

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

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MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

These Standing Orders and Protocols may be used by Memphis Division of Fire Services personnel licensed by the State of Tennessee Division of Emergency Medical Services to render appropriate care. All Fire Fighter Paramedics are to continually familiarize themselves with these SOP's. These Standing Orders and Protocols are applicable regardless of the final destination of the patient and/or duty station of the paramedic.

No Fire Fighter Paramedic may function as such without successful completion by written documentation of competency in these Standing Orders and Protocols by the Division Medical Director.

Note:

1. In the adult cardiac arrest:
 - a. all I.V./E.T. drugs given are to be followed by a 10 cc N.S. bolus
 - b. elevate the extremity after bolus when given I.V.
 - c. drugs administered endotracheally should be 2 - 2.5 times the I.V. dose
2. In the pediatric cardiac arrest:
 - a. all E.T. drugs given should be diluted with N.S. to a volume of 3 -5 ml
 - b. all E.T. drugs given should be followed with a 3 - 5 ml N.S. flush and hyperventilation
 - c. all I.V. drugs given should be followed by a bolus of at least 5 ml and elevation of the extremity
3. Fire Fighter Paramedics have standing orders for precautionary I.V. and INT's
4. Fire Fighter Paramedics have standing orders for adult and pediatric Epinephrine drips in cardiac arrest and are encouraged to utilize this.
5. Use of Pneumatic Anti-Shock Device (PASG):
 - a. The chance of patient's survival without the use of the PASG device should be evaluated prior to utilizing the PASG device. Orders must be received from Medical Control prior to inflation when used in the treatment of hypovolemia. The use of PASG should be considered if the systolic pressure reduces to 50 mmHg.
 - b. The use of the PASG as an air splint is based on the current DOT curriculum and may be used at the discretion of the paramedic responsible for patient care.
 - c. Other treatments will be based on mechanism of injury and signs and symptoms of the patient.
6. When contacting Medical Control provide the following minimum information;
 - a. Patient's chief complaint
 - b. Is patient stable (define) or unstable (define).
 - c. Your ETA to their Emergency Department
 - d. Ask Medical Control what other information they need.
7. Treat the patient not the monitor.
8. For each and every protocol, the first directive is to take body substance isolation precautions.

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9. The minimal equipment required for all patient calls:
 - a. when the patient is in close proximity to the unit: jump bag, cardiac monitor, and oxygen or other equipment as may be dictated by the nature of call.
 - b. when the patient is not in close proximity of the unit: the stretcher and any other equipment that may be needed as dictated by the nature of the call.
10. The senior FF/PM riding on the unit has the ultimate responsibility to ensure that all records and reports are properly completed.
11. Contact with Medical Control is mandatory in the following refusal situations:
 - 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. narcotic / intoxicated patients who have responded to treatment
 - f. potentially head injured patients
 - g. mental patients
 - h. If Medical Control will not discuss the above patients, document such on PCR.
12. Pulse Oximetry should be utilized for all patients complaining of respiratory distress or chest pain (regardless of source).
13. Esophageal Intubation detectors and End Tidal CO₂ are MANDATORY for all intubations except double-lumen airways.
14. Airway maintenance appropriate for the patient's condition indicates any airway maneuver, adjunct, or insertions of tubes that provide a patent airway.
15. Defibrillation and Synchronized Cardioversion joules are based on the use of the current biphasic monitor (ZOLL).
16. Paramedics may transport the patient in a non-emergency status to the hospital. This should be based on the signs and symptoms of the patient, mechanism of injury or nature of illness. The primary, but not limited to, reasons for rapid transport are listed under Trauma Treatment Priorities on page 43 of these SOP's
17. Although the Standing Orders and Protocols 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.
18. Paramedics are expected to perform their duties in accordance with local, state and federal guidelines. In accordance with the State of Tennessee statutes and rules of Tennessee Emergency Services. The rule 1200-12-1-.04 (5) (a) – (m) [page 19] shall be cause for revocation, suspension, or denial of EMT-P activities.
19. It is expected that each patient care contact will be recorded on the EMS incident report form as completely and accurately as possible. A complete copy of the patient out-of-hospital evaluation and treatment will be given to the emergency department personnel or staff prior to departing from the health care facility. This will ensure proper documentation of the continuity of care.

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20. "False Alarm" is an archaic term and no longer used relevant to the practice of Emergency Medicine in the EMS field. The incident report should accurately reflect the clinical activities undertaken. If there is a patient refusal or dismissal of service at the scene of the incident, the incident report should reflect the dismissal as well as the party or parties responsible for the request to terminate any and all evaluations and treatment.
 21. All requests for an ambulance will be documented on the Incident Report Form.
 22. The use of the transport ventilator is encouraged when appropriated for patient care.
 23. Blood Glucose will be performed for all patients with altered mental status, or as the paramedic feels necessary.
 24. The use of cervical collars post intubation (double lumen or ET) is recommended to reduce the chance of accidental extubation. This is in addition to the tube securing devices currently in use.
 25. In potential crime scenes any movement of the body, clothing, or immediate surroundings should be documented and the scene officer notified of such.
 26. Any medication administrations or procedure not covered by these SOP's, contact Medical Control for advice.
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DEFINITIONS

1. Standing Order - means that this skill or treatment **may** be initiated prior to contact with medical control. (Rule 1200-12-1-.04)(3)(A.) 1. (iii))
2. Protocol - a suggested list of drugs or treatment options **requiring** you to contact Medical Control **prior** to initiation. (Rule 1200-12-1-.04)(3)(A.) 1. (ii))
3. 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 patients first choice. If the patient does not have a preference, the patient's condition and or chief complaint may influence the choice of medical treatment facilities
4. Medical Director - the physician who has ultimate responsibility for patient care aspects of the Division EMS System. (Rule 1200-12-1-.14)(1)(f))
5. 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 pt or greater)
 - d. congestive heart failure or pulmonary edema
 - e. myocardial infarction or signs of ischemia
 - f. altered level of consciousness
6. Stable (asymptomatic) - indicates that the patient has no or very mild signs and symptoms associated with the current history of illness.

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ADULT CARDIAC EMERGENCY

Automatic External Defibrillator (AED)

A. Assessment

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

B. Treatment – Standing Orders

1. Ventilate patient with 100% Oxygen, 15 Lpm, via BVM at earliest opportunity.
Consider the use of the transport ventilator if possible, setting should be 100% or 50% FiO₂
2. Continue CPR according to current AHA – Healthcare Provider Guidelines, Specific for patient's age. All CPR rates of compression are 100 per minute for all ages.
3. Airway Adjuncts: insert appropriate airway adjunct or endotracheal intubation and maintain airway
4. If AED is in use (defibrillating), allow stacked set of shocks to be completed, then evaluate pulse:
 - a. If no pulse continue CPR and basic life support
 - b. If pulse is present evaluate respirations and provide supportive care appropriate for the patient's condition.
 - c. Attach ECG monitor and follow appropriate Division ALS Standing Orders and Protocols and Standard Operating Procedures for the arrhythmia.
 - d. Discontinue the use of the AED.

Note: AED usage is contraindicated in the following situations:

1. Patients less than 8 years of age.
2. Patients weighing less than 25 kg (55 lbs).
3. Victim is in or near standing water.
 - a. Remove victim from water, ensure that chest and surrounding area is dry.
4. Victim has implanted pacemaker (ICD or AICD).
 - a. Place AED pads at least 1 inch from device. If ICD is delivering shock to the patient allow 30 to 60 seconds for ICD to complete the treatment cycle before using the AED.
5. Transdermal medication patch at side of AED pads.
 - a. If medication patch is in the location for an AED pad, remove the medication patch and wipe the area clean before attaching the AED electrode pad.

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ADULT CARDIAC EMERGENCY

Pulseless Electrical Activity (P.E.A.)

A. Assessment

Presence of electrical cardiac rhythm without palpable pulse
Confirm rhythm with quick look paddles or electrodes in two leads

B. Treatment - Standing Order

1. Oxygen 100% and airway maintenance appropriate to the patients condition
Consider the use of the transport ventilator, setting should be 100% or 50% FiO₂
2. CPR
3. I.V. N.S. (large bore catheter)
4. Epinephrine 1:10,000 1.0 mg I.V.P. or 2.0 mg E.T. q 3-5 minutes and consider use of Epinephrine Drip.
5. If rate is below 60 / min., administer Atropine 1 mg I.V.P. or 2 mg E.T., repeat q 3-5 mins. (max. 0.04 mg/kg or 3 mg)
6. Search for underlying cause of arrest and provide the related therapy:
 - a. hypoxia - ensure adequate ventilation
 - b. hypovolemia - fluid administration /fluid challenge
 - c. cardiac tamponade
 - d. tension pneumothorax - needle decompression
 - e. **KNOWN** hyperkalemia - Sodium Bicarbonate
 - f. acidosis, drug overdose, massive MI and hypothermia according to the prescribed approach.
7. Consider the use of:
Narcan 2mg slow IVP
Dextrose 50% if blood glucose < 80 mg/dL
8. Consider termination of effort in the field

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ADULT CARDIAC EMERGENCY

Premature Ventricular Contractions (P.V.C.)

A. Assessment

Any P.V.C. in acute M.I. setting with associated chest pain
More than five (5) P.V.C.'s per minute and symptomatic
Multi-focal P.V.C.'s
Salvo's (two or more P.V.C.'s in a row) and symptomatic
P.V.C.'s occurring near the "T-wave"

B. Treatment – Standing Orders

1. Oxygen 100% and airway maintenance appropriate for the patients condition.
2. ECG monitor
3. INT or I.V. N.S. K.V.O.
4. If patient is bradycardic with P.V.C.'s, use Atropine 0.5 mg IVP q 5 minutes up to 2 mg. Refer to Bradycardia protocol.
5. Lidocaine 1.0 - 1.5 mg/kg I.V.P., additional boluses of 0.5 mg/kg can be given q 5 - 10 mins. If necessary up to total of 3 mg/kg. When treating the elderly or with patients who have blood pressures in the lower range of normal, a lower dose of Lidocaine (1/2 of doses listed above) is given.
6. If P.V.C.'s resolve, start Lidocaine drip 2 - 4 mg/min based on loading dose

C. Treatment - Protocol

1. If P.V.C.'s are not suppressed within five minutes or patient remains unstable, Contact Medical Control, consider:
 - Procainamide 20 - 30 mg/min up to 17 mg/kg max. unless:
 - P.V.C.'s are suppressed
 - Q.R.S. widens 50 %
 - Hypotension develops

Note: If Procainamide is not effective, Bretylium 5 - 10 mg/kg over eight to ten minutes up to 30 mg/kg max.

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ADULT CARDIAC EMERGENCY

Supraventricular Tachycardia (S.V.T.)

A. Assessment

Adult patients with heart rates in excess of 160 bpm
Patients may exhibit symptoms of dyspnea, chest pain, radiating pain, altered mental status, hypotension

B. Stable

Treatment - Standing Order:

1. Oxygen 100% and airway maintenance appropriate for the patients condition.
2. IV NS KVO
3. ECG

Treatment – Protocol

1. Contact medical control, consider:
 - a. Vagal maneuvers
 - i. hold breath
 - ii. cough or gag reflex stimulation
 - iii. Carotid Massage – requires physician's orders if patient age is > 65 yo
 - b. Adenocard 6 mg rapid IVP
 - c. If no conversion, repeat Adenocard 12 mg rapid IVP
 - d. Verapamil, Procainamide, or cardioversion

C. Unstable

Treatment – Standing Order

1. Oxygen 100% and airway maintenance appropriate for the patients
2. IV, NS
3. Vagal maneuvers
4. Adenocard 6mg rapid IVP
 - a. if no change Adenocard 12 mg rapid IVP
5. If no conversion pre-medicate with 5 – 15 mg Valium PRN or Versed 3mg IVP
6. Synchronized Cardioversion starting at 30J, 50J, 75J, 100J, 120J, 150J, 200J
7. If unable to establish IV and premedicate proceed directly to synchronized cardioversion if the patient is severely unstable.

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Treatment – Protocol

1. Contact medical control consider: Procainamide, Verapamil

NOTES:

1. Unsynchronized Cardioversion is acceptable when synchronized is too slow or unit will not synchronize. Be prepared for V-Fib protocol.
2. If you are uncertain of the origin of the Tachycardia, **DO NOT** administer Verapamil. Verapamil in Ventricular Tachycardia may be fatal. Procainamide is the drug of choice in this situation.
3. As large a bore IV in the Antecubital Fossa should be established as soon as possible.
4. Other vagal maneuvers may include asking the patient to hold their breath, trendelenburg position.
5. Carotid Sinus Pressure should be applied on the right if possible. If no effect, then try the left side. **NEVER** massage both sides at once.
6. 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!

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ADULT CARDIAC EMERGENCY

Atrial Fibrillation and Flutter

A. Assessment

Paroxysmal Atrial Tachycardia
Atrial Flutter
Atrial Fibrillation
Symptomatic patient

B. Treatment – Standing Orders

1. Oxygen 100% and airway maintenance appropriate for the patients condition
Consider the use of the transport ventilator, setting should be 100% or 50% FiO₂
2. I.V. or INT
3. Valsalva maneuver
4. If blood pressure is stable administer Verapamil 2.5 - 5 mg I.V. slowly over two minutes. After 15 to 30 minutes second dose of 5 – 10 mg (20mg max dose)
 - a. If stable and no cardioversion with medical treatment, contact medical control
5. If patient is unstable consider synchronous cardioversion:
Atrial flutter @ 30 joules
Atrial Fib. @ 50 joules

Pre-medicate with Valium 5 - 15 mg I.V. if conscious or Versed 3mg IVP if time permits.

****Caution – In the unstable patient, Valium may lower the blood pressure or alter the patient's mental clarity.**

Note: When treating the elderly or with patients who have blood pressures in the lower range of normal, a lower dose of Verapamil (2-4 mg) is given over a longer period of time (3-4 mins.)

Immediate synchronized cardioversion (50, 75, 100, 120, 150, 200 joules) is recommended when there is an unstable rhythm with **serious signs and symptoms:**

- a. chest pain
- b. shortness of breath
- c. decreased level of consciousness
- d. low blood pressure

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ADULT CARDIAC EMERGENCY

Bradycardia

A. Assessment

Heart rate less than 60 beats per minute
Signs of decreased perfusion and symptomatic
Rhythm may be sinus bradycardia, junctional, or heart block

B. Treatment - Standing Order

1. Oxygen 100 % and airway maintenance appropriated for the patients condition.
2. If patient is asymptomatic and heart rate is less than 60 beats per minute, transport and observe.
3. I.V. N.S. K.V.O.
4. Atropine 0.5 - 1.0 mg I.V. q 3-5 mins. up to 0.04 mg/kg or 3 mg if symptomatic

Contact Medical Control to consider pharmacological interventions:

Dopamine drip 5 - 20 mcg / kg / min is recommended when hypotension is associated with the bradyarrhythmia.

5. For severe symptoms refractory to other therapy:
Epinephrine infusion starting at 2 - 10 mcg / min

Note: In compromised patients, asking the patient to cough repeatedly may give you enough time to initiate drug therapy.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT CARDIAC EMERGENCY

Ischemic Chest Pain / Myocardial Infarction

A. Assessment

Determine quality, duration, and radiation of pain
Myocardial Ischemia
Substernal Oppressive Pain
Nausea / Vomiting
Dyspnea
Diaphoresis
Palpitations
Widespread ECG Changes
History of Coronary Artery Disease
Taking current cardiac medications

B. Treatment - Standing Order

1. Oxygen 100% and airway maintenance appropriate for patient condition
2. Place patient in position of comfort.
3. Cardiac monitor, obtain 12 lead. Patients with positive AMI should be transported as soon as possible. Treat arrhythmia appropriately.
4. Oxygen saturation (if available and see O₂ Sat Protocol under 'miscellaneous')
5. INT or IV Normal Saline @ TKO
6. Nitroglycerine – 1 metered dose spray q 5 min for a maximum of 3 doses as needed or unless hypotensive (BP <100 mmHg systolic)
 - a. If patient has taken three or more NTG prior to EMS arrival, give one NTG metered dose spray before consideration of Morphine.
7. Ensure patient able to swallow. Rule out allergy to Aspirin and history of Asthma. If no contraindication exists **AND** the patient's chest pain is believed to be cardiac related **AND** an AMI is either reasonably suspected or confirmed with 12 lead ECG, administer two chewable Aspirin (81 mg).
8. If the patient's chest pain is believed to be cardiac related and their pain is at least "5" (on a scale of 1-10 with "10" being the worst pain they have ever felt), administer an initial dose of Morphine Sulfate 2 – 4 mg slow IVP if not relieved by NTG. Medical Control must pre-approve subsequent doses beyond the initial pulse dose of MS.
 - a. If these conditions do not exist, you must first contact Medical Control for initial orders for MS.

C. Treatment – Protocol

Consider: Repeat MS 2 - 4 mg q 3 - 5 minutes IV for a maximum of 10 mg IV.

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ADULT CARDIAC EMERGENCY

Ventricular Asystole

A. Assessment

Confirm cardiac rhythm with quick look paddles or electrodes
Confirm and record in two leads to confirm Asystole and to rule out fine V-Fib.

B. Treatment - Standing Order

1. CPR
2. Oxygen 100% and airway maintenance appropriate to the patients condition. Consider the use of the transport ventilator if possible, setting should be 100% or 50% FiO₂
3. Epinephrine 1:10,000 1 mg I.V.P. or 2.0 mg E.T. q 3 - 5 mins. or Epinephrine Drip to deliver 1 mg per min.
4. Atropine 1.0 mg I.V.P. or 2.0 mg E.T. q 3 - 5 mins. up to 0.04 mg/kg or 3 mg
5. Try to identify underlying cause of arrest including hypoxia, hyperkalemia, hypokalemia, acidosis, drug overdose, hypothermia, and treat accordingly.
6. Consider: Sodium Bicarbonate 1 mEq/kg I.V.P. followed by 0.5 mEq/kg q 10 mins if code is longer than 20 min.

C. Treatment - Protocol

Contact Medical Control, consider:

CaCl if arrest secondary to renal failure, or history of hemodialysis

Discontinue Resuscitative Measures if "Discontinuation Resuscitative Measures" criteria exists.

Note: Special Causes of Asystole

Hypothermia - efforts should be directed to rewarming, rapid transport to hospital for invasive rewarming techniques. Prolonged resuscitation is warranted.

Electrocution/Lighting Strike - often results in Asystole. For such arrests, prolonged resuscitation may be successful.

Defibrillation for possible fine ventricular fibrillation masquerading as asystole

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ADULT CARDIAC EMERGENCY

Ventricular Fibrillation

A. Assessment

Ventricular Fibrillation

Pulseless, apnea

Confirm and record cardiac rhythm with quick look paddles or electrodes verified in 2 leads on monitor

B. Treatment - Standing Order

1. CPR (precordial thump if witnessed)
2. Oxygen 100% and airway maintenance appropriate to the patients condition. Consider the use of the transport ventilator, setting should be 100% or 50% FiO₂
3. Check cardiac monitor and identify V-Fib or V-Tach w/o pulse
4. Defibrillate @ 120 / 150 / 200 joules
Do not re-check pulse between these defibrillations if monitor remains unchanged.
5. C.P.R. if no pulse
6. N.S. K.V.O.
7. The following is a list of preferred drug in the order of use, after each drug push defibrillation at 200j is to be performed 30 – 60 seconds after the drug (except Bretylium 1 – 2 min):
 - a. Epinephrine 1:10,000 1 mg I.V.P. or 2.0 mg E.T. q 3 - 5 mins. or initiate an Epinephrine Drip
 - b. Lidocaine 1.5 mg/kg I.V. q 3-5 mins. up to 3 mg/kg max. or 3.0 mg / kg E.T.
 - c. Bretylium 5 mg/kg I.V.P.
 - d. Bretylium 10 mg/kg I.V.P. up to a max of 30-35 mg/kg
 - e. Consider the use of Sodium Bicarbonate 1mEq/kg I.V.P. if post arrest time is greater than 20 minutes.
 - f. Procainamide 30 mg / min (max 17 mg/kg)

C. Treatment - Protocol

Contact Medical Control for further orders when necessary

CaCl if arrest secondary to renal failure, or history of hemodialysis

Notes:

Do not perform a pulse check between initial shocks (stacked set) unless a change is noted in the ECG rhythm

Defibrillation should not be delayed for any reason other than rescuer or bystander safety

Continue drug - shock - drug - shock - drug sequence

Start I.V. infusion of antiarrhythmic agent that resolved arrhythmia

Time on scene should be taken to aggressively treat ventricular fibrillation when patient is intubated and I.V. access is obtained.

Prompt defibrillation is the major determinant of survival

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT CARDIAC EMERGENCY

Ventricular Tachycardia

A. Assessment

Confirm and record cardiac rhythm with quick look paddles or electrodes in two leads

Check for palpable carotid pulse

Symptoms (e.g., chest pain or dyspnea), **Signs** (e.g., hypotension, systolic B/P less than 90 mm Hg, congestive heart failure, ischemia, or myocardial infarct) - **indicates an unstable patient.**

B. Treatment – Standing Order

Pulseless: Treat with Ventricular Fibrillation Protocol.

C. Stable – with a pulse

Treatment – Standing

1. Oxygen 100% and airway maintenance appropriate to patient condition
2. INT or IV NS KVO

Treatment – Protocol

Contact Medical Control and consider:

Lidocaine 0.5 - 0.75 mg/kg q 5-8 mins until V-Tach resolves or 3 mg/kg max.

Procainamide 20-30 mg/min up to 17 mg/kg until V-Tach resolves, QRS widens 50 %, or hypotension develops

D. Unstable

1. Oxygen 100% and airway maintenance appropriate to the patients condition
2. IV NS KVO
3. Premedicate with Valium 5 – 10 mg IVP or Versed 3 mg IVP
4. Synchronized Cardioversion starting at 30J, 50J, 75J, 100J 120J, 200J
If patient extremely unstable or IV access not available do not delay cardioversion
5. If recurrent, add Lidocaine and cardiovert again starting at energy level previously successful then Procainamide, or Bretylium

Note: Stable - patient's pulse is present, patient is not hypotensive, and patient has no complaints related to V-Tach.

If the patient is refractory to lidocaine and procainamide, bretylium is administered 5 mg/kg slowly over 8-10 minutes to a max of 30 mg/kg within 24 hrs. period.

Start I.V. infusion of antiarrhythmic agent that resolved arrhythmia

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ADULT CARDIAC EMERGENCY

Ventricular Ectopy

A. Assessment:

Multifocal PVC's
More than six per minute and symptomatic
Short runs of V-Tach (5+ PVC's in a row) and symptomatic
PVC's getting close to the T-Wave
Couplets
Chest pain of possible cardiac etiology
Hypotension
Dyspnea
Pulmonary Edema
Altered LOC

B. Treatment – Standing Order

Unstable

1. Oxygen 100% and airway maintenance appropriate to the patients condition
2. IV N.S. TKO or INT
3. Lidocaine 1.5 mg/kg slow IV push
4. Lidocaine drip at 2 – 4 mg per minute
5. If PVC's not controlled, administer additional Lidocaine bolus
6. Contact Medical Control for further orders

Stable

Standing Order

1. Oxygen, INT, cardiac monitor
2. Transport

Protocol

1. Contact Medical Control for further orders

Note: Procainamide or Bretylium

If patient is bradycardic with frequent PVC's, DO NOT suppress the PVC's. Turn to the bradycardia algorithm. The PVC's may be a compensatory mechanism.

**Treat PVC's only when the patient is symptomatic.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT ENVIRONMENTAL EMERGENCY

Chemical Exposure

Special Note: Personnel safety is the highest priority. **Do not** enter or approach any situation which may be harmful to you unless you are outfitted with the appropriate protective clothing and self contained breathing apparatus and have the proper training to engage in such activity. EMS related activities to Hazmat situations are related to the cold zone. Care should not be rendered in the hot / warm zones. Consider Self Contained Breathing Apparatus. Treatments should not be performed until decontamination on the patient is completed.

A. Assessment

History of exposure to chemical
Protect yourself from danger of exposure
Identify substance if possible
Material Safety Data Sheets (M.S.D.S.) if available

B. Treatment - Standing Order

If Internal Exposure and Conscious:
Treat as Drug Ingestion

If External Exposure:

Remove victims clothing

1. Decontaminate – EMS personnel must have proper protective clothing on, prior to helping with the decontamination process.

Powder or like substance

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

Liquid substance

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

If Inhalation:

Reconsider Self Contained Breathing Apparatus
Remove victim from source ensuring there is no danger to personnel
Oxygen 100 % and airway maintenance appropriate to patients condition

NOTE: Coordinate thru the Haz Mat officer prior to transport

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT ENVIRONMENTAL EMERGENCY

Drug Ingestion

A. Assessment

History of drug ingestion

Altered Level of consciousness (**A**lert, **V**erbal, **P**ain, **U**nresponsive)

Identify cardiac rhythm if suspected cardiotoxin, unconscious, or hypotensive

B. Treatment – Standing Order

1. Protect yourself from toxin and/or unruly patient.
2. Oxygen 100% and airway maintenance appropriate to patient's condition.
3. Monitor E.K.G.
4. INT or I.V. access K.V.O.
5. Obtain Blood Sugar Level and treat accordingly.
6. Consider Valium 4 - 5 mg IV or Versed 3mg IVP if patient is having seizures.
7. Narcan 2mg slow IVP

Notes: Contact Medical Control for all therapeutic interventions related to drug ingestion

If patient is conscious and vitals are stable, treat with oxygen, and transport. Help maintain patients posture when transporting to help reduce the likelihood of aspiration.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT ENVIRONMENTAL EMERGENCY

Hypothermia

A. Assessment

History of exposure to cold temperature
Altered level of consciousness
Bradycardia
Hypotension
Examine for associated trauma
Obtain Blood Glucose level

B. Treatment - Standing Order (Handle patient movement gently, to prevent triggering V-Fib.)

If Unconscious and Pulseless, Evaluate for One Full Minute

1. CPR. (Do not perform C.P.R. if P.E.A. rhythm exists)
2. 100 % oxygen and airway maintenance appropriate to patient's condition
3. ECG
4. Remove wet clothing and cover with blankets (warmed if possible)
5. I.V. N.S. @ 75 cc/hr warmed if possible
6. If blood glucose is < 80 mg/dL and patient is symptomatic administer 1 amp of D₅₀
7. Contact Medical Control

If Fibrillation Converts

Lidocaine 1.5 mg/kg I.V.P. q 3-5 minutes up to 3 mg/kg max.
Lidocaine 2 gm/500 cc I.V. admin run @ 2 - 4 mg/min (titrate)
Place patient in warm area

If Greater than 30 minute Transport Time

Add heat via warm external objects to head, neck, chest, and groin
Do Not Warm Extremities

Note: The following are signs and symptoms found at varying body core temperature:

- 95 degrees – amnesia, poor judgement, hyperventilation, bradycardia, shivering
- 90 degrees – loss of coordination (drunk appearance), decreasing rate and depth of respirations, shivering ceases, bradycardia
- 85 degrees – decreased LOC, slow respirations, atrial fibrillation, decreased BP, decreased heart rate, ventricular irritability

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT ENVIRONMENTAL EMERGENCY

Near Drowning

A. Assessment

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

B. Treatment – Standing Order

If Unconscious and Pulseless

1. Remove from water, clear airway while protecting C-spine.
2. Oxygen 100 % and airway maintenance appropriate to patient's condition
3. E.C.G. monitor and treatment specific for the arrhythmia
4. Patient should be quickly dried and placed on a dry surface before defibrillating to prevent injury to rescuer performing defibrillation.
5. Contact Medical Control

Note:

If Fibrillating and Body Temperature Normal

Go to Ventricular Fibrillation Protocol

If Hypothermic

Go to Hypothermia Protocol

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT ENVIRONMENTAL EMERGENCY

Poisonous Snake Bite

A. Assessment

Protect yourself from danger of exposure of snake bite. Snakes can envenomate up to one hour after death.

Determine type of snake, time of bite, and changes in signs and symptoms since occurrence. The number of puncture marks is not diagnostic.

If possible, transport the snake in a secure vessel with the victim for identification

B. Treatment - Standing Order

1. Remove rings and bracelets from patient
2. Oxygen 100% and airway maintenance appropriate to patient's condition
3. I.V. L.R. K.V.O. to maintain blood pressure or if hypotensive (20cc/kg bolus)
4. Immobilize affected area keeping extremities in neutral position
5. Relieve anxiety and keep patient at rest
6. Mark progression of swelling at the time of initial assessment and q 5 minutes
7. Contact Medical Control

C. Treatment - Protocol

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

Note: DO NOT USE ice, tourniquets or constricting bands at the bite site or proximal to bite site.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT ENVIRONMENTAL EMERGENCY

Known Cyanide Poisoning

A. Assessment

History of exposure

May complain of headache, palpitations or dyspnea, confusion or stupor respirations may rapid and labored early on, but become slow and gasping pulse is usually rapid and thready may also see complaint of vomiting, seizures and coma.

Treatments should not be performed until decontamination on the patient is completed.

B. Treatment – Standing Order

1. Remove the patient to a non-contaminated area
2. Remove any clothing that is contaminated by cyanide & wash off any cyanide which may be present on the skin
3. Oxygen 100% and airway maintenance appropriate to the patients condition
4. I.V. N.S. (large bore catheter) KVO
5. Keep patient warm / monitor E.K.G.
6. Initiate
7. transport as soon as possible
8. Contact Medical Control

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT ENVIRONMENTAL EMERGENCY

Nerve Agent Exposure

Assessment

History of exposure

Similar to Organophosphate poisoning

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

B. Treatment – Standing Order

1. Self protection and patient decontamination
2. Oxygen 100% and airway maintenance appropriate to the patients condition
3. Depending on signs and symptoms administer Mark I antidote kit
 - a. Mild – increased secretions, pinpoint pupils, general weakness
 - i. Decontamination , supportive care
 - b. Moderate – mild symptoms and respiratory distress
 - i. 1 Mark I kit
 - ii. May be repeated in 5 min prn
 - c. Severe – unconsciousness, convulsions, apnea
 - i. 3 Mark I kits
 - ii. 10 mg Valium or 3 mg Versed for seizures
4. I.V. N.S.
5. Keep patient warm / monitor E.K.G.
6. Initiate immediate transport as soon as possible

C. Treatment - Protocol

Repeated doses of Atropine after 6mg given with kits

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT MEDICAL EMERGENCY

Acute Pulmonary Edema / CHF

Assessment

Focus assessment on Airway, Breathing, and Circulation
Dyspnea / Cyanosis
Diaphoresis
Erect Posture
Distended Neck Veins
Bilateral Rales / Wheezes
Tachycardia
History of C.H.F. or other heart disease
Renal Dialysis
Lasix, Digoxin, ACE Inhibitor on medication list

B. Treatment - **Standing Order**

1. Oxygen 100% and airway maintenance appropriate to the patients condition
2. Evaluate cardiac rhythm and vital signs
3. Nitroglycerine - 1 metered dose spray unless hypotensive (<100 mmHg systolic)
4. Albuterol Inhalation Treatment, 2.5 mg Albuterol / 3 mL NS via updraft nebulizer
5. INT or I.V. N.S. K.V.O.
6. Lasix 0.5 – 1 mg/kg (80 mg maximum pre-hospital) or Bumex 1.0mg slow IVP or IM

C. Treatment - **Protocol**

Morphine Sulfate 2mg IVP if systolic BP > 110 mmHg
Dopamine 400 mg/250cc D5W I.V. admix, begin @ 15 cc/hr (titrate) if patient is hypotensive.
(Systolic pressure < 90 mmHg)

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT MEDICAL EMERGENCY

Suspected Cerebrovascular Accident (C.V.A.)

A. 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
Dysphasia (incoherent speech or difficulty understanding speech)
Asphasia (inability to speak)
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 of one or more limbs; usually involves one half of the body particular 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

B. Treatment - Standing Order

1. Oxygen 100% and airway maintenance appropriate to patient's condition
2. Evaluate cardiac rhythm and vital signs
3. Monitor airway due to decreased gag reflex and increased secretions
4. Utilize the Cincinnati Pre-Hospital stroke scale
5. Maintain body heat, protect affected limbs from injury, anticipate seizures
6. INT or I.V. N.S. KVO enroute
7. If it is suspected that symptoms are due to hypoglycemia and blood sugar is less than 80 mg/dl and symptomatic give 1 amp of Dextrose 50% IVP
8. Be careful not to lower the blood pressure

C. Treatment – Protocol

1. Contact Medical Control for treatment of Blood Pressure in CVA

The Cincinnati Prehospital Stroke Scale

1. **Facial Droop** (have patient show teeth or smile):
 - a. Normal – both sides of face move equally well
 - b. Abnormal – one side of face does not move as well as the other side
2. **Arm Drift** (patient closes eyes and holds both arms out):
 - a. Normal – both arms move the same or both arms do not move at all
 - i. findings, such as pronator grip, may be helpful
 - b. Abnormal – one arm does not move or one arm drifts down compared with the other
3. **Speech** (have patient say “you can't teach an old dog new tricks”):
 - a. Normal – patient uses correct words with no slurring
 - b. Abnormal – patient slurs word(s), uses inappropriate words, or is unable to speak

Note: Two or more positives indicated a strong chance (>95%) of CVA

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT MEDICAL EMERGENCY

Hyperglycemia Associated with Diabetes

A. 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
Abdominal pain, nausea and vomiting
History of polyuria, or polydipsia (excessive urination or thirst)
Blood glucose determination

B. Treatment - Standing Order

1. Oxygen 100% and airway maintenance appropriate to patient's condition
 2. I.V. N.S. K.V.O.
 3. ECG monitor
 4. Transport
-

ADULT MEDICAL EMERGENCY

Hypertensive Crisis

A. Assessment

Headache, blurred vision, dizziness, weakness.
Elevated blood pressure (systolic and/or diastolic){if systolic BP is greater than 260 mmHg and/or Diastolic BP is greater than 140 mmHg}.
Dyspnea, peripheral or pulmonary edema.

B. Treatment – Standing Order

1. Oxygen 100% and airway maintenance appropriate to patient's condition
2. Nitroglycerine spray sublingual q 5 min provided systolic pressure > 100 mm
3. IV or INT
4. Evaluate cardiac rhythm for dysrhythmias and treat appropriately with medical direction (contact medical control prior to initiation of anti-arrhythmic therapy)

C. Treatment - Protocol

Contact Medical Control if the diastolic blood pressure is 140 mmHg or greater AND the patient is symptomatic

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT MEDICAL EMERGENCY

Hypoglycemia

A. Assessment

History of onset in minutes

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

Blood Glucose determination

B. Treatment - Standing Order

1. Oxygen 100% and airway maintenance appropriate to the patients condition
2. ECG
3. Obtain blood glucose level.
 - a. If blood sugar is 40 mg/dL or greater and pt. is asymptomatic:
establish IV NS @ KVO, monitor and transport, consider oral glucose
 - b. If blood sugar is less than 80 mg/dL and symptomatic:
establish IV N.S. KVO, administer 1 amp of D₅₀, reassess blood sugar level q 5 min,
administer ½ amp D₅₀ prn
4. Transport is indicated unless the alert and awake patient refuses. **However**, the patient is to be encouraged to be transported to the ED for further evaluation.

NOTE: Consider administration of oral glucose for a conscious/alert patients with blood glucose > 60 mg/dL

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT MEDICAL EMERGENCY

Respiratory Distress (Asthma/COPD)

A. Assessment

Hx - COPD, Emphysema, Asthma, or other restrictive lung disease
Respiratory rate greater than 30 per minute or less than 8 per minute
Labored respiration, use of accessory muscles or tripodding
Breath Sounds: Bilaterally diminished, dry crackles, wheezing
Cyanosis

B. Treatment - **Standing Order**

1. 100% Oxygen and airway maintenance appropriate for patients condition
2. O₂ Saturation
3. EKG
4. Albuterol Inhalation Treatment 2.5 mg / 3 mL NS and O₂ setting @ 7 - 10 LPM
Repeat Albuterol PRN
5. INT or IV Normal Saline TKO
6. Contact Medical Control for further orders

C. Treatment - **Protocol**

Consider:

Epinephrine 1:1000, 0.3 cc SQ if patient has no history of V-Tach

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT MEDICAL EMERGENCY

Seizures

A. Assessment

Seizure (onset, duration, type, post-seizure, level of consciousness)

Medical (head trauma, diabetes, headaches, drugs, alcohol, seizures)

Physical (seizure activity, level of consciousness, incontinence, head and mouth trauma, vital signs)

B. Treatment – Standing Order

1. Oxygen 100 % and airway maintenance appropriate to patient's condition
2. INT or I.V. N.S. K.V.O.
3. ECG
4. Obtain blood sugar level and treat accordingly then reassess
5. Rule out head injury - do not administer narcotics to head injured patients
6. If actively seizing - Valium SLOW IVP in 2.5 – 5 mg increments q 5minutes until seizure has stopped or maximum of 30 mg has been administered or Versed (repeat X 1) 3mg IVP.
7. Contact Medical Control for further orders

C. Treatment - Protocol

Consider: If patient is in status and no IV is available 10mg Valium, or Versed 5 mg, deep IM or rectal

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT MEDICAL EMERGENCY

Unconscious / Unresponsive

A. Assessment

Altered level of consciousness with vital signs

Assess for head trauma

Assess for Hypo / Hyperthermia, hemiparesis, and fever, OD, Hypoglycemia

B. Treatment – Standing Order

1. Oxygen 100 % and airway maintenance appropriate to patient's condition
 2. EKG
 3. I.V. N.S. K.V.O.
 4. Administer Narcan 2mg slow IVP
 5. Obtain blood glucose level and treat accordingly
 6. Contact Medical Control for further orders
-

ADULT MEDICAL EMERGENCY

Avulsed Teeth- Standing Order

Avulsed teeth may be handled in much the same manner as small body parts; i.e. rinse in normal saline (do not rub or scrub) and place in moistened gauze, but there is no need to cool with ice.

Consider C-Spine stabilization and spinal immobilization.

Transport tooth to hospital with patient if possible

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT SHOCK / TRAUMA

Anaphylactic Shock

A. Assessment – Severe Reaction

Contact with a known allergen or with substances that have a high potential for allergic reactions.
Sudden onset with rapid progression of symptoms.

Dyspnea, audible wheeze on confrontation, generalized wheeze on auscultation, decreased air exchange on auscultation.

Generalized urticaria, erythema, angioedema especially noticeable to face and neck.

Complaint of chest tightness or inability to take a deep breath.

B. Treatment – Standing Order

1. Position of comfort, reassure
2. 100% Oxygen and airway maintenance appropriate for patients condition
3. ECG / O₂ sat
4. Epinephrine 1:1000 0.3 mg SQ
5. IV NS or LR, large bore @ KVO
6. ****If patient is *seriously compromised* and a vein is readily available, 0.3 mg of Epinephrine 1:10,000 should be administered IVP. This may be repeated once with the subsequent dose being 0.5 to 1.0 mg. This is especially useful in the late stages of shock when peripheral perfusion is poor.****
7. Diphenhydramine (Benadryl) 50 mg IV or deep IM
8. Albuterol Inhalation Treatment if wheezing is present and persists post Epinephrine SC/IV
9. Contact Medical Control for further orders

****Note: (#6)** This standing order should be utilized if the patient is severely compromised. Do not use this order if the patient has only mild symptoms or is experiencing a localized reaction unless orders are given by medical control.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT SHOCK / TRAUMA

Cardiogenic Shock

A. Assessment

Frequently associated with tachy/brady dysrhythmia, acute MI, 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

B. Treatment - **Standing Order**

1. Semi-Fowlers or position of comfort
2. Oxygen 100 % and airway maintenance appropriate to patient's condition
3. 20cc/kg bolus if BP remains low (systolic BP below 90), repeat bolus once as needed then adjust flow rate for patients condition
4. Evaluate cardiac rhythm and treat appropriately
5. I.V. N.S. with large bore catheter

C. Treatment - **Protocol**

Contact Medical Control, consider:

Dopamine 400 mg / 250 cc D5W I.V. admix, begin @ 15 cc/hr (titrate)

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT SHOCK / TRAUMA

Multi-System Trauma - Standing Order

1. Evaluate and incorporate the Mechanism of Injury in the patient care scheme along with ABC's, spinal immobilization, and consider PASG accordingly
2. If in cardiac arrest, bilateral needle chest decompression may be indicated **if** the patient has a mechanism of injury that may suggest chest injury. These include MVA, Falls (other than same level falls), penetrating trauma with signs and symptoms of Pneumothorax.
If in doubt, contact Medical Control.
3. 100% Oxygen and airway maintenance appropriate for patient condition
4. Initiate two large bore (14 or 16 gauge) Lactated Ringers IV's enroute.
Rate to maintain patient's systolic blood pressure 80 - 100 mmHg.
Do not stay on the scene initiating IV's unless patient is pinned in vehicle, or prolonged scene time is unavoidable.
5. Evaluate and monitor, treat any dysarrhythmia appropriately (consider fluids before drugs)
6. Transport as soon as possible: Scene time should be limited to 10 - 12 minutes.
7. Notify the receiving hospital of patient condition as soon as possible.
8. Avoid narcotic administration.
9. Contact Medical Control

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT SHOCK / TRAUMA

Air Ambulance Transport

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.

A. 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 leaves the scene transporting until time of arrival at the emergency department.

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

C. The FF/PM will coordinate with the Incident Commander to insure the helicopter received patient information and landing zone location.

Note: Medical responsibility will be assumed by the medical flight crew personnel upon arrival at the scene and after transfer of care.

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

Limitations of the helicopter:

- a. adults who have a traction splint applied
- b. patients over 6' 3"
- c. patients who exceed 350 lbs
- d. any splint that exceeds the boundary of the long spine board

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT SHOCK / TRAUMA

Hypovolemic Shock

A. 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 caused 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 mm Hg systolic

Orthostatic (Tilt) changes in vital signs (consider possible spinal injury)

pulse increase of 20 beats per minute

B/P decrease of 10 mm Hg systolic

Severe shock (hypovolemia) is defined as decreased level of consciousness, absent radial pulse, capillary refill greater than 2 seconds, no palpable blood pressure

B. Treatment – Standing Order

1. Oxygen 100 % and airway maintenance appropriate to patient's condition.
2. ECG
3. Trendelenburg patient if no suspected spinal injury
4. I.V. L.R. x 2 large bore titrated to maintain patient's systolic blood pressure 80 - 100 mmHg (20cc / kg, repeat once)

C. Treatment - Protocol

Contact Medical Control, consider:

Inflation of PASG, if blood pressure can not be maintained with I.V. therapy

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT SHOCK / TRAUMA

Neurogenic Shock

A. Assessment

Associated with spinal cord injuries and overdoses
Signs of hypovolemic shock without peripheral vasoconstriction (warm shock)

B. Treatment - Standing Order

1. Secure spine and airway at same time
2. 100% Oxygen and airway maintenance appropriate for patient condition
3. ECG
4. I.V. access with Normal Saline or L.R. to maintain pt's systolic BP 80 - 100 mmHg (20cc / kg, repeat once)

C. Treatment – Protocol

Contact Medical Control to consider:

If unable to maintain patients BP utilizing fluids: Dopamine 400 mg / 250 cc D5W I.V. admix, begin @ 15 cc/hr and titrate if perfusion is not restored

Special Note: Consider occult bleeding and treat as Hypovolemic Shock Protocol.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT SHOCK / TRAUMA

Septic Shock

A. Assessment

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

B. Treatment - **Standing Order**

1. Oxygen 100 % and airway maintenance appropriate to patient's condition
2. I.V. L.R. or N.S. x 2 large bore titrated to maintain pt's systolic blood pressure 80 - 100 mmHg (20cc / kg, repeat once)
3. Check blood sugar, treat appropriately
4. If no change, contact medical control enroute to hospital

C. Treatment - **Protocol**

1. Dopamine 400mg/250 cc D5W I.V. admix, begin drip @ 15cc/hr (titrate) after bolus(s) of IV fluid is given

Note: Be particular of Body Substance Isolation precautions.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT SHOCK / TRAUMA

Major Thermal Burn

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

A. Assessment

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 all major burn patients

Respiratory Distress

B. Treatment - Major Burns - Standing Order

1. Stop the burn process.
2. If burn <15% BSA cool patient with tepid water. **Do Not Use Ice Under Any Circumstances.**
If burn > 15% BSA use dry sterile dressing only.
3. Oxygen 100 % and airway maintenance appropriate to patient's condition.– (Nasotracheal Intubation is preferred route of intubation for burn patients). Edema will cause patient's airway to close almost instantly and without significant signs.
4. ECG, O₂ sat
5. Remove clothing from around affected parts
6. Monitor all vital signs and continue reassessment including, but not limited to, respiratory rate, peripheral pulses and circulation, level of consciousness, and EKG rhythm and rate.
7. Remove rings, necklaces, anklets, and clothing
8. Cover burned area with dry sterile dressing or burn sheet. DO NOT use Waterjel or any other commercially manufactured burn products, if already in use do not remove.
9. Stabilize all associated injuries (eg. chest, potential spine injury, fractures, dislocations, etc.)
10. DO NOT transport patients on wet sheets, wet towels or clothing

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

11. I.V. L.R. x 2 large bore at a combined rate of 500 cc/hr. DO NOT delay initiation of transport attempting IV access.

*If Rule of Nine's BSA % **can** be readily obtained, administer IV fluids @ 3 – 4 cc of LR / KG / % BSA

*If rule of Nine's BSA % **can not** be readily obtained, 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

150 mL per hour for patients under 5 years old

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

C. Treatment – Protocol

1. Stadol 2 - 4 mg IV or MS 5-10mg for pain

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT SHOCK / TRAUMA

Trauma Treatment Priorities

A. Treatment - Standing Order

1. Evaluate and consider mechanism of injury
2. Stabilize C-spine p.r.n., per protocol
3. Oxygen 100 % and airway maintenance appropriate to patient's condition and hyperventilate if necessary
4. Consider PASG but do not inflate at this point. Refer to the PASG protocol in the Adult Shock/Trauma section.
5. Initiate transport utilizing the current TN Trauma Destination Determinates
6. Certain situations require rapid transport. Non-lifesaving procedures such as splinting and bandaging must not hold up transport. The following are but may not be limited to critical situations that require immediate transport.
 - airway obstruction that cannot be quickly relieved by mechanical methods such as suction, forceps, or intubation
 - traumatic cardiopulmonary arrest
 - large open chest wound (sucking chest wound)
 - large flail chest
 - tension pneumothorax
 - major blunt chest trauma
 - shock
 - head injury with unconsciousness, unequal pupils, or decreasing level of consciousness
 - tender abdomen
 - unstable pelvis
 - bilateral femur fractures
7. I.V. L.R. x 2 large bore - maintain systolic blood pressure 80 - 100 mmHg (20cc / kg bolus, repeat once)
8. Protect against heat loss
9. Monitor vital signs and neuro status enroute:
 - critical patients - reassess every 3 - 5 minutes
 - non-critical patients - reassess every 8 - 10 minutes and prn

B. Treatment - Protocol

1. Contact Medical Control if systolic B/P is less than 50 mm Hg if unsuccessful with IV Fluid therapy for orders to inflate PASG. Refer to the PASG protocol in the Adult Shock/Trauma section.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

ADULT SHOCK / TRAUMA

Tension Pneumothorax

A. Assessment:

Acute Respiratory Distress, Cyanosis
Unilaterally decreased breath sounds or absent breath sounds
Hyper-Resonance of chest unilaterally
Juglar 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
Arrhythmias
Oxygen saturation - < 90%

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

B. Treatment – Standing Order

1. Oxygen 100% and airway maintenance appropriate for patients condition
2. Consider institution of multi-system trauma standing order if indicated. Remember this order may be necessary for medical patients, as well.
3. Primary Site: Intercostal space, mid-axillary line on the affected side of the chest between the 5th and 6th rib.
Optional Site: Intercostal space mid-clavicular line on the affected side of the chest between the 2nd and 3rd rib.
4. Evaluate breath sounds throughout remainder of the transport.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

OBSTETRICAL EMERGENCIES

Normal Delivery

A. Assessment

Patient Para & Grava
Term of pregnancy in weeks
Vaginal bleeding
Pre-natal medications, problems, and care
Membrane ruptured

A. Treatment – Standing Order

Mother:

1. Oxygen 100% and airway maintenance appropriate for the patients condition
2. Check mother for crowning
3. I.V. L.R. K.V.O. if patient in active labor defined as regular contractions q 3 - 5 mins. with 30 - 60 second duration.
4. Assist delivery
5. DO NOT allow mother to nurse until both have been evaluated in the Emergency Department
6. Allow placenta to deliver
 massage uterine fundus (lower abdomen)
 observe and treat signs of shock with increased delivery of oxygen and I.V. fluids
 be alert to the possibility of multiple births
7. Re-evaluate vaginal bleeding
8. ECG monitor prn

Infant:

1. Protect against explosive delivery
2. When head delivers suction airway (mouth first then nose) & check for cord around neck
3. After delivery clamp cord @ 8 and 10 inches from baby and cut between clamps
4. Dry infant and wrap to keep warm (silver swaddler). Maintain airway, suction PRN
5. Oxygen 100% and airway maintenance appropriate to patient's condition
6. Check A.P.G.A.R. Score at 1 and 5 minutes after delivery
7. DO NOT allow infant to nurse until both have been evaluated in the Emergency Department

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

8. Re-evaluate cord for bleeding
 - a. if bleeding, add additional clamp and re-evaluate
9. ECG monitor prn

Note: Considerations

1. Any vaginal bleeding during the third trimester of pregnancy must be regarded as a dire medical emergency until proven otherwise. Transport immediately.
2. Record a blood pressure and the presence or absence of edema in every pregnant woman you examine -- no matter what the chief complaint.
3. 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.
4. The greatest risk to the mother is post-partum hemorrhage. Watch closely for signs of hypovolemic shock and excessive vaginal bleeding.
5. Consider the possibility of pregnancy in any female of childbearing age (12 – 52) with complaints of vaginal bleeding, menstrual cycle irregularity, abdominal pain, cramping, or low back pain not associated with a traumatic injury.
6. Spontaneous or induced abortions may result in copious vaginal bleeding. Reassure the mother, elevate legs, treat for shock, and transport.

Note: Keep infant on same plane as mother until cord is clamped and cut

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

OBSTETRICAL EMERGENCIES

Apgar scoring

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

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

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

Note: The best possible score for an one minute APGAR is nine (9).

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

OBSTETRICAL EMERGENCIES

Abruptio Placentae

A. Assessment

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

B. Treatment - Standing Order

1. Oxygen 100% and airway maintenance appropriate to the patients condition
2. I.V. L.R. K.V.O.
3. Position patient in left lateral recumbent position
4. Transport ASAP
5. Contact Medical Control

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

OBSTETRICAL EMERGENCIES

Amniotic Sac Presentation

A. Assessment

Amniotic Sac visible
Membrane not broken
Fetus may or may not be visible
Pre-natal medications, problems, and care
Usually Third Trimester
Abdominal pain
Indications of immediate delivery

B. Treatment - Standing Order

1. Oxygen 100% and airway maintenance appropriate to the patients condition
2. Place patient in position of comfort
3. Establish IV LR or NS @KVO
4. Contact Medical Control ASAP
5. Amniotic Sac
 - a. if no fetus visible cover presenting part with moist, sterile dressing and begin transport
 - b. if fetus is visible tear sac with fingers and continue steps for delivery

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's
OBSTETRICAL EMERGENCIES

Breech or Limb Presentation

A. Assessment

Patient Para & Grava
Term of pregnancy in weeks
Vaginal bleeding
Pre-natal medications, problems, and care
Water broken
Buttock, arm or leg presentation

B. **Breech - Treatment - Standing Order**

1. Oxygen 100% and airway maintenance appropriate to the patients condition
2. I.V. L.R. or NS K.V.O.
3. Allow the delivery to progress spontaneously - DO NOT PULL !
4. Support the infant's body as it delivers
5. If the head delivers spontaneously, deliver the infant as noted in 'Normal Delivery'
6. If the head does not deliver within **3** minutes, insert a gloved hand into the vagina to create an airway for the infant
7. Transport immediately and DO NOT remove your hand until relieved by hospital staff

B. **Limb Presentation - Treatment - Standing Order**

1. Oxygen 100% and airway maintenance appropriate to the patients condition
 2. I.V. L.R. or NS K.V.O.
 3. Place mother in Trendelenburg Position
 4. Transport immediately
 5. Contact Medical Control as soon as possible.
- C. If either case exists, Medical Control must be contacted prior to arrival for notification and further orders if so desired by Medical Control.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

OBSTETRICAL EMERGENCIES

Placenta Previa

A. Assessment

Painless bleeding which may occur as spotting or recurrent hemorrhage
Bright red vaginal bleeding after 7th month
History
Multiparity
Increased maternal age
Recent sexual intercourse or vaginal exam
Patient Para & Grava
Term of pregnancy in weeks
Pre-natal medications, problems, and care
History of bed rest
Placenta protruding through vagina

B. Treatment - Standing Order

1. Oxygen 100% and airway maintenance appropriate to the patients condition
2. IV NS or LR
3. Position of comfort
4. Transport ASAP
5. Contact Medical Control

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, or body part through the membrane.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

OBSTETRICAL EMERGENCIES

Prolapsed Umbilical Cord

A. Assessment

Patient Para & Grava
Term of pregnancy in weeks
Vaginal bleeding
Pre-natal medications, problems, and care
Membrane ruptured
Portion of the cord visible, and protruding through the vagina

B. Treatment – Standing Order

1. Palpate pulses in the cord.
2. Oxygen 100 % and airway maintenance appropriate to patient's condition.
3. I.V. large bore L.R. or NS at appropriate rate as soon as possible.
4. Position the mother with hips elevated.
 - a. Trendelenburg
 - b. Knee to chest
 - c. Hips elevated as much as possible on pillows
5. Instruct mother to pant with each contraction, which will prevent her from bearing down.
6. Insert a gloved hand into the vagina and gently push the infant's head off of the cord.
While pressure is maintained on the head cover the exposed cord with a sterile dressing moistened in saline.
7. Transport immediately and **DO NOT** remove your hand until relieved by hospital staff.
8. Contact Medical Control as soon as possible if time and patient condition allows.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

OBSTETRICAL EMERGENCIES

Pre-eclampsia and Eclampsia

A. Assessment

Patient Para & Grava

Term of pregnancy in weeks

Vaginal bleeding

Pre-natal medications, problems, and care

Membrane Ruptured

Usually begins after the twentieth week of pregnancy

Most often affects women during their first pregnancy

May have a history of chronic hypertension and/or diabetes

May experience hypertension and edema

May experience headaches, blurred vision, and abdominal pain

May experience seizures which indicates a progression from pre-eclampsia to eclampsia

B. Treatment – Standing Order

1. 100% Oxygen and airway maintenance appropriate to patient's condition.
2. Place patient in recumbent position on her left side.
3. Establish IV LR or NS, large bore @ KVO

C. Treatment - Protocol

1. Contact medical control and consider:

Valium 5 mg slow IV PRN or Versed 3mg IVP in anticipation of the onset of generalized seizure activity.

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

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

OBSTETRICAL EMERGENCIES

Meconium Stain

A. Assessment

Patient Para & Grava
Term of pregnancy in weeks
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

B. Treatment – Standing Order

1. Do not stimulate respiratory effort before suctioning the oropharynx
2. Suction the **mouth then the nose** while simultaneously providing Oxygen 100% by blow-by method and while maintaining the airway appropriate to the patient's condition
3. Obtain an A.P.G.A.R. 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 ER staff

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

MISCELLANEOUS

DOA's

A. Assessment

Aystole
Fixed Dilated Pupils
Massive Trauma
Lividity
Rigor Mortis

B. Standing Order

1. Determine patient not viable for resuscitation
2. Contact FAO and request police for DOA
3. Inform family of procedure, obtain run information
4. If police not arrived within 30 min, contact FAO for ETA on police, get in service standing-by for police. Notify family of your in-service status
5. Document time of arrival and officer name that scene is transferred to
6. Attach copy of ECG to run ticket, and DNR if appropriate

C. Special Circumstances

Federal Penitentiary (1101 John A Denie)

1. Begin resuscitation efforts despite patient condition
2. Move patient to the emergency unit at earliest available time
3. Determine if resuscitation will continue, if not
4. Contact FAO, request Rural Metro ambulance
5. Transport DOA to Sycamore View and Macon
6. Transfer DOA to Rural Metro unit
7. Document time of transfer and personnel

Note: If resuscitation is to continue MFD will transport the patient, if not the private service will transport the patient to the appropriate facility

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

MISCELLANEOUS

Discontinuation of Resuscitative Measures

Standing Order

Once resuscitative measures have been initiated in the field and:

1. Asystole or Agonal pattern is present on the ECG, **and**
2. Patient has fixed, dilated pupils, **and**
3. Absence of pulse, respirations, and neurological reflexes (response to painful stimuli); **then:**
the FF/Paramedic may discontinue resuscitative measures. Prior to discontinuing resuscitative measures, the FF/Paramedic must contact Medical Control.

In addition, if **ALL** items 1-3 with are present with **ANY** item a-e:

- a. the FF/Paramedic can document lack of C.P.R. for at least 10 minutes, **or**
- b. prolonged resuscitation in the field without hope for survival, **or**
- c. other signs of death are present in the absence of hypothermia, cold water drowning, lightning strikes, or barbiturate induced coma, **or**
- d. massive trauma such as evacuation of cranial vault, etc., **or**
- e. severe blunt trauma with absence of vital signs and pupillary response,

Then the FF/Paramedic may discontinue resuscitative measures. Prior to discontinuing resuscitative measures, the FF/Paramedic must contact Medical Control.

NOTE:

Minimal information for Medical Control

- a. patient age
- b. medications administered, and procedures performed
- c. defibrillated times ___
- d. initial and current ECG
- e. approximate elapse time of working patient

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

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

MISCELLANEOUS

Terminally Ill Patients

Standing Order

1. Maintain a calm environment and avoid performing measures beyond basic life support.
 2. Elicit as much information from persons present who are familiar with the patient's condition as possible.
 3. Obtain and document the name and telephone number of the patient's physician if possible.
 4. Maintain B.L.S. procedures and contact Medical Control as soon as possible. Provide full information on the patient's present condition, history
-

MISCELLANEOUS

Withholding of Resuscitative Measures

Standing Order

Resuscitative Measures may be withheld in any of the following circumstances:

1. Obviously dead patients with dependent lividity, rigor mortis, or massive trauma
2. Obviously dead patients with tissue decomposition.
3. Patients without vital signs who cannot be accessed for treatment due to entrapment for prolonged time.
4. Severe blunt trauma with absence of vital signs and pupillary response.
5. When presented a valid Do Not Resuscitate Order as approved by the Tennessee Department of Health.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

MISCELLANEOUS

I.V. Sites- Standing Order

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

In the event that an I.V. cannot be established, and the I.V. is considered critical for the care of the patient, other peripheral sites may be used, i.e. external jugular, feet, legs.

The intraosseous site may be used in pediatric patients eight (8) years old or younger in whom I.V. access cannot be established within 2 attempts or 90 seconds when I.V. access is critical. IO may be attempted on older children with Medical Control authorization.

Pediatric Drug Dosing - Standing Order

The length based resuscitation system will be used to determine equipment size and drug doses in pediatric patients.

Neonatal Epinephrine Dose - Standing Order

If IV available the dose of epinephrine is 0.01 mg/kg (0.1 cc/kg of 1:10,000) given q 3 - 5 minutes. This includes the initial dose endotracheally. Subsequent ET dosed of epinephrine 0.1 mg/kg of 1:1,000 E.T. if neonate does not respond to initial dose.

MISCELLANEOUS

Intravenous Fluid Administration

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

Standing Order:

Trauma:

1. Minimize on scene time. IV's are to be started while enroute to the hospital unless the patient is pinned in vehicle or a prolonged scene time is unavoidable.
2. 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:

1. 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.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

MISCELLANEOUS

Physician On-Scene

Standing Order:

1. No one will be recognized as a physician without proof of license. This must be in the form of a wallet card or visual personal recognition. NO ORDERS will be accepted until proof of license is verified.
 2. Consider need for Law Enforcement if any difficulty with person occurs.
 3. Physician on scene may:
 - a. Assist the Fire Fighter Paramedic and allow you to operate under MFD standing orders and protocols.
 - b. Request to talk to Medical/Trauma Control to offer advice.
 - c. Take total responsibility for the care given and physically accompany the patient to the Emergency Department. This physician must also sign the Patient Care Report. Contact should be made with Medical/Trauma Control if this happens. Advise them of the situation.
 4. If private physician intervenes by phone or in person the Fire Fighter Paramedic shall:
 - a. Request the physician contact Medical Control and relay any orders through them.
 - b. NO ORDERS should be taken over the phone from the private physician.
-

MISCELLANEOUS

Other Health Care Providers on Scene - Standing Order

Any other Health Care Providers on scene must be identified as in the Physician on Scene Order. Other Health Care providers include but are not limited to:

R.N.
L.P.N.
Chiropractor
Anesthetist (MD or Nurse)
Physical Therapist
Pharmacist
EMT
Paramedic
Family Nurse Practitioner
Physicians Assistant

These personnel may offer to help. You may use them at your discretion. However, YOU will be responsible for their actions and treatments. They, as a general rule, should not perform invasive procedures. Remember, YOU are responsible for the patient. If an outside Health Care Provider is trying to take over direction of patient care, have Law Enforcement remove the person for "Obstruction of Emergency Services".

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

MISCELLANEOUS

Trauma Center Destination Determinates

The current State of Tennessee Trauma Destination Determinates shall be used in the transport decision scheme. In addition, the following should be observed:

When transport to a Trauma Center will exceed thirty (30) minutes, the patient will be transported to the closest appropriate medical facility unless otherwise dictated by regional or local Destination Determinates. Medical Control supervision will have final jurisdiction over destination.

Any person of legal majority (age 18 or over) or the parent or legal guardian of any minor patient or any member of the patient's immediate family shall have the right to request transport to a specific destination. Transport of the patient to the requested destination shall not violate this rule and shall not constitute refusal of care, or neglect of the duty imposed by law on all emergency medical services personnel and providers if:

- a. The person making the decision is informed that Tennessee has a Trauma system which would, in his/her circumstances usually take him/her to another facility.
- b. The Trauma Center chosen as the patient's destination is overloaded and cannot treat the patient.
- c. The patient's condition is commensurate with the requested receiving facility's level of care.

If a patient's condition deteriorates during transport, such that the patient's life or health are in serious jeopardy if the requested or planned destination is pursued, or if Medical Control deems transport to a Level I Trauma Center may not be necessary, the patient may be transported to another appropriate facility and at the Fire Fighter Paramedic or Medical Control's discretion utilizing the Tennessee Trauma Destination Determinates.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

MISCELLANEOUS

Pulse Oximetry

A. Pulse Oximetry – Assessment

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

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

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

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

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

Pulse oximetry is a diagnostic tool that, along with 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:

- a. patients with cold extremities or hypothermic patients
- b. patients with hemoglobin abnormalities
- c. patients without a pulse
- d. hypovolemic patients
- e. hypotensive patients

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

- a. anemic patients, carbon monoxide poisoning
- b. cyanide toxicity which is being treated with the antidote
- c. very bright lighting (direct sunlight or nearby strong lamp)

Other factors affecting accurate readings:

- a. patient movement
- b. action of vasopressor drugs
- c. peripheral vascular disease
- d. elevated bilirubin levels
- e. abnormal hemoglobin values
- f. IV diagnostic dye has been administered in the last 24 hours

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

C. Pulse Oximetry – Values

1. Normal
 - a. 96 - 100%
 - b. Treatment - non-rebreather mask (12-15 lpm) or nasal cannula (4-6 lpm) if patient can not tolerate a mask and based on patient's chief complaint
 2. Mild Hypoxia
 - a. 91 – 95 %
 - b. immediate need to increase the FiO₂
 - c. Treatment - non-rebreather mask, 12 – 15 lpm
 3. Moderate Hypoxia
 - a. 86 – 90 %
 - b. immediate need to increase the FiO₂
 - c. consider possible loss of airway patency
 - d. Treatment - non-rebreather mask, 12 – 15 lpm, consider airway adjunct and bag-valve-mask @15 lpm, on assist
 4. Severe Hypoxia
 - a. ≤ 85 %
 - b. Treatment - assist ventilations with adjunct and bag-valve-mask @15 lpm, call Medical Control for order to intubate.
-

MISCELLANEOUS

Mandatory ECG

ECG's will be mandatory under the following conditions:

A. Patients

- a. patients complaining of chest pain regardless of source (trauma or illness)
- b. patients in cardiac arrest with or without CPR in progress
- c. patients that are DOA (other than those exhibiting body decomposition, dependent lividity, or rigor mortis)

B. ECG's should have the following information printed on the recording:

- a. patients name or chart number
- b. patient age (if possible)
- c. unit run report number

C. ECG's will be taped to the PCR on all four sides

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC SHOCK / TRAUMA

Pediatric Points to Remember-

1. An infant is a child less than one year old.
2. A child is from one to eight years old.
3. The use of a length based assessment tape is **required** for all pediatric patients as a guide for medications and equipment sizes.
4. Almost all pediatric arrests are related to a respiratory failure. The etiology may be respiratory/airway problems, dehydration/metabolic, or hypothermia. Ensure that a child that arrests or is pending arrest is well oxygenated, well hydrated and warm. The prognosis of a pediatric full cardiac arrest is extremely poor.
5. Treat children aggressively before they arrest.
6. Remember that with children the Intraosseous drug route is quick to establish and may be easier than gaining IV access.
7. **Never administer Verapamil to a pediatric patient.**
8. When administering medications through the endotracheal tube:
 - the medication should be diluted with normal saline to a volume of 3 - 5 mL and instilled into the endotracheal tube.
 - alternatively, the medication may be delivered beyond the tip of the endotracheal tube by instillation through a suction catheter followed by a 3 - 5 mL flush of normal saline.
 - following endotracheal medication administration, several positive-pressure breaths (hyperventilation with BVM) must be provided.
 - medications administered via IV should be followed by at least 5 mL NS bolus and extremity elevated.
9. If in doubt always contact Medical Control
10. Children are effectively ventilated using B.V.M.'s. this is the preferred method of breathing / ventilation in a full respiratory or cardiac arrest.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC CARDIAC EMERGENCY

Pulseless Electrical Activity (P.E.A.)

A. Assessment

Confirm rhythm with quick look paddles or electrodes
Presence of electrical cardiac rhythm without palpable pulse
Re-assess ventilation and oxygenation
Consider hypovolemia, hypoxemia, severe acidosis, profound hypothermia, cardiac tamponade, or tension pneumothorax as cause

B. Treatment - **Standing Order**

1. CPR
2. Oxygen 100% and airway maintenance appropriate for patients condition
3. IV/IO NS
4. Epinephrine 1:10,000 0.01 mg/kg I.V./I.O. minimum dose 1.0 mL or 0.1 mg/kg E.T. of 1:1,000 Epinephrine
5. CPR for 3 minutes then repeat Epinephrine q 3-5 minutes: I.V./I.O./E.T. 0.1- 0.2 mg/kg 1:1,000

Note: Give 0.01 mg/kg of 1:10,000 epinephrine for first dose I.V. / I.O.
Give 0.1 mg/kg of 1:1,000 epinephrine for first dose E.T.
Give 0.1 - 0.2 mg/kg of 1:1,000 epinephrine for all subsequent doses

C. Treatment - **Protocol**

Contact Medical Control, consider:

Sodium Bicarbonate 1 mEq/kg bolus I.V.
Narcan 0.01 mg/kg I.V.
D₂₅W 1cc/kg
Fluid Challenge of 20cc/kg with N.S. or L.R.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC CARDIAC EMERGENCY

Supraventricular Tachycardia (S.V.T.)

A. Assessment

If patient is in CHF, shock, hypotension, or altered mental status, utilize the unstable algorithm. SVT in children should be faster than 220 beats per minute.

Any wide complex tachycardia should be assumed to be ventricular.

The R to R interval should be regular.

B. Stable - Treatment – Standing Order

1. Oxygen 100% and airway maintenance appropriate to patients condition
2. INT or IV KVO
3. Cardiac monitor
4. Rule out hypoxia, hypoglycemia and hyperglycemia. (SPO₂, glucometer)

Treatment – Protocol

Contact Medical Control consider Adenocard 0.1 mg/kg rapid IVP

C. Unstable - Treatment – Standing Order

1. Oxygen 100% and airway maintenance appropriate to patient condition
2. ECG monitor
3. IV or IO NS KVO
4. Adenocard 0.1 mg/kg IVP if IV access is already available. Max dose 6 mg.
5. If no conversion in 2 minutes, administer 0.2 mg/kg Adenocard IVP/max dose 12 mg.
6. If no conversion in 2 minutes, synchronized cardioversion 0.5 J/kg
7. Second and subsequent cardioversion at 1.0 J/kg
8. DO NOT delay cardioversion to initiate IV.

Treatment – Protocol

Contact Medical Control

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC CARDIAC EMERGENCY

Bradycardia

A. Assessment

Heart rate less than 100 beats per minute in infant, less than 80 beats per minute up to age 2, less than 60 beats per minute age 2 or older

Signs of decreased perfusion, hypotension, respiratory difficulty

Cardiac rhythm may be sinus bradycardia, junctional, or heart block

Treat symptomatic bradycardia aggressively and quickly before cardiac arrest occurs.

B. Treatment – Standing Order

1. If asymptomatic, Oxygen 100% and airway maintenance appropriate to patients condition and transport
2. If symptomatic:
 - a. Oxygen 100 % and airway maintenance appropriate to patients condition and transport
 - b. If after one minute of assisted ventilations with 100% O₂, begin chest compressions if, despite oxygenation and ventilation if no pulse or if:
 - i. Heart rate < 80 / min in an infant
 - ii. Heart rate < 60 / min in a child
 - c. I.V. or IO N.S. K.V.O.
 - d. Epinephrine q 3 - 5 mins. I.V./I.O. 0.01 mg/kg 1:10,000
E.T. 0.1 mg/kg 1:1,000
 - f. Atropine Sulfate 0.02 mg/kg I.V./E.T./I.O. rapidly minimum single dose
0.1 mg, max. single dose 0.5 mg for child max. single dose 1.0 mg for adolescent
 - g. Atropine may be repeated once: Child (< 8 yrs) 1.0 mg max. total dose
Adolescent (> 8 yrs) 2.0 mg max. total dose

C. Treatment - Protocol

If no effect from Atropine or if patient is hypotensive, contact medical control for further instructions.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC CARDIAC EMERGENCY

Ventricular Asystole

A. Assessment

Confirm lack of pulse and apnea

Confirm cardiac rhythm with quick look paddles or electrodes in two leads

B. Treatment - Standing Order

1. C.P.R.

2. Oxygen 100% and airway maintenance appropriate to patients condition and transport

3. I.V. N.S. K.V.O. or I.O.

4. Epinephrine 1:10,000 0.01 mg/kg I.V./I.O. min. dose 1.0 mL or 0.1 mg/kg E.T. of 1:1,000

Note: Give 0.01 mg/kg of 1:10,000 epinephrine for first dose I.V. / I.O.

Give 0.1 mg/kg of 1:1,000 epinephrine for first dose E.T.

Give 0.1 - 0.2 mg/kg of 1:1,000 epinephrine for all subsequent doses

5. CPR for 3 minutes then repeat Epi. q 3 - 5 mins; I.V./I.O./E.T. 0.1-0.2 mg/kg of 1:1,000

C. Treatment - Protocol

Contact Medical Control, consider:

Sodium Bicarbonate 1 mEq/kg bolus I.V.

D₂₅W 1cc/kg

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC CARDIAC EMERGENCY

Ventricular Fibrillation or Pulseless V-Tach

A. Assessment

Confirm cardiac rhythm with quick-look paddles or electrodes in two leads

V-Fib. by cardiac monitor only; not auto-sensing devices

Pulselessness and apnea

If the suspected etiology of the V-Fib. is cocaine or crack ingestion or I.V. injection, contact Medical Control immediately.

B. Treatment – Standing Order

1. C.P.R.
2. Oxygen 100 % and airway maintenance appropriate for patients condition
3. Check cardiac monitor and identify V-Fib or V-Tach w/o pulse
4. Defibrillate @ 2 joules/kg *
5. Defibrillate @ 4 joules/kg * (all subsequent defibrillations)
6. C.P.R. if no pulse
7. I.V. / I.O. N.S. K.V.O.
8. The following is a list of preferred drugs in the order of use, after each drug push , defibrillation at 4j/kg is to be performed 30-60 seconds after the drug (except Bretylium 1-2 min)
 - a. Epinephrine 1:10,000 0.01 mg/kg I.V./I.O. or 0.1 mg/kg E.T. of 1:1,000 Epinephrine Drip may be initiated at this point
 - b. Lidocaine 1 mg/kg I.V./E.T./I.O.
 - c. Repeat Epi. q 3-5 mins. I.V./I.O./E.T. 0.1-0.2 mg/kg of 1:1,000 or Epi Drip, Mix 0.6 mg / kg in D5W to make a total volume of 100 cc in a Solutrol, prime tubing; then 1 cc/kg/hr = 0.1 mcg/kg/min = 25 cc/h
 - d. Bretylium 5 mg/kg I.V./I.O. push
 - e. Consider Sodium Bicarb. 1 mEq/kg I.V./I.O
 - f. Bretylium 10 mg/kg I.V./I.O. push
9. Initiate transport as soon as possible

C. Treatment - Protocol

Contact Medical Control for further instructions.

Notes: *Check for pulse and rhythm after each defibrillation.
Give 0.01 mg/kg of 1:10,000 epinephrine for first dose I.V. / I.O.
Give 0.1 mg/kg of 1:1,000 epinephrine for first dose E.T.
Give 0.1 - 0.2 mg/kg of 1:1,000 epinephrine for all subsequent doses

Epinephrine Drip for pt's 1 - 8 y/o:

Mix 0.6 mg/kg of 1:1000 in D₅W to make total volume of 100 cc (Soluset), prime tubing; then 1 cc/kg/hr = 0.1 mcg/kg/min = 25 cc/hr

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC CARDIAC EMERGENCY

Ventricular Tachycardia

A. Assessment

Confirm cardiac rhythm with quick look paddles or electrodes
Check for palpable pulse (brachial for infants - carotid for adolescents)
If the suspected etiology of the V-Tach is theophylline intoxication, cocaine or crack ingestion or I.V. injection, contact Medical Control immediately.

B. Treatment – Standing Order

Pulseless: Treat as Ventricular Fibrillation Protocol.

C. Treatment – Standing Order Stable with a pulse

1. Oxygen 100% and airway maintenance appropriate to patient condition
2. IV or IO NS KVO
3. Cardiac Monitor
4. Transport

Treatment – Protocol

Contact Medical Control, consider: Lidocaine 1 mg/kg, may repeat in 10 - 15 minutes.

D. Treatment – Standing Order Unstable with a pulse

1. Oxygen 100% and airway maintenance appropriate to patient condition
2. IV or IO NS TKO
3. Lidocaine 1 mg/kg
4. Synchronized Cardioversion 0.5 – 1 J/kg
5. Second and subsequent Synchronized cardioversion 2 J/kg

E. Treatment – Protocol

Contact Medical Control, consider; if conscious, Valium 0.2 mg/kg IV/IO (max dose 4 mg) or Versed 0.01mg/kg IV
Lidocaine 120 mg/100 cc @ 1-2.5 cc/kg/hour upon conversion.
Consider Bretylium 5 mg/kg slowly over 8-10 minutes.

Note: Start I.V. infusion of antiarrhythmic agent that resolved arrhythmia

Unstable indicates **signs** of hypotension, shock, congestive heart failure, ischemia, or infarction;
Symptoms include chest pain, and dyspnea.

In severely symptomatic patients DO NOT delay cardioversion for administration of diazepam or Versed

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC ENVIRONMENTAL EMERGENCY

Chemical Exposure

Special Note: Your safety is the highest priority. **Do not** enter or approach any situation which may be harmful to you unless you are outfitted with the appropriate protective clothing and self-contained breathing apparatus and are properly trained to do so.

Treatments should not be performed until decontamination on the patient is completed.

A. Assessment

History of exposure to chemical
Protect yourself from danger of exposure
Identify substance if possible
Material Safety Data Sheets (M.S.D.S.) if available
Consider Self Contained Breathing Apparatus

B. Treatment - Standing Order

1. If Internal Exposure and Conscious:
 - a. Treat as drug ingestion

If External Exposure:

1. Remove victim's clothing
2. Decontaminate if not already done
 - a. Powder or like substance
brush off of patient
flush with copious amounts of water for at least 20 minutes
transport and continue flushing if necessary and if possible (check for hypothermia q 5 min)
 - b. Liquid substance
flush with copious amounts of water for at least 20 minutes
transport and continue flushing if necessary and if possible (check for hypothermia q 5 min)
3. Oxygen 100% and airway maintenance appropriate to patient's condition
4. IV or IO of NS TKO

If Inhalation:

Consider Self Contained Breathing Apparatus
Remove victim from source
Oxygen 100 % and airway maintenance appropriate to patients condition (intubate p.r.n.)

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC ENVIRONMENTAL EMERGENCY

Drug Ingestion

A. Assessment

History of drug ingestion

Level of consciousness

Identify cardiac rhythm if suspected cardiotoxin, unconscious, or hypotensive

B. Treatment - Standing Order

1. Protect yourself from toxin and/or unruly patient
2. Oxygen 100% and airway maintenance appropriate to patient's condition
3. Monitor E.K.G
4. Check Blood sugar and treat appropriately.
5. I.V. or IO access LR K.V.O.
6. Narcan 0.1 mg/kg I.V. or 2 mg titrated to effect **if** patient is bradycardic, hypotensive, comatose and pin-point pupils.
7. If actively convulsing, diazepam 0.2 mg / kg IV until seizing activity subsides or 10mg max dose.

Note: One of the most lethal and common drug ingestion overdoses is that of Pre-Natal Vitamins.
Contact Medical Control and initiate immediate transport.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC ENVIRONMENTAL EMERGENCY

Hyperthermia

A. Assessment

History of exposure to warm temperature
Usually seen with increased exertion
Febrile
Hot & dry or warm & moist skin
May be hypotensive

B. Treatment - Standing Order

1. Oxygen 100 % and airway maintenance appropriate to patient's condition.
2. Remove clothing, cover with wet linen if available, expose to circulating air, and cool.
3. Use tepid water to cool patient.
4. I.V. / I.O. N.S. K.V.O. and ECG monitor.
5. Transport as soon as possible.

C. Treatment - Protocol

Contact Medical Control, consider:

I.V.P. of N.S. 20 cc/kg over 30 mins.

If patient remains tachycardiac or hypotensive, increase I.V. rate to 5 cc/kg/hr

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC ENVIRONMENTAL EMERGENCY

Hypothermia

A. Assessment

History of exposure to cool temperature
Altered level of consciousness
Bradycardia
Hypotension
Examine for associated trauma

B. Treatment - Standing Order (Handle gently, slightest jolt may trigger V-Fib.)

1. Remove wet garments
2. Protect against heat loss and wind chill (use blankets)
3. Maintain horizontal position
4. Avoid rough movement and excess activity
5. Monitor core temperature and cardiac rhythm

If Unconscious and Pulseless, Evaluate Pulse for One Full Minute

1. CPR appropriate for the patient's age (Do not perform C.P.R. if bradycardia rhythm exists on monitor)
2. Identify cardiac rhythm, go to appropriate treatment protocol
3. I.V./I.O. warmed N.S. @ 10 cc/kg/hr
4. Contact Medical Control for further instructions.

If Fibrillation Converts

Lidocaine 1 mg/kg I.V. bolus I.V.
Lidocaine 120 mg/100 cc D5W I.V. admix run @ 1-2.5 cc/kg/hr. (titrate)
Place patient in warm area
Contact Medical Control

Standing Order

Consider if Greater than 30 minute Transport Time

Add heat via warm external objects to head, neck, chest, and groin
Do Not Warm Extremities

The following are signs and symptoms found at varying body core temperature:

- 95 degrees – amnesia, poor judgement, hyperventilation, bradycardia
- 90 degrees – loss of coordination (drunk appearance), decreasing rate and depth of respirations, shivering ceases, bradycardia
- 85 degrees – decreased LOC, slow respirations, atrial fibrillation, decreased BP, decreased heart rate, ventricular irritability

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC ENVIRONMENTAL EMERGENCY

Near Drowning

A. Assessment

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

B. Treatment - Standing Order

1. Remove from water, clear airway while protecting C-spine
2. Oxygen 100% and airway maintenance appropriate for patients condition.
 - a. If gastric distention interferes with ventilation, decompression of stomach may be required
3. Patient should be quickly dried and placed on a dry surface before defibrillating to prevent injury to rescuer performing defibrillation.

If Unconscious and Pulseless

C.P.R.

100 % Oxygen and airway maintenance appropriate for patients condition.

Evaluate cardiac rhythm and go to appropriate treatment protocol

Contact Medical Control

If Fibrillating and Body Temperature Normal

Go to Ventricular Fibrillation Protocol.

If Hypothermic

Go to Hypothermia Protocol.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC ENVIRONMENTAL EMERGENCY

Poisonous Snake Bite

A. Assessment

Protect yourself from danger of exposure of snake bite. Snakes can envenomate up to one hour after death

Determine time of bite, and changes in signs and symptoms since occurrence.

Number of puncture marks are not diagnostic

If possible, transport the snake with the victim for identification

B. Treatment – Standing Order

1. Remove rings and bracelets from victim
2. Oxygen 100% and airway maintenance appropriate to patient's condition
3. I.V./ I.O. N.S. K.V.O. if hypotensive
4. Immobilize below level of patient's heart
5. Allay (relieve) anxiety and keep patient at rest
6. Mark progression of swelling q 5min
7. Contact Medical Control

NOTE:

No ice packs, tourniquets or constricting bands.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC MEDICAL EMERGENCY

Acute Pulmonary Edema

A. Assessment (Any of the following may be present)

Possible iron overdose secondary to pre-natal vitamin ingestion
Dyspnea / Cyanosis
Diaphoresis
Marked Orthopnea / Erect Posture
Distended Neck Veins
Bilateral Rales / Wheezes
Tachycardia
History of C.H.F.

B. Treatment - Standing Order

1. Oxygen 100 % and airway maintenance appropriate to patient's condition
 2. Evaluate cardiac rhythm and vital signs
 3. I.V. / I.O. D5W K.V.O.
 4. Contact Medical Control
-

PEDIATRIC MEDICAL EMERGENCY

Hyperglycemia

A. Assessment

History of onset
Normal or Altered level of consciousness
Pulse: tachycardia, thready pulse
Kussmaul Respirations
Hypotension
Dry mucous membranes
Skin may be cool (consider hypothermia)
Ketone odor on breath
Abdominal pain, nausea and vomiting
History of polyuria, or polydipsia (excessive urination or thirst)
Blood Glucose determination

B. Treatment - Standing Order

1. Oxygen at flow rate appropriate to patient's condition
2. I.V. N.S. K.V.O.
3. Obtain blood glucose level and treat appropriately.
4. Contact Medical Control for further direction

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC MEDICAL EMERGENCY

Hypoglycemia

A. Assessment

History of onset in minutes
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
Continually monitor vital signs
Cardiac monitor if comatose
Blood Glucose determination

B. Treatment – Standing Order

1. Oxygen 100% and airway maintenance appropriate to patient's condition
2. I.V. / I.O. N.S. K.V.O.
3. If patient Conscious and symptomatic:

A known diabetic and is conscious with an intact gag reflex, administer one half (1/2) tube of Instant Glucose **OR** two (2) tablespoons of a sugar and liquid to make as slurry then reassess

4. If patient Unconscious and symptomatic
Dextrose D₂₅W @ 1 cc/kg I.V.P. if blood sugar is less than 40 mg/dL

C. Treatment - Protocol

Contact Medical Control for further orders or interventions.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC MEDICAL EMERGENCY

Respiratory Distress (Asthma / Wheezes)

A. Assessment (History of Onset and Medications)

Mild Attack - Slight increase in respiratory rate. Mild wheezes. Good skin color.

Moderate Attack - Marked increase in respiratory rate. Wheezes easily heard.

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

B. Treatment - Standing Order

Mild Attack: Oxygen appropriate to patient's condition and transport.

Moderate Attack: Same as below **except** contact Medical Control for Epinephrine

Severe Attack:

1. Oxygen 100% and airway maintenance appropriate to patient's condition
2. Administer Albuterol Nebulization treatment @ 2.5 - 5 mg over 5-15 minutes
3. If no response from Albuterol within 10 min, Epinephrine 1:1,000 0.01 mg/kg SQ to 0.3 mg max
4. Repeat Epinephrine 1:1,000 0.01 mg/kg SQ to 0.3 mg max per dose in 15 minutes if necessary
5. I.V. N.S. K.V.O.

Note: Monitor all patients closely for cardiac dysrhythmia. **If they develop, stop the drug and treat dysrhythmia appropriately.**

DO NOT Administer Albuterol suspension

Contact medical Control to consider repeating nebulized Albuterol treatment

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC MEDICAL EMERGENCY

Respiratory Distress (Stridor)

A. Assessment

Stridor, grunting, or wheezing
Hoarseness
Drooling
Choking
Retractions, nasal flaring
Cyanosis (perioral, mucous membranes, nail beds)
Agitation
Fatigue
Tachypnea
History of Foreign Body Airway Obstruction

B. Treatment - Standing Order

1. Avoid hyperextension and allow child to select position of comfort
2. Oxygen 100 %, and airway maintenance appropriate for patients condition
3. Attempt to keep child calm and allow child to maintain position of comfort, allow parent to hold mask if this helps child stay calm
4. Avoid attempts to suction, finger sweep, or visualization of pharynx
5. Transport immediately
6. Contact Medical Control

Note:

Croup: usually less than 3 yrs. old, recent cold

Epiglottitis: usually over 3 yrs old, drooling, fever, tripod position, sudden onset

If ventilation necessary: < 1 yr. @ 40 respirations per minute > 1 yr. @ 30 respirations per minute

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC MEDICAL EMERGENCY

Respiratory Distress (General)

A. Assessment

Stridor, wheezing
Grunting, retracting, nasal flaring
Cyanosis
Rapid shallow respirations
Poor peripheral perfusion

B. Treatment - **Standing Order**

1. Oxygen, 100 %, and airway maintenance appropriate to patient condition
2. Assist ventilation with mouth-to-mask or bag-valve-mask ventilation if patient is apneic, makes gasping respirations, or breathing ineffectively
3. Check pulse - if slow or absent, go to appropriate cardiac protocol
4. Intubate - if no response or inadequate response to assisted ventilations. No more than three attempts should be made before contacting medical control, monitor pulse.

C. Treatment – Protocol

Contact Medical Control – consider the use of Albuterol

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC MEDICAL EMERGENCY

Seizures

A. Assessment

Febrile seizures are to be ruled out prior to medication administration

Seizure: onset, duration, type, post-seizure level of orientation

Medical: head trauma, diabetes, headaches, drugs, alcohol, seizures

Physical: seizure activity, level of consciousness, incontinence, head and mouth trauma, vital signs

B. Treatment – Standing Order

1. Oxygen 100 % and airway maintenance appropriate for patients condition
2. Cool patient if febrile
3. I.V.or IO N.S. K.V.O.
4. Check blood sugar and treat appropriate
 - a. D₂₅W 1 cc/kg I.V. if less than 40 mg/dL
5. If patient is actively seizing, Valium 0.1– 0.3 mg/kg @ 1 mg/min IV or Versed 0.01 mg/kg IVP

Rectal Valium may be given if IV access unobtainable: 0.3 – 0.5 mg/kg, use distal end of french catheter (ONE DOSE ONLY) or Versed 0.01 mg/kg (ONE DOSE ONLY)

6. Contact Medical Control

C. Treatment - Protocol

If seizing persists, contact Medical Control for orders for further diazepam or versed treatments

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC SHOCK / TRAUMA

Anaphylactic Shock

A. Assessment

Associated with stings or ingestion of allergen

Respiratory signs and symptoms should predominate i.e., dyspnea, bilateral wheezes

Urticaria (hives), generalized erythema (flushed)

Light-headed, hypotensive, tachycardiac

B. Treatment - **Standing Order**

1. Oxygen 100 % and airway maintenance appropriate to patient's condition
2. Evaluate cardiac rhythm
3. Epinephrine 1:1000 0.01 mg/kg SQ - may repeat q 15 minutes, 3 times (max. 0.3 mg per dose)
4. Benadryl 1 mg/kg IV or IM
5. Primary I.V. N.S. K.V.O. with large bore catheter or IO

C. Treatment - **Protocol**

Contact Medical Control, consider;

Epinephrine 0.01 mg/kg 1:10,000 IV Bolus

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC SHOCK / TRAUMA

Cardiogenic Shock

A. Assessment

Frequently associated with sepsis, renal failure, carditis, or cardiomyopathy with tachy or brady dysrhythmia, or blunt chest trauma
Neck vein distention in sitting position (rare in infants)
Moist sounding lungs (rales, rhonchi)
Peripheral edema (if chronic heart failure)
Consider tension pneumothorax
Consider cardiac tamponade

B. Treatment - **Standing Order**

1. Semi-Fowlers or position of comfort if not associated with trauma
2. Oxygen 100 % and airway maintenance appropriate to patient's condition
3. Evaluate cardiac rhythm - treat dysrhythmia according to appropriate cardiac protocol
4. I.V. or IO N.S. K.V.O. with large bore catheter

C. Treatment - **Protocol**

Contact Medical Control, consider:

N.S. 20 cc/kg bolus

Dopamine 6 mg/kg in 100 cc D₅W I.V. admix, begin drip @ 6cc/hr (titrate) only after the patient has received adequate hydration

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC SHOCK / TRAUMA

Hypovolemic Shock

A. Assessment

Cool, clammy skin, dry mucous membranes, sunken eyes, sunken fontanelle
Poor capillary refill (greater than 5 seconds)
History of fluid loss (fever, vomiting, diarrhea) or hemorrhage (trauma, post-tonsillectomy bleeding)
Increased heart rates and dyspnea

B. Treatment - **Standing Order**

1. Oxygen 100 % and airway maintenance appropriate to patient's condition
2. Monitor cardiac rhythm and vital signs
3. Primary IO or I.V. N.S. 20 cc/kg bolus
Repeat once if necessary
4. Secondary I.V. L.R. (large bore)
5. If patient is hypothermic warm I.V. fluid if possible
6. If sugar level becomes less than 40 mg/percent, use Pediatric Hypoglycemia protocol.

C. Treatment - **Protocol**

Contact Medical Control for further orders

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC SHOCK / TRAUMA

Neurogenic Shock

A. Assessment

Associated with spinal cord injuries and overdoses
Signs of hypovolemic shock without peripheral vasoconstriction (warm shock)

B. Treatment - **Standing Order**

1. Secure spine and airway
2. Oxygen 100 % and airway maintenance appropriate for patients condition
3. Establish IO or I.V. N.S. 10 cc/kg bolus.
4. Consider occult bleeding and treat as Hypovolemic Protocol.
5. Re-bolus with 10 cc/kg N.S. I.V.

C. Treatment - **Protocol**

Contact Medical Control, consider:

Dopamine 2 - 20 mcg/kg/min only after 500 cc's or more have been given N.S. IV bolus

PEDIATRIC SHOCK / TRAUMA

Septic Shock

A. Assessment

Cool & clammy or hot & dry skin
Poor capillary refill
Tachycardia / Hypotension
Potential for underlying infection

B. Treatment – **Standing Order**

1. Oxygen 100 % and airway maintenance appropriate to patient's Condition
2. I.V. or IO N.S. 20 cc/kg bolus, repeat once if necessary
3. Obtain blood glucose level, if sugar level becomes less than 40 mg/dL use Pediatric Hypoglycemia protocol

C. Treatment - **Protocol**

Contact Medical Control

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC SHOCK / TRAUMA

Thermal Burn

A. Assessment

Look for burns of the nares, oropharyngeal mucosa, face or neck, carbonaceous sputum, dyspnea
Abnormal breath sounds
Note if burn occurred in closed space
Determine extent of injury (including associated injuries)
Remove clothing from affected parts
Cardiac monitor all major burn patients

B. Treatment - Standing Order

1. Provide Oxygen 100% and airway maintenance appropriate to patient's condition. Be prepared to intubate. Edema will cause patients' airway to close almost instantly and without significant signs.
2. If burn is < 15% BSA use tepid water to cool patient. **Do Not Use Ice Under Any Circumstances!** If burn > 15% BSA use dry sterile dressings only.
3. ECG monitor
4. Remove rings and any other jewelry even if extremities are not affected
5. Cover burned area with a dry sterile dressing or burn sheet.
DO NOT use Burn Jel or any other commercially manufactured burn products. Do not remove any commercial product if previously applied
6. I.V. or IO L.R. @ 10 cc/kg/hr
If Rule of 9's BSA% can not be readily obtained administer IV fluids using the following guide:

150 mL per hour for patients under 5 years old
250 mL per hour for patients 5 - 15 years old
500 mL per hour for patients over 15 years old

C. Treatment - Protocol

Contact Medical Control before administering any pain medication.
Refer to the Broselow tape for pain medication dosages

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC SHOCK / TRAUMA

Trauma Treatment Priorities

A. Assessment

Evaluate and consider Mechanism of Injury ±

B. Treatment – Standing Orders

1. Assess and maintain C-Spine control in neutral alignment
2. Oxygen 100 % and airway maintenance appropriate to patient's condition
3. Initiate Transport
4. I.V. or I.O. of L.R. x 2, with rate commensurate (proportional) to blood loss or vital signs, warm fluid
prn
5. Protect against heat loss

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC MISCELLANEOUS

Intraosseous Infusion

A. Indications - Assessment:

1. Patient is less than 8 years old.
 - a. contact Medical Control for patients > 8 yo
2. Patient is in need of fluid or drug administration.
3. Inability to establish IV access with two attempts or in 90 seconds and there is a critical need for IV access
4. Patient is in dire need of therapy, ie; cardiac arrest, hypovolemia, hypoglycemia, seizures

B. Contraindications:

1. Placement in a fractured bone.
2. Placement distal to a fracture.
3. Infections or burns at the intended site are relative contraindications and Medical Control shall be contacted for advisement.

C. Treatment - Standing Order:

ANY child who meets the above list of indications may receive one or more IO lines at the Fire Fighter Paramedic's discretion.

D. Sites

1. Identify the landmarks with the choice site being the proximal tibia
 - b. Proximal tibia 1 - 2 finger breadths (1-3 cm) distal to tibial tuberosity on the anteromedian surface
 - c. Distal Femur 1 - 2 finger breadths (1-3 cm) proximal to the lateral condyles

E. Compatible Fluids and Medications:

1. Normal Saline or Lactated Ringers IV solutions. Fluid of choice is Normal Saline.
2. Atropine, Sodium Bicarbonate (diluted), Diazepam (Valium), Dopamine, Epinephrine, Dextrose (no D₅₀ - administer D₂₅), and Steroids

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC MISCELLANEOUS

Trauma Assessment

A. Assessment

History of trauma based on mechanism of injury

A. Treatment – Standing Order

1. Oxygen 100% and airway maintenance appropriate for patient's condition while maintaining C-Spine immobilization
 2. Obtain EKG
 3. Determine blood glucose level and treat appropriately
 4. Transport: Scene time should be limited to 10 - 12 minutes if possible.
 5. Start two large bore IV's or IO's enroute. Fluid of choice is Lactated Ringers.
 6. Notify the receiving hospital of patient condition ASAP. Scene flight criteria is same as that of the adult.
 7. Avoid narcotic administration.
-

PEDIATRIC MISCELLANEOUS

Pediatric Trauma Score

(13 yrs. of age & 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 B/P	Greater than 90 mm Hg	50-90 mm Hg	Less than 50 mm Hg
C.N.S	Awake	Obtunded/LOC	Coma
Open Wound	None	Minor	Major/Penetrating
Skeletal	None	Closed Fractures	Open/Multiple Fractures

Total Point Values From Physical Presentation Or Injury
Trauma Score _____ Sum In Points

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC MISCELLANEOUS

Triage Decision Scheme (13 yrs. of age & under)

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

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

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

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

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC MISCELLANEOUS

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 mos	7.0	56 - 70	70 - 104	100 - 140	30 - 50
1 yr	10.0	56 - 76	80 - 104	100 - 140	24 - 34
2 yr(s)	13.0	56 - 76	80 - 104	90 - 110	20 - 30
3 yr(s)	15.0	56 - 76	80 - 104	90 - 110	20 - 30
4 yr(s)	17.0	56 - 76	90 - 110	80 - 110	20 - 30
5 yr(s)	19.0	56 - 76	90 - 110	80 - 110	20 - 30
6 yr(s)	23.00	56 - 76	90 - 110	70 - 100	16 - 30
7 yr(s)	25.0	56 - 76	90 - 110	70 - 100	16 - 30
8 yr(s)	28.0	60 - 76	90 - 110	70 - 100	16 - 30
9-10yr(s)	30.0	64 - 76	90 - 114	70 - 90	10 - 20
11-12yr(s)	37.0	64 - 80	90 - 120	70 - 90	10 - 20
13-15yr(s)	50.0	64 - 80	110 - 124	60 - 80	10 - 20
16-18yr(s)	65.0	64 - 90	110 - 134	60 - 80	10 - 20

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

PEDIATRIC MISCELLANEOUS

Age- and Weight - Related Pediatric Equipment Guidelines

	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 24 - 30 kg
C-collars			Small	Small	Small	Medium
O2 Masks	Premature or Newborn	Newborn	Pediatric	Pediatric	Pediatric	Adult
BVM	Infant	Infant	Pediatric	Pediatric	Pediatric	Pediatric or Adult
Laryngoscopes	0	1	1	1	2	2 - 3
ET Tubes	2.5 - 3.0	3.0 - 3.5	3.5 - 4.5	4.0 - 4.5	5.0 - 5.5	5.5 - 6.5
Suction Catheters	6 - 8 Fr	8 Fr	8 - 10 Fr	10 Fr	14 Fr	14 Fr
Oral Airways	Infant	Infant or Small	Small	Small	Medium	Medium or Large
IV Equipment	22 - 24 angio	22 - 24 angio	22 - 24 angio	20 - 22 angio	20 - 22 angio	20 - 22 angio
BP Cuffs	Newborn	Newborn	Infant or Child	Child	Child	Child or Adult

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

PEDIATRIC MISCELLANEOUS

Emergency Pediatric Drug Dose Guide - Refer to Treatment Modalities for Protocols and Standing Orders or the Broselow Tape

Resuscitation

Oxygen	100%
Fluid Bolus	20 mL/kg NS IVP
Defibrillation	V-Fib - 2 joules/kg (if unsuccessful, double voltage and repeat as necessary {4 j/kg})
Cardioversion	V-Tach/SVT - 0.5 joules/kg (if unsuccessful, double voltage and repeat as necessary)
Atropine	0.02 mg/kg IV/IM/ET (minimum 0.1 mg) (max: 0.5 mg child/1.0 mg adolescent) may repeat x 1
Bicarbonate	0.5 - 1.0 mEq/kg IV (repeat prn)
Calcium Chloride	(10%) 10 - 25 mg/kg elemental Ca IV slow push = 0.2 - 0.3 mL/kg CaCl
Epinephrine	Bradycardia: 0.01 mg/kg (1:10,000) IV/IO; 0.1 mg/kg (1:1,000) ET, repeat PRN Asystole: 0.01 mg/kg (1:10,000) IV/IO; 0.1 mg/kg (1:1,000) ET; 2nd dose: 0.1 - 0.2 mg/kg (1:1,000) IV/IO/ET repeat q 3 - 5 min.
Bretylium	1st dose: 5 mg/kg; 2nd dose: 10 mg/kg: rapid IV
Glucose	0.5 - 1.0 gm/kg = 2 - 4 mL/kg D ₂₅ W IV push
Lidocaine	1 - 2 mg/kg IV bolus, then 20 - 50 mcg/kg/min drip
Naloxone (Narcan)	0.1 mg/kg IM/IV/ET (minimum 0.5 mg) max: 2.0 mg) also sublingually

Cardiovascular (Pressor)

Dopamine	2 - 5 mcg/kg/min (renal effect): 5 - 20 mcg/kg/min (cardiac effect)
Epinephrine	0.1 mcg/kg/min IV (titrate to effect)
Adenosine	0.1 - 0.2 mg/kg rapid IV bolus max single dose 12 mg

Anaphylaxis

Benadryl	1 - 2 mg/kg PO/IV/IM (max 50 mg)
Epinephrine	0.01 mg/kg (1:1,000) SC (repeat q 5 minutes prn) maximum single dose is 0.3 cc

Anticonvulsant

Diazepam (Valium)	0.2 - 0.5 mg/kg IV slow (max: 5 mg < 5 yrs/10 mg > 5 yrs) Rectal: 0.2 - 0.5 mg/kg
Midazolam (Versed)	0.01 mg/kg IV, IM, Rectal

Respiratory

Albuterol	0.5 mL in 2.5 mL NS via nebulizer; may repeat x 3 prn
Epinephrine	0.01 mL/kg (1:1000) SC (max: 0.5 mL) may repeat q 15 min)

Diuretics

Furosemide (Lasix)	1.0 mg/kg IM/IV
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Analgesic / Narcotics

Morphine	0.05 - 0.1 mg/kg IM/IV/SC q 2 - 4 hours
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MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

MEDICATIONS FOR STANDARD FIRE FIGHTER PARAMEDIC DRUG BOXES

The below listed medications are those found on the Emergency Unit, medications for ALS companies may vary.

Aspirin, Children's Chewable (81 mg ea)
Adenosine (Adenocard)
Albuterol - Nebulized
Atropine

Benadryl (Diphenhydramine)
Bretylol (Bretylum Tosylate)
Bumex (Bumetanide)

Calcium Chloride 10%

Dextrose 25% (D₂₅)
Dextrose 50% (D₅₀)
Dopamine (Intropin)

Epinephrine 1:1,000 (Adrenaline)
Epinephrine 1:10,000 (Adrenaline)

Lasix (Furosemide)
Lidocaine 100 mg (Xylocaine)
Lidocaine 2 gm (Xylocaine)

Midazolam (Versed)
Morphine Sulfate

Narcan (Naloxone)
Nitrostat spray (Nitroglycerin)

Phenergan (Promethazine)
Procainamide (Pronestyl)

Sodium Bicarbonate
Stadol (Butorphanol)

Valium (Diazepam)
Verapamil (Isoptin)

Note: Medications other than those listed above may be carried on Memphis Division of Fire Service Advanced Life Support equipment ONLY with the expressed written consent and proof of competency in use by the Division's Medical Director or his designee.

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

DRUG INFUSION ADMIX DOSAGE GUIDELINES

Lidocaine -

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

1 mg / min = 15 gtt / min

2 mg / min = 30 gtt / min

3 mg / min = 45 gtt / min

4 mg / min = 60 gtt / min

Procainamide

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

1 mg / min = 15 gtt / min

2 mg / min = 30 gtt / min

3 mg / min = 45 gtt / min

4 mg / min = 60 gtt / min

Bretylum - Maintenance Drip

400 mg / 100 cc's NS in a Solutrol = 4 mg/cc

30 cc / hr = 2 mg / min

Bretylum - Treatment of Ventricular Tachycardia

5 mg / kg / 50 cc's NS in a Solutrol = variable dilution factor

infuse over 8 - 10 minutes

approximately 300 cc / hr

Epinephrine Drip in Adult Cardiac Arrest

60 mg of Epi 1:1,000 in 500cc D₅W or 30mg of Epi 1:1,000 in 250cc D₅W

Using a 60gtts set run at 100 gtts/min (1mg q 5 min), then titrate for effect

May be used as a secondary IV line or piggy back

Epinephrine Drip Guidelines in the adult Cardiac Arrest

Pt is Asystolic, PEA, V-Fib or Pulseless V-Tach

Pt has been successfully intubated

Pt has received 1 round of cardiac drugs according to the appropriate algorithm

Epinephrine Drip in Pediatric Patient 1 - 8 y/o Cardiac Arrest

Mix 0.6 mg /kg of Epi 1:1,000 in a Solutrol with D5W or NS to make a total volume of 100 cc, then run at 1 - 10 cc/kg/hr = equal per ml 0.1 mcg/kg/min

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

Dopamine

400mg / 250cc D5W = 1600 ug/mL (always use 60 gtt/set)

50 kg patient = 110 lbs

2.5 ug/kg/min = 5gtt/min

5 ug/kg/min = 12gtt/min

10 ug/kg/min = 19gtt/min

20 ug/kg/min = 38gtt/min

70 kg patient = 154 lbs

2.5 ug/kg/min = 7 gtt/min

5 ug/kg/min = 13 gtt/min

10 ug/kg/min = 27 gtt/min

20 ug/kg/min = 53 gtt/min

100 kg patient = 220 lbs

2.5 ug/kg/min = 10 gtt/min

5 ug/kg/min = 19 gtt/min

10 ug/kg/min = 38 gtt/min

20 ug/kg/min = 75gtt/min

MEMPHIS FIRE DEPARTMENT - ADVANCE LIFE SUPPORT SOP's

AUTHORIZATION FOR STANDING ORDERS

The Memphis Division of Fire Service Emergency Medical Services (MFD-EMS) Standing Orders and Protocols (revision project completed April 2003) are hereby adopted as "Standing Orders" as designated and appropriate to patient's condition to be initiated by MFD-EMS Fire Fighter EMT-Paramedics and within their scope of training and licensure whenever a patient presents with injury or illness covered by the orders. At the point in the protocols where it is indicated to contact Medical Control or "Treatment - Protocol", the employee must receive voice orders from Medical Control before proceeding with the protocol. 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 Fire Fighter EMT-Paramedic.

Effective date of these SOP's, _____

"Signature on File"

Kevin S. Merigian, M.D.
Medical Director
Memphis Division of Fire Services

May 6, 2003

Date