

MEMPHIS FIRE DEPARTMENT EMERGENCY MEDICAL SERVICES



STANDING ORDER & PROTOCOLS

JANUARY 2000

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

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. These standing orders and protocols are applicable regardless of the final destination of the patient.

No MFD Paramedic or 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 or his designee.

Note:

1. In the adult cardiac arrest:
 - a. all I.V./E.T. drugs given should 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):

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.

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.

Continued

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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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DEFINITIONS

1. Standing order - means that this skill or treatment **may** be initiated prior to contact with medical control.
2. Protocol - a suggested list of drugs or treatment options **requiring** you to contact Medical Control **prior** to initiation.
3. Medical Control - the Staff Physician on duty at the receiving Emergency Dept.
4. Medical Director - the physician who has ultimate responsibility for patient care aspects of the EMS System.
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

Pulseless Electrical Activity (P.E.A.)

A. Assessment

Presence of electrical cardiac rhythm without palpable pulse.
Confirm rhythm with quick look paddles or electrodes.

B. Treatment - Standing Order

1. CPR with 100 % Oxygen
2. Intubate and I.V. N.S. (large bore catheter)
3. 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.
4. 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)
5. 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.
6. Consider:
 - Narcan
 - Dextrose

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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 Order

1. 100% Oxygen / Monitor E.K.G.
2. INT or I.V. N.S. K.V.O.
3. 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.
4. 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 normal) is given.
5. 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.)

STABLE:

Standing Order:

1. ABC's, O2, IV/INT, Vitals Signs, History and History and Assessment

Protocol

2. Contact Medical Control, consider:
Vagal Maneuvers
 - a. hold breath
 - b. cough or gag reflex stimulation
 - c. Carotid Massage
 1. requires Physician's orders if pt age is > 65 y/o
 2. Contraindicated with BruitAdenocard 6mg IV rapid IV push
Repeat Adenocard PRN
Verapamil, Procainamide, or cardioversion

UNSTABLE:

Standing Order:

1. ABC's, O2, IV, Vitals,
2. Adenocard 6mg rapid IV push. If no change, Adenocard 12 mg rapid IV push
3. Premedicate with 5 - 15 mg Valium PRN
4. Synchronized Cardioversion
 - 50 J PSVT Atrial Flutter
 - 100 J Atrial Fibrillation
 - 200 J
 - 300 J
 - 360 J
5. Unsynchronized Cardioversion is acceptable when synchronization is too slow or unit will not sync. Be prepared for V-Fib protocol.

Protocol

1. Contact Medical Control, consider:
Procainamide, Verapamil

NOTES:

1. 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.
2. As large a bore IV in the Antecubital Fossa as possible should be established.
3. Other vagal maneuvers may include asking the patient to hold their breath, trendelenburg position.
4. 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.
5. 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

B. Treatment - Standing Order

1. Oxygen at flow rate appropriate to patient's condition
2. I.V. access
3. Valsalva maneuver
4. If blood pressure is stable administer Verapamil 2.5 - 5 mg I.V. slowly over two minutes.
5. Synchronous cardioversion (Valium 5 - 15 mg I.V. if conscious)
atrial flutter @ 50 joules
atrial Fib. @ 100 joules

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 (100 / 200 / 300 / 360 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

If patient is asymptomatic and heart rate is greater than 60 beats per minute, transport and observe.

B. Treatment - Standing Order

1. Oxygen 100 %

2. I.V. N.S. K.V.O.

3. Atropine 0.5 - 1.0 mg I.V. q 3-5 mins. up to 0.04 mg/kg or 3 mg if symptomatic and unstable

4. Contact Medical Control for Transcutaneous Pacing if available

5. Consider:

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

6. For severe symptoms refractory to other therapy:

Isoproterenol infusion starting at 2 mcg / min to 10 mcg / min

Epinephrine infusion starting at 2 mcg / min to 10 mcg / min

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

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ADULT CARDIAC EMERGENCY

Chest Pain / Myocardial Infarction

A. Assessment

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

B. Treatment - Standing Order

1. Oxygen at flow rate appropriate to patient condition
2. Position of Comfort
3. Vital Signs and Cardiac Monitor
4. Nitroglycerine - 1 metered dose spray q 5 min for a maximum of 3 doses as needed or **unless** hypotensive
5. INT or I.V. N.S. K.V.O.
6. Treat the arrhythmias appropriately
7. If the patient has taken three or more NTG prior to EMS arrival, give one NTG metered dose spray while moving directly to consideration of Morphine**.

Consider:

**Morphine Sulfate, 2 - 4 mg IV PRN if patient's chest pain is 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 after NTG regimen.

If these conditions do not exist, you must first contact Medical Control for 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. C.P.R. with 100 % oxygen
2. Intubate and establish I.V. N.S. K.V.O.
If available, transcutaneous pacing is recommended early in patients who suddenly become asystolic due to Stokes-Adams attacks or vagal discharge following defibrillation
Defibrillation for possible fine ventricular fibrillation masquerading as asystole
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.

In protracted arrest where the patient has failed to convert to a stable rhythm, high dose epinephrine 0.1 mg/kg q 3-5 mins. **EXCEPT** if you have initiated an Epinephrine Drip.

C. Treatment - Protocol

Contact Medical Control, consider:

Termination of Efforts if “termination of efforts” criteria exists

D. 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.

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ADULT CARDIAC EMERGENCY

Ventricular Fibrillation

A. Assessment

Ventricular Fibrillation

Pulseless

Confirm and record cardiac rhythm with quick look paddles or electrodes

B. Treatment - Standing Order

1. CPR with 100 % oxygen (precordial thump if witnessed)
2. Check cardiac monitor and identify V-Fib or V-Tach w/o pulse
3. Defibrillate @ 200 / 300 / 360 joules
Do not re-check pulse between these defibrillations if monitor remains unchanged.
4. C.P.R. if no pulse
5. Intubate and establish I.V. N.S. K.V.O.
6. Epinephrine 1:10,000 1 mg I.V.P. or 2.0 mg E.T. q 3 - 5 mins. or initiate an Epinephrine Drip
7. Defibrillate @ 360 joules * within 30 - 60 seconds of medication administration
8. Lidocaine 1.5 mg/kg I.V. q 3-5 mins. up to 3 mg/kg max. or 3.0 mg / kg E.T.
9. Defibrillate @ 360 joules * within 30 - 60 seconds of medication administration
10. Bretylium 5 mg/kg I.V.P.
11. Defibrillate @ 360 joules * (wait 1-2 mins. after Bretylium)
12. Bretylium 10 mg/kg I.V.P. q 5 mins. up to max. 30-35 mg/kg
13. Defibrillate @ 360 joules * (wait 1-2 mins. after Bretylium)
14. Lidocaine 0.5 mg/kg dose q 8-10 mins. (up to 3 mg/kg maximum total)

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15. Defibrillate @ 360 joules *

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ADULT CARDIAC EMERGENCY

Ventricular Fibrillation - Continued

16. Consider:

Sodium Bicarbonate 1 mEq/kg I.V.P. if post arrest time is greater than 20 minutes

Procainamide 30 mg / min. (max 17 mg/kg)

Notes:

*Check for pulse and rhythm after each defibrillation

Initiate and 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 and when in the best interest of the patient

Prompt defibrillation is the major determinant of survival

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

C. Treatment - Protocol

Contact Medical Control for further orders when necessary

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ADULT CARDIAC EMERGENCY

Ventricular Tachycardia

A. Assessment

Confirm and record cardiac rhythm with quick look paddles or electrodes

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.

Stable - Standing Order

Oxygen commensurate with pt's condition
INT or IV NS KVO

Protocol

Contact Medical Control

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

Unstable - Standing Order

Oxygen 100% / I.V. N.S. K.V.O.

Synchronized Cardioversion

50 joules

100 joules

200 joules

360 joules

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 and symptomatic
PVC's getting close to the T-Wave
Couplets

B. When these signs and symptoms are present:

1. Chest pain of possible cardiac etiology
2. Hypotension
3. Dyspnea
4. Pulmonary Edema
5. Altered L.O.C

When signs and symptoms are not present

1. Oxygen, INT, cardiac monitor
2. Transport

Protocol

3. Contact Medical Control for direction of the call.

C. Treatment - Standing Order

1. Oxygen 100%
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

Consider:

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.

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ADULT 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 have the proper training to engage in such activity.

A. Assessment

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

B. Treatment - Standing Order

If Internal Exposure and Conscious:
Treat as Drug Ingestion

If External Exposure:

- Remove victims clothing
- Decontaminate
 - 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
 - Liquid substance
 - flush with copious amounts of water for at least 20 minutes
 - 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 (intubate p.r.n.)

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ADULT ENVIRONMENTAL EMERGENCY

Drug Ingestion

A. Assessment

History of drug ingestion

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. I.V. access K.V.O.
5. Obtain Blood Sugar Level and treat accordingly.
6. Consider Valium 4 - 5 mg IV if patient is having seizures.

Notes: If patient is unconscious and hypotensive, respiratory depression and bradycardic, Narcan 2 mg IV is indicated.

If patient is unconscious and vitals are stable, treat with oxygen, protect airway and transport.

If patient is agitated to the potential of harm to himself or others, Valium 5 mg IV is indicated.

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ADULT ENVIRONMENTAL EMERGENCY

Hyperthermia

A. Assessment

History of exposure to warm temperature
Usually seen with increased exertion
Febrile
May have hot and dry skin **or** may have warm and moist skin
May be hypotensive
Determine if history of drug abuse exists

B. Treatment - Standing Order

1. Oxygen 100 % and airway maintenance appropriate to patient's condition
2. Remove clothing, cover with wet linen, expose to circulating air, and cool
3. Ringers Lactate K.V.O. and Monitor E.K.G.
4. If patient remains tachycardic or hypotensive, increase I.V. rate to 500 cc/hr
5. Massage extremities to prevent cold induced vasoconstriction

Remember: Time is of the essence in decreasing the patient's body temperature. Do not delay transport for cooling in the field.

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

Phenothiazine such as Thorazine
Cyclic antidepressants such as: Elavil, Norpramin, Tofranil
Amphetamine
Monoamine oxidase inhibitors such as: Nardil, Marplan
Anticholinergic drugs such as: Atropine, Cogentin, Scopolamine
Illicit drugs: Cocaine, PCP, LSD

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ADULT ENVIRONMENTAL EMERGENCY

Hypothermia

A. Assessment

History of exposure to cold temperature
Altered level of consciousness
Bradycardia
Hypotension
Core temperature below 94 degrees F
Examine for associated trauma
Obtain Blood Glucose level

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

If Unconscious and Pulseless, Evaluate for One Full Minute

1. CPR 100 % oxygen. (Do not perform C.P.R. if P.E.A. rhythm exists)
2. Identify cardiac rhythm, go to appropriate treatment protocol if temperature is greater than 85 degrees F.
3. Remove wet clothing and cover with blankets
4. I.V. N.S. @ 75 cc/hr warmed if possible
5. Obtain Blood Sugar and treat according to hypoglycemia protocol
6. Contact Medical Control

If Fibrillating and Core Temperature is Less than 85 degrees F

Defibrillate @ 200 / 300 / 360 joules, continue C.P.R. if unsuccessful
Intubate, I.V. N.S. K.V.O.
Withhold I.V. medications and transport

If Fibrillating and Core Temperature is Greater than 85 degrees F

Go to Ventricular Fibrillation Protocol

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ADULT ENVIRONMENTAL EMERGENCY

Hypothermia - Continued

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

If asymptomatic, (none of the above conditions exist)

Transport gently

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ADULT ENVIRONMENTAL EMERGENCY

Near Drowning

A. Assessment

History compatible with drowning
Suspect hypothermia in "cold water" 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 to patient's condition (intubate p.r.n., Heimlich Maneuver may be indicated for airway obstruction). 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
Evaluate cardiac rhythm and go to appropriate treatment protocol

If Fibrillating and Body Temperature Normal

Go to Ventricular Fibrillation Protocol

If Hypothermic

Go to Hypothermia Protocol

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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

B. Treatment - **Standing Order**

1. Remove rings and bracelets from patient
2. Oxygen and airway maintenance appropriate to patient's condition (intubate p.r.n.)
3. I.V. L.R. K.V.O. to maintain blood pressure or if hypotensive
4. Immobilize affected area keeping extremities in neutral position
5. Allay (relieve) anxiety and keep patient at rest
6. Mark progression of swelling at the time of initial assessment and q 5 minutes

C. Treatment - **Protocol**

1. Valium is indicated if anxiety is overwhelming - Contact Medical Control FIRST

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ADULT ENVIRONMENTAL EMERGENCY

Known Cyanide Poisoning

A. Assessment

May occur through inhalation from combustion of materials that contain nitrogen including but not limited to:

- plastic furnishings
- wool
- silk
- carpeting
- synthetic rubber

May also be absorbed across the skin. Cyanide is one of the most rapidly acting and most deadly poisons. 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

B. Treatment - **Standing Order**

1. Remove the patient to a non-contaminated area
2. Oxygen 100 % appropriate to patient's condition (intubate p.r.n.)
3. I.V. N.S. (large bore catheter)
4. Remove any clothing that is contaminated by cyanide & wash off any cyanide which may be present on the skin
5. Keep patient warm / monitor E.K.G.
6. Initiate immediate transport as soon as possible

C. Treatment - **Protocol**

If the patient is breathing, break an ampule (perle) of Amyl Nitrite Inhalant and hold it one inch in front of patient's mouth and nostrils for 15 seconds followed by a rest for 15 seconds, then reapply for 30 seconds each minute until I.V. lines are established. Oxygen may be used simultaneously with ventilation and should be continued throughout remainder of protocol. You will need to advise Medical Control that we do not presently carry the Amyl Nitrate Inhalants.

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ADULT MEDICAL EMERGENCY

Acute Pulmonary Edema

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

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 at flow rate appropriate to patient's condition
2. Evaluate cardiac rhythm and vital signs
3. Nitroglycerine - 1 metered dose spray unless hypotensive
4. Albuterol Inhalation Treatment, 2.5 mg Albuterol / 3 ml NS via updraft with 7 - 10 LPM Oxygen
5. INT or I.V. N.S. K.V.O.
6. Lasix 40 mg I.V.

C. Treatment - **Protocol**

Contact Medical Control, consider:

Repeat Albuterol prn

Repeat Lasix prn

Dopamine 400 mg/500 cc D5W I.V. admix, begin @ 15 cc/hr (titrate) if patient is hypotensive.

Morphine Sulfate (as prescribed only by medical control)

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ADULT MEDICAL EMERGENCY

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

Aphasia (incoherent speech or difficulty understanding speech)

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

Incoordination, 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

Dysarthria (slurred or indistinct speech)

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. Keep head elevated if possible, monitor pupils
5. Maintain body heat, protect affected limbs from injury, anticipate seizures
6. INT or I.V. N.S. K.V.O.
7. If blood sugar is less than 40 mg%: Dextrose 12.5 gm I.V.P. (1/2 amp only)
8. **Be careful not to lower blood pressure**

C. Treatment - **Protocol**

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

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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)

B. Treatment - Standing Order

1. Oxygen at flow rate appropriate to patient's condition
2. I.V. N.S. K.V.O. and evaluate cardiac rhythm
3. Transport

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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 at flow rate appropriate to patient condition and elevate head
2. INT or I.V. N.S. K.V.O.
 if you treat the blood pressure with medications - IV Fluid
 if you treat the blood pressure without medications - INT is preferred
3. Evaluate cardiac rhythm for dysrhythmias and treat appropriately with medical direction

C. Treatment - **Protocol**

If diastolic blood pressure is 140 mmHg or greater AND the patient is symptomatic, request order for Cardene IV.

AFTER order has been granted by Medical Control for Cardene I.V., your standing order for the admixture and administration for Cardene I.V. is:

1. Continue with oxygen, cardiac monitor and reassessment of patient.
2. Establish IV
3. Mix 12.5 mg (5ml) of Cardene IV into 125 ml Normal Saline using a Solutrol either as a piggy back to initial IV or as a secondary IV. Always use a 60 gtt/set. Run IV at 50 ml/hr (5.0 mg/hr) = 50 gtt/min
 - a. After 15 minutes @ 50 gtt/min, if patient's diastolic blood pressure is still 140 or greater and the patient is symptomatic (unstable), increase Cardene IV rate to 75 mL/hr (7.5 mg/hr) which equals 75 gtt/min. Re-evaluate patient's diastolic blood pressure every 3 - 5 minutes. If pt's diastolic BP drops below 140 and patient's overall condition improves, decrease the infusion rate to 30 mL/hr (3 mg/hr) which = 30 gtt/min.

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- b. After 15 minutes @ 50 gtt/min, if patient's diastolic blood pressure is less than 140 and patient's overall condition has improved, decrease the infusion rate to 30 mL/hr (3mg/hr) which = 30 gtt/min.

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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

Continually monitor vital signs

Cardiac monitor if comatose

B. Treatment - **Standing Order**

1. Oxygen at flow rate appropriate to patient's condition. Monitor E.K.G.

2. Obtain blood glucose level.

If blood sugar is 40 mg% or greater and pt. is asymptomatic:

 establish IV NS @ KVO, monitor and transport

If blood sugar is less than or greater than 40% and symptomatic:

 establish IV D5W @ 250 cc bolus* then KVO

 reassess blood sugar level

If blood sugar is still less than or greater than than 40% and symptomatic:

 administer Dextrose 25 gm I.V.P. or oral glucose depending

 on patient's level of consciousness and re-evaluate

Caution: *Do not administer bolus if patient is also experiencing or has history of CHF, Pulmonary Edema, or Renal Dialysis or other fluid overload conditions

3. 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.

C. Treatment - **Protocol**

Consider additional administration of Dextrose 25 gm, IVP

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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. Oxygen administration as needed, EKG, Vitals, consider intubation
2. Transport
3. Albuterol Inhalation Treatment 2.5 mg / 3 ml NS and O2 setting @ 7 - 10 LPM
Repeat Albuterol PRN
4. INT or IV Normal Saline TKO

C. Treatment - **Protocol**

Consider:

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

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EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

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. and evaluate cardiac rhythm
3. Obtain blood sugar level and treat accordingly then reassess
4. Rule out head injury - do not administer narcotics to head injured patients
5. Valium 5 - 10 mg SLOW IV is indicated when actively seizing titrate until seizure stops or max. 30 mg has been administered

CAUTION: Give slowly in 5 mg increments q 5 minutes until seizure has stopped or maximum of 30 mg has been administered.

C. Treatment - **Protocol**

Contact Medical Control for notification of arrival if patient is still actively seizing.

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ADULT MEDICAL EMERGENCY

Unconscious / Unresponsive

A. Assessment

Altered level of consciousness with vital signs
(no known cause, BP > and/or = 100 mmHg systolic)

B. Treatment - **Standing Order**

1. Oxygen 100 % and airway maintenance appropriate to patient's condition and evaluate cardiac rhythm
2. I.V. N.S. K.V.O.
3. Obtain blood glucose level and treat accordingly

C. Treatment - **Protocol**

Contact Medical Control for other appropriate treatment modalities PRN.

Note: Assess for head trauma, hypothermia, hemiparesis, and fever

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ADULT MEDICAL EMERGENCY

Avulsed Teeth- Standing Order

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

Reimplantation is recommended if possible at the scene as this creates maximum possibility of re-attachment as minutes count. The following guidelines pertain to reimplantation at the scene:

Applicable only for permanent teeth (i.e., with patients over 6.5 years of age)

Applicable when only one or two teeth are cleanly avulsed and the entire root is present

Applicable only to anterior teeth (front 6, upper or lower)

The patient must be conscious

Should be attempted within the first 30 mins.; the sooner, the greater success rate

Do not force reimplantation. Gentle insertion is all that is necessary. Slight incorrect positioning can be corrected later.

If reimplantation is not feasible and the patient is a fully conscious adult, then the best procedure is to place the tooth in the mouth, either under the tongue or in the buccal vestibule. This is not recommended in children.

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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. O₂, cardiac monitor, and consider intubation
3. Epinephrine 1:1000 0.3 mg SQ
4. IV NS or LR, large bore @ KVO
5. ****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.**
6. Diphenhydramine (Benadryl) 50 mg IV or deep IM
7. Albuterol Inhalation Treatment if wheezing is present and persists post Epinephrine SC/IV
8. Begin transport as soon as possible

****Note: (#5)** 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.

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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

B. Treatment - **Standing Order**

1. Semi-Fowlers or position of comfort
2. Oxygen 100 % and airway maintenance appropriate to patient's condition
3. Evaluate cardiac rhythm
4. I.V. N.S. with large bore catheter
5. 500cc I.V.P. if BP remains low (systolic BP below 90)

C. Treatment - **Protocol**

Contact Medical Control, consider:
Dopamine 400 mg/500 cc D5W I.V. admix, begin @ 15 cc/hr (titrate)

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ADULT SHOCK / TRAUMA

Multi-System Trauma - Standing Order

1. Evaluate Mechanism of Injury and incorporate in the patient care scheme ABC's, Spinal immobilization, and consider PASG accordingly
2. Control hemorrhage.
3. If in cardiac arrest, bilateral needle chest decompression may be indicated.
Chest Decompression is only indicated here **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.
4. High Flow, 100% Oxygen concentration and intubate PRN.
5. EKG
6. Transport as soon as possible: Scene time should be limited to 10 - 12 minutes.
7. Initiate two large bore (14 or 16 gauge angiocath) 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.
8. Notify the receiving hospital of patient condition ASAP.
9. Avoid narcotic administration.
10. ABC management and reassessment, including suction PRN.

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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 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.

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EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

ADULT SHOCK / TRAUMA

Hypovolemic Shock

A. Assessment

Blood loss due to penetrating injuries to torso or other major vessel

Fx 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. Monitor cardiac rhythm and vital signs
2. Consider positioning PASG trousers on patient, but do not inflate. Consider patient's chances of survival without the suit.
3. I.V. L.R. x 2 large bore titrated to only maintain patient's systolic blood pressure 80 - 100 mmHg

C. Treatment - **Protocol**

Contact Medical Control, consider:

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

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EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

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
2. Oxygen 100 % and control A.B.C.'s
3. Primary I.V. access with large bore catheter bolus 10 cc/kg N.S. or L.R.
4. Secondary I.V. access with large bore catheter K.V.O. Normal Saline or L.R. to maintain pt's systolic BP 80 - 100 mmHg
5. Dopamine 400 mg/500 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.

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EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

ADULT SHOCK / TRAUMA

Septic Shock

A. Assessment

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. x 2 large bore titrated to maintain pt's systolic blood pressure 80 - 100 mmHg
3. Check blood sugar, treat appropriately and avoid heat loss
4. If blood pressure remains low, L.R. 500 cc fluid I.V.P., re-evaluate.
5. If no change, contact medical control

C. Treatment - **Protocol**

1. Dopamine 800 mg/500 cc D5W I.V. admix, begin drip @ 15cc/hr (titrate) after bolus of one or two liters of IV Lactated Ringers is given

Note: Be particular of Body Substance Isolation precautions.

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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)
Remove clothing from affected parts
Cardiac monitor all major burn patients
Nasotracheal Intubation is preferred route of intubation for burn patients
Do Not Use Ice Under Any Circumstances !

B. Treatment - Major Burns - **Standing Order**

1. Stop the burn process and provide Oxygen 100 % and airway maintenance appropriate to patient's condition. Be prepared to intubate. Edema will cause patient's airway to close almost instantly and without significant signs.
2. 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.
3. Remove rings, necklaces, anklets, and clothing
4. Cover burned area with dry sterile dressing or burn sheet. DO NOT use Waterjel or any other commercially manufactured burn products.
5. 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

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ADULT SHOCK / TRAUMA

Major Thermal Burn - continued

*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.

6. Stadol 2 - 4 mg IV PRN
7. Stabilize all associated injuries (eg. chest, potential spine injury, fractures, dislocations, etc.)
8. DO NOT transport patients on wet sheets, wet towels or clothing

C. Treatment - **Protocol**

Contact Medical Control, consider:

Stadol 2 - 8 mg I.V.

Morphine Sulfate 5 - 15 mg IV

Nitrous Oxide - if available

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EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

ADULT SHOCK / TRAUMA

Trauma Treatment Priorities

A. Treatment - **Standing Order**

1. Stabilize C-spine p.r.n., evaluate and consider mechanism of injury
2. Oxygen 100 % and airway maintenance appropriate to patient's condition - hyperventilate if necessary
3. Consider PASG - do not inflate at this point
4. Initiate transport utilizing the current TN Trauma Destination Guidelines
5. 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

6. I.V. L.R. x 2 large bore - maintain systolic blood pressure 80 - 100 mmHg
7. Protect against heat loss
8. 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**

Contact Medical Control if systolic B/P is less than 90 mm Hg without resultant IV Fluid therapy for orders to inflate PASG

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ADULT SHOCK / TRAUMA

Traumatic 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
Chest Decompression, Hypotension, Arrhythmias

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. Consider institution of multi-system trauma standing order if indicated. Remember this order may be necessary for medical patients, as well.
2. Primary Site: Insert a 14 gauge, 2 1/4 inch IV catheter on affected side, 5th intercostal space, mid-axillary line on the affected side of the chest between the 5th and 6th rib.
Optional Site: 2nd intercostal space mid-clavicular line on the affected side of the chest between the 2nd and 3rd rib.
3. Evaluate breath sounds throughout remainder of the transport.
4. Follow trauma treatment priorities PRN.

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OBSTETRICAL EMERGENCIES

Normal Delivery

A. Treatment - Standing Order

1. Oxygen at flow rate appropriate to patient's condition
2. 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.
3. When head delivers suction airway (mouth first then nose) & check for cord around neck
4. After delivery clamp cord @ 8 and 10 inches and cut between clamps
5. Dry infant and wrap to keep warm. Maintain airway, suction PRN
6. Check A.P.G.A.R. Score at 1 and 5 minutes after delivery
7. DO NOT allow mother to nurse until both have been evaluated in the Emergency Department
8. Allow placenta to deliver
 - massage uterine fundus (lower abdomen)
 - observe and treat signs of shock with increased delivery of oxygen and I.V. fluids
 - be alert to the possibility of multiple births

B. Considerations:

Any vaginal bleeding during the third trimester of pregnancy must be regarded as a dire medical emergency until proven otherwise.

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

The greatest risks to the newborn infant are airway obstruction and hypothermia. Keep the infant warm, dry, covered, and the infant's airway maintained with a bulb syringe. Always remember to squeeze the bulb prior to insertion into the infant's mouth or nose.

The greatest risk to the mother is post-partum hemorrhage. Watch closely for signs of hypovolemic shock and excessive vaginal bleeding.

Consider the possibility of pregnancy in any female of childbearing age with complaints of vaginal bleeding, menstrual cycle irregularity, abdominal pain, cramping, or low back pain not associated with a traumatic injury.

Spontaneous or induced abortions may result in copious vaginal bleeding. Reassure the mother, elevate legs, treat for shock, and transport.

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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 as soon as possible.

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OBSTETRICAL EMERGENCIES

Breech or Limb Presentation

A. Breech Presentation -Treatment - Standing Order

1. Oxygen at flow rate appropriate to patient's condition
2. I.V. L.R. 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 appropriate to patient's condition
2. I.V. L.R. 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.

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OBSTETRICAL EMERGENCIES

Prolapsed Umbilical Cord

A. Assessment

Cord emerges from the uterus ahead of the baby

With each uterine contraction the cord is compressed between the presenting part and the pelvis.

The baby's oxygen supply is morbidly reduced

Treatment of prolapsed cord is clearly urgent

B. Treatment - Standing Order

1. Oxygen 100 % and appropriate to patient's condition. Initiate an I.V. large bore L.R. at appropriate rate as soon as possible.
2. Position the mother supine with her hips elevated as much as possible on pillows.
3. Instruct mother to pant with each contraction, which will prevent her from bearing down.
4. Insert a gloved hand into the vagina and gently push the infant's head off of the cord.
5. While you maintain pressure on the presenting part, have your partner or assistant cover the exposed cord with a sterile dressing moistened in saline.
6. Transport immediately and Do Not remove your hand until relieved by hospital staff.
7. Contact Medical Control as soon as possible if time and patient condition allows.

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OBSTETRICAL EMERGENCIES

Pre-eclampsia and Eclampsia

A. Assessment

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% O2 via non-rebreather, vitals, and cardiac monitor any blood pressure greater than 130/80 should be reported to medical control.
2. place pt. in recumbent position on her left side.
3. establish IV LR or NS, large bore @ KVO
4. initiate immediate but gentle as possible transport

C. Treatment - **Protocol**

1. Contact medical control and consider:

Valium 5 mg slow IV PRN in anticipation of status seizures

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

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MISCELLANEOUS

Discontinuation of Life Support

Once life support has been initiated in the field, the fire fighter paramedic may contact Medical Control for permission to discontinue life support if:

1. Asystole or agonal pattern is present on the E.C.G, **and**
2. The patient has fixed, dilated pupils, **and**
3. There is absence of pulse, respirations, and neurological reflexes.
4. **ALL** of the above items must be present.

In addition to:

- a. the E.M.S. provider documented lack of C.P.R. for 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.
- f. ANY item a - e WITH ALL of items 1 - 3 must be present for consideration of discontinuation of life support.

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MISCELLANEOUS

Terminally Ill Patients

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. Get 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, and the name of the patient's physician and telephone number.
5. Medical Control will direct management of the call.

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MISCELLANEOUS

Withholding of Life Support - Standing Order

Life support may be withheld in any of the following circumstances:

1. Obviously dead patients with dependent lividity, rigor mortis, or massive trauma such as evacuation of the cranial vault.
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.

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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 six years old or younger in whom I.V. access cannot be established within 3 attempts or 90 seconds when I.V. access is critical.

Pediatric Drug Dosing - Standing Order

The length based resuscitation system (Broselow tape) is an appropriate device to determine drug doses in pediatric patients.

Neonatal Epinephrine Dose - Standing Order

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.

If no I.V. available, may give epinephrine 0.1 mg/kg of 1:1,000 E.T. if neonate does not respond to initial dose.

Nasotracheal Intubation - Standing Order

When preparing to N.T. intubate, neo-synephrine 0.25 % may be sprayed two (2) times in each nostril unless the patient is hypertensive, if available.

Nasotracheal intubation is contraindicated in facial trauma.

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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. Do not spend time on scene attempting IV's on multiple or critical trauma patients. 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.
2. IV D5W is to be established when a blood glucose of less than 40 IU/L . Normal Saline is the fluid of choice when a blood glucose greater than 40 IU/L is determined. Refer to hypoglycemia protocol for complete treatment modality.

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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.

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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
- Anesthesist
- Physical Therapist
- Pharmacist
- EMT
- Paramedic

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".

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MISCELLANEOUS

Trauma Center Destination Guidelines

The current State of Tennessee Trauma Destination Guidelines 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 guidelines. Medical Control supervision will have final jurisdiction over destination.

Any person of legal majority (age 18 or over) or the parent or legal guardian of any minor patient or any member of the patient's immediate family shall have the right to request transport to a specific destination. 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 Guidelines.

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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 and hyperventilate with 100 % Oxygen
2. Intubate and obtain IV/IO NS as soon as possible
3. 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

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

4. I.V. N.S. K.V.O. large bore catheter or I.O.

C. Treatment - **Protocol**

Contact Medical Control, consider:

Sodium Bicarbonate 1 mEq/kg bolus I.V.
Narcan 0.1 mg/kg I.V.
Dextrose (D50) 1 cc/kg I.V. diluted 1:1 with N.S. to yield D25W
Fluid Challenge with N.S. or L.R.

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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. Treatment

Stable Standing Order

1. Oxygen , INT or IV, cardiac monitor
2. Transport and contact Medical Control
3. Rule out hypoxia, acidosis, hypoglycemia, hypothermia

Protocol - Contact Medical Control

1. Request orders for Adenocard

Unstable:

1. Hyperventilate with 100% O₂ w/BVM, EKG, IV or IO
2. Adenocard 0.1 mg/kg IVP if IV access is already available. Max dose 6 mg. DO NOT delay cardioversion to initiate IV.
3. If no conversion in 2 minutes, administer 0.2 mg/kg Adenocard IVP/max dose 12 mg.
4. If no conversion in 2 minutes;, synchronized cardioversion 0.5 J/kg
5. Rule out treatable cause and treat accordingly
 - a. Hypoxia
 - b. Acidosis
 - c. Hypoglycemia
 - d. Hypothermia

Protocol -Contact Medical Control:

1. Synchronized cardioversion 1 j/kg
2. Synchronized cardioversion 2 j/kg
3. Transport as soon as possible

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PEDIATRIC CARDIAC EMERGENCY

Bradycardia

A. Assessment

If asymptomatic, transport and observe.

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. Oxygen 100 %
2. Assist Ventilation
3. If after one minute of assisted ventilations with 100% O₂, begin chest compressions if, despite oxygenation and ventilation if no pulse or if:
Heart rate < 80 / min in an infant
Heart rate < 60 / min in a child
4. I.V. or IO N.S. K.V.O.
5. 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
6. 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
7. 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

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

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PEDIATRIC CARDIAC EMERGENCY

Ventricular Asystole

A. Assessment

Confirm pulselessness

Confirm cardiac rhythm with quick look paddles or electrodes

Switch leads to confirm Asystole and to rule out fine V-Fib

B. Treatment - **Standing Order**

1. C.P.R. with 100% Oxygen

2. Intubate and hyperventilate

3. 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

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

5. 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.

Dextrose (D50) 1 cc/kg I.V. diluted 1:1 with N.S. to yield D25W

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PEDIATRIC CARDIAC EMERGENCY

Ventricular Fibrillation or Pulseless V-Tach

A. Assessment

Confirm cardiac rhythm with quick-look paddles or electrodes

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

Pulseless

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. with 100 % oxygen
2. Check cardiac monitor and identify V-Fib or V-Tach w/o pulse
3. Defibrillate @ 2 joules/kg *
4. Defibrillate @ 4 joules/kg * (repeat twice if needed)
5. C.P.R. if no pulse
6. Intubate - I.V. / I.O. N.S. K.V.O.
7. 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
8. Defibrillate @ 4 joules/kg * 30 - 60 seconds after each medication
9. Lidocaine 1 mg/kg I.V./E.T./I.O.
10. Defibrillate @ 4 joules/kg * 30 - 60 seconds after each medication
11. 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 (0.6) 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/hr
12. Bretylium 5 mg/kg I.V./I.O. push
13. Defibrillate @ 4 joules/kg * 30 - 60 seconds after each medication
14. Consider Sodium Bicarb. 1 mEq/kg I.V./I.O.
15. Bretylium 10 mg/kg I.V./I.O. push
16. Defibrillate @ 4 joules/kg * 30 - 60 seconds after each medication
17. 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 (0.6cc) in D5W to make total volume of 100 cc (Soluset), prime

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tubing; then $1 \text{ cc/kg/hr} = 0.1 \text{ mcg/kg/min} = 25 \text{ cc/hr}$

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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 cocaine or crack ingestion or I.V. injection,
contact Medical Control immediately.

B. Treatment

Pulseless: Treat as Ventricular Fibrillation Protocol.

Pulse Present - Stable

Standing Order

Oxygen 100% / I.V. N.S. K.V.O.
cardiac monitor, initiate transport

Protocol

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

Pulse Present - Unstable

Standing Order

Oxygen 100% / I.V. or I.O. N.S. K.V.O.

Protocol

Contact Medical Control, consider;
if conscious, Valium 0.2 mg/kg IV/IO

Lidocaine 1 mg/kg

Syn. Cardioversion 0.5-1 joules/kg

Syn. Cardioversion 2 joules/kg

Lidocaine 120 mg/100 cc @ 1-2.5
cc/kg/hour upon conversion.

Consider Bretylium 5 mg/kg slowly over 8-
10 minutes.

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.

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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.

A. Assessment

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

B. Treatment - Standing Order

If Internal Exposure and Conscious:

- Contact Medical Control

If External Exposure:

- Remove victim's clothing
- Decontaminate

- 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

- Liquid substance
 - flush with copious amounts of water for at least 20 minutes
 - transport and continue flushing if necessary and if possible

If Inhalation:

- Consider Self Contained Breathing Apparatus
- Remove victim from source

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Oxygen 100 % and airway maintenance appropriate to patients condition (intubate p.r.n.)

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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, Monitor
E.K.G., Check Blood
sugar.
3. I.V. or IO access LR K.V.O.
4. Narcan 0.1 mg/kg I.V. or 2 mg titrated to effect **if** patient is bradycardic, hypotensive,
comatose and pin-point pupils.
5. If actively convulsing, Valium 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.

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PEDIATRIC ENVIRONMENTAL EMERGENCY

Hyperthermia

A. Assessment

History of exposure to warm temperature
Usually seen with increased exertion
Febrile
May have hot and dry 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, expose to circulating air, and cool.
3. I.V. / I.O. Ringers Lactate K.V.O. and Monitor E.K.G.

C. Treatment - **Protocol**

Contact Medical Control, consider:

I.V.P. of L.R. 20 cc/kg over 30 mins.

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

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PEDIATRIC ENVIRONMENTAL EMERGENCY

Hypothermia

A. Assessment

History of exposure to cool temperature
Altered level of consciousness
Bradycardia
Hypotension
Core temperature below 90 degrees F
Examine for associated trauma

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

For All Patients:

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 for One Full Minute

1. CPR 100 % oxygen at a rate of 60 compressions / 12 ventilations, (Do not perform C.P.R. if bradycardia rhythm exists on monitor)
2. Identify cardiac rhythm, go to appropriate treatment protocol if temperature is greater than 85 degrees F.
3. I.V./I.O. warmed N.S. @ 10 cc/kg/hr
4. Contact Medical Control for further instructions.

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Pediatric Environmental Emergency

Hypothermia

Continued

Standing Order

If Fibrillating and Core Temperature is Less than 85 degrees F

Defibrillate @ 2 joules/kg only once, then C.P.R. if unsuccessful until temperature greater than 85 F

Intubate

If Fibrillating and Core Temperature is Greater than 85 degrees F

Go to Ventricular Fibrillation Protocol.

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

If Greater than 30 minute Transport Time

Add heat via warm external objects to head, neck, chest, and groin

Do Not Warm Extremities

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PEDIATRIC ENVIRONMENTAL EMERGENCY

Near Drowning

A. Assessment

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

B. Treatment - Standing Order

1. Remove from water, clear airway while protecting C-spine
2. Clear airway with regard to C-spine using standard techniques for obstructed airway. If gastric distention interferes with ventilation, decompression of stomach may be required.
3. Intubate if apneic or unconscious
4. 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
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.

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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 type of snake (number of puncture marks not diagnostic), time of bite, and changes in signs and symptoms since occurrence.

B. Treatment - Standing Order

1. Remove rings and bracelets from victim
2. Oxygen and airway maintenance appropriate to patient's condition (intubate p.r.n.)
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. Contact Medical Control

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PEDIATRIC MEDICAL EMERGENCY

Acute Pulmonary Edema

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

Will find in 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 at flow rate 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

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PEDIATRIC MEDICAL EMERGENCY

Hyperglycemia

A. Assessment

History of onset
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)

B. Treatment - Standing Order

1. Oxygen at flow rate appropriate to patient's condition
2. I.V. N.S. K.V.O.
3. Check blood sugar
4. Contact Medical Control for further direction

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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

B. Treatment - **Standing Order**

1. Oxygen at flow rate appropriate to patient's condition monitor E.K.G.
2. Obtain blood sugar
3. I.V. / I.O. N.S. K.V.O.
4. If blood glucose level is less than 40 mg%: Give oral
glucose if patient is conscious **or**
5. Dextrose D25 @ 1 cc/kg I.V.P. if blood sugar is less than 40 mg%
Dilute D50 @ 1:1 with N.S. to yield D25W

C. Treatment - **Protocol**

Contact Medical Control for further orders or interventions.

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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**, orders **must** be received for Epinephrine

Severe Attack:

1. Oxygen appropriate to patient's condition
2. Evaluate Cardiac Rhythm
3. **If less than 8 years old, contact Medical Control**
4. If 8 years or older - Albuterol Nebulization 2.5 - 5 mg over 5-15 minutes
5. If no response from Albuterol, Epinephrine 1:1000
0.01 mg/kg SQ to 0.3 mg max
6. Repeat Epinephrine 1:1,000 0.01 mg/kg SQ to 0.3 mg max per dose in 15 minutes if necessary
7. I.V. N.S. K.V.O. / Transport Immediately

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

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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

B. Treatment - **Standing Order** (Avoid hyperextension and allow child to select position of comfort)

Examination: Acyanotic, breath sounds present (stridor, wheezing)

Stridor

Croup: usually less than 3 yrs. old, recent cold
Epiglottitis: usually over 3 yrs old, drooling, fever, tripod position, sudden onset

1. Oxygen 100 %, use mask if tolerated
2. Attempt to keep child calm and allow child to maintain position of comfort, allow parent to hold mask if this helps child stay calm
3. Avoid attempts to suction, finger sweep, or visualize pharynx

Foreign Body (asymmetrical breath sound, positive history)

1. Oxygen 100 %, use mask if tolerated
2. Basic Life Support with positive Hx of foreign body
3. Foreign bodies are the most common cause of airway obstruction in children

Examination: Cyanotic, breath sounds not clear

If apneic or gasping: Oxygen 100 %
If no improvement: Oxygen 100 % with positive pressure ventilation
< 1 yr. @ 40 respirations per minute
> 1 yr. @ 30 respirations per minute

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EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

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 %, high flow and/or appropriate to patient condition
2. Assess and open airway
For stridor, go to Respiratory Distress (Stridor) Protocol.
For Wheezing, go to Respiratory Distress (Asthma/Wheezes) Protocol.
3. Assist ventilation with mouth-to-mask or bag-valve-mask ventilation if patient is apneic, makes gasping respirations, or breathing ineffectively
4. Check pulse - if slow or absent, go to appropriate cardiac protocol
5. Intubate - if no response or inadequate response to assisted ventilations. No more than three attempts should be made before contacting medical control, monitor pulse.

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

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 support airway
2. I.V.or IO N.S. K.V.O.
check blood sugar
3. Cool patient if febrile
4. Dextrose 1 cc/kg I.V. if less than 40 mg/percent
Dilute 1:1 with N.S. to yield D25W
5. If patient is actively seizing, Valium 0.2 mg/kg @ 1 mg/min IV
Rectal Valium may be given if IV access unobtainable:
0.01 mg/kg use distal end of french catheter
6. Contact Medical Control

C. Treatment - **Protocol**

If seizing persists, contact Medical Control for orders for further Valium

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

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
evaluate cardiac rhythm

2. Epinephrine 1:1000 0.01 mg/kg SQ - may repeat q 15 minutes, 3 times (max. 0.3 mg
per dose)

3. Benadryl 1 mg/kg IV or IM

4. Primary I.V. N.S. K.V.O. with large bore catheter or IO

C. Treatment - **Protocol**

Contact Medical Control, consider;

Epinephrine 1:10,000 IV Bolus and/or constant infusion

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

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)

Determine if cardiac dysrhythmia exists

Consider tension pneumothorax

Consider cardiac tamponade

B. Treatment - **Standing Order**

1. Semi-Fowlers or position of comfort
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. 10 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

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

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)

Tachycardia

Newborn	>180 bpm
Infants	>160 bpm
Toddlers	>140 bpm
Preschooler	>130 min
School Age	>120 bpm
Adolescent	>110 bpm

Low Systolic Blood Pressure

Newborn	<60mmHg
Infants	<70 mmHg
Toddlers	<80 mmHg
Preschooler	<80 mmHg
Adolescent	<90 mmHg

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. Maintain temp. above 97 F, warm I.V. fluid
6. If sugar level becomes less than 40 mg/percent, use Pediatric Hypoglycemia protocol.

C. Treatment - **Protocol**

Contact Medical Control for further orders

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

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 control A.B.C.'s
3. Establish IO or I.V. N.S. 10 cc/kg
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 6 mg/kg in 100 cc D5W I.V. admix, begin @ 6 cc/hr (titrate) only after 500 cc's or more have been given IV

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

PEDIATRIC SHOCK / TRAUMA

Septic Shock

A. Assessment

Cool, clammy skin
Poor capillary refill
Tachycardia / Hypotension
Potential for underlying infection

	<u>Tachycardia</u>		<u>Low Systolic Blood Pressure</u>
Newborn	>180 min	Newborn	<60 mmHg
Infants	>160 min	Infants	<70 mmHg
Toddlers	>140 min	Toddlers	<80 mmHg
Preschooler	>130 min	Preschooler	<80 mmHg
School Age	>120 min	Adolescent	<90 mmHg
Adolescent	>110 min		

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
4. Maintain temp. above 97 F
5. If sugar level becomes less than 40 mg/percent, use Pediatric Hypoglycemia protocol.

C. Treatment - **Protocol**

Contact Medical Control

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

PEDIATRIC SHOCK / TRAUMA

Thermal Burn

A. Assessment

Look for burns of the nares, oropharyngeal mucosa, face or neck, carbonaceous sputum, dyspnea

Listen for 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

Do Not Use Ice Under Any Circumstances!

B. Treatment - **Standing Order**

1. Stop the burn process and 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.

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.

2. Remove rings and any other jewelry even if extremities are not affected

3. Cover burned area with a dry sterile dressing or burn sheet.

DO NOT use Burn Jel or any other commercially manufactured burn products.

4. 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.

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

PEDIATRIC SHOCK / TRAUMA

Trauma Treatment Priorities - Standing Order

1. Evaluate and consider Mechanism of Injury in treatment scheme.
Secure airway/breathing with regard to C-spine.
For children and infants, the external ear canal should be aligned with the shoulder to keep the c-spine in the neutral position.
2. Assess and treat A.B.C.'s
3. Oxygen 100 % and airway maintenance appropriate to patient's condition - hyperventilate if necessary
4. Initiate Transport
5. I.V. and or I.O. L.R. x 2 large bore rate commensurate (proportional) to blood loss or vital signs, warm fluid
6. Protect against heat loss
7. Monitor vital signs and neuro status

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

PEDIATRIC SHOCK / TRAUMA

Intraosseous Infusion

A. Indications - Assessment:

1. Patient is less than 6 years old.
2. Patient is in need of fluid or drug administration.
3. Inability to establish IV access with three 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. Procedure:

- I. Identify the landmarks with the choice site being the proximal tibia
 - A. Proximal tibia 1 - 2 finger breadths (1-3 cm) distal to tibial tuberosity on the anteromedian surface
 - B. Distal Femur 1 - 2 finger breadths (1-3 cm) proximal to the lateral condyles
2. Prep site with Betadine
3. Direct and insert the needle with the stylet in place perpendicular to the bone or angled away from the joint, avoiding the epiphyseal plate. Insert with pressure and a boring or screwing motion until penetration into the marrow space, which is marked by a sudden lack of resistance.
4. Remove the stylet

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

PEDIATRIC SHOCK / TRAUMA

Intraosseous Standing Order - continued

5. Test for appropriate placement by noting at least one of the following:
 - A. Aspiration with syringe yields bloody fluid
 - B. Infusion of fluid with a syringe does not meet resistance and does not infiltrate
 - C. Needle stands without support
 - D. A “pop” or “give” is sensed during placement

6. Attach stopcock to the needle and IV tubing to the stopcock.
Flow rates to gravity may be unacceptably slow.
Fluids are to be “pushed” with a syringe attached to the stopcock

7. Stabilize the needle on both sides with sterile gauze and secure with tape, avoiding tension on the needle

8. Observe for calf swelling which is indicative of infiltration

- 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

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

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. Remember in an arrest situation, you may use the Braslow Pediatric Tape on the Emergency Unit or on your Company. This will provide a good approximation of the proper size equipment and drug doses.
4. Remember that few pediatric arrests are primary cardiac events. Most stem from respiratory/airway problems, dehydration/metabolic, or hypothermia. Ensure that a child that arrests or is pending arrest is well oxygenated, well hydrated and warm. Prognosis is extremely poor for a child that arrests.
5. Treat children aggressively before they arrest.
6. Remember that with children the IO 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. When in doubt contact Medical Control

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

PEDIATRIC SHOCK / TRAUMA

Trauma Assessment - Standing Order

1. Perform patient triage with emphasis on ABC's and spinal immobilization, control of bleeding, level of consciousness and vital signs.
2. Determine and consider mechanism of injury and estimate force involved.
3. Gather history including medications and underlying medical problems.
4. High flow, 100 % oxygen concentration and intubate prn.
5. Obtain EKG and blood glucose level
6. Transport: Scene time should be limited to 10 - 12 minutes.
7. Start two large bore IV's or IO's enroute. Fluid of choice is Lactated Ringers. Do not stay on the scene initiating IV's unless patient is pinned in vehicle, or prolonged scene time is unavoidable.
8. Notify the receiving hospital of patient condition ASAP. Scene flight criteria is same as that of the adult.
9. Avoid narcotic administration.
10. ABC management and reassessment, including suction PRN.

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EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

PEDIATRIC SHOCK / TRAUMA

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

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

PEDIATRIC SHOCK / TRAUMA

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

Pediatric Trauma Score of 8 or less: Refer to Destination Guidelines 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	

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unavailable, then transport to highest level Trauma Center	
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PEDIATRIC GENERAL INFORMATION

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

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

PEDIATRIC GENERAL INFORMATION

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

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

PEDIATRIC GENERAL INFORMATION

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)
Cardioversion	V-Tach/SVT - 0.5 joules/kg (if unsuccessful, double voltage and repeat)
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 D25W IV push (use D10W for Neonates)
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

Pressors	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) Isoproterenol (Isuprel) 0.1 mcg/kg/min IV (titrate to effect) (keep HR < 200 BPM)
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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 ml/kg (1:1,000) SC (repeat q 5 minutes prn) maximum single dose is 0.3 cc

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

PEDIATRIC GENERAL INFORMATION

Emergency Pediatric Drug Dose Guide - continued

Anticonvulsant

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

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

Analgesics/Narcotics

Acetaminophen 15 - 20 mg/kg PO q 4 hours
Ibuprofen 5 - 10 mg/kg PO q 6 - 8 hours
Morphine 0.05 - 0.1 mg/kg IM/IV/SC q 2 - 4 hours

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

MEDICATIONS FOR STANDARD FIRE FIGHTER PARAMEDIC DRUG BOXES

Adenosine (Adenocard)

Albuterol - Nebulizer

Atropine

Benadryl (Diphenhydramine)

Bretylol (Bretylum Tosylate)

Calcium Chloride 10%

Cardene I.V.

Dextrose (D50)

Dopamine (Intropin)

Epinephrine 1:1,000 (Adrenaline)

Epinephrine 1:10,000 (Adrenaline)

Isuprel (Isoproterenol)

Lasix (Furosemide)

Lidocaine 100 mg (Xylocaine)

Lidocaine 2 gm (Xylocaine)

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.

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

DRUG INFUSION ADMIX DOSAGE GUIDELINES

Lidocaine - Procainamide

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

Isoproterenol

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

2 ug / min = 30 gtt / min

5 ug / min = 75 gtt / min

10 ug / min = 150 gtt / min

20 ug / min = 300 gtt / min

Bretylium - Maintenance Drip

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

30 cc / hr = 2 mg / min

Bretylium - 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

Continued:

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

DRUG INFUSION ADMIX DOSAGE GUIDELINES - continued

Epinephrine Drip in Adult Cardiac Arrest

60 cc's Epi 1:1000 / 90 cc's NS in a Solutrol = 0.04 mg/ml

Use as either piggy back or secondary IV line

Titrate to effect

To achieve 1 mg q 3 min - run @ 50 gtt/min

For 1 mg q 4 min - run @ 40 gtt/min

For 1 mg q 5 min - run @ 30 gtt/min

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

Paramedic has made decision to transport pt. to the hospital and continue resuscitation efforts

Contraindicated with the Epi Mega Dose

Cardene IV

Remember - You only have a Standing Order for the admixture and administration dosages as listed below. You must contact Medical Control for authorization BEFORE administering Cardene IV.

12.5 mg (5ml) of Cardene IV into 125 ml Normal Saline using a Solutrol as either a piggy back to initial IV or as a Secondary IV. Always use a 60 gtt/set. Run IV at 50 ml/hr (5.0 mg/hr) = 50 gtt/min

- a. After 15 minutes @ 50 gtt/min, if patient's diastolic blood pressure is still 140 or greater and the patient is symptomatic (unstable), increase Cardene IV rate to 75 ml/hr (7.5 mg/hr) which equals 75 gtt/min. Re-evaluate patient's diastolic blood pressure every 3 - 5 minutes. If pt's diastolic BP drops below 140 and patient's overall condition improves, decrease the infusion rate to 30 ml/hr (3 mg/hr) = 30 gtt/min.
- b. After 15 minutes, if pt's diastolic blood pressure is less than 140 and patient's overall condition has improved, decrease the infusion rate to 30 ml/hr (3 mg/hr) which = 30 gtt/min.

Continued:

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

DRUG INFUSION ADMIX DOSAGE GUIDELINES - continued

Dopamine

400 mg / 500 D5W = 800 ug/ml (always use 60 gtt/set)

50 kg patient = 110 lbs

2 ug/kg/min = 8 gtt/min

5 ug/kg/min = 19 gtt/min

10 ug/kg/min = 38 gtt/min

20 ug/kg/min = 75 gtt/min

75 kg patient = 165 lbs

2 ug/kg/min = 11 gtt/min

5 ug/kg/min = 28 gtt/min

10 ug/kg/min = 56 gtt/min

20 ug/kg/min = 113 gtt/min

100 kg patient = 220 lbs

2 ug/kg/min = 15 gtt/min

5 ug/kg/min = 38 gtt/min

10 ug/kg/min = 75 gtt/min

20 ug/kg/min = 150 gtt/min

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

Mix 0.6 mg (0.6 cc) of Epi 1:1,000 (1mg/ml) in a Solutrol in D5W to make a total volume of 100 cc, prime tubing; then run at 1 cc/kg/hr = 0.1 mcg/kg/min = 25 cc/hr

DIVISION OF FIRE SERVICES
EMERGENCY MEDICAL SERVICE STANDING ORDERS AND PROTOCOLS

AUTHORIZATION FOR STANDING ORDERS

The Memphis Division of Fire Service Emergency Medical Services (MFD-EMS) Standing Orders and Protocols (revision project completed March 1997) are hereby adopted as "Standing Orders" as designated and appropriate to patient's condition to be initiated by MFD-EMS Fire Fighter 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 paramedic.

Addenda to the effective date of August 18, 1997 Standing Orders and Protocols signed by the Division Medical Director supersede this order.

"Signature on File"

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

Date