maximum energy available.

Electrical capture: wide QRS and tall,
broad T-waves.

6. Confirm mechanical capture.

Mechanical capture: palpable pulse, rise in BP,
improved LOC, skin condition

7. If no response is obtained from maximum pacing output, interrupt pacing and continue with the appropriate cardiac protocol. Intermittently check for possible capture using maximum pacer setting.

8. If mechanical capture is obtained, interrupt pacing every 2 – 3 minutes to check for return of spontaneous pulse for 5 – 10 seconds.



Adult / Pediatric

Clinical Presentation:

Inability to open and maintain the airway and all other methods to obtain an airway have failed.

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 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.



<i>Adult</i>	<i>Pediatric</i>
<p><u>Clinical Presentation:</u> 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 a hematoma and incision into this area can result in significant bleeding.</p>	<p><u>Clinical Presentation:</u> 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 a hematoma and incision into this area can result in significant bleeding.</p>
<p><u>Procedure:</u></p> <ol style="list-style-type: none"> 1. Patient 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, and attach to BVM. 7. Ventilate and check for correct placement with chest rise, breath sounds, end tidal CO2, and tube humidification. 8. If possible inflate cuff and secure the tube in place. <p>Complications Bleeding at the site Aberrant placement of the tube into pre-tracheal fascia and dissection of subcutaneous air into soft tissues of neck.</p> <p>These protocols are unique to Cooke County EMS per Med</p>	<p><u>Procedure:</u></p> <ol style="list-style-type: none"> 1. Patient 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 appropriate sized ET tube and attach to BVM. 7. Ventilate and check for correct placement with chest rise, breath sounds, end tidal CO2, and tube humidification. 8. If possible inflate cuff and secure the tube in place. <p>Complications Bleeding at the site Aberrant placement of the tube into pre-tracheal fascia and dissection of subcutaneous air into soft tissues of neck.</p>



Adult / Pediatric

Clinical Presentation:

This procedure requires a spontaneous breathing patient. Remember that this procedure is unpleasant, and the patient will want to resist so cervical spine movement should be anticipated.

Indications:

Inability to open the mouth (e.g. clenching teeth)
Suspected cervical spine injury IF ability to perform in-line technique oral tracheal is in doubt!
Dental Injuries and/or gagging or resisting laryngoscope placement

Contraindications:

Basilar skull fracture	Anticoagulants
Severe nasal or mid-facial deformity	Known or suspected coagulopathies
Children under 8 years of age	Potential candidates for thrombolytic agent
Apnea	Acute epiglottitis

Complications:

Nasal Trauma and turbinate fractures Epistaxis and/or perforation of pharyngeal wall
Brain Intubation and infection

Procedure without paralysis:

1. Select the largest and least obstructed nostril, may consider inserting a lubricated nasal airway to help dilate the nasal passage.
2. Appropriately position and secure patient provide emotional support and explain procedures.
3. Premedicate with hurricane spray.
4. Appropriately pre-oxygenate the patient.
5. Administer appropriate sedation as needed unless contraindicated.
6. Select appropriate sized ET tube (may need a size small then used for oral intubation).
7. Lubricate ET Tube liberally with water soluble gel.
8. Insert the tube bevel inward. The tube is designed to insert into the right nare. If inserting into the left nare invert the tube and insert then rotate 180 degrees upon reaching the hypopharynx. The tube should be inserted perpendicular to the horizontal plane, along the floor of the nasopharynx and not toward the frontal sinus.

NEVER FORCE THE TUBE.

9. Gently pass the tube while listening to breath sounds or for a positive whistle if using a BAAM.
10. Pass the tube on inspiration, confirm placement by: auscultation of breath sounds, observing for symmetrical chest wall movement, patient's inability to speak, presence of vapor in the tube, Positive end tidal CO2, improved oxygen.



Cooke County EMS

TOC

Clinical Guideline -

Orotracheal Intubation

P08a

Page 11

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
CHI with increased ICP
Pulse Oximetry $<90\%$ with respiratory Distress
COPD with Altered Level of Consciousness
Evidence of airway burns

Contraindications:

Cervical Spine injury unless using in-line stabilization or King Vision.
Severe Facial Trauma, unstable facial structures, eg. LaForte fractures
Fracture of the larynx
Upper Airway Obstruction

Continued Next Page



Procedure without paralysis:

1	Effective ventilations are established within 20 seconds of patient contact.
2	Effective ventilations with supplemental oxygen within 40 seconds of patient contact.
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. (Direct laryngoscopy)
	a. Selects 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 patient's head.
	g. Applies nasal cannula to patient and attaches to oxygen source.
7	Places alternative airway equipment on counter.
8	Ensures that patient has been pre-oxygenated prior to intubation attempt.
9	Places patient's head in optimal position for intubation.
10	Instructs partner to remove BVM.
11	Adjusts flow rate for nasal cannula to 15 lpm.
12	Inserts 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 EtCO2 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.



Adult / Pediatric

Clinical Presentation:

Following two (2) unsuccessful attempts to place an endotracheal tube, **or** if it appears endotracheal intubation attempts would be unsuccessful, use of the King Airway should be considered.

Contraindications:

Patients who are conscious or who have an intact gag reflex

Patients under four 35 inches in height

Patients with known esophageal disease (varicose, alcoholism, cirrhosis etc.) or ingestion of caustic substances.

Precautions:

The KING LT-D does not protect the airway from the effects of regurgitation and aspiration.

High airway pressures may divert gas either to the stomach or to the atmosphere.

Intubation of the trachea cannot be ruled out as a potential complication of the insertion of the KING LT-D.

After placement, perform standard checks for breath sounds and utilize an appropriate carbon dioxide monitor as required by protocol.

Lubricate only the posterior surface of the KING LT-D to avoid blockage of the ventilation apertures or aspiration of the lubricant.

The KING LT-D is not intended for re-use.

During transition to spontaneous ventilation, airway manipulations or other methods may be needed to maintain airway patency.

Tube Selection:

Tube Size	Pt. Height
1	5 - 12 kg
2	35-45 inches
3	4 - 5 feet
4	5-6 feet
5	>6 feet

Continued Next Page



Adult / Pediatric

Procedure:

1. Test cuff inflation system by injecting the maximum volume of air into the cuffs. Remove all air from both cuffs prior to insertion.
2. Apply a water-based lubricant to the beveled distal tip and posterior aspect of the tube, taking care to avoid introduction of lubricant in or near the ventilatory openings.
3. Pre-oxygenate patient with 100% oxygen.
4. Position the head. The ideal head position for insertion of the KING LT-D is the "sniffing position". The angle and shortness of the tube also allows it to be inserted with the head in a neutral position.
5. Hold the KING LT-D at the connector with dominant hand, hold mouth open and apply chin lift.
6. With the KING LT-D rotated laterally 45-90° such that the blue orientation line is touching the corner of the mouth, introduce tip into mouth and advance behind base of tongue. Never force the tube into position.
7. As tube tip passes under tongue, rotate tube back to midline (blue orientation line faces chin).
8. Without exerting excessive force, advance KING LT-D until proximal opening of gastric access lumen is aligned with the teeth or gums.
9. With a syringe inflate the KING LT-D; inflate cuffs with the minimum volume necessary to seal the airway at the peak ventilatory pressure employed (just seal volume).
10. Attach the BVM to the 15 mm connector of the KING LT-D. While gently bagging the patient to assess ventilation, simultaneously withdraw the airway until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).
11. Depth markings are provided at the proximal end of the KING LT-D which refers to the distance from the distal ventilatory openings. When properly placed with the distal tip and cuff in the upper esophagus and the ventilatory openings aligned with the opening to the larynx, the depth markings give an indication of the distance, in cm, from the vocal cords to the upper teeth.
- 120 Attach ETCO2 monitoring device to **adaptor** and follow guidelines for its use.
13. Confirm proper position by auscultation, chest movement and verification of CO2 by capnography. Do not let go of tube until secured.
14. Secure KING LTS-D to patient using tube tamer. **DO NOT COVER THE PROXIMAL OPENING OF THE GASTRIC ACCESS LUMEN.**
15. Immediately following successful placement of the King Airway, apply an appropriately sized cervical collar. If the C-collar doesn't fit; manual inline stabilization should be utilized if transported; blankets, towels and tape should be used appropriately to restrict cervical spinal motion. **No exceptions.**

ONCE INSERTED SUCCESSFULLY, DO NOT REMOVE

	Cooke County EMS		<u>TOC</u>
	Clinical Guideline - Intra – Nasal Mucosal Atomization Device (MAD)		P10 Page 15

<i>Adult / Pediatric</i>
<p><u>Procedure:</u></p> <ol style="list-style-type: none"> 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.



Adult / Pediatric

Clinical Presentation:

Any patient that has been successfully intubated with an endotracheal tube.
Any patient that is in severe respiratory distress requiring the use of a BVM or endotracheal intubation.
Any Patient in cardiac arrest that needs ventilator support.
Transfer of ventilated patients from an acute care facility.

Procedure:

1. Connect ventilator oxygen supply tubing to wall mounted oxygen.
2. Connect flexible vent circuit to vent and test lung.
3. Select Assist Control.
3. Adjust tidal volume. Approximately 5 – 10ml/kg (Ideal Body Weight)

Adult male: 50 kg + 2.3 kg for every inch over 5 feet tall

Adult female: 45.5 kg + 2.3 kg for every inch over 5 feet tall

Pediatric: Broselow Tape
4. Adjust the respiratory rate to approximately 10 - 12 breaths per minute
5. I-times should be approximately 1.5 seconds.
6. With test lung in place, verify acceptable ventilator operation.
7. If patient is a hospital transfer, utilize hospital vent settings as a guideline.
8. Verify proper tube placement prior to connecting to ventilator.
9. Connect flexible vent circuit to patient's ET tube.
10. Monitor pulse oximetry and ETCO₂ for verification of tube placement as well as proper ventilatory support.
11. Adjust vent settings as necessary to maintain SPO₂ above 93% and ETCO₂ in a range of 35 – 45mmHg.

Precautions:

As with any mechanical device, failure is possible. Always have a BVM 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 pneumothorax is present see pneumothorax protocol and discontinue use of ventilator.



Pediatric

Dose	Preterm	New Born	6 Months	1 Year	3 Years	6 Years	10 Years	11 Years	12 Years	14 Years
Pounds	3 lbs	7 lbs	15 lbs	22 lbs	33 lbs	44 lbs	66 lbs	77 lbs	88 lbs	110 lbs
Kilo-grams	1.5 kg	3 kg	7 kg	10 kg	15 kg	20 kg	30 kg	35 kg	40 kg	50 kg
7ml/kg	10.5	21 ml	49 ml	70 ml	105 ml	140 ml	210 ml	245 ml	280 ml	350 ml
8ml/kg	12 ml	24 ml	56 ml	80 ml	120 ml	160 ml	240 ml	280 ml	320 ml	400 ml
9ml/kg	13.5 ml	27 ml	63 ml	90 ml	135 ml	180 ml	270 ml	315 ml	360 ml	450 ml
10ml/kg	15 ml	30 ml	70 ml	100 ml	150 ml	200 ml	300 ml	350 ml	400 ml	500 ml

Adult

Dose												
Pounds	121 lb	132 lb	143 lb	154 lb	165 lb	176 lb	187 lb	198 lb	209 lb	220 lb	231 lb	242 lb
Kilo-grams	55 kg	60 kg	65 kg	70 kg	75 kg	80 kg	85 kg	90 kg	95 kg	100 kg	105 kg	110 kg
7 ML/KG	385 ml	420 ml	455 ml	490 ml	525 ml	560 ml	595 ml	630 ml	665 ml	700 ml	735 ml	770 ml
8 ML/KG	440 ml	480 ml	520 ml	560 ml	600 ml	640 ml	680 ml	720 ml	760 ml	800 ml	840 ml	880 ml
9 ML/KG	495 ml	540 ml	585 ml	630 ml	675 ml	720 ml	765 ml	810 ml	855 ml	900 ml	945 ml	990 ml
10 ML/ KG	500 ml	600 ml	650 ml	700 ml	750 ml	800 ml	850 ml	900 ml	950 ml	1000 ml	1050 ml	1100 ml



Adult

Clinical Presentation:

Respiratory Distress indicated by low O2 saturation, high CO2 on capnography, RR>20 or RR<10 sustain or significantly increased work of breathing.
Patient's condition does not respond to supplemental oxygen.
Patient's respiratory distress is likely from COPD, CHF, asthma 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
Medical patient with SBP >90 mmHg

Exclusion Criteria:

Uncooperative, confused or significantly agitated patient Unable to properly protect airway
Suspected Pneumothorax or Hemothorax Significant chest wall trauma
Hypotension not responsive to minimal fluid resuscitation Respiratory rate < 8
Near respiratory arrest Unable to obtain proper seal of face mask

Procedure:

1. Follow initial steps in appropriate protocol
2. Select proper mask.
3. Connect ventilator circuit
4. Connect oxygen hose to ventilator and to wall oxygen supply
5. Turn on ventilator
6. Select the "MODE" parameter
7. Turn rotary Encoder/Selector to "CPAP"
8. Press the Selection Confirmation Button "√" to accept change.
9. Adjust FiO2 to 100%
10. The PEEP setting will default to 5 cm H2O
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, decreased O2 saturation, increased O2 concentration, 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 patient is deteriorating consider MAI or RSI.

**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



Adult / Pediatric

Clinical Presentation:

Patients where rapid, regular IV access is unavailable
Cardiac and / or respiratory arrest / respiratory failure
Multi-system trauma with severe hypovolemia
Severe dehydration with vascular collapse and / or loss of consciousness

Indications:

Patients where rapid, regular IV access is unavailable with any of the following
Cardiac and / or respiratory arrest / respiratory failure
Multi-system trauma with severe hypovolemia
Severe dehydration with vascular collapse and / or loss of consciousness

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. Proximal Tibia
 - b. Distal Tibia
 - c. Distal Femur
 - d. Humeral Head
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 patient is conscious consider:

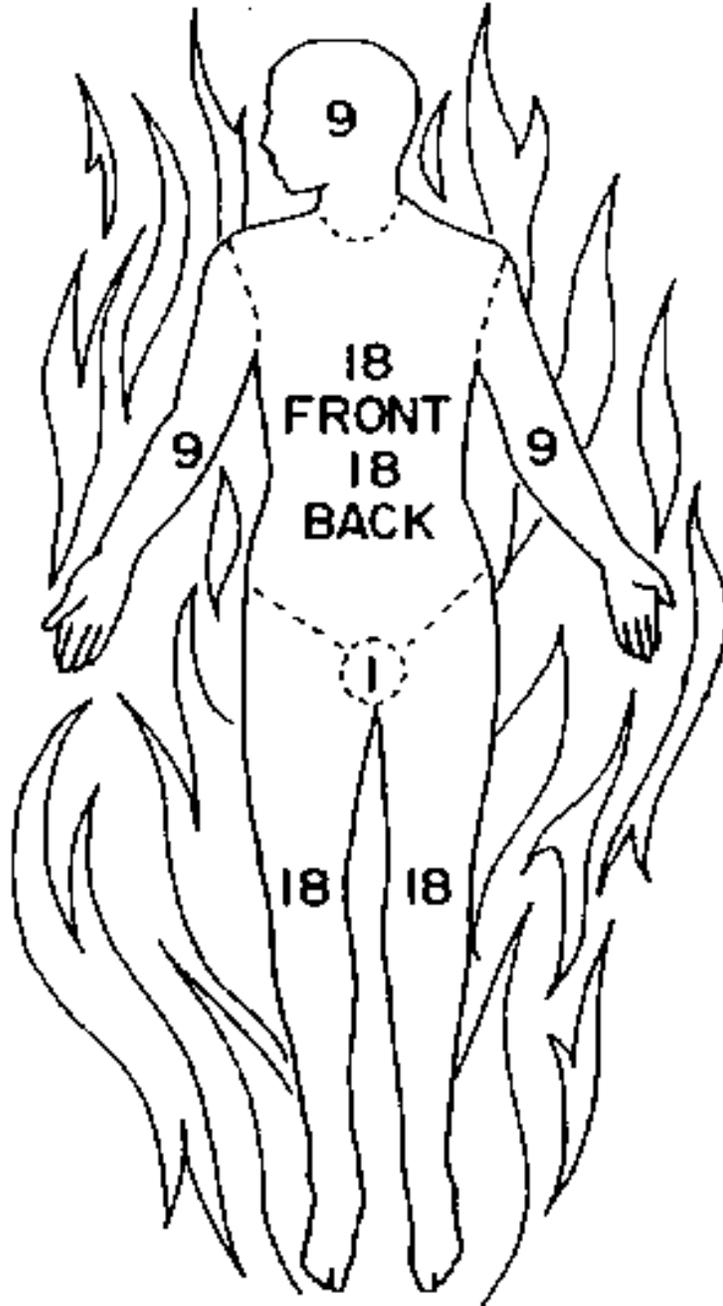
Lidocaine

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

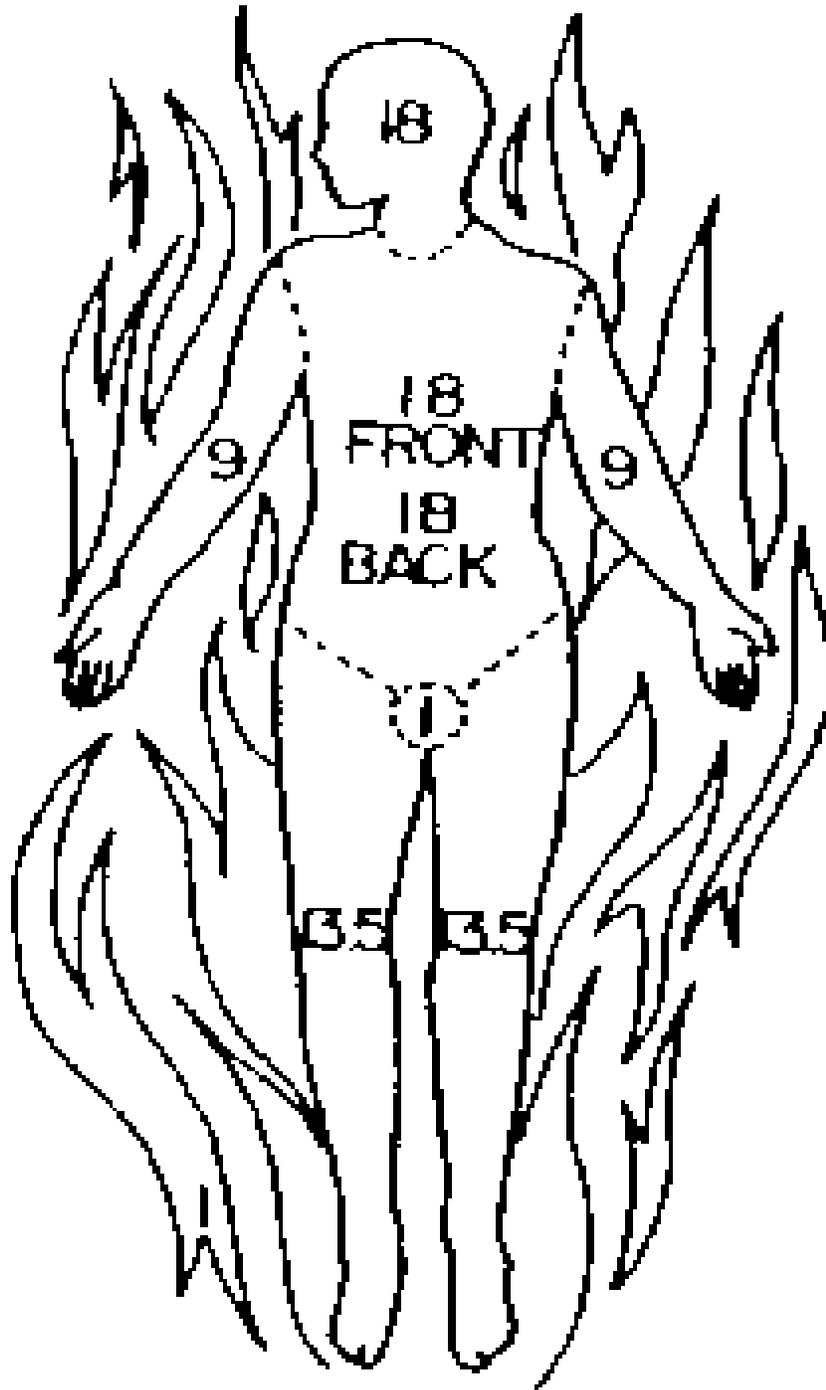


Adult





Pediatric



	Cooke County EMS		<u>TOC</u>
	Clinical Guideline - <u>Classification of Burn Severity</u>		P18
			Page 23

<i>Adult / Pediatric</i>
<u>First degree burns are not use in the calculation of % of BSA</u>
<u>Major Burns</u>
<ol style="list-style-type: none"> 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.
<u>Minor Burns</u>
<ol style="list-style-type: none"> 1. Burns less than 10% of BSA 2. No functional or cosmetic risk to special functional areas.



2 mg in 250 ml D5W (8 mcg/ml)

Initial Rate 1 mcg/min

Maximum Rate 30 mcg/min

Desired Dose (mcg/min)	Rate in ml/hr
1 mcg/min	7 ml/hr
2 mcg/min	15 ml/hr
3 mcg/min	22 ml/hr
4 mcg/min	30 ml/hr
5 mcg/min	37 ml/hr
6 mcg/min	45 ml/hr
7 mcg/min	52 ml/hr
8 mcg/min	60 ml/hr
9 mcg/min	67 ml/hr
10 mcg/min	75 ml/hr
11 mcg/min	82 ml/hr
12 mcg/min	90 ml/hr
13 mcg/min	97 ml/hr
14 mcg/min	105 ml/hr
15 mcg/min	112 ml/hr
16 mcg/min	120 ml/hr
17 mcg/min	127 ml/hr



50 mg in 250 mL / Concentration 200 mg/mL

Milliliter per hour	Milligram per minutes
1	3.3
2	6.7
3	10
6	20
7	23
9	30
12	40
15	50
18	60
21	70
24	80
27	90
30	100
33	110
36	120
39	130
42	140
45	150
48	160
54	180
60	200
66	220
72	240
78	260



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 poisonings

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:

- 1. Prepare and assemble all equipment
- 2. Inspect the nares for deformity or obstructions to help determine 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. Flex the neck *if not contraindicated***
- 5. Liberally lubricate the distal tip with water-soluble lubricate (KY Jelly)
- 6. Insert the tube along the floor of the nasal passage
- 7. Do not orient the tip upward into the turbinate's.
- 8. Continue to advance the tube until the appropriate distance is reached.
- 9. Confirm placement by injecting 20 cc of air and auscultating the epigastric region for the swish or bubbling of the air over the stomach. Gastric content may also be used to confirm placement
- 10. Secure the tube with tape to the nose and forehead or cheek
- 11. Decompression of the stomach of air and food can be done by connecting the tube to suction

Documentation should include the following:

The procedure and any complications that may have occurred



Adult

Purpose:

The purpose of this policy is to:

- Allow for discontinuation of prehospital resuscitation after delivery of adequate and appropriate ALS therapy.
- Allow for discontinuation of prehospital resuscitation for patients that show signs of obvious death.

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. Patient is >18 years of age.
3. Patient is not pregnant.
4. Situation is not related to hypothermic cause
5. ETCO₂ remains < 10 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

MEDICAL CONTROL MUST BE CONTACTED and AGREE PRIOR TO TERMINATION

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



Clinical Presentation:

This protocol is to be used only on patients that are alert and oriented to person, place, time, and event. These patients must have a positive neurological exam without any evidence of intoxication and no significant traumatic mechanism. All patients that are candidates for pre-hospital C-Spine clearance by CCEMS personnel **SHOULD** have a **NEGATIVE** (no) response to **ALL** of the following:

1. Patient <6 years old or > 65 years
2. Altered mental status
3. Suspected alcohol intoxication or drug use
4. Presence of neurological deficit or complaint
5. Presence of C-Spine pain
6. Distracting injuries **
7. Language barrier between paramedic and patient
8. Trauma above the clavicles
9. Significant mechanism of injury
10. Voluntary range of motion pain

The following are considered to be significant mechanism of injury events:

Falls

- adults: >20 feet (one story = 10 feet)
- children: >10 feet or two times the height of the child

High-risk auto crash

- intrusion, including roof: >12 inches occupant site; >18 inches any site
- rollover accidents
- ejection (partial or complete) from automobile
- death in same passenger compartment
- vehicle telemetry data consistent with a high risk for injury;

**Automobile versus pedestrian/bicyclist thrown, run over, or with significant (>20 mph) impact
Motorcycle crash >20 mph**

Consider immobilization in any patients with arthritis, cancer or any underlying spinal or bone disease.

The decision **not to** implement spinal immobilization precautions for patients is **your responsibility**.

You must remember a normal exam may not be sufficient to rule out a spinal injury in children and the elderly. If there is any doubt then immobilize the patient.

IF THE PATIENT HAS ANY COMPLAINTS OF THE ABOVE SIGNS AND / OR SYMPTOMS OR IF THERE IS A SIGNIFICANT MECHANISM OF INJURY, FULL C-SPINE PRECAUTIONS INCLUDING C-COLLAR AND A FULL BODY SPINAL RESTRICTION DEVICE MUST BE UTILIZED.

** Distracting Injury: Including, but not limited to long bone fracture, large laceration, degloving injury, crush injury, large burns, or any injury causing acute functional impairment.



The following criteria justify but do 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.):

- 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) or 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

- 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 is not responsive to initial therapy.
- Invasive airway procedure with assisted ventilation.
- Respiratory rate less than 10 or greater than 60 breaths per minute.

Systolic blood pressure:

- | | |
|--------------------|-------------------|
| Neonate: | less than 60 mmHg |
| Infant (< 2 yr): | less than 65 mmHg |
| Child (2 - 5 yr): | less than 70 mmHg |
| Child (6 - 12 yr): | less than 80 mmHg |

Near drowning with signs of hypoxia or altered mental status.

**Procedure:****Identify the proximal humerus:**

1. Place the patient's hand over the abdomen
(elbow adducted and humerus internally rotated)
2. Place your palm on the patient's shoulder anteriorly
3. The area that feels like a "ball" under your palm is the general target area
4. You should be able to feel this ball, even on obese patients, by pushing deeply
5. Place the ulnar aspect of one hand vertically over the axilla
6. Place the ulnar aspect of the opposite hand along the midline of the upper arm laterally
7. Place your thumbs together over the arm
8. This identifies the vertical line of insertion on the proximal humerus
9. Palpate deeply as you climb up the humerus to the surgical neck
10. It will feel like a golf ball on a tee – the spot where the "ball" meets the "tee" is the surgical neck
11. The insertion site is on the most prominent aspect of the greater tubercle,
1 to 2 cm above the surgical neck
12. If necessary, for further confirmation, locate the inter-tubercular groove:
13. With your finger on the insertion site, keeping the arm adducted,
externally rotate the humerus 90- degrees
14. You may be able to feel the inter-tubercular groove
15. Rotate the arm back to the original position for insertion
16. The insertion site is 1-2 cm lateral to the inter-tubercular groove

**Procedure:****Insertion:**

1. Prepare the site by using antiseptic solution of your choice
2. Remove the needle cap
3. Aim the needle tip downward at a 45-degree angle to the horizontal plane
4. The correct angle will result in the needle hub lying perpendicular to the skin
5. Push the needle tip through the skin until the tip rests against the bone
6. The 5mm mark must be visible above the skin for confirmation of adequate needle length
7. Gently drill into the humerus 2cm or until the hub reaches the skin in an adult.
8. Stop when you feel the “pop” or “give” in infants
9. Hold the hub in place and pull the driver straight off
10. Continue to hold the hub while twisting the stylet off the hub with counter clockwise rotations
11. The needle should feel firmly seated in the bone (1st confirmation of placement)
12. Place the stylet in a sharps container
13. Place the EZ-Stabilizer dressing over the hub
14. Attach a primed EZ-Connect extension set to the hub, firmly secure by twisting clockwise
15. Pull the tabs off the EZ-Stabilizer dressing to expose the adhesive, apply to the skin
16. Aspirate for blood/bone marrow (2nd confirmation of placement)
17. Secure the arm in place across the abdomen
18. Connect extension set and/or IV tubing
19. Place a pressure bag on solution (if needed)
20. Begin infusion (watch carefully for infiltration)
21. Apply dressing
22. Monitor EZ-IO site and patient condition

Drug Guide

Adenosine (Adenocard).....	3
Albuterol (Proventil).....	4
Ammonia Inhalants.....	5
Aspirin.....	6
Ativan (Lorazepam).....	7
Atropine.....	8
Benadryl (Diphenhydramine).....	9
Benzocaine Spray 20%.....	10
Calcium Chloride.....	11
Cardizem (Diltiazem).....	12
Charcoal (Activated Charcoal)	13
Cordarone (Amiodarone HCL).....	14
Dexamethasone (Decadron, Hexadrol)	15
Dextrose (50 Percent)	16
Dobutamine (Dobutrex)	17
Dopamine (Intropin).....	18
Duoneb.....	19
Epinephrine 1:1000.....	20
Epinephrine 1:10 000.....	21
Etomidate (Amidate).....	22
Fentanyl.....	23
Geodon (Ziprasidone).....	24
Glucagon.....	25
Haldol (Haloperidol)	26
Ketamine (Ketalar)	27
Labetalol (Trandate, Normodyne).....	29
Lasix (Furosemide).....	30
Levophed (Norepinephrine).....	31
2% Lidocaine (Xylocaine)	32
Magnesium Sulfate.....	33
Methylprednisone (Solu-Medrol)	34
Metoprolol.....	35
Morphine.....	36
Narcan (Naloxone).....	37

Nitroglycerin Spray (Nitrolingual Spray)	38
Nitroglycerin infusion (Nitril)	39
Oral Glucose	40
Oxygen.....	41
Promethazine (Phenergan)	42
Rocuronium Bromide (Zemuron).....	43
Sodium Bicarbonate	44
Succinylcholine (Anectine).....	45
Terbutaline (Brethine).....	46
Thiamine (Vitamin B1).....	47
Tranexamic Acid	48
Tylenol (Acetaminophen, Paracetamol)	49
Valium (Diazepam).....	50
Versed (Midazolam).....	51
Zofran (Ondansetron).....	52

Adenosine (Adenocard)

[TOC](#)

Class:

Antiarrhythmic

Action:

Slows atrioventricular conduction

Indication:

Regular tachyarrhythmias (narrow- and wide-complex)

Pharmacokinetics:

Onset: 20–30 seconds

Peak Effects: 20–30 seconds

Duration: 30 seconds

Half-Life: 10 seconds

Contraindications:

Torsades de pointes (polymorphic ventricular tachycardia), atrial fibrillation, second- or third-degree heart block, known hypersensitivity to the medication.

Patients taking Tegritol or Persantin

Precautions:

Arrhythmias, including blocks, are common at the time of cardioversion.

Use with caution in patients with asthma.

Side Effects:

Facial flushing

Nausea

Headache

Dizziness

Shortness of breath

Adult Dosage:

6 mg given as a rapid intravenous (IV) bolus over a 1- to 2-second period

May repeat at 12mg every 1-2 minutes (max dose 30mg)

Pediatric Dosage:

0.1 mg/kg rapid IV push (max first dose 6 mg) may repeat one time at

.02 mg/kg (TOTAL MAXIMUM 12mg)

Route:

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

Albuterol (Proventil)

[TOC](#)

Class:

Sympathomimetic (2 selective)

Action:

Bronchodilation

Pharmacokinetics:

Onset: 5–15 minutes (inhaled)

Peak Effects: 1.0–1.5 hours

Duration: 3–6 hours

Half-Life: < 3 hours

Indications:

Asthma

Bronchospasm

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

Adult Dosage:

2.5mg nebulized may repeat in 10 minutes

Pediatric Dosage:

< 2 years of age 1.25 mg nebulized up draft

May repeat in 10 minutes with MEDICAL CONTROL

>2 years of age 2.5 mg nebulized updraft may repeat in once in 10 minutes

May repeat one in 10 minutes with MEDICAL CONTROL

Route:

Inhalation

Ammonia Inhalants

Class:

Sympathomimetic (2 selective)

Action:

Triggers an inhalation reflex (that is, cause the muscles that control breathing to work faster^[7]) by irritating the mucous membranes of the nose and lungs.^[7] 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

Adult Dosage:

Place close to nostrils and activate between thumb and finger

Route:

Inhalation

Class:

Platelet aggregation inhibitor and anti-inflammatory agent

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
STEMI

Contraindications:

Aspirin is contraindicated in patients with known hypersensitivity to the medication. It is relatively contraindicated in patients with active ulcer disease and asthma.

Precautions:

Aspirin can cause gastrointestinal upset and bleeding. Enteric-coated aspirin, if available, should be used in patients who have a tendency for gastric irritation and bleeding with aspirin. 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 actually interfere with possible benefits.

Side Effects:

Aspirin can cause heartburn, gastrointestinal bleeding, nausea, vomiting, wheezing, and prolonged bleeding.

Adult Dosage:

324 mg (4 - 81 mg tablets)
If the patient takes Aspirin daily, adjust dose to equal 324 mg

Pediatric Dosage:

Not Recommended

Route: PO

Atropine

Class:

Parasympatholytic (anticholinergic)

Description:

Derived from parts of the Atropa belladonna plant. Atropine sulfate is a potent parasympatholytic and is used to increase the heart rate in hemodynamically significant bradycardias. Although it has positive chronotropic properties, it has little or no inotropic effect. It plays an important role as an antidote in organophosphate poisonings.

Actions:

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:

Hemodynamically significant bradycardia, Organophosphate poisoning, Bradycardia prior to RSI

Contraindications:

None when used in emergency situations

Precautions:

Dose of 3 mg should not be exceeded except in cases of organophosphate poisonings
Tachycardia, Hypertension

Side Effects:

Palpitations	Tachycardia	Headache	Dizziness
Anxiety	Dry mouth	Pupillary dilation	Blurred vision
Urinary retention (especially in older men)			

Adult Dosage:

Bradycardia:

1 mg rapid IV every 3–5 minutes to maximum of 3.0 mg or .04mg/kg

Organophosphate poisoning:

2mg IVP or IM may repeat in 5 min

RSI (for bradycardiac)

.5-1mg IV

Pediatric Dosage:

ACLS; 0.02 mg/kg IV/IO/ET/IN; repeat in 3 – 5 min Max of 0.04 mg/kg;

Minimum single dose: 0.1 mg; Maximum single dose: 0.5 mg

RSI: .02 mg/kg IV

Routes: IV, ET, IO, IN

Benadryl (Diphenhydramine)

Class:

Antihistamine

Actions:

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

Indications:

Allergic reactions

Pharmacokinetics:

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

Contraindications:

Asthma
Nursing mothers

Precautions:

Hypotension

Side Effects:

Sedation	Headache
Dries bronchial secretions	Palpitations
Blurred vision	

Dosage:

Allergic Reaction (mild); Overdose/Poisoning (dystonic reaction)

25 mg IVP or 50 mg IM

Allergic Reaction (moderate and anaphylaxis);

50 mg IVP or 50 mg IM

Pediatric Dosage:

Allergic Reaction (mild, moderate, & anaphylaxis);

1.0 mg/kg IM (max. 25 mg)

Routes:

SIVP, deep IM, IO

Benzocaine Spray 20%

Class:

Anesthetic Agent

Action:

inhibits the voltage-dependent sodium channels (VDSCs) on the neuron membrane, stopping the propagation of the action potential.

Pharmacokinetics:

Onset: 30sec-1min

Peak Effects:

Duration: 30-60 min

Half-Life:

Indications:

Gag reflex intact prior to intubation

Contraindication:

Known allergies to ester-type anesthetics

Side Effects:

Tingling, urticaria

Route: Topical Spray

Calcium Chloride

Class:

Electrolyte

Action:

Increases cardiac contractility

Pharmacokinetics:

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

Indications:

Acute hyperkalemia
Acute hypocalcemia
Calcium channel blocker (e.g., nifedipine, verapamil) overdose
Abdominal muscle spasm associated with spider bite and
Antidote for magnesium sulfate

Contraindication:

Patients receiving digitalis
Precautions IV line should be flushed between calcium chloride and sodium bicarbonate administration
Extravasation may cause tissue necrosis

Precautions:

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

Side Effects:

Arrhythmias (bradycardia and asystole) Hypotension

Adult Dosage:

Bradycardia, Overdose: Beta Blocker or Calcium Channel Blocker;
1 gram SIVP only
Cardiac Arrest (known dialysis patient)
500-1000mg IVP ONLY

Pediatric Dosage:

10-20 mg/kg IVP ONLY

Route: IV

Cardizem (Diltiazem)

Class:

Calcium Channel Blocker, Antiarrhythmic, AntiHypertensive

Actions:

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:

Hypertension (high blood pressure). It may be used alone or in combination with other high blood pressure medications. Cardizem is also used to treat chronic stable angina (chest pain) and angina due to coronary artery spasm.

Contraindications:

Sick sinus syndrome or AV block (unless you have a pacemaker), hypotension, or recent heart attack with pulmonary edema.

Precautions:

Use with caution in patients with sinus bradycardia < 50 beats/min.
Cardizem will potentiate Versed 2 to 3 fold.

Side Effects:

Dizziness, headache, bradycardia

Adult Dosage:

Initial bolus doses: 20 mg may repeat in 10 minutes to a max of 40mg.

Pediatric Dosage:

Not approved

Routes: IV

Charcoal (Activated Charcoal)

Class:

Poison Antidote (GI)

Actions:

Activated Charcoal is a fine black powder that binds and adsorbs ingested toxins, once bound to the activated charcoal, the combined complex is excreted from the body

Pharmacokinetics:

Onset: Immediate

Peak Effects: No documentation

Duration: Continual while in GI tract

Half-Life: based on peristalsis

Indications:

Oral poisonings, medication overdoses

Contraindications:

Corrosives, caustics, or petroleum distillates

Precautions:

May induce vomiting, aspirations precautions

Side Effects:

Constipation; diarrhea; temporary darkening of the stool; vomiting

Adult Dosage:

50 g PO

Pediatric Dosage:

< 1 year old 1g/kg

> 1 year old 25-50g

Routes: PO

Cordarone (Amiodarone HCL)

[TOC](#)

Class:

Antiarrhythmic (Class III)

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:

Ventricular fibrillation or pulseless ventricular tachycardia
Recurrent or refractory arrhythmias
ROSC
PSVT (stable)
PSVT (unstable)
VT (stable)

Adult Dosage:

Ventricular fibrillation or pulseless ventricular tachycardia;
300 mg IVP.

Recurrent or refractory arrhythmias in 3-5 minutes; AFIB w/RVR
150 mg

Post Resuscitation (ROSC);
150mg in 100ml D5W, infuse at 50 ml/hr

SVT wide complex (stable); MEDICAL CONTROL
150mg in 20ml D5W over 10 minutes

SVT (unstable); MEDICAL CONTROL
150mg in 20ml D5W, administer over 10 minutes, may repeat in 10 minutes (max dose 300mg)

VT (stable & unstable);
150mg in 20ml D5W, administer over 10 minutes (120ml/hr)

Pediatric Dosage:

VF / Pulseless VT, Stable & Unstable VT
5 mg/kg IV bolus

Unstable Narrow complex Tachycardia;
5 mg/kg IV over 20 - 60 minutes

Route: IV, IO

Dexamethasone (Decadron, Hexadrol)

[TOC](#)

Class:

Steroid

Actions:

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:

Anaphylaxis (after epinephrine and diphenhydramine)
Asthma
Chronic obstructive pulmonary disease

Contraindications:

None in the emergency setting

Precautions:

Should be protected from heat

Side Effects:

Gastrointestinal bleeding Prolonged wound healing

Adult Dosage:

Allergic Reaction (moderate & anaphylaxis);

8 mg IVP

COPD; Asthma

4 mg IVP or Nebulized

Pediatric Dosage: Max dose 4 mg

Allergic Reaction (moderate & severe);

0.1 mg/kg IV

Asthma;

.025 – 0.1 mg/kg IV/IO/IM OR nebulized updraft

Croup;

0.6 mg/kg PO, mixed with Tylenol

0.1 mg/kg IVP OR nebulized updraft

Epiglottitis;

0.1 mg/kg nebulized updraft

Routes: IV, Inhalation, IO, IM, IN

Dextrose (50 Percent)

Class:

Carbohydrate

Action:

Elevates blood glucose level rapidly

Pharmacokinetics:

Onset: < 1 minute

Peak Effects: Varies

Duration: Varies

Half-Life: Not applicable

Indication:

Hypoglycemia

Contraindications:

None in the emergency setting

Precaution:

A blood sample should be drawn before administering 50 percent dextrose

Side Effect:

Local venous irritation

Adult Dosage:

25 g IVP, IO (50 mL)

Pediatric Dosage:

Infants: **D10:** 0.5-10mg/kg D50 diluted in sterile water 1:4, slow IV

<3 yrs old **D25:** 2-4mg/kg D50 diluted with sterile water 1:1, slow IV

> 3 yrs old **D50:** 1mg/kg IV

Route:

IV, IO

Dobutamine (Dobutrex)

Class:

Sympathetic agonist

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

Indication:

Cardiogenic shock

Contraindications:

Hypovolemic shock unless fluid resuscitation is well under way.

Precautions:

Tachycardia and an increase in the systolic blood pressure are common following the administration of dobutamine. 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.

Side Effects:

Nervousness	Headache	Hypertension
Arrhythmias	Palpitations	Chest pain
Dyspnea	Nausea and vomiting	

Interactions/Incompatibilities:

Dobutamine may be ineffective when administered to patients taking beta-blockers because these medications can block the beta-receptors on which Dobutamine acts. Patients taking TCAs are at increased risk of hypertension with Dobutamine administration.

Adult Dosage:

Mix 125mg in 250ml of D5W

2-20 mcg/kg/min titrate to effect, start at 10mcg/kg/min

Pediatric Dosage:

Not Indicated

Route: IV Pump

Dopamine (Intropin)

Class:

Sympathomimetic

Actions:

Increases cardiac contractility
Causes peripheral vasoconstriction

Pharmacokinetics:

Onset: < 5 minutes
Peak Effects: 5–8 minutes
Duration: < 10 minutes
Half-Life: 2 minutes

Indications:

Hemodynamically significant hypotension (systolic blood pressure of 70–100 mmHg) not resulting from hypovolemia
Symptomatic bradycardia refractory to atropine

Contraindications:

Hypovolemic shock in which complete fluid resuscitation has not occurred
Pheochromocytoma
Precautions Presence of severe tachyarrhythmias
Presence of ventricular fibrillation
Ventricular irritability
Beneficial effects lost when dose exceeds 20 mcg/kg/min

Side Effects:

Ventricular tachyarrhythmias
Hypertension
Palpitations

Adult Dosage:

10 mcg/kg/min (MEDICAL CONTROL IN UNEXPLAINED SHOCK)

Pediatric Dosage:

5.0 - 10 mcg/kg/min

Route:

IV pump

Class:

Anticholinergic, Sympathomimetic

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:

COPD with bronchospasm
Pneumonia / Bronchitis with bronchospasm

Contraindications:

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

Precautions:

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

Side Effects:

Palpitations; Anxiety; HA; Dizziness; Sweating; Chest pain; Irregular heart beat

Adult Dosage:

3ml (0.5mg Ipratropium Bromide, 3mg Albuterol Sulfate) may repeat in 10 min.

Pediatric Dosage:

Not indicated

Route:

Inhalation

Epinephrine 1:1000

Class:

Sympathomimetic

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:

Allergic reaction (Moderate & Anaphylaxis) Bronchiolitis Croup

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

Adult Dosage:

Allergic Reaction (moderate & anaphylaxis)

.5 mg SQ
Moderate repeat at .3mg SQ MEDICAL CONTROL
Anaphylaxis repeat at .5mg SQ

Asthma

.3mg SQ

Pediatric Dosage:

Allergic Reaction (moderate & anaphylaxis)

.005 mg/kg SQ (MAX .3mg)
Medical Control repeat at .01 mg/kg SQ

Asthma

.01mg SQ or .5mg nebulized
.1mg/kg SQ

Bronchiolitis; Croup

.5 mg nebulized updraft may repeat after 10 minutes
MEDICAL CONTROL .01mg/kg SQ

Route: SQ, Inhalation

Epinephrine 1:10 000

Class:

Sympathomimetic

Actions:

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

Indications:

Cardiac arrest
Anaphylactic shock
Severe reactive airway disease

Contraindications:

Epinephrine 1:10 000 is for intravenous (IV) or endotracheal use; it 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
Nausea and vomiting

Adult Dosage Cardiac arrest:

ACLS;

1 mg IV, IO, IN repeated every 3–5 minutes
2mg ET

Allergic Reaction (anaphylaxis);

.5 mg IVP, IN may repeat once

Pediatric Dosage:

ACLS

0.01 mg/kg IV,IO, ET, IN repeated every 3-5 minutes

Allergic Reaction (anaphylaxis);

.01 mg/kg slow IV/IO/IN (max 0.3mg)

Routes:

IV, IO, ET, IN

Etomidate (Amidate)

Class:

Sedative/hypnotic

Description:

Etomidate is an ultra-short-acting, nonbarbiturate, nonbenzodiazepine hypnotic. It does not have any analgesic properties. It is used as an induction agent for RSI. Of the sedatives used in RSI, Etomidate has the best safety profile.

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:

Induction agent for rapid-sequence induction

Contraindications:

Known hypersensitivity to the medication

Precautions:

Marked hypotension
Severe asthma
Severe cardiovascular disease

Side Effects:

Myoclonic skeletal muscle movement
Apnea
Laryngospasm
Rapid administration may cause Trismus (Masseter muscle spasm)

Adult Dosage:

0.3 mg/kg IV over 30 seconds may repeat 1 time

Pediatric Dosage:

1.3 mg/kg IV over 30 seconds may repeat 1 time

Route:

IV, IM

Geodon (Ziprasidone)

Class:

Atypical antipsychotic

Actions:

Sedative
Antipsychotic

Indication:

Acute psychosis

Pharmacokinetics:

Onset: 15 – 30 minutes
Peak Effects: 60 minutes
Duration: 4 – 8 hours
Half-Life: 2 – 5 hours

Contraindications:

Patients with known hypersensitivity to the medication
Patients with prolonged QT syndrome
Precautions History of seizures
Stroke
Alzheimer's disease

Side Effects:

Myalgias
Somnolence
Dizziness
Postural hypotension

Adult Dosage:

20 mg IM ONLY

Pediatric Dosage:

Not indicated

Route:

IM

Class:

Hormone (antihypoglycemic agent)

Actions:

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:

Hypoglycemia
Beta-blocker overdose

Contraindication:

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

Adult Dosage**Beta Blocker Overdose**

1 mg IM/IN max 5mg

Diabetic Emergencies

1mg IM/IV

Pediatric Dosage:

1mg IM/IN

Seizures:

.4mg/kg IM/IV

Routes:

IM, IV

Haldol (Haloperidol)

Class:

Antipsychotic and neuroleptic

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 similar to 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

Indication:

Haloperidol is used in acute psychotic episodes.

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.

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:

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.

Adult Dosage:

5 mg SIVP, over 1 minute (may repeat in 10 minutes) OR 10 mg IM

Pediatric Dosage:

Not indicated

Route:

IV, IM

Ketamine (Ketalar)

Class:

Sedative/hypnotic and analgesic

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

Indication:

Induction agent for rapid-sequence induction

Contraindications:

Patients with hypersensitivity to the medication

Significantly elevated blood pressure

Precautions:

Hallucinations can occur, particularly on emergence

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

Adult Dosage:

PAIN MANAGEMENT

0.5 mg/kg IV; may repeat in 10 min

2 mg/kg IM; no repeat dose

3 mg/kg IN; 1/2 dose in each nostril

Ashtma

0.5 mg/kg; severe cases

Behavioral

2.5 mg/kg IM only

MAI

2mg/kg SIVP over one minute

Pediatric Dosage:

PAIN MANAGEMENT (Medical Control)

>1 year 0.5 mg/kg IV; may repeat in 10 min
2 mg/kg IM; no repeat dose
3 mg/kg IN; 1/2 dose in each nostril

Ashtma

0.5 mg/kg; severe cases

MAI

2mg/kg SIVP over one minute

Routes: IV, IM, IN

Labetalol (Trandate, Normodyne)

[TOC](#)

Class:

Sympathetic blocker

Actions:

Nonselective Beta agonist and, blocks Alpha 1 receptors inhibiting vasoconstriction

Pharmacokinetics:

Onset: 2–5 minutes (IV)

Peak Effects: 5–15 minutes (IV)

Duration: 2–4 hours (IV)

Half-Life: 3–8 hours

Indication:

Hypertensive emergency

Contraindications:

Bronchial asthma
Congestive heart failure
Heart block
Bradycardia
Cardiogenic shock

Precautions:

Blood pressure, pulse, and electrocardiogram (ECG) results must be constantly monitored
Atropine should be available

Side Effects:

Bradycardia
Heart block
Congestive heart failure
Bronchospasm
Postural hypotension

Adult Dosage:

Hypertensive Crisis & STROKE MEDICAL CONTROL

10 mg IV, may repeat after 10 minutes if needed (max 20 mg)

Pre-Eclampsia / Eclampsia;

20 mg IV MEDICAL CONTROL

Pediatric:

Dosage safety in children has not been established

Route: IV

Lasix (Furosemide)

Class:

Potent diuretic

Actions:

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:

Congestive heart failure
Pulmonary edema

Contraindications:

Pregnancy
Dehydration

Precautions:

Should be protected from light
Dehydration

Side Effects:

Few in emergency usage

Adult Dosage:

.5 – 1 mg/kg IVP

Pediatric Dosage:

Not indicated

Route:

IV, IM

Levophed (Norepinephrine)

Class:

Sympathomimetic

Action:

Causes peripheral vasoconstriction

Pharmacokinetics:

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

Indications:

Hypotension (systolic blood pressure < 90 mmHg) **not** due to hypovolemia

Contraindication:

Hypotensive states due to hypovolemia

Precautions:

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

Side Effects:

Anxiety
Palpitations
Headache
Hypertension

Dosage:

Mix 2mg in 250ml D5W

0.1 – 0.5 mcg/kg/min IVPB; SBP ≥ 100 (Max dose 30 mcg/min)

Pediatric Dosage:

Not indicated

Route: IV pump

2% Lidocaine (Xylocaine)

Class:

Antiarrhythmic (Class IB)

Actions:

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:

Closed head injuries prior to intubation
Analgesia for IO

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	Drowsiness
Dizziness	Confusion
Nausea and vomiting	Convulsions
Widening of QRS complex	

Adult Dosage:

Closed Head Injury prior to intubation;

1.5 mg/kg IVP

IO Insertion;

40 mg, allow to set for 2 minutes if possible, then flush

Pediatric Dosage:

IO Insertion;

.05 mg/kg allow to set for 30 – 60 seconds if possible, then flush

Routes: IV, IO

Magnesium Sulfate

Class:

Anticonvulsant and antiarrhythmic

Action:

Central nervous system depressant; Anticonvulsant; Antiarrhythmic Indications
Obstetrical: Eclampsia (toxemia of pregnancy) Cardiovascular: Torsade de pointes
(irregular, polymorphic ventricular tachycardia)

Indications:

Torsades, PreEclampsia, Eclampsia, PreTerm Labor

Pharmacokinetics:

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

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

Cautions:

Use with caution in patients with renal failure

Side Effects:

Flushing Respiratory depression Drowsiness

Dosage:

VF – Pulseless VT & Stable VT (Torsades de Pointe only);

1 - 2 grams IV or IO (in 10ml of D5W)

Asthma;

1 gram IVP

Pre – Eclampsia / Eclampsia;

4 – 6 grams in 50 ml Normal Saline IVPB over 20 minutes or 2 grams IM
MEDICAL CONTROL repeat 2grams IV

Preterm Labor; MEDICAL CONTROL

4 – 6 grams in 50 ml Normal Saline IVPB over 20 minutes or 2 grams IM

Pediatric Dosage:

VF-Pulseless VT & Stable VT (Torsades de Pointe Only):

50mg/kg (max dose 2g)

Routes: IV, IM

Methylprednisone (Solu-Medrol)

Class:

Steroid

Actions:

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:

Severe anaphylaxis
Asthma and chronic obstructive pulmonary disease

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
Prolonged wound healing
Suppression of natural steroids

Dosage: 125 mg IV

Pediatric Dosage: 1mg/kg IVP

Routes:

IV, IM

Class:

Selective beta-blocker (Class II antiarrhythmic)

Action:

Metoprolol is a β antagonist that blocks both β_1 and β_2 adrenergic receptors. Unlike propranolol, however, metoprolol is selective for β_1 adrenergic receptors. It has minimal, if any, effect on β_2 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

Contraindications:

Metoprolol is contraindicated in any patient with a heart rate of less than 55 beats per minute, a systolic blood pressure less than 100 mmHg, or congestive heart failure. In addition, metoprolol is contraindicated in patients with 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. It is also contraindicated in any patient showing either early or late signs of shock. 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 during metoprolol therapy. Prehospital personnel should be alert for signs and symptoms of congestive heart failure, bradycardia, shock, heart block, or bronchospasm when administering metoprolol. The presence of any of these signs or symptoms is an indication for discontinuing the medication.

Cautions:

Metoprolol should not be administered to patients who have received intravenous calcium channel blockers. It should be administered with caution to patients taking antihypertensive agents.

Side Effects:

Bradycardia, hypotension, lethargy, congestive heart failure, dyspnea, wheezing, and weakness.

Dosage:

5 mg SIVP; repeat every 5 minutes, if heart rate >55 and BP > 100 systolic (Max dose 15mg)

Pediatric Dosage:

Not indicated

Routes: IV

Morphine

Class:

Narcotic

Description:

Morphine is a central nervous system (CNS) depressant and a potent analgesic. It is commonly used in EMS and emergency medicine.

Actions:

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:

Severe pain

Contraindications:

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

Precautions:

Respiratory depression	Altered level of consciousness
Hypotension	Side Effects Dizziness
Nausea	

Adult Dosage:

Pain Management for the Burn Patient;

10 mg SIVP (max 40 mg)

ACS (Chest pain & STEMI)

2 - 10 mg IVP; repeat in 2 mg increments every 5 minutes (max dose 10 mg)

Asthma;

4 mg nebulized

CHF / Pulmonary Edema; Preterm Labor

2 - 5 mg IVP; repeat in 2 mg increments every 5 minutes (max dose 10 mg)

Pain Management (general);

2 - 5 mg increments SIVP, Q 5 minutes (MAX dose of 20mg)

Pediatric Dosage:

Pain Management;

0.1 mg/kg IVP Q 5minutes max of 10mg

Pain Management for burns

< 2 yrs 0.1 mg/kg every 5 min (max 10mg)

Route: IV, IM, IO, Inhalation

Narcan (Naloxone)

Class:

Narcotic antagonist

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:

Narcotic overdoses including the following: morphine, hydromorphone, fentanyl, Demerol, paregoric, methadone, heroin, hydrocodone, oxycodone
Synthetic analgesic overdoses including the following: Nubain, Stadol, Talwin, Darvon
To rule out narcotics in coma of unknown origin

Contraindication:

Patients with a history of hypersensitivity to the medication

Precautions:

May cause withdrawal effects in patients dependent on narcotics
Short acting; should be augmented every 5 minutes
Should never be used as part of a “coma cocktail”

Side Effects:

Rare

Dosage

0.5–2 mg IV/IN may repeat

Pediatric Dosage:

Seizures & Altered Mental Status *MEDICAL CONTROL FIRST*

0.1 mg/kg IV , IO,IN (max 2.0mg)

Routes:

IV, IM, IN, endotracheal (endotracheal dose 2–2.5 times IV dose)

Nitroglycerin Spray (Nitrolingual Spray)

Class:

Antianginal

Actions:

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:

Angina pectoris
Chest pain associated with myocardial infarction

Contraindication:

Hypotension

Precautions:

Constantly monitor vital signs
Syncope can occur

Side Effects:

Dizziness
Hypotension
Headache

Dosage:

ACS, STEMI, & HYPERTENSIVE CRISIS

1.4 mg SL may repeat every 5 minutes 3 doses (max 1.2 mg)

Pediatric Dosage:

Not indicated

Route:

SL

Nitroglycerin infusion (Nitril)

Class:

Nitrate

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:

Nitroglycerin infusion is used in the treatment of angina, hypertensive emergencies, and as a treatment adjunct in acute coronary syndrome. Nitrates play a major role in the management of acute congestive heart failure.

Contraindications:

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

Side Effects:

Headache	Dizziness	Weakness	Tachycardia
Hypotension	Orthostasis	Skin rash	Dry mouth
Nausea	Vomiting		

Interactions/Incompatibilities:

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.

Dosage: 2-20 mcg/min (MAX 20mcg)
Hypertensive Crisis; MEDICAL CONTROL
2-20 mcg/min

CHF/Pulmonary edema
5-10 mcg/min; titrate up every 5 minutes
maintain SBP >90 mmHg;
Max dose 200 mcg/min

Pediatric Dosage:
Not indicated

Route: IV Pump

Oral Glucose

[TOC](#)

Class: Simple Sugar

Action:

Glucose also known as dextrose is a simple [sugar](#) (monosaccharide) that is used to increase the level of [blood sugar](#) (glucose)

Indication:

Altered mental status with suspected hypoglycemia

Contraindications:

Unconscious person

Precautions:

Altered mental status

Side Effect:

Nausea

Dosage:

15G may repeat in 10 minutes

Pediatric Dosage:

15G may repeat in 10 minutes

Route:

PO, Buccal

Class:

Gas

Action:

Necessary for cellular metabolism

Indication:

Hypoxia

Contraindications:

Non-hypoxic patients

Precautions:

Avoid hyperoxia

Humidify when providing high-flow rates

Side Effect:

Drying of mucous membranes

Dosage:

Cardiac arrest: 100 percent

Other critical patients: 100 percent

Other: Administer only enough to correct hypoxia

Carbon Monoxide: 15lpm consider CPAP

Pediatric Dosage:

24–100 percent as required

Route:

Inhalation

Promethazine (Phenergan)

Class:

Phenothiazine antihistamine (H1 antagonist)

Actions:

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 and vomiting
Motion sickness
To potentiate the effects of analgesics
Sedation

Contraindications:

Comatose states
Patients who have received a large amount of depressants (including alcohol)
Patients > 65

Precautions:

Extravasation can cause tissue damage (“Black Box” warning)

Side Effects:

May impair mental and physical ability
Drowsiness

Dosage:

12.5mg IVP or 25.0 mg IM

Pediatric Dosage:

Not indicated

Routes:

IV, IM

Rocuronium Bromide (Zemuron)

[TOC](#)

Class:

Nondepolarizing neuromuscular blocker

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

Indication:

Induction of skeletal muscle paralysis
Continued paralysis

Contraindication:

Hypersensitivity to the medication

Precautions:

Underlying cardiovascular disease
Dehydration or electrolyte abnormalities

Side Effect:

Bronchospasm

Dosage:

1 – 1.5 mg/kg

Pediatric Dosage:

1 mg/kg

Route:

IV

Sodium Bicarbonate

Class:

Alkalinizing agent

Actions:

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:

Tricyclic antidepressant overdose
Severe acidosis refractory to hyperventilation

Contraindication:

Alkalotic states

Precautions:

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

Side Effect:

Alkalosis

Adult Dosage:

Acidosis;

1 mEq/kg

Hyperkalemia

50 mEq IVP

Tricyclic Overdose;

1 mEq/kg (minimum dose 50 meq) IVP

Pediatric Dosage:

Route: IV, IO

Succinylcholine (Anectine)

Class:

Neuromuscular blocking agent (depolarizing)

Actions:

Skeletal muscle relaxant

Paralyzes skeletal muscles, including respiratory muscles

Pharmacokinetics:

Onset: 30 – 60 seconds

Peak Effects: 1 – 3 minutes

Duration: 2 – 3 minutes

Half-Life: 2 – 10 minutes

Indication:

To achieve paralysis to facilitate endotracheal intubation

Contraindication:

Patients with known hypersensitivity to the medication

Hyperkalemia

Crush injuries

Multiple sclerosis

Precautions:

Should not be administered unless persons skilled in endotracheal intubation are present

Oxygen equipment and emergency resuscitative medications must be available

Side Effects:

Prolonged paralysis

Hypotension

Bradycardia

Adult Dosage:

1-1.5 mg/kg

Pediatric Dosage:

2 mg/kg

Route:

IV, IO

Terbutaline (Brethine)

Class:

Sympathomimetic

Actions:

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:

Bronchial asthma
Reversible bronchospasm associated with chronic obstructive pulmonary disease
Preterm labor

Contraindication:

Patients with known hypersensitivity to the medication

Precautions:

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

Side Effects:

Palpitations
Tachycardia
Premature ventricular contractions
Anxiety
Tremors
Headache

Adult Dosage:

0.25 mg SQ MEDICAL CONTROL IN PRETERM LABOR

Pediatric Dosage:

0.25 mg SQ or nebulized in 2cc NS

Routes:

SQ, Inhaled

Thiamine (Vitamin B1)

[TOC](#)

Class:

Vitamin

Action:

Allows normal breakdown of glucose

Pharmacokinetics:

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

Indications:

Coma of unknown origin
Alcoholism
Delirium tremens

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

Adult Dosage:

100 mg

Pediatric Dosage:

Rarely indicated

Routes:

IV, IM

Tranexamic Acid

Class:

Carboxylic Acids

Actions:

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.

Indication:

Trauma from neck to knees resulting in sustained systolic pressure < 90 or HR greater than 120bpm. Not responsive to fluid bolus.

Contraindications:

None in a hypovolemic trauma setting

Side Effects:

Headaches	Backaches	Abdominal Pain
Diarrhea	Fatigue	Anemia
Nasal sinus problems		

Dosage:

Loading Dose: 1G in 100ml D5W over 10 min (660ml/hr)

Maintenance Dose: 1G in 250ml D5W infuse over 8 hrs (33ml/hr)

Pediatric Dosage:

Not indicated

Route: IV, IO

Tylenol (Acetaminophen, Paracetamol)

[TOC](#)

Class:

Nonnarcotic analgesic, antipyretic

Action:

Inhibits cyclooxygenase

Pharmacokinetics:

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

Indications:

Mild to moderate pain, fever

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

Adult Dosage:

325–650 mg every 4–6 hours (up to 1 gram is occasionally used as an antipyretic)

Pediatric Dosage:

15 mg/kg rectal every 4–6 hours

Route:

PO, Rectal

Valium (Diazepam)

Class:

Tranquilizer (benzodiazepine)

Actions:

Anticonvulsant, Skeletal muscle relaxant, Sedative

Pharmacokinetics:

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

Indications:

Major motor seizures Skeletal muscle relaxant Status epilepticus
Acute anxiety states Premedication before cardioversion

Contraindication:

Patients with a history of hypersensitivity to the medication

Precautions:

Can cause local venous irritation, has short duration of effect
Do not mix with other medications because of possible precipitation problems

Side Effects:

Drowsiness Hypotension Respiratory depression and apnea

Adult Dosage:

Burn, Pain Management; Induced Hypothermia 10mg SIVP (max. 20 mg)
Pre-medication prior to Cardioversion or Pacing; 2-10 mg IVP, IM, or IN
Anxiety (ACS & STEMI); Eclampsia 2-10 mg IVP, IM, or IN
Anxiety (COPD); 2-5 mg SIVP
Seizure; 5 mg IVP, IN, or Rectal may repeat every 5 minutes as needed (max. 20 mg)
Heat Stroke; 5 – 10 mg IVP
TBI Seizures 2mg SIVP, 2mg increments (max of 10mg) if seizures are greater than 15-30seconds
Behavioral 5-10mg IV or IM

Pediatric Dosage:

Heat Stroke: 0.2 – 0.3 mg/kg SIVP, IN, Rectal
Seizures; 0.1 mg/kg IV, IO, IN or 0.5 mg/kg Rectal
Pain Management for Burns; 0.1 mg/kg IV (MAX .5mg/kg)
TBI Seizures: .1mg/kg IV or .5mg/kg Rectal if seizures are greater than 15-30seconds
Premedication – VT stable .1mg/kg Slow IVP max dose .5mg/kg

Routes:

IV, IM, IN, IO, Rectal

Versed (Midazolam)

Class:

Tranquilizer (benzodiazepine)

Description:

Benzodiazepines bind to specific sites on GABA Type A receptors in brain. Through this mechanism, the benzodiazepines display their hypnotic, anxiolytic, and anticonvulsant effects. Midazolam is a potent but short-acting benzodiazepine used widely in medicine as a sedative and hypnotic. It is three to four times more potent than diazepam. Midazolam has impressive amnestic properties, no effect on pain.

Actions:

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:

Premedication before cardioversion, Acute anxiety states, Sedation for RSI

Contraindications:

History of hypersensitivity to the 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	Hypotension	Ataxia
Tolerance development	Amnesia	Ataxia	Apnea
Respiratory depression	Sedation	Alcohol and barbiturate potentiation	

Adult Dosage:

Pre – Medication for Cardioversion and Pacing, Chemical Restraint, Heat Stroke, RSI; Behavioral 5 mg IV, IM
Seizure; 3 – 5 mg IVP, IN, may repeat in 20 minutes
Continued Sedation; 1 – 5 mg IVP every 10 min MAX total of 20mg in 1 hr
Induced Hypothermia 5mg, may repeat in 20minutes

Pediatric Dosage:

0.3 mg/kg
Continued Sedation:
.1mg/kg IV

Routes: IV, IM, IO, IN

Zofran (Ondansetron)

Class:

Antiemetic

Actions:

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:

Severe nausea and vomiting

Contraindications:

Known hypersensitivity to the medicine

Precautions:

Use with caution in patients taking serotonin blockers

Side Effects:

Headache, lightheadedness, dizziness

Dosage:

4mg IV, IM, ODT (max 8 mg Q 4 Hours)

Pediatric Dosage:

Medical Control First: < 2 yrs - 0.15 mg/kg IV

2-7 yrs – 1mg IVP, IM, ODT (max 2 mg Q 4 Hours)

7-12 yrs – 2mg IVP, IM, ODT (max 4 mg Q 4 Hours)

Route:

IV, IM, PO, Rectal