

*Flathead County
Pre-hospital Emergency Medical Services
Protocols*

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Flathead County Pre-hospital Emergency Medical Services Protocols

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Initial Medical Care

The Initial Medical Care is the starting point for all protocols and should be followed at the appropriate level of care for the patient care provider. With the exception of alternate airway control (KING AIRWAY[™] or Combitube) and defibrillation, **ALL** Emergency Medical Technician – Basic level treatment is to be initiated en route to the receiving facility unless there is a delay in transport, or it is otherwise specified in the protocol. ***Note: A higher level of care should be requested as appropriate as soon as the need is determined (dispatch information alone may be sufficient to determine the need to upgrade).**

A. Emergency Medical Technician – Basic

- Establish airway and support, maintain C-spine control if trauma related; start with BLS airway including positioning and placement of oral or nasal airway and assist with a bag valve mask.
- Initiate high-flow oxygen therapy on all patients with signs of shock or with shortness of breath. Nasal cannula for non-traumatic or medical patient PRN.
- Control external bleeding. Obtain vital signs every 5 minutes on unstable patients and 15 minutes on stable patients, note skin condition and auscultate lung fields. Refer to shock protocol for any patient with physical findings consistent with shock.
- Assist patient with own medication if appropriate (BLS). This refers specifically to nitro (if BP > 100), epinephrine pens, and metered dose inhalers.
- Splint suspected fractures and dislocations as appropriate and control external bleeding.
- Restrain to protect the patient from self-injury and from injuring others.
- Basic will only be allowed to perform skills to which level they are endorsed with: Basic Monitoring, Basic/Airway, IV/IO, and Basic Medication.

B. Emergency Medical Technician – Intermediate '85

- Establish airway and support, maintain C-spine control if trauma related; start with BLS airway including positioning and placement of oral or nasal airway and assist with a bag valve mask. Endotracheal intubation via oral means. If unable to intubate after max of 3 attempts, proceed to use alternate airway. Both treatment with, and documentation of, end tidal CO₂ detector is required on all patients who are intubated. If potential for cervical spine trauma, use in-line immobilization technique.
- Initiate high-flow oxygen therapy on all patients with signs of shock or with shortness of breath. Nasal cannula for non-traumatic or medical patient PRN.
- Control external bleeding. Obtain vital signs every 5 minutes on unstable patients and 15 minutes on stable patients, note skin condition and auscultate lung fields. Refer to shock protocol for any patient with physical findings consistent with shock.
- Restrain to protect the patient from self-injury and from injuring others.
- Splint suspected fractures and dislocations as appropriate and control external bleeding.
- Start IV using NORMAL SALINE/LACTATED RINGERS with appropriate needle size.
- Monitor ECG as needed.
- Except where noted, care defined after “**Contact Medical Control**” may be performed if contact with Medical Control cannot be facilitated. Medical Control may be contacted at any point in any algorithm.

C. Emergency Medical Technician – Intermediate '99

- Establish airway and support, maintain C-spine control if trauma related; start with BLS airway including positioning and placement of oral or nasal airway and assist with a bag valve mask. Endotracheal intubation via oral means. If unable to intubate after max of 3 attempts, proceed to use alternate airway. Both treatment with, and documentation of, end tidal CO₂ monitor is required on all patients who are intubated. If potential for cervical spine trauma, use in-line immobilization technique.
- Initiate high-flow oxygen therapy on all patients with signs of shock or with shortness of breath. Nasal cannula for non-traumatic or medical patient PRN.
- Control external bleeding. Obtain vital signs every 5 minutes on unstable patients and 15 minutes on stable patients, note skin condition and auscultate lung fields. Refer to shock protocol for any patient with physical findings consistent with shock.
- Restrain to protect the patient from self-injury and from injuring others.
- Splint suspected fractures and dislocations as appropriate and control external bleeding.
- Start IV using NORMAL SALINE/LACTATED RINGERS with appropriate needle size.
- Monitor ECG as needed.
- Except where noted, care defined after “**Contact Medical Control**” may be performed if contact with Medical Control cannot be facilitated. Medical Control may be contacted at any point in any algorithm.

D. Emergency Medical Technician – Paramedic

- Establish airway and support, maintain C-spine control if trauma related; start with BLS airway including positioning and placement of oral or nasal airway and assist with a bag valve mask. Endotracheal intubation via oral, nasal, or digital means. If unable to intubate after max of 3 attempts, proceed to use alternate airway. Both treatment with, and documentation of, end tidal CO₂ monitoring is required on all patients who are intubated. If unable to maintain by any other method (either BLS or ALS), Paramedics may perform a surgical cricothyrotomy. If potential for cervical spine trauma, use in-line immobilization technique.
- Restrain to protect the patient from self-injury and from injuring others.
- Splint suspected fractures and dislocations as appropriate and control external bleeding.
- Start IV using NORMAL SALINE/LACTATED RINGERS with appropriate needle size.
- Monitor ECG as needed, and perform 12-Lead ECG when indicated. Transmit results to KRMC or NVH if ECG is clinically significant.
- Except where noted, care defined after “**Contact Medical Control**” may be performed if contact with Medical Control cannot be facilitated. Medical Control may be contacted at any point in any algorithm.

NOTE: THE EMT-INTERMEDIATE '85 CAN WORK AT THE SCOPE OF:

- **Emergency Medical Technician - Basic / Monitoring / Airway**
- **Emergency Medical Technician - Basic/ IV and IO**
- **Emergency Medical Technician - Basic/ Endotracheal Intubation**

Abdominal Pain

Abdominal Pain protocol refers to non-traumatic abdominal pain. If the abdominal pain is due to trauma, refer to Trauma Protocol. The multiple etiologies of abdominal pain and the anatomy of the systems involved makes abdominal pain difficult to diagnose. Visceral pain is often associated with vague, poorly localized descriptions and often described as “gas like” or “dull.” Somatic pain is better localized and usually described as sharp pain. A regional assessment approach is most often used to diagnose the etiology responsible for the abdominal pain. Pain in the right upper quadrant can be caused by hepatitis, heart failure, peptic ulcers, cholecystitis, myocardial infarction (particularly the inferior wall), kidney stones and pancreatitis. Right lower quadrant pain may be associated with dissection of the aorta, acute appendicitis or pelvic inflammatory disease. Left lower quadrant pain may result from diverticulitis and bowel obstructions. For patients presenting with left upper quadrant pain, the pre-hospital practitioner should consider pancreatitis, splenic rupture and gastritis. With any abdominal pain, always be alert for and treat shock. Ensure nothing consumed by mouth and obtain detailed history to include pertinent medical history, bowel function, last menstrual period, possibility of pregnancy, presence of rectal or vaginal bleeding, and presence of nausea/vomiting.

A. Emergency Medical Technician – Basic

1. Initial Medical Care.
2. Consider requesting ALS resources for pain control or fluid treatment for hypotension.
3. **Contact Medical Control**

B. Emergency Medical Technician - BASIC/ IV AND IO:

1. Start a peripheral IV(s), as necessary, with NORMAL SALINE/LACTATED RINGERS solution (en route). Use caution with fluid administration. Try to maintain a systolic BP of 80-90 mm Hg as long as mental status is normal. Give fluid bolus of 250-500cc and repeat as necessary. For pediatrics, use 10-20cc/kg bolus. Try to limit total fluid administration to 2-3 liters.

C. Medical Technician – Intermediate

1. Initial Medical Care.
2. Abdominal aortic aneurysm:
Use caution with fluid administration. Try to maintain a systolic BP of 80-90 mm Hg as long as mental status is normal. Give fluid bolus of 250-500cc and repeat as necessary. For pediatrics, use 10-20cc/kg bolus. If a prolonged transport is expected try to limit total fluid administration to 2-3 liters.
3. **Contact Medical Control for Pain Control:**
 - a) If suspected kidney stones:
 - Morphine sulfate 2-5 mg IVP/IM, may repeat until a total dose of 10 mg has been given. **Pediatric dosage:** 0.1-0.2 mg/kg.

D. Emergency Medical Technician – Paramedic

1. Initial Medical Care.
2. If suspected abdominal aortic aneurysm:
Use caution with fluid administration. Try to maintain a systolic BP of 80-90 mm Hg as long as mental status is normal. Give fluid bolus of 250-500cc and repeat as necessary. For pediatrics, use 10-20cc/kg bolus. If a prolonged transport is expected try to limit total fluid administration to 3-4 liters.

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3. If suspected kidney stones and History of stones:
 - Morphine sulfate 2-5 mg IVP/IM, may repeat until a total dose of 10 mg has been given. **Pediatric dosage:** 0.1-0.2 mg/kg.
4. Consider Phenergan 12.5mg IVP or 25mg IM or zofran 4mg IV if nausea/vomiting present.
5. For pain control:
 - Consider morphine sulfate 2-5 mg IVP/IM, may repeat to total of 10 mg, contact Medical Control to exceed 10 mg.
Pediatric dosage: 0.1-0.2 mg/kg.
Or
 - Fentanyl 25-100 mcg slow IVP (over 2-3 minutes).
Pediatric dosage: 1-2 mcg/kg.
6. **Contact Medical Control.**

Altered Mental Status of Unknown Etiology

Patients can present with altered mental status for a number of reasons. It is important for the provider to quickly establish the cause of the AMS, if possible. The initial assessment should include an adequate physical assessment, a focused neurological exam, a detailed history regarding recent health and a specific history of any past overdoses or suicidal idealizations. Request Law Enforcement as needed and consider using soft restraints for combative patients.

The mnemonic AEIOU-TIPS may be helpful for determining Etiology:

A – Alcohol, Acidosis	T – Trauma, Tumors
E – Epilepsy, Electrolyte Imbalances	I – Infection
I – Insulin Reactions (hypoglycemia/hyperglycemia)	P – Psychosis, Poisons
O – Overdose	S – Stroke
U – Uremia (renal failure)	

The following protocol is a catchall for the routine treatment of altered mental status patients who present with AMS of unknown etiology.

A. Emergency Medical Technician – Basic

1. Initial Medical Care.
2. Glucose reading.
3. If blood glucose is less than 60 mg/dL follow Hypoglycemia Protocol.
4. Consider requesting ALS resources if Glasgow Coma Scale is less than 14 or drug overdose.
5. **Contact Medical Control.**

B. Emergency Medical Technician - Basic/Airway

1. Utilize alternate airway as needed.

C. Emergency Medical Technician - Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE /LACTATED RINGERS solution (en route). If CVA is suspected, avoid placing IV in affected limbs if possible.

D. Emergency Medical Technician - Basic/Medication

1. If glucose <60, administer glucagon 1 mg atomized intranasal (administer half in each nostril to increase absorption of the medication). A 1mg dose IM may also be used

E. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. Blood glucose reading.
3. If blood glucose is less than 60 mg/dL follow the Hypoglycemia Protocol.
4. If blood glucose is greater than 500 mg/dL or reads “high” follow Hyperglycemia Protocol.
5. Narcan 0.5-2 mg IVP/IM/IN PRN to max of 10 mg (if narcotic overdose is suspected).
 - Administer in 0.5mg increments titrated to effect in suspected long term opiate users
 - Narcan should be administered prior to intubation.
 - Pediatric dosage: 0.1mg/kg IVP/IM/IN
 - Be prepared to restrain patient – as they may awake agitated and combative
6. **Contact Medical Control.**

***Note:** If head trauma and hypoglycemia are both present, administer D50 in 5-10mL increments, rechecking glucose between doses until within the normal range.

F. Emergency Medical Technician – Paramedic

1. Initial Medical Care.
2. Blood glucose reading.
3. If blood glucose is less than 60 mg/dL follow the Hypoglycemia Protocol.
4. If blood glucose is greater than 500 mg/dL or reads “high” follow Hyperglycemia Protocol.
5. Narcan 0.5-2 mg IVP/IM/IN PRN to max of 10 mg (if narcotic overdose is suspected).
 - Administer in 0.5mg increments titrated to effect in suspected long-term opiate users.
 - Narcan should be administered prior to intubation.
 - Pediatric dosage: 0.1mg/kg IVP/IM/IN.
 - Be prepared to restrain patient – as they may awake agitated and combative

6. Contact Medical Control.

***Note:** If head trauma and hypoglycemia are both present, administer D50 in 5-10mL increments, rechecking glucose between doses until within the normal range.

Amputation

The amputation protocol is for isolated amputations. Always ensure the obvious injury is the only injury. If multi-system trauma is present, consider Trauma Alert Protocol. If amputation exists at a proximal site, consider trauma alert consultation with on-line medical control. With all amputations, contact medical control early on to ensure the necessary hospital/surgical resources will be available.

Severed part care: Rinse the part gently with normal saline to remove loose debris. **Do not scrub.** Wrap amputated part in saline-soaked gauze and place into plastic bag sealed with tape (so not pour saline into bag). Place bag into container filled with ice and water if available. Label container with the date, time and patient's name. **Do not use dry ice. Do not allow the part to freeze.** Transport the part with the patient.
Stump care: Control bleeding. Cover with saline-soaked gauze and wrap with dry gauze.

A. Emergency Medical Technician – Basic

1. Initial medical care.
2. Consider requesting ALS resources for pain control or fluid replacement.
3. **Contact Medical Control.**

B. Emergency Medical Technician – Basic/ IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE /LACTATED RINGERS solution (en route).

C. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. **Contact Medical Control for Pain Control.**
3. Morphine Sulfate, 2-5 mg IVP/IM, repeat to a total of 10 mg.
Pediatric dosage: 0.1-0.2 mg/kg.

D. Emergency Medical Technician – Paramedic

1. Initial Medical Care.
2. Consider morphine sulfate, 2-5mg IVP/IM, repeat to a total of 10 mg.
Pediatric dosage: 0.1-0.2 mg/kg.
Or
3. Consider Fentanyl 25-100 mcg slow IVP (over 2-3 minutes).
Pediatric dosage: 1-2 mcg/kg.
4. Contact Medical control for Morphine doses over 10 mg, Fentanyl >100mcg and Versed 1-2mg IVP/IM to max 5mg
5. **Contact Medical Control for one or more of the following.**
 - a. ***If a patient presents with altered mental status for any reason, orders for MS for pain control must be received from Medical Control.***
 - b. Repeat pain medication beyond the above limits at MD discretion.

Life Threatening Amputations

Tourniquets:

Clinical Indications:

1. Life threatening extremity hemorrhage that cannot be controlled by other means.
2. Serious or life threatening extremity hemorrhage and tactical considerations prevent the use of standard hemorrhage control techniques.

Contraindications:

1. Non-extremity hemorrhage
2. Proximal extremity location where tourniquet application is not practical

Procedure:

1. Place tourniquet proximal to wound
2. Tighten per manufacturer instructions until hemorrhage stops and/or distal pulses in affected extremity disappear.
3. Secure tourniquet per manufacturer instructions
4. Note time of tourniquet application and communicate this to receiving care providers
5. Dress wounds per standard wound care protocol
6. If delayed or prolonged transport and tourniquet application time > 45 minutes: consider reattempting standard hemorrhage control techniques and removing tourniquet

Anaphylaxis

Anaphylaxis is the severe allergic response that occurs after exposure to certain foreign substances. An anaphylactic reaction usually occurs very rapidly with symptoms often appearing within a minute or less, but occasionally may appear an hour or more after the exposure. In general, the shorter the interval between exposure and reaction, the more likely it will be a severe reaction. A wide variety of substances are known to produce anaphylactic reactions. Some common examples include: foods (shellfish and peanuts), insect stings, and medications (antibiotics, aspirin and sulfa drugs). Ask about known allergies and recent medications, and obtain history of the location, activity, and any oral intake immediately preceding the onset of symptoms. Ask about any prior allergic reactions. Also, check for Medic-Alert tags and evidence of insect bites/stings on the altered/unconscious patient.

Common signs and symptoms of patients with anaphylaxis include: dyspnea, pruritus (itching), urticaria (hives), cyanosis, wheezing, hypotension, tachycardia, nausea and vomiting, and altered mental status. The presence of oropharyngeal edema, hoarseness, stridor, any change in their voice, or rhinitis indicates impending respiratory involvement and place the patient at a high risk for rapid deterioration. Anticipate acute airway obstruction and provide rapid treatment/transport.

A. Emergency Medical Technician – Basic

1. Initial Medical Care.
2. Administer patient prescribed epinephrine auto-injector if patient presents with signs of severe allergic reaction, including either respiratory distress or shock.
3. Assist with patient prescribed Albuterol inhaler if wheezing/dyspnea is present.
4. Consider ALS resources.
5. **Contact Medical Control.**

B. Emergency Medical Technician – Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE/LACTATED RINGERS solution (en route). Use fluid bolus of 250-500cc to keep systolic BP > 100. For pediatrics, use 10-20cc/kg bolus.

C. Emergency Medical Technician - Basic/Medication

1. Administer epinephrine auto-injector if patient presents with signs of severe allergic reaction, including either respiratory distress or shock (with no history of cardiovascular disease or pregnancy).
2. Benadryl tablets X2 (50 mg) PO if patient presents with urticaria or other symptoms of histamine release.
3. If the patient presents with primary shortness of breath, consider albuterol 2.5 mg in 3 cc normal saline via nebulizer X3 q 10 minutes.

D. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. If patient presents with signs of severe allergic reaction, including either respiratory distress or shock (with no history of cardiovascular disease or pregnancy).
Administer epinephrine 1:1,000, 0.3 – 0.5 mg IM.
Pediatric dosage: epinephrine 1:1,000; 0.01 mg/kg IM (max 0.3 mg for single dose).
Note: epinephrine can cause vomiting in Pediatric Patients.
3. Use fluid bolus of 250-500cc to keep systolic BP > 100. For pediatrics, use 10-20cc/kg bolus. If patient is decompensating, massive volume replacement may be required.
 - Start (2) IV's, large bore, and maintain at wide open.

4. Benadryl 25-50 mg IVP or 50 mg IM may be given if patient presents with urticaria or other symptoms of histamine release.
Pediatric dosage: 1 mg/kg IVP/IM.
5. If the patient presents with primary shortness of breath, consider albuterol 2.5 mg in 3 cc normal saline via nebulizer X3 q 10 minutes.
6. **Contact Medical Control for one or more of the following:**
 - a) Repeat epinephrine 1:1,000 0.3-0.5 mg IM/SC.
 - b) IV epinephrine if significantly decompensated:
 - Epinephrine 1:10,000, 0.1 mg slow IVP q 5-15 minutes as needed.
 - c) Patient with history of cardiovascular disease or pregnancy.
 - d) Patients on Beta Blockers may have paradoxical response to epinephrine. Contact MC for alternative treatment options.

E. Emergency Medical Technician – Paramedic

1. Initial Medical Care.
2. If patient presents with signs of severe allergic reaction, including either respiratory distress or shock (with no history of cardiovascular disease or pregnancy).
Administer epinephrine 1:1,000, 0.3-0.5 mg IM q 5-15 minutes as required.
Pediatric dosage: epinephrine 1:1,000; 0.01 mg/kg IM(max 0.3 mg for single dose).
Note: epinephrine can cause vomiting in pediatric patients.
3. Use fluid bolus of 250-500cc to keep systolic BP > 100. For pediatrics, use 10-20cc/kg bolus. If patient is decompensating, massive volume replacement may be required.
 - Start (2) IV's, large bore, and maintain at wide open.
4. Benadryl 25-50 mg IVP or 50 mg IM may be given if patient presents with urticaria or other symptoms of histamine release.
Pediatric dosage: 1 mg/kg IVP/IM.
5. If the patient presents with primary shortness of breath consider albuterol 2.5 mg in 3 cc normal saline via nebulizer X3 q 10 minutes.
6. **Contact Medical Control for one or more of the following:**
 - a) IV epinephrine if significantly decompensated:
 - Epinephrine 1:10,000, 0.1-0.3 mg slow IVP q 5-15 minutes, as needed.
 - b) Patient with history of cardiovascular disease or pregnancy.
 - c) Patients on Beta Blockers may have paradoxical response to epinephrine. Contact Medical Control for alternative treatment options.

Burns

Burn patients may present in many different ways, depending on the severity and type of burn. Burns may be thermal, electrical, chemical or radiation in nature. Regardless of the mechanism resulting in the burn, the pathophysiology results in the disruption of proteins in the cell membranes. Symptoms of a superficial (first degree) burn involve only the epidermis and will be red, minor edema and some pain. Partial thickness (second degree) burns result in a complete burn of the epidermis, penetrate into the dermis, and result in blisters. Full-thickness (third degree) burns penetrate the epidermis, dermis and into the subcutaneous or even deeper. Skin may be leathery, charred, and anesthetic (loss of pain).

General Burn Treatment

- Remove jewelry and non-adherent clothing from burn area.
- For moderate to severe burns, apply dry, clean dressing.
- For burns <10% BSA, apply wet dressing for comfort.
- For chemical on skin, identify contaminant, remove contaminated clothing and flood skin with water for 10 minutes. If contaminant is dry powder, brush off before washing.
- For chemical in the eye, flood the eye with water continuously throughout transport. Have the patient blink frequently. Alkali burns are most serious and require copious irrigation
- Be alert for progressing airway problems in patients who have burns involving face, head, neck or chest.
- For electrical burns, be alert for and treat cardiac dysrhythmias or arrest. Assess for and identify entry and exit wounds.
- Keep the patient warm.

A. Emergency Medical Technician – Basic

1. Initial Medical Care.
2. Consider ALS resources for pain control or fluid replacement.
3. **Contact Medical Control for the following:**
 - a) Trauma Team activation if greater than 15% BSA or critical area burn (groin, hands or face).

B. Emergency Medical Technician- Basic/Airway

1. Utilize an alternate airway as needed.

C. Emergency Medical Technician – Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE/LACTATED RINGERS solution (enroute).
2. Initiate IV with fluid rate per Parkland Formula for patients without evidence of shock:
$$\frac{\% \text{ Burn Area} \times \text{Patient Weight in KG}}{4} = \text{mL/hr}$$

D. Emergency Medical Technician – Basic/Endotracheal Intubation

1. Establish advanced airway as needed.

E. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. Initiate IV(s) with fluid rate per Parkland Formula for patients without evidence of shock:
$$\frac{\% \text{ Burn Area} \times \text{Patient Weight in KG}}{4} = \text{ml/hr}$$
3. **Contact Medical Control For Pain Control**
4. a) Morphine sulfate 2-5 mg IVP/IM, repeat to a total of 10 mg.
Pediatric dosage: 0.1-0.2 mg/kg.
b) Trauma Team activation if greater than 15% BSA or critical area burn (groin, hands or face).

F. Emergency Medical Technician – Paramedic

1. Initial Medical Care.
2. Initiate IV(s) with fluid rate per Parkland Formula for patients without evidence of shock:
$$\frac{\% \text{ Burn Area} \times \text{Patient Weight in KG}}{4} = \text{mL/hr}$$
3. Consider morphine sulfate, 2-5 mg IVP, may repeat to a total of 10 mg.
Pediatric dosage: 0.1-0.2 mg/kg.
Or
Consider Fentanyl 25-100 mcg slows IVP (over 2-3 minutes).
Pediatric dosage: 1-2 mcg/kg.
AND
Consider Versed 1-2mg IVP/IM to max 5mg

I believe morphine to be superior to fentanyl for pain control in burn patients. Adding Versed will potentiate the pain relief obtained with narcotics

4. Contact Medical control for Morphine doses over 10 mg and Versed 1-2mg IVP/IM to max 5mg
5. **Contact Medical Control for one or more of the following:**
Repeat pain medication beyond max of Fentanyl, morphine or Versed at MD discretion only.
Trauma Team activation if greater than 15% BSA or critical area burn (groin, hands or face).

Cardiac Arrest-Medical

By definition, cardiac arrest patients are pulseless, apneic and unresponsive. Four rhythms produce pulseless cardiac arrest: ventricular fibrillation, rapid ventricular tachycardia, pulseless electrical activity, and asystole. The foundation to success is prompt, high quality CPR. Once the initial treatment priorities have been accomplished, it is important to determine the patient's rhythm and treat it according to the applicable American Heart Association algorithm.

****Pediatric Note:** Always consider Foreign Body Airway Obstruction (FBOA) in any pediatric arrest. Maintaining a patent airway and providing adequate oxygenation and ventilation are the treatment priorities with pediatric patients.

****AHA recommends that when using a biphasic defibrillator the initial dose of energy be the minimal effective dose of the specific device, for a biphasic defibrillator that is 200j and for a monophasic defibrillator 360j. Single escalating doses of 200, 300, 360j may be delivered with subsequent cycles of CPR, at the direction of Medical Control**

A. Emergency Medical Technician – Basic

1. Initial Medical Care/CPR according to AHA standards.
2. Attach AED and analyze.
3. If no shock is indicated or patient does not meet Death in the Field Protocol:
Proceed with transport and request ALS resources; continue with AED analysis after every two minutes of CPR.
If shock is indicated:
 - a) Shock the patient.
 - b) CPR for two minutes
 - c) Repeat process of check pulse, analyze, shock if indicated and CPR in two minute cycles.
 - d) If no shock is indicated, proceed with transport and press analyze after 2 minutes of CPR throughout transport.
4. **Contact Medical Control.**

B. Emergency Medical Technician – Basic/Airway

1. Utilize an alternate airway as needed.

C. Emergency Medical Technician - Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route).

D. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. Treat cardiac arrest rhythm per specific protocol.
3. **Contact Medical Control.**

E. Emergency Medical Technician - Paramedic

1. Initial Medical Care.
2. Treat cardiac arrest rhythm per specific protocol.
3. **Contact Medical Control.**

Cardiac Arrest – Hypothermia

A. Emergency Medical Technician – Basic

1. Start CPR/Initial Medical Care.
 2. Attach AED and analyze.
 3. If patient does not respond after first shock, and core temperature $<30^{\circ}\text{C}$, withhold further shock. Resuscitation should focus on CPR and re-warming of the patient.
 4. **Contact Medical Control for one or more of the following:**
 - a) Subsequent shocks.
- Do not initiate chest compressions if clinical signs of functional cardiac activity are present, even if a pulse is not palpable under field conditions. This includes victims who show any movement, respirations, response to ventilation, or other signs of life.
- Take up to 1-2 minutes to feel for a pulse.

B. Emergency Medical Technician - Basic/Airway

1. Utilize an alternate airway as needed.

C. Emergency Medical Technician- Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route).

D. Emergency Medical Technician – Intermediate

1. Start CPR/Initial Medical Care.
2. Defibrillate VF/Pulseless VT once every two minutes @ 200J.
3. If patient does not respond after first shock, and core temperature $<30^{\circ}\text{C}$, withhold further shock. Resuscitation should focus on CPR and re-warming of the patient.
4. Intubate/Ventilate/IV with warm NS.
5. **Contact Medical Control.**
 - a) If core temperature is $<30^{\circ}\text{C}$, withhold IV medications.
 - b) If core temperature is $>30^{\circ}\text{C}$, give IV medications (but at longer than standard intervals).

E. Emergency Medical Technician – Paramedic

1. Start CPR/Initial Medical Care.
 2. Defibrillate VF/Pulseless VT once every two minutes @ 200J.
 3. If patient does not respond after first shock, and pt core temperature $<30^{\circ}\text{C}$, withhold further shock. Resuscitation should focus on CPR and re-warming of the patient.
 4. Intubate/Ventilate/IV with warm NS.
 5. **Contact Medical Control.**
 - a) If core temperature is $<30^{\circ}\text{C}$, withhold IV medications.
 - b) If core temperature is $>30^{\circ}\text{C}$, give IV medications (but at longer than standard intervals).
- Do not initiate chest compressions if clinical signs of functional cardiac activity are present, even if a pulse is not palpable under field conditions. This includes victims who show any movement, respirations, response to ventilation, or other signs of life.

Cardiac Arrest – Trauma

People who experience traumatic cardiac arrest rarely survive outside the hospital. If the person has suffered blunt trauma, cardiac arrest prior to reaching the hospital carries a 99% mortality rate in spite of ongoing efforts at resuscitation after arrival at the hospital. In people with penetrating trauma, cardiac arrest prior to reaching the hospital produces virtually the same negative outcome.

A. Emergency Medical Technician – Basic

1. Initial Medical Care with C-spine precautions.
2. Consider termination of efforts for obvious signs of death:
 - a) Decapitation.
 - b) Dependent lividity.
 - c) Rigor mortis.
 - d) Obvious head or blunt trauma not consistent with life.
3. Consider ALS Resources.
4. AED and analyze.
5. **Contact Medical Control for the following:**
 - a) Termination of efforts for reasons other than those listed above.

B. Emergency Medical Technician - Basic/Airway

1. Utilize an alternate airway as needed.

C. Emergency Medical Technician- Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution.
2. IV bolus of 500-2000cc.

D. Emergency Medical Technician – Intermediate

1. Initial Medical Care with C-spine precautions.
2. Consider termination of efforts for obvious signs of death.
 - a) Decapitation.
 - b) Dependent lividity.
 - c) Rigor mortis.
 - d) Obvious head or blunt trauma not consistent with life.
3. Consider needle decompression on all multi-system traumatic arrests receiving resuscitative efforts.
4. Follow ACLS resuscitation guidelines while en route to receiving facility.
5. IV fluid bolus of 500-2000cc.
6. **Contact Medical Control** for termination of efforts for reasons other than those listed above.

E. Emergency Medical Technician – Paramedic

1. Initial Medical Care with C-spine precautions.
2. Consider termination of efforts for obvious signs of death.
 - a) Decapitation.
 - b) Dependent lividity.
 - c) Rigor mortis.
 - d) Obvious head or blunt trauma not consistent with life.
3. Consider needle decompression on all multi-system traumatic arrests receiving resuscitative efforts.

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4. Follow ACLS resuscitation guidelines while en route to receiving facility.
5. IV fluid bolus of 500-2000cc.
6. **Contact Medical Control** for termination of efforts for reasons other than those listed above.

Cardiac V-fib/Pulseless V-tach

According to the AHA: "...for out-of-hospital cardiac arrest that is not witnessed by an EMS provider, rescuers may give a period of CPR (e.g. about 5 cycles or 2 minutes) before checking the rhythm and attempting defibrillation." In addition, approx 5 cycles (2 to 3 minutes) of CPR should be performed prior to the next rhythm check.

The AHA recommends a change to a 1 shock protocol. In its 2005 guidelines it states: "...frequent or long interruptions in precordial chest compressions for rhythm analysis or rescue breathing were associated with post resuscitation myocardial dysfunction and reduced survival rates." The AHA further notes that: "...if 1 shock fails to eliminate VF, the incremental benefit of another shock is low, and the resumption of CPR is likely to confer a greater value than another shock." Therefore when a shockable rhythm is found, only one shock, instead of three stacked shocks, is recommended.

****AHA recommends that when using a biphasic defibrillator the initial dose of energy be the minimal effective dose of the specific device, for a biphasic defibrillator that is 200j and for a monophasic defibrillator 360j. Single escalating doses of 200, 300, 360j may be delivered with subsequent cycles of CPR, at the direction of Medical Control. Consider escalating doses after two unsuccessful defibrillation attempts at 200j.**

A. Emergency Medical Technician – Basic

1. Follow Cardiac Arrest Algorithm.

B. Emergency Medical Technician - Basic/Airway

1. Utilize an alternate airway as needed.

C. Emergency Medical Technician- Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution.
2. IV bolus as appropriate 500-2000 cc.

D. Emergency Medical Technician – Intermediate

1. Start CPR.
2. Establish an IV and run wide-open ASAP.
3. After 2 minutes of CPR, identify cardiac rhythm, if V-Fib/pulseless V-Tach, Defibrillate 200J.
4. Immediately begin CPR.
5. Epinephrine 1 mg, 1:10,000, q 3-5 minutes, IVP once established or 2 mg ETT q 3-5 minutes.
6. After 2 minutes of CPR, identify cardiac rhythm, if V-Fib/pulseless V-Tach, Defibrillate 200J**.
7. Immediately resume CPR. Intubate and confirm with EtCO₂ (color change) and other methods (Visualization/auscultation/condensation inside tracheal tube).

Choose one antiarrhythmic,

NOT BOTH

8. Amiodarone 300 mg IVP **OR** Lidocaine 1-1.5 mg/kg IV or 3 mg/kg ETT to max of 3 mg/kg.
9. After 2 minutes of CPR, identify cardiac rhythm, if V-Fib/pulseless V-Tach, Defibrillate 200J**
10. Immediately resume CPR.
11. Epinephrine 1:10,000 1 mg q 3-5 minutes IVP once established or 2 mg ETT q 3-5 minutes
12. After 2 minutes of CPR, identify cardiac rhythm, if V-Fib/pulseless V-Tach, Defibrillate 200J**.
13. Immediately resume CPR

Choose same antiarrhythmic,
NOT DIFFERENT THAN ABOVE

14. Amiodarone 150 mg IVP **OR** Lidocaine 0.5-0.75 mg/kg IV or 1.5 mg/kg ETT to max of 3 mg/kg.
15. After 2 minutes of CPR, identify cardiac rhythm, if V-Fib/pulseless V-Tach, Defibrillate 200J**.
16. Immediately resume CPR
17. Epinephrine 1:10,000 1 mg q 3-5 minutes IVP once established or 2 mg ETT q 3-5 minutes
18. After 2 minutes of CPR, identify cardiac rhythm, if V-Fib/pulseless V-Tach, Defibrillate 200J**.
19. Immediately resume CPR
20. After 2 minutes of CPR, identify cardiac rhythm, if V-Fib/pulseless V-Tach, Defibrillate 200J**.
21. Immediately resume CPR.
22. Epinephrine 1:10,000 1 mg q 3-5 minutes IVP once established or 2 mg ETT q 3-5 minutes
23. Consider NaBicarb 1 mEq/kg.

24. Contact Medical Control for one of the following:

- a) Cessation of resuscitation efforts.
- b) Patient transport.
- c) Physician consultation for treatment decision at any time.
- d) Escalating defibrillation energy – 200j, 300j, 360j.

Note:

- Drugs via ETT are doubled, with maximum fluid administration of 70 cc.
- Reduce lidocaine drip rate by 50% in patients with CHF, liver disease or patients over 70 years of age.
- When a patient is successfully converted out of V-fib or pulseless V-tach into a stable rhythm, and lidocaine was determined to effectively convert the rhythm, administer a drip of last drug given. If amiodarone was the drug determined to cause the rhythm change, withhold any other pharmacology unless the rhythm converts to V-fib/V-tach or ectopy is concerning, then administer 150 mg amiodarone IVP slowly over 8-10 minutes.
- If no drugs were given, withhold pharmacology unless refractory V-fib/pulseless V-tach or significant ectopy are seen.
- Consider Hyperkalemia in cases of Refractory V-Fib/V-Tach.

E. Emergency Medical Technician – Paramedic

1. Start CPR.
2. Establish an IV and run wide-open ASAP.
3. After 2 minutes of CPR, identify cardiac rhythm, if V-Fib/pulseless V-Tach, Defibrillate 200J.
4. Immediately begin CPR.
5. Epinephrine 1 mg, 1:10,000, q 3-5 minutes, IVP once established or 2 mg ETT q 3-5 minutes.
6. After 2 minutes of CPR, identify cardiac rhythm, if V-Fib/pulseless V-Tach, Defibrillate 200J**.
7. Immediately resume CPR.

Choose one antiarrhythmic,
NOT BOTH

8. Amiodarone 300 mg IVP **OR** Lidocaine 1-1.5 mg/kg IV or 3 mg/kg ETT to max of 3 mg/kg.
9. After 2 minutes of CPR, identify cardiac rhythm, if V-Fib/pulseless V-Tach, Defibrillate 200J**.
10. Immediately resume CPR.

11. Epinephrine 1:10,000 1 mg q 3-5 minutes IVP once established or 2 mg ETT q 3-5 minutes
12. Intubate and confirm with EtCO₂ (color change) and other methods (Visualization/auscultation/condensation inside tracheal tube).
13. After 2 minutes of CPR, identify cardiac rhythm, if V-Fib/pulseless V-Tach, Defibrillate 200J**.
14. Immediately resume CPR

Choose same antiarrhythmic,
NOT DIFFERENT THAN ABOVE

15. Amiodarone 150 mg IVP **OR** Lidocaine 0.5-0.75 mg/kg IV or 1.5 mg/kg ETT to max of 3 mg/kg.
16. After 2 minutes of CPR, identify cardiac rhythm, if V-Fib/pulseless V-Tach, Defibrillate 200J**.
17. Immediately resume CPR
18. Epinephrine 1:10,000 1 mg q 3-5 minutes IVP once established or 2 mg ETT q 3-5 minutes
19. After 2 minutes of CPR, identify cardiac rhythm, if V-Fib/pulseless V-Tach, Defibrillate 200J**.
20. Immediately resume CPR
21. After 2 minutes of CPR, identify cardiac rhythm, if V-Fib/pulseless V-Tach, Defibrillate 200J**.
22. Immediately resume CPR.
23. Epinephrine 1:10,000 1 mg q 3-5 minutes IVP once established or 2 mg ETT q 3-5 minutes
24. Consider NaBicarb 1 mEq/kg.

Contact Medical Control for one of the following:

- a) Cessation of resuscitation efforts.
- b) Patient transport.
- c) Physician consultation for treatment decision at any time.
- d) Escalating defibrillation energy – 200j, 300j, 360j.
- e)

Note:

- Drugs via ETT are doubled, with maximum fluid administration of 70 cc.
- Reduce lidocaine drip rate by 50% in patients with CHF, liver disease or patients over 70 years of age.
- When a patient is successfully converted out of V-fib or pulseless V-tach, into a stable rhythm, and lidocaine was determined to effectively convert the rhythm, administer it as a drip. If amiodarone was the drug determined to cause the rhythm change, withhold any other pharmacology unless the rhythm converts to V-fib/pulseless V-tach or ectopy is concerning, then administer 150 mg amiodarone IVP slowly over 8-10 minutes.
- If no drugs were given, withhold pharmacology unless refractory V-fib/V-tach or significant ectopy are seen.
- Consider Hyperkalemia in cases of Refractory V-Fib/V-Tach.

Cardiac-Ventricular Tachycardia with Pulse

Ventricular tachycardia is defined as three or more beats of ventricular origin in succession at a rate greater than 100 beats/minute. The arrhythmia may be either well-tolerated or associated with grave, life-threatening hemodynamic compromise. VT usually is a consequence of structural heart disease, with breakdown of normal conduction patterns, increased automaticity (which tends to favor ectopic foci), and activation of re-entrant pathways in the ventricular conduction system. Electrolyte disturbances and sympathomimetics may increase the likelihood of VT in the susceptible heart. Retrograde ventriculoatrial conduction may occur, which can generate an ECG complex similar to paroxysmal supraventricular tachycardia (PSVT) with aberrant conduction.

A. **Emergency Medical Technician – Basic**

1. Not applicable; follow appropriate protocol for patient symptoms.

B. **Emergency Medical Technician - Basic/Airway**

1. Utilize an alternate airway as needed.

C. **Emergency Medical Technician- Basic/IV and IO**

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution.
2. IV bolus as appropriate 500-2000 cc.

E. **Emergency Medical Technician – Intermediate**

1. Initial Medical Care.
2. **If stable:**
 - a) Amiodarone 150 mg slow IVP (over 10 minutes) or Lidocaine 1-1.5 mg/kg bolus - not both.
 - b) **Contact Medical Control for one or more of the following:**
 - 1) Either amiodarone or lidocaine (which ever drug was not initially administered).
 - 2) Cardioversion @ 100, 200, 300, 360 J.
 - 3) Consider pre-sedation with Versed 1-2 mg IVP, may repeat to a max of 5 mg, and Morphine 2-5 mg IV. By MD orders only, and only if appropriate for the patient's condition.
3. **If unstable (defined as current ACLS guidelines):**
 - a) Consider sedation with Versed 1-2 mg IVP, may repeat to a max of 5 mg. By MD order only, and only if appropriate for the patient's condition.
 - b) Cardioversion @ 100, 200, 300, 360 J as necessary.
 - c) If no conversion, administer either amiodarone 150 mg slow IVP (over 5-10 minutes) or lidocaine 1-1.5 mg/kg - not both.
 - d) **Contact Medical Control for the following:**
 - 1) Either amiodarone or lidocaine (which ever drug was not initially administered).

F. **Emergency Medical Technician – Paramedic**

1. Initial Medical Care.
2. Acquire 12-Lead and transmit to ED if patient condition permits.
3. **If stable:**
 - a. Amiodarone 150 mg slow IVP (over 5-10 minutes) or Lidocaine 1-1.5 mg/kg bolus - not both.
 - b) **Consider as needed:**
 - 1) Either amiodarone or lidocaine (which ever drug was not initially administered).

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- 2) Cardioversion @ 100, 200, 300, 360 J.
 - 3) Consider pre-sedation with Versed 1-2 mg IVP, may repeat to a max of 5 mg, and Morphine 2-5 mg IVP.
 - c) **Contact Medical Control.**
4. ***If unstable (defined as current ACLS guidelines):***
- a) Consider sedation with Versed 1-2 mg slow IVP, may repeat to a max of 5 mg.
 - b) Cardioversion @ 100, 200, 300, 360 J as necessary.
 - c) If no conversion, administer either amiodarone 150 mg slow IVP (over 5-10 minutes) or lidocaine 1-1.5 mg/kg - not both.
 - d) **Contact Medical Control for the following:**
 - e) Either amiodarone or lidocaine (which ever drug was not initially administered).

Wide-Complex Tachycardia (Unknown Type) with Pulse

When confronted with a tachycardia having a broad QRS complex, it is important to be able to differentiate between a supraventricular and a ventricular tachycardia. Medication given for the treatment of a supraventricular tachycardia (SVT) may be harmful to a patient with a ventricular tachycardia (VT). However, when in doubt assume ventricular tachycardia and never delay synchronized cardioversion for patients who are symptomatic (hypotensive or altered loc).

A. Emergency Medical Technician – Basic

1. Not applicable; follow appropriate protocol for patient symptoms.

B. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. **If stable:**
 - a) Amiodarone 150 mg slow IVP (over 5-10 minutes).
 - b) **Contact Medical Control for one or more of the following:**
 - 1) Repeat amiodarone 150 mg slow IVP (over 10 minutes).
 - 2) Lidocaine 1-1.5 mg/kg IVP to a maximum of 3.0 mg/kg.
 - 3) Cardioversion @ 100, 200, 300, 360 J.
 - 4) Consider pre-sedation with Versed 1-2 mg IVP, may repeat to a total of 5 mg, and Morphine 2-5 mg IV. By MD orders only.
3. If unstable (defined as current ACLS guidelines):
 - a) Cardioversion @ 100, 200, 300, 360 J if patient mental status will allow without sedation.
 - b) Amiodarone 150 mg slow IVP (over 10 minutes).
 - c) **Contact Medical Control for one or more of the following:**
 - 1) Sedation: Versed 1-2 mg, may repeat to total dose of 5 mg. By MD orders only.
 - 2) Repeat amiodarone 150 mg slow IVP (over 5-10 minutes). May repeat q 10 minutes.
 - 3) Lidocaine 1-1.5 mg/kg IVP may repeat every 5 minutes to a max of 3.0 mg/kg.

A. Emergency Medical Technician – Paramedic

1. Initial Medical Care.
2. Acquire 12-Lead and transmit to ER if patient condition permits.
3. **If stable:**
 - a) Amiodarone 150 mg slow IVP (over 5-10 minutes).
 - b) **Consider as needed:**
 - 1) Repeat amiodarone 150 mg slow IVP (over 10 minutes).
 - 2) Lidocaine 1-1.5 mg/kg IVP to a maximum of 3.0 mg/kg.
 - 3) Cardioversion @ 100, 200, 300, 360 J.
 - 4) Consider pre-sedation with Versed 1-2 mg IVP, may repeat to a total of 5 mg, and Morphine 2-5 mg IV.
 - c) **Contact Medical Control.**
4. **If unstable(defined as current ACLS guidelines):**
 - a) Sedation: Versed 1-2 mg IVP, may repeat to total dose of 5 mg.
 - b) Cardioversion @ 100, 200, 300, 360 J.
 - c) Amiodarone 150 mg slow IVP (over 5-10 minutes).
 - d) **Consider as Needed:**
 - 1) Repeat cardioversion @ 100, 200, 300, 360 J.
 - 2) Repeat amiodarone 150 mg slow IVP (over 10 minutes).
 - 3) Lidocaine 1-1.5 mg/kg IVP may repeat every 5 minutes to a max of 3.0 mg/kg.
 - e) **Contact Medical Control.**

Cardiac-Asystole

Asystole is cardiac standstill with no cardiac output and no ventricular depolarization; it eventually occurs in all dying patients. Asystole is associated with a poor outcome regardless of its initial cause. Resuscitation is likely to be successful only if it is secondary to an event that can be corrected immediately, such as a cardiac arrest due to choking on a food bolus (a cafe coronary), and only if an airway can be established and the patient may be rapidly re-oxygenated.

A. **Emergency Medical Technician – Basic**

1. See Cardiac Arrest Protocol.

B. **Emergency Medical Technician – Intermediate**

1. CPR.
2. IV X2, with fluid WO as appropriate for patient condition.
3. Epinephrine (1:10,000) 1 mg IVP / 2 mg ETT q 3-5 minutes.
4. Intubate and confirm with EtCO₂ (color change) and other methods (Visualization/auscultation/condensation inside tracheal tube).
5. Atropine 1 mg IVP or 2 mg ETT q 3-5 minutes, max 3 mg.
6. Consider NaBicarb 1 mEq/kg.
7. **Contact Medical Control for one of the following:**
 - a) Cessation of resuscitation efforts.
 - b) Initiation of transport.
8. Identify/treat reversible causes:

H's

Hypovolemia
Hypoxia
Hydrogen Ion (acidosis)
Hypo/Hyperkalemia
Hypoglycemia
Hypothermia

T's

Toxins
Tamponade, cardiac
Tension Pneumothorax
Thrombosis (coronary or pulmonary)
Trauma (hypovolemia, increased ICP)
Tablets (medications/drugs)

*** If steps 1-8 are completed and the patient is still in asystole, contact Medical Control for termination of efforts. ***

C. **Emergency Medical Technician – Paramedic**

1. CPR.
2. IV X2, with fluid WO as appropriate for patient condition.
3. Epinephrine (1:10,000) 1 mg IVP / 2 mg ETT q 3-5 minutes.
4. Intubate and confirm with EtCO₂ (color change) and other methods (Visualization/auscultation/condensation inside tracheal tube).
5. Atropine 1 mg IVP or 2 mg ETT q 3-5 minutes, max 3 mg.
6. Consider NaBicarb 1 mEq/kg.
7. **Contact Medical Control for one of the following:**
 - a) Cessation of resuscitation efforts.
 - b) Initiation of transport.
8. Identify/treat reversible causes:

H's

Hypovolemia
Hypoxia
Hydrogen Ion (acidosis)
Hypo/Hyperkalemia
Hypoglycemia
Hypothermia

T's

Toxins
Tamponade, cardiac
Tension Pneumothorax
Thrombosis (coronary or pulmonary)
Trauma (hypovolemia, increased ICP)
Tablets (medications/drugs)

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*** If steps 1-8 are completed and the patient is still in asystole, contact Medical Control for termination of efforts. ***

Cardiac-Pulseless Electrical Activity (PEA)

The approach in treatment of PEA is to treat the underlying cause. These possible causes are remembered as the 6 H's and the 6 T's.

A. **Emergency Medical Technician – Basic**

1. See Cardiac Arrest Algorithm.

B. **Emergency Medical Technician – Intermediate**

1. CPR.
2. IV X2, with fluid WO as appropriate for patient condition.
3. Epinephrine (1:10,000) 1 mg IVP / 2 mg ETT q 3-5 minutes.
4. Intubate and confirm with EtCO₂ (color change) and other methods (Visualization/auscultation/condensation inside tracheal tube).
5. Atropine 1 mg IVP or 2 mg ETT q 3-5 minutes, max 3 mg for absolute Bradycardia.
6. Consider NaBicarb 1 mEq/kg.
7. **Contact Medical Control for one of the following:**
 - a) Cessation of resuscitation efforts.
 - b) Initiation of transport.
8. Identify/treat reversible causes:

H's

Hypovolemia
Hypoxia
Hydrogen Ion (acidosis)
Hypo/Hyperkalemia
Hypoglycemia
Hypothermia

T's

Toxins
Tamponade, cardiac
Tension Pneumothorax
Thrombosis (coronary or pulmonary)
Trauma (hypovolemia, increased ICP)
Tablets (medications/drugs)

*** If steps 1-8 are completed and the patient is still in asystole, contact MC for termination of efforts. ***

C. **Emergency Medical Technician – Paramedic**

1. CPR.
2. IV X2, with fluid WO as appropriate for patient condition.
3. Epinephrine (1:10,000) 1 mg IVP / 2 mg ETT q 3-5 minutes.
4. Intubate and confirm with EtCO₂ (color change) and other methods (Visualization/auscultation/condensation inside tracheal tube).
5. Atropine 1 mg IVP or 2 mg ETT q 3-5 minutes, max 3 mg for absolute Bradycardia.
6. Consider NaBicarb 1 mEq/kg.
7. **Contact Medical Control for one of the following:**
 - a) Cessation of resuscitation efforts.
 - b) Initiation of transport.
8. Identify/treat reversible causes:

H's

Hypovolemia
Hypoxia
Hydrogen Ion (acidosis)
Hypo/Hyperkalemia
Hypoglycemia
Hypothermia

T's

Toxins
Tamponade, cardiac
Tension Pneumothorax
Thrombosis (coronary or pulmonary)
Trauma (hypovolemia, increased ICP)
Tablets (medications/drugs)

*** If steps 1-8 are completed and the patient is still in asystole, contact MC for termination of efforts. ***

Cardiac-Supraventricular Tachycardia (HR >150 bpm)

A supraventricular tachycardia (SVT) is a rapid rhythm of the heart in which the origin of the electrical signal is either the atria or the AV node. While narrow complex QRS with rates greater than 150 is considered SVT in adults, rates for children must be greater than 180 and infants greater than 220.

A. Emergency Medical Technician – Basic

1. Not applicable; follow appropriate protocol for patient symptoms.

B. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. **If stable:**
 - a) Attempt vagal maneuvers.
 - b) Adenosine 6 mg rapid IVP followed by a rapid saline flush.
 - c) Repeat adenosine @ 12 mg rapid IVP (may repeat once in 1-2 min).
 - d) Patient transport.
 - e) Amiodarone 150 mg IVP slowly.

➤ Vagal maneuvers should be performed as forced exhalation against a closed glottis. Patient should take a deep breath and while holding as long as possible, bear down as though having a bowel movement. Patient should be supine and in Trendelenburg position if possible.
3. **If unstable (Pt. experiencing chest pain, BP <90, unconscious, CHF):**
 - a) Cardioversion @ 100, 200, 300, 360 J.
 - b) **Contact Medical Control.**
 - 1) Consider pre-sedation for cardioversion with Versed 1-2 mg IVP, may repeat to a max of 5 mg, and Morphine 2-5 mg IV by MD order only.

C. Emergency Medical Technician – Paramedic

1. Initial Medical Care.
2. Acquire 12-Lead and transmit if patient condition permits.
3. **If stable:**
 - a) Attempt vagal maneuvers.
 - b) Adenosine 6 mg rapid IVP followed by a rapid saline flush.
 - c) Repeat adenosine @ 12 mg rapid IVP (may repeat once in 1-2 min).
 - d) Patient transport.
 - e) Amiodarone 150 mg IVP slowly.
4. **Contact Medical Control.**
5. For recurrent SVT, consider Diltiazem 0.25 mg/kg IVP over 2 min, may repeat in 15 min with 0.35 mg/kg if response is inadequate. Max dose = 20mg **By MD order only**.

➤ Vagal Maneuvers should be performed as forced exhalation against a closed glottis. Patient should take a deep breath and while holding as long as possible, bear down as though having a bowel movement. Patient should be supine and in Trendelenburg position if possible.
6. **If unstable (Pt. experiencing chest pain, BP<90, unconscious, CHF):**
 - a) Cardioversion @ 100, 200, 300, 360 J.
 - 1) Consider pre-sedation for cardioversion with Versed 1-2 mg IVP, may repeat to a max 5 mg, and Morphine 2-5 mg IVP.
7. **Contact medical control.**

8. ***In patients with stable, Uncontrolled Atrial Fibrillation or Atrial Flutter***
 - a) **Contact medical control.**
 - b) Diltiazem 0.25 mg/kg IVP over 2 min, may repeat in 15 min with 0.35 mg/kg if response is inadequate (usual adult dose 20 mg) by MD order only.

9. ***In patients with unstable Atrial Fibrillation or Atrial Flutter***
 - a) Cardioversion @ 100, 200, 300, 360 J as necessary.
 - b) Consider pre-sedation for cardioversion with Versed 1-2 mg IVP, may repeat to a max 5 mg, and Morphine sulfate 2-5 mg IVP.

Cardiac-Bradycardia

Bradycardia, as applied to adult medicine, is defined as a resting heart rate of fewer than 60 beats per minute, though it is seldom symptomatic until the rate drops below 50 beats/min. Trained athletes tend to have slow resting heart rates, and resting bradycardia in athletes should not be considered abnormal if the individual has no symptoms associated with it. The term relative bradycardia is used to explain a heart rate that, while not technically below 60 beats per minute, is considered too slow for the individual's current medical condition. Early recognition of clinically significant Bradycardia and rapid, aggressive treatment are vital to positive patient outcome as the decompensating patient can rapidly deteriorate to cardiac arrest. Assess for any signs of poor perfusion and provide immediate therapy for patients with hypotension, acute altered mental status, chest pain, CHF, syncope, or other signs of shock. Initial treatment of symptomatic Bradycardia should focus on support of airway, breathing and oxygenation, and the identification of the underlying cause of the rate.

A. **Emergency Medical Technician – Basic**

1. Initial Medical Care.
2. Place in Trendelenburg position.
3. Consider ALS resources.
4. **Contact Medical Control.**

B. **Emergency Medical Technician – Intermediate**

1. Initial Medical Care.
 2. Place in Trendelenburg position.
 3. Atropine 0.5 mg IVP.
 4. Additional atropine @ 0.5 mg as needed q 3-5 minutes to a max of 3 mg.
 5. Consider TCP.
 6. Sedation 1-2 mg Versed IVP to max of 5 mg MD direction only.
- TCP is the preferred treatment for unstable, decompensating patients and those with high-degree AV Block (2nd degree type II and 3rd degree); initiate pacing without delay.
 - Use atropine cautiously in the presence of acute coronary ischemia or myocardial infarction; increased heart rate may worsen ischemia or increase the infarction zone.
 - If the cardiovascular symptoms are not caused by the bradycardia, patient condition may not improve despite effective pacing. Consider underlying causes of the rhythm.
 - If required, the pacer should be set at a rate of 60, start at 40 mA (default setting), and increase in 5 mA increments until capture or becomes too uncomfortable for patient. Confirm electrical/mechanical capture via pacer spikes on monitor and palpable pulse on patient. **Contact medical control** for further direction should you want sedation for the patient.

C. **Emergency Medical Technician – Paramedic**

1. Initial Medical Care.
2. Place in Trendelenburg position.
3. Acquire 12-Lead and transmit to ER if patient condition permits.
4. Atropine 0.5 mg IVP.
5. Additional atropine @ 0.5 mg as needed q 3-5 minutes to a max of 3 mg.
6. Consider TCP.
 - a) Sedation 1-2 mg Versed IVP to max 5 mg.
6. Dopamine 5-20 mcg/kg/min.
7. Epinephrine Drip 2-10 mcg/min. (Mix 1 mg Epinephrine 1:1,000 in 500mL NS or D5W).

8. Contact Medical Control.

- TCP is the preferred treatment for unstable, decompensating patients and those with high-degree AV Block (2nd degree type II and 3rd degree); initiate pacing without delay.
- Use atropine cautiously in the presence of acute coronary ischemia or myocardial infarction; increased heart rate may worsen ischemia or increase the infarction zone.
- If the cardiovascular symptoms are not caused by the bradycardia, patient condition may not improve despite effective pacing. Consider underlying causes of the rhythm.
- If required, the pacer should be set at a rate of 60, start at 40 mA (default setting), and increase in 5 mA increments until capture or becomes too uncomfortable for patient. Confirm electrical/mechanical capture via pacer spikes on monitor and palpable pulse on patient.

Cardiac-Chest Pain

Chest pain patients can present in a variety of ways, with a wide variety of symptoms. There are many different organ pathologies in the chest cavity that may result in chest discomfort. The Pre-hospital provider should make the best attempt at differentiating between various causes. Some causes of chest pain include: Angina, Myocardial Infarction, Pericardial Tamponade, Pericarditis, Pulmonary Embolus, Pneumothorax, Ruptured Aortic Aneurysm, Gastroesophageal Reflux, Pneumonia and Trauma. For all chest pain with unknown etiology, err on the side of caution by treating for an Acute Myocardial Infarction. Though many of the pre-hospital treatment modalities are vital to the successful treatment of AMI, definitive treatment for these patients is obtained in the ED or Cardiac Cath Lab. **Therefore limit on-scene time and eliminate any unnecessary delays in transport.** Determine the time of onset of symptoms and make medical control consultation and Cardiac Cath Lab Team activation early on in the treatment sequence. The adage, "time is muscle," should govern all decisions made in the care of cardiac chest pain.

A. Emergency Medical Technician – Basic

1. Initial Medical Care.
2. Consider ALS resource.
3. Question patient on Viagra, Cialis and Levitra usage in the past 24 hours.
4. **Contact Medical Control.**
5. If patient has not taken Viagra, Cialis or Levitra in the past 24 hrs, assist with patient's prescribed nitroglycerin, 0.4 mg SL, if systolic BP > 100 mm Hg. **MD Order only.**
6. May repeat nitroglycerin 0.4 mg SL two times at 3-5 minute intervals if pain persists and systolic BP remains > 100 mm Hg. **MD Order only.**

B. Emergency Medical Technician - Basic/Airway

1. Utilize an alternate airway as needed.

C. Emergency Medical Technician- Basic/IV and IO

1. Start a peripheral IV(s) X2 if cardiac event is suspected, with NORMAL SALINE or LACTATED RINGERS solution (en route).

D. Emergency Medical Technician- Basic/Endotracheal Intubation

1. Establish advanced airway as needed.

D. Emergency Medical Technician-Basic/Medications

1. Administer four baby aspirin (325 mg total) PO if patient not allergic. Ensure ASA chewed and swallowed.
2. Question patient on Viagra, Cialis and Levitra usage in the past 24 hours.
3. **Contact Medical Control.**
4. Administer nitroglycerine 0.4 mg (spray, SL). May repeat two times at 3-5 minute intervals if pain persists and systolic BP >100 mm Hg. **MD Order only.**

F. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. IV X2 if cardiac event is suspected.
3. Question patient on Viagra, Cialis and Levitra usage in the past 24 hours.
4. Administer aspirin 325 mg chewed and swallowed if not already taken.

5. Nitroglycerin 0.4 mg SL, may repeat x 2 q 3-5 minutes if systolic BP >100 mm Hg.
6. **Contact Medical Control:**
 - a. Morphine sulfate 2-5 mg IVP, PRN q 3-5 minutes to a total of 15 mg if BP >100 mm Hg.
 - b. Advise MD of patient condition and ECG interpretation.

F. Emergency Medical Technician – Paramedic

1. Initial Medical Care.
2. IV X2 if cardiac event is suspected.
3. Perform 12-lead ECG and transmit to ER. Consider Right-side ECG if Inferior infarct is suspected.
4. Consider early transport if AMI is suspected.
5. Question patient on Viagra, Cialis and Levitra usage in the past 24 hrs.
6. Administer aspirin 325 mg chewed and swallowed if not already taken.
7. Nitroglycerin 0.4 mg SL, may repeat x 2 q 3-5 minutes if systolic BP >100 mm Hg.
8. Morphine sulfate 2-5 mg IVP, repeat PRN q 3-5 minutes to a total of 15 mg if systolic BP >100 mm Hg.
9. **Contact Medical Control.**
 - a. Notify MD early if it appears the Cardiac Cath Lab Team will be needed, particularly if STEMI is evident.
 - b. Advise MD of patient condition.
 - c. Consider early consult with medical control if Right-side infarct is suspected.

Chemical Restraint

Chemical restraint is utilized when physical harm to the patient and/or caregiver appear imminent due to patient combativeness, and to inhibit excessive agitation and struggling against physical restraints. Ideally, the pharmacologic sedation will change the patient's behavior without reaching the point of amnesia or altering the patient's level of consciousness. With all patients presenting with combativeness or other bizarre behavior, consider possible underlying medical causes of such behavior (AEIOU – TIPS; see Altered Mental Status protocol).

A. **Emergency Medical Technician-Basic**

1. Initial Medical Care.
2. Physically restrain patient as appropriate (soft restraints) - no handcuffs.
3. **Contact Medical Control.**

B. **Emergency Medical Technician- Basic/IV and IO**

1. If possible, establish a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution en route.

C. **Emergency Medical Technician-Intermediate**

1. Initial Medical Care.
2. Physically restrain patient as appropriate (soft restraints) - no handcuffs
3. If possible, establish IV.
4. **Contact Medical Control.**

D. **Emergency Medical Technician-Paramedic**

1. Initial Medical Care.
2. Physically restrain patient as appropriate (soft restraints) - no handcuffs.
3. If possible, establish IV.
4. Consider Versed 1-2mg IV up to 4mg (2-4mgIM) or Valium 2-5mg IV up to 10mg.
5. **Contact Medical Control.**
6. Haldol 5 mg IVP or 5-10 mg IM.
 - a. Extrapyramidal reactions may occur with Haldol administration. Administer Benadryl 25-50 mg IVP or 50 mg IM if signs of reaction (involuntary muscle contractions/rigidity in the neck, jaw, trunk, tongue or around the eyes) are present. Benadryl IV or IM can also be given immediately after Haldol in situations of extreme agitation

Child Birth (Mother)

The initial assessment of an obstetrical patient is the same as a non-obstetrical patient. It is important to remember that the pre-hospital provider is caring for two patients, the mother and the baby. Important information to obtain is: gravidity and parity, length of gestation, if regular pre-natal care has been received, and any complications with this pregnancy.

A. **Emergency Medical Technician – Basic**

1. Initial Medical Care.
2. If delivery is imminent, apply gentle counter pressure to baby's head as it delivers; suction mouth, then nose, and assist delivery of shoulders and rest of body.
3. Consider ALS resources.
4. **Contact Medical Control** ASAP so that resources can be obtained from other departments.

B. **Emergency Medical Technician- Basic/IV and IO**

1. Start a peripheral IV(s) as necessary on mother, with NORMAL SALINE or LACTATED RINGERS solution (en route).

C. **Emergency Medical Technician – Intermediate**

1. Initial Medical Care.
2. If delivery is imminent, apply gentle counter pressure to baby's head as it delivers; suction mouth, then nose, and assist delivery of shoulders and rest of body.
3. If postpartum hemorrhage, attempt uterine massage.
 - a) Fluid bolus 500-1000 cc.
 - b) **Contact Medical Control** ASAP so that resources can be obtained from other departments.

D. **Emergency Medical Technician – Paramedic**

1. Initial Medical Care.
2. If delivery is imminent, apply gentle counter pressure to baby's head as it delivers; suction mouth, then nose, and assist delivery of shoulders and rest of body.
3. If postpartum hemorrhage, attempt uterine massage.
 - a) Fluid bolus 500-1000 cc.
 - b) Oxytocin (Pitocin) 20 units in 1000 cc NS, run wide open for first liter of fluid, **or** 10 units IM if unable to obtain IV. Administer only after placenta delivers and it has been ensured there are no multiple births.
 - c) **Contact Medical Control** ASAP so that resources can be obtained from other departments.
4. If patient presents with seizures, mix 2 grams of Magnesium Sulfate in 500 mL NS and administer over 10 minutes.

Neonatal Resuscitation

A rapid assessment should begin immediately after birth, and the determination of resuscitative efforts should continue throughout transport. Remember to do the APGAR score at 1 and 5 minutes. In general, relative bradycardia in a newborn is always secondary to decreased oxygenation. Airway, breathing and oxygenation must always take top priority in the treatment of neonatal patients, as well as ensuring the baby is warm.

APGAR Scoring

Sign	0	1	2
Activity	Limp	Some Flexion	Active Motion
Pulse	Absent	<100	>100
Grimace	None	Grimace	Cough or sneeze Pulls away
Appearance	Central Cyanosis Blue/Pale	Central Pink Peripheral Blue	Completely Pink
Respiration	Absent	Slow, ineffective, Irregular	Good and Crying

A. Emergency Medical Technician-Basic

1. Suction oropharynx secretions, then nares.
2. Dry infant to provide stimulation and prevent hypothermia.
3. Keep infant warm; keep head covered to prevent heat loss.
4. Consider ALS resources.
5. **Contact Medical Control.**
 - a) Advise of situation ASAP to activate OB resources within the hospital.

Note: If baby presents with cord around the neck, slip cord over baby's head before shoulders deliver to avoid strangulation. If possible, clamp the cord in two places and cut the cord between the clamps.

B. Emergency Medical Technician-Intermediate

1. Suction oropharynx secretions, then nares.
2. Dry infant to provide stimulation and prevent hypothermia.
3. Keep infant warm; keep head covered to prevent heat loss.
4. Determine Blood Glucose if indicated.
5. **Contact Medical Control.**

Note: If baby presents with cord around the neck, slip cord over baby's head before shoulders deliver to avoid strangulation. If possible, clamp the cord in two places and cut the cord between the clamps.

Respiratory Rate	>40 or crying	No action
	<40	Tactile stimulation, assist respirations, BVM
Heart Rate	>100	No action
	60-100	Ventilate, high-flow oxygen
	<60	Ventilate, high-flow oxygen, begin compressions
Color	Normal	No action
	Central cyanosis	High-flow oxygen, assist ventilation as needed

C. **Emergency Medical Technician-Paramedic**

1. Suction oropharynx secretions, then nares.
2. Dry infant to provide stimulation and prevent hypothermia.
3. Keep infant warm; keep head covered to prevent heat loss.
4. Determine Blood Glucose if indicated.
5. **Contact Medical Control.**

Note: If baby presents with cord around the neck, slip cord over baby's head before shoulders deliver to avoid strangulation. If possible, clamp the cord in two places and cut the cord between the clamps.

Respiratory Rate	>40 or crying	No action
	<40	Tactile stimulation, assist respirations, BVM
Heart Rate	>100	No action
	60-100	Ventilate, high-flow oxygen
	<60	Ventilate, high-flow oxygen, begin compressions
Color	Normal	No action
	Central cyanosis	High-flow oxygen, assist ventilation as needed

The greatest risks to the newborn infant are airway obstruction and hypothermia. Adequate ventilation is the highest priority.

CVA

A CVA is a sudden neurological injury related to impaired cerebral blood flow. It can be divided into two categories: ischemic and hemorrhagic. Patient with ischemic stroke may benefit from thrombolytic therapy. For patients to be a candidate for this therapy it must be initiated within 3 hours of symptom onset. Overall morbidity and mortality are greatly affected by the passage of time before treatment is rendered. **The treatment priority should be early recognition of stroke, minimized scene time and rapid transport to definitive care.** Also, provide early notification of stroke patients to the medical control physician to facilitate timely activation of the necessary in-hospital resources. Finally, be aware that poor perfusion and hypoxemia will exacerbate and extend ischemic brain injury; ensure adequate oxygenation and ventilation of the patient at all times.

A. Emergency Medical Technician – Basic

1. Initial Medical Care.
2. Glucose reading.
3. Consider ALS resources.
4. Cincinnati Stroke Scale (see Appendix G).
5. Rapid Transport.
6. **Contact Medical Control for the following:**
 - a) Activation of radiology resources.
 - b) Patient update.

B. Emergency Medical Technician - Basic/Airway

1. Utilize an alternate airway as needed.

C. Emergency Medical Technician- Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route). Avoid affected limbs if possible.

D. Emergency Medical Technician- Basic/Endotracheal Intubation

1. Establish advanced airway as needed.

E. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. Glucose reading.
3. Cincinnati Stroke Scale (see Appendix G).
4. Rapid Transport.
5. **Contact Medical Control for the following:**
 - a) Activation of radiology resources.
 - b) Patient update.

F. Emergency Medical Technician – Paramedic

1. Initial Medical Care.
2. Glucose reading.
3. Cincinnati Stroke Scale (see Appendix G).
4. Rapid Transport
5. **Contact Medical Control for the following:**
 - a) Activation of radiology resources.
 - b) Patient update.

Fractures, Dislocations

While isolated fractures and dislocations are usually not life threatening, a complete rapid and thorough primary survey must be performed to rule out any non-obvious, immediate life-threatening injuries. Also, evaluating the Mechanism of Injury may help determine if the obvious injury is the only injury. The cornerstones of good trauma care are limiting scene time to <10 minutes, rapid transport and the management of Airway and Breathing while preventing shock. Do not delay transport for splinting if patient is unstable.

A. **Emergency Medical Technician – Basic**

1. Initial Medical Care.
2. Assess distal perfusion/neurological function before and after splinting.
3. Consider ALS resources for pain control.
4. **Contact Medical Control.**

B. **Emergency Medical Technician- Basic/ IV and IO**

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route).

C. **Emergency Medical Technician – Intermediate**

1. Initial Medical Care.
 2. Assess distal perfusion/neurological function before and after splinting.
 3. **Contact Medical Control for the following:**
 4. Consider morphine sulfate, 2-5 mg IVP/IM, repeat to a total of 15 mg.
Pediatric dosage: 0.1mg/kg IVP/IM.
- Monitor BP closely for hypotension associated with narcotics.

D. **Emergency Medical Technician – Paramedic**

1. Initial Medical Care.
2. Assess distal perfusion/neurological function before and after splinting.
3. Consider morphine sulfate, 2-5 mg IVP/IM, repeat to a total of 15 mg.
Pediatric dosage: 0.1 mg/kg IVP/IM.
Or
4. Consider Fentanyl 25-100 mcg slow IVP (over 2-3 minutes).
Pediatric dosage: 1-2 mcg/kg.
And
5. Consider Valium 2-5 mg IVP/IM to total of 10 mg.
Pediatric dosage: 0.2 mg/kg.
Or
6. Consider Versed 1-2 mg IVP/IM to total of 5 mg.
Pediatric dosage: 0.1 mg/kg
7. **Contact Medical Control for the following:**
 - a) Repeat morphine sulfate.
 - b) Repeat Fentanyl.

GI Bleed

Gastrointestinal bleeding, even when severe, can present in many different, often subtle ways, with few outward signs. GI Bleeds are usually classified as either upper or lower, defined by location within the GI tract. Upper GI bleeds are generally characterized by bloody emesis and/or dark stools resembling coffee grounds. Signs of a lower GI bleed are bright red rectal bleeding and increased stool frequency. It is important to provide continued patient assessment with a focus on identifying/preventing/treating shock.

A. **Emergency Medical Technician – Basic**

1. Initial Medical Care.
2. Consider ALS resources.
3. **Contact Medical Control.**

B. **Emergency Medical Technician- Basic/ IV and IO**

1. IV large bore x 2 with fluid administration PRN. Use fluid bolus of 250-500cc to keep systolic BP > 100. For pediatrics, use 10-20cc/kg bolus.

B. **Emergency Medical Technician – Intermediate**

1. Initial Medical Care.
2. IV large bore x 2 with fluid administration PRN. Use fluid bolus of 250-500cc to keep systolic BP > 100. For pediatrics, use 10-20cc/kg bolus.
3. **Contact Medical Control.**

C. **Emergency Medical Technician – Paramedic**

1. Initial Medical Care.
2. IV large bore x 2 with fluid administration PRN. Use fluid bolus of 250-500cc to keep systolic BP > 100. For pediatrics, use 10-20cc/kg bolus.
3. Consider Zofran 4mg IV or Phenergan (promethazine) 12.5 mg IVP slowly or 25 mg IM for relief of nausea or recurrent vomiting.
4. **Contact Medical Control.**

Head Trauma

Traumatic brain injury (TBI) may be caused by various mechanisms. The most common causes are due to blunt trauma including: motor vehicle crashes, falls, bicycle accidents, and sporting injuries. It is important to always consider spinal immobilization for with these injuries, and to assess patient's neurological functions. Limited scene time and rapid transport with most interventions occurring en route are vital to successful patient outcomes. Vigilant monitoring of the patient's level of consciousness, airway patency and breathing effectiveness are paramount. Have suction readily available and be prepared for vomiting, patient combativeness, seizures and a rapid decline in LOC which may result in an unprotected airway. Early notification of TBI to the medical control physician and possible early Trauma Team activation are also vital for a positive outcome.

A. Emergency Medical Technician – Basic

1. Initial Medical Care.
2. Glucose reading.
3. Consider ALS resources.
4. Hyperventilation should only be considered for rapid decline in patient status (seizures or acute change in mental status).
5. **Contact Medical Control for Trauma Team activation.**

B. Emergency Medical Technician - Basic/Airway

1. Utilize an alternate airway as needed.

C. Emergency Medical Technician- Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route).
2. Give Fluid Bolus of NS 250cc to keep systolic BP 90 or greater

D. Emergency Medical Technician- Basic/Endotracheal Intubation

1. Establish advanced airway as needed.

E. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. Consider ALS resources.
3. Obtain blood glucose reading if possible.
4. Give fluid bolus of NS 250cc to keep systolic BP 90 or greater
5. Hyperventilation should only be considered for rapid decline in patient status (seizures or acute change in mental status).
6. **Contact Medical Control for Trauma Team activation.**

F. Emergency Medical Technician – Paramedic

1. Initial Medical Care.
2. Obtain blood glucose reading if possible.
3. Hyperventilation should only be considered for rapid decline in patient status (seizures or acute change in mental status).
4. Give fluid bolus of NS 250cc to keep systolic BP 90 or greater
5. Consider endotracheal intubation if GCS<8. Versed 1-2 mg IVP, may repeat to total of 5 mg for facilitation of endotracheal intubation.

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6. Pre-medicate 3 minutes prior to ET attempt with lidocaine 1-1.5 mg/kg IVP to decrease spike in intracranial pressure.
7. **Contact Medical Control for Trauma Team activation.**

Hyperthermia

Hyperthermia is usually due to excessive exposure to heat or vigorous physical exertion with the body absorbing or producing more heat than it can dissipate. **Heat cramps** is a relatively benign condition characterized by painful muscle cramps in the arms, legs and/or abdomen. **Heat exhaustion** presents with diaphoretic skin, tachycardia, nausea, vertigo and possibly hypotension. If left untreated, heat exhaustion may progress to heatstroke. Heatstroke usually has a gradual onset but may occur rather quickly. **Heatstroke** is a severe and sometimes fatal condition resulting from failure of the temperature regulating capacity of the body. These patients typically present with very hot yet dry skin, tachycardia, tachypnea, hypotension and an altered mental status. Not all hyperthermia emergencies are environmental in nature, however. They may have infectious, neurological or pharmacological etiology. High body temperature may cause seizures, particularly in preschool age children and patients with a seizure history.

A. Emergency Medical Technician – Basic

1. Initial Medical Care.
2. External cooling with ice packs to groin and axillae.
3. Consider ALS resources.
4. **Contact Medical Control.**

B. Emergency Medical Technician - Basic/Airway

1. Utilize an alternate airway as needed.

C. Emergency Medical Technician- Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route).

D. Emergency Medical Technician- Basic/Endotracheal Intubation

1. Establish advanced airway as needed.

E. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. External cooling with ice packs to groin and axillae.
3. If patient presents with seizures, Valium 2-5 mg IVP or 5-10 mg IM/Rectal. Repeat in 3-5 minutes to a total of 10 mg if seizures have not stopped.
Pediatric dosage for Valium is 0.3 mg/kg IVP/IM or 0.5 mg/kg Rectal.
OR
Versed 1-5 mg IVP or 5 mg IM or IN **MD orders only**
Pediatric dosage for Versed is 0.1 mg/kg IVP/IM/IN **MD orders only**
4. **Contact Medical Control.**
 - Cool patient, if possible, while en route with wet sheets, cold packs and A/C in the ambulance.

F. Emergency Medical Technician – Paramedic

1. Initial Medical Care.
2. External cooling with ice packs to groin and axillae.

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- a. If patient presents with seizures, Valium 2-5 mg IVP or 5-10 mg IM/Rectal. Repeat in 3-5 minutes to a total of 10 mg if seizures have not stopped.
Pediatric dosage for Valium is 0.3 mg/kg IVP/IM or 0.5 mg/kg Rectal.
OR
Versed 1-5 mg IVP or 5 mg IM or IN
Pediatric dosage for Versed is 0.1 mg/kg IVP/IM/IN
3. **Contact Medical Control.**
 - a. Repeat Versed beyond 5 mg at MD discretion.
 - Cool patient, if possible, while en route with wet sheets, cold packs and A/C in the ambulance.

Hyperglycemia

Hyperglycemia – excessive high blood glucose level -- has a slow onset lasting from 12 to 24 hours. The patient often has excessive hunger and thirst, and a feeling of general malaise. The patient may also present with altered mental status, nausea and vomiting, and excessive urination. As ketoacidosis develops, the patient may develop a breathing pattern termed *Kussmaul's* respirations – rapid, deep breathing that may have a fruity like smell. If left untreated, extreme hyperglycemia results in coma. Most pre-hospital care is centered on treating severe dehydration and support of vital function.

A. Emergency Medical Technician – Basic

1. Initial Medical Care.
2. Obtain glucose reading.
3. Consider ALS resources.
4. **Contact Medical Control.**

B. Emergency Medical Technician- Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route).
2. If blood sugar >500 mg/dL (or reads 'high' on glucometer), Normal Saline 500 cc-1000 cc IV over the first 20 minutes.
Pediatric fluid administration: 20 cc/kg fluid bolus.
3. Consider ALS resources.

C. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. Obtain glucose reading.
3. If blood sugar >500 mg/dL (or reads 'high' on glucometer), Normal Saline 500 cc-1000 cc IV over the first 20 minutes.
Pediatric fluid administration: 20 cc/kg fluid bolus.
4. **Contact Medical Control.**

D. Emergency Medial Technician – Paramedic

1. Initial Medical Care
2. Obtain glucose reading
3. If blood sugar >500 mg/dL (or reads 'high' on glucometer), Normal Saline 500 cc-1000 cc IV over the first 20 minutes.
Pediatric fluid administration: 20 cc/kg fluid bolus.
4. **Contact Medical Control**

Hypoglycemia

Hypoglycemia, or low blood sugar, can occur when the patient takes too much insulin, eats too little food to match the insulin dose, experiences excessive vomiting, diarrhea or fever, or over exerts themselves resulting in the consumption of most of their blood glucose. In contrast to hyperglycemia, hypoglycemia can develop quite rapidly. Typically, the hypoglycemic patient presents with weakness/malaise, cool, diaphoretic skin, headache and confusion/altered mental status. If left untreated, hypoglycemia can rapidly deteriorate to seizure, coma and death. Always consider hypoglycemia when encountering a patient with an altered mental status or presenting with bizarre behavior.

A. Emergency Medical Technician – Basic

1. Initial Medical Care.
2. Glucose reading.
3. If blood glucose <60mg/dL, or hypoglycemia suspected, and patient is awake and alert, administer oral glucose PO. Discontinue if patient presents with decreased LOC.
4. Consider ALS resources.
5. **Contact Medical Control.**

B. Emergency Medical Technician- Basic/ IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route).
2. If blood glucose <60mg/dL, administer D5W bolus until mental status increases or 500 mL is given.

C. Emergency Medical Technician - Basic/Medication

1. If glucose <60mg/dL, administer glucagon 1 mg atomized intranasal (administer half in each nostril to increase absorption of the medication). A 1mg IM dose may be used.

D. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. Obtain glucose reading.
If blood glucose <60 mg/dL:
3. Consider oral glucose if patient is awake and alert.
4. Start peripheral IV with D5W, or piggyback D5W if Normal Saline already initiated.
5. Administer D50, 25 Gm IVP.
Pediatric dosage: D25, 2cc/kg IV over 2 min.
If <2 months: D10, 2cc/kg IV over 2 min.
6. Administer Thiamine 100 mg IVP promptly following D50 administration on all non-pediatric patients.
7. If unable to obtain IV, administer Glucagon 1 mg IM/IN.
Pediatric dosage: 0.5 mg IM/IN
8. **Contact Medical Control.**
 - a) Consider additional D50, 25 Gm IVP if glucose still <60 mg/dL.

E. Emergency Medical Technician – Paramedic

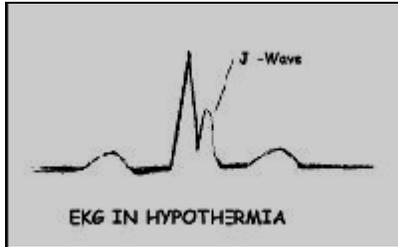
1. Initial Medical Care.
2. Obtain glucose reading.
If blood glucose <60 mg/dL:

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3. Consider oral glucose if patient is awake and alert.
4. Start peripheral IV with D5W, or piggyback D5W if Normal Saline already initiated.
5. Administer D50, 25 Gm IVP.
Pediatric dosage: D25, 2cc/kg IV over 2 min.
If <2 months: D10, 2cc/kg IV over 2 min.
6. Administer Thiamine 100 mg IVP promptly following D50 administration on all non-pediatric patients.
7. If unable to obtain IV, administer Glucagon 1 mg IM/IN.
Pediatric dosage: 0.5 mg IM/IN
8. **Contact Medical Control.**
 - a) Consider additional D50, 25 Gm IVP if glucose still <60 mg/dL.

Hypothermia

True Hypothermia is defined as a body temperature less than 95°F / 35°C. **Mild hypothermia** is 34-35°C / 93-95°F (feel cold, shivering, and vasoconstriction). **Moderate Hypothermia** is 30-34°C/86-93°F (cold, pale skin, pulse and BP are normal or elevated, tachypnea, mild confusion and slurred speech, and unsteady gate). **Severe hypothermia** is <30°C/86°F (bradycardia, risk of arrhythmia, intense vasoconstriction, pooling – promotes after drop, and decreased LOC). If the core temperature falls below 32° C a characteristic J-wave (AKA Osborn wave) may occur. The J wave occurs at the junction of the QRS complex and the ST segment. Also noticeable is T wave inversion and prolongation of the PR, QRS, and QT intervals. During assessment, always be alert for accompanying trauma and underlying medical etiologies.



A. Emergency Medical Technician – Basic

1. Initial Medical Care.
2. Obtain a temperature, core temperature if unresponsive.
3. Prevent further heat loss with hot packs to central body and plenty of blankets.
4. Glucose reading.
5. For moderate and severe hypothermia, treat gently and keep horizontal. Rough handling may precipitate ventricular fibrillation.

Cardiac Arrest treatment for moderate and severe hypothermia:

7. Start CPR/Initial medical care.
 8. Attach AED and hit analyze.
 9. deliver a single shock, if advised.
 10. **Contact Medical Control for one or more of the following:**
 - a) Subsequent shocks
- Do not initiate chest compressions if clinical signs of functional cardiac activity are present, even if a pulse is not palpable under field conditions. This includes victims who show any movement, respirations, response to ventilation, or other signs of life.
 - Take up to 1-2 minutes to feel for a pulse.

B. Emergency Medical Technician – Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route). Warm IV fluids should be used if possible.

C. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. Prevent further heat loss and begin active, external warming measures (heat packs, warm IV fluid, heater, etc).
3. Glucose reading.
4. **Contact Medical Control.**

- Hypothermic patients are prone to deteriorating to ventricular fibrillation. Initiate cardiac monitoring immediately during initial assessment.
- Do not delay intubation, IV access or other urgent procedures, but rather perform them gently while closely monitoring cardiac rhythm.
- Anti-dysrhythmia medications require core temperatures >86 F to be effective.

D. Emergency Medical Technician – Paramedic

1. Initial Medical Care.
 2. Prevent further heat loss and begin active, external warming measures (heat packs, warm IV fluid, heater, etc).
 3. Glucose reading.
 4. **Contact Medical Control.**
- Hypothermic patients are prone to deteriorating to ventricular fibrillation. Initiate cardiac monitoring immediately during initial assessment.
 - Do not delay intubation, IV access or other urgent procedures, but rather perform them gently while closely monitoring cardiac rhythm.
 - Anti-dysrhythmia medications require core temperatures >86 F to be effective.

Nausea / Vomiting

Vomit is the most commonly aspirated material. Those most at risk are patients with an altered or decreased mental status. In addition to obstructing the airway, vomit can lead to significant damage to bronchiolar tissue and alveoli. Nausea and vomiting can be due to any number of causes and care should address the underlying pathology (i.e. cardiac event, head injury, etc.). Also, it is important to determine if blood is present in emesis.

A. Emergency Medical Technician – Basic

1. Initial Medical Care.
2. Consider ALS resources.
3. **Contact Medical Control.**

B. Emergency Medical Technician – Basic/IV and IO

2. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route).
3. 500-1000 cc fluid bolus if patient presents with dehydration/hypotension.

C. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. 500-1000 cc fluid bolus if patient presents with dehydration/hypotension.
3. Consider ALS resources.
4. **Contact Medical Control.**

D. Emergency Medical Technician – Paramedic

1. Initial Medical Care.
2. 500-1000 cc fluid bolus if patient presents with dehydration/hypotension.
3. Consider Zofran 4mg IVP (Peds 0.1mg/kg IV) or Phenergan 12.5 mg IVP slowly or 25 mg IM for relief of nausea.
4. **Contact Medical Control for the following:**
 - a. Repeat Zofran 4mg IV or Phenergan 12.5 mg IVP or 25 mg IM.

Near Drowning

Near-drowning is the result of submersion in water that did not result in death, or which death occurs more than 24 hours after submersion. Near-drowning is primarily due to asphyxia from airway obstruction secondary to aspirated water or laryngospasm. Factors that impact survivor rate include: temperature of water, cleanliness of water, age and health of patient, and length of submersion. "The cold-water drowning patient is not dead until he/she is warm and dead".

A. Emergency Medical Technician-Basic

1. Initial Medical Care.
2. Ventilatory support is paramount.
3. Determine down time and water source, i.e. swimming pool vs. muddy pond, cold vs. warm water.
4. Consider ALS resources.
5. **Contact Medical Control.**

B. Emergency Medical Technician-Intermediate

1. Initial Medical Care.
2. Ventilatory support is paramount.
3. Determine down time and water source, i.e. swimming pool vs. muddy pond, cold vs. warm water.
4. **Contact Medical Control.**

C. Emergency Medical Technician-Paramedic

1. Initial Medical Care.
2. Ventilatory support is paramount.
3. Determine down time and water source, i.e. swimming pool vs. muddy pond, cold vs. warm water.
4. **Contact Medical Control.**

Pain Management

The pain control protocol was constructed to emphasize the importance of relieving pain and suffering in the prehospital setting. Pain is the single most common symptom of injury or disease. Pain is an unpleasant sensory and emotional experience associated with actual or potential damage to tissues or the condition described in terms of such damage.

Acute pain is of new onset, usually associated with trauma or inflammation, with duration of less than six months. It serves as a warning mechanism that something is wrong.

Chronic pain is constant or recurring, without an anticipated or predictable end, and has a duration of greater than six months. Patients with chronic pain are generally under the care of a physician and have prescribed medications or other methods for reducing the pain.

Assessment for older children and adults should be on a scale of 0-10 with 10 being the worst pain possible. Included with a numerical pain scale, OPQRST should be used to complete a thorough assessment for an accurate picture of the patient's discomfort and for accurate documentation. Also, visual signs of pain (writhing, wincing, groaning, screaming, etc.) should be used to validate the patient's numerical description, and to assist in categorizing pain as mild, moderate or severe.

For pediatric patients with potentially painful conditions, providers should ask if they're having pain and, if so, to rate the degree of pain using a facial analog chart below. Ask the child to point to the face on the scale whose expression most accurately reflects their pain level. A zero-to-ten number scale, with zero equaling no pain and 10 equaling excruciating pain, is also effective for school-age children and adults with limited communication skills.

Wong-Baker FACES Pain Rating Scale



Source: FACES Pain Rating Scale. Wong on Web, 2002. www3.us.elsevierhealth.com/WOW/faces.html. Retrieved Feb. 20, 2006. From Hockenberry MJ, Wilson D, Winkelstein ML: Wong's Essentials of Pediatric Nursing, 7th ed. Mosby: St. Louis, 2005. p. 1259. Used with permission.

Treatment

Non-Pharmacological:

- Provide a calm and controlled interaction. This helps to reduce anxiety and provides initial pain relief.
- Explain procedures.
- Provide relaxation techniques.
- Splint and stabilize fractures and dislocations.
- Use cold and heat packs.
- Pad backboards.
- Provide femoral traction for femoral fracture.

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Reviewed: January, 2010

Pharmacological: ****Note: In the presence of ALOC, medications for pain management may only be administered with Medical Control Physician approval.**

- **Morphine** is a narcotic analgesic with sedative and anti-anxiety qualities; it is also the drug of choice for ischemic chest pain/acute myocardial infarction.
- **Fentanyl** is an opiate agonist that blocks the body's pain response; it is proven effective in relieving pain caused by burns and trauma.
- **Midazolam** is a benzodiazepine with amnesic, anti-anxiety and skeletal muscle relaxant effects; however it has no analgesic properties.

Oftentimes a patient's pain is so severe it requires the combined effects of multiple agents, specifically a narcotic analgesic and a benzodiazepine, to produce relief. This is a relatively common occurrence with serious long bone fractures and joint dislocations, where pain from severe muscle spasms combine with the pain from tissue injury to produce a significant level of discomfort. However, due to the principles of summation, synergism and potentiation, while providing enhanced pain relief at lower doses than with one medication alone, combining pain medications increases the chances of over sedation and increased side effects, such as respiratory depression, CNS depression, and hypotension. It is essential to use caution when administering multiple medications and reassess the patient frequently. The goal for the provider in these scenarios is quickly recognizing when effective pain management may require multiple medications, and to begin administration of the second agent early, rather than waiting until the first medication has been "maxed out".

The preferred combination of narcotic analgesic in Gallatin County is Morphine or Fentanyl. If enhanced pain management is deemed necessary to achieve patient comfort, the following treatment algorithm is a recommended guideline for medication administration:

**Patient presents with obvious signs of severe pain
(pain rated at 10/10, accompanied by writhing, groaning, screaming, etc)**

1. Morphine 2-5 mg IVP, or Fentanyl 25-50 mcg IVP
Pain persists without relief:
2. Repeat Morphine up to 10mg total, or Fentanyl to max of 100mcg.
Pain persists with little to no relief:
3. Add Versed 1-2mg iv up to 4mg IV.

****NOTE:** Complete pain relief in the presence of significant etiology is not often feasible, nor should it be the absolute goal of the provider. Rather, reduced anxiety and decreased pain to a tolerable level should be the objective.

Poisoning and Overdose

Foreign substances can enter the body through any of four routes: ingestion, inhalation, surface absorption or injection. **Poisonings** can be described as exposure to non-pharmacological substances such as household products, plants and foods, while an **overdose** results from the accidental or intentional exposure to pharmacological substances. Initially, the treatment priority focuses on preventing further exposure of the patient to the offending substance and to prevent initial exposure of the rescuers. Immediately remove patient from any hazardous environment before beginning treatment. Use extreme caution in enclosed/confined areas. The assessment priority focuses on ABC's and identifying the substance exposed to or ingested. **If ingested, determine amount and time of ingestion, and bring all medications/drugs/substances to the ED if safe to do so.** Continuously assess for, and be prepared to treat, airway compromise, respiratory depression, decreasing level of consciousness, hypotension, shock and seizure. Because poisonings and overdoses present special circumstances, consider early consult with Medical Control Physician. Consider physical restraints in any patient given narcotic antagonists (Narcan-naloxone) as some patients can respond and become very combative and agitated.

Unknown:

A. Emergency Medical Technician-Basic

1. Initial Medical Care.
2. Glucose reading.
3. Consider ALS resources.
4. **Contact Medical Control.**

B. Emergency Medical Technician - Basic/Airway

1. Utilize an alternate airway as needed.

C. Emergency Medical Technician- Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route).

D. Emergency Medical Technician- Basic/Endotracheal Intubation

1. Establish advanced airway as needed.

E. Emergency Medical Technician-Intermediate

1. Initial Medical Care.
2. Glucose reading.
3. Narcan 0.5-2.0 mg IVP/IM/IN/SC/ET, repeat PRN to max 10 mg if patient has decreased LOC or depressed respiratory effort.
Pediatric Dosage: 0.1 mg/kg IV/IM/IN/SC/ET
4. Consider Paramedic resources.
5. **Contract Medical Control.**
 - a. Patients who suffer from a narcotic overdose should have their airway controlled with basic airway maneuvers while allowing the opiate antagonist naloxone to reach a therapeutic affect.

- b. The goal for treating an opiate overdose is not necessarily to awaken the patient, but to maintain the patient's airway and breathing.

F. Emergency Medical Technician-Paramedic

1. Initial Medical Care.
2. Glucose reading.
3. Narcan 0.5-2.0 mg IVP/IM/IN/SC/ET, repeat PRN to Max of 10 mg if patient has decreased LOC or depressed respiratory effort.
Pediatric Dosage: 0.1 mg/kg IV/IM/IN/SC/ET
4. **Contact Medical Control.**
 - a. Patients who suffer from a narcotic overdose should have their airway controlled with basic airway maneuvers while allowing the opiate antagonist naloxone to reach a therapeutic affect.
 - b. The goal for treating an opiate overdose is not necessarily to awaken the patient, but to maintain the patient's airway and breathing.

Tricyclic Antidepressant:

Tricyclic toxicity has a high mortality rate, even in patients who are awake and alert on scene. The common signs/symptoms include: RAPID deterioration in mental status, rapid onset of apnea, fever, dilated pupils, flushed skin, and dry mucous membranes. Respiratory depression and tachycardia are also common findings. Widened QRS complexes and ventricular dysrhythmias are generally signs of a life-threatening ingestion.

Examples of Tricyclic medications include: amitryptiline (elavil, triavil, limbitrol), amoxapine (asendin), doxepin (sinequan, adapin), nortryptiline (aventyl, pamelor), trazodone (desyrel), and other "-pramine" medications.

A. Emergency Medical Technician-Basic

1. Initial Medical Care.
2. Hyperventilate if possible.
3. Consider ALS resources.
4. **Contact Medical Control.**

B. Emergency Medical Technician - Basic/Airway

1. Utilize an alternate airway as needed.

C. Emergency Medical Technician- Basic/ IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route).
2. For hypotension, fluid challenge (250-500 cc).
 - a. Administer fluid boluses with caution due to high instance of pulmonary edema in tricyclic toxicity. Assess lung sounds often.
3. **Contact Medical Control.**

D. Emergency Medical Technician- Basic/ Endotracheal Intubation

1. Establish advanced airway as needed.

E. Emergency Medical Technician-Intermediate

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1. Initial Medical Care.
2. ECG monitoring immediately.
3. Hyperventilate if possible.
4. Consider Paramedic resources.
5. **Contact Medical Control.**

For Ventricular Arrhythmias:

- NaBicarb 1 mEq/kg slow IVP q 3 min to max of 3 mEq/kg. MD direction only.
- Additional NaBicarb at MD direction only.

For Seizures:

- Valium 2-5 mg IVP or 5-10 mg IM, repeat in 5 minutes to a total of 10 mg if seizure has not stopped.
 - **Pediatric dosage** for Valium is 0.3 mg/kg IVP/IM or 0.5 mg/kg Rectal.
- **OR**
- Versed 2 mg IVP or 5 mg IM, repeat PRN to max of 5 mg.
 - **Pediatric dosage** for Versed is 0.1 mg/kg IVP/IM/IN
- NaBicarb 1 mEq/kg slow IVP q 3 min to max of 3 mEq/kg. MD direction only.
- Additional NaBicarb at MD direction only.

For Hypotension:

- Fluid Challenge (500-1000 cc).
 - Administer fluid boluses with caution due to high instance of pulmonary edema in tricyclic toxicity. Assess lung sounds often.
- NaBicarb 1 mEq/kg slow IVP q 3 min to max of 3 mEq/kg. MD direction only.
- Additional NaBicarb at MD direction only.

F. Emergency Medical Technician-Paramedic

1. Initial Medical Care.
2. Hyperventilate if possible.
3. **Contact Medical Control.**

For Ventricular Arrhythmias:

- NaBicarb 1 mEq/kg slow IVP q 3 min, max 3 mEq/kg.
- Additional NaBicarb at MD direction only.

For Seizures:

- Valium 2-5 mg IVP or 5-10 mg IM, repeat in 5 minutes to a total of 10 mg if seizure has not stopped.
 - **Pediatric dosage** for Valium is 0.3 mg/kg IVP/IM or 0.5 mg/kg Rectal.
- **OR**
- Versed 2 mg IVP or 5 mg IM, repeat PRN to max of 5 mg.
 - **Pediatric dosage** for Versed is 0.1 mg/kg IVP/IM/IN
- NaBicarb 1 mEq/kg slow IVP q 3 min, max 3 mEq/kg.
- Additional NaBicarb at MD direction only.

For Hypotension:

- Fluid Challenge (500-1000 cc).
 - Administer fluid boluses with caution due to high instance of pulmonary edema in tricyclic toxicity. Assess lung sounds often.
- NaBicarb 1 mEq/kg slow IVP, q 3 min, max 3 mEq/kg.
- Additional NaBicarb at MD direction only.

Organophosphate Poisoning:

Organophosphates are present in many pesticides, such as malathion and chlorothion, and also in many nerve gas agents. Exposure may cause bronchospasm, constricted pupils, diaphoresis and cardiac dysrhythmias (either bradycardic or tachycardic). Organophosphate poisoning (OPP) is primarily characterized by mass fluid secretions of multiple body systems; or the mnemonic "SLUDGE": Salivation, Lacrimation, Urination, Defecation, GI distress, Emesis. When encountering OPP, protect yourself from contamination. Activate the HazMat Team for large exposures, and decontaminate patient prior to transport. It is imperative to provide early notification to the ED to facilitate in-hospital decontamination and isolation preparations.

A. Emergency Medical Technician-Basic

1. Initial Medical Care.
2. Consider ALS resources.
3. **Contact Medical Control.**

B. Emergency Medical Technician – Basic/Airway

1. Utilize an alternate airway as needed.

C. Emergency Medical Technician- Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route).

D. Emergency Medical Technician- Basic/ Endotracheal Intubation

1. Establish advanced airway as needed.

E. Emergency Medical Technician-Intermediate

1. Initial Medical Care.
2. Atropine 2-5 mg slow IVP q 5 min until secretions substantially decrease, by MD direction only.
 - Note: May require large doses of atropine.
3. **Contact Medical Control**

F. Emergency Medical Technician-Paramedic

1. Initial Medical Care.
2. Atropine 2-5 mg slow IVP q 5 min until secretions substantially decrease, by MD direction only.
 - Note: May require large doses of atropine.
3. **Contact Medical Control.**

Additional Considerations:

- ❖ **Beta Blocker Overdose:** May cause early, abrupt collapse of the cardiovascular system. Typical findings include bradycardia, hypotension, bronchospasm, respiratory arrest, seizures and hypoglycemia. Examples include: Tenormin, Lopressor, Timoptic, Inderal, and medications ending in -olol.
 - **Treatment:** Consider Glucagon 1-2 mg IVP. **MD Order only.**
 - Treat other Signs/Symptoms per specific protocol. Contact MD early for consult.

- ❖ **Calcium Channel Blocker Overdose:** Results in hypo-perfusion, causing weakness, dizziness, syncope, coma, profound bradycardia, high degree AV block, vasodilation, nausea and vomiting. May also cause angina, CNS depression, and confusion. Examples include: amlodipine (Norvasc), diltiazem (Cardizem), nifedipine (Procardia, Adalat), nimodipine (Nimotop), and verapamil (Calan, Isoptin).
 - **Treatment:** Consider Calcium Chloride 2-4 mg/kg of 10% solution, **slow IVP**.
 - Contraindicated in patients taking digitalis-based medications. **MD Order only**

- ❖ **Phenothiazine Overdose:** Phenothiazines are prescribed for their antiemetic and tranquilizing properties, and thus are present in many over-the-counter cold, flu, and motion sickness medications. Phenothiazine reactions often occur at normal dosing levels as well. Dystonic, or extrapyramidal, reactions are the typical results, presenting as restlessness and involuntary muscle contractions/rigidity in the neck, jaw, trunk, tongue or around the eyes. Examples of Phenothiazines include: chlorpromazine (thorazine), metoclopramide (raglan), compazine, and promethazine (phenergan). Other medications that can cause dystonic reactions include droperidol (inapsine) and haloperidol (haldol).
 - **Treatment:** Benadryl 25-50 mg IVP or 50 mg IM.

Respiratory Distress

Respiratory complaints are a leading emergency accounting for a high number of EMS calls every year. Certain respiratory conditions are increased in patients with cardiac or circulatory problems. The treatment goal for a patient suffering from respiratory distress is to maintain adequate ventilation, oxygenation, and perfusion parameters. Disruption of **ventilation** may result from: upper and lower airway obstruction, traumatic injuries to the chest wall and/or diaphragm and any process that impairs the CNS (depressants such as alcohol, opiates and benzodiazepines, CVA or TBI). **Oxygenation** complications result from: COPD, CHF, asthma, inhalation injuries or when person ascends to high altitudes. **Perfusion** complications may result from patients with: anemia, trauma, dehydration and shock.

Pulmonary Edema:

A. **Emergency Medical Technician-Basic**

1. Initial Medical Care.
2. Keep patient seated upright as long as BP is above 90 mg Hg.
3. Consider ALS resources.
4. **Contact Medical Control.**

B. **Emergency Medical Technician - Basic/Airway**

1. Utilize an alternate airway as needed.

C. **Emergency Medical Technician- Basic/IV and IO**

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route).

D. **Emergency Medical Technician- Basic/Endotracheal Intubation**

1. Establish advanced airway as needed.

E. **Emergency Medical Technician-Intermediate**

1. Initial Medical Care.
2. If pulmonary edema is suspected, consider application of CPAP (see CPAP protocol: Appendix H).
3. If BP >180/90, administer 3 concurrent (or q30sec) NTG 0.4 mg SL. Repeat 0.4mg every 3-5min.
4. Morphine sulfate 2-5 mg IVP q 3-5 min to total of 15 mg.
5. If patient presents with wheezing, "tight" or diminished lung sounds, consider Albuterol 2.5 mg and Atrovent 0.5 mg in 3cc NS via nebulizer.
6. Repeat Albuterol PRN.
7. **Contact Medical Control**
8. Lasix 40 mg slow IVP over 1-2minutes. **MD order only.**

F. **Emergency Medical Technician-Paramedic**

1. Initial Medical Care.
2. If pulmonary edema is suspected, consider application of CPAP (see CPAP protocol: Appendix H).
3. Obtain a 12-Lead ECG and transmit to ED if clinically significant. Consider right precordial lead placement as well.

4. If BP >180/90, administer 3 concurrent NTG 0.4 mg SL.
5. Morphine sulfate 2-5 mg IVP q 5min to total of 15 mg. Repeat 0.4mg every 5min.
6. Lasix 40 mg slow IVP over 1-2 minutes.
7. If patient presents with wheezing, "tight" or diminished lung sounds, consider Albuterol 2.5 mg and Atrovent 0.5 mg in 3cc NS via nebulizer.
8. Repeat Albuterol PRN.
5. **Contact Medical Control.**

Asthma/COPD/Wheezes/Smoke Inhalation:

A. Emergency Medical Technician-Basic

1. Initial Medical Care.
2. **Contact Medical Control.**

B. Emergency Medical Technician - Basic/Airway

1. Utilize an alternate airway as needed.

C. Emergency Medical Technician- Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route).

D. Emergency Medical Technician- Basic/Endotracheal Intubation

1. Establish advanced airway as needed.

E. Emergency Medical Technician – Basic/Medication

1. Albuterol 2.5 mg in 3cc NS via nebulizer, **OR** may assist with patient's prescribed albuterol or Atrovent metered-dose inhaler.

F. Emergency Medical Technician-Intermediate

1. Initial Medical Care.
2. Albuterol 2.5 mg and Atrovent 0.5 mg in 3cc NS via nebulizer.
3. Repeat albuterol treatment as necessary.
4. For severe distress or hypoxia not responsive to oxygen therapy and associated with suspected asthma or COPD, consider CPAP as adjunctive therapy to inhaled medications (see CPAP protocol: Appendix H).
5. **Contact Medical Control.**
 - a) For severe distress, Epinephrine 1:1,000 IM 0.3-0.5 mg by **MD direction only.**

➤ Inhalation therapy may be given to patients with rhonchi.

G. Emergency Medical Technician-Paramedic

1. Initial Medical Care.
2. Albuterol 2.5 mg and Atrovent 0.5 mg in 3cc NS via nebulizer.
3. Repeat albuterol treatment as necessary.
4. For severe distress or hypoxia not responsive to oxygen therapy and associated with suspected asthma or COPD, consider CPAP as adjunctive therapy to inhaled medications (see CPAP protocol: Appendix H).
5. **Contact Medical Control.**
 - a) For severe distress, Epinephrine 1:1,000 IM 0.3-0.5 mg by **MD direction only.**

- Inhalation therapy may be given to patients with rhonchi.

Pediatric Respiratory Distress:

When encountering Pediatric respiratory distress, it is paramount to ensure effective, sufficient oxygenation and ventilation. Though pediatric patients may compensate effectively for extended periods, they will decompensate quite rapidly once their reserves are spent. Rule out Foreign Body Airway Obstruction (FBOA) and allergic reaction/anaphylaxis, and treat accordingly. Maintain a high index of suspicion for asthma, croup, epiglottitis and bronchiolitis. It is usually beneficial to allow a parent to remain with the child throughout the incident to maintain the patient's comfort level.

- If adequate ventilation:
 - Let child assume position of comfort. DO NOT lie child down.
 - High flow O₂ by NRB or blow-by.
- If inadequate ventilation:
 - Consider foreign body obstruction.
 - If child has croupy cough or epiglottitis is suspected:
 1. Put child in position of comfort.
 2. Do not attempt any procedure or maneuver which may increase child's anxiety unless absolutely necessary to preserve airway (this includes examination of the oropharynx).
 3. If assisted ventilations become necessary, Epiglottitis may require more forceful ventilations.

A. **Emergency Medical Technician-Basic**

1. Initial Medical Care.
2. Humidified O₂
3. Consider ALS resources.
4. **Contact Medical Control.**

B. **Emergency Medical Technician-Intermediate**

1. Initial Medical Care.
2. Humidified O₂ (NS in nebulizer).
3. Albuterol 2.5 mg in 3cc NS via nebulizer, by blow-by.
4. If severe distress, or insufficient response to albuterol, administer Epinephrine 1:1,000 IM 0.01 mg/kg to max single dose of 0.5 mg. **Contact Medical Control.**

C. **Emergency Medical Technician-Paramedic**

1. Initial Medical Care.
2. Humidified O₂ (NS in nebulizer).
3. Albuterol 2.5 mg in 3cc NS via nebulizer, by blow-by.
4. If severe distress, or insufficient response to albuterol, administer Epinephrine 1:1,000 IM 0.01 mg/kg to max single dose of 0.5 mg. **Contact Medical Control.**

Seizures

A seizure is a “temporary alteration in behavior due to the massive electrical discharge of one or more groups of neurons in the brain”. The most common cause of seizures is epilepsy. However, other common causes of seizures include: brain tumors, hypoglycemia, sudden elevation in body temperature (febrile seizure), toxins/overdose, head trauma and hypoxia. Types of seizures include: **generalized seizures** (grand mal seizure), **absence seizure** (petite mal seizure) and **partial seizures**, either simple partial seizure characterized by dysfunction of one area of the body, or complex partial seizures characterized by auras or the subjective sensation preceding seizure activity. When encountering seizure patients, ensure patent airway, have suction readily available, assess for trauma incurred before or during the seizure, inquire about seizure history, and inspect scene for signs of poisoning or overdose. Always be prepared for repeat seizures and prevent further injury to patient if they do occur.

A. Emergency Medical Technician – Basic

1. Initial Medical Care.
2. Obtain glucose reading.
3. Consider ALS resources.
4. **Contact Medical Control.**

B. Emergency Medical Technician- Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route).

C. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. Glucose reading; follow appropriate protocol if applicable.
 - a. If still seizing, Valium 2-5 mg IVP or 5-10 mg IM.
Pediatric dosage for Valium is 0.3 mg/kg IVP/IM or 0.5 mg/kg Rectal.
3. **Contact Medical Control for the following:**
 - a) Repeat Valium.
 - b) Versed 2 mg IVP or 5 mg IM/IN

D. Emergency Medical technician – Paramedic

1. Initial Medical Care.
2. Glucose reading; follow appropriate protocol if applicable.
 - b. If still seizing, Valium 2-5 mg IVP or 5-10 mg IM. Repeat in 3-5 minutes to a total of 10 mg if seizures have not stopped.
Pediatric dosage for Valium is 0.3 mg/kg IVP/IM or 0.5 mg/kg Rectal.
OR
Versed 2 mg IVP or 5 mg IM/IN, repeat PRN to max of 5 mg.
Pediatric dosage for Versed is 0.1 mg/kg IVP/IM/IN
3. **Contact Medical Control for the following:**
Repeat valium or versed beyond max dose.

Shock

Shock is defined as “a state of inadequate tissue perfusion resulting in an inadequate supply of oxygen and nutrients to the body tissues”. Shock can be divided into progressively worsening stages.

Compensated shock is the initial stage that may present with increased pulse rate, cool and clammy skin, restlessness, combativeness, anxiety, thirst, weakness and eventual air hunger. When the body loses its ability to compensate, decompensated shock will ensue. **Decompensated** shock results in the pulse becoming weaker, a drop in blood pressure, decreased LOC progressing to unconsciousness, and depressed respirations progressing to apnea. **Irreversible** shock is the final stage of shock in which organs and cells are so damaged that recovery is impossible. Shock may be caused by traumatic or medical etiologies; it is important to attempt to identify the underlying cause.

Hypovolemic Shock: Excluding Trauma

A. **Emergency Medical Technician – Basic**

1. Initial Medical Care.
2. Place patient in Trendelenburg position.
3. Keep patient warm.
4. Consider ALS resources.
5. **Contact Medical Control.**

B. **Emergency Medical Technician- Basic/IV and IO**

1. Start a peripheral IV X2 with NORMAL SALINE or LACTATED RINGERS solution (en route) to maintain systolic BP 90mm Hg.

C. **Emergency Medical Technician – Intermediate**

1. Initial Medical Care.
2. Place patient in Trendelenburg position.
3. Keep patient warm.
4. IV NS X2, wide open to maintain BP 90mm Hg.
5. **Contact Medical Control.**
 - a) Activation of Trauma Team, if indicated.
 - If patient in hemorrhagic shock with ETA <8 minutes, load and transport the patient, IVs en route only.
 - Pediatric fluid bolus is 20 cc/kg to max of 80 cc/kg.

D. **Emergency Medical Technician – Paramedic**

1. Initial Medical Care.
2. Place patient in Trendelenburg position.
3. Keep patient warm.
4. IV NS X2, wide open to maintain BP 90mm Hg.
5. **Contact Medical Control.**
 - If patient in hemorrhagic shock with ETA <8 minutes, load and transport the patient, IVs en route only.
 - Pediatric fluid bolus is 20 cc/kg to max of 80 cc/kg.

Cardiogenic Shock:

A. Emergency Medical Technician – Basic

1. Initial Medical Care.
2. Consider ALS resources.
3. **Contact Medical Control.**

B. Emergency Medical Technician- Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route).
2. Consider fluid challenges to maintain BP >100mm Hg not to exceed 500cc.

C. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. IV NS wide open to maintain BP >100mm Hg not too exceed 500cc
3. **Contact Medical Control.**

D. Emergency Medical Technician – Paramedic

1. Initial Medical Care.
2. IV NS wide open to maintain BP >100mm Hg not to exceed 500cc
3. Consider Dopamine 5-20 mcg/kg/min IV Drip.
4. **Contact Medical Control.**

- Pediatric fluid bolus is 20 cc/kg to max of 80 cc/kg.

Syncope

Syncope "is a neurological condition characterized by the sudden, temporary loss of consciousness caused by insufficient blood flow to the brain, with recovery of consciousness almost immediately upon becoming supine". The three general causes of syncope include: cardiovascular conditions, non-cardiovascular – metabolic, neurological or psychiatric, and idiopathic – or unknown causes. Attempt to determine if patient suffered a fall or trauma as a result of the syncopal episode.

A. Emergency Medical Technician – Basic

1. Initial Medical Care.
2. Obtain glucose reading.
3. Consider ALS resources
4. Begin cardiac monitoring if endorsed.
5. **Contract Medical Control.**

B. Emergency Medical Technician- Basic/IV and IO

1. Start a peripheral IV(s) as necessary, with NORMAL SALINE or LACTATED RINGERS solution (en route). Give 250-500cc fluid bolus if BP<100

C. Emergency Medical Technician – Intermediate

1. Initial Medical Care.
2. Obtain glucose reading; follow appropriate protocol if applicable.
3. Treat hypotension with IV fluids using 250-500cc bolus
4. Consider Paramedic resources.

➤ Consider cardiac event in patients over 40 years of age with no other history.

D. Emergency Medical Technician – Paramedic

1. Initial Medical Care.
2. Obtain 12-Lead ECG and transmit to ED if clinically significant.
3. Treat hypotension with IV fluids using 250-500cc bolus
4. Obtain glucose reading; follow appropriate protocol if applicable.

➤ Consider cardiac event in patients over 40 years of age with no other history, cardiac monitoring.

Trauma

Trauma is the fourth leading cause of death in the United States behind cardiovascular disease, stroke and cancer, but is the number one killer of persons under the age of 44. Rapid transport to the hospital for definitive care is the most important factor in decreasing morbidity and mortality in trauma patients. In general, it is preferable to initiate transport to the hospital rather than wait at the scene for the arrival of a higher level of care. An exception is arrival of air transport but only if the delay can be made up by shorter transport time. Except for emergency airway management and cspine immobilization, it is preferred that all procedures, including IV's, be started en route to the hospital.

A. Emergency Medical Technician-Basic

1. Initial Medical Care.
2. Maintain C-spine control.
3. Determine if Trauma Alert Criteria is met.
4. **Rapid packaging/transport, limit scene time to 10 minutes. Goal is 5 minutes**
5. Consider ALS resources.
6. **Advise receiving hospital ASAP.**

B. Emergency Medical Technician- Basic/IV and IO

1. Start a peripheral IV, large bore, with NORMAL SALINE or LACTATED RINGERS solution (en route). Use fluid bolus of 250cc to keep systolic BP > 90. For pediatrics, use 10-20cc/kg bolus.

C. Emergency Medical Technician-Intermediate

1. Initial Medical Care.
2. Maintain C-spine control.
3. Determine if Trauma Alert Criteria is met.
4. Assess for tension pneumothorax.
If patient presents with all of the following: decreased lung sounds, hypotension, shortness of breath - perform needle chest decompression.
5. Rapid packaging/transport, limit scene time to 10 minutes.
6. IV NS large bore. Use fluid bolus of 250cc to keep systolic BP > 90. For pediatrics, use 10-20cc/kg bolus.
7. **Advise receiving hospital ASAP.**

D. Emergency Medical Technician-Paramedic

1. Initial Medical Care.
2. Maintain C-spine control.
3. Determine if Trauma Alert Criteria is met.
4. Assess for tension pneumothorax.
If patient presents with all of the following: decreased lung sounds, hypotension, shortness of breath - perform needle chest decompression.
5. Rapid packaging/transport, limit scene time to 10 minutes.
6. IV NS large bore. Use fluid bolus of 250cc to keep systolic BP > 90. For pediatrics, use 10-20cc/kg bolus.

Advise receiving hospital ASAP.

Trauma Alert Criteria:

Mechanism of injury alone is not reason enough to activate the Trauma Team, although it should heighten the awareness of the EMT to the potential for serious injury. Physiological findings with or without one of the listed mechanisms of injury should be enough to activate the Trauma Team. Due to time constraints, it is preferable to advise ED of Mechanism of Injury and Physiologic Findings in a brief radio report. Lengthy radio reports are not helpful and can distract the EMT from other more important patient treatment modalities.

KRMC Trauma Activation Criteria

FULL TRAUMA ALERT CRITERIA

- a. Respiratory compromise/obstruction/or intubation in a patient who is not transferred from another facility.
- b. Confirmed blood pressure <90 at any time in adults or age-specific hypotension in children.
- c. GCS <10 with mechanism attributed to trauma.
- d. Significant penetrating injury to head, neck, torso, groin or proximal to the elbow or knee.
- e. Amputation above wrist or ankle.
- f. Transfer patients from other hospitals receiving blood to maintain vital signs.
- g. Emergency physician's direction.

MODIFIED TRAUMA ALERT CRITERIA

1. Paralysis.
2. Death of an occupant in the same vehicle.
3. Ejection from an enclosed vehicle.
4. Fall >15 ft.
5. Rollover MVA, unless restrained, not under influence of intoxicants and only minor injuries are suspected.
6. Pedestrian/cyclist VS auto hit >10 mph or thrown >15 ft.
7. Extrication time >20 min.
8. Significant intrusion into occupant space of the vehicle.
9. Major burns, burns associated with trauma.
10. Intubated interfacility trauma transfers that do not meet other FTA criteria.
11. Field/hospital personnel suspect significant injuries to the patient without any of the above criteria being met.

HIGH ENERGY TRANSFER SITUATIONS/ CO-MORBID FACTORS THAT MAY WARRANT A TRAUMA TEAM ACTIVATION: CONSULT MEDICAL CONTROL

Motorcycle, ATV or bicycle crash; extremes of age <12 or >65; pregnancy; the presence of intoxicants; or pre-existing medical illness (DM, COPD, renal failure, MI).

Appendix A - Comfort One Protocol

Advances in home health and hospice have resulted in more chronically and terminally ill patients living in private residences or in nursing homes. Many of these patients do not wish to have CPR performed and have made formal Living Will Declarations or have a physician's Do-Not-Resuscitate Order.

Montana legislation adopted in 1989 and 1991 require EMS personnel to follow this approved state-wide protocol for **COMFORT ONE** patients and provides them legal immunity.

Purpose:

1. To provide symptom control, patient care and comfort measures during the dying process for COMFORT ONE patients.
2. To avoid resuscitation of patients who have COMFORT ONE status.
3. To clarify the role and responsibilities of pre-hospital care providers at the scene and/or while providing transportation for COMFORT ONE patient.

Definition:

COMFORT ONE protocol is a set of standardized, statewide patient care orders to be followed by emergency medical services personnel when encountering a COMFORT ONE patient. They emphasize the patient will receive palliative, supportive care but NO resuscitative measures.

Eligibility:

A patient is eligible to enroll in the COMFORT ONE program if they have:

1. A valid Living Will declaration on file which has been activated by an incurable or irreversible condition, and/or,
2. A physician's Do-Not-Resuscitate order for which the grounds have been documented in the patient's medical file.

Application:

COMFORT ONE protocol is applicable to emergency medical services personnel acting in the non-hospital setting, including inter-facility transfers.

Activation/Identification:

The COMFORT ONE status of a patient is confirmed and this protocol is activated when pre-hospital personnel have been presented with:

1. A COMFORT ONE card or form for the patient, provided the patient's identity is verified by **ONE** of the following:
 - The patient communicates their name
 - Personal knowledge of the individual by rescuer
 - Drivers license/credit card, etc.
 - Another individual present confirms patient's identity, or
2. A COMFORT ONE bracelet on the patient (no further identification is necessary).

This COMFORT ONE protocol is also activated when EMS personnel receive an oral do-not resuscitate order issued directly by a physician.

EMS Provider Actions:

1. Proceed with usual patient assessment and care INCLUDING resuscitative measures UNTIL COMFORT ONE status is confirmed or until an oral do-not-resuscitate order is received directly from a physician.
2. Upon verification of COMFORT ONE status or direct oral physicians DNR order:

DO NOT:

- Initiate CPR
- Administer chest compressions
- ET/King Airway
- Initiate cardiac monitoring
- Administer cardiac resuscitation drugs
- Defibrillate
- Provide ventilatory assistance

DO (as indicated by the patient's condition):

- Suction airway
- Administer oxygen
- Position for comfort
- Splint
- Control bleeding
- Provide pain medication (ALS only)
- Provide emotional support
- Contact hospice or home health agency if either has been involved in patient care, or the patient's attending physician
- Treat pain as appropriate

3. If efforts are begun prior to confirmation of COMFORT ONE status or a direct oral physician's DNR order, discontinue the resuscitative measures upon verification of COMFORT ONE status, including stopping:

- CPR
- Ventilatory assistance
- Cardiac medications
- (IV line or ET tube are to be left in place).

Revocation:

1. The patient may revoke his/her COMFORT ONE status by direct communication with the pre-hospital care provider or other license health care provider.
2. A physician may revoke COMFORT ONE status or DNR order at any time either in writing or by direct verbal communication with EMS personnel.
3. A revocation communicated by family or other non-licensed person is NOT VALID in the emergency or transport setting.
4. It is the responsibility of EMS personnel or other licensed health care providers, upon witnessing a revocation, to communicate that revocation directly, or in writing, to the patient's attending physician.

Documentation:

The minimum COMFORT ONE trip report information shall include:

- Patient's name, gender, estimated age
- Attending physician
- COMFORT ONE identification seen

- Date and physician's name giving the direct oral DNR order
- Time, date, location of event
- Description of event
- Assessment findings
- Care provided
- Any revocation directly witnessed by EMS personnel

Attach copy of COMFORT ONE identification to PCR if possible.

Interaction with family/bystander:

1. If family/bystanders request resuscitative efforts for a patient with COMFORT ONE status or with a direct oral physician's DNR order:
 - Do not initiate CPR
 - Provide palliative care and comfort to patient
 - Provide explanation, reassurance and support to family/bystanders
2. Should family/bystanders INSIST on resuscitative efforts:
 - Avoid emotional confrontation
 - If necessary for avoiding physical confrontation CPR may be initiated, pending transport and/or contact with medical control.
 - If resuscitative efforts are initiated at the scene for the sole purpose of avoiding emotional confrontation with family, such efforts may be discontinued enroute only after consultation with medical control.

Appendix B-Death in the Field

Determining death in the field without initiating resuscitative efforts should be considered under the following conditions:

1. Patient qualifies as a "Comfort One" patient.
2. A pulseless, apneic patient in a multiple casualty incident where resources of the system are required for the stabilization of living patients.
3. Decapitation or obvious severe head trauma and absent vital signs.
4. Rigor mortis in a warm environment.
5. Decomposition.
6. Venous pooling in dependent body parts (dependent lividity).
7. The patient has suffered blunt trauma cardiac arrest, is pulseless and apneic upon arrival of first responders, and verification of a patent airway.

In non-traumatic deaths, all non-resuscitation or stopped resuscitation cases will have an ECG strip attached, if possible, to the field report which shows (a.) the patient's rhythm/cardiac activity, and (b.) confirms absence of cardiac activity in two leads.

Patient care documentation will include procedures performed and time, and conversations with medical control will include physician's name, time, and instructions.

Note:

All hypothermic patients, victims of electrocution, lightning strikes, and cold-water drowning should have resuscitative efforts begun with transport to the hospital.

Any decision to determine death in the field should be made only after consultation with the medical control physician.

All unattended deaths in the field are coroner's cases per Montana law. Care must be exercised to not unnecessarily disturb the scene. Do not remove ECG patches; pick up material, etc. that could potentially alter the scene.

Prior to leaving the scene where a patient is not worked, make sure an officer (either fire or police) is in charge of the scene, or the coroner is on scene.

Documentation must include the patient's name, age, date of birth at a minimum. If the EMS provider is unable to acquire a name, a police report number must be documented.

Appendix C - Cervical Spine Immobilization Protocol

Criteria for Spinal Immobilization (note-only **one** of the following need be present to **require** immobilization):

Mechanism consistent with potential for spinal injury

- Significant falls (greater than 20 feet)
- Motor vehicle collisions with significant mechanism of injury
- Direct trauma to head, neck, or back

Neck/Back pain or tenderness

Abnormal neurological exam or complaint of symptoms

- Sensory/motor abnormalities
- History of LOC with current injury
- Altered mental status

Multi-system trauma (potential for distracting injury)

Omission criteria (note- **all** of the following must be met to allow for **clearance**):

Normal neurological exam in cooperative patient

- Fully alert and oriented patient
- Normal sensory/motor exam

Normal vital signs

Absence of intoxicants

Absence of neck/back pain or tenderness

Absence of distracting injuries

- No communication barriers, i.e. due to language, intellect, intoxication, emotional condition, etc.

Appendix D - Refusal policy

Prior to termination of the healthcare professional/patient relationship, all of the following items will be evaluated and specifically documented on the Patient Care Report.

1. Physical examination performed including full set of vital signs (i.e. complete blood pressure, pulse, respiratory rate) or the patient's refusal of consent to an examination and vital signs are fully documented on PCR.
2. History of event and prior medical history, including medications, obtained.
3. Patient or decision-maker determined to be capable of refusing medical treatment or transportation. If the patient is a minor or incompetent adult, assure that a legal guardian or person able to make healthcare decisions for the individual is refusing care.
4. Risks of refusal of medical treatment and transportation explained to patient or responsible party, and documented.
5. Benefits of medical treatment and transportation explained.
6. Patient clearly offered medical treatment and transportation.
7. Refusal of Care Form prepared, explained, signed, and witnessed.
8. Patient confirmed to have a meaningful understanding of the risks and benefits involved in this healthcare decision.
9. Patient advised to seek medical attention for complaint(s).
10. Patient advised to call 911 for medical assistance if condition continues or worsens.
11. On-line medical control must be contacted for any criteria that are not met.
12. Supervisor was notified if an unusual termination of the healthcare professional/patient relationship occurred.

Appendix E - King Airway™ Airway

NOTE: This is an EMT-Basic DLT airway endorsement, Intermediate and Paramedic level protocol.

INDICATIONS

1. Unsuccessful endotracheal intubation.
2. An apneic patient with a need to isolate the respiratory system.
3. A patient with inadequate respirations with a need to isolate the respiratory system.

CONTRAINDICATIONS

1. Patient with an intact gag reflex.
2. Patient with a history of esophageal trauma, recent ingestion of a caustic substance, or known esophageal disease.
3. Patient with a tracheostomy or laryngectomy.
4. Patient with a foreign body in the trachea.
5. Patient suspected of a narcotic overdose/hypoglycemia prior to administration of Narcan/D 50%.

EQUIPMENT AND PROCEDURE

The **KING AIRWAY** is supplied in various sizes. Choose correct size based on patients height:

SIZING INFORMATION

Size	Patient Criteria	Color	Inflation Volumes
2	35-45 in	Green	25-35 ml
2.5	41-51 in	Orange	30-40 ml
3	4-5 ft	Yellow	40-55 ml
4	5-6 ft	Red	50-70 ml
5	greater than 6 ft	Purple	60-80 ml

1. Test cuff inflation system by injecting the maximum recommended volume of air into the cuffs (refer to Sizing Information chart). Remove all air from cuffs prior to insertion.
2. Apply a water-based lubricant to the beveled distal tip and posterior aspect of the tube, taking care to avoid introduction of lubricant in or near the ventilatory openings.
3. Pre-oxygenate.
4. Ensure gag reflex is not intact.
5. Position the head. The ideal head position for insertion of the **KING AIRWAY** 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.
6. Hold the **KING AIRWAY** at the connector with dominant hand. With non-dominant hand, hold mouth open and apply chin lift unless contraindicated by C-spine precautions or patient position.
7. With the **KING AIRWAY** rotated laterally 45-90° such that the blue orientation line is touching the corner of the mouth, introduce tip into mouth and advance behind base of tongue. Never force the tube into position.
8. As tube tip passes under tongue, rotate tube back to midline (blue orientation line faces chin).
9. Without exerting excessive force, advance the **KING AIRWAY** until base of connector aligns with teeth or gums.
10. Fully inflate cuffs using the maximum volume of the syringe included in the EMS kit.
11. Attach BVM to the 15 mm connector of the **KING AIRWAY**. While gently bagging the patient to assess ventilation, simultaneously withdraw the airway until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).
12. Confirm proper position by auscultation, chest movement and verification of CO₂ by capnography, etc.

13. Readjust cuff inflation to 60 cm H₂O (or to just seal volume).
14. Secure **KING AIRWAY** to patient using tape or other accepted means. A bite block can also be used, if desired. DO NOT COVER THE PROXIMAL OPENING OF THE GASTRIC ACCESS LUMEN OF THE KING AIRWAY.

POTENTIAL COMPLICATIONS

1. Broken teeth or dentures may result in damage to the proximal cuff.
2. Edema as a result of facial trauma or respiratory burns may obstruct the airway.

SPECIAL NOTES

Do not remove the **KING AIRWAY** in the field unless the patient's gag reflex returns.

Appendix F – Cincinnati Stroke Scale

Facial Droop (have patient show teeth or smile)

- **Normal** – both sides of face move equally
- **Abnormal** – one side of face does not move as well as the other side

Arm Drift (patient closes eyes and holds arms straight out for 10 seconds)

- **Normal** – both arms move the same or both arms do not move at all (other findings, such as pronator grip, may be helpful)
- **Abnormal** – one arm does not move or one arm drifts down compared to the other

Abnormal Speech (have the patient say “you can’t teach an old dog new tricks”)

- **Normal** – patient uses correct words and no slurring
- **Abnormal** – patient slurs words, uses wrong words, or is unable to speak

Interpretation: If any 1 of the 3 signs is abnormal, the probability of a stroke is 72%.

Appendix G – CPAP (Continuous Positive Airway Pressure)

NOTE: This is an EMT-Intermediate and Paramedic level protocol.

INDICATIONS

1. Any patient who is in respiratory distress with signs and symptoms consistent with asthma, COPD, Pulmonary Edema, CHF, or pneumonia AND who:
 - a. Is awake and able to follow commands
 - b. Is over 12 years old and is able to fit the CPAP mask
 - c. Has the ability to maintain an open airway
2. AND who exhibits two or more of the following:
 - a. A respiratory rate greater than 25 breaths per minute
 - b. Pulse Oximetry of less than 90% at any time
 - c. Use of accessory muscles during respirations

CONTRAINDICATIONS

1. Patient does not have adequate spontaneous respiratory effort.
2. Patient unable to follow commands.
3. Patient unable to protect airway or active vomiting.
4. Systolic blood pressure < 90 mmHg
5. Respiratory distress secondary to trauma or suspected pneumothorax.

PROTOCOL

1. CPAP is a standing order for providers at or above the intermediate level who have received device specific training.
2. Utilize CPAP where indicated in the Respiratory Distress protocol
 - a. Note that CPAP does not take the place of pharmacology
 - b. Note that although CPAP is listed in the protocol in a linear list, it need not be interpreted that all interventions must be completed in the written order. Providers should use good clinical judgment to determine at what point in the course of the various therapies CPAP should be initiated.
3. CPAP settings
 - a. 5 cm H₂O for moderated distress
 - b. 5 cm H₂O for moderate or severe distress when systolic BP 90-100 (observe closely for BP change)
 - c. 10 cm H₂O for severe distress
4. Continue constant aggressive airway evaluation and control.
 - a. Not all patients will improve
 - b. Providers must be prepared to discontinue CPAP and initiate more aggressive steps in decompensating patients.

****BE ALERT**** for circumstances in which the patient continues to deteriorate despite CPAP and/or medicative therapy, terminate CPAP administration and perform BVM ventilation and/or endotracheal intubation if necessary.

5. Claustrophobia is a common complaint with CPAP masks
 - a. It is recommended that in the case of a claustrophobic patient, they be allowed to hold the mask and remove it if necessary. It is common that as the benefits are felt, patients will be inclined to

- keep the mask on their face. Straps can then be attached as the patient becomes more comfortable
- b. Note that some patients will not tolerate the mask and should not be forced.
6. Reassess, Reassess, Reassess
- a. Slowing respirations do not necessarily indicate improvement
 - b. Be cognizant of hypotension.
 - c. Be aware for need for more aggressive airway interventions if the patient shows signs of further respiratory decompensation.
7. Contact medical control to alert them of CPAP use and to ensure receiving facility preparedness to continue treatment.

POTENTIAL COMPLICATIONS

1. Continued decompensation in respiratory status.
2. Decrease in blood pressure.
3. Panic or anxiety from claustrophobia.
4. Gastric distension
5. Pneumothorax
6. Exhaustion of oxygen supplies.

Appendix H

Montana Inter-Facility Transport Protocols for Critical Care Endorsed EMT-Paramedics

Instructions for Utilization:

Critical Care Endorsed EMT-Paramedics may utilize these protocols during a critical care transport while under the oversight of the service medical director.

The service medical director may adopt all or part of the protocols. The service medical director may make minor protocol changes, but substantial changes or new protocol requests must be submitted to the Board of Medical Examiners for review and approval.

The service medical director is responsible for deciding when a *Critical Care Endorsed EMT-Paramedic* may begin performing inter-facility transports and for the maintenance of the service inter-facility transport capability to include training, transport reviews and other quality improvement activities.

The statewide prehospital protocols should be utilized during inter-facility transport as the situation warrants (such as in the event of a respiratory/cardiac arrest, allergic reaction, shock, etc). The Critical Care Transport protocols are in addition to the normally expected care identified in the Board approved statewide pre-hospital protocols.

Medication Maintenance*

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor.
3. Assess and record vital signs, to include temperature, prior to transfer and every 5 to 10 minutes en route.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document indication and order for drug during transport.
7. Document dose and route at beginning of transport and patient response.
8. For the transport medication, be familiar with the signs, symptoms and treatment of any major adverse drug reactions.

* Continue administration of medications initiated in the emergency department such as antibiotics, steroids, ACLS drugs, vitamins, non-OB magnesium, fractionated heparin, etc. via subcutaneous, intramuscular, intraosseous , and/or intravenous (peripheral or central) routes.

Packed Red Blood Cells

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor.
3. Assess and record vital signs, to include temperature, prior to transfer and every 5 to 10 minutes en route.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document order, indication, and rate of administration for packed red blood cells.
7. Document the unit blood bank number of all units to be transferred with the patient.
8. Instruct patient to report onset of any unusual symptoms that might indicate a transfusion reaction:

chills	restlessness	headache
dizziness	nausea	anxiety
back pain	chest pain	dyspnea

9. Watch for signs of a transfusion reaction:

temperature elevation	facial flushing	bradycardia
rash	cyanosis	tachycardia
	sweating	hypotension
		distended neck veins

10. If a transfusion reaction is suspected:
 - a. Discontinue the transfusion, save the remaining blood, bag and tubing.
 - b. Maintain IV with normal saline
 - c. Notify online medical director
 - d. Draw a blue top tube from a site other than the transfusion site
 - e. Treat hypotension with normal saline infusion

Heparin

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor.
3. Assess and record vital signs, to include temperature, prior to transfer and every 5 to 10 minutes en route.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document indication and order for drug during transport.
7. Document drip rate at beginning of transport and patient response.
8. Drip rate change during transport.
 - a. If patient develops an unexplained decrease in blood pressure, discontinue drip and contact the online medical director (medical control).
 - b. If patient develops unexplained neurological symptoms such as headache, numbness, weakness, seizure, etc., discontinue drip and contact the online medical director (medical control).

Magnesium Sulfate (10 grams/100 ml NS)

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor.
3. Assess and record maternal vital signs, to include temperature, patellar reflex and fetal heart rate prior to transfer and every 5 to 10 minutes en route.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document indication and order for drug during transport.
7. Transport patient on their left side.
8. Indwelling urinary catheter should be in place for patients with Pregnancy Induced Hypertension (PIH); this is optional for non-PIH patients.
9. Document urine output during transport.
10. Document pump drip rate at the beginning of transport and patient's response.
11. Drip rate changes during transport:
 - a. If patient experiences a decreasing respiratory rate or other evidence of respiratory difficulty, discontinue drip, prepare to manage airway, consider calcium gluconate or calcium chloride, contact the online medical director (medical control).
 - b. Decrease the drip rate by half and contact the online medical director (medical control) for any of the following:
 - i. Decrease in systolic pressure of 20mm from baseline
 - ii. Decrease in diastolic pressure of 10mm from baseline
 - iii. Decrease in patella reflex
 - iv. Change in mental status

Mechanical Ventilation

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor, end-tidal CO₂ monitor.
3. Assess and record vital signs, to include temperature, prior to transfer and every 5 to 10 minutes en route.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document indication and order for the mechanical ventilation during transport.
7. Document ventilator settings and patient response.
8. Document correct tracheal tube placement and secure appropriately
9. Obtain arterial blood gas prior to transport.
10. Maintain chemical paralysis if utilized pre-transport.
 - a. Monitor for motor activity.
 - b. Norcuron (Vecuronium) 0.1-0.15 milligram per kilogram slow IV push; duration of action is 20-30 minutes.
 - c. Alternative paralytics include atracurium (Tracrium) and rocuronium (Zemuron).
11. Maintain adequate sedation
 - a. Inadequate sedation may present as an unexplained increase in heart rate or blood pressure; the non-paralyzed patient may also demonstrate agitation, anxiety and/or restlessness.
 - b. Midazolam (Versed) 0.035 milligram per kilogram IV over 2-3 minutes.
12. Maintain adequate analgesia
 - a. Fentanyl (Sublimase) 1.0-3.0 micrograms per kilogram slow IV push; duration of action 30-60 minutes.

Nitroglycerine (50 mg/250 mL D5: 200 mcg/mL)

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor.
3. Assess and record vital signs, to include temperature, prior to transfer and every 5 to 10 minutes en route.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document indication and order for drug during transport.
7. Document drip rate at the beginning of transport and patient's response.
8. Drip rate changes during transport:
 - a. If chest pain present, increase the nitroglycerine drip 5 mcg/min (1.5 mL/hr) or 3.3 mcg/min (1.0 mL/hr) depending on your pump, every five minutes until the chest pain resolves or systolic blood pressure drops below 100. If more than an additional 10 mcg/min required, contact the online medical director (medical control).
 - b. If systolic blood pressure drops below 100, decrease the nitroglycerine by 5 mcg/min (1.5 mL/hr) or 3.3 mcg/min (1.0 mL/hr) depending on your pump and contact the online medical director (medical control).
 - c. If systolic blood pressure drops below 90, stop the nitroglycerine drip, place patient in Trendelenburg, consider a fluid bolus and contact the online medical director (medical control).

Potassium (K)

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor.
3. Assess and record vital signs, to include temperature, prior to transfer and every 5 to 10 minutes en route.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document indication and order for drug during transport.
7. Document drip rate at beginning of transport and patient response.
8. Concentration of potassium not to exceed 40 milli equivalents per 1000 mL fluid.
9. Potassium must be administered via a pump at a rate not to exceed 250 mL per hour.

Thoracostomy Tube Monitoring

1. Maintain oxygen flow rate for an oxygen saturation of greater than or equal to 92%.
2. Attach cardiac monitor.
3. Assess and record vital signs, to include temperature, prior to transfer and every 5 to 10 minutes en route.
4. Reassess patient frequently during transport and document findings.
5. Collect all transfer documentation: transfer sheet, EKG's, lab, other pertinent information.
6. Contact the online medical director (medical control), document indication and order for the thoracostomy tube during transport.
7. Document order to maintain tube to gravity or to mechanical suction (specify amount of suction to be maintained during transport) and patient response.
8. If possible elevate head of gurney to 45 degrees.
9. Tape all tube connections securely.
10. In the event of an air leak, recheck all connections.
11. Do not pull on the tube.
12. Secure the collection chamber to the side of the gurney (do not tip over)
13. Keep the collection chamber below the level of the chest.
14. Avoid clamping or kinking of the tube and avoid dependent loops of fluid filled tubing.
15. If chest tube is partially pulled out:
 - a. Do not push tube back into chest.
 - b. Secure the tube in place.
16. If chest tube is pulled out, place occlusive dressing over the insertion site.
17. If patient becomes dyspneic:
 - a. Assess breath sounds.
 - b. Needle thoracostomy may need to be performed.

[Appendix I - Medications](#)

<u>Adenosine</u> (Adenocard)	
CLASS	Antidysrhythmic agent
ACTION	Conversion of paroxysmal supraventricular tachycardia to sinus rhythm. Adenosine slows conduction through the AV node and can interrupt reentry pathways.
INDICATIONS	PSVT not responsive to vagal maneuvers
CONTRAINDICATIONS	<ul style="list-style-type: none"> • Second or third-degree AV block, Sick Sinus Syndrome unless patient with a functional artificial pacemaker. • Adenosine is ineffective in converting atrial flutter, atrial fibrillation, or ventricular tachycardia to sinus rhythm, but may slow the rhythm momentarily to aid in arrhythmia diagnosis. • Repeat doses of adenosine are not indicated if the dysrhythmia reoccurs after conversion.
SIDE EFFECTS	Bradycardia, asystole, ventricular arrhythmias, facial flushing, headache, sweating, palpitations, chest pain. Due to short half-life, adverse effects are generally self-limiting.
ADULT DOSE	6 mg; subsequent doses at 12 mg.
PEDIATRIC DOSE	0.1 mg/kg; subsequent doses at 0.2 mg/kg. For use in SVT only; do not exceed adult dose.
DURATION OF ACTION	Less than 10 seconds
ROUTE	By rapid IV bolus followed by a 12 mg bolus if the first is unsuccessful within 1 to 2 minutes. A third dose of 12 mg may be given in 1-2 min if needed. (To assure solution reaches systemic circulation, administer into IV line as proximal as possible over 1 to 2 seconds followed with rapid saline flush).
FORM	6 mg/2 ml
PHYSICIAN'S ORDER	No

<u>Albuterol</u> (Proventil)	
CLASS	Sympathomimetic/selective for Beta 2 adrenergic receptors
ACTION	Bronchodilator
INDICATIONS	Acute bronchospasm-first dose Anaphylaxis with wheezing-first dose
CONTRAINDICATIONS	Hypersensitivity to this drug
SIDE EFFECTS	Tachycardia, palpitations, anxiousness, headache
ADULT DOSE	2.5 mg in 3 mL NS via nebulizer. Repeat up to three times q 10 minutes.
PEDIATRIC DOSE	2.5 mg in 3 mL NS via nebulizer. Discontinue medication if the patient becomes tremulous or respiratory status improves.
ROUTE	Inhalation by oxygen nebulizer
FORM	3 mL unit dose
PHYSICIAN'S ORDER	No

<u>Amiodarone</u> (Cordarone)	
CLASS	Antiarrhythmic
ACTION	Blocks sodium and potassium channels, prolonging ventricular repolarization.
INDICATIONS	<ul style="list-style-type: none"> • Tachycardia dysrhythmias • V-fib and V-tach
CONTRAINDICATIONS	Patients with known hypersensitivity
SIDE EFFECTS	Hypotension, asystole, PEA, cardiogenic shock, bradycardia and AV block
ADULT DOSE	<ul style="list-style-type: none"> • 300 mg IV for V-Fib/Pulseless V-Tach, repeat q 3-5 min at 150 mg. • 150 mg IV over 5-10 minutes for tachycardia dysrhythmias
PEDIATRIC DOSE	5 mg/kg IV/IO repeat up to 15 mg/kg or max of 300mg
ROUTE	IVP
FORM	150 mg/3 mL
PHYSICIAN'S ORDER	No

<u>Aspirin</u> (Acetylsalicylic Acid)	
CLASS	Antiplatelet
ACTION	Inhibits platelet aggregation
INDICATIONS	Cardiac chest pain, suspected acute myocardial infarction
CONTRAINDICATIONS	Allergy, Coumadin use, ulcers, bleeding disorders
SIDE EFFECTS	GI bleeding
ADULT DOSE	4 tablets (324 mg)
PEDIATRIC DOSE	NO PEDIATRIC USE PREHOSPITAL
ROUTE	Have patient chew and swallow tablets
FORM	81 mg tablets
PHYSICIAN'S ORDER	No

<u>Atropine</u> (ATROPINE SULFATE)	
CLASS	Anticholinergic
ACTION	<ul style="list-style-type: none"> • Cholinergic blocking agent • Increase rate of SA node discharge • Increase conduction through AV node
INDICATIONS	<ul style="list-style-type: none"> • Hemodynamically significant bradycardia (HR < 60) • Hemodynamically significant bradycardia (HR > 60) • Ventricular asystole • Bradycardic PEA • Antidote for organophosphate toxicity
CONTRAINDICATIONS	Glaucoma
SIDE EFFECTS	Tachycardia, mydriasis, dry mouth, urinary retention, and acute glaucoma
ADULT DOSE	<ul style="list-style-type: none"> • HEMODYNAMICALLY SIGNIFICANT BRADYCARDIA 0.5 mg to 1.0 mg every 3-5 minutes until heart rate of 60 or clinical condition improves or maximum dose of 3.0 mg • CARDIAC ARREST 1 mg IVP every 3-5 minutes. Maximum dose 3.0 mg • ORGANOPHOSPHATE POISONING 2-5 mg every 5 minutes until control of hypersecretion is obtained
PEDIATRIC DOSE	<ul style="list-style-type: none"> • HEMODYNAMICALLY SIGNIFICANT BRADYCARDIA 0.02 mg/kg IVP every 3-5 minutes not to exceed adult dose. Minimum dose: 0.1 mg. Max single dose of 0.5 mg.
PRECAUTIONS	Caution should be used when giving this medication to a patient with MI.
ROUTE	IVP, IO or ETT (2 times IV dose)
FORM	1 mg/10 mL
PHYSICIAN'S ORDER	Antidote for organophosphate toxicity only

<u>Atrovent</u> (Ipratropium)	
CLASS	Anticholinergic
ACTION	Bronchodilator
INDICATIONS	Acute bronchospasm with no relief from albuterol
CONTRAINDICATIONS	Known sensitivity to Atrovent or atropine
SIDE EFFECTS	Tachycardia, palpitations, headache, allergic reaction
ADULT DOSE	0.5 mg
PEDIATRIC DOSE	PEDIATRIC USE BY PHYSICIAN ORDER ONLY
ROUTE	Inhalation by oxygen nebulizer
FORM	0.5 mg/1.25 mL unit dose
PHYSICIAN'S ORDER	No

<u>Benadryl</u> (Diphenhydramine)	
CLASS	Antihistamine
ACTION	<ul style="list-style-type: none"> • Blocks histamine receptors • Has some sedative effects • Anticholinergic for EPS
INDICATIONS	<ul style="list-style-type: none"> • Hives or angiodema • Anaphylaxis • Extrapramidal Syndrome
CONTRAINDICATIONS	Asthma, hypersensitivity, pregnant or lactating females
SIDE EFFECTS	Sedation, palpitations, hypotension, headache, thickens bronchial secretions, blurred vision
ADULT DOSE	25 mg IVP or 50 mg IM
PEDIATRIC DOSE	1 mg/kg; not to exceed adult dose
ROUTE	IV or deep IM
FORM	50 mg/1 mL
PHYSICIAN'S ORDER	No

<u>Benadryl (tablets)</u>	(Diphenhydramine)
CLASS	Antihistamine
ACTION	<ul style="list-style-type: none">• Blocks histamine receptors• Has some sedative effects
INDICATIONS	Hives or angiodema
CONTRAINDICATIONS	Asthma, hypersensitivity, pregnant or lactating females
SIDE EFFECTS	Sedation, palpitations, hypotension, headache, thickens bronchial secretions, blurred vision
ADULT DOSE	50 mg PO
PEDIATRIC DOSE	1 mg/kg; not to exceed adult dose
ROUTE	Oral
FORM	25 mg tablets
PHYSICIAN'S ORDER	No

Calcium Chloride	
CLASS	Electrolyte
ACTION	<ul style="list-style-type: none"> • Increase cardiac contractility • Decreases vasodilation due to calcium channel blocker overdose • Stabilize cardiac muscle cells in patients with hyperkalemia
INDICATIONS	<ul style="list-style-type: none"> • Calcium channel blocker toxicity • Hyperkalemia
CONTRAINDICATIONS	<ul style="list-style-type: none"> • V-fib, digitalis toxicity, hypercalcemia. • Precipitates with Bicarb
SIDE EFFECTS	<ul style="list-style-type: none"> • Bradycardia, asystole, hypotension, V-fib, coronary and cerebral artery spasm, nausea and vomiting. • Extravasation causes necrosis.
ADULT DOSE	<p>8-16 mg/kg (usually 5-10ml) IV for hyperkalemia and calcium channel OD. May repeat as needed.</p> <p>2-4 mg/kg (usually 2ml) IV for prophylaxis before IV calcium channel blockers</p>
PEDIATRIC DOSE	5-7 mg/kg; not to exceed adult dose
ROUTE	IV, IO
FORM	100 mg/mL (10% solution)
PHYSICIAN'S ORDER	Hyperkalemia only

<u>Dextrose 50%</u>	
CLASS	Carbohydrate
ACTION	Quick infusion of sugar into blood for metabolism
INDICATIONS	Hypoglycemia
CONTRAINDICATIONS	Intracerebral bleeding, hemorrhagic CVA
SIDE EFFECTS	Tissue necrosis if extravasations occur
ADULT DOSE	25 Gm IV into secure vein. Give slowly.
PEDIATRIC DOSE	2 mL/kg of D25 IV slowly into secure vein. ❖ To make D25, expel ½ (25 mL) of D50 ampule and replace with 25 mL of NS.
ROUTE	IV, IO, PO
FORM	25 Gm/50 mL
PHYSICIAN'S ORDER	No

<u>Diazepam</u> (Valium)	
CLASS	Anti-anxiety/anticonvulsant
ACTION	CNS depressant
INDICATIONS	<ul style="list-style-type: none"> • Status epilepticus • Moderate to severe pain
CONTRAINDICATIONS	Hypersensitivity to the drug, hypotension
SIDE EFFECTS	Drowsiness, slurred speech, transient hypotension, blurred vision, nausea and vomiting, respiratory depression
ADULT DOSE	2-5 mg IV or 5-10 mg IM, repeat to total of 10 mg
PEDIATRIC DOSE	0.3 mg/kg IV/IM (0.5 mg/kg rectally); not to exceed adult dose.
ROUTE	IV, IM, rectal (IM absorption variable, this route not preferred, is used as last resort)
FORM	10 mg/2 mL
PHYSICIAN'S ORDER	No

<u>Diltiazem</u> (Cardizem)	
CLASS	Calcium channel blocker
ACTION	Calcium antagonist
INDICATIONS	<ul style="list-style-type: none"> • Atrial Fibrillation • Atrial Flutter • PSVT refractory to adenosine
CONTRAINDICATIONS	Hypotension, heart block
SIDE EFFECTS	Chest pain, congestive heart failure, syncope, ventricular dysrhythmia
ADULT DOSE	0.25 mg/kg IV bolus over 2 min, may repeat in 15 min with 0.35 mg/kg if response is inadequate (usual adult dose 10-20 mg ---consider lower dose in elderly patients) Max dose 20mg IVP
PEDIATRIC DOSE	NOT FOR USE IN PEDIATRICS
ROUTE	IV
FORM	25 mg/5 mL
PHYSICIAN'S ORDER	Yes

<u>Dopamine Hydrochloride</u> (Intropin)	
CLASS	Sympathomimetic
ACTION	Positive inotrope
INDICATIONS	Cardiogenic shock
CONTRAINDICATIONS	Hypovolemic shock
SIDE EFFECTS	Ventricular tachycardia, ectopic beats, nausea and vomiting, dyspnea, hypertension, hypotension
ADULT DOSE	2-20 mcg/kg/min -- titrate for effect starting at 5-10 mcg/kg
PEDIATRIC DOSE	2-20 mcg/kg/min
ROUTE	IV or IO
FORM	400 mg/5 mL (400 mg/250 mL pre-mix bag)
PHYSICIAN'S ORDER	No

<u>Epinephrine</u> (auto-injector)	
CLASS	Sympathomimetic
ACTION	<ul style="list-style-type: none"> • Bronchodilation • Positive chronotrope • Positive inotrope
INDICATIONS	<ul style="list-style-type: none"> • Angioedema and/or stridor • Anaphylaxis
CONTRAINDICATIONS	(Relative) cardiovascular disease, angina, hypertension, pregnancy, hyperthyroidism
SIDE EFFECTS	Palpitations, tachycardia, arrhythmia, hypertension, headache, anxiousness
ADULT DOSE	Pre-loaded 0.3 mg ampule of epinephrine
PEDIATRIC DOSE	Pre-loaded 0.15 mg ampule of epinephrine
ROUTE	Inserted perpendicular (90 degree angle) to the mid thigh and held for 10 seconds while the entire dose is given
FORM	Pre-loaded 0.3 mg ampule of epinephrine
PHYSICIAN'S ORDER	No

Epinephrine (1:1,000)	
CLASS	Sympathomimetic
ACTION	<ul style="list-style-type: none"> • Bronchodilation • Positive chronotrope • Positive inotrope
INDICATIONS	<ul style="list-style-type: none"> • Angioedema and/or stridor • Anaphylaxis • Acute asthma
CONTRAINDICATIONS	(Relative) cardiovascular disease, angina, hypertension, pregnancy, hyperthyroidism
SIDE EFFECTS	Palpitations, tachycardia, arrhythmia, hypertension, headache, anxiousness
ADULT DOSE	0.3 to 0.5 mg IM every 5-15 minutes as required
PEDIATRIC DOSE	0.01 mg/kg IM to maximum single dose of 0.5 mg
ROUTE	IM
FORM	1 mg/mL
PHYSICIAN'S ORDER	No

Epinephrine (1:10,000)	
CLASS	Sympathomimetic
ACTION	<ul style="list-style-type: none"> • Positive chronotrope • Positive inotrope • Bronchodilator
INDICATIONS	<ul style="list-style-type: none"> • Ventricular fibrillation • Asystole • Pulseless electrical activity (PEA) • Anaphylaxis (severe bronchospasm, BP <80 mmHg)
CONTRAINDICATIONS	None
SIDE EFFECTS	Palpitations, tachycardia, arrhythmia, hypertension, headache, anxiousness
ADULT DOSE	<ul style="list-style-type: none"> • 0.1-2 mg every 3-5 minutes IV until the desired effect is achieved • Severe anaphylaxis dose: 1-4 mcg/min IV
PEDIATRIC DOSE	Refer to PALS
ROUTE	IV, IO or ETT (2 times IV dose)
FORM	1 mg/10 mL
PHYSICIAN'S ORDER	No

<u>Fentanyl</u>	
CLASS	Opiate agonist
ACTION	Binds to the opiate receptor to block pain response
INDICATIONS	Moderate to severe pain
CONTRAINDICATIONS	MAOI use, asthma, Myasthenia Gravis
SIDE EFFECTS	Hypotension, decrease LOC, nausea, bradycardia, Chest wall rigidity in pediatric patients
ADULT DOSE	25 to 100 mcg IVP or IM to max of 100 mcg
PEDIATRIC DOSE	May give one dose of 1-2 mcg/kg IVP or IM
ROUTE	IV, IO, IM
FORM	50 mcg/mL
PHYSICIAN'S ORDER	No

<u>Furosemide</u> (Lasix)	
CLASS	Loop diuretic
ACTION	Inhibits sodium and chloride re-absorption in the kidneys, causes venous dilation and reduces preload
INDICATIONS	<ul style="list-style-type: none">• Congestive heart failure• Pulmonary edema
CONTRAINDICATIONS	Hypersensitivity to furosemide
SIDE EFFECTS	Hypotension, hypovolemia, hypokalemia
ADULT DOSE	40 mg slow IVP
PEDIATRIC DOSE	per physician order
ROUTE	IV
FORM	10 mg/1 mL
PHYSICIAN'S ORDER	Yes for EMT-I

Glucagon	
CLASS	Insulin antagonist
ACTION	Increases the breakdown of glycogen into glucose
INDICATIONS	<ul style="list-style-type: none"> • For hypoglycemic patients in whom IV access cannot be achieved • In any suspected hypoglycemic patient who is combative • Beta blocker OD
CONTRAINDICATIONS	None
SIDE EFFECTS	May cause allergic reaction in rare instances
ADULT DOSE	1 mg vial reconstituted with 1 ml dilute (age 12 and up) 2mg IV for beta blocker OD
PEDIATRIC DOSE	0.5 mg, up to age 12, IM in the thigh
ROUTE	IM, IN
FORM	1 mg/1 mL
PHYSICIAN'S ORDER	No

<u>Haldol</u> (Haloperidol)	
CLASS	Antipsychotic/sedative
ACTION	Blocks dopamine receptors
INDICATIONS	Sedate psychotic, combative patients
CONTRAINDICATIONS	CNS depression, pregnancy, hyperthermia, prolonged QT interval
SIDE EFFECTS	Hypotension, extrapyramidal reactions, prolonged QT
ADULT DOSE	5 mg IV or 5-10 mg IM
PEDIATRIC DOSE	No indication for pediatric use
ROUTE	IV, IM
FORM	5 mg/1mL
PHYSICIAN'S ORDER	No

<u>Lidocaine</u>	(Xylocaine)
CLASS	Antiarrhythmic
ACTION	<ul style="list-style-type: none"> • Suppresses ventricular ectopy by suppressing automaticity in the His-purkinje system • Increases ventricular fibrillation threshold
INDICATIONS	<ul style="list-style-type: none"> • Stable ventricular tachycardia • Ventricular fibrillation and pulseless VT
CONTRAINDICATIONS	Hypersensitivity to lidocaine
SIDE EFFECTS	Seizures, respiratory depression, dizziness, restlessness, confusion, blurred vision, numbness, hypotension, bradycardia, heart block, nausea and vomiting
ADULT DOSE	1.0-1.5 mg/kg repeat in 3-5 minutes to a total of 3 mg/kg
PEDIATRIC DOSE	1 mg/kg IVP slowly. Total dose is 3 mg/kg
ROUTE	IV, IO, or ETT
FORM	100 mg/5 mL
PHYSICIAN'S ORDER	No PRECAUTIONS: Administer ½ the dose in patients over 70, in CHF, or with liver disease

Magnesium Sulfate	
CLASS	Electrolyte
ACTION	Acts as a calcium channel blocker and as a smooth and skeletal muscle relaxant as well as a CNS depressant
INDICATIONS	<ul style="list-style-type: none">• Torsades des Pointes, refractory VF/VT• Eclamptic seizures
CONTRAINDICATIONS	Renal disease, heart block
SIDE EFFECTS	Respiratory, CNS depression, hypotension, cardiac arrest
ADULT DOSE	1-2 Gm IV over 1-2 minutes For eclamptic seizures, mix 2 Gm in 500cc NS and infuse over 30 min.
PEDIATRIC DOSE	NOT FOR USE IN PEDIATRICS
ROUTE	IV
FORM	500 mg/mL
PHYSICIAN'S ORDER	Eclamptic seizures

<u>Morphine Sulfate</u> (Astramorph)	
CLASS	Narcotic
ACTION	CNS depressant
INDICATIONS	<ul style="list-style-type: none"> • Severe pain • Pulmonary edema and CHF • Chest pain, suspected AMI
CONTRAINDICATIONS	Hypersensitivity to opiates, head injuries, chest or abdominal injury
SIDE EFFECTS	Respiratory depression, nausea, vomiting, bradycardia, hypotension, altered level of consciousness
ADULT DOSE	2-5 mg IV to total of 10 mg, up to 15mg for cardiac CP
PEDIATRIC DOSE	0.1-0.2 mg/kg, not to exceed adult dose
ROUTE	IV, IO, IM, SQ
FORM	10 mg/mL
PHYSICIAN'S ORDER	Intermediate/99, dose greater than 10 mg

<u>Narcan</u> (Naloxone Hydrochloride)	
CLASS	Narcotic antagonist
ACTION	Reverses effects of narcotics
INDICATIONS	Suspected narcotic use
CONTRAINDICATIONS	Patients with a history of hypersensitivity to the drug
SIDE EFFECTS	Rapid administration causes projectile vomiting, pt may quickly awaken agitated and combative.
ADULT DOSE	0.5-2 mg slow IV push, titrated to effect up to 10 mg total
PEDIATRIC DOSE	0.1 mg/kg up to 20kg, not to exceed adult dose
ROUTE	IV, IM, IO, IN, SC, or ETT
FORM	2 mg/2 mL
PHYSICIAN'S ORDER	No PRECAUTIONS: Restrain patient prior to administering

<u>Nitroglycerin</u> (Nitrostat)	
CLASS	Anti-anginal
ACTION	<ul style="list-style-type: none"> • Dilates coronary arteries • Dilates systemic arteries
INDICATIONS	<ul style="list-style-type: none"> • Angina • Suspected myocardial infarction • Acute pulmonary edema
CONTRAINDICATIONS	Hypotension, cerebral bleeding, Pt taking Viagra, Cialis or Levitra.
SIDE EFFECTS	Headache, hypotension, syncope, tachycardia, flushing
ADULT DOSE	0.4 mg tablet or spray every 3-5 minutes until relief of discomfort, or total of 3 doses. 3 concurrent doses or (q1min x3) for pulmonary edema, then q 3-5min, no limit as long as BP>100
PEDIATRIC DOSE	Not recommended for pediatric use.
ROUTE	SL
FORM	0.4 mg tablets or nitrolingual aerosol spray
PHYSICIAN'S ORDER	No

<u>Oral Glucose</u>	
CLASS	Carbohydrate
ACTION	Infusion of sugar in the digestive system to be metabolized into the blood
INDICATIONS	Blood sugar <60 mg/dL
CONTRAINDICATIONS	Decrease level of consciousness, unconsciousness, possible CVA or TIA
SIDE EFFECTS	None
ADULT DOSE	Entire contents of tube
PEDIATRIC DOSE	Entire contents of tube
ROUTE	PO
FORM	24 Gm
PHYSICIAN'S ORDER	No

<u>Oxytocin</u>	(Pitocin)
CLASS	Hormone
ACTION	Causes contraction of uterine smooth muscle
INDICATIONS	Postpartum hemorrhage
CONTRAINDICATIONS	Rule out multiple births before administration, only after delivery of the placenta.
SIDE EFFECTS	Hypertension, dysrhythmias, seizures
ADULT DOSE	20 units in 1000 cc NS to infuse at wide open for first liter or 10 units IM
PEDIATRIC DOSE	Not for Pediatric Use
ROUTE	IV or IM
FORM	10 units/mL
PHYSICIAN'S ORDER	No

<u>Phenergan</u> (Promethazine HCL)	
CLASS	Phenothiazine
ACTION	Antiemetic, potentiates narcotics
INDICATIONS	<ul style="list-style-type: none"> • Control of nausea and recurrent vomiting • Adjunct for analgesia
CONTRAINDICATIONS	<ul style="list-style-type: none"> • Patients with a known hypersensitivity to phenothiazines • Patients who are allergic to sulfites • Altered level of consciousness
SIDE EFFECTS	Extrapyramidal reactions, excessive sedation
ADULT DOSE	12.5 mg IVP over one minute or 25 mg IM
PEDIATRIC DOSE	Not to be given to anyone under 16
ROUTE	IV or IM
FORM	25 mg/1 mL
PHYSICIAN'S ORDER	No SPECIAL NOTE: Subcutaneous injection or extravasations may result in tissue necrosis

Sodium Bicarbonate	
CLASS	Alkalinizing agent
ACTION	Increases blood pH Combines with H ⁺ ions to form a weak volatile acid, resulting in the generation of CO ₂ and water
INDICATIONS	<ul style="list-style-type: none"> • Cardiac arrest • Tricyclic anti-depressant overdose • Hyperkalemia
CONTRAINDICATIONS	Alkalotic states, respiratory acidosis
SIDE EFFECTS	Rare
ADULT DOSE	1 mEq/kg initially, then ½ the initial dose
PEDIATRIC DOSE	1 mEq/kg initially, then ½ the initial dose
ROUTE	IV or IO
FORM	50 mEq/50 mL (8.4% solution)
PHYSICIAN'S ORDER	For Hyperkalemia EMT-I for Tricyclic anti-depressant overdose

<u>Thiamine</u>	(Betaxin)
CLASS	Vitamin B1
ACTION	Allows normal metabolism of glucose
INDICATIONS	<ul style="list-style-type: none">• Coma of unknown origin• Delirium tremors• Hypoglycemia
CONTRAINDICATIONS	None
SIDE EFFECTS	Rare, if any
ADULT DOSE	100 mg
PEDIATRIC DOSE	Not recommended for use in children
ROUTE	IV, IM when IV route is not available
FORM	100 mg/1 mL
PHYSICIAN'S ORDER	No

<u>Versed</u> (Midazolam HCL)	
CLASS	Sedative
ACTION	Binds to benzodiazepine receptors
INDICATIONS	<ul style="list-style-type: none"> • To facilitate intubation • Seizures • Sedation for Cardioversion and Pacing • Adjunct for relief of Severe pain, muscle spasm
CONTRAINDICATIONS	Acute glaucoma, shock
SIDE EFFECTS	Respiratory depression, hypotension, decreased heart rate
ADULT DOSE	1-5 mg IV to a total of 5 mg or 5 mg IM/IN
PEDIATRIC DOSE	0.1 mg/kg IV, IM, IO slowly
ROUTE	IV, IO, IM, IN
FORM	5 mg/5mL
PHYSICIAN'S ORDER	Yes, if given as adjunct for pain relief with morphine or Fentanyl.

<u>Zofran</u>	(Ondansetron)
CLASS	Antiemetic
ACTION	Serotonin Receptor Antagonist
INDICATIONS	• Nausea and Vomiting
CONTRAINDICATIONS	Known Hypersensitivity
SIDE EFFECTS	Diarrhea, Headache Rare: hypotension
ADULT DOSE	4mg IV or 8mg PO (ODT)
PEDIATRIC DOSE	0.1 mg/kg IV up to age 12, 40kg, >40kg=4mg
ROUTE	IV or PO
FORM	4 mg/2mL
PHYSICIAN'S ORDER	No