

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Index

Introduction

Definitions

Cardiac Emergency (Adult & Pediatric)

- 101** Automatic External Defibrillator
- 102** New Onset Atrial Fibrillation and Flutter
- 103** Bradycardia
- 104** Acute Coronary Syndrome/STEMI
- 105** Chest Pain / NON Cardiac
- 106** Pulseless Electrical Activity (PEA)
- 107** Premature Ventricular Contractions (PVC)
- 108** Supraventricular Tachycardia (SVT)
- 109** Torsades de Pointe
- 110** Ventricular Asystole
- 111** Ventricular Fibrillation / Pulseless Vent Tachy
- 112** Persistent Ventricular Fibrillation
- 113** Ventricular Tachycardia with a Pulse
- 114** Post Resuscitation

Environmental Emergency (Adult & Pediatric)

- 201** Chemical Exposure
- 202** Drug Ingestion
- 203** Electrocution / Lightning Injuries
- 204** Hyperthermia
- 205** Hypothermia
- 206** Near Drowning
- 207** Nerve Agents
- 208** Poisonous Snake Bite
- 209** Radiation / Hazmat

Medical Emergency (Adult & Pediatric)

- 300** Medical Complaint Not Specified Under Other Protocols
- 301** Abdominal Pain Complaints (Non Traumatic)
- 302** Acute Pulmonary Edema
- 303** Anaphylactic Shock
- 304** Cerebrovascular Accident (CVA)
- REFERENCE** Cincinnati Pre-hospital Stroke Screen
- REFERENCE** Pre-Hospital Screen for Thrombolytic Therapy
- 305** Croup
- 306** Family Violence
- 307** Hyperglycemia Associated with Diabetes
- 308** Hypertensive Crisis
- 309** Hypoglycemia
- 310** Medications at Schools
- 311** Non Formulary Medications
- 312** Respiratory Distress (Asthma/COPD)

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Index – Continued

Medical Emergency (Adult & Pediatric)

- 313** Seizures
- 314** Sexual Assault
- 315** Sickie Cell
- 316** Unconscious / Unresponsive / Altered Mental Status
- 317** Syncope
- 318** Acute Adrenal Insufficiency or Addisonian Crisis

Shock / Trauma (Adult & Pediatric)

- 401** Air Ambulance Transport
- 402** Abdominal / Pelvic Trauma
- 403** Avulsed Teeth
- 404** Cardiogenic Shock
- 405** Eye Trauma
- 406** Hypovolemic Shock
- 407** Major Thermal Burn
- 408** Musculoskeletal Trauma
- 409** Multi-System Trauma
- 410** Neurogenic Shock
- 411** Septic Shock
- 412** Soft Tissue Trauma / Crush Injuries
- 413** Spinal Cord Injuries
- 414** Traumatic Cardiac Arrest
- 415** Traumatic Tension Pneumothorax
- 416** Traumatic Amputation(s)

Obstetrical Emergencies

- REFERENCE** APGAR Scoring
- 500** Obstetric / Gynecological Complaints (Non Delivery)
- 501** Normal Delivery / Considerations
- 502** Abruptio Placenta
- 503** Amniotic Sac Presentation
- 504** Breech or Limb Presentation
- 505** Meconium Stain
- 506** Placenta Previa
- 507** Prolapsed Umbilical Cord
- 508** Pre-eclampsia and Eclampsia

Miscellaneous

- 601** Discontinuation / Withholding of Life Support
- 602** Field Determination of Death
- 603** Mandatory EKG
- 604** Patient Refusal of Care / No Patient Transport Situation
- REFERENCE** Mini Mental Status Exam
- 605** Physical Restraint
- 606** Physician on the Scene
- 607** By-Stander on the Scene

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Index – Continued

Miscellaneous

- 608** Procedure for Deviation from Protocols
- 609** Spinal Immobilization
- 610** Stretcher Transport
- 611** Terminally Ill Patients
- 612** “Excited Delirium” / Taser Use

Pediatric Cardiac Emergency

- 613** Neonatal Resuscitation

Procedures

- PROCEDURE** Capnography
- PROCEDURE** Chest Decompression
- PROCEDURE** Continuous Positive Airway Pressure
- PROCEDURE** Delayed Off Load of Stable Patients
- PROCEDURE** Endotracheal Tube Introducer (Bougie)
- PROCEDURE** External Transcutaneous Cardiac Pacing
- PROCEDURE** EZ-IO
- PROCEDURE** Fever / Infection Control
- PROCEDURE** Induced Hypothermia Following ROSC
- PROCEDURE** Indwelling IV Port Access
- PROCEDURE** Intranasal Medication Administration
- PROCEDURE** Mechanical CPR
- PROCEDURE** Vascular Access
- PROCEDURE** Wound Care / Tourniquet

Reference

- REFERENCE** Consent Issues
- REFERENCE** Patient Assessment Flow Chart
- REFERENCE** Pulse Oximetry
- REFERENCE** QI Documentation Criteria
- REFERENCE** S.T.A.R.T. Triage
- REFERENCE** Trauma Assessment / Destination Guidelines
- REFERENCE** Trauma Treatment Priorities
- REFERENCE** Trauma Score
- REFERENCE** Glasgow Coma Scale
- REFERENCE** Triage Decision Scheme
- REFERENCE** Common Medical Abbreviations

Pharmacology

- REFERENCE** Medication Dosage
- REFERENCE** Drug Infusion Admix Dosage Guidelines

Pediatric

- REFERENCE** Pediatric Points to Remember
- REFERENCE** Trauma Score

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Index – Continued

REFERENCE Triage Decision Scheme

REFERENCE Age, Weight, and Vitals Chart

REFERENCE Age and Weight Related Equipment Guidelines

Medical Director's Authorization

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Introduction

These Protocol guidelines are provided by State of Tennessee Division of Emergency Medical Services and are designed to be used as written or as a guideline for Emergency Medical Directors of Licensed Emergency Medical Services in Tennessee. Protocols provide direction for Emergency Medical Services Personnel to render appropriate care for the sick and injured of all ages. It is recommended that services require EMS Personnel to familiarize themselves with the service approved Protocols and show successful completion by written documentation of competency in the Service Protocols to the Service Medical Director.

Administrative Notes:

1. The EMT-B and EMT-IV will assist ALS personnel as requested and/or needed.
2. The EMT will function under the current guidelines as stated in the AHA-BLS Healthcare Provider text. Shall also be responsible for other duties as assigned by the EMT-IV or the EMT-P.
3. The EMT-Paramedic will be in charge and will be responsible for all of the actions and or activities as it relates to the Emergency Unit. On the scene of an emergency, the EMT-Paramedic will be responsible for patient care. The EMT-Basic or EMT-IV will act within their scope of practice to any request for patient care or maintenance of the unit as directed by the EMT-Paramedic. Patient care is limited to acts within their scope of practice as defined by these SOPs. The EMS Personnel are responsible for reviewing all documentation and signing in the required manner
4. It is the responsibility of the most qualified EMT-Paramedic caring for the patient to ensure transmission of all aspects of the patient assessment and care to the responding Emergency Unit or Medical Control.
5. When reporting a disposition to Medical Control or the responding unit, provide the following minimum information:
 - a. Patient's age and chief complaint
 - b. Is the patient stable or unstable (define), including complete V/S and LOC
 - c. Interventions performed
 - d. Provide other information as requested.
6. For each and every call, the first directives are scene safety and body substance isolation precautions.
7. For any drug administration of procedures outside these Standing Orders and Protocols, the EMS Provider must receive authorization from Medical Control. Paramedics en-route to the scene are not authorized to issue orders.
8. The minimal equipment required for all patient calls:
 - a. When the patient is in close proximity to the unit or 1st Responder: jump bag, cardiac monitor, and oxygen or other equipment as may be indicated by the nature of the call
 - b. When the patient is not in close proximity of the unit or 1st Responder: the above equipment, stretcher and any other equipment that may be needed as dictated by the nature of the call.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

9. The senior Paramedic has the ultimate responsibility to ensure that all records and reports are properly completed. The patient care report should accurately reflect the clinical activities undertaken. If there is a patient refusal or dismissal of service at the scene of the incident, the incident report should reflect the dismissal as well as the party or parties responsible for the request to terminate any and all evaluations and treatment.
10. Although the Guidelines have a numerical order, it may be necessary to change the sequence order or even omit a procedure due to patient condition, the availability of assistance, or equipment. Document your reason for any deviations from protocol.
11. EMS certified and licensed personnel are expected to perform their duties in accordance with local, state and federal guidelines in accordance with the State of Tennessee statutes and rules of Tennessee Emergency Services. The EMT and Paramedic will work within their scope of practice dependent on available equipment.
12. Each patient care contact will be recorded on the EMS incident report form as completely and accurately as possible prior to leaving on the shift day in which the call was made. A complete copy of the patient out-of-hospital evaluation(s) and treatment(s) will be given to the emergency department personnel or staff prior to departing from the health care facility. This will ensure proper documentation of the continuity of care.
13. In potential crime scenes, any movement of the body, clothing, or immediate surroundings should be documented and the on scene law enforcement officer should be notified of such.
14. All patients should be transported to the most appropriate facility according to the patient or family request or the facility that has the level of care commensurate with the patient's condition. Certain medical emergencies may require transport to a facility with specialized capability.
15. Paramedics may transport the patient in a non-emergency status to the hospital. This should be based on the signs and symptoms of the patient, mechanism of injury or nature of illness.
16. The following refusal situations should be evaluated by a paramedic.
 - a. Hypoglycemic patients who have responded to treatment
 - b. Any patient refusing transport who has a potentially serious illness or injury
 - c. Patients age less than **4** years or greater than **70** years
 - d. Chest pain any age or cause
 - e. Drug overdose / intoxicated patients
 - f. Potentially head injured patients
 - g. Psychiatric Disorders
17. The use of a length bases assessment tape is **required** for all pediatric patients as a guide for medications and equipment sizes. The tape will be utilized on all pediatric patients below the age of 8 years and appropriate for their weight. Any child that is small in stature for their age, use the length based tape for compiling a complete accurate assessment of the patient. This information will be passed along to the receiving facility and documented in the PCR.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Clinical Notes:

1. A complete patient assessment, vital signs, treatments and continued patient evaluation are to be initiated immediately upon contact with patient and continued until patient care is transferred to a Higher Medical Authority. Refer to Patient Assessment Flow Chart.
2. The on-going assessment times are considered:

<u>High Priority</u>	<u>Low Priority</u>
Every 3 – 5 minutes	Every 5 – 15 minutes
3. EMTs may assist patients with the following medications: Aspirin, Nitroglycerine, Epinephrine for Anaphylactic reaction, Albuterol or MDI. EMT-IV may administer Dextrose for hypoglycemia and other medications under direct supervision of the Paramedic caring for the patient.
4. If a glucometer reading of greater than 40 mg/dL and patient is asymptomatic, start an INT and administer oral glucose. If a glucometer reading is less than 80 mg/dL and patient is symptomatic, start an IV NS and administer 12.5 – 25 gms of Dextrose. Reassess patient every 5 min, repeat PRN
Note: Any administration of Dextrose must be done through an IV line, not INTs. Normal blood sugar values are 80 – 120 mg/dL.
5. Blood Glucose and Stroke Screening will be performed on all patients with altered mental status.
6. Supportive care indicates any emotional and/or physical care including oxygen therapy, repositioning patient, comfort measures and patient family education.
7. Upon arrival at the receiving hospital, all treatment(s) initiated in the field will be continued until hospital personnel have assumed patient care.
8. The initial blood pressure MUST be taken manually. If subsequent blood pressures taken by machine vary more than 15 points diastolic, then a manual blood pressure will verify the machine reading.
9. EMTs may obtain and transmit EKG monitoring tracings and 12 Lead EKGs in the presence of the treating Paramedic. Paramedics ONLY may interpret and make treatment and destination decisions based on the 12 lead EKG.

Clinical Notes – Airway:

1. All EMTs have standing orders for insertion of an approved airway device for patients meeting the indications
2. Treat the patient, not the monitor
3. Airway maintenance appropriate for the patient's condition indicates any airway maneuver, adjunct, or insertions of tubes that provide a patent airway.
4. Pulse Oximetry should be utilized for all patients complaining of respiratory distress or chest pain (regardless of source).

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

5. Esophageal Intubation detectors and End Tidal CO₂ or waveform capnography (preferred) are **MANDATORY** for all intubations. Waveform reliability may be limited in patients less than 20kg. Use other methods to assist in confirmation.
6. Use of cervical collars post intubation (BIAD or ET) is recommended to reduce the chance of accidental extubation. This is in addition to the tube securing devices currently in use.

Clinical Notes – Cardio Vascular

1. In the adult cardiac arrest:
 - a. CPR is most effective when done continuously, with minimum interruption
 - b. Initiate compressions first, manage airway after effective compressions for two minutes
 - c. All IV/IO drugs given are to be followed by a 10 cc NS bolus
 - d. Elevate the extremity after bolus when given IV
 - e. Consider blind airway devices (King) whenever intubation takes longer than 30 seconds
 - f. Apply NC Oxygen 2 – 4 L during initial CPR
2. Defibrillation and Synchronized Cardioversion joules are based on the use of the current biphasic monitor.
3. If a change in cardiac rhythm occurs, provide all treatment and intervention as appropriate for the new rhythm.
4. In the case of cardiac arrest where venous access is not readily available, paramedics may use EZ-IO as initial access.

Clinical Notes – IV

1. EMT-IVs and Paramedics have standing orders for precautionary IV and INTs. EMT-IVs have a standing order for the insertion of an IV or INT under the following guidelines:
 - a. The patient must have some indication that they are unstable (see definitions)
 - b. Limited to two attempts in one arm only. (Cannulation of legs or neck is not allowed.)
 - c. Drug administration will be followed by a minimum of 10cc of fluid to flush the catheter.
 - d. Blood Glucose will be performed for all patients with altered mental status
 - e. IVs should not be attempted in an injured extremity
 - f. TKO (To Keep Open) indicates a flow rate of approximately 50 cc/hr
 - g. IVs will not be started in arms with shunts
 - h. IVs appropriate for patients condition indicates; if a patient is hypotensive, give a bolus if fluid, if patient's BP is normal run IV TKO or convert to saline lock (INT).
 - i. A bolus of fluid is 20 cc/kg for all patients.
2. For external Jugular IVs attempted by paramedics, IV catheters should be 18 gauge or smaller diameter based on the patient.
3. Paramedics, when properly equipped and trained, may utilize indwelling access ports such as Port-A-Cath in an **EMERGENCY ONLY**. This procedure should be done with a Huber needle utilizing sterile technique.
4. Use of Pneumatic Anti-Shock Device (PASG):
 - a. The chance of patient's survival without the use of PASG device should be evaluated prior to utilizing the PASG device. Orders must be received from Medical Control prior

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

to inflation when used in the treatment of hypovolemia. The use of PASG should be considered if the systolic pressure falls to 50 mmHg.

- b. The use of the PASG as an air splint is based on the current DOT curriculum and may be used at the discretion for the EMT responsible for patient care.
- c. Other treatments will be based on mechanism of injury and signs and symptoms of the patient.

I have taken great care to make certain that doses of medications and schedules of treatment are compatible with generally accepted standards at time of publication. Much effort has gone into the development, production, and proof reading of Protocol Guidelines. Unfortunately, this process may allow errors to go unnoticed or treatments may change between the creation of these protocols and their ultimate use. Please do not hesitate to contact me if you discover any errors, typos, dosage, or medication errors.

I look forward to any questions, concerns, or comments regarding these protocols. I expect all EMS personnel to follow these guidelines, but also to utilize and exercise good judgment to provide the best care for all patients.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Definitions

Standing Order – This skill or treatment **may** be initiated prior to contact with Medical Control.

Protocol - A suggested list of treatment options **requiring** you to contact Medical Control **prior** to initiation

Medical Director – the physician that has the ultimate responsibility for the patient care aspects of the EMS System

Unstable (symptomatic) – indicates that one or more of the following are present:

- a. Chest pain
- b. Dyspnea
- c. Hypotension (systolic B/P less than 90 mmHg in a 70 kg patient or greater)
- d. Signs and symptoms of congestive heart failure or pulmonary edema
- e. Signs and symptoms of a myocardial infarction
- f. Altered level of consciousness

Stable (asymptomatic) – Indicates that the patient has no or very mild signs and symptoms associated with the current history of illness or trauma.

First Responder – The first person(s) or company to arrive to an emergency scene. If first on the scene – responsible for immediately identifying and providing patient care to the level of their certification/licensure and availability of equipment. Assist other personnel upon their arrival and ensure continuity of patient care.

EMT-Basic – Personnel licensed by the Tennessee Department of EMS and authorized by the Medical Director to provide basic emergency care according to the Standard of Care and these Standard Orders and Protocols.

EMT-IV – Personnel licensed by the Tennessee Department of EMS and authorized by the Medical Director to provide limited advanced emergency care according to the Standard of Care and Standing Orders and Protocols.

EMT-Paramedic – Personnel licensed by the Tennessee Department of Health and authorized by the Medical Director to provide basic and advanced emergency patient care according to EMS Standing Orders and Protocols

Transfer of Care – Properly maintaining the continuity of care through appropriate verbal and/or written communication of patient care aspects to an equal or higher appropriate medical authority.

Higher Medical Authority – Any medical personnel that possesses a current medical license or certificate recognized by the State of Tennessee with a higher level of medical training than the one possessed by EMS Personnel. (MD)

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Medical Control (transport) – The instructions and advice provided by a physician, and the orders by a physician that define the treatment of the patient; to access Medical Control, contact the Emergency Department physician on duty of the patient's first choice. If the patient does not have a preference, the patient's condition and/or chief complaint may influence the choice of medical treatment facilities.

"False Alarm" – An archaic term and no longer used relevant to the practice of Emergency Medicine in the EMS field. The incident report should accurately reflect the clinical activities undertaken. If there is a patient refusal or dismissal of service at the scene of the incident, the incident report should reflect the dismissal as well as the party or parties responsible for the request to terminate any and all evaluations and treatment.

All EMTs are expected to perform their duties in accordance with local, state and federal guidelines.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

CARDIAC EMERGENCY

101 Automatic External Defibrillator (AED)

Assessment

Patient in Cardiopulmonary Arrest
Basic Life Support in progress
AED in use

Basic

1. If AED available, apply to patient and follow prompts
2. 100% oxygen and airway maintenance appropriate to patient's condition. All CPR rates of compression are 100 per minute for all ages. Ventilation rates are 8 – 10/min with no pause in CPR for ventilation.
3. Continue CPR according to current AHA – Healthcare Provider Guidelines, specific for patient's age.
4. If AED is in use (defibrillating) prior to arrival, allow shocks to be completed, and then elevate pulse.
If no pulse, continue to provide CPR and basic life support.
If a pulse is present, evaluate respirations and provide supportive care appropriate for the patient's condition.

5. EMT STOP

EMT-IV

6. IV NS Bolus (20 cc/kg), then TKO

7. EMT IV STOP

PARAMEDIC

8. Monitor patient and treat per SOP specific for the arrhythmia

9. PARAMEDIC STOP

NOTE:

1. AED is relatively **contraindicated** in the following situations:
 - a. Patients less than 1 year of age and less than 10 kg (22 lbs).
 - b. If the victim is in standing water, remove the victim from the water, and ensure that chest and surrounding area is dry.
 - c. Trauma Cardiac Arrest
2. Victims with implanted pacemakers, place pads 1 inch from device.
If ICD/AICD is delivering shock to the patient allow 30 to 60 seconds for the ICD/AICD to complete the treatment cycle before using the AED.
3. Transdermal medication patch at site of the AED pads:
If a medication patch is in the location for an AED pad, remove the medication patch and wipe the area clean before attaching the AED electrode pad.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

CARDIAC EMERGENCY

102 New Onset Atrial Fibrillation and Flutter

Assessment

Paroxysmal Atrial Tachycardia
Atrial flutter **new onset**
Atrial fibrillation **new onset**
Symptomatic patient
Dyspnea
Chest pain
Radiating pain
Altered mental status
Hypotension (systolic BP <90 mmHg)
Diaphoresis

Basic

1. Oxygen 100% and airway maintenance appropriate for the patient's condition
2. Supportive care
3. Glucose check
4. **EMT STOP**

EMT-IV

5. IV NS TKO or INT
6. Administer Dextrose 50%, PRN
7. **EMT IV STOP**

PARAMEDIC

8. EKG Monitor
9. Pulse Oximetry
10. Valsalva maneuver, contact Medical Control to consider amiodarone 150 mg
11. If patient is unstable consider synchronous cardioversion:
 - a. Atrial flutter @ 30 joules (**peds 0.5 j/kg then 1 j/kg**)
 - b. Atrial fib @ 50 joules (**peds 0.5 j/kg then 1 j/kg**)
 - c. Pre-medicate with Valium 2-5 mg IV (**peds 0.2 mg/kg**) or Versed 2-5 mg IVP (**peds 0.1 mg/kg**) and/or Morphine per the chart below
12. **PARAMEDIC STOP**

Immediate Synchronized Cardioversion (50, 75, 100, 120 150, 200 joules) (**peds 0.5 j/kg then 1 j/kg**) is recommended when there is an unstable rhythm with **serious signs and symptoms**:

- Chest Pain
- Shortness of breath
- Decreased level of consciousness
- Low blood pressure

all doses in mg unless indicated	5 kg	7 kg	8 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50 kg	75 kg	Geriatric	
Fentanyl IM/IO				10	10	15	20	25	25	50	75	25	1 mcg/kg
Morphine IM/IO				1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg	2 mcg/kg
Onidocaine IV/IO							2 mg	3 mg	4 mg	4 mg	4 mg	4 mg	0.1 mcg/kg

If pain not controlled, Morphine and Fentanyl dosing may be repeated once after 5 min interval. Contraindicated in hemodynamically unstable patients.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

CARDIAC EMERGENCY

103 Bradycardia

Assessment

Heart rate less than 60 beats per minute and symptomatic
Decreased / altered LOC
Chest pain / discomfort
CHF / pulmonary edema
Head Trauma
Elevated Intracranial Pressure
Dyspnea
Hypothermia
Hypoglycemia
Drug overdose
Signs of decreased perfusion
Rhythm may be sinus bradycardia, junctional, or heart block
Heart rates <80/min for infant or <60/min for child

Basic

1. Oxygen and airway maintenance appropriate to patient's condition. If the patient will not tolerate a NRB, apply Oxygen at 6 Lpm BNC.
2. Glucose Check
3. Supportive care
4. **EMT STOP**

EMT-IV

5. INT or IV NS TKO
6. Administer Dextrose 50%, PRN
7. **EMT IV STOP**

PARAMEDIC

8. Cardiac Monitor / 12 Lead EKG, transmit if available
9. Pulse Oximetry
10. If patient is asymptomatic and heart rate is less than 60 beats per minute, transport and observe
11. If PVCs are present with bradycardia do **NOT** administer Lidocaine.
12. Adults –
 - a. If systolic BP <90 mmHG and heart rate <60/min
 - i. If 2nd and 3rd degree blocks are present apply transcutaneous pacer pads (if available), administer Atropine 0.5 mg IV
 - b. If systolic BP <90 mmHG and heart rate <60/min continues
 - i. Administer Atropine 0.5 mg up to 0.04 mg/kg (3 mg for adults)
 - c. If systolic BP <90 mmHG and heart rate <60/min continues
 - i. Notify Medical Control
 - ii. Consider Dopamine 2 – 20 mcg/kg/min as a continuous IV infusion to increase heart rate.
13. Consider Glucagon 1 – 2 mg IM/IV if unresponsive to Atropine, especially if taking Beta blockers

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Pediatric –

- a. Heart rates <60/min for infant or <60/min for child
- b. Signs of poor perfusion, respiratory distress, or hypotension
 - i. Yes – Start chest compression, IV/IO
 - 1. Epinephrine 1:10,000 0.01 mg/kg IV/IO q 4 min
 - 2. Contact Medical Control
 - a. Consider Dopamine 2 – 20 mcg/kg/min as a continuous IV infusion to increase heart rate

14. PARAMEDIC STOP

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

CARDIAC EMERGENCY

104 Acute Coronary Syndrome/STEMI

Assessment

Determine quality, duration and radiation of pain Substernal Oppressive Chest Pain (crushing or squeezing) Nausea and/or vomiting Shortness of breath Cool, clammy skin Palpitations Anxiety or restlessness Abnormal pulse rate or rhythm History of Coronary Artery Disease or AMI Currently taking cardiac medications JVD Distal pulse for equality/strength to assess for Aneurysm Diaphoresis, pallor, cyanosis Breath sounds – congestion, rales, wheezing Motor deficits	P – Placement of pain/discomfort (anything that increases discomfort) Q – Quality of pain R – Radiation of pain S – Severity of pain/discomfort (scale of 1 – 10) T – Time of pain/discomfort onset, type of pain The elderly, women, and/or diabetic patients may complain of nausea, weakness, shortness of breath or other vague symptoms. Screen all such patients for possible silent MI
--	---

Basic

1. Oxygen at 2 – 6 Lpm BNC and airway maintenance appropriate to patient's condition. If the patient is in severe respiratory distress consider Oxygen 100% 12 – 15 Lpm NRB
2. Glucose Check
3. Supportive Care
4. If systolic BP is >110 and the patient is symptomatic, assist patient with 1 nitroglycerine tablet or spray sublingually and reassess every 5 minutes. Maximum of 3 doses.
5. If patient is taking Aspirin, assist patient with medication (not to exceed 324 mg of chewable Aspirin), if not self-dosed in last 24 hours.

6. EMT STOP

EMT-IV

7. INT or IV Normal Saline TKO
8. Administer Dextrose 50%, PRN
9. Contact Medical Control to request orders for additional Nitroglycerine in excess of three doses.
NOTE: The maximum dosage of Nitroglycerine is three. The total dosage is the total doses the patient has taken on their own combined with your subsequent dosages.

10. EMT IV STOP

PARAMEDIC

11. Cardiac monitor, obtain 12 lead, transmit if available. Patients with positive AMI should be transported to an appropriate cardiac facility as soon as possible. Treat arrhythmia appropriately.
12. Oxygen saturation, provide O₂ sufficient to keep SATs >94%
13. Aspirin (nonenteric coated), 324 mg chewed then swallowed if not self-dosed within last 24 hr

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

14. Nitroglycerine – If patient is not Hypotensive (BP <100 mmHg) administer one Nitroglycerine SL spray and apply 1" of Nitroglycerine to chest wall. Repeat Nitroglycerine spray once 5 minutes after initial spray and application of paste. Continue nitrate therapy until pain relieved or systolic BP <100 mmHg.
15. Systolic BP is <100 mmHg give 250 ml NS bolus (assess for signs of pulmonary congestion)
 - a. If PVCs >15/min – Lidocaine 1 – 1.5 mg/kg over 2 min, repeat to total of 3 mg/kg
16. If chest pain/discomfort continues
 - a. Continue Nitrate therapy
 - b. Complete thrombolytic screening
 - c. If chest pain greater than 7 on scale of 1-10, treat pain per chart below until pain is tolerated by patient
 - d. Contact Medical Control
 - e. Transport

17. PARAMEDIC STOP

all doses in mg unless indicated	5 kg	7 kg	9 kg	10 kg	12 kg	14 kg	16 kg	20 kg	30 kg	40 kg	50-74 kg	75 kg	Geriatric	
Fentanyl NMD				10	10	15	20	25	25	50	75	25		1 mcg/kg
Morphine NMD				1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg		2 mcg/kg
Codeine NMD							2 mg	3 mg	4 mg	4 mg	4 mg	4 mg		0.1 mcg/kg

If pain not controlled, Morphine and Fentanyl dosing may be repeated once after ten minutes. Contraindicated in hemodynamically unstable patients.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

CARDIAC EMERGENCY

105 Chest Pain / NON Cardiac

Assessment

Determine quality, duration and radiation of pain Atypical Chest Pain NO Nausea and/or Vomiting NO Shortness of breath NO Cool, clammy skin History of chest injury, persistent cough NO History of Coronary Artery Disease or AMI NOT currently taking cardiac medications Distal pulse for equality/strength to assess for aneurysm NO Diaphoresis, pallor, cyanosis Normal Breath sounds	P – Placement of pain/discomfort (anything increase discomfort) Q – Quality of pain R – Radiation of pain S – Severity of pain/discomfort (scale of 1 – 10) T – Time of pain/discomfort onset, type of pain The elderly, women, and/or diabetic patients may complain of nausea, weakness, shortness of breath or other vague symptoms. Screen all such patients for possible silent MI
---	---

Basic

1. Oxygen at 2 – 6 Lpm BNC and airway maintenance appropriate to patient's condition. If the patient is in severe respiratory distress, consider Oxygen 100% 12 – 15 Lpm NRB
2. Glucose check
3. Supportive Care
4. If systolic BP is >110 and the patient is symptomatic, **assist** patient with 1 nitroglycerine tablet or spray sublingually and reassess every 5 minutes. (Refer to the medication assist procedure.) Maximum of three doses.
5. Assist patient with Aspirin (not to exceed 325 mg of chewable Aspirin) if patient has not self-administered in the last 24 hours.

6. EMT STOP

EMT-IV

7. INT or IV Normal Saline TKO
8. Administer Dextrose 50%, PRN
9. Contact Medical Control to request orders for additional Nitroglycerine in excess of three doses
NOTE: The maximum dosage of Nitroglycerine is three sublingual administrations, whether before or after your arrival.

10. EMT IV STOP

PARAMEDIC

11. Cardiac monitor, obtain 12 lead, transmit if available
12. Oxygen Saturation
13. If patient is not Hypotensive (BP <100 mmHg) administer one Nitroglycerine SL/spray
14. If no effect consider:
If chest pain greater the 7 on scale of 1-10, treat per chart below until pain is tolerated by patient
15. Contact Medical Control
16. Transport

17. PARAMEDIC STOP

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

CAUTION: Patients with true cardiac disease may have subtle, atypical symptoms. Always err on the side of patient safety.

all doses in mg unless indicated	5 kg	7 kg	8 kg	10 kg	12 kg	14 kg	20 kg	30 kg	40 kg	50-74 kg	75 kg	Geriatric	
Fentanyl IM/IO				10	10	15	20	25	25	50	75	25	1 mcg/kg
Morphine IM/IO				1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg	2 mcg/kg
Onoventin IV/IO							2 mg	3 mg	4 mg	4 mg	4 mg	4 mg	0.1 mcg/kg
If pain not controlled, Morphine and Fentanyl dosing may be repeated once after five minutes. Contraindicated in hemodynamically unstable patients.													

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

CARDIAC EMERGENCY

106 Pulseless Electrical Activity (P.E.A.)

Assessment

Presence of electrical cardiac rhythm without palpable pulse

Confirm rhythm electrodes in two leads

Basic

1. Utilize AED if available
2. Oxygen 100% and airway maintenance appropriate to the patient's condition
3. CPR as indicated
4. Glucose Check if time allows
5. **EMT STOP**

EMT-IV

6. IV NS, bolus of fluid (20 cc/kg)
7. Administer Dextrose 50%, PRN
8. **EMT IV STOP**

PARAMEDIC

9. EKG Monitor
10. IV/IO NS (large bore catheter)
11. Epinephrine 1:10,000 1.0 mg IVP/IO (**peds – Epinephrine 1:10,000 0.01 mg/kg IV/IO q 4 min**)
12. Search for underlying cause of arrest and provide the related therapy:
 - a. Hypoxia – ensure adequate ventilation
 - b. Hypovolemia – fluid administration/fluid challenge (adult 20 cc/kg, **peds 20 cc/kg bolus**)
 - c. Cardiac tamponade (adult up to 2 liter bolus, **peds 20 cc/kg bolus**)
 - d. Tension pneumothorax – needle decompression
 - e. **KNOWN** hyperkalemia or tricyclic antidepressant overdose – Sodium Bicarbonate 1 mEq/kg, may repeat @ 0.5 mEq/kg q 10 min (**peds 1 mEq/kg may repeat at 0.5 mEq/kg q 10 min**) and CaCl 500mg IVP (**peds 20mg/kg**)
 - f. **Suspected** Acidosis in prolonged arrest: consider Sodium Bicarbonate 1 – 1.5 mEq/kg IV
 - g. Drug Overdose: Narcan 2mg slow IVP (**peds 0.1 mg/kg slow IVP**).
 - h. Hypothermia: Initiate patient rewarming, avoid chest compressions if spontaneous circulation.
13. Consider the use of Dextrose 50% if blood glucose <80 mg/dL (**peds 2cc/kg D₂₅**)
14. Consider External Cardiac Pacing per Protocol
15. PEA continues: Continue CPR, transport to appropriate facility.
16. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

CARDIAC EMERGENCY

107 Premature Ventricular Contractions (PVC)

Assessment

Any PVC in acute MI setting with associated chest pain
Multi-focal PVCs
Unifocal and >15/min
Salvos/couplets/runs of V-Tach (three or more PVCs in a row) and symptomatic
PVCs occurring near the "T-wave"

Basic

1. Oxygen 100% and airway maintenance appropriate for the patient's condition
2. Glucose check
3. Supportive care
4. **EMT STOP**

EMT-IV

5. INT or IV NS TKO
6. Administer Dextrose 50%, PRN
7. **EMT IV STOP**

PARAMEDIC

8. EKG monitor, 12 lead, transmit if available
9. Oxygen saturation
10. If PVCs are present with heart rate >60/min
 - Lidocaine 1.5mg/kg over 1 min (***peds 1.0 mg/kg***), repeat up to 3 mg/kg
 - i. If PVCs abolished, initiate Lidocaine drip @ 2 – 4 mg/min

NOTE: Use ½ of initial dose for subsequent doses for patients <70 y/o or with history of hepatic disease.
11. **PARAMEDIC STOP**

Treatment – Protocol

Consider Amiodarone 150-300 mg IV/IO if no response to Lidocaine

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

CARDIAC EMERGENCY

108 Supraventricular Tachycardia (SVT)

Assessment

Adult patients with heart rates in excess of 160 bpm (**peds rate >220 bpm**) (QRS width <12 sec [3 small blocks])

Patients may exhibit symptoms of dyspnea, chest pain, radiating pain, altered mental status, hypotension (Systolic BP >90 mm/Hg)

Basic

1. Oxygen 100% and airway maintenance appropriate for the patient's condition, pulse oximetry.
2. Glucose check
3. Supportive care
4. **EMT STOP**

EMT-IV

5. INT or IV, NS TKO
6. Administer Dextrose 50%, PRN
7. **EMT IV STOP**

PARAMEDIC

8. 12 Lead EKG, transmit if available
9. Oxygen saturation
10. Valsalva maneuver for 10 seconds
 - Adenosine 12 mg rapid IV (**peds 0.2 mg/kg 12 mg max**). If no conversion, repeat 12 mg dose.
 - Flush with 10cc NS after each dose
 - If rhythm does not convert to <150/min, or if patient is unstable or significantly symptomatic prepare for synchronized cardioversion
 - a. Sedate as necessary:
 - Valium 2-5 mg IV (**peds 0.2 mg/kg IV**) or Versed 2-5 mg IV (**peds 0.1 mg/kg IV**) and/Pain Medication per the chart below.
 - b. If rhythm converts to rate <150/min: reassess for changes, maintain systolic BP >90 mmHg, transport, and contact Medical Control

NOTE: In heart transplant patients and those on Tegretol, give ½ the normal dose of Adenosine.

11. PARAMEDIC STOP

NOTES:

1. Adenosine is administered through large bore IV in the Antecubital Fossa
2. Other vagal maneuvers may include asking the patient to hold their breath, trendelenburg position.
3. Carotid Sinus Pressure should be applied on the right if possible. In no effect, then try the left side. **NEVER** massage both sides at once.
4. Unstable SVT may be synchronized cardioverted immediately in frankly unstable patients prior to IV access. Assess the situation and make a good decision. Cardioversion hurts!
5. Significant symptoms include diaphoresis, hypotension, poor color or perfusion, mental status changes, chest pain >7/10

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

all doses in mg unless indicated	5 kg	7 kg	9 kg	10 kg	12 kg	18 kg	20 kg	30 kg	40 kg	50-74 kg	75 kg	≥75 kg	Geriatric	
Fentanyl IV/IO				10	10	15	20	25	25	50	75	25		1 mcg/kg
Morphine IV/IO				1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg		2 mcg/kg
Ondansetron IV/IO							2 mg	3 mg	4 mg	4 mg	4 mg	4 mg		0.1 mg/kg

If pain not controlled, Morphine and Fentanyl dosing may be repeated once after five minutes. Contraindicated in hemodynamically unstable patients.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

CARDIAC EMERGENCY

109 Torsades de Pointe

Assessment

Decreased / altered LOC
Dyspnea
Chest Pain / discomfort, suspected AMI
Hypotension (systolic BP <90 mmHg)
CHF / Pulmonary edema
Heart rate >160/min with QRS >.12 sec (3 small blocks, wide complex) and twisting of points

Basic

1. Oxygen 100% and airway maintenance appropriate for the patient's condition, pulse oximetry.
2. Glucose check
3. Supportive Care
4. **EMT STOP**

EMT-IV

5. INT or IV NS TKO
6. Administer Dextrose 50%, PRN
7. **EMT IV STOP**

PARAMEDIC

8. 12 Lead EKG, transmit if available
9. Oxygen Saturation
10. Systolic BP
 - a. If <90 mmHg – unstable/symptomatic:
 - i. Prepare for cardioversion at 100j, escalate as needed.
 - ii. Sedation as necessary:
Valium 2-5mg IV (**peds 0.2mg/kg**) OR Versed 2-5mg IV (**peds 0.1mg/kg**) and/or Pain Medications per the Chart below
If rhythm converts
 - a. If rate <160/min – monitor for changes, transport, Magnesium Sulfate 1 – 2 g IVP over 2 minutes
 - b. If rate >160/min – contact Medical Control, consider Amiodarone 150 – 300 mg IV/IO (**peds 5 mg/kg**), transport.
 - b. If >90 mmHg – stable/asymptomatic:
 - i. Magnesium Sulfate 1-2 gram IVP over 2 min
 - ii. Did rhythm convert to rate <160/min
 - a. If rate <160/min – monitor for changes, Magnesium Sulfate may repeat 1-2 gram IVP over 2 minutes, transport
 - b. If rate >160/min – contact Medical Control, consider Amiodarone 150-300 mg IV/IO (**peds 5 mg/kg**), maintain systolic BP >90 mm/Hg, transport

11. PARAMEDIC STOP

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

all doses in mg unless indicated	5 kg	7 kg	9 kg	10 kg	12 kg	18 kg	28 kg	30 kg	40 kg	50-74 kg	75 kg	≥75 kg	Geriatric	
Fentanyl IV/IO				10	10	15	20	25	25	50	75	25		1 mcg/kg
Morphine IV/IO				1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg		2 mcg/kg
Ondansetron IV/IO							2 mg	3 mg	4 mg	4 mg	4 mg	4 mg		0.1 mg/kg

If pain not controlled, Morphine and Fentanyl dosing may be repeated once after ten minutes. Contraindicated in hemodynamically unstable patients.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

CARDIAC EMERGENCY

110 Ventricular Asystole

Assessment

No pulse or respirations
Confirm cardiac rhythm with electrodes
Record in two leads to confirm Asystole and to rule out fine V-Fib.

Basic

1. AED if available
2. CPR according to AHA guidelines for patient age
3. Oxygen 100% and airway maintenance appropriate to patient's condition
4. Glucose check
5. **EMT STOP**

EMT-IV

6. IV NS bolus (20 cc/kg bolus fluids)
7. Administer Dextrose 50%, PRN
8. **EMT IV STOP**

PARAMEDIC

9. Epinephrine 1:10,000 1 mg IO/IVP every 3-5 minutes (**peds Epinephrine 1:10,000 0.01 mg/kg IV/IO 1 5 min**)
10. For prolonged resuscitation, with known acidosis consider: Sodium Bicarbonate 1 mEq/kg IV/IO followed by 0.5 mEq/kg q 10 min (**peds 1 mEq/kg may repeat at 0.5 mEq/kg q 10 min**).
11. Consider:
 - a. Magnesium Sulfate 1-2 gm Slow IV push over two minutes (**No peds dosing**)
 - b. Defibrillation for possible fine ventricular fibrillation masquerading as asystole
 - c. Consider External pacing under following circumstances:
 - i. Patients who experience provider-witnessed cardiopulmonary arrest and who present with asystole, or patients who EKG converts to asystole while the EKG is being monitored.
 - ii. Prompt application of the transcutaneous cardiac pacemaker is appropriate prior to the administration of epinephrine when a patient converts to asystole as a primary rhythm during EKG monitoring by an EMT-P.
 - d. CaCl if arrest secondary to renal failure, or history of hemodialysis adult 500 mg IV (**peds 20 mg/kg**)
 - e. Consider discontinuing efforts iif criteria is met under Discontinuation/Withholding of Life Support standing order.

12. PARAMEDIC STOP

Reversible Causes:

Hypovolemia

Hypoxia

Hydrogen ion (acidosis)

Hyperkalemia/Hypokalemia

Hypothermia

Tablets (drug overdose)

Tamponade (cardiac)

Tension pneumothorax

Thrombosis – Heart

Thrombosis – Lungs

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

CARDIAC EMERGENCY

111 Ventricular Fibrillation / Pulseless Ventricular Tachycardia

Assessment

Ventricular Fibrillation, Ventricular Tachycardia

Pulseless, apneic

Confirm and record cardiac rhythm with electrodes verified in two leads on monitor

Basic

1. AED if available
2. CPR according to AHA standards appropriate for patient's age
3. Oxygen 100% and airway maintenance appropriate to the patient's condition
4. **EMT STOP**

EMT-IV

5. IV NS TKO
6. **EMT IV STOP**

PARAMEDIC

7. Defibrillate @ manufacturers recommended setting, if no change in rhythm perform two minutes of CPR and evaluate rhythm. If no change in rhythm, repeat defibrillation, perform two minutes of CPR and evaluate rhythm. If no change in rhythm, continue 5 cycles of CPR then defibrillation cycle. (peds begin at 2 j/kg).
8. Administer:
 - a. Epinephrine 1:10,000 1 mg IVP/IO (only if no other option) q 4 mins (peds Epinephrine 1:10,000 0.01 mg/kg IV/IO q 4 min).
 - b. Amiodarone 300 mg IV or IO, repeat after 5 min at 150 mg (peds 5 mg/kg)
 - c. For prolonged resuscitation or known acidosis consider: Sodium Bicarbonate 1 mEq/kg IV/IO followed by 0.5 mEq/kg q 10 min (peds 1 mEq/kg may repeat at 0.5 mEq/kg q 10 min)
9. CaCL 500 mg IVP (peds 20 mg/kg) if arrest secondary to renal failure, or history of hemodialysis.
10. Magnesium Sulfate 1-2 gm slow IV push over two minutes (no pediatric dosage).
11. **PARAMEDIC STOP**

NOTES: Defibrillation should not be delayed for any reason other than rescuer or bystander safety. Prompt defibrillation is the major determinant of survival. Time on scene should be taken to aggressively treat ventricular fibrillation. Consider transport of patient after performing CPR/defibrillation cycles, securing the airway, obtaining IV/IO access, and administering two rounds of drugs. This will provide the best chance of return of a perfusing rhythm.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

CARDIAC EMERGENCY

112 Persistent Ventricular Fibrillation/Pulseless Ventricular Tachy

Assessment

Verified execution of resuscitation checklist Unresponsive, pulseless Persisted in ventricular fibrillation/tachycardia or returned to this rhythm post ROSC/other rhythm changes

For use after Guideline 111 Ventricular Fibrillation/Pulseless Ventricular Tachycardia Protocol has been ineffective

PARAMEDIC

If there is no change in V-Fib

1. Procainamide q 2 min to max – 20 mg/min IV. Urgent situations 50 mg/min, max 17 mg/kg **(peds 15 mg/kg over 30 min)**
2. Complete 5 cycles of CPR, check rhythm and pulse
3. Repeat defibrillation. After defibrillation resume CPR without further pulse checks.

If there IS a change in V-Fib

1. Procainamide q 20 mg/min IV. Urgent situations 50 mg/min, max 17 mg/kg **(peds 15 mg/kg over 30 min)**
2. Apply new defibrillation pads at new sites
3. Complete 5 cycles of CPR, check rhythm and pulse
4. Repeat defibrillation, pause 5 seconds maximum to check rhythm, pulse
5. Resume CPR

NOTES:

- Recurrent ventricular fibrillation/tachycardia is successfully broken by standard defibrillation techniques, but subsequently returns. It is managed by ongoing treatment of correctable causes and use of anti-arrhythmic medication therapies.
- Refractory ventricular fibrillation/tachycardia is an arrhythmia not responsive to standard external defibrillation techniques. It is initially managed by treating correctable causes and antiarrhythmic medications.
- Prolonged cardiac arrests may lead to tired providers and decreased quality. Ensure compressor rotation, summon additional resources as needed, and ensure provider rest and rehab during and post event.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

CARDIAC EMERGENCY

113 Ventricular Tachycardia with a Pulse

Assessment

Confirm and record cardiac rhythm with electrodes in two leads
Check for palpable carotid pulse
Decreased/altered mental status
Dyspnea
Chest pain/discomfort, suspected AMI
Hypotension (systolic BP <90 mmHg)
CHF/pulmonary edema
Heart rate >150/min and QRS >.12 sec (3 small blocks)

Basic

1. Oxygen 100% and airway maintenance appropriate to the patient's condition
2. Glucose check
3. Supportive care
4. **EMT STOP**

EMT-IV

5. INT or IV NS TKO
6. Administer Dextrose 50%, PRN
7. **EMT IV STOP**

PARAMEDIC

8. EKG monitor (consider 12 lead, transmit if available)
9. Oxygen Saturation
10. If rhythm is stable, regular and monomorphic administer 12 mg Adenosine Rapid IV Push
11. If rhythm is possibly Torsades de Point – Go to Torsades de Point protocol.
12. If systolic BP <90 mmHg, prepare for synchronized cardioversion
 - a. Administer sedative as necessary – Valium 2-5mg IV(peds 0.2 mg/kg) OR Versed 2-5 mg IV (peds 0.1 mg/kg) and/or Pain Medications per chart below.
 - b. Synchronize cardiovert beginning at manufacturers suggested initial energy setting, until heart rate <150/min (peds begin at 0.5 j/kg).
 - c. If rhythm converts, monitor for changes, transport. If rhythm does not convert, administer Amiodarone 150 mg over 10 minutes (peds 5 mg/kg) or Procainamide 20 mg/min IV, urgent situations up to 50 mg/min, (max 17 mg/kg) (peds 15 mg/kg over 30 minutes). Reattempt cardioversion.
 - d. Contact Medical Control
13. If systolic BP >90 mmHg – stable/asymptomatic
 - a. Have patient perform Valsalva maneuver for 10 seconds and administer Amiodarone 150mg (peds 5 mg/kg) over 10 minutes.
 - b. If rhythm converts, monitor for changes, transport. If rhythm does not convert, administer Amiodarone 150 mg over 10 minutes (maximum three 150 mg doses) (peds three doses of 5 mg/kg) or Procainamide 20 mg/min IV, urgent situations up to 50 mg/min. Max 17 mg/kg. (peds 15 mg/kg over 30 minutes)

NOTE: May substitute Procainamide if Amiodarone is not available, patient allergic

14. PARAMEDIC STOP

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

all doses in mg unless indicated	6 kg	7 kg	9 kg	10 kg	12 kg	14 kg	20 kg	30 kg	40 kg	50-74 kg	75 kg	Geriatric	
Fentanyl IV/IO				10	10	15	20	25	25	50	75	25	1 mcg/kg
Morphine IV/IO				1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg	2 mcg/kg
Onitreson IV/IO							2 mg	3 mg	4 mg	4 mg	4 mg	4 mg	0.1 mg/kg

If pain not controlled, Morphine and Fentanyl dosing may be repeated once after ten minutes. Contraindicated in hemodynamically unstable patients.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

CARDIAC EMERGENCY

114 Post Resuscitation

Assessment

Completion of arrhythmia treatment

Basic

1. Oxygen 100% and airway maintenance appropriate to the patient's condition
2. Supportive care
3. **EMT STOP**

EMT-IV

4. IV NS TKO
5. Assess BP – If systolic <90 mmHg administer 250 ml NS bolus (**peds systolic BP 70 + 2x age, 20 cc/kg bolus**) repeat until BP >90 mmHg or appropriate for pediatric age.
6. **EMT IV STOP**

PARAMEDIC

7. Medications:
 - a. If anti-arrhythmic administered:
 - i. Amiodarone – 300mg IV (**peds 5 mg/kg**), if one dose given and arrhythmia persists, give second dose 150 mg
 - ii. If Lidocaine administered, start infusion drip at 2-4 mg/min
8. Continue ventilatory support to maintain ETCO₂>20, Respirations <12 ideally
9. Check blood sugar, if low treat PRN (**peds 2 cc/kg D₂₅**)
10. Initiate Induced Hypothermia protocol if appropriate
11. **PARAMEDIC STOP**

Treatment - Protocol

If patient does not tolerate ET tube, contact Medical Control for:

Valium 2-10 mg (**peds 0.2 mg/kg**) or Versed 2-5 mg IV (**peds 0.1 mg/kg**) for patient sedation.

****Use soft restraints if necessary for patient safety (to prevent extubation)**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

ENVIRONMENTAL EMERGENCY

201 Chemical Exposure

Special Note: Personnel safety is the highest priority. **Do not handle the patient unless they have been decontaminated.** All EMS treatment should occur in the Support Zone after decontamination of the patient. Appropriate PPE will be utilized.

Assessment

History of exposure to chemical
Identify substance and verify with documentation if possible
Material Safety Data Sheets (M.S.D.S.) if available
Stay within the appropriate zone for protection

BASIC

PARAMEDIC

1. Oxygen and airway maintenance appropriate to patient's condition
2. Supportive care
3. IV NS TKO or INT PRN
4. Treatment – Standing Order

If Internal Exposure and Conscious:

1. Treat as Drug Ingestion
2. Contact Medical Control

If External Exposure:

1. Remove victims clothing, jewelry, glasses, and contacts
2. Decontaminate – EMS personnel must be wearing proper protective clothing prior to helping with the decontamination process.

Powder or like substance

- a. Brush off patient
- b. Flush with copious amounts of water for at least 20 minutes, assess for hypothermia q 5 min
- c. Transport and continue flushing if necessary and if possible

Liquid substance

- a. Flush with copious amounts of water for at least 20 minutes, assess for hypothermia q 5 min
- b. Transport and continue if necessary and if possible

If Inhalation:

- a. Reconsider Self-contained Breathing Apparatus
- b. Remove victim from source ensuring there is no danger to personnel
- c. Oxygen 100% and airway maintenance appropriate to patient's condition

If Ocular:

- a. Immediately flush eye with tap water or normal saline for 15 minutes
- b. Contact Medical Control

NOTE: Coordinate through the HazMat officer prior to transport

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

ENVIRONMENTAL EMERGENCY

202 Drug Ingestion

Assessment

History of drug ingestion Level of consciousness (A lert, V erbal, P ain, or U nresponsive) Neurological status (LOC, pupils) General appearance (sweating, dry or flushed skin, signs of trauma)

Basic

1. Oxygen and airway maintenance appropriate to patient's condition
2. Ensure personnel protection from toxin and/or unruly patient
3. Glucose check
4. Supportive care
5. **EMT STOP**

EMT-IV

6. IV NS TKO or INT PRN
7. Administer Dextrose 50%, PRN (*peds 2 cc/kg D₂₅ IV*). If no IV/IO then Glucagon 1-2 mg IM (*peds 0.5-1 mg/kg*)
8. **EMT IV STOP**

PARAMEDIC

9. EKG monitor and 12 lead EKG
10. Oxygen Saturation
11. Consider Valium 2-5 mg IV (*peds 0.2 mg/kg*) or Versed 2-5 mg (*peds 0.1 mg/kg*) IVP if patient is having seizures.
12. Narcan 2 mg slow IVP (*peds 0.2 mg/kg*) if narcotic use is suspected
13. **PARAMEDIC STOP**

NOTES: Poison Control may be contacted for **INFORMATION ONLY**. Treatment modalities are given within these protocols. Further treatments will be received through Medical Control.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

ENVIRONMENTAL EMERGENCIES

SOP # 203 Electrocution / Lightning Injuries

Assessment

Presence of signs and symptoms of electrical injury Entry / exit wounds
--

Basic

1. Oxygen and airway maintenance appropriate to the patient's condition
2. Spinal immobilization if electrocution/lightning over 1000 volts or suspicion of spinal injury
3. Control any gross hemorrhage and dress wounds
4. Supportive care
5. Treat burn per burn protocol
6. **EMT STOP**

EMT-IV

7. IV LR if signs of shock 20 cc/kg bolus of fluid (**peds 20 cc/kg bolus**)
8. **EMT IV STOP**

PARAMEDIC

9. EKG – follow appropriate guideline
10. Oxygen Saturation
11. Consider 2nd IV en route to hospital
12. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

ENVIRONMENTAL EMERGENCY

204 Hyperthermia

Assessment

History of exposure to warm temperature
Usually seen with increased exertion
Febrile
May have hot and dry **or** warm and moist skin
May be hypotensive
Determine history of therapeutic drug use (antipsychotics); history of substance abuse (cocaine, amphetamines, etc)
Poor skin turgor
Signs of hypovolemic shock
History of infection or illness
Drug use
Dark urine – Suggest muscle breakdown and possible kidney damage
Tachycardia
Hyperventilation
Hypertension
Neurologic – Light headedness, confusion to coma, seizures

Basic

1. Oxygen and airway maintenance appropriate to the patient's condition
2. Remove clothing, apply wet linen or wet abdominal pads to groin and axillary areas
 - a. Expose to circulating air
 - b. **DO NOT** cool patient to the point of shivering
3. GENTLY massage extremities to prevent cold induced vasoconstriction
4. Move patient to protected environment (shade, AC, etc.)
5. Glucose check
6. **EMT STOP**

EMT-IV

7. IV NS or LR 20 cc/kg bolus (**peds 20 cc/kg bolus**)
 - a. Repeat second bolus of fluids if needed
 - b. Oral rehydration if patient able to maintain airway IV NS – rate proper for patient condition
8. Administer Dextrose 50%, PRN

9. EMT IV STOP

PARAMEDIC

10. EKG Monitor
11. Oxygen Saturation
12. **PARAMEDIC STOP**

Remember: Time is of the essence in decreasing the patient's body temperature

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

NOTES: Hyperthermia may be caused by one of the following:

Antipsychotic medications and major tranquilizers: Phenothiazine (Thorazine®),

Butyrophenones (Haldol®)

Cyclic antidepressants such as: Elavil®, Norpramin®, Tofranil®

Amphetamines

Monoamine oxidase inhibitors such as: Nardil®, Marplan®

Anticholinergic drugs such as: Atropine, Congentin, Scopolamine

Illicit drugs: Cocaine, PCP, LSD, Ecstasy (MDMA)

The use of ice cold saline is not appropriate. Use fluids that are below ambient temperature.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

ENVIRONMENTAL EMERGENCY

205 Hypothermia

Assessment

History of exposure to cold temperature including duration
Core body temperatures $<92^{\circ}$
Drug/Alcohol use
CNS Depressants
Examine for associated trauma
Immersion in cold water
Predisposing medical condition
Signs: Vital signs, Bradycardia, Hypotension, Cold extremities, Neurologic (confusion, altered LOC, coma)

Basic

1. Oxygen 100% at 12-15 Lpm with BVM
2. Remove the patient from the cold environment
3. Remove wet clothing and cover with warm, dry blankets
4. Evaluate pulse for one full minute (Do not perform CPR until NO PULSE is confirmed)
5. Handle patient gently (*aggressive handling may trigger V-Fib*)
6. Do not allow patient to walk or exert themselves
7. Do not massage extremities
8. Glucose check
9. **EMT STOP**

EMT-IV

10. IV NS 75 cc/hr warmed if possible (*peds 4 cc/kg/hr max 150 cc/hr*)
11. Administer Dextrose 50%, PRN
12. **EMT IV STOP**

PARAMEDIC

13. EKG Monitor, No CPR if bradycardic rhythm exists
14. If patient in coma, Narcan 2 mg IVP (*peds 0.1 mg/kg slow IVP*)
15. If body temperature $>85^{\circ}$ F – follow normal arrest protocols
16. If body temperature $>85^{\circ}$ F and patient in V-Fib:
 - a. Defibrillate @ 100j, if no change begin CPR ***defib at 2 min intervals, increase joules at each interval until 200j max*** (120j, 150j, 200j) (*peds 2 j/kg then 4 j/kg*)
 - b. Withhold meds until and further shocks until patient warmed to $>85^{\circ}$ F
 - c. Continue CPR and rewarming attempts
17. **PARAMEDIC STOP**

NOTES: If patient is alert and responding appropriately, rewarm actively:

Heat packs or warm water bottles to the groin axillary and cervical areas

If patient is unresponsive, rewarm passively:

Increase the room temperature gradually, cover with blankets

If the following are signs and symptoms found at varying body temperature:

95° - amnesia, poor judgment, hyperventilation, bradycardia, shivering

90° - loss of coordination (drunken appearance), decreasing rate and depth of respirations, shivering ceases, bradycardia

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

85° - decreased LOC, slow respirations, atrial fibrillation, decreased BP, decreased heart rate, ventricular irritability

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

ENVIRONMENTAL EMERGENCY

206 Near Drowning

Assessment

History compatible with near drowning
Suspect hypothermia in "cold water" near drowning
Suspect cervical spine injury

Basic

1. Oxygen and airway maintenance appropriate to patient's condition
The Heimlich Maneuver may be indicated for airway obstruction
Gastric decompression may be necessary to ensure adequate respirations or ventilations
If necessary, ventilations may be started prior to patients removal from water
2. Remove patient from water, clear airway while protecting the C-spine ASAP
3. ***If patient is unconscious and pulseless – refer to the Cardiac Arrest Protocol***
4. ***If Hypothermic – go to hypothermia protocol***
5. Supportive care
6. **EMT STOP**

EMT-IV

7. INT or IV NS TKO, if hypotensive give 20 cc/kg bolus of fluid (**peds 20 cc/kg**)
8. **EMT IV STOP**

PARAMEDIC

9. EKG Monitor and treatment specific for the arrhythmia
10. **PARAMEDIC STOP**

NOTE: Reinforce the need to transport and evaluation for all patients with a submersion incident.
Consider C-Spine immobilization

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

ENVIRONMENTAL EMERGENCY

207 Nerve Agent Exposure

Special Note: Personnel safety is the highest priority. Do not handle the patient unless they have been decontaminated. All EMS treatment should occur in the Support Zone after decontamination of the patient. Appropriate PPE will be utilized.

Assessment

History of exposure
Hyper-stimulation of muscarinic sites (smooth muscles, glands) and nicotinic sites (skeletal muscles, ganglions)
Increased secretions: Saliva, tears, runny nose, secretions in airways, secretions in GI tract, sweating
Pinpoint pupils
Narrowing airway
Nausea, vomiting, diarrhea
Fasciculations, Flaccid paralysis, general weakness
Tachycardia, hypertension
Loss of consciousness, convulsions, apnea

Basic

1. Oxygen and airway maintenance appropriate to the patient's condition
2. Depending on signs and symptoms administer Nerve Agent Antidote kit
 - a. Mild – Increased secretions, pinpoint pupils, general weakness
 - i. Decontamination, supportive care
 - b. Moderate – mild symptoms and respiratory distress
 - i. 1 Nerve Agent antidote kit
 - ii. May be repeated in 5 min, prn
 - c. Severe – unconsciousness, convulsions, apnea
 - i. 3 Nerve Agent Antidote Kits
3. Keep patient warm
4. **EMT STOP**

EMT-IV

5. IV NS TKO
6. **EMT IV STOP**

PARAMEDIC

7. EKG monitor
8. 10 mg Valium (*peds 0.2 mg/kg*) or 2-5 mg Versed IV for seizures (*peds 0.1 mg/kg*)
9. Oxygen saturation
10. **PARAMEDIC STOP**

Treatment – Protocol:

Repeated doses of Atropine may be required after Nerve Agent Antidote Kit(s) given

NOTE: This is for mass casualty situations and is dependent on supplies available.
There is no contraindication for the use of a Nerve Agent Antidote Kit in the case of true nerve agent exposure.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

ENVIRONMENTAL EMERGENCY

208 Poisonous Snake Bite

Assessment

Protect yourself from the exposure of snakebite. Snakes can envenomate up to one hour after death.

Determine type of snake if possible, time of bite, and changes in signs and symptoms since occurrence.

If possible, transport the **DEAD** snake in a secured vessel with the victim for identification

Parasthesia (numbing or tingling of mouth, tongue, or other areas)

Local pain

Peculiar or metallic taste

Chills, N&V, headache, dysphagia

Hypotension

Fever

Local edema, blebs (blister or pustule jewel), discoloration

Bite wound configuration

Basic

1. Remove rings and bracelets from the patient
2. Oxygen and airway maintenance appropriate to patient's condition
3. Immobilize affected area keeping extremities in neutral position
4. Mark progression of swelling at the time of initial assessment and q 5 minutes
5. Supportive care
6. **EMT STOP**

EMT-IV

7. INT or IV NS TKO, if hypotensive 20 cc/kg (*peds 20 cc/kg*)
8. **EMT IV STOP**

PARAMEDIC

9. EKG monitor
10. Oxygen saturation
11. **PARAMEDIC STOP**

Treatment – Protocol:

Valium or Versed may be indicated if anxiety is overwhelming. Contact Medical Control prior to initiating therapy.

NOTE: DO NOT USE ice, tourniquets or constricting bands at the bite site or proximal to bite site. If already applied, remove. Do NOT place IV in affected extremity if possible.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

ENVIRONMENTAL EMERGENCY

209 Radiation/Hazmat

Assessment

Extent of radiation/chemical exposure (number of victims, skin vs. inhalation exposure) Nature of exposure Symptoms exhibited by patient Neurologic status (LOC, pupil size) General appearance (dry or sweaty skin, flushed, cyanotic, singed hair) Associated injuries Decontamination prior to treatment

Basic

1. Oxygen and airway maintenance appropriate to the patient's condition, pulse oximetry (keep sats >98%)
2. If eye exposure, irrigate for a minimum of 20 minutes
3. Treat associated injuries (LSB, limb immobilization, wound treatment)
4. Supportive care
5. Treat per burn protocol
6. **EMT STOP**

EMT-IV

7. INT or IV NS/LR, if hypotensive 20 cc/kg (peds 20 cc/kg)
8. **EMT IV STOP**

PARAMEDIC

9. EKG Monitor
10. Oxygen saturation
11. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

ENVIRONMENTAL EMERGENCY

210 Carbon Monoxide Exposure

Assessment

Known or suspected CO exposure (Active fire scene)
Suspected source/duration exposure
Age
Known or possible pregnancy
Measured atmospheric levels
Past medical history, medications
Altered mental status/dizziness
Headache, Nausea/vomiting
Chest pain/respiratory distress
Neurological impairments
Vision problems/reddened eyes
Tachycardia/tachypnea
Arrhythmias, seizures, coma

BASIC IV PARAMEDIC

Measure Carbon Monoxide COHb % (SpCO)

If SpCO is 0%-5% no further medical evaluation of SpCO is required*

SpCO <15% and SpO₂ >90%

If patient has NO symptoms of CO and/or Hypoxia no treatment for CO exposure is required*

Recommend that smokers seek smoking cessation treatment

Recommend evaluation of home/work environment for presence of CO

SpCO <15% and SpO₂ >90% that show symptoms of CO and/or Hypoxia; transport to ED

>15% Oxygen and NRB and transport to ED

If cardiac/respiratory/neurological symptoms are also present go to the appropriate protocol

If monitoring responders at fire scene, proceed with Scene Rehabilitation Protocol where applicable.

NOTES:

- *Fetal hemoglobin has a greater attraction for CO than maternal hemoglobin. Females who are known to be pregnant or who could be pregnant should be advised that EMS measured SpCO levels reflect the adult's level, and that fetal COHb levels may be higher. Recommend transport for a hospital evaluation for any CO exposed pregnant person.
- The absence (or low detected levels of COHb is not a reliable predictor of firefighter or victim exposure to other toxic byproducts of fire.
- In obtunded fire victims, consider HazMat Cyanide treatment protocol.
- The differential list for CO toxicity is extensive. Attempt to evaluate other correctable causes when possible.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCIES

300 Medical Complaint Not Specified under other Protocols

Assessment

Pertinent history to complaint
Allergies/Medications taken or prescribed
Onset
Provocation
Quality of Pain / Discomfort
Relieved by
Signs and symptoms
Type of pain (sharp, dull, crushing) and time of duration

Basic

1. Oxygen and airway maintenance appropriate for the patient's condition
2. Patient positioning appropriate for condition
3. Glucose check, PRN
4. Supportive care
5. **EMT STOP**

EMT-IV

6. INT or IV NS TKO unless signs of shock, then 20 cc/kg fluid bolus
7. **EMT IV STOP**

PARAMEDIC

8. EKG monitor PRN
9. 12 Lead EKG PRN
10. Oxygen saturation
11. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

301 Abdominal Pain (non-traumatic)/Complaint/Nausea and Vomiting

Assessment

Description of pain, onset, duration, location, character, radiation
Aggravating factors, last menstrual periods in females, vaginal bleeding in females
Recent trauma
History of abdominal surgery or problems
Blood in urine, vomitus, or stool
Nausea, vomiting, diarrhea
Fever, diaphoresis, jaundice
Abdomen: tenderness, masses, rigidity, hernia, pregnancy, distension, guarding

Basic

1. Oxygen and airway maintenance appropriate to the patient's condition
2. Allow patient to assume comfortable position or place patient supine, with legs elevated with flexion at hip and knees unless respiratory compromise or a procedure contraindicates
3. Supportive care
4. **EMT STOP**

EMT-IV

5. IV NS 20 cc/kg, if signs of shock (peds 20 cc/kg bolus)
6. **EMT IV STOP**

PARAMEDIC

7. EKG Monitor
8. Oxygen saturation
9. Ondansetron (Zofran) 2-4 mg IV (peds 0.15 mg/kg IV) if intractable nausea and persistent vomiting and no signs of shock. Use lower dose initially especially in the elderly.
10. Consider second IV en route if patient exhibits signs of shock
11. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

302 Acute Pulmonary Edema / CHF

Assessment

Focus assessment of Airway, Breathing, and Circulation
Shortness of breath
Cyanosis
Pedal Edema
Profuse sweating, or cool and clammy skin
Erect posture
Distended neck veins (engorged, pulsating) – late sign
Bilateral rales/wheezes
Tachycardia (rapid pulse >100 bpm)
History of CHF or other heart disease, or renal dialysis
Lasix or Digoxin on medication list

Basic

1. Oxygen and airway maintenance appropriate to patient's condition. If respiration is less than 10/min, or greater than 30/min, consider assisting breathing with BVM and 100% Oxygen
2. Keep patient in upright seated position
3. If Systolic BP is >110 and the patient is symptomatic, **assist** patient with 1 nitroglycerine dose sublingually and reassess every 5 minutes. (Refer to the medication assist procedure) Maximum of three doses.
4. If the patient has Albuterol Inhalation Treatment prescribed, assist them with one treatment
5. **EMT STOP**

EMT-IV

6. INT
7. **EMT IV STOP**

PARAMEDIC

8. If Systolic BP >90 mmHg
 - a. Assess for crackles, wheezes, or rales, JVD, peripheral edema, cyanosis, diaphoresis, respiratory rate >25/min or <10/min then:
 - i. One Nitroglycerine SL spray and apply 1" of Nitroglycerine to chest wall. Repeat Nitroglycerine spray q 5 minutes after initial spray. Discontinue therapy if systolic BP <100 mmHg;
 - ii. Albuterol 2.5 mg/3 cc NS via nebulizer q 5 minutes, to maximum of 3 doses;
9. If Systolic BP <90 mmHg
 - a. Continue oxygen and initiate rapid transport, see hypotension protocol, contact Medical Control immediately
10. Begin CPAP, if no contraindications.
11. **PARAMEDIC STOP**

Treatment – Protocol:

Dopamine 400 mg/250 cc D5W IV admix, begin @ 15 cc/hr (titrate) if patient is hypotensive and symptomatic. (Systolic pressure <90 mmHg)

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

303 Anaphylactic Shock

Assessment

Contact with a known allergen or with substances that have a high potential for allergic reactions
Sudden onset with rapid progression of symptoms
Dyspnea, presents with an audible wheeze on confrontation, generalized wheeze on auscultation, decreased air exchange on auscultation
Generalized urticaria, erythema, angioedema especially noticeable to face and neck
Complaint of chest tightness or inability to take a deep breath

Basic

1. Position of comfort, reassure
2. Oxygen and airway maintenance appropriate for patient's condition, pulse oximetry
3. If patient has a prescribed Epinephrine for Anaphylaxis, assist patient with administration
4. **EMT STOP**

EMT-IV

5. IV NS or LR, large bore @ TKO – If hypotensive 20 cc/kg bolus (*peds 20 cc/kg bolus*)
6. Epinephrine 1:1000 0.3 mg IM (*peds Epinephrine 1:1000 0.01 mg/kg IM, max dose is 0.3 mg*)
7. **EMT IV STOP**

PARAMEDIC

8. EKG Monitor
9. Oxygen saturation
10. Diphenhydramine (Benadryl) 25-50 mg IV or deep IM (*peds 1 mg/kg IVP*)
11. Solumedrol 62.5 mg (if small in stature, sensitive to steroids, on chronic steroid therapy) or 125 mg IVP (*peds contact Medical Control*)
12. Albuterol Inhalation Treatment if wheezing is present and persists post Epinephrine IM/IV
13. Consider Glucagon 1-2 mg IM/IV/IN if unresponsive to Epinephrine, especially if taking Beta Blockers
14. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

304 Cerebrovascular Accident (CVA)

Assessment

Altered Level of consciousness

Intense or unusually severe headache of sudden onset or any headache associated with decreased level of consciousness or neurological deficit, unusual and severe neck or facial pain

Aphasia/Dysphasia (unable to speak, incoherent speech, or difficulty speaking)

Facial weakness or asymmetry (paralysis of facial muscles, usually noted with the patient speaks or smiles); may be on the same side or opposite side from limb paralysis

In-coordination, weakness, paralysis, or sensory loss of one or more limbs; usually involves one half of the body particularly the hand

Ataxia (poor balance, clumsiness, or difficulty walking)

Visual loss (monocular or binocular); may be a partial loss of visual field

Intense vertigo, double vision, unilateral hearing loss, nausea, vomiting, photophobia, or phonophobia

Basic

1. Oxygen and airway maintenance appropriate for the patient's condition
2. Continually monitor airway due to decreased gag reflex and increased secretions
3. Conduct a brief targeted history and physical exam. Establish time of onset. Document witness to Time of Onset and their contact information. Include the Cincinnati Pre-Hospital Stroke Scale (next page)
4. Glucose check
5. Monitor airway due to decreased gag reflex and increased secretions (be prepared to intubate)
6. Maintain body heat, protect affected limbs from injury, anticipate seizures
7. If seizure present follow seizure protocol
8. If shock signs present follow shock protocol
9. **EMT STOP**

EMT-IV

10. IV NS TKO (30 cc/hr) or INT
11. Administer Dextrose 50%, PRN

12. EMT IV STOP

PARAMEDIC

13. EKG Monitor
14. Oxygen saturation
15. If trauma suspected, spinal stabilization. Elevate head 30°
16. Narcan 2 mg IVP (*peds 0.1 mg/kg slow IVP*) if narcotics suspected
17. Complete thrombolytic screening protocol
18. Complete Stroke assessment scale
19. If positive for CVA, recommend transport to stroke center
20. Contact Medical Control if SBP >220 or DBP >140 for authorization to give Nitro spray q 5 min.
Goal is to reduce blood pressure by 15%

21. PARAMEDIC STOP

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE

THE CINCINNATI PREHOSPITAL STROKE SCALE

BASIC PARAMEDIC

Facial Droop (have patient show teeth or smile):

Normal: Both sides of face will move equally well.

Abnormal: One side of face does not move as well as the other side

Arm Drift (patient closes eyes and holds both arms out):

Normal: Both arms move the same or both arms do not move at all.

Findings, such as pronator grip may be helpful

Abnormal: One arm does not move or one arm drifts down compared with the other

Speech (have the patient say "you can't teach an old dog new tricks):

Normal: Patient uses correct words with no slurring

Abnormal: Patient slurs word(s), uses inappropriate words, or is unable to speak

For evaluation of acute, non-comatose, non-traumatic neurologic complaint.

Facial/Smile or Grimace:		
Have the patient show teeth or smile.	Normal: Both sides of the face move equally	Abnormal: Left or right side of face does not move as well
Arm Drift:		
Have the patient close both eyes and hold both arms straight out for 10 seconds	Normal: Arms move equally or do not move	Abnormal: Left or right arm does not move or drifts down
Speech:		
Have the patient repeat a simple phrase such as "It is sunny outside today"	Normal: Words stated correctly without slurring	Abnormal: Patient slurs words or uses the wrong words, or is unable to speak.

PREHOSPITAL SCREEN FOR THROMBOLYTIC THERAPY

BASIC PARAMEDIC

Complete this report for all patients symptomatic for Acute Coronary Syndrome or CVA.

Report to the Emergency Department Physician/Nurse any positive findings. Document all findings in the PCR.

Witness/next of kin contact info: _____		
Time of onset of the symptoms: _____		
Systolic BP >240 mmHg	☐ Yes	☐ No
Diastolic BP >110 mmHg	☐ Yes	☐ No
Right arm vs. Left arm Systolic BP difference >15 mmHg	☐ Yes	☐ No
History of recent brain/spinal cord surgery, CVA, or injury	☐ Yes	☐ No
Recent trauma or surgery	☐ Yes	☐ No
Bleeding disorder that causes the patient to bleed excessive	☐ Yes	☐ No
Prolonged CPR (>10 minutes)	☐ Yes	☐ No
Pregnancy	☐ Yes	☐ No
Taking Coumadin, Aspirin, or other blood thinners	☐ Yes	☐ No

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

305 Croup

Assessment

History

Viral infections resulting in inflammation of the larynx, trachea

Seasonal – Late fall/early winter

Children under 6 yrs old with cold symptoms for 1-3 days

Hoarseness

Barking, Seal-like cough

Stridor, NOT wheezes

Low grade fever

No history of obstruction, foreign body, trauma

Basic

1. Oxygen and airway maintenance appropriate to the patient's condition
2. Allow patient to assume comfortable position or place patient supine
3. Supportive care
4. **EMT STOP**

EMT-IV

5. **EMT IV STOP**

PARAMEDIC

6. Nebulized Epinephrine 1:1000
 - a. 1 mg diluted to 2.5-3 cc with saline flush, nebulized (mask or blow-by)
 - b. May repeat up to 3 total doses
 - c. If the patient has significant distress, 3 ml (3 mg) diluted with 2.5 to 3 cc saline flush may be administered as initial aerosol
7. Contact Medical Control for subsequent aerosols
8. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

306 Family Violence

Assessment

Fear of household member
Reluctance to respond when questioned
Unusual isolation, unhealthy, unsafe living environment
Poor personal hygiene/inappropriate clothing
Conflicting accounts of the incident
History inconsistent with injury or illness
Indifferent or angry household member
Household member refused to permit transport
Household member prevents patient from interacting openly or privately
Concern about minor issues but not major ones
Household with previous violence
Unexplained delay in seeking treatment

BASIC

PARAMEDIC

*Direct questions to ask when alone with patient and time available:

1. Has anyone at home ever hurt you?
2. Has anyone at home touched you without your consent?
3. Has anyone ever made you do things you didn't want to do?
4. Has anyone taken things that were yours without asking?
5. Has anyone scolded or threatened you?
6. Are you afraid of anyone at home?

**Signs and Symptoms

- Injury to soft tissue areas that are normally protected
- Bruise or burn in the shape of an object
- Bite marks
- Rib fracture in the absence of major trauma
- Multiple bruising in various stages of healing

Treatment – Standing Order

1. Patient care is first priority
2. If possible remove patient from situation and transport
3. Police assistance as needed
4. If sexual assault follow sexual assault protocol
5. Obtain information from patient and caregiver
6. Do not judge
7. Report suspected abuse to hospital after arrival. Make verbal and written report.

NOTE: National Domestic Violence Hotline 1 (800) 799- SAFE (7233)

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

307 Hyperglycemia Associated with Diabetes

Assessment

History of onset
Altered level of consciousness
Pulse: tachycardia, thready pulse
Respirations Kussmaull-Kien – air hunger)
Hypotension
Dry mucous membranes
Skin may be cool (consider Hypothermia)
Ketone odor on breath (Acetone smell)
Abdominal pain, nausea and vomiting
History of polyuria or polydipsia (excessive urination or thirst)
Blood glucose determination

Basic

1. Oxygen and airway maintenance appropriate to patient's condition. Suction airway as needed.
2. Glucose check
3. Supportive care
4. **EMT STOP**

EMT-IV

5. IV NS TKO or INT. Consider 250-500 cc NS bolus, only in patients with signs of dehydration, vomiting or DKA
6. **EMT IV STOP**

PARAMEDIC

7. EKG Monitor
8. Oxygen saturation
9. If BS >250 mg/dL, start 10-20 cc/kg infusions of NS (**peds 4 cc/kg/hr max 150 cc/hr DO NOT bolus**), then reassess blood sugar
10. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

308 Hypertensive Crisis

Assessment

Decreased/altered LOC
Headache, blurred vision, dizziness, weakness
Elevated blood pressure (if systolic BP >220 mmHg and/or Diastolic BP >140 mmHg)
Dyspnea, peripheral or pulmonary edema
Cardiac dysrhythmia, Neurological deficits

Basic

1. Oxygen and airway maintenance appropriate for patient's condition
2. Position of comfort, elevation of head is preferred
3. Keep patient calm, reassure
4. Glucose check
5. **EMT STOP**

EMT-IV

6. INT or IV NS TKO
7. Administer Dextrose 50%, PRN
8. **EMT IV STOP**

PARAMEDIC

9. Evaluate cardiac rhythm for dysrhythmia and treat appropriately with medical direction (contact Medical Control prior to initiation of anti-arrhythmic therapy)
10. Assess for hypoglycemia; if <80 mg/dL administer 12.5-25 gms D₅₀ (**peds 2 cc/kg D₂₅ IV/IO**) through IV with fluids.
11. If motor/neuro deficits present, go to stroke protocol
If no motor/neuro deficits:
 - a. If systolic BP is < 20 mmHg, contact Medical Control, monitor patient changes
 - b. If systolic BP is > 220 mmHg and/or diastolic BP is greater than 140 mmHg, Nitroglycerine one spray SL q 3-5 min until noted decrease in BP by 15%. May use nitro paste 1 inch to chest wall, remove if BP drops 15% from the original reading.

12. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

309 Hypoglycemia

Assessment

History of onset of event
History of Insulin excess (overdose, missed meal, exercise, vomiting, or diarrhea)
Confusion, agitation, headaches, or comatose
Pulse rate (normal to tachycardia)
Respirations (shallow, slow)
Skin (sweaty, often cool)
Flaccid muscle tone
Grand Mal seizure
Fecal, urinary incontinence

Basic

1. Oxygen and airway maintenance appropriate to patient's condition (snoring respirations is a sign of an INADEQUATE airway)
2. Glucose check
3. If patient is known diabetic and is conscious with an intact gag reflex, administer on tube of instant Glucose and reassess
4. Supportive care
5. **EMT STOP**

EMT-IV

6. IV NS TKO
 - a. If patient is conscious and symptomatic, one tube of instant glucose
 - b. If patient is unresponsive, 10-25 grams of Dextrose 50% followed by a 20 cc flush or IV fluids

7. EMT IV STOP

PARAMEDIC

8. EKG monitor
9. Oxygen saturation
10. If blood sugar is less than 80 mg/dL and symptomatic: administer 25 grams of D₅₀, **(peds 2 cc/kg D₂₅ IV/IO; if needed an admixture of D₅₀ and Normal Saline can be obtained through mixing 1 cc to 1 cc for the treatment of symptomatic hypoglycemia in pediatric patients)** reassess blood sugar level q 15 min, administer 10-25 D₅₀ PRN
11. If unstable to establish IV access, Glucagon 1-2 mg IM, **(peds Glucagon 0.5-1mg IM)**
12. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

310 Medications at Schools

To provide authorization for the use of medications not commonly used

Assessment

The patient must exhibit the signs and symptoms for which the medication is prescribed

Basic EMT-IV

1. Oxygen and airway maintenance appropriate to the patient's condition
2. Other treatments will be in accordance with the EMS BLS/ALS SOPs

PARAMEDIC

3. Necessary medication(s) administration as requested by school official(s)
 - a. Schools must provide the medication(s) to be administered
 - b. Schools must provide a written copy of the physician order and care plan for attachment to the patient care report
 - c. This documentation by the patient's primary physician should list the following:
 - i. Name of the patient
 - ii. Name of the primary physician
 - iii. Document must be signed by the primary physician
 - iv. Contact phone number of the primary physician
 - v. Name of medication(s)
 - vi. Signs and symptoms for which the medication(s) is/are prescribed
 - vii. Dosage of the medication(s)
 - viii. Number of repeat doses of the medication(s)
 - ix. Route(s) of administration(s)
 - x. Potential side effects of the medication(s)
4. Medication(s) will only be administered if the patient meets the signs and symptoms for that medication
5. Copies of the care plan and physician order must be attached to the patient care report
6. If the medication(s) is/are not administered documentation must include reasons for withholding
7. Whenever medication is administered under these circumstances transport is mandatory

NOTE: If you have any additional questions or concerns please contact Medical Control.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

311 Non-Formulary Medications

To provide authorization for the use of medications not commonly used within the current guidelines.
For Emergency Use Only.

Assessment

The patient must exhibit the signs and symptoms for which the medication is prescribed
--

Basic EMT-IV

1. Oxygen and airway maintenance appropriate for patient's condition
2. Other treatment will be in accordance with the BLS/ALS SOPs

PARAMEDIC

3. Necessary medication(s) administration as requested by caregiver(s):
 - a. Caregiver must provide the medication(s) to be administered
 - b. Caregiver must provide a written copy of the physician order and care plan for attachment to the patient care report
 - c. This documentation by the patient's physician should list the following:
 - i. Name of the patient
 - ii. Name of primary physician
 - iii. Document must be signed by the primary physician
 - iv. Contact phone number of the primary physician
 - v. Name of the medication(s)
 - vi. Signs and symptoms for which the medication(s) is prescribed
 - vii. Dosage of the medication(s)
 - viii. Number of repeat doses of the medication(s)
 - ix. Route(s) of administration(s)
 - x. Potential side-effects of medication(s)
4. Medication(s) will only be administered if the patient meets the signs and symptoms for that medication.
5. Copies of the care plan and physician order must be attached to the patient care report
6. If the medication(s) is/are not administered documentation must include those reasons for withholding
7. Whenever medication is administered under these circumstances, transport is mandatory

NOTE: If you have any additional questions or concerns please contact Medical Control.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

312 Respiratory Distress (Asthma/COPD)

Assessment

Mild attack – Slight increase in respiratory rate. Mild wheezes. Good skin color.

Moderate attack – Marked increase in respiratory rate. Wheezes easily heard. Accessory muscle breathing

Severe attack – Respiratory rate more than twice normal. Loud wheezes or so tight no wheezes are heard, patient anxious. Grey or ashen skin color.

Hx – COPD, Emphysema, Asthma, or other restrictive lung disease

Respiratory rate greater than 25 per minute or less than 10 per minute

Labored respiration, use of accessory muscles or tripodding

Breath sounds: Bilaterally diminished, dry crackles, wheezing

Cyanosis/Diaphoresis

Use of short sentences

Unilateral breath sounds

Basic

1. Oxygen and airway maintenance appropriate for patient's condition
2. If the patient has prescribed Albuterol Inhalation treatment, assist the patient with 2.5 mg/ 3 ml NS and start the oxygen flow rate at 6 Lpm or until the appropriate mist is achieved.
3. If patient uses a MDI, assist patient with one dose
4. **EMT STOP**

EMT-IV

5. INT or IV NS TKO
6. Administer Albuterol 2.5 mg/ 3 ml NS and start the oxygen flow rate at 6 Lpm or until the appropriate mist is achieved
7. **EMT IV STOP**

PARAMEDIC

8. O₂ Saturation and capnography
9. EKG monitor (consider 12 lead, transmit if available)
10. Albuterol Inhalation Treatment 2.5 mg / 3 mL NS q 5-15 min. (peds 2.5 mg/ 3 ml NS q 5-15 min)
11. In severe cases consider Solumedrol 62.5 mg (if small in stature, sensitive to steroids, on chronic steroid therapy) or 125 mg IV (peds contact Medical Control)
12. Epinephrine 1:1000 0.3-0.5 mg IM (peds Epinephrine 1:1000 0.01 mg/kg IM, max dose is 0.3 mg)
13. Use CPAP if available and no contraindications
14. **PARAMEDIC STOP**

Peds: consult Medical Control prior to administering Solumedrol

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

313 Seizures

Assessment

Seizure (onset, duration, type, post-seizure, level of consciousness) Medical (diabetes, headaches, drugs, alcohol, seizure history) Physical (seizure activity, level of consciousness, incontinence, head and mouth trauma, vital signs) Trauma (head injury or hypoxia secondary to trauma)

Basic

1. Oxygen and airway maintenance appropriate to patient's condition
2. Protect patient from injury during active seizures
3. Glucose check
4. If patient is actively seizing, consider therapy if:
 - a. Unstable ABC's exist, patient has been actively seizing for 5 or more minutes, patient has underlying disease or condition that will be adversely affected if seizures continue (trauma, COPD, pregnancy, severely hypertensive).

5. EMT STOP

EMT-IV

6. IV NS TKO or INT
7. Administer Dextrose 50%, PRN
8. C-Spine precautions if appropriate
9. If febrile cool as per hyperthermia protocol and monitor

10. EMT IV STOP

PARAMEDIC

11. EKG monitor- treat dysrhythmia per protocol
12. If no IV available and blood glucose levels are <80 mg/dl, Glucagon 1-2 mg IM (*peds 0.5-1 mg IM*)
13. Adults – If actively seizing:
 - a. Valium SLOW IVP/IO 2-5 mg versed 2-5 mg IV/IO may repeat if seizure continues
 - b. If narcotic overdose, Narcan 2 mg IV/IO/IN
14. *Peds:*
 - a. *Valium 0.2 mg/kg or versed 0.1 mg/kg IV/IO*
 - b. *Valium 0.5 mg/kg rectal*
 - c. *If seizure persists for 4 minutes repeat medication once*
 - d. *Narcan 0.1 mg/kg up to 2 mg, titrated to effect if narcotic use is suspected*

15. PARAMEDIC STOP

Specifically evaluate for: active bleeding, trauma, eye deviation, pupil equality, mouth or tongue bleeding, Urinary or fecal incontinence, lack of arm or leg movement or tone.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

314 Sexual Assault

Assessment

Traumatic Injuries

BASIC IV PARAMEDIC

1. Oxygen and airway maintenance appropriate to patient's condition
2. Be calm and assuring with caring and sensitivity toward the patient
3. DO NOT make unnecessary physical contact with the patient
4. If possible, have a witness of the same gender present with the victim at all times
5. Wrap a plastic sheet around the victim if possible
6. DO NOT inspect genitals unless evidence of uncontrolled hemorrhage, trauma, or severe pain is present
7. DO NOT allow patient to shower or douche
8. Collect patient's clothing when possible
 - a. Place clothing in plastic sheet or separate plastic/paper bags with ID labels and found location
 - b. Have all sheets placed in plastic/paper bag with patient at facility
 - c. Notify all staff of clothing samples
9. Transport patient to appropriate facility for treatment and examination
10. Contact dispatch to notify Police of possible Sexual Assault

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

315 Sickle Cell Anemia

Assessment

History of Sickle Cell Anemia
Signs of infection
Hypoxia
Dehydration
Painful joint(s)
Limited movement of joints

Basic

1. Oxygen and airway maintenance appropriate to patient's condition
2. Supportive care
3. **EMT STOP**

EMT-IV

4. IV NS bolus 20 cc/kg (peds 20 cc/kg bolus)
5. **EMT IV STOP**

PARAMEDIC

6. EKG Monitor
7. Oxygen Saturation (keep oxygen sats >95%)
8. If pain persists – Administer medications per chart below
9. **PARAMEDIC STOP**

all doses in mg unless indicated	5 kg	7 kg	9 kg	10 kg	12 kg	14 kg	20 kg	30 kg	40 kg	50-74 kg	75 kg	275 kg	Geriatric	
Fentanyl IV/IO				10	10	15	20	25	25	50	75	25		1 mcg/kg
Morphine IV/IO				1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg		2 mcg/kg
Onoventin IV/IO							2 mg	3 mg	4 mg	4 mg	4 mg	4 mg		0.1 mcg/kg

If pain not controlled, Morphine and Fentanyl dosing may be repeated once after first infusion. Contraindicated in hemodynamically unstable patients.

NOTES:

Use caution in administering narcotic to a patient with SpO2 <95%

May substitute for Morphine: Nubain 2-10 mg IV (peds 0.2 mg/kg) OR Stadol 0.5-2 mg IV (no use in pediatrics)

ALL PATIENTS WHO RECEIVE NARCOTIC MEDICATION MUST BE TRANSPORTED FOR FURTHER EVALUATION

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

316 Unconscious / Unresponsive / Altered Mental Status

Assessment

Unconscious or unresponsive with vital signs
Any patient not responding appropriately to verbal or painful stimulus
Altered level of consciousness with vital signs
Assess for head trauma
Assess for Hypo/Hyperthermia, hemiparesis, and fever, OD, Hypoglycemia
Peds – less commonly associated with intussusception (fold of one intestine into another), intracranial catastrophe, metabolic disorder

Basic

1. Oxygen and airway maintenance appropriate for patient's condition
2. Glucose check
3. Assess for underlying causes: head trauma, hypovolemia, hypothermia, hemiparesis, and fever and treat accordingly
4. **EMT STOP**

EMT-IV

5. IV NS TKO or INT
6. If Hypoglycemic, 12.5-25 grams D₅₀ IVP (peds 2 cc/kg D₂₅ IV/IO) through IV with fluids.
7. **EMT IV STOP**

PARAMEDIC

8. EKG Monitor
9. Oxygen Saturation
10. Administer Narcan 2 mg slow IVP (peds <5 yo – 0.1 mg/kg up to 2 mg IV, >5 yo – 2 mg IV)
11. If hypoglycemic and unable to maintain airway, and CVA is not suspected, and the patient has a history of diabetes:
 - a. 12.5-25 grams D50 IVP (peds 2 cc/kg D₂₅ IV/IO)
 - b. If no IV access Glucagon 1-2 mg IM, (peds if no IV access Glucagon 0.5-1 mg IM)
12. Contact Medical Control for further orders
13. 20 cc/kg NS fluid challenge (peds 20 cc/kg)
14. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

317 Syncope

Assessment

Loss of consciousness with recovery
Lightheadedness, dizziness
Palpitations, slow or rapid pulse, irregular pulse
Decreased blood pressure

Basic

1. Oxygen and airway maintenance appropriate to the patient's condition
2. Glucose check
3. Supportive Care
4. **EMT STOP**

EMT-IV

5. INT or IV NS TKO – if hypotensive 20 cc/kg bolus (peds 20 cc/kg bolus)
6. Administer Dextrose 50%, PRN
7. **EMT IV STOP**

PARAMEDIC

8. EKG monitor
9. Oxygen Saturation
10. 12 Lead EKG, treat any cardiac dysrhythmia per appropriate protocol
11. Assess neuro status; if abnormal refer to appropriate protocol
12. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MEDICAL EMERGENCY

318 Acute Adrenal Insufficiency or Addisonian Crisis

Assessment

Identify if the patient is at risk for acute adrenal insufficiency or Addisonian crisis by either the presence of a medical alert bracelet, designation in patient records or other family or medical confirmation.

If the patient is confirmed to have a disease (such as congenital adrenal hyperplasia or chronic use of systemic steroids) that could lead to acute adrenal insufficiency or Addisonian crisis, then the administration of steroids (hydrocortisone sodium succinate (Solu-Cortef), methylprednisolone (Solu-Medrol), or dexamethasone (Decadron)) is life-saving and necessary for reversing cardiovascular shock.

Signs and symptoms of patients in acute adrenal crisis include pallor, dizziness, headache, weakness/lethargy, abdominal pain, vomiting/nausea, hypoglycemia, hyponatremia, hyperkalemia, hypotension, shock, and heart failure.

For patients confirmed to have a disease that could lead to acute adrenal insufficiency or Addisonian crisis but who are not in a state of compensated or decompensated shock, administration of steroids may prevent the progression to shock, heart failure and possible death. The early signs and symptoms may include: pallor, dizziness, headache, weakness or lethargy, abdominal pain, nausea or vomiting, and hypoglycemia. These symptoms are not specific for acute adrenal insufficiency or Addisonian crisis, therefore when in doubt contact online medical control for further orders.

Dosing of steroids is as indicated below with hydrocortisone being the preferred medication if available:

Adult patients:

Administer **hydrocortisone** sodium succinate (Solu-Cortef) 100mg IM/IO/IV Push

Or

Administer **methylprednisolone** (Solu-Medrol) 125mg IM/IO/IV Push

Or

Administer **dexamethasone** (Decadron) 4 or 5 mg IM/IO/IV Push

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Pediatric patients:

Administer **hydrocortisone** sodium succinate (Solu-Cortef) 2mg/kg IM/IO/IV push (to maximum 100mg)

Or

Administer **methylprednisolone** (Solu-Medrol) 2mg/kg IM/IO/IV Push (to maximum 125mg)

Or

Administer **dexamethasone** (Decadron) 4 or 5 mg IM/IO/IV Push

<u>Alternative Pediatric Dosing:</u>	<u>Hydrocortisone</u>	<u>Methylprednisolone</u>	<u>Dexamethasone</u>
Newborn to infant (up to 1 year old)	25 mg	25 mg	1 mg
1 year old up to 7 years old	50 mg	50 mg	2 mg
7 years old and older	100 mg	125 mg	4-5 mg

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

401 Air Ambulance Transport

BASIC

PARAMEDIC

Request for an Air Ambulance must be in accordance with approved service policy.

A scene flight by air ambulance MAY be indicated IF:

- The level I trauma patient's condition warrants immediate and extreme action **and** the extrication **and/or** transport time is greater than 30 minutes **and** if the patient **is not** in trauma full arrest.
- Transport time is defined as the length of time beginning when the emergency unit would leave the scene transporting until time of arrival at the trauma center.

The on scene EMT-Paramedic shall have the authority to disregard the response of an air ambulance in accordance with approved service policy.

Additional Criteria:

- Multi-system blunt or penetrating trauma with unstable vital signs
- Greater than 25% TBSA burns
- Paralysis or spinal injury
- Amputation proximal to wrist or ankle
- Flail or crushed chest

Situational Criteria:

- High energy mechanisms
- Prolonged entrapment
- Multiple casualty incident

Patients will be categorized according to the current Tennessee Trauma Destination Determinates.

- **DO NOT** call for an air ambulance if patient is in traumatic cardiopulmonary arrest. If the patient has no vital signs, they are in trauma full-arrest.
- The Paramedic in charge of the patient shall have the authority **through** the Incident Commander to disregard the response of the air ambulance.
- The Paramedic will coordinate with the Incident Commander to insure the helicopter receives patient information and landing zone location.

NOTE: Medical responsibility will be assumed by the medical flight crew personnel upon arrival at the scene.

NOTE: Limitations of the helicopter:

- a. Adults who have traction splint(s) applied
- b. Patients over 6'8"
- c. Patients who exceed 400 lbs
- d. Any splint or device that exceeds the boundary of the long spine board

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

402 Abdominal/Pelvic Trauma

Assessment

Abdominal / retroperitoneal abrasions/contusions
Penetrating injuries
Hypotension
Abdominal evisceration(s)
Abdominal pain on palpitation
Hematuria, bloody stool
Altered bowel sounds
Vomiting blood
History of abdominal injury/trauma
Suspected injury secondary to mechanism of trauma

Basic

1. Oxygen and airway maintenance appropriate for the patient's condition
2. C-Spine stabilization
3. Attempt to control any life threatening hemorrhaging
4. Systolic BP or peds normal for age:
 - a. If Systolic BP >90 mmHg place patient supine with legs elevated and flexed at knees and hips. If no C-Spine concerns, contact Medical Control
5. Patient Pregnant:
 - a. If patient is not past 1st trimester: place patient supine with legs elevated and flexed at knees and hips. If no C-Spine concerns, contact Medical Control
 - b. If patient is past 1st trimester: place patient in left lateral recumbent position
6. Penetrating object:
 - a. If no penetrating object: place patient supine with legs elevated and flexed at knees and hips. If no C-Spine concerns, contact Medical Control
 - b. If penetrating object present: stabilize object(s)
7. Evisceration:
 - a. If present: place patient supine with legs elevated and flexed at knees and hips. If no C-Spine concerns, contact Medical Control. Cover evisceration(s) with saline soaked trauma dressing
8. Supportive care

9. EMT STOP

EMT-IV

10. IV NS/LR TKO
If systolic BP <90 mmHg, IV NS/LR 20 cc/kg bolus (peds 20 cc/kg bolus). Target SBP is 90-110 mmHg in adult trauma patients

11. EMT IV STOP

PARAMEDIC

12. EKG Monitor
13. Oxygen Saturation
14. PARAMEDIC STOP

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

403 Avulsed Teeth – Standing Order

Assessment

Avulsed teeth may be handled in much the same manner as small parts; i.e. rinse in normal saline (do not rub or scrub) and place in gauze moistened with saline
Do not cool tooth/teeth with ice

Basic EMT-IV

1. Oxygen and airway maintenance appropriate to patient's condition
2. C-Spine stabilization
3. Treat other associated injuries
4. Pay attention to the airway, bleeding and avulsed teeth may cause obstruction.
5. Supportive care
6. Avulsed teeth may be handled in much the same manner as small body parts; i.e. rinse in normal saline (do not rub or scrub) and place in moistened gauze, but there is no need to cool with ice.

7. EMT and EMT IV STOP

PARAMEDIC

8. Re-implantation is recommended if possible at the scene as this creates the maximum possibility of reattachment as minutes count. The following guidelines pertain to re-implantation at the scene:
 - a. Applicable only for permanent teeth (i.e. with patients over 6.5 years of age)
 - b. Applicable when only one or two teeth are cleanly avulsed and the entire root is present
 - c. Applicable only to anterior teeth (front 6, upper and lower)
 - d. The patient must be conscious
 - e. Should be attempted within the first 30 mins. (The sooner performed the greater the success rate.)
 - f. Do not force re-implantation. Gentle insertion is all that is necessary. Slight incorrect positioning can be corrected later.
9. If re-implantation is not feasible and the patient is a fully conscious adult then the best procedure is to place the tooth in the mouth, either under the tongue or in the buccal vestibule. This is not recommended for children.

10. PARAMEDIC STOP

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

404 Cardiogenic Shock

Assessment

Frequently associated with tachy/brady dysrhythmia, acute MI, or blunt chest trauma
Neck vein distension in sitting position
Moist sounding lungs (rales, rhonchi)
Peripheral edema (if chronic heart failure)
Determine if cardiac dysrhythmia exists
Consider tension pneumothorax
Consider cardiac tamponade
Increased heart rate
Decreased BP
Altered LOC

Basic

1. Semi Fowlers or position of comfort
2. Oxygen and airway maintenance appropriate to patient's condition, pulse oximetry
3. **EMT STOP**

EMT-IV

4. IV NS or LR, if hypotensive give 20 cc/kg bolus (**peds 20 cc/kg bolus**)
5. **EMT IV STOP**

PARAMEDIC

6. Evaluate cardiac rhythm and treat appropriately
7. Oxygen saturation
8. 12 lead EKG
9. **PARAMEDIC STOP**

Treatment – Protocol

Contact Medical Control, consider:

Dopamine 400 mg / 200 cc or 800 mg/ 500 cc D5W IV admix, begin 2-20 ug/kg/min
(**peds 2-20 ug/kg/min**)

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

405 Eye Trauma

Assessment

Impaled object
Inability to open eye(s)
Swollen, edematous eye(s)
Photophobia
Visual defects, loss of vision
Redness

BASIC

IV

PARAMEDIC

Treatment – Standing Order

1. Oxygen and airway maintenance appropriate for patient's condition
2. C-Spine stabilization, PRN
3. If thermal or chemical
 - a. Flush eye(s) with NS or water for 15 min
 - b. Cover both eyes
 - c. Transport
4. Penetration
 - a. Stabilize
 - b. Cover unaffected eye
 - c. Transport
5. Blunt trauma
 - a. Cover both eyes
 - b. Transport
6. Is loss of vision present:
 - a. No – Contact Medical Control
 - b. Yes – If loss of vision was sudden, painless and non-traumatic, consider Retinal Artery Occlusion. Contact Medical Control and:
 - i. Apply cardiac monitor and assess for changes
 - ii. Apply vigorous pressure using heel of hand to affected eye for 3-5 seconds, then release (patient may perform this procedure and may be repeated as necessary)

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

406 Hypovolemic Shock

Assessment

Blood loss due to penetrating injuries to torso or other major vessel
Fracture of femur or pelvis
G.I. Bleeding, vaginal bleeding, or ruptured ectopic pregnancy
Dehydration cause by vomiting, diarrhea, inadequate fluid intake, excessive fluid loss due to fever, uncontrolled diabetes, or burns
Pulse may be greater than 120 beats per minute
Blood pressure may be less than 90 mmHg Systolic
Orthostatic (Tilt) changes in vital signs (consider possible spinal injury) pulse increase of 20 beats per minute, B decrease of 10 mmHg systolic
Severe shock (hypovolemia) is defined as decreased level of consciousness, absent radial pulse, capillary refill greater than 2 seconds, no palpable blood pressure

Basic

1. Oxygen and airway maintenance appropriate to patient's condition
2. Consider spinal stabilization and hemorrhage control
3. Control gross hemorrhage
4. Trendelenburg patient if no suspected spinal injury
5. **EMT STOP**

EMT-IV

6. IV NS bolus (20 cc/kg)

7. EMT IV STOP

PARAMEDIC

8. EKG monitor
9. Oxygen saturation
10. IV NS or LR x2 large bore titrated to restore patient's vital signs (in patients with ongoing blood loss maintain patient's systolic blood pressure 90-110 mmHg).

11. Pediatrics

- a. IV/IO NS 20 cc/kg bolus
- b. Reassess patient
- c. Repeat fluid bolus 20 cc/kg if no improvement
- d. Place a second IV as needed
- e. Maintain temperature >97°

12. PARAMEDIC STOP

Treatment – Protocol

Contact Medical Control, Consider:

Adults and peds – Dopamine 2-20 µ/kg/min

NOTE: Cervical spine immobilization is not necessary in patients suffering penetrating trauma (stab or gunshot wound) below the nipple line **AND** no evidence of spinal or head injury. Do not delay transport of patients meeting these criteria for immobilization.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

407 Major Thermal Burn

Major Burn:

- Greater than 20% BSA, partial thickness surface involvement
- Greater than 10% BSA, full thickness burn
- Full thickness burns of the head, face, feet, or perineum
- Inhalation burn or electrical burns
- Burns complicated by fractures or other significant injury
- Elderly, pediatric, or compromised patients

Assessment

Remove clothing from affected parts
DO NOT pull material out of the burn site: Cut around it
Look for burns of the nares, mucosa, face or neck
Listen for abnormal breath sounds
Note if burn occurred in closed space
Determine extent of injury (including associated injuries)
Cardiac monitor for all major burn patients
Respiratory distress
ETOH/drug use
Associated injuries/trauma
Hypotension
Past medical history
Oropharyngeal burns

Basic

1. Stop the burn process with tepid water or normal saline solution and remove any smoldering clothing
2. Oxygen and airway maintenance appropriate to the patient's clothing
 - a. Edema may cause patient's airway to close almost instantly without warning signs
 - b. Be prepared to assist ventilation with a BVM
3. Monitor all vital signs and continue reassessment with emphasis on the respiratory rate, peripheral pulses (circulation) and level of consciousness
4. Remove any jewelry
5. Cover burned area with dry sterile dressing or burn sheet. Attempt to keep blisters intact
6. DO NOT use Water-Jel or any other commercially manufactured burn products. DO NOT remove if applied prior to arrival.
7. Monitor to prevent hypothermia
8. Stabilize all associated injuries (e.g. chest, potential spinal injury, fractures, dislocations, etc.)

9. EMT STOP

EMT-IV

10. INT or IV NS, if hypotensive 20 cc/kg (peds 20 cc/kg)

11. EMT IV STOP

PARAMEDIC

12. EKG Monitor

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

13. Oxygen Saturation
14. For major burns, Administer Pain Medications per chart below (contact medical control in multi-system trauma/pregnancy), transport (all additional doses must be approved by Medical Control)
15. If extremity injured, cover open fractures/lacerations/injuries with sterile dressing, splint fractures prn, avoid unnecessary movement, transport
16. Consider contacting Medical Control for sedating agents especially in pediatric patients

Administer IV fluids using the following guide:

500 mL per hour for patients over 15 years old

250 mL per hour for patients 5 - 15 years old

125 mL per hour for patients under 5 years old

Excessive or overly aggressive amounts of fluid administration may increase third-spacing shock

17. PARAMEDIC STOP

all doses in mg unless indicated	5 kg	7 kg	9 kg	10 kg	12 kg	14 kg	20 kg	30 kg	40 kg	50-74 kg	75 kg	275 kg	Geriatric	
Fentanyl IV/IO				10	10	15	20	25	25	50	75	25		1 mcg/kg
Morphine IV/IO				1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg		2 mcg/kg
Ondansetron IV/IO							2 mg	3 mg	4 mg	4 mg	4 mg	4 mg		0.1 mg/kg

If pain not controlled, Morphine and Fentanyl dosing may be repeated once after 15 minutes. Contraindicated in hemodynamically unstable patients.

NOTE: May Substitute for Morphine: Nubain 2-10 mg IV (**peds 0.2 mg/kg**) **OR** Stadol 0.5-2 mg IV (**no use in Pediatrics**)

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

408 Musculoskeletal Trauma

Assessment

Hypotension
Past medical history
Deformity, swelling, tenderness, crepitus, open or closed fractures
Hemorrhaging, lacerations, ecchymosis, instability
Decreased function, pulses
Loss of sensation of distal extremities
ETOH/drug use
Mechanism of Injury

Basic

1. Oxygen and airway maintenance appropriate for the patient's condition
2. C-Spine stabilization PRN
3. Control any life threatening hemorrhaging, consider a tourniquet PRN
4. Consider applying MAST as a splint
5. Splint PRN, stabilize penetrating objects
6. **EMT STOP**

EMT-IV

7. INT or IV, LR TKO, if hypotensive 20 cc/kg (peds 20 cc/kg)

8. EMT IV STOP

PARAMEDIC

9. EKG monitor
10. Oxygen saturation
11. Trauma: **Isolated extremity trauma only – consider tourniquet use**
 - a. If systolic BP >90 mmHg or peds normal range for age,
 - i. Consider pain medications per chart below
 - ii. Cover open fractures/lacerations, check distal motor/sensory/pulse pre/post splinting, avoid unnecessary movement
 - b. If systolic BP <90 mmHg, IV NS/LR 20 cc/kg (peds 20 cc/kg)
 - i. If patient pregnant: Isolated extremity trauma only
 1. If past the 1st trimester and systolic BP >90 mmHg contact Medical Control
 2. If systolic BP <90 mmHg place patient in left lateral recumbent position, IV NS/LR 20 cc/kg

12. PARAMEDIC STOP

all doses in mg unless indicated	5 kg	7 kg	9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50-74 kg	75 kg	≥75 kg	Geriatric	
Fentanyl PO/NO				10	10	15	20	25	25	50	75	25		1 mcg/kg
Morphine PO/NO				1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg		2 mcg/kg
Ondansetron IV/IO						2 mg	2 mg	3 mg	4 mg	4 mg	4 mg	4 mg		0.1 mg/kg

If pain not controlled, Morphine and Fentanyl dosing may be repeated once after five minutes. Contraindicated in hemodynamically unstable patients.

NOTE: May also utilize patient controlled Nitrous Oxide for pain Management.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

May Substitute for Morphine: Nubain 2-10 mg IV (*peds 0.2 mg/kg*) **OR** Stadol 0.5-2 mg IV (*no use in Pediatrics*)

Cervical spine immobilization is not necessary in patients suffering penetrating trauma (stab or gunshot wound) below the nipple line **AND** no evidence of spinal or head injury. Do not delay transport of patients meeting these criteria for immobilization.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

409 Multi-System Trauma

Basic

1. Initiate in-line C-Spine stabilization while simultaneously evaluating and controlling the patient's ABCs. Incorporate the Mechanism of Injury into the patient care scheme.
2. Control any hemorrhage and simultaneously provide: Oxygen and airway maintenance appropriate to the patient's condition
3. Secure patient to LSB
4. **EMT STOP**

EMT-IV

5. INT or IV NS, if hypotensive 20 cc/kg (peds 20 cc/kg)
6. **EMT IV STOP**

PARAMEDIC

7. EKG monitor
8. Oxygen Saturation
9. Consider tourniquet use
10. **PARAMEDIC STOP**

NOTE: Cervical spine immobilization is not necessary in patients suffering penetrating trauma (stab or gunshot wound) below the nipple line **AND** no evidence of spinal or head injury. Do not delay transport of patients meeting these criteria for immobilization.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

410 Neurogenic Shock

Assessment

Associated with spinal cord injuries, closed head injuries and overdoses
Signs of hypovolemic shock without pale diaphoretic skin (warm shock)

Basic

1. Oxygen and airway maintenance appropriate for patient's condition
2. Establish and maintain C-Spine immobilization
3. Hemorrhage control
4. Supportive care
5. **EMT STOP**

EMT-IV

6. INT or IV NS, if hypotensive 20 cc/kg (*peds 20 cc/kg*)
7. **EMT IV STOP**

PARAMEDIC

8. EKG Monitor
9. Oxygen Saturation
10. **PARAMEDIC STOP**

Treatment – Protocol

Contact Medical Control to consider:

Adult and pediatric – Dopamine at 2-20 µ/kg/min

SPECIAL NOTE: Consider occult bleeding and treat as Hypovolemic Shock Protocol

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

411 Septic Shock

Assessment

Hot and dry or cool and clammy skin Poor capillary refill Tachycardia/Hypotension Potential for underlying infection

Basic

1. Oxygen and airway maintenance appropriate for patient's condition
2. Consider spinal stabilization appropriate to the patient's condition
3. Obtain and record oral or axillary temperature if possible
4. Glucose check
5. Maintain body temperature above 97°F
6. **EMT STOP**

EMT-IV

7. INT or IV NS, if hypotensive 20 cc/kg (*peds 20 cc/kg*)
8. Administer Dextrose 50%, PRN
9. **EMT IV STOP**

PARAMEDIC

10. EKG monitor
11. Oxygen saturation
12. **PARAMEDIC STOP**

Treatment – Protocol

If no improvement after two boluses of IV fluids, contact Medical Control and consider Dopamine 2-20 µ/kg/min (*peds 2-20 µ/kg/min*)

NOTE: Ensure Body Substance Isolation precautions

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

412 Soft Tissue / Crush Injuries

Assessment

Hypotension
Past medical history
Deformity, swelling, tenderness, crepitus, open or closed fractures
Hemorrhaging, lacerations, ecchymosis, instability
Decreased function, pulses
Loss of sensation of distal extremities
ETOH/drug use
Mechanism of Injury

Basic

1. Oxygen and airway maintenance appropriate for patient's condition
2. C-Spine stabilization PRN
3. Control any life threatening hemorrhaging
4. Consider applying MAST as a splint
5. Other splints PRN, stabilize penetrating objects
6. **EMT STOP**

EMT-IV

7. INT or IV, NS LR, if hypotensive 20 cc/kg (peds 20 cc/kg)

8. **EMT IV STOP**

PARAMEDIC

9. EKG monitor
10. Oxygen saturation
11. Trauma: **Isolated extremity trauma only – consider tourniquet use**
 - a. If systolic BP >90 mmHg or peds normal range for age,
 - i. Consider pain medications per chart below
 - ii. Cover open fractures/lacerations, check distal motor/sensory/pulse pre/post splinting, avoid unnecessary movement
 - b. If systolic BP <90 mmHg, IV NS LR 20 cc/kg (peds 20 cc/kg)
 - i. If patient pregnant: Isolated extremity trauma only
 1. If past 1st trimester and systolic BP <90 mmHg contact Medical Control
 2. If systolic BP <90 mmHg place patient in left lateral recumbent position, IV NS LR 20 cc/kg

12. **PARAMEDIC STOP**

all doses in mcg unless indicated	5 kg	7 kg	9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50 kg	75 kg	100 kg	Adult	
Fentanyl IV/IO				10	10	15	20	25	25	50	75	25		1 mcg/kg
Morphine IV/IO				1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg		2 mcg/kg
Onitazepam IV/IO							2 mg	3 mg	4 mg	4 mg	4 mg	4 mg		0.1 mg/kg

If pain not controlled, Morphine and Fentanyl dosing may be repeated once after ten minutes. Contraindicated in known/suspected unstable patients.

NOTE: May substitute for Morphine: Nubain 2-10 mg IV (peds 0.2 mg/kg) OR Stadol 0.5-2 mg IV (no use in pediatrics)

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Cervical spine immobilization is not necessary in patients suffering penetrating trauma (stab or gunshot wound) below the nipple line **AND** no evidence of spinal or head injury. Do not delay transport of patients meeting these criteria for immobilization.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

413 Spinal Cord Injuries

Assessment

Hypotension without actual volume loss
Warm/flushed skin despite hypotension
Paralysis
Loss of reflexes
Posturing
Priapism
Diaphragmatic breathing

Basic

1. Oxygen and airway maintenance appropriate for the patient's condition
2. C-Spine immobilization
3. Control hemorrhaging
4. **EMT STOP**

EMT-IV

5. IV fluid NS LR, if hypotensive bolus 20 cc/kg (repeat bolus once if needed)
6. **EMT IV STOP**

PARAMEDIC

7. EKG monitor
8. Oxygen Saturation
9. **PARAMEDIC STOP**

Treatment – Protocol

Contact Medical Control

Consider Dopamine 2-20 µ/kg/min then titrated

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

414 Traumatic Cardiac Arrest

Assessment

Cardiac arrest secondary to trauma

Basic

1. Oxygen and airway maintenance appropriate for the patient's condition
2. CPR
3. Treat cardiac rhythms per specific protocols
4. **EMT STOP**

EMT-IV

5. IV NS/LR give 20 cc/kg bolus
6. Consider second IV access
7. **EMT IV STOP**

PARAMEDIC

8. EKG monitor
9. Oxygen saturation
10. If suspected pneumothorax perform needle chest decompression
11. Consider viability of patient prior to transport
12. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

415 Tension Pneumothorax

Patient must meet AT LEAST THREE of the below assessment findings to qualify for this standing order, otherwise, contact Medical Control

Assessment

Acute respiratory distress, cyanosis
Unilaterally decreased breath sounds or absent breath sounds
Hyper-Resonance of chest unilaterally
Jugular vein distension
Subcutaneous Emphysema
Acute traumatic chest injury, ecchymosis or obvious rib fractures
History of COPD or other chronic lung disease which predisposes patient to spontaneous pneumothorax
Hypotension
Tracheal deviation away from the affected side
Arrhythmia
Oxygen saturation - <90%
Mechanism of Injury

Basic

1. Oxygen and airway maintenance appropriate to patient's condition
2. Perform frequent evaluation of the breath sounds and blood pressure
3. Consider institution of the multiple trauma protocol, if indicated. Remember this order may be indicated for the medical patient as well.
4. Follow the trauma treatment priority reference as needed
5. If the traumatic tension pneumothorax is secondary to a sucking chest wound, apply an occlusive dressing and treat appropriately
6. Control any life threatening hemorrhaging
7. **EMT STOP**

EMT-IV

8. IV NS LR, If hypotensive 20 cc/kg (peds 20 cc/kg)
9. **EMT IV STOP**

PARAMEDIC

10. EKG Monitor
11. Oxygen saturation
12. If tension pneumothorax suspected, perform needle decompression. Use 14g 3.5" needle
13. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

SHOCK / TRAUMA

416 Traumatic Amputation(s)

Assessment

Hypotension
Past medical history
Deformity, swelling, tenderness, crepitus, open or closed fractures
Hemorrhaging, lacerations, ecchymosis, instability
Decreased function, pulses
Loss of sensation of distal extremities
ETOH/Drug use
Mechanism of Injury

Basic

1. Oxygen and airway maintenance appropriate for patient's condition
2. C-Spine stabilization PRN
3. Control any life threatening hemorrhaging
4. Consider applying MAST as a splint
5. Other splints PRN
6. Amputated part: If recovered rinse with NS, wrap in moist dressing, place in plastic bag, and transport with patient.
7. **EMT STOP**

EMT-IV

8. INT or IV, NS LR, if hypotensive 20 cc/kg (peds 20 cc/kg)
9. **EMT IV STOP**

PARAMEDIC

10. EKG monitor
11. Oxygen saturation
12. Amputation – consider tourniquet use
 - a. If systolic BP >90 mmHg or peds normal range for age consider medications per chart below
 - b. Cover open fractures/lacerations, check distal motor/sensory/pulse pre/post splinting, avoid unnecessary movement
13. **PARAMEDIC STOP**

all doses in mg unless indicated	5 kg	7 kg	9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50-74 kg	75 kg	275 kg	Geriatric	
Fentanyl IV/IO				10	10	15	20	25	25	50	75	25		1 mcg/kg
Morphine IV/IO				1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg		2 mcg/kg
Onoventin IV/IO							2 mg	3 mg	4 mg	4 mg	4 mg	4 mg		0.1 mcg/kg

If pain not controlled, Morphine and Fentanyl dosing may be repeated once after 15 minutes. Contraindicated in hemodynamically unstable patients.

NOTE: May substitute for Morphine: Nubain 2-10 mg IV (peds 0.2 mg/kg) OR Stadol 0.5-2 mg IV (no use in pediatrics)

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE

APGAR Scoring

BASIC IV PARAMEDIC

<u>Clinical Sign</u>	<u>0 Points</u>	<u>1 Point</u>	<u>2 Points</u>
Appearance	Blue/Pale	Body Pink Extremities Blue	Completely Pink
Pulse	Absent	Below 100/minute	Above 100/minute
Grimace	No response	Grimace	Cries
Activity	Limp	Some flexion of extremities	Action motion
Respiratory	Absent	Slow/Irregular	Good strong cry

The APGAR score should be calculated after birth of the infant. The five (5) clinical signs are evaluated according to the scoring system detailed above. Each sign is assigned points to be totaled. A total score of 10 indicates that the infant is in the best possible condition. A score of 4 to 6 indicates moderate depression and a need for resuscitative measures.

DO NOT delay resuscitation efforts to obtain APGAR score. Obtain APGAR at 1 and 5 minutes after delivery.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

OBSTETRICAL EMERGENCIES

500 Obstetrical / Gynecological Complaints (Non-Delivery or Gynecological Only)

Assessment

Patient Para (number of pregnancies) and Gravida (number of live births)
Term of pregnancy in weeks, EDC, Multiple births expected or history
Vaginal bleeding (how long and approximate amount)
Possible miscarriage/products of conception
Pre-natal medications, problems, and care
Last menstrual cycle
Any trauma prior to onset?
Lower extremity edema

Basic

1. Oxygen and airway maintenance appropriate for the patient's condition
2. Patient positioning appropriate for condition
3. Glucose check
4. Control hemorrhage as appropriate
5. **EMT STOP**

EMT-IV

6. INT or IV NS TKO unless signs of shock, then 20 cc/kg fluid bolus
7. **EMT IV STOP**

PARAMEDIC

8. EKG monitor PRN
9. Oxygen saturation
10. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

OBSTETRICAL EMERGENCIES

501 Normal Delivery

Assessment

Patient Para (number of pregnancies) and Gravida (number of live births) Term of pregnancy in weeks, EDC Vaginal Bleeding Pre-natal medications, problems, and care Membrane ruptured Lower extremity edema
--

Basic

Mother:

1. Oxygen and airway maintenance appropriate for patient's condition
2. Check mother for crowning, PRN
3. Use gentle pressure to control delivery. When head delivers, suction airway and check for cord around neck
4. After delivery, keep mother and infant on same level, clamp cord @ 8 and 10 inches from the baby and cut between clamps
5. Dry infant and wrap to keep warm. Maintain airway
6. Check APGAR at 1 and 5 minutes post-delivery
7. DO NOT allow mother to nurse until both have been evaluated in the Emergency Department
8. Allow placenta to deliver
 - Massage uterine fundus (lower abdomen)
 - Observe and treat signs of shock with increased delivery of oxygen and IV fluids
 - Be alert to the possibility of multiple births
9. Re-Evaluate vaginal bleeding

Infant:

1. Protect against explosive delivery
2. When head delivers suction airway (mouth first then nose) & check for cord around neck
3. After delivery clamp cord @ 8 and 10 inches from baby and cut between clamps
4. Dry infant and wrap to keep warm (silver swaddler). Maintain airway, suction PRN
5. Oxygen and airway maintenance appropriate to patient's condition
6. Check APGAR Score at 1 and 5 minutes after delivery
7. DO NOT allow infant to nurse until both have been evaluated in the Emergency Department
8. Re-Evaluate cord for bleeding, if bleeding add additional clamp and re-evaluate.

9. EMT STOP

EMT-IV

10. INT or IV LR TKO , if patient in active labor defined as: regular contractions q 3-5 mins with 30-60 second duration.

11. EMT IV STOP

PARAMEDIC

12. EKG monitor PRN
13. Oxygen saturation

14. PARAMEDIC STOP

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

NOTE: Considerations

1. The greatest risks to the newborn infant are airway obstruction and hypothermia. Keep the infant warm (silver swaddler), dry, covered, and the infant's airway maintained with bulb syringe. Always remember to squeeze the bulb prior to insertion into the infant's mouth or nose.
2. The greatest risk to the mother is post-partum hemorrhage. Watch closely for signs of hypovolemic shock and excessive vaginal bleeding.
3. Spontaneous or induced abortions may result in copious vaginal bleeding. Reassure the mother, elevate legs, treat for shock, and transport.
4. Record a blood pressure and the presence or absence of edema in every pregnant woman you examine, regardless of chief complaint

NOTE: Complete patient care reports on BOTH mother and child.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

OBSTETRICAL EMERGENCIES

502 Abruptio Placenta

Assessment

Multiparity
Maternal hypertension
Trauma
Drug use
Increased maternal age
History
Vaginal bleeding with no increase in pain
No bleeding with low abdominal pain

Basic

1. Oxygen and airway maintenance appropriate to the patient's condition
2. Position patient in the left lateral recumbent position

3. **EMT STOP**

EMT-IV

4. IV NS TKO, if hypotensive 20 cc/kg (*peds 20 cc/kg*)

5. **EMT IV STOP**

PARAMEDIC

6. EKG monitor
 7. Oxygen saturation
8. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

OBSTETRICAL EMERGENCIES

503 Amniotic Sac Presentation

Assessment

Amniotic sac visible
Membrane not broken
Fetus may or may not be visible
Pre-natal medications, problems, and care
Usually third trimester
Applies to greater than 20 weeks gestation
Abdominal pain
Indications of immediate delivery

Basic

1. Oxygen and airway maintenance appropriate to the patient's condition
2. Place patient in a position of comfort
3. Amniotic sac
If no fetus visible, cover presenting part with moist, sterile dressing
If head of the fetus has delivered, tear sac with fingers and continue steps for delivery
4. Contact Medical Control ASAP
5. **EMT STOP**

EMT-IV

6. IV NS TKO, if hypotensive 20 cc/kg (peds 20 cc/kg)
7. **EMT IV STOP**

PARAMEDIC

8. EKG monitor
9. Oxygen saturation
10. **PARAMEDIC STOP**

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

OBSTETRICAL EMERGENCIES

504 Breech or Limb Presentation

Assessment

Patient para (number of pregnancies) and gravida (number of live births)
Term of pregnancy in weeks, EDC
Vaginal bleeding
Pre-natal medications, problems, and care
Water broken
Buttock, arm or leg presentation

Basic

Breech Presentation – Treatment – Standing Order – All EMTs

1. Oxygen and airway maintenance appropriate to patient's condition
2. Allow the delivery to progress spontaneously – DO NOT PULL!
3. Support the infant's body as it delivers
4. If the head delivers spontaneously, deliver the infant as noted in 'Normal Delivery'
5. If the head does not deliver within 3 minutes, insert a gloved hand into the vagina an airway for the infant
6. DO NOT remove your hand until relieved by a Higher Medical Authority.

Limb Presentation – Treatment – Standing Order – All EMTs

7. Oxygen and airway maintenance appropriate to the patient's condition
8. Position the mother in a supine position with the head lowered and pelvis elevated
9. **EMT STOP**

EMT-IV

10. IV NS TKO, if hypotensive 20 cc/kg (peds 20 cc/kg)

11. EMT IV STOP

PARAMEDIC

12. EKG monitor
13. Oxygen saturation
14. Transport ASAP

15. PARAMEDIC STOP

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

OBSTETRICAL EMERGENCIES

505 Meconium Stain

Assessment

Patient para (number of pregnancies) and gravida (number of live births)
Term of pregnancy in weeks, EDC
Vaginal bleeding
Pre-natal medications, problems, and care
Membrane ruptured
Amniotic fluid that is greenish or brownish yellow
Fecal material expelled with the amniotic fluid

Basic

1. Do not stimulate respiratory effort before suctioning the oropharynx
2. Suction the **mouth then the nose** (using a meconium aspirator) while simultaneously providing Oxygen 100% by blow by method and while maintaining the airway appropriate to the patient's condition
3. Obtain and APGAR score after airway treatment priorities. Score one minute after delivery and at five minutes after delivery. (Time permitting)
4. Repeat initial assessment and complete vital signs until patient care is transferred to the appropriate ER staff.

5. EMT STOP

EMT-IV

6. IV NS TKO, if hypotensive 20 cc/kg (*peds 20 cc/kg*)

7. EMT IV STOP

PARAMEDIC

8. EKG monitor
9. Oxygen saturation

10. PARAMEDIC STOP

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

OBSTETRICAL EMERGENCIES

506 Placenta Previa

Assessment

Painless bleeding which may occur as spotting or recurrent hemorrhage

Bright red vaginal bleeding usually after 7th month

History

Multiparity

Increased maternal age

Recent sexual intercourse or vaginal exam

Patient para (number of pregnancies) and gravida (number of live births)

Term of pregnancy in weeks

Pre-natal medications, problems, and care

History of bed rest

Placenta protruding through the vagina

Basic

1. Oxygen and airway maintenance appropriate to patient's condition
2. Position of comfort
3. **EMT STOP**

EMT-IV

4. IV NS TKO, if hypotensive 20 cc/kg (*peds 20 cc/kg*)
5. **EMT IV STOP**

PARAMEDIC

6. EKG Monitor
7. Oxygen Saturation
8. **PARAMEDIC STOP**

NOTE: Any painless bleeding in the last trimester should be considered Placenta Previa until proven otherwise. If there are signs of eminent delivery membrane rupture is indicated followed by delivery of the baby. The diagnosis of eminent delivery depends on the visual presence of the baby's body part through the membrane.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

OBSTETRICAL EMERGENCIES

507 Prolapsed Umbilical Cord

Assessment

Cord emerges from the uterus ahead of baby
With each uterine contraction the cord is compressed between the presenting part and the pelvis
Pulse on exposed cord may or may not be palpable
Patient Para (number of pregnancies) and Gravida (number of live births)
Term of pregnancy in weeks, EDC
Vaginal bleeding
Pre-natal medications, problems, and care
Membrane ruptured

Basic

1. Palpate pulses in the cord
2. Oxygen and airway maintenance appropriate for the patient's condition
3. Position the mother with hips elevated
 - a. Knee to chest
 - b. Hips elevated as much as possible on pillows
4. Instruct mother to pant with each contraction, which will prevent her from bearing down
5. Check for a pulse in the cord
 - a. If no pulse – insert a gloved hand into the vagina and gently push the infant's head off the cord. While pressure is maintained on the head cover the exposed cord with a sterile dressing moistened in saline. Transport immediately and **DO NOT** remove your hand until relieved by hospital staff.
 - b. If pulse present – cover exposed cord with moist dressing
6. Contact Medical Control as soon as possible if time and patient condition allows

7. EMT STOP

EMT-IV

8. IV NS TKO, if hypotensive 20 cc/kg (peds 20 cc/kg)

9. EMT IV STOP

PARAMEDIC

10. EKG monitor
11. Oxygen saturation

12. PARAMEDIC STOP

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

OBSTETRICAL EMERGENCIES

508 Pre-eclampsia and Eclampsia

Assessment

Patient Para (number of pregnancies) and Gravida (number of live births)
Term of pregnancy in weeks, EDC
Vaginal bleeding
Pre-natal medications, problems, and care
Membrane ruptured
Usually begins after the twentieth week of pregnancy
Most often affects women during their first pregnancy
May have a history of chronic hypertension and/or diabetes
May experience hypertension and edema
May experience headaches, blurred vision, and abdominal pain
May experience seizures which indicates a progression from pre-eclampsia to eclampsia

Basic

1. Oxygen and airway maintenance appropriate for the patient's condition
2. Place patient in left lateral recumbent position
3. Glucose check
4. **EMT STOP**

EMT-IV

5. IV NS TKO, if hypotensive 20 cc/kg (peds 20 cc/kg)
6. **EMT IV STOP**

PARAMEDIC

7. EKG monitor
8. Oxygen saturation
9. Valium 5 mg slow IV PRN or Versed 2-5 mg IVP per seizure protocol if generalized seizure activity
10. **PARAMEDIC STOP**

Treatment – Protocol

Contact Medical Control and consider:
Magnesium Sulfate 1-2 grams IV Slowly

NOTE: Record a blood pressure and the presence or absence of edema in every pregnant woman you examine no matter what the chief complaint.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MISCELLANEOUS

601 Discontinuation / Withholding of Life Support

BASIC IV PARAMEDIC

Once life support has been initiated in the field, **Non** ALS personnel **CAN NOT** discontinue resuscitative measures unless directed to do so by the on-scene physician, EMT-Paramedic or presented with a valid Physician Orders for Scope of Treatment (POST).

Withholding Resuscitation – Standing Orders

If there is no CPR in progress, CPR may be withheld if one or more of the following conditions are met:

- a. Obviously dead patients with dependent lividity, rigor mortis, or massive trauma (i.e., evacuation of the cranial vault, crushed chest, crushed head, etc.)
- b. Obviously dead patients with tissue decomposition
- c. Patients without vital signs who cannot be accessed for treatment due to entrapment for prolonged time. (12-15 minutes or greater)
- d. Severe blunt trauma with absence of BP, pulse, respiratory effort, neurologic response, and pupillary response
- e. When presented a valid POST order or a copy as approved by the Tennessee Department of Health. DNR and POST orders not on the official state form can be accepted if it is documented in a medical record such as a nursing chart, hospice care, or home nursing
- f. Instructed to do so by the Paramedic on the scene

Discontinuing Life Support

Once life support has been initiated in the field, in order to discontinue life support, the following conditions must be met:

1. Asystole is present on the EKG monitor in two leads **and**
2. There is an absence of pulse, respirations, and neurological reflexes **and** at least one of the following conditions are met:
 - a. Appropriate airway management has been confirmed, the patient has been well ventilated with 100% oxygen and multiple (at least three) administrations of Epinephrine and Atropine have not been effective in generating an EKG complex
 - b. Transcutaneous pacing, if available, has not been effective in generating a pulse
 - c. Obvious signs of death in the absence of hypothermia, cold water drowning, lightning strikes or induced coma, **or**
 - d. The Paramedic can document lack of CPR for at least 10 minutes, **or**
 - e. Prolonged resuscitation (25 minutes of resuscitation with agonal or asystolic rhythm) in the field without hope for survival, **or**
 - f. Massive trauma such as evacuation of cranial vault, etc., **or**
 - g. Severe blunt trauma with absence of vital signs and pupillary response

Upon termination in the field any tubes, needles and IV lines will be left in place (IV lines to be tied off and cut with catheter left in place).

NOTE: Personnel shall give careful consideration when using this standing order. Conditions such as: overdose, electrical shock, hypothermia, and hypoglycemia may mimic some of the above signs and symptoms.

All deaths must be confirmed by a Paramedic

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MISCELLANEOUS

602 Field Determination of Death

Assessment

Pulseless, non-breathing with definitive signs of death:

Rigor Mortis

Dependent lividity

Decomposition of body tissue

Devastating, un-survivable injury

Decapitation

Incineration

Separation of vital internal organ from the body or total destruction of organs

Gunshot wound to the head that crosses the midline (entrance and exit)

BASIC IV PARAMEDIC

If patient is pulseless, non-breathing without definitive signs of death:

Must receive resuscitation unless a properly executed DNR or POST form is present

Treatment – Standing Order

DNR Orders:

- If family member or caregiver can produce a properly executed DNR or POST order, resuscitation can be withheld.
- Treat patients with known DNR orders appropriately; just do not initiate CPR if they develop cardiovascular or respiratory arrest.
- When there is any doubt about what to do, begin resuscitative efforts with all skill available.

Resuscitation has been initiated prior to EMS arrival:

Anytime CPR or an attempt at resuscitation has been initiated by anyone at the scene, resuscitative efforts will be continued until:

1. Medical Control directs the team to stop (either on line or on-scene)
2. It is determined the patient meets criteria for “definitive signs” of death
3. A properly executed DNR or POST form is presented

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MISCELLANEOUS

603 Mandatory EKG

PARAMEDIC

EKGs will be mandatory under the following conditions

1. Patients
 - a. Complaining of chest pain regardless of source
 - b. In cardiac arrest with or without CPR in progress
 - c. That are non-viable (other than those exhibiting body decomposition, dependent lividity, rigor mortis, decapitation)
2. EKGs will have the following information printed on the recording:
 - a. Name or report number
 - b. Age (if possible)
 - c. Unit number and date
3. EKGs will be appended to the PCR appropriately

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MISCELLANEOUS

604 Patient Refusal of Care – Patient Non-Transport Situations

Assessment

Determine presence of injury or illness and desire for transport Identify the person who made the EMS call Reason for refusal No patient found on the scene
--

BASIC IV PARAMEDIC

Standing Orders

1. Perform and document mini-mental status exam to confirm competency to refuse care
2. Confirm and document the absence of intoxicating substance or injury
3. Confirm patient is of legal age of majority, or emancipated minor
4. Document mechanism of injury or circumstances of illness
5. Document pertinent past history
6. Perform vital signs and problem directed exam

The following may not refuse transport:

1. Patients with impaired judgment and decreased mental status (Utilize the mini mental status exam to determine; document)
2. Minors (less than 18 years of age or older unless they are emancipated by the courts)
3. All minors must have refusal from parent or guardian, not older sibling or other relative, unless every effort has been made to contact parent/guardian and was not successful
4. Do not release minor on the scene without parent/guardian consent

Reasons for Non-Transport

Minor illness or injury and acceptable alternative transportation available

No Patient Found on the Scene

Definition: No person found to have any complaint of injury/illness of any type or degree

PCR is to be completed in detail as to why no patient was found, i.e.: no person found on scene, person located with no complaint of injury/illness and denies needing medical assistance.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE

Mini Mental Status Exam

1. Orientation to time – time of day, day, week, month, year	5 pts max
2. Orientation to place – building, street, city, state, country	5 pts max
3. Say “boy, dog, ball” and have the patient repeat it	3 pts max
4. Ask the patient to spell would backward, or do serial 3s backward from 20	5 pts max
5. Without repeating the words, ask them to repeat the previous three words (boy, dog, ball)	3 pts max
6. Ask the patient to do the following after you have completed the request “stick out your tongue and touch your right hand to your left ear”	3 pts max
7. Ask the patient to identify your pen and watch	2 pts max
8. Ask the patient to read the following sentence then do as it says “Shut your eyes”	1 pt
10. Ask the patient to write a sentence	1 pt
11. Ask the patient to draw two overlapping pentagons (show them an example)	1 pt

A score of 21 or better is considered mentally competent by most psychiatrists for a patient to make reasonable decisions.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MISCELLANEOUS

605 Physical Restraint

BASIC IV PARAMEDIC

All Patients:

1. Safety of Fire Department/EMS personnel is the main priority in any situation where a patient exhibits aggressive or combative behaviors and needs to be restrained.
2. Use the minimum amount of force and restraint necessary to safely accomplish patient care and transportation with regard to the patient's dignity. Avoid unnecessary force.
3. Assure that adequate personnel are present and that police assistance has arrived, if available, before attempts to restrain patient.
4. Plan your approach and activities before restraining the patient.
5. Have one Fire Department/EMS person talk to and reassure the patient throughout the restraining procedure.
6. Approach with a minimum of four persons, one assigned to each limb, all to act at the same time.
7. Initial take down may best be accomplished leaving the patient in the prone position. After restraint, the patient should be placed in a supine position.
8. Call for additional help if patient continues to struggle against restraint.
9. Restrain all 4 extremities with patient supine on stretcher.
10. Use soft restraints to prevent the patient from injuring him or herself or others.
11. A police officer or other law enforcement personnel shall always accompany a patient in the ambulance if the patient has been restrained.
12. Do not place restraints in a manner that may interfere with evaluation and treatment of the patient or in any way that may compromise patient's respiratory effort.
13. Evaluate circulation to the extremities frequently.
14. Thoroughly document reasons for restraining the patient, the restraint method used, and results of frequent reassessment.
15. Initial "take down" may be done in a prone position to decrease the patient's visual field and stimulation, and the ability to bite, punch, and kick. After the individual is controlled, he/she shall be restrained to the stretcher or other transport device in the supine position.
16. **DO NOT** restrain patient in a hobbled, hog-tied, or prone position.
17. **DO NOT** sandwich patient between devices, such as long boards or Reeve's stretchers, for transport. Devices like backboards should be padded appropriately.
18. A stretcher strap that fits snugly just above the knees is effective in decreasing the patient's ability to kick.
19. Padded or leather wrist or ankle straps are appropriate. Handcuffs and plastic ties are not considered soft restraints.
20. Never apply restraints near the patient's neck or apply restraints or pressure in a fashion that restricts the patient's respiratory effort.
21. Never cover a patient's mouth or nose except with a surgical mask or a NRB mask with high flow oxygen. A NRB mask with high flow oxygen may be used to prevent spitting in a patient that also may have hypoxia or another medical condition causing his/her agitation, but a NRB should never be used to prevent spitting without also administering high flow oxygen through the mask.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Performance Parameters

1. Verbal techniques include:
 - a. Direct empathetic and calm voice.
 - b. Present clear limits and options.
 - c. Respect personal space.
 - d. Avoid direct eye contact.
 - e. Non-confrontational posture.
2. There is a risk of serious complications or death if patient continues to struggle violently against restraints. Chemical restraint by sedation may be indicated in some dangerous, agitated patients.

EMT-IV

3. INT or IV NS/LR, if hypotensive 20 cc/kg (peds 20 cc/kg)
4. **EMT IV STOP**

PARAMEDIC

5. A. Valium: 2-5 mg IV only, repeat once
B. Versed: 2-5 mg IV or IM, repeat once
C. Additional doses must be authorized by Medical Control
5. **PARAMEDIC STOP**

Documentation:

Review for documentation of frequent reassessment of vital signs, cardiopulmonary status, and neurovascular status or restrained extremities, reason for restraint and method used. Benchmark of documenting of these items is at least every 15 minutes.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MISCELLANEOUS

606 Physician On Scene

BASIC IV PARAMEDIC

If private physician intervenes by phone the EMT-Basic/EMT-Paramedic shall:

Request the physician contact Medical Control and relay any orders through them.

NO ORDERS will be taken over the phone from the private physician.

Standing Order:

1. No one will be recognized as a physician without proof of license. This must be in the form of a wallet card or visual personal recognition. NO ORDERS will be accepted until proof of license is verified.
2. Consider need for Law Enforcement if any difficulty with person occurs.
3. The EMT/EMT-P shall:
 - a. Inform the physician that they must contact Medical/Trauma Control.
 - b. Inform Medical/Trauma Control of the presence of a physician on scene.
4. Medical/Trauma Control may:
 - a. Speak to the physician to determine the qualifications.
 - b. Request the EMT/Paramedic to verify licensure of the physician.
 - c. Relinquish total responsibility for the patient to the on-scene physician.
5. Physician (intervening) may:
 - a. Assist the EMT/EMT-P and allow you to operate under EMS standing orders and protocols. Offer assistance by allowing the EMT/EMT-P to remain under Medical/Trauma Control; or
 - b. Request to talk to Medical/Trauma Control to offer assistance; or
 - c. Take responsibility for the care given by the EMT/EMT-P if okay with Medical/Trauma Control, then physically accompany the patient to the Emergency Department where responsibility is assumed by the receiving physician; and shall,
 - d. Sign for all instructions given to the EMT/EMT-P
 - e. Contact should be made with Medical/Trauma Control if this happens.
6. If private physician intervenes by phone or in person the EMT/EMT-P shall:
 - a. Inform the physician that the EMT/EMT-P must contact Medical/Trauma Control.
 - b. Request the physician contact Medical Control and relay any orders through them.
 - c. NO ORDERS should be taken over the phone from the private physician. At no time should any order be taken over the telephone except from Medical/Trauma Control.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MISCELLANEOUS

607 By-standers On Scene

BASIC IV PARAMEDIC

Standing Order:

By-stander participation – You may use them at your discretion. However YOU will be responsible for their actions and treatment. This includes other medical professionals. In any situation you need assistance you may utilize their expertise and skills. **NOTE:** Request proof of their licensure by visualization of their current license, if possible. Remember, YOU are responsible for the patient. If any by-stander is trying to take over direction of patient care, other than a Physician (follow Guideline 606 Physician on Scene in this situation) you may have law enforcement remove the person for “Obstruction of Emergency Services”.

MISCELLANEOUS

608 Procedure for Deviation from Standing Orders

BASIC PARAMEDIC

NEVER simply disregard a standing order or protocol.

These Standing Orders have been established so that EMTs and Paramedics may provide the best care possible for our patients. Most of our patients will be covered by a single Standing Order. However, some patients may have signs and symptoms of illness and/or injury that are covered by more than one Standing Order or, in rare cases, following a Standing Order may not be in the best interest of the patient. In these cases you must be aware that combining Standing Orders may lead to medication errors, overdose, and medication incompatibility. You are expected to use your judgment and to always make decisions that are in the best interest of the patient.

If you use more than one standing order when treating your patient, you must document your reasoning in the NARRATIVE SECTION of the Patient Care Report.

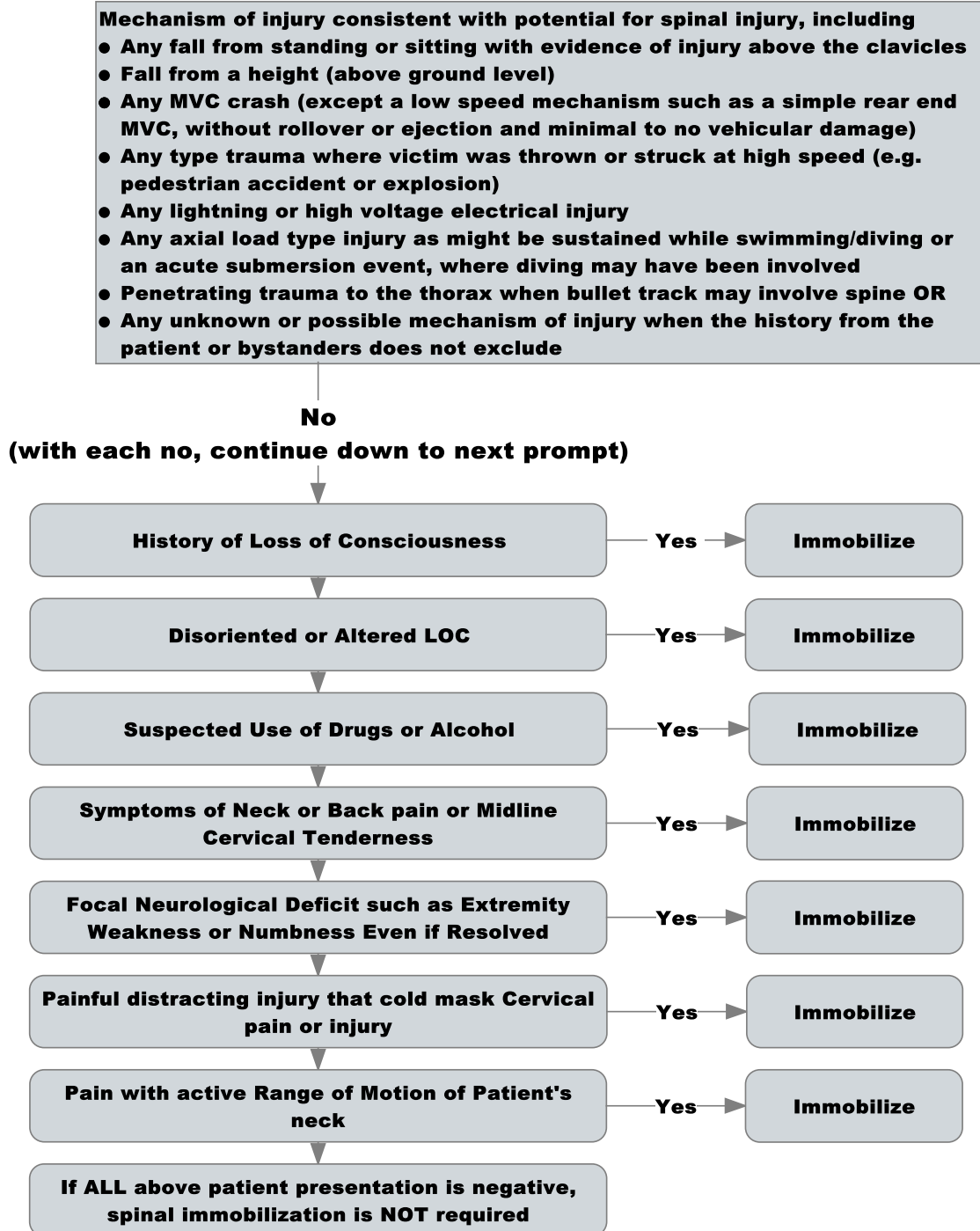
If in your judgment, following a standing order is not in the best interest of the patient, CONTACT MEDICAL CONTROL, regarding your treatment. Document the rationale for deviation, and the name of the physician giving the order.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MISCELLANEOUS

609 Spinal Immobilization

If the patient presents with mechanism which could cause spinal injury **ANY** of the following criteria, complete Spinal Immobilization (C-Spine and back, using C-Collar, head blocks, backboard, and straps) should occur.



TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MISCELLANEOUS

610 Stretcher Transport

PARAMEDIC

The following conditions require patients to be transported by stretcher or stair chair. Other patients may be transported ambulatory unless their condition warrants stretcher use.

1. Pregnant greater than 20 weeks
2. Possible cardiac chest pain
3. Shortness of breath
4. Asthma
5. Chronic Obstructive Pulmonary Disease
6. Stroke
7. Patients requiring spinal immobilization
8. Penetrating trauma to the torso, neck, or head
9. Lower extremity, pelvis trauma
10. Low back trauma
11. Unconscious, unresponsive patients
12. Seizures within past hour or actively seizing
13. Generalized weakness
14. Patients unable to ambulate secondary to pain or weakness
15. Altered level of consciousness, except psychiatric patients
16. Psychiatric patients requiring restraint

MISCELLANEOUS

611 Terminally Ill Patients

BASIC

IV

PARAMEDIC

Standing Order

1. Maintain a calm environment and avoid performing measures beyond basic life support.
2. Elicit as much information from persons present who are familiar with the patient's condition as possible.
3. Obtain and document the name and telephone number of the patient's physician if possible.
4. Maintain BLS procedures and contact Medical Control as soon as possible. Provide full information on the patient's present condition, history, and name of the patient's physician and telephone number.
5. Medical Control will direct the management of the call
6. Accept DNR/POST forms (original or copy):
 - a. State approved forms
 - b. Signed order in patient's medical records: nursing home, hospice, or home care

**If DNR/POST form is used to withhold or terminate resuscitation efforts, a copy must be attached to the PCR.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

MISCELLANEOUS

612 “Excited Delirium” / Taser Use

Assessment

Changes in LOC Ongoing disorientation Agitation Hallucination Hyperthermia Seizure Chest pain or difficulty breathing Significant injury from fall or takedown

Basic

1. Oxygen and airway maintenance appropriate for patient’s condition
2. Glucose check
3. Supportive care
4. **EMT STOP**

EMT-IV

5. IV LR or NS, bolus (20 cc/kg)
6. Administer Dextrose 50%, PRN
7. **EMT IV STOP**

PARAMEDIC

8. EKG monitor
9. Oxygen saturation
10. Valium 2-10 mg slow IVP PRN or Versed 2-5 mg IVP is generalized seizure activity
11. **PARAMEDIC STOP**

NOTE: All persons subjected to use of the device should be medically evaluated and monitored regularly. Darts should be treated as biohazard, and not be removed in the field except by trained personnel. Darts to eyes, mouth, face, neck and genitals or near indwelling medical devices or lines should not be removed in the field.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PEDIATRIC CARDIAC EMERGENCY

613 Neonatal Resuscitation

Assessment

Newborn with respiratory or circulatory distress

Basic

1. Dry and place in face up head down position
2. Keep infant level with mother until cord is clamped
3. Suction airway, if obvious obstruction to spontaneous breathing or requiring or requiring positive pressure ventilation
4. Respirations
 - a. If spontaneous
 - i. Wait 1-2 minutes then complete clamping cord and cut between clamps
 - ii. Cover infant head
 - iii. Wrap and keep warm
 - iv. Provide Oxygen
 - v. Transport without delay
 - b. If no respirations
Stimulate respirations: rub back, snap bottom of feet gently, if no change or respirations become depressed (<20 bpm)
 - i. Re-suction airway
 - ii. High flow oxygen if no change ventilate with BVM at 30/min
 - iii. Wait 1-2 minutes then clamp cord and cut between clamps
 - iv. Transport Immediately
5. Pulse
 - a. If pulse rate is less than 60 perform CPR at rate of 120 compressions/min, transport
 - i. Continue chest compressions

6. EMT STOP

EMT-IV

7. INT or IV NS, if hypotensive bolus 20 cc/kg

8. EMT IV STOP

PARAMEDIC

9. EKG monitor
10. Oxygen saturation
11. The dose of epinephrine is 0.01 mg/kg IV/IO (0.1 cc/kg of 1:10,000) given q 3-5 minutes, and repeat until heart rate is above 60/minute. Refer to the length based tape to confirm dosage.
12. If pulse rate is >60 keep warm, ventilate with BVM if necessary, transport

13. PARAMEDIC STOP

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PROCEDURE

Capnography

PARAMEDIC

Indications:

- Capnography shall be used as soon as possible in conjunction with any airway management adjunct, including endotracheal, cricothyrotomy, Blind Insertion Airway Device (BIAD) or BVM
- Capnography is recommended to be used on all patients treated with CPAP, Magnesium, and/or Epinephrine for respiratory distress.

Procedure:

1. Attach capnography sensor to the BIAD, endotracheal tube, or oxygen delivery device.
2. Note CO₂ level and wave form changes. These will be documented on each respiratory failure, cardiac arrest, or respiratory distress patient.
3. The capnometer shall remain in place with the airway and be monitored throughout the prehospital care and transport.
4. Any loss of CO₂ detection or waveform indicates an airway problem and should be documented.
5. The capnogram should be monitored as procedures are performed to verify or correct the airway problem.
6. Document the procedure and results on/with the Patient Care Report (PCR/EPCR).
7. In all patients with a pulse, an ETCO₂>20 is anticipated. In the post-resuscitation patient, no effort should be made to lower ETCO₂ by modification of the ventilatory rate. Further, in post-resuscitation patients without evidence of ongoing, severe bronchospasm, ventilatory rate should never be <6 breaths per minute.
8. In the pulseless patient, and ETCO₂ waveform with an ETCO₂ value >10 may be utilized to confirm the adequacy of an airway to include BVM and advanced devices with SpO₂ will not register.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PROCEDURE

Chest Decompression

PARAMEDIC

1. Cleanse skin on affected side using aseptic technique
2. Using a 14 or 16 gauge 3 ½" angiocath, insert between the 2nd/3rd mid clavicular or 4th/5th mid-axillary spaces
3. Advance needle until "pop" is felt while the needle is entering the pleural space
4. Advance catheter until hub contacts skin
5. Cover catheter hub with Asherman Chest Seal (ensure one way valve effect)
6. Reassess patient for breath sound changes
7. If signs of tension reoccur check chest seal, consider repeating chest decompression per above steps
8. Contact Medical Control
9. Transport

Use the same procedure for pediatric patients: use 18 or 20 gauge angiocath

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PROCEDURE

Continuous Positive Airway Pressure (CPAP)

BASIC IV PARAMEDIC

Continuous Positive Airway Pressure has been shown to rapidly improve vital signs, gas exchange, reduce the work of breathing, decrease the sense of dyspnea, and decrease the need for endotracheal intubation in patients who suffer from shortness of breath from asthma, COPD, pulmonary edema, CO Poisoning, Near Drowning, CHF, and pneumonia. In patients with CHF, CPAP improves hemodynamics by reducing left ventricular preload and afterload.

1. Indications

- a. Any patient who is in respiratory distress for reasons other than trauma or pneumothorax, and:
 - i. Is awake and able to follow commands
 - ii. Is over 12 years old and the CPAP mask fits appropriately
 - iii. Has the ability to maintain an open airway
 - iv. Has a systolic blood pressure above 90 mmHg
 - v. Uses accessory muscles during respirations
 - vi. Shows signs and symptoms consistent with asthma, COPD, pulmonary edema, CHF, or pneumonia
- b. **AND** who exhibit **two or more** of the following:
 - i. A respiratory rate greater than 25 breaths per minute
 - ii. Pulse Oximetry of less than 94% at any time
 - iii. Use of accessory muscles during respiration

2. Contraindications

- a. Patient is in respiratory arrest/apneic
- b. Patient is suspected of having a pneumothorax or has suffered trauma to the chest
- c. Patient has a tracheostomy
- d. Patient is actively vomiting or has upper GI bleeding
- e. Patient has decreased cardiac output, obtundation and questionable ability to protect airway (e.g. stroke, etc.), penetrating chest trauma, gastric distension, severe facial injury, uncontrolled vomiting, and hypotension secondary to hypovolemia

3. Precautions

- a. Use care if patient:
 - i. Has impaired mental status and is not able to cooperate with the procedure
 - ii. Had failed at past attempts at noninvasive ventilation
 - iii. Has active upper GI Bleeding or history of recent gastric surgery
 - iv. Complains of nausea or vomiting
 - v. Has inadequate respiratory effort
 - vi. Has excessive secretions
 - vii. Has a facial deformity that prevents the use of CPAP

4. Procedure

- a. **Explain the procedure to the patient**
 - i. Ensure adequate oxygen supply to ventilation device

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

- ii. Place the patient on continuous pulse oximetry
- iii. Place the patient on cardiac monitor and record rhythm strips with vital signs
- iv. Place the delivery device over the mouth and nose
- v. Secure the mask with provided straps or other provided devices. Be sure to select a sealing facemask and ensure that the mask fits comfortably, seals the bridge of the nose, and fully covers the mouth and nose.
- vi. Use 5 cm H₂O of PEEP to start, may increase to 7.5 cm H₂O. Higher levels of pressure are rarely needed and associated with more complications.
- vii. Check for air leaks
- viii. Monitor and document the patient's respiratory response to treatment
- ix. Check and document vital signs every 5 minutes.
- x. Administer appropriate medication as certified (continuous nebulized Albuterol for COPD/Asthma and repeated administration of nitroglycerine spray or tablets for CHF)
- xi. Continue to coach patient to keep mask in place and readjust as needed
- xii. Contact Medical Control to advise them of CPAP initiation
- xiii. If respiratory status deteriorates, remove device and consider intermittent positive pressure ventilation via BVM and/or placement of non-visualized airway or endotracheal intubation.

5. Removal Procedure

- a. CPAP therapy needs to be continuous and should not be removed unless the patient cannot tolerate the mask or experiences respiratory arrest or begins to vomit.
- b. Intermittent positive pressure ventilation with a Bag-Valve-Mask, placement of a non-visualized airway and/or endotracheal intubation should be considered if the patient is removed from CPAP therapy.

Special Notes

- 1. Do not remove CPAP until hospital therapy is ready to be placed on patient.
- 2. Watch patient for gastric distention that can result in vomiting.
- 3. Procedure may be performed on patient with Do Not Resuscitation Order.
- 4. Due to changes in preload and afterload of the heart during CPAP therapy, a complete set of vital signs must be obtained every 5 minutes.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PROCEDURE

Delayed Off Loading of Stable Non-Emergent Patients in the ED

EMS is currently facing an increasing frequency of patient turnover being delayed in the Emergency Department due to delays in acknowledgement, assessment, and placement in the ED. These delays negatively impact the ability of EMS to maintain response capability and provide emergency response in a timely manner. This protocol provides a method to off-load non-emergent patients and return to service in a timely manner.

PARAMEDIC

Eligible patients (patients must meet **ALL** of the following criteria:

- Greater than 16 years old or less than 65 years old
- Stable vital signs
- Non-Emergent complaint
- Patient can walk and talk
- Patient has had neither medications nor significant interventions by EMS (minor bandaging, splinting, without Nausea/Vomiting concerns)

Procedure

1. Ambulance arrives in ED and notifies ED nursing staff of patient.
2. If the ED Nursing Staff has not accepted report and made efforts to offload the patient from the EMS stretcher within 30 minutes of arrival, contact EMS Lieutenant or Supervisor.
3. EMS Lieutenant or Supervisor again requests ED Nursing Staff to offload the EMS stretcher. If no progress is made within 15 minutes of the Lieutenant or Supervisor's engagement, and the patient meets all the criteria above, perform the following:
 - a. Ensure the patient's condition is unchanged
 - b. Walk the patient to the triage waiting area
 - c. Document all contacts with ED personnel, and record names of Charge and Triage nurses
 - d. Denote method of patient care transfer on EPCR
 - e. Complete and abbreviated, hand written EMS run report to include patient demographics, complaint, vital signs and pertinent history and ensure hospital is aware of patient's presence in the waiting room
 - f. Complete standard EPCR run report
 - g. Return to service

In the event that a patient does not agree to be placed in the waiting room the patient has the right to refuse offload.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PROCEDURE

Endotracheal Tube Introducer (Bougie)

PARAMEDIC

Indications:

- Patients meet clinical indications for oral intubation (appropriate to use with any attempt)
- Predictable difficult intubation

Contraindications:

- Introducer larger than ETT internal diameter

Procedure:

1. Prepare, position and oxygenate the patient with 100% Oxygen
2. Select proper ET tube without stylet, test cuff and prepare suction
3. Lubricate the distal end and cuff of the endotracheal tube and the distal ½ of the Endotracheal Tube Introducer (Bougie) (Note: failure to lubricate the Bougie and the ETT may result in being unable to pass the ETT)
4. Using laryngoscopic techniques, visualize the vocal cords if possible using Sellick's/BURP as needed
5. Introduce the Bougie with curved tip anteriorly and visualize the tip passing the vocal cords or above the arytenoids if the cords cannot be visualized
6. Once inserted, gently advance the Bougie until you meet resistance or "hold-up" (if you do not meet resistance you have a probably esophageal intubation and insertion and insertion should be reattempted or the failed airway protocol implemented as indicated)
7. Withdraw the Bougie only to a depth sufficient to allow loading of the ETT while maintaining proximal control of the Bougie
8. Gently advance the Bougie and loaded ET Tube until you have hold-up again, thereby assuring tracheal placement and minimizing the risk of accidental displacement of the Bougie
9. While maintaining a firm grasp on the proximal Bougie, introduce the ET Tube over the Bougie passing the tube to its appropriate length
10. If you are unable to advance the ETT into the trachea and the Bougie and ETT are adequately lubricated, withdraw the ETT slightly and rotate the ETT 90° COUNTER CLOCKWISE to turn the bevel of the ETT posteriorly. If this technique fails to facilitate passing of the ETT you may attempt direct laryngoscopy while advancing the ETT (this will require an assistant to maintain the position of the Bougie and if so desired advance the ETT)
11. Once the ETT is correctly placed, hold the ET Tube securely and remove the Bougie
12. Confirm tracheal placement, inflate the cuff with 3-10 cc of air, auscultate for equal breath sounds and reposition accordingly
13. When final position is determined, secure the ET Tube, reassess breath sounds, apply end tidal CO₂ monitor, and record the monitor readings to assure continued tracheal intubation

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PROCEDURE

External Transcutaneous Cardiac Pacing

PARAMEDIC

Noninvasive cardiac pacing, also referred to as external or transcutaneous pacing, involves the temporary application of externally applied electrodes to deliver an adjustable electrical impulse directly across an intact chest wall for the purpose of rhythmically stimulating the myocardium to increase the mechanical heart rate.

Indications:

1. It is indicated for the treatment of hemodynamically compromised patients in settings where cardiac output is compromised due either to the complete failure of cardiac rhythm or to an insufficient rate of the patient's intrinsic pacemaker.
2. Bradycardia with a systolic BP of less than 80 mmHg with shock-like signs or symptoms.
3. Patients who experience provider-witnessed cardiopulmonary arrest and who present with asystole, or patients whose EKG converts to asystole while the EKG is being monitored.
4. Prompt application of the transcutaneous cardiac pacemaker is appropriate prior to the administration of epinephrine and atropine when a patient converts to asystole as a primary rhythm during EKG monitoring by an EMT-P.
5. Pediatric patients (40 kg or less) with profound symptomatic bradycardia unresponsive to optimal airway management, oxygenation, epinephrine, and atropine.

NOTE: Medical consultation is required for pacing pediatric patients.

Contraindications:

1. Non-witnessed cardiopulmonary arrest with asystole
2. Patients not meeting blood pressure criteria

Technique:

Start at a pacemaker heart rate of 70 beats per minute and the milliamperes (m.a.) as low as possible. Gradually increase m.a. until palpable pulse confirmed capture or 200 m.a.

Potential Adverse Effects/Complications:

Patients may experience mild to moderate discomfort.

If patient is conscious and has adequate blood pressure consider:

Pain medication per chart below **and/or** Diazepam 2.5-10 mg slow IV/IO or
Versed 2-4 mg IV/IO

Musculoskeletal twitching in the upper torso may occur during cardiac pacing.

Precautions:

When properly applied, chest compressions can be performed directly over the insulated electrodes while the pacer is operating.

DO NOT USE EXTERNAL CARDIAC PACING ON A HYPOTHERMIC PATIENT.

all doses in mg unless indicated	5 kg	7 kg	9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50-74 kg	75 kg	≥75 kg	Geriatric	
Fentanyl IM/IO				10	10	15	20	25	25	50	75	25		1 mcg/kg
Morphine IM/IO				1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg		2 mcg/kg
Ondansetron IV/IO							2 mg	3 mg	4 mg	4 mg	4 mg	4 mg		0.1 mg/kg

If pain not controlled, Morphine and Fentanyl dosing may be repeated once after 15 minutes. Contraindicated in hemodynamically unstable patients.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PROCEDURE

EZ-IO

PARAMEDIC

Indications:

1. Intravenous fluid or medications needed AND
2. Peripheral IV cannot be established in two attempts or 90 seconds AND the patient exhibits one or more of the following:
 - a. Altered mental status (GCS of 8 or less)
 - b. Respiratory compromise (SaO₂ of 80% or less following appropriate oxygen therapy, and/or respiratory rate <10 or >40/min)
 - c. Hemodynamically unstable (Systolic BP <90)
3. IV Access is preferred, however, IO may be considered prior to peripheral IV attempts in the following situations:
 - a. Cardiac Arrest (Medical or Trauma)
 - b. Profound hypovolemia with altered mental status

Contraindications:

1. Fracture of the tibia or femur (for tibia insertion) – Consider alternate tibia
2. Fracture of the humerus (for humeral head insertion) – Consider alternate humerus
3. Previous orthopedic procedures (ex.: IO within previous 24 hrs, knee replacement, shoulder replacement)
4. Infection at the insertion site
5. Significant edema
6. Excessive tissue at insertion site
7. Inability to locate landmarks

Considerations:

1. Flow rates: Due to the anatomy of the IO space you will note flow rates to be slower than those achieved with IV access
 - a. Ensure the administration of 10 ml rapid bolus with syringe
 - b. Use a pressure bag or pump for fluid challenge
2. Pain: Insertion of the IO device in conscious patients causes mild to moderate discomfort and is usually no more painful than a large bore IV. However, fluid infusion into the IO space is very painful and the following measures should be taken for conscious patients:
 - a. Prior to IO bolus or flush on a conscious adult patient, SLOWLY administer 20-50 mg of 2% lidocaine.
 - b. Prior to IO bolus or flush on a conscious pediatric patient, SLOWLY administer 0.5 mg/kg 2% lidocaine.

Adult patient: Defined as a patient weighing 40 kg or greater

The adult (blue cap) needle set shall be used for adult patients

Primary Insertion Site: Tibial Plateau

If IO access is warranted, the tibia shall be the insertion site of choice if possible

Alternate Insertion Site: Humeral Head or Medial Malleolus (adult patient only)

If IO access is not available via the tibial insertion site due to contraindications or inability to access the site due to patient entrapment and vascular access is imperative, the IO may be placed in the humeral head.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Do Not attempt insertion medial to the Intertubercular Groove or the Lesser Tubercle

Pediatric Patient: Defined as a patient weighing 3-39 kg

1. The pediatric needles set (pink cap) shall be used for pediatric patients
2. Use the length based assessment tape to determine pediatric weight
3. The only approved site for pediatric IO insertion is the tibia

Standing Order:

The EZ-IO may be used if the indications are met and no contraindications exist.

Precautions:

1. The EZ-IO is not intended for prophylactic use
2. The EZ-IO infusion system requires specific training prior to use

Proper identification of the insertion site is crucial.

Landmarks: Tibial Plateau

There are three important anatomical landmarks – the Patella, the Tibial Tuberosity (if present) and the Flat Aspect of the Medial Malleolus.

Important: The tibial tuberosity is often difficult or impossible to palpate on very young patients!

The traditional approach for IO insertions in small patients where the tibial tuberosity cannot be palpated is to identify the insertion site **“TWO FINGER WIDTHS BELOW THE PATELLA and then medial along the flat aspect of the TIBIA”**.

The traditional IO insertion in slightly larger patients where the tuberosity can be appreciated generally suggests **“One finger width distal to the tibial tuberosity along the flat aspect of the medial tibia.”**

The EZ-IO should be inserted two finger widths below the patella (kneecap) and one finger medial (toward the inside) to the tibial tuberosity.

For the morbidly obese patient consider rotating the foot to the mid-line position (foot straight up and down). With the knee slightly flexed, lift the foot off the surface allowing the lower leg to “hang” dependent. This maneuver may improve your ability to visualize and access the tibial insertion site.

Landmarks: Humeral Head

Place the patient in a supine position

Expose the shoulder and place the patient’s arm against the patient’s body.

Rest the elbow on the stretcher with the forearm on the abdomen. Palpate and identify the mid shaft humerus and continue palpating toward the humeral head. As you near the shoulder you will note a small protrusion. This is the base of the greater tubercle insertion site. With the opposite hand “pinch” the anterior and inferior aspects of the humeral head confirming the identification of the greater tubercle. This will ensure that you have identified the midline of the humerus itself. The insertion site is approximately two finger widths inferior to the coracoid process and the acromion.

Landmarks: Medial Malleolus

The insertion site is two finger widths proximal to the Medial Malleolus and positioned midline on the medial shaft.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Procedure:

Inserting the EZ-IO:

1. Determine that the EZ-IO is indicated
2. Ensure that no contraindications are present
3. Locate the proper insertion site
4. Clean the insertion site with alcohol
5. Prepare the EZ-IO driver and needle set
6. Stabilize the leg (or arm)
7. Position the driver at the insertion site with the needle at a 90° angle to the surface of the bone
8. Power the needle set through the skin until you feel the tip of the needle set encounter the bone. Apply firm steady pressure on the driver and power through the cortex of the bone. Stop when the needle flange touches the skin or a sudden resistance is felt. **Stop on the POP.** This indicates entry into the bone marrow cavity
9. Grasp the hub firmly with one hand and remove the driver from the needle set
10. While continuing to hold the hub firmly, rotate the stylet counter clockwise and remove it from the needle set. Dispose of the stylet properly in a sharps container
11. Confirm proper placement of the EZ-IO catheter tip:
 - a. The catheter stands straight up at a 90° angle and is firmly seated in the tibia
 - b. Blood is sometimes visible at the tip of the stylet
 - c. Aspiration of a small amount of marrow with a syringe
12. Attach a primed extension set to the hub and flush the IO space with 10 cc of Normal Saline. **NO FLUSH – NO FLOW**
13. If the patient is conscious, administer Lidocaine 2% 20-50 mg slowly **PRIOR** to the initial bolus
14. Initiate the infusion per standing orders. Use of a pressure infuser or blood pressure cuff is recommended to maintain adequate flow rates
15. Apply the wrist band and a dressing

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PROCEDURE

Fever / Infection Control

BASIC	IV	PARAMEDIC
-------	----	-----------

Indications:

- | | |
|---|---|
| <ul style="list-style-type: none">• Age• Duration of Fever• Severity of Fever• Past Medical History• Medications• Immunocompromised (Transplant, HIV, Diabetes, Cancer)• Environmental Exposure | <ul style="list-style-type: none">• Last Acetaminophen or Ibuprofen• Warm• Flushed• Sweaty• Chills/Rigors• Myalgias: Cough, Chest Pain, Headache, Dysuria, Abdominal Pain, Mental Status Changes, Rash |
|---|---|

Procedure:

1. Use Contact, Droplet, and Airborne PPG precautions
2. Obtain Orthostatic Blood Pressure
3. Using your IV Protocol start a Normal Saline Bolus
4. For a temperature greater than 100.4°F (38°C) if available administer Ibuprofen 600 mg PO (peds >6 months 5 mg/kg PO) or Acetaminophen 1000 mg PO (peds >3 months 15mg/kg PO)
5. Notify destination or contact Medical Control

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PROCEDURE

Induced Hypothermia Following ROSC

The goal is to begin cooling the patient who meets criteria as soon as possible. Initiate resuscitation with cold saline as your IV of choice if the patient appears to be a candidate for IH. Therefore, if you have cold saline available when the first IV is started, begin cold fluids immediately. If IV access is already established, change to cold saline when ROSC is achieved. If ROSC is not achieved, proceed as you would with any nonresponsive cardiac arrest, and document that cold saline was initiated. This will assist the medical examiner in determining time of death. Complete the remainder of the protocol.

PARAMEDIC

Criteria for Induced Hypothermia:

1. Age greater than 18
2. Any cardiac arrest with resuscitation efforts
3. **Return Of Spontaneous Circulation** (regardless of blood pressure) following cardiac arrest (all non-traumatic causes)
4. Patient remains comatose (GCS <8 and/or no purposeful responses to pain)
5. Intubated or needs airway management (King Airway is acceptable) $\text{ETCO}_2 > 20$ mmHg
6. Systolic Blood Pressure can be maintained at 90 mmHg spontaneously or with fluids and pressors

Patient Exclusion Criteria:

1. Pregnant female with obvious gravid uterus
2. Systolic Blood Pressure cannot be maintained at 90 mmHg or greater spontaneously or with fluids and pressors
3. Coagulopathy or thrombocytopenia

Procedure:

1. Does patient meet criteria for Induced Hypothermia?
 - a. If No, proceed to Post-Resuscitation protocol – Proceed with intubation. King airway is acceptable
 - b. If Yes, Is the ET Tube placed
(Once airway is controlled follow remaining steps)
2. Perform Neuro Exam to confirm meets criteria
3. Expose patient – Apply ice packs to Axilla, Neck, and Groin
4. Administer Cold Saline bolus 30 mL/kg to max of 2 liters
5. Administer Versed 0.15 mg/kg to max 10 mg, if needed to control agitation or shivering
6. If necessary, administer Dopamine 10-20 mcg/kg/min for MAP 90-100

Special Notes:

1. If patient meets other criteria for induced hypothermia and is not intubated, then intubate according to protocol before inducing cooling. If unable to intubate, use of King Airway is acceptable
2. When exposing patient for purpose of cooling, undergarments may remain in place. Be mindful of your environment and take steps to preserve the patient's modesty.
3. Do not delay transport for the purpose of cooling
4. Reassess airway frequently and with every patient move

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

5. Patients develop metabolic alkalosis with cooling. Do not hyperventilate
6. Transport patient to Hypothermia capable center if appropriate

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PROCEDURE

Indwelling IV Port Access

PARAMEDIC

Indications:

1. Intravenous fluid or medications **emergently** needed AND
2. Peripheral IV cannot be established AND the patient exhibits one or more of the following:
 - a. Presence of Indwelling Port
 - b. Altered mental status (GCS of 8 or less)
 - c. Respiratory compromise (SaO₂ of 80% or less following appropriate oxygen therapy and/or respiratory rate <10 or >40/min)
 - d. Hemodynamically unstable

Contraindications:

1. Infection at insertion site
2. Significant edema
3. Excessive tissue at insertion site
4. Inability to locate landmarks

Considerations:

1. Port-A-Cath access in the field should only be utilized in **EMERGENCY** situations.
2. Access should only be attempted under sterile conditions by those who have documented competency.
3. You may utilize the patient's supplies if necessary and appropriate.
4. **DO NOT FORCE FLUSH INDWELLING CATHETERS.**

Procedure for accessing the Implanted Port:

1. Assemble Supplies:
 - a. 10 cc NS Syringe
 - b. Chloraprep
 - c. Masks
 - d. Sterile Gloves
 - e. Huber needle with attached extension tubing
 - f. Transpore tape
 - g. IV/NS set-up
2. Cleanse hands
3. Peel open one corner of the Huber needle package only; Extend end of extension tubing only out the opening
4. Attach 10 cc NS syringe to extension tube
5. Prime tubing and needle with NSS
6. Place Huber needle package on a secure flat surface and peel back package open. **Do NOT touch Huber needle until sterile gloves are on.**
7. Caregiver applies mask; the patient has the option of putting on mask or turning their head away from the port area
8. Put on sterile gloves
9. Use repeated back and forth strokes of the applicator for approximately 30 seconds. Allow the area to air dry for 30 seconds. Do not blot or wipe away.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

10. Pick up Huber needle with NS syringe attached; touch only the Huber needle as this is sterile and the syringe is not.
11. Grip Huber needle securely; remove clear protective sheath from the needle
12. Locate and stabilize the port site with your thumb and index finger, creating a “V” shape.
13. Access the port by inserting the Huber needle at a 90° angle into the reservoir
14. Once accessed, the needle must not be twisted; excessive twisting will cut the septum and create a drug leakage path
15. Insert gently, flush the port with 2-5 cc NS and then attempt to aspirate a blood return. This confirms proper placement; if the port is difficult to flush **DO NOT FORCE FLUSH.**
16. Slowly inject the remaining 10 cc NS; observe for resistance, swelling or discomfort. If present, assess needle placement. If still present remove the Huber and re-access.
17. Remove empty NS syringe and attach IV Solution tubing and initiate flow.
18. Hold slight pressure with a 2x2 until bleeding, if any, stops. There should never be excessive bleeding.

Dressing the Port Site:

1. Assemble supplies
 - a. CVC dressing kit
 - b. Flat clean work surface
2. Open the package of 2x2s if extra padding is needed
3. Place one 2x2 under the needle to provide padding on the skin if Huber is not flush with chest
4. Tear a piece of tape approximately 3” long; split tape lengthwise; tape over Huber needle in a “X” format
5. Cover site with transpore tape
6. Secure the extra tubing with tape to prevent catching on clothes

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PROCEDURE

Intranasal Medication

PARAMEDIC

Medication administration in a certain subgroup of patients can be a very difficult endeavor. For example, an actively seizing or medically restrained patient may make attempting to establish an IV almost impossible which can delay effective drug administration. Moreover, the paramedic or other member of the medical team may be more likely to suffer a needle-stick injury while caring for these patients.

In order to improve prehospital care and to reduce the risks of accidental needle-stick, the use of Mucosal Atomizer Device (MAD) is authorized in certain patients. The MAD allows certain IV medications to be administered into the nose. The device creates a medication mist which lands on the mucosal surfaces and is absorbed directly into the bloodstream.

Indications:

Emergent need for medication administration and IV access unobtainable or presents a high risk of needle-stick injury due to patient condition

1. Seizures/Behavioral control: Midazolam (Versed) may be given intranasally until IV access is available
2. Altered Mental Status from Suspected Narcotic Overdose: Naloxone (Narcan) may be given intranasally until IV access is available
3. Symptomatic Hypoglycemia (Blood sugar less than 80 mg/dl): Glucagon may be given intranasally until IV access is available.

Medications administered via the IN route require a higher concentration of drug in a smaller volume of fluid than typically used in the IV route. In general, no more than 1 milliliter of volume can be administered during a single administration event.

Contraindications:

1. Bleeding from the nose or excessive nasal discharge
2. Mucosal destruction

Technique:

1. Draw proper dosage (see below)
2. Expel air from syringe
3. Attach the MAD device via LuerLock Device
4. *Briskly* compress the syringe plunger

Complications:

1. *Gently* pushing the plunger will not result in atomization
2. Fluid may escape from the nares
3. IntraNasal Dosing is less effective than IV dosing (slower onset, incomplete absorption)
4. Current patient use of nasal vasoconstrictors (neosynephrine/Cocaine) will significantly reduce the effectiveness of IN medications. Absorption is delayed, peak drug level is reduced, and time of drug onset is delayed.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Midazolam

Precautions:

1. Midazolam may cause hypoventilation and potential respiratory depression/arrest. Have equipment and help readily available to manage the airway when administering this medication.
2. If hypotension develops after the administration of Midazolam, administer a 20 ml/kg bolus of normal saline.

Patient Age (years)	Weight (kg)	IN Midazolam volume in ml (assuming 5 mg/ml concentration) Midazolam volume dose (mg)
Neonate	3	0.12 ml 0.6 mg
<1	6	0.24 ml 1.2 mg
1	10	0.40 ml 2.0 mg
2	14	0.56 ml 2.8 mg
3	16	0.64 ml 3.2 mg
4	18	0.72 ml 3.6 mg
5	20	0.80 ml 4.0 mg
6	22	0.88 ml 4.4 mg
7	24	0.96 ml 4.8 mg
8	26	1.04 ml 5.2 mg
9	28	1.12 ml 5.6 mg
10	30	1.20 ml 6.0 mg
11	32	1.28 ml 6.4 mg
12	34	1.36 ml 6.8 mg
Small Teenager	40	1.60 ml 8.0 mg
Adult or Full grown teenager	50 or more	2.0 ml 10.0 mg

Naloxone

Adult:

1. Naloxone 0.4 mg every 5 minutes until the respiratory rate improves and the patient can maintain a pulse oximetry reading of 96% OR until 2 mg has been given
2. Split dose equally between each nostril

Pediatric:

1. Naloxone 0.1 mg/kg (max single dose 0.4 mg) until the respiratory rate improves and the patient can maintain a pulse oximetry reading of 96% OR until 2 mg has been given
2. Split dose evenly between each nostril

Glucagon

Intranasal lyophilized Glucagon may be given to hypoglycemic adults in the same dose as IM or IV routes. The dose should be split evenly between each nostril.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PROCEDURE

Mechanical CPR Device

<u>Inclusion Criteria:</u> • The device must be present on scene within 8 minutes of the initiation of CPR • The patient must not meet any of the exclusion criteria • The patient must not be too large or too small to fit in the device	<u>Exclusion Criteria:</u> • Body habitus too large for the device • Children <42 kg/90 lbs or any individual which when fitted with the device the suction cup does not make firm contact with the chest wall • Down time suspected to be ≥ 15 minutes without CPR • Confirmed down time without CPR >10 minutes
---	--

BASIC

IV

PARAMEDIC

If the above inclusion criteria are met, none of the exclusion criteria are present, and a mechanical device is available, the following steps will be taken to implement its use:

1. CPR will be performed manually for at least 2 minutes and the patient will be ventilated with a BVM/oral airway during this time
2. After 2 minutes the defibrillation/monitor pads will be applied to the patient. At this time the Mechanical CPR device will also be applied to the patient
3. Defibrillation performed if indicated
4. CPR resumed using the Mechanical CPR Device
5. Obtain airway (adequate ventilation with OPA/NPA/BVM, King Airway or ETT)
6. IV/IO Access
7. Initiation of ACLS medications
8. Allow at least 90 seconds of CPR after any medications given before pausing to check rhythm
9. If pulse confirmed prepare for immediate transport. The Mechanical CPR device may be turned off but must be left on the patient during the transport to the hospital
10. If the patient goes back into cardiac arrest immediate resumption of Mechanical CPR will be performed and ACLS will continue
11. Detailed documentation with times of all initiation and termination of use of the Mechanical CPR device must be kept for statistical and feedback purposes

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PROCEDURE

Rapid Sequence Paralysis and Intubation

PARAMEDIC

Assessment and Indications

- Acutely head injured patients that are combative, unable to effectively control airway, need hyperventilation to control intracranial pressure or that are having difficulty breathing.
- Severely combative patients that cannot be controlled without injury to the patient or caregivers
- Prophylaxis for airway burns, inhalation injuries
- Patients who need ventilatory assistance or airway protection

AND

- **All** standard attempts to establish an airway have failed

Contraindications

- Malignant hyperthermia
- Known allergy to agents
- Hyperkalemia
- Severe burns greater than 12 hours

Precautions

- Pregnancy
- Dehydration
- Respiratory disease
- Penetrating eye injury
- Fractures and crush injury
- Cardiac disease
- Neuromuscular disease
- Severe burns
- Glaucoma
- **Multiple facial fractures or facial instability

Equipment – All equipment should be age appropriate

- Endotracheal tube and stylet
- Laryngoscope handle and appropriate blade
- 10 cc syringe
- Lubricant such as xylocaine jelly
- Magill forceps
- Tape or securing device
- **RSI** medications
- Suction equipment
- #11 bladed scalpel
- Betadine
- Curved sharp hemostat
- Large bore IV needle
- Adapter

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

- Manual resuscitator device, O₂ delivery system
- Oral airways

Prepare the patient

1. Provide inline stabilization of the head and neck in the trauma patient
2. Consider removing the anterior portion of the cervical collar
3. Position the patient for optimal visualization
4. Provide high flow O₂, utilize method appropriate to patient condition
5. Establish IV access and assure patency
6. Attach cardiac and oxygen saturation monitors
7. Preoxygenate the patient with 100% Oxygen for two minutes. This will result in a washout of normal nitrogen reserve and establish an oxygen reserve which will allow for several minutes of apnea.
8. Avoid positive pressure ventilation if possible in order to prevent gastric insufflation and increase the likelihood of emesis and aspiration
9. Assist the patient with a manual resuscitator only if spontaneous ventilation is inadequate or absent

Protocol

1. Administer lidocaine IVP
<12 years of age: 1.0 mg/kg
Adult patient: 1.5 mg/kg
2. Administer atropine IVP
<10 years of age: 0.02 mg/kg with discretion in the child with existing tachycardia
Adult patient: 1 mg if necessary, use discretion and may be necessary with heart rate <60/minute
3. Administer versed IVP
Pediatric patient: 0.1 mg/kg titrate over 2-5 minutes until slurring of speech, eyelids close, eyelid reflex disappears; maximum dose of 5 mg
Adult patient: 1 mg per minute, titrate to desired effects of slurring speech, eyelids close, eyelid reflex disappears; with a maximum dose of 7.5 mg
4. Maintain systolic pressure of 90 or greater
5. Evaluate the patient for versed assisted intubation at this time
6. If consciousness is lost, apply cricoid pressure (Sellick Maneuver)
7. Administer anectine (succinylcholine) IVP
Pediatric patient: <12 years 1.5-2.0 mg/kg over 30 seconds
Adult patient: 1.0-1.5 mg/kg IVP over 30 seconds
8. Intubate when patient is apneic and fasciculations have stopped.
 - If unable to intubate within 20 seconds, halt attempts, provide ventilatory assistance for 30-60 seconds and reattempt intubation.
 - If intubation is unsuccessful and ventilatory assistance with a manual resuscitator is ineffective consider performing a surgical cricothyroidotomy on patients >12 years of age utilizing a #6-7 ETT; or a needle cricothyroidotomy on adults; and patients 12 years and younger.
 - Should intubation induced bradycardia occur, temporarily halt the intubation procedure. Hyperventilate with manual resuscitator and high flow oxygen. If bradycardia continues administer atropine

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Verify correct ETT placement

1. Visualize vocal cords during **ETT** placement
2. Auscultate thorax and abdomen to determine if air entry is adequate and symmetrical to all lung fields and absent over the epigastrium
3. Observe for symmetric chest wall expansion with ventilation
4. ****Apply an adjunct for airway placement**
5. Secure **ETT** at appropriate **CM** mark at lips in accordance with **ETT** size

Documentation

- Indication for intubation
- Tube size
- Pre-oxygenation prior to intubation and oxygen saturation
- Classification and condition of airway: clear, emesis, blood, etc.
- Difficulty with the procedure, including number of attempts
- Depth of insertion and how the tube is secured
- Who performed the procedure
- Cricoid pressure
- Manual in-line immobilization of C-Spine for trauma patients
- Means by which patient was ventilated **after** intubation and oxygen delivered
- Cardiac rhythm
- Status of ETT after each movement of patient
- Status of tube at receiving facility; breath sounds, oxygen saturation, End tidal CO₂, clinical improvement/stability
- Document physician who confirms tube placement and initial **ABGs** on patient record
- Head and neck immobilized on all pediatric patients (medical and trauma) for tube security
- Complete required QA sheet

NOTE: RSI/Drug assisted intubation may **ONLY** be performed by paramedics who have documented competency in this skill via written confirmation with the medical director.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PROCEDURE

Vascular Access

PARAMEDIC

1. The preferred site for an IV is the hand followed by the forearm and antecubital and is dependent on the patient's condition and treatment modality
2. In the event that an IV cannot be established, and the IV is considered critical for the care of the patient, other peripheral sites may be used, i.e.: external jugular, feet, legs
3. External Jugular Veins should never be the first line attempted unless the patient has no limbs for the initial attempts. INTs **SHOULD NOT** be used in External Jugular access
4. The intraosseous site may be used in patients whom IV access cannot be established within 2 attempts or 90 seconds **when IV access is critical** (REFER TO THE EZ-IO PROCEDURE)

PROCEDURE

Intravenous Fluid Administration

PARAMEDIC

Any patient having a condition that requires an IV or INT may receive it if the Paramedic deems it necessary. Weigh the transport time against the time it would take to start an IV and make a good decision.

Trauma: Minimize on scene time. IVs are to be started while en route to the hospital unless the patient is pinned in vehicle or a prolonged scene time is unavoidable. IV Lactated Ringers are for trauma patients. The rate is based on patient condition and shall be to maintain the patient's systolic blood pressure 80-100 mmHg

Medical: INT or IV Normal Saline for chest pain, cardiac arrest or other medical conditions requiring possible IV access. If IV access is all that is needed, the INT is preferred.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

PROCEDURE

Wound Care – Tourniquet

PARAMEDIC

Indications:

- Life threatening arterial hemorrhage
- **Serious or life threatening** extremity hemorrhage and tactical consideration prevent the use of standard hemorrhage control techniques

Contraindications:

- Non – Extremity hemorrhage
- Proximal extremity location where tourniquet application is not practical

Procedure:

1. Place tourniquet proximal to wound
2. Tighten per manufacturer instructions until hemorrhage stops and/or distal pulses in affected extremity disappear
3. Secure tourniquet per manufacturer instructions
4. Note time of tourniquet application and communicate this to receiving care providers
5. Dress wounds per standard wound care protocol
6. If delayed or prolonged transport and tourniquet application time greater than 2 hours, contact medical control
7. Include Tourniquet in use in your report to the Trauma Center as soon as practical and in your documentation for the PCR

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE

Consent Issues

BASIC IV PARAMEDIC

Tennessee law, under legal doctrine known as “implied consent”, allows EMTs and Paramedics to transport minors when a parent or legal guardian is not available to provide consent IF a medical emergency exists. Simply stated, a court will imply that reasonable parents would want someone to help their child in their absence if the child develops an emergent medical condition. However, implied consent only becomes legally effective after a reasonable effort is made under the circumstances to contact a parent or legal guardian to obtain their consent to treat the minor.

In non-emergent situations, “mature” minors are generally presumed to be legally competent to give consent. Whether or not a minor is “mature” depends upon multiple factors articulated by the Tennessee Supreme Court. Since it would be difficult, if not impossible, for an EMT or Paramedic to adequately assess the factors in the field, it is highly recommended that you obtain the consent of a parent or legal guardian before treating or transporting a non-emergent minor.

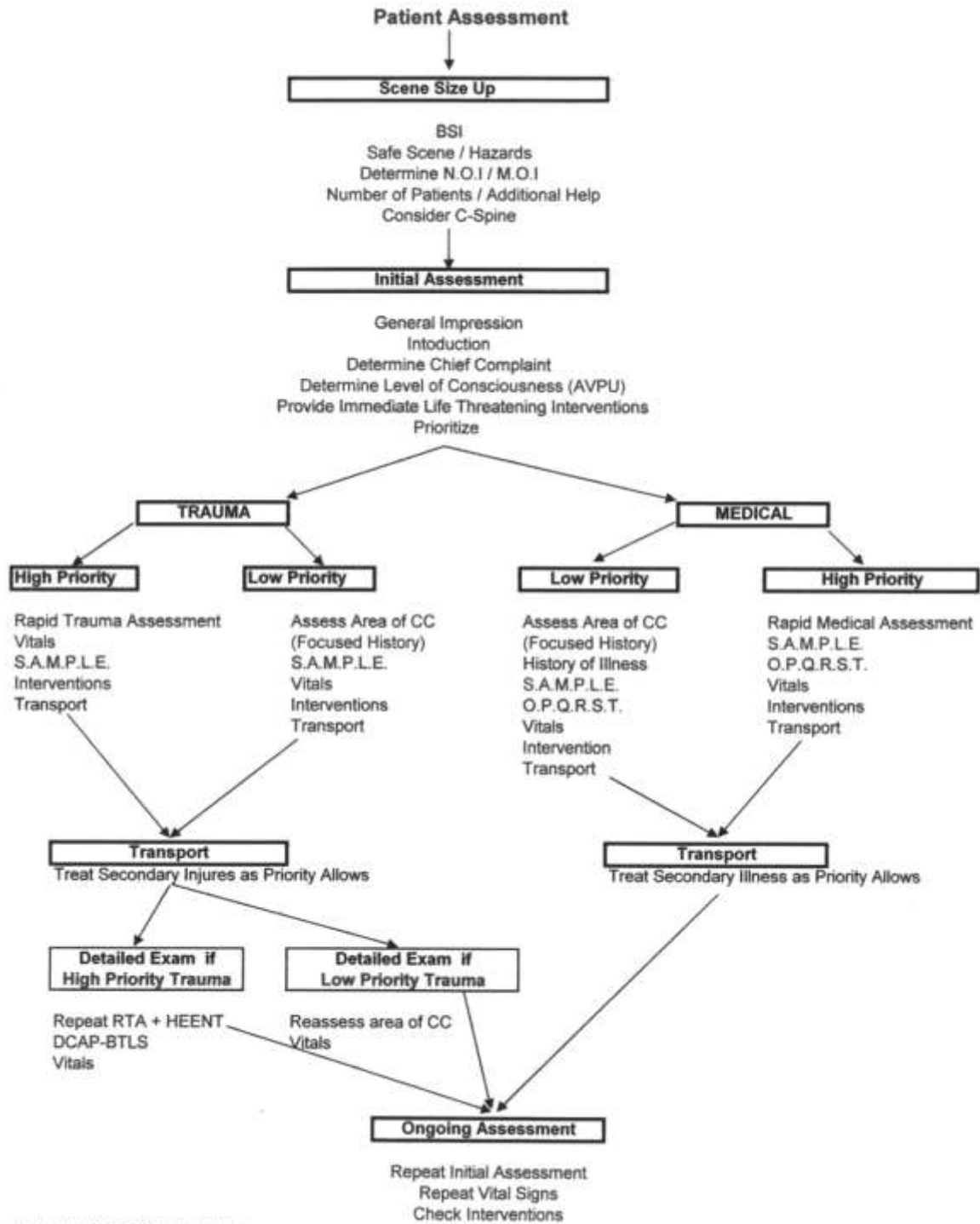
Obtaining the consent of a parent or legal guardian before treating or transporting a minor with either an emergent or non-emergent condition is usually not necessary when the minor is married or legally emancipated as married or emancipated minors are generally deemed to be legally competent.

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE

Patient Assessment Flow Chart

BASIC PARAMEDIC



TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE

Physician Orders for Scope of Treatment (POST)

BASIC IV PARAMEDIC

COPY OF FORM SHALL ACCOMPANY PATIENT WHEN TRANSFERRED OR DISCHARGED			
Physician Orders for Scope of Treatment (POST) This is a Physician Order Sheet based on the medical conditions and wishes of the person identified at right ("patient"). Any section not completed indicates full treatment for that section. When need occurs, <u>first</u> follow these orders, <u>then</u> contact physician.		Patient's Last Name First Name/Middle Initial Date of Birth	
Section A	CARDIOPULMONARY RESUSCITATION (CPR): Patient has no pulse <u>and/or</u> is not breathing. ☐ Resuscitate (CPR) ☐ Do Not Attempt Resuscitate (DNR/no CPR) When not in cardiopulmonary arrest, follow orders in B, C, and D.		
Section B	MEDICAL INTERVENTIONS. Patient has pulse <u>and/or</u> is breathing. ☐ Comfort Measures Treat with dignity and respect. Keep clean, warm, and dry. Use medication by any route, positioning, wound care and other measures to relieve pain and suffering. Use oxygen, suction and manual treatment of airway obstruction as needed for comfort. Do not transfer to hospital for life-sustaining treatment. Transfer <u>only</u> if comfort needs cannot be met in current location. ☐ Limited Additional Interventions Includes care described above. Use medical treatment, IV fluids and cardiac monitoring as indicated. Do not use intubation, advanced airway interventions, or mechanical ventilation. Transfer to hospital if indicated. Avoid intensive care. ☐ Full Treatment. Includes care above. Use intubation, advanced airway interventions mechanical ventilation, and cardioversion as indicated. Transfer to hospital if indicated. Include intensive care. Other Instructions: _____		
Section C	ANTIBIOTICS – Treatment for new medical conditions: ☐ No Antibiotics ☐ Antibiotics Other Instructions: _____		
Section D	MEDICALLY ADMINISTERED FLUIDS AND NUTRITION. Oral fluids and nutrition must be offered if medically feasible. ☐ No IV fluids (provide other measures to assure comfort) ☐ IV fluids for a defined trial period ☐ IV fluids long-term if indicated ☐ No feeding tube ☐ Feeding tube for a defined trial period ☐ Feeding tube long-term Other Instructions: _____		
Section E	Discussed with: ☐ Patient/Resident ☐ Health care agent ☐ Court-appointed guardian ☐ Health care surrogate ☐ Parent of minor ☐ Other: _____ (Specify) The Basis for These Orders Is: (Must be completed) ☐ Patient's preferences ☐ Patient's best interest (patient lacks capacity or preferences unknown) ☐ Medical indications ☐ (Other) _____		
Physician Name (Print)		Physician Phone Number	Office Use Only
Physician Signature (Mandatory)		Date	
COPY OF FORM SHALL ACCOMPANY PATIENT WHEN TRANSFERRED OR DISCHARGED			

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

HIPAA PERMITS DISCLOSURE OF POST TO OTHER HEALTH CARE PROFESSIONALS AS NECESSARY			
Signature of Patient, Parent of Minor, or Guardian/Health Care Representative			
Significant thought has been given to life-sustaining treatment. Preferences have been expressed to a physician and/or health care professional(s). This document reflects those treatment preferences. (If signed by surrogate, preferences expressed must reflect patient's wishes as best understood by surrogate.)			
Signature	Name (print)	Relationship (write "self" if patient)	
Contact Information			
Surrogate	Relationship	Phone Number	
Health Care Professional Preparing Form	Preparer Title	Phone Number	Date Prepared
Directions for Health Care Professionals			
Completing POST			
Must be completed by a health care professional based on patient preferences, patient best interest, and medical indications.			
POST must be signed by a physician to be valid. Verbal orders are acceptable with follow-up signature by physician in accordance with facility/community policy.			
Photocopies/faxes of signed POST forms are legal and valid.			
Using POST			
Any incomplete section of POST implies full treatment for that section.			
No defibrillator (including AEDs) should be used on a person who has chosen "Do Not Attempt Resuscitation".			
Oral fluids and nutrition <u>must</u> always be <u>offered</u> if medically feasible.			
When comfort cannot be achieved in the current setting, the person, including someone with "Comfort Measures Only", should be transferred to a setting able to provide comfort (e.g., treatment of a hip fracture).			
IV medication to enhance comfort may be appropriate for a person who has chosen "Comfort Measures Only".			
Treatment of dehydration is a measure which prolongs life. A person who desires IV fluids should indicate "Limited Interventions" or "Full Treatment".			
A person with capacity, or the surrogate of a person without capacity, can request alternative treatment.			
Reviewing POST			
This POST should be reviewed if:			
(1) The patient is transferred from one care setting or care level to another, or (2) There is a substantial change in the patient's health status, or (3) The patient's treatment preferences change.			
Draw line through sections A through E and write "VOID" in large letters if POST is replaced or becomes invalid.			
Approved by Tennessee Department of Health, Board for Licensing Health Care Facilities, February 3, 2005			
COPY OF FORM SHALL ACCOMPANY PATIENT WHEN TRANSFERRED OR DISCHARGED.			
DO NOT ALTER THIS FORM !			

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE

Pulse Oximetry

PARAMEDIC

Pulse Oximetry – Assessment

Pulse Oximetry is not without limits and must not be used to supersede other assessments.

The Paramedic shall treat the patient and NOT the pulse oximeter's display. The patient's other key signs and symptoms must be assessed and evaluated so that the oximeter's readings are interpreted within the context of the patient's overall condition.

The percentage of oxygen saturation measured by an oximeter only reflects the supplied pulmonary oxygenation and is not an indicator or measure of cellular oxygenation. Furthermore, it is useful both in the assessment of the patient and as an adjunct for evaluating the effectiveness of the airway management, ventilation, and oxygen enrichment provided.

Oxygen saturation pressure (SpO₂) is a different measurement than the partial pressure of oxygen (PaO₂) which is commonly measured by laboratory blood gas analysis.

Pulse Oximetry should be deferred until more urgent assessment and care priorities have first been resolved.

Pulse oximetry is a diagnostic tool that, along with patient's vital signs, chief complaint, mental status, and other considerations, may assist us in the determining the patient's respiratory status.

The pulse rate determined by the pulse oximeter is not an accurate indicator of the patient's pulse rate.

Falsely low readings may occur in the following:

- Patients with cold extremities or hypothermic patients
- Patients with hemoglobin abnormalities
- Patients without a pulse
- Hypovolemic patients
- Hypotensive patients

Falsely normal or high readings may occur in the following patients:

- Anemic patients, carbon monoxide poisoning
- Cyanide toxicity which is being treated with the antidote
- Very bright lighting (direct sunlight or nearby strong lamp)

Other factors affecting accurate readings:

- Patient movement
- Action of vasopressor drug
- Peripheral vascular disease
- Elevated bilirubin levels
- Abnormal hemoglobin values
- IV diagnostic dye has been administered in the last 24 hours

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Pulse Oximetry Values

1. Normal
 - a. 96-100%
 - b. Treatment: Non-rebreather mask (12-15 Lpm) or nasal cannula (4-6 Lpm) if patient cannot tolerate a mask and based on patient's chief complaint
2. Mild Hypoxia
 - a. 91-95%
 - b. Immediate need to increase the FiO₂
 - c. Treatment: Non-rebreather mask, 12-15 Lpm
 - d. Consider use of CPAP if available
3. Moderate Hypoxia
 - a. 86-90%
 - b. Immediate need to increase the FiO₂
 - c. Consider possible loss of airway patency
 - d. Treatment: Non-rebreather mask, 12-15 Lpm, consider airway adjunct and bag-valve-mask @ 15 Lpm, on assist
 - e. Consider use of CPAP if available
4. Severe Hypoxia
 - a. $\leq 85\%$
 - b. Treatment: Assist ventilations with adjunct and bag-valve-mask @ 15 Lpm, call Medical Control for order to intubate
 - c. Consider use of CPAP if available

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE

Quality Improvement Document Criteria

Documentation on all patients must include the following and any other information pertinent to patient care:

OPQRST and **SAMPLE** are the acronyms for the United States DOT EMS and Paramedic patient assessment curriculum

O – Circumstance surroundings on the onset of complaint

P – What provoked (or provokes) the complaint? Environment

Q – Describe the quality (sharp, burning, stabbing counter etc.) of the complaint?

R – Where does the pain radiate?

S – Describe the severity of the pain on a 1-10 scale 1 (minimal) – 10 (maximum)

T – Time of onset?

S – Signs, symptoms, physical exam findings

A – Allergies to medications or the environment

M – Medications, prescription or over the counter

P – Past medical history

L – Last oral intake

E – Event, what happened to the patient

All patients transported by EMS should have at least two sets of vital signs assessed and documented. Initial set of vitals will include blood pressure (systolic/diastolic), pulse rate, respiratory rate, pulse oximetry and blood glucose if indicated, and the time they were assessed must be recorded.

- All medications taken by the patient should be listed on the report. If medications are taken to ER document in narrative who the medications were left with.
- When documenting the presumed presence of alcohol that is based solely upon breath odor, do so in the following manner: "Patient's breath has the odor that is commonly associated with the consumption of alcohol."

ABDOMINAL PAIN/PROBLEMS

1. Location of pain
2. Distension
3. Tenderness/radiation
4. Nausea/Vomiting/Diarrhea
5. Urinary complaints
6. LMP if applicable
7. Vaginal bleeding/discharge if applicable
8. Treatment/reassessments
9. Report given and signature of RN

ALTERED MENTAL STATUS

1. OPQRST, SAMPLE as appropriate
2. ETOH/Substance use
3. Any obvious injuries noted
4. Blood glucose level
5. Normal mental status
6. EKG and strip attached
7. Treatment/reassessments
8. Report given and signature of RN

ALCOHOL INTOXICATION

1. Patient's breath has odor of ETOH
2. Patient admits to drinking (type, amount, time frame)
3. Speech (normal, slurred)
4. Gait (normal, unsteady)
5. Any obvious injuries noted
6. Blood glucose level
7. Level of consciousness
8. Treatment/reassessments
9. Report given and signature of RN

ASSAULT/FIGHT

1. OPQRST, SAMPLE as appropriate
2. Method of assault
3. Any obvious injuries or pain
4. Loss of consciousness, how long
5. Treatment/reassessments
6. Report given and signature of RN

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

AIRWAY OBSTRUCTION

1. Can patient speak/forcibly cough
2. Is patient moving air
3. Inspiratory stridor
4. What caused obstruction
5. Duration of obstruction
6. Treatment/reassessments
7. Report given and signature of RN

ANIMAL BITE/STING

1. Type of animal or insect
2. Location of bite(s)/Sting
3. Edema at site
4. Rabies/immunization status of animal if appropriate
5. Treatment/reassessments
6. Report given and signature of RN

BURN

1. Burn source (flame, chemical, electricity)
2. Environment (enclosed, outside)
3. Entrance/exit wounds if appropriate
4. Burn surface area and thickness
5. Facial, oral, nasal areas singed
6. Chest pain/dyspnea
7. Treatment/reassessments
8. Consider Cyanide Antidote
9. Report given and signature of RN

CHEST PAIN

1. OPQRST and SAMPLE as appropriate
2. Factors relieving or increasing pain
3. Dyspnea, cough
4. Nausea, vomiting
5. Diaphoresis
6. Aspirin within past 12 hours
7. Treatments/reassessments
8. Report given and signature of RN

DEATH

1. Last time patients seen or talked to
2. Position/Location of body
3. Any movement of body made by EMS
4. Any injuries noted
5. Dependent lividity/ rigor mortis
6. EKG strip in two leads attached
7. Released to

ALLERGIC REACTION

1. Cause of reaction
2. Dyspnea
3. Facial/airway edema
4. Chest pain
5. Rash/Itching
6. Urticaria/Hives
7. Treatment/reassessments
8. Report given and signature of RN

ATRAUMATIC GI BLEED

1. Nausea, vomiting, diarrhea, constipation
2. Active bleeding
3. Bloody emesis/stool, how long?
4. Abdominal pain, location and quality
5. Treatment/reassessments
6. Report given and signature of RN

CARDIAC ARREST

1. Events prior to onset
2. Description/location of patient on arrival
3. Estimated down time
4. Treatment/reassessments
5. Report given and signature of RN

CHF/PULMONARY EDEMA/SOB

1. Chest pain
2. Dyspnea
3. Nausea, vomiting
4. Diaphoresis
5. JVD/lower extremity edema
6. Treatments/reassessments
7. Report given and signature of RN

DIABETIC

1. OPQRST and SAMPLE as appropriate
2. Nausea/vomiting/recent illness
3. Pre/Post treatment of blood glucose level
4. Treatment/reassessments
5. Report given and signature of RN

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

HYPERTENSION

1. Chest pain/dyspnea
2. Nausea/vomiting
3. Headache/mental status
4. Neuro Assessment
5. Treatments/Reassessments
6. Report given and signature of RN

INHALATION INJURY (TOXIC GAS/SMOKE)

1. Type of gas
2. Duration of exposure
3. Area of exposure (enclosed room)
4. Heated environment
5. Burns/singing (oral, nasal, facial area)
6. Treatments/reassessments
7. Report given and signature of RN

PREGNANCY/OB DELIVERY

Separate report required for mother and each delivery

Non-Delivery

1. Abdominal Pain
2. Gravida/Para/Abortion
3. Length of gestation/estimated due date
4. Edema (pedal)/BP/Headache/Visual Disturbance
5. Vaginal bleeding/discharge – if yes, describe
6. Treatments/reassessments
7. Report given and signature of RN
8. Last time fetal movement

Delivery

1. Multiple fetuses
2. Mucous plug resented
3. Membranes ruptured – if yes, is amniotic fluid clear?
4. Crowning as appropriate

HYPER/HYPOTHERMIA

1. Approximate ambient air temperature
2. Estimate exposure time
3. Type of environment (inside, outside, wet)
4. Loss of consciousness
5. Fluid intake
6. Skin turgor/condition
7. ETOH/Substance abuse
8. Treatments/reassessments
9. Report given and signature of RN

POISONING/DRUG INGESTION

1. Name of substance
2. Amount
3. Route of intake
4. How long ago
5. Vomiting since ingestion as appropriate
6. Intentional vs. Unintentional
7. ETOH/substance use
8. Oral mucosa burns if appropriate
9. Treatments/reassessments
10. Report given and signature of RN

REFUSALS

Documentation of:

1. Competency
2. MMSE
3. Lack of Trauma
4. Situation
5. Ability to make good decisions
6. Safety of patient is assured by caretakers, family, etc

SEIZURES

1. OPQRST and SAMPLE as appropriate
2. Obvious injuries (mouth, head, tongue)
3. Duration and number of events
4. Incontinence
5. Level of consciousness (postictal)
6. Treatments/reassessments
7. Report given and signature of RN

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

NEONATE

1. Time of birth
2. Thoroughly dried and warmed
3. Oral and nasal suctioning
4. Meconium present
5. APGAR at 1 and 5 minutes
6. General appearance
7. Treatments/Reassessments
8. Report given and signature of RN

SYNCOPE/FAINTING/WEAKNESS

1. OPQRST and SAMPLE as appropriate
2. Injuries, chest pain, dyspnea, nausea
3. Vertigo/postural/TILT changes
4. New or changed medications
5. Last meal
6. Blood glucose level
7. EKG
8. ETOH/Substance use
9. Treatments/Reassessments
10. Report given and signature of RN

STROKE/CVA/TIA

1. OPQRST and SAMPLE as appropriate
2. Onset and duration of symptoms
3. Headache/Vision disturbances
4. Thrombolytic screening and stroke screen
5. Treatments/Reassessments
6. Report given and signature of RN

TRAUMA

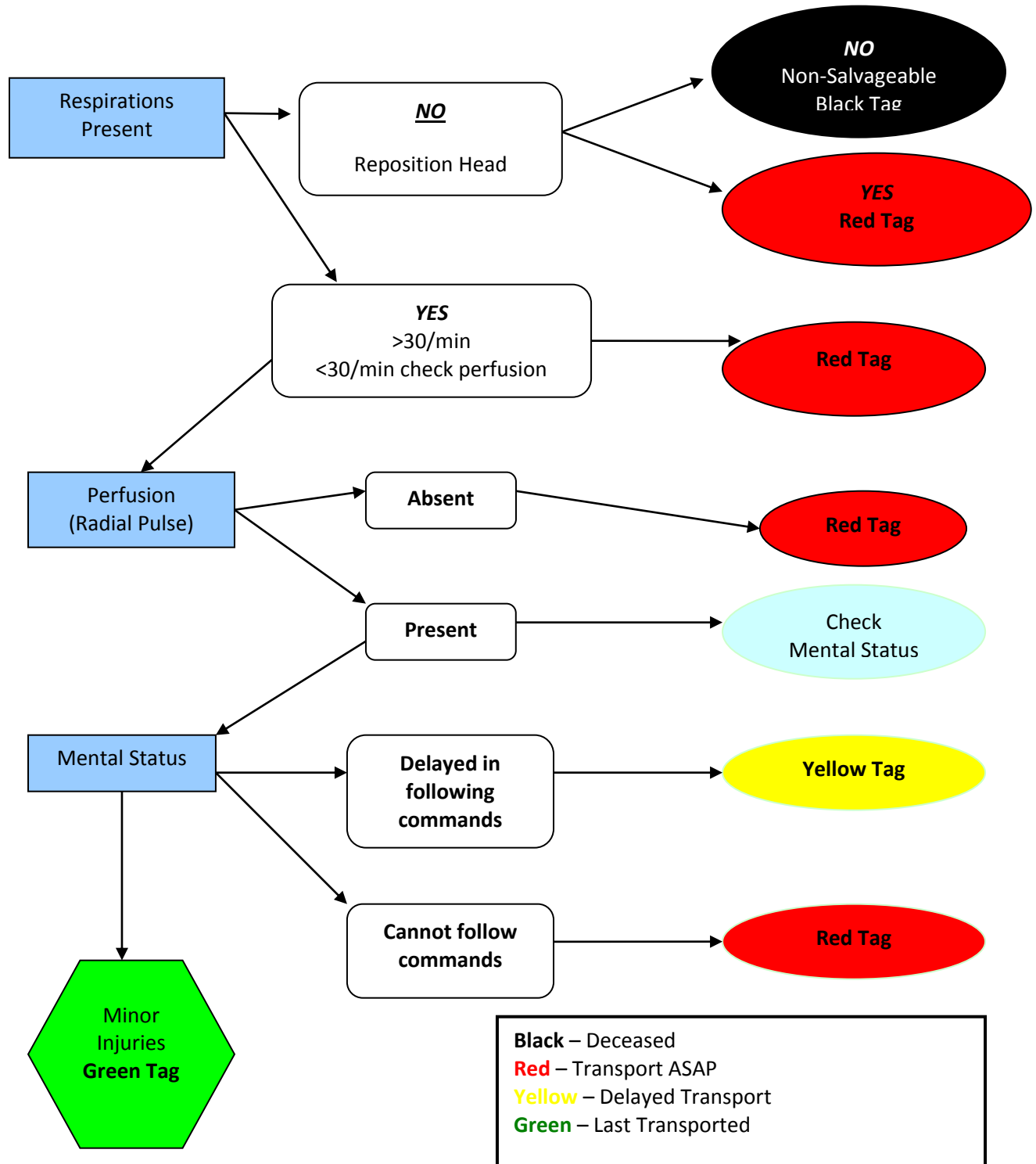
1. OPQRST and SAMPLE as appropriate
2. Description of event
3. Weapon (size, caliber, depth of penetration) if applicable
4. Description of damage, estimated speed, airbag deployment as applicable
5. Patient protection as applicable
6. Tourniquet use
7. Level of or Loss of consciousness
8. Obvious injuries and area of pain
9. Palpation/assessment of injured areas
10. Disability (PMS/SMC intact)
11. Treatments/reassessments
12. Report given and signature of RN

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE

S.T.A.R.T. Triage

BASIC IV PARAMEDIC



TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE

Trauma Assessment/Destination Guidelines

BASIC	IV	PARAMEDIC
--------------	-----------	------------------

Perform primary and secondary survey
 Treat any life threatening injuries/illness
 Obtain vital signs
 Determine mechanism of injury
 Obtain past medical history

Is transport to Trauma Center >30 minutes?

YES	NO
Initiate transport to closest appropriate facility. Notify Medical Control of decision	TRANSPORT TO LEVEL I TRAUMA CENTER IF: - GCS is <13 and/or - Systolic BP is <90 mmHg - Respiratory rate <10 or >30
Transport to trauma center may exceed 30 minutes if dictated by local Medical Control or Trauma Control	TRANSPORT TO LEVEL I TRAUMA CENTER IF: - Penetrating injury proximal to elbow or knee - Flail chest, penetrating chest, or abdominal injury - Combination trauma with burns of >15% BSA, or to face and/or airway - Limb paralysis - Amputation proximal to the wrist or ankle - Patient ejection from vehicle - Extrication time >20 min with above trauma
Medical Control will have final jurisdiction over destination, excluding: Any patient of legal majority (age 18 or over), the parent or legal guardian of a minor patient, or an emancipated minor shall have the right to request transportation to specific facility within the county of origin	CONTACT TRAUMA CONTROL TO CONSIDER TRANSPORT TO LEVEL I, II, III TRAUMA CENTER IF: - High speed auto accident with suspected injury - Velocity change of >20 mph - Passenger compartment intrusion of >12" - Auto vs. pedestrian with >5 mph impact - Motorcycle accident >20 mph or with separation of rider and motorcycle - Bicycle accident with significant impact
Transport of the patient to the requested destination shall not constitute neglect of duty imposed by law on all EMS personnel if the person making the decision has been informed that Tennessee has a trauma system, which would in their circumstance transport them to another facility.	CONTACT TRAUMA CONTROL TO CONSIDER TRANSPORT TO LEVEL I, II, III TRAUMA CENTER IF: - Patient >55 years - Known cardiac, respiratory disease or psychosis on medication - Insulin dependent diabetic, cirrhosis, malignancy, obesity or coagulopathy
If the patient's condition deteriorates during transport, such that their life/health are considered in serious jeopardy if the requested/ planned destination is pursued, AND if Medical Control deems transport to a higher level trauma center is necessary, the patient may be transported to the appropriate facility	

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE

Trauma Treatment Priorities

BASIC	IV	PARAMEDIC
--------------	-----------	------------------

1. If multiple patients, initiate the S.T.A.R.T. and Multiple Casualty Incident System
2. Oxygen and airway maintenance appropriate for the patient's condition
3. Consider if available PASG. Treat for shock appropriate to the patient's condition
4. Certain situations require rapid transport. Non-lifesaving procedures such as splinting and bandaging must not delay transport. Contact the responding emergency unit when any of the following exist:
 - a. Airway obstructions that cannot be quickly relieved by mechanical methods such as suction, or jaw-thrust maneuver
 - b. Traumatic cardiopulmonary arrest
 - c. Large open chest wound (suction chest wound)
 - d. Large flail chest
 - e. Tension pneumothorax
 - f. Major blunt chest trauma
 - g. Shock
 - h. Head injury with unconsciousness, unequal pupils, or decreasing level of consciousness
 - i. Tender abdomen
 - j. Unstable pelvis
 - k. Bilateral femur fractures

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE

Trauma Score

BASIC	IV	PARAMEDIC
RESPIRATORY RATE	10-24/min	4
	24-35/min	3
	>36/min	2
	1-9/min	1
	None	0
RESPIRATORY EXPANSION	Normal	1
	Retractive	0
SYSTOLIC BLOOD PRESSURE	>90 mmHg	4
	70-89 mmHg	3
	50-69 mmHg	2
	0-49 mmHg	1
	No Pulse	0
CAPILLARY REFILL	Normal	2
	Delayed	1
Points to add to the RTS based on the GCS		
14-15		5
11-13		4
8-12		3
5-7		2
3-4		1

REFERENCE

Glasgow Coma Scale

Eye Opening	
Spontaneous	4
Opening to voice	3
Response to pain	2
None	1
Verbal	
Oriented	5
Verbal confused	4
Inappropriate words	3
Incomprehensible sounds	2
None	1
Motor	
Obeys commands	6
Localizes pain	5
Withdraws (pain)	4
Flexion	3
Extension	2
None	1

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE

Common Medical Abbreviations

a = before	H/A = headache
AED = Automated External Defibrillator	Hg = mercury
AOX3 = alert and oriented to person place and time	H&P = History and Physical
Abd = Abdomen	Hx = history
Ab. = Abortion	ICP = intracranial pressure
ac = antecubital	JVD = jugular venous distension
AF = atrial fibrillation	KVO = keep vein open
ARDS = Adult Respiratory Distress Syndrome	LAC = laceration
AT = atrial tachycardia	LBBB = left bundle branch block
AV = atrioventricular	MAEW = moves all extremities well
b.i.d. = twice a day	NaCl = sodium chloride
BSA = Body Surface Area	NAD = No apparent distress/no acute distress
BS = Blood sugar and/or Breath Sounds	NPO = Nothing by mouth
c = with	NKA = No known allergies
CC or C/C = Chief Complaint	OD = overdose
CHF = Congestive Heart Failure	O.D. = right eye
CNS = Central Nervous System	O.S. = left eye
c/o = complains of	PERL = pupils equal and reactive to light
CO = Carbon Monoxide	PID = pelvic inflammatory disease
CO₂ = Carbon Dioxide	p.o. = by mouth
D/C = discontinue	1° = primary, first degree
DM = diabetes mellitus	PTA = prior to arrival
DTs = delirium tremens	pt. = patient
DVT = deep venous thrombosis	q = every
Dx = Diagnosis	q.h. = every hour
ECG/EKG = electrocardiogram	q.i.d. = four times a day
EDC = estimated date of confinement	RBBB = right bundle branch block
EJ = external jugular	R/O = rule out
ENT = ear, nose, and throat	ROM = range of motion
ETOH = alcohol by definition is any chemical compound containing the Hydroxyl group OH. ETOH is the abbreviation of Ethanol (grain alcohol)	Rx = take, treatment
fl = fluid	s = without
fx = fracture	S/S = signs and symptoms
GB = gall bladder	TIA = transient ischemic attack
Gm/g = gram	t.i.d. = three times a day
gr. = grain	V.S. = vital signs
GSW = Gunshot Wound	y.o. = years old
gtt. = drop	
GU = genitourinary	
GYN = gynecologic	
h/hr = hour	

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE

Medication Dosage

BASIC		PARAMEDIC	
Drug	Trade Name	Adult Dosage	<i>Pediatric Dosage</i>
Adenocard	Adenosine	12 mg rapid IVP with flush	<i>1st and 2nd dose 0.2 mg/kg max dose 12 mg</i>
Albuterol Sulfate	Proventil, Ventolin, Albuterol Sulfate	Aerosol Nebulization: 2.5 mg in 3 cc NS q 5 min if heart rate <150	<i>Aerosol Nebulization: 2.5 mg in 3 cc NS q 5 min if heart rate <200</i>
Amiodarone	Cardarone	300 mg then 150 mg	<i>5 mg/kg</i>
Aspirin	Aspirin	162-324 mg chewed and then swallowed	<i>No pediatric dosing</i>
Atropine Sulfate	Atropine	1 mg IVP q 3-5 min. Max dose 0.04 mg/kg	<i>0.02 mg/kg q 3-5 min. Max dose 0.04 mg/kg</i>
Calcium Chloride		500 mg IVP	<i>20 mg/kg</i>
Dextrose 50%	D ₅₀ , D ₅₀ W	12.5-25gram IVP	<i>No pediatric dosing</i>
Dextrose 25%	D ₂₅ , D ₂₅ W		<i>2 cc/kg (D50 mixed 50/50 with Normal saline)</i>
Diazepam	Valium	2-10 mg slow IVP, titrated to effect	<i>0.2 mg/kg slow IVP, titrated to effect or 0.5 mg/kg rectal</i>
Dopamine		2-20 mcg/kg/min	<i>2-20 mcg/kg/min</i>
Diphenhydramine	Benadryl	25-50 mg IM or slow IVP	<i>1 mg/kg</i>
Epinephrine	Adrenaline	Cardiac Arrest: 0.5-1 mg of 1:10,000 solution IVP q 3-5 min Anaphylaxis: 0.3-0.5 mg of 1:1000 solution IM	<i>Cardiac Arrest: 1:10,000 0.01 mg/kg IV/IO q 5 min Anaphylaxis: 1:1000 0.01 mg/kg IM, max dose 0.3 mg Croup: Nebulized Epinephrine 1:1000 diluted to 2.5-3 cc saline flush. May repeat up to 3 doses</i>
Fentanyl	Sublimaze	1-2 mcg/kg 50-100 mcg	<i>0.5-2 mcg/kg</i>
Glucagon	Glucagen	1-2 mg IM	<i>0.5-1 mg IM</i>
Lidocaine	Xylocaine	1-1.5 mg/kg max dose 3 mg/kg	<i>1.0 mg/kg</i>
Lidocaine Drip	Xylocaine	2-4 mg/min	<i>2-4 mg/min</i>

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

Magnesium Sulfate		Torsades only: 1-2 gm IVP over two min Pre-eclampsia or Eclampsia: 2-4 g slow IVP over 2 min/g Drip: 4 g in 250ccD ₅ W (16 mg/ml) run at 30-60 gtts/min	
Methylprednisolone	Solu-Medrol	62.5 or 125 mg	Contact Medical Control
Midazolam HCL	Versed	2-5 mg IV or IM	0.1 mg/kg
Morphine	Morphine Sulfate, MS Contin, MSIR	2-4 mg IVP – see standing orders for repeat doses	Sedation dose: 0.05-0.2 mg/kg Pain management: 0.03-.05 mg/kg IV/IO
Nitroglycerine		Oral: 0.4 mg SL or spray q 5 min for pain Transdermal: 1" on chest wall MFD NTG Therapy: 1 spray sl and apply 1" paste. Repeat SL spray once after 5 min. Continue therapy until pain is relieved or systolic b/p <100 mmHg	
Naloxone	Narcan	2 mg slow IVP	0.1 mg/kg slow IVP
Nitrous Oxide	NitroNox	Patient self-administered gas	
Ondansetron	Zofran	2-4 mg IV	0.15 mg/kg IV
Procainamide	Procan	50-100 mg slow IVP	15 mg/kg slow IVP
Promethazine	Phenergan	6.25-25 mg slow IVP	0.05-0.1 mg/kg
Sodium Bicarbonate		1 mEq/kg IV/IO followed by 0.5 mEq/kg q 10 min	
Defibrillation		150j Biphasic	Begin at 2j/kg
Cardioversion		Refer to specific SOP	0.5 j/kg then 1 j/kg

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE

Drug Infusion Admix Dosage Guidelines

PARAMEDIC

Lidocaine:

2 gram medication/500 mL D₅W = 4 mg/mL (always use 60 gtt. Set)

1 mg/min = 15 gtt/min

2 mg/min = 30 gtt/min

3 mg/min = 45 gtt/min

4 mg/min = 60 gtt/min

Procainamide: For maintenance infusion only. **Refer to Specific Standing Order for Initial Dose**

2 gram medication/500 mL D₅W = 4 mg/mL or 1 gm/250 cc D₅W (always use 60 gtt. Set)

1 mg/min = 15 gtt/min

2 mg/min = 30 gtt/min

3 mg/min = 45 gtt/min

4 mg/min = 60 gtt/min

Magnesium Sulfate:

4 gram in 250 cc D5W (16 mg/ml) run at 30-60 gtt/min

Dopamine:

400 mg /250 cc D5W or 800 mg/500 cc D5W = 1600 ug/mL (always use 60 gtt. Set)

50 kg patient – 110 lbs.

2.5 ug/kg/min = 5 gtt/min

5 ug/kg/min = 12 gtt/min

10 ug/kg/min = 19 gtt/min

20 ug/kg/min = 38 gtt/min

70 kg patient – 154 lbs.

2.5 ug/kg/min = 7 gtt/min

5 ug/kg/min = 13 gtt/min

10 ug/kg/min = 27 gtt/min

20 ug/kg/min = 53 gtt/min

100 kg patient – 220 lbs.

2.5 ug/kg/min = 10 gtt/min

5 ug/kg/min = 19 gtt/min

10 ug/kg/min = 38 gtt/min

20 ug/kg/min = 75 gtt/min

Ped dose 2-20 ug/kg/min

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE – PEDIATRIC SHOCK/TRAUMA

Pediatric Points to Remember

BASIC	IV	PARAMEDIC
-------	----	-----------

1. An infant is less than one year old
2. A child is from one to eight years old
3. Remember that few pediatric arrests are primary cardiac events. Most stem from respiratory (airway) problems, dehydration/metabolic, or hypothermia. Ensure that a child that arrests or that is pending arrest is well oxygenated, well hydrated and warm.
4. Prognosis is extremely poor for a child that arrests
5. Treat children aggressively before they arrest
6. When in doubt contact Medical Control
7. The use of a length based assessment tape is **required** for all pediatric patients as a guide for medication and equipment sizes
8. Remember that with children the Intraosseous drug route is quick to establish and may be easier than gaining IV access
9. Children may be effectively ventilated using a BVM. This is the preferred method of ventilation in respiratory or cardiac arrest

If in doubt always contact Medical Control

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE – PEDIATRIC

Pediatric Trauma Score

BASIC IV PARAMEDIC

(14 years of age and under)

Component	+2 points	+1 point	-1 point
Size	Greater than 20 kg	10-20 kg	Less than 10 kg
Airway	Normal	Oral/Nasal Airway	Unmaintainable/Intubated
Systolic BP	Greater than 90 mmHg	50-90 mmHg	Less than 50 mmHg
CNS	Awake	Obtunded/LOC	Coma
Open Wound	None	Minor	Major/Penetrating
Skeletal	None	Closed Fractures	Open/ Multiple Fractures

Total Point Values from Physical Presentation of Injury

Trauma Score _____ Sum of Points

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE – PEDIATRIC

Triage Decision Scheme

BASIC IV PARAMEDIC

(14 years of age and under)

Pediatric Trauma Score of 8 or less: Refer to Destination Determinates see Pediatric Shock/Trauma Protocol

YES	NO
Transport to Level I Pediatric Trauma Center Advise Medical Control	Assess anatomy of injury
Penetrating injury proximal to elbow, and knee, including head and neck	
Flail chest	
Traumatic Respiratory Arrest	
Pelvic fracture with shock	
Amputation proximal to wrist & ankle	
Combination trauma with burns of 15% BSA, or to the face or airway	
2 or more proximal long bone fractures	
Limb paralysis	

YES	NO
Contact Medical Control for consideration of transfer to Level I or II Pediatric Trauma Center. If Medical Control is unavailable, then transport to highest level Trauma Center	Assess anatomy of injury
Evidence of High Impact	
Ejection from Automobile	Re-evaluate with Medical Control
Death of vehicle occupant (particular if unrestrained)	
Fall greater than 20 feet	
Velocity change greater than 20 MPH	
Passenger intrusion greater than 12 inches	
Pedestrian impact (significant) 5-20+MPH	
Motorcycle accident >20 MPH or with separation of rider and bike	
Bicycle accident with significant impact	

YES	NO
Contact Medical Control for consideration of transfer to Level I or II Pediatric Trauma Center. If Medical Control is unavailable, then transport to the highest level Trauma Center	

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

REFERENCE – PEDIATRIC

Age, Weight, and Vitals Chart

BASIC		IV		PARAMEDIC	
Age	Weight (kg)	Normal Diastolic BP	Normal Systolic BP	Heart Rate Per Minute	Respiratory Rate Per Minute
Birth	3.5	56 – 70	66 – 90	110 – 160	30 – 60
6 mons	7.0	56 – 70	70 – 104	100 – 140	30 – 50
1 year	10.0	56 – 76	80 – 104	100 – 140	24 – 34
2 years	13.0	56 – 76	80 – 104	90 – 110	20 – 30
3 years	15.0	56 – 76	80 – 104	90 – 110	20 – 30
4 years	17.0	56 – 76	90 – 110	80 – 110	20 – 30
5 years	19.0	56 – 76	90 – 110	80 – 110	20 – 30
6 years	23.0	56 – 76	90 – 110	70 – 100	16 – 30
7 years	25.0	56 – 76	90 – 110	70 – 100	16 – 30
8 years	28.0	60 – 76	90 – 110	70 – 100	16 – 30
9-10 years	30.0	64 – 76	90 – 114	70 – 90	10 – 20
11-12 years	37.0	64 – 80	90 – 120	70 – 90	10 – 20
13-15 years	50.0	64 – 80	110 – 124	60 – 80	10 – 20
16-18 years	65.0	64 – 90	110 – 134	60 – 80	10 – 20

Size ETT = $\frac{16 + (\text{age in years})}{4}$

REFERENCE – PEDIATRIC

Age and Weight Related Pediatric Equipment Guidelines

BASIC		IV		PARAMEDIC		
	Premature 3 kg	Newborn 3.5 kg	6 Months 7 kg	1 – 2 years 10 – 12 kg	5 years 16 – 18 kg	8 – 10 years 25 – 36 kg
C – Collars			Small	Small	Small	Medium
O₂ Masks	Premature or Newborn	Newborn	Pediatric	Pediatric	Pediatric	Adult
BVM	Infant	Infant	Pediatric	Pediatric	Pediatric	Pediatric or Adult
Laryngoscopes	0	1	1	1	2	2 – 3
ET Tubes	2.5 – 3.0	3.0 – 3.5	3.5 – 4.5	4.0 – 4.5	5.0 – 5.5	5.5 – 6.5
Suction Catheters	6 – 8 Fr	8 Fr	8 – 10 Fr	10 Fr	14 Fr	14 Fr
Oral Airways	Infant	Infant or Small	Small	Small	Medium	Medium or Large
IV Equipment	22 – 24 angio	22 – 24 angio	22 – 24 angio	20 – 22 angio	20 – 22 angio	20 – 22 angio
BP Cuffs	Newborn	Newborn	Infant or Child	Child	Child	Child or Adult

TENNESSEE EMERGENCY MEDICAL SERVICES PROTOCOL GUIDELINES

AUTHORIZATION FOR STANDING ORDERS

Emergency Medical Services (EMS) Standing Orders and Protocols (revision project completed April 2012) are hereby adopted. They are to be initiated by EMS personnel within their scope of licensure whenever a patient presents with injury or illness covered by the protocols. Where indicated to contact Medical Control, the EMS Provider should receive voice orders from Medical Control before proceeding. Other orders may be obtained from Medical Control when the situation is not covered by the protocols or as becomes necessary as deemed by the Firefighter EMT-Paramedic.

Effective Date of these SOPs: April , 2012

"Signature on File"
Joe Holley, MD, FACEP
Medical Director

April , 2012
Date