Hamilton County Emergency Medical Services

Medical and Trauma Protocols

“Setting the Standard of Care”

Hamilton County EMS

Adult Protocols

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Adult Protocols

These protocols were designed to assist in treatment of a broad range of various disorders. Some patients may require care not otherwise covered in these sequences. These protocols are to be considered as standing orders until medical/ trauma control is contacted. As in all pre-hospital care, medical/ trauma control should be contacted as soon as emergency conditions allow. Only those paramedics approved by the medical director of Hamilton County and currently certified in both International Trauma Life Support (ITLS) and Advanced Cardiac Life Support (ACLS) may use these protocols. These guidelines will replace those currently in use across the county.

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Hamilton County EMS

Adult Protocols

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CIRCUMSTANTIAL/ SKILLS PROTOCOLS

WITHHOLDING OF ADVANCED LIFE SUPPORT

Purpose: To establish guidelines for the withholding of resuscitative measures in the following situations:

1. Asystole on the monitor, and
2. Fixed, dilated pupils, and
3. Documented lack of CPR for greater than 10 minutes (not including / involving hypothermia, cold water immersion, lightning strike, or barbiturate coma).
    A. Decapitation, or
    B. Massive trauma (evacuation of cranial vault), or
    C. Severe blunt trauma with absence of vital signs, or
    D. Absence of vital signs, respirations and neurological reflexes in situations requiring prolong resuscitation, or
    E. Rigor mortis, or
    F. Dependent lividity, or
    G. Properly executed D.N.R. order
4. **If CPR has been initiated at any point prior to arrival, by either a first responder or bystander, then Medical Control must be contacted to discontinue efforts.**

The withholding of resuscitative measures is a standing order not requiring permission of Medical / Trauma control, unless CPR was initiated prior to the arrival of HCEMS. As in all standing orders, thorough documentation is required. Any situation / occurrence with less then items 1-3, and / or A-G should be referred to Medical / Trauma control for permission to withhold.

EXTERNAL CARDIAC PACING

Indications:

1. Sinus Bradycardia
    A. Unresponsive to Atropine, or
    B. Unable to initiate IV access.

2. Type II 2nd degree AV block (Mobitz Type II) and 3rd degree AV block (complete heart block)
    - External cardiac pacing is class I (definitely helpful).
    - External cardiac pacing is recommended before Atropine.
    - Rhythm often associated with anteroseptal acute myocardial infarctions. Can progress to 3rd degree AV block.
    - ATROPINE is not the first choice. Atropine may worsen conditions in myocardial ischemia and VF or VT.

Procedure:

1. Apply pacing pads (Quick Combo Pads) and 4 lead monitor cable.
    - *Patient must be connected to leads to pace!*
2. Turn on pacing module.
3. Select rate.
4. Increase amps delivered until capture.

External pacing is always uncomfortable for the patient. Contact Medical Control as early as possible to consider sedative medication options such as Versed, Valium, or Morphine.

NASOTRACHEAL INTUBATION

Purpose:

To provide a patient with an advanced airway when long tern endotracheal intubation may not be indicated or when the patient is unable to maintain his or her own airway or ventilatory effort. There should be no facial trauma or suspected skull fractures when considering nasotracheal intubation. Nasotracheal intubation is also relatively contraindicated in apneic patients in whom placement is very difficult.

Procedure:

1. Gather the necessary equipment and inspect then nose to determine patency.
2. Test the inflatable cuff and lubricate the nasotracheal tube with a water-soluble lubricant.
3. Hyperventilate the patient with 100% Oxygen.
4. Position the patient's head with regard to C-Spine.
5. Consider Cetacaine spray in each nostril.
6. Insert the lubricated nasotracheal tube into the nose.
7. Advance and position the nasotracheal tube into the oropharynx at the glottic opening.
8. Advance the nasotracheal tube quickly, during inspiration into the trachea.
9. Maintain a grip on the nasotracheal tube, ventilate the patient, and verify tube placement.
10. Verify tube placement by observing condensation in the tube, by using the end-tidal CO2 function on the Life Pak 12 or CO2 detector if Life Pak 12 is not available, and using the esophageal intubation detector.
11. Inflate the cuff of the nasotracheal tube with 5-10cc of air.
12. Verify breath sounds and hyperventilate the patient with 100% Oxygen.
13. Secure the nasotracheal tube with tape or tube holder BEFORE releasing the tube.

Note: Extra caution should be used with patients taking anticoagulants, patients that are a "Stroke Alert", and in pediatric patients.

NEEDLE CHEST DECOMPRESSION

Qualifications to perform:

- Tennessee licensed EMT-P,
- Completion of in-service training,
- Approval of Service Medical Director,
- On-going demonstration of proficiency,
- On-line medical / trauma control should be sought prior to procedure. However, in the event medical / trauma control cannot be contacted, chest decompression can be preformed in critical patients.

Indications:

- Critical evidence of tension pneumothorax,
- Markedly diminished or absent breath sounds unilaterally, subcutaneous emphysema, distended neck veins (may be absent in a hypovolemic patient),
- Respiratory distress / hypoxia in the presence of penetrating or blunt chest trauma,
- Profound hypotension in the presence of penetrating or blunt chest trauma,
- Decreased lung compliance (difficulty with mechanical ventilation),
- Tracheal shift away form affected side is a late sign, rarely found,
- Cardiac arrest with PEA rhythm, especially if asthmatic / COPD or if difficulty ventilating patient,
- Cardio respiratory decompensation following intubation and positive pressure ventilation, with decreased lung compliance (difficulty with mechanical ventilation).

Contraindications:

- None.
- Must confirm appropriate endotracheal tube position if patient is intubated.
- Must have signs / symptoms of hypoxia, respiratory distress, or hypotension in addition to signs of pneumothorax.

Equipment:

- 14 or 16 gauge IV catheter, 2.5” catheter minimum,
- 5 or 10cc syringe, with 1 or 2ml of saline within syringe,
- Skin antiseptic (betadine).

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NEEDLE CHEST DECOMPRESSION (continued)

Procedure:

1. Cleanse skin of anterior chest with betadine.
2. Identify affected side (decreased breath sounds on affected side). Trachea may or may not be deviated away from affected side (remember this is rarely seen).
3. Identify landmarks:
    - Angle of Louis at junction of manubrium and sternal body is palpable landmark for junction of 2nd rib and sternum.
    - Second intercostal space is below 2nd rib.
    - Catheter puncture site is the 2nd intercostal space where it intersects and imaginary line through the midpoint of the clavicle (midclavicular line).
4. With syringe attached to the IV catheter, enter the chest cavity at the 2nd intercostal space, midclavicular at a 90-degree angle with the chest wall. Aspirate for "bubbles" as you advance the syringe and catheter. Correct placement will generally necessitate advancing the catheter up to the hub. Closely observe for redevelopment of signs and symptoms of tension pneumothorax. Optimally, a longer decompression specific catheter should be used.
5. Contact Med Comm. with response to decompression and to prepare receiving hospital for formal chest tube insertion.

WITHDRAWAL / DISCONTINUATION OF LIFE SUPPORT

Assessment:

The following are guidelines for making the choice. Discontinuation shall only be done with on line Medical / Trauma control.

- Asystole on ECG (without change for 10 minutes) and
- Fixed, dilated pupils and
- Absence of pulse, respirations and neurological reflexes

In Addition to:

1. EMS Provider documented lack of CPR for 10 minutes.
2. Prolonged resuscitation in the field without hope for survival.
3. Other signs of death in the absence of hypothermia, cold water drowning, lightning strikes, or barbiturate induced coma.
4. Decapitation.
5. Massive trauma such as evacuation of cranial vault.
6. Severe blunt trauma with absence of vital signs and papillary responses.
7. **IF CPR has been initiated at any point prior to arrival, by either a first responder or bystander, then Medical Control must be contacted to discontinue efforts.**

Note: Medical / Trauma control may choose to discontinue Life Support in the field and pronounce a patient dead at the scene. ***However, once transport has begun, Life Support will be continued!***

TERMINALLY ILL PATIENT

- Prehospital providers are occasionally called to a residence where there is a terminally ill patient under the direct and continuous care of a physician.
- The patient's family and physician may only desire that the patient be kept comfortable.
- Family members or other persons may be become overwhelmed by the situation and call an emergency number that may involve both ambulance and fire service. The sudden arrival of a number of people at the residence may result in confusion.
- Consequently, the patient may present with what is perceived, by a first responder or ambulance personnel, as sudden onset of symptoms which appear to be life threatening (most likely an altered mental status, respiratory distress or cardiac / pulmonary arrest). The provider, therefore, should be especially alert for patient information that may indicate the patient is in the terminal phase of a chronic disease with death imminent and proceed as follows:
- Maintain a calm environment and avoid automatically performing heroic and perhaps inappropriate measures beyond basic life support.
- Elicit as much information as possible from people present that are familiar with the patient's condition.
- Get the name and telephone number of the patient's physician if possible.
- Maintain BLS procedures and contact medical control through med comm. as soon as possible. Provide full information on the patient's condition, history of terminal illness, and the name of the patient's physician and telephone number.
- The Medical Control Physician should be provided full information by med comm. and direct the management of the call. When possible, the patient's physician should be consulted by the hospital.
- If the patient's private physician intervenes in person or by telephone the EMT / Paramedic shall:
    - Provide the physician with information on the patient's condition,
    - Inform the physician that they must make medical control contact through med comm.,
    - Request the physician to contact Med Comm. (provide direct telephone number),
    - At no time should any orders be taken over a phone, expect from med comm.

BEDSIDE GLUCOSE MONITORING

Qualifications to Perform:

- Tennessee licensed EMT-IV / EMT-P.
- On-going demonstration of proficiency.

Indications:

Glucose monitoring should be performed on any patient with:

- Loss of consciousness.
- Confusion / combativeness.
- Signs of stroke, including unilateral hemiplegia or speech difficulties.
- Seizures.
- Profound bradycardia.
- Severe illness or injury in a known or suspected diabetic.
- Ingestion / overdose with iron, aspirin, alcohol, insulin, oral diabetic agents, or betablockers.
- Severe dehydration.
- Severe liver disease.

Note: Patients, who suffer a major traumatic closed head injury, should have glucose measurements to exclude hypoglycemia as a contributing or treatable factor.

Contraindications:

None.

Record keeping issues:

The Tennessee State Board of Lab Licensure has granted a wavier for EMS personnel to be excluded from their rules and regulations regarding prehospital glucose assessments. EMS agencies must apply for CLIA wavier from the federal government. For quality assessment, the State EMS Division will require that:

- All open glucose reagent strip containers be tested against known standard on a weekly basis with records maintained for site visit by State EMS officials.
- For CQI purposes, it is helpful to obtain and record hospital laboratory readings on field drawn samples to evaluate field-testing procedures.

F.A.S.T. 1 INTRAOSSEOUS INFUSION SYSTEM

The use of the F.A.S.T. 1 system is for Supervisors and Tactical Paramedics who have been trained in this procedure. Tactical Paramedics are only allowed to use this procedure when activated and acting as a Tactical Paramedic. Do not attempt to use the F.A.S.T. 1 system unless you have been formally trained, evaluated and authorized to perform his procedure.

Who is a candidate?

- Patients who fall within the range of normal size adults. The system is not designed for used on small adults or children.
- Patients in which IV access is difficult or impossible to establish.

Precautions:

- Compromised skin or tissue: i.e. trauma, infection, and burns.
- Severe osteoporosis and bone softening conditions.
- Previous sternotomy or abnormal sternal anatomy.
- Suspected fracture of sternum.
- Extremely small adult.

Procedure – Application:

1. Undo or cut the shirt to expose the sternum.
2. Using aseptic technique prepare the area 1 inch below the sternal notch.
3. Remove the top half of backing form the patch.
4. Locate the sternal notch.
5. Align notch in patch to patients sternal notch and secure patch to the body.
6. Verify patch placement.
7. Remove remaining backing and secure to the patient.
8. Verify location. Check that the locating notch matches the sternal notch and that the target zone is over the manubrium. This is critical for safe and effective placement of the device.
9. Place bone probe cluster needles in target zone and press down introducer until release occurs. ***DO NOT PULL BACK AND RE-PUSH.***
10. Remove introducer and secure the sharps by disposing of properly in sharps container.
11. Attach a syringe to straight female connector, and verify placement of tube by withdrawing marrow. Then remove and discard syringe.
12. Attach end of infusion tube to right-angle female connector on patch.

Continued on next page!

F.A.S.T. 1 INTRAOSSEOUS INFUSION SYSTEM (continued)

13. Attach straight female connector to IV of NS or LR. Secure protector dome to patch.
14. Attach remover package to patient.

Procedure – Removal

1. Remove the protector dome from the patch.
2. Disconnect the infusion tube from the right angle female connector on the patch.
3. Do not pull on the infusion tube to remove it.
4. Open the remover package.
5. Remove the tubing protecting the remover tip.
6. Insert the remover into the infusion tube.
7. Advance the remover till you hear or feel it enter the threads in the proximal tip of the infusion tube.
8. Turn the remover clockwise until it stops.
9. Pull out straight on the remover to remove the infusion tube.
10. Remove the patch.
11. Apply pressure and treat the site using aseptic technique.
12. Dispose of contaminated remover and infusion tube in sharps container.

VERICHIP

Indications:

1. On any patient who is unresponsive, DOA, altered level of consciousness, which are not able to give any information both to identify the patient and gain any medical history.

2. There is also no bystander who is able to give any information about the patient.

Procedure:

1. Turn on the VeriChip monitor by pressing the F1 button.
2. Let the VeriChip run through the self-check mode. Make sure to check the battery status during this portion.
3. Press the F1 button and run it along the chip that is attached to the unit by the black cord in order to test the unit.
4. Press the F1 to begin the scan of the patient.
5. The chip will be located between the elbow and shoulder of the right arm.
6. Scan the patient, keeping the scanner within three inches of the surface of the arm, starting about two inches above elbow and slowly working towards the shoulder.
7. If a chip is detected the scanner will emit a “Chirp” noise and give you a sixteen-digit number. Write the number down.
8. Make sure the unit has turned off. It will do it automatically or may be done by simultaneously pressing the small F2 and F3 button.
9. Upon arrival to the hospital give the sixteen-digit number to the receiving nurse.
10. Upon returning to the station enter the sixteen-digit number into the web-based database to gather any needed information to complete the Patient Care Report.

Note: The Verichip must be checked every day by turning the unit on (Press F1), checking the battery status and scanning the chip that is attached to the unit by the black cord. Mark results on the Unit Check Off.

ADULT MEDICAL PROTOCOLS

ADVANCED CARDIAC LIFE SUPPORT
CARDIAC DESTINATION GUIDELINES

GOAL: To provide cardiac patients with the most appropriate transport destination dependent on patient condition and/or risk factors. Reduction of secondary transfers for cardiac patients can reduce patient mortality and cardiac muscle damage.

Appropriate facilities include those capable of cardiac catheterization and rapid revascularization (percutaneous coronary intervention [PCI] or coronary artery bypass graft surgery[CABG]) Current facilities capable of such interventions include **Erlanger, Memorial, and Parkridge** hospitals.

GUIDELINES:

1. Code Stemi: EKG with injury pattern (S-T elevation of at least 1 mm in 2 or more concordant leads)
2. Left Bundle Branch Block with chest pain typical for AMI
3. Ischemic EKG changes typical for acute coronary syndrome
4. High risk patients for cardiac conditions that are currently symptomatic for a possible cardiac event. Patients that fall in this category may have any combination of the following signs or symptoms(diaphoresis, poor skin color, unstable vital signs, nausia/vomiting, dyspnea, and unrelieved chest pain. High risk patients include but are not limited too the following conditions:
    a. Male 35 and older, Females 40 and older
    b. Diabetics
    c. Hypertension
    d. Smokers
    e. Family history
    f. Previous cardiac history to include recent history of CABG or PCI
5. Cocaine overdose with possible coronary spasm
6. Unstable cardiac arrhythmias
7. Cardiac arrhythmias requiring pharmological intervention and/or cardioversion. This includes adult medical patients who have been resuscitated by means of defibrillation, CPR, or other interventions.
8. Unstable congestive heart failure patients
9. Patients experiencing cardiogenic shock
10. Patients experiencing malfunction of cardiac pacemakers
11. Firing of implanted automatic defibrillator

ADVANCED CARDIAC LIFE SUPPORT
ACUTE MYOCARDIAL INFARCTION

The stretcher, cardiac monitor, and oxygen shall be carried into the scene on all Chest Pain Calls!

BLS

1. A.B.C.s
2. Place patient in position of comfort.
3. Administer oxygen and use appropriate airway adjuncts for patient's condition, monitor pulse oximetry.
4. Suction airway and assist ventilations, if required.
5. Establish IV NS or INT. (**DO NOT DELAY TRANSPORT FOR IV)**
6. Assist patient with administration of NTG up to 3, unless patient becomes hypotensive, (<100 mm/hg systolic), monitor and record patients blood pressure every (5) minutes. **Remember to ask if the patient is taking any phosphodiesterase inhibitor medications (Viagra, Levitra, Cialis).**

ALS

7. Monitor ECG / acquire 12 lead on scene.
8. If the patient shows an ST Elevation Myocardial Infarction, possible ST elevation, or has significant signs to show and acute MI is suspected, and the patient is going to be transported to a hospital participating in the code STEMI program, the 12 lead will be transmitted to that hospital. The 12 lead will be transmitted using the Life Pak 12 manufactures recommendations. The transmitted copy WILL have the patient's last name and age entered prior to transmission, and if patient condition and time allows the patient's first name, last name, and date of birth will be added. If the default alarm has indicated a failure for the ECG transmission being sent then another attempt should be made as patient condition and times allow. If the transmission cannot be sent for any reason the receiving facility should be notified that no transmission is being sent. **(Patients who meet the criteria for a Code STEMI will be transported to the most appropriate facility: Erlanger, Memorial, or Parkridge)**
9. Initiate a second IV.
10. Proceed with NTG as with BLS protocol.

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ADVANCED CARDIAC LIFE SUPPORT
ACUTE MYOCARDIAL INFARCTION (continued)

11. Administer ASA, (324mg PO chewed). **If the patient has already taken ASA then ascertain the dosage that they took. If the dose is less than 324 mg then give 81 mg baby ASA to reach the dosage of 324 mg. CONTRAINDICATION: Patient with know allergy to ASA or patient who has already received 324 mg ASA, or blood thinners (To include such medicines as Plavix) within 24 hours. If ASA is not given, then document the reason why it was not given.**
12. If pain is unrelieved by NTG then administer Morphine Sulfate in 2mg increments, titrate to pain relief up to 10mg, monitor and record patients blood pressure every (5) minutes.
13. If patient is allergic to Morphine then administer Nubain 10mg IVP. **If patient is not allergic to Morphine then Morphine should be given rather than Nubain.**
14. Perform right sided 12 lead by moving V4R and V5R to the same location on right side on suspected inferior AMI patients. Two indicators are a patient that has a border line or low blood pressure, or they have a larger ST segment in lead III than they do in lead II. These patient's should be treated with a 200 ml fluid bolus and **EXTREME CAUTION** should be used if nitro or morphine is administered.
15. CONTACT MED COMM AS SOON AS PATIENT CONDITION ALLOWS WITH A POSSIBLE CODE STEMI ALERT!

CHECK BLOOD PRESSURE IN BOTH ARMS PRIOR TO ADMINISTRATION OF NTG. IF THERE IS A DIFFERENCE OF 8-10 MM/HG BETWEEN THE READING, THEN SUSPECT POSSIBLE AORTIC ANEURYSM.

ADVANCED CARDIAC LIFE SUPPORT
Pre-Hospital Screening for Thrombolytic Therapy

Complete this report for all patients symptomatic for a Myocardial Infarct. Report to the Emergency Department Physician/Nurse the following elements and attach a copy of this form to Patient Care Report (Trip Number:_____) for all patients that received pre-hospital screening for thrombolytics.

i. Patient's Age:_____

ii. Time of onset of symptoms:_____

iii. Vital Signs: BP_____ Pulse_____ Resp:_____

iv. EKG Analysis (by device/EMT-P):_____

v. Medications:_____

YES NO 1. Previously taken anticoagulants? What:_____ Date:_____

YES NO 2. Taking Coumadin, Aspirin, other blood thinners:_____

YES NO 3. Recent blood in sputum, vomit, stool, or urine (circle).

YES NO 4. Recent brain/spinal cord surgery, CVA or injury (Date_____)

YES NO 5. Brain/spinal cord (tumor or aneurism) (circle).

YES NO 6. Atrioventricular tumor or AV malformation (circle).

YES NO 7. Prolonged CPR (circle). Estimated length of CPR_____

YES NO 8. History of aortic dissection, arteriovenous malformation, or an aneurysm (circle).

YES NO 9. Pregnancy (How far along:_____)

YES NO 10. Recent trauma or surgery (What:_____Date:_____)

YES NO 11. Recent biopsies, endoscopies, arterial puncture Date:_____

YES NO 12. Severe, uncontrolled hypertension (circle).

YES NO 13. Bleeding disorder that causes patient to bleed excessively (circle).

YES NO 14. Recent strep throat or currently menstruating (circle).

ADVANCED CARDIAC LIFE SUPPORT
VENTRICULAR FIBRILLATION / PULSELESS VT ALGORITHM

ASSESSMENT:
PRIMARY: ABCD SURVEY.
FOCUS: BASIC CPR AND DEFIBRILLATION.
Check responsiveness.

- A- airway: open the airway.
- B- breathing: provide positive-pressure ventilations.
- C- circulation: give chest compressions
- D- defibrillation: assess for and shock VF / Pulseless VT, shock one (1) time at 200 joules with a biphasic monitor or at 360 joules with a monophasic monitor.

AFTER DEFIBRILLATION PERFORM APPROXIMATELY TWO (2) MINUTES OF CPR BEFORE CHECKING THE RHYTHM. CHECK CARDIAC MONITOR AFTER TWO MINUTES OF CPR AND THEN PROCEED TO APPROPRIATE ALGORITHM.

If Rhythm is torsades de pointes then Magnesium 1-2g will be first line drug of choice.

PERSISTENT OR RECURRENT VF / VT:

SECONDARY ABCD SURVEY.
FOCUS: MORE ADVANCED ASSESSMENTS AND TREATMENTS.
A- airway: place airway device as soon as possible.
B- breathing: confirm airway device placement by exam plus confirmation device.
B- breathing: secure airway device: purpose made tube holders preferred.
B- breathing: confirm effective oxygenation and ventilation.
C- circulation: establish IV access.
C- circulation: identify rhythm on monitor.
C- circulation: administer drugs appropriate for rhythm and condition.
D- differential diagnosis: search for and treat identified reversible causes.

Defibrillate one (1) time (Biphasic will start at 200j then following defibrillation attempts will be at 300j and 360j, but if uncertain then use 200j. A monophasic will be at 360j). Resume CPR after defibrillation.

EPINEPHRINE 1mg IVP- Repeat every 3 to 5 minutes (May be used after Vasopresine has been given.)

OR

VASOPRESINE 40u IVP, SINGLE DOSE, 1 time only
RESUME ATTEMPTS TO DEFIBRILLATE
1 X 360j within 30 to 60 seconds

VENTRICULAR FIBRILLATION / PULSELESS VT ALGORITHM (continued)

After shock and medicines perform two (2) minutes of CPR before checking the rhythm. After two (2) minutes of CPR then check the rhythm.

Defibrillate one (1) time (Biphasic will start at 200j then following defibrillation attempts will be at 300j and 360j, but if uncertain then use 200j. A monophasic will be at 360j). Resume CPR after defibrillation.

CONSIDER ANTIARRHYTHMICS:
AMIODARONE 300mg IVP bolus 1 time followed by a 20cc flush
AFTER ABOUT 9 TO 12 MINUTES REPEAT WITH
AMIODARONE 150mg IVP bolus followed by 20cc flush
or
Lidocaine 1.0-1.5mg/kg IVP. Can repeat in 3 to 5 minutes to maximum dose of 3mg/kg. As single dose of 1.5mg/kg in cardiac arrest is acceptable.

Magnesium 1-2g IVP in torsades de pointes or suspected hypomagnesmic state or refractory VF.

Consider buffers.

Resume attempts to defibrillate.

IF A RETURN OF SPONTANEOUS CIRCULATION IS ESTABLISHED THEN BEGIN THE INDUCED HYPOTHERMIA PROTOCOL AND CALL FOR A SUPERVISOR.

Consider Hypovolemia, Hypoxia, Hydrogen ion (Acidosis), Hypo/ Hyperkalemia, Hypoglycemia, Hypothermia, Toxins, Tamponade (cardiac), Tension Pneumothorax, Thrombosis (coronary or pulmonary), and Trauma (hypovolemia/ increased ICP). See causes addendum!

ADVANCED CARDIAC LIFE SUPPORT
ASYSTOLE/ PEA ALGORITHM

ASYSTOLE ON MONITOR MUST BE CONFIRMED IN 2 LEADS!

TREATMENT:

1. Determine “downtime”, Initiate / continue CPR.
2. Oxygen 100% Intubate / hyperventilate.
3. Assess and maintain airway- confirm position of tube by exam plus confirmation device.
4. Establish IV of NS.
5. May use Vasopressin 40 U IV/IO, Single Dose, to replace either the first or second dose of Epinephrine.
6. After approximately 20 minutes EPINEPHRINE 1mg 1:10,000 IVP repeat every 3-5 minutes.
7. Consider ATROPINE 1mg IVP repeat every 3-5 minutes to total of 0.04mg/kg. (Use for asystole or a slow PEA rate)
8. Contact Medical Control as soon as possible.
9. Re-evaluate resuscitation- check oxygenation / airway and cardiac rhythm and go to appropriate protocol.
10. Consider Hypovolemia, Hypoxia, Hydrogen ion (Acidosis), Hypo/ Hyperkalemia, Hypoglycemia, Hypothermia, Toxins, Tamponade (cardiac), Tension Pneumothorax, Thrombosis (coronary or pulmonary), and Trauma (hypovolemia/ increased ICP). See causes addendum!

ADVANCED CARDIAC LIFE SUPPORT
BRADYCARDIA (SYMPTOMATIC)

NOTES:

- Beware of Ventricular Escape Beats and do not suppress with Lidocaine.
- Treat the patient and NOT the heart rate: Asymptomatic patients do not require aggressive treatment of bradycardia.
- Non-Cardiac causes of bradycardia: Hypoxia, Increased Intracranial pressure, Hypothermia, Pain / Nausea (Vasovagal response), Medications / Drugs – Calcium Channel Blockers, Beta – Blockers, Digoxin.

SYMPTOMATIC SIGNS:

- Heart Rate <60.
- Systolic BP <90.
- CHF / Pulmonary Edema.
- Altered Mental Status.
- MI or Ischemia on 12 lead EKG.

SYMPTOMS:

- Chest Pains.
- Shortness of Breath.
- Light-headedness.

TREATMENT:

1. Assess and maintain airway.
2. Oxygen 100% via non-rebreather mask.
3. Monitor ECG (identify rhythym) get a 12 lead ecg.
4. Baseline Vitals and pulse oximetry
5. Establish IV NS and maintain to patients condition.
6. Check blood sugar if less than 50mg/dl administer 50ml of D50.

If patient has adequate perfusion then monitor patient for changes. If patient has signs and symptoms of poor perfusion then continue to the next step:

7. Prepare for transcutaneous pacing (use immediately if patient has a high degree block such as a 2nd degree type II or 3rd degree AV block). Set rate to approximately 60/min and mA to 2 mA above consistent capture.
8. Consider Atropine 0.5 mg IV while awaiting pacer. May repeat to a total dose of 3mg. If ineffective begin to pace.
9. Consider epinephrine drip (2 to 10 mcg/min) or dopamine 2 to 10 mcg/kg/min) while waiting for pacer or if pacer is ineffective.
10. Contact Medical Control.
11. Consider Hypovolemia, Hypoxia, Hydrogen ion (Acidosis), Hypo/ Hyperkalemia, Hypoglycemia, Hypothermia, Toxins, Tamponade (cardiac), Tension Pneumothorax, Thrombosis (coronary or pulmonary), and Trauma (hypovolemia/ increased ICP). See causes addendum!

ADVANCED CARDIAC LIFE SUPPORT
NARROW – COMPLEX SUPRAVENTRICULAR TACHYCARDIA ALGORITHM

ASSESSMENT:

- Primary survey focusing on Airway/Breathing/Circulation.
- EKG monitor: Narrow QRS (<0.12 sec = 3 small blocks) Regular rhythm; rate >150 bpm.
- No p-waves or p-waves possibly inverted) following QRS.
- Carotid pulse palpable.
- No evidence of bleeding, dehydration, or hypovolemia.

UNSTABLE PATIENT:

Symptoms:

- Persistent Chest pain.
- Shortness of breath.
- Light-headedness.

Signs:

- Hypotensive with a systolic BP<90.
- CHF / Pulmonary Edema.
- Altered mental status.
- Myocardial infarction / Ischemia on 12 lead EKG.
- Other signs of shock

TREATMENT (Proceed Stepwise until Conversion)

1. Assess and maintain airway; intubate as necessary.
2. Oxygen 100% oximetry.
3. Monitor ECG with 12 lead obtained. (Is QRS ,0.12 seconds?)
4. Vital signs, Pulse oximetry.
5. Establish large bore IV, NS.
6. Consider and treat reversible causes.

UNSTABLE PATIENT

7. Contact Medical Control as soon as possible.
8. While preparing **synchronized cardioversion,** if rhythm appears to be narrow complex SVT, you can attempt conversion with Adenocard 6mg rapid IVP, followed by 10ml saline flush.

9. Valium 2-5mg IVP for sedation prior to cardioversion, if clinical conditions permit.

ADVANCED CARDIAC LIFE SUPPORT
NARROW – COMPLEX SUPRAVENTRICULAR TACHYCARDIA ALGORITHM (continued)

10. **Synchronized Cardioversion** (Atrial fibrillation at 100 to 200J, 300J, 360J. Stable Monomorphic VT at 100J, 200J, 300J, 360J. other SVT and Atrial Flutter at 50J, 100J, 200J, 300J, 360J) If rhythm does not convert with cardioversion, contact Medical Control. If patient does convert then go to appropriate rhythm protocol.

STABLE PATIENT

1. Attempt vagal maneuvers – have patient bear down for 10 seconds, if possible.
2. Adenosine 6mg rapid IVP, immediately followed by saline flush 10ml.
3. If no conversion in 2 minutes, repeat Adenocard 12mg rapid IVP, followed by saline flush 10ml. If no conversion in 2 minutes repeat Adenocard 12mg rapid IVP, followed by 10ml saline flush.
4. If no conversion contact Medical Control for authorization for additional treatment options.
5. Consider Hypovolemia, Hypoxia, Hydrogen ion (Acidosis), Hypo/ Hyperkalemia, Hypoglycemia, Hypothermia, Toxins, Tamponade (cardiac), Tension Pneumothorax, Thrombosis (coronary or pulmonary), and Trauma (hypovolemia/ increased ICP). See causes addendum!

*****Adenocard should not be used for control of atrial flutter / atrial fibrillation (cases of prolonged asystolic pauses). For atrial flutter / atrial fibrillation with rapid ventricular response, see Cardizem Protocol.**

ADVANCED CARDIAC LIFE SUPPORT
VENTRICULAR TACHYCARDIA (VT) WIDE COMPLEX

ASSESSMENT:

- Primary survey focusing on Airway/Breathing/Circulation.
- EKG monitor: Narrow QRS (<0.12 sec = 3 small blocks) Regular rhythm; rate >150 bpm.
- No p-waves or p-waves possibly inverted) following QRS.
- Carotid pulse palpable.
- No evidence of bleeding, dehydration, or hypovolemia.

UNSTABLE PATIENT:

Symptoms:

- Ongoing Chest pain.
- Shortness of breath.
- Light-headedness.

Signs:

- Hypotensive with a systolic BP<90.
- CHF / Pulmonary Edema.
- Altered mental status.
- Myocardial infarction / Ischemia on 12 lead EKG.
- Other signs of shock

TREATMENT (Proceed Stepwise until Conversion)

1. Assess and maintain airway; intubate as necessary.
2. Oxygen 100% oximetry.
3. Monitor ECG with 12 lead obtained. (Is QRS ,0.12 seconds?)
4. Vital signs, Pulse oximetry.
5. Establish large bore IV, NS.
6. Consider and treat reversible causes.

UNSTABLE PATIENT

7. Contact Medical Control as soon as possible.
8. While preparing **synchronized cardioversion,** if rhythm appears to be narrow complex SVT, you can attempt conversion with Adenocard 6mg rapid IVP, followed by 10ml saline flush.
9. Valium 2-5mg IVP for sedation prior to cardioversion, if clinical conditions permit.
10. **Synchronized Cardioversion** (Atrial fibrillation at 100 to 200J, 300J, 360J. Stable Monomorphic VT at 100J, 200J, 300J, 360J. other SVT and Atrial Flutter at 50J, 100J, 200J, 300J, 360J) If rhythm does not convert with cardioversion, contact Medical Control. If patient does convert then go to appropriate rhythm protocol.

ADVANCED CARDIAC LIFE SUPPORT
VENTRICULAR TACHYCARDIA (VT) WIDE COMPLEX (continued)

STABLE PATIENT:

1. Cordarone 150mg slow IVP over 10 minutes in 10cc NS. If no change then dosage may be repeated.
2. If no conversion, contact Medical Control to consider cardioversion, per **UNSTABLE PATIENT** portion protocol.
3. Consider Hypovolemia, Hypoxia, Hydrogen ion (Acidosis), Hypo/ Hyperkalemia, Hypoglycemia, Hypothermia, Toxins, Tamponade (cardiac), Tension Pneumothorax, Thrombosis (coronary or pulmonary), and Trauma (hypovolemia/ increased ICP). See causes addendum!

If rhythm is torsades de pointes then administer Magnesium Sulfate (load with 1-2 g over 5-60 minutes, then start an infusion)

ADVANCED CARDIAC LIFE SUPPORT
PREMATURE VENTRICULAR CONTRACTIONS (PVC'S)

ASSESSMENT

1. More than 5 PVC's per minute.
2. Multifocal PVC's.
3. Salvo's (2 or more PVC's in a row).
4. PVC's occurring near the T-wave.

TREATMENT

1. Oxygen 100%, monitor pulse oximetry.
2. IV access NS TKO.
3. If bradycardic, Atropine 0.5mg IVP. Refer to Bradycardia Protocol.
4. Contact Medical Control.
5. Cordarone 150mg slow IVP over 1-2 minutes in 10cc NS.
6. If PVC's are not suppressed within five minutes or patient remains unstable, re-contact Medical Control.

ADVANCED CARDIAC LIFE SUPPORT
Frequent Causes Addendum (The H's and T's)

Hypovolemia
ECG and Monitor Changes: Narrow Complex and a Rapid Rate
History and Physical Exam: History, Flat Neck Veins
Recommended Treatment: Volume Replacement

Hypoxia
ECG and Monitor Changes: Slow Rate
History and Physical Exam: Cyanosis and airway problems
Recommended Treatment: Oxygenation and ventilation

Hydrogen Ion (Acidosis)
ECG and Monitor Changes: Smaller Amplitude QRS Complexes
History and Physical Exam: Diabetes, bicarbonate responsive preexisting acidosis, renal failure
Recommended Treatment: Sodium Bicarbonate, Hyperventilation

Hyperkalemia (High Potassium)
ECG and Monitor Changes: Wide Complex QRS, T Waves Taller and Peaked, P wave get smaller, QRS Widens, Sine-Wave PEA.
History and Physical Exam: History of Renal Failure, Diabetes, Recent Dialysis, Dialysis Fistulas, Medications
Recommended Treatment: Sodium Bicarbonate, Glucose Plus Insulin, Calcium Chloride, Possibly Albuterol

Hypokalemia (Low Potassium)
ECG and Monitor Changes: T Waves Flatten, Prominent U Waves, QRS Widens, QT Prolongs, Wide-Complex Tachycardia
History and Physical Exam: Abnormal Loss of Potassium, Diuretic Use
Recommended Treatment: Add Magnesium if in Cardiac Arrest

Hypothermia
ECG and Monitor Changes: J or Osborne Waves
History and Physical Exam: History of Exposure to cold, Low Central Body Temperature
Recommended Treatment:

Tablets (Drug Overdose)
ECG and Monitor Changes: Various Effects on the ECG, Predominately Prolongation of the QT Interval
History and Physical Exam: Bradycardia, Pupils, Neurologic Exam, Scene Evidence
Recommended Treatment: Intubation, Activated Charcoal, , Toxidrome Apecific Agents and Antidotes

ADVANCED CARDIAC LIFE SUPPORT
Frequent Causes Addendum (The H's and T's) (continued)

Tamponade (Cardiac)
ECG and Monitor Changes: Narrow Complex, Rapid Rate
History and Physical Exam: History, No pulse felt during CPR, Vein Distention
Recommended Treatment: None Pre-Hospital (Treat signs and symptoms)

Tension Pneumothorax
ECG and Monitor Changes: Narrow Complex, Slow Rate (Hypoxia)
History and Physical Exam: History, No pulse felt during CPR, Neck vein distention, tracheal deviation, unequal breath sounds, difficulty with patient ventilation
Recommended Treatment: Needle chest decompression

Thrombosis Heart (Acute Massive MI)
ECG and Monitor Changes: Abnormal 12-lead ECG: Q-Waves, ST-segment changes, T-Waves, inversions
History and Physical Exam: Cardiac History
Recommended Treatment: None Pre-Hospital (Treat signs and symptoms)

Thrombosis Lungs (Acute Massive Pulmonary Embolism)
ECG and Monitor Changes: Narrow Complex, Rapid Rate
History and Physical Exam: History, No pulse felt during CPR, distended neck veins, prior test for DVT (Deep vein thrombosis) or PE
Recommended Treatment: None Pre-Hospital (Treat signs and symptoms)

ANAPHYLAXIS

BLS

1. A.B.C.s, Maintain airway as appropriate.
2. Administer Oxygen as needed, monitor pulse oximetry.
3. IV NS KVO (fluid bolus of 250-500cc IF HYPOTENSIVE).
4. Epinephrine 1:1000 0.3cc SQ, Repeat x 1 prn after 15 minutes.
5. Albuterol (Proventil) 2.5 mg/ 3 ml Saline combined with Atrovent (Ipratropium) 0.5 mg in 2.5 ml saline via nebulizer.

ALS

6. Cardiac monitor.
7. Benadryl 25mg IV or IM (if no IV is available).
8. Administer Solu-Medrol 125mg IVP.
9. Contact Med Comm.

- Consider Epinephrine 1:10,00; 0.1-0.3 mg in severe anaphylaxis.
- Severe is defined as pending airway compromise requiring intubation or vascular collapse.
- Look for exposure: foods, drugs, bites, stings, etc.
- Past history of allergic reactions.

Stroke Destination Guidelines

Goal: To provide patients who have a stroke or stroke symptoms, the most appropriate transport destination dependent on neurological assessment and time of symptom onset. These guidelines strive to maximize patient outcomes by designating centers offering highest level stroke care and minimizing secondary hospital transfers. See below for transport guidelines.

Patients appropriate for a Joint Commission Certified Advanced Primary Stroke Center

1. Any patient who has sudden onset of signs and symptoms of a possible stroke <8 hours.
    a. Sudden weakness, numbness or tingling in face, arm and/or leg (especially on one side of the body).
    b. Sudden difficulty speaking or understanding speech.
    c. Sudden blurred vision (especially in one eye), loss of vision or double vision.
    d. Sudden dizziness, lack of coordination
    e. Sudden, severe headache with no known cause (particularly if associated with one of more of a-e).

Non-Joint Commission Certified Stroke Center

1. Any patient in which the onset of symptoms is unknown.
2. The benefits of transportation to a Joint Commission Certified Primary Stroke Center will be explained to patient (if conscious and able to make an informed decision) and/or patient's family, or legal representative. The risks for not being transported to a Joint Commission Certified Primary Stroke Center will be explained to the patient and or family or legal representative.
3. The patient (if conscious and able to make an informed decision) and/or patient's family, or legal representative may refuse transport to a Joint Commission Certified Primary Stroke Center. If so, transport to their requested facility should occur only after they sign the consent to be transported to a non-Joint Commission Certified Stroke Center and transport has been approved by Medical Control.

BRAIN ATTACKS / CVA

BLS

1. A.B.C.s.
2. Administer Oxygen appropriate to patient's condition, airway adjuncts as needed.
3. Place patient is position of comfort, usually sitting, keep patient warm, and protect extremities.
4. Monitor pulse oximetry.
5. Establish IV of NS (Use only NS) and set flow rate at 75 cc's/hr (13 gtt/min with 10 gtt IV tubing or 75 gtt/min with 60 gtt IV tubing. (**DO NOT DELAY TRANSPORT FOR IV).**
6. Complete the MEND exam on scene before transport if patient condition allows.

ALS

7. Cardiac monitor, acquire 12 lead.
8. If patient condition has deteriorated, intubate patient to maintain oxygenation (If patient is unruly or to control anxiety administer Versed 2-7.5mg IVP, **under direction of Medical Control.**
9. Perform glucose test. If reading is less than **50 mg/dl**, give 25 Gm/ 50 ml saline of D50.
10. Administer Narcan 2mg IVP, if overdose is suspected or patient has respiratory depression, or is miotic (excessive smallness or contraction of pupils).
11. Contact Med Comm. and advise that the patient is a possible STROKE ALERT.
12. **Patients who meet the criteria for a Stroke Alert should be transported to the most appropriate facility (Erlanger or Memorial).**

STROKE ALERT SCREENING EXCLUSION CRITERIA

Complete this report for all patients symptomatic for a Stroke Alert. Report to the Emergency Department Physician/Nurse the following elements and attach a copy of this form to Patient Care Report (Trip Number _____) for all patients that received pre-hospital screening for Stroke Alert.

a. Patient's Age:_____

b. Time of onset of symptoms:_____

c. Vital Signs: BP:_____Pulse:_____Resp:_____

d. Medications:_____

YES NO 1. Symptoms > 2 hours old (t-PA must be started within 3 hours of onset) (circle).

YES NO 2. Did patient awaken with symptoms? (circle)

YES NO 3. Are symptoms minor (sensory loss, minimal weakness, pure ataxia, dysarthia alone) or improving? (circle)

YES NO 4. Do symptoms suggest subarachnoid hemorrhage? (circle)

YES NO 5. Is the patient pregnant or less than 2 weeks post partum? (circle)

YES NO 6. Has the patient had major surgery or trauma in the last 14 days? (circle)

YES NO 7. Has the patient had a GI or UTI hemorrhage in the last 21 days? (circle)

YES NO 8. Has the patient had a LP or arterial stick at a non-compressible site in the last 7 days? (circle)

YES NO 9. Is there a personal history of stroke, serious head trauma in the last 3 months of ANY history of an intracranial hemorrhage which would increase risk of ICH? (circle)

YES NO 10. Is the patient taking Coumadin? (circle)

YES NO 11. Does the patient have clinical presentation consistent with AMI or suggesting post MI pericarditis? (circle)

YES NO 12. Was there seizure at the onset of stroke? (circle)

CARDIZEM

BLS

1. A.B.C.s, maintain open airway appropriate to patient condition.
2. Place patient in position of comfort.
3. Administer Oxygen and use appropriate adjuncts for patient condition.
4. Monitor pulse oximetry.
5. Establish IV of NS **(DO NOT DELAY TRANSPORT).**

ALS

6. Cardiac monitor, 12 lead if patient condition allows.
7. Obtain strip to determine rhythm, atrial fibrillation, and atrial flutter with RVR. Verify heart rate greater than 140 and patient symptomatic.
8. Administer Cardizem 0.25mg/kg, up to 20 mg, over 2 minutes.
    a. **Use caution with patient over 55 years old. Consider using half dose (10 mg).**
    b. **Warning Cardizem is incompatible with Valium, Lasix, and Sodium Bicarbonate.**
5. Start an IV drip of Cardizem @ 10mg/hr.
6. If possible complete a second 12 lead and watch patient for hypotension.
7. If no response after first dose contact Medical Control and consider a second bolus of Cardizem at 0.35mg/kg over 2 minutes and monitor patient for hypotension.
8. Attach strips documenting patient rhythm both pre- and post-administration of drug therapy.

CONSCIOUS SEDATION

Who is a candidate?
This procedure should only be used after all conventional methods have failed. Any patient who requires a stable airway **and is difficult** to intubate because of uncooperative behavior (as induced by hypoxia, closed head injury, or hypotension) is a candidate for this procedure. **This is a procedure of necessity, not convenience.**

ALS

1. A.B.C.s.
2. Pre-oxygenate patient with 100% Oxygen for at least 2 minutes.
3. Cardiac monitor and pulse oximetry.
4. IV or INT, whichever is appropriate for patient condition.
5. Lidocaine 1.5mg/kg.
6. Versed (0.1mg/kg) 1mg/minute boluses not to exceed 7.5mg, maximum dose for adult patient.
7. When patient becomes relaxed, perform intubation.
8. Confirm tube placement by visualization, condensation in the tube, use end-tidal CO2 function on the Life Pak 12, use CO2 detector if Life Pak 12 not available, esophageal intubation detector.
9. Secure airway and ventilate according to patient condition.
10. **CONTACT MED COMM AS SOON AS PATIENT CONDITION ALLOWS.**

DRUG INGESTION / OVERDOSE

BLS

1. A.B.C.s.
2. Maintain open airway appropriate to patient condition.
3. Place patient in position appropriate to patient condition.
4. Administer Oxygen and use airway adjuncts appropriate to patient condition.
5. Monitor pulse oximetry.
6. Establish IV NS or INT. **(DO NOT DELAY TRANSPORT FOR IV)**
7. Perform glucose test, if reading is less than **50mg/dl** give 25 Gm/ 50ml of D50.

ALS

8. Cardiac monitor, consider 12 lead ECG.
9. Give 2mg, Narcan IV.
10. Give 100mg Thiamine IV.
11. Perform NG tube placement (i.e. indicated by unresponsive or substance taken) and contact Medical Control to give Activated Charcoal via NG tube.
12. Valium 2-6mg if patient is convulsing.
13. If unable to establish IV, administer Ativan 2-4mg IM if convulsing.
14. **CONTACT MED COMM AS SOON AS PATIENT CONDITION ALLOWS.**

HYPERGLYCEMIA

BLS

1. A.B.C.s.
2. Administer Oxygen and use appropriate airway adjuncts.
3. Assist ventilations and suction as needed.
4. Place patient is position of comfort.
5. Establish IV NS.
6. Check blood sugar, if reading is above **250mg/dl**, then administer a fluid challenge of 200 to 300ml of NS. (If patient is not hyperthermic IV fluid should be warm)

ALS

7. Cardiac monitor and pulse oximetry.
8. Recheck blood sugar enroute.
9. **CONTACT MED COMM AS SOON AS PATIENT CONDITION ALLOWS.**

HYPERTENSIVE CRISIS

BLS

1. A.B.C.s.
2. Place patient in position of comfort.
3. Administer Oxygen and use airway adjuncts appropriate to patient's condition.
4. Assist ventilations and suction prn.
5. Establish IV NS or INT. **(DO NOT DELAY TRANSPORT FOR IV)**

ALS

6. Monitor ECG and acquire 12 lead.
7. **Diastolic pressure must be above 115mm/hg and the patient must be symptomatic!**
8. NTG Spray 0.4mg SL, BP must be checked and documented every 5 minutes.
9. If diastolic pressure remains above 115mm/hg and **NO** decrease in level of consciousness.

THEN:

10. Clonidine 0.2mg PO.
11. **CONTACT MED COMM AS SOON AS PATIENT CONDITION ALLOWS.**
12. Consider Morphine Sulfate 2-5mg slow IVP (Diluted in 9cc of Normal Saline).

Consider Lasix (Call Medical Control).

***In the event of uncontrolled epistaxis:

a. Apply direct pressure to nasal septum, or exterior bridge of nose.
b. Lean patient forward to prevent excess blood and fluid in stomach.

HYPERTHERMIA

BLS

1. Oxygen 100% and maintain airway as appropriate to patient condition.
2. Remove clothing and cover with wet sheets.
3. Place cool packs to neck, axillary, and femoral areas. **(Avoid causing the patient to shiver)**
4. IV NS KVO, increase to 300-500ml/hr if patient is tachycardic or hypotensive.
5. Check blood sugar if level is less than **50mg/dl** administer 25 Gm/50ml of D50 IV.

ALS

6. Cardiac monitor and pulse oximetry.
7. Contact Med Comm.
8. Obtain baseline temperature (rectally or axillary) rectal temperature preferred.

HYPOGLYCEMIA

BLS

1. A.B.C.s.
2. Administer Oxygen appropriate to patient condition.
3. Monitor pulse oximetry.
4. Assist ventilation and suction airway prn to patient condition.
5. Establish IV NS.
6. Check blood sugar if level is below **50mg/dl** administer 25 Gm/50ml of D50 IV.
7. If patient is conscious with an open airway, than oral glucose may be used in the symptomatic patient.
8. Recheck blood sugar enroute.

ALS

9. Monitor ECG.
10. If an IV cannot be established or patient is combative then proceed with Glucagon 0.5-2.0mg IM.
11. **CONTACT MED COMM AS SOON AS PATIENT CONDITION ALLOWS.**

HYPOTHERMIA

BLS

1. Handle patient gently, jarring may trigger V-Fib.
2. Maintain airway and use airway adjuncts appropriate to patient condition.
3. Oxygen appropriate to patient condition, monitor pulse oximetry.
4. Remove wet clothing.
5. Place thermal blankets and heating pad, if available, on patient.
6. IV of warm LR or NS at 75-100cc/hr.
7. Heat packs to axillary and femoral areas.
   DO NOT ATTEMPT TO WARM EXTREMITIES.

ALS

8. Cardiac monitor.
9. Core temperature >85 degrees F treatment per ACLS protocols. Core temperature <85 degrees F CPR as indicated if patient is in V-Fib defibrillate one time (200 joules with a biphasic monitors and 360 with a monophasic monitor. If defibrillation is unsuccessful continue CPR.
10. Contact Medical Control for additional orders.

INDUCED HYPOTHERMIA

Patient Inclusion Criteria

A. Age 16-75
B. Documented out-of-hospital cardiac arrest (any rhythm)
C. Return of Spontaneous Circulation (ROSC) after a non-traumatic arrest and
D. Comatose (GCS<8) after return of spontaneous circulation
E. Initial temperature greater than 34°C (93° F)
F. Systolic Blood Pressure can be maintained at 90 mm/Hg spontaneously or with fluids and pressors.

Patient Exclusion Criteria

A. Pregnant female with obviously gravid uterus
B. Initial temperature below 34°C (93° F)
C. Patient is not intubated with mechanical ventilation in progress or unable to get patient intubated.
D. Evidence of Sepsis
E. Systolic Blood Pressure cannot be maintained at 90 mmHg or greater spontaneously or with fluids and pressors
F. Coagulopathy or thrombocytopenia.

BLS

1. After return of spontaneous circulation assess to see if patient is eligible for induced hypothermia (See Inclusion and Exclusion criteria above).
2. Perform neuro exam
3. Pre-Induced Hypothermia Temperature
4. Expose patient and apply ice packs to Axilla and Groin areas. Undergarments may be left in place, and cover patient with a sheet, to preserve patients modesty.

ALS and Supervisor

1. If ET tube is not already in place then intubate patient. Monitor ETCO2 with a reading >20 mmHg (Target 40mmHg. Patients develop metabolic alkalosis with cooling so DO NOT HYPERVENTILATE). If unable to get patient intubated then DO NOT induce hypothermia
2. Versed 0.1 mg/kg to a max of 7.5 mg
3. **Supervisor:** Fentanyl (Sublimaze) 100 µg IV Push
4. Cold Saline, 2-4° degrees Celsius (35.6° – 39.2° degrees Fahrenheit), bolus of 2 liters rapid infusion.
5. Dopamine 10-20 mcg/kg/min to maintain systolic blood pressure of 90-100 mmHg.
6. At any time that there is a loss of Spontaneous Circulation then stop cooling and go to appropriate protocol.
7. Continue to monitor airway and patients sedation. If shivering occurs then increase sedative prior to increasing paralytic.

INDUCED HYPOTHERMIA (continued)

8. Monitor patients temperature as time allows (Target Temperature 32°–34° C) (89.6°- 93.2° F).
9. Contact Med Com as soon as time permits to prepare the ER for the arrival of a hypothermic induced patient. Also notify hospital as soon as time permits.
10. If ROSC and Induced Hypothermia Protocol is begun and patient is not being transported to Erlanger, Memorial, or Parkridge, then unit must divert to closest facility involved with induced hypothermia therapy (listed above).
11. Post Temperature (after ice packs and max fluid has been infused).
12. Notify the hospital of time of ROSC with start of Induced Hypothermia, and whether the cardiac arrest was witnessed or not.

MEDICAL MANAGEMENT OF NERVE AGENT EXPOSURE

Purpose is to counteract the effects of exposure to nerve agents such a GA (Tabun), GB (Sarin), GD (Soman, GF, and VX. To achieve maximum effectiveness, these antidotes must be administered as quickly as possible once and emergency worker or other person has mild symptoms of nerve agent poisoning.

Description: Nerve agents are very toxic organophosphorus compounds (insecticides, week killer). Some agents are more likely than others to pose a toxic hazard by inhalation, and some agents are likely to last longer than other. All are well absorbed across the skin. Under mild weather conditions, the liquids are clear, colorless, and mostly odorless. They cause biologic effects by inhibiting acetylcholinesterase (nerve conduction that affects many organ systems), thereby allowing acetylcholine to accumulate and cause hyperactivity in the muscles, glands, and nerves.

Environmental Hazards:

1. GB will react with water to produce toxic vapors; therefore decontamination with water causes a hazardous atmosphere.
2. Most GB spilled will be lost to evaporation.
3. VX is moderately long lasting in the soil, and because it has low water solubility and low volatility, water and ground may remain contaminated for a long time.

Auto-Injector Use:

1. Pre-measured does in auto-injectors should be safe for most adults.
2. Atropine auto-injector (2mg total dose per injection), Pralidoxime (2 PAM C1) auto-injector (600mg total dose per injection), Valium auto-injector (10mg total does per injection) may be administered by qualified emergency personnel and designated emergency responders who have had adequate training in on-site recognition and treatment of nerve and or organophosphate (insecticide, week killer) agent intoxication in the event of a chemical release. This is specific to the disaster setting.
3. Medical treatment is directed to relieving respiratory distress and alleviating seizures.
4. These are antidotes to be used after the recognition of the existence of a potential chemical or organophosphate (insecticide, weed killer) agent release in an area.

Precautions:

1. The adult-size Atropine and 2-PAM Chloride injectors should never be given to infant or pediatric patients.
2. Morphine, theophylline, aminophylline, or succincylcholine should not be used with 2-PAM C1. Avoid reserpine or phenothiazine-type tranquilizers.

Continued on the next page!

MEDICAL MANAGEMENT OF NERVE AGENT EXPOSURE (continued)

3. 2-PAM C1 is most effective if administered immediately after exposure. Less effective if given more than 6 hours after termination of exposure.

Immediate management:

Once determined that an emergency worker or other person is in a hazardous chemical environment and is exhibiting symptoms of nerve agent exposure administer Mark 1 Kits (atropine and pralidoxime chloride); and diazepam in addition if symptoms are severe with seizures; and ventilation and suction of airways for respiratory distress.

How to administer Auto-Injectors:

1. The injectors are in a plastic holder and numbered 1 and 2. The Atropine Injector, injector number 1 is administered first. The injector number 2, 2-PAM Chloride, is administered second. Remove auto-injector and remove the safety clip.
2. Form a fist around the injector without covering or holding the needle.
3. Place needle end of injector against your lateral thigh muscle. Injections site should be at least a hands width from any joint. Any large muscle may be used such as the buttocks, but the thigh muscle is preferred. The medication can be administered through the clothing. (*Note: Thin people should get the injection in the upper outer part of the buttocks).*
4. Check injection site to avoid buttons and possible objects in pockets.
5. Push the injector into the muscle with a firm even pressure until it functions. (The spring drives the needle through the seal and into the muscle, injecting the medication.)
6. Hold injector in place for at least 10 seconds.
7. Carefully place the used injector between two fingers of your opposite hand.

Signs and Symptoms:

1. Identify symptoms of nerve agent poisoning.

MILD-SLUDGEM

S- salivation (excessive drooling)
L- lacrimation (tearing)
U- urination
D- defecation / diarrhea
G- GI upset (cramps)
E- emesis (vomiting)
M- muscle (twitching, spasm, “bag of worms”, weakness)

MEDICAL MANAGEMENT OF NERVE AGENT EXPOSURE (continued)

MODERATE-SLUDGEM + RESPIRATORY

Respiratory-Difficulty breathing, Respiratory distress (shortness of breath, wheezing, coughing).

SEVERE-SLUDGEM + RESPIRATORY + CNS

CNS – Agitation, Confusion, Seizures, Sudden loss of consciousness, Coma, Pinpoint pupils (miosis), blurry or dim vision.

2. Notify Communications.
3. Depending on the level of exposure symptoms administer a Mark 1 Kit or Kits. Mark 1 Kits consist of Atropine and 2-PAM C1. Administer Atropine first and then 2-PAM C1. Give complete kit prior to giving the second or third kit it indicated. If multiple kits are indicated, administer them as quickly as possible and monitor the patient's response. Maximum number of kits that can be administered to a patient is 3 kits.

Initial Treatment (Table 1)

Tag Color	Signs & Symptoms	Atropine & 2-PAM C1 Dose and Monitor Interval	Valium Dose
RED **SEVERE**	CNS, Respiratory Distress, **SLUDGEM**	3 Kits IM (Atropine 6mg) (2-PAM C1 1.8gm) Monitor every 5 minutes	1 Auto-Injector 10mg IM
YELLOW **MODERATE**	Respiratory Distress, **SLUDGEM**	2 Kits IM (Atropine 4mg) (2-PAM C1 1.2gm) Monitor every 10 minutes	***Not Indicated***
GREEN **MILD**	**SLUDGEM**	1 Kit IM (Atropine 2mg) (2-PAM C1 600mg) Monitor every 10 minutes	***Not Indicated***
AYSMPTOMTIC	**No Symptoms**	***Not Indicated***	***Not Indicated***

4. Secure the injectors, ***Push the needle of each used injector through the left pocket flap of shirt or other location on the front of the shirt and bend the needles to form a hook.*** This provides for accountability of how many doses of antidote you or a patient received, in case you or the patient loses consciousness and is unable to relay this information. These needles will be removed at decontamination sector disposed of properly and documented on triage tag.
5. Evacuate the area and if you treated a patient with severe symptoms take the patient with you. Report to the decontamination sector, after decontamination seek medical evaluation and transport to the hospital.

Continued on next page!

MEDICAL MANAGEMENT OF NERVE AGENT EXPOSURE (continued)

The following will apply to extended on-scene operations by EMS, transport to the hospital, and treatment at patient staging sector while emergency worker or patient is awaiting transport to the hospital. The end point of treatment is drying of secretions and resolution of other symptoms.

Extended Re-Evaluation & Treatment by EMS (Table 2)

Tag Color	Signs & Symptoms	Atropine Dose Monitor Interval	2-PAM C1 Dose	Atropine Repeat Dosing Frequency	Valium Dosage
RED **SEVERE**	CNS, Respiratory Distress, **SLUDGEM**	2mg IM or IV Monitor every 5 minutes	***Contact Medical Control***	3-5 minutes as needed	***Contact Medical Control***
YELLOW **MODERATE**	Respiratory Distress, **SLUDGEM**	2mg IM or IV Monitor every 5-10 minutes	***Contact Medical Control***	5-10 minutes as needed	***Not Indicated***
GREEN **MILD**	**SLUDGEM**	2mg IM or IV Monitor every 5-15 minutes	***Contact Medical Control***	5-15 minutes as needed	***Not Indicated***
ASYMPTOMATIC	**No symptoms**	***Not Indicated***	***Not Indicated***	***Not Indicated***	***Not Indicated***

NOTE: DO NOT GIVE MORE THAN THREE 2-PAM C1 (GRAY TOP) AUTO-INJECTORS TO ANY PATIENT. THE MAXIMUM TOTAL DOSE OF 2-PAM C1 IS 1.8 GRAMS.

PEDIATRIC PATIENTS

Note: For the purposes of this protocol only, the effective pediatric age is 9 years of age or younger. No patients 9 years of age or younger may have 2-PAM C-1 administered.

For pediatric patient exhibiting **SLUDGEM** signs and symptoms refer to EMS who will, administer Atropine every 3-5 minutes until secretions begin to dry:

Age	Atropine Dose
Infant (0-2 years)	0.5mg IM
Child (2-9 years)	1mg IM

Continued on next page!

MEDICAL MANAGEMENT OF NERVE AGENT EXPOSURE (continued)

Drug Reference

Atropine is a cholinergic blocking or anticholinergic compound. It is extremely effective in blocking the effects of excess acetylcholine at peripheral muscarinic sites. Under experimental conditions, very large amounts may block some cholinergic effects at nicotinic sites, but these antinicotinic effects are not evident even at high clinical does. When small amounts (2mg) are given to normal individuals without nerve agent intoxication, Atropine causes mydriasis, a decrease in secretions (including a decrease in sweating), mild sedation, a decrease in GI motility, and tachycardia. The amount in three Mark 1 Kits may cause adverse effects on performance in a normal person. I people not exposed to nerve agents, amounts of 10mg or higher may cause delirium. Potentially, the most hazardous effect of inadvertent use of Atropine 2mg, IM) in a young person not exposed to cholinesterase inhibiting compound in a warm or hot atmosphere is inhibition of sweating, which may lead to heat injury.

Pralidoxime Chloride (Protopam chloride, 2-PAM C1) is an oxime. Oximes attach to the nerve agent that is inhibiting the cholinesterase and break the agent-enzyme bond to restore the normal activity of the enzyme. Clinically, this is noticeable in those organ with nicotinic receptors. Abnormal activity in skeletal muscle decreases and normal strength returns. 2-PAM C1 may cause blurred vision, double vision, dizziness, headache, drowsiness, nausea, rapid heart rate, increased blood pressure, and hyperventilation. The effects of an oxime are not apparent in organs with muscarinic receptors; oximes do not cause a decrease in secretions, for example. They are also less useful after aging occurs, buth with the exception of GD (soman) intoxicated individuals, and casualties will be treated before significant aging occurs. Pralidoxime Chloride (600mg) is in an auto-injector for self-use along with the Atropine injector. These Atropine and Pralidoxime Chloride auto-injectors are packaged together in a MARK 1 Kit.

Diazepam is an anticonvulsant drug used to decrease convulsive activity and reduce the brain damage caused by prolonged seizure activity.

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City and County of San Francisco, Metropolitan Medical Response System (MMRS). “San Francisco Metropolitan Medical Response System Medical Treatment Protocols”, June 2001.
Chemical Stockpile Emergency Preparedness Program “When to Use Auto-Injectors”
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U.S. Army Medical Research Institute of Chemical Defense (USAMRICD) “Medical Management of Chemical Casualties”, Third Edition July 2000.

NAUSEA / VOMITING

BLS

1. A.B.C.s.
2. Maintain open airway and monitor pulse oximetry.
3. Place patient in position of comfort.
4. Administer Oxygen and use appropriate adjuncts for patient's condition.
5. Assist ventilations and suction as needed.
6. Establish IV NS.
7. Warm fluids are preferable.
8. If patient is diabetic, check glucose level. If less than **50mg/dl**, then give 50ml of D50.

ALS

9. Cardiac monitor, consider 12 lead ECG.
10. Administer Zofran 4 mg (Give over at least 30 seconds but 2-5 minutes preferred.
11. If uncertain **CONTACT MEDICAL CONTROL FIRST!**

*****PRIOR TO GIVING ANY MEDICATION, BE SURE TO RULE OUT THE POSSIBILTY OF AAA*****

OBSTETRICAL EMERGENCY
OB/GYN DESTINATION GUIDELINES

GOAL: To provide the patient experiencing a obstetrical or gynecological emergency with the most appropriate transport destination dependent on patient condition and risk factors. Current facilities capable of providing ob/gyn care include Erlanger and Parkridge East.

GUIDELINES:

1. Patients in labor.
2. Patients whose chief complaint appears to be related to the pregnancy, or who have complications related to pregnancy.
3. Unexplained vaginal hemorrhage.
4. Pregnant trauma patients meeting trauma destination guidelines will be transported to Erlanger hospital. Patients not meeting trauma criteria may be transported to Parkridge East.
5. Females of child bearing age(12-50) with unexplained lower abdominal pain and associated syncope and or hypotension.
6. High risk obstetrical patients that should be transported to Erlanger include but are not limited too eclampsia, cardiac, and other medical conditions that may put the mother and/or child at risk.

OBSTETRICAL EMERGENCY
BREECH AND ABNORMAL DELIVERIES

BLS

2. A.B.C.s.
3. Maintain open airway. Monitor pulse oximetry.
4. Place patient in semi-fowlers position.
5. Administer Oxygen and use appropriate adjuncts for patient condition, monitor pulse oximetry.
6. Suction and assist ventilations, if required.
7. Establish IV NS. **(DO NOT DELAY TRANSPORT FOR IV)**
8. Warm fluids on all patients, unless hyperthermic.
9. If delivery imminent, call for additional unit.

ALS

10. Cardiac monitor.
11. Allow delivery to progress spontaneously.
12. Support baby's body as it delivers.
13. If head delivers spontaneously, deliver as noted on normal delivery.
14. If head does not deliver within 4-6 minutes, insert gloved hand into vagina to create an airway for the infant.
15. **TRANSPORT EMERGENCY. CONTACT MEDICAL CONTROL ENROUTE.**

LIMB PRESENTATION

1. Place mother in **TRENDELENBURG POSITION.**
2. Transport **EMERGENCY.**
3. Contact MEDICAL CONTROL.

OBSTETRICAL EMERGENCY
ECLAMPSIA

BLS

1. A.B.C.s.
2. Place patient on left side.
3. Oxygen appropriate to patient condition.
4. IV of NS or INT.
5. Check blood sugar level if less than **50mg/dl** administer 25 Gm/50ml of D50 IV.

ALS

6. Cardiac monitor and pulse oximetry.
7. If patient has seizure activity:
    a. Protect airway.
    b. Administer Magnesium Sulfate 10% 1-4gm over 1-4 minutes.
8. Contact Medical Control.
9. If seizures are uncontrolled:
    a. Valium 2-5mg IVP (repeat prn with Medical Control consult).
    b. Additional Magnesium Sulfate unless max has been administered.
    c. Intubation to protect airway.

NOTE: Definitive treatment is delivery, thus rapid transport is indicated.

OBSTETRICAL EMERGENCY
NORMAL DELIVERY

BLS

1. A.B.C.s.
2. Maintain open airway and monitor pulse oximetry.
3. Place patient in position of comfort.
4. Administer Oxygen and use appropriate adjuncts for patient's condition, monitor pulse oximetry.
5. Suction and assist ventilations, if required.
6. Establish IV of NS. **(DO NOT DELAY TRANSPORT FOR IV)**
7. Warm fluids on all patients. (Unless hyperthermic)
8. Warm patient compartment of ambulance.
9. Prepare for delivery.
10. If delivery imminent, call for additional unit for assistance.

ALS

11. Cardiac monitor.
12. After delivery, clamp cord @ 8-10 inches and cut cord between clamp. (Suction mouth and nose prior to delivery of chest).
13. Check APGAR score @ 1 and 5 minutes after delivery.
14. If cord is looped around neck, gently slip it over patient's head. If unable to perform procedure, clamp cord in two places and cut between clamps.
15. If complications occur, follow appropriate protocol. Be sure to encourage mother!
16. Encourage mother to nurse as soon as baby delivers.
17. Deliver placenta and transport with patients.
18. Observe for and treat for shock.
19. Watch for multiple births.
20. If mother begins to seize, then consider:
    a. Fluid bolus of NS or LR of 250cc.
    b. Magnesium Sulfate 10%, 1-4g over 3 minutes and start drip.
    c. Valium 2-4mg IV slowly.
    d. If Magnesium overdose occurs, then administer Calcium Chloride 2-4mg/kg IVP (Per Medical Control).

OBSTETRICAL EMERGENCY
PRE-ECLAMPSIA

BLS

1. A.B.C.s.
2. Place patient of left side.
3. Oxygen as appropriate to patient condition.
4. Monitor pulse oximetry.
5. IV NS or INT.
6. Check blood sugar level if less than **50mg/dl** administer 50ml of D50.

ALS

7. Cardiac monitor.
8. Contact Med Comm.
9. For blood pressure > 160/110 and not seizing.
    a. Magnesium Sulfate 4g in 250ml NS over 10-20 minutes (to mix drain out 250cc of Normal Saline and use the 250cc left in the bag).
    b. NTG 0.4mg S.L.
10. Follow eclampsia protocol if patient develops active seizure activity.

OBSTETRICAL EMERGENCY
PROLAPSED CORD

BLS

1. A.B.C.s.
2. Maintain open airway.
3. Place patient in **TRENDELENBURG POSITION OR KNEE CHEST POSITION!**
4. Administer Oxygen and use appropriate adjuncts for patients condition, monitor pulse oximetry.
5. Suction and assis ventilations, if required.
6. Establish IV NS or LR KVO.
7. Warm fluids on all patients, unless hyperthermic.
8. Prepare for delivery, if delivery imminent call for additional unit for assistance.

ALS

9. Cardiac monitor.
10. Insert gloved hand into the vagina and gently push the infants head off the cord.
11. **TRANSPORT EMERGENCY, DO NOT REMOVE YOUR HAND UNTIL RELIEVED BY STAFF!**

MEDICAL PAIN MANAGEMENT

BLS

1. A.B.C.s.
2. Maintain open airway and monitor pulse oximetry.
3. Place patient in position of comfort.
4. Administer Oxygen and use appropriate airway adjuncts.
5. Assist ventilations and suction as needed.
6. Establish IV NS or INT.

ALS

7. Cardiac monitor.
8. Morphine Sulfate 2-10mg IVP (diluted in 9cc of Normal Saline) may be repeated as ordered by Medical Control.
9. Administer Zofran 4 mg (Give over at least 30 seconds but 2-5 minutes preferred.
10. **Only if patient is allergic to Morphine, then use Nubain 10mg IVP.**
11. As an alternative, Toradol 30mg IVP may be used. Use ½ dosage with elderly.
12. **CONTACT MED COMM AS SOON AS PATIENT CONDITION ALLOWS.**
13. **IF THERE IS A POSSIBILITY OF HEAD OR ABDOMINAL TRAUMA THEN CONTACT MED CONTROL PRIOR TO THE ADMINISTRATION OF MEDICINES FOR PAIN MANAGEMENT!**
14. **CONTRAINDATIONS (TORADOL): HYPERSENSIVITY, ASTHMA, SEVERE RENAL DISEASE, SEVERE HEPATIC DISEASE, PEPTIC ULCER DISEASE, L&D, LACTATION, CV BLEEDING, PATIENTS ALLERGIC TO ASA.**

POISONOUS SNAKE BITE

BLS

1. A.B.C.s.
2. Oxygen and airway maintenance as needed for patient's condition.
3. Monitor pulse oximetry.
4. Apply lymphatic band proximal to bite.
5. Splint extremity and maintain at or below heart level.
6. Mark outer edges of swelling.
7. IV NS infused as needed for patient condition.
8. Remove any article that may constrict circulation due to swelling.
9. Reassure and calm patient throughout the incident.
10. Rapid transport to the hospital.

ALS

11. Cardiac monitor.
12. Contact Med Comm.
13. Consider pain management only through Medical Control order.

*****Attempt to determine type of snake if possible.**

*****Do not delay transport.**

*****Do not apply ice**.

PRE-MEDICATED INTUBATION OR RSI

This is a skill that is used by Supervisors and Tactical Paramedics who have been trained, and approved by the Medical Director. Tactical Paramedics are only allowed to use this procedure when activated and acting as a Tactical Paramedic. This is the adult protocol only. For pediatric patients see the pedi-protocols.

Who is a candidate?
RSI should only be used after conventional methods have failed. Any patient who requires a stable airway and is difficult to intubate because of uncooperative behavior (as induced hypoxia, closed head injury, or hypotension is a candidate for this procedure. RSI is a procedure of necessity, not convenience.

ALS

1. A.B.C.s.
2. Pre-oxygenate patient with 100% Oxygen for 2 minutes.
3. IV or INT, whichever is appropriate for patient condition.
4. Cardiac monitor, pulse oximetry.
5. Limb restraints to protect the airway.
6. Lidocaine 1.5mg/kg IVP.
7. Atropine 1mg if necessary to prevent bradycardia, used discretion and may be necessary with heart rate less than 60 / minute.
8. Anectine (Succinylcholine) 1.0-1.5mg/kg over 30 seconds IVP.
9. Intubate when patient is apneic and fasciculations have stopped.
10. Verify tube placement with visualization, condensation in the tube, end-tidal CO2 function on Life Pak 12, CO2 detector if Life Pak 12 not available and esophageal detector.
11. If unable to intubate consider performing a surgical cricothyridotomy or insert Combi-Tube and ventilate according to patient condition.
12. To maintain control of airway, administer Norcuron 0.1mg/kg IVP.

PULMONARY EDEMA / SYMPTOMATIC HEART FAILURE

BLS

1. A.B.C.s, maintain open airway appropriate for patient condition.
2. Place patient in position of comfort.
3. Administer Oxygen and use appropriate adjuncts for patient condition.
4. Monitor pulse oximetry.
5. Suction and assist ventilations, if required.
6. Establish IV NS or INT (DO NOT DELAY TRANSPORT FOR IV).

ALS

In the presence of deteriorating v/s or cardiogenic shock:

7. Intubate patient, suction patient as needed, oxygenate patient as needed.
8. ECG 12 lead acquired. Use end-tidal CO2 function on Life Pak 12.
9. NTG spray 0.4mg S.L. (monitor B/P every 5 minutes).
10. Lasix 40mg slow IVP or Bumex 1mg slow IVP. May be repeated once enroute.
11. Morphine 1-4mg slow IVP.
12. If patient is hypotensive, systolic B/P < 90, Dopamine 5mcg/kg/min to a max. of 15mcg/kg/min. Consider Dobutamine (250mg in 250ml D5W infuse @ 2-15mcg/kg/min titrated to effect.
13. Contact Med Comm. as soon as patient condition allows.

SPECIAL CONSIDERATIONS:

a. *NTG AND MORPHINE SULFATE SHOULD NOT BE USED IN THE PRESENCE OF HYPOTENSION OR ALTERED MENTAL STATUS.*
b. *IF PATIENT REQUIRES INTUBATION: VERSED 2-7.5mg IVP. MAY BE ADMINISTERED IF PATIENT IS UNRULY OR TO CONTROL ANXIETY, UNDER DIRECTION FROM MEDICAL CONTROL.*

RESPIRATORY DISTRESS / ASTHMA

BLS

1. A.B.C.s.
2. Place patient in position of comfort, usually sitting.
3. Administer Oxygen appropriate to patient condition, airway adjuncts as needed.
4. Monitor pulse oximetry.
5. Establish IV NS or INT.
6. Albuterol (Proventil) 2.5 mg/ 3 ml Saline combined with Atrovent (Ipratropium) 0.5 mg/ 2.5 ml saline via nebulizer. CONTACT MED COMM AS SOON AS PATIENT CONDITION ALLOWS.

ALS

7. ECG acquired. Use end-tidal CO2 function of Life Pak 12.
8. If patient has deteriorated then intubate patient to maintain oxygenation. (If patient unruly or to control anxiety, Versed 5-7.5mg IVP0. CONTACT MEDICAL CONTROL PRIOR TO ADMINISTERING VERSED.
9. Administer Solu-Medrol 125mg IVP.
10. Patients who do not respond to albuterol may be given Epi. 1:1000 0.1-0.3mg sub-q (CONTACT MEDICAL CONTROL PRIOR TO ADMINISTERING THIS TREATMENT).

RESPIRATORY DISTRESS / COPD

BLS

1. A.B.C.s, maintain airway, monitor pulse oximetry.
2. Use appropriate airway adjuncts.
3. Place patient is position of comfort.
4. Administer Oxygen appropriate for patient's condition.
5. Suction and assist ventilations if required.
6. Establish IV NS or INT (DO NOT DELAY TRANSPORT FOR IV).
7. Albuterol (Proventil) 2.5 mg/ 3 ml Saline combined with Atrovent (Ipratropium) 0.5 mg/ 2.5 ml saline via nebulizer. CONTACT MED COMM AS SOON AS PATIENT CONDITION ALLOWS.

ALS

8. ECG acquired, use end-tidal CO2 function on Life Pak 12.
9. COPD patients showing obvious signs of hypoxia or who are in respiratory arrest should be intubated! Administer 100% Oxygen using a bvm.
10. Administer Solu-Medrol 125mg IVP.
11. CONTACT MED COMM AS SOON AS POSSIBLE.

SEIZURES

BLS

1. A.B.C.s
2. Protect patient form further injury.
3. Place patient to maintain open airway.
4. Administer Oxygen appropriate to patient condition, airway adjuncts as needed.
5. Monitor pulse oximetry.
6. Assist ventilations and suction as needed.
7. Establish IV NS or INT (DO NOT DELAY TRANSPORT FOR IV).
8. If febrile, cool patient as needed and follow hyperthermia protocol #2 & #3 as directed.
9. Check blood sugar if less than 50mg/dl give 50ml of D50.

ALS

10. Monitor ECG.
11. If patient is actively seizing Valium 5-10mg slow IVP.
12. Give Narcan 2mg IVP is suspected narcotic overdose.
13. If patient is “status” CONTACT MEDICAL CONTROL!
14. If unable to establish IV, administer Ativan 2-4mg IM.
15. Consider Versed (CONTACT MEDICAL CONTROL).

UNCONSCIOUS / UNRESPONSIVE

BLS

1. A.B.C.s.
2. Assess patient for head injury, trauma, hypothermia, hemiparesis, and fever. Obtain temperature on patients that are hypothermic.
3. Place patient in recovery position (if trauma is not suspected).
4. Administer Oxygen and use appropriate adjuncts for patient condition, monitor pulse oximetry.
5. Suction and assist ventilations if required.
6. Establish IV NS or INT (DO NOT DELAY TRANSPORT FOR IV).
7. Warm fluids on all suspected hypothermic patients.
8. Obtain glucose reading if less than 50mg/dl administer 50ml of D50.

ALS

9. Cardiac monitor, obtain 12 lead ECG. Use end tidal CO2 function on Life Pak 12.
10. Give Narcan 2mg IVP.
11. Give Thiamine 100mg IVP.
12. CONTACT MED COMM AS SOON AS POSSIBLE.

ADULT TRAUMA PROTOCOLS

TRAUMA ASSESSMENT / TREATMENT AND DESTINTAION GUIDELINES

ASSESSMENT:

- A.B.C.s. with regard to C-spine SECONDARY SURVEY: HEAD TO TOE.
- Perform patient triage with emphasis on the cardio-respiratory system, control bleeding, level of consciousness, and vital signs.
- Determine mechanism of injury and estimate force involved.
- Gather history including medications and underlying medical problems.

TREATMENT PRIORITIES:

- Secure airway with regard to C-spine.
- Assess and treat A.B.C.s.
- Oxygen 100% (hyperventilate if necessary).
- Place patient on stretcher with appropriate protection for spinal immobilization.
- Consider inflating M.A.S.T. if pelvis fracture suspected.
- Initiate transportation.
- Primary IV Normal Saline or Lactated Ringers (large bore catheter).
- Secondary IV Normal Saline or Lactated Ringers (large bore catheter). Rate commensurate to blood loss or vital signs. WARM FLUIDS!
- Avoid heat loss.
- Monitor vital signs and neuro status.

TRAUMA CENTER DESTINATION GUIDELINES:

- When transport to a trauma center will exceed thirty (30) minutes, consider use of a helicopter. The patient will be transported to the closest appropriate medical facility unless otherwise dictated by regional or local guidelines.
- Medical Control supervision will have final jurisdiction over destination.
- Any person of legal majority (age 18 or over) or the parent or legal guardian of any minor patient or any member of the patient's immediate family shall have the right to request transport to a specific destination. A service is only required to transport a distance with the county or one adjacent county.
- Transport of the patient to the requested destination shall not constitute neglect of the duty imposed by law on al emergency medical service personnel and providers if the person making the decision is informed that Tennessee has a trauma system which would, in his / her circumstances, usually take him / her to another facility.
- If a patient's condition deteriorates during transport, such that the patient's life or health are in serious jeopardy if the requested or planned destination is pursued, or if medical control deems transport to a level 1 Trauma Center may be necessary, the patient may be transported to the appropriate facility.

TRAUMA DESTINATION SCHEME

If your patient meets any of the following criteria transport to level 1 Trauma Center. If your patient doesn't meet the following criteria transport patient to appropriate facility or facility of choice, after clearance from Trauma Control.

- Measure vital signs and level of consciousness using the Glasgow Coma Scale if less than 13 OR systolic blood pressure less than 90 OR respiratory rat less than or greater than 29.
- Penetrating injury proximal to elbow or knee.
- Flail chest.
- Combination trauma with burns of 15% BSA.
- 2 or more proximal long bone fractures.
- Limb paralysis.
- Amputation proximal to wrist or ankle.
- Ejection from automobile, death in same passenger compartment.
- Extrication time of greater than 20 minutes.
- High-speed auto accident.
  *Initial speed greater than 40 mph.
  *Velocity change greater than 20 mph.
- Major auto deformity greater than 20 inches.
- Auto-Pedestrian injury with >5 mph impact.
- Passenger intrusion greater than 12 inches.
- Pedestrian thrown or run over.
- Motorcycle accident greater than 20 mph or with separation of rider and bike.
- Bicycle accident with significant impact.

If your patient meets any of the following criteria contact Medical Control for consideration of transport to a level 1, 2, or 3 Trauma Center. If Medical Control is unavailable, then EMS personnel should transport to appropriate facility.

- Age greater than 55 years.
- Known cardiac, respiratory disease, or psychoses on medications, diabetics on insulin, cirrhosis, malignancy, obesity, and congenital coagulopathy.

ABDOMINAL TRAUMA

BLS

1. A.B.C.s.
2. Oxygen, and additional airway maintenance as indicated.
3. Spinal immobilization as indicated by mechanism of injury.
4. Dress and bandage abdominal injuries as appropriate to condition.
5. Rapid transport to receiving facility, with early notification.
6. Monitor pulse oximetry.
7. IV LR or NS with flow rate as appropriate to patient condition. *Secondary IV as indicated.*
8. Apply MAST – do not inflate without direct order from Medical Control (contraindicated in chest injuries!).

ALS

9. Cardiac monitor.
10. N.G. tube as needed.

ADULT SHOCK / TRAUMA PROTOCOL

BLS

1. A.B.C.s.
2. Oxygen 100% and additional airway maintenance as indicated by patient condition.
3. Spinal immobilization as indicated by mechanism of injury.
4. Trendelenburg position.
5. Keep patient warm.
6. IV of LR or NS. 500ml fluid bolus followed by rate appropriate to patient condition.
7. Secondary IV of LR or NS.
8. M.A.S.T garments applied. **DO NOT INFLATE WITHOUT ORDERS FROM MEDICAL CONTROL.**
9. Determine cause of shock and treat per appropriate protocol.
    a. Anaphylactic (See anaphylaxis protocol).
    b. Cardiogenic.
    c. Hypovolemic.
    d. Neurogenic.
    e. Septic.
    f. Psychchogenic.

ALS

10. Cardiac monitor and pulse oximetry.
11. Contact and follow any additional treatment per Medical Control.

USE WARM IV FLUIDS ON ALL SHOCK / TRAUMA PATIENTS.

COMBATIVE PATIENT

I. Purpose: To prevent harm to patient and / or others.
II. Indications:
   a. Should only be utilized when necessary and only in situations where patient is exhibiting behavior that places a danger to the patient or others.
   b. Used with Schizophrenia and acute manic (a distinct period of abnormally and persistent level, expansive ot irritable mood), or mixed episodes associated with bipolar disorder when the behavior is a danger to self or others.
   c. Only used after direct consult with Medical Control.
   d. This is not to be used on someone refusing medical care that is alert and competent.

III. DO NOT USE if patient has a history of QT prolongation, recent acute myocardial infarction, or with uncompensated heart failure.
IV. DO NOT USE on elderly patients with dementia-related psychosis.
V. To mix the medication draw up 1.2 mL of Sterile Water and inject into the vial. Shake vigorously until the medication is completely dissolved. For 10 mg of Geodon draw up 0.5 mL.
VI. Do not use Geodon on any patient under the age of 18.

BLS

1. Have enough personnel to physically restrain the patient safely.
2. Have airway support equipment readily available.
3. Start IV of NS or INT.
4. Check blood sugar level if less than 50mg/dl, administer 50ml of D50 IVP.
5. Monitor pulse oximetry.

ALS

6. Attach patient to cardiac monitor (if possible due to patient's demeanor. If not attach cardiac monitor as soon as possible).
7. Contact Medical Control.
8. If orders given administer Ziprasidone (Geodon) 20 mg IM (ONLY).
9. Recheck vitals and A.B.C.s.
10. Document full reason for using combative patient protocol.

ELECTRICAL BURNS

BLS

1. Patient removed from source.
2. A.B.C.s.
3. Oxygen 100% and additional airway maintenance as needed for patient condition.
4. IV of LR or NS with rate appropriate to patient condition. Secondary IV as needed of LR or NS.
5. Remove rings or bracelets.
6. Dry sterile dressings or burn sheet for burns.
7. Monitor pulse oximetry.

ALS

8. Cardiac monitor.
9. Treat dysrhythmias per appropriate ACLS algorithm.
10. Morphine Sulfate 2-10mg (DILUTE WITH 9cc OF NORMAL SALINE) IVP for pain. Repeat as ordered by Medical Control.
11. If patient is allergic to MS, then use Nubain 10mg IVP.
12. As an alternative, Toradol 30mg IVP use half dosage with elderly.
13. Contact Med Comm.
14. **CONTRAINDICATIONS: HYPERSENSITIVITY, ASTHMA, SEVERE RENAL DISEASE, SEVERE HEPATIC DISEASE, PEPTIC ULCER, ASA DISEASE, L&D, LACTATION, CV BLEEDING AND ALLERGY TO ASA.**

ALL ELECTRICAL INJURIES / BURNS SHOULD BE EVALUATED BY A PHYSICIAN.

HEAD INJURY

BLS

1. A.B.C.s.
2. Oxygen 100% and appropriate airway maintenance.
3. Spinal immobilization.
4. IV of LR or NS with rate appropriate to patient condition. Secondary IV of LR or NS as needed.
5. Rapid transport to trauma facility.
6. Monitor pulse oximetry.
7. Check blood sugar level if less than 50mg/dl, then administer 50ml of D50.

ALS

8. Cardiac monitor.
9. Contact Medical Control AS SOON AS POSSIBLE.
10. Consider sedation and intubation through Versed protocol, if patient shows signs of brain herniation, or potential loss of airway.

*** Increase ventilations (hyperventilate) patient only if they begin to exhibit signs of brain herniation. i.e.: Patient begins to have seizures, posturing, or rapid increase in blood pressure without fluid overload.

NEAR DROWNING

BLS

1. A.B.C.s.
2. Oxygen 100% and appropriate airway maintenance for patient condition.
3. Spinal immobilization for patients with history of diving accident, mechanism of spinal injury is present, patient is unconscious, or history of incident is unclear.
    - Spinal immobilization prior to removing patient from water.
4. Remove wet clothing and maintain patient's body temperature.
5. IV of LR or NS at rate appropriate to patient's condition.
6. Monitor pulse oximetry.

ALS

7. Cardiac monitor.
8. Treat dysrhythmias according to appropriate ACLS algorithm.
9. Contact Medical Control.

PAIN MANAGEMENT ISOLATED EXTREMITY TRAUMA

BLS

1. A.B.C.s.
2. Maintain open airway.
3. Splint extremity. THERE MUST BE NO LOSS OF CONSCIOUSNESS.
4. Place patient as to maintain patent airway.
5. Administer oxygen and use appropriate airway adjuncts.
6. Assist ventilations and suction as needed.
7. Establish IV NS or LR TKO.

ALS

8. Cardiac monitor.
9. Morphine Sulfate 2-10mg IVP (diluted in 9cc of NS) before contacting Medical Control and can repeat as ordered per Medical Control.
10. **Only if patient is allergic to Morphine Sulfate, then use Nubain 10mg IVP.**
11. As an alternative, Toradol 30mg IVP, use half dosage with elderly.
12. Contact Medical Control as soon as patient condition allows.
15. **IF THERE IS A POSSIBILITY OF HEAD OR ABDOMINAL TRAUMA THEN CONTACT MED CONTROL PRIOR TO THE ADMINISTRATION OF MEDICINES FOR PAIN MANAGEMENT!**
13. **CONTRAINDICATIONS: HYPERSESITIVITY, ASTHMA, SEVERE RENAL DISEASE, SEVERE HEPATIC DISEASE, PEPTIC ULCER, ASA DISEASE, L&D, LACTATION, CV BLEEDING AND ALLERGY TO ASA.**

TASER INJURIES

EMS personnel may be requested to assess patients after taser deployment, and / or to remove Air Taser probes lodged in a subject's skin. A thorough assessment must be completed and documented on all such patients. If the patient is combative and you are unable to perform assessment contact Medical Control for medical direction. A refusal must be completed and signed by patient and / or officer responsible for patient. Be aware that secondary injuries may result form falls sustained after the taser device has been deployed.

BLS

1. Scene Safety.
2. Try to gather as much information from the police officers as to circumstances leading to taser deployment, to better understand the patient's level of competence.
3. Confirm that the Air Taser has been shut off and the probe is no longer connected to the taser gun.
4. Obtain vital signs at the earliest opportunity. Violent and combative behavior may be secondary to intoxication, psychosis, hypoxia, hypoglycemia, OD or CNS infection. Obtain O2 sat and check blood glucose level if patient has an altered level of consciousness. If blood sugar level is below **50mg/dl** refer to Hypoglycemia protocol.
5. Evaluate the anatomical location of the probes puncture zones. High-risk / sensitive zones will require transport to a medical facility for removal. They include:

- Eyes, ears, nose, mouth, and neck. (Darts to scalp, and low risk areas of forehead and cheek, can be removed in the field, but these wounds may require assessment by a physician.)
- Breast.
- Genitals.
- Hands or Feet.
- Joints.

Dart Removal:

6. Prior to probe removal inform all involved in treatment that you are about to remove the contaminated sharp.
7. Utilize PPE. Place hand in the form of a "V" around the taser dart in order to stabilize the surrounding skin and to keep loose skin from coming up with the dart. Firmly grasp the probe and with one smooth hard jerk, remove the probe for patient's skin.
8. Examine the probe and the patient closely in an effort to make sure the probe tip did not break off during removal. Accordingly, it is important that the person removing the barb visually inspect it to make sure that the tip is fully intact. If the barb remains in the patient, the patient will be transported to a medical facility for removal.
9. Be careful to avoid accidental needle sticks when removing the probes.

10. Promptly dispose of the probe immediately after removal and examination to ensure that it is intact. Place in an appropriate sharps disposal container. If the probes are to fall into the law enforcement chain of custody ensure it is placed in an appropriate container that contains no other sharps.

TASER INJURIES (continued)

11. Provide wound care by cleansing the affected area with saline, and apply a band-aid. Inform patient of basic wound care and the need to seek additional care in event that signs of infection occur (redness-fever-drainage-swelling-etc.).
12. Clear and thorough documentation is required in the body of the report narrative whether or not EMS transports the patient.

ALS

13. Cardiac Monitor. (If patients demeanor will not allow the attachment of the cardiac monitor then document the reasons).
14. Treat any arrhythmia per appropriate protocol.

THERMAL BURNS

BLS

1. Patient removed from source.
2. A.B.C.s.
3. Oxygen 100% additional airway maintenance as needed for burns involving nares, face, throat, or oral pharyngeal areas.
4. Cool the burn.
5. Remove any rings or bracelets.
6. Cover with dry sterile dressing or burn sheet.
7. IV of LR or NS with rate appropriate to patient condition.
8. Secondary IV of LR or NS as needed.
9. Monitor pulse oximetry.

ALS

10. Cardiac monitor.
11. Morphine Sulfate 2-10mg IVP (dilute with 9cc of NS). Repeat as ordered per Medical Control.
12. If patient is allergic to MS then use, Nubain 10mg IVP.
13. As an alternative, Toradol 30mg IVP, use half dosage with elderly.
14. Nasogastric tube for full thickness burns >30%.
15. Contact Med Comm.
16. **CONTRAINDICATIONS: HYPERSESITIVITY, ASTHMA, SEVERE RENAL DISEASE, SEVERE HEPATIC DISEASE, PEPTIC ULCER, ASA DISEASE, L&D, LACTATION, CV BLEEDING AND ALLERGY TO ASA.**

*****ALL BURNS GREATER THAN 10% THAT ARE 2ND DEGREE OR HIGHER SHOULD HAVE A MINIMUM OF 1000ml FLUID PRIOR TO ARRIVAL AT ER.**

THORACIC TRAUMA

BLS

1. A.B.C.s.
2. Oxygen 100% and airway maintenance appropriate for patient condition.
3. Spinal immobilization as indicated by mechanism of injury.
4. Stabilization of chest injury:
    a. Occlusive dressing for open chest wall injuries.
    b. Bulky dressing splint for rib fractures and / or flail segment.
5. Rapid transport to trauma facility, with early notification.
6. IV of LR or NS with rate appropriate to patient condition.
7. Secondary IV of LR or NS as needed.

ALS

8. Cardiac monitor, use end-tidal function on Life Pak 12.
9. Intubate as needed for adequate ventilations (see Conscious Sedation Protocol).
10. Chest decompression as indicated for tension pneumothorax after receiving orders from Medical Control.

TRAUMA ARREST

BLS

1. A.B.C.s.
2. Begin CPR.
3. Airway maintenance:
    - Maintain manual C-spine control.
    - BLS- Combi-tube.
    - ALS- Intubation- *ONLY 1 ATTEMPT ON SCENE!*
4. Spinal package.
5. Rapid transport to level 1 Trauma Center.
6. Bi-lateral large bore IVs (DO NOT DELAY TRANSPORT FOR IVs), infuse as appropriate to patient's condition.
7. Monitor pulse oximetry.

ALS

8. Cardiac monitor. Use end-tidal CO2 function on Life Pak 12.
9. Chest decompression as indicated for chest trauma (see special skills section).
10. Early notification to Med Comm.
11. Inflate M.A.S.T. garments per Medical Control only (Contraindicated in chest injuries).

***Look for treatable causes:
i.e. Tension pneumothorax, airway obstruction, hypovolemia.