Adult – Abdominal Pain

EMT-Enhanced

1. Establish IV access.
2. Fluid bolus of 500 mL NS, may be repeated if necessary after reassessment, up to 1 liter NS if indicated for hypotension, to maintain a SBP> 90 mmHg.

EMT-Intermediate/Paramedic

1. Initiate cardiac and pulse oximetry monitoring. If available, consider obtaining a 12-lead ECG.
2. For persistent nausea and vomiting, consider promethazine (Phenergan) 12.5 mg IV, reduce dose to 6.25 mg IV for age 70 or older.

Contact Medical Control Physician

Key Points / Considerations

- Consider trauma as a cause of undiagnosed abdominal pain.
- Consider pregnancy as a cause of abdominal pain in women of childbearing age.
- Patients with acute, undiagnosed, abdominal pain should not receive analgesics in the field without direction from Medical Command.

Adult – Alcohol Related

Emergencies involving alcohol can range from acute intoxication to alcohol withdrawal and delirium tremens (DT's). Acute intoxication causes behavioral changes and can cause respiratory depression, particularly if other sedative drugs are involved. The possibility of another illness (diabetes/hypoglycemia) or injury (head injury) must always be considered.

EMT-B

1. Monitor carefully for signs of respiratory depression.
2. Consider hypoglycemia.
3. Consider other injuries.

EMT-Enhanced

1. Establish IV access.
2. Infuse 1 liter of NS over 1 hour, then 150 ml/hr, monitoring for signs of fluid overload.
3. Treat for hypoglycemia if suspected or derived from glucose value.

EMT-Intermediate/Paramedic

1. Initiate cardiac and pulse oximetry monitoring.
2. If seizures occur, refer to the **Neurological/Seizures** protocol.
3. For severe agitation, tachycardia, or hallucinations, consider diazepam (Valium) 5 mg IV, or midazolam (Versed) 5 mg IM if IV access is not available. Either may be repeated once in 10 minutes if needed.

Adult – Cardiac: Asystole/Pulseless Electrical Activity

EMT-Intermediate/Paramedic

1. Continue CPR.
2. Manage airway appropriately.
3. Establish IV/IO access and NS infusion.
4. Confirm Asystole is present in more than one lead.
5. Administer Vasopressin, 40 units IV/IO. After 5 minutes administer Epinephrine, 1 mg (1:10,000) every 3-5 minutes up to three doses.
6. Atropine 1 mg IV every 3-5 minutes up to a total of 3 mg
7. Consider reversible causes and treat if identified:
   - Hypovolemia
   - Hypoxia
   - Hydrogen ion (Acidosis)
   - Hypo-/Hyperkalemia
   - Hypoglycemia
   - Hypothermia
   - Toxins
   - Tamponade, cardiac
   - Tension pneumothorax
   - Thrombosis (coronary or pulmonary)

Key Points / Considerations
• If patient remains in asystole or PEA after establishing a secure airway, obtaining IV access and administering initial medications and no treatable reversible causes are identified, consider contacting Medical Direction to discuss termination of resuscitative efforts.

Adult – Cardiac: Atrial Fibrillation / Flutter

EMT-Intermediate/Paramedic

1. Administer oxygen.
2. Initiate cardiac and pulse oximetry monitoring.
3. Establish IV access.
4. If available, obtain 12 lead ECG.
5. For ventricular rates of 150 or greater, and stable vital signs, consider metoprolol (Lopressor) 5 mg IV to obtain a ventricular response of 120 or less. May be repeated every 10 minutes up to a total dose of 15 mg.
6. Synchronized Cardioversion is indicated for **unstable** patients (i.e., blood pressure of less than 90 mm Hg, altered mental status, signs of decreased peripheral perfusion). If the patient's condition allows, administer metoprolol (Lopressor) 5 mg IV prior to cardioversion.
7. Patients who do not respond to cardioversion or who have recurrent tachycardia, should receive metoprolol (Lopressor) 5 mg IV prior to repeated cardioversion attempts.

Contact Medical Control Physician

- Midazolam (Versed) 2-5 mg IV prior to cardioversion.

Key Points / Considerations

- Cardioversion using monophasic defibrillators should begin with an energy of 100 joules, increasing to 200 and then 300 joules if needed.
- Cardioversion using biphasic defibrillators should begin at 100 joules increasing to 200 joules, unless the device manufacturer has recommended a different energy level.
- It is not desirable to cardiovert atrial fibrillation of unknown duration unless the patient is **unstable**, pharmacological rate control is the preferred intervention.
- Adenosine (Adenocard) is not effective in converting atrial fibrillation or atrial flutter.

Adult – Cardiac: Bradycardia (Heart Blocks)

EMT-Enhanced

1. Administer oxygen.
2. Establish IV access.

EMT – Intermediate/Paramedic

1. Initiate cardiac and pulse oximetry monitoring
2. If available, obtain 12 lead ECG.
3. For unstable patients with bradycardia or heart block (blood pressure of less than 90 mm Hg, altered mental status, signs of decreased peripheral perfusion)
    - Initiate transcutaneous pacing at a rate of 80, starting at an energy level of 0 and increasing until mechanical capture is obtained.
    - Atropine 1 mg IV repeated every 3-5 minutes up to a total of 3 mg.
4. Fluid bolus of 500 mL NS, may be repeated if necessary after reassessment, up to 1 liter NS if indicated for hypotension, to maintain a SBP> 90 mmHg.
    - Fluid therapy should be initiated as an adjunct to rate therapies. Symptomatic bradycardic patients should not receive large amounts of fluid until attempts to resolve the bradycardia have been initiated.
5. For unstable patients who have not responded to transcutaneous pacing and atropine, consider dopamine (Intropin) 5 to 20 mcg/kg/minute to maintain a systolic blood pressure of 90 mm Hg.

Contact Medical Control Physician

- Midazolam (Versed) 2-5 mg IV during TCP.

Key Points / Considerations

- TCP is the preferred treatment of choice in 2nd degree, Type II Heart Block and 3rd degree Heart Block.
- Transplanted hearts will not respond to Atropine.

Adult – Cardiac: Chest Pain (Suspected Myocardial Event)

EMT-B

1. Administer oxygen.
2. Aspirin 162 mg (2 baby aspirin) chewed.
3. Assist patient with prescribed Nitroglycerin (NTG), 1 tablet SL every 5 minutes as long as SBP > 100 mmHg, to a maximum of 3 doses.
4. EMT-J should apply 1" of Nitro Paste. If patient has taken NTG in past, may administer 1 NTG SL every 5 minutes as long as SBP > 100 mmHg.

EMT-Enhanced

1. Establish IV access.
2. Nitroglycerin 0.4 mg SL every 5 minutes with a SBP >100 mmHg.
3. Apply 1 inch of 2% Nitropaste (15 mg) topically keeping SBP > 100 mmHg.

EMT-Intermediate/Paramedic

1. Initiate cardiac and pulse oximery monitoring.
2. Obtain 12 lead ECG if available.
3. For patients with persistent chest pain after above measures, and/or a 12 lead ECG indicating an acute myocardial infarction, pulse rate greater than 80 and systolic blood pressure greater than 120 mmHg, metoprolol (Lopressor) 5 mg IV, may be repeated every 10 minutes up to a total of 15 mg.
4. If pain persists, consider morphine sulfate 2 mg slow IV, maintaining a SBP > 100 mmHg. May be repeated every 5-10 minutes to a total of 6 mg.
5. For patients with repeated vomiting, consider promethazine (Phenergan) 12.5 mg IV, reduce dose to 6.25 mg IV for age 70 or older.

Key Points / Considerations
• All patients (male or female) who would receive Nitroglycerin according to the protocol must be questioned about taking Viagra (sildenafil citrate), Levitra (vardenafil HCL) or Cialis (tadalafil). Any patient that has taken these medications within the previous 24 hours should not receive any form of nitrates as irreversible Hypotension may occur. **Contact Medical Control Physician for further guidance in correctly treating these patients.** • Patients who have a field 12 lead ECG that indicates an acute myocardial infarction are candidates for rapid transport and the receiving hospital should be notified as soon as possible of the results of the ECG. • Metoprolol should not be administered if cocaine or methamphetamine use is suspected within the last 24 hours.

Acute Coronary Syndrome (ACS) 12-lead ECG Guideline
To be used in conjunction with the Adult-Cardiac: Chest Pain Guideline

- Since ALS providers are not always available or first on scene, it may be appropriate for providers of all levels to be trained to perform 12-lead ECG. Continuing cardiac (rhythm) monitoring remains an EMT-I/P skill.
- 12-lead ECG may be indicated for chest pain or severe dyspnea (difficulty breathing).

* Obtaining a 12-lead ECG should not delay patient transport more than 2-3 minutes. Initiating care of the unstable patient takes precedence over 12-lead ECG; whenever possible patient care and 12-lead ECG to take place simultaneously.

* Once a 12-lead ECG has been obtained, the patient <u>will</u> be transported, and every effort will be made by a BLS provider to obtain ALS-level care for the patient.

* If an acute ischemic event is suspected on the 12-lead ECG, it should be transmitted for Medical Command review if possible.

* If an acute ischemic event is suspected, Medical Command should be contacted promptly, the care of the patient discussed, and additional resources may be mobilized as necessary to expedite patient care (i.e., potentially including re-toning ALS, ALS rendezvous, critical care transport, Medevac).

***** Obtaining the field 12-lead ECG is still valuable for comparison to later 12-lead ECG's even if transmission is not possible.

EMT-B

1. If 12-lead ECG trained, obtain 12-lead ECG and transmit if possible. Leave 12-lead electrodes in place in case a repeat ECG is desired, and disconnect the leads and turn off the monitor until ALS assistance is secured.
2. If no ALS is immediately available, and the software interpretation indicates an acute ischemic event, contact MedCom and advise you are an EMT requesting physician consultation for a chest pain patient.

EMT-Enhanced

1. Refer to Adult – Cardiac: Chest Pain Guideline.

EMT-Intermediate/Paramedic

1. Refer to Adult - Cardiac: Chest Pain Guideline.
2. Repeat ECG with change in patient's condition. If there is any significant change demonstrated on the 12-lead ECG, request medical command and re-transmit 12-lead ECG to MedCom if possible.

Key Points / Considerations
• There will be <u>no change in patient destination</u> unless patient requested receiving facility diverts through Med Com. • <u>"Normal" 12-lead does not allow non-transport, nor does it allow transfer to BLS level care.</u>

12-Lead ECG Data Collection

Date: _____
PPCR #: _____
Agency: _____
Provider Name: _____

Please attach:

- Code summary
- Call sheet copy
- Patient sticky label

- Any comments or problems?

- Submit to TJEMS for review.

Adult – Cardiac: Tachycardia-Paroxysmal SVT (Regular Narrow Complex)

Paroxysmal supraventricular tachycardia frequently occurs in otherwise healthy individuals. As such, it is usually well tolerated. If the rate is particularly rapid (>150 beats/min), or the arrhythmia is sustained, CHF may occur. There are other conditions that cause physiological tachycardia which mimic SVT. The treatment goal for these situations is to treat the underlying condition, not the tachycardia itself. (ex. Tachycardia secondary to severe hypotension, dehydration, or blood loss).

EMT-Intermediate/Paramedic

1. Initiate cardiac and oximetry monitoring. If available, obtain 12 lead ECG.
2. Establish IV access.

Stable SVT

3. Maneuvers to increase vagal tone (valsalva, carotid sinus massage).
4. If the patient is hypotensive (SBP< 90 mmHg), consider IV bolus of 500 ml NS and reassess, may be repeated up to 1 liter of NS.
5. Adenosine 6 mg IV. If no response, adenosine 12 mg rapid IV.

Call Medical Command if the patient does not respond to Adenosine.

Unstable SVT

3. Adenosine 6 mg IV. If no response, adenosine 12 mg rapid IV.
4. Synchronized cardioversion is indicated for unstable patients (SBP< 90mmHg, altered mental status, signs of decreased peripheral perfusion).
5. If the patient is hypotensive (SBP< 90 mmHg), consider IV bolus of 500 ml NS and reassess, may be repeated up to 1 liter of NS.
6. For patients who have not responded to cardioversion or who have recurrent arrhythmia, consider amiodarone 150 mg IV over 10 minutes.

Contact Medical Control Physician

- Administer Midazolam (Versed) 2-5 mg IV prior to synchronized cardioversion.

Key Points / Considerations

- Always consider a wide complex tachycardia to be ventricular tachycardia unless known to be a SVT.
- Adenosine (Adenocard) is to be administered by rapid IV push (over 1 to 3 seconds at a proximal injection port), followed by a 20 mL flush.
- Theophylline or related methylxanthines (caffeine) can block the effects of adenosine (Adenocard). dipyridamole (Persantine) and carbamezapine (Tegretol) may potentiate the effects of adenosine.
- Perform carotid sinus massage unilaterally if patient is under 50 years of age. CSM is contraindicated if bruits are heard (either side), history of carotid endarterectomy, or CVA.
- Cardioversion with a monophasic defibrillator should begin at 50 joules, and increase to 100, 200, 300 if needed
- Cardioversion with a biphasic defibrillator should begin at 50 joules and increase to 100, and then 200 joules if needed, unless the manufacturer has specified different energy levels

Adult – Cardiac: Ventricular Fibrillation / Pulseless V-Tach (Cardiac Arrest)

EMT-B

1. In witnessed cardiac arrest, the first priority is assessment using the AED and administration of defibrillation if recommended.
2. If the cardiac arrest was not witnessed, provide 2 minutes of CPR prior to the first rhythm analysis.
3. Check adequacy of any bystander CPR and take over if indicated.
4. Manage airway appropriately.
5. Arrange for ALS assistance as quickly as possible.

EMT-Enhanced

1. Establish IV access, NS.

EMT-Intermediate/Paramedic

1. Ensure that the airway has been secured and adequate IV access established.
2. Institute capnography monitoring if available.
3. ALS providers should consider the shock delivered by the AED as part of their protocols.
4. If the patient has not responded to initial defibrillation:
   - Vasopressin 40 units, IV/IO, After 5 minutes give epinephrine 1 mg (1:10,000) IV and every 3-5 minutes to a total of 3 mg.
   - If VF/VT persists after the initial 3 CPR / Defibrillation cycles, administer amiodarone, 300 mg IV push. Patients who initially respond to Amiodarone but have recurrent VF/VT may be re-dosed with amiodarone, 150 mg IV push.
   - Consider magnesium, 1-2 grams IV push for Torsades when a pre-existing long QT syndrome is known or suspected.

Contact Medical Control Physician

- Patients who have had a secure airway established and have not responded to 20 minutes of resuscitative efforts including repeated defibrillations and administration of appropriate medications may be candidates for the cessation of resuscitative efforts in the field.

Key Points / Considerations

- Monophasic AED's and defibrillators should be programmed to deliver defibrillation at 360 joules, with initial as well as following shocks administered at that level.
- Biphasic AED's and defibrillators should be programmed to deliver defibrillation at the manufacturers recommended energy levels, or at 200 joules if not otherwise specified, and initial as well as following shocks administered at that level.
- CPR should not be interrupted for administration of IV drugs.

Adult – Cardiac: Ventricular Tachycardia (Wide Complex with a Pulse)

EMT-Intermediate/Paramedic

1. Initiate cardiac and oximetry monitoring. If available obtain 12-lead ECG.
2. If patient is stable (systolic BP > 90 mmHg, normal mental status, good peripheral perfusion) administer amiodarone, 150 mg IV over 10 minutes. May be repeated in 10 minutes if patient does not respond.
3. Synchronized cardioversion if patient is unstable, (blood pressure < 90 mm Hg, altered mental status, signs of decreased peripheral perfusion).

Contact Medical Control Physician
• Midazolam, (Versed) 2-5 mg IV prior to synchronized cardioversion

Key Points / Considerations
• Monophasic cardioversion should be performed with initial energy levels of 100 joules, increasing to 200, 300, 360 joules if needed. • Biphasic cardioversion should begin with energy levels of 100 joules, increasing to 200 joules if needed, unless other specific energy levels have been specified by the manufacturer.

Adult – Environmental: Envenomation

EMT-B

1. Pit Vipers (Copperhead, Rattlesnake, etc) – minimize activity, remove tight clothing or jewelry. If on an extremity, splint at heart level.
   - Constricting bands or tourniquets, cold application, incision and/or suction, and extractor devices, are contraindicated in pit viper envenomations.
2. Other Exotic Animals (Coral snakes, Cobra's, etc.) – Call Poison Control. Do not delay transport.

EMT-Enhanced

1. Establish IV access.
2. If the patient is hypotensive (SBP< 90mmHg), consider IV bolus of 500 mL NS and reassess, may be repeated up to 1 liter of NS.

EMT-Intermediate/Paramedic

1. Morphine Sulfate 2-4 mg IV, up to a total dose of 10 mg for severe pain

Contact Medical Control Physician
• Dopamine (Inotropin) 2 to 20 mcg/kg/min IV infusion for hypotension unresponsive to fluid therapy. • Consider additional pain management.

Key Points / Considerations
• Pit Viper: Symptoms may be acute and marked: tissue swells at the bite mark within minutes and spreads proximally, pain begins quickly in significant envenomations. Swelling and ecchymosis spread and hemorrhagic blisters may form. • In the case of exotic animals or non-indigenous species identification may be very important in obtaining specific antivenin or otherwise guiding therapy. • Black widow spider envenomations may present with painful muscle spasms.

Adult – Environmental: Hyperthermia

Heat cramps are painful cramps or spasms of large muscle groups encountered during exertion in hot environments. Heat exhaustion is a syndrome of dizziness, nausea, vomiting, weakness, and, occasionally syncope which may be associated with a normal body temperature or a moderate temperature elevation. Patients with heat stroke present with disorientation, seizures, and/or coma and an elevated body temperature.

EMT-B

1. Obtain accurate body core temperature, if possible.
2. Move to cooler environment and remove excess clothing, protect from further heat gains.
3. **Heat exhaustion**: Carefully begin rehydration with water, if patient can tolerate liquids by mouth. Do not give large amounts of fluid rapidly or administer fluids by mouth to any patient who has an altered mental status. If temperature > 103 degrees F., cool patient with tepid wet towels, or fans and spray water.
    - Remove cooling agent when temperature reaches 100 degrees F. to avoid too rapid of a temperature drop which may initiate the shivering process (which will increase temperature).
4. **Heat stroke**: Aggressive evaporation cooling is indicated (using fine mist water spray and forced air stream with fans), apply ice packs to groin and axillae.
    - Continue cooling until core temperature reaches, or is less than 104 degrees F. (to avoid too rapid of a temperature drop), or shivering begins (which will increase temperature).

EMT-Enhanced

1. Heat cramps/heat exhaustion: Fluid therapy bolus up to 1 liter NS IV with evidence of hypovolemia or hemodynamic compromise, or severe heat cramps with painful, involuntary muscle spasms.
2. Heat stroke: Cautious fluid therapy initially at 250 mL/hr of NS. If evidence of hypovolemia or hemodynamic compromise exists, then initiate fluid therapy bolus up to 1 liter NS IV to maintain SBP> 90 mmHg.

Key Points / Considerations
• The major difference between heat exhaustion and heat stroke is CNS impairment. • The treatment of heat exhaustion is rest with fluid volume and electrolyte replacement. • Severe heat cramps will respond to rest and intravenous re-hydration with NS. • Dehydration and volume depletion may not occur in classic heat stroke. Vigorous fluid administration may produce pulmonary edema, especially in the elderly.

Adult – Environmental: Hypothermia

Hypothermia, by definition, is a patient with a core temperature of less than 95 degrees F (35 C). According to AHA ACLS guidelines, body temperatures from 93.2 to 96.8 degrees F (34 – 36 C) constitute "mild" hypothermia, between 86.0 to 93.2 degrees F (30 – 34 C), moderate hypothermia, and below 86 degrees F (30 C), severe hypothermia is present and modifications in the treatment of the cardiac arrest patient should be made.

EMT-B

1. Assess responsiveness, breathing, and pulse:
   Patient Unresponsive or in Cardiac Arrest:
   Confirm pulselessness for 30-45 seconds if severe hypothermia is suspected or known. If no pulse detected and no other signs of life are present, CPR should be initiated immediately while an AED is being applied (limit to three shocks if severe hypothermia is known to exist), transport.
   Patient not in Cardiac Arrest:
   Remove wet garments. Protect against heat loss and wind chill using blankets and insulating equipment. Avoid rough handling and excessive movement. Maintain a horizontal (supine) position. For body temperatures of 86 – 93 degrees F (30 – 34 C) apply warm heat packs to neck, armpits and groin only.

EMT-Enhanced

1. Intubation should be avoided in the severely hypothermic patient with spontaneous respirations unless urgently needed, since intubation has been suggested to increase the risk of VF in these patients.
2. Establish IV access.
3. Fluid bolus of 500 mL NS, may be repeated if necessary after reassessment, up to 1 liter NS if indicated for hypotension to maintain a SBP> 90mmHg.

EMT-Intermediate/Paramedic

1. If in cardiac arrest, modifications should be made using the following ACLS algorithm guidelines:
   Defibrillate VF/VT up to a total of 3 shocks.
   Temperature less than 86 degrees F:
   Continue CPR.
   Attempt, confirm, secure airway.
   Establish peripheral IV (if not already done).
   Temperature greater than 86 degrees F:
   Give IV medications as indicated (but space at longer than standard intervals)
   Repeat defibrillation for VF/VT as core temperature rises.

Contact Medical Control Physician

- Patients who have been found in cardiac arrest and hypothermic may be candidates for termination of resuscitative efforts in the field if they do not respond to initial resuscitative efforts and there is a prolonged time to reach definitive care.

Key Points / Considerations

- Hypothermia can occur at any time of year.
- Fluids should be warmed to as close to 109 degrees F. when at all possible prior to infusion. This may be accomplished by warming on heater vent, or wrapping with a chemical heat pack. IV fluids should not be warmed in a microwave oven.
- Providers should look for "urban" hypothermia in inner city areas, where it has a high association with poverty and drug and alcohol abuse (can occur in rural areas also).

Adult – Environmental: Near Drowning

EMT-B

1. Remove from water if so trained, and it is safe to do so.
2. Spinal immobilization, if indicated.
3. If patient in Cardio-Pulmonary arrest, refer to appropriate cardiac arrest standard.
4. Prevent further heat loss.
5. Refer to “Hypothermia” protocol, if indicated.

EMT-Enhanced

1. Establish IV access.
2. If patient is hypotensive (SBP< 90 mmHg), consider IV bolus of 500 mL NS and reassess, may be repeated up to 1 liter NS.

EMT-Intermediate/Paramedic

1. Refer to specific protocol for cardiac arrhythmias as needed.

Key Points / Considerations
• Type of incident (surface impact, submerged object strike, propeller trauma). If submerged, how long under and how deep? • Weather conditions, water temperature, temperature at depth discovered (if SCUBA recovery). • Most victims of near drowning will be hypothermic to some extent. Follow “Hypothermia” protocol if immersion is in water.

Adult – General Medical: Hypotension

A thorough assessment and physical examination are vital when attempting to find the underlying etiology of hypotension states. Non-traumatic hypotension may be caused by a variety of conditions such as hypovolemia (severe dehydration, GI bleeding), anaphylaxis, diminished cardiac output, sepsis, neurologic dysfunction, or an acute MI with left ventricular dysfunction.

EMT-B

1. Administer high flow oxygen.
2. If anaphylaxis, refer to Severe Allergic Reaction Protocol

EMT-Enhanced

1. Establish IV access.
2. If patient is hypotensive (SBP< 90 mmHg), consider IV bolus of 500 mL NS and reassess, may be repeated up to 1 liter NS.

EMT-Intermediate/Paramedic

1. Initiate cardiac and oximetry monitoring.
2. If hypotension does not respond to fluid therapy or if CHF present, consider dopamine (Intropin), 5-20 mcg/kg/minute IV infusion, to maintain SBP> 90 mmHg.

Key Points / Considerations
• Dopamine should not be given to a patient who is significantly volume depleted. Hypovolemia must be corrected prior to dopamine infusion to maximize potential for improved perfusion. • Most non-traumatic hypotension is a result of one of the shock syndromes or hypovolemia. It is important to manage the cause of the problem if it can be identified. • Consider drug side effects or overdose.

Adult – General Medical: Severe Allergic Reaction

The primary signs of severe allergic reactions are stridor, bronchospasm, and hypotension and may additionally include tightness in the chest, generalized hives, hoarseness and wheezes. The symptoms associated with severe allergic reactions may begin within seconds of exposure to an allergen or may be delayed.

EMT-B

1. Safely and rapidly remove patient from source of exposure, if necessary.
2. Ice packs may be applied to a local exposure (bee sting).
3. Assist patient with prescribed adult epinephrine auto-injector 0.3 mg (severe hives, difficulty breathing, significant respiratory distress and/ or shock). >8 years of age or > than 30 kg.
4. EMT-J, if having severe hives, breathing problems and/or hypotension, administer 0.3 mg Epinephrine 1:1000 SQ, 50 mg Diphenhydramine (Benadryl) IM. May repeat Epinephrine in 10 minutes if symptoms are progressing. If moderate hives only, administer diphenhydramine (Benadryl) 50 mg IM.

EMT-Enhanced

1. Epinephrine 0.3 mg 1:1000 SQ for severe allergic reaction(s). May be repeated once in 10 minutes if patient is still in extremis.
2. Albuterol (Proventil) nebulizer 2.5 mg (1 unit dose) for bronchospasm.
3. Establish IV access.
4. If patient is hypotensive (SBP< 90 mmHg), consider IV bolus of 500 mL NS and reassess, may be repeated up to 1 liter of NS.
5. Diphenhydramine (Benadryl) 25 mg IV / IM for mild to moderate allergic reactions or diphenhydramine (Benadryl) 50 mg IV / IM for severe allergic reactions or anaphylaxis.
6. Methylprednisolone (Solu-Medrol) 125 mg IV over 1 minute for severe hives or difficulty breathing.

EMT-Intermediate/Paramedic

1. Initiate cardiac and oximetry monitoring.

Contact Medical Control Physician

- Epinephrine **1:10,000** 0.5 – 1.0 mg IV over 5 minutes in *dire* circumstances.
- Dopamine (Intropin) 5-20 mcg/kg/minute to maintain SBP > 90 mmHg
- Epinephrine (Adrenalin) 2-10 mcg/minute to maintain SBP > 90 mmHg.

Adult – Neurological: Altered Level of Consciousness

Altered mentation is a symptom, not a diagnosis, with many possible causes, both medical and traumatic. Common etiologies include: diabetic problems (hypo/hyperglycemia), alcohol or drug intoxication, metabolic abnormalities, seizures or post-ictal states, toxic exposure, hypoxia, sepsis, stroke, and head trauma. Multiple patients with an altered mentation suggest toxic exposure/drug ingestion.

EMT-B

1. For suspected hypoglycemia:
   - EMT-B: Instant Glucose 15 grams (1 tube) orally for hypoglycemic patient who is able to swallow on their own and is capable of protecting their airway.
   - EMT-J administers 1 mg Glucagon IM.
2. Spinal immobilization, if indicated.
3. EMT-J: if suspected narcotic overdose then administer 0.8 mg Naloxone (Narcan), IM.

EMT-Enhanced

1. Establish IV access.
2. Dextrose 50% 25 gm slow IV push for suspected hypoglycemia with any degree of altered mentation or neurological abnormalities.
   - If unable to establish venous access, administer Glucagon 1 mg IM. May be repeated in 10 minutes if hypoglycemia is still suspected.
3. If narcotic overdose is suspected, naloxone (Narcan) 0.8 mg **SLOWLY** IV Push, or IM if no IV access.
   If intubated, the patient should not receive naloxone (Narcan).
4. For hyperglycemia, BS >400 mg/dl, infuse 1 L NS over 30-60 minutes, followed by NS at 250 mL/hour, monitoring closely for signs of fluid overload.

EMT-Intermediate/Paramedic

1. Initiate cardiac and oximetry monitoring. If available, obtain 12 lead ECG.

Contact Medical Control Physician

Key Points / Considerations
• Naloxone may be administered IM up to 1.6 mg (2 mL) per injection site. • Blood glucose determinations in the field may be helpful in determining whether hypoglycemia is a potential cause of altered mental status, but should be interpreted with caution, particularly if values are borderline. If hypoglycemia is considered, it should be treated. • Medications are a common cause of altered mental status and every effort should be made to identify the patients medications and obtain the medications and/or and accurate list for the receiving hospital.

Adult – Neurological: Seizures

EMT-B

1. Protect the actively seizing patient. Do not attempt to restrain.
2. Provide high flow oxygen.
3. Manage airway appropriately.
4. EMT-J, if seizure persists and hypoglycemia is suspected, administer Glucagon 1 mg IM.

EMT-Enhanced

1. Establish IV access, NS.
2. Administer 25 gm Dextrose 50% IV for persistent seizures, or suspected hypoglycemia.

EMT-Intermediate/Paramedic

1. Initiate cardiac and oximetry monitoring.
2. Administer diazepam (Valium) up to 5 mg IV, or if unable to establish venous access, administer midazolam (Versed) 5mg IM, for persistent seizures.

Contact Medical Control Physician

- Repeat Diazepam (Valium) up to 5 mg IV, or if unable to establish venous access, administer Versed (Midazolam) 5 mg IM.

Key Points / Considerations

- If patient is pregnant, refer to OB/GYN Emergencies guidelines for further guidance.
- The patient's history of seizures and any medications they might be taking are of particular interest to the receiving hospital.

Adult – Neurological: Stroke/CVA

EMT-B

1. Administer high flow oxygen.
2. Focused neurological exam: Cincinnati Prehospital Stroke Scale.
3. If equipped, obtain blood glucose measurement. If hypoglycemia is suspected:
   a. Administer Instant Glucose 15 gm, if patient is able to protect airway.
   b. EMT-J, if patient is unable to protect airway, administer Glucagon 1 mg IM.

EMT-Enhanced

1. Establish IV access, NS, KVO rate.
2. If suspected hypoglycemic or altered mental status, administer 25 gm Dextrose 50% IV.

EMT-Intermediate/Paramedic

1. Initiate cardiac and oximetry monitoring. If available, obtain 12 lead recording.

Key Points / Considerations
• Is the patient taking Warfarin (Coumadin) or other anticoagulant medications? • Reassess neurological status, minimum every 15 minutes. • If the patient can be considered for stroke intervention, it is very important that their baseline neurologic status can be identified, that the **time of onset of symptoms** is identified, that their medications are known, and that a family member or medical decision maker can be available if needed. • If time of stoke symptom onset has been with in the past two hours, Contact medical command immediately and advise of possible stroke alert patient and consider expedited transport.
The **Cincinnati Prehospital Stroke Scale** is useful for identifying patients with acute stroke symptoms. The Cincinnati Prehospital Stroke Scale consists of evaluation of **Facial Droop**, **Arm Drift and Speech**.

Adult – OB/GYN: Childbirth

Most childbirth events are uncomplicated and require support and care for the mother and the newborn. If complications occur (limb presentation, placenta previa, placenta abruptio, prolapsed cord) rapid transportation is in order (consider Medevac).

EMT-B

1. Administer high flow oxygen.
2. Visualize perineum for crowning (bulging perineum), imminent delivery.
3. Transport 3rd trimester patients on their left side (pillow under hip). If immobilized, tilt backboard on left side.

EMT-Enhanced

1. Establish IV access, NS. Maintain SBP> 90 mmHg.

Uncomplicated Birth

1. Assess for amniotic sac rupture.
2. Support infant's head over perineum.
3. Once head appears, suction mouth and nostrils using bulb syringe.
4. Check for cord around infant's neck.
5. Apply gentle traction downward on infant's head until the anterior shoulder appears. Then guide infant upward to deliver posterior shoulder.
6. Keep infant at same level as placenta.
7. Clamp cord with two cord clamps – one 8 inches and the second 10 inches from the infant.
8. Cut the cord between the clamps. If cord around infant's neck, cut the cord between the clamps, then unravel from neck.
9. Keep the infant warm, including the head.
10. Record time of birth.
11. Assess and record APGAR's at 1 minute and 5 minutes.
12. It is not necessary to await the delivery of the placenta prior to transport.

Prolapsed Cord / Limb Presentation

1. Do not attempt to push the cord or limb back in!
2. Insert two fingers of gloved hand into vagina to raise the presenting part of the fetus off the cord. Simultaneously, check cord for pulsations in vagina, and push baby's head away to keep pressure off of cord (maintain throughout transport).
3. Place mother in a knee-chest position (if possible). If mother unable to comply, place in a trendelenburg position instead.
4. Continue to hold pressure off of cord. Keep cord moist with sterile saline.
5. Transport immediately with early notification to receiving emergency department.

Adult – OB/GYN: Childbirth (continued)

Breech Birth

1. Support the baby's extremities or buttocks until the upper back appears.
2. Grasp the baby's hips and apply gentle downward traction. Do not apply traction to the baby's legs or back.
3. Swing the infant's body in the direction of least resistance – either right or to the left. By alternate swinging, both shoulders will deliver posteriorly.
4. By splinting the humerus and applying gentle traction, the two arms can be delivered.
5. Gentle abdominal compression of the uterus will engage the baby's head. Apply downward traction until the baby's hair is visible. Swing the legs upward until his body is in a vertical position. This maneuver permits the delivery of the head.
6. Suction the mouth and nostrils using a bulb syringe.
7. Cut the cord utilizing standard procedure.
8. Keep the infant warm, including the head.
9. Record the time of birth.
10. Assess and record APGAR's at 1 and 5 minutes.

EMT-Intermediate/Paramedic

1. A pregnant patient in cardiac arrest should be managed according to ACLS Guidelines with rapid transport to the hospital and early notification to the emergency department.

Contact Medical Control Physician

- When suspected and the patient is experiencing, tonic-clonic seizure activity (Eclampsia), administer Magnesium Sulfate 10% 2 to 4 grams IV push at no greater than 1 gram per minute, until seizure stops or a maximum dose of 4 grams has been given.

Key Points / Considerations

- Manual vaginal examinations are never to be done in the prehospital setting.
- If birth is imminent, stay and deliver the baby. If high risk or complicated, attempt delivery en-route to the hospital.
- Document presentation, date and time of birth (baby and placenta), appearance of amniotic fluid, APGAR's, appearance of placenta and any resuscitation procedures required.
- Seizures during pregnancy represent a medical emergency for both mother and fetus, contact Medical Command promptly and consider expedited transport to the nearest appropriate facility.
- Always contact Medical Command for guidance with any complicated field delivery.
- Side effects of magnesium treatment include muscle weakness and respiratory depression and should be treated with IV calcium.

Adult – OB/GYN: Sexual Assault

EMT-B

1. Confirm scene safety.
2. Do not examine the genitalia unless patient is hemorrhaging and a dressing is required to control it.
3. Save any clothing removed during your care. Place items in a paper bag (plastic induces moisture).
4. Advise patient not to urinate, defecate, douche, or wash before emergency department evaluation.

EMT-Enhanced

1. Establish IV access, only if indicated by patient condition.

Key Points / Considerations
• When taking a patient history, obtain only pertinent facts related to the trauma (LOC, dyspnea, bleeding, weapon involved, etc.). Do not question the patient about prior events, or attempt to obtain information (assailant description, etc.) not directly related to patient care. Ensure that appropriate law enforcement agencies have been informed.

Adult – OB/GYN: Vaginal Bleeding

EMT-B

1. If unstable administer high flow oxygen.
2. Collect any tissue or fetal parts present. Place in paper bag, and then into a plastic bag for physician examination.

EMT-Enhanced

1. If unstable (SBP< 90 mmHg, altered mental status, and signs of poor peripheral perfusion), Establish IV access, NS and treat for shock.

Key Points / Considerations

- Determine last menstrual period.
- Always consider pregnancy and complications as a source of vaginal bleeding in women of child-bearing age
- Third trimester vaginal bleeding may constitute an emergency for mother as well as fetus. Contact Medical Command Physician promptly and consider expedited transport.

Adult – Psychological: Emotionally Disturbed

Substance-induced disorders (intoxication, withdrawals, etc.), organic causes (cerebral lesions, etc.), diabetic emergencies (hypoglycemia and hyperglycemia, etc.), and hypoxia must be ruled out before a patient's condition is provisionally diagnosed as psychiatric.

All Providers

Contact Medical Control Physician
• If patient refuses transportation for medical evaluation, consider consult with Medical Control Physician for possible Emergency Custody Order (ECO).

Key Points / Considerations
• History of psychological / psychiatric illness? Under treatment for any psychiatric condition? Taking psychotropic medications for condition? • What precipitated the event? Any other pertinent medical history? Significant recent stressor? History of recent alcohol / drug use? History of trauma? • **Suicidal patients are not permitted to sign a refusal for care / transport. Consultation with law enforcement / mental health professionals / Medical Control Physician should guide patient disposition.** • **Always consider organic causes.**

Adult – Pulmonary Emergencies: Respiratory Distress

EMT-B

1. Place patient on pulse oximetry.
2. Administer oxygen as required to maintain oxygen saturation of at least 90%. For patients on home oxygen start with their normal oxygen flow rate and titrate as needed.
3. Assist patient with prescribed metered dose inhaler (MDI). Assess the patient after each dose for effectiveness and assist according to prescribed dose and amount. If no dosing frequency is identified, repeat inhalation in 5 minutes.
4. EMT-J, administer albuterol ((Proventil) 2.5 mg/3mL mixed with ipratropium (Atrovent) 0.5 mg (1 unit dose) via hand held nebulizer. May repeat albuterol.

EMT-Enhanced

Dry
(Wheezes, hx of COPD, Asthma)

1. Albuterol (Proventil) 2.5 mg (1 unit dose) mixed with Ipratropium (Atrovent) 0.5 mg (1 unit dose) by nebulizer repeat Albuterol (Proventil) as indicated.

2. Establish IV access, NS, KVO.

3. Administer methylprednisolone (Solu-Medrol) 125 mg IV.

Wet
(Rales, frothy sputum, distended neck veins, peripheral edema)

1. Establish IV access, NS, KVO.

2. Nitroglycerin 0.4 mg SL q 5 minutes with SBP > 100 mmHg. Should be administered even if patient has taken their own NTG.

3. Apply 1 inch of 2% Nitropaste (15 mg) topically keeping SBP > 100 mmHg.

EMT-Intermediate/Paramedic

1. Furosemide (Lasix) 40 mg IV or two times the normal prescription dose not to exceed 120 mg.

2. Monitor ECG. If available, obtain 12 leadECG recording.

3. Consider Morphine Sulfate, 2-5 mg slow IV if SBP >100 mm Hg.

4. Consider dopamine (Intropin) 2 to 20 mcg/kg/min IV drip for persistent hypotension (SBP< 90 mm Hg)

Contact Medical Control Physician

- If **severe** (unable to speak, absent or greatly diminished breath sounds, tachypnea), Epinephrine 1:1000 0.3 mg SQ, between 12 and 50 years of age, no cardiac history. May repeat initial dose in 10 to 20 minutes.

Adult – Pulmonary Emergencies: Respiratory Distress (continued)

Key Points / Considerations

- All patients (male or female) who would receive Nitroglycerin according to the protocol must be questioned about taking Viagra (sildenafil citrate), Levitra (vardenafil HCL) or Cialis (tadalafil). Any patient that has taken or these medications within the previous 24 hours should not receive any form of nitrates as irreversible hypotension may occur. **Contact Medical Control Physician for further guidance in correctly treating these patients.**
- **Note: Continuous ECG, pulse oximetry and blood pressure monitoring (every 5 minutes) are mandatory, during, and after administration of Morphine Sulfate.**

Adult – Toxicology: Poisoning/Overdose

EMT-B

1. Scene safety (consider HazMat). Identify substance and assure appropriate patient decontamination (completed by trained, equipped providers).
2. Flush skin / mucous membranes with appropriate solution, if indicated.
3. If suspected narcotic overdose and EMT-J, administer 0.8 mg Naloxone (Narcan) IM only for depressed respirations to avoid intubation.

EMT-Enhanced

1. Establish IV access.
2. If suspect narcotic overdose, then Naloxone (Narcan) 0.8 mg **SLOWLY** IVP and stop when the patient is breathing adequately, may be given IM if no IV access. If intubated, the patient should not receive naloxone.
3. **Dystonic Reaction**: Diphenhydramine (Benadryl) 1.0 mg/kg slow IV push (over 2 minutes) for secondary to phenothiazine ingestion (maximum dose of 50 mgs.).

EMT-Intermediate / Paramedic

1. Symptomatic Tricyclic Antidepressant Overdose (widened QRS complex > .12 msec, hypotension not responsive to IV fluids, dysrhythmia). Sodium Bicarbonate 1 mEq/kg IV bolus over 2 min.
2. Symptomatic Calcium Channel Blocker Overdose (bradycardia, QRS complex > .12 msec heart block, hypotension, lethargy, slurred speech, or nausea / vomiting). Calcium Chloride 20 mg/kg slow IV push (over 10 minutes). Do not allow extravasation, use free flowing IV, never give in a hand vein. Sodium Bicarbonate 1 mEq/kg IV bolus over 2 min.
3. Symptomatic Organophosphate Poisoning – airway compromise (secretions or marked bronchospasm), seizures, or marked bradycardia: Atropine 0.05 mg/kg doubled every 5 to 10 minutes until signs of decreased secretions. Tachycardia is not a contraindication to atropine administration.

Key Points / Considerations
• Poison Control should be consulted for all complex overdoses / poisoning / exposures, 434-924-5543 if unable to reach MedCom. Local EMS resources may use 1-800-451-1428 (direct to Blue Ridge Poison Control Center). • Aero medical resources given potential risk to aircrew and aircraft safety will not transport contaminated patients. • It is important to remember that a toxic exposure poses a significant risk to both rescuer and patient; appropriate scene management and decontamination are critical. • Sodium Bicarbonate administration should be considered in any patient with a QRS > 100 ms as many drugs other than tricyclics cause this EKG abnormality. • It is important to bring to the receiving hospital ***all*** of the patient's medications, prescription and those suspected.

Adult – Trauma: Amputation

EMT-B

1. Spinal immobilization, if indicated.
2. Assess the patient for associated injuries that may be of a higher priority.
3. Apply direct pressure to control hemorrhage. A tourniquet should be avoided when possible. If a tourniquet must be placed, use only the smallest amount of pressure over the widest area to achieve hemorrhage control.
4. In the case of incomplete amputation, splint entire digit or limb in a physiologic position, if possible.
5. Place part in damp (not wet) gauze, place in plastic bag, wrap in trauma dressing and place on ice/water mix.

EMT-Enhanced

1. Establish IV access.
2. Fluid bolus of 500 mL NS, may be repeated if necessary after reassessment, up to 1 liter NS if indicated for hypotension, to maintain a SBP> 90mmHg.

EMT-Intermediate/Paramedic

1. Morphine Sulfate up to 10 mg slow IV push (at no greater than 3 mg/min) with a SBP >90 mmHg for moderate to severe pain.

Contact Medical Control Physician

- Consider additional analgesia.

Key Points / Considerations

- Never freeze the part by placing it directly on the ice or by adding any other coolant, such as dry ice, which could cause irreversible damage to the tissue.
- **Note: Continuous ECG, pulse oximetry and blood pressure monitoring (every 5 minutes) are mandatory, during, and after administration of Morphine Sulfate.**

Adult – Trauma: Burns

Chemical burns represent a hazard to both the patient and the rescuer, and extreme care should be taken to avoid exposure to offending agents. The eyes are particularly vulnerable to chemical burns and, in general, acids tend not to burn as deeply as alkalis which penetrate very deeply as the tissue is de-fatted. Therefore, eye irrigation should be started early and continued for at least 15 minutes. The care of *electrical burns* should be guided by safety. The heart is most susceptible to voltage below 400 volts. Above this level internal burns are a major complication. Remember that most injuries in electrical burns are internal. Fatal arrhythmias are usually a very early problem but other arrhythmias may occur at any time if the heart has been electrically injured. Care of the patient with *thermal burns* should be guided by scene safety, cooling the burn (if appropriate), maintaining normal body temperature, and protecting the airway. Shock in the very early stages of a burn is generally not associated with the burn, thus one should rule out other life-threatening injuries.

EMT-B

1. Scene safety (turn off power or contact fire department, extinguish flames, wear PPE).
2. Apply *dry* sterile dressings.
3. Spinal immobilization, if indicated.
4. Irrigate chemical burn site with water if appropriate to chemical (if powdered chemical, brush off).
5. Splint fractures (after applying dressing).

EMT-Enhanced

1. Manage airway appropriately. Have a high index of suspicion in cases of facial burns, sooty sputum, singed facial hair, etc.
2. Establish IV access.
3. Fluid bolus of 500 mL NS, may be repeated if necessary after reassessment, up to 1 liter NS if indicated for hypotension, to maintain a SBP> 90 mmHg.
   a. Avoid establishing IV distal to an extremity burn site. Maintain a SBP > 90 mmHg.
   b. Administer 300 mL/hr for electric burns if no risk of CHF.

EMT-Intermediate/Paramedic

1. Initiate cardiac and oximetry monitoring.
2. Morphine Sulfate up to 10 mg slow IV push (at no greater than 3 mg/min) with a SBP >90 mmHg for moderate to severe pain from burns.

Contact Medical Control Physician

- Consider additional analgesia.

Key Points / Considerations

- In electrical burns, search for additional traumatic injury.
- In thermal burns, assess the patient for evidence of potential carbon monoxide exposure.
- Remove jewelry and nonadherent clothing.
- Estimate extent of burns (area of palm =1%)
- **Note: Continuous ECG, pulse oximetry and blood pressure monitoring (every 5 minutes) are mandatory, during, and after administration of Morphine Sulfate.**

Adult – Trauma: CNS Injuries

EMT-B

1. Spinal immobilization, if indicated.
2. Maintain patient warmth.
3. High flow oxygenation.
4. Record Glasgow Coma Scale.

EMT-Enhanced

1. Establish IV access.
2. If patient is hypotensive (SBP< 90 mmHg), consider IV bolus of 500mL NS and reassess, may be repeated up to 1 liter NS.
3. Manage airway appropriately.
4. Elevate head of stretcher at 30 degrees.

Key Points / Considerations
• Difficulty breathing or moving? Loss of sensation? Any penetrating trauma in or around spinal cord? Any bruising noted around neck and back? • Keep the patient warm unless already hyperthermic.

Adult – Trauma: General Management

The general initial assessment and management of a traumatically injured adult and child are essentially the same. Airway and breathing must be evaluated and managed first, followed by assessment of circulation, then a brief neurological examination and complete exposure of the patient. One of the most important responsibilities of the prehospital provider is to spend as little time on the scene to evaluate the patient, to perform life saving measures and to prepare the patient for transport in the critically injured patient. Many procedures and assessments can be done enroute to the hospital where definitive care resides for the immediate trauma patient.

EMT-B

1. Spinal immobilization, if indicated.
2. Administer high flow oxygen.
3. Assist ventilations as needed.
4. Evisceration (extrusion of internal organs outside of the protective abdominal cavity), cover with moist sterile dressing, then with plastic wrap. Keep dressing moist to avoid drying of tissue. DO NOT PUSH / FORCE ORGANS BACK INTO CAVITY!

EMT-Enhanced

1. **Notify MedCom as soon as possible if your patient meets trauma alert criteria due to mechanism of injury or clinical status of patient (red or yellow patient category). Advise MedCom of the following: 1) Mechanism of injury, 2) Age and sex of patient, 3) Sites of injury, 4) Vitals (if available), 5) ETA.**
2. Establish IV access, NS.
3. Fluid bolus of 500 mL NS, may be repeated if necessary to maintain a SBP> 90 mmHg.
4. Suspect Tension Pneumothorax (extreme dyspnea, hypotension, absent breath sounds) insert a large bore (14 gauge) angiocath into the second intercostal space, midclavicular, on the affected side(s).

EMT-Intermediate/Paramedic

1. Initiate cardiac and oximetry monitoring.
2. Morphine Sulfate up to 10 mg slow IV push (at no greater than 3 mg/min) with a SBP > 90 mmHg for moderate to severe pain from isolated distal extremity fracture/dislocation.

Contact Medical Control Physician

- Consider cessation of resuscitation effort for patients in Cardiac Arrest post-traumatic event.

Key Points / Considerations

- Difficulty breathing or moving? Loss of sensation? Any bruising noted on chest or back? Any penetrating injuries?
- If shooting / stabbing / chest trauma: number of punctures and location(s). Tracheal deviation? Subcutaneous air? Breath sounds?
- Traumatically injured patients are very susceptible to heat losses and preservation of body heat is paramount: keep the patient warm unless already hyperthermic.
- **Note: Continuous ECG, pulse oximetry and blood pressure monitoring (every 5 minutes) are mandatory, during, and after administration of Morphine Sulfate.**

Pediatrics: General Management Arrest or Pre-arrest

Pediatric cardiac arrest or pre-arrest states should be approached in a similar fashion, by addressing airway management and ventilation first, since these are the most likely cause of the arrest or pre-arrest state. Special considerations such as maintaining body temperature, frequent re-assessment, and rapid transport should be observed in each of these cases.

EMT-B

1. Check adequacy of any bystander CPR and take over if indicated. Perform chest compressions if despite oxygenation and ventilation there is a persistent heart rate < 60 minute in infant / child with poor perfusion or < 60/minute in a newborn.
2. Assess airway for patency, obstruction or foreign body.
3. Manage airway appropriately and assist ventilations with BVM and 100% oxygen.
4. If patient is pulseless and apneic, and AED is available, apply AED and shock if indicated. Pediatric pads are preferred but adult pads may be used if needed.
5. Notify additional responding units of CPR in progress, request ALS support if not already dispatched.
6. Maintain body temperature, expose only as needed to assess and treat.
7. Transport rapidly with BLS measures if ALS is not promptly available.

EMT-Enhanced

1. Establish IV access. (No more than 2 attempts). If unable, establish IO.
2. If hypoglycemia is suspected, treat with glucose at a concentration appropriate for the patient's age, or with IM glucagon if IV access is not available. If equipped, obtain blood glucose measurement.

EMT-Intermediate/Paramedic

1. Initiate cardiac and oximetry monitoring.
2. Manage airway appropriately.
3. Evaluate cardiac rhythm—go to appropriate protocol for further management

Contact Medical Control Physician

Key Points / Considerations

- IV medications should be followed by 10 cc bolus of fluid to move drugs into central circulation.
- ET dosing of medications is less desirable than IV or IO administration. All ET doses of medication should be flushed with 2-3 mL of normal saline.
- Proper endotracheal tube position should be reconfirmed every time the patient is moved, or there is a change in patient status. Continuous monitoring of ETCO2 is highly desirable in intubated pediatric patients.
- Consider orogastric tube placement for abdominal distension if trained.
- Use length-based resuscitation calculator/tape (such as Broselow tape) for age/weight-appropriate medication dosing.
- Intraosseous access should only be attempted in a patient who is unresponsive to pain.

Pediatrics – Cardiac: Asystole/ PEA

EMT-Intermediate/Paramedic

1. Epinephrine: repeated every 3-5 minutes
    - IV / IO: 0.01 mg/kg (1:10,000; 0.1 mL/kg) maximum dose 1 mg
    - ET: 0.1 mg/kg (1:1000; 0.1 mL/kg) maximum dose 10 mg

2. Identify and treat causes:
    - Hypoxemia
    - Hypovolemia
    - Hypothermia
    - Hyper/hypokalemia and metabolic disorders
    - Tamponade
    - Tension Pneumothorax
    - Toxins/poisons/drugs
    - Thromboembolism

Contact Medical Control Physician

Key Points / Considerations
• Newborns (< 30 days) endotracheal dose not increase for Epinephrine 0.01 mg/kg.

Pediatrics – Cardiac: Bradycardia (Symptomatic)

Hypoxemia, hypotension, and acidosis interfere with the normal function of the sinus node and AV junction tissue and slow conduction through normal pathways. Sinus bradycardia, sinus node arrest with a slow junctional or ventricular escape rhythm, and various degrees of AV blocks are the most common pre-arrest rhythms in children. Bradycardia (heart rate less than 60 bpm in infants / children and < 100 bpm in neonates) associated with poor systemic perfusion should be treated in any infant or child, even if the B/P is normal. Adequate ventilation with 100% oxygen must be ensured, chest compressions performed, and epinephrine and atropine administered, when indicated.

EMT

1. Assure adequate ventilations with bag-valve-mask and oxygen.

EMT-Intermediate/Paramedic

1. Manage airway appropriately.
2. Establish cardiac and oximetry monitoring.
3. Epinephrine: every 3-5 minutes
   - IV / IO: 0.01 mg/kg (1:10,000; 0.1 mL/kg) maximum dose 1 mg.
   - ET: 0.1 mg/kg (1:1000; 0.1 mL/kg) maximum dose 10 mg.
4. Atropine Sulfate: every 5 minutes
   - IV / IO: 0.02 mg/kg, minimum dose: 0.1 mg.
     - Maximum child single dose 0.5 mg; total dose 1 mg.
     - Maximum adolescent single dose 1.0 mg; total dose 2 mg.
5. Consider cardiac pacing.

Key Points / Considerations
• Sinus Bradycardia is a common manifestation of hypoxia in the infant. The older child may present with specific symptoms such as syncope, chest pain, shortness of breath, or palpitations.

Pediatrics – Cardiac: Tachycardia-Paroxysmal SVT (Narrow Complex)

By far the most common arrhythmia seen in the pediatric age is paroxysmal supraventricular tachycardia (PSVT), which may occur in all age groups but is most common in infancy. Presentation in infancy is characterized by poor feeding, rapid breathing, or irritability. The infant may appear very ill and be misdiagnosed with sepsis. The diagnosis of PSVT is suspected in the child who presents with a heart rate between 200 and 300 beats/min. Congestive heart failure may be present. Wide-Complex tachycardia is presumed to be ventricular in origin, since PSVT with aberration is extremely rare in children.

EMT-Enhanced

1. Supplement with 100% oxygen blow by or facemask. Use BVM ventilation if respiratory effort inadequate.
2. Establish IV access. Attempt IO only if there is a life-threatening condition and no response to pain.

EMT-Intermediate/Paramedic

1. Establish cardiac and oximetry monitoring. If equipped, obtain 12 lead ECG.
2. If QRS duration normal, < 0.08 seconds, continue. If not, see Ventricular Tachycardia.

Probable Sinus Tachycardia

P waves present and normal.
Variable R-R with constant P-R.
Infants: rate usually less than 220 bpm.
Children: rate usually less than 180 bpm.

Identify and treat possible causes:
Hypoxemia
Hypovolemia
Hyperthermia
Hyper/hypokalemia and metabolic disorders
Tamponade
Tension Pneumothorax
Toxin/poisons/drugs
Thromboembolism
Pain

Probable Supraventricular Tachycardia

QRS duration normal, < 0.08 seconds:
P waves absent or normal.
Abrupt rate change to or from normal.
Infants: rate usually greater than 220 bpm.
Children: rate usually greater than 180 bpm.

Contact Medical Control Physician for Consultation

- Consider vagal maneuvers.
- Adenosine
  a. IV / IO 0.1 mg/kg rapid bolus (maximum first dose: 6 mg).
  b. May double and repeat dose once (maximum second dose: 12 mg).
- Synchronized Cardioversion (indicated immediately in the unstable patient)
  a. 0.5 to 1.0 J/kg (may increase to 2 J/kg if initial dose is ineffective).
  b. Consider sedation with Midazolam (Versed) 0.1 mg/kg (maximum single dose 2 mg), but do not delay cardioversion.

Pediatrics – Cardiac: Ventricular Fibrillation / Pulseless VT

EMT-Intermediate/Paramedic

1. Attempt Defibrillation, *2* J/kg.
2. Epinephrine: every 3-5 minutes
    - IV / IO: 0.01 mg/kg (1:10,000; 0.1 mL/kg) maximum dose 1 mg.
    - ET: 0.1 mg/kg (1:1,000; 0.1 mL/kg) maximum dose 10 mg.
3. Attempt defibrillation @ 4 J/kg after 2 minutes of CPR.

Contact Medical Control Physician
• Consider amiodarone, 5 mg/kg IV/IO. • Magnesium Sulfate 25-50 mg/kg IV/IO for Torsades de pointes or hypomagnesaemia. Maximum dose 2 gm.

Key Points / Considerations
• Acidosis in children is primarily a problem of ventilation and oxygenation. Sodium Bicarbonate should not be used during brief resuscitation episodes. • When utilizing AED's, use equipment with pediatric pads and sensing ability whenever possible, but use adult units if pediatric units/pads not available.

Pediatrics – Cardiac: Ventricular Tachycardia (Wide Complex with a pulse)

EMT-Enhanced

1. Establish IV access. Attempt IO only if there is a life-threatening condition and no response to pain.

EMT-Intermediate/Paramedic

1. If equipped, obtain 12 lead ECG.
2. If QRS is wide (QRS duration > 0.08 seconds)
    - Synchronized cardioversion, indicated immediately in the unstable patient 0.5 to 1.0 J/kg, if not effective increase to 2 J/kg.

Contact Medical Control Physician

- Consider amiodarone, 0.5 mg/kg IV over 10 to 20 minutes.
- Consider sedation with Midazolam (Versed) 0.1 mg/kg but do not delay Cardioversion.

Key Points / Considerations

- Ventricular Tachycardia (VT) is uncommon in the pediatric age group. In the presence of VT, the ventricular rate may vary from near normal to more than 400 beats per minute. Slow rates may be well tolerated, but rapid ventricular rates compromise stroke volume and cardiac output and may degenerate into VF. The majority of children who develop VT have underlying structural heart disease or prolonged QT syndrome.
- When utilizing AED's, use equipment with pediatric pads and sensing ability whenever possible, but use adult units if pediatric units/pads not available.

Pediatrics – Environmental: Hyperthermia

Heat Exhaustion is a syndrome of dizziness, nausea, vomiting, weakness, and, occasionally syncope which may be associated with a normal body temperature or a moderate temperature elevation. There is no sustained change in mentation, and the skin is usually wet from profuse diaphoresis. Heat Stroke is the most severe form of heat illness. Patients with heat stroke present with disorientation, seizures, and/or coma. Historically, heat stroke was defined as the triad of hyperpyrexia (temperature > 105 degrees F), CNS dysfunction, and lack of sweating. However, lack of sweating is not an absolute diagnostic criterion since many heat stroke patients may present with profuse sweating.

EMT-B

1. Obtain accurate body temperature, if possible (rectal preferred).
2. Move to cooler environment and remove excess clothing, protect from further heat gains.
3. **Heat Exhaustion**: Carefully begin rehydration with oral isotonic solutions or water, if patient can tolerate liquids. Do not give large amounts of fluid rapidly or administer fluids by mouth to any patient who has an altered mentation.
   - If temperature > 103 degrees F., cool patient with ice packs, cool wet towels, or fans and spray water applied to areas where major vessels come close to the skin surface, (i.e., carotids, femorals, brachials).
   - Remove cooling agent when temperature reaches 100 degrees F. to avoid too rapid of a temperature drop which may initiate the shivering process (which will increase temperature).
4. **Heat Stroke**: Aggressive evaporation cooling is indicated (using fine mist water spray and forced air stream with fans), apply ice packs to groin and axillae.
   - Continue cooling until core temperature reaches, or is less than 104 degrees F. (to avoid too rapid of a temperature drop), or shivering begins (which will increase temperature).

EMT-Enhanced

1. Establish IV access.
2. Heat Exhaustion: Fluid bolus therapy 10 mL/kg IV NS with evidence of hypovolemia or hemodynamic compromise, or severe heat cramps with painful, involuntary muscle spasms.
3. Heat Stroke: Fluid bolus therapy initially at 20 mL/kg of NS. If evidence of hypovolemia or hemodynamic compromise exists, then repeat fluid therapy at 20 mL/kg IV bolus.

Contact Medical Control Physician

Key Points / Considerations
• The major difference between heat exhaustion and heat stroke is generally CNS impairment. • The treatment of heat exhaustion is rest with fluid volume and electrolyte replacement. • Dehydration and volume depletion may not occur in classic heat stroke. Vigorous fluid administration may produce pulmonary edema, especially in the very young. • Maximum fluid volume is 40 cc/kg in both cases (monitor for signs and symptoms of fluid overload). Fluid boluses should be given over 10-15 minutes maximum.

Pediatrics – Environmental: Near Drowning

Drowning is the fourth most common cause of trauma related death in the United States. It can occur anywhere from a residential bathroom to area lakes. Near Drowning is defined as a submersion accident with recovery of vital signs and survival greater than 24 hours post incident. The primary mechanism of death in drowning is hypoxia and suffocation due to lack of oxygen or atelectasis of lung tissue. Patient survival is based largely on early access, aggressive management and resuscitation intervention.

EMT-B

1. Remove from water if so trained, and it is safe to do so.
2. Protect C-spine and maintain spinal immobilization.
3. If patient in cardiopulmonary arrest, refer to appropriate cardiac arrest standard.
4. Remove wet clothing, maintain body temperature.
5. Obtain rectal temperature and refer to “Hypothermia” protocol, if indicated.

EMT-Enhanced

1. Establish IV access.

EMT-Intermediate/Paramedic

1. Refer to specific protocol for cardiac arrhythmias as needed (if patient is in arrest).

Key Points / Considerations
• Type of incident (surface impact, submerged object strike, propeller trauma). If submerged, how long under water and how deep? • Weather conditions, water temperature, temperature at depth discovered (if SCUBA recovery). • Hypothermic patients have slowed uptake and circulatory functions and are candidates for prolonged resuscitation efforts and transport to hospital. Follow “Hypothermia” protocol if immersion is in water.

Pediatrics – General Medical: Severe Allergic Reaction

Severe allergic reactions are life threatening with a mortality rate of approximately 3% requiring swift action. Care is focused on reducing or stopping the allergic reaction. The cardinal signs of severe allergic reactions are stridor, bronchospasm, and hypotension and may additionally include tightness in the chest, generalized hives, hoarseness and wheezes. The symptoms associated with severe allergic reactions may begin within seconds of exposure to an allergen or may be delayed up to 1 hour. However, typical response begins within minutes of exposure and primarily involves cardiovascular and respiratory system.

EMT-B

1. Safely and rapidly remove patient from source of exposure.
2. Ice packs to affected area, if indicated.
3. Assist patient with prescribed pediatric Epinephrine auto-injector (Epi-Jr.) (0.15 mg) with signs and symptoms of severe allergic reaction (significant respiratory distress and/ or shock). NOTE: the patient with severe allergic reaction rarely presents with hypertension. Age parameters: between 2 and 8 years of age.

EMT-Enhanced

1. Epinephrine 1:1000, 0.01 mg/kg SQ for respiratory distress and poor perfusion. Maximum single dose is 0.3 mg.
2. Establish IV access. Fluid bolus therapy 20 mL/kg for hypotension or inadequate perfusion.
3. Albuterol (Proventil) nebulizer 2.5 mg (1 unit dose) for mild to moderate bronchospasm.
4. Diphenhydramine (Benadryl) 1.0 mg/kg slow IV push or IM if IV access not available to a maximum dose of 50 mg for hives, allergic reaction.

Contact Medical Control Physician for additional Epinephrine dosing.

EMT-Intermediate/Paramedic

1. Initiate cardiac and oximetry monitoring.
2. Methylprednisolone (Solu-Medrol) 1.0 mg/kg IV over 1 minute for severe hives, inadequate perfusion, or respiratory distress.

Key Points / Considerations
• Any patient receiving Epinephrine for allergic reaction must be transported.

Pediatrics – Neurological: Altered Level of Consciousness

Altered mentation is a symptom, not a diagnosis, with many possible causes, both medical and traumatic. Common etiologies include: diabetic problems (hypo/hyperglycemia), alcohol or drug intoxication, metabolic abnormalities, seizures or post-ictal states, toxic exposure, hypoxia, sepsis, stroke, and head trauma. Altered mentation of a known etiology (such as hypoglycemia or narcotic overdose), should be treated using the appropriate protocol. Multiple patients with an altered mentation suggest toxic exposure/drug ingestion (always remember CO).

EMT-B

1. Administer high flow oxygen.
2. Support ventilations with BVM if necessary.
3. If equipped, blood glucose assessment.
4. Spinal immobilization, if indicated.

EMT-Enhanced

1. Establish IV access.
2. **Administer Glucose:**
   - **CHILDREN (OLDER THAN 8 YEARS):**
   - Dextrose 50% (D50W) 1mL/kg slow IV push or IO. May repeat once if indicated.
   - **INFANTS (OLDER THAN ONE MONTH):**
   - Dextrose 25% (D25W) 2mL/kg slow IV push or IO. May repeat once if indicated.
   - **NEONATES (YOUNGER THAN ONE MONTH):**
   - Dextrose 12.5% (D12.5W) 4mL/kg slow IV push or IO. May repeat once if indicated.
3. **Evidence of dehydration:**
   - 20 mL/kg IV bolus for hypoperfusion and tachycardia. Repeat once for persistent hypoperfusion.
   - 10 to 20 mL/kg over 1 hour for stable patients with mild signs and symptoms of dehydration (mildly sunken fontanels, poor turgor, minimally tachycardic).
   - Maximum of 40 mL/kg without Medical Direction Physician consultation.
4. If suspect narcotic overdose, then Naloxone (Narcan) 0.1 mg/kg IV, IO, IM.
   If intubated, the patient should not receive Naloxone (Narcan).

Contact Medical Control Physician for further consultation

Key Points / Considerations

- Contact Poison Control prior to or during transport if known product/poisoning suspected, 434-971-8657or 800-451-1428.
- Sepsis with fever, hypothermia, or hypoxia may be some causes for altered mental status in children.
- Is there a medical history that suggests a possible cause (i.e. cardiac history, diabetes, CVA, HTN, seizures, or alcohol/drugs)? Is the patient a newborn of a narcotic mother?
- Any evidence of trauma?
- Is the patient under a physician's care for this condition?

Pediatrics – Neurological: Seizures

Seizures are defined as an episode of abnormal neurologic function caused by an abnormal electrical discharge of brain neurons. There are many episodic disturbances of neurological function that can mimic a seizure. *Status Epilepticus* is a true medical emergency defined as either continuous seizures lasting at least 5 minutes or two or more discrete seizures, without complete recovery of consciousness between seizures. ***All first time seizures associated with a fever should be evaluated by a physician.***

EMT-B

1. Protect the actively seizing patient. Do not attempt to restrain.
2. Administer high flow oxygen.
3. Manage airway appropriately.

EMT-Enhanced

1. Establish IV access.
2. Administer IV Dextrose appropriate for age.

EMT-Intermediate/Paramedic

1. Administer 0.1 mg/kg Diazepam (Valium) IV or if unable to establish venous access, Midazolam (Versed) 0.1 mg/kg (maximum single dose 5 mg) IM, may repeat in 5 minutes for persistent seizure activity.
2. Monitor ECG.

Contact Medical Control Physician

Pediatrics – Newborn Resuscitation

The vast majority of term newborns require no resuscitation beyond maintenance of temperature, suctioning of the airway, and mild stimulation. Most neonatal resuscitations in the prehospital setting occur without prior notice. Prehospital delays should always be kept to a minimum when possible.

EMT-B / EMT-Enhanced

1. Assess responsiveness, breathing, and pulse (by palpating base of umbilical cord, brachial or femoral artery, or auscultation of apical heart sounds. Record delivery when patient status allows.
2. Place the newborn on his/her back with the neck in a neutral position to avoid hyperextension or flexion of the neck.
3. If meconium staining present, suction the mouth with bulb suction as best as possible before suctioning the nose or provide ventilations. If meconium is observed during delivery, you must suction prior to the delivery of the body.
4. After delivery, use mild stimulation (drying, warming, and suctioning) as needed. If spontaneous and effective respirations are not established after 5 to 10 seconds of stimulation, ventilatory assistance (40 to 60 breaths/minute) with an infant BVM is required.
5. If the newborn's heart rate is less than 60 beats per minute, and it does not increase after BVM ventilation with 100% oxygen for approximately 30 seconds, chest compressions should be initiated.
6. Dry the newborn, wrap in towel, head cap, or blanket and maintain warmth. **Do not allow the newborn to become hypothermic.**
7. Record APGAR scores at 1 minute and 5 minutes of birth.

EMT-Intermediate/Paramedic

1. Endotracheal intubation is indicated when:
   a. BVM ventilation is ineffective;
   b. Tracheal suctioning is required for aspiration of thick, particulate meconium using a meconium aspirator.
5. Fluid resuscitation therapy should be instituted when signs and symptoms of shock (rare) are present.
   a. A 10 mL/kg (IV/IO) bolus of NS administered as rapidly as possible (in less than 20 minutes) should be given.
   b. Reassess the newborn and if signs and symptoms of shock persist, repeat bolus of 10 mL/kg NS IV/IO.
3. Follow specific algorithms in cases of bradycardia, tachycardia or cardiopulmonary arrest.

Key Points / Considerations

- All newborns have difficulty tolerating a cold environment. Depressed infants are especially at risk for complications of cold stress, and recovery from acidosis is delayed by hypothermia. Heat loss may be prevented by (1) quickly drying the amniotic fluid covering the infant; (2) removing wet linens from contact with the baby. Methods of warming include blankets, warming mattresses; warm towels and placement of towel-wrapped latex gloves filled with warm water around the infant or towel wrapped hot packs.
- IO access should be attempted if no peripheral access can be obtained after 2 attempts or 90 seconds in patients with cardiovascular collapse.
- If there is meconium, clean endotracheal tubes should be used for each successive intubation while suctioning out meconium.
- Newborns (< 30 days) endotracheal dose does not increase for Epinephrine 0.01 mg/kg.

Pediatrics – Pulmonary Emergencies: Respiratory Distress

Respiratory distress is a symptom from many origins including but not limited to hyperventilation syndrome, congestive heart failure, reactive airway disease (asthma, COPD, Chronic Bronchitis) and pulmonary irritation. Emphysema in the infant and child is rare and, if present, is congenital. The goal for the prehospital provider is to accurately assess the patient, provide oxygenation and ventilatory support, and drug therapy as needed.

EMT-B

1. Allow child to assume position of comfort, preferably with head elevated.
2. Administer high flow oxygen.
3. If equipped, apply and monitor pulse oximetry.
4. Assist patient with prescribed Metered Dose Inhaler (MDI). Assess the patient after each dose for effectiveness and assist according to prescribed dose and amount.
5. EMT-J, administer Albuterol (Proventil) via hand held nebulizer with Ipratropium (Atrovent). May repeat Albuterol (Proventil) as long as patient remains symptomatic.

EMT-Enhanced

1. Establish IV access, NS, KVO.
2. Albuterol (Proventil) with Ipratropium (Atrovent) via nebulization. May repeat Albuterol (Proventil) as long as patient remains symptomatic.
3. **Patient severely symptomatic** (unable to speak normally, severe wheezing, absent or greatly diminished breath sounds, signs of poor perfusion):
   a. Epinephrine 1:1,000 at 0.01 mg/kg SQ. Maximum single dose is 0.3 mg.
      - May be repeated every 20 minutes for a total of 3 doses, if still symptomatic.
4. For suspected Croup (barking cough, retractions, stridor, fever) or Epiglottitis (stridor, drooling, hoarse voice, fever, leaning forward position); Consider nebulized saline for mildly to moderate symptomatic patients: 2-3 ml of sterile saline in nebulizer with oxygen 8L/m through mask, mouthpiece or blow-by.

Contact Medical Control Physician

- Moderate to severe patients with suspected Croup/Epiglottitis - place 2-3 ml (2-3 mg) of 1:1000 Epinephrine in the nebulizer bowl with oxygen at 8 L/m through mask, mouthpiece.
- Methylprednisolone (Solu-Medrol) 2mg/kg IV for severe asthma or croup.

EMT-Intermediate/Paramedic

1. Monitor ECG if indicated.

Key Points / Considerations

- In upper airway disorders (i.e. epiglottitis, croup, foreign body airway obstruction), invasive airway maneuvers should only be attempted if patient is in respiratory arrest, as aggravation of irritated tissues can cause further airway obstruction.

Pediatrics – Toxicology: Poisoning/Overdose

It is impossible to include all potential toxic exposures or poisonings in this Protocol. Management of the poisoned / overdose patient focuses on several principles; decontamination limits further absorption and minimizes the extent of toxicity; supportive care limits the effects of the serious complications of poisoning on the primary systems at risk; and definitive care limits the severity of duration of toxicity through the use of pharmacological antagonists (antidotes) or enhances elimination of the toxin itself.

EMT-B

1. Scene safety (consider HazMat). Identify substance and assure appropriate patient decontamination (completed by trained, equipped providers).
2. Flush skin / mucous membranes with appropriate solution, if indicated.

EMT-Enhanced

1. Establish IV.
2. If suspect narcotic overdose, then Naloxone (Narcan) 0.1 mg/kg IV, IM <u>only for depressed respirations to avoid intubation.</u>
    - If intubated, the patient should not receive Naloxone (Narcan).

Contact Medical Control Physician

- **Dystonic Reaction**: Diphenhydramine (Benadryl) 1.0 mg/kg slow IV push (over 2 minutes) for secondary to phenothiazine ingestion (maximum dose of 50 mgs.).

CT/EMT-Intermediate / Paramedic

- **Symptomatic Tricyclic Antidepressant Overdose** (widened QRS complex > .10 secs, hypotension not responsive to IV fluids, dysrhythmia or prior to intubation.
    a. Sodium Bicarbonate 1 mEq/kg IV bolus over 2 min x1.
- **Symptomatic Calcium Channel Blocker Overdose** (Bradycardia, conduction delays, hypotension, lethargy, slurred speech, or nausea / vomiting):
    a. Calcium Chloride 10 mg/kg slow IV push (over 10 minutes).
    b. *Do not allow extravasation, use free flowing IV, <u>never give in a hand vein.</u>*
- **Symptomatic Organophosphate Poisoning** –airway compromise (secretions or marked bronchospasm), seizures, or marked Bradycardia (rare):
    a. Atropine 0.05 mg/kg doubled every 5 to 10 minutes until drying of secretions. Tachycardia is not a contraindication to atropine administration.

Key Points / Considerations

- Poison Control should be consulted for all complex overdoses / poisoning / exposures, 434-924-5543 or 1-800-451-1428 if unable to reach MedCom.
- Aero Medical resources should not transport contaminated patients given potential risk to crew and aircraft safety.
- It is important to remember that a toxic exposure poses a significant risk to both rescuer and patient; appropriate scene management and decontamination are critical.

Pediatrics – Trauma: Amputation

The partial or complete severance of a digit or a limb is an amputation. Candidates for reimplantation include victims of amputation of the scalp, hand, digit, penis and selected portions of distal-most extremities.

EMT-B

1. Spinal immobilization, if indicated.
2. Assess the patient for associated injuries that may be of a higher priority.
3. Apply direct pressure to control hemorrhage. A tourniquet should be avoided when possible. If a tourniquet must be placed, use only the smallest amount of pressure to achieve hemorrhage control.
4. In the case of incomplete amputation, splint entire digit or limb in a physiologic position, if possible.
5. Place part in damp (not wet) gauze, place in plastic bag, wrap in trauma dressing and place on ice/water mix.

EMT-Enhanced

1. Establish IV.
2. Fluid therapy 20 mL/kg IV bolus for hypotension (SBP appropriate for age), NS.

EMT-Intermediate/Paramedic

1. Morphine Sulfate 0.1 mg/kg slow IV / IO push or IM for moderate to severe pain from amputated body part(s) or tissue. Maximum dose is 10 mg. **NOTE**: IO access is reserved for those patients with life-threatening injuries who are unresponsive to pain.

Contact Medical Control Physician

- Consider additional analgesia.

Key Points / Considerations

- Never freeze the part by placing it directly on the ice or by adding any other coolant, such as dry ice, which could cause irreversible damage to the tissue.
- **Note: Continuous ECG, pulse oximetry and blood pressure monitoring (every 5 minutes) are mandatory, during, and after administration of Morphine Sulfate.**

Pediatrics – Trauma: Burns

Chemical burns represent a hazard to both the patient and the rescuer, and extreme care should be taken to avoid exposure to offending agents. The eyes are particularly vulnerable to chemical burns and, in general, acids tend not to burn as deeply as alkalis which penetrate very deeply as the tissue is de-fatted. Therefore, eye irrigation should be started early and continued for at least 15 minutes. The care of *electrical burns* should be guided by safety. The heart is most susceptible to voltage below 400 volts. Above this level, internal burns are a major complication. Remember that most injuries in electrical burns are internal. Fatal arrhythmias are usually a very early problem but other arrhythmias may occur at any time if the heart has been electrically injured. Care of the patient with *thermal burns* should be guided by scene safety, cooling the burn (if appropriate), maintaining normal body temperature, and protecting the airway. Shock in the very early stages of a burn is generally not associated with the burn, thus one should rule out other life-threatening injuries.

EMT-B

1. Scene safety (turn off power or contact fire department, extinguish flames, wear PPE).
2. Apply *dry* sterile dressings.

Contact Medical Control Physician for further consultation regarding cooling procedures.

3. Spinal immobilization, if indicated.
4. Irrigate chemical burn site with water if appropriate to chemical (if powdered chemical, brush off).
5. Splint fractures (after applying dressing).

EMT-Enhanced

1. Establish IV or IO, with NS. Fluid therapy 20 mL/kg fast IV bolus for hypotension (SBP appropriate for age).
   a. Avoid establishing IV distal to an extremity burn site. Maintain a SBP > 90 mmHg.
   b. Maximum 40 mL/kg. Contact Medical Control Physician for further fluid bolus, if needed.

EMT-Intermediate/Paramedic

1. Consider early intubation if airway compromise develops from inhalation of superheated gases of smoke. Have a high index of suspicion in cases of facial burns, sooty sputum, singed facial hair, etc.
2. Morphine Sulfate 0.1 mg/kg slow IV /IO push or IM for moderate to severe pain from burns.

Key Points / Considerations
Note: Continuous ECG, pulse oximetry and blood pressure monitoring (every 5 minutes) are mandatory, during, and after administration of Morphine Sulfate.

Pediatrics – Trauma: CNS Injuries

EMT-B

1. Spinal immobilization, if indicated.
2. Maintain patient warmth.
3. High flow oxygenation.
4. Record Glasgow Coma Scale.

EMT-Enhanced

1. Establish IV or IO, with NS. IO access in life-threatening circumstances only.
2. Fluid Therapy 20 mL/kg bolus for hypotension.
   a. Maximum of 40mL/kg.
   b. Consider other trauma if hypotensive.

Contact Medical Control Physician for further fluid bolus, if needed.

Key Points / Considerations
• Difficulty breathing or moving? Loss of sensation? Any penetrating trauma in or around spinal cord? Any bruising noted around neck and back? • Keep the patient warm unless already hyperthermic.

Pediatrics – Trauma: General Management

The general initial assessment and management of a traumatically injured adult and child are essentially the same. Airway and breathing must be evaluated and managed first, followed by assessment of circulation, then a brief neurological examination and complete exposure of the patient. One of the most important responsibilities of the prehospital provider is to spend as little time on the scene to evaluate, to perform life saving measures, and to prepare for transport in the critically injured patient. Many procedures and assessments can be done enroute to the hospital where definitive care resides for the red category (immediate) trauma patient.

EMT-B

1. Spinal immobilization, if indicated.
2. Place patient in trendelenburg position, if indicated.
3. Administer high flow oxygen.
4. Assist ventilations as needed.
5. Evisceration (extrusion of internal organs outside of the protective abdominal cavity); cover with moist sterile dressing, and then cover with plastic wrap. Keep dressing moist to avoid drying of tissue. **DO NOT PUSH / FORCE ORGANS BACK INTO CAVITY!**

Notify MedCom as soon as possible if your patient meets trauma alert criteria due to mechanism of injury or clinical status of patient (red or yellow patient category). Advise MedCom of the following: 1) Mechanism of injury, 2) Age and sex of patient, 3) Sites of injury, 4) Vitals (if available), 5) ETA.

EMT-Enhanced

1. Establish IV access with NS. IO access in life-threatening circumstances only.
2. Fluid therapy 20 mL/kg by rapid infusion with signs or symptoms of hypoperfusion. Maximum of 40 mL/kg. May repeat once, then Contact Medical Control Physician for further fluid boluses.
3. Suspect Tension Pneumothorax (extreme dyspnea, hypotension, absent breath sounds) insert a large bore angiocath into the second intercostal space, midclavicular, on the affected side(s).

EMT-Intermediate/Paramedic

1. Morphine Sulfate 0.1 mg/kg slow IV push, or IM as needed for moderate to severe pain from isolated distal extremity fractures/dislocations. Maximum dose is 10 mg.
2. Monitor ECG.

Contact Medical Control Physician

- Consider cessation of resuscitation effort for patients in Cardiac Arrest post-traumatic event.

Key Points / Considerations

- Children are very susceptible to heat losses and preservation of body heat is paramount.
- **Note: Continuous ECG, pulse oximetry and blood pressure monitoring (every 5 minutes) are mandatory, during, and after administration of Morphine Sulfate.**