

2013

Version 2

Asotin County EMS Protocols



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Changes from Version 1 to Version 2

- Added language regarding intranasal administration of Versed
- Added updated county operating procedure regarding cardiac patients
- .Added language regarding trauma alerts and trauma codes in the trauma general section
- Added language regarding the use of the combat application tourniquet for EMT's, Advanced EMT's, and Paramedics for amputations and hypoperfusion protocols
- Added Norepinephrine to the drug list, medical formulary and appropriate protocols to replace the use of Dopamine
- Added cardioversion language to narrow and wide complex tachycardia protocols with max energy
- Removed language on high flow oxygen therapy and replaced with oxygen therapy maintaining a SaO₂ of 94-98 % through titration
- Added new protocols on infant airway obstruction, near drowning, hypothermia, cold injuries, heat cramps/exhaustion, heat stroke, CO poisoning, cyanide poisoning, human and animal bites, bites & stings, behavioral emergencies, electrical injuries, induced hypothermia post resuscitation, hemorrhage, vaginal bleeding, crush injuries, and eye injuries
- Advanced EMT's use of adult IO's
- Changed format to follow more alphabetical

Table of Contents

Pre-Hospital Patient Transport Guidelines	6
Physician on the Scene	6
Transport Issues	7
Medical Control	8
Inter-Hospital Transport	9
County Operating Procedures	11
Cardiac: Cardiogenic Shock	13
Cardiac: Chest Pain	14
Cardiac: Asystole/PEA	15
Cardiac: V-Fib/Pulseless V-Tach	16
Cardiac: Symptomatic Bradycardia/Heart Blocks	17
Cardiac: Narrow Complex Tachycardia with Rate >150	18
Cardiac: Wide Complex Tachycardia with a Pulse	19
Cardiac: Induced Hypothermia	20
Cardiac: Termination of Resuscitation	21
Medical: Abdominal Pain	22
Medical: Active Seizures	23
Medical: Altered LOC	24
Medical: Anaphylaxis & Allergic Reactions	25
Medical: Animal & Human Bites	26
Medical: Behavioral Emergencies	27
Medical: Bites & Stings	28
Medical: Carbon Monoxide Poisoning	29
Medical: Cold Injuries/Frostbite	30
Medical: Cyanide Poisoning	31
Medical: Diabetic Emergencies	32
Medical: Excited Delirium	33
Medical: Heat Cramps/Exhaustion	34
Medical: Heat Stroke	35
Medical: Hypothermia	36
Medical: Nausea and/or Vomiting	37
Medical: Near Drowning	38
Medical: Overdose or Toxic Exposure	39
Medical: Suspected Stroke	40
OB/Gyn: Childbirth	41
OB/Gyn: Eclampsia	43
OB/Gyn: Pre-Term Labor (24-37 weeks)	44
OB/Gyn: Vaginal Bleeding	45
Pediatric Emergencies	46
Pediatric: Active Seizures	47
Pediatric: Acute Asthma	48
Pediatric: Airway Obstruction, Infant	49
Pediatric: Altered LOC	50
Pediatric: Anaphylaxis	51
Pediatric: Asystole or PEA	52
Pediatric: V-Fib/Pulseless V-Tach	53
Pediatric: Symptomatic Bradycardia	54
Pediatric: Tachycardia with Pulses and Poor Perfusion	55
Pediatric: Diabetic Emergencies	56

Pediatric: Hypoperfusion/Hypovolemia	57
Pediatric: Overdose or Toxic Exposure	58
Pediatric: Severe Pain Management	59
Procedural: Adult EZ IO	60
Procedural: Air Medical Utilization	62
Procedural: Airway Management	63
Procedural: Auto Vent	64
Procedural: Combitube	65
Procedural: CPAP	66
Procedural: Cricothyrotomy	67
Procedural: Epinephrine Auto Injector	68
Procedural: Epinephrine Drip	69
Procedural: Intranasal Medication Delivery	70
Procedural: Intubation	71
Procedural: King LT Airway	72
Procedural: Needle Thoracostomy	75
Procedural: Pain Management	76
Procedural: Pediatric EZ IO	77
Procedural: Restraints for Aggressive or Violent Patients	79
Procedural: RSI	80
Procedural: Sedation	81
Procedural: Transcutaneous Pacing	82
Respiratory: Acute Asthma	83
Respiratory: Acute Pulmonary Edema	84
Respiratory: COPD Exacerbation	85
Trauma: General	86
Trauma: Abdominal Injuries	87
Trauma: Amputations	88
Trauma: Burns	89
Trauma: Chest Trauma	90
Trauma: Crush Injuries	91
Trauma: Electrical Injuries	92
Trauma: Extremity Injuries	93
Trauma: Eye Injuries	94
Trauma: Head & Facial Injuries	95
Trauma: Hemorrhage	96
Trauma: Hypoperfusion/Hypovolemia	97
Trauma: Spinal Injuries	98
Medication Formulary	99
Medication Infusion	100
POLST	101
Asotin County Medication List	104
Adenosine	105
Albuterol	106
Alcaine Eye Drops	107
Amiodarone	108
Aspirin	109
Atropine	110
Dextrose (D25 & D50)	112
Diazepam	113

Diphenhydramine	114
Droperidol	115
Duodote	116
Epinephrine	118
Fentanyl	119
Furosemide	120
Glucagon	121
Lidocaine	122
Lorazepam	123
Magnesium Sulfate	124
Midazolam	125
Morphine	126
Naloxone	127
Nitroglycerine	128
Norepinephrine	129
Ondanestron	130
Oxygen	131
Rocuronium	132
Sodium Bicarbonate	133
Succinylcholine	134
Thiamine	135
Vecuronium	136

Pre-Hospital Patient Transport Guidelines

- All medical patients (adult or pediatric) with cardiopulmonary arrest or unmanageable airway shall be transported to the nearest facility with advanced life support capabilities.
- The patient presenting the following conditions shall be transported to St. Joseph Regional Medical Center:
 - Multiple systems trauma
 - Severe head and/or spinal trauma
 - Penetrating trauma to chest and/or abdomen
 - Severe pediatric trauma or illness
 - Obstetrical/Neonatal problems
 - Major burns
- Patient (or family member), except those referenced above, will be consulted regarding hospital preference and transportation to that facility.
- If patient (or family member) has no preference, then EMS personnel on-scene shall make facility decision.
- If a medical patient is acutely ill and unable to communicate preference, he/she will be transported to nearest facility with advanced life support capabilities.
- Request a Law Enforcement Officer to accompany their prisoners who require transport.

Physician on the Scene

- Verify the identity and specialty of the physician by looking at their license.
- The physician may participate in patient care management.
- The physician may give orders if:
 - The base hospital physician concurs, and...
 - Physician accompanies the patient to the hospital, and
 - Orders are within the scope of practice for paramedics.
- If there are any conflicts or questions, contact Medical Control.

Transport Issues

- When transport is refused against the paramedics or doctors advice, consider contacting medical control.
- When transport is refused against the EMT or Advanced EMT's advice, contact medical control.
- Competent Refusal
 - The EMS provider may obtain a competent refusal from a patient who is alert and oriented and understands the explained risks and benefits. Patient signature required and refusal form must be electronically attached to the PCR.
 - All documentation should be made on the Patient Care Report including that the patient clearly understands the risks if not transported and the release signed by the patient refusing care and transportation.
 - A competent suicidal, homicidal, or non-emancipated minor patient should be transported according to involuntary transport protocol when treatment/transport is refused.
 - For minors, refusal must be completed by the minor's parent or guardian.
- Incompetent Refusal
 - An individual will be considered incompetent to refuse treatment by the assessing EMS provider when a medical condition/illness, injury, drugs, or alcohol has impaired the patient's judgment. The incompetent patient should be treated and transported if there is any potential serious threat to life or limb. Request help from Law Enforcement if needed.
- Involuntary Transport
 - When patient is deemed to need transport against his/her will, the EMS provider will decide if that can be done without Law Enforcement.
 - Call for Law Enforcement assistance if danger to self or others.
 - If Law Enforcement refuses or cannot assist, Base Hospital contact should be made and patient left at scene with documentation of Law Enforcement refusal. At no time are field personnel to put themselves in danger by attempting to transport or treat combative or threatening patients who refuse.
- Patient Left at Scene
 - After EMS provider evaluation and/or treatment, when, in the Paramedic's clinical judgment, the patient is stable, the patient may be left at the scene at the patient's request, without Medical Control contact. EMT's and Advanced EMT's will contact medical control prior to leaving a patient at the scene. When in doubt, contact Medical Control.
- Private Vehicle or Police Transport
 - The EMS provider may allow the patient to seek further medical care via other means of transportation (private vehicle or Police) if, in the EMS providers judgment, the patient is stable.

Medical Control

Key Points/Considerations - Medical Control

- First line of Medical Control communication must be via cell phone or radio
- Hospitals may be contacted directly via phone
- On-line Medical Control is provided by the Emergency Department Physicians at Tri State Memorial Hospital.
- Communications failure includes:
 - Radio or telecommunications failure,
 - Medical Control is not established by the time of your arrival at the hospital;
- If unable to obtain Medical Control over the radio or telephone, utilize Standing Orders to the appropriate stop line. Describe the situation that prevented you from contacting Medical Control on the PCR and contact Medical Control as soon as feasible.

Medications

Key Points/Considerations - Medications

- Only medications listed may be carried by EMS Providers in Asotin County. Medications not listed may not be carried without approval of the MPD
- Local variations in concentration and volume may exist because of restocking necessity which is out of our control.
- Medications should be protected from extremes of temperature at all times.
- If you have administered any medications and the patient wishes to RMA (Refusal of Medical Aid) you must contact medical control prior to completing the RMA, the only exclusion is D50.
- Use a micro drip administration set for Dopamine, Epinephrine, Lidocaine and Amiodarone infusions.
- Specific concentrations and total quantities of controlled substances Diazepam, Fentanyl, Lorazepam, Midazolam, and Morphine should be in accordance with the Agency's Controlled Substance Plan.
- Medications are only to be carried in Washington EMS licensed vehicles and cannot be carried in a private/personally owned vehicle at any time.

Inter-Hospital Transport

EMT

ADVANCED EMT

- An EMT and Advanced EMT may transport stable patients with a secured saline lock device in place, as long as no fluids or medications are attached to the port. The EMT and Advanced EMT must assure that the venous access site is secured and dressed prior to leaving the medical facility.
- Advanced EMT may monitor an unmedicated IV.

EMT AND ADVANCED EMT STOP

PARAMEDIC

- **All Paramedics doing inter-hospital transports MUST have on-line medical control approval on any non-protocol medications not listed below.**

DILAUDID

PLEURAVAC

HEPARIN

- Monitor patient for signs of bleeding around IV sites, hemoptysis, hematuria, and/or epistaxis
- Discontinue if any signs or symptoms of bleeding complications

NITROGLYCERIN

- Monitor blood pressure every 5 minutes
- Discontinue if systolic blood pressure falls below 90 mm Hg, or if diminishing mental status occurs with diminishing blood pressure. If systolic blood pressure returns to above 100 mm Hg prior to MD contact, follow the Suspected Chest Pain Protocol

PARAMEDIC STOP

Specialty Care Transport

- All medications and interventions utilized must be covered within Agency protocols
- Be certain to clarify orders regarding medication titration prior to departure
- The IV medications must be run on an infusion pump
- All patients on ventilators must have two certified EMS personnel in the back during transport.

Key Points/Considerations

- Requests for inter-hospital transfer must be screened by appropriately trained personnel to determine the transport requirements.
- After assessing the patient and reviewing the patient's records and transfer orders, determine if the patient's current condition is appropriate for the provider's level of training, experience and available equipment.
- Evaluate the patient's airway status prior to departing the transferring facility. Secure the airway as indicated.
- Prior to or during the transport, contact the agency's medical director, the transferring/sending physician or the receiving physician for clarification, or to discuss any concerns.

- If there are any changes in the patient's condition that are not covered by the prescribed orders or agency protocols contact Medical Control. If a total failure of communications occurs and the patient is unstable and decompensating, follow standing orders and go to the closest hospital emergency department.
- Specialty Care Transports are a subset of Inter-Hospital Transports, and can only be done by Paramedics.
- Each Inter-hospital transport must be reviewed by the agency as part of the QI program.

County Operating Procedure for Determination of Patient Transport Destination

Patient destination shall be determined according to the following criteria:*

1. Trauma patients:

- a. Trauma dispatch within the City of Clarkston will include a simultaneous dispatch of Clarkston Fire Department (CFD)-ambulance service, trauma-verified ILS ambulance service, and Lewiston Fire Department (LFD), trauma-verified ALS ambulance service.
- b. In the City of Clarkston, if the information that becomes available in route or at the scene indicates Step 3 criteria only as defined by State of Washington Prehospital Trauma Triage Destination Tool, then CFD responders will have the option to cancel LFD responders. Medical control will not be routinely contacted as suggested in the State of Washington Prehospital Trauma Triage Destination Tool.
- c. Trauma dispatch outside the City of Clarkston will only include LFD, trauma-verified ALS ambulance service, and as appropriate within their service areas, Asotin County Fire District#1 and Asotin Fire Department.
- d. Outside the City of Clarkston, LFD will respond and transport trauma patients meeting Step 3 criteria of the State of Washington Prehospital Trauma Triage Destination Tool.
- e. Patients meeting major trauma triage criteria (Step 1 and 2) as defined by State of Washington Prehospital Trauma Triage Destination Tool will be transported by LFD, ALS trauma-verified transport service, to St Joseph's Regional Medical Center, our Level III trauma facility and as a Level III pediatric trauma facility, the highest trauma care for the region.
- f. Patients meeting Step 3 criteria shall be transported to the hospital of the patients choice or if the patient has no preference to the closest, appropriate designated trauma facility either Tri-State Memorial Hospital, Level IV, or St. Joseph's Regional Medical Center, Level III.

2. Cardiac patients:

- a. A BLS, ILS or ALS service will transport patients who meet the criteria for the Prehospital Cardiac Triage Destination Procedure Tool to the closest, appropriate facility, if the transport time is less than 20 minutes. If transport time is greater than 20 minutes, then any BLS or ILS transport will initiate transport and arrange for a rendezvous with an ALS provider/transport. In Asotin County, St Joseph's Regional Medical Center is a Level I cardiac facility and Tri-State Memorial Hospital is a Level II cardiac facility
- b. Patients meeting "Immediate" criteria, not including hypotension or pulmonary edema, will be transported to the closest Level I Cardiac Hospital in the region, St. Joseph's Regional Medical Center. ALS transport will notify destination facility of "ST elevation myocardial infarction" (STEMI) as soon as possible and/or transmit any 12 lead ECG indicating ST elevation myocardial infarction, so cardiac center can prepare for rapid administration of cardiac catheterization, if needed. If transport time by ground for a STEMI is greater than 20 minutes, then transport should occur by aeromedical, if readily available, responders at the scene believe aeromedical can safely arrive and transport the patient and believe that the overall transport time is shortened by the use of aeromedical transport. Responders shall call for aeromedical response as early as possible when use is indicated. Aeromedical transport will proceed to a Level I Cardiac

Facility, St Joseph's Regional Medical Center.

- c. Patients meeting "High-Risk criteria will be transported to St Joseph's Regional Medical Center, a Level I facility unless using the provider's best-judgement that the problem is not cardiac in origin.
- d. Aeromedical response will be considered for Out-of-Hospital Cardiac Arrest (OHCA) patients having a ground response time greater than 20 minutes, if readily available, responders in route believe aeromedical can safely arrive and transport the patient and believe that the overall transport time is shortened by the use of aeromedical transport. Responders shall call for aeromedical response as early as possible when use is indicated.
- e. Transport of patients out-of-area and bypassing local hospitals in accordance with the Washington Prehospital Cardiac and Stroke Triage Tool will be reviewed at the Asotin County EMS Council meeting on a quarterly basis.
- f. Patient choice can be taken into account for hospital destination with a patient having decision-making capacity after risks and benefits of diverting from the recommended destination by the Washington Prehospital Cardiac and Stroke Triage Tool have been explained

3. Stroke patients:

- a. A BLS, ILS or ALS service will transport patients who meet the criteria for the Prehospital Cardiac Triage Destination Procedure Tool to the closest facility, if the transport time is less than 20 minutes. If transport time is greater than 20 minutes, then any BLS or ILS transport will initiate transport and arrange for a rendezvous with an ALS provider/transport.
- b. Time last seen normal < 3.5 hours or *unstable*: Transport to the closest Stroke Center. ALS unit will communicate to Stroke Center of a "Stroke" as soon as possible for rapid administration of thrombolytics if indicated. In Asotin County, St. Joseph's Regional Medical Center as a Level II facility and Tri-State Memorial Hospital as a Level II facility. If a ground transport time greater than 20 minutes would cause the patient to arrive at Stroke Center more than 2.5 hours after onset, than transport by aeromedical is recommended.
- c. Time last seen normal > 3.5 hours to ≤ 7 hours: Transport to the closest, highest level Stroke Center. In Asotin County, St. Joseph's Regional Medical Center as a Level II facility and Tri-State Memorial Hospital as a Level II facility.
- d. Time last seen normal > 7 hours: Transport to the closest Stroke Center or patient choice if stable.
- e. Transport of patients out-of-area and bypassing local hospitals in accordance with the Washington Prehospital Cardiac and Stroke Triage Tool will be reviewed at the Asotin County EMS Council meeting on a quarterly basis.

Since both hospital facilities are only a short distance apart and equal level designated centers, patient choice can be taken into account for hospital destination.

Cardiac: Cardiogenic Shock

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Place patient supine unless dyspnea is present

 **EMT STOP**

ADVANCED EMT

- Vascular access
- Normal Saline 250 ml IV bolus; reassess lung sounds and repeat if unchanged

 **ADVANCED EMT STOP**

PARAMEDIC

- Cardiac Monitor
- 12 Lead EKG, if available
- If UNSTABLE, **Norepinephrine** .05-2 mcg/kg/min and titrate to BP>90, not to exceed 30 mcg/min
- Additional normal saline bolus

Key Points/Considerations

- For patients with chest pain/STEMI and signs of hypoperfusion
- UNSTABLE is defined as systolic BP less than 100 mmHg and/or decreased level of consciousness
- Refer to Dysrhythmia protocols as needed

Cardiac: Chest Pain

EMT

- ABC and vital signs
- Airway management with high concentration **oxygen**
- Assist patient with their own prescribed **Nitroglycerin** (1 dose), if SBP is >100 mmHg
- **Aspirin** 162 mg (2 x 81 mg tablets)

EMT STOP

ADVANCED EMT

- Vascular access
- **Aspirin** 324 mg (4 x 81 mg tabs)
- **Nitroglycerin** 0.4 mg per dose, up to 3 doses, 5 minutes apart, provided the patient's systolic BP is above 100 mmHg

ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor
- **Aspirin** 324 mg (4 x 81 mg tabs)
- 12 Lead EKG, if available, for STEMI
- For ST Elevation MI, with ½ mm or more of elevation in 2 contiguous leads, or machine computer notes "Acute MI", do not delay transport.
- **Nitroglycerin** 0.4 mg per dose, up to 3 doses, 5 minutes apart, provided the patient's systolic BP is above 100 mmHg
- **Morphine** 2-4 mg IVP every 2-3 minutes up to 10 mg, as long as systolic BP is above 100 mmHg
- **or Fentanyl Citrate** 1mcg/kg IV, IO to a maximum of 100 micrograms. 2.0 mcg/kg IN
- If systolic BP drops below 100 mmHg: Normal Saline 250 ml IV bolus

PARAMEDIC STOP

Key Points/Considerations

- Focus on maintaining ABC, pain relief, rapid identification, rapid notification and rapid transport to an appropriate facility
- Vitals, including 12 Lead EKG, should be monitored frequently during transport
- The first dose of Nitroglycerin may be administered while preparing to establish vascular access
- A total of 3 doses of **Nitroglycerin** may be administered by pre-hospital providers, prior to contacting Medical Control

Cardiac: Asystole/PEA

EMT

- CAB, AED and CPR, per AHA Guidelines
- Secure airway with supraglottic airway device (King LT or CombiTube)

EMT STOP

ADVANCED EMT

- Vascular access, IV/IO (IO for Pediatrics Only)

ADVANCED EMT STOP

PARAMEDIC

- Cardiac monitor/defibrillator
- **Epinephrine** 1:10,000 dose 1.0 mg IV/IO; repeat every 3 to 5 minutes
- Secure airway with ET and confirm with Quantitative waveform capnography, if not available use nonwaveform exhaled CO² monitor
- Treat reversible causes
- Consider termination of resuscitation and contact online medical control

Key Points/Considerations

- Check asystole in 2 leads
- Minimize interruptions in compressions and rotate compressor every 2 minutes
- Refer to the Termination of Resuscitation Protocol as needed
- This protocol reflects current ACLS guidelines at time of publication.

During CPR

- **Push hard (≥ 2 inches) and fast (≥100/min)**
- **Minimize interruptions in compressions, no pauses greater than 10 seconds**
- **Allow full chest recoil**
- One cycle of CPR: 30 compressions then 2 breaths; 5 cycles = 2 min.
- Avoid excessive ventilation
- Secure airway and confirm placement
- After an advanced airway is placed, rescuers no longer deliver “cycles” of CPR. Give continuous chest compressions without pauses for breaths. Give 8-10 breaths/minute. Check rhythm every two minutes.
- Quantitative waveform capnography
- Rotate compressions every two minutes with rhythm checks
- Search for and treat possible contributing factors:
 - Hypovolemia
 - Hypoxia
 - Hydrogen Ion (acidosis)
 - Hypo-hyperkalemia
 - Hypothermia
 - Toxins
 - Tamponade, cardiac
 - Tension pneumothorax
 - Thrombosis (coronary or pulmonary)

Cardiac: Ventricular Fibrillation / Pulseless V-Tach

EMT

- CAB, AED and CPR per AHA Guidelines. Defibrillate as necessary. CPR should be performed while the defibrillator is readied and charged.
- Secure airway with supraglottic airway device (King LT or CombiTube)

EMT STOP

ADVANCED EMT

- Vascular access, IV/IO (IO for pediatrics only)

ADVANCED EMT STOP

PARAMEDIC

- Cardiac monitor/defibrillator
- Deliver one shock (120-200 J) as per manufactures recommendation
- Perform 2 minutes of CPR, then reassess cardiac rhythm and pulse
- Deliver one shock (120-200 J) as per manufactures recommendation
- Perform 2 minutes of CPR give **Epinephrine** 1:10,000 dose 1.0 mg IV/IO; repeat every 3 to 5 minutes, then reassess cardiac rhythm and pulse
- Secure airway with ET and confirm with Quantitative waveform capnography, if not available use nonwaveform exhaled CO² monitor
- Deliver one shock (120-200 J) as per manufactures recommendation
- Consider ONE of the following during next two minutes of CPR :
 - **Amiodarone** 300 mg IV/IO. Repeat 150 mg in 3 – 5 minutes
 - **Lidocaine** 1 to 1.5 mg/kg IV/IO. Repeat 0.5 to 0.75 mg/kg IV/IO, max 3 doses or 3.0 mg/kg
 - **Magnesium** 1 to 2 grams IV/IO for torsades de pointes
- Deliver one shock, perform 2 minutes of CPR and continue to rotate between **Epinephrine** and **Antiarrhythmics** until max doses are reached.
- Consider treatable causes of cardiac arrest

Key Points/Considerations

- Minimize interruptions in compressions and rotate compressor every 2 minutes
- Transport patient to the closest hospital
- Maximize dose of each antiarrhythmic before considering using another
- Refer to the Termination of Resuscitation Protocol as needed
- This protocol reflects current ACLS guidelines at time of publication.

Cardiac: Symptomatic Bradycardia / Heart Blocks

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Have AED available

 **EMT STOP**

ADVANCED EMT

- Vascular access

 **ADVANCED EMT STOP**

PARAMEDIC

- Cardiac Monitor - prepare for pacing
- **Atropine** 0.5 mg IV
- 12 Lead EKG, if available
- Repeat **Atropine** 0.5 mg IV, every 3 min, up to a max of 3 mg
- **Norepinephrine (Levophed)** .05-2 mcg/kg/min, titrate to effect, not to exceed 30 mcg/min
- **Epinephrine** infusion 2-10 mcg/min as alternate to **Norepinephrine**. See procedural protocol on epinephrine drip
 - Consider transcutaneous pacing, See procedural pacing protocol

 **PARAMEDIC STOP**

Key Points/Considerations

- Only treat bradycardia if patient is symptomatic
- Symptomatic presentation includes chest pain, dyspnea, altered mental status, pulmonary edema, or hypotension (systolic BP <100 mmHg)

Prepare for Transcutaneous Pacing;

Use without delay for high-degree block (type 2 second degree block or third degree AV block)

- Consider **Atropine** 0.5 mg IV while awaiting pacer. May repeat to a total of 3 mg. If ineffective, begin pacing.
- Consider **Norepinephrine** (.05-2 mcg/kg/min) infusion while awaiting pacer, or if pacer ineffective

Reminders

If Pulseless arrest develops, go to Pulseless Arrest Algorithm

Search for and treat possible contributing factors:

Hypovolemia

Hypoxia

Hydrogen Ion (acidosis)

Hypo-hyperkalemia

Hypothermia

Toxins

Tamponade, cardiac

Tension pneumothorax

Thrombosis (coronary or pulmonary)

Cardiac: Narrow Complex Tachycardia with Rate > 150

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration

 EMT STOP

ADVANCED EMT

- Vascular access

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor
- Vagal Maneuver
- 12 Lead EKG, if available
- If STABLE: **Adenosine** 6 mg IV, if no conversion may repeat **Adenosine** 12 mg IV.
- If UNSTABLE, consider sedation **with Midazolam (Versed)** 2-4mg IV/IO, 0.3-0.5 mg/kg IN to a max of 10 mg or **Diazepam (Valium)** 2-5 mg IV/IO (see procedural sedation protocol).
 - Synchronized cardioversion at 120 Joules for biphasic setting (max energy).

 PARAMEDIC STOP

Key Points/Considerations

- Do NOT use carotid sinus massage as vagal maneuver
- UNSTABLE is defined as ventricular rate > 150 bpm with symptoms of chest pain, dyspnea, altered mental status, pulmonary edema, or hypotension (systolic bp < 100 mmHg)

Cardiac: Wide Complex Tachycardia with a Pulse

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Have AED available

 EMT STOP

ADVANCED EMT

- Vascular access

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor
- 12 Lead EKG, if available
- If STABLE, may consider **Adenosine** 6mg rapid IV push *only if regular and monomorphic*, may repeat second dose at 12mg rapid IV push. Consider **Amiodarone** 150 mg in 100 ml Normal Saline, infused over 10 minutes, repeat as needed if VT recurs.
- If UNSTABLE, consider sedation **Midazolam (Versed)** 2-4 mg IV/IO, 0.3-0.5 mg/kg IN to a max of 10 mg or **Diazepam (Valium)** 2-5 mg IV/IO (see Procedural Sedation Protocol). Synchronized cardioversion at 100 joules for biphasic and increase in a stepwise fashion. If regular narrow complex, consider **Adenosine**
- Synchronized cardioversion at 120 Joules for biphasic setting (max energy)

 PARAMEDIC STOP

Key Points/Considerations

- If no pulse treat as V-Fib
- UNSTABLE is defined as ventricular rate > 150 bpm with symptoms of chest pain, dyspnea, altered mental status, signs of shock, pulmonary edema or hypotension (systolic BP < 100 mmHg)
- Wide Complex is defined as a QRS complex greater than .12 seconds
- Recommended settings for cardio version are narrow regular 120 J, narrow irregular 120 J, wide regular 120 J. All doses are for biphasic defibrillators
- This protocol reflects current ACLS guidelines at time of publication.

Cardiac: Induced Hypothermia (Post Resuscitation)

EMT

ADVANCED EMT

- N/A

EMT & ADVANCED EMT STOP

PARAMEDIC

- Remove patients clothing
- Apply chemical cold packs to groin and axilla
- Notify hospital that you have started cooling patient
- **Midazolam (Versed)**, 2-4 mg IV/IO to a max of 10 mg , 10 mg IM, 0.3-0.5 mg/kg IN to a max of 10 mg to maintain sedation OR
- Use Fentanyl 1 mcg/kg IV loading dose then 1.5 mcg/kg/hr IV as needed for sedation. (current medication list doesn't show using Fentanyl for sedation, if we change this we must change the medication list portion too)
- Maintain BP at or above 90 mm hg. NS 250ml bolus; recheck lung sounds and repeat if necessary. Consider **Norepinephrine (Levophed)** .05-2 mcg/kg/min IV, titrate to effect.
- If there is loss of B/P or Pulse, discontinue protocol and revert to appropriate algorithm.

PARAMEDIC STOP

Inclusion Criteria

- Return of Spontaneous circulation (regains pulse) after cardiac arrest, non traumatic
- Pt is comatose, GCS < 5
- Patient is not obviously pregnant
- Patient is at least 16 years of age
- Initial temperature is greater than 93 degrees F
- No known bleeding problems, severe infection or recent major surgery
- Intubated, ETCO₂ > 20
- Blood pressure equal to or greater than 90 systolic (may use Norepinephrine to maintain pressure)

Exclusion Criteria

- CPR for more than 45 minutes
- Comatose or vegetative state prior to cardiac arrest

Termination of Resuscitation

EMT

- Resuscitative efforts for patients in cardiac arrest should not be initiated if:
 - The patient presents with significant dependent lividity, rigor mortis, decomposition, decapitation, incineration and/or obvious traumatic death
 - The patient, family or health care facility can present a signed POLST form or a signed DNR form from another state.
- For all other patients in respiratory or cardiac arrest, in whom appropriateness of resuscitation is questionable, the EMS provider MUST start BLS care, including defibrillation, and contact Medical Control for direction.
- Secure airway with supraglottic airway (King Airway or Combitube)

EMT STOP

ADVANCED EMT

- Vascular access, IV/IO (IO for pediatrics only)

ADVANCED EMT STOP

PARAMEDIC

- Complete standing orders appropriate to presenting rhythm
- Notify Coroner/Police. A history shall be obtained regarding down time.
- If near drowning, hypothermia, and/or drug overdose is suspected, always begin resuscitation and contact Medical Control.

PARAMEDIC STOP

PHYSICIAN OPTIONS FOR PARAMEDIC

- Field termination of resuscitation, if cardiac arrest patient meets all of the following:
 - Non-hypothermic
 - Failed response to appropriate treatment
 - Scene is appropriate for termination order

Key Points/Considerations

- Resuscitative efforts must be initiated while attempting to contact a Physician. If there is an extended time required to contact a Physician, transport must be initiated.
- Health Care Facilities must have POLST forms.
- If a patient presents in respiratory or cardiopulmonary arrest and there is any other form of advanced directive on the scene, other than the POLST form contact Medical Control. Other forms of advanced directives include: Living Wills, Health Care Proxies, and In-Hospital Do Not Resuscitate orders.
- Any certified EMS provider may contact Medical Control to request termination of resuscitation.

Medical: Abdominal Pain

EMT

- ABC's and vital signs
- Airway management with **oxygen** maintaining a SaO₂ of 94-98% through titration

 EMT STOP

ADVANCED EMT

- IV access
- If signs of hypovolemia, refer to hypoperfusion-hypovolemia protocol

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac monitor
- **Morphine Sulfate.** 0.1 mg/kg to a maximum of 30 mg. Give calculated dose slowly, then reassess pt. (Pediatric) .1-.2 mg.kg IV,IO
- **or Fentanyl Citrate** 1mcg/kg IV,IO to a maximum of 100 micrograms. 2.0 mcg/kg IN (Pediatric) 1mcg/kg IV, IO
- If pt. is nauseated, refer to nausea and/or vomiting protocol

 PARAMEDIC STOP

Key Points/Considerations

- Abdominal pain in women of childbearing age should be considered as an ectopic pregnancy until proven otherwise.
- The diagnosis of abdominal aneurysm should be considered with abdominal pain in patients over 50.
- Appendicitis presents with vague, peri-umbilical pain which migrates to the RLQ over time.

Medical: Active Seizures

EMT

- ABC and vital signs
- Airway management with **oxygen** maintaining a SaO₂ of 94-98% through titration
- Check blood glucose level, if equipped. If level is abnormal refer to Diabetic Protocol

 **EMT STOP**

ADVANCED EMT

- Vascular access

 **ADVANCED EMT STOP**

PARAMEDIC

- For an actively seizing pregnant patient, consult the Eclampsia protocol
- Cardiac Monitor
- **Midazolam (Versed)** 10 mg IM, 5mg IV for status epilepticus
- **or Midazolam (Versed)** .3-.5 mg/kg IN to max of 10 mg
- **or Diazepam (Valium)** 5-10 mg IV to max of 10 mg, if patient continues to seize
- **or Lorazepam (Ativan)** 2-5 mg slow IV push
- If vascular access cannot be obtained:
 - **Diazepam (Valium)** Rectally
 - **or Midazolam (Versed)** IM or IN

 **PARAMEDIC STOP**

PHYSICIAN OPTIONS FOR PARAMEDIC

- Additional **Diazepam (Valium)** IV
- Additional **Midazolam (Versed)** IM or IV
- Additional **Lorazepam (Ativan)** IV
- **Magnesium** 2 grams IV over 2 minutes, if patient is pregnant

Key Points/Considerations

- Protect the patient and EMS crew from injury during the seizure
- Remove the needle from the syringe for rectal administrations
- Refer to the Eclampsia protocol if patient is pregnant

Medical: Altered Level of Consciousness

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Determine blood sugar
 - If abnormal refer to Diabetic Emergency protocol

 EMT STOP

ADVANCED EMT

- Vascular access

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac monitor
- If blood sugar is <60, refer to Diabetic Emergency protocol
- If suspected overdose, refer to Overdose protocol
- Consider **Thiamine**, 100 mg IV or IM

 PARAMEDIC STOP

Medical: Anaphylaxis and Allergic Reactions

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Determine if patient has utilized his/her own **Epi-Pen**
- Administer **Epi-Pen Adult** (yellow pen), infant/child **Epi Pen Jr.** (green pen)
- If agency is trained, administer **Epinephrine** 1:1,000 IM 0.3-0.5 mg IM for adult and 0.01mg/kg IM for pediatrics.
- Record time of injection & reassess in two minutes

EMT STOP

ADVANCED EMT

- Vascular Access
- If patient has hypotension, follow hypovolemia-hypotension protocol
- **Epinephrine** 1:1,000 0.3-0.5 mg IM

ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor
- **Epinephrine** 1:1,000 dose 0.3-0.5 mg IM, if patient has hypotension and/or respiratory distress w/airway swelling, hoarseness, stridor or wheezing
- **Diphenhydramine (Benadryl)** 25 mg - 50 mg IV or IM
- **Albuterol** 2.5 mg in 3 ml (unit dose) via nebulizer
- **Epinephrine** 1:10,000 0.3-0.5 mg IV if unconscious or BP below 100 and patient is symptomatic

PARAMEDIC STOP

Key Points/Considerations

- If an EMT has administered an **Epi Pen**, or the patient utilized his/her own epinephrine auto injector, contact Medical Control prior to administering additional epinephrine subcutaneously

Medical: Animal and Human Bites

EMT

- Scene Safety
- ABCs and Vital Signs
- Airway management with **oxygen** maintaining a SaO₂ of 94-98% through titration
- Control any serious bleeding
- Wash area gently
- Remove jewelry from the affected limb before swelling begins, if possible
- Apply an Ice pack to the affected area to slow swelling, (do not apply directly to skin)

EMT STOP

ADVANCED EMT

- Venous access

ADVANCED EMT STOP

PARAMEDIC

- Administer **Fentanyl Citrate** 1mcg/kg IV, IO to a maximum of 100 micrograms, 2.0 mcg/kg IN. (Pediatric) 1mcg/kg IV, IO
- Or **Morphine** 0.1 mg/kg to a maximum of 30mg. Give calculated dose slowly, then reassess pt.

PARAMEDIC STOP

Medical: Behavioral Emergencies

EMT

- Be aware of dangers to patient or medical personnel/summon law enforcement
- Request mental health professional as needed
- Never stay alone with a violent patient and have enough help to restrain him/her if needed.
- Consider the armed patient potentially homicidal as well as suicidal.
- For severe or dangerous agitation/combativeness that represents an acute danger to the patient or EMS personnel, consider physical restraint. Refer to **Restraint for Aggressive or Violent Patients Procedure**

EMT STOP

ADVANCED EMT

- Vascular access as needed

ADVANCED EMT STOP

PARAMEDIC

- For severe or dangerous agitation/combativeness consider chemical restraint.
- **Midazolam (Versed)** 2-5mg IV or IM every 3-5 minutes to a max of 10 mg, 0.3-0.5 mg/kg IN to a max of 10 mg.
- or **Diazepam (Valium)** 5-10mg IV or IM slowly
- or **Lorazepam (Ativan)** 2-5 mg slow IV push
- or **Droperidol (Inapsine)** 1.25-2.5 mg IV slowly or IM

PARAMEDIC STOP

Key Points/Considerations

- For severe or dangerous agitation/combativeness that represents an acute danger to the patient or EMS personnel, consider physical restraint:
 - a. 4 point soft restraints- secure patient safely in supine position to gurney or backboard.
 - b. Spitting or biting patients may be secured with a surgical mask or an oxygen mask that has flowing oxygen.
- Law enforcement personnel may assume responsibility for patient restraint, but must personally accompany patient to the emergency department.

Medical: Bites and Stings

EMT

- ABCs and Vital signs
- Airway Management with **Oxygen** maintaining a SaO₂ of 94-98% through titration.
- If stinger is present scrape to remove
- **NOTE: Do Not Attempt to Pull the Stinger**
- Gently wash the area
- Remove jewelry from the affected limb before swelling begins, if possible
- Keep limb immobilized and below the level of the heart and keep patient at rest
- Do not apply cold to a snakebite
- Check for signs and symptoms of an allergic reaction (see Allergic Reaction/Anaphalaxis protocol)
- Mark area of swelling with time and line around the area

 EMT STOP

ADVANCED EMT

- Venous Access

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor
- Administer **Fentanyl Citrate** 1mcg/kg IV, IO to a maximum of 100 micrograms, 2.0 mcg/kg IN. (Pediatric) 1mcg/kg IV, IO
- Or **Morphine** 0.1 mg/kg to a maximum of 30mg. Give calculated dose slowly, then reassess pt.

 PARAMEDIC STOP

PHYSICIAN OPTIONS

- Consult medical direction regarding constricting band for snakebite

Key Points/Considerations

- If snake is dead, consider bringing it to the hospital for examination.

Medical: Carbon Monoxide (CO) Poisoning

EMT

- Remove from CO environment
- ABC and vital signs, monitoring CO level, if equipped
- Airway management with high concentration **oxygen** using NRB @ 15 LPM
- Treat other associated signs/symptoms per protocol

EMT STOP

ADVANCED EMT

- Vascular access
- **Albuterol** 2.5 mg in 3 ml (unit dose), if wheezes are present

ADVANCED EMT STOP

PARAMEDIC

- Cardiac monitor
- **Albuterol** 2.5 mg in 3 ml (unit dose), if wheezes are present
- Consider intubation if patients have severe burns and soot to the face and upper airway stridor.

PARAMEDIC STOP

Key Points/Considerations

- Mild CO 15 – 20%. May present as headache, nausea, vomiting, dizziness, blurred vision.
- Moderate 20-40%. May present as confusion, syncope, chest pain, dyspnea, tachycardia, tachypnea, weakness.
- Severe 40-60%. May present as dysrhythmias, hypotension, cardiac ischemia, palpitations, respiratory arrest, pulmonary edema, seizures, coma, cardiac arrest.

Medical: Cold Injuries/Frostbite

EMT

- Remove from environment and protect from further exposure
- ABC and vital signs monitoring core temperature
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration.
- Remove frozen, wet, or restrictive clothing without damaging skin and start gradual warming process at room temperature provided refreezing will not occur
- Protect damaged areas with loose, dry, sterile dressings and be prepared to splint
- Elevate affected extremities and do not allow patient to use affected areas
- Treat other associated signs/symptoms per protocol

 EMT STOP

ADVANCED EMT

- Vascular access

 ADVANCED EMT STOP

PARAMEDIC

- **Morphine Sulfate**, 0.1 mg/kg to a maximum of 30 mg. Give calculated dose slowly, then reassess pt. (Pediatric) .1-.2 mg/kg IV, IO
- **Or Fentanyl** for severe pain 1 mcg/kg IV,IO to a maximum of 100 micrograms, 2.0 mcg/kg IN.
- Consider cardiac monitor

 PARAMEDIC STOP

Key Points/Considerations

- Treat gently, do not rub or manipulate the extremities.

Medical: Cyanide (CN) Poisoning

EMT

- Remove from environment
- ABC and vital signs, monitor CO level, if equipped
- Airway management with high concentration oxygen using NRB @ 15 LPM
- Refer to hypoperfusion/hypovolemia protocol
- Treat other associated signs/symptoms per protocol

 EMT STOP

ADVANCED EMT

- Vascular access

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac monitor
- For serious signs and symptoms administer approved cyanide poisoning antidote (CYANOKIT® hydroxocobalamin for injection) 5 g IV, infused over 15 minutes ,if available

 PARAMEDIC STOP

Key Points/Considerations

- May result from inhalation, ingestion, or dermal exposure.
- Serious signs and symptoms include, altered LOC, confusion, disorientation, excessive pupil dilation, seizure, coma and cardiovascular collapse.
- Assess for soot around mouth, nose, or oropharynx, and altered mental status.
- May present as cardiovascular collapse, hypotension, almond odor on breath, altered LOC, respiratory arrest, cardiac dysrhythmia, seizure, lactic acidemia, dilated pupils, vomiting.

Medical: Diabetic Emergencies

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Determine blood sugar
 - If <60 and patient is able to swallow, give **oral glucose** 1 unit dose (24 gm)
 - Or
 - Orange juice or an equivalent high source of sugar solution PO.
 - If blood glucose >400, call ALS intercept if not already enroute
 - If not equipped or able to check blood glucose level and blood glucose is suspected to be low and patient is able to self administer and swallow on command, give **oral glucose** one unit dose (24 grams)
 - Recheck blood sugar after sugar is administered.
- Call for ALS intercept if unable to swallow on command, or mental status remains altered following administration of **oral glucose**

EMT STOP

ADVANCED EMT

- Vascular access
- If glucose level is below 60 and patient cannot swallow on command, administer **Dextrose 50%** 25 grams IV; may redose if hypoglycemia recurs during transport
- If glucose level is above 400, administer **Normal Saline** 250 ml IV bolus, bolus may be repeated if patient remains hyperglycemic.

ADVANCED EMT STOP

PARAMEDIC

- If glucose level is below 60 and patient cannot swallow on command, administer **Dextrose 50%** 25 grams IV; may redose if hypoglycemia recurs during transport
- If glucose level is above 400, administer Normal Saline 250 ml IV bolus, bolus may be repeated if patient remains hyperglycemic.
- If unable to obtain vascular access, **Glucagon** 1 mg IM or SQ, 2mg IN

PARAMEDIC STOP

Key Points/Considerations

- After Provider evaluation and/or treatment, when, in the Provider's clinical judgment the patient is stable, the patient may be left at the scene at the patient's request, without Medical Control contact. When in doubt, contact Medical Control.

Medical: Excited Delirium

EMT

- High flow O₂ or most effective means of administering oxygen.
- If patient body temperature exceeds 102° F, move patient to cooler environment and remove clothing. Cool aggressively with wet sheets, cool packs, and/or evaporative airflow. Avoid ice packs and cold water immersion. Lower body temperature to 102° F.
- Check blood sugar, if hypoglycemic refer to **diabetic protocol**.
- Restrain patient only as necessary to safely allow for the patients assessment and necessary care. When restraints are necessary refer to **Restraint for Aggressive or Violent Patients Procedure**
- A protective face mask or hood may be applied to the patient if necessary to reduce the potential transmission of disease via saliva.

 EMT STOP

ADVANCED EMT

- Establish large bore IV of NS 500ml/hr unless symptoms of CHF exist.

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac monitor
- For severe agitation, administer **Midazolam (Versed)** 2-4mg IV every 3-5 minutes to a max of 10 mg, 10 mg IM, 0.3-0.5 mg/kg IN to a max of 10 mg.
- or **Diazepam (Valium)** 5-10mg IV or IM slowly.
- or **Lorazepam (Ativan)** 2-5 mg IV

 PARAMEDIC STOP

Key Points/Considerations

- This protocol deals with one of the most challenging clinical situations you may face among your EMS responses. The protocol identifies goals of evaluation and treatment, but it may only be implemented in an environment with a reasonable degree of safety for the EMS providers. Furthermore, the ability to achieve specific aspects of this protocol will be dependent on the severity of the patient's condition and their willingness to allow medical care.

Medical: Heat Cramps/Exhaustion

EMT

- Move patient to cooler environment and remove excess clothing
- ABC and vital signs and core temperature
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Cool patient
- Oral fluids

 EMT STOP

ADVANCED EMT

- Vascular access

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac monitor
- Treat seizures, arrhythmias or altered LOC per specific protocols

 PARAMEDIC STOP

Medical: Heat Stroke

EMT

- Move patient to cooler environment and remove excess clothing
- ABC and vital signs, monitoring core temperature as appropriate
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Core temperature with thermometer every 5 minutes
- Cool patient
- Treat other associated signs/symptoms per protocol

EMT STOP

ADVANCED EMT

- Vascular access

ADVANCED EMT STOP

PARAMEDIC

- Cardiac monitor
- Consider intubation
- Treat seizures, arrhythmias or altered LOC per specific protocols
-

PARAMEDIC STOP

Key Points/Considerations

- Cool aggressively with wet sheets, cool packs, and evaporative airflow. Avoid ice packs and cold water immersion.
- Cool to 102°F
- If ET required, consider RSI.

Medical: Hypothermia

EMT

- Remove from environment
- ABC and vital signs monitoring core temperature with hypothermia thermometer
- Airway management with **oxygen** maintaining a SaO₂ of 94-98% through titration
- Remove wet clothing and start warming process
- Determine Blood sugar
 - If abnormal refer to Diabetic Emergency protocol
- Treat other associated signs/symptoms per protocol

EMT STOP

ADVANCED EMT

- Vascular access

ADVANCED EMT STOP

PARAMEDIC

- Cardiac monitor
- Consider intubation

PARAMEDIC STOP

Key Points/Considerations

- Assess pulses for minimum of 30 seconds. If there are no pulses start CPR.
- Treat gently, do not rub or manipulate the extremities. Keep patient supine.
- Oxygen should be heated if possible.
- Attempt to increase temperature with hot packs to the groin, neck, and armpits. Cover patient entirely with heated blanket and cover head to minimize heat loss.
- If ET required, consider RSI.

Pulseless Patient:

- Core temperature < 30°C (86°F): Start CPR, Withhold IV medications until temperature is >30°C (86°F), Limit one shock for VF/VT, Transport
- Core temperature > 30°C (86°F): Start CPR, Give IV medications as indicated but at increased levels between doses, Repeat defibrillation for VF/VT as core temperature rises

Medical: Nausea and/or Vomiting

EMT

- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Assess neurological and cardiac status

 EMT STOP

ADVANCED EMT

- Vascular access @ TKO rate.
- Administer 30ml/kg IV bolus if evidence of hypovolemia.
- **Pediatric**- Administer 20 ml/kg IV bolus if evidence of hypovolemia.

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor
- Administer **Ondansetron (Zofran)** 4mg IV, IM, IO or PO. May repeat in 10 minutes
- **Pediatric > 1 month** administer **Ondansetron (Zofran)** .1mg/kg IV (Oral: <4 yrs 2 mg ODT: >4 yrs 4 mg ODT)
- Administer **Droperidol** 1.25-2.5 mg IV, IM, or IO. May repeat in 4-6 hours
- **Pediatric** administer **Droperidol** .1-.15 mg/kg IV, IM, or IO

 PARAMEDIC STOP

Medical: Near-Drowning

EMT

- ABC and vital signs, if the patient is pulseless and apneic, proceed to appropriate cardiac protocol.
- Stabilize spine prior to removing patient from water if there is any suggestion of neck injury.
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration.
- Keep patient warm and dry and remove any wet clothing.
- If other trauma is suspected, refer to the appropriate Trauma protocol.
- If hypothermic, see Hypothermia protocol.

 EMT STOP

ADVANCED EMT

- Vascular access, administer warm IV fluids

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac monitor
- Advanced airway intervention, as necessary

 PARAMEDIC STOP

Key Points/Considerations

- Near drownings may have rapid development of pulmonary edema.
- All near drownings or submersions should be transported. Any patient can deteriorate rapidly.
- If the patient is hypothermic, defibrillation may be unsuccessful until the patient is warmed.
- Many near drownings involve diving injuries to the cervical spine.

Medical: Overdose or Toxic Exposure

EMT

- Decontamination as needed
- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Determine what was taken, when and how much, if possible and contact poison control
- If OD of oral or parenteral hypoglycemic agent is suspected, check blood glucose level, if equipped and authorized. If level is abnormal refer to Diabetic Protocol

EMT STOP

ADVANCED EMT

- Vascular access.
- For symptomatic opiate overdose: **Naloxone (Narcan)** 0.4 q 2 min up to 2 mg maximum IV, IO, IM, 2mg IN

ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor
- For symptomatic opiate overdose: **Naloxone (Narcan)** 0.4 q 2 min up to 2 mg maximum IV, IO, IM, 2mg IN
- Consider 12 Lead EKG if tachycardic
- Organophosphate poisoning: Administer 1 dose of **DuoDote** or **Atropine** 1 mg every min. up to 10 mg IV per dose until secretions dry

PARAMEDIC STOP

PHYSICIAN OPTIONS FOR PARAMEDIC

- Sympathomimetic OD (cocaine or amphetamines): **Diazepam (Valium)** or **Lorazepam (Ativan)** 2-5 mg IV IM,IO with temp > 101° F
- Dystonic reaction: **Diphenhydramine (Benadryl)** 50 mg IV or IM
- Tricyclic antidepressant OD: **Sodium Bicarbonate** 1 mEq/kg IV until QRS complex narrows

Key Points/Considerations

- Includes patients who are unconscious/unresponsive without suspected trauma or other causes, and patients with a brief loss of consciousness
- If patient is a suspected narcotic overdose (due to history and/or physical findings) administer **Naloxone** prior to checking blood glucose level
- Dystonic reaction is uncontrolled muscle contractions of face, neck or tongue
- Examine 12 Lead EKG for QRS widening or QT prolongation

Medical: Suspected Stroke

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Perform neurological exam including Cincinnati Stroke Scale(see below)
- Check blood glucose level, if equipped. If level is abnormal refer to Diabetic Protocol
- Determine the exact time patient was last in usual state of health and/or seen without symptoms by interviewing patient, family, and bystanders
- Limit scene time with goal of ≤ 15 minutes
- Notify destination hospital ASAP.

 EMT STOP

ADVANCED EMT

- Vascular access

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor
- 12 lead EKG
- If systolic BP is greater than 220 or diastolic BP is greater than 120 contact Medical Control

 PARAMEDIC STOP

Key Points/Considerations

Cincinnati Pre-Hospital Stroke Scale:

- Have the patient repeat “Firefighters are my friends”. Assess for correct use of words, without slurring
- Have the patient smile, assess for facial droop
- Have the patient close eyes and extend both arms straight out for 10 seconds. The palms should be up, thumbs pointing out. Assess for arm drift or unequal movement of one side

OB/Gyn: Childbirth

Management of a Normal Delivery

- Support the baby's head over the perineum.
- If the membranes cover the head after it emerges, tear the sac with your fingers or forceps to permit escape of the amniotic fluid. Suction meconium as needed. **Suction mouth and then nose with a bulb syringe.** Depress the bulb syringe before placing in the baby's mouth or nose.
- Gently guide the head downward until the shoulder appears. The other shoulder is delivered by gentle upward traction. The infant's face should be upward at this point.
- If the cord is around the neck, loosen cord and attempt to slip over head. If unable to do so, clamp it with two clamps, cut the cord between the clamps, and unwrap the cord from around the neck.
- Clamp the umbilical cord with two clamps and cut the cord between them. First clamp 4" above baby, second clamp 6" above baby.
- Dry and wrap baby to keep warm, warming hat on head if available.
- Assess APGAR score.
- Transport as soon as possible to SJRMC.

Management of a Breech Delivery

- Contact Medical Control
- Place patient on left side
- If unable to deliver head, place sterile gloved hand into the vagina with palm towards baby's face to press away vaginal tissue and establish an airway.
- Transport immediately to SJRMC

Management of Prolapsed Cord or Limb Presentation

- Contact Medical Control
- Place the mother on left side or in knee-to-chest position.
- Place sterile gloved hand in the vagina and attempt to hold the baby's head away from the cord.
- Keep the cord moist using a sterile dressing and sterile water
- Transport immediately to SJRMC
- APGAR score should be recorded at 1 minute and 5 minutes after birth
- Do not withhold resuscitation efforts to determine APGAR score

SIGN	0	1	2
A- Appearance	Blue, pale	Body pink, extremities blue	Completely pink
P – Pulse	Absent	Below 100 bpm	Above 100 bpm
G- Grimace (reflexes – flick soles of feet)	No response	Grimace	Vigorous cry
A- Activity (muscle tone)	Limp	Some flexion	Active motion
R- Respirations	No effort	Weak, irregular	Strong cry

OB/Gyn: Childbirth (continued)

Key Points

- Determine the estimated date of expected birth, the number of previous pregnancies and # of live births
- Determine if the amniotic sac (bag of waters) has broken, if there is vaginal bleeding or mucous discharge, or the urge to bear down.
- Determine the duration and frequency of uterine contractions
- Examine the patient for crowning. If delivery is not imminent, transport as soon as possible. If delivery is imminent, prepare for an on-scene delivery.
- If multiple births are anticipated but the subsequent births do not occur within 10 minutes of the previous delivery transport immediately.
- After delivery of the placenta gently massage the uterus
- Bring the placenta and any other tissue to the hospital for inspection
- Suction thick meconium as soon as possible, using no more than 100 mmHg of suction.
- Endotracheal suctioning only if thick meconium is present and child is lethargic/obtunded.
- Transport as soon as possible to SJRMC

OB/Gyn: Eclampsia

EMT

- ABC vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration

 EMT STOP

ADVANCED EMT

- Vascular access

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor
- If patient is seizing or has had a witnessed seizure, **Magnesium** 2 gm over 2 minutes IV

 PARAMEDIC STOP

PHYSICIAN OPTIONS FOR PARAMEDIC

- **Diazepam (Valium)** 5 mg IV or rectally
- **or Lorazepam (Ativan)** 2-5 mg IV slow push
- **or Midazolam (Versed)** 2-4 mg IV or 10 mg IM

Key Points/Considerations

- Pre-eclampsia is defined as BP greater than 140/90 in a pregnant patient (or one who has recently given birth) with severe headache, confusion and/or hyper-reflexia
- Eclampsia is the above with seizure activity

OB/Gyn: Pre-term Labor (24 – 37 weeks)

EMT

- ABC vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration

 EMT STOP

ADVANCED EMT

- Vascular access
- Normal saline 500ml IV bolus

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor
- Additional Normal Saline 500ml IV bolus

 PARAMEDIC STOP

Key Points/Considerations

- Transport to the closest appropriate hospital.
- Notify destination hospital ASAP
- If patient unwilling to go to closest hospital, contact Medical Control for assistance in determining appropriate destination

OB/Gyn: Vaginal Bleeding

EMT

- ABC vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration.
- Establish last menstrual period.
- Apply loose perineal pad. Collect any tissue passed and bring to hospital

 EMT STOP

ADVANCED EMT

- Vascular access of NS and titrate to a systolic pressure of 100 mm Hg.

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac monitor

 PARAMEDIC STOP

Pediatric Emergencies

- For these protocols, pediatric patients are defined as children 8 years of age or less
- Procedures for Paramedics are only for the following clinical situations:
 - Cardiac or Respiratory Arrest
 - Cardiac Dysrhythmias (Bradycardia, Supraventricular Tachycardia)
 - Asthma/Acute Bronchospasm
 - Anaphylaxis/Allergic Reaction
 - Stridor
 - Seizures
 - Pain Management
 - Sedation
 - Altered Mental Status/Overdose
 - Diabetic Emergencies
 - Major Trauma
 - Hypoperfusion
- In all other clinical situations you must contact Medical Control
- Have a Broselow Pediatric Tape or similar device available to accurately determine the correct medication dosage
- Normal Vital Signs for Infants and Children:

Age	Respirations	Pulse	Systolic BP
Newborn	30 – 60	100 – 180	>60
Infant (< 1 year)	30 – 60	100 - 160	>60
Toddler (1 – 3 years)	24 – 40	90-150	>70
Preschooler (3 – 5 years)	22 – 34	80-140	>75
School-aged (6 – 8 years)	18 – 30	70-120	>80

Pediatric: Active Seizures

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Check blood glucose level, if equipped and agency is authorized. If level is abnormal refer to Pediatric Diabetic Protocol

 EMT STOP

ADVANCED EMT

- Consider vascular access

 ADVANCED EMT STOP

PARAMEDIC

- Secure airway
- Cardiac Monitor
- If patient continues to seize:
 - **Midazolam (Versed)** 0.1 mg/kg IV, IO max of 5mg or 0.2 mg/kg IM with maximum of 10 mg
 - **or Diazepam (Valium)** 0.1-0.3 mg/kg IV or IO. Max dose 4 mg.
 - **or Diazepam (Valium)** 0.5 mg/kg rectally if vascular access cannot be obtained; max dose 4 mg.
 - **or Lorazepam (Ativan)** .05 mg/kg IV

 PARAMEDIC STOP

Key Points/Considerations

- Call Medical Control as soon as possible
- Protect the patient and EMS crew from injury during the seizure
- Remove the needle from the syringe for rectal administrations

Pediatric: Acute Asthma

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Determine if patient has been given his/her own asthma medications and assist with prescribed metered dose inhaler after contact with MPD.

EMT STOP

ADVANCED EMT

- Venous access, if patient is not improving
- **Albuterol** < 1 year; 1.25 mg, > 1 year; 2.5 mg via nebulizer; repeat times 2.

ADVANCED EMT STOP

PARAMEDIC

- **Albuterol** < 1 year; 1.25 mg, > 1 year; 2.5 mg via nebulizer; repeat times 2.
- Cardiac Monitor
- **Epinephrine** 1:1,000 dose 0.01 mg/kg subcutaneously, if patient in severe distress; max 0.3 ml
- Vascular access

PARAMEDIC STOP

Key Points/Considerations

- Absence of breath sounds can be indicative of status asthmaticus. Be prepared for imminent respiratory arrest

Pediatric: Airway Obstruction, Infant (less than 1 year)

EMT

ADVANCED EMT

- Confirm severe airway obstruction. Check for the sudden onset of severe breathing difficulty, ineffective or silent cough, weak or silent cry.
- Give up to 5 back slaps and up to 5 chest thrusts.
- Repeat step 2 until effective or victim becomes unresponsive.
- If victim becomes unresponsive with no breathing or no normal breathing (i.e., agonal gasps), begin CPR
- Before you deliver breaths, look into mouth. If you see a foreign body that can be easily removed, remove it.
- Refer to airway management protocol

 **EMT & ADVANCED EMT STOP**

PARAMEDIC

- If unable to ventilate patient, attempt to remove obstruction with laryngoscope and McGill forceps.

 **PARAMEDIC STOP**

Pediatric: Altered Level of Consciousness

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Determine blood sugar
 - If <60 follow Pediatric Diabetic Emergency protocol

 EMT STOP

ADVANCED EMT

- Vascular access

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac monitor
- If blood sugar is <60, follow Pediatric Diabetic Emergency protocol
- If suspected overdose, follow Pediatric Overdose protocol

 PARAMEDIC STOP

Pediatric: Anaphylaxis

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Implement BLS Epi-Pen Procedural Protocol
- If agency is trained, administer **Epinephrine** 1:1,000 IM 0.01mg/kg IM

EMT STOP

ADVANCED EMT

- Vascular access
- **Albuterol** < 1year; 1.25 mg, > 1 year; 2.5 mg via nebulizer

ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor
- Consider intubation
- **Epinephrine** 1:1,000 dose 0.01 mg/kg (0.01 ml/kg) subcutaneously; max 0.5 mg (0.5 ml)
- **Albuterol** < 1year; 1.25 mg, > 1 year; 2.5 mg via nebulizer.
- **Diphenhydramine (Benadryl)** 1 mg/kg IV or IM; max dose 25 mg

PARAMEDIC STOP

PHYSICIAN OPTIONS FOR PARAMEDIC

- For cardiovascular collapse: **Epinephrine** 1:10,000 dose 0.01 mg/kg (0.1 ml/kg) IV, IO or ET; max dose 0.5 mg

Key Points/Considerations

- If an EMT has administered an **Epi-Pen**, or the patient has administered their own epinephrine auto injector, contact Medical Control prior to administering additional epinephrine subcutaneously

Pediatric: Asystole or PEA

EMT

- CAB and CPR, per AHA Guidelines
- Airway management with high concentration **oxygen** via BVM

 **EMT STOP**

ADVANCED EMT

- Vascular access, IV/IO

 **ADVANCED EMT STOP**

PARAMEDIC

- Secure airway as per AHA Guidelines. Initial Use of oropharyngeal airway and BVM is acceptable, with advanced airway deferred until a suitable time.
- Cardiac Monitor
- **Epinephrine** 1:10,000 dose 0.01 mg/kg (0.1 ml/kg) IV or IO
- Repeat **Epinephrine** every 3 – 5 minutes

 **PARAMEDIC STOP**

PHYSICIAN OPTIONS FOR PARAMEDIC

- **Epinephrine** 1:1,000 dose 0.1 mg/kg (0.1 ml/kg) IV or IO; repeat **Epinephrine** every 3-5 minutes
- Normal Saline 20 ml/kg rapid IV or IO bolus

Key Points/Considerations

- Call Medical Control and begin transport to the closest hospital as soon as possible
- Confirm asystole in at least 2 leads
- Perform CPR for 5 cycles between medication doses

During CPR

- **Push hard and fast (100/min)**
- **Ensure full chest recoil**
- **Minimize interruptions in chest compressions, no pauses greater than 10 seconds**
- **Rotate compressors every 2 minutes**
- One cycle of CPR: 30 compressions then 2 breaths; 5 cycles = 2 min.
- Avoid hyperventilation
- Secure airway and confirm placement
- After an advanced airway is placed, rescuers no longer deliver “cycles” of CPR. Give continuous chest compressions without pauses for breaths. Give 8-10 breaths/minute. Check rhythm every two minutes
- Rotate compressions every two minutes with rhythm checks
- Search for and treat possible contributing factors:
 - Hypovolemia
 - Hypoxia
 - Hydrogen Ion (acidosis)
 - Hypo-hyperkalemia
 - Toxins
 - Tamponade, cardiac
 - Tension pneumothorax
 - Thrombosis (coronary or pulmonary)
 - Trauma

Pediatric: Ventricular Fibrillation / Pulseless V-Tach

EMT

- CAB, CPR, and AED per AHA Guidelines
- Airway management with high concentration **oxygen** via BVM

EMT STOP

ADVANCED EMT

- Vascular access, IV/IO

ADVANCED EMT STOP

PARAMEDIC

- Secure airway as per AHA Guidelines. Initial Use of oropharyngeal airway and BVM is acceptable, with advanced airway deferred until a suitable time.
- Cardiac Monitor
- Defibrillate at 2 J/kg,
- **Epinephrine** 1:10,000 dose 0.01 mg/kg IV, IO
- Repeat **Epinephrine** every 3 – 5 minutes
- Defibrillate at 4 J/kg between doses of medication, if rhythm is unchanged
- Consider the use of ONE of the following:
 - **Lidocaine**, 1 mg/kg IV, IO or ET. Repeat twice as needed
 - **Amiodarone** 5 mg/kg (**Amiodarone** 150 mg diluted in 100ml, 1.5 mg/ml) IV, IO; repeat twice up to 15 mg/kg

PARAMEDIC STOP

PHYSICIAN OPTIONS FOR PARAMEDIC

- Consider **Magnesium** 25 – 50 mg/kg IV/IO to maximum of 2 gm for Torsades de Pointes

Key Points/Considerations

- Call Medical Control and begin transport to the closest hospital as soon as possible
- Treat V-Tach without a pulse as V-fib
- Use the small (pediatric) pads for patients less than 10 kg; if unavailable, use adult pads
- Initial defibrillation 2 J/kg, defibrillate at 4 J/kg after each medication administration

During CPR

- **Push hard and fast (100/min)**
- **Ensure full chest recoil**
- **Minimize interruptions in chest compressions, no pauses >10 seconds**
- **Rotate compressors every 2 minutes**
- One cycle of CPR: 30 compressions then 2 breaths; 5 cycles = 2 min.
- Avoid hyperventilation
- Secure airway and confirm placement
- After an advanced airway is placed, rescuers no longer deliver “cycles” of CPR. Give continuous chest compressions without pauses for breaths. Give 8-10 breaths/minute. Check rhythm every two minutes
- Rotate compressions every two minutes with rhythm checks
- Search for and treat possible contributing factors:

Hypovolemia	Toxins
Hypoxia	Tamponade, cardiac
Hydrogen Ion (acidosis)	Tension pneumothorax
Hypo-hyperkalemia	Thrombosis (coronary or pulmonary)
	Trauma

Pediatric: Symptomatic Bradycardia

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- If heart rate is bradycardic and patient's mental status and respiratory rate are decreased, ventilate with BVM
- If symptomatic bradycardia persists despite oxygenation and ventilation, start CPR and follow cardiac arrest protocol.

EMT STOP

ADVANCED EMT

- Vascular access IV/IO

ADVANCED STOP

PARAMEDIC

- Cardiac Monitor
- Consider intubation if unable to adequately ventilate or oxygenate child
- **Epinephrine** 1:10,000 dose 0.01 mg/kg IV or IO
- Repeat **Epinephrine** every 3 – 5 minutes
- **Atropine** 0.02 mg/kg, with a minimum dose 0.1 mg IV, IO if bradycardia is due to increased vagal tone or primary AV conduction block
- Repeat **Atropine** once in 5 minutes, to maximum total dose of 0.04 mg/kg

PARAMEDIC STOP

PHYSICIAN OPTIONS FOR PARAMEDIC

- Transcutaneous pacing if due to complete heart block
- IV bolus may be infused if indicated 20 ml/kg

Key Points/Considerations

- Call Medical Control as soon as possible
- Newborn/Infant bradycardic if pulse less than 80 bpm; child over 1 year of age bradycardic if pulse less than 60 bpm
- Symptomatic includes poor systemic perfusion, hypotension, respiratory difficulty or altered level of consciousness
- Do not treat asymptomatic bradycardia. Contact Medical Control.

Pediatric: Tachycardia With Pulses and Poor Perfusion

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration

 **EMT STOP**

ADVANCED EMT

- Vascular access

 **ADVANCED EMT STOP**

PARAMEDIC

- Cardiac Monitor
- 12 Lead EKG, if available
- Normal Saline 20 ml/kg IV bolus; may repeat once
- UNSTABLE wide complex patient
 - Synchronized cardioversion 0.5 – 1 J/kg, if not effective increase to 2 J/kg
 - Consider sedation if vascular access available
- Stable patient, narrow QRS:
 - Consider vagal maneuvers
 - **Adenosine (Adenocard)** 0.1 mg/kg (max 6 mg); may repeat at 0.2 mg/kg (max dose 12 mg)
- Stable patient, wide QRS:
 - **Amiodarone** 5 mg/kg (**Amiodarone** 150 mg diluted in 100ml, 1.5 mg/ml) IV, IO; over 20 minutes

 **PARAMEDIC STOP**

Key Points/Considerations

- Call Medical Control as soon as possible
- Newborn/Infant SVT if pulse greater than 220 bpm; child over 1 year of age SVT if pulse greater than 180 bpm, with no discernable p-waves
- The most common causes of Sinus Tachycardia in children are fever and dehydration
- UNSTABLE includes cardio-respiratory compromise, hypotension, or altered level of consciousness
- Do not treat asymptomatic tachycardia. Contact Medical Control.

During Evaluation:

- Secure, with airway and vascular access when possible
- Consider expert consultation
- Prepare for cardioversion

Treat Possible Contributing Factors:

Hypovolemia,	Toxins
Hypoxia	Tamponade, cardiac
Hydrogen Ion (acidosis)	Tension pneumothorax
Hypo-hyperkalemia	Thrombosis (coronary or pulmonary),
	Trauma

Pediatric: Diabetic Emergencies

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Check blood glucose level, if equipped
- If blood glucose is known or suspected to be low and patient is able to self administer and swallow on command, give **oral glucose** one unit dose (19-24 grams)
- Call for ALS intercept if unable to swallow on command, or mental status remains altered following administration of **oral glucose**

 **EMT STOP**

ADVANCED EMT

- Vascular access
- If blood sugar is below 60, administer **D₅₀** 1 ml/kg IV, under 1 year give **D₂₅** 2ml/kg IV

 **ADVANCED EMT STOP**

PARAMEDIC

- If blood sugar is below 60, administer **D₅₀** 1 ml/kg IV, under 1 year give **D₂₅** 2ml/kg IV
- **Glucagon** 1 mg IM or SQ
- If blood glucose above 400 and signs of dehydration administer fluid bolus:

Patient's Age	Amount of Normal Saline
Less than 1 year old	10 ml/kg
1 – 8 years old	20 ml/kg

 **PARAMEDIC STOP**

Key Points/Considerations

- If the patient's guardian wishes to RMA (refusal of medical aid) the patient and you have administered any medications you must contact Online Medical Control Physician prior to completing the RMA

Pediatric: Hypoperfusion / Hypovolemia

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration

 **EMT STOP**

ADVANCED EMT

- Vascular access
- Normal Saline 20 ml/kg IV bolus

 **ADVANCED EMT STOP**

PARAMEDIC

- Cardiac Monitor
- Consider additional bolus if needed

 **PARAMEDIC STOP**

Key Points/Considerations

- Diagnostic criteria for UNSTABLE includes: capillary refill time > 2 seconds, cool, clammy or mottled skin, inability to recognize parents, restlessness, listlessness, tachycardia, tachypnea, systolic BP less than 70 mmHg (2 years and older) or systolic BP less than 60 mmHg (less than 2 years old).
- A falling BP is a LATE sign of shock
- Contact receiving hospital early, with “Trauma Alert” call, giving brief description of mechanism of injury and estimated time of arrival

Pediatric: Overdose or Toxic Exposure

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Determine what was taken, when and how much, if possible
- Check blood glucose level, if equipped, if altered mental status is present, or if overdose of oral hypoglycemic agents is suspected. If level is abnormal, refer to Pediatric Diabetic Protocol

EMT STOP

ADVANCED EMT

- Vascular access
- For symptomatic opium overdose give **Narcan** 0.1 mg/kg IV, IO or IM to max of 2 mg

ADVANCED EMT STOP

PARAMEDIC

- For symptomatic opium overdose give **Narcan** 0.1 mg/kg IV, IO or IM to max of 2 mg
- Cardiac Monitor

PARAMEDIC STOP

PHYSICIAN OPTIONS FOR PARAMEDIC

- For symptomatic patient with:
 - Organophosphate poisoning: **Atropine** 0.02 mg/kg IV per dose every 3 – 5 minutes, until secretions dry
 - Dystonic reaction: **Diphenhydramine (Benadryl)** 1.0 mg/kg IV or IM.
(Dystonic reaction is uncontrolled contractions of face, neck or tongue.)

Key Points/Considerations

- Call Medical Control as soon as possible
- Includes patients who are unconscious/unresponsive without suspected trauma or other causes, and patients with a brief loss of consciousness

Pediatric: Severe Pain Management

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration

 **EMT STOP**

ADVANCED EMT

- Vascular access

 **ADVANCED EMT STOP**

PARAMEDIC

- Cardiac Monitor
- **Morphine** 0.1-.2 mg/kg IV or IM (SEE KEY POINTS BELOW)
Morphine may be repeated once after 5 minutes with a maximum total dose 0.1 mg/kg
- **or Fentanyl Citrate** 1mcg/kg IV, IO
- **Ondansetron (Zofran)** 0.1 mg/kg IV or IM, only if patient becomes nauseous, oral < 4 yrs. 2 mg ODT, ≥ 4 yrs. 4 mg ODT.

 **PARAMEDIC STOP**

PHYSICIAN OPTIONS FOR PARAMEDIC

- Additional **Morphine** IV or IM
- Additional **or Fentanyl Citrate** IV or IO
- Additional **Ondansetron (Zofran)** 0.1 mg/kg IV or IM, oral < 4 yrs. 2 mg ODT, ≥ 4 yrs. 4 mg ODT.

Key Points/Considerations

- Contraindications to standing order pain management: altered mental status, hypoventilation, hypotension, other traumatic injuries
- This protocol may NOT be used in conjunction with the Pediatric Procedural Sedation Protocol, unless Medical Control is established.

Procedural: Adult EZ IO

EMT

- Not in scope of practice



ADVANCED EMT

PARAMEDIC

- An alternative technique for establishing IV access in critical adult patients when peripheral IV access is difficult or time sensitive.
- **Indications**
 - Immediate vascular access in emergencies
 - Intravenous fluids or medications are urgently needed and a peripheral IV cannot be established in 2 attempts or 90 seconds **AND** the patient exhibits one or more of the following:
 - An altered mental status (GCS of 8 or less)
 - Imminent respiratory failure
 - Hemodynamic instability (systolic BP of <90)
 - IO placement maybe considered prior to peripheral IV attempts in cases of cardiopulmonary or traumatic arrest.
- **Contraindications**
 - Fractures of the bone selected for IO infusion
 - Excessive tissue at insertion site with the absence of anatomical landmarks (consider alternate site)
 - Previous significant orthopedic procedure (IO within 24 hours, prosthesis-consider alternate site)
 - Infection at the site selected for insertion (consider alternate site)
- **Procedure**
 - Assemble all necessary equipment
 - Prepare EZ IO driver and needle set (blue)
 - Select proper site
 - Proximal Tibia
 - For patients ≥ 40 kg, the insertion site is approximately one finger width medial to the tibial tuberosity.
 - Distal Tibia
 - For patients ≥ 40 kg, the insertion site is approximately two finger widths proximal to the medial malleolus and positioned midline on the medial shaft.
 - Proximal Humeral
 - For all patients, identify the greater tubercle insertion site approximately two finger widths inferior to the coracoid process and the acromion.
 - Prep the surface with Betadine

- Stabilize patient's leg and begin insertion from a 90-degree angle to the plane of the tibial plateau. Gently advance the needle set into position-do not force. Stop when you feel the "pop" on smaller patients.
- Remove driver from the needle set
- Remove the stylet from the catheter.
- Confirm placement (catheter is stable at a 90-degree angle to the bone, able to aspirate blood and fluids flow without evidence of extravasation)
- Connect primed EZ Connect
- Consider adding 20-40 mg **Lidocaine** 2% to the conscious adult patient for anesthetic (**Paramedics Only**)
- Flush or bolus the EZ-IO catheter rapidly with 10 ml of NS
- Administer the infusion or medication under pressure
- If unsuccessful or subcutaneous swelling occurs:
 - Stop IV, remove needle, cover wound
 - Make second attempt in other leg

 **PARAMEDIC STOP**

Procedural: Air Medical Utilization

Criteria to use when considering use of air medical services:

- Ground transport time exceeds 15 minutes, AND
- Trauma patient meets anatomical or physiological criteria described below, or medical patient requires intervention(s) not possible by ground crew
- When the patient's clinical condition indicates the need for advanced life support capabilities- this includes cardiac arrest, respiratory distress or arrest, upper airway obstruction, or anaphylaxis. The intent of these cases is to deliver the patient to the hospital as rapidly as possible.

Circumstances where air medical helicopters may be appropriate:

- Mechanism of injury: vehicle roll-over with ejected or unbelted passenger; vehicle striking pedestrian at >10 mph; falls from >15'; motorcycle victim ejected at >20 mph; multiple victims
- Time/distance factors: transportation time to the hospital is greater than 15 minutes by ground ambulance; remote (wilderness) location with difficult or prolonged ground access time; patient extrication time >20 minutes; or utilization of local ground ambulance leave local community without ground ambulance coverage.

Request for Service:

- The highest level of pre-hospital personnel on scene may request a helicopter be placed on standby or be launched.
- Request will be made by radio or direct through local dispatch.
- Air medical should only be cancelled by certified EMS personnel who have completed an on scene patient assessment.
- Communication with air medical will be on radio frequency 155.280 EMS 2.

Destination

- Patients transported by air medical services will be taken to the nearest appropriate facility in accordance with the air medical services provider's protocols.
- Do not delay on the scene for the helicopter. If it is considered critical for the individual patient and the patient is packaged and ready for transport, start enroute to the hospital and reassign the Landing Zone either closer to the hospital or at the hospital's designated Landing Zone; the helicopter can intercept with you.

Key Points

- A landing zone will consist of an area minimum 60'x60' (ideal site is 100'x100'), <10 degree slope, free from debris, obstruction, hazards, (i.e. wires, fences, trees, loose objects), four corners of the landing zone should be marked.
- LZ officer should notify pilot as soon as he/she can hear the aircraft and then see the aircraft.
- When EMS arrives, they must assess the situation. If it is determined by the most highly trained EMS provider ON THE SCENE that the helicopter is not needed, it should be cancelled as soon as possible.

Procedural: Airway Management

EMT

- **Oxygen** therapy using non-rebreather mask 10-15 lpm, NRB, titrate to a SaO₂ 94-98%
- **Oxygen** therapy using nasal cannula, 2-6 lpm, if patient will not tolerate NRB, titrate to a SaO₂ 94-98%
- **Oxygen** therapy using bag valve mask 15lpm, BVM, titrate to a SaO₂ 94-98%
- Nasopharyngeal airways
- Oropharyngeal airways
- BVM assisted ventilation
- Auto Vent
- Supraglottic airway device (King LT or CombiTube) in unresponsive ADULTS

 **EMT STOP**

ADVANCED EMT

- Continuous Positive Airway Pressure (CPAP)

 **ADVANCED EMT STOP**

PARAMEDIC

- Adult & Pediatric endotracheal intubation
- Rapid Sequence Intubation
- Cricothyroidotomy,

 **PARAMEDIC STOP**

Key Points

- Medication facilitated intubation is to be performed only by paramedics who have received specific training and are approved by the agency medical director.
- Tidal Volume settings for portable transport ventilators: 5 – 7 ml/kg
- Always have a BVM available when using a portable transport ventilator
- Intubation may be attempted on a patient 2 times by one Paramedic and one more time by a second paramedic maximum. If unsuccessful utilize a rescue airway device or ventilate with BVM.
- Contraindications for use of Combitube:
 - Patients with esophageal disease, pharyngeal hemorrhage, tracheostomy or laryngectomy
 - Patients who have ingested a caustic substance
 - Patients with known obstruction of larynx and/or trachea

Procedural: Auto Vent

EMT

ADVANCED EMT

PARAMEDIC

- May be used on any patient who weighs >20 kgs.
- Tidal volume should be calculated by the patients weight (kg) multiplied by 5-7 cc (example, 80kg X 7cc = 560 cc for tidal volume)
- Any medical device is subject to mechanical failure- so every patient should be closely monitored for proper oxygenation and ventilation during the use of this device
- **Procedure**
 - Determine need for assisting patients ventilation
 - Assure ventilator is attached to a proper oxygen source
 - Set tidal volume to proper setting using above formula.
 - Determine which inspiration time will be utilized (child or adult) and set appropriately.
 - Set rate of ventilations.
 - Quickly test pressure alarm feature by placing your hand over the end of the standard 15 mm adapter and listen for high pitched noise.
 - Always use device with disposable circuit valve
 - Monitor the patient for proper ventilation:
 - SpO2
 - Lung Sounds
 - Chest wall expansion
 - Presence of cyanosis
 - EtCO2
- **Contraindications**
 - Patient <20 kgs
 - No other contraindications present unless inadequate oxygenation is present.

 EMT, ADVANCED EMT & PARAMEDIC STOP

Key Points/Considerations

- When using the Auto Vent, always have a BVM available as a backup device.

Procedural: Combitube

EMT

ADVANCED EMT

PARAMEDIC

- Verify cardiac and/or respiratory arrest
- Ventilate via BVM @ 15 L/min or Auto Vent
- Ventilate 1-2 minutes prior to combitube insertion attempt
- Suction hypopharynx as needed
- Test cuff and inflation system for leaks by injecting the maximum recommended volume of air into the cuffs. Remove all air from cuffs prior to insertion.
- Apply lubricant to the beveled distal tip, taking care to avoid introduction of lubricant in or near the ventilator openings.
- Insert combitube into mouth and advance gently until the teeth are aligned between the two black rings on the tube
- Using the large syringe, inflate #1 with 100 cc of air
- Using the small syringe, inflate #2 with 15 cc of air
- Attach BVM to tube #1 and ventilate
- Auscultate lung fields and epigastrium
- If lung sounds are absent, remove BVM from tube #1 and connect to tube #2 and ventilate
- **Removal of Combitube**
 - Immediately remove airway if patient regains consciousness or begins to fight tube.
 - Turn patient on their side
 - Deflate both cuffs
 - Remove combitube from airway
 - Be prepared for patient to vomit
 - Assist ventilation PRN
 - Administer O² at 15 L/min
- **Contraindications of Combitube**
 - An intact gag reflex
 - Patients under 5 feet in height
 - Cases of known or suspected caustic poisoning
 - Known esophageal disease

 PARAMEDIC STOP

Procedural: CPAP

EMT

- Not in scope of practice



ADVANCED EMT

PARAMEDIC

- CPAP is an alternative to intubation in the awake patient who is experiencing respiratory failure and an adjunct to the treatment of severe CHF.
- **Indications**
 - Severe CHF with respiratory distress not relieved by supplemental oxygen
 - Hypoxemia due to CHF or COPD
 - Respiratory failure
- **Contraindications**
 - Respiratory arrest, unconsciousness or agonal respirations
 - Cardiogenic shock
 - Persistent vomiting
 - Asthma without coexisting COPD or CHF
 - Pneumothorax or penetrating chest trauma
- **Procedure**
 - Assess vital signs, cardiac monitor & pulse oximetry
 - Explain procedure to the patient
 - Clear upper airway of secretions by suction or having the patient cough and/or blow nose
 - Make sure CPAP device is connected to oxygen regulator and that the oxygen bottle is turned on
 - Prepare circuit to apply to patient
 - Start CPAP at ambient air pressure (0cm H₂O)
 - Titrate pressure to 10 cm for CHF and 5 cm for COPD
 - Continue to reassess vital signs: if hypotension develops discontinue CPAP or reduce pressure. If patient failing CPAP therapy, consider intubation/RSI for the paramedics.



Procedural: Cricothyrotomy (surgical airway)

EMT

- Not in scope of practice

 EMT STOP

ADVANCED EMT

- Not in scope of practice

 ADVANCED EMT STOP

PARAMEDIC

- **Indication**
 - Life-threatening upper airway obstructions where other non-invasive or manual measures have failed to establish an airway and attempts at ventilation have failed and tracheal intubation is not feasible or has failed.

NOT TO BE USED IN PEDIATRIC MANAGEMENT

- **Procedure**
 - Failed attempts at establishment of airway and inability to ventilate patient.
 - Decision made to perform surgical cricothyrotomy based on failed airway.
 - Place patient supine, protect cervical spine, as indicated.
 - Identify the cricothyroid membrane in the midline between the thyroid and cricoid cartilage.
 - Clean the site
 - Manually stabilize the cricothyroid cartilage with thumb and index finger.
 - Make a horizontal incision through the cricothyroid membrane.
 - Insert your finger into the incision and maintain control of the stoma, dilating the hole with your finger. Insert the Bougie into the incision site, feeling for tracheal clicks and then hold up.
 - Slide a 6.0 mm cuffed ET tube over the Bougie and slide until the cuff has disappeared.
 - Inflate the cuff, remove the Bougie, place on CO2 detector and confirm placement with ventilations from BVM.
 - Secure the ET tube.
 - Control local bleeding with direct pressure.
 - Rapid transport.

 PARAMEDIC STOP

Procedural: Epinephrine Auto Injector

EMT

ADVANCED EMT

- Place patient on oxygen. If stable, administer **oxygen** at 2-4 L/min via nasal cannula. If unstable, administer oxygen at 10-15 L/min via NRB.
- Administer **Epinephrine Auto-Injector** from EMS supplies or patients physician prescribed auto injector.
 - Adult-**EpiPen** (0.3 mg)
 - Infant/Child-**EpiPen Jr.** (0.15 mg) describes individual who is under 10 yrs. of age and/or weighing <60 lbs.
 - Ensure **EpiPen** is not expired, cloudy or crystallized
 - Record time of injection & reassess in two minutes

 EMT & ADVANCED EMT STOP

PARAMEDIC

- NA

 PARAMEDIC STOP

Procedural: Epinephrine Drip

EMT

ADVANCED EMT

- NA

 EMT & ADVANCED EMT STOP

PARAMEDIC

- Use for symptomatic bradycardia not responding to medication or pacing or anaphylactic shock resistant to repeated doses of IM epinephrine.
- Inject 10ml of 1:10,000 **Epinephrine** into a 1000 ml bag of NS and mix well.
- Begin to infuse at 1ml/min (1mcg/min) and titrate upward by 1ml/min for desired effect.

 PARAMEDIC STOP

Procedural: Intranasal Medication Delivery

EMT

ADVANCED EMT

EMT & ADVANCED EMT STOP

PARAMEDIC

- Draw up appropriate amount of medication into syringe.
- Attach intranasal medication delivery device to the syringe.
- Using your free hand to hold the head stable, place the tip of the intranasal medication delivery device tip snugly against the nostril aiming slightly up and outward.
- Briskly compress the syringe plunger to deliver half of the medication into the nostril.
- Move the device over to the opposite nostril and administer the remaining medication into that nostril.

PARAMEDIC STOP

Key Points/Considerations

- Always deliver half the medication dose up each nostril.
- Do not use more than ½ to 1 ml of medication per nostril.
- Always use the MOST concentrated form of the medication available.
- Beware that mucous, blood and vasoconstrictors reduce absorption. Suction nostrils or consider alternate drug delivery method in these situations.

Procedural: Intubation

EMT

- Not in scope of practice

 EMT STOP

ADVANCED EMT

- Not in scope of practice

 ADVANCED EMT STOP

PARAMEDIC

- Prepare necessary equipment
- Ventilate patient with supplemental oxygen as necessary; hyperoxygenate prior to intubation attempt.
- Perform intubation
- Visualize cuff going past the vocal cords
- Inflate cuff
- Place end-tidal CO2 detector onto tube, ventilate with BVM or Auto Vent.
- Confirm tube placement
 - End-tidal CO2 detector should change to yellow after 6-7 breaths
 - Watch for chest to rise and fall
 - Look for mist in tube
 - Auscultate lateral lung fields and epigastrium with a stethoscope.
- Once ET tube placement has been confirmed, secure tube and continue ventilation with BVM or Auto Vent.
- If unable to intubate using ETT, consider using supra glottic airway device (Combitube or King LT).
- **Documentation of Intubation**
 - Date & time
 - Medications used if applicable
 - Primary & secondary placement confirmation techniques used
 - Size of tube and depth of tube at the teeth
 - How tube was secured

 PARAMEDIC STOP

Procedural: King LT Airway

EMT

ADVANCED EMT

PARAMEDIC

- **Indications**
 - Intended for airway management in patients over 4 ft in height without controlled or spontaneous ventilation.
- **Contraindications**
 - Responsive patients with an intact gag reflex
 - Patients with known esophageal disease
 - Patients who have ingested caustic substances
- **Warnings**
 - 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. After placement, perform standard checks for breath sounds.
 - Lubricate only the posterior surface of the King LT to avoid blockage of the aperture or aspiration of the lubricant.
- **Procedure**

Size	Description	Connector Color	Inflation Volume
2	12-25 kg	Green	25-35 ml
2.5	25-35kg	Orange	30-40 ml
3	4-5 feet Ht.	Yellow	40-55 ml
4	5-6 feet Ht.	Red	50-70 ml
5	>6 feet Ht.	Purple	60-80 ml

- Using the information provided, choose the correct King LT size, based on patient height.
- Test cuff and inflation system for leaks by injecting the maximum recommended volume of air into the cuffs. Remove all air from cuffs prior to insertion.
- Apply lubricant to the beveled distal tip and posterior aspect of the tube, taking care to avoid introduction of lubricant in or near the ventilator openings.
- Have a spare King LT ready and prepared for immediate use.
- Pre-oxygenate, if possible
- Position the head. The ideal head position for insertion of the King LT is the “sniffing position”. However, the angle and shortness of the tube also allows it to be inserted with the head in a neutral position.
- Hold the King LT at the connector with dominant hand. With non-dominant hand, hold mouth open and apply chin lift.
- With the King LT 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.

- As tube tip passes under tongue, rotate tube back to midline (blue orientation line faces chin).
- Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums.
- Using the syringe provided, inflate the cuffs of the King LT with 60 cc of air.
- Attach resuscitator bag to the 15 mm connector of the King LT. While gently ventilating the patient to assess ventilation, simultaneously withdraw the King LT until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).
- Depth markings are provided at the proximal end of the King LT which refer to the distance from the distal ventilatory opening. 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 centimeters, from the vocal cords to the teeth.
- Confirm proper position by auscultation, chest movement and verification of CO₂ by capnography if available.
- Readjust cuff inflation to just seal volume (cuffs inflated with minimum volume necessary to seal the airway at the peak ventilatory pressure employed).
- Secure King LT to patient using tape or other accepted means. A bite block can also be used, if desired.



PARAMEDIC STOP

Procedural: Needle Thoracostomy

EMT

ADVANCED EMT

- Not in scope of practice



EMT & ADVANCED EMT STOP

PARAMEDIC

- Identify the second intercostal space in midclavicular line on the side of the tension pneumothorax
OR
- 4th or 5th intercostal space in the anterior axillary line
- Prep site
- Attach a 10 gauge 3 inch , over the needle catheter to a 10 cc syringe
- If patient is conscious place patient in upright or semi-fowlers position
- If unconscious patient may be supine when procedure is performed
- Insert needle/catheter into the skin at a 25-30 degree angle to chest wall directly over the superior aspect, (over the top) of the third rib into the second intercostal space.
- Intercostal nerves, artery and vein run beneath the ribs so avoid this area.
- Puncture the parietal pleura; a “pop” is usually felt. A rush of air with a rapidly improving patient helps confirm the diagnosis.
- Aspirate as much air as possible; if necessary, the syringe can be removed to allow “free flow” of air from the pneumothorax until equilibrium is reached.
- Remove the needle, secure the catheter to the skin; apply a flutter –valve, if possible.
- **Cautions**
 - This procedure to be used only if life-threatening situations
 - Complications include local hematomas, cellulitis and pneumothorax.
 - This procedure will create a pneumothorax whether one previously existed or not.



PARAMEDIC STOP

Procedural: Pain Management

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration

 EMT STOP

ADVANCED EMT

- Vascular access

 ADVANCED EMT

PARAMEDIC

- **Morphine Sulfate**. 0.1 mg/kg to a maximum of 30 mg. Give calculated dose slowly, then reassess pt.
(Pediatric) .1-.2 mg.kg IV,IO
- **or Fentanyl Citrate** 1mcg/kg IV,IO to a maximum of 100 micrograms. (Pediatric)
1mcg/kg IV, IO
- For isolated extremity trauma in a stable patient: consider the use of **Fentanyl Citrate** 1 microgram/kg IV initially, then 25-75 micrograms IV every 5-10 minutes titrated to effect with a maximum dose of 400 micrograms.
- **Ondansetron** (Zofran) 4 mg IV, IM or PO if patient becomes nauseous

 PARAMEDIC STOP

Key Points/Considerations

- For patients with:
 - Severe burns without hemodynamic compromise
 - Isolated extremity injuries such as fractures or dislocations with severe pain
 - Suspected hip fractures should be treated as extremity injuries
 - Shoulder injuries should be treated as extremity injuries
- For all other painful conditions, contact Medical Control for orders
- Contraindications to standing order pain management: altered mental status, hypoventilation, SBP<100, other traumatic injuries.
- This protocol may NOT be used in conjunction with the Procedural Sedation Protocol, unless Medical Control is established.

Procedural: Pediatric EZ IO

EMT

- Not in scope of practice



ADVANCED EMT

PARAMEDIC

- An alternative technique for establishing IV access in critical adult patients when peripheral IV access is difficult or time sensitive.
- **Indications**
 - Immediate vascular access in emergencies
 - Intravenous fluids or medications are urgently needed and a peripheral IV cannot be established in 2 attempts or 90 seconds **AND** the patient exhibits one or more of the following:
 - An altered mental status (GCS of 8 or less)
 - Imminent respiratory failure
 - Hemodynamic instability (systolic BP of <90)
 - IO placement maybe considered prior to peripheral IV attempts in cases of cardiopulmonary or traumatic arrest.
- **Contraindications**
 - Fractures of the bone selected for IO infusion
 - Excessive tissue at insertion site with the absence of anatomical landmarks (consider alternate site)
 - Previous significant orthopedic procedure (IO within 24 hours, prosthesis-consider alternate site)
 - Infection at the site selected for insertion (consider alternate site)
- **Procedure**
 - Assemble all necessary equipment
 - Prepare EZ IO driver and needle set (pink)
 - Select proper site
 - Proximal Tibia
 - For patients between 3-39 kg, the insertion site is approximately one finger width below the tibial tuberosity (or two finger widths below the patella)
 - Distal Tibia
 - For patients between 3-39 kg, the insertion site is approximately one finger width proximal to the medial malleolus - along the flat aspect of the medial distal tibia
 - Proximal Humeral
 - For all patients, identify the greater tubercle insertion site approximately two finger widths inferior to the coracoid process and the acromion.
 - Prep the surface with Betadine

- Stabilize patient's leg and begin insertion from a 90-degree angle to the plane of the tibial plateau. Gently advance the needle set into position-do not force. Stop when you feel the "pop" on smaller patients.
- Remove driver from the needle set
- Remove the stylet from the catheter.
- Confirm placement (catheter is stable at a 90-degree angle to the bone, able to aspirate blood and fluids flow without evidence of extravasation)
- Connect primed EZ Connect
- Consider adding .5 mg/kg **Lidocaine** 2% to the conscious adult patient for anesthetic (**Paramedics Only**)
- Flush or bolus the EZ-IO catheter rapidly with 10 ml of NS
- Administer the infusion or medication under pressure
- If unsuccessful or subcutaneous swelling occurs:
 - Stop IV, remove needle, cover wound
 - Make second attempt in other leg

 **ADVANCED EMT & PARAMEDIC STOP**

Procedural: Restraints for Aggressive or Violent Patients

EMT

The use of physical restraints for patients who pose a threat to themselves or others is indicated only as a last resort.

Physical restraint should be preceded by an attempt at verbal control and the least restrictive means of control necessary must be employed. If restraints are used, care must be taken to protect the patient from possible injury. Special precautions must be taken to reduce the risk of respiratory compromise.

- Request assistance from law enforcement
- Restraint equipment applied by EMS personnel must be either padded leather restraints or soft restraints (i.e. posey, Velcro, or seat belt type). Both methods must allow for quick release.
- The application of the following form of restraint should **not** be used by EMS personnel:
 - Hard plastic ties or any restraint device requiring a key to remove.
 - “Sandwiching” patients between backboards, scoop-stretchers, or flat as a restraint.
 - Restraining a patient’s hands and feet behind the patient (i.e. leg restraints)
 - Methods or other materials applied in a manner that could cause respiratory, vascular or neurological compromise.
- Restraint equipment applied by law enforcement (i.e. handcuffs, plastic ties or leg restraints) must provide sufficient slack in the restraint device to allow the patient to straighten the abdomen and chest and take full tidal volume breaths. Restraint devices applied by law enforcement require the officer’s continued presence to insure patient and scene safety. The officer should, if at all possible, accompany the patient in the ambulance on a predetermined route. A method to alert the officer of any problem that may occur during transport should be discussed prior to leaving the scene.
- Patients should not be transported in the prone position (on their stomach) unless necessary to provide emergency medical stabilization. EMS personnel must ensure that the patient position does not compromise the patient’s respiratory/circulatory systems or does not preclude any necessary medical intervention to protect the patient’s airway should vomit occur.
- If providers are at risk of contamination by salivary and respiratory secretions from a combative patient, a protective device may be applied to the patient to help reduce the chance of disease transmission in this manner.
- Determine blood sugar
- Restrained extremities should be evaluated for pulse quality, color, nerve and motor function every fifteen minutes.
- The medical incident report shall document the following:
 - The reason the restraints were needed
 - Which agency applied the restraints
 - The periodic extremity evaluation
 - The periodic evaluation of the patient’s respiratory status



ADVANCED EMT

- Vascular access
- If blood sugar is less than 60, administer **Dextrose 50%** 25 grams IV

 **ADVANCED EMT STOP**

PARAMEDIC

- If blood sugar is less than 60, administer **Dextrose 50%** 25 grams IV.

 **PARAMEDIC STOP**

PHYSICIAN OPTIONS for PARAMEDIC

- Chemical restraints may be used to help control combativeness. Administer **Midazolam (Versed)** 2 mg IV/IM every 3-5 minutes to a maximum of 10 mg, 0.3-0.5 mg/kg IN to a max of 10 mg
- or **Diazepam (Valium)** 5-10mg IV or IM slowly
- or **Lorazepam (Ativan)** 2-5 mg slow IV push
- or **Droperidol (Inapsine)** 1.25-2.5 mg IV slowly or IM

Key Points/Considerations

- Medical control **must** be contacted prior to any use of chemical restraints.

Procedural: RSI

EMT

ADVANCED EMT

EMT & ADVANCED EMT STOP

PARAMEDIC

- Prepare the following equipment
 - BVM with functioning oxygen system
 - Suction unit with rigid pharyngeal tip
 - Laryngoscope, endotracheal tubes, stylet and syringe
 - Have rescue device available
 - Any appropriate medications to be utilized
- Ensure of functioning and secure IV line in place
- Establish cardiac monitor and pulse oximetry
- Pre-Oxygenate with 100% **oxygen**
- **Pre-medicate**
 - **Suspected Head Injury-** in cases requiring control of intracranial pressure such as traumatic head injuries, hypertensive crisis, intracranial bleed or patients at risk for ventricular dysrhythmia, you may administer **Lidocaine**, 1.5 mg/kg IV, IO bolus prior to giving **Succinylcholine, Rocuronium or Vecuronium** and intubating.
 - **Pediatric RSI-** in cases involving a pediatric patient, <8 years old administer Atropine, 0.02 mg/kg IV, IO bolus. Note: BVM ventilation is preferred management in this age group and should always be attempted first.
- Administer **Midazolam (Versed)** for sedation, Adult 2-4 mg IV, Children 0.1-0.2 mg/kg IV slow push
- Administer **Succinylcholine**, Adult 1mg/kg IV, maximum of 100 mg, Children 1-2 mg/kg IV.
- Consider **Rocuronium** or **Vecuronium** as an adjunct when Succinylcholine is contraindicated or needing paralysis for long transports, **Rocuronium** Adult 0.6-1.2 mg/kg IV, Children 0.6 mg/kg IV and **Vecuronium** Adult 0.1 mg/kg IV, Children 0.1 mg/kg IV.
- Observe patient for fasciculations to subside and patient to be unresponsive about 45 seconds for complete relaxation.
- Intubate pt., if first attempt is unsuccessful, re-oxygenate using BVM for 30-60 seconds.
- If repeated intubation fail x 2, ventilate with BVM until spontaneous respirations returns, or move to rescue device.
- If further intubation attempts fail and patient cannot be ventilated per BVM, perform cricothyrotomy per protocol.
- Confirm tube placement and document as per intubation protocol.

PARAMEDIC STOP

Procedural: Sedation

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration

 EMT STOP

ADVANCED EMT

- Vascular access

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor
- Continuous pulse oximetry
- **Midazolam (Versed)** 2-4 mg IV, 0.3-0.5 mg/kg IN to a max of 10 mg
- **or Diazepam (Valium)** 2-5 mg IV
- **or Lorazepam (Ativan)** 2-5 mg slow IV push

 PARAMEDIC STOP

Key Points/Considerations

- For patients with the following anxiety producing or painful procedures including:
 - Cardioversion
 - Transcutaneous pacing
- Not for disentanglement or management of suspected fractures without Medical Control
- This protocol may NOT be used in conjunction with the Pain Management Protocol, unless Medical Control is established

Procedural: Transcutaneous Pacing

EMT

ADVANCED EMT

- Not in scope of practice

 EMT & ADVANCED EMT STOP

PARAMEDIC

- **Indications**
 - Hemodynamically unstable or symptomatic bradycardia. (eg. BP <100 systolic, altered mental status, signs of shock, dyspnea, diaphoresis, ect)
 - Type II second degree heart block
 - Third degree heart block
- **Procedure**
 - Establish rhythm
 - **Atropine** per Bradycardia protocol
 - Attach pacing pads and monitoring electrodes
 - Select pacing on monitor
 - Set pacing rate to 70 bpm
 - Start at 50 milliamps and increase by 20 milliamps until mechanical capture is obtained. Then decrease by 5 milliamp increments until the least amount of energy to sustain pulses is obtained (use lowest threshold plus 10%)
 - Feel for a pulse, preferably femoral or radial to confirm mechanical capture.
 - If patient is conscious, assess patient comfort, consider sedation as needed. See sedation protocol.
 - Document with rhythm strips, date, time, baseline rhythm, current required to capture, pacing rate, patient response, medications used, date and time if terminated.

 PARAMEDIC STOP

Respiratory: Acute Asthma

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Determine if patient has utilized his/her own asthma medications
- Assist patient with their own medication hand held aerosol inhaler or assist a patient with their nebulized medication.

EMT STOP

ADVANCED EMT

- Vascular access
- **Albuterol** 2.5 mg in 3 ml (unit dose) via nebulizer, may repeat times 2, may double the dose in severe cases

ADVANCED EMT STOP

PARAMEDIC

- **Albuterol** 2.5 mg in 3 ml (unit dose) via nebulizer, may repeat times 2, may double the dose in severe cases
- Consider Cardiac Monitor
- Consider 12 Lead EKG, if available
- For severe asthma exacerbation, consider:
Epinephrine (1:1,000) 0.3-0.5mg IM, SQ

PARAMEDIC STOP

Key Points/Considerations

- Remember, “all that wheezes is not asthma!” Consider allergic reaction, airway obstruction, pulmonary edema, COPD exacerbation
- **Epinephrine** should only be used if patient’s tidal volume is so small that nebulized medications can’t work

Respiratory: Acute Pulmonary Edema

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Sit patient upright, if possible

 **EMT STOP**

ADVANCED EMT

- Vascular access
- CPAP, if equipped. Target pressure is 10 cm H₂O pressure.

 **ADVANCED EMT STOP**

PARAMEDIC

- Cardiac Monitor
- **Albuterol** 2.5 mg in 3 ml (unit dose), if wheezes are present
- CPAP, if equipped. Target pressure is 10 cm H₂O pressure.
- 12 Lead EKG, if available
- **Nitroglycerin** 0.4 mg, every 2-5 minutes sublingual, if the patient's systolic BP is above 100 mmHg
- **Furosemide (Lasix)** 40-80mg IV over 2 – 3 minutes if diagnosis is certain and patient appears fluid overloaded (wet lungs, peripheral edema, distended neck veins)
- **Norepinephrine (Levophed)** .05-2 mcg/kg/min titrate to effect, not to exceed 30 mcg/min

 **PARAMEDIC STOP**

Key Points/Considerations

- All patients with rales do not have pulmonary edema — consider the possibility of pneumonia or chronic obstructive pulmonary disease (COPD) exacerbation

Respiratory: COPD Exacerbation

EMT

- Establish and maintain airway, vital signs.
- Administer **oxygen** @ 2-4 L/min via Nasal Cannula.
- Assist patient with their own medications as appropriate
- Monitor SaO₂ & attempt to maintain at 90%
- If patient is in extreme distress, increase oxygen therapy, maintaining a SaO₂ of 94-98% through titration

 EMT STOP

ADVANCED EMT

- Vascular access
- **Albuterol** 2.5 mg in 3 ml (unit dose) via nebulizer or ET tube; may repeat to a total of three doses
- Consider CPAP, Target pressure is 5 cm H₂O pressure

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor
- **Albuterol** 2.5 mg in 3 ml (unit dose) via nebulizer or ET tube; may repeat to a total of three doses
- 12 Lead EKG, if available
- Consider CPAP, Target pressure is 5 cm H₂O pressure
- Consider endotracheal intubation/RSI and positive –pressure ventilation if patient has decreased level of consciousness or other signs of respiratory failure.

 PARAMEDIC STOP

Trauma: General

Key Points/Considerations

- Patients with unmanageable airway go to the closest hospital or call for aeromedical or request ALS rendezvous while enroute to the highest level Trauma Center.
- All other UNSTABLE patients with airway managed go to highest level Trauma Center within 15 minutes:
 - If more than 15 minutes from Trauma Center consider aeromedical assistance. Refer to the Aeromedical Utilization Policy.
 - If more than 15 minutes from Trauma Center and aeromedical assistance is not available, transport patient to the next highest level trauma center
- All times start at the time the EMS provider determined the patient to be UNSTABLE
- Notify the receiving facility as early as possible giving brief description of mechanism of injury, and estimated time of arrival
- UNSTABLE patients should be enroute to the hospital/landing zone within 10 minutes of disentanglement/extrication
- The following are Trauma Designated Facilities in area:

St. Joseph's Regional Medical Center	Level III Trauma Center
Tri-State Memorial Hospital	Level IV Trauma Center
Pullman Regional Hospital	Level IV Trauma Center
Garfield County Memorial Hospital	Level V Trauma Center
- Trauma Code Criteria for SJRMC: Hypovolemic shock; Neck, chest and abdominal injuries; penetrating injuries to neck, chest, abdomen or pelvis; age specific hypotension in children; unable to intubate in pre-hospital setting with suspected need for surgical airway; anticipated arrival of greater than three seriously injured patients; pediatric falls greater than three times their height; or pediatric patients with significant trauma to abdomen or chest; penetrating head injury, including isolated GSW to the head; transfer patient from other hospital receiving blood to maintain vital signs.
- Trauma Alert Criteria for SJRMC: Flail chest; multiple fractures; high risk auto crash (death of same car occupant, ejection from automobile, intrusion >12 inches occupant site or >18 inches any site, or vehicle telemetry data consistent with high risk of injury); fall equal to or greater than 20 feet; pedestrian hit at equal or greater than 20 mph or thrown greater than 15 feet; motorcycle/ATV crash >20 mph; pediatric pedestrian versus car; Patients \geq 75 years old with a ground level fall with a head strike who is on anticoagulants or other high-risk co-morbidities.

Trauma: Abdominal Injuries

EMT

- ABC's and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- For abdominal evisceration, cover with moist sterile dressing
- Keep extruded contents warm

 EMT STOP

ADVANCED EMT

- Venous access at 2 sites with large bore IV's

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor

 PARAMEDIC STOP

Trauma: Amputations

EMT

- ABC's and vital signs
- Control bleeding
- Apply Combat Application Tourniquet to control potentially life-threatening limb hemorrhage not controlled with direct pressure or other simple measures
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Collect parts and debride of gross contaminants with saline
- **Do not use** dry ice
- If using ice packs for cooling, wrap with gauze to prevent contact with amputated parts
- Wrap in sterile saline moistened gauze, place in plastic bag, seal, and place in ice water or with chemical cold pack (be sure amputated part does not come into direct contact with cold source)
- Label with patient name, date and time – Note disposition of amputated part on PCR – Keep amputated part with patient

 EMT STOP

ADVANCED EMT

PARAMEDIC

- Vascular Access

 ADVANCED EMT and PARAMEDIC STOP

Trauma: Burns

EMT

- Stop the burning. Remove any clothing, jewelry, etc.
- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- If burns are < 10% BSA, use moist sterile dressings
- If burns are > 10% BSA, use dry sterile dressings (burn sheets)
- Burns to the eye require copious irrigation with Normal Saline

 **EMT STOP**

ADVANCED EMT

- Vascular access at 2 sites with large bore IV, consider EZ IO

 **ADVANCED EMT STOP**

PARAMEDIC

- If patient has signs of airway involvement be prepared to intubate
- Vascular access at 2 sites with large bore IV, consider EZ IO
- For non-chemical burns to the eye(s):
 - **Alcaine** eye drops in affected eye, prior to irrigation
 - Insert Morgan's Lens under eyelid of affected eye
- **Morphine** 0.1 mg/kg IV to a maximum of 30 mg.
- **or Fentanyl Citrate** 1mcg/kg IV, IO, 2.0 mcg/kg IN to a maximum of 100 micrograms. (Pediatric) 1mcg/kg IV, IO,

 **PARAMEDIC STOP**

Key Points/Considerations

- Be alert for other injuries, including cardiac dysrhythmias
- If hazardous materials, notify the destination hospital immediately to allow for decontamination

Trauma: Chest Trauma

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration, assist ventilations if needed
- If sucking chest wound, seal with occlusive dressing (taped on three sides); if dyspnea increases, release the dressing momentarily during exhalation
- If flail chest, stabilize flail segment if possible.
- Contact receiving hospital as soon as possible

 EMT STOP

ADVANCED EMT

- Vascular access at 2 sites with large bore, using the side opposite the injury if possible
- Normal Saline per the Traumatic Hypoperfusion Protocol

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor
- If patient is in cardiac arrest, proceed with needle chest decompression after intubation
- If the patient has the following, Paramedics may proceed with needle decompression after appropriate airway management:
 - Signs and symptoms consistent with a tension Pneumothorax (absence of breath sounds on one side, extreme dyspnea, jugular vein distention, cyanosis despite administration of 100% O₂, or tracheal deviation) – AND
 - Evidence of hemodynamic compromise (unexplained hypotension and tachycardia)

 PARAMEDIC STOP

Key Points/Considerations

- **Begin transportation as soon as possible and perform ALS treatment enroute to the hospital**
- Signs and symptoms of a Tension Pneumothorax: absent lung sounds on one side, extreme dyspnea, jugular vein distention (JVD), cyanosis (even with 100% oxygen), tracheal deviation AND hypotension
- Hemodynamic compromise is defined as: hypotension and tachycardia

Trauma: Crush Injury

EMT

- ABC and vital signs
- Take spinal precautions if indicated
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Request ALS—don't remove trapped patient until ALS arrives unless obvious signs of death are observed.

EMT STOP

ADVANCED EMT

- Vascular Access, two large bore IV/IO's. Administer 250 ml bolus of NS, continue to give at rate of 500 ml/hr

ADVANCED EMT STOP

PARAMEDIC

- Cardiac monitor
- Pain control as per pain management protocol
- **Albuterol** 5 mg in 5 ml (2 unit doses) via nebulizer or ET tube, may repeat to a total of three does.
- **Sodium Bicarbonate** 50 mEq IV/IO over 5 minutes given immediately prior to release from entrapment

PARAMEDIC STOP

Key Points/Considerations

- If RSI is indicated, avoid the administration of Succinylcholine.

Trauma: Electrical Injuries

EMT

- If cardiac arrest initiate CPR per AHA Guidelines, use AED, & request ALS
- Consider C-Spine
- ABC's and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Manage burn injuries as per burn protocol, entrance/exit wounds
- If BP drops < 90mmHg Systolic treat for shock

EMT STOP

ADVANCED EMT

- Vascular access (large bore) - refer to burn protocol
- Maintain systolic pressure >90 mmHg

ADVANCED EMT STOP

PARAMEDIC

- Airway management / Consider intubation
- Cardiac monitor
- 12 Lead EKG, if available
- Manage dysrhythmias

PARAMEDIC STOP

Key Points/Considerations

- Be aware of **scene safety**
- Ventricular fibrillation and asystole are the most common dysrhythmias
- Damage is often hidden; the most severe damage will occur in muscle, vessels, and nerves
- **In lightning strikes with multiple victims treat those in cardiac arrest first, instead of normal triage**

Trauma: Extremity Injuries

EMT

- ABC's and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Monitor perfusion, motor and sensory status before and after splinting
- Apply dressings and splint fractures as necessary
- Consider pelvic stabilization device for pelvic fractures, pelvic sling or pelvic wrap

EMT STOP

ADVANCED EMT

- Venous access

ADVANCED EMT STOP

PARAMEDIC

- **Morphine** 0.1 mg/kg IV to a maximum of 30 mg.
- **or Fentanyl Citrate** 1mcg/kg IV,IO, 2.0 mcg/kg IN to a maximum of 100 micrograms. (Pediatric) 1mcg/kg IV, IO,
- For isolated extremity trauma in a stable patient: consider the use of **Fentanyl Citrate** 1 microgram/kg IV initially, then 25-75 micrograms IV every 5-10 minutes titrated to effect with a maximum dose of 400 micrograms.

PARAMEDIC STOP

PHYSICIAN OPTIONS FOR EMT AND ADVANCED EMT

- Consider alignment with gentle traction if pulses absent or gross deformity noted.

Trauma: Eye Injuries

EMT

- ABC and vital signs
- Check vision in each eye separately
- Look for leakage of intraocular fluid
- Protect injured eye with eye pad or inverted paper cup
- Cover uninjured eye to prevent lid and eye movement
- Avoid pressure dressings
- Stabilize impaled objects, DO NOT remove
- Foreign objects NOT embedded in the eye(s), flush with copious amounts of NS from the bridge of the nose outward
- Chemical burns, flush eye(s) with copious amounts of NS or low pressure water from the bridge of the nose outward for 15 minutes

 EMT STOP

ADVANCED EMT

- Vascular access

 ADVANCED EMT STOP

PARAMEDIC

- For non-chemical burns to the eye(s):
 - **Alcaine** eye drops in affected eye, prior to irrigation
 - Insert Morgan's Lens under eyelid of affected eye
- **Morphine**, 0.1 mg/kg IV to a maximum of 30 mg
- or **Fentanyl Citrate**, 1mcg/kg IV, IO, 2.0 mcg/kg IN to a maximum of 100 micrograms (Pediatric) 1 mcg/kg IV, IO

 PARAMEDIC STOP

Trauma: Head and Facial Injuries

EMT

- Immobilize C- Spine
- ABC's and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- For avulsed teeth, rinse with saline and replace if possible

 EMT STOP

ADVANCED EMT

- Vascular access. Run IV initially at TKO unless hypovolemia is present (see Trauma: Hypovolemia Protocol)

 ADVANCED EMT STOP

PARAMEDIC

- Intubate if needed
- Ventilate at a rate of 12-14 with 100 oxygen if intubated
- Cardiac monitor
- For seizures, **Diazepam (Valium)** 2-10 mg, may repeat in 5 minutes or **Midazolam (Versed)** 10 mg IM or 2-4 mg IV, 0.3-0.5 mg/kg IN to a max of 10 mg

 PARAMEDIC STOP

Trauma: Hemorrhage

EMT

- ABC and vital signs
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration
- Control bleeding using direct pressure, pressure dressings, and pressure points.
- For uncontrolled life-threatening limb hemorrhage (heavy bleeding not controlled with direct pressure or other simple measures) apply commercial tourniquet device 4-6 inches proximal to bleeding site. Record time tourniquet was placed.
- If pressure dressing is applied, remove tourniquet once and see if bleeding holds
- Initiate ALS intercept

 EMT STOP

ADVANCED EMT

- Vascular Access, two large bore IV/IO's. Administer 250 ml bolus of NS, continue to give at rate of 500 ml/hr

 ADVANCED EMT STOP

PARAMEDIC

- Cardiac monitor
- Consider intubation

 PARAMEDIC STOP

Trauma: Hypoperfusion / Hypovolemia

EMT

- ABC and vital signs
- Apply Combat Application Tourniquet to control potentially life-threatening limb hemorrhage not controlled with direct pressure or other simple measures
- Airway management with **oxygen** therapy maintaining a SaO₂ of 94-98% through titration

EMT STOP

ADVANCED EMT

- Vascular access with large bore IV's
- If COMPENSATED SHOCK:
 - Normal Saline, 1 liter, then 500 ml/hour
- IF DECOMPENSATED SHOCK:
 - Additional vascular access, infuse Normal Saline, 2 liters, then 500 ml/hour

ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor
- Intubate if necessary

PARAMEDIC STOP

Key Points/Considerations

- COMPENSATED SHOCK is defined as significant mechanism of injury AND tachypnea, tachycardia, pallor, or restlessness, AND Systolic BP greater than 100 mmHg
- DECOMPENSATED SHOCK is defined as clinical picture of shock AND Systolic BP less than 100 mmHg
- A falling BP is a LATE sign of shock
- Contact receiving hospital early, with "Trauma Alert" call, giving brief description of mechanism of injury and estimated time of arrival
- Contact Medical Control if guidance of care or orders are needed

Trauma: Spinal Injuries

EMT

- Immobilize C-Spine
- ABC's and vital signs
- Secure to long backboard providing lateral immobilization- first the body then the head
- Pad under head to achieve neutral alignment in adults
- Pad appropriately to achieve neutral alignment (consider using the Back Raft)
- Remove motorcycle, bicycle helmets when necessary for airway management or alignment.
- Football helmets may be removed at EMT's judgment – if done, shoulder pads must be removed too

EMT STOP

ADVANCED EMT

- Vascular Access

ADVANCED EMT STOP

PARAMEDIC

- Cardiac Monitor

PARAMEDIC STOP

Non-Immobilization of Spine in Trauma Patients

- No midline point tenderness of cervical spine
- No mental impairment. Patient must be conscious and alert
- No alcohol use or odor of an alcoholic beverage
- No distracting injuries
- A neuro exam must be performed without positive findings
- Motor: Shoulder Abduction, adduction/elbow flexion/extension. Hand grip and wrist flexion/extension
- Sensory: Document any subjective complaints and do pinprick at biceps/forearm/hand and thigh/calf/foot
- Findings must be well documented and a thorough report must be given to receiving facility stating the reasons why spinal immobilization was not performed in the field.

Medication Formulary

Medication	Adult	Pediatric	Route
Aspirin	325 mg		PO
Adenosine	1st dose 2nd dose	.1 mg/kg .2 mg/kg	IV IV
Albuterol	2.5 mg	1.25 mg <1 year 2.5 > 1 year	
Amiodarone	V-Fib/Pulseless V-Tach V-Tach with Pulse	300 mg in 20ml of volume (<i>if conversion occurs, may repeat once at 150 mg</i>) 150 mg (<i>mix with 100 ml of D5W given over 10 min.</i>)	5 mg/kg IV, IO IV, IO Infusion
Atropine	.5mg Brady	1 mg/.5 mg Brady	.02 mg/kg IV IO
Dextrose	50 mL	1 ml/kg of D25 (<i>under 1 year old</i>)	IV
Diazepam (Valium)	5-10 mg	.25 mg/kg	IV
Diphenhydramine (Benadryl)	10-50 mg	1 mg/kg	IV IM
Droperidol (Inapsine)	1.25-2.5 mg	.1-.15 mg/kg	IV IO IM
EPI	1 - 10,000 Arrest 1 – 10,000 Anaphylaxis 1 - 1,000 Anaphylaxis 1 - 1,000 Asthma Drip	1 mg .3-.5 mg (3-5 mL) .3 mg .2-5 mg 1 ml/min (1 mcg/min)	.1 mg/kg .1 mg/kg .01 mg/kg .01 mg/kg SQ SQ
Fentanyl	1 mcg/kg 2.0 mcg/kg (<i>intranasal</i>)	1 mcg/kg	IV, IO IN
Furosemide (Lasix)	40-80 mg (or 2x patient daily dose)	1 mg/kg	IV
Glucagon	1 mg	.05 mg/kg	IM SQ
Lidocaine	V-Fib/V Tach Non V-Fib 1st dose 2nd dose	1.5 mg/kg 1.5 mg/kg .5 mg/kg	1 mg/kg 1 mg/kg .5 mg/kg IV IV
Lorazepam (Ativan)	2-5 mg	0.05 mg/kg	IV
Magnesium Sulfate	Eclampsia Torsadcs Cardiac Arrest	2-4 g 2 g 1-2 g	25-50 mg/kg max 2 g IV
Midazolam (Versed)	2-4 mg 10mg .3-.5 mg/kg (<i>intranasal</i>) max 10mg	0.1-0.2 mg/kg <13kg .2mg/kg 13-40 kg 5 mg	IV IM IM IN
Morphine	2-10 mg	.1-2 mg/kg	IV IM
Naloxone (Narcan)	.4-2.mg 2 mg (<i>intranasal</i>)	.1 mg/kg	IV IN
Nitroglycerine	.4 mg		SQ
Norepinephrine (Levophed)	.05-2 mcg/kg/min	.05-2 mcg/kg/min	IV
Ondansetron (Zofran)	4 mg	.1 mg/kg > 1 month	IV PO
Ophthalmine	2 drops		
Rocuronium	.6-1.2 mg/kg	.6 mg/kg	IV
Sodium – Bicarb	1 mEq/kg	1 mEq/kg	IV
Succinylcholine	1.0 mg/kg	1-2 mg/kg	IV
Thiamine	100 mg	10-25 mg	IV IM
Vecuronium	0.1 mg/kg	0.1 mg/kg	IV

Medication Infusions

Norepinephrine Dosage Sheet

Based on 16mg to 250ml of NS (concentration of 64 mcg/ml)

Weight in kg	5	10	15	20	30	40	50	60	70	80	90	100	110
Dose mcg/kg /min			ml/hr										
.05	.25	.5	.75	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5
.15	.75	1.5	2.25	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5
.25	1.25	2.5	3.75	5	7.5	10	12.5	15	17.5	20	22.5	25	27.5
.35	1.75	3.5	5.25	7	10.5	14	17.5	21	24.5	28			
.45	2.25	4.5	6.75	9	13.5	18	22.5	27					
.55	2.75	5.5	8.25	11	16.5	22	27.5						
1.0	5	10	15	20	30								
1.5	7.5	15	22.5	30									
2.0	10	20	30										

Lidocaine Drip: 2 grams in 250 ml

MG/MIN	1 mg	2 mg	3 mg	4 mg	6 mg	8 mg
DRIPS	8 gtt	15 gtt	23 gtt	30 gtt	45 gtt	60 gtt

Weight Chart:

LB	352	308	242	220	198	176	154	121	99	77	55	33	15	7.5
KG	160	140	110	100	90	80	70	55	45	35	25	15	7	3.5

Physician Orders for Life Sustaining Treatment (POLST)

The Department of Health (DOH) Office of Emergency Medical Services & Trauma System (OEMSTS) in conjunction with the Washington State Medical Association (WSMA) has implemented a new form, which will allow individuals to summarize their wishes regarding end of life treatment.

The new Physician Orders for Life Sustaining Treatment (POLST) form is a “portable” physician order form that describes the patient’s code directions.

- It is intended to go with the patient from one health care setting to another.
- It represents a way of summarizing wishes of an individual regarding life-sustaining treatment identified in an advanced directive such as Healthcare Directive or Durable Power of Attorney for Healthcare and includes the following:
 1. Patient wishes for resuscitation
 2. Medical Interventions
 3. Antibiotics
 4. Artificial feedings

The form is available from WSMA via the link below.

Previously completed and signed EMS-No CPR forms will continue to be honored by prehospital EMS personnel.

More information on the POLST program and educational materials, including how to order the form, can be found at the WSMA website at http://www.wsma.org/patient_resources/post.cfm.





ASOTIN COUNTY MEDICATION LIST

ADENOSINE (ADENOCARD)

CLASSIFICATION

Antiarrhythmic

ACTION

1. Acts on AV node to slow conduction and inhibit reentry pathways

INDICATIONS

1. Conversion of Paroxysmal SVT to sinus rhythms

CONTRAINDICATIONS

1. Atrial flutter, atrial fibrillation and ventricular tachycardia, because it is ineffective in treating these arrhythmias
2. Second and third degree heart blocks, sick sinus syndrome, unless patient has a pacemaker
3. Allergic to Adenosine

USE WITH CAUTION

1. May produce TRANSIENT first, second, and third degree blocks

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

Apprehension, back pain, neck pain, blurred vision, burning sensation, dizziness, lightheadedness, numbness, tingling in arms, chest pain, facial flushing, hypotension, sweating, palpitations, nausea, shortness of breath, dyspnea, hyperventilation

ALBUTEROL AEROSOL INHALER

CLASSIFICATION

Bronchodilator

ACTION

1. Relaxes bronchial and uterine smooth muscle by acting on beta 2 adrenergic receptors

INDICATIONS

1. Bronchospasm in patients with reversible obstructive airway disease

CONTRAINDICATIONS

None listed

USE WITH CAUTION

1. Patients in cardiovascular disease
2. Elderly patients generally require a lower dose

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

Tremor, nervousness, dizziness, insomnia, headache, tachycardia, palpitations, hypertension, drying and irritation of nose and throat, heartburn, nausea and vomiting, muscle cramps

ALCAINE EYE DROPS

CLASSIFICATION

ACTION

Topical anesthetic

INDICATIONS

1. Topical anesthesia of eye for irrigation, foreign body removal, superficial eye injury or ultraviolet burns

CONTRAINDICATIONS

Allergy to anesthetics

USE WITH CAUTION

1. Loss of eye sensation means loss of protective eye reflexes

AMIODARONE INJECTION

CLASSIFICATION

Antiarrhythmic

ACTION

1. Depresses automaticity of the SA node
2. Increases atrial and ventricular refractory period and prolongs QT interval

INDICATIONS

1. Ventricular fibrillation
2. Sustained ventricular tachycardia with pulse

CONTRAINDICATIONS

1. Known hypersensitivity
2. Severe heart blocks

USE WITH CAUTION

1. Liver dysfunction
2. Thyroid dysfunction

ASPIRIN

CLASSIFICATION

Analgesic

ACTION

1. In low doses, aspirin appears to impede clotting by blocking prostaglandin synthesis, which prevents formation of the platelet-aggregating substance thromboxane A₂

INDICATIONS

1. Reduction of risk of heart attack in patients with previous MI or unstable angina
2. Patients with suspected acute myocardial infarction

CONTRAINDICATIONS

1. Contraindicated in patients with hypersensitivity to drug

PRECAUTIONS/SIDE EFFECTS

1. GI distress, nausea, occult bleeding, dyspepsia, GI bleeding
2. Angioedema, hypersensitivity reactions (anaphylaxis, asthma), Reye's syndrome.
3. Adverse effects to report to the receiving medical facility:
 - Allergic reaction
 - Epigastric pain

ATROPINE SULFATE INJECTION

CLASSIFICATION

Parasympathetic Blocker

ACTION

Cardiac:

1. Increases firing rate of sinoatrial (SA) node which results in an increased pulse rate
2. Increases conduction velocity through the atrioventricular (A-V) node

Non-Cardiac:

1. Decrease of all body secretions
2. Dilation of pupils and paralysis of the ciliary muscle
3. Decrease in bladder tone resulting in urinary retention
4. Central nervous system stimulation

INDICATIONS

1. Slow cardiac rhythms resulting in hypotension, decreased mentation or ventricular irritability (PVCs)
 - a. Sinus bradycardia
 - b. Second or third degree heart block
2. Organophosphate anticholinesterase poisoning

CONTRAINDICATIONS

1. Atrial fibrillation
2. Atrial flutter

USE WITH CAUTION

1. Urinary retention (frequent problem in middle-aged or elderly men)
2. Do not mix with Sodium Bicarbonate or Isuprel

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

Cardiac:

1. Tachycardia
2. Palpitations
3. Ventricular fibrillation

Non-Cardiac:

1. Dryness of mouth (common)
2. Pain in eyes or blurred vision (precipitates glaucoma)
3. Restlessness, irritability or change in mental state
4. Urinary retention (inability to urinate)

DEXTROSE INJECTION 25% (D25W) AND 50% (D50W)

CLASSIFICATION

Simple Carbohydrate

ACTION

1. Provides calories required for metabolic needs
2. Spares body proteins

INDICATIONS

1. Suspected hypoglycemia

CONTRAINDICATIONS

1. None

USE WITH CAUTION

1. With suspected intracranial bleed use only with confirmed severe hypoglycemia

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

1. Extravasation causes tissue sloughing

DIAZEPAM (VALIUM)

CLASSIFICATION

Benzodiazepine

ACTION

1. Affects multiple levels of CNS to decrease seizures by increasing the seizure threshold.
2. Sedative

INDICATIONS

1. Status epilepticus
2. Sedation prior to cardioversion or pacing
3. Cocaine O.D. with temperature > 101°F.

CONTRAINDICATIONS

1. Head injury
2. Hypotension
3. Hypersensitivity

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

1. Respiratory depression
2. Bradycardia
3. Hypotension
4. Venous irritation

DIPHENHYDRAMINE (Benadryl)

CLASSIFICATION

Sedative, antihistamine

ACTION

2. Potent antihistaminic agent which possesses anticholinergic (antispasmodic), antiemetic and sedative effects.

INDICATIONS

1. Antihistaminic:
 - a. Anaphylaxis as an adjunct to epinephrine
 - b. Uncomplicated allergic conditions of the immediate type

CONTRAINDICATIONS

1. Hypersensitivity
2. Asthmatic attack

USE WITH CAUTION

1. Has Atropine-like action (anticholinergic)

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

Drowsiness, confusion, nervousness, nausea and vomiting, blurring of vision, dry mouth, nose and throat, tingling, heaviness, weakness in hands, vertigo, hypotension

DROPERIDOL (INAPSINE)

CLASSIFICATION

Antiemetic

INDICATIONS

Control of nausea and/or vomiting for patients greater than 12 years

CONTRAINDICATIONS

1. Hypersensitivity to antiemetics, or if patient has QT prolongation as seen on monitor or by patient report

USE WITH CAUTION

1. Elderly, cardiovascular disease (hypotension, bradycardia, dysrhythmias), renal disease, liver disease, or Parkinson's disease

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

Extrapyramidal reactions (anxiety, rigidity), sedation or hypotension. Treat extrapyramidal reactions with diphenhydramine (Benadryl) 25mg IV, and contact Medical Control.

DUODOTE

CLASSIFICATION

Antidote for exposure to organophosphorous nerve agents as well as organophosphorous insecticides.

INDICATIONS

1. Administer to patients experiencing symptoms of organophosphorous poisoning in a situation where exposure is known or suspected.
2. DuoDote should be administered as soon as symptoms of organophosphorous poisoning appear.
3. **Mild Symptom:**
Blurred vision, excessive teary eyes, excessive runny nose, increased salivation, chest tightness, difficulty breathing, tremors, nausea, vomiting, unexplained wheezing, increased airway secretions, tachycardia or bradycardia.
Severe Symptoms:
Strange/confused behavior, severe difficulty breathing, copious secretions from lungs/airway, severe muscular twitching, general weakness, involuntary urination/defecation, convulsions and unconsciousness.

CONTRAINDICATIONS

In the presence of life-threatening poisoning by organophosphorous nerve agents or insecticides, there are no absolute contraindications to the use of DuoDote.

USE WITH CAUTION

1. When symptoms of poisoning are not severe, DuoDote should be used with extreme caution in people with heart disease, arrhythmias, recent myocardial infarction, severe narrow angle glaucoma and COPD.

DOSAGE AND ADMINISTRATION

1. If known or suspected poisoning, administer one DuoDote injection into the mid-lateral thigh, if the patient experiences two or more **MILD** symptoms of nerve gas or insecticide poisoning.
2. Wait 10 to 15 minutes for DuoDote to take effect. If, after 10 to 15 minutes, the patient does not develop any of the **SEVERE** symptoms listed above, no additional DuoDote injections are recommended.

3. If, at any time after the first dose, the patient develops any of the **SEVERE** symptoms listed above, administer two additional DuoDote injections in rapid succession and transport.
4. If the patient has any of the **SEVERE** symptoms listed above, immediately administer three DuoDote injections into the patient's mid-lateral thigh in rapid succession and transport.

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

1. Atropine may cause blurred vision, dryness of mouth, confusion, headache, tachycardia, palpitations, nausea and vomiting.
2. Pralidoxime can cause blurred vision, dizziness, headache, drowsiness, nausea, increased in blood pressure, and hyperventilation.

EPINEPHRINE HYDROCHLORIDE INJECTION (ADRENALIN)

CLASSIFICATION

Beta Adrenergic Stimulator

ACTION

Alpha and Beta adrenergic effects:

1. Increases force of cardiac contraction
2. Increases pulse rate and systolic blood pressure
3. Increases conduction velocity through the A-V node
4. Increases irritability of ventricles
5. Dilates bronchi

INDICATIONS

1. As a cardiac stimulant during a cardiac arrest
2. Anaphylactic shock
3. Severe allergic reactions
4. Status asthmaticus (subcutaneously)

CONTRAINDICATIONS

Chest pain accompanied by ectopic beats or tachycardias

USE WITH CAUTION

1. Bronchial asthma and significant emphysema, when patients may also have congestive heart disease

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

1. Hypertension
2. Supraventriculartachycardia
3. Ventricular arrhythmias:
 - a. Premature Ventricular Contractions
 - b. Ventricular tachycardia
 - c. Ventricular fibrillation

FENTANYL CITRATE

CLASSIFICATION

Narcotic Analgesic

ACTION

Opiate receptor agonism

INDICATIONS

Analgesia

CONTRAINDICATIONS

No absolute contraindications

USE WITH CAUTION

1. Medical Control should be consulted before using Fentanyl on any patient with multiple trauma or isolated trauma involving head, spine, or torso.
2. Use caution administering Fentanyl to pediatric patients or patients with hypotension, bradypnea, or coincident drug use (including alcohol).
3. Use with caution in patients with increasing ICP

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

Respiratory depression, bradycardia, sedation, nausea, bronchoconstriction

FUROSEMIDE (LASIX) INJECTION

CLASSIFICATION

Diuretic

ACTION

1. Promotes fluid loss (diuretic)
2. Promotes electrolyte loss
 - a. Sodium
 - b. Potassium (most significant)
 - c. Chloride
 - d. Magnesium (long term)
3. Vasodilator, promotes the pooling of blood in veins

INDICATIONS

1. Congestive heart failure
2. Pulmonary edema
3. Cerebral Edema

CONTRAINDICATIONS

1. Known hypersensitivity to furosemide
2. Dehydration
3. Electrolyte depletion (potential with patients already on diuretics)
4. Hypotension

USE WITH CAUTION

1. Concomitant drug therapy
 - a. Steroids
 - b. Digitalis preparations
 - c. Other diuretics
 - d. Hypotensive agents
2. Cirrhosis of the liver
3. Renal disease

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

1. Hypotension
2. Transient deafness or ringing in the ears (tinnitus) which results from rapid infusion, primarily in patients with renal insufficiency
3. Failure to urinate within 30 minutes, after which bladder distention due to obstruction must be considered
4. Symptoms of *electrolyte depletion*; i.e., leg cramps, dizziness, lethargy, mental confusion

GLUCAGON

CLASSIFICATION

Catalyst to release liver glycogen stores

ACTION

1. Increases blood glucose concentration by converting liver glycogen to glucose

INDICATIONS

1. Suspected hypoglycemia, especially if IV insertion is difficult or impossible
2. Beta blocker overdose

CONTRAINDICATIONS

Situations having decreased liver glycogen stores:

1. Liver disease
2. Starvation

USE WITH CAUTION

Patient will require IV D50W or oral carbohydrates (food, orange juice with sugar, etc.) once recovered OR if no response to glucagon.

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

1. Nausea and vomiting
2. Blood glucose levels fall to normal or to hypoglycemia level in 1-1½ hours if patient does not receive IV D50W or food by mouth after glucagon given

LIDOCAINE HYDROCHLORIDE INJECTION

CLASSIFICATION

Antiarrhythmic

ACTION

1. Suppresses ventricular arrhythmias
2. Local anesthetic

INDICATIONS

1. Ventricular arrhythmias
2. Suspected ICP prior to RSI

CONTRAINDICATIONS

1. Known hypersensitivity
2. Severe heart blocks

USE WITH CAUTION

1. Liver disease
2. Congestive heart failure
3. Severe respiratory depression
4. Hypovolemia
5. Shock
6. Any form of heart block

LORAZEPAM (ATIVAN)

CLASSIFICATION

Benzodiazepine

ACTION

1. Affects multiple levels of CNS to decrease seizures by increasing the seizure threshold.
2. Sedative

INDICATIONS

1. Status epilepticus
2. Sedation prior to cardioversion or pacing
3. Cocaine O.D. with temperature > 101°F.

CONTRAINDICATIONS

1. Head injury
2. Hypotension
3. Hypersensitivity

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

1. Respiratory depression
2. Bradycardia
3. Hypotension
4. Venous irritation

MAGNESIUM SULFATE

CLASSIFICATION

Electrolyte

ACTION

Central nervous system depressant. Suppresses the spread of seizure activity in the cerebral cortex.

INDICATIONS

1. Cardiac Arrest (Torsades, Hypomagnesemia)
2. Torsades with a Pulse
3. Seizures
4. Magnesium Deficiency

CONTRAINDICATIONS

1. Renal Disease
2. Heart Block
3. Hypermagnesemia

USE WITH CAUTION

1. Can cause Hypotension
2. Respiratory Depression

ADVERSE EFFECTS TO OBSERVE AND REPORT TO THE PHYSICIAN

Hypotension, asystole, cardiac arrest, respiratory and CNS depression

MIDAZOLAM (VESED)

CLASSIFICATION

Benzodiazapine

ACTION

1. Sedation, anti-anxiety, amnesia
2. Peak action 1-5 minutes after IV injection
3. Duration of action 30-90 minutes

INDICATIONS

1. For use as an adjunct in endotracheal intubation with succinylcholine in patients who are aware
2. Cardioversion

ADVERSE REACTIONS, PRECAUTIONS

Oversedation, paradoxical excitement, nausea, apnea

MORPHINE SULFATE INJECTION

CLASSIFICATION

Analgesic

ACTION

1. Potent analgesic
2. Decreases rate of A-V conduction (vagotonic) Peripheral vasodilation and venous pooling of blood
3. Sedation and euphoria

INDICATIONS

1. Severe pain; i.e., myocardial infarction
2. Adjunct in treating pulmonary edema
3. Burns

CONTRAINDICATIONS

1. Known hypersensitivity
2. Head trauma
3. Depressed states of consciousness

USE WITH CAUTION

1. Respiratory depression; i.e., associated with asthma, COPD
2. Elderly patients
3. Hypotension

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

1. Respiratory depression, respiratory arrest
2. Hypotension
3. Nausea and vomiting
4. Bradycardia and heart block
5. Drowsiness

NOTE: Inadvertent overdose with Morphine Sulfate can be reversed with Narcan (Naloxone), 0.4-0.8 mg IV

NALOXONE HYDROCHLORIDE INJECTION (NARCAN)

CLASSIFICATION

Narcotic Antagonist

ACTION

1. Narcotic antagonist
2. May precipitate withdrawal symptoms in patients physically dependent on narcotics.

INDICATIONS

1. Respiratory depression secondary to narcotics and related drugs:
 - a. Heroin
 - b. Meperidine (Demerol)
 - c. Codeine
 - d. Diphenoxylate (ingredient of Lomotil)
 - e. Hydromorphone (Dilaudid)
 - f. Levorphanol (Levo-Dromaron)
 - g. Morphine Sulfate
 - h. Pentazocine(Talwin)
 - i. Propoxyphene (Darvon)
2. Suspected acute opiate overdose

CONTRAINDICATIONS

1. Known hypersensitivity

USE WITH CAUTION

1. In patients known to be physically dependent on narcotics; be prepared to restrain violent patients if necessary after Narcan has been administered

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

1. Withdrawal Symptoms
 - a. Sweating, gooseflesh, tremor
 - b. Nausea and vomiting
 - c. Dilation of pupils, tearing of eyes
 - d. Agitation or belligerence
 - e. Convulsions

NITROGLYCERINE TABLETS

CLASSIFICATION

Vasodilator

ACTION

1. Dilates veins and arteries in peripheral circulation resulting in:
 - a. Reduced resistance to blood flow
 - b. Decreased blood pressure
 - c. Decreased workload on heart
2. Dilates coronary arteries
3. Dilates blood vessels in smooth muscle; i.e., gastrointestinal tract, gallbladder, bile ducts, uterus
4. Improves cardiac output in patient with congestive heart failure

INDICATIONS

1. Angina pectoris
2. Severe hypertension
3. Refractory congestive heart failure

CONTRAINDICATIONS

1. Known hypersensitivity
2. Hypotension: BP below 100 systolic
3. Caution with Viagra and similar drug types

USE WITH CAUTION

1. Hypotension

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

1. Hypotension
2. Throbbing headache
3. Skin flushing

NOREPINEPHRINE INJECTION

CLASSIFICATION

Alpha/Beta Adrenergic Stimulator

ACTION

1. Increases blood pressure
2. Increases myocardial contractility (inotropic effect-cardiac output increases)
3. Slight increase in pulse rate (chronotropic effect-beta adrenergic stimulation)
4. Increases potential for tachyarrhythmias or ventricular irritability
5. Effects: Both alpha and beta effects are rate related

INDICATIONS

1. Cardiogenic shock secondary to myocardial infarction or post-resuscitation to support the cardiovascular system
2. Congestive heart failure
3. Septicemia
4. Spinal cord trauma
5. Anaphylaxis

CONTRAINDICATIONS

1. Uncorrected tachyarrhythmias
2. Hypovolemic shock

USE WITH CAUTION

1. Avoid extravasation of norepinephrine into surrounding tissue. If intravenous infusion infiltrates, stop the infusion and notify the receiving physician immediately.
2. DO NOT mix sodium bicarbonate or similar alkaline solutions or inactivation of norepinephrine will result

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

1. Hypertension
2. Supraventricular tachycardia
3. Ventricular arrhythmias
 - a) Premature ventricular contractions
 - b) Ventricular tachycardiaVentricular fibrillation

ONDANSETRON (ZOFRAN)

CLASSIFICATION

antiemetic

ACTION

1. Antiemetic
2. Onset of action 5-10 minutes after IV injection
3. Duration of action 4-6 hours

INDICATIONS

For control of nausea and vomiting

ADVERSE REACTIONS, PRECAUTIONS

Side effects minimal, headache or diarrhea occasionally reported

OXYGEN

CLASSIFICATION

Gas

ACTION

1. Required for normal physiological processes of all cells

INDICATIONS

1. Any suspected hypoxic state
2. Shock
3. Cardiac or pulmonary complaints

CONTRAINDICATIONS

COPD consider giving a lower % of oxygen

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

1. Respiratory arrest in patients with hypoxic drive

ROCURONIUM

CLASSIFICATION

Paralytic agent

ACTION

1. Non-depolarizing neuromuscular blocking agent
2. Peak action 2-4 minutes after IV injection
3. Duration of action 20-40 minutes (see adverse reactions)

INDICATIONS

For use as an adjunct in endotracheal intubation when succinylcholine is contraindicated

ADVERSE REACTIONS, PRECAUTIONS

1. Caution: paralysis median time is 30 minutes and may be as long as an hour
2. Contraindicated in know sensitivity to rocuronium
3. Do not use with awake, alert patients
4. Protect airway from aspiration; administration may induce vomiting

SODIUM BICARBONATE INJECTION

CLASSIFICATION

Alkalizing Agent

ACTION

1. Alkalizing agent
2. Increases potassium influx into cells

INDICATIONS

1. Metabolic acidosis resulting from:
 - a. Cardiac arrest
 - b. Shock
2. Tricyclic overdose with wide QRS

CONTRAINDICATIONS

1. Metabolic alkalosis

USE WITH CAUTION

1. **DO NOT MIX WITH:**
 - a. Calcium Chloride
 - b. Epinephrine (Adrenalin)
 - c. Isoproterenol(Isuprel)
 - d. Dopamine (Intropin)

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

1. Signs of congestive heart failure
 - a. Shortness of breath
 - b. Rales

SUCCINYLBCHOLINE

CLASSIFICATION

Paralytic agent

ACTION

1. Depolarizing neuromuscular blocking agent
2. Peak action 1-2 minutes after IV injection
3. Duration of action 4-10 minutes (see adverse reactions)

INDICATIONS

For use as an adjunct in endotracheal intubation

ADVERSE REACTIONS, PRECAUTIONS

1. Arrhythmias, hypotension, hypertension, bradycardia
2. May cause prolonged blockade in certain patients
3. Contraindicated in muscular dystrophy, penetrating eye injuries
4. Observe for hyperthermia (rare)
5. Use with caution in patients with extensive muscle trauma
6. *Do not use with awake, alert patients*
7. Protect airway from aspiration; administration may induce vomiting

THIAMINE

CLASSIFICATION

Vitamin

ACTION

1. Required for carbohydrate metabolism

INDICATIONS

1. Unconsciousness of unknown origin
2. Unconsciousness of suspected alcoholic patient

CONTRAINDICATIONS

1. None in the emergency field

ADVERSE EFFECTS TO OBSERVE FOR AND REPORT TO THE PHYSICIAN

1. Adverse effects are rare

VECURONIUM

CLASSIFICATION

Paralytic agent

ACTION

1. Non-depolarizing neuromuscular blocking agent
2. Peak action 2-4 minutes after IV injection
3. Duration of action 20-40 minutes (see adverse reactions)

INDICATIONS

For use as an adjunct in endotracheal intubation when succinylcholine is contraindicated

ADVERSE REACTIONS, PRECAUTIONS

1. Caution: paralysis median time is 30 minutes and may be as long as an hour
2. Contraindicated in know sensitivity to vecuronium
3. Do not use with awake, alert patients
4. Protect airway from aspiration; administration may induce vomiting