



**PATIENT CARE PROTOCOLS  
EMT - PARAMEDIC**

Fifth Edition  
**JUNE 24, 2009**

**PAGES OF PROTOCOLS THAT  
HAVE CHANGES  
CHANGES UNDERLINED**

# PATIENT CARE PROTOCOLS

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# Patient Care Protocols

## PREFACE

These protocols are intended to guide the Emergency Medical Technician - Paramedic, in the treatments of patients. Anyone who wants to change the protocols can make a request in writing to the State Emergency Medicine Control Committee, or you may make the request by email to

Dr. John Campbell, EMS Medical Director:  
Alabama State Emergency Medical Control Committee  
C/O Office of EMS and Trauma  
Alabama Department of Public Health  
P.O. Box 30310  
Montgomery, AL 36130-3017

Or [John.Campbell@adph.state.al.us](mailto:John.Campbell@adph.state.al.us)

These Patient Care Protocols contain ALL the allowable procedures for EMTs. EMTs are responsible for their actions within the respective scope of privilege of the license that they hold. OLMD cannot order EMTs to perform procedures or administer medications that are not presented in these protocols. EMTs should respectfully decline any orders which would cause them to violate their scope of privilege.

The medication section of the protocols is provided for information purposes only. EMTs may administer medications only as listed in the protocol unless OLMD orders a deviation.

These Patient Care Protocols also serve as a reference for physicians providing OLMD to EMTs. Treatment direction, which is more appropriate to the patient's condition than the protocol, should be provided by the physician as long as the EMT scope of privilege is not exceeded. Treatment direction includes basic care, advanced procedures, and medication administration. OLMD can expect an EMT to respectfully decline any orders which would cause them to violate their scope of privilege.

Adult versus Pediatric protocols: As a general rule a pediatric patient is defined as someone aged 15 years or younger unless otherwise noted in the protocols. Anything pertaining to pediatric patients will be in the **Tahoma Font and in Bold as well as colored green.**

### PROTOCOL UPDATES

The Patient Care Protocol manual is revised through edition updates.

Edition updates are performed by request of the State Emergency Medical Control Committee (SEMCC) or the Office of EMS & Trauma (OEMST) Director. Edition updates incorporate revised and new protocols which have been approved since the previous edition release. The editions are numbered. The protocols are updated through REVISIONS. Each protocol can be revised individually and the revision and revision date are noted on the protocol in the upper right hand corner. The revisions are lettered.

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# Patient Care Protocols

Revision B June 24, 2009

## SECTION 2: PATIENT RIGHTS

1. The ALS protocols are intended for use with a conscious, consenting patient, or an unconscious (implied consent) patient. An adult is considered to be of sound mind unless obviously under the influence of drugs or alcohol or has been determined by a judge to be incompetent. If the person is obviously under the influence of alcohol or drugs and yet refuses treatment, see three (3) below.
2. If a conscious, rational patient refuses treatment, you should comply with the patient's request and document the refusal. If in your judgment a patient who has refused treatment (whether competent or incompetent) needs emergency care, contact OLMD.
3. If a patient may harm him/herself and refuses treatment, you should contact your on-line Hospital (and police if necessary). If the patient threatens harm to you, move from the close proximity of the patient, and from harms way. If the police are unable or unwilling to restrain the patient, your responsibility is completed with your notification of the police agency and medical direction.
4. If a patient's family, physician, or nursing home refuses treatment for a patient, protocols are contained herein to deal with those situations.
5. An adult patient who is conscious and alert has the right to select a hospital to which he/she is to be transported, and neither the EMS service nor OLMD has the right to override that decision. If the hospital is on diversion status and the patient still demands to be taken to that hospital, the EMS service must honor this request and OLMD cannot override this decision. If, in your judgment, transport to the patient's chosen hospital will cause loss of life or limb, and you cannot convince the patient to allow you to take him/her to a more appropriate hospital, contact your OLMD or service medical director and ask him/her to speak to the patient. If the patient still demands to go to the inappropriate hospital, you must honor this request.
6. If the patient is unconscious or has an altered mental status, you should normally take the patient to the hospital requested by the immediate family. If that hospital is on diversion or is not appropriate for the patient's problem you should contact OLMD and transport the patient to the hospital he/she orders. Patients in cardiac arrest should always be transported to the closest emergency department.
7. If the patient requests to be taken to a hospital out of your normal service area or that transport would leave your community without ambulance service, you may request a backup ambulance (or an ambulance from the hospital to which the patient requests to be transported) to transport the patient. This may require taking the patient (if unstable) to the nearest appropriate hospital while transportation is arranged. This is not a license to circumvent the statewide trauma system by always taking trauma patients to your local hospital instead of directly to the closest trauma center. If you are unable to comply with your regional trauma plan you must contact the Office of EMS & Trauma to develop a plan to correct this.

## **Patient Care Protocols**

### **SECTION 3: Medical Direction for Medications and Procedures (Continued)**

#### **SCOPE OF PRIVILEGE LIMITATIONS**

An EMT is prohibited from performing any procedure or utilizing any medication not approved by the State Board of Health even though they may have been taught these medications and procedures in their EMT curriculum.

#### **SECTION 3.2 MEDICAL DIRECTION HOSPITALS**

Medical direction must be provided by a medical direction hospital, or the agency's designated Medical Director if he/she has a current Medical Control Physician Identification (MCPI) number and is board certified in emergency medicine or is current in ACLS and ATLS. Medical direction hospitals are defined as those hospitals that provide OLMD by physicians with current medical control physician certification and MCPI numbers. Hospitals that do not provide OLMD are referred to as non-medical direction hospitals. Medical direction hospitals shall provide requested OLMD for all patients being transported to their facility. All medical direction for patients transported to non-medical direction hospitals must come from a medical direction hospital as outlined in the Regional Medical Control Plan or from the agency's designated Medical Director if he/she has a current MCPI number and is board certified in emergency medicine or is current in ACLS and ATLS.

#### **SECTION 3.3 PHYSICIAN MEDICAL DIRECTION**

Medical direction for medications and patient care procedures is provided under physician oversight. To provide on-line medical direction a physician must have taken the medical direction course and hold a current medical direction physician identification number. Category A medications can be given and Category A procedures performed without direct physician contact as long as the patient is stable. In such cases only a report to a nurse or paramedic at the receiving hospital is necessary. Category B medications and procedures, however, require contact with a physician prior to administration. A report should be made to the physician in any case in which the patient is unstable. Medication orders may be signed by an OLMD physician or by the service's medical director.

#### **SECTION 3.4 MEDICATION AND PROCEDURE CATEGORIES**

Category A (CAT A): A medication or procedure that can be given or performed by protocol.

Category B (CAT B): A medication or procedure that requires the EMT to contact OLMD **PRIOR TO** administration or performance.

## Patient Care Protocols

### **SECTION 3: Medical Direction for Medications and Procedures (Continued)**

Revision A June 24, 2009

#### **ADULT CATEGORY A MEDICATIONS AND PROCEDURES**

A medication or procedure that can be given or performed by protocol.

<b>MEDICATION/PROCEDURE</b>	<b>PROTOCOL</b>
Albuterol	Respiratory Distress
Albuterol	Allergic Reaction
Albuterol	CHF, Burns with wheezing
Amiodarone	Adult Vfib/Pulseless Vtach
Aspirin	Chest Pain
Atropine Sulfate	Cardiac Arrest
Atropine Sulfate	Symptomatic Bradycardia
Blind Insertion Airway Devices (BIAD)	All Protocols as indicated
Calcium Gluconate	Cardiac Arrest
Cyanokit (hydroxocobalamin)	Poisons and overdoses
D50W	All Protocols as indicated
Diazepam	Seizures
Diphenhydramine	Allergic Reaction
Diphenhydramine	Vomiting (second line medication) adults
<u>Continuous Positive Airway Pressure (CPAP)</u>	Congestive Heart Failure, Respiratory Distress
ECG (12-Lead)	All Protocols as indicated
Endotracheal Intubation (Oral)	All Protocols as indicated
Epinephrine	Allergic Reaction
Epinephrine	Cardiac Arrest
<u>Hemostatic agents</u>	External bleeding that can't be controlled
Intraosseous Infusion	Cardiac Arrest or late shock
Intravenous Therapy	All Protocols as indicated
Lidocaine	Cardiac arrest
Lorazepam	Seizures
Morphine Sulfate	Severe pain in adults
Naloxone	Altered Mental Status
Naloxone	Poisons & Overdoses
Needle Decompression	Tension Pneumothorax associated with trauma arrest
Nitroglycerin	Cardiac Chest Pain
Normal Saline (IV Solution)	All Protocols as indicated
<u>Ondansetron</u>	Vomiting adult
Oxygen	All Protocols as indicated
Pulse Oximetry	All Protocols as indicated
Sodium Bicarbonate	Cardiac Arrest
Thiamine	All Protocols as indicated
Vasopressin	Adult Vfib/Pulseless Vtach, Asystole, and PEA

## PEDIATRIC CATEGORY A MEDICATIONS AND PROCEDURES

A medication or procedure that can be given or performed by protocol.

MEDICATION/PROCEDURE	PROTOCOL
<b>Albuterol</b>	<b>Respiratory Distress</b>
<b>Albuterol</b>	<b>Allergic Reaction</b>
<b>Amiodarone</b>	<b>Adult Vfibr/Pulseless Vtach</b>
<b>Atropine Sulfate</b>	<b>Cardiac Arrest</b>
<b>Atropine Sulfate</b>	<b>Symptomatic Bradycardia</b>
<b>Continuous Positive Airway Pressure (CPAP)</b>	<b>Respiratory Distress over age 12</b>
<b>D50W</b>	<b>All Protocols as indicated</b>
<b>Diphenhydramine</b>	<b>Allergic Reaction</b>
<b>Epinephrine</b>	<b>Allergic Reaction</b>
<b>Epinephrine</b>	<b>Cardiac Arrest</b>
<b>Hemostatic agents</b>	<b>External bleeding that can't be controlled</b>
<b>Intraosseous Infusion</b>	<b>Cardiac Arrest or late shock</b>
<b>Intravenous Therapy</b>	<b>All Protocols as indicated</b>
<b>Lidocaine</b>	<b>Cardiac arrest</b>
<b>Naloxone</b>	<b>Altered Mental Status</b>
<b>Naloxone</b>	<b>Poisons &amp; Overdoses</b>
<b>Needle Decompression</b>	<b>Tension Pneumothorax associated with trauma arrest</b>
<b>Normal Saline (IV Solution)</b>	<b>All Protocols as indicated</b>
<b>Oxygen</b>	<b>All Protocols as indicated</b>
<b>Pulse Oximetry</b>	<b>All Protocols as indicated</b>
<b>Sodium Bicarbonate</b>	<b>Cardiac Arrest</b>

## Patient Care Protocols

### **SECTION 3: Medical Direction for Medications and Procedures (Continued)**

Revision A June 24, 2009

#### **ADULT CATEGORY B MEDICATIONS AND PROCEDURES**

Medications or procedures which may be used by the EMT - Paramedic in accordance with the protocols after contact with the medical direction physician PRIOR TO the medication/procedure being used as directed by the protocols.

<b>MEDICATION/PROCEDURE</b>	<b>PROTOCOL</b>
Activated Charcoal	Poisons & Overdoses
Adenosine	Cardiac Dysrhythmias
Atropine Sulfate	Poisons & Overdoses
Calcium Gluconate	Poisons & Overdoses
Chest Decompression	Tension Pneumothorax except when associated with trauma arrest
Diazepam	Seizures (Pediatrics)
Diazepam	Seizures (Rectal Administration)
Diphenhydramine	Pediatric Nausea and Vomiting
Dopamine	Cardiac Arrest
Dopamine	Poisons & Overdoses
Dopamine	Shock
Epinephrine	Respiratory Distress
External Pacing	Cardiac Dysrhythmias
Furosemide	Respiratory Distress
Glucagon	Hypoglycemia
Glucagon	Poisons & Overdoses
Intraosseous infusion	For critical patient other than those with cardiac arrest and late shock
Intubation (Nasal)	All Protocols as indicated
Lidocaine	Cardiac chest pain
Lidocaine	Cardiac dysrhythmias
Lorazepam	Seizures (pediatric)
Magnesium Sulfate	Preeclampsia/Eclampsia
Magnesium Sulfate	Cardiac Dysrhythmias (Torsade de Pointes)
Morphine Sulfate	Pain in children, CHF/ Pulmonary Edema
Naso-gastric Tube Placement	All Protocols as indicated
Nitroglycerin	Congestive Heart Failure
Nitroglycerin	Hypertensive Emergencies
Nitroglycerin	Respiratory Distress
Nitrous Oxide	Amputation, Burns, Cardiac Chest Pain, Fractures and Dislocations
Sodium Bicarbonate	Poisons & Overdoses

## **PEDIATRIC CATEGORY B MEDICATIONS AND PROCEDURES**

Medications or procedures which may be used by the EMT - Paramedic in accordance with the protocols after contact with the medical direction physician PRIOR TO the medication/procedure being used as directed by the protocols.

<b>MEDICATION/PROCEDURE</b>	<b>PROTOCOL</b>
<b>Activated Charcoal</b>	<b>Poisons &amp; Overdoses</b>
<b>Adenosine</b>	<b>Cardiac Dysrhythmias</b>
<b>Albuterol</b>	<b>Burns</b>
<b>Aspirin</b>	<b>Cardiac chest pain</b>
<b>Atropine Sulfate</b>	<b>Poisons &amp; Overdoses</b>
<b>Calcium Gluconate</b>	<b>Poisons &amp; Overdoses</b>
<b>Chest Decompression</b>	<b>Tension Pneumothorax except when associated with trauma arrest</b>
<b>Diazepam</b>	<b>Seizures</b>
<b>Diazepam</b>	<b>Seizures (Rectal Administration)</b>
<b>Diphenhydramine</b>	<b>Pediatric Vomiting (if unable to take ondansetron)</b>
<b>Dopamine</b>	<b>Cardiac Arrest</b>
<b>Dopamine</b>	<b>Poisons &amp; Overdoses</b>
<b>Dopamine</b>	<b>Hypotension not from hypovolemia</b>
<b>Epinephrine</b>	<b>Acute Asthma</b>
<b>External Pacing</b>	<b>Cardiac Dysrhythmias (14 years or older)</b>
<b>Furosemide</b>	<b>Pulmonary edema</b>
<b>Glucagon</b>	<b>Hypoglycemia</b>
<b>Glucagon</b>	<b>Poisons &amp; Overdoses</b>
<b>Intraosseous infusion</b>	<b>For critical patient other than those with cardiac arrest and late shock</b>
<b>Lorazepam</b>	<b>Seizures (pediatric)</b>
<b>Magnesium Sulfate</b>	<b>Preeclampsia/Eclampsia</b>
<b>Magnesium Sulfate</b>	<b>Cardiac Dysrhythmias (Torsade de Pointes)</b>
<b>Morphine Sulfate</b>	<b>Pain in children</b>
<b>Naso-gastric Tube Placement</b>	<b>All Protocols as indicated</b>
<b>Nitrous Oxide</b>	<b>Amputation, Burns, Fractures and Dislocations</b>
<b>Ondansetron</b>	<b>Vomiting</b>
<b>Orotracheal intubation</b>	<b>All Protocols as indicated</b>
<b>Rectal Administration Diazepam (Pediatric)</b>	<b>Seizures</b>
<b>Sodium Bicarbonate</b>	<b>Poisons &amp; Overdoses</b>
<b>Thiamine</b>	<b>Beriberi</b>

### SECTION 3.5 OPTIONAL MEDICATIONS AND PROCEDURES

Licensed services are required to carry and provide most of the medications and equipment necessary to perform patient care procedures as directed by the protocols. However, optional medications and procedures are NOT required, and medical directors have the option to make all, some, or none required for his/her particular service. Optional medications and procedures, listed below, are CAT A and/or CAT B as directed by the protocols and listed in the Category A and Category B tables.

MEDICATIONS	WHEN TO USE	NOTE
Amiodarone	Adult/Pediatric VFib/Pulseless Vtach	
Bougie	Difficult adult intubations	
Cyanokit (hydroxocobalamin)	Known or suspected cyanide poisoning	ADULTS ONLY
Glucagon	Hypoglycemia	
Glucagon	Poisons and Overdoses	
Lorazepam	Seizures	
Morphine Sulfate	All Protocols as Indicated	Required if Available
Nitrous Oxide	Amputation	
Nitrous Oxide	Burns	
Nitrous Oxide	Cardiac Chest Pain	
Nitrous Oxide	Fractures & Dislocations	
Vasopressin	Adult Vfib/Pulseless Vtach, PEA, Asystole ADULTS ONLY	

PROCEDURES	WHEN TO USE	NOTE
ECG (12 Lead)	Chest Pain and/or Chest Trauma	Required if Available
End-Tidal <b>Electronic</b> CO <sub>2</sub> monitoring	Intubated patient, respiratory problem, trauma patient	May replace colorimetric CO <sub>2</sub> detector in monitoring ET tube placement (use of one or the other is mandatory)
Nasogastric Tube Placement	All protocols as indicated	
Portable ventilator	Intubated patient	

# **Patient Care Protocols**

## **SECTION 4: Treatment Protocols**

**GENERAL PATIENT CARE****4.1**

**NOTE: WHEN FILLING OUT THE EPCR, THIS PROTOCOL CAN BE LISTED IF THERE IS NO SPECIFIC PROTOCOL FOR USE IN TREATING YOUR PATIENT**

**SCENE SIZE-UP****PRIMARY SURVEY TO INCLUDE HISTORY AND VITAL SIGNS****AIRWAY:**

- A. Maintain patency.
- B. Suction as needed.
- C. Consider intubation.

**BREATHING:**

- A. Oxygen as needed to maintain oxygen saturation (pulse oximeter) reading >95%.
- B. Assist breathing as needed.

**CIRCULATION:**

- A. Consider/establish IV or Saline lock.
- B. Consider drawing one or two tubes of blood for hospital or prehospital analysis.
- C. Consider ECG monitor.

**FOLLOW PROTOCOL SPECIFIC HISTORY, ASSESSMENT, AND TREATMENT  
FOLLOW COMMUNICATIONS PROTOCOL  
SECONDARY SURVEY  
ONGOING EXAM**

**COMMUNICATIONS****4.2****NOTIFY NURSE OR PARAMEDIC AT RECEIVING HOSPITAL FOR:**

- A. Stable patients.
- B. Stable patients requiring only Category A treatment.
  - Contact the nurse or paramedic as soon as reasonably possible after leaving the scene.
  - The nurse or paramedic is responsible for notifying the receiving physician.

**CALL OLMD:**

- A. Call as early as reasonably possible about all unstable patients.
- B. Before using Category B procedures or medications.
- C. If in doubt as to protocol or procedures needed.
- D. If you need medical advice.

**SPECIAL NOTE:**

When making your report to the receiving hospital, do not refer to a patient as a “psychiatric patient” unless he/she is under a psychiatric hold as described below.

In prehospital care no one who is acting inappropriately is a “psychiatric” patient, unless that patient is under a psychiatric hold by a doctor, mental health professional, or police officer. Any patient with altered mental status or inappropriate behavior should be treated according to the appropriate medical protocol, such as altered mental status.

**ALTERED MENTAL STATUS****4.5****SPECIFIC INFORMATION NEEDED:**

- A. History: Last time seen conscious or normal, Progression of symptoms, recent symptoms such as headache, seizure, confusion, or trauma. Any history of medical problems or medications, toxin exposure, seizure, or stroke? Any history of psychiatric problems, recent crisis, emotional trauma, bizarre or abrupt changes in behavior, suicidal ideas, alcohol/drug intoxication, psychotropic or behavioral drugs? If multiple patients, suspect poisoning
- B. Surroundings: Bring pill bottles, syringes etc. with patient. Note any peculiar odors in environment.

**PHYSICAL ASSESSMENT:**

- A. Vital signs. Note pupil size, symmetry, and reactivity.
- B. Mental status. Altered mental status includes not only unconsciousness or confusion, but also irrational activity such as verbal attacks, spitting, or combativeness. Note level of consciousness and neurologic status. Document GCS score if applicable. Document status each time vital signs are taken.
- C. Look for signs of trauma, needle tracks.
- D. Characteristic odor on breath.
- E. Medical alert tag.

**TREATMENT:**

- A. Continually monitor patient and environment for scene safety.  
**BE PREPARED TO EXIT THE SCENE QUICKLY.**
- B. Airway - ensure patency while maintaining cervical spine precautions if trauma is suspected.
- C. Breathing – Oxygen as needed to maintain oxygen saturation (pulse oximeter) reading >95%. If possibility of carbon monoxide poisoning, give 100% oxygen. Pulse oximeter is unreliable if carbon monoxide is present. Assist ventilations with BVM as indicated.
- D. Circulation -consider IV, Saline lock or large bore, normal saline at a TKO rate. Attach cardiac monitor and perform 12 lead ECG if possible. If shock is present, proceed to 4.27 Shock Protocol.
- E. Draw one red top tube for hospital analysis (optional if local hospital will not accept).
- F. Glucometer- Adult: glucose < 70 administer 25GM D50W IVP (CAT A).  
(Give thiamine, 100mg IVP [CAT A] before the D50W if there is any evidence of malnutrition or alcohol abuse).  
If the patient is comatose from hypoglycemia and you cannot get an IV line, consider thiamine 100mg IM (CAT A) and glucagon 1mg IM (CAT B).  
**Pediatric: Glucose <60 administer 2-4cc/kg D25W (CAT A).  
(Glucose <60 and can't get IV: consider glucagon 0.5mg IM for children under 44 lbs [CAT B]).**
- G. If respiratory depression is present, consider naloxone (CAT A.)  
Adult: 2 mg IVP, every 5 minutes up to a total of 8 mg.  
**In children <5 years, give 0.1mg/kg (>5 years or 20 kg give 2 mg).**
- H. If potentially SUICIDAL:
- Do not leave the patient alone.
  - Remove or have someone remove dangerous objects (i.e., knives, guns, pills),
  - Inquire HX regarding depression, helpless, or hopeless feelings and suicidal thoughts,
  - CAUTION: SUICIDE PATIENTS ARE POTENTIALLY HOMICIDAL.
- I. If displaying hallucinations or delusions- CAUTION OF VIOLENT BEHAVIOR.
- J. Transport in calm, quiet manner with continual monitoring.

**ALTERED MENTAL STATUS (continued)****4.5**

- K. Consider restraint, if necessary: see Patient Restraint procedure.
- L. Contact receiving hospital with patient report as soon as possible during transport.

## SPECIFIC PRECAUTIONS:

- A. In cases of dangerous environment, safety of personnel on scene is paramount.
- B. Be particularly attentive to airway. Aspiration of secretions, vomiting, and inadequate ventilations may be present in patients with severely altered mental status.
- C. Hypoglycemia may present as focal neurologic deficit or altered mental status, particularly in elderly persons. Repeated administrations of dextrose may be needed. Consult with OLMD.
- D. Any patient treated under this protocol should have a medical evaluation and should not be considered a psychiatric patient unless under a bona fide mental health hold by a physician, mental health professional, or police officer. Medical causes of altered mental status should be considered first before psychiatric causes of altered mental status.

**BURNS****4.7****SPECIFIC INFORMATION NEEDED:**

- A. Environmental Hazards - Smoke, toxic chemicals or fumes, potential for explosion, electrical sources, etc.
- B. Type of exposure - Any information concerning products involved should be collected at the scene if possible. Note if patient was in a closed space and if inhalation of smoke or fumes occurred.
- C. Duration of exposure. Associated trauma or blast injury.
- D. History of loss of consciousness.
- E. Past medical history - especially cardiac or pulmonary disorders.

**PHYSICAL ASSESSMENT:**

- A. Airway - inhalation exposure can cause airway compromise. Note presence of stridor, facial swelling, carbonaceous sputum, singed nasal hair or drooling.
- B. Breathing - smoke or chemical exposure can cause bronchospasm. Note presence of wheezing. Carbon monoxide poisoning routinely will cause dyspnea. Pulse oximeter gives false high reading in presence of carbon monoxide poisoning or cyanide poisoning.
- C. Circulation - large burns will cause severe fluid loss. Note tachycardia, signs of volume depletion and hypotension.
- D. Neurological - carbon monoxide will cause cerebral anoxia. Check for headache, confusion or decreased level of consciousness.
- E. Skin- Identify severity of burns (superficial- erythema only; partial thickness- blistered areas; full thickness - scarred or leathery areas) and extent of burns (refer to the rule of nines).
- F. Associated trauma - Burns associated with explosion have great potential for other injuries. All unconscious patients have potential for cervical spine injury. Perform rapid trauma survey.

**TREATMENT:**

- A. Take scene safety precautions
- B. Airway - maintain patency, consider intubation
- C. Breathing - Oxygen 12-15 L/M with non-rebreather mask – do not rely on pulse oximeter, as it is unreliable in the setting of carbon monoxide exposure or cyanide exposure.
- D. If known cyanide exposure or smoke inhalation victim who shows clinical evidence of closed-space smoke exposure (soot in mouth or nose, sooty sputum) and is either comatose, in shock, or in cardiac arrest, consider Cyanokit (hydroxocobalamin 5 grams) I.V. over 15 minutes (Cat. A). **Not for Peds.**
- E. If patient is wheezing, consider Albuterol (CAT A)  
Adults (CAT A): 2.5mg (nebulized, rotohaler, MDI w/spacer)  
**Pediatrics (CAT B): 2.5mg (nebulized, rotohaler, MDI w/spacer)**
- F. Circulation-
  - IV, large bore, normal saline, in unaffected area at 250 cc/hr for burns over 20%, with at least partial thickness involvement, and the hospital arrival time will be in excess of 20 minutes  
**Pediatric patients: give NS 20cc/kg over 30 minutes, then reassess.**

**TREATMENT** (continued)

- IV, large bore, normal saline, in unaffected area at KVO rate for:
    - a. All electrical burns.
    - b. Significant chemical exposures.
    - c. All inhalation exposures.
    - d. Any patient with loss of consciousness.
    - e. Any patient with potential for other associated trauma.
  
  - G. Cardiac monitor (essential if electrical exposure) -12 lead if available.
  - H. Brush off dry chemicals if present on skin before flushing with large amounts of water.
  - I. Liquid chemicals should be flushed with copious amounts of normal saline.
  - J. Eyes may be irrigated with normal saline.
  - K. Cover affected areas with a dry burn sheet..
  - L. If patient has severe pain, consider Morphine Sulfate:
    - Adult (CAT A): 4 mg IV initial dose. Titrate to pain relief in 2 mg doses, every 3-5 minutes, up to 10mg MAX.
    - Adult (CAT B): If pain is not relieved after 10 mg you must call OLMD for further doses.
- Pediatrics (CAT B): 0.1 mg/kg not to exceed 5 mg.**

**INDICATIONS TO ENTER PATIENT INTO THE TRAUMA SYSTEM AND TRANSPORT DIRECTLY TO A READY BURN CENTER IF WITHIN REGIONAL TRANSPORT TIME CRITERIA**

- A. Partial or full thickness burns >10% of the total body surface area
- B. Partial or full thickness burns of the face, hands, feet, genitalia, perineum, or major joints
- C. High voltage (1,000 volts or greater) electrical burns, including lightning injury
- D. Chemical burns with obvious partial or full thickness skin damage. Also any patient requiring decontamination in an industrial, agricultural, or law enforcement setting (Decontamination should be performed prior to transport)
- E. Inhalation injury from a thermal or chemical exposure in an enclosed area
- F. If in doubt, consult Medical Direction or the Trauma Communications Center

**SPECIFIC PRECAUTIONS:**

- A. Scene hazards - electrical wires, chemical fumes, carbon monoxide or fire. Do not attempt rescue in hazardous environment unless trained in this area.
- B. Airway involvement - Always consider the possibility of airway compromise. Airway swelling can occur rapidly. Be prepared to support patient or secure the airway if necessary via endotracheal intubation.
- C. Unconsciousness - always consider the possibility of occult head or cervical spine injury. Suspect the possibility of carbon monoxide exposure. Pulse oximeter is unreliable if carbon monoxide is present. If unconscious from smoke inhalation consider use of Cyanokit.
- D. Do not induce hypothermia by applying cold or moist dressing to burned areas as the body may lose excessive heat through burned skin. Maintaining a good core body temperature is essential

- E. Consider the possibility of abuse when certain burns are encountered. These include cigarette burns, iron burns, grill burns, and any burns in the elderly or children where the described mechanism of injury appears to be unlikely.
- F. Cardiac involvement - consider the potential for myocardial injury, ischemia and arrhythmia in any patient with electrical or inhalation injury.
- G. Avoid initiating IVs in burned areas except in extreme circumstances.
- H. Transport - Do not delay the transport of the seriously burned patient to administer volume boluses of fluid. Fluid loss occurs over the course of hours. Initiate fluids en route if burns are extensive, or the potential for airway compromise exists.

**RULE OF NINES**

When it is necessary to estimate the percentage of Total Body Surface (TBS) burns, such as making the decision to transport directly to a burn center, the rule of nines is useful. **In children, relatively more area is taken up by the head and less by the lower extremities. Accordingly, the rule of nines is modified.**

<b>ADULT Body Part</b>	<b>Percentage of Total Body Surface (TBS)</b>
Arm (shoulder to fingertips)	9 %
Head and neck	9 %
Leg (groin to toes)	18 %
Anterior trunk	18 %
Posterior trunk	18 %
Perineum	1 %

<b>Child Body Part</b>	<b>Percentage of Total Body Surface (TBS)</b>
<b>Arm (shoulder to fingertips)</b>	<b>9 %</b>
<b>Head and neck</b>	<b>18 %</b>
<b>Leg (groin to toes)</b>	<b>14 %</b>
<b>Anterior trunk</b>	<b>18 %</b>
<b>Posterior trunk &amp; Buttocks</b>	<b>18 %</b>

<b>Infant Body Part</b>	<b>Percentage of Total Body Surface (TBS)</b>
<b>Arm (shoulder to fingertips)</b>	<b>9 %</b>
<b>Head and neck</b>	<b>14 %</b>
<b>Leg (groin to toes)</b>	<b>16 %</b>
<b>Anterior trunk</b>	<b>18 %</b>
<b>Posterior trunk</b>	<b>18 %</b>

**SPECIAL NOTE:**

An accurate description of the burn, including location and severity, should be provided to the receiving facility. The rule of nines is not intended to replace such a description.

**CARDIAC ARREST****4.8****SPECIFIC INFORMATION:**

- A. History: Preceding symptoms, onset, and downtime without CPR.
- B. Past History: Diseases, medications, and allergies.
- C. Surrounding evidence of drug ingestion, penetrating, or blunt injury.
- D. Appropriateness of resuscitative efforts: In unexpected or unwitnessed cardiovascular collapse, proceed with the protocols unless obvious signs of death are present (rigor, etc.). In all others, begin treatment, and then request further information from family members. OLMD may also be of assistance. (See Administrative Protocol 8.1: Death in the Field). Once resuscitative efforts have been initiated, they should be continued until arrival at the receiving hospital, or until a joint decision has been made with Medical Direction or the attending physician, that resuscitation should cease. (See Administrative Protocol 8.1: Death in the Field).

**PHYSICAL ASSESSMENT:**

- A. Determine presence of arrest:
  - Unresponsive.
  - Absent or terminal respiration.
  - Absent pulses over major arteries.
  - Cardiac monitor for initial rhythm.

**REMEMBER TO TREAT THE PATIENT AND NOT THE MONITOR!**
- B. If signs of penetrating torso injury are present with cardiopulmonary arrest, the patient's only chance for survival is immediate transport.
  - Administer fluids per shock protocol while en route.
  - Ventilate, and transport rapidly to appropriate facility.
  - **CLOSED CHEST MASSAGE IS NOT INDICATED BEFORE TRANSPORT IN THESE CIRCUMSTANCES IF THIS MEANS A DELAY IN IMMEDIATE TRANSPORT.**
  - Once en route, contact OLMD to determine whether to continue resuscitative efforts. (See Administrative Protocol 8.1: Death in the Field).

**TREATMENT: ADULT VFIB/PULSELESS VTACH**

This sequence was developed to treat a broad range of patients with ventricular fibrillation or pulseless ventricular tachycardia. Some patients may require care not specified herein. This algorithm should not be construed as prohibiting such flexibility. Flow of algorithm presumes that VF/VT is continuing. If for any reason this protocol cannot be followed in treatment order or medication amounts, OLMD must be contacted.

- A. ABCs.
- B. Perform CPR until monitor/defibrillator is attached or until quick-look paddles are applied.
- C. Confirm VF/VT present on monitor.
- D. Defibrillate once at 360J.  
(If Biphasic Defibrillator – use the manufacturer’s recommended setting).
- E. Immediately resume CPR without checking pulse or rhythm.
- F. Reassess rhythm after five cycles of CPR.
- G. Continue CPR if still in VF/Pulseless VT.
- H. Intubate as soon as possible – ventilate at 10 breaths per minute with 100% oxygen (do not pause compressions for ventilations).
- I. Start a large bore I.V. or IO with normal saline at a TKO rate. If the patient has a venous port you may access it if you are trained and have the proper equipment.
- J. Epinephrine (CAT A)- 1 mg, 1:10,000 IV/IO every 3-5 minutes  
OR  
Vasopressin IV/IO (CAT A) - 40 units, single dose, one time only.
- K. Defibrillate 360J (or recommended Biphasic setting) AFTER EACH DOSE OF MEDICATION.
- L. After each defibrillation immediately resume CPR for five cycles before checking rhythm or pulse again.
- M. Lidocaine (CAT A)- 1.5 mg/kg, IV/IO.  
OR Amiodarone (CAT A)- 300 mg, IV/IO.
- N. If persistent, repeat Lidocaine (CAT A)- 0.75mg/kg IV/IO after 5 minutes of first dose.  
OR Repeat Amiodarone (CAT A) - 150 mg IV/IO 5 minutes after the first dose.
- O. If torsades de pointes consider loading dose of magnesium IV/IO (CAT B) - Mix 2 grams (4 cc) in 250 cc of NS and give IV/IO over 5 minutes.

**TREATMENT: ADULT ASYSTOLE & PULSELESS ELECTRICAL ACTIVITY**

This sequence was developed to assist treating a broad range of patients in asystole. Some patients may require care not specified herein. This algorithm should not be construed to prohibit such flexibility. The flow of the algorithm presumes asystole is continuing.

- A. Continue CPR.
- B. Intubate As Soon As Possible – ventilate with 100% oxygen.
- C. Start a large bore IV or IO with normal saline at a TKO rate. If the patient has a venous port you may access it if you are trained and have the proper equipment.
- D. Confirm asystole in more than one lead.  
(If rhythm remains unchanged - TREAT AS ASYSTOLE—DO NOT DEFIBRILLATE)
- E. Consider possible causes:

Possible Cause	Treatment
Hypovolemia	Fluid challenge, consider IO for Peds
Hypoxia	Airway, Oxygen, Stop bleeding
Hydrogen ion (acidosis)	Airway
Hypokalemia	Transport
Hyperkalemia (dialysis pt.)	Calcium Gluconate and Sodium Bicarbonate
Hypoglycemia	Glucose
Hypothermia	Warm cover/fluids/environment, transport
Toxins	See Poisoning & Overdose Protocol
Tamponade	Airway, Oxygen, transport
Tension Pneumothorax	Needle Decompression, Oxygen, Transport
Thrombosis	Airway, Oxygen, Transport
Trauma	Airway, Oxygen, SMR, Transport

- F. Epinephrine 1 mg, 1:10,000 IV/IO every 3-5 minutes or may give one dose of vasopressin 40 units IV/IO to replace first or second dose of epinephrine.
- G. Consider Atropine 1 mg. IV/IO or 2-3 mg ET for continued asystole or pulseless electrical activity (rate less than 60), repeat every 3-5 minutes (Maximum dose 3 mg).
- H. Consider Sodium Bicarbonate (CAT A): 1 mEq/kg. Repeat 0.5 mEq/kg q 10min.
- I. Consider Calcium Gluconate (CAT A): 1-2 grams (10-20 cc of the 10% solution)

**SPECIAL NOTES:**

- A. **Sodium Bicarbonate** (CAT A) is not recommended for routine cardiac arrest sequence. However, it will probably be helpful and should be used early in cardiac arrest if it is a known tricyclic antidepressant, cocaine, or aspirin overdose or renal failure patient with possible hyperkalemia (high potassium).
- B. **Calcium Gluconate** (CAT A) will probably be helpful and should be used early in cardiac arrest if possible hyperkalemia (usually seen in dialysis patients).

**TREATMENT: PEDIATRIC VFIB/PULSELESS VTACH**

This sequence was developed to treat a broad range of pediatric patients with ventricular fibrillation or pulseless ventricular tachycardia. Some patients may require care not specified herein. This algorithm should not be construed as prohibiting such flexibility. Flow of algorithm presumes that VF/VT is continuing. If for any reason this protocol cannot be followed in treatment order or medication amounts, OLMD must be contacted.

- A. ABCs.
- B. Perform CPR until monitor/defibrillator is attached or until quick-look paddles are applied.
- C. Confirm VF/VT is present on monitor.
- D. Defibrillate once at 2J/kg.  
(If Biphasic Defibrillator – use the manufacturer’s recommended setting)
- E. Immediately resume CPR for five cycles without checking pulse or rhythm.
- F. Reassess rhythm - if no change in rhythm, immediately continue CPR.
- G. Ventilate at appropriate rate with a bag-mask. Intubation is rarely needed.
- H. Start a large bore IV, with normal saline at a TKO rate. Consider IO if IV cannot be started. If the patient has a venous port you may access it if you are trained and have the proper equipment.
- I. Epinephrine 0.01 mg/kg (0.1 cc/kg) of 1:10,000, IVP or IO.  
Repeat at 3-5 minute intervals.
- J. Defibrillate 4J/kg (or Biphasic recommendation) AFTER EACH DOSE OF MEDICATION (do 30-60 seconds of CPR to circulate the medication first).
- K. Give Lidocaine 1.0 mg/kg, IVP/IO or Amiodarone 5 mg/kg, IVP/IO.

**TREATMENT: PEDIATRIC VENTRICULAR ASYSTOLE & PEA**

This sequence was developed to assist treating a broad range of patients in asystole and PEA. Some patients may require care not specified herein. This algorithm should not be construed to prohibit such flexibility. The flow of the algorithm presumes asystole is continuing.

- A. Continue CPR.**
- B. Ventilate at appropriate rate with bag-mask. Intubation is rarely needed.**
- C. Start large bore IV with normal saline at TKO rate. Consider IO if IV cannot be started. If the patient has a venous port you may access it if you are trained and have the proper equipment.**
- D. Confirm asystole in more than one lead (If rhythm remains unchanged - TREAT AS ASYSTOLE—DO NOT DEFIBRILLATE).**
- E. Epinephrine 0.01 mg/kg (0.1 cc/kg) of 1:10,000, IVP or IO. Repeat at 3-5 minute intervals.**
- F. Consider and treat other possible causes:**

Possible Cause	Treatment
Hypovolemia	Fluid challenge, consider IO for Peds
Hypoxia	Airway, Oxygen, Stop bleeding
Hydrogen ion (acidosis)	Airway,
Hypo/hyperkalemia	Transport
Hypoglycemia	Glucose
Hypothermia	Warm cover/fluids/environment, transport
Toxins	See Poisoning & Overdose Protocol
Tamponade	Airway, Oxygen, transport
Tension Pneumothorax	Needle Decompression, Oxygen, Transport
Thrombosis	Airway, Oxygen, Transport
Trauma	Airway, Oxygen, SMR, Transport

**NOTE: This protocol is for adults. Contact OLMC for suspected cardiac symptoms or chest pain in pediatric patients (age 15 years or less).**

**SPECIFIC INFORMATION:**

- A. "Discomfort," pressure, pain: Place, Quality, Radiation, Severity, and Time began (PQRST).
- B. Associated symptoms: Nausea, vomiting, diaphoresis, and shortness of breath, usually not pleuritic.
- C. Past History: Cardiac or pulmonary events; medications; drug allergies, syncopal episodes.
- D. Risk Factors: Determine family history, smoking, obesity, age, and related diseases.

**PHYSICAL ASSESSMENT:**

- A. General appearance.
- B. Vital signs should be obtained and recorded not less than every 10 minutes, and after each medication administration and during transport. Symmetry of pulses should be recorded at least once.
- C. Observe for neck vein distention and peripheral edema, and if present, suspect Congestive Heart Failure.
- D. Breath and chest sounds: rales (crackles), rhonchi, and wheezes. If present suspect Congestive Heart Failure.
- E. Chest wall tenderness does not rule out cardiac ischemia.
- F. Examine abdomen.

**TREATMENT:**

- A. Reassure and place patient at rest in position of comfort.
- B. Airway - maintain patency.
- C. Breathing - Oxygen to maintain oxygen saturation (pulse oximeter) reading >95%.
- D. Circulation - attach monitoring equipment and treat dysrhythmias per Cardiac Dysrhythmia Protocol. A 12-lead ECG must be performed on the patient unless the ALS unit has no 12-lead device. The 12-lead ECG must be transmitted to the receiving hospital in advance of patient arrival unless transmission is not possible, in which case the 12-lead ECG should be delivered with the patient.
- E. If vital signs are stable, consider Saline lock IV.
- F. If vital signs are unstable, start IV (saline lock or large bore) with normal saline at TKO rate.
- G. Consider drawing appropriate tube of blood for hospital or prehospital analysis.
- H. Give nitroglycerin 0.4 mg if systolic blood pressure is greater than 90 mm/hg; repeat twice at five-minute intervals if pain persists. Nitroglycerin may be administered by tablet or spray sublingual. The EMT may assist patient in administration of his/her own nitroglycerin.
- I. Provide four chewable baby aspirin if the patient can swallow.  
Contraindications to administration of Aspirin:
  - An Allergy to aspirin.
  - Current G.I. Bleeding.
  - Already received 324 mg of aspirin (not just 81 mg) in last 24 hours.
- J. Consider Morphine Sulfate:  
Adult (CAT A): 4 mg IV initial dose. Titrate to pain relief in 2 mg doses, every 3-5 minutes, up to 10mg MAX.  
Adult (CAT B): If pain is not relieved after 10 mg you must call OLMC for further doses.

K. Consider Nitrous Oxide if available. (CAT B)

Treatment Protocol

Revision B June 24, 2009

**CARDIAC SYMPTOMS/ACUTE CORONARY SYNDROME (Continued) 4.10**

L. Consider Lidocaine. (CAT B)

M. If cardiogenic shock syndrome presents in patients with chest pain—go to Shock Protocol (4.27).

N. Continue monitoring cardiac, vitals, etc. and record during transport.

O. Complete the cardiac thrombolytic check list (Forms 10.2) during transport.

**SPECIFIC PRECAUTIONS:**

**A. This protocol is for adults, contact OLMD for suspected cardiac symptoms or chest pain in pediatric patients.**

B. Suspicion of cardiac disease causing chest pain or discomfort is based on history obtained. Read monitor rhythm strip for rhythm only; ST segment changes are not reliable.

C. Since time to thrombolytics is critical, minimize scene times when possible. Most interventions and treatments should be performed en route.

D. Minimize needle sticks if thrombolytic therapy is possible.

E. Lidocaine should NOT be given without OLMD (CAT B). Relative contraindications:

- Heart rate is less than 50/min, OR
- Periods of sinus arrest or 2nd or 3rd degree A-V block are present.

F. Morphine Sulfate (CAT A) should be administered slowly. Titrate to effect.

- May compromise respiration.
- May cause hypotension in volume depleted patients.
- May be reversed with naloxone.

G. Nitroglycerin may cause hypotension in patients taking medication for erectile dysfunction.

**SPECIFIC INFORMATION NEEDED:**

- A. History of pregnancy(s): Due date, bleeding (recent, within 1 week), swelling of face or extremities, and prior problems with pregnancy. Known multiple pregnancies? Ask patient if she feels as though she is delivering: i.e., rectal pressure.
- B. Current problems: If pain, where?, regular?, timing?, ruptured membranes?, urge to push?
- C. Medical history: Medications, medical problems, patient's age, and number of prior pregnancies.

**PHYSICAL ASSESSMENT:**

- A. Vital signs. Fetal heart rate, if possible.
- B. Swelling of face or extremities.
- C. Contractions and relaxation of uterus.
- D. Where privacy is possible, inspect perineum for:
  - Vaginal bleeding or fluid: Color?
  - Crowning (check during contraction).
  - Abnormal presentation (foot, arm, cord, or breech).

**TREATMENT:**

- A. Airway - ensure patency.
- B. Breathing - Oxygen to maintain oxygen saturation (pulse oximeter) reading >95%.
- C. Circulation – start IV, Saline lock or large bore, with normal saline at TKO rate.
- D. If signs of shock, proceed to SHOCK PROTOCOL (4.28).
- E. If not pushing or bleeding, transport left lateral recumbent position.
- F. Immediate transport category: previous cesarean section, known imminent multiple births, abnormal presenting parts, excessive bleeding, and premature birth.

**G. NORMAL DELIVERY:**

- ABCs (above).
- Clean or sterile technique.
- Guide and control delivery.
- Suction, mouth (not throat), then nose with bulb syringe after head delivers and before torso delivers.
- Check for cord around the neonate's neck when head is visible and after suctioning.
- Protect neonate from falls and temperature loss.
- Clamp cord in two places approximately 8" - 10" from neonate.
- Cut cord between clamps.
- Wrap newborn in clean or sterile blanket.
- Check vitals: if compromised, initiate resuscitation.
- Give neonate to mother, allow to nurse (aids in contracting uterus).
- If excessive maternal bleeding, massage uterus gently and proceed to Shock Protocol.
- Transport, do not wait to deliver placenta.
- If placenta delivers spontaneously, bring to hospital.
- Determine APGAR score at birth and five minutes later.
- Monitor neonate and mother.

**CONGESTIVE HEART FAILURE****4.14****SPECIFIC INFORMATION:**

- A. History: Acute insult or injury? Slow deterioration? Obtain careful history of fever, chills, and purulent sputum products.
- B. Past history: Chronic lung or heart problems (diagnosis?), medications or home oxygen?
- C. Associated symptoms: Chest pain; paresthesias of mouth or hands.

**PHYSICAL ASSESSMENT:**

- A. Vital signs including pulse oximeter to maintain oxygen saturation >95%.
- B. Level of consciousness.
- C. Cyanosis.
- D. Signs of congestive failure: distended neck veins when upright, wet lung sounds, possible wheezing, possible blood-tinged sputum, and/or peripheral edema.

**TREATMENT:**

- A. Airway - ensure patency.
- B. Breathing - Oxygen 12-15 L/M, non-rebreather mask.
  - Upright sitting position
  - Be prepared to assist ventilations with bag-valve-mask.
  - Pulse oximeter, maintain oxygen saturation > 95%.
- C. Circulation - cardiac monitor
  - Consider 12-lead if available.
  - Start IV, Saline lock or large bore, with normal saline at a TKO rate.
  - If hemodynamically unstable, utilize Shock Protocol (4.28).
- D. If symmetrical crackles present (pulmonary edema):
  - Nitroglycerin (CAT A): 0.4 mg sublingual (tablet or spray) if systolic BP is >110.
  - CPAP (if no contraindications – see below) (CAT A)
  - Furosemide (CAT B): 20-40 mg IVP.
  - Morphine Sulfate (CAT B): 2-4 mg IV slowly. Watch for respiratory depression.
- E. If wheezing is present (cardiac asthma):
  - Inhalation therapy with Albuterol (CAT B): 2.5mg (nebulized, rotohaler, MDI w/spacer).
  - You may assist patient with self administration of prescription bronchodilator.
- F. Consider use of CPAP if the following are present:
  - Dyspnea/hypoxemia secondary to congestive heart failure or acute cardiogenic pulmonary edema
  - Patient is awake and oriented.
  - Patient has the ability to maintain an open airway.
- G. Contact receiving hospital with patient report as soon as possible during transport.

**NEAR DROWNING****4.22****SPECIFIC INFORMATION NEEDED:**

- A. How long patient was submerged?
- B. Approximate temperature of water.
- C. Associated trauma. Did patient jump or dive into water? Was MVC involved?
- D. Was this a Scuba diving accident?

**PHYSICAL ASSESSMENT:**

- A. Vital signs.
- B. Neurologic status: Note, record, and monitor mental status.
- C. Initial presence of crackles or other signs of pulmonary edema, and/or respiratory distress. Monitor any changes during transport.

**TREATMENT:**

- A. If chance of spinal injury- **STABILIZE CERVICAL SPINE IMMEDIATELY.**
- B. Airway - clear upper airway, ensure patency, and consider intubation (vomiting precautions).
- C. Breathing - Oxygen 15 L/M, by non-rebreather mask, assist with BVM and suction as necessary. Consider CPAP in all cases of near drowning (CAT. A)
- D. Circulation - attach cardiac monitor, perform 12-lead ECG if available.
- E. Start IV, Saline lock or large bore, with normal saline at a TKO rate.
- F. Glucometer- Adult: glucose < 70 administer 25GM D50W IVP (CAT A)  
(Give thiamine, 100mg IVP [CAT A] before the D50W if there is any evidence of malnutrition or alcohol abuse).  
If the patient is comatose from hypoglycemia and you cannot get an IV line, consider thiamine 100mg IM (CAT A) and glucagon 1mg IM (CAT B).  
**Pediatric: Glucose below 60 administer 2-4cc/kg D25W (CAT A)  
(Glucose <60 and can't get IV: consider glucagon 0.5mg IM for children under 44 lbs [CAT B]).**
- G. Consider body temperature - refer to Hypothermia Protocol (4.22).
- H. Contact receiving hospital with patient report as soon as possible during transport.

**SPECIFIC PRECAUTIONS:**

- A. If patient is still in water, rescue by trained, equipped personnel only.
- B. Patient will vomit, protect the airway!
- C. All NEAR-DROWNING SHOULD BE TRANSPORTED. Even if patients initially appear fine, they can deteriorate. Monitor closely. Pulmonary edema is likely.
- D. Hypothermia may be a problem. If suspected, refer to hypothermia protocol (4.21).
- E. It is a common error to underestimate injuries in near-drowning from diving, jumping, MVC, etc.

**SPECIFIC INFORMATION NEEDED:**

- A. Scene safety? Do not enter an area that is possibly contaminated with a hazardous material unless properly protected. Do not enter scene if physical danger is present. Wait for police and/or HazMat to clear or secure a dangerous scene.
- B. Type of ingestion: What, when and how much was ingested? Bring the poison, the container, and everything questionable in the area with the patient to the Emergency Department. Look for multiple patients with same signs and symptoms.
- C. Reason for ingestion: Screen for child neglect, and/or suicidal problem.
- D. Past history: Medications, diseases, psychiatric history, and/or drug abuse.
- E. Action taken by bystanders: Induced emesis: "antidote" given?

**PHYSICAL ASSESSMENT:**

- A. Vital signs.
- B. Level of consciousness.
- C. Breath odor.
- D. Neurologic status.
- E. Eye findings - pupil size, reactivity, and equality.
- F. Vomitus.
- G. Needle marks or tracks.
- H. SLUDGES? (Salivation, Lacrimation, Urination, Defecation, Gastric Emesis, and Sweating)

**TREATMENT:****A. EXTERNAL / INHALATION POISONING**

1. If local protocol does not exist, consider Hazardous Material Protocol.
2. Protect medical personnel.
3. Remove the patient from contaminated area or remove contaminant from the patient.
4. Remove contaminated clothing.
5. Flush contaminated skin and eyes with copious amounts of water.
6. Airway - ensure patency.
7. Breathing - Oxygen 15 L/M, by non-rebreather mask, maintain oxygen saturation (pulse oximeter) reading >95%, assist with BVM if necessary.
8. If suspicion of Carbon Monoxide poisoning, remember pulse oximeter is unreliable.
9. Circulation - cardiac monitor.
10. Start IV, Saline lock or large bore, with normal saline at TKO rate.
11. If shock syndrome present, proceed to Shock Protocol.
12. If cholinergic poisoning (organophosphate, SLUDGE), administer Atropine (CAT B)  
Adults (CAT B): 2mg IVP every 5 minutes; titrate to effect.  
**Pediatrics (CAT B): 0.02mg/kg IVP. MIN dose 0.1mg, MAX single dose is 0.5mg.**
13. Contact receiving hospital with patient report as soon as possible during transport.

**B. INTERNAL POISONING**

1. Airway - ensure patency (vomiting precautions).
2. Breathing - Oxygen 15 L/M, by non-rebreather mask, maintain oxygen saturation (pulse oximeter) reading >95%, assist with bag-valve-mask if necessary.
3. Circulation - attach cardiac monitor
4. Start IV, Saline lock or large bore, with normal saline at a TKO rate.
5. If shock syndrome present, proceed to Shock Protocol.
6. If depressed respirations/diminished responsiveness consider Naloxone (CAT A)  
Adult: 2 mg IVP every 3 minutes up to a total of 8 mg. If unable to get IV may give 4 mg by ET.

**Pediatrics: 0.1 mg/kg until age 5 years or 20kg; 2 mg for above age 5 years or above 20kg.**

7. Draw one red top tube for hospital analysis (optional if local hospital will not accept).
8. Glucometer- Adult: glucose <70 administer 25GM D50W IVP (CAT A).  
(Give thiamine, 100mg IVP [CAT A] before the D50W if there is any evidence of malnutrition or alcohol abuse).

If the patient is comatose from hypoglycemia and you cannot get an IV line, consider thiamine 100mg IM (CAT A) and glucagon 1mg IM (CAT B).

**Pediatric: Glucose < 60 administer 2-4cc/kg D25W (CAT A)  
(Glucose <60 and can't get IV: consider glucagon 0.5mg IM for children under 44 lbs [CAT B]).**

9. Consider administration of Activated Charcoal (CAT B) - Contact OLMD.
10. If tricyclic antidepressant (Include: amitriptyline, amoxapine, ascendin, desipramine, desyrel, elavil, endep, imipramine, ludiomil, norpramine, pamelor, sinequan, triavil, tofranil, and others):
  - Hyperventilate stuporous patients at a rate of at least 20/min. if possible.
  - Treat hypotension with volume replacement (dopamine or other vasoconstrictive medications are contraindicated)
  - Administer 1 mEq/kg of Sodium Bicarbonate, slow IVP (CAT B).
11. If known beta blocker overdose consider glucagon (CAT B): adult 1mg IV.

**Peds 0.5mg IV for children under 44 lbs.**

12. If known calcium channel blocker overdose with hypotension consider:
  - Calcium gluconate (CAT B): adult 1-2 grams IV,  
**Peds 60mg/kg [0.6cc/kg] IV – maximum dose 1 gram**
  - Glucagon (CAT B). adult 1mg IV,  
**Peds 0.5 mg IV for children under 44 lbs.**

**NOTE: flush the line with saline between giving calcium and glucagon to prevent precipitation.**

13. If known cyanide exposure or smoke inhalation victim who shows clinical evidence of closed-space smoke exposure (soot in mouth or nose, sooty sputum) and is either comatose, in shock, or in cardiac arrest, consider Cyanokit (hydroxocobalamin 5 grams) I.V. over 15 minutes (Cat. A). **Not for Peds.**
14. If dysrhythmias present, proceed to Cardiac Dysrhythmia Protocol (4.11).
15. Contact OLMD if additional ALS intervention is necessary.
16. Contact receiving hospital with patient report as soon as possible during transport.

**POISONS AND OVERDOSES** (Continued)**4.23****SPECIFIC PRECAUTIONS:**

- A. Inhalation poisoning is particularly dangerous to rescuers. Recognize an environment with continuing contamination and extricate rapidly by properly trained and equipped personnel.
- B. Do not induce vomiting.
- C. Do not try to neutralize acids with strong alkalis. Do not try to neutralize alkalis with acids.
- D. Activated charcoal is ineffective in some ingestions such as heavy metals, mineral acids, petroleum products or cyanide.
- E. Each OLMD physician is encouraged to involve the Poison Control Center in the decision making to determine treatment and whether transport is appropriate.

**RESPIRATORY DISTRESS****4.25****SPECIFIC INFORMATION:**

- A. History: Acute insult or injury, or slow deterioration. Obtain careful history of fever, chills, and purulent sputum products.
- B. Past history: Chronic lung or heart problems (diagnosis?); medications, home oxygen, past allergic reactions, or recent surgery.
- C. Associated symptoms: Chest pain, and/or paresthesias of mouth or hands.

**PHYSICAL ASSESSMENT:**

- A. Vital signs including pulse oximetry to maintain oxygen saturation >95%.
- B. TACHYPNEA:
  - **Birth to 6 months > 60 BPM.**
  - **7 months to 1 yr > 40 BPM.**
  - **2-4 years > 30 BPM.**
  - **Over 5 years > 20 BPM.**
- C. Level of consciousness.
- D. Cyanosis.
- E. Evidence of upper airway obstruction: Hoarseness, bucking, drooling, coughing, inspiratory stridor, irrational behavior, and/or poor cooperation.
- F. Evidence of lower airway obstructions: Breath sounds: Clear, crackles, wheezing, symmetrical, and/or labored. Abnormality on inspiration or expiration?
- G. Secondary findings. Signs of congestive failure: Distended neck veins when upright, wet lung sounds, and/or peripheral edema.
- H. Hives, and/or airway edema.
- I. Evidence of trauma.

**TREATMENT:**

- A. Airway - ensure patency.
  - If partial or complete obstruction: follow AHA's guidelines for management of conscious or unconscious obstructed airway.
  - **If croup or epiglottitis, calm the patient as much as possible. Have parent hold child in arms and give oxygen.**
  - Consider intubation **(not for epiglottitis or croup).**
- B. Consider allergic reaction. If present, treat per Allergic Reaction Protocol (Severe).
- C. Breathing - Oxygen 12-15 L/M, by non-rebreather mask, be prepared to assist ventilations with bag-valve-mask, pulse oximeter, to maintain oxygen saturation of >95%.
- D. Circulation - attach cardiac monitor. Perform 12 lead ECG if available.
  - If vital signs are stable consider IV, Saline lock or large bore, with normal saline at TKO rate.
  - If vital signs are unstable utilize Shock Protocol with IV, large bore, with normal saline at TKO rate and adjust to patient's needs.
- E. If wheezing is present (asthma, allergic reaction, or burns with wheezing): Inhalation therapy with Albuterol (CAT. A) en route. Dosage for adults and **children** is 2.5 mg Albuterol administered by nebulization, rothaler, or by metered dose inhaler with spacer.

**RESPIRATORY DISTRESS** (Continued)**4.25****TREATMENT (continued):**

- G. If symmetrical crackles present (pulmonary edema): Nitroglycerin and CPAP are CAT A. All other treatment is CAT B - Contact OLMD:
- Nitroglycerin (CAT A): 0.4 mg sublingual (tablet or spray) if systolic BP > 110 mm Hg.
  - CPAP (CAT A.)
  - Furosemide (CAT B): 20-40 mg IVP.
  - Morphine Sulfate (CAT B): 2-4 mg slowly IV. Watch for respiratory depression.
- H. If pneumothorax is present - watch for signs of tension and transport immediately. If tension pneumothorax is suspected, contact OLMD about possible decompression.
- I. If symptoms and signs are consistent with asthma, COPD, pulmonary edema, CHF, or pneumonia and the patient continues to have SPO<sub>2</sub> reading < 95% after oxygen therapy, consider CPAP (CAT A).
- J. Consider endotracheal intubation (CAT A) for those patients who have indications (See 6.1).
- K. Contact OLMD if additional ALS intervention is necessary.
- L. Contact receiving hospital with patient report as soon as possible during transport.

**BREATH SOUNDS IN RESPIRATORY DISTRESS**

<b>Characteristics</b>	<b>Possible Diagnosis</b>
Clear, symmetric	Hyperventilation, MI, metabolic, or pulmonary embolus
Crackles, symmetric	Pulmonary edema, extensive pneumonia
Wheezing, symmetric	Asthma, pulmonary edema, COPD, or allergic reaction
Clear, asymmetric or absent	Pneumothorax, pulmonary embolus, COPD
Crackles, asymmetric	Pneumonia, pulmonary edema
Wheezing, asymmetric	Foreign body, pulmonary embolus, COPD

**SPECIFIC PRECAUTIONS:**

- A. If you are unable to differentiate the cause of the respiratory distress, the proper course is to administer oxygen and transport. When in doubt and the patient is in severe distress, discuss your alternatives with OLMD.
- B. Wheezing in older persons is frequently due to pulmonary edema, not asthma. Your patient may make the wrong diagnosis. Consider also pulmonary embolus.
- C. Children with croup, epiglottitis, or laryngeal edema usually have respiratory arrest due to exhaustion or spasm. You will still be able to ventilate with mouth-to-mouth, pocket mask or bag/valve/mask technique. Do not attempt intubation. Note compliance.**
- D. Do not over diagnose "hyperventilation" in the field. Your patient could have a pulmonary embolus or other serious problem: give him/her the benefit of the doubt. Treatment with oxygen will not harm the person hyperventilating, and it will protect you from underestimating the problem.

**SPECIFIC INFORMATION NEEDED:**

- A. Seizure history: Onset, time interval, previous seizures, and type of seizure. Consider febrile seizures in children.
- B. Medical history: Medications and compliance, head trauma, diabetes, headaches, drugs, alcohol, and/or pregnancy. If the patient is pregnant, in the last trimester, and has hypertension and edema go to the Preeclampsia/Eclampsia protocol.

**PHYSICAL ASSESSMENT:**

- A. Vital signs including pulse oximetry to maintain oxygen saturation of >95%.
- B. Seizure activity. Determine focal or generalized and length.
- C. Level of consciousness.
- D. Head and facial trauma.
- E. Incontinence. (Urinary and/or fecal).
- F. Focal neurologic signs.
- G. Headache.

**TREATMENT:**

- A. Airway - ensure patency - nasopharyngeal airways may be useful.
- B. DO NOT FORCE ANYTHING BETWEEN THE TEETH.
- C. DO NOT USE BLIND INSERTION AIRWAY DEVICES.
- D. Breathing - Oxygen 12-15 L/M, by non-rebreather mask.
- E. Pulse oximeter – maintain oxygen saturation >95%, assist ventilations if necessary, and suction as needed.
- F. Circulation - attach cardiac monitor, Perform twelve lead if any suspicion of cardiac or stroke etiology.
- G. Consider Saline lock IV if patient is not continually seizing.
- H. If patient actively or continually seizing, start IV or IO, Saline lock or large bore, with NS at TKO rate.
- I. Glucometer- Adult: <70 administer 25GM D50W IVP (CAT A).  
(Give thiamine, 100mg IVP [CAT A] before the D50W if there is any evidence of malnutrition or alcohol abuse).  
If the patient is comatose from hypoglycemia and you cannot get an IV line, consider thiamine 100mg IM (CAT A) and glucagon 1mg IM (CAT B.)  
**Pediatric: Glucose < 60 administer 2-4cc/kg D25W (CAT A)**  
**(Glucose <60 and can't get IV: consider glucagon 0.5mg IM for children under 44 lbs [CAT B]).**
- J. Administer diazepam or lorazepam(Adult CAT A, Pediatrics CAT B):  
Diazepam:  
Adults: 5-10 mg IV for continual grand mal seizure activity in adults.  
**Pediatrics (CAT B): Under 5 years of age slow IV push (0.2-0.5 mg/kg) until seizure stops to maximum of 5 mg; or rectally, 0.5 mg/kg. Over 5 years of age slow IV push 1 mg until seizure stops to a maximum of 5 mg.**  
Lorazepam:  
Adults (CAT A): 1-2 mg IV slowly.  
**Pediatrics (CAT B): Neonates- 0.05 mg/kg slowly IV.**  
**Infants/Children-0.1 mg/kg slowly IV, Max dose 2 mg.**

**SEIZURES** (Continued)**4.26**

- K. Left lateral recumbent position for transport.
- L. Contact receiving hospital with patient report as soon as possible during transport.
- M. Document patient's level of consciousness at time of transport.

**SPECIFIC PRECAUTIONS:**

- A. Move hazardous material away from patient. Restrain the patient only if needed to prevent injury. Protect patient's head.
- B. Trauma to tongue is unlikely to cause serious problems. Trauma to teeth may occur.
- C. Attempts to force an airway into the patient's mouth can completely obstruct his airway.
- D. Seizures in patients over the age of 50 are frequently caused by arrhythmias.
- E. Medical personnel are often called to assist epileptics who seize in public. If patient clears completely and does not request transport, is taking his medications, has his own physician and is experiencing his usual frequency of seizures, transport may be unnecessary. Document patient's mental status and have patient sign a refusal form.
- F. Don't forget to check for a pulse once a seizure terminates. Seizure activity may be the first sign of cerebral hypoxia from cardiac arrest.
- G. Focal motor seizures are generally not treated in the prehospital setting.
- H. Seizures in pediatric patients are commonly febrile seizures and are usually benign and short lived.**

**SHOCK SYNDROME** for purposes of these protocols is defined as inadequate organ perfusion. Signs and symptoms may include, but are not limited to:

- A. Pulse over 120 with systolic BP < 90 mmHg (adult) in conjunction with suspected blood loss.
- B. Skin cold and clammy. (May be absent in early septic shock).
- C. Mental status: Confusion, restlessness, and/or apathy.
- D. Other: Marked thirst.

#### **CLASSIFICATION OF SHOCK:**

Determine the type of shock, so that appropriate treatment may be started in the field.

- A. Hypovolemic Shock: Shock characterized by the loss of circulating blood volume. This may be due to direct hemorrhage or through loss of fluids from severe vomiting, diarrhea, burns and or peritonitis.
- B. Cardiogenic Shock: Pump failure.
- C. Distributive Shock: Characterized by abnormal vascular tone. Includes anaphylaxis, early sepsis, and neurogenic shock.
- D. Obstructive Shock: Mechanical obstruction to blood flow to or from the heart. Includes cardiac tamponade, tension pneumothorax, dissecting aneurysm, and pulmonary embolism.

#### **TREATMENT: HYPOVOLEMIC SHOCK**

- A. Airway - ensure patency.
- B. Breathing - Oxygen 12-15L/M, by non-rebreather mask, assist ventilations with BVM as needed.
- C. Pulse oximeter – maintain oxygen saturation >95%.
- D. Circulation - attach cardiac monitor, perform 12 lead ECG if available.
- E. Stop significant external hemorrhage, if present. If external bleeding from an extremity cannot be controlled by pressure, application of a tourniquet is the reasonable next step in hemorrhage control. Use a hemostatic agent if unable to stop severe bleeding with pressure or tourniquet.
- F. IV, with normal saline, large bore times two if sites permit (CAT A):  
Adults: Consider fluid challenge of 250cc bolus, reassess, and then titrate to a B/P high enough to provide adequate perfusion.  
Patients with history of hypertension, or with head injury, do not tolerate mild hypotension. In these cases, titrate to a systolic B/P of 120 mmHg.  
If a patient in hypovolemic shock has a venous port you may access it if you have been trained and have the equipment.  
**Pediatrics: 20 cc/kg, reassess. May repeat up to 3 times.**
- G. Consider hypothermia—hypothermia due to major heat loss must be considered and treated even in warm weather—proceed to Hypothermia Protocol.
- H. DO NOT DELAY TRANSPORT. TREAT PATIENT ENROUTE.
- I. Contact receiving hospital with patient report as soon as possible during transport.

**TREATMENT: CARDIOGENIC SHOCK**

- A. Airway - ensure patency.
- B. Breathing - Oxygen 12-15 L/M, by non-rebreather mask, maintain oxygen saturation >95%.
- C. Circulation - attach cardiac monitor. Perform 12 lead ECG if available. If dysrhythmia identified, proceed to appropriate Cardiac Dysrhythmia Protocol.
- D. IV, Saline lock or large bore, with normal saline at TKO rate.
- E. Contact receiving hospital with patient report as soon as possible during transport.
- F. Consider Dopamine drip (CAT B):  
Adult (CAT B): 2-5 mcg/kg/min. Titrate by 2-5 mcg/kg/min until 2-5 desired effect is achieved. Microdrip chamber only. See dosage chart.

**Pediatric (CAT B): Rate starts 2-5 mcg/kg/min. Titrate to effect.**

**TREATMENT: DISTRIBUTIVE SHOCK**

- A. Anaphylaxis - proceed to Allergic Reaction Protocol (Severe).
- B. Sepsis and Neurogenic:
- C. Airway - ensure patency.
- D. Breathing - Oxygen 12-15 L/M, by non-rebreather mask, (COPD caution).
- E. Pulse oximeter – to maintain oxygen saturation >95%.
- F. Assist ventilations if needed with bag-valve-mask.
- G. Consider intubation.
- H. Circulation- attach cardiac monitor.
- I. IV, large bore, with normal saline at TKO rate.
- J. If hypotensive, consider fluid challenge (20 cc/kg at 250 cc per bolus).
- K. Consider Dopamine drip (CAT B):  
Adult (CAT B): 2-5 mcg/kg/min. Gradual increase by 2-5 mcg/kg/min until 2-5 desired effect is achieved. Microdrip chamber only. See dosage chart.

**Pediatric (CAT B): Rate starts 2-5 mcg/kg/min. Titrate to effect.**

- L. Contact receiving hospital with patient report as soon as possible during transport.

**TREATMENT: OBSTRUCTIVE SHOCK**

- Cardiac Tamponade
- Tension Pneumothorax
- Dissecting Aneurysm
- Pulmonary Embolism

- A. Airway - ensure patency
- B. Breathing - Oxygen 15 L/M, by non-rebreather mask,
- C. Pulse oximeter – to maintain oxygen saturation >95%.
- D. Circulation - attach cardiac monitor.
- E. Closely monitor vital signs.
- F. IV, large bore, with normal saline at TKO rate.
- G. If SEVERE HYPOTENSION, contact OLMD for appropriate fluid flow rate.
- H. Consider Dopamine drip (CAT B):  
Adult (CAT B): 2-5 mcg/kg/min. Gradual increase by 2-5 mcg/kg/min until 2-5 desired effect is achieved. Microdrip chamber only. See dosage chart.

**Pediatric (CAT B): Rate starts 2-5 mcg/kg/min. Titrate to effect.**

**SHOCK (continued)****4.27**

- I. Transport rapidly.
- J. Contact receiving hospital with patient report as soon as possible during transport.
- K. Contact OLMD if patient has a symptomatic tension pneumothorax

This protocol is for patients who have an ACUTE episode of neurological deficit without any evidence of trauma. If patient has altered mental status, consider other causes such as hypoxia, hypoperfusion, hypoglycemia, trauma, or overdose.

### **SPECIFIC INFORMATION NEEDED**

- A. Last (clock) time patient was seen normal. Determination of time of symptom onset is critical as treatment for stroke can be time dependent.
- B. Did the patient have a previous neurologic deficit?
- C. Does the patient have stroke risk factors (i.e., hypertension, diabetes, heart disease, smoking, dysrhythmias, coumadin or heparin use, or previous stroke)?
- D. Has the patient had any recent similar events?
- E. Medic Alert tags?

### **PHYSICAL ASSESSMENT**

- A. Vital signs: Glasgow Coma Scale Score.
- B. Rapid physical exam

Perform FAST stroke scale (Face, Arm, Speech, Time):

1. **Face:** Assess for facial droop: have the patient show teeth or smile
  - Normal – both sides of face move equally
  - Abnormal – one side of face does not move as well as the other side
2. **Arm:** Assess for arm drift: have the patient close eyes and hold both arms straight out; with palms up, for 10 seconds
  - Normal – both arms move the same *or* both arms do not move at all
  - Abnormal – one arm does not move or one arm drifts down compared to the other
3. **Speech:** Assess for abnormal speech: have the patient say “you can’t teach an old dog new tricks”
  - Normal – patient uses correct words with no slurring
  - Abnormal – patient slurs words, uses the wrong words, or is unable to speak
4. **Time:** If any of above are positive, attempt to determine the time of symptom onset (clock time).

NOTE: THERE IS NO SCORE, if 1, 2, or 3 are abnormal, the probability of a stroke is 72%.

### **TREATMENT:**

- A. Airway - ensure patency, consider intubation if unconscious patient with no gag reflex.
- B. Breathing - Oxygen 12-15 L/M, by non-rebreather mask. Assist ventilations with bag-valve-mask if necessary. Pulse oximeter to maintain oxygen saturation >95%.
- C. Circulation - attach cardiac monitor, perform 12 lead ECG if available.
- D. Keep patient NPO
- E. Glucometer: Adult: <70 administer 25GM D50W IVP (CAT A)  
(Give thiamine, 100mg IVP [CAT A] before the D50W if there is any evidence of malnutrition or alcohol abuse).  
If the patient is comatose from hypoglycemia and you cannot get an IV line, consider thiamine 100mg IM (CAT A) and glucagon 1mg IM (CAT B).
- G. IV or Saline lock with large bore, with normal saline at TKO rate.
- H. If patient has signs of dehydration, call OLMD and follow his/her orders.

- I. Place patient supine.
- J. Transport with frequent monitoring of neurological function.
- K. Complete the stroke checklist (Form10.3) on the patient.
- L. Contact receiving hospital with patient report as soon as possible during transport.

**SPECIAL PRECAUTIONS**

- A. High blood pressure during an acute stroke may be compensatory, do not attempt to lower it without consulting OLMD.
- B. Intravenous glucose may aggravate the effects of ischemia upon brain tissue. Do not administer glucose unless hypoglycemia is documented. Do not fail to treat hypoglycemia.
- C. If in a region with a stroke system, call the ATCC and transport the patient to the appropriate ready stroke center. The ATCC will notify the hospital to activate their stroke team.
- D. If in a region without a stroke system, notify the receiving facility that you are bringing a possible stroke patient.

**SPECIFIC INFORMATION NEEDED:**

- A. When did symptoms begin?
- B. Is the cause of the vomiting known?
- C. Has the patient ingested any potential poison or spoiled food?
- D. Has there been blood or material like coffee grounds in the vomitus?
- E. Has the patient also had diarrhea?
- F. If female of child-bearing age, is the patient pregnant?
- G. Are there any associated symptoms (such as abdominal pain)?
- H. Does the patient have a head injury or severe headache?
- I. If headache, is there a history of migraine headaches?

**PHYSICAL ASSESSMENT:**

- A. Vital signs (are there signs of shock)?
- B. Skin: Are there signs of dehydration (poor skin turgor, dry mucous membranes)?
- C. Is jaundice present?
- D. Head: any sign of head trauma?
- E. Abdomen: Tenderness, rebound tenderness, guarding, rigidity, bowel sounds, and distention.
- F. Neurologic exam: LOC, pupils, and focal findings?

**TREATMENT**

ADULT (CAT A): Ondansetron (Zofran) 4 mg IV or IM

**PEDIATRIC (CAT B): 1 month to 12 years and <40 kg**

**Administer Ondansetron (Zofran) 0.1mg/kg IV or IM not to exceed 4 mg**

**PRECAUTIONS:**

- A. Can cause allergic reactions
- B. Can cause extrapyramidal reactions
- C. Must call for order before giving to a child (CAT B)

# **Patient Care Protocols**

## **SECTION 5: MEDICATIONS**

**This section of the protocols is intended as information only. Medications may be administered only as defined by protocol unless online medical direction orders a deviation.**

**ALBUTEROL****5.3****PHARMACOLOGY AND ACTIONS:**

Albuterol sulfate is a potent, relatively selective beta<sub>2</sub>-adrenergic bronchodilator. The pharmacological effects are at least in part attributable to stimulation through beta- adrenergic receptors of intracellular adenylyl cyclase which catalyzes the conversion of ATP to cyclic-AMP. Increased cyclic-AMP levels are associated with relaxation of bronchial smooth muscle and inhibition of release of mediators of immediate hypersensitivity from cells, especially mast cells. The onset of improvement in pulmonary function is within 2 to 15 minutes after the initiation of treatment and the duration of action is from 4-6 hours. As a beta<sub>2</sub> agonist, albuterol induces bronchial dilation, but has occasional beta<sub>1</sub> overlap with clinically significant cardiac effects.

**INDICATIONS:**

Bronchial asthma and reversible bronchial spasm that occur with chronic pulmonary disease.

**CONTRAINDICATIONS:**

Symptomatic tachycardia.

**PRECAUTIONS:**

Clinically significant arrhythmias may occur especially in patients with underlying cardiovascular disorders such as coronary insufficiency and hypertension. Patient's basic arrhythmia should be established and the patient's arrhythmia then monitored for any change.

A. Stop treatment if:

1. Pulse increases by 20 BPM.
2. Frequent PVC's develop.
3. Any tachyarrhythmias other than sinus tachycardia appear.

B. Paradoxical bronchospasm may occur with excessive administration.

**ADMINISTRATION:**

Respiratory Distress, Moderate & Severe Allergic Reaction, Burns, and CHF (CAT. A except Pediatric is still CAT B for burns)

Adult (CAT A):

2.5 mg, nebulized.

Or 1-2 sprays from a rotohaler, 90mcg per spray.

Or 1-2 puffs from metered dose inhaler with spacer, 90mcg per puff.

**Pediatric (CAT A): (CAT B) for burns**

**2.5 mg, nebulized with 6LPM oxygen.**

**Or 1-2 sprays from a rotohaler, 90mcg per spray.**

**Or 1-2 puffs from metered dose inhaler with spacer, 90mcg per puff.**

Albuterol may be administered by any level EMT as a patient assisted medicine when the patient has her/his own medicine.

**SIDE EFFECTS:**

Dizziness, anxiety, palpitations, headache, sweating, skeletal muscle tremors are a common side effect.

**PHARMACOLOGY AND ACTIONS:**

Intravenous Amiodarone is a complex medication with effects on sodium, potassium, and calcium channels as well as alpha- and beta-adrenergic blocking properties.

**INDICATIONS:**

Life threatening cardiac arrhythmias such as ventricular fibrillation or pulseless ventricular tachycardia that persists after defibrillation.

**CONTRAINDICATIONS:**

Second or Third degree AV blocks.

**PRECAUTIONS:**

May cause bradycardia after conversion.

**ADMINISTRATION:**

Adult (CAT A):

Initial- 300 mg diluted in a volume of 20 or 30 cc of Normal Saline, rapid infusion.

Second dose- 150 mg diluted in 20 cc of Normal Saline, rapid infusion, after 5 minutes if VFib or pulseless VTach persists after defibrillation.

**Pediatrics (CAT A):**

**5 mg/kg diluted in 20 cc of Normal Saline, IVP/IO.**

**SIDE EFFECTS:**

Hypotension, nausea, tremors, ventricular ectopic beats.

**ASPIRIN****5.5****PHARMACOLOGY AND ACTIONS:**

Aspirin inhibits prostaglandin and disrupts platelet function. It is also a mild analgesic and anti-inflammatory.

**INDICATIONS:**

- A. Unstable angina.
- B. Acute myocardial infarction.
- C. Ischemic chest pain.

**CONTRAINDICATIONS:**

- A. Aspirin allergy or aspirin induced asthma.
- B. Active GI bleeding.
- C. If patient has taken 325mg within the last 24 hours

**PRECAUTIONS:**

Upset stomach.

**ADMINISTRATION:**

Adult (CAT A)

Cardiac Chest Pain:

Four chewable 81 mg baby aspirin.

**Pediatric (age 15 or less) (CAT. B)**

**Pediatric patients very rarely have cardiac chest pain**

**ASA may be associated with Reye's Syndrome in pediatric patients**

**SIDE EFFECTS:**

Heartburn, nausea, vomiting, and wheezing.

**SPECIAL NOTES:**

In unstable angina and acute myocardial infarction, aspirin has been shown to lower mortality and is indicated in patients with ischemic chest pain.

**PHARMACOLOGY AND ACTIONS:**

Atropine is a muscarinic-cholinergic blocking agent. As such, it has the following effects:

- A. Increases heart rate (by blocking vagal influences).
- B. Increases conduction through A-V node (i.e., increases ventricular sensitivity to atrial impulses).
- C. Reduces motility and tone of GI tract.
- D. Reduces action and tone of the urinary bladder (may cause urinary retention).
- E. Dilates pupils.
- F. Blocks cholinergic (vagal) influences already present. If there is little cholinergic stimulation present, effects will be minimal.

**INDICATIONS:**

- A. To increase the heart rate in symptomatic bradycardias or pacemaker failure.
- B. To increase heart rate in PEA.
- C. To improve conduction in heart block.
- D. As an antidote for some insecticide exposures (anti-cholinesterases, e.g., organophosphate) and nerve gases.

**CONTRAINDICATIONS:**

- A. Contraindicated in atrial fibrillation and flutter because increased conduction may speed ventricular rate excessively.
- B. Contraindicated in patients with heart transplants (causes paradoxical bradycardia).

**PRECAUTIONS:**

- A. Bradycardias in the setting of an acute MI are common. Don't treat them unless there are signs of poor perfusion (low blood pressure, mental confusion).
- B. Chest pain could be due to an MI or to poor perfusion caused by the bradycardia itself. Consult OLMD before using.

**ADMINISTRATION (CAT A for cardiac dysrhythmias, CAT B for poisons/overdoses):**

Adults (CAT A):

ASYSTOLE: 1 MG IV/IO push. May repeat every 3 to 5 minutes (if asystole persists) to a maximum of 3 mg. Endotracheal administration: 2 to 3 mg diluted in 10 cc NS per ET tube.

BRADYCARDIA: 0.5 mg IV, repeated if needed at 3 to 5 min intervals (usually titrated to a ventricular rate of about 60/min) to a total dose of 0.04 mg/kg (3 mg maximum).

**Pediatrics (CAT A):**

**0.02 mg/kg IV. May be repeated once.**

**Minimum dose: 0.1 mg. Maximum total dose: 1 mg for child.**

Organophosphate Poisoning (CAT B):

Requires more of the drug: 2mg IV push over 10-15 seconds and titrate to effect.

**SIDE EFFECTS AND SPECIAL NOTES:**

2nd and 3rd degree block may be chronic and without symptoms. Symptoms occur mainly with acute change. Treat the patient, not the arrhythmia.

**PHARMACOLOGY AND ACTIONS:**

Calcium is essential for maintenance of the functional integrity of nervous, muscular and skeletal systems and cell membrane and capillary permeability. It is also an important activator in many enzymatic reactions and is essential to a number of physiologic processes including transmission of nerve impulses; contraction of cardiac, smooth and skeletal muscles. Calcium increases threshold potential, thus restoring normal gradient between threshold potential and resting membrane potential, which is elevated abnormally in hyperkalemia.

**INDICATIONS:**

- A. Hyperkalemic Asystole (usually seen in dialysis patients).
- B. Calcium channel blocker overdose with hypotension.

**CONTRAINDICATIONS:**

Should not be used if danger of digitalis overdose.

**PRECAUTIONS:**

Call OLMD with name of drug the patient has taken as an overdose to confirm that it is a calcium channel blocker.

**ADMINISTRATION** (CAT A for hyperkalemic asystole, CAT B for Calcium Channel Blocker overdose):

Adult: 1-2 grams IVP (10-20cc of 10% solution) given over two minutes.

**Pediatric (CAT B): for calcium blocker overdose, 60mg/kg (0.6cc/kg of 10% solution) – maximum dose 1 gram to be given over two minutes.**

**SIDE EFFECTS AND SPECIAL NOTES:**

None.

**PHARMACOLOGY AND ACTIONS:**

Glucose is the body's basic fuel. It produces most of the body's quick energy. Its use is regulated by insulin, which stimulates storage of excess glucose from the bloodstream and glucagon which mobilizes stored glucose into the bloodstream.

**INDICATIONS:**

- A. Hypoglycemic states (Blood Glucometer of <70 adults or <60 in children) associated with any focal or partial neurologic deficit or altered state of consciousness.
- B. The unconscious patient, when a history is unobtainable and glucometer malfunctions.

**CONTRAINDICATIONS:**

None in prehospital setting.

**PRECAUTIONS:**

- A. A blood glucometer should be utilized.
- B. In patients with any focal or partial neurologic deficit or altered state of consciousness, D50W should be used with caution unless you can document a blood glucose less than 70.
- C. Extravasation of 50% dextrose will cause necrosis of tissue. The IV should be secure and any return of blood into the syringe or tubing should be checked 2-3 times during administration. If extravasation does occur, immediately stop administration of drug.
- D. Report extravasation of the medication to receiving hospital personnel and document.

**ADMINISTRATION (CAT A):**

Draw one red-top tube prior to administration (optional if local hospital will not accept) and use a blood glucometer to determine blood glucose level.

**Adults:**

If patient unable to tolerate oral fluids, give 50 ml amp (1 ml/kg) IV into secure vein. Give solution orally (or glucose paste, sugared juice, honey, or Karo syrup), if the patient is awake and able to tolerate oral fluids.

**Pediatrics :**

**Dilute to Dextrose 25% in preschool children.  
2-4 ml/kg of D25W IV.**

**SIDE EFFECTS AND SPECIAL NOTES:**

- A. 50% dextrose should be used whenever documented hypoglycemia exists.
- B. Do not draw blood for glucose determination from site proximal to an IV containing glucose or dextrose.
- C. If there is any evidence of malnutrition or alcohol abuse, thiamine should precede the administration of D50W in any adult patient.

**PHARMACOLOGY AND ACTIONS:**

Diazepam acts as a tranquilizer, an anticonvulsant and a skeletal muscle relaxant.

**INDICATIONS:**

- A. Status seizures. In the field, this is a seizure which has lasted longer than 5 minutes or two consecutive seizures without regaining consciousness.
- B. Do not give unless patient is actively seizing.
- C. May be given prior to cardioversion. (CAT B).

**CONTRAINDICATIONS:**

Alcohol intoxication and CNS depression.

**PRECAUTIONS:**

- A. Since diazepam can cause respiratory depression and/or hypotension, the patient must be monitored closely. Very rarely cardiac arrest may occur.
- B. For the above reasons, diazepam should not be given without a good IV line in place and a bag valve mask ready.
- C. Impaired pulmonary function, elderly, and pediatrics.

**ADMINISTRATION (CAT A except CAT B in pediatrics and cardioversion):**

Adults: 5-10 mg slow IV push (each 5 mg over at least one minute).

**Pediatrics (CAT B):**

**Under 5 years of age- slow IV push (0.2-0.5 mg/kg) until seizure stops to MAX of 5 mg or 0.5 mg/kg if administered rectally.**

**Over 5 years of age- slow IV push 1 mg until seizure stops to a MAX of 5 mg.**

**SIDE EFFECTS AND SPECIAL NOTES:**

- A. Common side effects include drowsiness, dizziness, fatigue and ataxia. Paradoxical excitement or stimulation sometimes occurs.
- B. Should not be mixed with other agents or diluted with intravenous solutions. Turn off IV flow while administering, and give through the end of IV tubing closest to the vein.
- C. Most likely to produce respiratory depression in patients who have taken other depressant drugs, especially alcohol and barbiturates, or when given rapidly.
- D. Consider rectal administration 0.5 mg/kg (if unable to administer IV) in seizing children. Contact OLMD.
- E. Contact OLMD for cardioversion dosage.

**DIPHENHYDRAMINE****5.10****PHARMACOLOGY AND ACTIONS:**

- A. An antihistamine which blocks action of histamines released from cells during an allergic reaction.
- B. CNS effects, generally sedating in action (CNS depressant) except in children under six years of age in whom it is a CNS stimulant.
- C. Anticholinergic, anti-parkinsonism effect, which is used to treat acute dystonic reactions to antipsychotic drugs (e.g., Haldol, Thorazine, Compazine). These reactions include: oculogyric crisis, acute torticollis, and facial grimacing.
- D. Antiemetic effect.

**INDICATIONS:**

- A. The second-line medication in anaphylaxis and severe allergic reactions (after epinephrine).
- B. To counteract acute dystonic reactions to antipsychotic drugs.
- C. May be used as a secondary medication to treat vomiting.

**CONTRAINDICATIONS:**

Allergy to Diphenhydramine.

**Not for newborns.**

Nursing mothers (relative contraindication).

**PRECAUTIONS:**

- A. May have additive effect with alcohol or other CNS depressants.
- B. Although useful in acute dystonic reactions it is not an antidote to phenothiazine toxicity or overdose.
- C. May cause hypotension when given IV.

**ADMINISTRATION (CAT A, CAT B for Pediatric Vomiting):**

Allergic Reaction and acute dystonic reactions

Adults (CAT A): 25 to 50 mg. deep IM or slow IV push.

**Pediatrics (CAT A): 1 mg/kg IV, IM (not to exceed adult dose).**

Vomiting

Adults (CAT A): 25 to 50 mg. deep IM or slow IV push.

**Pediatrics (CAT B): 1 mg/kg IV, IM (not to exceed adult dose).**

**SIDE EFFECTS AND SPECIAL NOTES:**

- A. Diphenhydramine's antihistaminic reaction is effective in preventing and blocking the effects of histamine some time after its administration. However, since it is not immediately effective in the reversal of anaphylaxis, epinephrine is the medication of choice.
- B. Diphenhydramine is the drug of choice in acute dystonic reactions.
- C. **May cause excitation in young children.**

**PHARMACOLOGY AND ACTIONS:**

Chemical precursor of nor-epinephrine which occurs naturally in man and which has both alpha- and beta-receptor and dopaminergic stimulating actions. Its actions differ with dosage given:

- A. 1-5 mcg/kg/min - dilates renal and mesenteric blood vessels (no effect on heart rate or blood pressure).
- B. 2-10 mcg/kg/min - beta effects on heart which usually increases cardiac output without greatly increasing heart rate or blood pressure.
- C. 10-20 mcg/kg/min - alpha peripheral effects cause peripheral vasoconstriction and increased blood pressure.
- D. 20-40 mcg/kg/min - alpha effects reverse dilatation of renal and mesenteric vessels with resultant decreased flow.

**INDICATIONS:**

- A. Primary indication is cardiogenic shock.
- B. Occasionally helpful in distributive shock (septic) except hypovolemic shock.

**CONTRAINDICATIONS:**

Dopamine is contraindicated for hypovolemic shock, especially with hypotension.

**PRECAUTIONS:**

- A. May induce tachyarrhythmias, in which case infusion should be decreased or stopped.
- B. High doses (10mcg/kg) may cause extreme peripheral vasoconstriction (increase BP and work load on heart).
- C. MAO Inhibitors potentiate the effects of this medication. Check for medications and contact OLMD if other medications are being used. Examples include Nardil, Parnate, Eutonyl, Marplan, etc.
- D. Should not be added to sodium bicarbonate or other alkaline solutions since dopamine will be inactivated in alkaline solutions.

**ADMINISTRATION (CAT B):**

Adult: Usually mix 800 mg in 500 ml normal saline to produce concentration of 1600 mcg/ml. Infusion rate should start between 2-5 mcg/kg/min. IV.

Gradually increase by 2-5 mcg/kg/min until 2-5 desired effect is achieved. Use Microdrip chamber only. See dosage chart on next page.

**Pediatric: Usually mix 200 mg in 500 ml NS to produce concentration of 400 mcg/ml. Rate starts 2-5 mcg/kg/min IV. Titrate to effect.**

**INTROPIN®(DOPAMINE HCl) DOSAGE CHART**

For a Concentration of 1600 mcg Dopamine HCl/ml  
(800 mg Intropin Per 500 ml or 400 mg Intropin per 250 ml)

Gtts/ Min.	Body Weight																lbs kgs
	77 35	88 40	99 45	110 50	121 55	132 60	143 65	154 70	165 75	176 80	187 85	198 90	220 100	220 100	231 105	242 110	
<b>5</b>	3.8	3.4	2.9	2.6	2.4	2.2	2.0	1.9	1.8	1.6	1.55	1.5	1.3	1.3	1.25	1.2	
<b>10</b>	7.6	6.7	5.9	5.3	4.9	4.5	4.1	3.8	3.6	3.3	3.1	3.0	2.7	2.7	2.5	2.4	
<b>15</b>	11	10	8.9	8.0	7.3	6.6	6.1	5.7	5.3	5.0	4.7	4.4	4.0	4.0	3.8	3.6	
<b>20</b>	15	13	12	11	9.7	8.9	8.2	7.6	7.1	6.7	6.3	5.9	5.3	5.3	5.1	4.9	
<b>25</b>	19	17	15	13	12	11	10	9.5	8.9	8.4	7.8	7.4	6.6	6.6	6.3	6.0	
<b>30</b>	23	20	18	16	15	13	12	11	11	10	9.4	8.9	8.0	8.0	7.6	7.3	
<b>35</b>	27	23	21	19	17	16	14	13	12	12	11	10	9.3	9.3	8.9	8.5	
<b>40</b>	31	27	24	21	19	18	17	16	15	14	13	13	11	11	10	9.7	
<b>45</b>	34	30	27	24	22	20	18	17	16	15	14	13	12	12	11	11	
<b>50</b>	38	33	30	27	24	22	21	19	18	17	16	15	13	13	13	12	
<b>55</b>	42	37	33	29	27	24	23	21	20	18	17	16	15	15	14	13	
<b>60</b>	46	40	36	32	29	27	25	25	21	20	19	18	16	16	15	15	
<b>70</b>	53	47	42	37	34	31	29	27	25	23	22	21	19	19	18	17	
<b>80</b>	61	53	47	43	39	36	33	31	28	27	25	24	21	21	20	19	
<b>90</b>	69	60	53	48	44	40	37	34	32	30	28	27	24	24	23	22	
<b>100</b>	76	67	59	53	49	45	41	38	36	33	31	30	28	27	25	24	

Flow Rate in Drops Per Minute Based on a microdrip set with 60 drops per 1.0 mL.

Dosage = mcg Dopamine HCl/kg/min

Note: All dosages of 10 mcg/kg/min and above are rounded off to the nearest mcg/kg/min.

**SIDE EFFECTS AND SPECIAL NOTES:**

- The most common side effects include ectopic beats, nausea and vomiting. Angina has been reported following treatment. (Tachycardia and arrhythmias are less likely than with other catecholamines.)
- Can precipitate hypertensive crisis in susceptible individuals, i.e. patients on MAO inhibitors (parnate, nardil, marplan).
- Consider hypovolemia and treat this with appropriate fluids before administration of dopamine.
- Dopamine is best administered by an infusion pump to accurately regulate rate. It may be hazardous when used in the field without an infusion pump. Monitor closely.

**PHARMACOLOGY AND ACTIONS:**

- A. Catecholamine with alpha and beta effects.
- B. In general, the following increase in cardiovascular responses can be expected: Increased heart rate, myocardial contractile force, systemic vascular resistance, arterial blood pressure, myocardial oxygen consumption, and automaticity.
- C. Potent bronchodilator.

**INDICATIONS:**

- A. Cardiac Arrest (VFib, Pulseless VTach, Asystole, Pulseless Electrical Activity)
- B. Systemic allergic reactions.
- C. Asthma in patients under 40.

**CONTRAINDICATIONS:**

None.

**PRECAUTIONS:**

- A. Epinephrine increases cardiac work and can precipitate angina, myocardial infarction or major dysrhythmias in an individual with ischemic heart disease. A patient with wheezing should not always be considered to have asthma.
- B. The cause of wheezing in an elderly person must be differentiated. Wheezing in the elderly is most commonly a sign of conditions which do not require epinephrine such as: pneumonia, pulmonary embolism or pulmonary edema.

**ADMINISTRATION (CAT A except CAT B as noted below):**

Adult cardiac arrest: 1.0 mg (10 ml of 1:10,000 solution) IV every 3-5 minutes during arrest (If unable to obtain IV or IO line, give 2mg 1:1000 solution via ET with 10cc flush).

Adult allergic reaction (anaphylaxis) (CAT A): 0.3 mg 1:1,000 solution), preferably SQ, or equivalent of 1:10,000 solution IV.

Adult acute asthma (CAT B): 0.3-0.5 mg 1:1000, SQ.

Contact OLMD (CAT B) for patients who are elderly, or have hypertension or coronary artery disease.

**Pediatric cardiac arrest (CAT A): 0.01 mg/kg (0.1 ml/kg of 1:10,000) IV/IO every 5 minutes during arrest. (May also be given via endotracheal tube 0.1 mg/kg).**

**Pediatric allergic reaction (anaphylaxis) (CAT A): 0.01 mg/kg to a MAX of 0.3 mg 1:1,000 solution, preferably SQ, or SL, or equivalent of 1:10,000 solution IV.**

**Pediatric acute asthma (CAT B): 0.01 mg/kg 1:1,000, SQ, MAX of 0.3 mg 1:1000 if under 8 years of age**

**SIDE EFFECTS AND SPECIAL NOTES:**

- A. Epinephrine given to a patient may precipitate an acute myocardial infarction.
- B. Anxiety, tremor, headache, angina, hypertension.
- C. Supraventricular Tachycardia, palpitations, PVCs.
- D. Can be administered as patient assisted medication (Epi-pen).

**FUROSEMIDE****5.13****PHARMACOLOGY AND ACTIONS:**

Potent diuretic with a rapid onset of action and short duration of effect. It acts primarily by inhibiting sodium re-absorption throughout the kidney. Increase in potassium excretion occurs along with the sodium excretion. As an IV bolus, causes immediate (3-4 min) increase in venous capacitance (dilation). This decreases venous backup and probably accounts for its positive effect in pulmonary edema. Peak effect: ½-1 hours after IV administration: duration about 2 hours. (Duration 6-8 hours if given orally, with a peak in 1-2 hours.)

**INDICATIONS:**

Acute pulmonary edema: To decrease extra cellular volume and reduce venous pressure on the lungs in cardiac failure.

**CONTRAINDICATIONS:**

- A. Contraindicated in hypovolemia or hypotension.
- B. Should not be used in children or pregnant women.

**PRECAUTIONS:**

Monitor closely; can lead to profound diuresis with resultant shock and electrolyte depletion.

**ADMINISTRATION (CAT B):**

Adults

20-40 mg IV given slowly over 2 minutes.

May also be given IM.

**Pediatric (CAT B):**

**0.5 – 1mg/kg IV given slowly over 2 minutes**

**SIDE EFFECTS AND SPECIAL NOTES:**

- A. Hypovolemia, hypotension, hyponatremia, and hypokalemia are the main toxic effects. Other toxicity is not related to single dose use.
- B. The hypokalemia induced is of concern in digitalized patients and particularly those who have digitalis toxicity.

**LORAZEPAM****5.17****PHARMACOLOGY AND ACTIONS:**

Lorazepam (Ativan®) acts as a tranquilizer, an anticonvulsant and a skeletal muscle relaxant. Available in 1 ml vials containing 2 mg/ml. It must be diluted with an equal amount of normal saline before giving IV. It may be used in place of Diazepam.

**INDICATIONS:**

- A. Status seizures. In the field, this is a seizure which has lasted longer than 5 minutes, or two consecutive seizures without regaining consciousness. Do not give unless patient is actively seizing.
- B. May be given prior to cardioversion.

**CONTRAINDICATIONS:**

Should not be mixed with other agents.

**PRECAUTIONS:**

- A. Since Lorazepam can cause respiratory depression and/or hypotension, the patient must be monitored closely.
- B. Very rarely cardiac arrest may occur.
- C. For the above reasons, Lorazepam should not be given without a good IV line in place and a bag valve mask ready.

**ADMINISTRATION (CAT A except CAT B for pediatrics and cardioversion):**

Lorazepam must be diluted with an equal amount of normal saline before IV administration.

Adult (CAT A): 1-2 mg slow IV push (give over 2 minutes or until seizure stops). Contact OLMD if more than 2 mg is needed (may give up to 4 mg).

**Neonates (CAT B): 0.05 mg/kg slow IV push or until seizure stops.**

**Infants/Children (CAT B): 0.1 mg/kg slow IV push (Max dose 4 mg) or until seizure stops.**

**SIDE EFFECTS AND SPECIAL NOTES:**

- A. Common side effects include drowsiness, dizziness, fatigue and ataxia. Paradoxical excitement or stimulation sometimes occurs.
- B. Most likely to produce respiratory depression in patients who have taken other depressant drugs, especially alcohol and barbiturates, or when given rapidly.
- C. Unrefrigerated shelf-life is 60 days.

**MAGNESIUM SULFATE****5.18****PHARMACOLOGY AND ACTIONS:**

Magnesium sulfate has both antihypertensive and anticonvulsant properties. Magnesium sulfate reduces striated muscle contractions and blocks peripheral neuromuscular transmission by reducing acetylcholine release at the myoneural junction.

**INDICATIONS:**

- A. Eclampsia.
- B. Torsades de pointes.

**CONTRAINDICATIONS:**

None in prehospital setting.

**PRECAUTIONS:**

Excessive amounts of magnesium sulfate can lead to hypotension and/or respiratory arrest.

**ADMINISTRATION (CAT B):**

For Eclampsia:

The medication comes in vials of a 50% solution (1 gram per 2 cc).

Mix 4 grams (8 cc) in 250 cc of Normal Saline and give IV over 20 minutes.

For torsades de pointes:

Adult (CAT B)

Mix 2 grams (4 cc) in 250 cc of Normal Saline and give IV over 5 minutes

**Pediatric (CAT B)**

**25-50mg/kg IV/IO Maximum 2 grams**

**SIDE EFFECTS AND SPECIAL NOTES:**

- A. Hypotension.
- B. Respiratory arrest.

**NITROGLYCERIN****5.21****PHARMACOLOGY AND ACTIONS:**

Cardiovascular effects include:

Reduced venous tone—this causes pooling of blood in peripheral veins and decreased return of blood to the heart.

Decreased peripheral resistance.

Dilatation of coronary arteries (if not already at maximum).

General smooth muscle relaxation.

**INDICATIONS:**

1. Angina.
2. Chest, arm or neck pain thought possible to be related to coronary ischemia; may be used diagnostically as well as therapeutically.
3. Control of hypertension.
4. Pulmonary edema: to increase venous pooling, lowering cardiac preload and afterload.

**CONTRAINDICATIONS:**

**Children in the EMS setting.**

**PRECAUTIONS:**

1. Generalized vasodilatation may cause profound hypotension and reflex tachycardia.
2. Nitroglycerin loses potency easily, should be stored in dark glass container with tight lid and not exposed to heat.
3. Use with caution in hypotensive patients.
4. May cause hypotension in patients taking medication for erectile dysfunction.

**ADMINISTRATION (CAT A except CAT B for hypertensive emergency and/or respiratory distress):**

Adults

1. Cardiac Chest Pain (CAT A):
  - a. 0.4 mg sublingual by tablet or spray if no previous use of nitroglycerin.
  - b. May be repeated every five (5) minutes to a total of 3 doses.
  - c. If patient chronically uses nitroglycerin, dose may be doubled.
  - d. **The EMT-Basic and EMT-Intermediate may assist a patient in taking his/her own Nitroglycerin.**
2. Hypertensive Emergency or Respiratory Distress (CAT B): Contact OLMD.

**Pediatric: Contraindicated in EMS setting****SIDE EFFECTS AND SPECIAL NOTES:**

1. Common side effects include throbbing headache, flushing, dizziness and burning under the tongue (if these side effects are noted, the pills may be assumed potent, not outdated).
2. Less common effect: marked hypotension, particularly orthostatic.
3. Therapeutic effect is enhanced but adverse effects are increased when patient is upright.
4. Because nitroglycerin causes generalized smooth muscle relaxation, it may be effective in relieving chest pain caused by esophageal spasm.

**NITROUS OXIDE****5.22****PHARMACOLOGY AND ACTIONS:**

- A. Nitrous Oxide (Nitronox®) is a blended mixture of 50% nitrous oxide and 50% oxygen
- B. Has potent analgesic effects.
- C. The high concentration of oxygen delivered with the nitrous oxide will increase the oxygen tension in the blood, thus reducing hypoxia.

**INDICATIONS:**

- A. Pain from orthopedic trauma.
- B. Pain from burns.
- C. Suspected ischemic chest pain.
- D. States of severe anxiety.

**CONTRAINDICATIONS:**

Patients who:

- Cannot comprehend verbal instructions.
- Are intoxicated with alcohol or other drugs.
- Have a head injury sufficient to impair their mental status.
- Have thoracic injury suspicious of pneumothorax.
- Have abdominal pain and distention suggestive of bowel obstruction.
- Have COPD where the high oxygen concentration may depress respirations.

**PRECAUTIONS:**

It is essential that Nitrous Oxide be self-administered.

**ADMINISTRATION (CAT B):**

Adult

- A. Self-administer until the pain is significantly relieved or until patient drops the mask.
- B. The duration of administration should be documented.

**Pediatrics: Use is CAT B****SIDE EFFECTS AND SPECIAL NOTES:**

May cause nausea and vomiting (should be anticipated).

**ONDANSETRON (ZOFRAN)****5.24****PHARMACOLOGY AND ACTIONS:**

Ondansetron acts as an antiemetic by selectively antagonizing serotonin 5-HT<sub>3</sub>.

**INDICATIONS:**

Nausea and vomiting

**CONTRAINDICATIONS:**

- A. Allergy to Ondansetron
- B. Age less than one month

-

**PRECAUTIONS:**

- A. Can cause allergic reactions.
- B. Can cause extrapyramidal reactions

**ADMINISTRATION CAT A for Adults, CAT B for children:**

Adult: Give 4 mg IV or IM

**Pediatric: (CAT B): 1 month to 12 years and <40 kg**

**Administer 0.1mg/kg IV or IM not to exceed 4 mg**

-

**SIDE EFFECTS AND SPECIAL NOTES:**

- A. Usually not sedating but can cause dizziness and agitation.
- B. May cause headache.
- C. Can cause urinary retention

**THIAMINE****5.27****PHARMACOLOGY AND ACTIONS:**

Thiamine is an important vitamin commonly referred to as Vitamin B1. Thiamine is required for conversion of glucose into energy. Chronic alcohol intake interferes with the absorption, intake, and utilization of thiamine. Patients who are malnourished, or have chronic alcohol abuse, may develop Wernicke's encephalopathy if given IV glucose without concomitant administration of thiamine.

**INDICATIONS:**

Thiamine should precede the administration of D50W or glucagon in any adult patient if there is any evidence of malnutrition or alcohol abuse

**CONTRAINDICATIONS:**

None in prehospital setting.

**PRECAUTIONS:**

None in prehospital setting.

**ADMINISTRATION:**

Adult (CAT A): 100mg IVP (D50W) or IM (glucagon)

**Pediatric (CAT B) Almost no indication for thiamine in a child**

**SIDE EFFECTS AND SPECIAL NOTES:**

None in prehospital setting.

**VASOPRESSIN****5.28****PHARMACOLOGY AND ACTIONS:**

V1 effects (smooth muscle): causes vasoconstriction and shunts blood to heart and brain (for some reason Vasopressin has an affinity for the internal carotid arteries)

Vasopressin's effect is resistant to acidosis.

Vasopressin causes increased cerebral blood flow/cerebral perfusion pressure due to local nitric oxide release.

V2 effects (antidiuretic) controls the concentration of water in body fluids by controlling the rate of water excretion into the urine.

**INDICATIONS:**

Adult shock-refractory VFib or Pulseless VTach, Asystole, or PEA.

**CONTRAINDICATIONS:****A. Children.**

B. Not for use in conscious patients.

**PRECAUTIONS:**

Potent vasoconstrictor- can precipitate peripheral ischemia, cardiac ischemia, and angina

**ADMINISTRATION**

Adults (CAT A):

40 units IVP, one dose, one time only.

**Pediatric: Contraindicated****SIDE EFFECTS AND SPECIAL NOTES:**

A. None in the prehospital setting.

B. Optional medication.

# **Patient Care Protocols**

## **SECTION 6: Procedures**

**CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)****6.3**

Continuous Positive Airway Pressure (CPAP) has been shown to rapidly improve vital signs, gas exchange, and the work of breathing. It also decreases the sense of dyspnea, and decreases the need for endotracheal intubation in the patients who suffer from shortness of breath from congestive heart failure (CHF) and/or acute cardiogenic pulmonary edema (APE). CPAP is also shown to improve dyspnea associated with pneumonia as well as asthma, bronchitis, and emphysema. CPAP improves hemodynamics of patients with chronic obstructive pulmonary disease (COPD), by reducing preload and afterload.

**Indications:**

Dyspnea / Hypoxemia secondary to congestive heart failure, acute cardiogenic pulmonary edema, pneumonia, near drowning, chronic obstructive pulmonary disease, asthma, bronchitis and emphysema and all the following are present:

- A. Patient has no contraindications to CPAP.
- B. Is awake and oriented.
- C. Has the ability to maintain an open airway (GSC>10).
- D. Has a respiratory rate greater than 25 breaths per minute with a SP02 reading of <95%.
- E. Has a systolic blood pressure above 90 mmHg.
- F. Is using accessory muscles during respirations.
- G. Has signs and symptoms consistent with asthma, COPD, pulmonary edema, CHF, or pneumonia.
- H. Is over 12 years of age, and is able to be fitted with the CPAP mask.

**Contraindications (any or all):**

- A. Pneumothorax.
- B. Respiratory arrest.
- C. Agonal respirations.
- D. Unconscious.
- E. Shock associated with cardiac insufficiency.
- F. Penetrating chest trauma.
- G. Persistent nausea/vomiting.
- H. Facial abnormalities / stroke obtundation / facial trauma.
- I. Has active upper GI bleeding or history of recent gastric surgery.

**Procedure (CAT A):**

1. Make sure the patient does not have a pneumothorax! Confirm breath sounds in **ALL** lung fields.
2. Place patient in a sitting position.
3. Attach cardiac monitor and pulse oximeter.
4. Assess vital signs and SpO<sub>2</sub>, q5 min

**CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)** (Continued) **6.3****Procedure (continued):**

5. If BP <90 mmHg systolic, contact Medical Direction prior to beginning CPAP, OLMD may override this contraindication.
6. Use maximum 10cmH<sub>2</sub>O pressure.
7. Explain the procedure to the patient.
  - a. Patient requires “verbal sedation” to be used effectively. Example: “you are going to feel some pressure from the mask. but this will help you breathe easier.”
  - b. Place delivery device over mouth and nose, and set oxygen flow at 15 l/m with no pressure. Ask the patient to hold the mask in place.
  - c. Instruct patient to breathe through his/her nose slowly, and exhale through their mouth as long as possible (count slowly and aloud to four, and then instruct to inhale slowly). It is better not to strap the mask in place but to continue to have the patient hold the mask in place (with your help). This makes it easier to recognize if the patient is tiring, or if the patient's level of consciousness is decreasing.
8. Check for air leaks, and correct if necessary. Then begin to advance the O<sub>2</sub> pressure with the device. Do not adjust the device beyond the pressure required to begin to see positive changes in the patient's condition, such as improving SPO<sub>2</sub>, decreased level of anxiety, improved heart rate, and improved ECG. Slowly titrate the pressure to:
  - a. CHF/ APE to a maximum of 10 CM H<sub>2</sub>O (if needed).
  - b. All other SOB / Dyspnea, 5 CM H<sub>2</sub>O.
9. Treatment should be given continuously throughout transport to ED.
10. Continue to coach patient to keep mask in place and re-adjust as needed.
11. If respiratory status or level of consciousness deteriorates, remove device, and consider bag valve mask ventilation and/or endotracheal intubation (see intubation protocol).
12. Documentation on the patient care record should include:
  - a. CPAP level – (5 or 10cm H<sub>2</sub>O).
  - b. FiO<sub>2</sub> – (100%).
  - c. SpO<sub>2</sub> q5 minutes.
  - d. Vital sign q 5 minutes.
  - e. Response to treatment.
  - f. Any adverse reaction.

**NOTES:**

- A. CPAP should not be used in children under 12 years of age because of lack of complete development of their respiratory system.**
- B. Advise receiving hospital as soon as possible, so they can prepare for the patient's arrival.
- C. Do not remove CPAP until hospital therapy is ready to be placed on the patient.
- D. Monitor patient for gastric distension, which may lead to vomiting.
- E. Use nitroglycerine tablets to avoid nitroglycerine spray from being dispersed on patient / EMS crew.

**ENDOTRACHEAL INTUBATION****6.5**

Use of a bag valve mask and oropharyngeal airway is not considered sufficient to provide and maintain a protected airway except for limited time periods prior to intubation or during medication administration in the altered mental status protocol. Patients who are unconscious, do not have a gag reflex, and need positive pressure ventilation should be intubated by the endotracheal route as soon as indicated.

**INDICATION:**

- Cardiac arrest with ongoing chest compressions.
- Inability of a conscious patient to ventilate adequately.
- Inability of the patient to protect the airway (coma, loss of gag reflex, or cardiac arrest).
- Inability of the EMT to ventilate the unconscious patients with conventional methods.

**CONTRAINDICATIONS:**

- Responsive patients with an intact gag reflex.

**PRECAUTIONS:**

- Adequate ventilation and oxygenation must be provided between attempts.
- Pay careful attention. Improper use or lack of tube placement verification can lead to catastrophic results.
- If the patient regains consciousness, you must remove the ET tube as it will cause retching and vomiting.
- When the patient's position is altered after intubation, it is essential to verify that the tube position remains correct in the new patient position.

**PROCEDURE (ORAL-CAT A for Adults, CAT B for pediatric patients, NASAL- CAT B for Adults, Contraindicated for children):**

1. Ventilation by Bag Valve Mask should always precede any attempt at intubation.
2. The maximum interruption of ventilation for endotracheal intubation should be 30 seconds.
3. Insert the endotracheal tube using the correct technique and special precautions for that device.
4. For difficult orotracheal intubations (Adults only) where you cannot see the cords or where the angle is such that it is very difficult to get the tube through the cords, a bougie can be very helpful. Insert the bougie through the cords and then slip the tube over the bougie and slide it down through the cords. Then remove and bougie and verify tube placement.
5. Verification of proper tube placement must be confirmed with Esophageal Detection Device (EDD- suction bulb or syringe) immediately after placing tube. (MANDATORY)
6. Following the EDD, the abdomen should be auscultated first, and then the chest checked for equal bilateral breath sounds and rise.
7. Monitor tube placement with qualitative CO<sub>2</sub> detector or preferably a quantitative CO<sub>2</sub> detector (Use of one or the other is MANDATORY)..
8. Monitor oxygenation with pulse oximeter. Maintain oxygen saturation reading >95%.

9. Ventilation at the appropriate rate as indicated by current AHA guidelines.

### **NASOTRACHEAL INTUBATION (ADULTS ONLY)**

This is a very difficult procedure because it must be done without viewing the pharynx and vocal cords. To be successful you must be able to appreciate the intensity of the breath sounds of spontaneously breathing patients.

#### **INDICATIONS**

The nasotracheal route of endotracheal intubation may be indicated when ventilatory assistance is needed but you cannot ventilate successfully with a bag-mask and you cannot open the adult patient's mouth because of clenched jaws.

#### **CONTRAINDICATIONS:**

- Apnea
- Suspected epiglottitis
- Age less than 12 years
- Major facial trauma to or instability of the nose or maxilla
- Patients taking warfarin or other anticoagulants
- Patients with known clotting disorders
- Suspected anterior basilar skull fracture (Raccoon Eyes)
- Foreign bodies or polyps in the nares.
- Recent nasal surgery.
- Epistaxis or history of frequent epistaxis.

#### **PRECAUTIONS:**

- Adequate ventilation and oxygenation must be provided between attempts.
- Pay careful attention. Improper use or lack of tube placement verification can lead to catastrophic results.
- When the patient's position is altered after intubation, it is essential to verify that the tube position remains correct in the new patient position.
- Quantitative capnography is the best method to monitor placement of the tube.

#### **PROCEDURE (NASOTRACHEAL-CAT B):**

1. Ventilation by Bag Valve Mask should always precede any attempt at intubation.
2. The maximum interruption of ventilation for nasotracheal intubation should be 30 seconds.
3. Insert the device using the correct technique and special precautions for that device. Some prefer the Endotrol endotracheal tube for this procedure.
4. Verification of proper tube placement must be confirmed with Esophageal Detection Device (EDD- suction bulb or syringe) immediately after placing tube. (MANDATORY)
5. Following the EDD, the abdomen should be auscultated first, and then the chest checked for equal bilateral breath sounds and rise.

**ENDOTRACHEAL INTUBATION (Continued)****6.5**

6. Monitor tube placement with the qualitative CO<sub>2</sub> detector or preferably a quantitative CO<sub>2</sub> detector. (Use of one or the other is MANDATORY)
7. Monitor oxygenation with pulse oximeter. Maintain oxygen saturation reading >95%.
8. Ventilation at the appropriate rate as indicated by current AHA guidelines.

## NOTES:

- 1. Children are almost always best ventilated with a bag-mask. It is very rare to need to intubate a child.**
- 2. Use of the bougie to facilitate intubation is contraindicated in children.**
3. Remember to deflate cuff prior to repositioning the tube. Movement of the tube with the cuff inflated could result in patient injury or damage to the cuff, requiring a tube change.
4. Once the endotracheal tube is in place, ventilation with the BVM need not be synchronized with chest compressions.
5. Transportation should not be delayed for multiple attempted intubations.

# **Patient Care Protocols**

## **SECTION 8: Administrative Protocols**

**DOCUMENTATION OF CARE****8.2****PURPOSE:**

To describe what documentation is required on any EMS response.

**PROCEDURE:**

1. Each EMS provider shall ensure that an accurate and complete patient care report, or such other report as may be approved by the State Health Officer in the future, is prepared for each instance in which:
  - a. A patient was assessed.
  - b. Medical care was rendered.
  - c. A patient was transported.
  - d. A patient was pronounced dead at the scene.
  - e. A patient was transferred to another licensed service.
  - f. A patient was transferred from one medical facility to another.
  - g. The person or persons for whom EMS was dispatched refused treatment, transport or both.
2. Documentation should include at least:
  - a. Patient problem presented.
  - b. Vital signs, with time.
  - c. Treatment provided and time.
  - d. ECG strip, if monitored.
  - e. Any change in condition of patient.
  - f. OLMD contact.
  - g. Any deviation from protocol.
3. If a patient refuses treatment or transport, documentation should include at least:
  - a. Name of patient.
  - b. Reason for response.
  - c. Reason for patient refusal.
  - d. Vital signs and time.
  - e. Any other physical signs or symptoms.
  - f. Competency of patient, to include the patient's orientation, any mind altering chemicals which may affect judgment, and the explanation which the EMT made concerning the complications the patient may encounter by refusing care.
  - g. Level of consciousness - detailed.
  - h. Any witnesses.
4. An accurate and complete patient care report, as required by the EMS rules, shall be provided to the patient receiving facility upon delivery of the patient or as soon as practicable. In no instance should delivery of the patient care report exceed twenty-four hours.
5. As of January 1, 2008, patient care reports must be completed in the electronic format and transmitted to the Office of EMS and Trauma within 168 hours of the provided medical care.

**PURPOSE:**

The following are criteria for entering a patient who has been involved in a trauma incident into the Alabama Trauma System.

**Physiological criteria:**

6. A systolic BP < 90 mm/Hg in an adult or child 6 years or older < 80 mm/Hg in a child five or younger.
7. Respiratory distress - rate < 10 or >29 in adults, or <20 or >60 in a newborn < 20 or > 40 in a child three years or younger <12 or >29 in a child four years or older.
8. Head trauma with Glasgow Coma Scale score of 13 or less or head trauma with any neurologic changes in a child five years or younger.

**Anatomical Criteria:**

1. The patient has a flail chest.
2. The patient has two or more obvious proximal long bone fractures (humerus, femur).
3. The patient has a penetrating injury of the head, neck, torso, or groin, associated with an energy transfer.
4. The patient has in the same body area a combination of trauma and burns (partial and full thickness) of fifteen percent or greater.
5. See Burn Protocol 4.7 for criteria to enter a burned patient into the trauma system
6. The patient has an amputation proximal to the wrist or ankle.
7. The patient has one or more limbs which are paralyzed.
8. The patient has a pelvic fracture, as evidenced by a positive “pelvic movement” exam.

**Mechanism of the patient injury:**

1. A patient with the same method of restraint and in the same seating area as a dead victim.
2. Ejection of the patient from an enclosed vehicle.
3. Motorcycle/bicycle/ATV crash with the patient being thrown at least ten feet from the motorcycle/bicycle.
4. Auto versus pedestrian with significant impact with the patient thrown, or run over by a vehicle.
5. An unbroken fall of twenty feet or more onto a hard surface. Unbroken fall of 10 feet or 3 times the height of the child onto a hard surface.

**EMT Discretion:**

1. If, the EMT is convinced the patient could have a severe injury which is not yet obvious, the patient should be entered into the trauma system.
2. The EMTs suspicion of severity of trauma/injury may be raised by the following factors:
  - a. Age > 55
  - b. **Age < five**
  - c. Environment (hot/cold)
  - d. Patient’s previous medical history
    - i. Insulin dependent diabetes or other metabolic disorder

- ii. Bleeding disorder or currently taking anticoagulant medication (coumadin, heparin)
- iii. COPD/Emphysema
- iv. Renal failure on dialysis
  
- e. Pregnancy
- f. **Child with congenital disorder**
- g. Extrication time > 20 minutes with heavy tools utilized
- h. Motorcycle crash
- i. Head trauma with history of more than momentary loss of consciousness.

**ENTERING A PATIENT INTO THE TRAUMA SYSTEM:**

**1. Regions that are not yet operating under the Alabama Trauma System**

Patients should be transported to a hospital with a trauma response program if such is available in the region, per the region’s Medical Control and Accountability Plan.

**2. Regions that are currently operating under the Alabama Trauma System should call the Alabama Trauma Communications Center (ATCC) to determine patient destination:**

ATCC contact numbers:

- Toll-Free Emergency: 1-800-359-0123, or
- Southern LINC EMS Fleet 55: Talkgroup 10/Private 55\*380, or
- Nextel: 154\*132431\*4

After assessing a trauma situation and making the determination the patient should be entered into the Trauma System, the EMT licensed at the highest level should contact the Alabama Trauma Communications Center (ATCC) at the earliest time which is practical, and provide the following: The initial unit on-scene should enter the patient into the system but if they have not done so, it becomes the responsibility of the transporting service (ground or air).

**1 PROCEDURE:**

System Entry:

**Call EARLY**

- A – Your organization
- Location of Trauma Scene
- Age & Sex of the patient(s)
- Reason for entry & MOI
- B – Your Assessment**
  - A – Airway: is it clear, non patent, intubated
  - B – RR Rate, Pulse Ox. Reading, symmetry
  - C – Peripheral Pulses present or not? Pulse Rate
  - D – GCSS (ATCC will score if needed) Area or Areas of Injury – why in the  
system
  - E – Any Environmental Issues – age, sex, co-morbids
- C – Closest appropriate Trauma Center & request availability**
- Transportation type (air/ground)
- Time of transport

You will be given a unique identification number that must be entered into the chart when you generate your e-PCR. The Office of EMS and Trauma will use this to identify the charts for quality improvement studies.

Notify the ATCC of any change in the patient's condition. The receiving trauma center (or ATCC, who can relay to trauma center) should be updated by the transporting unit 5-10 minutes out. This update need only consist of any patient changes and patient's current condition. A repeat of information used to enter the patient into the Trauma System is not necessary since this information will be relayed by the ATCC to the receiving trauma center.

After the patient is delivered to the trauma center, the transporting provider should call the ATCC with the Patient Care Report times.

NOTE: If you are considering helicopter transport of the trauma patient, you should follow Protocol 7.6: Helicopter Transport of Trauma Patients

# **Patient Care Protocols**

## **SECTION 9: Acceptable EMS Equipment and Devices**

Additions may be made to this section by submitting a request in writing to Dr. John Campbell, EMS Medical Director, Office of EMS and Trauma:

John Campbell, M.D.  
Office of EMS and Trauma  
Suite 750  
Alabama Department of Public Health  
P.O. Box 30310  
Montgomery, AL 36130-3017

or [John.Campbell@adph.state.al.us](mailto:John.Campbell@adph.state.al.us)

1. Bougie, Endotracheal Tube Introducer: 15 French X 60-70 cm for 6.0 to 11.0 ET tubes

**Devices to Perform Chest Decompression**

**9.4**

1. Any Over-the-Needle catheter of at least 6 cm in length and at least 14 gauge
2. Cook Emergency Pneumothorax Set
3. Becton Dickinson Angiocath 14 gauge by 3.25 inches long. Ref. 382268

**Hemostatic Agents****9.5**

1. QuikClot Combat Gauze (Kaolin based)
2. WoundStat (granular combination of smectite mineral and polymer)
3. Celox (Chitosan based)
4. QuikClot 1st Response (Mineral Zeolite based)
5. HemCon Dressing (Chitosan based)

-

# **Patient Care Protocols**

## **SECTION 10: Forms**

**STROKE CHECKLIST****10.3**

Date: \_\_\_\_\_ PCR#: \_\_\_\_\_ Time: \_\_\_\_\_ AM PM

Destination \_\_\_\_\_

Patient Name: \_\_\_\_\_ D.O.B. \_\_\_\_\_

Glasgow Coma Scale Score: Eyes \_\_\_\_\_ Verbal \_\_\_\_\_ Motor \_\_\_\_\_

**FAST Stroke Scale**1. **Face:** Assess for facial droop: have pt show teeth or smile

- Normal: both sides of face move equally
- Abnormal: one side of face does not move as well as the other

2. **Arm:** Assess for arm drift: have the pt close eyes and hold both arms straight out with palms up for 10 seconds

- Normal: both arms move the same or both arms do not move at all
- Abnormal: one arm does not move or one arm drifts down compared to the other

3. **Speech:** Assess for abnormal speech: have the pt say: "You can't teach an old dog new tricks"

- Normal: pt uses correct words with no slurring
- Abnormal: pt slurs words, uses the wrong words, or is unable to speak

4. **Time**

Last time seen normal: \_\_\_\_\_ Exact time \_\_\_\_\_ 3 hours or less \_\_\_\_\_ 3-6 hours \_\_\_\_\_ &gt; than 6 hours \_\_\_\_\_

Unknown by all at scene

**NOTE:** THERE IS NO SCORE. If 1, 2, or 3 is abnormal there is high probability the patient is having a stroke

- |  |            |           |
|--|------------|-----------|
| 1. Current Glucometer reading _____  |            |           |
|  | <b>YES</b> | <b>NO</b> |
| 2. Any anticoagulant medications being taken (Coumadin, Heparin)?<br>Last taken? _____ | _____      | _____     |
| 3. History of past: stroke, brain tumor, aneurysm, or arteriovenous malformations      | _____      | _____     |
| 4. Recent (within 2 months) intracranial or intraspinal surgery or trauma              | _____      | _____     |
| 5. Past or present bleeding disorder   | _____      | _____     |
| 6. Pregnant  | _____      | _____     |
| 7. Recent (within 10 days) major surgery at <u>non-compressible</u> site (eg. CABG)    | _____      | _____     |
| 8. Recent (within 7 days) gastrointestinal or genitourinary bleeding                   | _____      | _____     |
| 9. Previous thrombolytic therapy?  | _____      | _____     |
| 10. Surgery in the last two weeks?   | _____      | _____     |

COMPLETE ON ALL PATIENTS TREATED BY STROKE PROTOCOL – LEAVE AT RECEIVING HOSPITAL

**REQUEST TO BE TAKEN TO A HOSPITAL ON DIVERSION****10.4**

**EMS TRANSPORT PROVIDER: Mark one or more of the following if patient transport involves the hospital divert system.**

- Patient transported to a hospital that was on "divert."
- Patient was informed and voiced understanding that an extended wait or transfer to another hospital is possible.
- Patient was diverted to this hospital because \_\_\_\_\_ hospital was on Emergency Department, Critical Care, Med/Surg, Psych, CT, Labor & Delivery divert (circle one)

**If the patient insists on transport to a hospital that is on divert, ask him/her to sign this statement:**

I was told \_\_\_\_\_ hospital is on divert, and that I may have an extended wait to see the doctor, get a bed, or may need to be transferred to another hospital. I still wish to be transported to this hospital.

\_\_\_\_\_  
Signature of Patient

\_\_\_\_\_  
Date

Witness (optional)

\_\_\_\_\_  
Signature