

## **SECTION I: GENERAL**

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## **PROTOCOLS, STANDING ORDERS, and MEDICAL CONTROL ORDERS: GENERAL**

The El Paso Emergency Medical Service System (EPEMSS) Medical Care Protocols are written to direct the care of a broad range of patients with varying medical conditions. Some patients may require care different from that specified in protocols. These protocols are not to be construed as prohibiting needed flexibility by EPEMSS personnel or the Medical Control physician. The EMT in the field is expected to follow protocols without deviation unless he or she receives verbal order from an on-line Medical Control physician.

### **The Medical Control “Bar”**

All EPEMSS protocols follow a standard format of direction for Basic Life Support (BLS) for first responders and EMT-Basic personnel, Advanced Life Support (ALS) for EMT-Intermediates, and Paramedics. The protocol direction for each level *includes* the previous level’s direction. Personnel may perform only to the level for which they are locally certified.

Personnel have standing orders to complete as necessary for optimal patient care, all steps listed in the protocol up to the printed Medical Control “Bar”. If further prehospital treatment, direction, or advice is needed, Medical Control must be contacted. In protocols without a Medical Control Bar, all treatments may be given by standing order, and it is unlikely personnel will receive orders for any other treatments if Medical Control is contacted.

### **Non-Protocol Orders:**

Unusual cases or circumstances may require orders for treatments not contained in these protocols. Non-Protocol Orders may be requested with justification by field personnel, or be initiated by the Medical Control physician. Care ordered by the Medical Control physician not contained in specific protocols (“Non-Protocol Orders”) shall:

- a. Follow rules promulgated under
  - Texas Administrative Code, Title 25, Part 1, Chapter §157 (Emergency Medical Care).
  - Texas Health & Safety Code Chapter 773 (EMS & Trauma Systems).
- b. Be within the scope of the EMT's local level of certification as defined by EPEMSS Medical Protocol I-11a & b (Skills Authorization), and Protocol I-10 (EPEMSS Medications.)
- c. Be documented in the narrative section of the patient care form (PCF) by EPEMSS personnel. Narrative will include the name of the physician giving the order, and the order. The PCF will then be flagged for review by the Medical Director.

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**Protocols, Standing Orders, and Medical Control Orders, continued:**

**Guidelines for Contacting Medical Control Physician:**

Medical Control responsibilities include being available to provide medical advice and treatment orders. The following situations are routine causes for contacting medical control.

1. When advice, support, or direction is needed regarding appropriate patient management and/or disposition. *The right to call Medical Control is never denied.*
2. Advanced Life Support requiring Medical Control orders “below the bar.”
3. Patient refusing transport who appears to need medical attention; Medical Control should be called for “Physician Advice to *Patient*.”
4. Physician bystander accepting responsibility for patient care. (see Protocol I6, Physician on the Scene)
5. For permission to discontinue a resuscitation already begun.

**Communications Failure; Authorization for Treatment:**

In the event standard radio communications cannot be established between EPEMSS field personnel and Medical Control, telephone Dispatch at 832-4432 (or any other recorded line) and request a Conference Call to Medical Control at RETGH.

If EPEMSS personnel are completely unable to contact Medical Control for any reason, they may perform to the limits of their local level of certification by following established written protocols under the following guidelines:

1. EMT-P is authorized to perform portions of protocol “below the bar” normally requiring on-line medical control permission if the patient needs immediate therapy to prevent imminent death or disability.
2. If actions normally requiring on-line medical control are not urgent, they should be deferred until communications are re-established.

All circumstances in which there is a failure of communication devices or other communication failure shall be reviewed by the Medical Director. EPFD personnel involved will notify Fire Administration as soon as practical after any inability to contact Medical Control.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

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Terry Bond  
Civil Service Commission

## **TRANSPORTATION OF A PATIENT AGAINST HIS/HER WILL**

Legally, the only patient who can be transported against his/her will is one who constitutes a danger to him/herself or others, or is legally incompetent (minor, mentally disabled, etc.) A patient who is alert and oriented to person, place, and events, and wishes to refuse medical treatment, even for a very serious condition, is not considered a danger to him/herself. Conversely, a patient who has altered mental status for any reason (alcohol/drug ingestion, head injury, postictal state, mental disability, etc.) *may possibly* be considered a danger to him/herself if he/she refuses treatment and transport.

### **Patients NOT already under law enforcement / protective custody:**

#### CRITERIA

1. The patient must be considered a danger to him/herself or others, or incompetent.
2. The patient will not voluntarily consent/submit to transport by EPFD ambulance to a hospital.
3. The patient may require restraint.

#### PROCEDURE

1. Assure safety of the responders. Struggling to restrain a patient should be avoided at all times. Do not enter a potentially violent situation without police protection.
2. Contact the El Paso Police Department for restraint assistance.
3. For the physical safety of the crew, a police officer should accompany the patient in the back of the unit.

### **Persons IN CUSTODY of a law enforcement or protective agency:**

The custodial agency has the discretion of transport. Destination is determined by patient's medical condition and appropriate facility as outlined by specific protocols (custodial agency's request notwithstanding.) If patient's condition does not specify a destination, then agency's requests will be honored.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

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Terry Bond  
Civil Service Commission

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## TRANSPORTATION OF PSYCHIATRIC PATIENTS

El Paso Psychiatric Center is the legally designated hospital for psychiatric patients under Protective Custody Orders (PCO), Emergency Detention Warrants (EDW) and Mentally Incompetent Affidavits (MIA). However, patients whose behavioral problems are manifestations of serious medical disorders are frequently identified as having psychiatric problems. El Paso Psychiatric Center's (EPPC) medical services are limited, and some area hospitals do not have emergency psychiatric consultation available. Therefore, it is in the patients best interests to be taken to the appropriate receiving facility.

1. Any psychiatric patient with co-existing medical or trauma presentations will be treated first by appropriate protocol, including hospital destination criteria.
2. Involuntary psychiatric patients (PCO, EDW, MIA, police custody) without medical or trauma indications should be taken directly to EPPC.
3. If an involuntary patient's custody agent contests a destination decision, contact Medical Control and/or the agent's supervisor.
4. Voluntary patients with only apparent psychiatric problems may be offered transport to El Paso Psychiatric Center, but have the right to choose any other receiving facility.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

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Terry Bond  
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**SUSPECTED SEXUAL ASSAULT (SSA or "Code 5")**

**BLS / First Responder, ALS, Paramedic:**

1. Treat associated injuries (fractures, lacerations, etc.) concurrently according to respective protocols as indicated.
2. Evidence preservation is a priority after stabilizing life threatening injuries. Do not allow patient to wash hands, face, or brush teeth, etc. If patient has changed clothes, original clothing should be transported in a paper bag if possible (not plastic), for evidence preservation.
3. Keep patient in position of comfort and prepare for transport. Reassure the patient that they are safe; provide emotional support as needed and appropriate.
4. Regarding medical or trauma presentation, unstable SSA patients will be transported to the closest appropriate facility. Stable SSA patients will be transported to a facility designated by the Medical Director and EPFD.
5. When transmitting patient report; refer to patient of this nature as SSA or "Code 5".

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

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Terry Bond  
Civil Service Commission

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## **SUSPECTED ABUSE OF CHILD, ELDER, or DISABLED PERSON**

### Legal Responsibility of EMS Personnel to Report Suspected Abuse:

Pursuant to the Texas Family Code (§ 261.101. Persons Required to Report; Time to Report), EMS personnel have a statutory obligation to report cases of suspected abuse to children (under 18), the elderly (65+), or disabled persons (18+ and disabled), within 48 hours of encountering the patient/victim. The statute is also very clear in asserting that you may NOT delegate the reporting to anyone else (such as a supervisor or hospital staff), and therefore must make the report yourself. Other citations within the statute eliminate the usual "patient confidentiality" restrictions that normally apply to disclosing patient information in the course of the report. Therefore, if you encounter a patient who you suspect is a victim of abuse, EPFD employee attending patient WILL make a report as follows:

#### **PRIOR TO LEAVING YOUR SHIFT:**

- a. Call the Abuse Hotline of Texas Protective & Regulatory Services, at  
**1-800-877-5300 or 1-800-252-5400**
- b. You may also make a report with any El Paso Police Department officer.

#### **BLS / First Responder, ALS, Paramedic:**

1. Treat associated injuries (fractures, lacerations, etc.) concurrently according to respective protocols as indicated.
2. Report suspicions and observations to receiving hospital physician and District Supervisor, in addition to the above statutory report.
3. If parent/caretaker refuses to allow transport, call for police assistance. *Protect your radio conversations from patient and suspects.*

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

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Terry Bond  
Civil Service Commission

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## **PHYSICIAN ON SCENE**

A physician on-scene can be either a help or a hindrance to EMS providers in providing optimal care for a patient. It is important to be cordial. Let Medical Control mediate and diffuse any disputes.

### **EMS and Medical Control Authority:**

State regulations emphasize authority for both you and on-line medical control, in the following paragraphs from Texas Administrative Code Title 22, Part 9, Chapter §197.5, (Authority for Control of Medical Services at the scene of a Medical Emergency.)

1. Control at a medical emergency scene shall be the responsibility of the individual in attendance who is most appropriately trained and knowledgeable in providing prehospital emergency stabilization and transport.
2. When an advanced life support (ALS) team, under medical direction, is requested and dispatched to the scene of an emergency, a physician/patient relationship is thereby established between the patient and the physician designated by the EMS system providing medical direction (either off-line or on-line).
3. The prehospital provider on the scene is responsible for the management of the patient and acts as the agent of the physician providing medical direction.

### **Patient's Private Physician Present:**

The usual site would be at physician's office, nursing home, or patient's home.

1. If the patient's private physician is present and assumes responsibility for the patient's care, the prehospital provider should defer to the orders of said physician unless those orders conflict with established protocols. Request the patient's private physician document his or her orders, with printed name, signature, and DEA number. These orders will be forwarded to EPEMSS Administration for attachment to patient's medical record.
2. The physician providing on-line medical direction shall be notified of the participation of the patient's private physician.
3. If the medical orders of the patient's private physician conflict with EPEMSS protocols, the private physician shall be placed in communication with Medical Control. If the private physician and Medical Control cannot agree on treatment, the private physician must either continue to provide direct patient care and accompany the patient to the hospital or must defer all remaining care to Medical Control.
4. The system's medical director or on-line medical control shall assume responsibility for directing the activities of EPEMSS prehospital providers at any time the patient's private physician is not in attendance.

(I-6.a)  
**Physician On-Scene**  
(continued)

**By-Stander Physician Present:**

The usual site would be in a public place (motor vehicle accident, shopping mall, etc.) or patient's home where a bystander or neighbor identifies himself as a physician.

1. If a physician is present and has been satisfactorily identified as a licensed physician and has expressed his or her willingness to assume responsibility for care of the patient, a Medical Control physician should be contacted. Medical Control is ultimately responsible for the care of the patient unless and/or until the interenor physician appropriately assumes the responsibility for the patient. Identification as being a licensed physician shall include:
  1. On scene physician must verbally state that he/she is a MD or DO currently licensed to practice in Texas.
  2. Plus one of the following:
    - a. Visual recognition by EMT.
    - b. Picture ID (drivers license) with name confirmed by either on-line medical control or dispatch.
    - c. Wallet copy of medical licensure.
2. Medical Control has the option of managing the case exclusively, working with the interenor physician, or allowing the interenor physician to assume complete responsibility for the patient.
3. If there is any disagreement between the interenor physician and the on-line physician, the pre hospital provider shall be responsible to the on-line physician and shall place the interenor physician in contact with the on-line physician.
4. If the interenor physician is authorized to assume responsibility, all orders to the prehospital provider by the interenor physician shall also be repeated to Medical Control for record keeping purposes.
5. The interenor physician must document his or her intervention on the patient care form or other 8 1/2" x 11" paper with physician's printed name, signature and DEA number. These orders will be forwarded to EPEMSS Administration for attachment to patient's medical record.
6. The decision of the interenor physician not to accompany the patient to the hospital shall be made with the approval of the on-line physician.

**Scope of Practice:**

FMS personnel will not deviate from authorized local scope of practice and medical procedures.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

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Terry Bond  
Civil Service Commission

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## CRITERIA FOR OBVIOUS DEAD ON THE SCENE

Absence of vital signs does not authorize the EMT to assume that the patient has expired. Only a licensed physician, duly authorized registered nurse, judge, or medical examiner is legally authorized to pronounce death. In certain circumstances, however, death is obvious, and resuscitation efforts would be futile and inappropriate.

1. Any of the following are criteria for obvious death of the victim:
  - a. Decomposition, Decapitation, Hemisection, Incineration, Rigor mortis, or Dependent Lividity.
  - b. Victims in cardiac arrest secondary to obvious mortal injuries (signs of brain or heart destruction), and with no signs of life noted by bystanders or pre-hospital care workers, including absence of pulse and respiration.
  - c. Extenuating circumstances; some examples would include HAZMAT, Mass-Casualty Incident, prolonged extrication, and drowning victims under water for more than one hour. *Note:* Victims underwater for less than one hour or who have been underwater for an unknown time, should be resuscitated.
2. If the first EPEMSS unit to make patient contact determines DOS criteria is present, then other responding units will be canceled.
3. Once resuscitation efforts have been started by anyone, it may not be discontinued without order of a Medical Control physician, *except* as noted in Protocol I-8, Out-Of-Hospital Do Not Resuscitate Order.
4. If it is determined that the patient is dead at the scene (in the absence of a physician or duly authorized registered nurse), notify the dispatcher to request that the appropriate law enforcement agency or medical examiner be dispatched to the scene. Leave the body and scene "as-is", and remain at the scene until the Police Department and/or Medical Examiner arrive, if possible.

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James R. Loflin, M.D.

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Glenn M. Johns

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Terry Bond

(I-7)

MPB 09/19/01

**OUT-OF-HOSPITAL DNR (DO NOT RESUSCITATE) ORDER****Background:**

Chapter 672 of Texas administrative Code (TAC), Natural Death Act allows responding health care professionals to **withhold** or **discontinue** the resuscitation of certain patients that are found in or develop cardiac or respiratory arrest. The presence of an Out-Of-Hospital DNR form, bracelet or necklace, *issued by any state* (not just Texas) signifies to health care providers **not** to use CPR and other life sustaining techniques.

**Definitions:**

*DNR* = Do Not Resuscitate.

*Identification Devices* = State-approved bracelet or necklace containing DNR symbol (*any state.*)

*Life Sustaining Measures* = CPR, cardiac resuscitation medications, transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation, endotracheal intubation, or any other procedures defined by the Texas Board of Health.

*Qualified Relatives* = Two persons, if available, of the following categories, in the following priority:

- (1) the patient's spouse
- (2) a majority of the patient's reasonably available adult children
- (3) the patient's parents
- (4) the patient's nearest living relative

*DPAHC* = Durable Power of Attorney for Health Care.

*Proxy* = Person authorized to make treatment decisions for the patient.

- A. If a patient is encountered with one of the following, CPR and other life sustaining measures should **NOT** be initiated:
1. Presence of a State-approved signed Out-Of-Hospital DNR form, from any state.
  2. Presence of a State-approved Out-Of-Hospital DNR bracelet or necklace worn by the patient.

If the patient **is not** in cardiac or respiratory arrest, palliative care (for patient comfort) may be provided per standard protocols or as directed by Medical Control. The DNR order does not affect your care unless the patient develops cardiac or respiratory arrest.

- B. If the patient **is** in cardiac or respiratory arrest at first assessment, **is** identified as being covered by a State-issued Out-Of-Hospital DNR order, **and** resuscitation has been withheld:
1. Notify Dispatch that an Out-Of-Hospital DNR order has been honored.
  2. Cancel other responding emergency units.
  3. Request the appropriate law enforcement official or Medical Examiner be dispatched to the scene.
  4. Leave the body "as is" and remain at the scene until the appropriate law enforcement official and/or Medical Examiner arrive, if possible.
  5. Record for documentation the identification number shown on the back of the bracelet or necklace, or on the signed DNR form.
  6. Be responsive to the family's needs to the practical extent of your training and ability.

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**Out-Of-Hospital DNR (Do Not Resuscitate) Order**  
(continued)

- C. If the patient is in cardiac or respiratory arrest and resuscitation **has already been started**, and evidence is found of a State-issued Out-Of-Hospital DNR Order, the resuscitation should be discontinued. **Before** stopping the resuscitation, rescuers should make clear to qualified relatives, proxy, or legal guardian(s) on the scene that they are about to discontinue resuscitation efforts because of the DNR order. If there is objection, the DNR order is considered revoked and resuscitation should continue. The discontinuation of resuscitation measures in the presence of a State-issued Out-Of-Hospital DNR order **does not** require a Medical Control order. Once resuscitation has been discontinued, rescue personnel should follow steps 1-6 already listed in section B of this protocol.
- D. If a patient covered by a State-issued Out-Of-Hospital DNR Order is transported, the personnel transporting should make reasonable effort to bring the original form with the patient. However, do not compromise patient care to secure the form.
- E. If a patient covered by a State-issued Out-Of-Hospital DNR Order is being transported, and develops cardiac or respiratory arrest during transport, personnel should withhold life sustaining measures and continue transport to the Emergency Department of the receiving hospital. Dispatch and the receiving hospital should be notified of this change in patient status.
- F. In most instances, registered nurses may, pursuant to Texas Health and Safety Code, Section 671.001(d), determine and pronounce death. EPEMSS personnel are authorized to respect a registered nurse's declaration of death and withhold prehospital resuscitation efforts upon presentation by the registered nurse of his or her officially recognized institutional picture identification. (Example: Hospice of El Paso, Inc. registered nurses operating under officially recognized protocols may declare death, thus avoiding usual prehospital resuscitative efforts). The Medical Director, through the Fire Chief, shall publish a list of such recognized institutions for the benefit of EPEMSS personnel.

The Health and Safety Code does not permit registered nurses to determine and pronounce death where artificial means of support preclude a determination that a person's spontaneous respiratory and circulatory functions have ceased. Should rescue personnel encounter a patient with artificial means of support, they should be aware that only a physician may declare death in this instance. (Example: patient on ventilator.)

- G. **Revocation:** Any DNR order may be revoked at **ANY** time by the patient, legal guardian, proxy, or Qualified Relatives. The revocation will involve communication of wishes to responding health care professionals, destruction of the form, and removal of all or any DNR identification devices the patient may possess. Rescuers **do not** need to contact Medical Control for confirmation if a DNR order is revoked on scene, but should immediately begin resuscitation efforts.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

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Terry Bond  
Civil Service Commission

(I-8b)

## PATIENT MANAGEMENT

### I. Who Is A Patient?

A person that meets all of the following criteria is *not* considered a patient if he or she:

1. Did not request an ambulance. Calls to 9-1-1 are not always intended by the caller to be an ambulance request, although an ambulance may be dispatched (ie: minor MVCs)
2. Has **NO** physical or psychological complaints/disorders.
3. Has no signs or symptoms of an active significant medical illness or injury.
4. Is a legal adult.
5. Is not under the suspicion of the influence of drugs including alcohol.

***If any of the above criteria are not met, the person is a patient.*** If the involved party is not a patient, other responding fire and medical units will be canceled and both patient care records and refusal forms need not be completed. If there is any doubt, complete a patient care record and/or refusal.

### II. Who may attend the patient during transportation?

1. Level III patients may be attended by any EMT level crew member locally certified under the EPEMSS Medical Director.
2. Level I and II patients must be attended by a locally certified EMT-Paramedic.
3. If no locally certified paramedic is available for any reason, the highest locally certified crew member will attend all Level I and Level II patients.

**NOTE:** Although each individual is held responsible for his or her actions, the highest locally certified crew member is responsible for all patient care, regardless of who attends the patient.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

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Terry Bond  
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(I-9)MPB 09/19/01

## **EPEMSS MEDICATIONS**

The following medications are authorized for use as directed in the applicable EPEMSS medical protocols. With the exception of Oxygen and Aspirin, medications are for EMT-Intermediate and Paramedic use only (as specified for each level in Protocol I-12), and are approved for use only within EPEMSS.

Applicable Hazardous Material / Mass-Casualty Incident protocols allow administration of certain medications by EMT-Basic personnel under the direction and supervision of a paramedic or Medical Control physician.

Dosing regimens and routes of administration are dictated in applicable protocols. Concentration and packaging may vary.

<b><u>Generic Name</u></b>	<b><u>Trade Name(s)</u></b>
Adenosine	Adenocard
Albuterol	Proventil, Ventolin
Amyl Nitrite	
Aspirin	Bufferin
Atropine	
Calcium Chloride	
Calcium Gluconate	
Dextrose 50%	
Diazepam	Valium
Diphenhydramine	Benadryl
Epinephrine 1:10,000	Adrenalin
Epinephrine 1:1,000	Adrenalin
Furosemide	Lasix
Lidocaine 1% (100 mg/10 ml)	Xylocaine
Lidocaine 20% (2 gm/500 cc)	Xylocaine
Nalbuphine	Nubain
Naloxone	Narcan
Nitroglycerin 0.4 mg	Nitrostat
Oxygen	
Pralidoxime Chloride	
Sodium Bicarbonate	
Sodium Nitrite	
Sodium Thiosulfate	
Terbutaline	Brethine

Thiamine  
Ketorolac

Toradol

James R. Loflin, M.D.  
Medical Director

Glenn M. Johns  
Chief of Fire Department

Terry Bond  
Civil Service Commission

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**UNIVERSAL PATIENT TREATMENT:  
SKILLS AUTHORIZATION  
and  
STANDING ORDERS APPLICABLE TO ALL PROTOCOLS**

Locally certified EPEMSS employees are authorized and directed to perform the following skills when indicated by the employee's clinical impression of the patient's complaint, illness, and/or injury. ALL skills listed under ECA/EMT-Basic and EMT-Intermediate may be performed by standing order without consulting Medical Control.

Emergency Care Attendant & EMT-Basic

1. Patient assessment and taking vital signs, including performing pulse oximetry and blood sugar measurements.
2. Spinal immobilization, including use of:
  - a. rigid cervical collars
  - b. backboards
  - c. extrication devices / vests (such as KED)
  - d. cervical immobilization devices after patient is secured to backboard.
3. Administration of Oxygen.
  - a. Stable / non-acute: Oxygen, 1-4 liters per minute (lpm) by nasal cannula.
  - b. Unstable / acute: Oxygen, 8-15 lpm by non-rebreather mask (NRM), bag-valve-mask (BVM), or bag-valve-tube of intubated patients, with 100% Oxygen. Lower flow rates (8-10 lpm) may be used as long as the reservoir bag remains at least 50% inflated during the patient's maximum ventilatory effort.
4. Positioning and suctioning for airway control.
5. Insertion of oropharyngeal and nasopharyngeal airways.
6. Insertion of Combitube airway in medical or trauma cardiac arrest patients.
7. Use of bag-valve-mask (BVM) or demand-valve for positive pressure ventilation.
8. Rapid patient extrication.
9. Application/inflation of pneumatic anti-shock garment (PASG) under the supervision of an EMT-I or EMT-P.
10. Application of traction splints to isolated fractures of the femur or tibia/fibula.
11. Electrical defibrillation with an Automated External Defibrillator (AED).
12. Basic first aid treatments:
  - a. Bleeding control.
  - b. Stabilize and splint bone fractures and joint dislocations using:
    - Board splints
    - Wire or "ladder" splints

- Pliable metal or "SAM" splints
  - Field-expedient means: pillows, blankets, etc.
  - c. Cardiopulmonary Resuscitation (CPR).
  - d. Childbirth.
13. Administer Aspirin to chest pain patients only (see Protocol II-3, Chest Pain).

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**Skills Application & Standing Orders**  
 (continued)

EMT - Intermediate

1. All skills listed under EMT-Basic.
2. Initiate intravenous access and obtain blood samples.
3. Administer intravenously:
  - a. Lactated Ringer's solution (LR).
  - b. Normal Saline solution (NS).
4. Administer the following intravenous medications:
  - a. Thiamine.
  - b. 50% dextrose (D50W).
  - c. Naloxone.
5. Administer nebulized Albuterol per applicable protocol.
6. Endotracheal intubation.
7. Use laryngoscope and Magill forceps to remove an airway obstruction.
8. Nasogastric (NG) tube insertion in conjunction with Combitube or endotracheal intubation.

EMT- Paramedic

Individual EPEMSS protocols will dictate when a paramedic may perform the following skills by standing order, and when Medical Control authorization must be obtained.

1. All skills listed under EMT-Basic and EMT-Intermediate.
2. Cardiac monitoring.
3. Electrical cardiac defibrillation, monophasic and biphasic.
4. Electrical synchronized cardioversion, monophasic and biphasic.
5. Needle chest decompression in the presence of known tension pneumothorax.
6. External transcutaneous cardiac pacing.
7. Intraosseous cannulation and infusion.
8. Administer all medications listed in Protocol I10, EPEMSS Medications, when indicated in specific protocols.

James R. Loflin, M.D.  
Medical Director

Glenn M. Johns  
Chief of Fire Department

Terry Bond  
Civil Service Commission

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**SECTION II:  
MEDICAL**

- II-1. Medical Patient Categorization (MPB 09/19/01)
- II-2. Differences Between Adult and Pediatric Advanced Life Support (MPB 01/15/02)
- II-3. Altered Mental Status (MPB 01/15/02)  
(Includes Unconscious, CVA, Syncope, Overdose, & Diabetic Emergencies)
- II-4. Respiratory Distress (MPB 01/15/02)
- II-5. Chest Pain (MPB 09/19/01)
- II-6. Seizures (MPB 01/15/02)
- II-7. Acute Hypertension (MPB 09/19/01)
- II-8. Anaphylaxis (MPB 09/19/01)
- II-9. Hyperthermia (MPB 09/19/01)
- II-10. Hypothermia & Frostbite (MPB 09/19/01)

## MEDICAL PATIENT CATEGORIZATION

**Level I Medical Patient:** Patient in critical or unstable condition. Transport with lights and siren to closest appropriate facility. Patient meets any of the following criteria:

**Airway** - Compromised and uncorrectable.

**Breathing** - Signs or symptoms of acute respiratory distress present.

**Circulation** - Signs or symptoms of shock or impending shock.

**Disability** - Any presenting sign or symptom that in your best judgement, is highly suspicious of imminent mortality; ANY of the following:

a. Depressed level of consciousness.

b. Relative to patient's age, and physical & medical history:

Abnormal hypertension; systolic BP above 170 or diastolic BP above 100

Abnormal hypotension; systolic BP below 90.

Bradycardia or tachycardia accompanied by any other unstable indicator.

Abnormal respiratory rate, depth, and/or effort; abnormal lung sounds.

c. Ashen or Cyanotic skin.

d. Diaphoresis not associated with hot environment.

e. Pulmonary Edema.

f. Crushing (or similar) chest pain with or without accompanied radiation, nausea, sense of impending doom, or denial.

g. EKG: Consistent with acute myocardial infarction; Malignant ventricular escape beats; 2<sup>nd</sup> & 3<sup>rd</sup> Degree heart blocks; Indiscernible or non-specific bizarre ventricular complexes.

**Level II Medical Patient:** Patient in stable condition but has potential for deteriorating to an unstable condition.

Transport without lights and siren to patient's hospital of choice.

Criteria: Any medical emergency with stable vital signs having a significant medical history, and none of the indicators for an unstable patient; Any stable patient with high index of suspicion.

**Level III Medical patient:** Patient in stable condition and does not have a potential for deteriorating to an unstable condition.

Transport without lights or siren to hospital of patient's choice.

Criteria: Stable patient with no significant medical history and non-emergent medical complaint; Any medical patient who does not meet Level I or II criteria.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department  
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**Differences Between Adult and Pediatric Advanced Life Support  
(This protocol has no application to ECA & EMT-Basic personnel.)**

These protocols apply to adult and pediatric patients, since the majority of prehospital treatment is the same for each. However, the following ALS differences should routinely be applied where applicable:

IV fluid infusion rates:

Adult (9 years and older, and 40 kg or greater):

IV fluid rates titrated to systolic BP of 90 mm/hg.

TKO = appx. 60 cc/hr; Bolus or rapid infusion = 200 cc/hr or greater.

Child (2-8 years, and under 40 kg):

IV fluid rates titrated to systolic BP as follows:

Newborn - 6 months: Greater than 60 mm/hg.

6 mos. - 1 yr: Greater than 65 mm/hg.

2-8 years:  $70 + 2 \text{ times age in years, mm/hg.}$

TKO = appx. 30 cc/hr; Bolus or rapid infusion = 60-100 cc/hr.

Medication Doses:

Adult doses are specified in protocols. Pediatric patients should be given medication doses specified by the Broselow Pediatric Resuscitation tape (BPR), which are within the range also specified as *Pediatric* in applicable protocols.

\_\_\_\_\_  
James R. Loflin, M.D.  
Medical Director

\_\_\_\_\_  
William F. Gregersen  
Chief of Fire Department

Terry Bond  
Civil Service Commission

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**ALTERED MENTAL STATUS**  
**(includes Unconscious, CVA, Overdose, Syncope, and Diabetic Emergencies)**

**BLS:**

Treatment for patients unconscious for unknown cause is limited to support of airway, breathing, and circulation, with rapid transport to closest hospital with available CT/MRI. However, a clinical impression may be obvious in certain cases:

Suspected CVA (Stroke):

5. Position patient flat or with head elevated 45 degrees.
6. Protect paralyzed extremities from injury or undue pressure.
7. Transport to patient's hospital of choice with available CT/MRI.

Suspected Diabetic Emergency:

5. Only if patient is alert and able to swallow, may you attempt oral glucose or drinks high in sugar, until patient is fully alert and well oriented.

**ALS:**

1. Establish an IV of LR or NS and run TKO, appx. 60 cc/hr. Attempt blood draw.
2. If relative hypotension is present:
  - a. Run IV at or greater than 120 cc/hr to maintain systolic BP of 90.
  - b. Establish a second IV at same rate, if necessary.

**NOTE:** Procedures 2 and 3 may be alternated or omitted as event clues may determine cause for altered mental status.

4. Naloxone, up to 2.0 mg IV Push, to maintain adequate spontaneous ventilation. May be repeated once if necessary, up to 4.0 mg total. IM or SQ routes may be used if IV attempts are unsuccessful.
5. Measure blood glucose if equipment available. If <80mg/dl, or if equipment is not available AND isolated CVA (stroke) is NOT suspected:
  - a. Thiamine, 100 mg IV Push. *Adult only.*
  - b. D-50, 25 gm IV Push. *Pediatric = D25, 12.5 gm IV Push. (Expel 25cc of prefilled 50ml D50 amp, then draw 25cc NS into amp, to make proper dilution of 12.5 gm. in 50 cc.)*

**Paramedic:**

1. Apply cardiac monitor; treat lethal dysrhythmias concurrently.
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James R. Loflin, M.D.  
Medical Director

William F. Gregersen  
Chief of Fire Department

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**RESPIRATORY DISTRESS**  
**(includes Asthma and other Chronic Obstructive Pulmonary Diseases)**

**BLS:**

**CAUTION!** High concentrations of Oxygen may suppress the COPD patient's respirations to an inadequate level. Be prepared to assist ventilations but **DO NOT** decrease Oxygen concentration. **NEVER** withhold Oxygen from a hypoxic patient.

3. If patient has a prescribed and unexpired inhaler, you may assist / allow them to take puffs as prescribed. (Some patients may have several puffs prescribed.)

**ALS:**

1. Be prepared to intubate the semi-conscious, severely distressed patient who is not ventilating adequately by themselves.
2. Establish an IV of NS and run TKO, appx. 60 cc/hr. Attempt blood draw.  
If relative hypotension is present:
  - a. Run IV at or greater than 120 cc/hr to maintain systolic BP of 90.
  - b. Establish a second IV at same rate, if necessary.
14. Albuterol, 2.5 mg in 3 ml via nebulizer, IF the patient has all of the following:
  - a. Between the ages of 5 years and 50 years.
  - b. Has a physician-diagnosed history of asthma.
  - c. Has been prescribed Albuterol (Ventolin, Proventil) before.
  - d. Is wheezing and/or short of breath.If necessary, administer by BVM or bag-valve unit in conjunction with intubation.

**Paramedic:**

1. Apply cardiac monitor; treat lethal dysrhythmias by appropriate protocol.
2. Consider possibility of concurrent myocardial infarction and/or presence of Congestive Heart Failure; Treat by appropriate protocol.
3. Albuterol, 2.5 mg in 3 ml via nebulizer, if patient meets all criteria in ALS #3. May be repeated twice if condition does not improve.

Contact Medical Control

The Medical Control Physician is likely to order:

- Concurrent appropriate protocol treatments
- Additional nebulized Albuterol treatments.
- Terbutaline:

ADULT: 0.3 mg subcutaneously. May repeat up to 3 times every 20 minutes.  
PEDIATRIC: 0.01 mg/kg subcutaneously. Total not to exceed 0.3 mg.

**NOTE:** For Carbon Monoxide Poisoning and Hyperbaric Emergencies, contact Medical Control for destination advice to a hospital with hyperbaric treatment capability.

James R. Loflin, M.D.  
Medical Director

William F. Gregersen  
Chief of Fire Department

Terry Bond  
Civil Service Commission

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### **CHEST PAIN and SUSPECTED MYOCARDIAL INFARCTION**

#### **BLS / First Responder:**

1. Aspirin, 162mg PO (2 baby aspirin).

#### **ALS:**

1. Establish an IV of NS and run TKO, appx. 60 cc/hr. Attempt blood draw.  
If relative hypotension is present:
  - a. Run IV at or greater than 120 cc/hr to maintain systolic BP of 90.
  - b. Establish a second IV at same rate, if necessary.

#### **Paramedic:**

1. Apply cardiac monitor; Obtain 12-Lead EKG.
2. Nitroglycerin 0.4mg SL;  
May be repeated every 3-5 minutes to a total of 3 doses if both:
  - a. Chest pain symptoms have not subsided
  - b. Systolic BP remains above 100

**NOTE:** If chest pain complaint seems due to non-cardiac symptoms, or if patient is under 40 years old and has no cardiac history, contact Medical Control for nitroglycerin administration.

Contact Medical Control

The Medical Control Physician is likely to order:

- Concurrent appropriate protocol treatments
- Nalbuphine 4-10mg IV
- Additional doses of nitroglycerin
- For malignant PVCs not responsive to previous treatments:  
Lidocaine 70-150mg IV push; may be followed by infusion 2-4 mg/min.

James R. Loflin, M.D.  
Medical Director

Glenn M. Johns  
Chief of Fire Department

Terry Bond  
Civil Service Commission

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## SEIZURES

### **BLS:**

1. DO NOT force anything between teeth.
2. Anticipate vomiting. Have suction readily available.
3. Administer oxygen by non-rebreather mask. Assist ventilations as needed.
4. Protect patient from injury. Move hazardous objects away from patient and protect the head and cervical spine from injury. Do not forcefully restrain actively seizing patient.

### **ALS:**

1. Initiate an IV of LR or NS at 60 cc/hr and draw pre-Dextrose blood sample.
2. Measure blood glucose. If blood glucose is below 80 mg/dl, or measuring equipment is not available, and patient weighs more than 40 kg:
  - a. Thiamine, 100 mg IV Push. *Adult only.*
  - b. D-50, 25 gm IV Push. *Pediatric = D25, 12.5 gm IV Push. (Expel 25cc of prefilled 50ml D50 amp, then draw 25cc NS into amp, to make proper dilution of 12.5 gm. in 50 cc.)*

### **Paramedic:**

1. Diazepam 5 mg slow IV push (over one minute). May be repeated once if active seizure continues.  
*Pediatric: Diazepam, 2-5 mg slow IV push (no more than 5 mg/min), per BPR.*
2. If unable to initiate IV, administer Diazepam (above dose) via rectal route. Add 2-5cc NS to disperse medication.

Contact Medical Control

The Medical Control Physician is likely to order:  
- Additional doses of Diazepam.

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James R. Loflin, M.D.  
Medical Director

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William F. Gregersen  
Chief of Fire Department

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**ACUTE HYPERTENSION  
and Hypertensive crisis**

**BLS:**

1. Do not attempt to stop nosebleeds, if any. Encourage patient to NOT swallow blood.

**ALS:**

1. Establish an IV of NS and run TKO, appx. 60 cc/hr.

**Paramedic:**

1. Apply cardiac monitor; Treat lethal dysrhythmias concurrently.
2. If Diastolic BP is greater than 120 mm/Hg, administer Nitroglycerin 0.4 mg SL. May not be repeated without Medical Control order.

Contact Medical Control

The Medical Control Physician is likely to order:

- Nitroglycerin SL; Repeat every 3-5 minutes to a total of 3 doses.
- Nalbuphine 4-10mg IV

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## **ANAPHYLAXIS**

### **BLS:**

1. Position patient semi-fowler (reclined), if conscious. If patient is unconscious, place supine with legs elevated.
2. Attempt to ascertain allergen affecting patient (insect sting, food, chemical, etc.)

### **ALS:**

1. Establish an IV of NS and run TKO, appx. 60 cc/hr. Attempt blood draw.  
If relative hypotension is present:
  - a. Run IV at or greater than 120 cc/hr to maintain systolic BP of 90.
  - b. Establish a second IV at same rate, if necessary.

### **Paramedic:**

1. Apply cardiac monitor; treat lethal dysrhythmias concurrently.

#### Systolic BP above 60 mm/Hg:

1. Epinephrine, 0.3 mg SQ (0.3 cc of 1:1,000).  
*Pediatric:* 0.01 mg/kg of 1:1000, up to 0.3 mg.

**NOTE:** For complaints with no respiratory distress, you may withhold Epinephrine.

2. Diphenhydramine 50 mg IV/IM.  
*Pediatric:* 2-5 mg/kg up to 50 mg.

#### Systolic BP below 60 mm/Hg:

1. Epinephrine 0.5 mg (5 cc of 1:10,000), slow IV push. (Same dose ET if no IV.)  
*Pediatric:* 0.01 mg/kg 1:10,000, up to 0.3 mg, slow IV push.
2. Respiratory distress with wheezes: Albuterol, 2.5 mg in 3 ml. nebulized.

**NOTE:** Regarding insect stings, snake bites, etc: Not all area hospitals stock antidotes for every situation. Hospital destination is best determined by consultation with Poison Control through Dispatch, or at 1-800-764-7661 (1-800-POISON-1), or contact Medical Control.

Contact Medical Control

The Medical Control Physician is likely to order:  
- Concurrent appropriate protocol treatments

- Epinephrine 0.5 mg (5 cc of 1:10,000) slow IV push. (Same dose ET if no IV.)  
*Pediatric:* Epinephrine, 0.01 mg/kg 1:10,000, up to 0.3 mg, slow IV push.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department  
(II-8)

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Civil Service Commission

## HYPERTHERMIA

### **BLS:**

1. Rapid cooling is essential. Techniques will vary depending on level of patient's condition: Heat Cramps, Heat Exhaustion, or Heat Stroke. Any heat related condition with an altered level of consciousness should be treated as Heat Stroke and transported rapidly.
  - a. Remove patient to a cool, shaded area.
  - b. Remove patient's clothing and cool patient with wet sheets; low-pressure water hoses may be used to continually re-wet patient.
  - c. Manually fan patient to promote cooling by evaporation.
  - d. Apply insulated cold packs to neck, axilla, and groin.
  - e. DO NOT pack in ice. Dangerous reversal to hypothermia may occur.
2. Treat other injuries/illnesses appropriately.

### **ALS:**

1. Establish an IV of NS or LR and run at appx. 120 cc/hr. Establish a second IV at same rate if acute hyperthermia is present.
2. If relative hypotension is present, run IVs greater than 120 cc/hr to maintain systolic BP of 90.

### **Paramedic:**

1. Apply cardiac monitor; treat lethal dysrhythmias concurrently.

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## HYPOTHERMIA & FROSTBITE

### **BLS:**

Patient in cardiac arrest, or respirations less than 5 per minute:

1. Ventilate with BVM slowly, only 8-10 per minute.
2. Proceed with Basic Life Support and application of an AED. However, after the first set of three stacked shocks (if given), discontinue use of the AED and proceed with BLS & CPR only. Continued defibrillation is contraindicated in acute hypothermia.

Patient NOT in cardiac arrest with adequate respirations:

**NOTE:** Rough handling of an acutely hypothermic patient may cause *cardiac arrest*.

1. Move patient to a warm environment. Remove any wet clothing.
2. Bundle in dry blankets. Cover the patient's head and insulate against further heat loss.
3. Frostbite Injuries:
  - a. Gently remove clothing from injured parts.
  - b. Protect injured parts from pressure, trauma, or friction.
  - c. Loosely cover injured parts with dry sterile dressing.
  - d. Do not massage or rub a frostbitten area.
  - e. Do not attempt re-warming of the injured part.

### **ALS:**

1. Establish an IV of NS or LR. Establish second IV if relative hypotension or acute hypothermia is present. Run any IVs at:
  - a. Warmed fluids available: appx. 120 cc/hr.
  - b. Only cold fluids available: TKO, appx. 60 cc/hr.

### **Paramedic:**

1. Apply cardiac monitor. **DO NOT** treat cardiac dysrhythmias with medications or defibrillation. A hypothermic heart will not respond until it is warmed.

Contact Medical Control

The Medical Control Physician is likely to order:

- Concurrent appropriate protocol treatments.

- Decision for ACLS treatments.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

Terry Bond  
Civil Service Commission

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**SECTION III:  
ADULT TRAUMA**

- III-1. Trauma Categorization & Trauma Center Selection Criteria (MPB 09/19/01)
- III-2. Shock-Trauma, General Management (MPB 09/19/01)
- III-3. Clinical Assessment for Spinal Injury Rule-Out (MPB 09/19/01)
- III-4. Head Injuries (MPB 01/15/02)
- III-5. Eye Injuries (MPB 09/19/01)
- III-6. Epistaxis (MPB 09/19/01)
- III-7. Chest Trauma (MPB 09/19/01)
- III-8. Abdominal Trauma (MPB 09/19/01)
- III-9. Impaled Objects (MPB 09/19/01)
- III-10. Thermal, Chemical, and Electrical Burns (MPB 09/19/01)
- III-11. Fracture/Dislocation (MPB 09/19/01)
- III-12. Preferred Treatment of Specific Injuries (MPB 09/19/01)

**PRE-HOSPITAL TRAUMA PATIENT CATEGORIZATION  
and  
TRAUMA CENTER SELECTION CRITERIA**

**Level I Trauma Patient:**

Transport to a Trauma Center with lights & siren. Contact Medical Control enroute. Expect Trauma Team activation.

Criteria: Any trauma patient who meets any of the following criteria:

**Airway** - Compromised.

**Breathing** - Respiratory rate of  $\neq$  10 or  $\geq$  30/min.

**Circulation** - Systolic blood pressure less than 90 mm/Hg. Vital sign changes associated with trauma.

**Disability** - GCS 13 or less.

Or has any of the following injuries:

- a. Any penetrating injury to the head, neck or torso.
- b. Any gunshot wound proximal to the knee or elbow.
- c. Flail chest.
- d. Two (2) or more proximal long bone fractures.
- e. Limb paralysis.
- f. Amputation proximal to the ankle or wrist.

**Level II Trauma Patient:**

Transport to Trauma Center without lights and siren. Contact Medical Control if needed. Patients with no Level I criteria, but with the following mechanisms of injury:

Ejection from vehicle

Falls greater than 20 feet

MVC with speed > 40 MPH

Auto versus Pedestrian > 5 MPH

Motorcycle collision > 20 MPH and/or separation.

Death of passenger from same vehicle (not ejected).

Extrication > 20 minutes

Unrestrained rollover MVC

Passenger space intrusion > 20 inches.

Burns meeting Level II criteria

in Protocol III-10, Burns.

**Level III Trauma Patient:**

Transport without lights or siren to patient's choice of hospital. Contact Medical Control if needed regarding patient destination. Stable trauma patients not meeting Level I or Level II criteria.

\_\_\_\_\_  
James R. Loflin, M.D.  
Medical Director

\_\_\_\_\_  
Glenn M. Johns  
Chief of Fire Department

\_\_\_\_\_  
Terry Bond  
Civil Service Commission

## **SHOCK-TRAUMA GENERAL MANAGEMENT**

This is a universal protocol which applies to ALL clinical shock and/or trauma patients. Some treatments for specific injuries may conflict with this general management protocol (ie: do not use Combitube for airway burns), in which case the specific protocol should be followed. Where no specific treatment is given, refer back to this protocol (ie: all patients will have oxygen & airway management as necessary).

### **BLS:**

1. *ALL victims of trauma have a spinal injury until proven otherwise.* Maintain full spinal immobilization. If spinal injury is not suspected, refer to Protocol III-3, Clinical Assessment for Spinal Injury Rule-Out.
2. Administer high-flow oxygen; Assist ventilations as needed.
3. Stabilize airway if necessary: Oral / Nasal Airway; Combitube; Suction
4. Control external bleeding.
5. Take shock precautions:
  - a. Cover patient to prevent loss of body heat.
  - b. Elevate legs (no spinal injury) or place in Trendelenburg position (spinal injury immobilized).
  - c. Do not administer anything by mouth (NPO).
6. Find and treat other injuries appropriately.
7. Transport to a Trauma Center.

**NOTE:** To ensure a thorough examination and discovery of major injuries, ALL Level I trauma patients WILL BE FULLY EXPOSED in the field, unless the situation will absolutely not allow it (ie: unsecured airway close to hospital, no extra help on board).

### **ALS:**

1. Establish an IV of LR and run at appx. 60-120 cc/hr (protocol specific).
2. If relative hypotension is present, run IV greater than 120 cc/hr to maintain a systolic BP of 90 mm/Hg. Establish a second IV of LR at same rate.

### **Paramedic:**

1. Apply cardiac monitor; treat lethal dysrhythmias concurrently.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

---

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## CLINICAL ASSESSMENT FOR SPINAL INJURY RULE-OUT

### **BLS, ALS, Paramedic:**

You may elect to withhold further immobilization and discontinue all spinal stabilization efforts if your patient meets ALL of the following criteria. This criteria includes seated patients when considering use of KED. Proceed immediately with full spinal immobilization if patient fails to meet ANY of the following:

#### Patient Reliability:

8. Conscious, alert, and well oriented, and is not under suspicion of the influence of drugs, alcohol, or any other mind-altering substance.
9. Is a legal adult, and has no language or communication problems.
10. No suspicion of other distracting injury.
11. No suspicion of head/brain injury. Does not meet any Level I or II criteria; Patient is a Level III Trauma.

#### Assess Spinal Column:

12. NO complaints of pain, tenderness, numbness, etc., upon thorough palpation of the entire spinal column.
13. Spinal column has no visible or palpable abnormalities.

#### Assess Sensory and Motor Function:

14. No sensory deficit.
15. No motor deficit.

**NOTE:** If there is any doubt, provide full spinal immobilization.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

Terry Bond  
Civil Service Commission

(III-3)

## HEAD INJURIES

### BLS:

1. *ALL victims of trauma have a spinal injury until proven otherwise.* Maintain full spinal immobilization. Refer to Protocol III-3, Spinal Injury Rule-Out.
2. Administer high-flow oxygen; Assist ventilations if needed at a rate of appx. 10 ventilations per minute (*Normal breathing rate, not hyperventilation.*)
3. Transport to a Trauma Center. (Mild maxillofacial injuries may be taken to patient's hospital of choice. Contact Medical Control for direction if needed.)

### ALS:

**NOTE:** If paramedic is present, withhold intubation until after Lidocaine administration.

6. Establish an IV of LR or NS and run at appx. 60 cc/hr.
7. If relative hypotension is present, run IV greater than 120 cc/hr to maintain a systolic BP of 90 mm/Hg. Establish a second IV of LR or NS at same rate.

### Paramedic:

1. Apply cardiac monitor; treat lethal dysrhythmias concurrently to injury treatments. (Mild maxillofacial injuries do not require cardiac monitoring.)
2. Pre-medication prior to intubation: Lidocaine 1.5 mg/kg IV push (except in patients with brady-dysrhythmias).
3. Titrate ventilation and IV fluids as follows:

<u>Pupils</u>	<u>Systolic BP</u>	<u>SaO2%</u>	<u>Ventilation</u>	<u>IV fluid rate</u>
Normal	above 90	above 95%	= 10 / min.	TKO, appx. 60 cc/hr.
Normal	below 90	below 95%	= 12-16 / min.	Maintain SBP of 90.
Abnormal	N/A	N/A	= 20 / min.	Maintain SBP of 90.

### NOTES:

1. For patients with head injury *and* blood glucose less than 90, contact Medical Control for D50 administration.

Contact Medical Control

The Medical Control Physician is likely to order:

- Concurrent appropriate protocol treatments

\_\_\_\_\_  
James R. Loflin, M.D.  
Medical Director

\_\_\_\_\_  
William F. Gregersen  
Chief of Fire Department

\_\_\_\_\_  
Terry Bond  
Civil Service Commission

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## EYE INJURIES

### **BLS:**

1. Lacerations on or near the eyelid or eye:
    - a. Do not apply pressure to the eyeball.
    - b. Cover BOTH eyes with a loose dressing.
    - c. Preserve avulsed parts in a clean plastic bag.
- Foreign bodies:
- a. Non-impaled: Cover BOTH eyes with loose dressing.
  - b. Impaled: DO NOT REMOVE--stabilize with a paper cup and bulky dressing. Cover unaffected eye.
- Avulsed eye: Cover with sterile moist dressings; use sterile saline, Ringer's Lactate, or sterile water. Cover unaffected eye.
- Chemical burns: Irrigate copiously with tap water, saline, or Ringer's Lactate as soon as possible. Continue irrigation throughout transport.

### **ALS:**

1. Establish an IV of LR or NS and run at TKO, appx. 60 cc/hr.

### **Paramedic:**

1. Consider application of cardiac monitor due to potential involvement of cranial nerves with deep penetrating eye trauma. Treat lethal dysrhythmias concurrently.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

Terry Bond  
Civil Service Commission

## EPISTAXIS

### **BLS:**

1. Maintain airway by patient positioning, suction, adjuncts as needed.
2. If epistaxis spontaneous and the patient is alert with stable vital signs, have patient lean forward and, using moderate pressure, pinch nostrils together.
3. If patient is hypotensive or has an altered level of consciousness, with no mechanism of trauma, place in a lateral recumbent position. Administer oxygen by non-rebreather mask. Be alert for vomiting.
4. If epistaxis is due to significant trauma, immobilize C-spine. As always, if there is a question of C-spine or head injury, immobilize the patient. After patient is immobilized, turn patient on side.

### **ALS:**

1. Establish an IV of NS or LR and run at appx. 60 cc/hr.
2. If relative hypotension is present, run IV greater than 120 cc/hr to maintain a systolic BP of 90 mm/Hg. Establish a second IV of LR at same rate.

### **Paramedic:**

1. Consider application of cardiac monitor and concurrent protocol treatments as may be indicated (hypertensive crisis, etc.)

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

Terry Bond  
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## CHEST TRAUMA

### **BLS:**

1. Cover suspected open chest wounds with an occlusive dressing. Stabilize fractured and/or flail segments.
2. If an object is impaled in the chest, see Protocol III-9, Impaled Objects.
3. Transport to a Trauma Center.
4. Be vigilant for developing tension pneumothorax. If a tension pneumothorax is suspected, release the seal over the wound and allow any air under pressure to escape. Then reseal the wound and monitor the patient.

### **ALS:**

1. If the patient requires intubation/Combitube and positive pressure ventilations, the occlusive dressing should be removed to prevent tension pneumothorax.
2. Establish an IV of NS or LR and run at appx. 60 cc/hr.
3. If relative hypotension is present, run IV greater than 120 cc/hr to maintain a systolic BP of 90 mm/Hg. Establish a second IV of LR at same rate.

### **Paramedic:**

1. Apply cardiac monitor; treat lethal dysrhythmias concurrently to injury treatments.
2. Needle decompress a known pneumothorax if the patient has all of the following:
  - a. Agitation, Restlessness, or depressed level of consciousness.
  - b. Moderate difficulty breathing.
  - c. Decreased lung sounds
  - d. Possible Jugular Venous Distention
  - e. Difficulty ventilating the patient (if applicable).

Contact Medical Control

The Medical Control Physician is likely to order:

- Additional "darts" may be ordered if initial thoracic needle decompression is successful in relieving ventilatory distress (condition improves).

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

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Civil Service Commission

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## ABDOMINAL TRAUMA

### **BLS:**

1. Control external bleeding.
2. If object is impaled, treat per Protocol III-9, Impaled Objects.
3. If evisceration is present, cover with sterile dressing moistened with Ringer's Lactate or sterile saline; Bandage loosely in place.
4. Treat associated injuries appropriately.
5. Transport to a Trauma Center.

### **ALS:**

1. Establish an IV of NS or LR and run at appx. 60 cc/hr.
15. If relative hypotension is present, run IV greater than 120 cc/hr to maintain a systolic BP of 90 mm/Hg. Establish a second IV of LR at same rate.

### **Paramedic:**

1. Apply cardiac monitor; treat lethal dysrhythmias concurrently.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

Terry Bond  
Civil Service Commission

## IMPALED OBJECTS

### **BLS:**

1. Control bleeding. Do not put pressure on the object or the tissues directly adjacent to the object. See Protocol III-5, Eye Injuries, for eye impalements.
2. Do NOT remove the impaled object unless:
  - a. Object interferes with securing the airway (mouth, trachea).
  - b. Object grossly interferes with CPR, including packaging.
3. Stabilize the object with a bulky dressing before moving patient.
4. If the size of the object precludes transport, it may be cut after stabilization has been accomplished and with additional stabilization by manually holding the object above and below the location of the cut. Cutting the object should be avoided if at all possible.
5. Consider transport to a Trauma Center.

### **ALS:**

1. Establish an IV of NS or LR and run at appx. 60 cc/hr.
3. If relative hypotension is present, run IV greater than 120 cc/hr to maintain a systolic BP of 90 mm/Hg. Establish a second IV of LR at same rate.

### **Paramedic:**

1. Consider application of cardiac monitor; treat lethal dysrhythmias concurrently.

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James R. Loflin, M.D.  
Medical Director

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## **THERMAL, CHEMICAL, and ELECTRICAL BURNS and BURN INHALATION INJURIES**

### **BLS:**

**NOTE:** DO NOT use the Combitube in a patient with thermal or chemical airway injury. If airway management is indicated, oropharyngeal airway is the preferred adjunct.

1. Ensure burning process is stopped.

**Thermal:** Irrigate and/or remove clothing if necessary. Do not pull away clothing that is stuck to a burn; cut around it.

**Chemical:** Remove contaminated clothing (shoes, socks, jewelry, etc.)

- a. Flush area immediately with copious amounts of water. Use shower, garden hose, or low pressure fire suppression apparatus if necessary.
- b. If eyes are affected, have the patient remove contact lenses if present and irrigate with copious amounts of sterile water or saline at the scene and enroute.
- c. In dry chemical burns (dry lime, etc.) addition of water may produce a very corrosive substance. To treat, remove the patient's clothing and brush dry chemical away from the skin. Then irrigate with copious amounts of water. Each chemical exposure incident is unique and must be evaluated carefully for the protection of the patient and yourself. Contact Medical Control for advice if needed.\*\*

**Electrical:** Conduct head-to-toe exam for entry & exit burns, paralysis, muscle spasm, and abnormal pulse and/or blood pressure. Assess for fractures and dislocations associated with severe muscle spasm or falling. Tetany induced by electrical shock may mimic rigor mortis; *Do not withhold CPR.*

**NOTE:** After a lightning strike or other high-voltage contact involving multiple patients, apply "reverse triage": Patients in cardiac arrest are top priority for advanced treatment and transport.

2. Cover burns with dry sterile dressing.
3. Treat associated injuries appropriately as if burns were not present.
4. Transport to Trauma Center or hospital of choice by following criteria:

### **Burn Severity:**

The following burns determine the patient is a Level II Trauma:

- a. Burns complicated by inhalation injury.
- b. Second degree burns greater than 20% BSA--adults. Greater than 10% BSA--infants, children, elderly, chronically ill.
- c. Third degree burns: 10% BSA.
- d. Burns involving any of the following: hands, face, perineum, joints.
- e. Circumferential burns.
- f. Burns accompanied by fractures or other injuries.
- g. All chemical and electrical burns.

## **BURNS, continued**

### **ALS:**

1. Endotracheal intubation should be avoided in thermal or chemical airway burns unless patient is unconscious and transport time is/will be prolonged.
2. Establish an IV of NS or LR and run at appx. 60 cc/hr.
3. If relative hypotension is present, run IV greater than 120 cc/hr to maintain a systolic BP of 90 mm/Hg. Establish a second IV of LR at same rate.
4. If needed, call for paramedic assistance for pain management.

### **Paramedic:**

1. Consider application of cardiac monitor; treat lethal dysrhythmias concurrently.
2. If burns are causing moderate to severe pain, you may offer prehospital pain management to the adult or adolescent patient over 60kg/130lbs.
  - Nalbuphine 5mg IV Push

Contact Medical Control

The Medical Control Physician is likely to order:

- Additional Nalbuphine doses if pain is not significantly reduced within 5 minutes of 1<sup>st</sup> dose.

**\*\*NOTE:** For chemical exposures, Dispatch can conference call Poison Control with Medical Control if necessary.

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(III-10.b)

MPB 09/19/01

## **FRACTURES / DISLOCATIONS**

### **BLS:**

1. Assess distal circulation and sensory & motor function before and after splinting.
2. If possible, follow "Preferred Treatment for Specific Injuries" protocol prior to moving patient.

### **SPECIFIC PRECAUTIONS**

1. Severely angulated fractures with compromised circulation may require alignment prior to immobilization.
2. Dislocations of the elbow, wrist, knee, or ankle are emergencies in which time passed until reduction is critical in determining future use of the joint. Do not prolong transport to carry out procedures or extensive immobilization.

### **ALS:**

3. Establish an IV of NS or LR and run at appx. 60 cc/hr.
4. If relative hypotension is present, run IV greater than 120 cc/hr to maintain a systolic BP of 90 mm/Hg. Establish a second IV of LR at same rate.
5. If needed, call for paramedic assistance for pain management.

### **Paramedic:**

1. Consider application of cardiac monitor; treat lethal dysrhythmias concurrently.
2. If injury is causing moderate to severe pain, you may offer prehospital pain management to the adult or adolescent patient over 60kg/130lbs.  
- Nalbuphine 5mg IV Push
3. For femur or hip fracture without neuro-circulatory compromise, Nalbuphine 5mg may be administered prior to traction splint or PASG application & inflation.

Contact Medical Control

The Medical Control Physician is likely to order:

- Additional Nalbuphine doses if pain is not significantly reduced within 5 minutes of 1<sup>st</sup> dose.

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Medical Director Chief of Fire Department    Civil Service Commission

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## PREFERRED TREATMENT OF SPECIFIC INJURIES

<u>Site</u>	<u>Injury</u>	<u>Immobilization</u>
Clavicle	Fracture	Sling and swathe
Shoulder	Dislocation	Splint in position found
Humerus	Fracture	Sling and swathe
Elbow	Fracture or dislocation	Splint in position found
Radius/Ulna	Fracture	Rigid splint and sling
Wrist	Fracture	Splint in position found
Hand	Fracture	Splint in position of function
Finger	Fracture	Splint in position of function
Pelvis	Fracture	PASG & longboard, or just longboard
Hip	Fracture/ dislocation	Traction splint; Block splint is acceptable if there is increased pain when applying traction
Femur	Fracture	Traction splint, or PASG
Knee	Fracture/ dislocation	Splint in position found with ladder or board splint.
Tibia/Fibula	Fracture	Board splint
Ankle	Fracture/	Pillow or blanket splint, padded board splint, ladder splint
Foot	Fracture	Pillow or blanket splint
Toe	Fracture	Tape to adjacent toe

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Medical Director Chief of Fire Department    Civil Service Commission

**SECTION IV:  
PARAMEDIC ADVANCED CARDIAC LIFE SUPPORT PROTOCOLS  
(This section has no application to non-Paramedic personnel)**

- IV-1. Factors of Advanced Cardiac Life Support Protocols & Procedures (MPB 09/19/01)
- IV-2. 12-Lead EKG Application (MPB 09/19/01)
- IV-3. Pulmonary Edema (MPB 09/19/01)
- IV-4. Ventricular Fibrillation/ pulseless Ventricular Tachycardia (MPB 09/19/01)
- IV-5. Ventricular Tachycardia (MPB 09/19/01)
- IV-6. Asystole and Pulseless Electrical Activity (PEA) (MPB 09/19/01)
- IV-7. Bradycardia (MPB 09/19/01)
- IV-8. Supraventricular Tachycardia (SVT) (MPB 09/19/01)

## FACTORS OF ADVANCED CARDIAC LIFE SUPPORT PROTOCOLS

Advanced cardiac life support (ACLS) includes advanced airway management as well as pharmacologic and electrical intervention. ACLS should be started at the scene with transport to follow expediently. Communication with Medical Control is vital in the resuscitation sequence *if faced with an unusual presentation or situation*. Should the Medical Control Physician elect to give an order that differs from these protocols, the order will be documented in the patient's EPFMS patient care form narrative, and the PCF flagged for review by the Medical Director's office.

1. Paramedics are responsible for ensuring and/or performing Basic Life Support (BLS) prior to ACLS treatments ("BLS before ALS".)
2. Flow of algorithm presumes the dysrhythmia is continuing. If a pulseless dysrhythmia changes to a pulse producing rhythm, or a distressed patient responds to treatments for a malignant dysrhythmia, proceed to the appropriate protocol.
3. When arriving at a cardiac arrest where an AED is already in use:
  - a. Do not interrupt if the AED is in the process of delivering three "stacked" shocks.
  - b. Enter the VF protocol after the AED's initial stacked shocks and begin manual shocks at 360J (Monophasic) or 200J (Biphasic).
  - c. At your discretion, the AED may then be either removed or left in place.
4. In cardiac arrest, the first-time administration of Epinephrine and/or Atropine can be done via the endotracheal tube at twice the usual dose in the absence of an IV line, but should be avoided if possible by establishing a peripheral IV line for medications. No more than two rounds of drugs (40cc total) should be given via ETT. However, if an IV line cannot be established, continued use of the ETT route is authorized for Naloxone and Lidocaine as well as Epinephrine and Atropine.
5. After every defibrillation or rhythm change, *the pulse must be checked*. (Initial "stacked" shocks should not be interrupted; check pulse after the last shock).
6. ALS teamwork in simultaneous intubation and IV access is paramount. However, in patients where two intubation attempts are unsuccessful, revert to use of Combitube or oral airway to allow concentration on IV access. If two attempts at *both intubation and IV* are all unsuccessful, transport will commence with BLS measures in progress and further ALS attempts continued enroute.
7. Providing adequate airway and ventilatory management with high-flow oxygen is the mainstay of treatment for acidosis in the cardiac arrest victim. Sodium Bicarbonate will be not administered unless the Medical Control physician approves or orders it.
8. After giving any IV bolus medication, immediately flush with 20 ml IV fluid.

**12-LEAD EKG APPLICATION**  
**(to run concurrently with applicable protocols)**

The goal of prehospital 12-Lead EKG monitoring is to reduce the “door-to-drug” time for patients experiencing cardiac injury which may or has progressed to myocardial infarction. For these patients, the need for early definitive treatment supercedes the need for a thorough field assessment. *“Time Is Muscle!”* Therefore, short scene time and rapid transport to an acute cardiology-capable hospital is paramount to a good outcome.

Therefore, aggressive ACLS treatment and ED delivery should not be delayed for the purpose of obtaining a 12-Lead EKG. *A 12-Lead EKG may be omitted from any protocol when a critically unstable patient is facing imminent mortality and the package and transport time will be short.*

16. Patients who are candidates for prehospital 12-Lead monitoring with combined scene and transport times greater than ten minutes are those who are relatively STABLE and present with any of the following:
    - a. Chest Pain
    - b. Prior Myocardial Infarction
    - c. Clinical angina with or without hypotension
    - d. Prolonged continuous pain not relieved by rest or nitroglycerin
    - e. Respiratory Distress of unknown etiology
    - f. Pulmonary Edema
    - g. Dynamic ST-segment or T-wave changes by 2-lead EKG
    - h. Any patient that in your best judgement presents with a cardiac-related complaint.
  
  17. Patients who are not candidates for prehospital 12-Lead monitoring are those with none of the above and a normal 2-lead EKG.
  
  18. Trauma patients without associated cardiac symptoms are not candidates for prehospital 12-Lead EKG.
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James R. Loflin, M.D.  
Medical Director

Glenn M. Johns  
Chief of Fire Department

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MPB 09/19/01

### **PULMONARY EDEMA / CONGESTIVE HEART FAILURE (CHF)**

#### **Paramedic:**

8. Obtain 12-Lead EKG.
9. Nitroglycerin 0.4mg SL; May be repeated every 3-5 minutes to a total of 3 doses if:
  - a. CHF symptoms have not subsided
  - b. Systolic BP remains above 100
3. Thiamine 100mg IV

**NOTE:** If patient is <40 years old and has no cardiac history, contact Medical Control for nitroglycerin administration.

Contact Medical Control

The Medical Control Physician is likely to order:

- 40-100 mg Furosemide slow IV push (over 1 - 2 minutes)
- 5-10 mg Diazepam IV/IM
- 4-10 mg Nalbuphine IV

James R. Loflin, M.D.  
Medical Director

Glenn M. Johns  
Chief of Fire Department

Terry Bond  
Civil Service Commission

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MPB 09/19/01

**VENTRICULAR FIBRILLATION  
(and PULSELESS VENTRICULAR TACHYCARDIA)**

**Paramedic:**

1. Initiate/Continue CPR
2. Defibrillate:  
    Monophasic: 200J, 300J, 360J  
    Biphasic: 120J, 150J, 200J  
    Do not stop for pulse checks between shocks. \*\*\*

IF RHYTHM CHANGES AT ANY TIME BETWEEN OR AFTER FIRST 3 SHOCKS,  
Check pulse and proceed to appropriate protocol

3. Intubate and Establish IV NS ("wide open", appx. 120cc/hr)
4. Epinephrine (1:10,000) 1.0 mg IV or 2.0 mg ET;  
    Repeat Epinephrine (1:10,000) 1.0 mg IV every 3-5 minutes (every two drugs).
5. Defibrillate 360J Monophasic; 200J Biphasic; continue defibrillation shocks after every drug administration.
6. Lidocaine 1.5 mg/kg IV Push (usually a 100mg bolus)
7. Repeat Lidocaine, 1.5 mg/kg IV Push (usually a 100mg bolus)

Contact Medical Control

The Medical Control Physician is likely to order:  
- Sodium Bicarbonate 1 mEq/kg

\*\*\*Defibrillation energy levels vary according to type of waveform and device. Many devices used for Public Access Defibrillation programs have a single energy setting. During transfer of care between two different types of defibrillators, restart the defibrillation protocol at lowest energy setting (Ex. 200J Monophasic; 120J Biphasic).

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James R. Loflin, M.D.  
Medical Director

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Chief of Fire Department

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(IV-4)

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## VENTRICULAR TACHYCARDIA WITH A PULSE

### Paramedic:

1. High flow oxygen; ventilate as needed
2. IV of NS TKO, appx. 60 cc/hr.

### STABLE patient (Level Two):

1. Contact Medical Control

### UNSTABLE patient (Level One):

1. Consider sedation:
  - 2mg Diazepam IV Push OR
  - 5mg Nalbuphine IV Push (Only if systolic BP above 90 mm/Hg)
2. Immediate Synchronized Cardioversion:
  - Monophasic: Begin at 100J, then 200J, 300J, 360J
  - Biphasic: Begin at 50J, 75J, 120J, 150J, 200J

Contact Medical Control

The Medical Control Physician is likely to order:

- Repeated Synchronized Cardioversion at 100J, 200J, 300J, 360J (Monophasic) or 50J, 75J, 120J, 150J, 200J (Biphasic).  
(Sedation may be ordered: 2-10mg Diazepam IV and/or 4-10mg Nalbuphine IV.)
- Lidocaine 1-1.5mg/kg (usually 100mg bolus)
- Additional Lidocaine bolus, 0.75-1.5 mg/kg IV every 5-10 minutes after original bolus; total bolus doses not to exceed 3 mg/kg.
- Lidocaine infusion, 1-4 mg/minute IV

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

Terry Bond  
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(IV-5)

MPB 09/19/01

**ASYSTOLE and Non-specific AGONAL ACTIVITY  
and  
PULSELESS ELECTRICAL ACTIVITY (PEA)**

**NOTE:** For practical purposes, any brady-asystolic or agonal dysrhythmias may be treated as either PEA or Asystole, due to the similarity of treatments.

**Paramedic:**

1. Check pulse; confirm asystole / agonal activity in two leads.  
If rhythm is possibly ventricular fibrillation, treat as VF.
2. Initiate/Continue CPR
3. Intubate and Establish IV NS ("wide open", appx. 120cc/hr).
4. Epinephrine (1:10,000) 1.0 mg IV or 2.0 mg ET; repeat every 2-3 min.
5. Atropine 1mg IV or 2mg ET; repeat every 1-3 minutes to a max. 3mg IV or 6mg ET.

**NOTE:** DO NOT administer Atropine if intrinsic heart rate is above 60 in PEA.

6. Consider Immediate Transcutaneous Pacing
7. Consider treatment of potential causes:
  - Drug overdose = Narcan 2.0 mg IV, ET; may repeat dose once in 2 minutes
  - Suspected diabetic complication = 25 grams D50 IV
  - Hypothermia = warm patient if possible
  - Hypoxia = aggressive airway management and hyperventilation
  - Known Pneumothorax = Thoracic needle decompression

Contact Medical Control

The Medical Control Physician is likely to order:

- Treatment of Potential Causes:
  - Suspected Pneumothorax = Thoracic needle decompression
  - Preexisting acidosis = Sodium Bicarbonate 1 mEq/kg
  - Hyperkalemia = Calcium Chloride 2-4 mg/kg
- Repeat boluses of Epinephrine 1.0 mg at 3-5 min. intervals, to a total of 15 mg.
- May consider termination of efforts on-scene.

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James R. Loflin, M.D.  
Medical Director

Glenn M. Johns  
Chief of Fire Department

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MPB 09/19/01

**SYMPTOMATIC BRADYCARDIA**  
**(Includes sinus, junctional, and idioventricular rhythms, and heart blocks)**

**Paramedic:**

6. IV of NS, TKO, appx. 60 cc/hr; Consider 500ml bolus fluid challenge.

STABLE patient (Level Two):

1. Transport to hospital with cardiology-capable ICU/CCU
2. Contact Medical Control for advice if needed.
3. Obtain 12-Lead EKG prior to treatment.

UNSTABLE patient (Level One):

1. Prepare patient for Transcutaneous Pacing.

Contact Medical Control

The Medical Control Physician is likely to order:

- Atropine 0.5-1 mg IV Push (for maximum total of 3.0mg) **except** in heart blocks or high suspicion of acute myocardial ischemia as the cause for brady-dysrhythmias.
- Sedation: 2-10mg Diazepam IV/IM Push or 4-10mg Nalbuphine IV Push.
- Immediate Transcutaneous Pacing
- IV 120 cc/hr. or greater if hypotension persists and heart rate remains uncorrected.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

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(IV-7)

## SUPRAVENTRICULAR TACHYCARDIA (SVT)

### Paramedic:

4. IV of NS, TKO, appx. 60 cc/hr.
5. Obtain 12-Lead EKG prior to treatment.
6. Vagal maneuvers:
  - a. forceful coughs
  - b. have the patient "bear down"
  - c. Valsalva's Maneuver
7. Adenosine 12mg IV push followed immediately by a rapid 20cc flush.
8. Consider sedation 2-4mg Diazepam IV Push (only if patient is fully alert).
9. Immediate Synchronized Cardioversion:  
Monophasic: Begin at 100J, then 200J, 300J, 360J  
Biphasic: Begin at 50J, 75J, 120J, 150J, 200J

Contact Medical Control

The Medical Control Physician is likely to order:

- Additional doses of Adenosine 12mg IV push with rapid flush.
- Synchronized Cardioversion:  
Monophasic: Begin at 100J, then 200J, 300J, 360J  
Biphasic: Begin at 50J, 75J, 120J, 150J, 200J
- Lidocaine 1-1.5 mg/kg IV Bolus.

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**SECTION V:**

**PEDIATRIC ADVANCED LIFE SUPPORT**

**(This section has no application to non-Paramedic personnel)**

- V-1. Pediatric Advanced Life Support (MPB 09/19/01)
- V-2. Asystole (MPB 01/15/02)
- V-3. Bradycardia (MPB 01/15/02)
- V-4. Ventricular Fibrillation & Pulseless Ventricular Tachycardia (MPB 09/19/01)
- V-5. Ventricular Tachycardia (MPB 09/19/01))

**PEDIATRIC ADVANCED LIFE SUPPORT**

Pediatric Advanced Life Support (PALS) includes advanced airway techniques as well as pharmacologic and electrical intervention. PALS should be started at the scene with transport to follow expediently. Communication with Medical Control is vital in the resuscitation sequence *if faced with an unusual presentation or situation*. Should the Medical Control Physician elect to give an order that differs from these protocols, the order will be documented in the patient's EPFMS patient care form narrative, and the PCF flagged for review by the Medical Director's office.

1. Paramedics are responsible for ensuring and/or performing the BLS section of the protocol prior to ALS treatments ("BLS before ALS".)
2. Flow of algorithm presumes the dysrhythmia is continuing. If a pulseless dysrhythmia changes to a pulse producing rhythm, or a distressed patient responds to treatments for a malignant dysrhythmia, proceed to the appropriate protocol.
3. After every defibrillation or rhythm change, *the pulse must be checked*. (Initial "stacked" shocks should not be interrupted; check pulse after the last shock).
4. Providing adequate airway and ventilatory management with high-flow oxygen is paramount to the pediatric resuscitation. In cardiac arrest, Sodium Bicarbonate will be not administered unless the Medical Control physician orders it.
5. Heat loss in the pediatric patient is detrimental to the acid base balance of the patient. *Keep the pediatric patient warm*.
6. Insure your pediatric bag/valve/mask has had its pop-off valve disabled and has oxygen reservoir.
7. Use Broselow Pediatric Resuscitation (BPR) tape for rapid drug calculations.
8. **ET Drug Administration:** In cardiac arrest, first time administration of Epinephrine can be done via the endotracheal tube *at the regular dose* in the absence of an IV or IO line. Administration of Lidocaine and Naloxone through the endotracheal tube may be done after contacting Medical Control for an order.
9. **IV Fluid Volume:** Use Normal Saline with a volume control device (such as Dial-A-Flow, Buretrol, etc.) and infusion set to control the amount of fluid given the patient. For all PALS protocols, the fluid bolus is 20 cc/kg given rapidly. If the patient's condition improves, run the infusion per "Maintenance Fluid" dose listed on Broselow tape, or per Medical Control.
10. **Intraosseous Access:** DO NOT delay transport of critical patients for IV access (more than two attempts, or no visible or palpable veins.) In critical patients where fluid challenge is indicated for shock, or the ET route is not available for medications, contact Medical Control *without delay* for IO approval.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

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Terry Bond  
Civil Service Commission

**PEDIATRIC  
ASYSTOLE and Non-specific Agonal Activity  
and  
PULSELESS ELECTRICAL ACTIVITY (PEA)**

**NOTE:** For practical purposes, any brady-asystolic or agonal dysrhythmias may be treated as either PEA or Asystole, due to the similarity of treatments.

**Paramedic:**

1. Check pulse; confirm asystole / agonal activity in two leads.  
If rhythm is possibly ventricular fibrillation, treat as VF.
2. Initiate/Continue CPR
3. Intubate and Establish IV NS; set rate per BPR tape.
4. Epinephrine:
  - a. IV = 1:10,000 per BPR Tape or 0.01 mg/kg = 0.1 ml/kg.
  - b. ET = 1:1,000 per BPR Tape or 0.01 mg/kg = 0.1 ml/kg.Repeat Epinephrine every 3-5 minutes.
5. Consider treatment of potential causes:
  - Drug overdose = Naloxone, IV or ET; may repeat once in 2 minutes:  
Infant - 5 years: 0.1 mg/kg  
Over 5 years: up to 2.0 mg.
  - Suspected diabetic complication = D25, 12.5 gm IV Push. (Expel 25cc of prefilled 50ml D50 amp, then draw 25cc NS into amp, to make proper dilution of 12.5 gm. in 50 cc.)
  - Hypoxia = aggressive airway management and hyperventilation
  - Known Pneumothorax = Thoracic needle decompression

Contact Medical Control

The Medical Control Physician is likely to order:

- Treatment of Potential Causes:
  - Suspected Pneumothorax = Prophylactic thoracic needle decompression
  - Preexisting acidosis = Sodium Bicarbonate 1 mEq/kg
  - Hyperkalemia = Calcium Chloride 2-4 mg/kg
- Repeat boluses of Epinephrine at above doses, at 3-5 minute intervals.
- For pediatric patients, termination of efforts on-scene may be considered in conjunction with parent/guardian's wishes.

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MPB 01/15/02

**PEDIATRIC  
SYMPTOMATIC BRADYCARDIA  
(Includes sinus, junctional, and idioventricular rhythms, and heart blocks)**

**Paramedic:**

1. High Flow Oxygen; ventilate as needed.
2. IV of NS TKO, appx. 30 cc/hr; Consider 20 cc/kg bolus fluid challenge.
3. UNCONSCIOUS Neonates & Infants:
  - a. Heart rate <60 = Chest Compressions & PPV
  - b. Heart rate <100 = PPV for 15-30 seconds

Contact Medical Control

The Medical Control Physician is likely to order:

- Epinephrine, per BPR tape:
  - IV or IO: 0.01 mg/kg (0.1 ml/kg of 1:10,000)
  - ET: 0.1 mg/kg (0.1 ml/kg of 1:1000)
- Repeat boluses of Epinephrine at above doses, at 3-5 minute intervals.
- Atropine IV, IO, or ET: Per BPR Tape or 0.02 mg/kg = 0.2 ml/kg;
  - Minimum Dose = 0.1 mg (1 ml)
  - May Be Repeated Once In 5 minutes

James R. Loflin, M.D.  
Medical Director

William F. Gregersen  
Chief of Fire Department

Terry Bond  
Civil Service Commission

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MPB 09/19/01

**PEDIATRIC  
VENTRICULAR FIBRILLATION  
(and PULSELESS VENTRICULAR TACHYCARDIA)**

**Paramedic:**

1. Initiate/Continue CPR
2. Defibrillate:  
    Monophasic: 2 Joules/kg first shock; 4 Joules/kg for successive shocks.  
    Biphasic: 1 Joule/kg first shock; 2J /kg second shock; 4J /kg successive shocks.

IF RHYTHM CHANGES AT ANY TIME BETWEEN OR AFTER FIRST 3 SHOCKS,  
    Check pulse and proceed to appropriate protocol

3. Intubate and Establish IV NS ("wide open", appx. 120cc/hr)
4. Epinephrine:
  - a. IV or IO = 1:10,000 per BPR Tape or 0.01 mg/kg = 0.1 ml/kg
  - b. ET = 1:1,000 per BPR Tape or 0.1 mg/kg = 0.1 ml/kg.Repeat Epinephrine every 3-5 minutes.
5. Defibrillate 4J/kg; continue defibrillation shocks after every drug administration.

Contact Medical Control

The Medical Control Physician is likely to order:

- Lidocaine 1.0 mg/kg IV or IO Push; subsequent doses at 0.5 mg/kg IV Push
- Defibrillation at higher energy levels than recommended by BPR Tape.
- Sodium Bicarbonate 1 mEq/kg.

James R. Loflin, M.D.  
Medical Director

Glenn M. Johns  
Chief of Fire Department

Terry Bond  
Civil Service Commission

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**PEDIATRIC**  
**VENTRICULAR TACHYCARDIA with a PULSE**

**Paramedic:**

1. IV of NS, TKO, appx. 30 cc/hr.

Contact Medical Control

The Medical Control Physician is likely to order:

- Synchronized Cardioversion (Mono- or Biphasic): 1 Joule/kg, 2 J/kg, 4 J/kg.  
(Sedation may be ordered: 2-5mg Diazepam IV)
- Lidocaine 1 mg/kg
- Observation and transport only, due to difficulty in distinguishing V-tach from SVT with aberrancy.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

Terry Bond  
Civil Service Commission

(V-5)

**SECTION VI:  
OBSTETRICS & GYNECOLOGY**

- VI-1. Normal Childbirth in the Field (MPB 09/19/01)
- VI-2. Abnormal Birth Presentations - Prolapsed Umbilical Cord (MPB 09/19/01)
- VI-3. Abnormal Birth Presentations - Breech Presentation (MPB 09/19/01)
- VI-4. Abnormal Birth Presentations - Arm or Leg Presentation (MPB 09/19/01)
- VI-5. Preeclampsia and Eclampsia (MPB 09/19/01)
- VI-6. Vaginal Bleeding (MPB 09/19/01)

## NORMAL CHILDBIRTH IN THE FIELD

### **BLS:**

1. A) Delivery NOT IMMINENT: Place mother in a position of comfort, monitor closely, and transport to patient's hospital of choice; Be prepared to divert to closer hospital if delivery becomes imminent.  
B) Delivery IS IMMINENT: Prepare to deliver at the scene.

### Delivery procedure:

1. Actively involve mother's "coach" if available, or designate one rescuer (preferably with experience) to coach breathing techniques and provide emotional support to the mother.
2. A) Ensure umbilical cord is not wrapped around the baby's neck. If it is, gently loosen and move the cord over the head. In rare instances, it may be necessary to clamp and cut if it is quite tight or in multiple loops.  
B) Meconium present: *Stop delivery!* Immediately suction mouth and nose until meconium is removed *before* stimulating baby to breathe.
3. Prevent explosive delivery; Gently support and guide head and shoulders while completing the delivery.
4. Suction the baby's mouth first, then nose, with a bulb syringe.
5. Immediately dry the infant. Remove any membranes from the head if they are still present. Do not scrub thick white paste from infant's skin: it's protective.
6. If the infant is not yet breathing, tactile stimulation (tapping the infant's feet or rubbing the back) is usually sufficient to stimulate respirations.
7. After the umbilical cord stops pulsating, clamp in two places (at least six inches from the baby) and cut the cord in between. Record the time of delivery and name of the person who cuts the cord.

**NOTE:** Mother is now a separate patient. Treat concurrently by appropriate protocol. Do not delay transport to deliver the placenta. If delivered, save placenta for hospital examination. Evaluate postpartum bleeding carefully.

### Evaluate the infant's condition:

1. Respirations:
  - a. If there are adequate spontaneous respirations, go to next step and evaluate the heart rate.
  - b. If the baby is apneic or having "gaspings" respirations after stimulation, begin PPV (positive pressure ventilation) at a rate of 40-60/minute for 15-30 seconds and reevaluate. Continue as needed.
2. Heart rate:
  - a. Greater than 100 = go to next step and evaluate color.
  - b. 60-100 = PPV for 15-30 seconds; Reevaluate. Continue until HR >100.
  - c. Less than 60 perform chest compressions. Reevaluate. Continue until HR >100. Continue PPV until HR >100.

(Continued)  
(VI-1a)

**Normal Childbirth, continued**

3. Color:
  - a. Pink, or blue extremities only: No oxygen required. Reassess frequently for improvement.
  - b. Central cyanosis: Administer blow-by oxygen until color improves.
4. Keep baby warm. Wrap infant in clean, warm blanket or supplied infant wrap. Cover head with stocking cap and allow mother to hold / nurse the baby if there are no complicating factors.
5. Transport:
  - a. Normal delivery and no infant resuscitation needed: Patient's hospital of choice.
  - b. Complicated delivery and infant resuscitation needed: Closest hospital.

**ALS, Paramedic:**

1. Meconium present at birth: Provide endotracheal suction immediately after delivery and prior to any further stimulation of the newborn infant.
  2. Refer to Protocol Section V, Pediatric Advanced Life Support, as indicated.
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James R. Loflin, MD  
Medical Director

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Chief of Fire Department

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**ABNORMAL BIRTH PRESENTATIONS**  
**Prolapsed Umbilical Cord**

**BLS:**

1. Oxygen via non-rebreather mask.
2. Use gravity to assist in preventing delivery: Place mother in a knee/chest position, or elevate her hips with pillows or blankets in the supine position.
3. Using a **sterile gloved hand**, gently push the baby up into the vagina several inches, in an attempt to relieve pressure on the umbilical cord. Maintain this pressure on the baby throughout transport, until told to release by a physician.
4. If there are no pulsations in the cord, use two fingers to remove pressure between the pelvis and cord if possible. Never pull on the umbilical cord, or attempt to push the umbilical cord back into the vagina.
5. Begin rapid transport to the closest hospital; This is a Level I Medical patient.

**ALS:**

1. Establish an IV of LR and run at appx. 60 cc/hr.
2. If relative hypotension is present, run IV greater than 120 cc/hr to maintain a systolic BP of 90 mm/Hg. Establish a second IV of LR at same rate.

**Paramedic:**

1. Apply cardiac monitor; treat lethal dysrhythmias in mother during abnormal delivery efforts.

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James R. Loflin, MD  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

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**ABNORMAL BIRTH PRESENTATIONS**  
**Breech Presentation**

**BLS:**

1. Oxygen via non-rebreather mask.
2. DO NOT attempt to deliver.
3. In the event delivery does progress, support the infant's legs and torso.
4. If the legs and torso have delivered, but the head does not immediately deliver, the EMT may elect to place two gloved fingers in V-shape between the infant's nose and mouth and the vaginal wall, to provide an air passage for the infant if it begins respiratory efforts.
5. Begin rapid transport to the closest hospital. This is a Level I Medical patient.

**ALS:**

1. Establish an IV of LR and run at appx. 60 cc/hr.
2. If relative hypotension is present, run IV greater than 120 cc/hr to maintain a systolic BP of 90 mm/Hg. Establish a second IV of LR at same rate.
19. In the event that delivery continues to progress to shoulder level:
  - a. If the shoulders do not deliver spontaneously the infant may be slowly and gently rotated so that shoulders are positioned anterior-posterior.
  - b. Gentle anterior-posterior movement, with your finger flexing infant's arm at elbow may deliver each shoulder.
  - c. If the head does not immediately deliver:
    1. Rotate infant so that face is toward mother's back.
    2. It may be necessary to place your index finger inside infant's mouth to help deliver chin.
    3. While having someone push supra-pubically to help keep infant's head flexed, gently raise infant's legs and trunk toward ceiling. Delivery may now be possible.

**Paramedic:**

1. Apply cardiac monitor; treat lethal dysrhythmias in mother during abnormal delivery efforts.
  2. Treat infant per indicated Pediatric Advanced Life Support protocol.
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Medical Director

Glenn M. Johns  
Chief of Fire Department

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Civil Service Commission

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**ABNORMAL BIRTH PRESENTATIONS**  
**Limb Presentation**

**BLS:**

1. Oxygen via non-rebreather mask.
2. DO NOT attempt to deliver.
3. Begin rapid transport to the closest hospital. This is a Level I Medical patient.

**ALS:**

1. Establish an IV of LR and run at appx. 60 cc/hr.
2. If relative hypotension is present, run IV greater than 120 cc/hr to maintain a systolic BP of 90 mm/Hg. Establish a second IV of LR at same rate.

**Paramedic:**

1. Apply cardiac monitor; treat lethal dysrhythmias in mother during abnormal delivery efforts.

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James R. Loflin, MD  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

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## **PREECLAMPSIA and ECLAMPSIA**

### **BLS:**

1. Place patient in left lateral recumbent position.
2. Attempt to provide a dark, quiet environment.
3. Be prepared for seizure activity.
4. Transport:
  - a. Preeclampsia / Stable: Patient's hospital of choice.
  - b. Eclampsia / Unstable: Closest hospital.

### **ALS:**

1. Establish an IV of NS or LR and run TKO, appx. 60 cc/hr.

### **Paramedic:**

1. Apply cardiac monitor; treat lethal dysrhythmias concurrently by appropriate protocol.

Contact Medical Control

The Medical Control Physician is likely to order:

- Concurrent appropriate protocol treatments
- Diazepam, 2-10mg IV

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James R. Loflin, MD  
Medical Director

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Chief of Fire Department

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**VAGINAL BLEEDING  
(Not due to trauma)**

**BLS:**

1. Treat for shock. Refer to Protocol VI-2, Shock-Trauma.
2. Second or third pregnancy trimester: keep the patient lying on her left side.
3. Apply clean perineal pads to the patient as needed.
4. Save all tissue passed to be brought to the hospital.
5. Transport to appropriate hospital.

**ALS:**

1. Establish an IV of LR and run at appx. 60 cc/hr.
10. If relative hypotension is present, run IV greater than 120 cc/hr to maintain a systolic BP of 90 mm/Hg. Establish a second IV of LR at same rate.

**Paramedic:**

1. Apply cardiac monitor; treat lethal dysrhythmias concurrently.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

Terry Bond  
Civil Service Commission

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**SECTION VII: HAZARDOUS MATERIALS  
and  
WEAPONS OF MASS DESTRUCTION**

- VII-1 General (MPB 09/19/01)
- VII-2 HAZMAT & WMD Standard Protocol Modifications (MPB 09/19/01)
  - a. Physical Assessment
  - b. Special history-taking and clues gathered by prehospital personnel
  - c. General Treatment (all HAZMAT / WMD patients)
  - d. Cardiac Arrest
  - e. Medical Control Orders
  - f. Patient Destination
- VII-3 Nerve Agent Exposures (MPB 09/19/01)
- VII-4 Cyanide Exposures (MPB 09/19/01)
- VII-5 Pulmonary Intoxicant Exposures (MPB 09/19/01)
- VII-6 Hydroflouric Acid Exposures (MPB 09/19/01)

## GENERAL

Members of the Fire Department Hazardous Materials (HAZMAT) Team operate under the EPEMSS protocols approved for use by the Medical Director. However, the special circumstances anticipated for rescues in a HAZMAT or Weapons of Mass Destruction (WMD) incident require a unique set of medical guidelines for the rescuers. (For brevity, all references to HAZMAT also include WMD).

As a general rule, *these protocols apply ONLY to HAZMAT Mass-Casualty Incidents, or incidents where relatively few patients will be two hours or longer from their initial injury/illness event to evaluation and/or treatment by a receiving hospital.* If the time to full decontamination and hospital treatment is less than two hours, the conventional EPEMSS protocols should be followed. If Medical Control is not on scene, contact should be established to guide patient care. When unable to establish or maintain contact with Medical Control, these protocols are in effect until contact is established or the Medical Director arrives on scene.

*Common sense* is at the core of these protocols, and will be the guiding factor in evaluating their application by field providers. Patients who need a HAZMAT rescue are usually in dire need of care. However, what can be done medically for these patients must be balanced against the safety of the rescuers. All medical treatment described within these HAZMAT protocols is to be performed only after patients have been removed from the "hot" zone and have been properly decontaminated. Safety must be the most overriding concern of those charged with managing medical care in these incidents.

Guidelines for a broad range of anticipated rescues are set forth in this document in summary fashion. Many were developed from position papers or research by recognized organizations who have taken time to consider the implications of medical care in HAZMAT and WMD incidents. Others have been developed in recognition of unique local challenges and capabilities. These protocols are flexible and subject to change as technology and techniques change and as solid research emerges.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

Terry Bond  
Civil Service Commission

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## **HAZMAT & WMD STANDARD PROTOCOL MODIFICATIONS General & Specific**

### **Physical Assessment**

The initial assessments in these incidents will be based on Respirations, Pulse, and Motor function (RPM). The START triage system will be used to assess all patients. A secondary survey and complete history may never be completed due to resources. As time, circumstances, and resources allow, more thorough assessment and treatments should be completed.

### **Special history-taking and clues gathered by prehospital personnel:**

1. Onset or Mechanism of Injury may be accidental or intentional / by terrorist attack:
  - a. Aerosolized, explosion or spill
  - b. Possible inhalation or ingestion
  - c. Contact with infectious vectors (i.e. insects, rodents, etc.)
  - d. Travel and employment history.
2. Patterns of unusual volume of patients with similar complaints or findings.
3. Multiple outbreaks of disease not indigenous to area.
4. Persons with low immune systems will be the first affected.
5. Delivery vehicle or intelligence information.

### **General Treatment (all HAZMAT / WMD patients):**

#### **BLS, ALS, Paramedic:**

Except where a specific *alternate* treatment is shown in this chapter, HAZMAT paramedics may apply the full spectrum of treatments contained in any standard protocol, to any HAZMAT patient whose condition warrants aggressive treatment. In effect, the Medical Control “bar” has been removed for HAZMAT paramedics.

*Do not attempt invasive procedures in uncontrolled, “Hot” or “Warm” zones.*

Lactated Ringers (LR) is the fluid of choice for use on HAZMAT rescues. LR may be substituted for Normal Saline (NS) in all standard EPEMSS protocols. However, if LR is unavailable (supplies exhausted or too far away, etc.), NS may be used.

Treatment of most casualties/patients is symptomatic in nature. For the most anticipated causes of HAZMAT exposures, either accidental or caused intentionally (nuclear radiation exposure, biological exposure, blood & blister agent or chemical exposure), treatment at all levels is guided by three principles:

1. Protection of rescuers and resources from a contaminated patient.
2. Triage & re-triage.
3. Protect the patient from further harm as resources allow.

(Continued)  
**HAZMAT & WMD Standard Protocol Modifications**  
**(continued)**

To that end, the general treatment and management of all HAZMAT / WMD patients includes:

1. Maintain airway, breathing circulation. (START triage should be used during MCI.)
2. Keep NPO. (nothing by mouth)
3. Decontaminate patient to extent possible.
4. Treat associated illness/injuries appropriately.
5. Monitor as appropriate and available: Vital signs, level of consciousness.  
Paramedics: For isolated patients (non-MCI), within the constraints of HAZMAT and decontamination operations, apply cardiac monitor when able and treat lethal dysrhythmias by appropriate protocol.
6. Re-triage as appropriate
7. Transport decontaminated patient wrapped in clean sheet with face exposed.

### **Cardiac Arrest**

During a HAZMAT or WMD incident, the goal is to do “The Greatest Good for the Greatest Number.” Apply the Simple Triage and Rapid Transport (START) system:

1. Adult, no respiratory effort: Open the airway.  
Pediatric: Open the airway and give two ventilations, then assess for breathing.
2. If breathing resumes, tag the patient as Immediate (red).
3. If the patient does not resume breathing and/or has no pulse, tag the patient as Non-Salvageable (black) and no further efforts are made to resuscitate the patient.

### **Medical Control Orders**

In the event that supplies, personnel, or transportation availability cannot meet protocols, Medical Control (usually on-scene) may deviate and the rescuers will follow verbal orders that will be recorded at the communications center. The Medical Director therefore extends Intra-Muscular (IM) injections to the BLS local scope of practice (as allowed by state regulations) for HAZMAT & WMD incidents.

Additionally, all levels of EMT may physically administer *any* medication on a case-by-case basis, under direct order and supervision of a paramedic or physician. (e.g.: a paramedic busy with one patient may direct a Firefighter EMT-Basic to administer Atropine IV to another nearby patient, assuming an IV line is already in place.)

### **Patient Destination**

Transport destination will be at the discretion of the Transportation Officer.

James R. Loflin, M.D.  
Medical Director

Glenn M. Johns  
Chief of Fire Department

Terry Bond  
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**NERVE AGENT EXPOSURE**  
**(Tabun (GA), Sarin (GB), Soman (GD), VX, Organophosphates)**

**NOTE:** In addition to special history-taking and clues gathered:

1. Chief complaints may include "SLUDGE" (Salivation, Lacrimation, Urination, Defecation, Gastrointestinal, Emesis) and "DUMBELS" (Diaphoresis, Urination, Miosis, Bronchospasm, Emesis, Lacrimation, Salivation):

- a. Respiratory symptoms may predominate.
- b. Associated complaints may include nausea, confusion, delirium, vomiting, diarrhea  
and/or rash, seizures, muscle weakness, twitching, and unconsciousness.

**BLS/ALS:**

1. For patients presenting with SLUDGE/DUMBELS, assist with administration of antidotes under supervision of paramedic or physician.

**Paramedic:**

1. Atropine

ADULT: 2 mg IM every 5-60 minutes to keep secretions dry.

PEDIATRIC: 0.05 mg/kg IM every 10-30 minutes to keep secretions dry;

Minimum pediatric dose is 0.1 mg.

Contact Medical Control

The Medical Control Physician is likely to order:

- Concurrent appropriate protocol treatments
- If patient(s) remain on scene for extended period: Praladoxine (2 PAMCL)
- Special and unusual treatment orders within the paramedic's scope of practice.

James R. Loflin, M.D.  
Medical Director

Glenn M. Johns  
Chief of Fire Department

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### **CYANIDE AGENT EXPOSURE**

#### **BLS/ALS:**

1. Assist with administration of antidotes under supervision of paramedic or physician.

#### **Paramedic:**

Contained in Cyanide Antidote Kit:

1. Amyl Nitrite Perles inhaled every 3-5 minutes until IV access is established.
2. (After IV access) Sodium Nitrite:  
ADULT: 300 mg in 10 cc IV over 2 to 4 minutes.  
PEDIATRIC: 0.33cc/kg slow IV, not to exceed 10 cc.  
INFANT: 0.2 cc/kg slow IV, not to exceed 10 cc.
3. Sodium Thiosulfate, 12.5 gm IV

Contact Medical Control

The Medical Control Physician is likely to order:

- Concurrent appropriate protocol treatments
- Special and unusual treatment orders within the paramedic's scope of practice.

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James R. Loflin, M.D.  
Medical Director

Glenn M. Johns  
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**PULMONARY INTOXICANT EXPOSURE**  
**(includes Phosgene, Chlorine, Ammonia)**

**NOTE:** In addition to special history-taking and clues gathered by prehospital crews, chief complaints may include:

- A) Phosgene: hypoxia and non-cardiogenic pulmonary edema leading to apnea.
- B) Chlorine: Eye Irritation, cough, SOB, wheezing, 12-24 hours may lead to non-cardiogenic pulmonary edema and cardiac arrest.
- C) Ammonia: Eyes burning, lacrimation, severe pain, cough, SOB, chest pain, wheezing, laryngitis, chemical pneumonia, and hemoptysis.

**BLS/ALS:**

1. DO NOT allow patients to AMBULATE or EXERT themselves.

**Paramedic:**

1. DO NOT administer diuretics.
4. Administer standard doses of Albuterol and/or Terbutaline as needed.

Contact Medical Control

The Medical Control Physician is likely to order:

- Concurrent appropriate protocol treatments
- Transportation / destination orders to an appropriate facility.

James R. Loflin, M.D.  
Medical Director

Glenn M. Johns  
Chief of Fire Department

Terry Bond  
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## HYDROFLUORIC ACID (HF) EXPOSURE

### **BLS:**

1. Remove patient from area - prevent further exposure.
2. Begin immediate decontamination procedures. Remove all contaminated clothing, contact lenses and jewelry. Flush exposed area immediately with copious amounts of water (shower or hose if possible).
3. High Flow Oxygen on ALL patients.
4. With gloved hands, apply Calcium Gluconate gel to burn site (gel mixture appx. 2.5 gm calcium gluconate mixed into appx. 100 ml KY Jelly or Surgilube). Apply to site for appx. 10-15 min. if possible.
6. Cover burn site with dry sterile dressing.
7. In event of eye contact, flush affected eye(s) with free-flowing water. Attempt to remove contact lenses as capabilities allow.
8. Notify receiving facilities immediately upon recognition of incident. Hospitals will need time to prepare.
9. In case of large incident, ie: multiple patient exposures, make immediate contact with resources to secure large amounts of Calcium Gluconate solution.

### **ALS:**

1. If inhalation is suspected, begin nebulized administration of 10% Calcium Gluconate solution. 10% Calcium Gluconate solution is mixed with sterile NS to achieve 2.5% to 5% dilution.
2. Intubate if necessary; Combitube may be left in place if secure and ventilations are adequate.
3. Establish an IV of LR or NS and run at appx. 120 cc/hr.
4. If relative hypotension or is present, run IV "wide open", and establish a second

- IV of LR at same rate.
7. In event of eye contact, remove contact lenses immediately. Flush with copious amounts of sterile normal saline mixed with 1% Calcium Gluconate solution. Flush for 10-15 minutes.

**Paramedic:**

1. Apply cardiac monitor; treat lethal dysrhythmias concurrently.

Contact Medical Control

The Medical Control Physician is likely to order:

- Concurrent appropriate protocol treatments
- Transportation / destination orders to an appropriate facility.

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James R. Loflin, M.D.  
Medical Director

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Glenn M. Johns  
Chief of Fire Department

\_\_\_\_\_  
Terry Bond  
Civil Service Commission

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**SECTION VIII:  
COMBINED SEARCH AND RESCUE TEAM  
(COMSAR)**

VIII-1 General (MPB 09/19/01)

VIII-2 Standard Protocol Extensions (MPB 09/19/01)

- a. Anaphylaxis
- b. Snake bites
- c. Hypothermia & Frostbite

VIII-3 Modification of Standard Protocols for ComSAR Missions (MPB 09/19/01)

- a. Cardiac Arrest
- b. Severe Hypothermia
- c. Dehydration
- d. Reduction of Dislocations
- e. Temperature Monitoring
- f. Urinary Catheterization
- g. Focused Spinal Immobilization
- h. Wound Care
- i. Non-Traumatic Chest Pain

VIII-4 Medications (MPB 09/19/01)

- a. Acetaminophen
- b. Diazepam and Nalbuphine
- c. Toradol

d. Other Medications

## GENERAL

Members of the Combined Search And Rescue Team (ComSAR) operate under the EPEMSS protocols approved for use by the Medical Director. However, the special circumstances anticipated for rescues outside the usual urban setting require a unique set of medical guidelines for the ComSAR rescuer.

*Common sense* is at the core of these protocols, and will be the guiding factor in evaluating their application by field providers. Patients who need a ComSAR rescue have sometimes taken unusual risks, and what can be done medically for these patients must be balanced against the safety of ComSAR rescuers. The Medical Director mandates that ComSAR safety must be the primary concern of those charged with managing medical care in the search and rescue environment.

Guidelines for a broad range of anticipated rescues are set forth in this document in summary fashion. Many are developed from position papers of recognized organizations (such as the National Association of EMS Physicians and the NASAR Wilderness EMT Course) who have taken time to consider the implications of medical care in the SAR environment. Others have been developed in recognition of unique local challenges and capabilities. This is a flexible set of protocols, subject to change as technology and techniques change and as solid research emerges, but committed to helping those caring for patients in a harsh environment keep their patients alive and maximize the patient's chance for recovery.

As a general rule, the patients subject to these ComSAR protocols will be two hours or longer from their initial injury/illness event to evaluation and/or treatment by a receiving hospital. If the time to evacuation is less than two hours, the conventional EPEMSS protocols should be followed. When possible, contact with Medical Control should be established to guide patient care. When unable to establish or maintain contact with Medical Control, these protocols may serve as patient care guidelines until contact is established or reestablished.

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James R. Loflin, M.D.  
Medical Director

Glenn M. Johns  
Chief of Fire Department

Terry Bond  
Civil Service Commission

**ComSAR STANDARD PROTOCOL EXTENSIONS  
General & Specific**

Except where specifically indicated in this chapter, ComSAR paramedics may apply the full spectrum of treatments contained in any standard protocol, to any ComSAR patient whose condition warrants aggressive treatment. In effect, the Medical Control “bar” has been removed for ComSAR paramedics.

Lactated Ringers (LR) is the fluid of choice for use on ComSAR missions. LR may be substituted for Normal Saline (NS) in all standard EPEMSS protocols.

**SPECIFIC:**

1. Anaphylaxis:

All standard protocol treatments may be administered by standing order. If severe allergic signs and symptoms return, an additional administration of 50 mg Diphenhydramine may be given, but only if at least one hour has passed since the original Diphenhydramine administration. Titrate IV of Lactated Ringers to maintain a systolic BP of 100.

2. Snake bite:

In addition to care according to the standard protocol, a commercial venom extractor (suction device) may be used if the patient is reached within five minutes of the bite, but no incisions are allowed. Titrate IV of Lactated Ringers to maintain a systolic BP of 100.

3. Hypothermia / Frostbite:

Patients exhibiting signs/symptoms of frostbite should not have the affected area(s) rewarmed until a controlled environment can be established. Any thawed area (especially an extremity) should not be allowed to refreeze. Consider withholding IV fluids if warmed fluids are not available and if there is no way to maintain fluid warmth during rescue. IV fluids are an option, and should be considered carefully based upon the judgement of ALS personnel on scene.

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James R. Loflin, M.D.  
Medical Director

Glenn M. Johns  
Chief of Fire Department

Terry Bond  
Civil Service Commission

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## **MODIFICATION OF STANDARD PROTOCOLS FOR ComSAR MISSIONS**

### **Cardiac Arrest:**

1. Initiate standard BLS & ALS protocols.
2. All resuscitation efforts may be discontinued for any of the following:
  - a. Rescuers are exhausted;
  - b. Procedures place the rescuers at risk;
  - c. Procedures necessary for rescue will cause significant delays in transport to a hospital for controlled re-warming.
- d. Cardiac arrest is sustained longer than 30 minutes without even temporary return of a spontaneous pulse, and the patient is normothermic (includes those mildly hypothermic).

### **Severe Hypothermia** (core temperature less than 90 degrees F.)

1. No re-warming should be attempted! Rescuers should cover the patient to insulate against further heat loss. Great care should be taken to handle the patient gently. Jostling, exercise, or chest compressions may cause the onset of ventricular fibrillation in a cold heart that is functioning effectively.
2. The pulse of a severely hypothermic patient may not be palpable under field conditions. Take longer to evaluate the pulse (1-2 minutes). Functional cardiac activity is considered to be present in the severely hypothermic patient when any of the following signs of life are present:
  - a) spontaneous ventilation;
  - b) response to positive pressure ventilation;
  - c) spontaneous movement or sound;
  - d) organized cardiac rhythm (if monitor available)
  - e) audible heart tones on auscultation

### **NOTE:** DO NOT initiate BLS/ALS procedures if:

- a. The core temperature is less than 60 degrees F.
  - b. The chest is frozen (non-compliant).
  - c. The victim has been submersed in water for more than 60 minutes.
  - d. Obvious lethal injury is present.
  - e. Implementation of these procedures delays evacuation to controlled re-warming.
  - f. The procedures place rescuers at risk.
3. Generally, ventilatory support is safe and can be effective for a prolonged time.
  4. Defibrillation and anti-dysrhythmia medications should be withheld unless the core temperature is at least 86 degrees F.
  5. It is possible that ALS/BLS procedures can be effective in severe hypothermia even if they only can be used intermittently during evacuation. These procedures can be discontinued during a technically difficult or dangerous phase of an

evacuation, and restarted when evacuation conditions permit.

### **Dehydration**

1. Treat according to standard Hyperthermia protocol (II-9.)

(Continued)

## **ComSAR Protocol Modifications**

Continued

### **Reduction of Dislocations**

1. Dislocations from direct force that can be associated with severe fractures should be treated as joint fractures in the usual fashion: splinting/immobilizing in position found.
2. An attempt to reposition or reduce any dislocated joint into anatomical position should be made if distal circulation is impaired. An attempt to reduce a simple dislocation into anatomical position should be made if transport time is delayed or prolonged (again, usually more than two hours). Simple dislocations include:
  - a. Shoulder (indirect injury).
  - b. Patella (indirect injury).
  - c. Digits (indirect injury).
3. Be sure to check circulation and nerve function before and after any repositioning of an injured joint. Reduction of simple dislocations is generally attempted by applying gentle traction and moving the injured joint into normal anatomical position (similar to repositioning for impaired circulation). Specific techniques will be taught in special ComSAR training, but some general principles do apply to specific joints:

#### **A) Shoulder:**

The shoulder joint is usually dislocated anteriorly, or anteriorly and inferiorly. Posterior dislocations are rare, but may result from a tonic-clonic seizure or direct blow to the anterior shoulder.

Several methods of shoulder reduction in ComSAR wilderness situations are taught, but in general, linear traction is applied along the line of the extremity while the torso is stabilized, perhaps with a blanket or rope. If the reduction is successful (two attempts is the limit), the arm should be placed in a sling and swathe.

#### **B) Patella:**

Force from sudden extension of knee may cause the patella to dislocate laterally, like "a cable slipping from a pulley". Indirect forces rarely cause associated fractures or damage to nerves and vessels. Determination of patellar dislocation is easier before swelling occurs.

Reduction involves pushing the patella back into position while flexing hip and straightening leg--again, this is like replacing a cable on a pulley while reducing tension on the cable. After relocation, splint knee in full extension (not mid-range) until post-rescue medical care is reached.

### C) Digits:

Indirect force levers bone ends apart at joint. It is not unusual to have associated fractures with digit dislocations, and damage to adjacent nerves and compression of adjacent vessels can occur. The danger of this, as well as damage to joint cartilage, increases with the length of time the joint is dislocated. The digit will be locked in an angulated or "bayonet" deformity and the joint will be unable to function.

(Continued)

## **ComSAR Protocol Modifications**

(continued)

Reduction involves traction in position and gentle relocation to the digits normal axis. After relocation, splint (or tape to other fingers) until post-rescue medical care is reached.

### **Temperature Monitoring**

When equipment is available and circumstances suggest possible hyperthermic or hypothermic conditions, core temperature monitoring is desirable. This will require a thermometer with low-reading capability. Preference of temperature monitoring technique for "at-risk" patients would be in this order:

1. Rectal probe monitor (most accurate).
2. Periodic oral thermometer use (with low reading capability).
3. Other, including axillary placement and an understanding of its limitations.

It may be possible to provide constant monitoring of core temperature via rectal probe with external readout. The goal of temperature monitoring is to primarily determine a range of temperature (example: mild vs. severe hypothermia). In any case, "at-risk" patients should have temperatures taken or noted every 20-30 minutes in a ComSAR environment.

### **Urinary Catheterization**

Some injured or ill patients will benefit from urinary catheterization for two reasons:

1. To guard against hypothermia when patient voids while "packaged".
2. To monitor adequacy of urinary output in dehydrated or hypovolemic patients.

ComSAR members specially trained and certified in the insertion of urinary catheters may insert them in circumstances where one of the above is a concern. Once inserted, the catheter should be monitored to maintain proper placement and to monitor urine output for patient report/relay to Medical Control.

### **Focused Spinal Immobilization**

In the ComSAR environment, the usual precautions taken for all patients who have a potential spinal injury may not be practical or possible. It is extremely difficult (and potentially dangerous for rescuers in some circumstances) to fully immobilize a patient in rough terrain and *maintain* that level of immobilization through the course of the event. The incidence of significant spinal injury in a subset of patients who meet specific parameters is extremely low, however. Therefore, full spinal immobilization will

not be required if the patient meets the same criteria given in Protocol III-3, Clinical Assessment for Spinal Injury Rule-Out.

Spinal immobilization will be required for the following trauma patients:

1. Patients with a *significant* mechanism of injury, who have an altered level of consciousness or who are complaining of cervical spine and/or vertebral column pain.
2. Patients with *significant* blunt trauma above the level of the clavicles.

(Continued)

### **ComSAR Protocol Modifications**

(continued)

3. Patients displaying symptoms of neurologic injuries after a traumatic incident.
4. Patients who have tenderness to palpation of the spine.
5. Victims of penetrating trauma in the following circumstances:
  - a. Evidence of neurological deficit at or below the level of the injury.
  - b. Spinal injury is suspected and the patient is obtunded.
  - c. Strong suspicion of spinal injury due to the location of the injury.

### **Wound Care**

1. Lactated Ringers and forceps may be used to irrigate and clean dirty soft tissue wounds when the patient(s) will be longer than two hours from hospital treatment. After cleaning gently, cover with sterile dressings and hold in place with tape or bandages.
2. Impaled cactus spines and thorns may be carefully removed and the wounds cleaned and dressed.

### **Non-Traumatic Chest Pain:**

1. In cases of non-traumatic chest pain suggestive of myocardial ischemia, nitroglycerine may be utilized per standard protocol, but without a cardiac monitor, if the following conditions are met:
  - a. The patient is an adult over 40 years of age.
  - b. The systolic BP is greater than 100.
  - c. There is no sign of increased intracranial pressure.
  - d. There are no other injuries which may result in hypotension.
  - e. Symptoms indicative of myocardial ischemia persist.

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James R. Loflin, M.D.  
Medical Director

Glenn M. Johns  
Chief of Fire Department

Terry Bond  
Civil Service Commission

(VIII-3)

## **SPECIFIC MEDICATIONS for ComSAR**

In addition to any medication used accordingly in standard EPEMSS protocols, special note should be made in the case of the following medications:

### **Acetaminophen**

500 mg tablets/caplets of oral Acetaminophen (Tylenol) may be utilized for relief of mild aches and pains. Because this is a non-prescription dose (available by the common person "over-the-counter"), follow manufacturers' indications and directions.

### **Diazepam and Nalbuphine**

There may be circumstances in which ComSAR paramedics should not hesitate to ask Medical Control for unusually high doses of Diazepam or Nalbuphine for acute pain management, or in cases where patient anxiety poses a moderate threat to rescuers. Medical Control will detail dose, route, rate, and repetition of administration.

### **Toradol**

Toradol (Ketorolac) may be used for short-term pain management due to injury. The advantage to Toradol over several other medications is that it does not obscure other findings. The expected range of effectiveness of Toradol is about 4-6 hours, and will be given as an IM injection (usually 60 mg). DO NOT combine with other sedatives or analgesics (except Acetaminophen).

**Other Medications**, directed & provided on a case-by-case basis by Medical Control:

The possibility of administration of other medications, including controlled substances, will be evaluated by Medical Control on a case-by-case basis. If Medical Control desires administration of any other beneficial medication that ComSAR medical personnel are adequately trained to administer, Medical Control will dispense this medication to the appropriate system representative for transport to the rescue scene, and will provide explicit instructions for dosage and route/rate of administration.

Medical Director

Chief of Fire Department

Civil Service Commission

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