

Gates County EMS Treatment Protocols

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EMT Basic Skills and information are left unmarked

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Abdominal Pain

1. Universal Patient Care Protocol
2. Orthostatic blood pressure measurement as clinical status permits.
 - If positive, (decrease in SBP > 10 mmHg or increase in heart rate of > 20 bpm) proceed to step 3
 - If negative, does the patient report nausea and vomiting?
 - o If yes, proceed to Nausea/Vomiting Protocol
 - o If no, start IV 0.9% NS at 100 mL/hr and consider Chest Pain Protocol
3. Start IV 0.9% NS and give 1 liter IV bolus if SBP < 120 mmHg. Otherwise, give 250 mL bolus.
 - 0.9% NS bolus is 20 mL/kg in pediatric patients.
4. Transport.
5. Contact On-Line Medical Direction. Pain control must be discussed with On-Line Medical Direction in the case of abdominal pain where symptoms may be masked.

Notes

Consider Pain Control Protocol

Abdominal pain in women of childbearing age should be treated as a possible ectopic pregnancy until proven otherwise

Abdominal aortic aneurysm should be considered in patients over age 50 years who present with abdominal or back pain. Any palpation of the abdomen in this case must be done gently due to risk of rupture.

Pertinent history:

- **S**igns and symptoms
- **A**llergies
- **M**edicines currently prescribed
- **P**ast medical history including prior surgeries and associated medical illnesses
- **L**ast meal or other oral intake
- **E**vents leading to this episode

Allergic Reaction and Anaphylaxis

Determine the severity of the reaction and the manner of therapy.

1. Universal Patient Care Protocol.
2. Transport.
3. Establish IV 0.9% NS at KVO rate
4. If the reaction is **MILD** (local swelling, hives or rash only. No respiratory symptoms) give:
 - a. DIPHENHYDRAMINE (Benadryl) 25 mg IVP
 - b. IV DECADRON 25 mg IV
 - c. Call On-Line Medical Direction.
5. If there is **evidence of impending respiratory distress or SBP is < 90 mmHg or signs of shock** are present give:
 - a. EPINEPHRINE (1:1,000) 0.3 mL SQ. May repeat every 5 minutes until IV access obtained.
 - b. Start IV 0.9% NS wide open to maintain SBP > 100 mmHg.
 - c. Give EPINEPHRINE 1:10,000 IV (0.2 – 0.5 mg IVP over 1 minute) once IV established.
 - d. Cardiac monitor and continuous pulse oximetry.
 - e. DIPHENHYDRAMINE 25 – 50 mg IVP over 1 – 2 minutes.
 - f. Intubate the patient if unable to otherwise stabilize and maintain the airway.
 - g. Contact On-Line Medical Direction
 - h. DEXAMETHASONE (Decadron®) 25 mg IVP.

If the patient continues to be symptomatic:

- a. Establish second IV line of 0.9% NS at 100 mL/hr. Patients may require 250 mL 0.9% NS boluses to maintain SBP > 100 mmHg.
- b. EPINEPHRINE (1:10,000) 0.2 to 0.5 mg IVP over 1 minute (repeat as needed)
- c. Apply MAST trousers if not otherwise contraindicated.
- d. Contact On-Line Medical Direction.
- e. Consider adding DOPAMINE 800 mg in 500 mL of D5W at 2 - 20 mcg/kg/min.
- f. Titrate to maintain SBP at or above 100 mmHg and double the dose after 5 minutes if the patient continues to be hypotensive.

NOTE:

- Contact On-Line Medical Direction prior to giving Epinephrine in patients who are > age 50 years, have a history of CAD, if the patient's heart rate is > 150 bpm, patient with uncontrolled hypertension or uncontrolled thyroid disease.
- Use epinephrine with **CAUTION** in patients who have used an aerosol bronchodilator within the preceding 4 hours
- **DO NOT** use epinephrine in any patient who has repeatedly used an aerosol bronchodilator within the past 4 hours. Contact Medical Direction for any concerns.
- **Call Medical Direction at any point if you have any questions or concerns.**

Altered Level of Consciousness

1. Universal Patient Care protocol.
2. C-Spine control for all unconscious patients with suspected trauma.
3. Spinal immobilization protocol. Examine the patient for signs of trauma. If present, use the appropriate protocol.
4. Start IV 0.9% NS at KVO rate
5. Cardiac monitor and pulse oximetry. Perform 12-lead EKG if clinical status permits.
6. Check blood glucose level. Treat per Hyper/Hypoglycemic Emergencies Protocol as indicated.
7. Hyperventilate the patient if vital signs are deteriorating and there are signs of impending herniation e.g. unilateral dilated pupil, sudden change in level of consciousness, decorticate, or decerebrate posturing. Use a rate of 20 breaths per minute.
8. Transport.
9. In patients with decreased LOC of unknown cause, give NALOXONE (Narcan®) 2 mg IVP. May give a second dose if the patient has an incomplete response. Beware; the patient may become significantly agitated and violent. Naloxone can also be given via ET tube if unable to start IV. The ET tube dose is 2 to 2.5 times the original dose.
10. Give THIAMINE 100 mg IVP or IM and 50% DEXTROSE 25 grams IVP.
11. If the transport time is over 30 minutes and the patient is awake with an intact gag reflex, administer ACTIVATED CHARCOAL (with Sorbitol) 25 gm (pediatric dose is 1 gm / kg). Give orally if patient is able to self-administer. Give via nasogastric tube if patient is without an intact gag reflex.
12. Transport all medications to the ED with the patient.
13. Contact On-Line Medical Direction.

Dental Problems

1. Universal Patient Care Protocol and consider appropriate Trauma Protocol.
2. Control bleeding with direct pressure.
3. Is there a tooth avulsion?
 - a. If yes, place the tooth in milk or normal saline in a closed and labeled container.
4. Pain Control Protocol
5. Reassess and monitor the patient
6. Contact On-Line Medical Direction

Notes

Significant soft tissue swelling to the face and oral cavity can represent abscess or cellulitis formation

Tooth re-implantation is possible within 4 hours if the tooth is properly cared for.

Occasionally cardiac chest pain can radiate to the jaw...BEWARE.

All pain associated with teeth should be associated with a tooth which is tender to tapping with a tongue blade or touching (or sensitivity to cold or hot). If not, consider cardiac etiology in appropriate patients.

Epistaxis/ Nosebleed

1. Universal Patient Care Protocol.
2. Ice packs, compress nostrils, tilt head forward to decrease risk of aspiration.
3. Orthostatic blood pressure (if clinical status permits)
 - a. If positive, start IV 0.9% NS and give 500 mL bolus (assess vital signs and lung sounds every 5 minutes)
 - b. If negative, proceed to step 4
4. NEOSYNEPHRINE® NASAL SPRAY 2 sprays into the affected nostril/s
5. Consider Hypertension Protocol
6. Contact On-Line Medical Direction

Notes

Avoid NEOSYNEPHRINE® use in patients whose heart rate is greater than 120 bpm or DBP is > 110 mmHg or who have known CAD or uncontrolled hypertension.

Bleeding may occur in the posterior areas of the nasopharynx, evaluate for this by checking the posterior pharynx for the presence of blood.

Anticoagulants include aspirin, Coumadin®, warfarin, NSAIDS and several OTC headache and pain relief preparations.

Hyper/Hypoglycemic Emergencies, Adult

1. Universal Patient care protocol
2. Obtain glucose level.

Glucose Level < 60:

1. Administer oral glucose under tongue if patient with intact gag reflex and able to maintain own airway.
2. Establish IV 0.9% NS at 100 mL/hr.
3. Give THIAMINE 100 mg IVP or IM if any signs of malnutrition or history of alcohol habituation prior to administration of 50% DEXTROSE 25 gm IVP.
4. Give 50% DEXTROSE 25 gm IVP if patient unable to take oral glucose dose or lack of appropriate response 15 minutes after oral glucose dose given.
 - a. If unable to start IV, give GLUCAGON 1 mg IM /SQ every 20 minutes as indicated.
5. Transport.
6. Check for signs of associated medical conditions, trauma or ingestion as cause of altered LOC.
7. Contact On-Line Medical Direction.

Glucose Level between 60 and 250:

1. Check for signs of associated medical conditions, trauma or toxic ingestion or overdose, CVA, or hypoxia as the cause of altered level of consciousness and follow the appropriate protocol.
2. Establish IV 0.9% NS at 100 mL/hr.
3. Consider use of oral glucose, 50% DEXTROSE 25 gm IVP, NALOXONE (Narcan®), GLUCAGON or other treatment interventions.

Glucose Level above 250 or signs of dehydration:

1. Start IV 0.9% NS at 250 mL/hr and draw blood. Give 500 mL bolus if SBP < 90 mmHg.
2. Transport.
3. Check for signs of other medical conditions, trauma or ingestion as cause of altered LOC. Consider the possibility of painless (silent) MI if patient is cool and diaphoretic even without complaint of chest pain.
4. Contact On-Line Medical Direction.

Hypertension

Elevated blood pressure with systolic BP 200 mmHg or greater and/or diastolic BP 120 mmHg or greater with symptoms including headache, changes in mental status, seizures, chest pain, CHF, MI, nosebleed, dizziness or visual symptoms.

If the patient has focal neurologic exam or history consistent with new onset CVA, contact On-Line Medical Direction prior to instituting treatment for elevated BP.

History may include known hypertension or related diabetes, CVA, renal failure or CAD. Are you taking medication for high blood pressure?

Is the patient pregnant? See Eclampsia Protocol.

Etiologies include hypertensive encephalopathy, MI, aortic dissection, eclampsia, pre-eclampsia and primary CNS injury.

1. Universal Patient Care Protocol.
2. Establish IV 0.9% NS at KVO rate.
3. Administer NTG 1/150 gms (0.4 mg) sublingual or NTG PASTE 1 inch to chest wall (single dose). May repeat every 5 minutes for total of three doses if the decrease in systolic blood pressure is not more than 10% of the initial systolic BP due to the risk of cerebral hypoperfusion.
4. Cardiac monitor and pulse oximeter. Obtain 12 lead EKG if the clinical status permits.
5. Contact On-Line Medical Direction.

Beware:

More than one set of vital signs should be taken before treatment for hypertension has begun.

Transport all symptomatic patients with hypertension with their head elevated.

Follow the appropriate protocol if the patient develops chest pain, CHF, CVA etc.

Contact On-Line Medical Direction before giving NTG to patients who have taken Viagra in the past 24 hours.

Hypotension / Shock (Non-Trauma)

Important patient history includes blood loss (vaginal, GI, Ectopic, AAA), fluid loss (diarrhea, vomiting, fever), infection (sepsis), cardiac ischemia (MI, CHF), medications, allergic reaction, and pregnancy.

Signs and symptoms include restlessness, confusion, weakness, dizziness; weak and rapid pulse; cool, pale or clammy skin; delayed capillary refill, coffee ground emesis, tarry stools.

Etiologies include shock (hypovolemic, septic, neurogenic, anaphylactic), Ectopic pregnancy, heat-related illnesses, pulmonary embolus, spontaneous tension pneumothorax, medication effect or overdose, vaso-vagal episode, physiologic (pregnancy).

1. Universal Patient Care Protocol
2. High flow oxygen 100% by NRB mask. Intubate if unable to otherwise maintain the airway.
3. Transport in supine or Trendelenberg position as indicated.
4. Start IV 0.9% NS at 100 mL/hr after 500 mL bolus unless contraindicated (e.g. pulmonary edema). Repeat bolus if SBP is less than 90 mmHg and the lungs remain clear after the first bolus.
5. Contact On-Line Medical Direction
6. Consider DOPAMINE 5-20 mcg/kg/min infusion and use of MAST trousers. Titrate Dopamine to keep SBP > 90 mmHg.

Note:

Consider performing orthostatic vital signs on patients in non-trauma situations if there is blood or fluid loss suspected and clinical status permits.

Consider all possible causes of shock and treat according to the appropriate protocol

Overdose / Toxic Ingestion

1. Universal Patient Care Protocol
2. ABC's
3. High flow oxygen 100% NRB mask. Intubate if otherwise unable to maintain the airway.
4. Start IV 0.9% NS 100 mL/hr. If SBP < 90 mmHg, give IV 0.9% NS 500 mL bolus in order to maintain the SBP > 90 mmHg unless signs and symptoms indicate possible associated head injury.
5. Rapid transport.
6. Cardiac monitor and pulse oximeter. Treat dysrhythmias per appropriate protocol.
7. Check finger stick glucose and give 50% DEXTROSE 25 gm IVP if indicated.
8. Give THIAMINE 100 mg IVP if there is a history of etoh habituation, malnutrition or liver disease.
9. Give NALOXONE (Narcan®) 2 mg slow IVP to treat respiratory depression associated with opiate use. Give as two separate 1 mg doses to avoid sudden agitation and violent behavior associated with opiate withdrawal.
10. SODIUM BICARBONATE 1 mEq/kg IVP if a known or suspected TCA (tricyclic antidepressant) overdose.
11. Follow Seizure Protocol and precautions if seizures develop.
12. Insert NG tube with permission of On-Line Medical Direction. May give ACTIVATED CHARCOAL WITH SORBITOL through the NG tube.
13. Consider contacting NC Poison Control Center for further guidance.

Note:

Following Narcan, patients who become agitated may be treated with LORAZEPAM (Ativan®) 1 – 2 mg IVP.

Do not rely on the patient history of ingestion especially when the patient is reported to be suicidal.

Bring any bottles, contents, and any emesis to the ED (if able) for evaluation.

Respiratory Distress, Adult

Difficulty breathing without associated chest pain or rales

1. Universal Patient Care Protocol and obtain baseline room air pulse oximeter reading if clinical status permits.
2. Adult Airway Protocol
 - a. Treat airway foreign body obstruction according to AHA BLS standards.
 - b. If signs of CHF or rales are audible, proceed with CHF/ Acute Pulmonary Edema Protocol.
3. High flow oxygen 100% by NRB mask. Intubate if unable to otherwise maintain the airway.
4. Transport. Position the patient in a Fowler's or Semi-Fowlers.
5. **Start IV 0.9% NS at KVO rate.**
6. **Give nebulized ALBUTEROL, 2.5 mg unit dose for treatment of bronchospasm.**
May repeat two times if initial response to treatment is inadequate and heart rate remains below 150 beats/min.
EMT-B may assist patient in administration if they have a current prescription.
7. **Give nebulized IPRATROPIUM BROMIDE (Atrovent®) unit dose (can give simultaneously with ALBUTEROL) in patients with COPD or asthma (especially if they are already on a prescribed Atrovent / Intal inhaler).**

May repeat ALBUTEROL/IPRATROPIUM BROMIDE nebulizer treatments every 20 minutes total 3 doses.
8. **Give DEXAMETHASONE (Decadron®) 25 mg IVP.**
9. Contact On-Line Medical Direction.
10. **Consider the use of Epinephrine 1:1,000, 0.3 mL SQ (Pediatric dose is 0.01 mL/kg/dose to a maximum of 0.35 mL/dose) on order of On-Line Medical Direction for patients with known history of asthma, without history of CAD, HR < 150 bpm and no contraindications. If patient has a history of cardiac disease, request, Terbutaline 0.25 mL Subcutaneous. Both Epinephrine and Terbutaline can cause cardiac ischemia**
11. **Consider Magnesium sulfate (MgSO₄) 0.5 – 1 gm IV over 1 – 2 minutes.**

Note:

Consider other causes of shortness of breath including aspiration of a foreign body, asthma, and inhalational pulmonary injury, COPD, CHF.

Beware the use of EPINEPHRINE in patients who have repeatedly used inhaled bronchodilators in the past 24 hours.

Seizures

Important history includes history of seizures, trauma, pregnancy or diabetes; medication alert tags, seizure medications.

Etiologies include epilepsy, head trauma, tumor, hypoxia, electrolyte abnormality, drugs, medication noncompliance, infection, fever, CVA, eclampsia, alcohol withdrawal, hyperthermia.

1. Universal Patient Care Protocol.
2. High flow oxygen 100% by NRB mask. Intubate if unable to otherwise maintain the airway. If the patient is in status epilepticus, intubate as soon as possible.
3. Maintain cervical spine stabilization in cases where there is a possibility of coexistent trauma.
4. Transport.
5. Establish IV 0.9% NS 100 mL / hr.
6. Obtain finger stick glucose. Administer 50% DEXTROSE according to the Hyper/Hypoglycemia Protocol.
7. Treat seizure activity with DIAZEPAM (Valium®) 5 mg IVP over one minute (Pediatric dose 1mg IV over one minute) or LORAZEPAM (Ativan®) 1 to 2 mg IVP.
8. Contact On-Line Medical Direction.

Suspected Stroke - CVA

Important history includes prior history of CVA, cardiac or vascular surgery, associated diseases such as diabetes, hypertension and CAD; atrial fibrillation, medications, history of trauma.

Signs and symptoms include altered mental status, focal weakness, speech difficulties, syncope, dizziness, headache, seizures, hyper/hypotension and change in respiratory pattern.

Etiologies include TIA, seizures, hypoglycemia, CVA, tumor and trauma.

1. Universal Patient Care Protocol
2. ABC's with in-line cervical spine immobilization if trauma suspected. Perform a brief physical examination noting facial droop, arm drift, and speech.
3. Transport.
4. High flow oxygen 100% by NRB mask. Intubate if unable to otherwise maintain the airway. **Contact Medical Direction if RSI is anticipated and document any peripheral neurological deficits before administration of paralytic agents.**
5. **Establish IV 0.9% NS at KVO rate.**
6. Fingertick glucose, proceed with Hypo/Hyperglycemia Protocol as indicated.
7. Cardiac monitor and pulse oximetry.
8. LA Prehospital Stroke Screen
9. Contact On-Line Medical Direction prior to instituting treatment for elevated blood pressure.
10. Consider the Altered Level of Consciousness – Unknown Etiology, Hypertensive Emergency, Overdose/Toxic Ingestion and Seizures Protocols.

Note:

1. **Consider hyperventilating the patient if pupils are unequal or the patient demonstrates other signs of increased ICP.**
2. **In the presence of suspected CVA do not treat hypertension in the field; this may increase the size of the CNS injury.**

Syncope

1. Universal Patient Care Protocol
2. Spinal Immobilization Protocol if indicated.
3. Orthostatic Vital Signs if clinical status permits (see procedure)
4. Start IV 0.9% NS at KVO rate
 - a. If the patient is orthostatic or demonstrates signs of shock, give 0.9% NS 500 mL bolus unless contraindicated (e.g. CHF, head trauma with signs of increased ICP)
5. Check blood glucose and treat per Hyper/Hypoglycemia Protocol:
6. Perform 12- lead EKG if clinical status permits.
7. Consider Nausea/Vomiting Protocol as indicated by patient history.
8. Contact On-Line Medical Control

Notes

Consider dysrhythmias, GI bleeding, CVA, ectopic pregnancy, and seizures as possible causes of syncope

All patients with syncope as the chief complaint should be transported for medical evaluation

Over 25% of geriatric syncopal episodes are due to a cardiac rhythm disturbance.

Asystole

1. Universal Patient Care Protocol
2. Consider Criteria for Death / No Resuscitation
 - a. If yes, withhold resuscitation and contact On-Line Medical Direction.
 - b. If not, start CPR
3. Cardiac monitor and pulse oximetry
4. Confirm asystole in two (2) leads
5. Continue CPR
6. Consider External Transcutaneous Pacing – if down time is less than 10 minutes
7. IV 0.9% NS wide open
8. EPINEPHRINE 1:10,000, 1 mg IVP
 - a. Subsequent doses are EPINEPHRINE 1:1,000 in escalating doses of 3 mg and 5 mg every 3 – 5 minutes.
9. ATROPINE 1.0 mg IVP
 - a. Repeat every 3 minutes for maximum 3 mg or 0.04 mg/kg total doses.
10. Criteria for Discontinuation
 - a. If yes, stop resuscitation.
11. Consider SODIUM BICARBONATE 1.0 mEq/kg IVP in patients with a history of renal failure or TCA overdose
 - a. May repeat at 0.5 mEq/kg IVP every 10 minutes.
 - b. Contraindicated in patients with hypoxia who are not intubated.
12. Contact On-Line Medical Direction

Note:

Possible causes include hypoxia, potassium abnormalities, drug overdose, acidosis, hypothermia, death, and device (lead) failure.

Evaluate past medical history, events leading to arrest, history of end stage renal disease, estimated downtime, and DNR status.

Bradycardia, Symptomatic

Slow heart rate less than **60 beats per minute**. Consider Acute MI, hypoxia, hypothermia, sinus bradycardia, head injury with elevated ICP, CVA, spinal cord lesion and AV blocks as potential etiologies.

Signs and symptoms related to the slow heart rate include:

- Chest pain suspicious of ischemia or infarction
 - Shortness of breath
 - Altered level of consciousness
 - Hypotension (SBP less than 90 mmHg) and other signs of shock
 - Congestive Heart Failure
 - Syncope
 - Nausea, vomiting
 - Diaphoresis
 - Weakness
1. ABC's.
 2. Cardiac monitor and pulse oximeter. Obtain 12-lead EKG if clinical status permits.
 3. Start IV NS 0.9% and give 250 mL 0.9% NS (no bolus if rales present) After bolus give 0.9% NS at 100 mL/hr.
 4. Administer ATROPINE 0.5 to 1.0 mg IVP if the patient is symptomatic. Repeat ATROPINE 0.5 to 1.0 mg IVP every 3 to 5 minutes to a total of 3 mg or 0.04 mg/kg.
 5. Consider external transcutaneous pacing. (Especially in 2nd and 3rd degree AV block)
 6. If no response, contact On-Line Medical Control.
 - Consider fluid bolus 250 mL 0.9% NS especially if patient remains hypotensive.
 - Consider DOPAMINE 800 mg in 500 cc D5W at 5 – 20 mcg/kg/min infusion Titrate to keep SBP > 90mmHg.

Note:

1. Discomfort of the transcutaneous pacemaker may be treated with DIAZEPAM (Valium®) 2-5 mg IVP/IM or MIDAZOLAM (Versed®) 0.1 mg/kg IVP/IM. Contact On-Line Medical Direction if discomfort continues despite treatment with DIAZEPAM or MIDAZOLAM. Consider withholding DIAZEPAM or MIDAZOLAM if the SBP < 90 mmHg due to possible worsening of hypotension.
2. **Beware**, Atropine use can exacerbate ischemia or induce VT or VF when used in association with an acute MI. If the patient develops CHF or chest pain, follow the appropriate treatment protocol and contact On-Line Medical Direction.
3. Patients who have had a heart transplant will not respond to Atropine. In that case; proceed directly to transcutaneous pacemaker use.

Cardiac Arrest

1. Universal Patient Care Protocol.
2. Give a precordial thump if a witnessed arrest.
3. Consider Criteria for Death / Withholding Resuscitation Policy
 - If no resuscitation is indicated, withhold CPR and contact On-Line Medical Control
 - If resuscitation is indicated, continue or start CPR immediately for 2 min if down time is > 5 min.
 - Assess possible causes and continue protocol.
4. Apply Cardiac Monitor or AED and obtain a rhythm strip on lead II or other best EKG lead.
5. Intubate the patient while maintaining in-line cervical spine immobilization, if indicated. Reassess the airway frequently and with every patient move.
6. Start IV 0.9% NS at 100 mL / hr.

If unable to start an IV, administration of the following medications via the endotracheal tube is permitted at 2 – 2 1/2 times the IV dose followed by NS flush of 5 mL.

- EPINEPHRINE
 - ATROPINE
 - LIDOCAINE
 - NARCAN
7. Follow appropriate patient treatment protocol as indicated by arrhythmia:
 - V-Fib / Pulseless V-Tach Protocol
 - Asystole Protocol
 - PEA Protocol
 - Pediatric Pulseless Arrest Protocol
 - Post Resuscitation Protocol, if at any time there is a return of spontaneous circulation
 8. Contact On-Line Medical Control.

Notes:

- Once CPR is started, it must be continued until the patient converts to a viable cardiac rhythm or a physician orders CPR and resuscitative efforts to be discontinued.
- The physician giving an order to cease resuscitation must meet one of the following criteria:
 - a. Part of the jurisdictional EMS program
 - b. Providing this direction through the established EMS consultation system
 - c. The patient's identified private physician who is physically on location (see the Physician on the Scene Protocol).

It is possible that patient transport times of one hour or longer can be anticipated. It is unlikely that any normothermic patient could survive a cardiac resuscitation under such circumstances in the absence of any evidence of cardiac viability.

Cardiac Arrest (Notes continued)

In the event that a patient has suffered a cardiopulmonary arrest and has ALS support measures in place and has either asystole or refractory ventricular fibrillation that is sustained over a period of thirty (30) minutes, consult with the On-Line Medical Direction physician.

It is expected that the On-Line Medical Direction physician will authorize discontinuation of ALS and BLS measures. At this point, the patient will be transported to the hospital as a Priority 4 patient or if the Medical Examiner or family physician accepts responsibility for the death certificate then the patient may be transported by the funeral home.

This protocol does not empower or permit the EMT to pronounce or certify death but allows a reasonable determination that the patient's survival, in spite of continued effort, is unrealistic.

In the case of maternal arrest, treat the mother per the appropriate protocol. Immediately contact the On-Line Medical Direction physician and transport the patient rapidly to the nearest facility while following appropriate algorithm/protocol.

Chest Pain - Suspected Cardiac Event

For all patients with chest pain of suspected cardiac etiology. Diabetic patients and the elderly may have atypical ischemic pain or silent MI.

1. Universal Patient Care Protocol
2. Cardiac monitor and pulse oximetry. Obtain twelve lead EKG, if clinical status permits. If there are EKG changes indicating MI, begin a 2nd IV line at KVO rate in route to the ED.
3. Administer CHEWABLE ASPIRIN (ASA) 160 to 325 mg PO if not already taken. EMT-B may administer (ASA) with physician order.
4. Start IV 0.9% NS at 100 mL/hr. If the SBP is less than 90 mmHg, give 250 mL 0.9% NS IV bolus.
5. If SBP > 90 mmHg, administer one (1) NTG 1/150 gm (0.4 mg) sublingually. EMT-B may administer NTG if patient has prescription and only after physician order. If no chest pain relief after 5 minutes and SBP > 90 mmHg, repeat dosing with one tablet sublingually every 5 minutes times two. (See Warning) Limit reduction in SBP to 10% or less to reduce the risk of inducing myocardial ischemia (due to hypoperfusion) in patients with coronary artery disease(CAD).

After pain relieved with SUBLINGUAL NTG, place 1 inch NTG PASTE to skin so long as SBP > 90mmHg, in order to maintain the patient pain-free.

BEWARE use of NTG in patients with right ventricular MI due to risk of severe hypotension

6. Begin completing the thrombolytic checklist.
7. Give MORPHINE SULFATE 1 – 3 mg slow IVP for continued chest pain after total three NTG SL and SBP greater than 90 mmHg. May repeat MORPHINE dosing every 5 minutes (up to total dose 9-mg), as needed maintaining a SBP greater than 90 mmHg. Do not give Morphine sulfate to patients with a history of sulfa allergy. Use with caution in patients with right ventricular MI.
8. Reassess patient including vital signs after each administration of NTG, 0.9% NS bolus or MORPHINE SULFATE due to risk of hypotension
9. Contact On-Line Medical Direction.
10. Treat hypotension and dysrhythmias per appropriate protocol

Note:

- Beware use of NTG in patients who have used VIAGRA® within 24 hours prior to onset of chest pain. NTG use can result in severe hypotension.
- **Beware** of hypotension in patients given NTG or Morphine sulfate if they are taking beta blocker agents e.g. Inderal®, Atenolol®, Lopressor®.
- If CHF or pulmonary edema is present, proceed with the Congestive Heart Failure / Pulmonary Edema protocol.

Chest Pain
(Continued w/ Lidocaine Dosing)

- Administer Lidocaine 1 to 1.5 mg/kg IVP over 2 minutes.
- After the first bolus, if PVC's or VT continue and the patient remains hemodynamically stable, repeat Lidocaine bolus at 0.75 mg/kg every 5 to 10 minutes for total loading dose of 3 mg/kg IV and start Lidocaine drip by continuous infusion at 2 mg/minute (30 drops/minute of Lidocaine 2 gms in 500 mL D5W using a minidrip setup). Lidocaine must be infused using an IV pump.
- **Beware:** Patients age 70 years or older, CHF, signs of shock or history of liver disease, and body weight less than 110 lbs (50 kg) decrease IV bolus and drip dose by 50%.
- **Caution:** Stop Lidocaine dosing immediately if the patient develops any signs or symptoms of toxicity including altered level of consciousness, slurred speech, seizures or muscle twitching.

Note:

1. In a patient with suspected MI and symptomatic PVC's or ventricular tachycardia, if the heart rate is 60 bpm or greater without evidence of 2nd or 3rd degree AV block, consult On-Line Medical Direction regarding use of LIDOCAINE.

Congestive Heart Failure (Pulmonary Edema)

1. Universal Patient Care Protocol.
2. IV Protocol 0.9% NS KVO- no more than 100ml / hour
3. Cardiac Monitor and pulse oximetry. Obtain twelve lead EKG, if clinical status permits.
4. Consider the use of CPAP (continuous positive airway pressure) as an early intervention.
5. NTG 0.4 mg SL if SBP>90 mmHg.
 - Repeat (up to two (2) times) NTG 0.4 mg SL every 5 minutes. (Maximum dose 0.12 mg or three (3) tablets).
 - Instead of SL dosing, may apply NGT PASTE 1 inch if SBP>90 mmHG
6. FUROSEMIDE (LASIX) 40 mg slow IVP over 1-2 minutes.
 - If patient currently takes Furosemide, give two times the patient's prescribed dose up to 100 mg.
7. CHEWABLE ASPIRIN (ASA) 324 mg PO (4 tablets x 81 mg ea. =324 mg) if not already taken within the past 24 hours. EMT-B may administer (ASA) with physician order.
8. MS (MORPHINE SULFATE) 1-2 mg slow IVP over 1 minute.
 - Repeat MS (MORPHINE SULFATE) every 5 minutes as necessary, 1-2 mg slow IVP over 1 minute(Maximum dose of 10 mg and maintain SBP> 90 mmHG
9. NTG PASTE 1 INCH OF SBP > 90 mmHG, if chest pain is resolved and not already performed.
 - If SBP drops >10% after administration of NTG PASTE, wife off to remove.
10. Contact On-Line Medical Control.

Notes:

- If the patient becomes unstable, follow the Hypotensive/ Shock Protocol or other appropriate patient treatment protocol as indicated by signs and symptoms.
- Do not give FUROSEMIDE to patient with history of sulfa allergy.
- Use caution when administering NTG to patients who have used Sildenafil(Viagra) in the past 24 hours or with a right ventricular MI or if taking a beta blocker agent (Propranolol/Inderal, ATenolol, Metoprolol/Lopressor as it may cause severe hypotension. Contact On-line Medical Control.
- Do not administer MS (MORPHINE SULFATE) if the patients has allergy to MS or sulfa. Use cautions when giving MS to patients with a right ventricular MI or taking a beta blocker agent (Propranolol/ Inderal, Atenolol, Netoprolol/ Lopressor due to risk of hypotension.
- Use caution when administering MS to patients with severe COPD and respiratory distress due to suppression of their respiratory drive.

Post Resuscitation

1. Repeat the Primary Assessment
2. Continue ventilatory support with 100% oxygen. Intubate the patient if not previously done and patient otherwise unable to maintain airway.
3. IV 0.9% NS at 100 mL/hr, if not already started.
4. Cardiac monitor and obtain 12-lead EKG if not already performed and patient clinical status has not changed. In the case of resuscitation prior to EMS prehospital personnel arrival, repeat the EKG even if already performed.
5. Continuous pulse oximetry.
6. Vital signs.
7. Proceed to the appropriate patient treatment protocol as indicated by vital signs, cardiac rhythm and patient chief complaint.
8. Contact On-Line Medical Direction.

Notes:

Most patients immediately post resuscitation will require some sort of ventilatory support

Post resuscitation clinical condition can change quickly, as such be vigilant and closely monitor and continually reassess your patient.

Pulseless Electrical Activity (PEA)

1. Universal Patient Care Protocol
2. Start CPR.
3. Administer 100% oxygen by BVM and pre-oxygenate. Intubate the patient.
4. Start IV 0.9% NS 100 mL/hr.
5. Administer EPINEPHRINE 1:10,000 1 mg IVP.
Followed by EPINEPHRINE
 - 1:1,000, 3 mg and 5 mg escalating 3 – 5 minutes apart
 - If given by ET tube, use 1:1,000 concentration at 0.1 mg/kg in 5 mL NS.
6. If the patient is bradycardic (< 60 bpm), administer ATROPINE 1 mg IVP.
 - Repeat every 3 to 5 minutes up to a total dose of 0.04 mg/kg.
7. Transport
8. Consider causes of PEA:
 - Hypoxia
 - Hypovolemia
 - Hyperthermia
 - Hyperkalemia
 - Massive pulmonary embolus
 - Massive acute MI
 - Preexisting acidosis
 - Drug overdose (tricyclic antidepressants, digitalis, B-blockers, Calcium channel blockers)
 - Hypothermia
 - Acidosis
 - Tension pneumothorax
 - Cardiac tamponade
9. Consider fluid challenge, 500 mL 0.9% NS bolus (for suspected hypovolemia).
10. Consider SODIUM BICARBONATE IVP in dialysis patients (suspected acidosis, hyperkalemia or TCA ingestion).
11. Consider CALCIUM CHLORIDE (CaCl₂) 1 gram IVP (suspected hyperkalemia).
12. Contact On-Line Medical Direction.
13. Evaluate for Criteria for Discontinuation. If yes, stop resuscitation.

Note:

1. Consider needle decompression in trauma patients presenting with PEA. Contact On-Line Medical Direction.
2. **Beware:** Calcium chloride (CaCl₂) will precipitate in the line if given after Sodium bicarbonate and the line is not thoroughly flushed.

Supraventricular Tachycardia (SVT)

All patients with **narrow** complex cardiac rhythm of 150 bpm or greater **without** P waves visible preceding every QRS complex. Includes paroxysmal supraventricular tachycardia, atrial fibrillation and atrial flutter.

1. Universal Patient Care Protocol
2. High flow oxygen 100% by NRB mask.
3. Cardiac monitor and pulse oximeter. Obtain rhythm strip with each intervention.
4. Establish IV 0.9% NS at 100 mL/hr.
5. If the patient is **stable**:
 - No chest pain or shortness of breath
 - SBP over 90 mmHg
 - No alteration of mental status

Atrial Fibrillation and Atrial Flutter

- a. Contact On-Line Medical Direction regarding use of DILTIAZEM (Cardizem®) 0.25 mg/kg IVP over 2 minutes if the rhythm has been present for **less than 48 hours**.

If the patient is unable to confirm the time of onset, contact On-Line Medical Direction prior to dosing with DILTIAZEM.

- b. If the tachycardia continues 15 minutes after initial DILTIAZEM treatment, contact On-Line Medical Direction regarding repeat bolus of DILTIAZEM 0.35 mg/kg IVP over 2 minutes. If still no response, may give continuous infusion of DILTIAZEM at 5 mg/hr. Mix 125 mg in 100 mL of 0.9% NS. DILTIAZEM must be infused using an IV pump.

Proximal Supraventricular Tachycardia

- a. Try Valsalva maneuvers (e.g. bearing down, coughing) while patient is on the monitor and have Atropine 0.5 mg ready as a precaution.
- b. Administer ADENOSINE (Adenocard®) 6 mg rapid IVP in the antecubital position or more proximal position (over 1 to 3 seconds) followed by a 50 mL NS flush and elevation of the extremity.
- c. If the tachycardic rhythm continues 1-2 minutes after initial treatment administer ADENOSINE 12 mg in the same manner as initial dose. Repeat the dose in 2 minutes if patient remains in stable PSVT rhythm up to a total 30 mg dose.
- d. Monitor vital signs closely following each intervention or change in clinical status

Supraventricular Tachycardia (SVT)

(Continued)

- e. Contact On-Line Medical Direction and regarding use of DILTIAZEM 0.25 mg/kg IVP (maximum 20 mg) over 2 minutes.
- f. If the tachycardia continues 15 minutes after initial DILTIAZEM treatment, contact On-Line Medical Direction regarding repeat bolus DILTIAZEM 0.35 mg/kg IVP over 2 minutes. If still no response, may give continuous infusion of DILTIAZEM at 5 – 15 mg/hr. Mix 125 mg in 100 mL of 0.9% NS. DILTIAZEM must be infused using an IV pump.

Note:

1. DILTIAZEM (Cardizem®) can cause sudden hypotension when given rapid IVP
2. Keep Calcium chloride on hand when administering DILTIAZEM (Cardizem) IVP. If the patient develops SBP < 90 mmHg or heart rate less than 60 bpm, give Calcium chloride 1 gram IVP over 1 to 2 minutes.
3. If at any time, the patient becomes **unresponsive** go to **unstable SVT** (see below).

If the patient is **unstable**, does not convert to sinus rhythm after Adenosine or becomes unresponsive:

a. Prepare for **synchronous** cardioversion

- Place pads on the patient and set knob to **synchronized** countershock and check for continued synchronization with each successive countershock. Erroneous defibrillation in this circumstance can be lethal.
 - High flow oxygen 100% by BVM.
 - Establish IV 0.9% NS at 100 mL/hr if not already performed at this time.
 - DIAZEPAM (Valium®) 5 mg IV over 1 minute MIDAZOLAM (Versed®) 5 mg IVP for sedation if clinical status permits.
 - Contact On-Line Medical Direction regarding synchronized cardioversion.
 - a. Charge to **50 Joules SYNCHRONIZED** and cardiovert the patient
 - b. If unsuccessful, **SYNCHRONIZED** cardioversion with 100 Joules
 - c. If unsuccessful, **SYNCHRONIZED** cardioversion with 200 Joules
 - d. If unsuccessful, **SYNCHRONIZED** cardioversion with 300 Joules
 - e. If unsuccessful, **SYNCHRONIZED** cardioversion with 360 Joules.
 - Intubate the patient if indicated and not already performed.
4. Consider fluid bolus of 500 mL 0.9% NS. May repeat once.
 5. Transport the patient immediately.

Ventricular Fibrillation(V-Fib)/
Pulseless Ventricular Tachycardia(V-Tach)

1. Universal Patient Care Protocol / Cardiac Arrest Protocol.
2. Confirm V-Fib or Pulseless V-Tach.
3. Defibrillate 360 Joules or equivalent biphasic.
4. Continue uninterrupted CPR immediately following defibrillation attempt for a period of 2 minutes.
5. Secure the airway.
6. IV Protocol 0.9% NS 100 mL/hr if not already performed.
7. EPINEPHRINE 1:10,000 with a dose of 1 mg IVP every 3 – 5 minutes.
 - Via ET dose – EPI 1:10,000 2.0–2.5 mg followed by NS 5 mL flush
8. Defibrillate 360 Joules or equivalent biphasic.
9. AMIODARONE (CORDARONE) 300 mg rapid IVP. May repeat at a dose of 150 mg IVP every 3-5 minutes. (Maximum dose 2,200 mg /24 hours)
~Or~
LIDOCAINE 1.5 mg/kg slow IVP every 3 – 5 minutes. (Maximum dose 3 mg/kg)
 - Via ET dose – LIDOCAINE 3.0 mg/kg followed by NS 5 mL flush. (Maximum dose 3 mg/kg)
10. Defibrillate 360 Joules or equivalent biphasic.
11. After each repeat medication dose, CPR to circulate medication and Defibrillate 360 Joules or equivalent biphasic.
12. If rhythm changes to Asystole or PEA, consider Discontinuation of Prehospital Resuscitation Policy #6:
 - If all policy criteria have been met – discontinue CPR.
 - If not and discontinuation of efforts is desired, contact On-Line Medical Control
13. MAGNESIUM SULFATE 1 – 2 gm slow IVP over 1-2 minutes for refractory V-Fib or V-Tach.
14. Contact On-Line Medical Control.
15. Consider SODIUM BICARBONATE 1.0 mEq/kg IVP if prolonged cardiac arrest.
16. Follow appropriate patient treatment protocol as indicated by cardiac rhythm or signs and symptoms.
17. If at any time there is a return of spontaneous circulation go to Post Resuscitation Protocol.

Continued on next page...

V-Fib/Pulseless V-Tach
(Continued)

18. If conversion of dysrhythmia, LIDOCAINE DRIP using IV pump as long as patient is not bradycardic.
- Drip dose 3 mg/min after 1-2 mg/kg bolus dose.
 - Drip dose 4 mg/min after 2-3 mg/kg bolus dose.
 - If patient > 70 years old, CHF, history of liver disease or body weight < 110 lbs, decrease bolus and drip by 50%
 - Do not administer LIDOCAINE if the heart rate is < 60 bpm, SBP <90 mmHG, or if there is evidence of 2nd or 3rd degree AV block.

Notes:

- Advanced care providers should provide CPR for a period of 2 minutes at a time while limiting all interruptions of chest compressions.
- CPR should be continued while drugs are prepared and administered and the defibrillator is charging.
- All drug deliveries should be prepared prior to doing rhythm checks and administered during CPR, as soon as possible after the rhythm check confirms the presence of VF / Pulseless VT.
- Chest compressions should only be interrupted for ventilation (until advanced airway is placed) during rhythm check and actual shock delivery.

Ventricular Tachycardia with a Pulse

1. Universal Patient Care Protocol.
2. High flow oxygen 100% by NRB mask. Intubate if unable to otherwise maintain the airway.
3. Start IV 0.9% NS at 100 mL/hr
4. Obtain rhythm strip or 12-lead EKG.
5. Is the patient **STABLE or UNSTABLE?**

| <u>STABLE</u> | <u>UNSTABLE</u> |
|---|--|
| SBP > 90 mmHg | SBP < 90 mmHg |
| Alert | If the HR is over 150 bpm, the patient has chest pain, altered LOC. |
| <i>TRANSPORT</i> | |
| - LIDOCAINE 1 – 1.5 mg/kg IVP Repeat LIDOCAINE 0.5 – 0.75 mg/kg every 5 – 10 mins up to a total dose of 3 mg/kg IVP. | Proceed with immediate synchronized cardioversion at 100 Joules |
| - ADENOSINE 6 mg rapid IVP over 1 – 3 sec with 20 mL NS bolus | <i>TRANSPORT</i> |
| - ADENOSINE 12 mg rapid IVP if no response to initial dose after 1 – 2 minutes. May repeat once in 1 – 2 minutes up to total dose of 30 mg. | - Synchronized cardioversion at 100J |
| - If rhythm disturbance continues contact On-Line Medical Direction | - If unsuccessful, synchronized cardioversion at 200 Joules |
| - If the patient becomes unstable, Cardiovert at 100 Joules as per Unstable Ventricular Tachycardia With A Pulse. | - If unsuccessful, synchronized cardioversion at 300 Joules |
| Contact On-Line Medical Direction | - Give DIAZEPAM 5 mg IVP prior to cardioversion if able. |
| | - Check pulse between successive countershocks |
| | - LIDOCAINE 1 – 1.5 mg/kg IVP. Repeat LIDOCAINE at 0.5 – 0.75 mg/kg IVP every 5 mins up to a total dose of 3 mg/kg. |
| | - If the rhythm disturbance continues contact On-Line Medical Direction |

Bites and Envenomations

Important history includes the type of bite (including snakes and human) or sting, time, location, size of the wound, previous reaction to a bite/sting, domestic vs. wild animal, tetanus and rabies risk, immuno compromised patient (diabetes, chemotherapy, transplant patients, elderly, HIV, hepatitis, infant, pregnancy). Consider contacting the **NC Poison Control Center (1-800-222-1222)** for guidance.

Signs and symptoms include rash, skin break, wound, pain, soft tissue swelling or redness, blood oozing from wound site, signs of infection, shortness of breath or wheezing, allergic reaction, hives, itching, hypotension or shock.

Etiologies include animal bite, human bite, snakebite (poisonous), spider bite (poisonous), insect sting (bee, wasp, ant, and tick), infection risk, tetanus risk, and rabies risk.

1. Universal Patient Care Protocol
2. Is EMS transport required?
 - a. If not, contact Animal Control Officer and document on ACR.
 - b. If yes, give analgesic medication as indicated.
3. Position the patient supine and immobilize area involved.
4. Is there an allergic reaction?
 - a. If yes, follow Allergic Reaction Protocol.
5. Assess the need for pain medication
6. Contact On-Line Medical Direction.

Notes:

Human bites are much worse than animal bites due to the normal mouth bacteria.

Carnivore bites are much more likely to become infected and all have a risk of Rabies exposure.

Cat bites may progress to infection rapidly due to specific bacteria (*Pasturella multocida*)

Poisonous snakes in this area are generally of the pit viper family; rattlesnake, copperhead, and water moccasin.

Generally envenomation is worse in smaller (younger) snakes and in the early spring

If no pain or swelling, envenomation is unlikely.

Black widow spider bites tend to be minimally painful then progress to severe muscular and abdominal pain (black with red hourglass on belly).

Brown recluse spider bites often painless. Initially little skin reaction but progress to tissue necrosis over the next few days (small brown spider with fiddle on the back)

Chemical Burns

1. Do not become a victim. Contact Haz-Mat if indicated.
2. **CHEMTREC 1-800-424-9300**
3. Universal Patient Care Protocol
4. Remove patient from continued exposure to chemical involved. **Contact North Carolina Poison Control Center as indicated. 1-800-222-1222**
5. Remove any restrictive clothing or jewelry
6. Is there eye involvement?
 - a. If yes, perform continuous saline flush of the affected eye
 - b. If no, proceed to step 7
7. Flush area involved with water or normal saline for 10 – 15 minutes if indicated. Brushes off all particulate exposures...do not flush. Take care to prevent hypothermia.
8. Contact On-Line Medical Control

Notes:

Do not use EOA or CombiTube® if the airway is involved.

Electrical (Including Lightning) Burns

1. Universal Patient Care Protocol
2. **IV Protocol**
3. Focused history and physical examination. Look for entry and exit wounds
4. Cool/moist dressings to involved sites
5. Pain Control per protocol
6. 12-lead EKG
7. Follow appropriate protocol for other associated patient complaints
8. Contact On-Line Medical Direction.

Notes:

Do not use EOA or CombiTube® in the case of airway involvement.

Ventricular fibrillation and asystole are the most commonly associated dysrhythmias

Damage is often hidden, the most severe will occur in the muscle, vessels and nerves.

In the case of a mass casualty lightning incident, attend to the victims in full arrest first. If the victim did not arrest initially, it is likely they will survive.

Do not overlook other trauma e.g. c-spine injury, falls, blast injury, etc.

Lightning is a massive DC shock most often leading to asystole as the dysrhythmia

In lightning injuries, most of the current will travel over the body surface producing flash burns.

Thermal Burns

1. Universal Patient Care Protocol
2. Do Not Become A Victim. Evaluate the scene for security and move the patient to a safe environment.
3. ABC's per General Trauma Prehospital Management Protocol.

Note: esophageal obturator and CombiTube® use are contraindicated in burn patients

4. Remove all clothing and jewelry to assess the extent of the burn and prevent possible constriction.
5. 100% oxygen by NRB mask. Assume possible cyanide or carbon monoxide exposure especially in enclosed areas. Intubate the patient as indicated.
6. Start IV 0.9% NS at 4 mL/kg and titrate to keep SBP above 90 mmHg and urine output at 0.5 mL/kg/hr. Insert a Foley catheter on consent of On-Line Medical Direction
7. Wrap the patient in a sterile dry sheet.
8. Maintain the patient NPO.
9. Do not place ice on the burn site; use cool moist sterile gauze dressings if less than 10% TBSA burn. If burn over 10% TBSA, rotate dressings to avoid hypothermia.
10. Give pain medication as indicated.
 - a. PROMETHAZINE (Phenergan®) 12.5 – 25 mg IV (0.25 – 0.5 mg/kg/dose IV or IM for pediatric patients) for nausea as indicated.
 - b. MORPHINE SULFATE 2 – 5 mg IV (0.1 – 0.2 mg/kg/dose maximum 15 mg dose in pediatric patients).
 - c. MEPERIDINE HYDROCHLORIDE (Demerol®) 12.5 - 25 mg IV (1 – 2 mg/kg/dose in pediatric patients)
11. Contact On-Line Medical Direction.
12. Document extent of injuries using Rule of Nines (see reference sheet in Appendix)

Note:

Indications for referral to Regional Burn Unit:

- a. Second degree burn over 20% TBSA
- b. Third degree burn over 10% TBSA
- c. Smoke inhalation (airway stabilization per protocol with sterile water or 0.9% NS in ET tube balloon)
- d. Burns to hands, feet, face, perineum, ears, eyes
- e. Electrical burns
- f. Chemical burns
- g. Burns in infants
- h. Elderly patient with significant preexisting medical problems
- i. Burns with associated traumatic injuries
- j. Pediatric patients with significant burns

Drowning / Near Drowning / Immersion Injuries

1. Universal Patient Care Protocol
2. Spinal Immobilization Protocol.
3. Secure the airway. Intubate if otherwise unable to adequately maintain the airway.
4. CPR per BCLS guidelines and reference Hypothermia Protocol if indicated.
5. Transport and start passive rewarming.
6. Establish IV 0.9% NS at 100 mL/hr (KVO rate in pediatric patients unless exhibiting signs of shock).
7. Cardiac monitor and pulse oximetry.
8. Administer NALOXONE (Narcan®) 1-2 mg, 50% DEXTROSE 25 gm (use DEXTROSE 25% (pediatric) or 10% (neonatal) patients), and THIAMINE 100 mg, per Altered Level Of Consciousness protocol if indicated. Thiamine is not indicated for use in the pediatric population.
9. Consider Nasogastric tube to decompress the stomach with permission of On-Line Medical Direction.
9. Remove any wet clothing.
10. Contact On-Line Medical Direction.

Notes:

1. Heimlich maneuver only indicated when aspiration of a foreign body is suspected.
2. METHYLPREDNISOLONE SODIUM SUCCINATE (Solumedrol®) or DEXAMETHASONE (Decadron®) per Spinal Cord Injury Protocol as indicated by clinical examination e.g. abdominal respirations without intercostal muscle movement, flaccidity, and priapism.
3. Maintain the patient in a horizontal position at all times to avoid orthostatic hypotension.

Extremity Trauma

1. Universal Patient Care Protocol
2. ABC's
3. Control hemorrhage using direct pressure
 - a. Is there an amputation?
 - i. Clean amputated part
 - ii. Wrap part in sterile dressing soaked in NS
 - iii. Place wrapped part in sealed and labeled container
 - iv. Place container on ice if available.
4. IV 0.9% NS at 100 mL/hr
 - a. NS bolus if SBP < 90 mmHg
5. Pain medication per protocol
6. Contact On-Line Medical Direction

Notes:

Time is critical in the case of amputated body parts

Hip dislocations and knee and elbow fracture/dislocations have a high risk of vascular compromise

Blood loss can be concealed in extremity injuries

Lacerations must be evaluated for repair within 6 hours from the time of injury due to increased risk of infection.

Head Trauma

1. ABC's with c-spine in-line immobilization per General Trauma Prehospital Management Protocol.
2. Establish IV 0.9% NS at KVO. Limit IV fluids unless SBP < 90 mmHg. If SBP < 90 mmHg, contact On-Line Medical Direction before giving IVF bolus.
3. Stabilize the airway. Give 100% oxygen by NRB mask.

Note: If Glasgow Coma Score is equal to or less than eight (8), intubate the patient to protect the airway. Hyperventilate (20 breath/min in adults; 30 breaths/min in children; 35 breaths/min in infants) the patient if there are signs of increasing intracranial pressure e.g. asymmetric pupils, somnolence, seizures, or focal neurologic findings.
4. Consider the possibility of other traumatic injuries based on the mechanism of injury and follow the General Trauma Prehospital Management Protocol as indicated.
5. Control obvious hemorrhage as necessary.
6. Initiate IV NS at KVO, if not done so previously.
7. Transport the patient in the reverse Trendelenberg position if possible (head of bed elevated 30 degrees).
8. Consider direct transport to a trauma center if GCS less than 8 after consultation with the On-Line Medical Direction physician.

Note:

Hypotension due solely to a head injury is distinctly uncommon. Always search for sources of occult blood loss in any trauma patient.

Limit IV fluids unless SBP < 90 mmHg

If GCS < 12 consider rapid/air transport after consultation with On-Line Medical Control.

Consider Cushing's triad...hypertension, bradycardia and decrease in respiratory rate. Regarding head injuries, a unilateral dilated pupil, decerebrate/decorticate posturing may indicate brain herniation.

Hyperthermia / Heat Injury

Heat Cramps: Muscle cramps, +/- elevated temperature due to dehydration

1. Universal Patient Care Protocol
2. Remove from source of heat
3. Establish IV NS 0.9% at 200 mL/hr.
4. Transport
5. Remove clothing in attempt to help dissipate heat.
6. Contact On-Line Medical Direction

WARNING!!! Do not massage cramping muscles.

Heat Exhaustion: Dehydration, dizziness, nausea and vomiting, muscle cramps, +/- elevated temperature, +/- sweating

1. Universal Patient Care Protocol.
2. Establish IV 0.9% NS at 200 mL/hr. Give 500 mL bolus if SBP < 90 mmHg.
3. Transport
4. Remove clothing in attempt to dissipate heat
5. Contact On-Line Medical Direction

Heat Stroke: Dehydration, altered LOC, headache, muscle cramps, tachycardia, shock, temperature > 104 F (40 deg C)

1. Universal Patient Care Protocol
2. Move the patient away from the source of heat
3. Establish IV 0.9% NS at 200 mL/hr. Give 500 mL bolus if SBP < 90 mmHg.
4. Transport
5. Remove clothing and cool the patient with a sheet cooled in cool water.
6. Apply ice packs to the axilla, back of the neck and groin area being careful to avoid direct contact with the skin. If shivering develops, remove ice packs.
7. If shivering continues, administer DIAZEPAM (Valium®) 2 to 5 mg IVP to decrease shivering. May also use LORAZEPAM (Ativan®) 1 - 2 mg IVP for this purpose.
8. Consider placement of Foley catheter (with On-Line Medical Direction approval) to monitor urine output in route if transport time anticipated is greater than 20 minutes.

Note:

The elderly and infants are more susceptible to heat-related emergencies

Sweating usually stops at 104 F (40 deg C)

Increased risk is associated with use of TCA's, Phenothiazines, anticholinergic medications, and alcohol

Cocaine, amphetamines and salicylates can elevate body temperature

Hypothermia

1. Universal Patient Care Protocol
2. Remove patient from continued exposure to cold environment and remove any wet garments.
3. Start rewarming measures using warm blankets, hot packs (not directly against patient's skin) and warmed saline.
4. High flow oxygen 100% by NRB mask if patient with respiratory rate of 8 BPM or better. Intubate if unable to otherwise maintain the airway
5. Cardiac monitor and pulse oximeter
6. CPR if indicated. Consider withholding CPR if the patient has an organized cardiac rhythm. Discuss with On-Line Medical Direction.
7. Transport. Maintain the patient in a supine position to avoid causing orthostatic hypotension.
8. Start IV 0.9% NS at 100 mL/hr (KVO rate in pediatric patients).
9. Consider Altered LOC Protocol as indicated.
10. If temperature over 86 degrees F, administer medications and defibrillate as indicated based on the rhythm present. Contact On-Line Medical Direction. If temperature is less than 86 degrees F, withhold cardiac medications.

Note:

1. No patient is dead until warm and dead
2. Defined as core temperature ≤ 95 F (< 35 deg C)
3. Do not let rewarming measures delay CPR, airway management and transport
4. Ventricular fibrillation is a common cause of death in hypothermia and may follow any stimulation of a hypothermic patient including intubation.
5. Limit defibrillation attempts to three until temperature is above 86 F.
6. Medications given to hypothermic patients may reach toxic levels with repeated dosing. Active rewarming is a mainstay of treatment and allows medication to be more effective in hypothermic patients
7. Hypothermia may produce severe bradycardia. Cardiac pacing is not indicated in hypothermic bradycardic patients unless the bradycardia continues after rewarming has occurred.
8. For frostbite, use rapid rewarming by submerging the affected limb in warm water bath.

Multiple Trauma

1. Universal Patient Care Protocol.
2. Rapid trauma assessment.
3. **Consider AIR / RAPID TRANSPORT.**
4. Contact On-line Medical Control as soon as possible.
5. Perform Primary Survey:
 - **Maintain airway with in-line cervical immobilization.**
 - Modified jaw thrust
 - **Orotracheal intubation or nasotracheal intubation (by physicians order)**
No nasotracheal intubation if there is signs of facial injury.
 - **Cricothyrotomy as indicated (by physicians order)**
 - **100 % O2 via NRB, BVM, or ET.**
 - Hyperventilate if the patient develops signs of increased intracranial pressure (ex. unilateral papillary dilatation, decerebrate/decorticate posturing)
 - **Consider Needle Chest Decompression for tension pneumothorax as indicated after consultation with On-line Medical Control.**
 - **Control obvious bleeding.**
 - Evaluate adequacy of perfusion (LOC, tachycardia, skin color and temp)
 - Evaluate neurovascular status of injured limb (cap refill, pulses, skin color and warmth, and motor/sensory)
 - **Two (2) IV 0.9% NS 200 mL/hr with the largest IV catheter possible.**
 - **If SBP < 90 mmHg, 0.9% IV bolus 500 mL.**
 - Consider MAST for pelvic or long bone fracture stabilization as well as persistent hypotension despite IV fluids.
 - Do not use MAST in patients with penetrating chest trauma or pulmonary edema.
 - In cases of abd trauma or pregnancy, only inflate leg compartments.
 - If no pulses or patient loses pulses, follow with Trauma Arrest Protocol.
6. Perform Secondary Survey
 - Reassess ABC's
 - Assess for patient's Level of Consciousness and disability
 - Splint and immobilize extremity injuries
 - Hemorrhage control.
 - Assess distal neurovascular status
 - For suspected femur fracture, apply traction splint or MAST for stabilization unless contraindicated.
 - Follow Pain Control Protocol as indicated.
7. **RAPID TRANSPORT with continuous monitoring.**

Notes:

- Transport patients as soon as possible after airway is stabilized unless interventions must be performed at the scene.
- Multiple trauma situations are LOAD and GO.
- If unable to auscultate blood pressure:
 - Palpable radial pulse indicated as SBP of 80 mmHg or higher.
 - Palpable femoral pulse indicated as SBP of 70 mmHg or higher.
 - Palpable carotid pulse indicated as SBP of 60 mmHg or higher.
- Assume that all unconscious patients with known or suspected trauma and all multiple trauma patients have associated cervical spine injuries until proven otherwise radiographically.

Spinal Cord Injury

1. Universal Patient Care Protocol
2. In-line cervical and full spinal immobilization.
3. High flow oxygen by NRB mask or BVM. Intubate if unable to otherwise maintain the airway.
4. Transport.
5. Establish IV 0.9% NS at KVO.
6. DEXAMETHASONE (Decadron®) 6 mg/kg IV then 1 mg/kg/hr.
7. Contact On-Line Medical Direction.

Note:

This protocol is intended for use when a patient has had a high-energy injury with consequent neurological deficit including objective sensory or motor deficits (e.g. “weakness”) or complaints of numbness. In the unresponsive patient, flaccid extremities, priapism and abdominal respirations are signs of spinal cord injury.

Trauma Arrest

1. Universal Patient Care Protocol
2. Rapid trauma assessment
3. Start CPR, control external bleeding unless the patient meets Criteria for Discontinuation.
4. Administer 100% oxygen by BVM. **Intubate the patient.**
5. Spinal Immobilization Protocol with MAST as indicated.
6. Transport immediately. Consider rapid / air transport.
7. **Start IV 0.9% NS wide open via two large bore IV's (18 gauge or larger).**
8. Focused physical examination searching for causes of arrest e.g. tension pneumothorax or exanguinating lesion treat according to appropriate procedure/protocol.
9. Treat cardiac arrhythmias per appropriate protocol.
10. Contact On-Line Medical Direction.

Note:

1. Mechanism is the most reliable indicator of severity of injury.
2. **Consider needle decompression if signs of tension pneumothorax present e.g. unequal breath sounds and no improvement with ET tube adjustment.**
3. **Consider needle cricothyrotomy if unable to intubate the patient. Contact On-Line Medical Direction**
4. Do not overlook the possibility of associated domestic violence or abuse.

Childbirth / Labor

1. Universal Patient Care Protocol and ABC's
2. Place the patient in the left lateral position
3. If the patient is hypertensive, follow the OB Emergencies Protocol
4. Check for crowning and visually inspect the perineum. If present and the gestational age is > 36 weeks, position the patient for delivery, start IV 0.9% NS at 100 mL/hr (if clinical status permits) and prepare your OB kit.
5. Deliver the head in a gentle and controlled manner then suction the mouth and nose before shoulders are delivered. Limit suctioning to less than 10 seconds and check for presence of nuchal cord.

If there is meconium in the amniotic fluid, intubate the patient and suction the airway before the first breath is taken.

If nuchal cord is present, loose, and pulsatile, gently slip over the baby's head. If it is tight, apply two clamps close together and cut the cord then slip it over the baby's head.

If umbilical cord is prolapsed, place mother in knee chest position and transport immediately.

If there is difficulty in delivery of the shoulders, apply gentle downward pressure on the mother's suprapubic region and apply gentle downward pressure on the fetal head. Transport immediately

6. Complete delivery and keep the baby lower than the mother's body level. Clamp and cut the umbilical cord leaving a stump 8 – 10 inches long for the baby.
7. Suction the baby's mouth and nose again while warming and drying are performed and administer oxygen by blow-by technique.

If the baby develops bradycardia, start CPR and follow Neonatal Resuscitation protocol.

8. Transport.
9. Record 1 and 5 minute APGAR scores. (See Pg 44)
10. Allow the placenta to separate spontaneously.
11. Contact On-Line Medical Direction.
12. Document all times – delivery and APGAR scores. (See Pg 44)

Neonatal Resuscitation

1. Universal Patient Care Protocol (mother and newborn)
2. ABC's
3. Vital signs

Apneic, bradycardic (HR less than 100 beats/min), and persistently cyanotic despite 100% oxygen

1. Assist ventilations with 100% oxygen using a BVM at 40 – 60 breaths/min for 30 seconds while stimulating and warming the baby.
2. Reassess for spontaneous respirations and heart rate

If remains apneic, continue ventilations as above.

If pulse **less than 60 beats/min** without improvement with oxygenation,
THEN:

- a. Begin compressions
 - 5:1 ratio at a rate of 100 beats/min
 - Depth ½ to 1 inch

Discontinue compressions when heart rate reaches 100 beats/min.

- b. Intubate the patient.
- c. Start IV/IO 0.9% NS at KVO rate
- d. TRANSPORT with PALS resuscitation protocols as follows:

EPINEPHRINE 0.01 mg/kg (1:10,000 sol'n) give 0.1 mL/kg IV or IO.

Using ET tube – 0.03 mg/kg (1: 10,000 dilution give 0.3 mL/kg)
Repeat EPINEPHRINE dosing every 3 to 5 minutes at the same dose.

ATROPINE 0.02 mg/kg IVP, minimum dose 0.1 mg.
May repeat once.

3. Contact On-Line Medical Direction
4. Consider NALOXONE (Narcan®) 0.1 mg/kg IV (0.1 mL/kg of 1 mg/mL solution or 0.25 mL/kg of 0.4 mg/mL solution)
5. Consider DEXTROSE 10% sol'n, 2 – 4 mL/kg bolus IV/IO
6. Consider 0.9% NS IV/IO bolus 20 mL/kg

Pulse greater than 100 beats/min; determine APGAR scores at 1 and 5 minutes.

If with spontaneous respirations

THEN give oxygen by blow by technique and check pulse.

Continued on next page...

Neonatal Resuscitation

(Continued)

Pulse is 60 - 100 beats/min

1. Continue assisted ventilations with 100% oxygen by BVM rate 40 – 60 breaths/min and intubate the patient
2. Reassess the heart rate
 - a. If less than 80 beats/min return to treatment protocol for HR less than 60 beats/min.
3. **Start IV 0.9% NS at KVO rate if not already done**
4. Contact On-Line Medical Direction.

Note:

1. If unable to obtain IV access within three attempts or 60 seconds start intraosseous line.
2. **Administer 10% DEXTROSE 2 – 4 mL/kg IV if the resuscitation is prolonged (dilute 50% dextrose, 4:1 with sterile water or NS)**

Meconium Present

1. Suction vigorously before the shoulders are delivered.
2. If meconium is thick, intubate the baby before its first breath and suction with a small French catheter if meconium is seen below the level of the cords.

Prolapsed Umbilical Cord

1. Place mother in knee to chest position and apply continuous upward pressure on the presenting part until baby can be delivered by Cesarean section.
2. Transport.
3. Contact On-Line Medical Direction to alert on-call OB/GYN physician and Labor and Delivery department.

APGAR Score

| | 0 | 1 | 2 |
|--------------|-------------|-----------------|--------------------|
| Heart rate | absent | < 100 beats/min | > 100 beats/min |
| Respirations | absent | slow, irregular | good, crying |
| Muscle tone | limp | some flexion | active motion |
| Reflex | no response | grimace | cough, sneeze, cry |
| Color | blue, pale | acrocyanosis | pink |

Term neonatal vital signs (first 12 hours of life)

| | |
|---------------------|---------------------|
| Heart rate (awake): | 100 – 180 beats/min |
| Respiratory rate: | 30 – 60 breaths/min |
| Systolic BP: | 39 – 59 mmHg |

Obstetrical Emergency

1. Universal Patient Care Protocol
2. Start IV 0.9% NS at 100 mL/hr. Consider 500 mL bolus if HR > 100 beats/min or patient is orthostatic (decrease in SBP > 10 mmHg or increase in heart rate of > 20 beats/min), exhibits signs of significant volume loss and there are no contraindications.
3. Cardiac monitor and pulse oximetry
4. Oxygen 100% by NRB mask. Intubate as indicated

Vaginal Bleeding Or Abdominal Pain With Known or Suspected Pregnancy

1. Estimated gestational age
 - a. If 3rd trimester
 - i. Left lateral position
 - ii. Rapid transport
 - iii. Newborn Delivery Protocol as indicated
 - b. If 1st or 2nd trimester
 - i. Contact On-Line Medical direction

Be certain to document frequency of contractions, time of delivery and APGAR scores as indicated.

If not known or suspected pregnant proceed with Abdominal Pain Protocol.

High BP (SBP > 140 mmHg or DBP > 90 mmHg) In Known/ Suspected Pregnancy

1. Left lateral position
2. MAGNESIUM SULFATE 2 – 4 Gms IV over 5 minutes.
3. Seizures or seizure-like activity
 - a. Check blood glucose
 - b. DIAZEPAM (Valium®) 5 mg IV, may repeat as needed for continued seizure activity
 - c. Quiet rapid transport
4. Contact On-Line Medical Direction

Notes: Monitor respiratory rate every 5 minutes when giving MAGNESIUM SULFATE due to risk of respiratory depression and respiratory arrest.

Pediatric Airway Management (Child less than age 12 years)

1. Universal Patient Care Protocol
2. C-spine immobilization as indicated
3. Supplemental Oxygen
4. Basic maneuvers first (open airway; nasal/oral airway; BVM)

Airway Obstruction

Treat per appropriate AHA guidelines.

Apneic and No Gag Reflex

1. Oral-tracheal Intubation
2. If unsuccessful continue with BVM using supplemental oxygen.

Respirations and Gag Reflex Present

1. Oxygenate
2. Ventilate
3. Reassess
4. Treat according to the appropriate Patient Treatment Protocol
5. Rapid Transport

Notes:

Contact On-Line Medical Direction immediately regarding the patient's difficult or failed airway.

If 1st intubation attempt fails, make an adjustment then try again:

- Different laryngoscope blade
- Different ETT size (Broslow-Luten tape)
- Change cricoid pressure
- Apply BURP maneuver (Gently push trachea back, upward and to the patient's right with continuous pressure)

It is mandatory to confirm all methods of intubation using capnometry, esophageal bulb, or capnography. Document results.

Do not assume all hyperventilation is psychiatric in nature, use oxygen not a paper bag.

NG tube placement should be considered in all intubated patients

Pediatric Bradycardia

1. Universal Patient Care Protocol
2. Oxygen 100% by NRB mask or BVM. Intubate the patient as indicated.
3. Assess for signs of cardiorespiratory compromise (hypotension, poor perfusion, respiratory difficulty) if none, monitor the patient with reassessments every 5 minutes or as indicated by clinical status.
4. Chest compressions if pulse less than 60 bpm or poor perfusion (e.g. central cyanosis) despite assisted ventilations
5. Check fingerstick glucose. Treat per Pediatric or Neonatal Hyper/Hypoglycemia Protocol.
6. Transport
7. **Start IV 0.9% NS in route**. If unable to start an IV after 3 attempts or 60 seconds, proceed with intraosseous placement.
7. **EPINEPHRINE**
IVP: 0.01 mg/kg (1: 10,000, 0.1 mL/kg)
ET tube: 0.1 mg/kg (1:1,000, 0.1 mL/kg)
Repeat every 3 – 5 minutes at same dose

ATROPINE 0.02 mg/kg (minimum dose 0.1 mg)
Maximum single dose:
0.5 mg for child
1.0 mg for adolescent
May repeat once
8. **Consider DEXTROSE 12.5 % (2 – 4 mL/kg IVP), GLUCAGON (0.1 mg/kg IM/SQ every 20 minutes as indicated, NS bolus (20 mL/kg IVP) and NALOXONE**
9. Contact On-Line Medical Direction.
10. **Consider transcutaneous pacing.**
11. If pulseless, proceed with PEA protocol.

Note:

The majority of pediatric arrests are due to airway problems. Assess the patient for airway problems before proceeding with any medications.

Hypoglycemia, severe dehydration and narcotic effects can produce pediatric bradycardia.

Pediatric Head Trauma

Use this protocol in cases of isolated head injury.

1. Universal Patient Care Protocol
2. C-spine in-line immobilization per General Trauma Prehospital Management protocol.
3. **Does the patient open their eyes to voice? “What happened to you?”**
 - If **no**, assess response to pain
 - If **yes**, monitor the patient, give oxygen by NRB face mask, NC or blow-by as tolerated and reassess status every 5 minutes or as indicated by clinical status.
4. **Does the patient respond to pain? (E.g. pressure to nailbeds or IV start)**
 - If **no**, intubate and hyperventilate the patient at a rate of 30 breaths/min for children, 35 breaths/min for infants.
 - If **yes**, check pupillary response
 - o If unequal or nonreactive – intubate and hyperventilate the patient
 - o If equal and reactive
 - Monitor oxygenation
 - Reassess the patient every 3 – 5 minutes or as indicated by clinical status
5. **IV 0.9% NS at KVO rate.**
6. Follow Pediatric Seizure Protocol if seizures develop
7. Check fingerstick glucose and follow Pediatric or Neonatal Hyper/Hypoglycemia Protocol.
8. Consider the possibility of other traumatic injuries based on the mechanism of injury and follow the General Trauma Prehospital Management Protocol as indicated.
9. **Transport the patient in the reverse Trendelenberg position if possible (head of bed elevated 30 degrees).**
10. **Consider direct transport to a trauma center after consultation with the On-Line Medical Direction physician.**

Note:

Hypotension due solely to a head injury is distinctly uncommon. Always search for sources of occult blood loss in any trauma patient.

Hyperventilate the patient only if there is evidence of herniation (blown pupil, decerebrate or decorticate posturing, bradycardia) 35 breaths/min < 1 yr old, 30 breaths/min > 1 yr old.

Hyperthermia / Heat Injury, Pediatric

Heat Cramps: Muscle cramps, +/- elevated temperature due to dehydration

1. Universal Patient Care Protocol
2. ABC's.
3. Remove from source of heat
4. Establish IV NS 0.9% and give 20 mL/kg bolus then run at a KVO rate mL/hr.
5. Transport
6. Remove clothing
7. Contact On-Line Medical Direction

WARNING!!! Do not massage cramping muscles.

Heat Exhaustion: Dehydration, dizziness, nausea and vomiting, muscle cramps, +/- elevated temperature, +/- sweating

1. Universal Patient Care Protocol.
1. ABC's.
2. High flow oxygen 100% by NRB mask. Intubate if unable to otherwise maintain the airway.
3. Establish IV 0.9% NS 20 mL/kg IV bolus then run at KVO rate.
4. Transport
5. Remove clothing
6. Contact On-Line Medical Direction

Heat Stroke: Dehydration, altered LOC, headache, muscle cramps, tachycardia, shock, temperature > 104 F (40 deg C)

1. Universal Patient Care Protocol
2. ABC's.
3. Move the patient away from the source of heat
4. High flow oxygen 100% by NRB mask. Intubate if unable to otherwise maintain the airway.
5. Establish IV 0.9% NS 20 mL/kg IV bolus then run at KVO rate.
6. Transport
7. Remove clothing and cool the patient with a sheet cooled in cool water
8. Apply ice packs to the axilla, back of the neck and groin area avoiding direct skin contact. Remove if shivering develops.
9. Administer DIAZEPAM (Valium) 0.2 – 0.3 mg/kg or LORAZEPAM (Ativan®) 0.1 mg/kg; slow IVP to decrease shivering.

Note:

The elderly and infants are more susceptible to heat-related emergencies

Sweating usually stops at 104 F (40 deg C)

Increased risk is associated with use of TCA's, Phenothiazines, anticholinergic medications, and alcohol

Cocaine, amphetamines and salicylates can elevate body temperature

Hyperglycemic/Hypoglycemic Emergencies, Pediatric

1. Universal Patient care protocol
2. Obtain glucose level.
4. Cardiac monitor and pulse oximetry.

Glucose Level < 60 (<40 mg/dL in neonates):

1. Administer oral glucose under tongue if patient with intact gag reflex and able to maintain own airway.
2. Establish IV/IO 0.9% NS at KVO rate.
3. Give 25% DEXTROSE 2 – 4 mL/kg/bolus IVP/IO (< 2 yrs old); Give 50% DEXTROSE 1 – 2 mL/kg/bolus (>2 yrs old) if patient unable to take oral glucose dose or lack of appropriate response 15 minutes after oral glucose dose given.
 - i. In children > age 2 years, give DEXTROSE 50% solution, 1 – 2 mL/kg IV/IO bolus.
 - ii. In neonates, the maximum concentration of DEXTROSE solution is 10%. Dilute 50% DEXTROSE with sterile water or NS and give 2 – 4 mL/kg
 - iii. If unable to start IV, give GLUCAGON 0.1 mg/kg/dose IM or SQ every 20 minutes as indicated
4. Transport
5. Check for signs of associated medical conditions, trauma or ingestion as cause of altered LOC
6. Contact On-Line Medical Direction.

Glucose Level between 60 and 250:

1. Check for signs of associated medical conditions, trauma or toxic ingestion or overdose, or hypoxia as the cause of altered level of consciousness and follow the appropriate protocol.
2. Establish IV 0.9% NS at KVO rate.
3. Consider use of oral glucose, DEXTROSE IVP/IO NALOXONE (Narcan®), GLUCAGON or other treatment interventions after discussion with On-Line Medical Direction.

Glucose Level above 300 with signs of dehydration:

10. Start IV/IO 0.9% NS at 20 mL/kg bolus and draw blood (as clinical status permits).
11. Transport.
12. Check for signs of other medical conditions, trauma or ingestion as cause of altered LOC.
13. Contact On-Line Medical Direction.

Pediatric Hypotension Or Shock (Non-Trauma)

Important patient history includes blood loss, fluid loss (diarrhea, vomiting, fever), infection, congenital heart disease with CHF), medications, allergic reaction, and toxic ingestion or overdose.

Signs and symptoms include restlessness, confusion, weakness, dizziness; weak and rapid pulse; cool, pale or clammy skin; delayed capillary refill.

Etiologies include infection, dehydration, medication or toxin.

1. Universal Patient Care Protocol
2. Start IV/IO 0.9% NS and give 20 mL/kg bolus unless contraindicated.
3. High flow oxygen 100% by NRB mask. Intubate if unable to otherwise maintain the airway.
4. Transport in supine or Trendelenberg position as indicated.
5. Blood glucose and follow Pediatric or Neonatal Hyperglycemia/Hypoglycemia Protocol
6. Contact On-Line Medical Direction
7. Consider DOPAMINE (5 - 10 mcg/kg/min) use and MAST trousers.

Note:

Consider performing orthostatic vital signs on patients in nontrauma situations if there is blood or fluid loss suspected and clinical status permits.

Consider all possible causes of shock and treat according to the appropriate protocol

Nausea/Vomiting- Pediatric

1. Universal Patient Care Protocol
2. ABC's
3. Obtain vital signs including temperature and orthostatic BP. Proceed with Fever Protocol as indicated.
4. **Start IV 0.9% NS give 20 mL/kg IV/IO bolus**
5. Transport.
6. **Treat nausea and vomiting with PROMETHAZINE (Phenergan®) IVP 0.25 – 0.5 mg/kg/dose in pediatric patients over age 5 years.**
Lip smacking, neck spasms or hyperactivity after PROMETHAZINE is given can be treated with DIPHENHYDRAMINE 0.5 mg/kg IV.
7. **Reassess the patient and check blood glucose level 25% DEXTROSE in children, 10% DEXTROSE in neonates according to Pediatric or Neonatal Hyper/Hypoglycemia Protocol**
8. Contact On-Line Medical Direction. Pain control must be discussed with On-Line Medical Direction in the case of abdominal pain where symptoms may be masked.
9. Pertinent history:
 - **S**igns and symptoms
 - **A**llergies
 - **M**edicines currently prescribed
 - **P**ast medical history including prior surgeries and associated medical illnesses
 - **L**ast meal or other oral intake
 - **E**vents leading to this episode

Pediatric Overdose / Toxic Ingestion

1. Universal Patient Care Protocol
2. Start IV 0.9% NS 100 mL/hr. If SBP < mmHg, give IV 0.9% NS 1 liter bolus in order to maintain the SBP > 100 mmHg unless sign and symptoms indicate possible associated head injury.
3. Transport.
4. Cardiac monitor and pulse oximeter. Treat dysrhythmias per appropriate protocol.
5. Check fingerstick glucose and give Dextrose per Pediatric or Neonatal Hyper/Hypoglycemia Protocol if indicated.
6. Give Naloxone (Narcan®) 0.1 mg/kg slow IVP to treat respiratory depression associated with opiate exposure.
7. Sodium bicarbonate 1 mEq/kg IVP if a known or suspected TCA (tricyclic antidepressant) overdose.
8. Follow Pediatric Seizure Protocol and precautions if seizures develop.
9. Insert NG tube with permission of On-Line Medical Direction and lavage with sterile saline. May give Activated Charcoal through the NG tube.
10. Consider contacting NC Poison Control Center for further guidance.

Note:

Do not rely on the patient history of ingestion especially when the patient is reported to be suicidal.

Bring any bottles, contents, and any emesis to the ED (if able) for evaluation.

Pediatric PEA / Asystole

1. Universal Patient Care Protocol
2. CPR.
3. Confirm Asystole / PEA in 2 leads.
4. Start IV 0.9% NS 20 mL/kg bolus then reassess vital signs. If no improvement, repeat the 20 mL/kg bolus then run IV at KVO rate. In the neonate, give 10 mL/kg IV bolus.
5. Give EPINEPHRINE 1: 10,000 give 0.1 mL/kg/dose IVP or IO for the first dose. If unable to start IV, give EPINEPHRINE 1:1,000 at 0.01 mg/kg ETT in children
6. Continue CPR.
7. EPINEPHRINE 1:1,000 at 0.01 mg/kg IVP, IO, ETT for second and subsequent doses. May be repeated every 3 – 5 minutes
8. Give 25% DEXTROSE 2 – 4 mL/kg IVP (<age 2 yrs); 1 – 2 mL/kg IVP/IO (age > 2 yrs). Use 10% DEXTROSE solution, 2 – 4 mL/kg IVP in neonates.
9. NALOXONE 0.1 mL/kg/dose IV (maximum dose 0.8 mg). If no response in 10 minutes and known opiate intake give 2 mg IV.
10. Contact On-Line Medical Direction

Identify cause:

Hypoxemia

Acidosis

Volume depletion

Tension pneumothorax

Hypothermia

Hypoglycemia

Pediatric Respiratory Distress

1. Universal Patient Care Protocol
2. Perform a brief and focused examination.

Is the patient wheezing or is there a silent chest with signs of respiratory distress?

Is there a foreign body airway obstruction? If yes, treat accordingly.

3. High flow oxygen 100% by NRB mask. Intubate if unable to otherwise maintain the airway.
4. Give nebulized ALBUTEROL using a facemask or mouthpiece, ½ of the 2.5 mg unit dose mixed with 1.5 mL 0.9% NS for bronchospasm. If given by blow-by, use entire unit dose of 2.5 mg in 3 mL NS.
May repeat two times if initial response to treatment is inadequate.
EMTB may assist patient in administration if the patient has a current prescription
5. Cardiac monitor and pulse oximetry.
6. Transport
7. Contact On-Line Medical Direction regarding the use of IPRATROPIUM BROMIDE (Atrovent®) 250 mcg nebulizer treatment and SODIUM METHYLPREDNISOLONE SUCCINATE (Solumedrol®) 1.0 mg/kg IV or DECADRON 0.6 mg/kg IV.
8. Consider the use of EPINEPHRINE 1:1,000 in pediatric dose of 0.01 mL/kg/dose to a maximum of 0.35 mL/dose) on order of On-Line Medical Direction for patients with known history of asthma and without a history of congenital heart disease, HR < 150 bpm and no contraindications.

Note: “LOOK, LISTEN, and FEEL.”

Consider other causes of shortness of breath including aspiration of a foreign body, asthma, and inhalational pulmonary injury, CHF.

Beware poor air movement and tripodding with respiratory distress is a sign of impending respiratory arrest.

Pulse oximetry should be monitored continuously if the initial SaO₂ is < 96% or there is a decline in patient status despite normal pulse oximeter readings.

Epiglottitis usually affects children > 2 yrs of age. It is a bacterial infection with fever, rapid onset, possible stridor and drooling. The patient will want to sit up to keep the airway open. Airway manipulation may worsen this condition.

Pediatric Seizures

Important history includes history of seizures, fever, history of recent trauma, diabetes; medication alert tags, seizure medications, congenital abnormality.

Etiologies include head trauma, tumor, hypoxia, hypoglycemia, drugs, medication noncompliance, infection, fever, and metabolic abnormality.

1. Universal Patient Care Protocol.
2. Maintain cervical spine stabilization if there is a possibility of associated trauma.
3. Position patient on left side to prevent aspiration.
4. Cardiac monitor, pulse oximetry and temperature

If febrile, institute cooling measures including removing clothing, undo bundling and sponge the patient with room temperature water.

5. High flow oxygen 100% by NRB mask. Intubate if unable to otherwise maintain the airway. If the patient is in status epilepticus, intubate as soon as possible.
6. Transport even if patient's seizure has stopped.
7. Establish IV 0.9% NS KVO rate.
8. Obtain fingerstick glucose and treat according to the Pediatric or Neonatal Hyper/Hypoglycemia Protocol.
9. Treat seizure activity with DIAZEPAM (Valium®) 0.2 – 0.3 mg/kg/dose IVP over one minute. May repeat every 2 – 5 minutes as required. Maximum total pediatric dose is 10 mg.

May also treat seizures with LORAZEPAM (Ativan®) 0.1 mg/kg/dose IV. May repeat in 15 – 20 minutes as required.
10. Contact On-Line Medical Direction.

Note:

Be prepared to assist ventilations especially if a benzodiazepine is given.

In an infant, a seizure may be the only evidence of a closed head injury. Be aware that potential child abuse may be the cause.

Pediatric Supraventricular Tachycardia (Heart Rate > 220 beats/min)

1. Universal Patient Care Protocol.
2. Oxygen 100% by NRB mask or BVM. Intubate as indicated. Contact On-Line Medical Direction if RSI is anticipated.
3. Establish IV 0.9% NS at KVO rate.

STABLE PATIENT

1. May attempt Valsalva maneuver or ice-cold cloths gently applied to face initially and after each drug administration if indicated.
2. ADENOSINE 0.1-mg/kg rapid IV push followed by 2 – 5 mL NS bolus.
3. Double the dose of ADENOSINE and repeat once as needed to a maximum total dose of 12 mg.
4. Contact On-Line Medical Direction

UNSTABLE PATIENT (Pre-arrest, no palpable BP, signs of CHF or altered mental status)

1. Consider DIAZEPAM or MIDAZOLAM if clinical status permits.
2. Synchronized cardioversion at 0.5 J/kg.
3. Synchronized cardioversion at 1.0 J/kg.
4. Contact On-Line Medical Direction.

Repeat synchronous cardioversion as needed at 2 J/kg.

Note:

Pediatric paddles should be used in children < 10 kg or Broselow color purple.

Pediatric Trauma Arrest

1. Universal Patient Care Protocol
2. In-line cervical spine immobilization.
3. Oxygen 100% by, BVM or intubate as indicated.
4. Start CPR and control external bleeding.
5. Transport, monitoring cardiac rhythm and pulse oximetry.
6. Resuscitation per appropriate algorithm.
7. Establish IV 0.9% NS, administer 20 mL/kg bolus. May repeat once. Contact On-Line Medical Direction if a third NS bolus is necessary. If unable to start an IV after three attempts or 60 seconds, proceed with insertion of an intraosseous line.
8. Directed physical examination searching for causes of arrest e.g. tension pneumothorax or exanguinating injury.
9. Contact On-Line Medical Direction.
10. Establish a second IV of 0.9% NS in route to treatment facility.

Pediatric Multiple Trauma

1. Universal Patient Care Protocol.
2. In-line cervical spine immobilization.
3. Oxygen 100% by NRB mask, BVM or intubate as indicated.
4. Start IV NS 0.9%, give 20 mL/kg bolus. May repeat once. Contact On-Line Medical Direction if a third NS bolus is necessary. If unable to start an IV after 3 attempts or 60 seconds, proceed with insertion of an (IO) **intraosseous line.**
5. Assess vital signs and perfusion.
 - If normal, perform a focused history and physical exam and transport the patient
 - If abnormal, RAPID TRANSPORT and resuscitation per appropriate protocol
6. Transport.
7. Reassess the patient's airway – ET tube placement, tension pneumothorax etc.
8. Consider MAST trousers if hypotension is persistent and there are no contraindications.
9. Directed physical examination searching for causes of persistent hypotension e.g. tension pneumothorax or exanguinating injury.
10. Contact On-Line Medical Direction.
11. **Establish a second peripheral IV of 0.9% NS en route to treatment facility.**

Note:

Mechanism is the most reliable indicator of potential for serious injury.

In prolonged extrications or serious trauma, consider air transportation for transport times and the ability to give blood.

Do not overlook the possibility for child abuse in pediatric trauma cases.

Pediatric Ventricular Fibrillation / Pulseless Ventricular Tachycardia

1. Universal Patient Care Protocol
2. CPR.
3. Confirm the cardiac rhythm in two leads.
4. Defibrillation up to 3 times at 2 J/kg, 2 - 4 J/kg, 4 J/kg.
5. Continue CPR if no pulse present.
6. Oxygen 100% by BVM or intubation with hyperventilation (30 breaths/min)
7. Start IV / IO and give 0.9% NS 20 mL/kg bolus but do not delay defibrillation. May repeat bolus once then set at KVO rate.
8. **EPINEPHRINE first dose**
IV / IO: Use 1:10,000 solution at 0.01 mg/kg (0.1 mL/kg)
ET tube: Use 1:1000 solution (except newborns) at 0.1 mg/kg (0.1 mL/kg)
In newborns use 0.03 mg/kg (0.3 mL/kg) of 1:10,000 solution
9. Defibrillate at 4 J/kg (30 – 60 seconds after each medication or intervention until return of pulse and viable rhythm).
10. Consider LIDOCAINE 1 mg/kg IV/IO (May repeat every 3 – 5 minutes to maximum of 3 mg/kg total dosing). If given via ETT give 2 times the IV/IO dose.
11. **EPINEPHRINE, second dose and all following doses** (repeat every 3 – 5 minutes)
IV / IO / ETT: 0.1 mg/kg (1:1,000, 0.1 mL/kg); in newborns use 0.03 mg/kg (0.3 mL/kg) of 1: 10,000 solution via ETT. Doses up to 0.2 mg/kg of 1: 1,000 may be effective.
12. Contact On-Line Medical Direction

Note:

1. Broselow tape use will facilitate dosing of ALS resuscitation medications in pediatric patients when the patient's weight is unknown.
2. Check pulses and rhythm after each medication and defibrillation effort.
3. Etiologies include respiratory failure, hypovolemia, congenital heart disease, trauma, hypothermia, hypoglycemia, acidosis, tension pneumothorax
4. Consider domestic violence and abuse as possible etiologies in an otherwise healthy child.
5. With any change in cardiac rhythm, change to the appropriate algorithm as indicated.

ADULT AIRWAY MANAGEMENT(PATIENT AGE 12 YRS OR OLDER)

Adult Airway Management (patient age 12 yrs or older)

1. Universal Patient Care Protocol
2. In-line c-spine immobilization as indicated.
3. High flow oxygen by appropriate delivery system
4. Cardiac monitor and Pulse oximetry

Inadequate Respiratory Effort or Rate

1. Basic maneuvers first (open airway; nasal/oral airway; BVM)
2. Evaluate for Airway Obstruction
 - a. If yes, treat using appropriate BLS or ALS guidelines.
3. CombiTube® or **Oral-tracheal Intubation**
4. If unsuccessful proceed with Failed Intubation Protocol (see below)

Failed Intubation

Three-failed intubation attempts by most proficient technician on scene...no more than total 5 attempts.

SPO2 > 90% with BVM ventilation

If yes, continue ventilations with BVM. Continuously monitor patient status.

SPO2 < 90% with BVM ventilation

If facial trauma or swelling is present proceed with Surgical Airway Procedure.

If no facial trauma or swelling

- a. CombiTube®
 - If repeat SPO2 > 90% continue ventilation with CombiTube®
 - If **repeat SPO2 <90% proceed with Surgical Airway Procedure.**

Notes

Contact On-Line Medical Direction ASAP re: patient's difficult/ failed airway.

If 1st intubation attempt fails, make an adjustment then try again:

- Different laryngoscope blade
- Different ETT size
- Change cricoid pressure
- Apply BURP maneuver (Gently push trachea **back, upward and to the patient's right with continuous pressure**)

Give LIDOCAINE 1 mg/kg IV prophylactically for patients with known or suspected head injury that require intubation.

Capnometry, esophageal bulb, or capnography is mandatory with all methods of intubation. Document results.

Consider NG tube placement in all intubated patients (On-Line Medical Direction order)

Back Pain

1. Universal Patient Care Protocol
2. Transport
3. Focused history and physical examination
4. Spinal immobilization Protocol as indicated by chief complaint.
5. Start IV 0.9% NS at KVO rate
If there are any signs of shock, give 500 mL bolus. Reassess vital signs and lung sounds every 5 minutes.
6. If the patient demonstrates or reports a new neurological deficit, give 30 mg/kg IV bolus METHYLPREDNISOLONE SODIUM SUCCINATE (Solumedrol®) DEXAMETHASONE (Decadron®) 6 mg/kg IV bolus) over 15 minutes then Solumedrol® 5.4 mg/kg/hr or Decadron® 1 mg/kg/hr) by continuous IV infusion.
7. Pain Control Protocol after consultation with On-Line Medical Direction.
Consider use of LORAZEPAM (Ativan®) 1 – 2 mg IV or DIAZEPAM (Valium®) 2 – 5 mg IV for muscle spasms.

Notes:

Consider abdominal aortic aneurysm especially in patients over the age of 50 yrs

Kidney stones usually present with acute onset of severe flank pain that radiates toward the groin area.

Patients with pain on palpation of midline vertebral structures should be spinally immobilized with adequate pain control.

Bladder or bowel incontinence and priapism are significant findings indicating possible spinal cord injury and require immediate medical evaluation.

Behavioral Emergencies

1. Scene safety
2. Universal Patient Care Protocol
3. Treat suspected medical or trauma associated problems per the appropriate protocol
4. Remove the patient from the stressful environment
5. Verbal techniques
 - a. Reassurance
 - b. Calm voice
 - c. Establish rapport
6. Refusal of Care
 - a. If yes, contact On-Line Medical Direction
7. Consider Restraint Procedure as indicated
8. Consider LORAZEPAM (Ativan®) 1 – 2 mg IV / IM or DIAZEPAM (Valium®) 2-5 mg IV

Notes

Do not become a victim.

Be sure to consider all possible medical and traumatic causes for the patient's behavior alteration (e.g. hypoglycemia, toxic ingestion/overdose, substance abuse, hypoxia, head injury, etc.)

Don't overlook the possibility of associated domestic violence or child abuse.

Fever

1. Universal Patient Care Protocol
2. Orthostatic Blood Pressure (if clinical status permits)
 - a. If yes, start IV 0.9% NS and give 500 mL bolus (20 mL/kg IV bolus in pediatric patients)
 - b. If no, encourage po fluid intake and cooling measures
3. Temperature
 - a. If > 101.5 degrees F (38.6 deg C) give ACETAMINOPHEN (Tylenol®) 650 mg PO/PR (15 mg/kg po/pr in pediatric patients) if not received within the past 6 hours.
 - b. If < 101.5 degrees F (38.6 deg C) proceed to step 4.
4. Follow appropriate patient treatment protocol by chief complaint.
5. Contact On-Line Medical Direction.

Notes:

Febrile seizures are more likely in children with a history of febrile seizures and with a rapid elevation of body temperature.

Rehydration with fluids increases the patient's ability to sweat and improves heat loss.

All patients should have drug allergies documented prior to giving any medications.

IV Access

1. Universal Patient Care Protocol
2. Assess need for IV placement
 - a. Peripheral IV
 - b. External Jugular IV (> 12 yrs old)
 - c. (IO) Intraosseous line for life-threatening event (if patient less than 8 years of age)

Unsuccessful

7. Inform On-Line Medical Direction after 3 attempts for peripheral IV, 1 attempt for external jugular line or intraosseous line.

Successful

1. Monitor saline lock or IV infusion

Note:

External Jugular IV lines recommended for ages 12 years or older

Any pre-hospital fluids or medications approved for IV use can be given through an intraosseous IV line

Use microdrips in all patients age 6 years or younger

External jugular lines can be attempted initially in life-threatening situations where there are no obvious peripheral sites visible

Dialysis shunts or external central venous catheters may be used in cardiac arrest patients or patients who are hemodynamically unstable after consultation with On-Line Medical Direction physician.

Any venous catheter accessed prior to EMS arrival may be used

Avoid starting IV's, taking BP, blood draws and injections on the same side as mastectomies.

Nausea/Vomiting, Adult

1. Universal Patient Care Protocol
2. Obtain vital signs including temperature and orthostatic BP. Proceed with Fever Protocol as indicated.
3. Start IV 0.9% NS at 100 mL/hr
If the patient is hypotensive (adults SBP < 90 mmHg) or has positive orthostatic vital signs (decrease in SBP > 10 mmHg or increase in heart rate > 20 bpm) give 500 mL wide open.
4. Transport.
5. Does the patient report epigastric or periumbilical abdominal pain?
If yes, monitor the patient and consider Chest Pain Protocol after discussion with On-Line Medical Direction.
6. Treat nausea and vomiting with 12.5 – 25.0 mg PROMETHAZINE (Phenergan®) IVP

Lip smacking, neck spasms or hyperactivity after PROMETHAZINE (Phenergan®) is given can be treated with DIPHENHYDRAMINE (Benadryl®) 25 mg IV.
7. Reassess the patient and check blood glucose level. Administer 50% DEXTROSE 25 gm IVP as indicated.
8. Contact On-Line Medical Direction. Pain control must be discussed with On-Line Medical Direction in the case of abdominal pain where symptoms may be masked.
9. Consider placement of NG tube in Upper GI bleeding or severe nausea and vomiting despite treatment with PROMETHAZINE (Phenergan®).
10. If the patient remains hypotensive, give an additional 250 mL of 0.9% NS, monitoring lung sounds.
11. Pertinent history:
 - Signs and symptoms
 - Allergies
 - Medicines currently prescribed
 - Past medical history including prior surgeries and associated medical illnesses
 - Last meal or other oral intake
 - Events leading to this episode

Pain Control

1. Universal Patient Care Protocol
2. Perform focused examination, including the patient's mental status, evaluation of the area of pain, and neurological pain.
3. Follow appropriate patient treatment protocol as indicated by chief complaint and signs and symptoms.
4. Assess Pain Severity by Pain Measurement Procedure

If pain <3 on a 0-5 pain scale, then ACETAMINOPHEN (TYLENOL)

- Adult dose: 1,000 mg PO if not received within the past six (6) hours.
- Pediatric dose: 15 mg/kg PO if not received within the past six (6) hours.
- EMT-Basic may administer ACETAMINOPHEN (TYLENOL) in the above doses after contact with On-Line Medical Control.

If pain >3 on 0-5 pain scale – continue with protocol step 5.

5. IV Protocol 0.9% NS KVO
6. Is there a contraindication to sedation or is the patient complaining of Abdominal Pain?
 - **Yes** – Contact Medical Control to request Physician Order of KETOROLAC (TORADOL) 30 mg IV or IM. Monitor and reassess patient.
 - **No** – Give MS (MORPHINE SULFATE) 1-2 mg slow IVP over 1 minute (Pediatric dose: 0.1 mg/kg slow IVP over 1 minute with a maximum of 15mg/dose)
 - i. Only if there is a history of allergy to MS or sulfa, then give MEPERIDINE (DEMEROL) 12.5 - 25 mg slow IVP over 1 min (Pediatric dose is 1 – 2 mg/kg/dose)
 - ii. Consider giving with PROMETHAZINE (PHENERGAN) 12.5 - 25mg IV over 1 min (Pediatric dose is 0.25 – 0.5 mg/kg/dose) to prevent severe nausea associated with the use of MEPERIDINE.
7. Contact On-Line Medical Control

Notes:

- Pain severity is a vital sign and should be recorded before and after any medication delivery and at disposition.
- Pain control with abdominal pain must be discussed with On-Line Medical Control where symptoms may be masked.

Spinal Immobilization Clearance

1. Universal Patient Care Protocol.
2. Perform Neurologic Examination.
 - a. If a deficit or cervical spine tenderness is present, spinal immobilization is required.
 - b. If not, proceed to step 3
3. Is the patient > 65 or < 5 years of age with a significant mechanism of injury?
 - a. If yes, spinal immobilization is required.
 - b. If not, proceed to step 4
4. Is the patient alert?
 - a. If not, spinal immobilization is required.
 - b. If yes, proceed to step 5
5. Is the patient intoxicated?
 - a. If yes, spinal immobilization is required.
 - b. If not, proceed to step 6
6. Is there a distracting injury that might minimize the significance of potential c-spine injury?
 - a. If yes, spinal immobilization is required
 - b. If not, spinal immobilization is not required.
7. Proceed with the appropriate patient treatment protocol.
8. If at anytime there is a concern regarding use of immobilization, place the patient in the appropriate immobilization device and contact On-Line Medical Direction.

Note

Significant mechanism of injury includes high energy events such as ejections, high falls and abrupt deceleration crashes and may indicate the need for spinal immobilization in the absence of symptoms

Range of motion should **NOT** be tested if the patient has midline spinal tenderness. Patient's range of motion should not be assisted. The patient should touch their chin to chest, extend their neck (look up) and turn from side to side without spinal process pain.

The decision **NOT** to implement spinal immobilization in a patient is the responsibility of the **EMT**.

In the very old and the very young patient, a normal physical exam may not be sufficient to rule out spinal injury.

Universal Patient Care Protocol

1. Scene safety and personal protective equipment.
2. Initial Assessment (Pediatric vs. Adult Assessment Procedure)
3. **Is the patient in Cardiac Arrest?**
 - a. If yes, proceed with Cardiac Arrest Protocol
4. Obtain vital signs
5. Airway protocol (Pediatric vs. Adult)
6. Pulse Oximetry
7. Cardiac Monitor as indicated by chief complaint
 - a. 12-lead EKG (if clinical status permits)
8. Proceed with the appropriate Patient Care Protocol
9. Contact On-Line Medical Direction if the patient doesn't fit a protocol.

**WMD – Nerve Agent
(WMD-Weapons of Mass Destruction)**

1. Ensure scene safety and proper personal protective equipment.
2. Universal Patient Care Protocol
3. Obtain history of exposure.
4. Observe for specific toxidromes.
5. Initiate triage and/or decontamination as indicated.
6. If minor symptoms present (salivation, lacrimation, visual disturbances):
 - ATROPINE 2mg(0.02-0.05 mg/kg) IV/IM every 5 min until symptoms resolve
 - PRALIDOXIME 2 grams IV over 30 minutes (15-25 mg/kg for Pediatric patients)
 - Monitor for appearance of major symptoms
7. If major symptoms present (altered mental status, seizures, respiratory distress)
 - MARK ONE KIT – IM x 3 rapidly (see notes for pediatric dosage)
 - If seizures, DIAZEPAM 5-10 MG IV/IM (0.3mg/kg IV/IM)
 - ATROPINE 2 mg IV/IM every 5 min (0.02-0.05 mg/kg) until symptoms resolve.

Notes:

- In the face of a confirmed attack, begin with 1 Mark One Kit for patients less than 7 years of age, 2 Mark One Kits from 8 to 14 years of age, and 3 Mark One Kits for patients 15 years of age or older.
- If Triage/Multi Casualty Incident issues exhaust supply of Mark One Kits, use pediatric atropines if available. Use the 0.5 mg dose if patient is less than 40 pounds(18 kg), 1mg dose if patient weighs between 40 to 90 pounds, and 2mg dose for patients greater than 90 pounds(40kg)
- Follow local Haz-Mat protocols for decontamination and use of personal protective equipment.
- For patients with major symptoms, there is no limit for atropine dosing.
- Carefully evaluate patients to ensure they are not from exposure to another agent (narcotics, vesicants, etc.)
- Each Mark One Kit contains 600 mg of Pralidoxime (2-PAM) and 2 mg of Atropine.