STANDARD OPERATING PROCEDURES

ALS/BLS BLENDED PROTOCOLS

PURPOSE:
To provide guidance on ALS/BLS treatment of patients

SCOPE:
All Personnel

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Introduction

These Standing Orders and Protocols may be used by Memphis Division of Fire Services personnel licensed by the state of Tennessee Department of Health, Office of Emergency Medical Services to render appropriate care. All Firefighter EMRs, EMTs, AEMTs, and Paramedics are to familiarize themselves with these SOPs. These Standing Orders and Protocols are applicable regardless of the final destination of the patient and/or the personnel's duty session.

Notes:

1. The Emergency Medical Responder (EMR) will function under the current guidelines as stated in the AHA-BLS Healthcare Provider text. They shall also be responsible for other duties as assigned, within their scope of practice, as assigned by the AEMT or Paramedic.

2. Providers currently licensed as EMT-IVs will continue to function at their current scope of practice until an appropriate "bridge" certification has been obtained through a state accredited program.

3. These Standing Orders and Protocols are in addition to the minimum guidelines for patient care as outlined in the DOT EMT Curriculum. The Firefighter EMT and AEMT will assist ALS personnel as requested or as needed.

4. When the Emergency Unit is out of quarters for any reason, the FF/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 Paramedic will be responsible for patient care. The EMT or AEMT ***will*** act within their scope of practice to any request for patient care or maintenance of the unit as directed by the Paramedic. Patient care is limited to acts within their scope of practice. The EMT or AEMT is responsible for reviewing all documentation and signing in the required manner.

5. It is the responsibility of the most qualified provider caring for the patient to ensure transmission of all aspects of the patient assessment and care to the responding Emergency Unit or Medical Control.

6. 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, including complete vital signs and level of consciousness
    c. Interventions performed
    d. Provide other information as requested

7. For each and every call, the first directives are scene safety and body substance isolation precautions.

8. For any drug administration or 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 medication orders.

9. The minimal equipment required for all patient calls:
    a. When the patient is in close proximity to the unit or fire company: 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 to the unit or fire company: The above equipment, stretcher and any other equipment that may be needed as dictated by the nature of the call.

10. The senior FF/Paramedic riding on the emergency unit or fire company 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, declination, or dismissal of service at the scene of the incident, the incident report should reflect the details as well as the party or parties responsible to terminate any and all evaluations and treatment.

11. Although the SOPs and Protocol procedures 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.

12. EMRs, EMTs, and AEMTs are expected to perform their duties in accordance with local, state, and federal guidelines and within the State of Tennessee Statutes and Rules and Regulations of the Tennessee Department of Health, Office of Emergency Medical Services. The Paramedic will work within their scope of practice dependent on available equipment.

13. The ePCR shall be completed and posted prior to returning to service from the hospital or scene. Prior to the end of shift each Paramedic will verify that all of their electronic documents including addendums have posted to Service Bridge. This will ensure proper documentation of the continuity of care.

14. 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.

15. All patients should be transported to the most appropriate facility according to the patient or family request or to 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. A document with the capabilities of area facilities is available to EMS providers.

16. EMS personnel 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 or nature of illness.

17. 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

18. The use of a length based 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. When assessing a child 8 or older that is small in stature for their age, you should consider using the length based tape for compiling a complete accurate assessment of the patient. This information will be passed along to the receiving facility during the radio report and documented in the PCR.

Clinical Notes:

1. A complete patient assessment, vital signs, treatments and continued patient evaluation are to be initiated immediately upon contact with a patient and continued until patient care is transferred to a higher medical authority. Refer to the Patient Assessment Flow Chart located in these SOPs.

2. The ongoing assessment times are considered:

High Priority	***Low Priority***
Every 3-5 Minutes	Every 5-15 Minutes

3. EMTs may administer the following medications: Aspirin and Epinephrine (for anaphylactic reaction), and assist patients with their own Nitroglycerine, Albuterol or MDI. AEMTs may administer Dextrose for Hypoglycemia, Albuterol, MDI, as well as other medications within the AEMT Scope of Practice.

4. If a glucometer reading is less than 80 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 grams of dextrose. Reassess patient every 5 minutes, repeat PRN.

   Note: Any administration of dextrose must be given through an IV line running normal saline and **NOT VIA AN INT**. Blood glucose should be rechecked after administration of dextrose or oral glucose. Normal blood glucose values for adults are 80 – 120 mg/dL.

5. Blood Glucose and Stroke Screening will be performed on all patients with altered mental status. Glucose should be titrated slowly in order to restore normal levels while avoiding large changes in serum glucose levels. Be aware that elevated glucose levels are detrimental in conditions such as stroke.

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 the machine reading will be verified by a manual blood pressure.

9. EMTs may obtain and transmit EKG monitoring tracings and 12 Lead EKGs. Paramedics **ONLY** may interpret, treat, and determine destination based on the 12 Lead EKG.

10. Indications for football helmet removal:
    - When a patient is wearing a helmet and not the shoulder pads
    - In the presence of head and or facial trauma
    - Patients requiring advanced airway management when removal of the facemask is not sufficient
    - When the helmet is loose on the patient's head
    - In the presence of cardiopulmonary arrest. (The shoulder pads must also be removed.)

    When the helmet and shoulder pads are both on the spine is kept in neutral alignment. If the patient is wearing only the helmet or shoulder pads, neutral alignment must be maintained. Either remove the other piece of equipment or pad under the missing piece. *All other helmets must be removed to maintain spinal alignment.*

Clinical Notes – Airway:

1. All Firefighter EMTs have standing orders for insertion of an approved airway device for patients meeting the indications.

2. Airway maintenance appropriate for the patient's condition includes any airway maneuver, adjunct, or insertions of tubes that provide a patent airway.

3. Pulse Oximetry should be utilized for all patients complaining of respiratory distress or chest pain (regardless of source). Oxygen therapy should be geared to get patient O_2 saturation to >92%. Use oxygen judiciously with this goal in mind.

4. **Waveform capnography** is **MANDATORY** for all intubations. Reliability may be limited in patients less than 20 kg. Use other methods to assist in confirmation.

5. The use of cervical collars post intubation (Blind Insertion Airway Device or ETT) is recommended to reduce the chance of accidental extubation. This is in addition to the tube securing devices currently in use.

Clinical Notes – Cardiovascular:

1. In the adult cardiac arrest:
    a. CPR is most effective when done continuously, with minimum interruption. Maintain rate of 100-110 BPM, depth of 2", and compression fraction of >80%
    b. Initiate compressions first, manage airway after effective compressions for two minutes.
    c. All IV/IO drugs given are to be followed by at 10 cc NS bolus.
    d. Elevate the extremity after bolus when given IV.
    e. Consider blind airway advice maneuvers (KING) whenever intubation takes longer than 30 seconds.
    f. Apply nasal cannula O2 2 – 4L during initial CPR.
    g. Consider use of Mechanical CPR device if available. Make sure that placement of the device takes no longer than 20 seconds. Pauses in CPR decrease the likelihood of a successful resuscitation.

2. Treat the patient not the monitor.

3. Defibrillation and synchronized cardioversion joules are based on the use of the current biphasic monitor.

4. If a change in cardiac rhythm occurs, provide all treatment and intervention as appropriate for the new rhythm.

5. In the case of cardiac arrest where venous access is not readily available, paramedics may use the EZ-IO as the initial access. Humeral access site is preferred in medical conditions.

Clinical Notes – IV:

1. Firefighter AEMTs and Paramedics have standing orders for precautionary IVs and INTs. AEMTs 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 page)
    b. Limited to two attempts in one arm only. (IV cannulation of legs or neck is not allowed)
    c. Drug administration will be followed by a minimum of 10 cc of fluid to flush the catheter.
    d. Blood glucose will be obtained 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 ***(peds 5-10 mL/hr)***
    g. IVs will not be started in arms with shunts.
    h. IVs appropriate for patients condition:
        i. If patient is hypotensive, give bolus of fluid
        ii. If patient's blood pressure is normal run IV TKO or convert to saline lock (INT)
    i. A bolus of fluid is 20 cc/kg for all patients.
    j. Attempt to obtain blood sample tubes on all patients with time critical illnesses.

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.

DEFINITIONS

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

Protocol: A suggested list of treatment **options** you to contact Medical Control **prior** to initiation.

Medical Director: The physician who has ultimate responsibility for the patient care aspects of the Memphis Division of Fire Services.

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. Signs and symptoms of inadequate perfusion
g. 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.

Firefighter/Non-EMT: Personnel trained only in basic first aid and CPR. Responsible for immediately identifying and providing patient care and assist other personnel upon their arrival and ensure continuity of patient care.

Firefighter / Emergency Medical Responder (EMR): Personnel licensed by the Tennessee Department of Health, Office of EMS and authorized by the Medical Director to perform lifesaving interventions while awaiting additional EMS response. May also assist higher level personnel at scene and during transport under medical direction and within scope of practice.

Firefighter / Emergency Medical Technician (EMT): Personnel licensed by the Tennessee Department of Health, Office of EMS and authorized by the Medical Director to provide basic emergency care according to the standard of care and these Standing Orders and Protocols.

Firefighter / Advanced Emergency Medical Technician (AEMT): Personnel licensed by the Tennessee Department of Health, Office of EMS and authorized by the Medical Director to provide limited advanced emergency care according to the standard of care and these Standing Orders and Protocols.

Firefighter / Paramedic: Personnel licensed by the Tennessee Department of Health, Office of EMS and authorized by the Medical Director to provide basic and advanced emergency patient care according to the Standard of Care and the Memphis Division of Fire Services BLS and ALS 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 Memphis Division of Fire Services Personnel. (MD, DO)

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 of destinations. If the patient does not have a preference, the patient's condition and/or chief complaint may influence the choice of medical treatment facilities.

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

I have taken great care to make certain that doses of medications and schedules of treatment are compatible with generally accepted standards at the time of publication. Much effort has gone into the development, production, and proof reading of these Standard Operating Procedures and Protocols. 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 our patients.

Joe Holley, MD FACEP
EMS Medical Director
Memphis Fire Department

CARDIAC EMERGENCY

SOP # 101 Automatic External Defibrillator (AED)

Assessment

Patient in cardiopulmonary arrest Basic life support in progress AED in use

EMR EMT

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 100-110 per minute for all ages. Res-Q-Pump compression rate is 80 per minute. Ventilation rates are 2 breaths for every 30 compressions ***(peds – 2 breaths for every 15 compressions)*** if advanced airway is not in place. If an advanced airway IS in place, give 1 breath every six seconds (10 breaths per minute) for all age groups.
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 evaluate pulse:
    a. If no pulse, continue to provide CPR and basic life support;
    b. If a pulse is present, evaluate respirations and provide supportive care appropriate for the patient's condition.

EMR and EMT STOP

AEMT

5. IV NS bolus (20 cc/kg), then TKO

AEMT STOP

PARAMEDIC

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

Notes:

1. AED is relatively **contraindicated** in the following situations:
    a. If the victim is in standing water
    b. Trauma cardiac arrest
2. Victims with implanted pacemakers, place pads 1 inch from device.
    If ICD/AICD is delivering shock to the patients allow 30 to 60 seconds (2 complete treatment cycles) before using the AED.
3. Transdermal medication patch at site of AED pads:
    If a medication patch is in the location of the AED pad, remove the medication patch and wipe the site clean before attaching the AED electrode pad.

CARDIAC EMERGENCY

SOP # 102 Bradycardia

Assessment

Heart rate less than 60 beats per minute and symptomatic
Decreased / altered LOC
Chest pain / discomfort
CHF / pulmonary edema
Head trauma
Elevated ICP
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

EMR

1. Oxygen and airway maintenance appropriate to patient's condition. If the patient will not tolerate NRB, supply Oxygen at 6 lpm BNC
2. Supportive care

EMR STOP

EMT

3. Pulse Oximetry

EMT STOP

AEMT

4. Glucometer check
5. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels ***(peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

6. INT or IV NS TKO

AEMT STOP

PARAMEDIC

7. Cardiac monitor – 12 Lead EKG, Transmit

8. If patient is asymptomatic and heart rate is less than 60 bpm, monitor and transport
9. If PVCs are present with bradycardia, **DO NOT** administer lidocaine.
10. Adults:
    a. If systolic BP < 90 mmHg and heart rate < 60 /min
       If 2nd and 3rd degree blocks are present apply transcutaneous pacer pads (if available), administer Atropine 0.5 IV
    b. If systolic BP < 90 mmHg and heart rate < 60 /min continues, administer Atropine 0.5 mg up to 0.04 mg/kg (3 mg for adults, ***no Atropine in peds***)
    c. If systolic BP < 90 mmHg and heart rate < 60 /min continues:
        i. Notify Medical Control, and begin external pacing per protocol
        ii. Consider Dopamine 2 – 20 mcg/kg/min continuous IV infusion to increase heart rate

Pediatric:

- ***a. Heart rates < 80 /min for infant or < 60 /min for child***
- ***b. Signs of poor perfusion, respiratory distress, or hypotension***
  - ***Yes – start chest compressions, IV/IO***
    1. ***Epinephrine 1:10,000 0.01 mg/kg IV/IO q 3 – 5 min***
    2. ***Contact Medical Control***
       - ***a. Consider External Cardiac Pacing***
       - ***b. Consider Dopamine 2 – 20 mcg/kg/min as a continuous IV infusion to increase heart rate***

11. If beta blocker ingestion is suspected, consider Glucagon 1-2 mg IM/IV if unresponsive to Atropine. ***(peds – Glucagon 0.5 mg/dose if less than 20 kg, or 1 mg/dose if 20 kg or greater)***

CARDIAC EMERGENCY

SOP # 103 Acute Coronary Syndrome / STEMI

Assessment

Determine the 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 –** Provocation 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.

EMR

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. Supportive care

EMR STOP

EMT

3. Pulse oximetry – provide O_2 sufficient to keep sats > 94%
4. If systolic BP is > 110 and the patient is symptomatic, may assist patient with their own Nitroglycerine tablet or spray sublingually and reassess every 5 minutes up to a maximum of three doses.
5. Administer 324 mg of Aspirin (Chewable non-enteric coated) if patient has no contraindications or has not already self-dosed.
6. Cardiac Monitor – assist with 12 lead EKG and transmit. Obtain and transmit EKG to PCI capable hospital within the first 10 minutes of patient contact.

EMT STOP

AEMT

7. Glucose check
8. INT or IV Normal Saline TKO, at least 18-gauge catheter placed above wrist. Consider placing a second IV line if time permits.

9. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels.
10. Administer 324 mg of Aspirin (Chewable non-enteric coated) if patient has no contraindications or has not already self-dosed.
11. If systolic BP is > 110 and the patient is symptomatic, administer 1 Nitroglycerine tablet or spray sublingually and reassess every 5 minutes up to a maximum of three doses
12. 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 includes the patient has taken on their own combined with your subsequent dosages.

AEMT STOP

PARAMEDIC

13. Perform serial EKGs in order to document progression of EKG changes. Treat arrhythmia appropriately.
14. Patients with probable AMI should be transported to an appropriate PCI capable facility as soon as possible.
15. Systolic BP is < 100 mmHg, give 250 ml NS bolus (assess for signs of pulmonary congestion)
    a. If PVCs > 15 /min administer Lidocaine 1 – 1.5 mg/kg over 2 min, repeat to a total of 3 mg/kg
16. If chest pain/discomfort continues after adequate Nitrate therapy:
    a. Continue Nitrate therapy
    b. Complete Thrombolytic screening
    c. If chest pain is greater than **7** on scale of 1 – 10, administer pain medications per chart below.
    d. Contact Medical Control
    e. Transport

Doses are approximate	5-9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50-74 kg	≥ 75 kg	Geriatric	
Fentanyl IV/IN/IO		10	12	15	20	30	40	50-75 mcg	75	25	1-2 mcg/kg
Morphine IV/IO		1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg	0.05-0.1 mg/kg
Ondansetron IV/IO					3 mg	3 mg	4 mg	4 mg	4 mg	4 mg	0.15 mg/kg

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

Note: If EMS suspects a true Acute Coronary Syndrome/STEMI in a patient less than 18 years old immediately contact online medical control.

CARDIAC EMERGENCY

SOP # 104 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 or 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 –** provocation 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.

EMR

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% at 12 -15 lpm NRB
2. Supportive care

EMR STOP

EMT

3. Pulse oximetry
4. Cardiac monitor, assist with 12 lead, transmit if available.
5. If systolic BP is > 110 and the patient is symptomatic, May assist patient with their own Nitroglycerine tablet or spray sublingually and reassess every 5 minutes up to a maximum of three doses.
6. Administer 324 mg of Aspirin (Chewable non-enteric coated) if patient has no contraindications or has not already self-dosed.
7. Cardiac Monitor – assist with 12 lead EKG and transmit. Obtain and transmit EKG to PCI capable hospital within the first 10 minutes of patient contact.

AEMT

8. Glucose Check
9. INT or IV Normal Saline TKO
10. Administer 324 mg of Aspirin (Chewable non-enteric coated) if patient has no contraindications or has not already self-dosed.

11. If systolic BP is > 110 and the patient is symptomatic, administer 1 Nitroglycerine tablet or spray sublingually and reassess every 5 minutes up to a maximum of three doses
12. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels. ***(Peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

AEMT STOP

PARAMEDIC

13. If chest pain/discomfort persists after adequate nitrate therapy and pain is greater than a **7** on a scale of 1 – 10 administer pain medications per the chart below.
14. Perform serial EKGs in order to document progression of EKG changes. Treat arrhythmia appropriately
15. Contact Medical Control
16. Transport

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

Doses are approximate	5-9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50-74 kg	≥ 75 kg	Geriatric	
Fentanyl IV/IN/IO		10	12	15	20	30	40	50-75 mcg	75	25	1-2 mcg/kg
Morphine IV/IO		1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg	0.05-0.1 mg/kg
Ondansetron IV/IO					3 mg	3 mg	4 mg	4 mg	4 mg	4 mg	0.15 mg/kg

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

CARDIAC EMERGENCY

SOP # 105 Pulseless Electrical Activity (PEA)

Assessment

Presence of electrical cardiac rhythm without palpable pulse Confirm rhythm with electrodes in two leads

EMR **EMT**

1. Utilize AED if available
2. Oxygen 100% and airway maintenance appropriate to the patient's condition
3. CPR as indicated

EMR and EMT STOP

AEMT

4. IV NS, bolus of fluid (20 cc/kg)
5. Glucose check
6. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels. ***(peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

AEMT STOP

PARAMEDIC

7. EKG Monitor
8. Epinephrine 1:10,000 1.0 mg IVP/IO q 4 minutes ***(Peds 1: 10,000 concentration .01 mg/kg IV/IO q 3-5 min)***
9. 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 500 mg IVP ***(peds 20 mg/kg)***
    f. **KNOWN** Acidosis: consider Sodium Bicarbonate 1 – 2 mEq/kg IV ***(peds 0.5 mEq/kg)***

g. Drug overdose: Narcan 0.4 IV/IO/IM/IN titrated to adequate ventilation. May repeat dose up to 2 mg ***(peds 0.1 mg/kg up to 2 mg titrated to adequate ventilation)***
h. Hypothermia: initiate patient re-warming, stop chest compressions with return of spontaneous circulation

10. Consider External Cardiac Pacing per protocol
11. PEA Continues: Continue CPR, transport to appropriate facility

CARDIAC EMERGENCY

SOP # 106 Premature Ventricular Contractions

Assessment

Any PVC in AMI 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"

EMR

1. Oxygen 100% and airway maintenance appropriate for the patient's condition
2. Supportive care

EMR STOP

EMT

3. Pulse Oximetry

EMT STOP

AEMT

4. Glucose check
5. INT or IV NS TKO
6. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels ***(peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

AEMT STOP

PARAMEDIC

7. EKG Monitor, 12 Lead, transmit if available
8. If PVCs are present with heart rate > 60 /min:
   a. Administer Lidocaine 1.5 mg/kg over 1 minute ***(peds 1.0 mg/kg, max dose 2 mg/kg)*** repeat up to 3 mg/kg
   b. If PVCs abolished, initiate Lidocaine drip @ 2 – 4 mg/min
   For pediatric patients with PVCs, please contact online medical control prior to administering Lidocaine.

   Note: Use half of initial dose for subsequent doses for patients > 70 y.o. or with history of hepatic disease
9. Consider Amiodarone 150 – 300 mg IV/IO if no response to lidocaine

CARDIAC EMERGENCY

SOP # 107 Supraventricular Tachycardia (SVT)

Assessment

Adult patients with heart rates in excess of 160 bpm ***(peds – infant rate > 220 bpm, child rate > 180 bpm)*** (QRS width < .12 sec [3 small blocks])
Pediatric SVT typically has no P waves and no beat to beat variability
Patients may exhibit symptoms of dyspnea, chest pain, radiating pain, altered mental status, hypotension (systolic BP < 90 mmHg)

EMR

1. Oxygen 100% and airway maintenance appropriate for the patient's condition
2. Supportive care

EMR STOP

EMT

3. Pulse oximetry

EMT STOP

AEMT

4. Glucose check
5. INT or IV, NS TKO
6. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels ***(peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

AEMT STOP

PARAMEDIC

7. 12 Lead EKG, transmit if available
8. Valsalva maneuver for 15 seconds, then Immediately lie patient flat, administer Adenosine, and lift legs 45 degrees for 15 seconds
9. Adenosine 12 mg rapid IV ***(peds 0.1 mg/kg 6 mg max, may repeat at 0.2 mg/kg with 12 mg maximum dose if needed.)***. May repeat dose of 12 mg once. Flush with 10 cc NS after each dose.
    a. If rhythm does not convert to < 150 /min and patient is significantly symptomatic, or if patient is unable and significantly symptomatic, prepare for synchronized cardioversion.

Sedate as necessary: Valium 2 – 5 mg IV ***(peds 0.1-0.2 mg/kg IV)*** or Versed 2 – 5 mg IV ***(peds 0.1 mg/kg IV)*** and pain medications per chart below. Synchronized cardioversion @ 50, 100, 200 joules ***(peds 0.5 j/kg then 1 j/kg, then 2j/kg***. Cardiovert until heart rate < 150 /min

b. If rhythm converts to rate < 150 /min: reassess for changes, maintain systolic BP > 90 mmHg, transport, and contact Medical Control.

Note: Due to the increased sensitivity to drug effects, in heart transplant patients and those on Tegretol (Carbamazepine), give ½ the normal dose of Adenosine.

Doses are approximate	5-9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50-74 kg	≥ 75 kg	Geriatric	
Fentanyl IV/IN/IO		10	12	15	20	30	40	50-75 mcg	75	25	1-2 mcg/kg
Morphine IV/IO		1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg	0.05-0.1 mg/kg
Ondansetron IV/IO					3 mg	3 mg	4 mg	4 mg	4 mg	4 mg	0.15 mg/kg

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

Notes:

1. Adenosine is administered through a 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 side if possible. If 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 > 5/10

CARDIAC EMERGENCY

SOP # 108 Torsades de Pointes

Assessment

Decreased/altered LOC Dyspnea Chest pain/discomfort, suspected AMI Hypotension (Systolic BP < 90 mmHg) ***(peds – 70+2xage)*** CHF/pulmonary edema Heart rate > 160 /min with QRS > .12 sec (three small blocks [wide complex]) and twisting of points

EMR

1. Oxygen 100% and airway maintenance appropriate for the patient's condition
2. Supportive care

EMR STOP

EMT

3. Pulse Oximetry

EMT STOP

AEMT

4. Glucose check
5. INT or IV NS TKO
6. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels ***(peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

AEMT STOP

PARAMEDIC

7. 12 Lead EKG
8. Systolic BP
    a. If < 90 mmHg – unstable/symptomatic:
        i. Prepare for cardioversion at 50, then 100, then 200 joules, escalating as needed. ***(peds – 0.5-1 joule/kg in synchronized cardioversion)***
        ii. Sedation as necessary:

Valium 2 – 5 mg IV ***(peds 0.1-0.2 mg/kg)*** OR Versed 2 – 5 mg IV ***(peds 0.1 mg/kg)*** and pain medication per chart below

1. If rate < 160 /min, monitor for changes, transport, magnesium sulfate 1 – 2 g IVP over 2 minutes.
2. If rate > 160 /min – Contact Medical Control, consider Amiodarone 150 – 300 mg IV/IO ***(peds 5 mg/kg, may repeat up to a total dose of 15 mg/kg))***. Transport.

b. If > 90 mmHg – stable/asymptomatic:
   i. Magnesium Sulfate 1 – 2 g IVP over 2 min
      1. If rate < 160 /min – monitor for changes, Magnesium Sulfate may repeat 1 – 2 g IVP over 2 minutes, transport.
      2. If rate > 160 /min – contact Medical Control, consider Amiodarone 150 – 300 mg IV/IO ***(peds 5 mg/kg)*** maintain systolic BP > 90 mmHg. Transport.

Doses are approximate	5-9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50-74 kg	75 kg	Geriatric	
Fentanyl IV/IN/IO		10	12	15	20	30	40	50-75 mcg	75	25	1-2 mcg/kg
Morphine IV/IO		1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg	0.05-0.1 mg/kg
Ondansetron IV/IO					3 mg	3 mg	4 mg	4 mg	4 mg	4 mg	0.15 mg/kg

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

CARDIAC EMERGENCY

SOP # 109 Ventricular Asystole

Assessment

No pulse or respirations Confirm cardiac rhythm with electrodes in 2 leads on monitor Record in two leads to confirm asystole and to rule out fine V-Fib

EMR **EMT**

1. AED if available
2. CPR appropriate for patient age
3. Oxygen and airway maintenance appropriate for the patient's condition

EMR and EMT STOP

AEMT

4. Glucose check
5. IV NS bolus (20 cc/kg bolus fluids)
6. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels

AEMT STOP

PARAMEDIC

7. For prolonged resuscitation, 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)***
8. Epinephrine 1:10,000 1 mg IO/IVP q 3 – 5 mins ***(peds 1: 10,000 concentration 0.01 mg/kg IV/IO q 3-5 min)***
9. Consider:
    a. Magnesium Sulfate 1 – 2 gm IV slow push over 2 minutes ***(no pediatric dosing)***
    b. Defibrillation for possible fine ventricular fibrillation masquerading as asystole
    c. Consider external pacing under the following circumstances:
    If cardiopulmonary arrest was witnessed by an experienced provider, and the patient is in asystole,
    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.
    d. CaCl if arrest secondary to renal failure, or history of hemodialysis, 500 mg IV ***(peds .02 ml/kg IV/IO bolus. Non-Arrest infuse over 30-60 min)***
    e. Consider discontinuing efforts if criteria is met under Discontinuation/Withholding of Life Support Standing Order

Reversible Causes:

Hypovolemia
Hypoxia
Hydrogen ion (acidosis)
Hyperkalemia/Hypokalemia
Hypothermia
Tablet (drug overdose)
Tamponade (cardiac)
Tension pneumothorax
Thrombosis – heart
Thrombosis – lungs

CARDIAC EMERGENCY

SOP # 110 Ventricular Fibrillation / Pulseless Ventricular Tachycardia

Assessment

Ventricular Fibrillation, Ventricular Tachycardia Pulseless, apneic Confirm and record cardiac rhythm with electrodes verified in 2 leads

EMR **EMT**

1. AED if available
2. CPR
3. Oxygen and airway maintenance appropriate to the patient's condition

EMR and EMT STOP

AEMT

4. IV NS TKO

AEMT STOP

PARAMEDIC

5. Defibrillate @ 150, then 200 joules, immediately perform two minutes of CPR and evaluate rhythm. If no changes in rhythm repeat defibrillation, perform two minutes of CPR and evaluate rhythm. If still no change in rhythm continue 5 cycles of CPR, then defibrillation. ***(peds 1-2 j/kg)***
6. 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 mins)***
    b. Amiodarone 300 mg IV or IO, repeat after 5 mins at 150 mg ***(peds 5 mg/kg. Lidocaine is an equally considered option 1 mg/kg max dose 100 mg)***
    c. 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)***
7. CaCl 500 mg IVP ***(peds 20 mg/kg)***, if arrest secondary to renal failure, or history of hemodialysis
8. Magnesium Sulfate 1 – 2 gm IV slow push over 2 min ***(no pediatric dosage)***

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 2 CPR/Defibrillation cycles, securing the airway, obtaining IV/IO access, and administering of at least two rounds of drugs. This will provide the best chance of return of perfusing rhythm.

CARDIAC EMERGENCY

SOP # 111 Persistent Ventricular Fibrillation / Pulseless Ventricular Tachycardia

Assessment

Unresponsive, pulseless Persistent ventricular fibrillation/tachycardia or returned to this rhythm post ROSC/other rhythm changes

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

PARAMEDIC

If there is no change in V-Fib:

1. Complete 5 cycles of CPR, check rhythm and pulse
2. Repeat defibrillation without further pulse checks
3. Resume CPR

If there is a change in V-Fib:

1. Apply new defibrillation pads at new sites
2. Complete 5 cycles of CPR, check rhythm and pulse
3. Repeat defibrillation, pause 5 seconds maximum to check rhythm and pulse
4. Resume CPR

Notes:

- Recurrent ventricular fibrillation/tachycardia is successfully broken by standard defibrillation techniques, but subsequently returns. It is managed by ongoing treatment of correctible 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 correctible causes and anti-arrhythmic medications.
- Prolonged cardiac arrests may lead to tired providers and decreased quality. Ensure compressor rotation, summon additional resources as needed, use mechanical CPR device if available and ensure provider rest and rehab during and post event

CARDIAC EMERGENCY

SOP # 112 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 ***(peds >200 /min)*** and QRS > .12 sec ***(peds QRS> .09 sec)***
(3 small blocks)

EMR

1. Oxygen 100% and airway maintenance appropriate to the patient's condition
2. Supportive Care

EMR STOP

EMT

3. Pulse Oximetry

EMT STOP

AEMT

4. Glucose check
5. INT or IV NS TKO
6. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels ***(peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

AEMT STOP

PARAMEDIC

7. EKG Monitor – 12 lead and transmit if available
8. If rhythm is stable, regular, and monomorphic, administer 12 mg Adenosine via rapid IV push
9. If rhythm possibly Torsades de Pointes – Go to Torsades de Pointes protocol
10. If systolic BP < 90 mmHg, prepare for synchronized cardioversion.

a. Administer sedative as necessary – Valium 2 – 5 mg IV ***(peds 0.2 mg/kg)*** OR Versed 2 – 5 mg IV ***(peds 0.1 mg/kg)*** and pain medications per the chart below.
b. Synchronize cardiovert beginning at 50 joules initial energy level 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)***. Reattempt cardioversion @ 100 joules ***(peds 0.5 j.kg)***
d. Contact Medical Control

11. If systolic BP > 90 mmHg – stable/asymptomatic
    a. Have patient perform Valsalva Maneuver for 10 seconds and administer Amiodarone 150 mg ***(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 3 150 mg doses) ***(peds three doses of 5 mg/kg)***.

Doses are approximate	5-9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50-74 kg	≥ 75 kg	Geriatric	
Fentanyl IV/IN/IO		10	12	15	20	30	40	50-75 mcg	75	25	1-2 mcg/kg
Morphine IV/IO		1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg	0.05-0.1 mg/kg
Ondansetron IV/IO					3 mg	3 mg	4 mg	4 mg	4 mg	4 mg	0.15 mg/kg

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

CARDIAC EMERGENCY

SOP # 113 Post Resuscitation

Assessment

Completion of arrhythmia treatment

EMR

1. Oxygen 100% and airway maintenance appropriate for patient's condition
2. Supportive care

EMR STOP

EMT

3. Pulse oximetry

EMT STOP

AEMT

4. Glucose check
5. IV NS TKO
6. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels ***(peds 2 cc/kg D_{25})***
7. Assess BP – if systolic < 90 mmHg administer 250 ml NS Bolus ***(peds systolic BP 70 + 2 x age, 20 cc/kg bolus)*** repeat until BP > 90 mmHg or appropriate for pediatric age.
8. Raise Head of Bed 30 degrees

AEMT STOP

PARAMEDIC

9. Medications:
    a. If anti-arrhythmic administered:
        i. Amiodarone 300 mg IV ***(peds 5 mg/kg)***, if one dose given and arrhythmia persists, give second dose 150 mg
        ii. If lidocaine administered, start infusion of drip at 2 – 4 mg/min ***(peds – 20-50 mcg/kg/min)***
10. For adults, continue ventilator support to maintain $EtCO_2$ > 20. Respirations < 12 per minute ideally. ***(peds – infants-preschool min. respiratory rate should be 30. School aged children, minimum respiratory rate should be 20)***
11. Initiate Induced Hypothermia protocol if appropriate
12. Ensure Head of Bed elevated 30 degrees

Treatment – Protocol

If patient does not tolerate ET Tube, contact Medical Control for:
Valium 2 – 10 mg ***(peds 0.1 mg/kg)*** or Versed 2 – 5 mg IV ***(peds 0.1 mg/kg)*** for patient sedation.

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

ENVIRONMENTAL EMERGENCY

SOP # 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

EMR EMT AEMT PARAMEDIC

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

   If Internal Exposure and Conscious:
   a. Treat as Drug Ingestion
   b. Contact Medical Control

   If External Exposure:
   a. Remove victims clothing, jewelry, glasses, and contacts
   b. 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 minutes
   c. Transport and continue flushing if necessary and possible

   Liquid substance:
   a. Flush with copious amounts of water for at least 20 minutes; assess for hypothermia q 5 minutes
   b. Transport and continue flushing if necessary and possible

   If Inhalation:
   a. Reconsider Self Contained Breathing Apparatus
   b. Remove victim from source ensuring there is no danger to personnel
   c. Oxygen 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

ENVIRONMENTAL EMERGENCY

SOP # 202 Drug Ingestion

Assessment

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

EMR

1. Oxygen and airway maintenance appropriate to patient's condition
2. Ensure personnel protection from toxin and or unruly patient
3. Supportive care

EMR STOP

EMT

4. Pulse oximetry

EMT STOP

AEMT

5. Glucose check
6. IV NS TKO or INT PRN
7. Treat blood glucose level accordingly
    a. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in glucose levels ***(peds 2 cc/kg D_{25} IV)***
    b. If no IV/IO, then Glucagon 1 – 2 mg IM ***(peds 0.5 – 1 mg IM)***
8. Narcan 0.4 mg IV/IO/IM/IN titrated to adequate ventilation ***(peds 0.1 mg/kg IVP/IN)*** if narcotic use is suspected.

AEMT STOP

PARAMEDIC

9. EKG Monitor – 12 Lead EKG
10. 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

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

ENVIRONMENTAL EMERGENCY

SOP # 203 Electrocution / Lightning Injuries

Assessment

Presence of signs and symptoms of electrical injury

EMR

1. Oxygen and airway maintenance appropriate for patient's condition
2. Spinal protection if electrocution/lightning over 1,000 volts or suspicion of spinal injury
3. Treat burn per burn protocol
4. Supportive care

EMR STOP

EMT

5. Pulse oximetry

EMT STOP

AEMT

6. IV LR – if signs of shock 20 cc/kg bolus of fluid ***(peds 20 cc/kg bolus)***

AEMT STOP

PARAMEDIC

7. EKG monitor and transmit 12 lead ekg
8. Consider 2nd IV enroute to hospital
9. Consider pain medication per chart below

Doses are approximate	5-9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50-74 kg	≥ 75 kg	Geriatric	
Fentanyl IV/IN/IO		10	12	15	20	30	40	50-75 mcg	75	25	1-2 mcg/kg
Morphine IV/IO		1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg	0.05-0.1 mg/kg
Ondansetron IV/IO					3 mg	3 mg	4 mg	4 mg	4 mg	4 mg	0.15 mg/kg

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

ENVIRONMENTAL EMERGENCY

SOP # 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 – suggests muscle break-down and possible kidney damage
Tachycardia, hyperventilation, hypertension
Neurologic – light headedness, confusion to coma, seizures

EMR

1. Oxygen and airway maintenance appropriate to patient's condition
2. Remove clothing: apply wet linen or wet abdominal pads to groin/axillary area
    a. Expose to circulating air
    b. **DO NOT** cool patient to the point of shivering
3. Move patient to protected environment (shade, AC, etc.)

EMR STOP

EMT

4. Pulse Oximetry

EMT STOP

AEMT

5. Glucose check
6. IV NS or LR 20 cc/kg bolus ***(peds 20 cc/kg bolus)*** Note: **DO NOT** use chilled IV fluids
    a. Repeat second bolus of fluid if needed
    b. Oral rehydration if patient able to maintain airway
7. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels ***(peds – see glucose dosing chart)***

Glucose (dextrose)	D50 1-2 mL/kg D25 2-4 mL/kg D10 2-4 mL/kg	> 8 years 6 months - 8 years neonate - months Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

AEMT STOP

PARAMEDIC

8. EKG Monitor – transmit if available

Notes:

1. Time is of the essence in decreasing the patient's body temperature
2. **DO NOT** use IV iced saline for cooling patient. Use of fluids cooled slightly below ambient temperature is appropriate
3. Hyperthermia may be caused by the following:
    - Antipsychotic Medications and major tranquilizers: Phenothiazine (Thorazine®), Butyrophenones (Haldol®)
    - Cyclic antidepressants such as: Elavil®, Norpramin®, Tofranil®
    - Amphetamines
    - Monoamine Oxidase Inhibitors (MAOI) such as: Nardil®, Marplan®
    - Anticholinergic drugs such as: Atropine, Cogentin, Scopolamine
    - Illicit drugs: Cocaine, PCP, LSD, Ecstasy (MDMA)

ENVIRONMENTAL EMERGENCY

SOP # 205 Hypothermia

Assessment

History of exposure to cold temperature including duration
Core body temperatures < 92°F
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)

EMR EMT

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

EMR and EMT STOP

AEMT

8. Glucose check
9. IV NS warmed if possible ***(peds 20 cc/kg bolus then 4 cc/kg/hr)***
10. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels (***peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

11. If patient in coma, Narcan 0.4 IV/IM/IN/IO titrated to adequate ventilation ***(peds 0.1 mg/kg slow IVP)***

AEMT STOP

PARAMEDIC

12. EKG monitor, no CPR if Bradycardic rhythm exists
13. If body temperature > 85°F – follow normal arrest protocols

14. If body temperature < 85°F and patient in V-Fib
    a. Defibrillate @ 50 joules. If no change begin CPR, Defib at 2 min intervals at 100, then 200 joules ***(peds begin at 2 j/kg then 4 j/kg)***
    b. Withhold medications and further shocks until patient warmed to 85°F
    c. Continue CPR and rewarming attempts

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
- The following signs and symptoms are found at varying body core temperature:
  - 95°F – amnesia, poor judgment, hyperventilation, bradycardia, shivering
  - 90°F – loss of coordination (drunken appearance), decreasing rate and depth of respirations, shivering ceases or bradycardia
  - 85°F – decreased LOC, slow respirations, atrial fibrillation, decreased BP, decreased heart rate, ventricular irritability

ENVIRONMENTAL EMERGENCY

SOP # 206 Near Drowning

Assessment

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

EMR

1. Oxygen and airway maintenance appropriate to the patient's condition
   - 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 patient's removal from the water.
2. Remove patient from the water, clear airway while protecting the C-Spine ASAP
3. If patient is unconscious and pulseless – refer to the appropriate cardiac arrest protocol
4. If hypothermic – go to hypothermia protocol
5. Supportive care

EMR STOP

EMT

6. Pulse oximetry

EMT STOP

AEMT

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

AEMT STOP

PARAMEDIC

8. EKG Monitor and treatment specific for arrhythmia

Notes:

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

ENVIRONMENTAL EMERGENCY

SOP # 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 (aka Cold 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

EMR

1. Oxygen 100% 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 minutes PRN
    c. Severe – Unconsciousness, convulsions, apnea
        i. 3 Nerve Agent Antidote Kits
3. Keep patient warm

EMR STOP

EMT

4. Pulse oximetry

EMT STOP

AEMT

5. IV NS TKO

AEMT STOP

PARAMEDIC

6. EKG monitor
7. 10 mg Valium 2 – 5 mg ***(peds 0.2 mg/kg)*** or Versed 2 – 5 mg ***(peds 0.1 mg/kg)*** for seizures

Treatment – Protocol

Repeated doses of atropine may be required after Nerve Agent Antidote Kits 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.

ENVIRONMENTAL EMERGENCY

SOP # 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 secure vessel with the victim for identification
Paresthesia (numbing or tingling of mouth, tongue, or other areas)
Local pain
Peculiar or metallic taste
Chills, nausea and vomiting, headache, dysphagia
Hypotension
Fever
Local edema, blebs (blister or pustule jewel), discoloration
Bite wound configuration

EMR

1. Remove rings and bracelets from patient, immediately
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

EMR STOP

EMT

6. Pulse oximetry

EMT STOP

AEMT

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

AEMT STOP

PARAMEDIC

8. EKG Monitor

Treatment – Protocol

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

Note: **DO NOT USE** ice, tourniquets, hemorrhage control clamps, or constricting bands at the bite site or proximal to bite site. If already applied, remove.
DO NOT place IV or IO in affected extremity if possible.

ENVIRONMENTAL EMERGENCY

SOP # 209 Radiation / HazMat Exposure

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

EMR

1. Oxygen and airway maintenance appropriate to the patient condition
2. If eye exposure, irrigate for a minimum 20 minutes
3. Treat associated injuries (LSB, limb immobilization, wound treatment)
4. Supportive care
5. Treat burn per burn protocol

EMR STOP

EMT

6. Pulse oximetry (keep sats > 94%)

EMT STOP

AEMT

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

AEMT STOP

PARAMEDIC

8. EKG Monitor

ENVIRONMENTAL EMERGENCY

SOP # 210 Carbon Monoxide Exposures

Assessment

Known or suspected CO exposure (Active Fire Scene)
Suspected source/duration exposure
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

EMR EMT AEMT PARAMEDIC

Measure Carbon Monoxide COHb% (SpCO)

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

SpCO < 15% **and** SpO_2 > 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 > 15% Oxygen by NRB and transport to ED

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

Notes:

- If monitoring responders at fire scene, proceed with Scene Rehabilitation Protocol (SOP 203.09)
- *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 measure SpCO levels reflect the adult's level, and that fetal COHb levels may be higher. Recommend 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 correctible causes when possible.
- EMS lieutenants and rescue companies have access to the CO Monitor; these should be utilized any time a Carbon Monoxide Exposure is suspected.
- Transport patients with CO/CN toxicity to the burn center for evaluation.

MEDICAL EMERGENCY

SOP # 300 Medical Complaint Not Specified Under Other Protocols

Assessment

Pertinent history to complaint
Allergies/medications taken or prescribed
Onset, type, and duration of pain
Provocation
Quality of pain/discomfort
Relieved by
Signs and symptoms

EMR

1. Oxygen and airway maintenance appropriate for the patient's condition
2. Patient positioning appropriate for condition
3. Supportive care

EMR STOP

EMT

4. Pulse oximetry

EMT STOP

AEMT

5. Glucose check, PRN
6. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels ***(peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

7. If indicated, Consider INT or IV NS TKO unless signs of shock, then 20 cc/kg fluid bolus

AEMT STOP

PARAMEDIC

8. EKG monitor PRN

MEDICAL EMERGENCY

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

Assessment

Description of pain, onset, duration, location, character, radiation
Aggravating factors, last menstrual period and/or 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

EMR

1. Oxygen and airway maintenance appropriate to the patient's condition
2. Allowing 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

EMR STOP

EMT

4. Pulse Oximetry

EMT STOP

AEMT

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

AEMT STOP

PARAMEDIC

6. EKG Monitor
7. 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.
8. Consider second IV enroute if patient exhibits signs of shock

MEDICAL EMERGENCY

SOP # 302 Acute Pulmonary Edema / CHF

Assessment

Focus assessment on 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

EMR

1. Oxygen and airway maintenance appropriate to patient 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

EMR STOP

EMT

3. If the patient has albuterol inhalation treatment prescribed, assist with one treatment
4. Pulse oximetry

EMT STOP

AEMT

5. INT
6. If systolic BP is > 100 mmHg and the patient is symptomatic administer 1 Nitroglycerine dose sublingually and reassess every 5 minutes. Maximum 3 doses.
7. If Systolic BP is > 100 mmHg
    a. Assess for crackles, wheezes or rales, JVD, peripheral edema, cyanosis, diaphoresis, respiratory rate > 25/min or < 10/min then:
        i. One Nitroglycerine spray or tablet sublingually. Repeat Nitroglycerine q 5 minutes after initial dose. Discontinue therapy if systolic BP < 100 mmHg
        Use caution in patients taking erectile dysfunction medications. Profound hypotension may occur.
        ii. Albuterol 2.5 mg/3 cc NS via nebulizer q 5 minutes to maximum of 3 doses
8. If systolic BP < 100 mmHg

Continue oxygen and initiate rapid transport, see hypotension protocol. Contact Medical Control immediately.

AEMT STOP

PARAMEDIC

9. EKG Monitor
10. May continue Nitroglycerine spray or tablet and apply 1" of Nitropaste to chest wall. Discontinue therapy if systolic BP < 100 mmHg.
11. If respiratory distress and no contraindications, begin CPAP

Treatment – Protocol

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

MEDICAL EMERGENCY

SOP # 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, generalized wheeze on auscultation, decreased air exchange on auscultation Generalized urticarial, erythema, angioedema especially noticeable to face and neck Complaint of chest tightness or inability to take a deep breath

EMR

1. Position of comfort, reassure
2. 100% oxygen and airway maintenance appropriate for patient's condition

EMR STOP

EMT

3. Pulse oximetry
4. If patient has prescribed auto-injector pen for anaphylaxis, assist patient with administration

EMT STOP

AEMT

5. IV NS LR, large bore @ TKO – if hypotensive 20 cc/kg bolus ***(peds 20 cc/kg bolus)***
6. Epinephrine 1:1000 IM 0.3 mg ***(peds 1:1000 IM 0.01 mg/kg max dose is 0.3 mg)***
7. Albuterol inhalation treatment if wheezing is present and persists post Epinephrine IM/IV

AEMT STOP

PARAMEDIC

8. EKG Monitor
9. Epinephrine 1:1000 IM or 1:10,000 IV/IO 0.3 mg ***(peds 1:1000 IM or 1:10,000 IV/IO @ 0.01 mg/kg max dose is 0.3 mg)*** IV/IO route should be reserved for unstable patients, especially Pediatric.
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. Consider Glucagon 1 – 2mg IM/IV/IN if unresponsive to Epinephrine, especially if taking beta blockers.

MEDICAL EMERGENCY

SOP # 304 Cerebrovascular Accident (CVA) / Stroke

Assessment

Altered level of consciousness (coma, stupor, confusion, seizures, delirium)
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 the facial muscles, usually noted when the patient speaks or smiles); may be on the same side or opposite side from limb paralysis
In-coordination, weakness, paralysis, or sensory loss in one or more limbs; usually involves one half of the body particularly in 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

EMR

1. Oxygen at 2 – 6 Lpm BNC and airway maintenance appropriate to 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 contact information. Include the Cincinnati Pre-hospital Stroke Scale
4. Maintain body heat, protect affected limbs from injury, and anticipate seizures

EMR STOP

EMT

5. Pulse oximetry
6. If trauma is suspected, spinal stabilization, elevate head 30° if no evidence of spinal injury

EMT STOP

AEMT

7. Glucose check and treat patient appropriately
8. IV NS TKO (30 cc/hr) or INT
9. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels ***(peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

10. Narcan 0.4 mg IV/IO/IM/IN titrated to adequate ventilation. ***(peds 0.1 mg/kg up to 2 mg titrated to adequate ventilation)*** if Narcotic use suspected.

AEMT STOP

PARAMEDIC

11. EKG Monitor
12. Complete thrombolytic screening protocol
13. Complete stroke assessment scale
14. If positive for CVA recommend transport to stroke center
15. If possible, obtain Blood sample tubes
16. Contact Medical Control if SBP > 220 mmHg or DBP > 140 mmHg. If authorized give Nitro spray q 5 min. The goal is to reduce initial blood pressure by 15%.

REFERENCE

The Cincinnati Pre-hospital Stroke Scale

EMR EMT AEMT PARAMEDIC

Facial Droop (have patient show teeth or smile):

Normal – Both sides of face 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 drift 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 word 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 complaints

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

REFERENCE

Pre-hospital Screen for Thrombolytic Therapy

EMR EMT AEMT PARAMEDIC

- Complete this report for all patients symptomatic for a myocardial infarct or CVA
- Report to the Emergency Department Physician/Nurse any positive findings.
- Document all findings in the patient's ePCR

Time of onset of symptoms: _____		
Witness/Next of Kin Contact Info: _____		
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 patient to bleed excessively	☐ Yes	☐ No
Prolonged CPR (> 10 minutes)	☐ Yes	☐ No
Pregnancy	☐ Yes	☐ No
Taking Coumadin, Aspirin, or other blood thinners	☐ Yes	☐ No

MEDICAL EMERGENCY

SOP # 305 Croup

Assessment

History
Viral infections resulting in inflammation of larynx, trachea
Seasonal – Late fall / early winter
Children under 6 years 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

EMR EMT AEMT

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

EMR and EMT STOP

PARAMEDIC

4. Nebulized Epinephrine 1:1,000
    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 an initial aerosol
5. Contact Medical Control for subsequent aerosols

MEDICAL EMERGENCY

SOP # 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
Unexpected delay in seeking treatment

EMR EMT AEMT PARAMEDIC

Direct questions to ask when alone with patient and if time available

- Has anyone at home ever hurt you?
- Has anyone at home touched you without your consent?
- Has anyone ever made you do things you didn't want to?
- Has anyone taken things that were yours without asking?
- Has anyone scolded or threatened you?
- 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 a verbal and written report.

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

MEDICAL EMERGENCY

SOP # 307 Hyperglycemia Associated with Diabetes

Assessment

History of onset
Altered level of consciousness
Pulse: Tachycardia, thready pulse
Respirations (Kussmaul-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

EMR

1. Oxygen and airway maintenance appropriate to the patient's condition; suction airway as needed
2. Supportive care

EMR STOP

EMT

3. Pulse oximetry

EMT STOP

AEMT

4. Glucose check
5. IV NS TKO or INT. If BS >250 mg/dl, start 10-20cc/kg NS bolus if patient with signs of dehydration, vomiting, or DKA. ***(Peds 4 cc/kg/hr max 150cc/hr. No Bolus).***

AEMT STOP

PARAMEDIC

6. EKG Monitor

MEDICAL EMERGENCY

SOP # 308 Hypertensive Crisis

Assessment

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

EMR

1. Oxygen and airway maintenance appropriate to patient's condition
2. Position of comfort, elevation of head is preferred
3. Keep patient calm, reassure

EMR STOP

EMT

4. Pulse oximetry

EMT STOP

AEMT

5. INT or IV NS TKO
6. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels. ***(peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

AEMT STOP

PARAMEDIC

7. Evaluate cardiac rhythm for dysrhythmia and treat appropriately with medical direction. Contact Medical Control prior to initiation of anti-arrhythmic therapy.
8. If motor/neuro deficits present, go to stroke protocol
   If NO motor/neuro deficits:
   a. If systolic BP < 220 mmHg, contact Medical Control, monitor patient changes
   b. If systolic BP > 220 mmHg and/or diastolic BP > 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 meeting

MEDICAL EMERGENCY

SOP # 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 seizures
Fecal, urinary incontinence

EMR

1. Oxygen and airway maintenance appropriate to the patient's condition. (Snoring respirations is a sign of an INADEQUATE airway)
2. Supportive care

EMR STOP

EMT

3. If patient is a known diabetic and is conscious with an intact gag reflex, administer one tube of instant glucose and reassess
4. Pulse oximetry

EMT STOP

AEMT

5. Glucose check, monitor
6. IV NS TKO
7. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels. ***(peds – Dextrose 25% 2cc/kg <60mg/dl)***
8. If unable to establish IV access, Glucagon 1 – 2 mg IM/IN ***(peds – Glucagon 0.5 – 1 mg IM)***

AEMT STOP

PARAMEDIC

9. EKG Monitor, transmit if necessary

MEDICAL EMERGENCY

SOP # 310 Medications At Schools

To provide authorization for the use of medications not commonly used by the Memphis Fire Department and within the current SOPs. For Emergency Use Only.

Assessment

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

EMR EMT AEMT

1. Oxygen and airway maintenance appropriate for the patient's condition
2. Other treatments will be in accordance with the MFD BLS / ALS SOPs
   EMR, EMT, and AEMT STOP

PARAMEDIC

3. Necessary medication(s) administration as requested by caregiver(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 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 means 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 not administered documentation must include those reasons for withholding
7. Whenever medication is administered under these circumstances, transport is mandatory

Note: If you have additional questions or concerns, please contact Medical Control.

MEDICAL EMERGENCY

SOP # 311 Non Formulary Medications

To provide authorization for the use of mediations 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

EMR EMT AEMT

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

EMR, EMT, and AEMT STOP

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 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 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 mediation(s)
4. Medication(s) will only be administered if the patient meets the signs and symptoms for that medications
5. Copies of the care plan and physician order must be attached to the patient care report
6. If the medication(s) is not administered the 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.

MEDICAL EMERGENCY

SOP # 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 tripoding
Breath sounds: Bilaterally diminished, dry crackles, wheezing
Cyanosis / Diaphoresis
Use of short sentences
Unilateral breath sounds

EMR

1. Oxygen and airway maintenance appropriate for the patient's condition

EMR STOP

EMT

2. If the patient has a 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 the patient uses a MDI, assist patient with one dose
4. Pulse oximetry

EMT STOP

AEMT

5. INT or IV NS TKO
6. Albuterol inhalation treatment 2.5 mg / 3 ml NS q 5 – 15 min ***(peds 2.5 mg / 3 ml NS q 5 – 15 min)***

AEMT STOP

PARAMEDIC

7. EKG monitor
8. Epinephrine 1:1,000, 0.3 – 0.5 mg IM ***(peds 1:1,000 0.01 mg/kg IM, max dose is 0.3 mg)*** for patients in severe distress. Be mindful of cardiac side effects.
9. In severe cases consider Solumedrol 62.5 mg (if small in stature, sensitive to steroids, or on chronic steroid therapy) or 125 mg IV ***(peds dosing – contact Medical Control)***
10. CPAP if no contraindications

Note: Contact Medical Control prior to administering Solumedrol in pediatric patients

MEDICAL EMERGENCY

SOP # 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)

EMR

1. Oxygen and airway maintenance appropriate to patient's condition
2. Protect patient from injury during active seizures
3. If patient is actively seizing, consider therapy if:
   - 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)
4. C-Spine precautions if appropriate

EMR STOP

EMT

5. If febrile, cool as per hyperthermia protocol and monitor
6. Pulse oximetry

EMT STOP

AEMT

7. Glucose check
8. IV NS TKO or INT
9. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels ***(peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

10. If no IV available and blood glucose levels are < 80 mg/dl, Glucagon 1 – 2 mg IM ***(peds 0.5 – 1 mg IM)***
11. Narcan 0.4 mg IV/IM/IO/IN titrated to appropriate ventilation. May repeat up to 2 mg. ***(peds 0.1 mg/kg up to 2 mg titrated to adequate ventilation)***, if narcotic use suspected

AEMT STOP

PARAMEDIC

12. EKG monitor
13. Adults – if actively seizing:
    Valium SLOW IVP 2 – 5 mg or Versed 2 – 5 mg IV/IO/IN/IM. May repeat if seizure continues
14. ***Peds:***
    a. ***Valium 0.2 mg/kg IV/IO or Versed 0.1 mg/kg IV/IO/IN/IM***
    b. ***Valium 0.5 mg/kg rectal***
    c. ***If seizure persists for 4 minutes, repeat medication once***
    d. ***If seizure recurs repeat medication***

Notes:

- 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.
- The goal of Narcan therapy is to restore adequate ventilation. Patients, particularly those on chronic opiate therapy, often need very small doses of Narcan in the event of overdose. Larger doses of Narcan usually create more agitation and behavioral symptoms.

MEDICAL EMERGENCY

SOP # 314 Sexual Assault

Assessment

Traumatic injuries

EMR EMT AEMT PARAMEDIC

1. Oxygen and airway maintenance appropriate to patient's condition
2. Be calm and reassuring with sensitivity toward the patient
3. **DO NOT** make unnecessary physical contact with the patient
4. If possible, have a witness of the same gender as the victim present at all times
5. Wrap plastic sheet around 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 involved when possible
    a. Place patient's clothing in plastic sheet or separate plastic/paper bags with ID labels and found location
    b. Leave all sheets placed in plastic/paper bag(s) with patient at facility
    c. Notify staff of clothing samples
9. Transport patient to appropriate facility for treatment and examination
10. Contact dispatch to notify police of possible sexual assault

MEDICAL EMERGENCY

SOP # 315 Sickle Cell Anemia

Assessment

History of Sickle Cell Anemia
Signs of infection
Hypoxia
Dehydration
Painful joints
Limited movement in joints

EMR

1. Oxygen and airway maintenance appropriate to the patient's condition
2. Supportive care

EMR STOP

EMT

3. Pulse oximetry (Keep sats > 94%)

EMT STOP

AEMT

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

AEMT STOP

PARAMEDIC

5. EKG Monitor
6. If pain persists, administer pain medications per chart below

Doses are approximate	5-9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50-74 kg	≥75 kg	Geriatric	
Fentanyl IV/IN/IO		10	12	15	20	30	40	50-75 mcg	75	25	1-2 mcg/kg
Morphine IV/IO		1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg	0.05-0.1 mg/kg
Ondansetron IV/IO					3 mg	3 mg	4 mg	4 mg	4 mg	4 mg	0.15 mg/kg

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

Notes:

- Use caution in administering narcotics to a patient with SpO_2 < 95%
- All patients who receive narcotic medication must be transported for further evaluation
- The goal of Narcan therapy is to restore adequate ventilation. Larger doses, especially in patients on chronic opiate therapy, often need very small doses in the event of overdose. Larger doses of Narcan usually create more agitation and behavioral symptoms.

MEDICAL EMERGENCY

SOP # 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 Hypothermia or Hyperthermia, hemiparesis, fever, OD, hypoglycemia
Peds – less commonly associated with intussusception (fold of one intestine into another), intracranial catastrophe, metabolic disorder

EMR

1. Oxygen and airway maintenance appropriate to patient's condition
2. Assess for underlying causes: head trauma, hypovolemia, hypothermia, hemiparesis, and fever and treat accordingly

EMR STOP

EMT

3. Pulse oximetry

EMT STOP

AEMT

4. Glucose check
5. IV NS TKO or INT
   a. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels ***(peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

   b. If no IV access, Glucagon 1 – 2 mg IM ***(peds 0.5 – 1 mg IM)***
6. Administer Narcan 0.4 mg IV/IO/IM/IN titrated to adequate ventilation up to 2 mg ***(peds < 5 y.o – 0.1 mg/kg up to 2 mg IV, > 5 y.o – 2 mg IV)***

AEMT STOP

PARAMEDIC

7. EKG monitor
8. Contact Medical Control for further orders; 20 cc/kg NS fluid challenge ***(peds 20 cc/kg)***

Note: The goal of Narcan therapy is to restore adequate ventilation. Patients, particularly those on chronic opiate therapy, often need very small doses of Narcan in the event of overdose. Larger doses of Narcan usually create more agitation and behavioral symptoms.

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MEDICAL EMERGENCY

SOP # 317 Syncope

Assessment

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

EMR

1. Oxygen at 2 – 6 lpm and airway maintenance appropriate to patient's condition
2. Supportive care

EMR STOP

EMT

3. Pulse oximetry

EMT STOP

AEMT

4. Glucose check
5. INT or IV NS TKO – if hypotensive 20 cc/kg bolus ***(peds 20 cc/kg bolus)***
6. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels ***(peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

AEMT STOP

PARAMEDIC

7. 12 Lead EKG, treat any cardiac dysrhythmia per appropriate protocol
8. Assess neuro status; if abnormal refer to appropriate protocol

SHOCK / TRAUMA

SOP # 401 Air Ambulance Transport

EMR EMT AEMT PARAMEDIC

In the absence of an on-scene FF/Paramedic or EMS Lieutenant, the most qualified FF/EMT or AEMT shall have the responsibility of determining the need for an air ambulance transport. **DO NOT** request air ambulance transport if the patient is in traumatic cardiopulmonary arrest. Request for an Air Ambulance must be through the Incident Commander.

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 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 FF/Paramedic, EMS Lieutenant, or EMS BC shall have the authority to disregard the response of an air ambulance through the Incident Commander.

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 air ambulance transport if patient is in traumatic cardiopulmonary arrest. If the patient has no vital signs, they are a trauma full-arrest.

The FF/P in charge of the patient shall have the authority **through** the Incident Commander to disregard the response of the air ambulance.

The FF/P will coordinate with the Incident Commander to ensure the helicopter receives patient information and landing zone location.

The following may impact transport by helicopter:

- Adults who have a traction splint(s) applied
- Patients over 6' 4" (relative limitation)
- Patients whose girth exceeds 27"
- Any splint or device that exceeds the boundary of the long spine board

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

SHOCK / TRAUMA

SOP # 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

EMR

1. Oxygen 100% and airway maintenance appropriate for the patient's condition
2. C-Spine protection as appropriate
3. Stop any life threatening hemorrhaging
4. Supportive care

EMR STOP

EMT

5. Pulse oximetry
6. 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
7. 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
8. 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)
9. 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.

EMT STOP

AEMT

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

AEMT STOP

PARAMEDIC

11. EKG monitor
12. The KED may be inverted and used as a Pelvic Stabilization Device.

SHOCK / TRAUMA

SOP # 403 Avulsed Teeth

Assessment

Avulsed teeth may be handled in 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

EMR EMT AEMT

1. Oxygen and airway maintenance appropriate to patient condition
2. C-spine protection as appropriate
3. Treat other associated injuries
4. Pay attention to the airway, bleeding and avulsed teeth may cause airway obstruction
5. Supportive care

EMR, EMT, and AEMT STOP

PARAMEDIC

6. Re-implantation is recommended at the scene as this creates maximum possibility of reattachment if possible. 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 minutes (The sooner performed, the greater the success rate)
    f. Do not forcer re-implantation. Gentle insertion is all that is necessary. Slight incorrect positioning can be corrected later.
7. If re-implantation is not feasible and the patient is a fully conscious adult, then the best procedure is to place the tooth in mouth, either under the tongue or in the buccal vestibule. This is not recommended for children.

SHOCK / TRAUMA

SOP # 404 Cardiogenic Shock

Assessment

Frequently associated with tachy/brady dysrhythmia, AMI, or blunt chest trauma
Neck vein distention 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

EMR

1. Semi-fowlers or position of comfort
2. Oxygen and airway maintenance appropriate to patient's condition

EMR STOP

EMT

3. Pulse oximetry

EMT STOP

AEMT

4. 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

AEMT STOP

PARAMEDIC

5. Evaluate cardiac rhythm and treat appropriately

Treatment – Protocol

Contact Medical Control, consider:

Dopamine 400 mg / 250 cc D_5W IV admixture, begin 2 – 20 ug/kg/min ***(peds 2 – 20 ug/kg/min)***

SHOCK / TRAUMA

SOP # 405 Eye Trauma

Assessment

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

EMR EMT AEMT PARAMEDIC

Treatment – Standing Order

1. Oxygen and airway maintenance appropriate for the patient's condition
2. C-Spine protection PRN
3. If thermal or chemical
    a. Flush eye(s) with NS or water for 15 minutes
    b. Cover both eyes
    c. Transport
4. Penetration:
    a. Stabilize
    b. Do not apply tight dressing to penetrating eye injury. Simply cover with eye shield.
    c. Consider covering unaffected eye
    d. Transport
5. Blunt trauma
    a. Consider covering 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 (EMT and above only)
        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

SHOCK / TRAUMA

SOP # 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, BP decrease of 10 mmHg systolic
Severe shock (hypovolemia) is defined as a decreased level of consciousness, absent radial pulse, capillary refill greater than 2 seconds, no palpable blood pressure

EMR

1. Oxygen and airway maintenance appropriate to the patient's condition
2. Consider spinal protection
3. Trendelenburg patient if no suspected injury

EMR STOP

EMT

4. Pulse oximetry
5. Control gross hemorrhage – consider tourniquet or hemorrhage control clamp

EMT STOP

AEMT

6. IV NS or LR x 2 large bore titrated to restore patient's vital signs (in patients with ongoing blood loss maintain patient's systolic blood pressure 90 – 110 mmHg)
7. ***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°***

AEMT STOP

PARAMEDIC

8. EKG monitor

Treatment – Protocol
Contact Medical Control, consider:
Adult and ***peds – Dopamine 2- 20 ug/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.

SHOCK / TRAUMA

SOP # 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, hands, or perineum
- Inhalation burns 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, oropharyngeal 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

EMR

1. Stop the burn process with tepid water or normal saline solution and remove any smoldering clothing
2. High power oxygen and airway maintenance appropriate to patient's condition
    a. Edema may cause patient's airway to close almost instantly without warning signs
    b. Be prepared to assist ventilation with 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 spine injury, fractures, dislocations, etc

EMR STOP

EMT

9. Pulse oximetry
   EMT STOP

AEMT

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
    AEMT STOP

PARAMEDIC

11. EKG monitor
12. For major burns, administer pain medication per chart below (contact Medical Control in multi-system trauma/pregnancy), transport (all additional doses must be approved by Medical Control)
13. If extremely injured, cover open fractures/lacerations/injuries with sterile dressing, splint fractures PRN, avoid unnecessary movement, transport
14. Consider cyanide poisoning, and smoke inhalation in all burn patients
15. Patients with significant possibility of smoke inhalation or exposure to superheated air should be transported to the Regional Burn Center
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

Doses are approximate	5-9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50-74 kg	≥ 75 kg	Geriatric	
Fentanyl IV/IN/IO		10	12	15	20	30	40	50-75 mcg	75	25	1-2 mcg/kg
Morphine IV/IO		1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg	0.05-0.1 mg/kg
Ondansetron IV/IO					3 mg	3 mg	4 mg	4 mg	4 mg	4 mg	0.15 mg/kg

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

SHOCK / TRAUMA

SOP # 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

EMR

1. Oxygen and airway maintenance appropriate for the patient's condition
2. C-spine protection PRN

EMR STOP

EMT

3. Consider applying MAST as splint
4. Splint PRN, stabilize penetrating objects
5. Consider tourniquet or hemorrhage control clamp
6. Pulse oximetry

EMT STOP

AEMT

7. 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

AEMT STOP

PARAMEDIC

8. EKG monitor
    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)***
    c. If patient pregnant: isolated extremity trauma only
        i. If past 1st trimester and systolic BP > 90 mmHg contact Medical Control
        ii. If systolic BP <90 mmHg place patient in left lateral recumbent position, IV NS/LR 20 cc/kg

Doses are approximate	5-9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50-74 kg	≥75 kg	Geriatric	
Fentanyl IV/IN/IO		10	12	15	20	30	40	50-75 mcg	75	25	1-2 mcg/kg
Morphine IV/IO		1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg	0.05-0.1 mg/kg
Ondansetron IV/IO					3 mg	3 mg	4 mg	4 mg	4 mg	4 mg	0.15 mg/kg

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

Notes:

- May also utilize patient controlled Nitrous Oxide for pain management
- Cervical spine protection is not necessary in patients suffering penetrating trauma if no evidence of neurological injury

SHOCK / TRAUMA

SOP # 409 Multi-System Trauma

EMR

1. Initiate in-line C-Spine protection 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 patient's condition
3. Secure patient to LSB

EMR STOP

EMT

4. Pulse oximetry
5. Consider tourniquet use or hemorrhage control clamp

EMT STOP

AEMT

6. IV NS/LR TKO. If systolic BP < 90mmHg, IV NS/LR 20 cc/kg bolus ***(peds 20 cc/kg bolus)***. Target SBP is 90 – 110 mmHg in adult trauma patients. If not hypotensive, avoid administering more than 500 cc crystalloid.

AEMT STOP

PARAMEDIC

7. EKG Monitor

Note: Cervical spine protection 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.

SHOCK / TRAUMA

SOP # 410 Neurogenic Shock

Assessment

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

EMR

1. Oxygen and airway maintenance appropriate to patient's condition
2. Establish and maintain c-spine protection
3. Supportive care

EMR STOP

EMT

4. Pulse oximetry
5. Hemorrhage control - Consider tourniquet use or hemorrhage control clamp

EMT STOP

AEMT

6. 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.

AEMT STOP

PARAMEDIC

7. EKG Monitor

Treatment – Protocol
Contact Medical Control to consider:
Adult and ***Peds Dopamine 2 – 20 ug/kg/min***

Note: Consider occult bleeding and treat as Hypovolemic Shock protocol

SHOCK / TRAUMA

SOP # 411 Septic Shock

Assessment

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

EMR

1. Oxygen and airway maintenance appropriate to patient's condition
2. Obtain and record an oral or axillary temperature if possible

EMR STOP

EMT

3. Pulse oximetry
4. Maintain body temperature above 97°F

EMT STOP

AEMT

5. Glucose check
6. 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
7. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels ***(peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

AEMT STOP

PARAMEDIC

9. EKG monitor
10. Obtain Blood Sample tubes if possible
11. Notify receiving hospital of Sepsis Alert

Treatment – Protocol

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

Note: Ensure body substance isolation precautions

SHOCK / TRAUMA

SOP # 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

EMR

1. Oxygen and airway maintenance appropriate for the patient's condition
2. C-spine protection PRN
3. Control any life threatening hemorrhaging

EMR STOP

EMT

4. Consider applying MAST as a splint
5. Other splints PRN, stabilize penetrating objects
6. Consider hemorrhage control clamp. iTClamp may be used on scalp lacerations as well.
7. Pulse oximetry

EMT STOP

AEMT

8. 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.

AEMT STOP

PARAMEDIC

9. EKG monitor
10. Trauma:
    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)***
    c. If patient pregnant: isolated extremity trauma only
        i. If past 1st trimester and systolic BP > 90 mmHg, contact Medical Control
        ii. If systolic BP < 90 mmHg, place patient in left lateral recumbent position, IV NS/LR 20 cc/kg

Doses are approximate	5-9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50-74 kg	≥75 kg	Geriatric	
Fentanyl IV/IN/IO		10	12	15	20	30	40	50-75 mcg	75	25	1-2 mcg/kg
Morphine IV/IO		1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg	0.05-0.1 mg/kg
Ondansetron IV/IO					3 mg	3 mg	4 mg	4 mg	4 mg	4 mg	0.15 mg/kg

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

Notes:

- Cervical spine protection 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.

SHOCK / TRAUMA

SOP # 413 Spinal Cord Injury

Assessment

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

EMR

1. Oxygen and airway maintenance appropriate for the patient's condition
2. C-Spine protection
3. Control hemorrhaging

EMR STOP

EMT

4. Pulse oximetry

EMT STOP

AEMT

5. 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.

AEMT STOP

PARAMEDIC

6. EKG monitor

Treatment – Protocol

Contact Medical Control and consider Dopamine 2 – 20 mcg/kg/min then titrated

SHOCK / TRAUMA

SOP # 414 Traumatic Cardiac Arrest

Assessment

Cardiac arrest secondary to trauma

EMR

1. Oxygen and airway maintenance appropriate for the patient's condition
2. CPR

EMR STOP

EMT

3. Pulse oximetry

EMT STOP

AEMT

4. IV NS/LR give 20 cc/kg bolus
5. Consider second IV access

AEMT STOP

PARAMEDIC

6. EKG monitor
7. Treat cardiac rhythms per specific protocols
8. If suspected pneumothorax, perform needle chest decompression
9. Consider viability of patient prior to transport

SHOCK / TRAUMA

SOP # 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 distention
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

EMR

1. Oxygen 100% 12 – 15 lpm NRB and airway maintenance appropriate to patient's condition
2. Perform frequent evaluation of the breath sounds and blood pressure
3. Control any life threatening hemorrhaging

EMR STOP

EMT

4. Consider institution of the multiple trauma protocol if indicated. Remember this order may be indicated for the medical patient as well.
5. Follow the trauma treatment priority (reference as needed)
6. If the traumatic tension pneumothorax is secondary to a sucking chest wound, apply an occlusive dressing and treat appropriately
7. Pulse oximetry

EMT STOP

AEMT

8. 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 patient.

AEMT STOP

PARAMEDIC

9. EKG monitor
10. If tension pneumothorax suspected, perform needle decompression. Use 14g 3.5" needle. ***Peds may use smaller 18G decompression needle.***

SHOCK / TRAUMA

SOP # 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

EMR

1. Oxygen 100% and airway maintenance appropriate for the patient's condition
2. C-spine protection PRN
3. Control any life threatening hemorrhaging

EMR STOP

EMT

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. Consider use of tourniquet or hemorrhage control clamp if appropriate
8. Pulse oximetry

EMT STOP

AEMT

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

AEMT STOP

PARAMEDIC

10. EKG monitor
11. Amputation:
    a. If present and systolic BP > 90 mmHg, consider medications per chart below.
    b. Cover open fractures/lacerations, check distal motor/sensory/pulse pre/post splinting, avoid unnecessary movement.

Doses are approximate	5-9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50-74 kg	≥ 75 kg	Geriatric	
Fentanyl IV/IN/IO		10	12	15	20	30	40	50-75 mcg	75	25	1-2 mcg/kg
Morphine IV/IO		1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg	0.05-0.1 mg/kg
Ondansetron IV/IO					3 mg	3 mg	4 mg	4 mg	4 mg	4 mg	0.15 mg/kg

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

REFERENCE

OBSTETRICAL EMERGENCIES

APGAR Scoring

EMR EMT AEMT PARAMEDIC

Clinical Sign	0 points	1 point	2 points
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.

OBSTETRICAL EMERGENCIES

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

Assessment

Patient Para (Number of births) and Gravida (Number of pregnancies)
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

EMR

1. Oxygen and airway maintenance appropriate for the patient's condition
2. Patient positioning appropriate for condition

EMR STOP

EMT

3. Control hemorrhage as appropriate
4. Pulse oximetry

EMT STOP

AEMT

5. INT or IV NS TKO unless signs of shock, then 20 cc/kg fluid bolus
6. Glucose check

AEMT STOP

PARAMEDIC

7. EKG monitor PRN

OBSTETRICAL EMERGENCIES

SOP # 501 Normal Delivery

Assessment

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

EMR

1. Oxygen and airway maintenance appropriate for the patient's condition

EMR STOP

EMT

Mother:

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

Infant:

1. Protect against explosive delivery
2. When head delivers, suction airway (mouth first then nose) and check for cord around neck
3. After delivery, clamp cord at 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 mother and child have been evaluated in the Emergency Department.
8. Re-evaluate cord for bleeding, if bleeding, add additional clamp and re-evaluate.

EMT STOP

AEMT

11. INT or IV LR TKO if patient in active labor defined as regular contractions q 3 – 5 min with 30 – 60 second duration

AEMT STOP

PARAMEDIC

12. EKG monitor PRN

Notes:

- 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 a bulb syringe. Always remember to squeeze the bulb prior to insertion into the infant's mouth or nose.
- The greatest risk to the mother is post-partum hemorrhage. Watch closely for signs of hypovolemic shock and excessive vaginal bleeding.
- Spontaneous or induced abortions may result in copious vaginal bleeding. Reassure the mother, elevate legs, treat for shock, and transport.
- Record a blood pressure the presence or absence of edema in every pregnant woman you examine, regardless of chief complaint.
- Complete individual patient care reports on **BOTH** mother and child.

OBSTETRICAL EMERGENCIES

SOP # 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

EMR

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

EMR STOP

EMT

3. Pulse oximetry

EMT STOP

AEMT

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

AEMT STOP

PARAMEDIC

5. EKG monitor

OBSTETRICAL EMERGENCIES

SOP # 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

EMR

1. Oxygen and airway maintenance appropriate to the patient's condition
2. Place patient in position of comfort

EMR STOP

EMT

3. Pulse oximetry
4. Amniotic sac:
    a. If no fetus visible, cover presenting part with moist, sterile dressing
    b. If head of the fetus has delivered, tear sac with fingers and continue steps for delivery
5. Contact Medical Control ASAP

EMT STOP

AEMT

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

AEMT STOP

PARAMEDIC

7. EKG monitor

OBSTETRICAL EMERGENCIES

SOP # 504 Breech or Limb Presentation

Assessment

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

EMR

1. Oxygen and airway maintenance appropriate to patient's condition

EMR STOP

EMT

Breech Presentation:

Treatment – Standing Order

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 to create an airway for the infant
6. DO NOT remove your hand until relieved by a Higher Medical Authority

Limb Presentation:

Treatment – Standing Order

7. Position the mother in a supine position with head lowered and pelvis elevated

EMT STOP

AEMT

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

AEMT STOP

PARAMEDIC

9. EKG monitor
10. Transport ASAP

OBSTETRICAL EMERGENCIES

SOP # 505 Meconium Stain

Assessment

Patient para (number of births and Gravida (number of pregnancies
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

EMR

1. Do not stimulate respiratory effort before suctioning the oropharynx
2. Suction the **mouth then 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

EMR STOP

EMT

3. Obtain an APGAR score after airway treatment priorities. Score at 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 ED staff
5. Pulse oximetry

EMT STOP

AEMT

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

AEMT STOP

PARAMEDIC

7. EKG Monitor

OBSTETRICAL EMERGENCIES

SOP # 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 births) and gravida (number of pregnancies)
Term of pregnancy in weeks
Pre-natal medications, problems, and care
History of bed rest
Placenta protruding through vagina

EMR

1. Oxygen and airway maintenance appropriate to the patient's condition
2. Position of comfort

EMR STOP

EMT

3. Pulse oximetry

EMT STOP

AEMT

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

AEMT STOP

PARAMEDIC

5. EKG Monitor

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.

OBSTETRICAL EMERGENCIES

SOP # 507 Prolapsed Umbilical Cord

Assessment

Cord emerges from the uterus ahead of the 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 births) and gravida (number of pregnancies) Term of pregnancy in weeks, EDC Vaginal bleeding Pre-natal medications, problems, and care Membrane ruptured

EMR

1. Oxygen and airway maintenance appropriate to patient's condition
2. Position the mother with hips elevated
    a. Knee to chest
    b. Hips elevated as much as possible on pillows

EMR STOP

EMT

3. Palpate pulses in the cord
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

EMT STOP

AEMT

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

AEMT STOP

PARAMEDIC

8. EKG Monitor

OBSTETRICAL EMERGENCIES

SOP # 508 Pre-eclampsia and Eclampsia

Assessment

Patient para (number of births) and gravida (number of pregnancies)
Term of pregnancy in weeks, EDC
Vaginal bleeding
Pre-natal medications, problems, and care
Membrane ruptured
Usually begins after the 20th week of pregnancy
Most often affects women during their first pregnancy
May have a history of chronic hypertension and/or diabetes
May experience headaches, blurred vision, and abdominal pain
May experience seizures which indicates a progression from pre-eclampsia to eclampsia

EMR

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

EMR STOP

EMT

3. Pulse oximetry

EMT STOP

AEMT

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

AEMT STOP

PARAMEDIC

5. EKG Monitor
6. Valium 5 mg slow IV PRN ***(peds 0.2 mg/kg IV)*** or Versed 2 – 5 mg IVP/IN ***(peds 0.1 mg/kg IV)*** per seizure protocol if generalized seizure activity
7. Contact Medical Control and consider:
   Magnesium Sulfate 1 – 2 g IV Slowly

Note: Record a blood pressure and the presence or absence of edema in every pregnant woman you examine regardless of chief complaint.

MISCELLANEOUS

SOP # 601 Discontinuation / Withholding of Life Support

EMR EMT AEMT 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, FF/Paramedic or presented with a valid Physician Orders for Scope of Treatment (POST).

Withholding CPR – Standing Orders

1. If there is no CPR in progress, CPR may be withheld if one or more of the 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 MFD FF/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 present on the EKG monitor in two leads **and**
2. There is absence of pulse, respirations, and neurological reflexes
3. 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 medications 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
    d. The FF/Paramedic can document a lack of CPR for at least ten minutes
    e. Prolonged resuscitation in the field (25 minutes of resuscitation with agonal or asystolic rhythm) without hope for survival
    f. Massive trauma such as evacuation of the cranial vault, etc

g. Severe blunt trauma with absence of vital signs and pupillary response
h. End-tidal CO2 less than 10 mmHg while performing effective CPR

Notes:

- 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.
- Personnel shall give careful consideration when utilizing 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

MISCELLANEOUS

SOP # 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)

EMR EMT AEMT PARAMEDIC

If the 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; 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 and equipment available and consider contacting an EMS Lieutenant.

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:

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

Special Circumstances:

Federal penitentiary

In the event that you respond to a cardiac arrest at the Federal Correctional Institution (1101 John A. Denie Rd), the following protocol applies:

1. If the medical personnel on duty at the facility have determined prior to your arrival that the patient is not viable **and** they have a physician on scene who has declared the patient deceased, **DO NOT** begin resuscitative efforts on the patient, leave the body untouched and return to service after completing your PCR.
2. If the on duty personnel have determined that the patient is viable but they **do not** have a physician on scene, and the Firefighter/Paramedic determines that the patient is non-viable according to MFD protocols (refer to SOP # 601 and SOP # 602), follow the appropriate protocol(s), complete your PCR, and return to service without transporting
3. If the medical personnel on duty at the facility have determined that the patient is viable and are performing resuscitative efforts and the Firefighter/Paramedic agrees, begin treating the patient according to the applicable MFD protocol(s) and transport or discontinue (refer to SOP # 601) as appropriate.
4. It is the responsibility of FCI Memphis to contact the Medical Examiner's office in any of the above referenced cases where a patient is determined to non-viable and not transported to a receiving hospital. Confirm with FCI Memphis staff that they will be contacting the ME's office.

MISCELLANEOUS

SOP # 603 Mandatory EKG

PARAMEDIC

EKGs will be mandatory under the following conditions:

1. Patients complaining of or presenting with:
    - Chest pain regardless of source (trauma or illness)
    - Abdominal pain
        - All males > 40 years old
        - All females > 50 years old
    - Nausea and vomiting
        - All males > 40 years old
        - All females > 50 years old
    - Shortness of breath – all new onset
    - All diabetics and smokers
    - Known heart disease (including CHF, post-surgery, previous MI)
    - Weakness – new onset
    - Syncope
    - Unresponsive
    - Patients with sympathomimetically active drug use (cocaine, crack, methamphetamine, etc.)
2. Cardiac arrest with or without CPR in progress
3. That are non-viable (other than those exhibiting body decomposition, dependent lividity, or rigor mortis, decapitation)

EKGs will have the following information printed on the recording:

- Name or report number
- Age (if possible)
- Unit number and date

EKGs will be appended appropriately to the patient care report

Note: 12 Lead EKGs may be applied and transmitted by any EMT or higher on scene; however, treatment decisions may only be made by a Paramedic.

MISCELLANEOUS

SOP # 604 Patient Refusal or Declination 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

EMR EMT AEMT PARAMEDIC

Standing Orders:

1. Utilize the mini-mental status exam on any patient where you have concerns regarding the decision-making capacity of the patient.
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:

- Patients with impaired judgment and decreased mental status (Utilize the mini-mental status exam to determine, document)
- Minors (less than 18 years of age unless they are emancipated by the courts)
- All minors must have refusal from parent or guardian, not older sibling or other relative
- 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 scene:

- 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)

REFERENCE

Mini-Mental Status Exam

EMR EMT AEMT PARAMEDIC

1. Orientation to time – time of day, day, week, month, year	5 points max
2. Orientation to place – building, street, city, state, country	5 points max
3. Say “boy, dog, ball” and have them repeat it	3 points max
4. Ask the patient to spell would backward, or do serial 3s backward from 20	5 points max
5. Without repeating the words, ask them to repeat the previous 3 words (boy, dog, ball)	3 points 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 year.”	3 points max
7. Ask the patient to identify your pen and watch	2 points max
8. Ask the patient to read the following sentence and then does as it says “shut your eyes”	1 point
9. Ask the patient to write a sentence	1 point
10. Ask the patient to draw two overlapping pentagons (show them an example)	1 point

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

MISCELLANEOUS

SOP # 605 Physical Restraint

EMR EMT AEMT PARAMEDIC

All patients:

1. Safety of fire department 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 only one fire department 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 the 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 the 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. **DO NOT** restrain patient in a hobbled, hog-tied, or prone position.
16. **DO NOT** sandwich patient between devices such as long boards or Reeve's stretchers, for transport. Devices like backboards should be padded appropriately.
17. A stretcher strap that fits snugly just above the knees is effective in decreasing the patient's ability to kick.
18. Padded or leather wrist or ankle straps are appropriate. Handcuffs and plastic ties are not considered soft restraints.
19. Never apply restraints near the patient's neck or apply restraints or pressure in a fashion that restricts the patient's respiratory effort
20. 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 mask should never be used to prevent spitting without also administering high flow oxygen through the mask.

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 of death if a patient continues to struggle violently against restraints. Chemical restraint by sedation by ALS personnel may be indicated in some dangerous agitated patients.

EMT

1. Pulse oximetry

EMT STOP

AEMT

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

AEMT STOP

PARAMEDIC

3. Medication administration:
    a. Valium: 2 – 5 mg IV only, repeat once **or**
    b. Versed: 2 – 5 mg IV/IM/IN/IO, repeat once
    c. Additional doses must be authorized by Medical Control
4. EKG monitoring

Documentation:

Review for documentation of frequent reassessment of vital signs, cardiopulmonary status, and neurovascular status of restrained extremities, reason for restraint, and method used. Benchmark of documenting these items is at least every 5 minutes.

MISCELLANEOUS

SOP # 606 Physician On Scene

EMR EMT AEMT PARAMEDIC

If private physician intervenes by phone, the Firefighter/EMR, EMT, AEMT, or 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 Orders:

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 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 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 Firefighter/EMT (or above) and allow you to operate under MFD standing orders and protocols. Offer assistance by allowing the EMS provider to remain under Medical/Trauma Control: or
    b. Request to talk to Medical/Trauma control to offer advice and assistance or
    c. Take total responsibility for the care given by the EMS Provider if ok 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 EMS Provider
    e. Contact should be made with Medical/Trauma Control if this happens.
6. If private physician intervenes by phone or in person, the EMS Provider shall:
    a. Inform the physician that the EMS Provider 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.

MISCELLANEOUS

SOP # 607 Bystanders on the Scene

EMR EMT AEMT PARAMEDIC

Standing Order:

Bystander 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 bystander is trying to take over direction of patient care, other than a physician (Follow Physician on Scene SOP # 606 in this situation), you may have law enforcement remove the person for "Obstruction of Emergency Services".

MISCELLANEOUS

SOP # 608 Procedure for Deviation from Standing Orders

EMR EMT AEMT PARAMEDIC

NEVER simply disregard a standing order or protocol.

These standing orders have been established so that EMS personnel 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 illnesses 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 not be in the best interest of the patient and 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.

MISCELLANEOUS

SOP # 609 Spinal Protection

EMR EMT AEMT PARAMEDIC

The intent of this guideline is to decrease injury and discomfort to patients caused by unnecessary spinal immobilization and use of long spine boards.

- Studies show that immobilizing trauma victims may cause more harm than good to the patient.
- Penetrating trauma victims benefit the most from rapid assessment and transport to a trauma center without **spinal motion restriction (SMR).**
- There is evidence that backboards result in harm by causing pain, changing the normal anatomic lordosis of the spine, inducing patient agitation, causing pressure ulcers, and compromising respiratory function
- Backboards should be avoided for spinal immobilization with conscious patients
- **Placing ambulatory patients on backboards is unacceptable**
- **Use of the backboard is recommended in the event of CPR**

Spinal Injury Assessment
Introduction:

- Omit **SMR** if all assessment criteria are safely assessed and normal
- Perform **SMR** for a patient who is suspected of having a traumatic unstable spinal column injury. Have a high index of suspicion for pediatrics and patients with degenerative skeletal/connective tissue disorders (i.e. osteoporosis, elderly, previous spinal fractures, etc.)
- Penetrating trauma such as a gunshot wound or stab wound should **NOT** be immobilized on a long board unless there are signs of spinal injury. Emphasis should be on airway and breathing management, treatment of shock, and rapid transport to a Level 1 trauma center.
- Determination that immobilization devices should be used or removed should be made by the highest level provider on scene.
- If the immobilization process is initiated prior to the arrival and assessment by the highest level of provider, STOP and perform spine injury assessment to determine the best course of action.

Spinal Motion Restriction

The term spinal motion restriction (**SMR**) better describes the procedure used to care for patients with possible unstable spinal injuries. SMR includes:

- Reduction of gross movement by patient
- Prevention of duplicating the damaging mechanism to spine
- Regular reassessment of motor/sensory function

Indications:
Any patient identified whose assessment warrants spinal motion restriction. The spinal injury assessment should be performed prior to application of SMR.

Procedure:
If patient experiences negative effects of SMR methods used, alternative methods should be utilized.

1. If hard backboard utilized for extrication, patient should be removed from the backboard as soon as possible and placed on the ambulance stretcher.
    a. Patients with potential c-spine or spinal column injury should be transported supine directly on flat cot **without** a long spine board. If patient was extricated to stretcher on a long spine board (LSB), unstrap and log-roll the patient, remove the long spine board for transport, and transport on cot.
    b. May be left on LSB if spinal immobilization (e.g. extremity splinting) or removal would delay transport of an unstable patient.
2. Patient positions and/or methods/tools to achieve SMR that are allowable (less invasive to more invasive)
    a. Patient position: supine, lateral, semi fowlers, fowlers
    b. Tools/methods to achieve position of comfort include, but not limited to: pillows, children's car seat, scoop, vacuum mattress
3. Provide manual stabilization restricting gross motion. Alert and cooperative patients may be allowed to self-limit motion if appropriate with or without cervical collar.
4. Apply cervical collar; patients who are unable to tolerate cervical collar may benefit from soft collars, pillows, or other padding.
5. Considerations for patient movement when decision to SMR has been made:
    a. Keeping with the goal of restricting gross movement of spine and preventing increased pain and discomfort, self-extrication of the patient is allowable.
    b. If needed, extricate patient limiting flexion, extension, rotation and distraction of spine
    c. Pull sheets, other flexible devices, scoops, and scoop like devices can be employed if necessary. Hard backboards should only have limited utilization.
6. **No standing take downs of ambulatory patients.** Ambulatory patients who meet the above criteria for cervical immobilization should have c-collar applied and be allowed to sit onto the stretcher.
7. Apply adequate padding to prevent tissue ischemia and increase comfort. **Patients should be allowed to be in a position of comfort.**
8. Place patient in position best suited to protect airway
9. Regularly reassess motor/sensory function (include finger abduction, wrist/finger extension, plantar/dorsal flexion, and sharp/dull exam if possible.
10. Consider the use of SpO_2 and $EtCO_2$ to monitor respiratory function.

11. Delivery to hospital: movement of patient to hospital stretchers should be done by limiting motion of the spine.

Special Considerations:

- **Patients with acute or chronic difficulty breathing:** SMR has been found to limit respiratory function an average of 17% with the greatest effect experienced by geriatric and pediatric subjects restricted to a hard backboard. **USE SMR WITH CAUTION with patients presenting with dyspnea and position appropriately.**
- **Pediatric patients, < 9 years of age:**
  - Consider use of padded pediatric motion restricting board
  - Avoid methods that provoke increased spinal movement
  - If choosing to apply SMR to patient in car seat, ensure that proper assessment of patient posterior is performed
- **Combative patients:** Avoid methods that provoke increased spinal movement and/or combativeness

Pediatric Patients and Car Seats

- **Infants restrained in a rear-facing car seat** and **Children restrained in a car seat (with a high back – convertible or booster)** may receive SMR and be extricated in the car seat. The child may remain in the seat if the SMR is secure and his/her condition allows (no signs of respiratory distress or shock)
- **Children restrained in booster seat (without a back)** need to be extricated and receive standard SMR procedures.

Helmet Removal

Safe and proper removal of the helmet should be done following the steps outlined in an approved trauma curriculum.

Indications for football helmet removal:

- When a patient is wearing a helmet and not shoulder pads
- In the presence of head and/or facial trauma, and removal of the face piece is not sufficient
- Patients requiring advanced airway management when removal of the facemask is not sufficient
- When the helmet is loose on the patient's head
- In the presence of cardiopulmonary arrest. (The shoulder pads must also be removed.)

When helmet and shoulder pads are both on the spine is kept in neutral alignment. If the patient is wearing only a helmet or shoulder pads, neutral alignment must be maintained. Either remove the other piece of equipment or pad under the missing piece. *All other helmets must be removed in order to maintain spinal alignment.*

MISCELLANEOUS

SOP # 610 Stretcher Transport

EMR EMT AEMT 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 (COPD)
6. Stroke
7. Patients requiring spinal protection
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 the 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. Psychiatry patients requiring restraint

MISCELLANEOUS

SOP # 611 Terminally Ill Patients

EMR EMT AEMT 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 phone 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 the name and telephone number of the patient's physician.
5. Medical Control will direct management of the call
6. Acceptable DNR/POST forms (**original or copy**)
    a. State approved forms
    b. Signed order in patient's medical records: nursing home, hospice, or home care

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

MISCELLANEOUS

SOP # 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 take down

EMR

1. 100% Oxygen and airway maintenance appropriate to patient's condition
2. Supportive care

EMR STOP

EMT

3. Pulse oximetry

EMT STOP

AEMT

4. Glucose check
5. IV LR or NS, bolus 20 cc/kg
6. Titrate Dextrose 50%, PRN, slowly until normal levels achieved. Try to avoid large swings in serum glucose levels ***(peds – see glucose dosing chart)***

Glucose	D50 1-2 mL/kg	> 8 years
(dextrose)	D25 2-4 mL/kg	6 months - 8 years
	D10 2-4 mL/kg	neonate - months
		Max Rate 2mL/kg/Min
If D25 or D10 are not available, utilize a syringe of D50. To make D25, expel 25 mL of D50 and draw up 25 mL of NS. To make D10, expel 40 mL of D50 and draw up 10 mL of NS.		
***Reminder** IO is appropriate after 2 failed IV attempts or 90 seconds		

AEMT STOP

PARAMEDIC

7. EKG monitor
8. Valium 2 – 10 mg slow IVP PRN or Versed 2 – 5 mg IVP/IN if necessary for seizure or severe agitation

Notes:

- 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.

PEDIATRIC CARDIAC EMERGENCY

SOP # 613 Neonatal Resuscitation

Assessment

Newborn with respiratory or circulatory distress

EMR

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 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 infant 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 a rate of 120 compressions /min, transport
        i. Continue chest compressions

EMR STOP

EMT

6. Pulse oximetry

EMT STOP

AEMT

7. INT or IV NS, if hypotensive bolus 20 cc/kg
8. If pulse rate is > 60 keep warm, ventilate with BVM if necessary, transport

AEMT STOP

PARAMEDIC

9. EKG monitor
10. The dose of Epinephrine is 0.01 mg/kg IV/IO (0.1 cc/kg of 1:10,000) given q 4 minutes until heart rate is above 60 /minute. Refer to length based tape to confirm dosage

Hazardous Materials

SOP # 801 Ammonia

Ammonia is a colorless, water-soluble alkaline gas that is most commonly used a cleaning agent, fertilizer, and industrial refrigerant. The life threat of ammonia exposure is from pulmonary edema and hypotension.

PARAMEDIC

DECON:

Airway protection via SCBA and chemical protective clothing may be required of the rescuer and should be performed only by properly trained personnel. The patient should be removed from the contaminated area. Remove and bag their clothing and any jewelry. Brush away any dry particles and blot excess liquids. Wash patient with a mild soap and warm water.

Assessment:

The following are not all inclusive and may not be present in all patients, but include the most common signs and symptoms.

Cardiovascular:

1. Ventricular Arrhythmias
2. Hypotension

Respiratory

1. Laryngeal Edema
2. Pulmonary Edema
3. Bronchospasm
4. Stridor
5. Cough
6. Dyspnea

CNS

1. Lethargy
2. Coma

Gastrointestinal

1. GI Bleed

Eye:

1. Chemical Conjunctivitis

Skin:

1. Burns
2. Frostbite

Treatment-Standing Order:

1. 100% O2 and airway maintenance appropriate for pt. condition
2. Pulse Oximetry
3. Cardiac Monitor
4. IV NS
5. Treat underlying signs and symptoms per MFD ALS SOP's
6. Tetracaine, 2drops each affected eye, for eye exposure
7. Flush eyes for 15 min with sterile water or saline

Hazardous Materials

SOP # 802 Chlorine

The primary health concern with exposure to chlorine is irritation of the respiratory system. Although it is unlikely, severe respiratory distress and pulmonary edema may occur with prolonged exposure or exposure to high quantities of chlorine. Also, chlorine gas is highly corrosive when it contacts moist tissues such as the eyes, nose mouth, and respiratory system.

PARAMEDIC

DECON: There is a risk of secondary exposure to EMS personnel from off-gassing of the affected person, especially if their clothing has been soaked with a liquid chlorine product. All persons exposed to Chlorine gas should have their clothing and jewelry removed and bagged. They should then be washed with a mild soap and water. If the exposure has occurred inside of a structure or an area with limited ventilation, the appropriate MFD personnel should remove the victim from the area while wearing full PPE and SCBA.

Assessment: Signs and symptoms will vary according to the amount of chlorine, route, and length of exposure:

Respiratory:
1. Nasal and throat irritation
2. Respiratory distress
3. Upper airway obstruction notes by cyanosis, wheezing, rales
4. Pulmonary edema

Cardiovascular:
1. Tachycardia
2. Hypertension followed by hypotension

Eyes:
1. Burning pain
2. Ocular spasms
3. Redness and Tearing
4. Corneal burns

Skin:
1. Burning pain
2. Inflammation
3. Blisters
4. Frostbite (if liquefied chlorine below -30 degrees F)

Treatment – Standing Order

1. 100% Oxygen and airway maintenance appropriate for pt. condition
2. Administer sterile water via nebulizer.
3. Pulse oximetry
4. Consider the need for BVM, intubation or CPAP
5. Treat bronchospasms with Albuterol, 2.5mg in 3cc NS
6. Cardiac Monitor
7. Large bore IV of NS
8. Tetracaine ophthalmic solution, 2 drops in each affected eye
9. Treat respiratory, cardiovascular and other signs and symptoms as appropriate per MFD SOP's

Treatment-Protocol

1. If burning persists, titrate half strength adult sodium bicarbonate (3.75% or 4.2%) and administer 5 cc via the nebulizer. This is made by diluting 2.5-3 cc of adult strength sodium bicarbonate in 2.5 cc sterile water.
2. This is the only time a chemical will be neutralized in or on the body by field medical personnel.
3. 3ml Sodium Bicarb in 2ml NS nebulized for severe respiratory distress. **DO NOT MIX WITH BRONCHODILATOR**

Hazardous Materials

SOP # 803 Cyanide

Cyanide may be found as a pale blue liquid, white solid crystal or colorless gas. It is used in many industrial settings such a paper manufacturing, blueprinting, engraving and metal treatment. Cyanide is also used as a fumigant and is a byproduct of combustion of synthetic materials. This is one of the fastest acting poisons, and is taken into the body through all routes. It has a bitter almond smell to those who can smell it, but the olfactory response fades quickly. Cyanide prevents the uptake of oxygen into the blood stream and further halts cellular respiration, thus causing chemical asphyxiation. Pulse-oximetry will indicate FALSELY high, due to the fact that the cyanide binding to the hemoglobin.

PARAMEDIC

DECON:

Airway protection via SCBA and chemical protective clothing may be required of the rescuer and should be performed only by properly trained personnel. The patient should be removed from the contaminated area. Remove and bag their clothing and any jewelry. Brush away any dry particles and blot excess liquids. Wash patient with a mild soap and warm water.

Assessment:

The following are not all inclusive and may not be present in all patients, but include the most common signs and symptoms.

Cardiovascular:

1. Bradycardia
2. Hypertension which may be followed by hypotension
3. Palpitations
4. Ventricular arrhythmias
5. Cardiac arrest

Respiratory

1. Respiratory rate a depth increase initially
2. Respirations may become slow and labored as poisoning progresses
3. Pulmonary edema
4. Respiratory arrest

CNS

1. Weakness
2. Headache
3. Confusion
4. Lethargy
5. Seizure
6. Coma

Gastrointestinal
1. Nausea and vomiting
2. Excessive salivation

Eye:
1. Redness
2. Edema
3. Dilated pupils

Skin:
1. Inflammation
2. Ulcers
3. Cyanosis may or may not be present

For exposure by means other than smoke inhalation:

Treatment-Standing Order:
1. 100% O2 and airway maintenance appropriate for pt. condition
2. Cardiac Monitor
3. IV N.S.
4. Administer Cyanokit, 5g, IV over 15 min.

For exposure by smoke inhalation:

Treatment-Standing Order:

Mild Exposure (CAO, no serious signs or symptoms):
1. 100% O2 and airway maintenance appropriate for pt. condition
2. IV N.S.
3. Cardiac Monitor

Moderate to Severe exposure (ALOC, Severe Resp. or cardiac symptoms, coma):
1. 100% O2 and airway maintenance appropriate for pt. condition
2. IV N.S
3. Cardiac Monitor
4. The starting dose of Cyanokit for adults is 5 g, (two 2.5 g vials) administered by IV infusion over 15 minutes.
5. Depending upon the severity of the poisoning and the clinical response, a second dose of 5 g may be administered by IV infusion for a total dose of 10 g.

- The rate of infusion for the second 5 g dose may range from 15 minutes (for patients in extremis) to 2 hours based on patient condition.

- There are a number of drugs and blood products that are incompatible with Cyanokit, thus Cyanokit may require a separate intravenous line for administration.

Warnings and Precautions

- Use caution in the management of patients with known anaphylactic reactions to hydroxocobalamin or cyanocobalamin. Consideration should be given to use of alternative therapies, if available.
- Allergic reactions may include: anaphylaxis, chest tightness, edema, urticaria, pruritus, dyspnea, and rash.
- Blood pressure increase: Substantial increases in blood pressure may occur following Cyanokit therapy.

Adverse Reactions

- Most common adverse reactions (>5%) include transient chromaturia, erythema, rash, increased blood pressure, nausea, headache, and injection site reaction

Hazardous Materials

SOP # 804 Heavy Metals

"Heavy Metals" is a loosely defined term used to include elements that exhibit metallic properties. Although there are many elements that can be defined as "heavy metals", these SOP's are intended to apply specifically to arsenic, mercury, lead and copper. You should provide supportive care and contact medical control if you encounter poisoning from any other metallic compound.

PARAMEDIC

DECON:

If the exposure has occurred inside of a structure or an area with limited ventilation, the appropriate MFD personnel should remove the victim from the area while wearing full PPE and SCBA. Remove the patients clothing and jewelry and place them in a bag. The patient should be washed with a mild soap and warm water.

Assessment:

The following are not all inclusive and may not be present in all patients, but include the most common signs and symptoms.

Cardiovascular:

1. Tachycardia
2. Weak pulse
3. Hypotension
4. Ventricular arrhythmias
5. Prolonged QT segment and T wave changes (Arsenic)

Respiratory:

1. Cough
2. Acute bronchitis
3. Tachypnea
4. Dyspnea
5. Apnea
6. Chest Pain
7. Pulmonary edema

CNS:

1. Headache
2. Fatigue
3. Vertigo
4. Syncope
5. Anxiety
6. Seizure
7. Coma

Gastrointestinal:

1. Abdominal pain
2. Nausea
3. Vomiting
4. Cramps
5. Bloody diarrhea

Eyes:

1. Chemical conjunctivitis
2. Ocular edema

Skin:

1. Irritated, red
2. pale, cool, clammy (Copper)
3. cyanotic, cold (Arsenic)

Treatment – Standing Order:

1. 100% oxygen and airway maintenance appropriate for pt. condition
2. Pulse oximetry
3. Large bore IV NS
4. Cardiac Monitor
5. Treat shock and arrhythmias per MFD SOP's
6. Continuous flush of affected eyes with NS
7. Give 4 – 8 oz. of water for ingestion

Treatment – Protocol:

1. If patient is unstable, administer Dimercaprol (BAL), 3mg/kg deep IM

Hazardous Materials

SOP # 805 Hydrogen Fluoride

Hydrogen fluoride is a colorless, fuming liquid or gas with a strong, irritating odor. Hydrogen fluoride is used as a cracking catalyst in oil refineries, and for etching glass and enamel, removing rust, and cleaning brass and crystal. The primary life threat from Hydrogen Fluoride and Hydrofluoric Acid is from severe burns and pulmonary edema.

PARAMEDIC

DECON:

Airway protection via SCBA and chemical protective clothing may be required of the rescuer and should be performed only by properly trained personnel. The patient should be removed from the contaminated area. Remove and bag their clothing and any jewelry. Brush away any dry particles and blot excess liquids. Wash patient with a mild soap and warm water.

Assessment:

The following are not all inclusive and may not be present in all patients, but include the most common signs and symptoms.

Cardiovascular:

1. Tachycardia
2. Weak Pulse
3. Arrhythmias
4. Hypotension

Respiratory

1. Acute Bronchitis
2. Dyspnea
3. Pulmonary Edema

CNS:

1. Headache
2. Lethargy
3. Altered LOC

Gastrointestinal:

1. Nausea
2. Vomiting
3. Burns to the mouth and oropharynx

Eye:

1. Intense Pain
2. Chemical Conjunctivitis

Skin:

1. Severe Pain
2. Burns may or may not be visible
3. White areas of discoloration may be present

Treatment-Standing Order

1. 100% O2 and airway maintenance appropriate to pt. condition
2. Pulse Oximetry
3. I.V. NS in unexposed extremity if possible
4. Cardiac Monitor – Watch for signs of hypocalcemia (prolonged QT interval)
5. Inhalation: Administer nebulized Calcium Gluconate, 2.5ml in 10cc NS if pt. is displaying signs and symptoms of inhalation (sore throat, coughing, bronchospasm)
6. Skin Exposure: make a mixture of 2.5g Calcium Gluconate and 100ml of water soluble lubricant (KY Jelly) and massage onto affected area.
7. Ingestion: If pt. is conscious and gag reflex is present, administer 2-4 glasses of water.
8. DO NOT induce emesis
9. Eye Exposure: Irrigate with 1% aqueous solution of Calcium Gluconate (50ml of 10% Calcium Gluconate in 450 ml of NS)

Hazardous Materials

SOP # 806 Hydrogen Sulfide

Hydrogen Sulfide is a colorless, flammable, highly toxic gas that is used in gas and crude oil operations. It is also a naturally occurring by-product of decaying organic matter (AKA sewer gas) and has the odor of rotten eggs to those who can smell it, and be aware that the olfactory nerve may become fatigued and less responsive with exposure! It is heavier than air. This also is a chemical asphixiant that interferes with cellular respiration. This is taken into the body through all routes.

PARAMEDIC

DECON:

Airway protection via SCBA and chemical protective clothing may be required of the rescuer and should be performed only by properly trained personnel. The patient should be removed from the contaminated area. Remove and bag their clothing and any jewelry. Brush away any dry particles and blot excess liquids. Wash patient with a mild soap and warm water.

Assessment:

The following are not all inclusive and may not be present in all patients, but include the most common signs and symptoms.

Cardiovascular:

1. Tachycardia or Bradycardia
2. Arrhythmias
3. Circulatory Collapse

Respiratory:

1. Cough
2. Dyspnea
3. Tachypnea
4. Acute Bronchitis
5. Pulmonary Edema

CNS:

1. Headache
2. Confusion
3. Dizziness
4. Altered LOC
5. Seizure
6. Coma

Gastrointestinal:
1. Nausea
2. Vomiting
3. Profuse Salivation

Eye:
1. Chemical Conjunctivitis
2. Lacrimation
3. Photophobia

Skin:
1. Irritation
2. Local Pain
3. Excessive Sweating
4. Cyanosis

Treatment-Standing Order:
1. 100% O2 and airway maintenance appropriate for pt. condition
2. Do Not induce vomiting
3. Pulse Oximetry
4. Cardiac Monitor
5. IV NS
6. Flush eyes with copious amounts of water for eye exposure
7. Tetracaine, 2 drops each eye after flushing for eye exposure
8. Valium, 10 mg if seizing

Treatment-Protocol:
1. Administer Amyl Nitrite, 1 ampule every 5- 10 minutes
2. Administer Sodium Nitrite, 300mg I.V. over 5 minutes (Flush I.V. line after administration)

Hazardous Materials

SOP # 807 Methyl Bromide

Methyl Bromide is a colorless liquid or gas that is used as an insecticide and as a fumigant for grain elevators and greenhouses. It is also used in refrigerants and solvents. Methyl Bromide is a neurotoxin that can cause severe respiratory irritation, pulmonary edema, and respiratory failure as well as seizures, coma and death.

PARAMEDIC

DECON:

Airway protection via SCBA and chemical protective clothing may be required of the rescuer and should be performed only by properly trained personnel. The patient should be removed from the contaminated area. Remove and bag their clothing and any jewelry. Brush away any dry particles and blot excess liquids. Wash patient with a mild soap and warm water.

Assessment:

The following are not all inclusive and may not be present in all patients, but include the most common signs and symptoms.

Cardiovascular:

1. Arrhythmias
2. Circulatory Collapse

Respiratory:

1. Throat Irritation
2. Tightness of the chest
3. Dyspnea
4. Tachypnea
5. Bronchospasm
6. Pulmonary Edema

CNS: (Symptoms may be delayed)

1. Headache
2. Weakness
3. Confusion
4. Dizziness
5. Slurred Speech
6. Seizures
7. Coma

Gastrointestinal:

1. Nausea
2. Vomiting
3. Abdominal Pain

Eye:

1. Chemical Conjunctivitis
2. Blurred Vision

Skin:

1. Chemical Burns
2. Cyanosis
3. Pain

Treatment-Standing Orders

1. 100% O2 and airway maintenance appropriate for pt. condition
2. Pulse Oximetry
3. Cardiac Monitor
4. I.V. NS
5. Irrigate eyes with sterile water or NS for 5 minutes, remove contact lenses, and apply 2 drops of Tetracaine in each affected eye if exposure to eyes has occurred.

There is no antidote for Methyl Bromide poisoning. EMS personnel should provide supportive measures for underlying signs and symptoms according to MFD ALS SOP's and contact medical control for further guidance.

Hazardous Materials

SOP # 808 Nitrogen Oxides

Nitrogen Oxides are a mixture of gases that are composed of nitrogen and oxygen that are most commonly released into the air by vehicle motor exhaust, burning coal, oil, and natural gas. People are most often exposed to excessive nitrogen oxides levels by close proximity to combustion sources. These chemicals are also commonly found in fertilizers, paints, inks, and dyes and changes the hemoglobin into methemoglobin, which is non-oxygen carrying compound and leads to chemical asphyxiation.

PARAMEDIC

DECON:

Airway protection via SCBA and chemical protective clothing may be required of the rescuer and should be performed only by properly trained personnel. The patient should be removed from the contaminated area. Remove and bag their clothing and any jewelry. Brush away any dry particles and blot excess liquids. Wash patient with a mild soap and warm water.

Assessment:

The following are not all inclusive and may not be present in all patients, but include the most common signs and symptoms.

Cardiovascular:

1. Rapid, Weak Pulse
2. Hypotension

Respiratory:

1. Dyspnea
2. Bronchospasm
3. Pulmonary Edema
4. Glottic Edema

CNS:

1. Fatigue
2. Altered LOC

Gastrointestinal:

1. Nausea
2. Vomiting
3. Abdominal Pain

Eye:

1. Chemical Conjunctivitis

Skin:

1. Irritation
2. Pallor
3. Cyanosis
4. Burns if exposed to liquefied NOx

Presentation:

Cyanosis, unresponsive to oxygenation, headache, nausea, vomiting, tachycardia, arrhythmias, syncope, dyspnea, seizures, coma.

Treatment-Standing Order

1. 100% O2 and airway maintenance appropriate for pt. condition
2. Pulse Oximetry
3. Cardiac Monitor
4. I.V. NS
5. Treat underlying signs and symptoms per MFD ALS SOP's
6. Administer Methylene Blue, 1-2mg/kg IV over 10 min. if pt. has severe hypoxia and cyanosis that does not respond to other treatments

Hazardous Materials

SOP # 809 Organophosphates

Organophosphates are among the most poisonous compounds that are used for pest control. They may be found as liquids, dusts, wettable powders, concentrates and aerosols. These are taken into the body through all routes. Some of the highly toxic organophosphates are: tetraethyl pyrophosphate, fensulfothion, mevinphos, ethyl parathion, sulfotep, cyanofenphos, and methyl parathion. Some moderately toxic organophosphates are: leptophos, ethion, chlorpyrifos, diazinon, malathion, and seven.

PARAMEDIC

DECON:

Airway protection via SCBA and chemical protective clothing may be required of the rescuer and should be performed only by properly trained personnel. The patient should be removed from the contaminated area. Remove and bag their clothing and any jewelry. Brush away any dry particles and blot excess liquids. Wash patient with a mild soap and warm water.

Assessment:

The following are not all inclusive and may not be present in all patients, but include the most common signs and symptoms.

Cardiovascular:

1. Bradycardia (Tachycardia is possible)
2. Ventricular Arrhythmias
3. A-V Blocks
4. Hypotension

Respiratory:

1. Bronchoconstriction
2. Profuse Pulmonary Secretions
3. Acute Pulmonary Edema (Severe Exposure)
4. Respiratory Failure (Severe Exposure)

CNS:

1. Anxiety
2. Headache
3. Dizziness
4. Weakness
5. Disorientation
6. Slurred Speech
7. Seizure (Severe Exposure)
8. Coma (Severe Exposure)

Gastrointestinal:
1. Nausea
2. Vomiting
3. Abdominal Cramps
4. Defecation

Eye:
1. Lacrimation
2. Blurred Vision
3. Miosis

Skin:
1. Pale
2. Cyanotic
3. Diaphoresis

Minor Exposure:
shortness of breath, chest pain, headache, nausea, watering eyes, throat and nose, blurred vision slightly diaphoretic and slight in coordination, or no presentation.

Moderate Exposure: Headache, nausea, vomiting, and sludge syndrome, very diaphoretic, in coordination, blurred vision, wheezing focal motor seizures, and tachycardia

Severe Exposure: Sludge syndrome, diaphoretic, pulmonary edema, bradycardia, seizures, coma, and paralysis.

Treatment-Standing Order
Mild Exposure
1. Treat underlying signs and symptoms per MFD ALS SOP's

Moderate Exposure
1. Administer (1) Mark 1 Kit and re-evaluate after 5-10 min. Additional doses of Atropine may be needed (Monitor for arrhythmias). If no improvement, administer a second Mark 1 kit.
2. 100% O2 and airway maintenance appropriate for pt. condition
3. Pulse oximetry
4. Cardiac Monitor
5. IV NS

Severe Exposure
1. Administer (3) Mark 1 Kits
2. Valium, 10 mg I.M., if seizing
3. 100% O2 and airway maintenance appropriate for pt. condition

4. Pulse Oximetry
5. I.V. NS
6. Cardiac Monitor

Note:

IV atropine with hypoxic patients may cause ventricular fibrillation Atropine should be stopped when the patient "Dries up" or symptoms stop. Atropine may be given as a nebulizer treatment if severe wheezing occurs.

Age related Protocol

Treatment of severe presentation:

Atropine:

- Infant IM 0.5mg
- Infant IV 0.02mg/kg
- Child 2-10 IM 1.0mg
- Adolescent IM, IV 2.0mg
- Elderly IM 1.0mg

2-PAMCL

- Infant to 70kg IM, IV 1.5mg/kg
- Elderly 7.5mg/kg

Hazardous Materials

SOP # 810 Crush Syndrome

A crush injury results from muscle cell disruption due to compression. Compartment syndrome is crush injury caused by swelling of tissue inside the confining fibrous sheath of muscle compartments. Compartment syndrome symptoms include; pain, paresthesia, pallor, poikilothermy, and pulselessness. Crush syndrome is the systemic manifestations of muscle crush injury and cell death. This occurs when the crushed muscle is released from compression. Crush injury syndrome should be suspected in patients with an extensive area of involvement of large muscle groups such as legs, buttocks, entire upper extremity and pectoral areas. The syndrome can begin within an hour if severe compressive forces are involved constricting the venous return. Time of onset is directly related to muscle mass involved versus force applied.

Medical treatment should be on a case by case basis looking at the history, muscle groups involved, and the time and pressure involved.

PARAMEDIC

Procedure:

1. Scene safety.
2. Primary patient assessment. Placement of appropriate hemodynamic monitoring equipment. If oxygen saturations are greater than 93% on room air, the use of high flow oxygen is discouraged due to free oxygen radical exchange. Caution should be used when introducing high flow oxygen into a confined environment. Risk/benefit analysis should be done with the rescue officer, safety officer and the incident commander prior to use.
3. Spinal immobilization as dictated by patient access/confinement.
4. Maintain patient in a dry, normothermic state. Hypothermia may cause a rapid deterioration in physiologic status as well as rapid utilization of glucose stores resulting in hypoglycemia. Hypoglycemia should be treated with administration of dextrose by the most appropriate route (IV, PO, NGT/OGT) as dictated by patient situation.
5. Intravenous access with large bore catheters, minimum of two sites.
6. Administration of normal saline 1000-2000 ml bolus (20 ml/kg) initially and then 1000 ml/hr. The aggressive administration of volume prior to extrication is important to minimize the potential for obstruction of the renal tubules with myoglobin. Lactated Ringer's should not be used due to its potassium content.
7. Administer Sodium bicarbonate 50 mEq IVP (pediatric 1meq/kg). A Sodium bicarbonate infusion of 150 mEq /l000ml D5W should be initiated. The total IVF rate (NS+D5W) should total l000mllhr (pediatric 5m1/kg/hr.). The IV fluid rate should be guided by urine output. Sodium bicarbonate should not be mixed in normal saline due to sodium overload. Alkalization prevents precipitation of myoglobin in the renal tubules which causes acute tubular necrosis and acute

renal failure. Myoglobin precipitates in an acidic environment. Myoglobinuria is noted when the urine is a tea colored.

8. Consideration should be given to placing a urinary catheter to drainage bag to monitor urine output.
9. Analgesia and sedation should be administered per hemodynamic profile. This is also beneficial in facilitating ongoing rescue operations.
10. Prior to extricating the patient with moderate symptoms of crush injury from a confined space, the following medications should be administered.
    a. 50% Dextrose 25 grams IVP (pediatric 0.5grams/kg)
    b. Regular insulin 10 units IVP (pediatric 0.2 units/kg)
11. Administer Albuterol up to 5 mg via nebulizer. Albuterol lowers serum potassium by driving it back into the cells.
12. Life threatening Arrhythmias can occur following release of compressive force. EKG
    a. changes due to hyperkalemia are listed below from elevated to high potassium levels:
    b. Tall peaked T waves.
    c. Prolonged PR interval.
    d. Small P wave, ST depression.
    e. A V block, Bundle Branch Block.
    f. Wide QRS with no P wave. *
    g. Ventricular Fibrillation. *

*Life threatening arrhythmias such as wide QRS and ventricular fibrillation require immediate treatment with Calcium Chloride 1 gram IVP (pediatric dose 20mglkg).

13. Consider the following in situations with prolonged entrapment:
    a. The addition of Mannitol 1 gram/kg to the intravenous bag. Mannitol is thought to be useful in promoting diuresis of the circulating volume to reduce urine acidity.
    b. The use of the ISTAT blood analyzer which can be obtained from the Urban Search and Rescue Team.
    c. Field amputation kit available on site at rescue. This can be obtained with a physician from the local trauma center or the Urban Search and Rescue team.

PROCEDURE

Blood Collection in Patients with Time Critical Illness

PARAMEDIC

Purpose:
In an effort to expedite the care of patients, especially those with time critical illnesses, EMS will attempt to obtain blood samples on these patients prior to arrival at the hospital. Blood draw kits will be replaced by the destination hospitals. Each kit should contain tubes, labeling information, and other necessary equipment.

Indications:
Patients exhibiting signs and symptoms of time critical illnesses including ACS/STEMI and stroke
Consider obtaining blood samples on any patient in which an IV is started in the field

Procedure:

1. Obtain blood via straight stick or through IV catheter. Note that the straight stick method is preferable due to hemolysis concerns.
2. Tubes should be drawn in this order:
    a. 1 blue top tube
    b. 1 red top tube
    c. 1 light green top tube
    d. 1 dark green top tube
    e. 1 purple top tube
3. Label all tubes with the following information:
    a. Patient's last name, first name, middle initial
    b. Patient's date of birth (DOB)
    c. Date and time of stick
    d. Initials of paramedic performing blood draw
    e. EMS unit identification (i.e., MFD U-21, etc.)
    f. ePCR #
4. Place all tubes in zip lock lab bag.
5. Ensure bag always stays with patient until delivered directly to nurse in ER when giving report.
6. Document that blood was delivered and obtain replacement blood draw kit from facility prior to return to service.

Order of Draw for

Multiple Tube Collections
CLSI recommended Order of Draw (H3-A6, Vol. 27, No. 26)

Blood Collection Tubes (plastic)

Tube Color	Collection Tube	Mix by Inverting
	TO FILL LINE **Must Be collected before other tubes** **PT, INR, PTT** **D-Dimer** **Fibrinogen**	**3 to 4 times**
	CMP **Enzymes** **SPT**	**8 to 10 times**
	Cardiac Enzymes **Troponin**	**8 to 10 times**
	CBC **HgB** **HcT** **Hgb A1C** **ESR**	**8 to 10 times**

Tips for Successful Venipuncture:
*** Keep angle of insertion 30 degrees or less, or as low as possible**
*** Do not leave the tourniquet on for longer than one minute prior to venipuncture to avoid altering results**
*** Instruct patient to clench and hold their fist instead of pumping it, which falsely elevates some blood levels**
*** Avoid side-to-side needle manipulation, especially in the area of the basilica vein where nerves and the brachial artery can be injured**
*** Hold pressure and observe for bleeding and hematoma formation prior to bandaging**
*** Invert each tube as indicated by above color chart**

Processing of Tubes

Why

- Most tubes contain an additive or Clot activator that needs to be mixed with the blood sample.
- Tubes with anticoagulants such as EDTA need to be mixed to ensure the specimen does not clot.

How

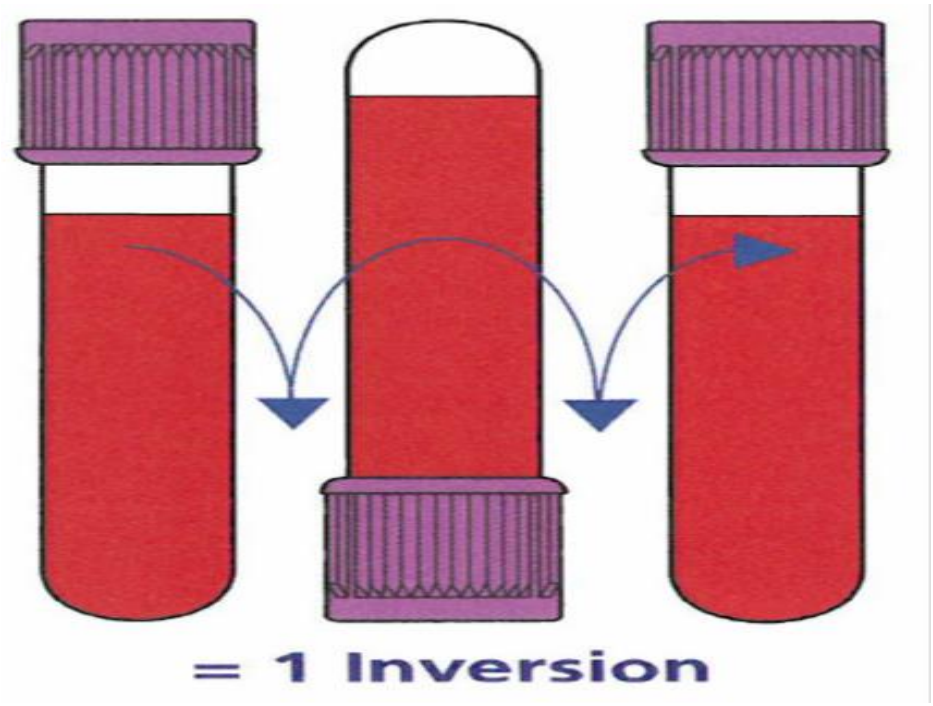
- Holding tube upright, gently invert 180° and back.
- Repeat movement as prescribed for each tube.

When

- Immediately after drawing.

Consequences if not mixed

- **Tubes with anticoagulants will clot**
- **Specimen will often need to be redrawn**



PROCEDURE

Capnography

PARAMEDIC

Indications:

- Capnography shall be used as soon as possible in conjunction with any airway management adjunct, including endotracheal, 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 CO_2 level and wave form changes. These will be documented on each respiratory failure, cardiac arrest, or respiratory distress patient.
3. Capnography shall remain in place with the airway and be monitored throughout the prehospital care and transport.
4. Any loss of CO_2 detection or waveform indicates an airway problem and should be documented.
5. Capnography 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 .
7. In all patients with a pulse, an $ETCO_2$ > 20 mmHg is anticipated. In the post resuscitation patient, no effort should be made to lower $ETCO_2$ by modification of the ventilator rate. Further, in post-resuscitation patients without evidence of ongoing severe bronchospasm, ventilator rate should never be < 6 breaths per minute.
8. In the pulseless patient, an $ETCO_2$ waveform with an $ETCO_2$ value > 10 mmHg may be utilized to confirm the adequacy of an airway to include BVM and advanced devices when SpO2 will not register.

PROCEDURE

Chest Decompression

PARAMEDIC

1. Cleanse skin on affected side using aseptic technique
2. Using a 14 or 16 gauge 3.5" 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

PROCEDURE

Continuous Positive Airway Pressure (CPAP)

EMR EMT AEMT 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.

Indications

- Any patient who is respiratory distress for reasons other than trauma or pneumothorax, and;
- Is awake and able to follow commands
- Is over 12 years old and the CPAP mask fits appropriately
- Has the ability to maintain an open airway
- Has a systolic blood pressure above 90 mmHg
- Uses accessory muscles during respirations
- Shows signs and symptoms consistent with asthma, COPD, pulmonary edema, CHF or pneumonia

AND who exhibit **two or more** of the following:

- A respiratory rate greater than 25 breaths per minute
- Pulse Oximetry of less than 94% at any time
- Use of accessory muscles during respirations

Contraindications

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

Precautions

Use care if patient:

- Has impaired mental status and is not able to cooperate with the procedure
- Has failed at non-invasive ventilation
- Has active upper GI bleeding or history
- Complains of nausea or vomiting

- Has inadequate respiratory effort
- Has excessive secretions
- Has a facial deformity that prevents the use of CPAP

Procedure

Explain the procedure to the patient

1. Connect O_2 tubing nipple to gas source
2. Place the face mask securely to the patient's face using head harness
3. With nebulizer in the OFF position slowly increase gas flow to 6 or 8 LPM. Check face mask fit to patient and device connections for leaks.
4. Adjust the flow meter until desired pressure is obtained. **Maximum benefit is usually achieved at about 7.5 mm H_2O. Higher pressures result in more side effects with minimal improvements in benefits.** Flow of 12-14 LPM is required to reach CPAP pressure of 8.5-10 cm H_2O
5. Do not exceed 33 LPM
6. Patient SaO_2 should be monitored using a pulse oximeter.
7. To activate nebulizer, rotate knob to the ON position.
8. If necessary, readjust flow meter to obtain desired CPAP pressure. Up to 25 LPM may be required.
9. Consider Ondansetron (Zofran) 2 – 4 mg IV ***(peds 0.15 mg/kg IV)***

Measuring Pressure

- Pressure relief limits maximum CPAP pressure to 25 cm H_2O @ 25 LPM
- Do not exceed pressure limit of manometer (25 cm H_2O)
- Manometer accuracy ± 3 cm H_2O up to 15 cm H_2O and ± 5 cm H_2O over 15 cm H_2O

Specifications

Sample guidelines for preparing Rx Dosing

Flow meter setting L/min	14 - 15								23 - 24							
CPAP Pressure cm H_2O	4 - 5								9 - 10							
Flow through EZ Flow max	6 L/min								10 L/min							
Output	12 mL/hour								16 mL/hour							
Rx (mg/hr)	5		10		15		20		5		10		15		20	
Treatment Duration (hours)	1	2	1	2	1	2	1	2	1	1.5	1	1.5	1	1.5	1	1.5
Medication @5mg/mL (mL)	1	2	2	4	3	6	4	8	1	1.5	2	3	3	4.5	4	6
Saline (mL)	11	22	10	20	9	18	8	16	15	22	14	21	13	20	12	18

Notes:

- In the event of undesirable flow from oxygen source, simply remove the device and place on supplemental oxygen.
- Use of the Flow-Safe with non-back pressure compensated flow devices may affect input gas liter flow. Always verify delivered CPAP pressure on a manometer.
- Activation or deactivation of nebulizer may affect the delivered CPAP pressure. Always verify delivered CPAP pressure with a monometer.
- Flow meters capable of delivering up to 25 LPM may be required to operate both CPAP and Nebulizer simultaneously.
- Use of nebulizer other than the one provided may affect performance.
- Do not remove CPAP until hospital therapy is ready to be placed on the patient.
- Watch the patient for gastric distention that can result in vomiting
- Procedure may be performed on patients with a Do Not Resuscitate order
- Due to the changes in preload and afterload of the heart during CPAP therapy, a complete set of vital signs must be obtained every 5 minutes.

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 acknowledgment, 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** the following criteria):

- Greater than 16 years old and less than 65 years old
- Stable vital signs
- Non-emergent complaint
- Patient can walk and talk
- Patient has had no medications nor significant interventions by EMS (minor bandaging, splinting, without nausea/vomiting)

Procedure:

- Ambulance arrives in ED and notifies ED nursing staff of patient
- 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, request EMS Lieutenant presence in ED.
- EMS Lieutenant again requests ED Nursing staff to accept report and offload the EMS stretcher. If no progress is made within 15 minutes of the Lieutenants engagement; and the patient meets all the criteria above, EMS Lieutenant shall perform the following:
    - Ensure the patient's condition is unchanged
    - If an INT was started on the patient, ensure that it is discontinued (DCed) prior to off-loading unless directed by the Triage or Charge Nurse.
    - Take the patient to the triage waiting area
    - Document all contacts with ED personnel, and record names of Charge and Triage Nurse
    - Denote method of patient care transfer on EPCR
    - Ensure unit paramedic completes an abbreviated, hand written EMS run report and ensure its delivery to triage or admissions. EMS is responsible to ensure hospital is aware of patient's presence in the waiting room.
    - Have EMS crew complete standard EPCR run report
    - Return EMS Unit to service

Note: The patient has the right to refuse offload.

PROCEDURE

Endotracheal Tube Introducer (Bougie)

PARAMEDIC

Indications:

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

Contraindications:

- Introducer larger than ET tube 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). Failure to lubricate the Bougie and the ET tube may result in being unable to pass the ET Tube.
4. Using laryngoscopic techniques, visualize the vocal cords if possible using Sellick maneuver/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 probable esophageal intubation 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 ET tube 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 depth.
10. If you are unable to advance the ET tube into the trachea and the Bougie and ET tube are adequately lubricated, withdraw the ET tube slightly and rotate the ET tube 90° COUNTER CLOCKWISE to turn the bevel of the ET tube posteriorly. If this technique fails to facilitate passing of the ET tube you may attempt direct laryngoscopy while advancing the ET tube (this will require and assistant to maintain the position of the Bougie and, if so desired, advance the ET tube).
11. Once the ET tube 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 positioning is determined, secure the ET tube, reassess breath sounds, apply Capnography, and record and monitor readings to assure continued tracheal intubation.

PROCEDURE

External Transcutaneous Cardiac Pacing

PARAMEDIC

Non-invasive 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:

- Treatment of hemodynamically compromised patients in setting 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.
- Bradycardia with a systolic BP < 80 mmHg with shock-like signs or symptoms
- 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.
- 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 a paramedic.
- 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:

- Non-witnessed cardiopulmonary arrest with asystole
- Patient 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 medications per chart below **and/or**
- Diazepam 2.5 – 10 mg Slow IV/IO **or**
- Versed 2 – 4 mg IV/IO

Musculoskeletal twitching in upper torso may occur during pacing.

Precautions:

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

DO NOT USE EXTERNAL PACING ON A HYPOTHERMIC PATIENT.

Doses are approximate	5-9 kg	10 kg	12 kg	15 kg	20 kg	30 kg	40 kg	50-74 kg	≥75 kg	Geriatric	
Fentanyl IV/IN/IO		10	12	15	20	30	40	50-75 mcg	75	25	1-2 mcg/kg
Morphine IV/IO		1 mg	1 mg	1.5 mg	2 mg	3 mg	4 mg	4 mg	4 mg	2 mg	0.05-0.1 mg/kg
Ondansetron IV/IO					3 mg	3 mg	4 mg	4 mg	4 mg	4 mg	0.15 mg/kg

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

PROCEDURE

Fever / Infection Control

Indications:

Age	Last Acetaminophen or Ibuprofen
Duration of fever	Warm
Severity of fever	Flushed
Past medical history	Sweaty
Medications	Chills/Rigors
Immunocompromised (Transplant, HIV, Diabetes, Cancer)	Myalgias, Cough, Chest Pain, Headache, Dysuria, Abdominal Pain,
Environmental exposure	Mental Status Changes, Rash

EMR EMT AEMT PARAMEDIC

Procedure:

1. Use contact, droplet and airborne PPE precautions
2. Obtain orthostatic blood pressure
3. Using your IV standing order, start a normal saline bolus
4. For a temperature greater than 100.4°F (38°C) administer 600 mg Ibuprofen PO ***(peds > 6 months 5 mg/kg PO)*** if available or Acetaminophen 1000 mg PO ***(peds > 3 months 15 mg/kg PO). May assist with dosing of patient medications***
5. Notify destination or contact Medical Control

PROCEDURE

Hemorrhage Control Clamp

EMT AEMT PARAMEDIC

Indications:
Provides temporary control of severe bleeding in the scalp, extremities, axilla, and inguinal areas

Contraindications:
Not for use where skin approximation cannot be obtained (i.e. Large skin defects under high tension)

Warnings and Precautions:

- This device is intended for temporary use only; not to exceed three hours.
- Patients must be seen by medical personnel for device removal and surgical wound repair
- Use device as directed to avoid needle stick injury.
- Do not use where delicate structures are within 10 mm of the skin surface (ex. Orbits of the eye).
- This device will not control hemorrhage in non-compressible sites, such as the abdominal and/or chest cavities.
- Ensure proper PPE is utilized to protect against possible splashing of blood during application.
- The device is designed for single use. Do not use if sterility seal on package has been broken or otherwise damaged.
- Dispose of the device as you would other sharps.
- For extreme extremity injuries not amenable to clamp application consider tourniquet application per protocol.

Procedure: *(if patient is conscious, explain procedure)*

- Apply appropriate PPE
- Open sterile package by pulling forward on outer tabs
- Remove device from package by lifting up. Take care not to close device until it has been applied to the wound.
    - If the device has been accidentally closed, push the side buttons inward with one hand and pull the device open using the device arms.
- Locate wound edges
- Align the device parallel to the length of the wound edge. Position the needles approx. 1-2 cm from the wound edge on either side. (For very large wounds the device can be applied to one side, then pulled to the other side, or the tissue can be approximated by hand and the device applied.)
- Press the arms of the device together to close the device. The device's safety seal will break with pressure.

- Ensure the entire wound is sealed and bleeding stops, using a gauze pad to wipe the area to verify no leaking of blood from the wound. More than one device may be required for large wounds.
- If bleeding continues:
    - Ensure the device is in the correct position, close the device more firmly by applying further pressure to the arms of the device
    - If wound is too large apply additional devices to the open section
    - If device is applied incorrectly or not positioned properly remove the device according to the instructions and reapply.

Removal:

Unless you need to reposition the device all removal should be done in a medical facility prepared to manage the wound.

- Hold the device by the gripping bars, press the device further closed to release the lock.
- While maintaining pressure on the arms, press both release buttons with your other hand.
- While pressing the release buttons, pull one of the gripping bars open and rotate the needles from the wound, one side at a time.
- Pick up the device ONLY by the buttons to prevent accidental contact with the needles
- Dispose of the device in accordance with local guidelines for sharps.

Notes:

If desired wound packing and/or the use of a hemostatic agent may be applied. The hemostatic agent does not need to be removed prior to application of the clamp.

PROCEDURE

Induced Hypothermia Following ROSC

The goal is to begin cooling the patient who meets criteria as soon as possible. You may initiate resuscitation with cold saline as your IVF 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 times of death. Complete the remainder of the protocol.

PARAMEDIC

Criteria for Induced Hypothermia

- Age greater than 18 years old
- Any cardiac arrest with resuscitation efforts
- **R**eturn **O**f **S**pontaneous **C**irculation (regardless of blood pressure) following cardiac arrest (all non-traumatic causes)
- Patient remains comatose (GCS < 8 and/or no purposeful responses to pain)
- Intubated or needs airway management (King airway is acceptable) $ETCO_2$ > 20 mmHg
- Systolic blood pressure can be maintained at 90 mmHg spontaneously or with fluids and pressors

Patient Exclusion Criteria

- Pregnant female with obviously gravid uterus
- Systolic blood pressure cannot be maintained at 90 mmHg or greater spontaneously or with fluids and pressors
- Coagulopathy or thrombocytopenia

Procedure

1. Patient meets criteria for Induced Hypothermia?
    a. If no, proceed to post-resuscitation protocol
        i. If yes, is the ET tube placed
        ii. If no, proceed with intubation. King airway is acceptable.
        iii. 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

Notes:

- 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.
- 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.
- Do not delay transport for the purpose of cooling.
- Reassess airway frequently and with every patient move.
- Patients develop metabolic alkalosis with cooling. Do not hyperventilate.
- Transport patient to hypothermia capable center.

PROCEDURE

Indwelling IV Port Access

PARAMEDIC

Indications:

- Intravenous fluid or medications **emergently** needed AND:
- Peripheral IV cannot be established AND
- Patient exhibits one or more of the following:
  - Presence of indwelling port
  - Altered mental status (GCS of 8 or less)
  - Respiratory compromise (SaO2 of 80% or less following appropriate oxygen therapy, and/or respiratory rate < 10 or > 40 /min)
- Hemodynamically unstable

Contraindications:

- Infection at insertion site
- Significant edema
- Excessive tissue at insertion site
- Inability to locate landmarks

Considerations:

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

Procedure for accessing the Implanting 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 of the opening
4. Attach 10 cc NS syringe to the extension tube
5. Prime tubing and needle with NS
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 a 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.
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 2 x 2 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 2 x 2s if extra padding is needed
3. Place one 2 x 2 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.

PROCEDURE

Intranasal Medication

AEMT 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 the 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:

An emergent need for medication administration and IV access is unobtainable or presents high risk of needle stick injury due to patient condition:

- Seizures / Behavior control: Midazolam (Versed) may be given intranasally until IV access is available
- Altered Mental Status from Suspected Narcotic Overdose: Naloxone (Narcan) may be given intranasally until IV access is available
- Symptomatic Hypoglycemia (blood sugar less than 80 mg/dl): Glucagon may be given 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:

- Bleeding from the nose or excessive nasal discharge
- 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:

- Gently pushing the plunger will not result in atomization
- Fluid may escape from the nares

- Intranasal dosing is less effective than IV dosing (slower onset, incomplete absorption)
- 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.

Midazolam (Versed)
Precautions:
Midazolam may cause hypoventilation and potential respiratory depression/arrest. Have equipment and help readily available to manage the airway when administering this medication.
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	4	0.16 ml 0.8 mg
< 1	8	0.32 ml 1.6 mg
1	10	0.40 ml 2.0 mg
2	12	0.48 ml 2.4 mg
3	15	0.60 ml 3.0 mg
4	17	0.68 ml 3.4 mg
5	20	0.80 ml 4.0 mg
6	22	0.88 ml 4.4 mg
7	25	1.00 ml 5.0 mg
8	27	1.10 ml 5.4 mg
9	30	1.20 ml 6.0 mg
10	35	1.40 ml 7.0 mg
11	40	1.60 ml 8.0 mg
12	50	2.00 ml 10.0 mg
Small Teenager	60	2.00 ml 10.0 mg
Adult or full grown Teenager	75 or more	2.00 ml 10.0 mg

Naloxone
Adult

- 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.
- Split dose equally between each nostril.

Pediatric

- ***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.***
- ***Split dose equally 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.

Fentanyl

- Dosing is 1 mcg/kg, split evenly between nostrils

PROCEDURE

IntraOsseous Access

PARAMEDIC

Indications:

1. Intravenous fluid or medications needed AND
2. Peripheral IV cannot be established in 2 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 SaO_2 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 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 the 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 (25 mm) needle set shall be used for adult patient

Primary Insertion Site (Trauma): Tibial Plateau
If IO access is warranted the tibia shall be the insertion site of choice if possible
Note: In the cardiac arrest patient, the Humeral Head should be the **primary insertion site**

Primary Insertion Site (Cardiac Arrest/Medical): Humeral Head (adult patients only)
If IO access is not available via the tibia 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.
Notes:

- In the cardiac arrest patient, the Humeral Head should be the **primary insertion site**
- DO NOT attempt insertion medial to the Intertubercular Groove or the Lesser Tubercle

Pediatric Patient:

- Defined as a patient weight 3 – 39 kg
- The pediatric needle set (15 mm) shall be used for pediatric patients
- Use the length based assessment tape to determine pediatric weight
- The only approved site for pediatric IO insertion is the tibia

Standing Order:
The Intraosseous device may be used if the indications are met and no contraindications exist

Precautions:

- The IO is not intended for prophylactic use
- The 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 tibia

- **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 approach to IO insertion is 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 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 of the surface allowing the lower leg to "hang" dependent
    - This maneuver may improve your ability to visualize and access the tibial insertion site
    - Please use the Bariatric Needle Set in these patients

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 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.

Procedure:

Inserting the IO

1. Determine that the 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 IO driver 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. 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 IO catheter tip:
    a. The catheter stands straight up at a 90° angle and is firmly seated in the tibia
    b. Blood is sometime 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% 2-5 mg slowly **PRIOR** to the initial bolus ***(peds 0.5 mg/kg)***
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.

PROCEDURE

LUCAS CPR Device

Inclusion Criteria:	Exclusion Criteria:
• 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	• Body habitus too large for the device • Children less than 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 greater than or equal to 15 minutes without CPR • Confirmed down time without CPR > 10 minutes

EMR EMT AEMT PARAMEDIC

If the above inclusion criteria are met, none of the exclusion criteria are present, and the LUCAS 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 LUCAS device will also be applied to the patient
3. Defibrillation performed if indicated
4. CPR resumed using the LUCAS 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 LUCAS 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 LUCAS CPR will be performed and ACLS will continue
11. Detailed documentation with times of all initiation and termination of use of LUCAS device must be kept for statistical and feedback purposes.

NOTE: Placement and initiation of the device cannot exceed 20 seconds. Longer pauses result in a significant decrease in likelihood of a successful resuscitation.

PROCEDURE

Mobile Stroke Unit

EMR EMT AEMT PARAMEDIC

Purpose:

The Mobile Stroke Unit (MSU) is part of a national study to determine if early treatment in the field will improve the outcome of ischemic stroke. A key part in this treatment is early diagnosis with a CT scan and then, if appropriate, the administration of alteplase (tPA). The CT scan must be completed to rule out a hemorrhagic stroke.

Indications:

The MSU will be called on all stroke calls meeting the following dispatch criteria:

- EMD Card 28 (with possibility of being a stroke)
- EMD Card 33 (with possibility of being a stroke)

The MSU has the same communications as the MFD (Call sign Mobile Stroke 1) and will be placed on a talk group with the responding MFD Unit.

Procedure:

1. MSU (Mobile Stroke 1) is alerted
2. MSU is placed in a talk group with responding MFD Unit
3. EMS responders follow current stroke protocol including a second IV of NS 18 gauge antecubital desired if time allows, prior to intervention from MSU
4. EMS responders must complete a thorough assessment of the patient prior to MSU arrival.
5. Upon MSU arrival a complete report will be given to the MD, NP, or Paramedic staffing the unit.
6. The MD or NP will perform an assessment and decide whether to scan or not.
   - If scanning is performed, the patient is considered an MSU patient.
7. The MD or NP may determine the patient is having a stroke mimic and direct MFD to complete transport.
8. The MFD crew will as the MD or NP to sign their ticket to confirm patient handoff or orders to transport.
9. Prior to getting in service, assist with patient movement if needed by MSU crew.

Note: Patient care and good decision making comes first. The MSU can deliver the standard of care normally received in the hospital. If the MSU has a long ETA and the Paramedic determines that the patient will receive treatment sooner at the hospital, then transport is appropriate.

PROCEDURE

RESQPOD CIRCULATORY ENHANCER

EMT AEMT PARAMEDIC

ResQPOD impedance threshold device prevents unnecessary air from entering the chest during the decompression phase of CPR. When air is slowed while flowing into the lungs as the chest wall recoils, the vacuum (negative pressure) in the thorax pulls more blood back to the heart, resulting in:

- Doubling of blood flow to the heart.
- 50% increase in blood flow to the brain.
- Doubling of systolic blood pressure.

The device should be used for all patients receiving CPR whenever ET, BIAD, or BVM is used.

Indications:
Cardiopulmonary arrest ages 8 and up

Contraindications:
Patients with spontaneous respirations
Cardiopulmonary arrest associated with trauma

Procedure
Confirm the absence of pulse and begin CPR immediately. Assure that the chest wall recoils completely after each compression. Endotracheal intubation is the preferred method of managing the airway when using ResQPOD.

1. Using ResQPOD on a facemask
    a. Connect ResQPOD to the facemask
    b. Connect ventilation source (BVM) to the top of the ResQPOD. If utilizing a mask without a bag, connect to mouthpiece.
    c. Establish and maintain a tight face seal with mask throughout chest compressions.
    d. Do not use the ResQPOD's timing lights utilizing a facemask for ventilation.
    e. Perform ACLS interventions as appropriate
    f. Prepare for endotracheal intubation

2. Using ResQPOD on an Endotracheal Tube or King Airway Device
    a. Place Endotracheal Tube or Blind Airway Insertion Device and confirm placement. Secure the tube.
    b. Move the ResQPOD from the facemask to the advanced airway and turn on the timing lights by removing the clear tab. Ventilate asynchronously over 1 second when the light flashes. (10/min)
    c. Continue CPR with minimal interruptions

d. Perform ACLS interventions as appropriate
e. If a pulse is obtained remove the ResQPOD and assist ventilations as needed.

Notes:

- Always place waveform Capnography between ResQPOD and ventilation source.
- Do not interrupt CPR unless absolutely necessary
- If pulse returns discontinue CPR and ResQPOD. If patient rearrests, resume CPR with ResQPOD.
- Do not delay compressions if ResQPOD is not readily available.

PROCEDURE

Tourniquet

EMT AEMT PARAMEDIC

Indications:

- Life threatening arterial hemorrhage
- **Serious or life threatening** extremity hemorrhage and tactical considerations 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 the 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 use in your report to the trauma center as soon as practical.

PROCEDURE

Vascular Access

AEMT

1. The preferred site for an IV is the hand followed by the forearm and antecubital fossa and is dependent on the patient's condition and treatment modality.

AEMT STOP

PARAMEDIC

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 in whom IV access cannot be established within 2 attempts or 90 seconds **when IV access is critical** (refer to the EZ-IO procedure)

Intravenous Fluid Administration

AEMT PARAMEDIC

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

REFERENCE

Consent Issues

EMR EMT AEMT PARAMEDIC

Tennessee Law, under a legal doctrine known as “implied consent”, allows EMS Personnel to treat and 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/AEMT/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 not necessary when the minor is married or legally emancipated. Emancipated and legally married minors are generally deemed to be legally competent.

REFERENCE

Civilians Riding in Emergency Unit During Transports

Under normal conditions and non-emergency transport one civilian that is a relative or friend of the patient will be allowed to ride to the hospital with the patient. This designated person will ride in the cab with the Unit Operator. They will be assisted by Fire Department personnel into the cab and placed in a safety belt; this may be delayed until the Operator is positioned in their seat and ready to transport.

The FF/P in charge of the Emergency Unit has the right to deny a civilian the ability to ride during transport for the following reasons:

- The person has been drinking and/or has the smell of alcohol on their person and is deemed to be a risk to the safety of the personnel
- The person is rude, belligerent, and/or uncooperative
- There is a safety issue with this person riding during transport
- The person is under the age of 18

During emergency transports it will be up to the FF/P to determine what is in the best interest of the patient and safety of the civilian as well as the personnel. In the event of an elderly person that has no transportation to the hospital or the denial of a civilian riding to the hospital contact your EMS Lieutenant for notification and assistance.

Notes:

- Be customer service responsible **at all times.** We are public servants.
- When dealing with pediatric patients every effort should be made to allow the child's parent/guardian or family member that is of age to ride during transport. This person may be allowed to ride in the patient compartment if the FF/P deems it is in the best interest of the patient.

REFERENCE

MCI Plan Response Levels

Below are the MCI plan response levels. Each response plan is designated to be escalating in nature. However, if any incident requires that more resources are required, a higher EMS Level response may be initially requested. That response would receive the total number of resources from EMS Level 1 response to the EMS level response requested.

If you have any questions refer to EMS MCI Response Plan

Requested by First Arriving Company

Level 1	**Optional Responses**
5 Emergency Units	2 Additional Emergency Units
1 EMS Lieutenant	2 Additional Fire Companies
1 EMS Battalion Chief	2nd EMS Lieutenant
1 First Responder Engine Company	Mass Casualty Task Force
1 First Responder Truck Company	Additional Special Operations
1 Battalion Chief	Rescue Unit
	Hospital Wing

Requested by IC after consultation with Medical Branch Director

Level 2	**Optional Responses**
5 Additional Emergency Units	2 Additional Emergency Units
Deputy Chief of EMS	2 Additional Fire Companies
Deputy Chief of Emergency Operations	Additional Mass Casualty Unit Buses
Division Chief of EMS	Any specialized equipment
2nd EMS Lieutenant	
Additional Battalion Chief	
1 Division Chief	
Mass Casualty Task Force	
Air Mask Services	
OSHA Safety Officer	
MFD Media Affairs	
Incident Support Team	

Requested by IC after consultation with Medical Branch Director

Level 3	**Optional Responses**
5 Additional Emergency Units	Additional Emergency Units
Director of Fire Services	Additional Fire Companies
Deputy Director of Fire Services	Additional Mass Casualty Unit(s)
All Deputy Chiefs	Additional MATA Buses
All Division Chiefs	OEM Resources as needed

Level 3 (cont'd)
MFD Medical Director
EMS Battalion Chiefs
All EMS Lieutenants
1 Additional ALS Fire Company

Optional Responses (cont'd)
Additional Incident Management – All Teams

Requested by IC on advice of Director of Fire Service or designee
Level 4

Requested by IC on advice of Director of Fire Services or designee
Level 5

REFERENCE

Non-Viable Patients on Public Scenes

EMR EMT AEMT PARAMEDIC

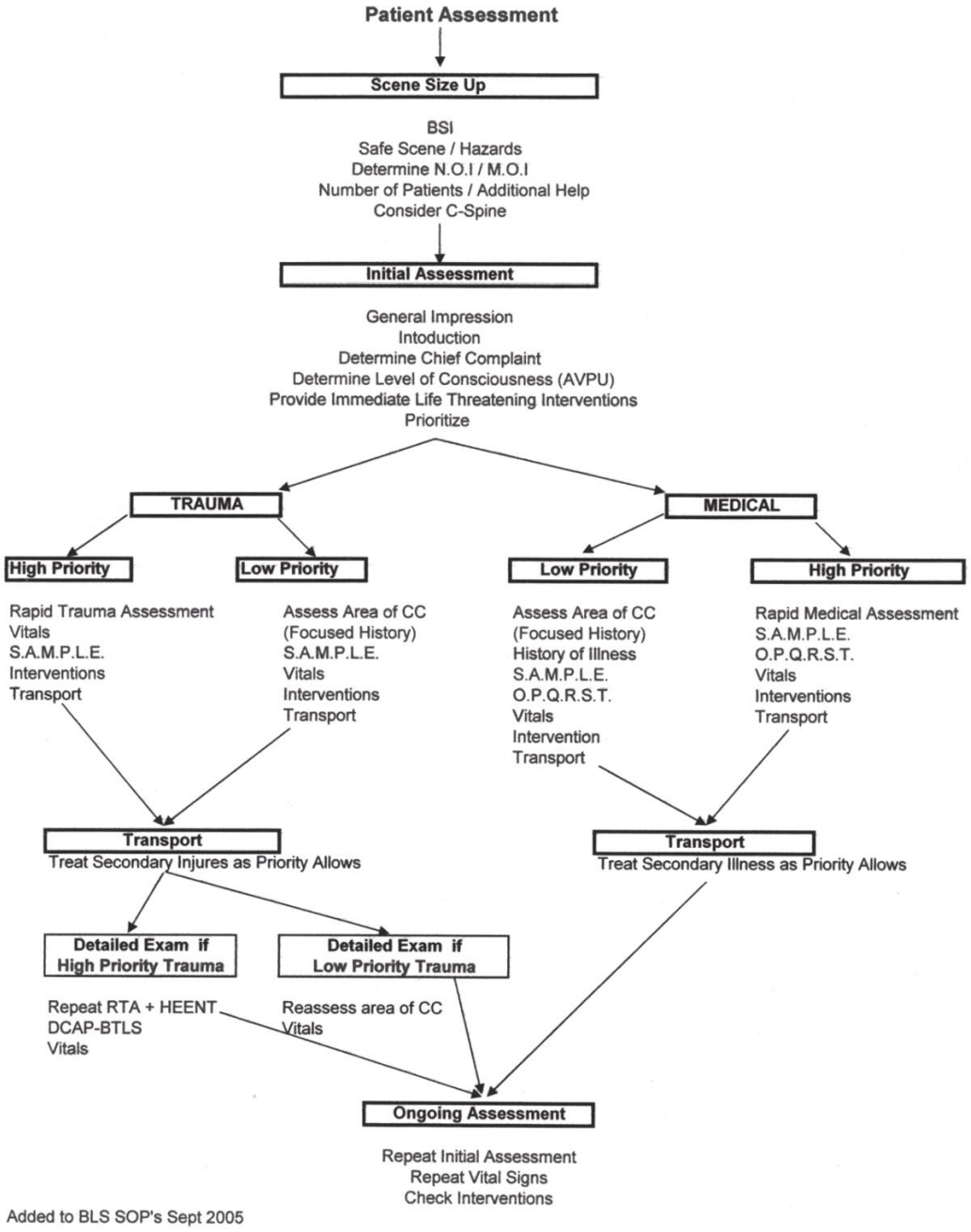
According to Tennessee state law, only a Medical Examiner (ME) can take charge of a deceased body from a crime scene or the Emergency Room. The Memphis Police Department will contact the ME, who will then make the scene (including traffic fatalities).

1. The body **WILL NOT** be touched (beyond what is necessary to determine lifelessness, if needed), no items shall be removed from the body or disturbed in any way until permission of the medical examiner's office is granted. This will generally be given by the medico legal investigator (also known as the ME investigator).
2. In the case of a traffic fatality – if there is any doubt as to whether the patient is viable, extricate the patient as per MFD protocol and follow any applicable ALS protocol(s).
3. If it is obvious and/or has been determined by a Firefighter Paramedic that an entrapped victim is non-viable, the ME's office requests that the body not be extricated until, at least, pictures of the scene have been taken by MPD. At that point extrication of the victim can proceed and the body placed on the ground.. After extrication, a barrier using nylon tape or rope and a drape secured to an object on scene should be used to obscure the body from public view and protect potential evidence.
4. It is imperative that EMS personnel on the scene communicate with the Incident Commander relative to patient viability in determining whether it is appropriate to extricate immediately or to wait.
5. The ME will arrange the transportation of the deceased individual(s) to the Regional Forensic Center (RFC). The Unit personnel will provide the competed hospital copy of the PCR to the RFC representative.
6. Transport products of conception or non-viable fetus with the mother.

REFERENCE

Patient Assessment Flow Chart

EMR EMT AEMT PARAMEDIC



REFERENCE

Physician Orders for Scope of Treatment (POST)

EMR EMT AEMT PARAMEDIC

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.

To be valid. POST must be signed by a physician or, at discharge or transfer from a hospital or long term care facility, by a nurse practitioner (NP), clinical nurse specialist (CNS), or physician assistant (PA). 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 must always be offered 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 Health Care Agent or 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 D and write "VOID" in large letters if POST is replaced or becomes invalid.

COPY OF FORM SHALL ACCOMPANY PATIENT WHEN TRANSFERRED OR DISCHARGED.

TDH, Division of Health Licensure and Regulation, Office of Health Care Facilities, 665 Mainstream Drive, Second Floor, Nashville, TN 37243

PH-4193 (Rev 7-15) RDA-n/a

A COPY OF THIS FORM SHALL ACCOMPANY PATIENT WHEN TRANSFERRED OR DISCHARGED

Tennessee Physician Orders for Scope of Treatment (POST, sometime called "POLST")

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, first follow these orders, then contact physician.

Patient's Last Name

First Name/Middle Initial

Date of Birth

Section A *Check One Box Only*

CARDIOPULMONARY RESUSCITATION (CPR): Patient has no pulse and is not breathing.

☐ Resuscitate (CPR) ☐ Do Not Attempt Resuscitation (DNR / no CPR) (Allow Natural Death)

When not in cardiopulmonary arrest, follow orders in **B, C,** and **D.**

Section B *Check One Box Only*

MEDICAL INTERVENTIONS. Patient has pulse and/or is breathing.

☐ **Comfort Measures.** Relieve pain and suffering through the use of medication by any route, positioning, wound care and other measures. Use oxygen, suction and manual treatment of airway obstruction as needed for comfort. **Do not transfer to hospital for life-sustaining treatment. Transfer only if comfort needs cannot be met in current location. Treatment Plan: Maximize comfort through symptom management.**

☐ **Limited Additional Interventions.** In addition to care described in Comfort Measures Only above, use medical treatment, antibiotics, IV fluids and cardiac monitoring as indicated. No intubation, advanced airway interventions, or mechanical ventilation. May consider less invasive airway support (e.g. CPAP, BiPAP). **Transfer** to hospital if indicated. Generally avoid the intensive care unit. **Treatment Plan: basic medical treatment.**

☐ **Full Treatment.** In addition to care described in Comfort Measures Only and Limited Additional Interventions above, use intubation, advanced airway interventions mechanical ventilation as indicated. **Transfer** to hospital and/or intensive care unit if indicated. **Treatment Plan: Full treatment including in the intensive care unit.**

*Other Instructions:*_____

Section C *Check One*

ARTIFICIALLY ADMINISTERED NUTRITION. Oral fluids & nutrition must be offered if feasible.

☐ No artificial nutrition by tube.
☐ Defined trial period of artificial nutrition by tube.
☐ Long-term artificial nutrition by tube.

*Other Instructions:*_____

Section D *Must be Completed*

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/NP/CNS/PA Name (Print)	Physician/NP/CNS/PA Signature Date NP/CNS/PA (Signature at Discharge)	MD/NP/CNS/PA Phone Number: ( )

Signature of Patient, Parent of Minor, or Guardian/Health Care Representative

Preferences have been expressed to a physician and /or health care professional. It can be reviewed and updated at any time if your preferences change. If you are unable to make your own health care decisions, the orders should reflect your preferences as best understood by your surrogate.

Name (Print)	Signature	Relationship (write "self" if patient)	
Agent/Surrogate	Relationship	Phone Number ( )	
Health Care Professional Preparing Form	Preparer Title	Phone Number ( )	Date Prepared

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REFERENCE

Pulse Oximetry

EMT AEMT PARAMEDIC

Assessment:

Pulse oximetry is not without limits and must **NOT** be used to supersede other assessments.

The Firefighter EMT (or higher) 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 (SpO_2) is a different measurement than the partial pressure of oxygen (PaO_2) 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 the patient's vital signs, chief complaint, mental status and other considerations, may assist us in 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 oxygen saturation 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

Pulse Oximetry Values

Normal

- 96 – 100%
- Treatment – Non-rebreather mask (12 – 15 Lpm) or nasal cannula (4 – 6 Lpm) if patient cannot tolerate a mask based on patient's chief complaint

Mild Hypoxia

- 91 – 95%
- Immediate need to increase the FiO_2
- Treatment – non-rebreather mask 12 – 15 Lpm
- Consider use of CPAP if available

Moderate Hypoxia

- 86 – 90%
- Immediate need to increase the FiO_2
- Consider possible loss of airway patency
- Treatment – non-rebreather mask 12 – 15 Lpm, consider airway adjunct and bag-valve-mask @ 15 Lpm, on assist
- Consider use of CPAP if available

Severe Hypoxia

- ≥ 85%
- Treatment – assist ventilations with adjunct and bag-valve-mask @ 15 Lpm. Airway management as appropriate
- Consider use of CPAP if available

REFERENCE

Quality Improvement Documentation 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 – Circumstances surrounding the **onset** of complaint
P – What **provoked** (or provokes) the complaint?
Q – Describe the **quality** (sharp, burning, stabbing, 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, blood glucose (if indicated), and the time they were assessed must be recorded.

- All medications taken by the patient should be listed in 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

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

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

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

Altered Mental Status

1. OPQRST, SAMPLE as appropriate
2. ETOH / Substance abuse
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

Animal Bite / Sting

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

Atraumatic GI Bleed

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

Burn

1. Burn source (flame, chemical, electrical)
2. Environment (enclosed, outside)
3. Entrance / exit wounds if appropriate
4. Burn surface area and thickness
5. Facial, oral, nasal area singed
6. Chest pain / dyspnea
7. Consider cyanide antidote
8. Treatment / reassessments
9. 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

Chest Pain

1. OPQRST, 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

CHF / Pulmonary Edema / SOB

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

Death

1. Last time patient 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

Diabetic

1. OPQRST, 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

Hypertension

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

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

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

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

Pregnancy / OB Delivery

Separate report required for mother and each delivery

Non-Delivery

1. Abdominal pain, contractions (duration and frequency)
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. Last time fetal movement
7. Treatments / reassessments
8. Report given and signature of RN

Delivery

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

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

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

Stroke / CVA / TIA

1. OPQRST, 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

Syncope / Fainting / Weakness

1. OPQRST, 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

Trauma

1. OPQRST, 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. Level of loss of consciousness
7. Obvious injuries and area of pain
8. Palpation / assessment of injured areas
9. Disability (PMS/SMC intact
10. Consider use of tourniquet
11. Treatments / reassessments
12. Report given and signature of RN

REFERENCE

Sepsis Identification Tool

AEMT PARAMEDIC

Sepsis : Pre-Hospital Screening

S.I.R.S. (Systemic Inflammatory Response Syndrome) (2 or more)		Infection (Source of infection) (1 or more)	Severe Sepsis (Organ Dysfunction) (1 or more)
Resp.:	≥ 20	cough	Altered mental status
		painful urination	
Heart Rate:	≥ 90	diagnosis of UTI	Systolic BP: ≤ 90
		abscess	
Glucose:	≥ 150	sign of skin infection	O2 sat: ≤ 92%
		flu symptoms	
Temp:	≥ 38 (100.5)	recent chemotherapy	Signs of poor skin perfusion
	≤ 36 (96.5)	presence of vas cath	(i.e. poor cap refill, mottled skin, etc)
		presence of urinary catheter	
wbc:	≥ 12,000	sick contacts (recent exposure)	lactate level: ≥ 2
	≤ 4,000		(if available from nursing home or
(if available from nursing home or			other transferring facility)
other transferring facility)			

2 or more SIRS criteria + 1 or more sources of infection =

2.1. = CODE SEPSIS

2 or more SIRS criteria + 1 or more possible sources of infection + 1 or more organ dysfunction criteria =

2.1.1. = CODE SEVERE SEPSIS

In the event of a "CODE SEPSIS" OR "SEVERE CODE SEPSIS", initiate the following

Cardiac Monitor

02 to maintain sat ≥ 92%

2 large bore Ivs

1 Liter NS - bolus

draw labs

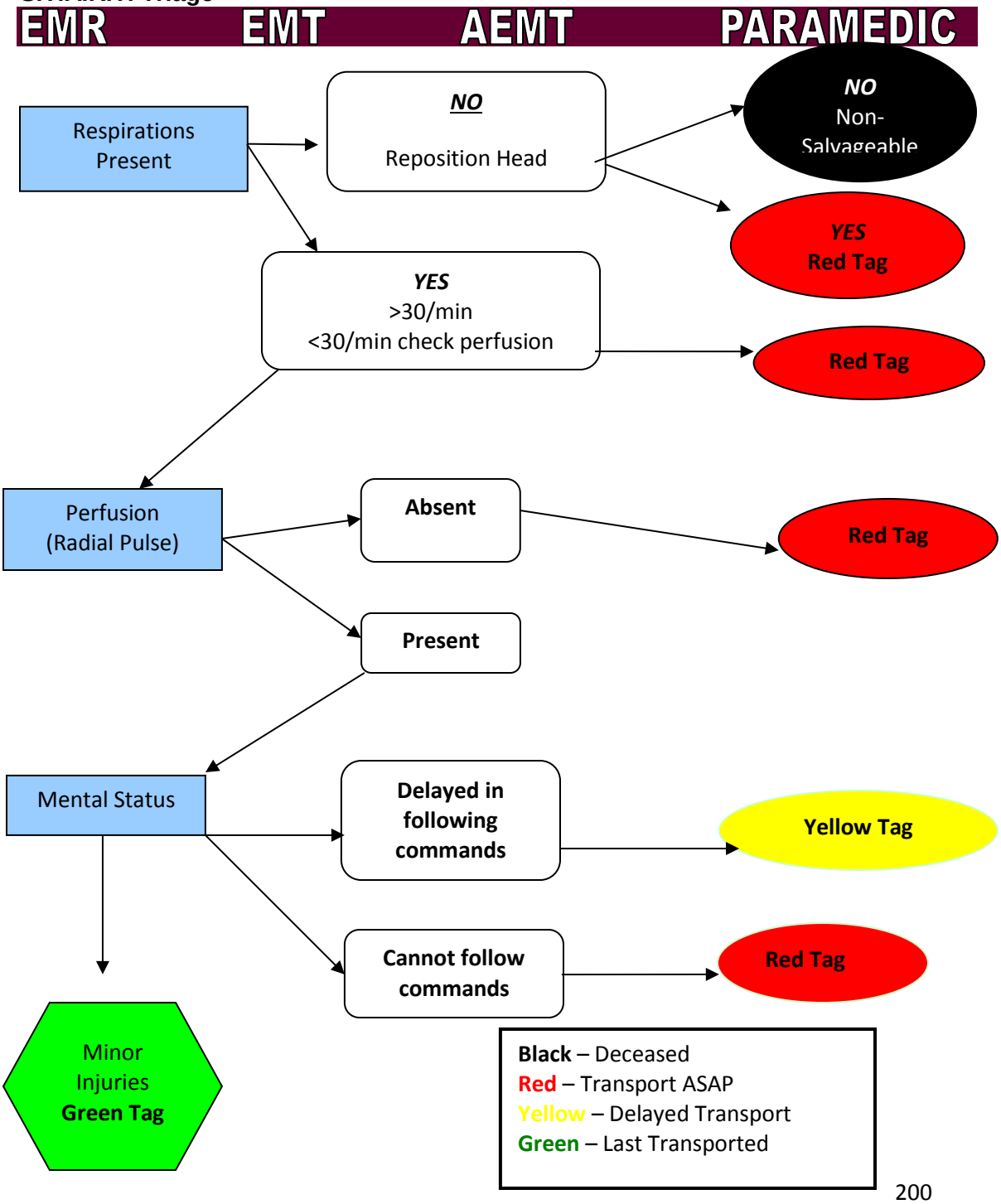
Notify receiving hospital and identify patient as "CODE SEPSIS" or "CODE SEVERE SEPSIS"

REMEMBER... SEPSIS KILLS MORE THAN STROKE AND STEMI COMBINED!!!

The 6 hour window is closing!!!

REFERENCE

S.T.A.R.T. Triage



REFERENCE

Trauma Assessment / Destination Guidelines

EMR EMT AEMT PARAMEDIC

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

Refer to Trauma Center Matrix next page

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 wrist or ankle • Patient ejection from vehicle • Death of passenger in the same vehicle • Extrication time > 20 minutes 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 transport to a specific facility with 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 injury with > 5 mph impact • Motorcycle accident > 20 mph or with separation of rider and motor cycle • 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 age > 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 necessary, the patient may be transported to the appropriate facility	

REFERENCE

Trauma Treatment Priorities

EMR EMT AEMT PARAMEDIC

1. If multiple patients, initiate the S.T.A.R.T. and Multiple Casualty Incident System
2. Oxygen 100% and airway maintenance appropriate for the patient's condition
3. 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 (sucking 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

REFERENCE

Trauma Score

EMR EMT AEMT PARAMEDIC

Revised Trauma Score

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

EMR EMT AEMT PARAMEDIC

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

REFERENCE

Hospital Capabilities

EMR EMT AEMT PARAMEDIC

	Baptist Memphis	Baptist Womens	Baptist Collierville	Methodist University	Methodist North	Methodist South	Methodist Germantown	Methodist G'Town Womens	St Francis Memphis
Cardiac Therapeutic PCI	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes
Stroke <3.5 Hours	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes
Stroke <3.5 Hours	Yes	No	No	Yes	No	No	No	No	Yes
NeuroTrauma GCS <11	Yes	No	No	Yes	No	No	No	No	Yes
OB	No	Yes	No	No	No	Yes	Yes	Yes	Yes
Pediatrics	Please see Spence Childrens Listing	Please see Spence Childrens Listing	limited (basic)	limited (basic)	limited (basic)	limited (basic)	Please see Lebonheur G'town Listing	Please see Lebonheur G'town Listing	limited (basic)
Trauma	Equivalent to: Level 2	Equivalent to: Level 3	Equivalent to: Level 3	Equivalent to: Level 2	Equivalent to: Level 3	Equivalent to: Level 3	Equivalent to: Level 3	Equivalent to Level 3	Equivalent to: Level 2
Induced Hypothermia	Primary	NA	Secondary	Primary	Secondary	Secondary	Secondary	NA	Primary
Behavioral Health	Yes	No	Yes	Yes	Yes	Yes	Yes	No	ages 4 through geriatric
Notes:	OB < 20 Weeks* other OB to Women's Hospital		OB < 20 weeks*	OB <20 weeks*	OB <20 weeks*				BlueCare accepted for Psychiatric Services ONLY

* All non OB hospitals are capable of handling OB cases less than 20 weeks who are hemodynamically stable in the field except LeBonheur.

Induced Hypothermia: Primary Centers=in house capability. Secondary=System participation, will continue IH and transfer to primary center. Tertiary=No availability of IH

This document refers to "Hospital Capabilities" from an EMS standpoint **ONLY.** Services at individual hospitals may change without notice. See EMSystem website for updated information. **These designations are unofficial, and not endorsed by the state**.

	St Francis Bartlett	Regional One Medicine	Elvis Presley Trauma Center	Rout Women's Hospital	Delta Medical Center	VA Hospital	Baptist Spence Childrens	G'Town LeBonheur	LeBonheur
Cardiac Therapeutic PCI	Yes	Yes	No	No	No	No	No	No	No
Stroke <3.5 Hours	Yes	No	No	No	No	Yes	No	No	No
Stroke <5 Hours	Yes	No	No	No	No	Yes	No	No	No
NeuroTrauma GCS <11	No	No	Yes	No	No	Yes	No	No	Yes*
OB	Yes	No	No	Yes	No	No	No	No	No
Pediatrics	limited (basic)	limited (basic)	limited (basic)	No	limited (basic)	No	General	General	Level 1 Peds (comprehensive)
Trauma	Equivalent to: Level 3	Equivalent to: Level 3	Level 1	Equivalent to: Level 3	Equivalent to: Level 3	Equivalent to: Level 3	General	General	Level 1 Peds
Induced Hypothermia	Secondary	Tertiary	NA	NA	Tertiary	Tertiary	NA	NA	NA
Behavioral Health	No	Yes	Yes	No	Yes	Yes			Yes
Notes:	OB < 20 weeks*	OB <20 Weeks* other OB to Rout Women's Hospital	Trauma for pts > 15 only,Multiplace Hyperbarics,Burn Center	High Risk OB/Neonatal	**EMERGENCY SERVICES AVAILABLE 7A-7P ONLY NO DIALYSIS AVAILABLE** Monoplace Hyperbarics OB < 20 Weeks* 7a - 7p ONLY		Patients < 15 yo	Patients < 15 yo	Patients <15 yo

Note: All patients transported by EMS should be taken to the **most appropriate** facility according to the patient's condition. Careful consideration should always be given to patients with special needs. The capabilities form on the previous page should be used as a guide for making appropriate destination decisions.

REFERENCE

Common Medical Abbreviations

1° - primary, first degree
a – before
AED – Automated External Defibrillator
AOX3 – alert and oriented to person, place, and time
Abd – abdomen
Ab – abortion
ac – antecubital
AF – atrial fibrillation
ARDS – Adult Respiratory Distress Syndrome
AT – atrial tachycardia
AV – atrioventricular
b.i.d. – twice a day
BSA – body surface area
BS – blood sugar and/or breath sounds
c – with
CC or **C/C** – chief complaint
CHF – Congestive Heart Failure
CNS – Central Nervous System
c/o – complains of
CO – carbon monoxide
CO_2 – carbon dioxide
D/C – discontinue
DM – diabetes mellitus
DTs – delirium tremens
DVT – deep venous thrombosis
Dx – diagnosis
EDC – estimated date of confinement
EKG – Electrocardiogram
EJ – external jugular
ENT – ear, nose, and throat
ETOH – abbreviation of Ethanol (grain alcohol)
Fl – fluid
Fx – fracture
GB – gall bladder
g or **gm** – gram
gr. – grain
GSW – gunshot wound
gtt – drop
GU – genitourinary
GYN – gynecologic

h or **hr** – hour
H/A – headache
Hg – mercury
H&P – history and physical
Hx – history
ICP – intracranial pressure
JVD – jugular venous distension
KVO – keep vein open
LAC – laceration
LBBB – left bundle branch block
MAEW – moves all extremities well
NaCl – sodium chloride
NAD – no apparent distress/ no acute distress
NKA – no known allergies
NPO – nothing by mouth
OD – overdose
O.D. – right eye
O.S. – left eye
PERL – pupils equal and reactive to light
PID – pelvic inflammatory disease
p.o. – by mouth
PTA – prior to arrival
Pt – patient
q – every
qh – every hour
q.i.d. – four times a day
RBBB – right bundle branch block
R/O – rule out
ROM – range of motion
Rx – prescription
s – without
S/S – signs and symptoms
TIA – transient ischemic attack
t.i.d. – three times a day
Tx – treatment
V.S. – vital signs
y.o. – years old

REFERENCE

Medication Dosage

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

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_5W (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. Use with caution in patients taking erectile dysfunction medications. Profound hypotension may occur.	
Naloxone	Narcan	0.4 mg IV/IO/IM/IN titrated to adequate ventilation. May repeat dose up to 2mg	***0.1 mg/kg up to 2mg titrated to adequate ventilation if narcotic use is suspected***
Nitrous Oxide	NitroNox	Patient self-administered gas	
Ondansetron	Zofran	2-4 mg IV	***0.15 mg/kg IV***
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***

REFERENCE

Drug Infusion Admix Dosage Guidelines

PARAMEDIC

Lidocaine:
2 gram medication/500 mL D_5W = 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

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.	*70 kg patient – 154 lbs.*	*100 kg patient – 220 lbs.*
2.5 ug/kg/min = 5 gtt/min	2.5 ug/kg/min = 7 gtt/min	2.5 ug/kg/min = 10 gtt/min
5 ug/kg/min = 12 gtt/min	5 ug/kg/min = 13 gtt/min	5 ug/kg/min = 19 gtt/min
10 ug/kg/min = 19 gtt/min	10 ug/kg/min = 27 gtt/min	10 ug/kg/min = 38 gtt/min
20 ug/kg/min = 38 gtt/min	20 ug/kg/min = 53 gtt/min	20 ug/kg/min = 75 gtt/min

Peds dose 2-20 ug/kg/min

PEDIATRIC SHOCK / TRAUMA

Pediatric Points to Remember

EMR EMT AEMT PARAMEDIC

1. An infant is less than one year of age
2. A child is from one to eight years of age
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 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 medications 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.

PEDIATRIC REFERENCE

Pediatric Trauma Score

EMR EMT AEMT 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 presentations or injury:
Trauma Score _____ (Sum of points)

PEDIATRIC REFERENCE

Triage Decision Scheme

EMR EMT AEMT 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 and ankle	
Combination trauma with burns of 15% BSA, or to the face or airway	
2 or more proximal long bone fractures	
Limb paralysis	
Contact Medical control for consideration of transfer to Level I or Level II pediatric trauma center. If Medical Control is unavailable, then transport to highest level trauma center.	Assess anatomy of injury
Evidence of high impact	Re-evaluate with Medical Control
Death of vehicle occupant (particularly 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 greater than 20 MPH or with separation of rider and bike	
Bicycle accident with significant impact	

PEDIATRIC REFERENCE

Age, Weight, and Vital Signs Chart

EMR EMT AEMT 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 = $\frac{16 + (\text{age in years})}{4}$

PEDIATRIC REFERENCE

Age and Weight Related Pediatric Equipment Guidelines

EMR EMT AEMT 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
O_2 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

Authorization for Standing Orders

The Memphis Fire Department Division of Emergency Medical Services (MFD-EMS) Standing Orders and Protocols (revision project completed August 2014) are hereby adopted. They are to be initiated by MFD EMS personnel within their scope of practice 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 Paramedic.

Effective Date of these SOPs: 08/01/2016 - pending administrative approval

"Signature on File"

Joe Holley, MD FACEP
Medical Director
Memphis Division of Fire Services

08/01/2016
Date