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# Introduction for the Protocols

At first glance they appear very different from previous protocols, and indeed there are many changes. There are three important parts for every protocol; the level of training of the provider, the safety of the patient, and the outcome of the patient. These evidence based guidelines for care are designed to improve patient outcomes, while decreasing any potential risk to the patient, while maximizing the interventions appropriate for each level of care.

The new color coded format of the protocols has been redesigned to make it easy to follow for all providers, and at the same time, to allow each EMS professional to easily follow the potential interventions which could be performed by advanced level care.

## ECA

- Standing Orders for ECA, EMT, EMT-I, and Paramedic

 ECA STOP

## EMT

- Standing Orders for EMT, EMT-I, and Paramedic

 EMT STOP

## INTERMEDIATE

- Standing Orders for EMT-I, and Paramedic

 INTERMEDIATE STOP

## PARAMEDIC

- Standing Orders for Paramedic Only

 PARAMEDIC STOP

## Key Points/Considerations

- Additional points specific to patients that fall within the protocol

Importantly, these protocols are designed to guide care, to assist the provider, but not as an educational tool. ACLS, ITLS and PALS guidelines current at the time of publication are also followed as appropriate.

The protocols are designed to serve the company as a whole, and include all levels of field providers. As taught in every EMT class, BLS should be done before ALS, and advanced providers are responsible for all appropriate basic interventions. At all provider levels, the standing orders are highlighted, while the corresponding standing order STOP line is clearly delineated. EMS personnel are expected to adhere to the standards established in this document, unless a reasonable deviation is required in the patient's best interest.

The Management will continue to evaluate current EMS and Medical Literature to update the protocols to optimize the outcomes of our patients. Also, we will continue to perform QI audits of patient care to develop training programs that will improve care as a whole throughout the region.




The attached protocols and clinical policies reflect the standard of out-of-hospital care that is to be rendered by the EMS personnel of Matagorda County. The information contained herein is designed to provide guidance to all Matagorda County EMS personnel as to the clinical care to be provided when functioning as a member of our team.

The protocols herein are based on, but not limited to, the standards of out-of-hospital care as described in the American Heart Association's Advanced Cardiovascular Life Support and Pediatric Advanced Life Support and Basic Cardiac Life Support courses as well as those documented in the American College of Surgeons/National Association of EMT's International Trauma Life Support curriculum. Last, we have included the current training standards defined by the National Standard Paramedic Curriculum as well as local and regional clinical practice standards.

The authorization to utilize these protocols is extended only to duly authorized EMS personnel operating under the auspices and scope of employment of Matagorda County EMS. At no time will any other provider be covered under these protocols or procedures without specific written authorization of the Medical Director.

Each protocol is to be followed as described unless a substitution or modification is indicated by the unique circumstances of the scene and/or patient(s). Deviations from protocol must be:  
In the best interest of the EMS personnel, patient(s) and/or public  
Documented completely as per the applicable policies  
Within the Provider Licensing regulations as set forth by the Texas DSHS  
Within the scope of practice of the EMS personnel at their certification level

These protocols are to be utilized by Matagorda County EMS, in Matagorda County and all other areas of service.

  
Dane Simons, MD  
Medical Director  
Matagorda County EMS

2-17-09  
Date

4-1-09  
Effective Date

3-31-11  
Expiration Date

## Authorized Interventions by Certification Level

The purpose of this policy is to define the skills authorized at the different certification levels.

### Emergency Care Attendant (ECA)

- Oxygen administration
- AED
- Use of airway adjuncts, including:
  - Oral and nasal airways
  - Bag valve mask device
  - Oral suctioning
- CPR as defined by the American Heart Association
- Vital signs
- Patient assessment
- Bandaging and splinting
- Traction splinting
- Spinal movement restriction
- Manual techniques for:
  - Airway provision, maintenance and ventilatory support
  - Relief of airway obstruction, as described by the American Heart Association
  - Control of external hemorrhage
- Blood glucose determination
- Use of the pulse oximeter\*
- Automatic external defibrillator use\*
- Oral administration of glucose
- Epinephrine administration via auto-injector device\*

### Emergency Medical Technician (EMT)

- All Skills listed for the ECA
- Administration of Albuterol
- Assist in Administration of patient's Nitroglycerin
- Administration of Aspirin in Cardiac Protocol
- Use of metered dose inhalers for the administration of bronchodilator medications\*
- Epinephrine administration via subcutaneous injection\*
- EMT-B personnel may attend a patient on a facility transfer, in whom a saline lock has been placed, either peripherally or centrally, so long as no fluid or medication is being administered through the lock.

## Authorized Interventions by Certification Level (continued)

### Emergency Medical Technician – Intermediate (EMT-I)

- All skills listed for ECA and EMT-B
- Intravenous (IV) access and fluid administration, to include:
  - Initiation of peripheral IV's
  - Administration of IV fluids not containing added medications
  - Administration of 50% dextrose solution
- Administration of thiamine via IV route
- Administration of naloxone via IV route
- Orotracheal intubation
- EMT-I personnel may attend a patient with a saline lock or standard IV so long as no medication is being administered through the lock or IV.

### Paramedic (EMT-P and LP)

- All skills listed for ECA, EMT-B and EMT-I
- Administration of medications via IV, IM, IO, subcutaneous, oral, rectal, endotracheal, intranasal and sublingual routes
- Obtaining and interpreting ECG, including 12-lead\*
- Vagal maneuvers
- Manual Defibrillation and Cardioversion
- Nasogastric Tube
- Nasotracheal intubation
- External cardiac pacing
- Needle chest decompression\*
- Surgical airway\*
- Rapid sequence induction intubation (use of paralytics) \*
- CPAP\*
- Automatic ventilator use\*
- Use of PEEP\*
- Any peripheral or central venous access with medications being administered

\*Optional, if available.

# Completion of Patient Care Records

## **General Requirements**

A prehospital care report shall be completed for every dispatch for medical assistance where a patient is contacted by EMS personnel. All reports are to be completed thoroughly and accurately as stipulated in the Texas Administrative Code, Title 25, Part 1 Chapter 157 Subchapter C, Rule 157.36.

- failing to make accurate, complete and/or clearly written patient care reports documenting a patient's condition upon arrival at the scene, the prehospital care provided, and patient's status during transport, including signs, symptoms, and responses during duration of transport; falsifying any EMS record; patient record or report; or making false or misleading statements in a oral report; or destroying a patient care report

## **ePCR and Mobile Runsheets**

A scannable ePCR or a Sansio Mobile electronic runsheet must be completed for every patient contact before the end of an EMS personnel's Shift. For any patient that was transported to a hospital, a copy of the report must be presented to the hospital as well, before the end of your duty shift, and not longer than 12 hours after the patient was transported.

All PCRs whether written or printed out are confidential medical records and are limited to the possession of the authorized EMS Providers involved with response to the patient location or direct patient care, authorized medical facilities that receive the patient if transported, and service payor sources.

## **Disclosure of Medical Information**

Completed Prehospital Care Report form copies may be provided to other sources only in accordance with legal and valid subpoena; or may be provided to the patient or patient responsible party by valid medical record release forms.

## **Completion Criteria**

A PCR will be completed for each patient contact; this includes all alpha, bravo, charlie, delta, and echo calls.

## **Failure to accurately complete PCR**

Each PCR whether written or electronic must be accurately and completely fill out covering all aspects of assessment and treatment for each patient. This must include patient's condition both mentally and physically at the time of the transport and include the medical necessity for ambulance transport for each patient. At all times EMS staff members are to consider themselves "Patient Advocates" and do their best to serve the patient. Failure to include any data elements on the PCR will be considered a violation of the Texas Health and Safety Code herein mentioned and will be handled as an internal disciplinary issue and submitted to the Texas Department of DSHS for action.

## **Mobile Runsheet Data Templates**

The Sansio Mobile Runsheet contains narrative templates that organize the data you have submitted in the available data fields into a format that can be read in paragraph form. These are only organizational templates and the runsheet will not be considered accurately and completely filled out unless you edit and add to this section as needed. Not all of the needed information to accurately "paint a picture" of the call can be captured in a checkbox and it is the responsibility of the primary care attendant on any call to relay the information to other care providers as well as to include it in the electronic or written medical record created for each patient contact. It is inversely true that some elements in the template do not apply to each patient and they must be edited or removed for a complete and accurate runsheet.

# Diagnostic Tools and Procedures

## Vital Signs

Complete vital signs (v/s) are defined as:

- Blood pressure (auscultated or with non-invasive blood pressure monitor, with both systolic and diastolic).
- Pulse or heart rate (indicate which)
- Respiratory rate
- Capillary refill (in the pediatric patient less than one year of age).

Capillary refill (CR) may be used as an adjunct to blood pressure in assessing/describing the perfusion status of any patient. CR is not an acceptable substitute for blood pressure in the patient greater than 4 year of age.

A systolic blood pressure (BP) alone (palpated BP) is acceptable ONLY:

1. As an additional vital sign in the non-urgent patient in whom an auscultated BP has already been obtained and was within normal limits.
2. In the critical trauma patient, in whom serial palpated BP's are being obtained.
3. In the patient in whom an auscultated BP ABSOLUTELY cannot be obtained.

An initial complete set of vital signs is to be obtained within five (5) minutes of patient contact.

Patients refusing treatment and/or transport must have at least one complete set of v/s taken and recorded, if the patient allows. If the v/s are out of normal limits, a second set should be obtained a minimum of five (5) minutes after the first.

Patients transported to a hospital must have a minimum of two complete sets of vital signs taken and recorded. "Stable" patients with non life- or limb-threatening problems will have v/s repeated every 30 minutes. Urgent or critical patients must have v/s repeated every 5 to 10 minutes.

Patients transported from a medical facility to home or a nursing home must have at least one set of v/s taken and recorded. If the initial v/s are out of normal limits, a second set must be taken and recorded. The initial v/s are to be obtained prior to leaving the medical facility

Patients transported from one hospital to another or from a nursing home or other facility to a hospital must have a minimum of two sets of v/s taken and recorded.

Blood pressure, pulse rate and respiratory rate are to be obtained on all patients assessed, including infants and children. DO NOT defer the BP in pediatric patients unless absolutely unobtainable. Capillary refill and peripheral pulse quality may be substituted for blood pressure measurement if the infant is less than 1 year of age.

In the critical patient in which time is a factor, the EMS personnel may use palpable peripheral pulses to estimate and document blood pressure. The acceptable values are as follows:

Palpable radial pulse -	systolic pressure of at least 80 mm Hg
Palpable brachial pulse -	systolic pressure of at least 70 mm Hg
Palpable carotid pulse -	systolic pressure of at least 60 mm Hg

An auscultated blood pressure should be taken prior to obtaining a BP with the non-invasive blood pressure (NIBP) monitor. The NIBP monitor may be used for serial blood pressure measurements. If there is a significant difference in the auscultated blood pressure and the pressure reported by the NIBP machine, re-take the BP by auscultation before initiating any therapy.

# Diagnostic Tools and Procedures

## **Blood Glucose**

Blood glucose must be assessed on all patients with altered mental status. In those patients whose altered mental status appears to be secondary to trauma, blood glucose evaluation may be deferred if obtaining blood glucose would delay more important interventions such as airway management, spinal restriction, bleeding control or timely transport.

Blood glucose evaluation may be performed on any patient at the discretion of the EMS provider.

Blood glucose must be assessed in the following situations:

- Any patient age 1 year or less who is in distress, regardless of findings or complaints. The pediatric patient with suspected Epiglottitis is the exception to this requirement; such patients are not to have a blood glucose evaluation.
- Any patient who experienced a seizure or convulsion.
- Any patient with a history of diabetes or blood sugar problems.
- Any patient who suffered a syncopal episode.

Blood glucose values are reported or documented in terms of milligrams per deciliter (mg/dl).

After the administration of D25% or D50% the blood glucose value will remain elevated for quite some time as the cells attempt to uptake the glucose. Therefore, blood glucose measurements taken shortly after the administration of dextrose may not accurately reflect the correction of the intracellular hypoglycemia. The patient's clinical presentation as well as properly performed repeat blood glucose evaluations should be used to determine the need for additional dextrose administration. If performing a repeat blood glucose level measurement following the administration of dextrose, wait at least 10 minutes before obtaining a post-dextrose BG evaluation. Repeat blood glucose evaluations are required in patients who had an original BG level of less than 80 mg/dl.

## **ECG Monitoring**

The ECG shall be assessed and continuously monitored all patients with the following findings or complaints:

- Signs or symptoms of cardiac etiology (chest pain or other myocardial ischemia discomfort)
- Shortness of breath or difficulty breathing
- Syncope or dizziness
- Near Syncope
- Nausea/vomiting
- Tachycardia
- Hypotension
- Altered mental status
- Any situation in which the medic feels that ECG monitoring is warranted.

When evaluating the ECG of a stable patient thought to be in SVT or ventricular tachycardia (VT) or asystole, the ECG must be assessed and recorded in more than one lead.

## **Pulse Oximetry**

Pulse Oximetry should be used to evaluate the oxygen saturation status of all patients in whom hypoxia or ischemia is suspected. Pulse Oximetry may be used to titrate oxygen delivery, and will permit EMS personnel to utilize delivery devices or flow rates other than those stated in these protocols.

Oxygen should be administered as necessary to maintain oxygen saturation (SaO<sub>2</sub>) reading of at least 95%.

When possible, EMS personnel should obtain room air oxygen saturation (RA SaO<sub>2</sub>) prior to the initiation of oxygen therapy. This should be recorded along with the oxygen saturation displayed while on oxygen therapy (O<sub>2</sub> SaO<sub>2</sub>).

## Interaction with Allied Health Care Personnel

The purpose of this policy is to ensure compliance with the rules of the Texas State Board of Medical Examiners (TSBME), the Texas State Board of Nurse Examiners (TSBNE), and the Texas Department of State Health Services (TDSHS).

Allied health care providers are defined for the purpose of this policy as personnel trained, certified, or licensed to provide health care other than physicians.

Allied health care providers are authorized to assist and/or accompany Matagorda County EMS units at the request of the attending EMS personnel, the transferring physician or the on-line medical control physician.

In accordance with the rules of TSBME, TSBNE, and TDSHS, allied health care providers may assist and/or accompany EMS personnel during the ambulance transport of a patient for the purposes of:

1. Providing additional personnel to allow the efficient and effective provision of care to critically ill or injured patients.
2. Monitoring and managing equipment, adjuncts, and medications with which the EMS personnel are not familiar (e.g.; IV pumps, ventilators, or unusual IV medications).

Orders from the transferring physician concerning care to be rendered during transport may be followed by attending allied health care personnel. Matagorda County EMS personnel shall assist attending allied health care personnel with the administration of such orders as needed, remaining within the scope of authorized practice as defined in these protocols. Matagorda County EMS personnel may render treatment in compliance to orders from the transferring physician IF those orders are in compliance with these protocols or are authorized by on-line medical control.

# Multi-Patient Management and Triage

In the event of a multi-casualty incident the following triage protocol will be used. A multi-casualty incident is defined as an incident in which the immediate medical needs of all patients cannot be met by the EMS resources available at that time.

EMS units will employ the Simple Triage and Rapid Transport (START) system as part of our procedure for managing multi-casualty events.

The first arriving medical personnel will clear the area of "walking wounded" by instructing them to move to a designated area. These walking wounded patients will be evaluated (using the parameters described below) once the remaining patients have been assessed. Those patients that remain after "clearing out" the walking wounded will immediately be evaluated using the following system.

All patients are initially evaluated using three parameters; ventilation, perfusion, and neurological status. Assessment of these parameters will result in the patient being assigned to one of three preliminary categories; dead/nonsalvageable, critical/immediate, and delayed. This initial assessment of each patient should take no longer than 60 seconds. The assessment of each parameter should be performed as follows.

**Ventilation:** If adequate, move on. If inadequate, attempt to improve ventilation using basic maneuvers such as removal of debris and positioning. The patient is then classified as follows.

- No respiratory effort - dead/nonsalvageable.
- Respiratory rate > 30 OR requires airway assistance - critical/immediate.
- Respiratory rate < 30 - delayed.

**Perfusion:** The paramedic may use either capillary refill or the radial pulse to evaluate this component. The patient is classified as follows.

- CR > 2 seconds OR no radial pulse present - critical/immediate.
- CR < 2 seconds OR palpable radial pulse - go to next assessment.

**Neurological:** The assessment of the patient's level of consciousness will result in classification as follows.

- Unconscious - critical/immediate.
- Altered level of consciousness - critical/immediate.
- Normal level of consciousness - delayed.

Once patients have been initially categorized as immediate, delayed or dead the medic responsible for triage shall complete a second, more detailed assessment of the patients and assign individual, numeric priorities to each patient. These individual priorities must be constantly updated (the patients re-assessed) by the triage officer. Resources will be allocated per these priority designations.

During multi-patient incidents that involve lightning strike or electrocution, the patients who present in cardiopulmonary arrest should receive first priority. Survival rates with rapid ACLS intervention for these injury types are high enough to warrant directing resources to these patients.

## Patient Consent and Refusal Policy

The purpose of this policy is to provide our EMS personnel with clear guidelines to handle issues related to consent to and refusal of assessment, treatment and transport by EMS patients.

Throughout this policy, the term “Medical Control” refers to the EMS Medical Director, his designee, or the attending ER Physician. All patients should receive the following minimal assessment;

- A complete primary survey
- A complete secondary survey
- All pertinent diagnostic tests, such as blood glucose level, ECG, etc.
- A complete history of the current injury/illness
- A complete previous medical history
- A list of the patient's medications, medical allergies, and private physicians' names
- All pertinent demographic information (address, DOB, social security number, etc.).

### **General Concepts and Rules Regarding Consent and Refusal**

1. A patient who is able to give consent is also able to refuse EMS. A patient who cannot give consent also cannot refuse EMS.
2. Competent adult patients and emancipated minors can consent to or refuse three separate aspects of EMS care. Those aspects of care are:
  - Assessment (which includes visual observation, palpation, obtaining vital signs, evaluating the ECG or the blood glucose, etc.)
  - Treatment (all therapies and interventions)
  - Transport

Acceptance of any one of these components does not obligate the competent adult patient to accept any other component. In other words, if a patient accepts assessment and treatment, s/he is not required then to accept transport. Also, a competent adult patient may accept transport, but refuse any assessment or treatment.

3. Competent adult patients may consent to or refuse any portion of the above components. A competent adult patient may allow an IV, but decline oxygen; or may accept vital signs, but refuse ECG.
4. Competent adult patients may refuse any component of EMS care, even if the attending EMS personnel believe that it is in poor judgment or harmful to the patient.
5. A competent adult patient may withdraw consent, and subsequently refuse further assessment, treatment, or transport, at any time. There is no limit to this rule; no matter how extensive the treatment they may have already received, a patient may still withdraw consent (refuse).
6. Refusal of care must be made in an “informed consent” setting. This means that we must make every reasonable effort to ensure that the patient fully understands the following points before accepting the refusal:
  - what we believe is wrong (or potentially wrong) with the patient
  - the benefits of the assessment, treatment, or transport that we are offering, in
  - relation to the suspected illness/injury
  - the possible consequences of the patient’s decision to decline the assessment, treatment, or transport being offered.
7. Orientation (mental status) is evaluated and documented in reference to four components. These are; person, place, time, and event. For each of these, the specific definitions are as follows:
  - person means that the patient know his or her own name (first and last)
  - place means that the patient knows where they are (in general terms; they do not need to know the physical address at which they are located, but should know that they are in “Bay City” or “at the Doctor’s office”)
  - time means that the patient knows what day of the week it is. Alternatively, the patient can demonstrate orientation to this component by correctly stating the month and year

## Patient Consent and Refusal Policy (continued)

- event means the patient remembers what happened to them (in the case of an injury), or can describe the history of the present illness.

In order to demonstrate competency to refuse EMS care, a patient must be awake, alert, and oriented at least to person, place, and time. If a patient is oriented to all but event, s/he is still considered competent to refuse care.

### **Adult Patients**

Awake, Alert, and Oriented to Person, Place, and Time; Does Not Wish EMS Assessment, Treatment, and/or Transport AND EMS Agrees With the Patient's Decision.

### **Assessment and Interventions**

1. The patient MUST demonstrate to EMS that he/she knows:

- His/her own name
- Where he/she is
- What day of the week it is OR what month and year it is.

If the patient is unable to correctly answer these questions, the patient's refusal MUST be rejected, and appropriate assessment, treatment, and transportation by EMS must be imposed.

2. If the patient is adequately oriented, the EMS provider shall obtain the patient assessment.
3. EMS shall offer treatment and transportation to the patient.
4. EMS shall inform the patient of the possible consequences of the apparent injury/illness if further medical care is not sought.
5. EMS shall provide the patient with instructions as to what further actions should be taken, to always include at least:
  - Any immediate care or management for the injury/illness
  - To call EMS back if any further problems
  - To be seen by a physician as soon as possible.

### **Documentation**

1. EMS shall document all demographic information
2. EMS shall document all assessment information, especially the patient's mental status.
3. EMS shall document that the patient was offered treatment and/or transport by EMS.
4. EMS shall document that the patient refused the offer(s)
5. EMS shall document what instructions were given to the patient, and that the patient acknowledged the instructions.
6. The patient shall sign the refusal form and shall sign for the receipt of EMS' follow-up instructions. If the patient refuses to sign the refusal form, EMS shall have a minimum of two witnesses sign the refusal indicating that the patient did refuse treatment/transport and refused to sign the form. If possible, these witnesses should not be drawn from the EMS, Fire, or Police personnel on the scene.

## Patient Consent and Refusal Policy (continued)

### **Adult Patients**

#### **Disoriented or Suicidal**

Once the EMS provider establishes that the patient is disoriented, under the influence of Alcohol or drugs, has a head injury, hypoglycemia or any other factor which EMS believes is affecting the patient's ability to make a valid informed decision, and all attempts by the patient to refuse any appropriate aspect of assessment and treatment must be rejected by the EMS provider.

1. The EMS provider is authorized and required to use the minimal reasonable force necessary to impose appropriate assessment and treatment modalities, and to affect transport of the patient. The EMS provider shall utilize safe physical restraints as needed. The physical restraints must not inflict any harm on the patient, worsen preexisting injuries or conditions, or be utilized in a punitive or unnecessary fashion.
2. The EMS provider shall enlist the assistance of law enforcement personnel as appropriate in utilizing force and restraints. Suicidal patients must be placed in the custody of law enforcement.
3. In all disoriented patients, the EMS provider may not refer transport of the patient to any other entity, including law enforcement. Regardless of the presence or absence of any medical findings, the disoriented patient must be transported by EMS and must receive all assessment components and interventions as dictated by the appropriate EMS medical protocol. EMS personnel should not endanger themselves in the course of treatment and/or transport of the patient.

#### **Documentation**

1. EMS shall document all assessment information, especially the patient's mental status and what evidence led EMS to suspect intoxication, head injury, or other factors affecting the patient's ability to make a valid informed decision.
2. EMS shall document that the patient was offered treatment and/or transport by EMS.
3. EMS shall document that the patient refused the offer(s).
4. EMS will document if the assistance of family/friends was enlisted, what role law enforcement played, and that Medical Control was contacted. EMS will also document any instructions or interaction from law enforcement and/or Medical Control.
5. EMS shall document exactly what, if any, force or restraint was utilized to affect treatment and transport of the patient, and who ordered the imposition of care upon the patient (Medical Control vs. law enforcement).
6. If the patient is not transported, EMS shall document what instructions were given to the patient, and that the patient acknowledged the instructions. EMS shall also document if the instructions were given to others as well (family, friends), and who received the instructions.
7. If the patient is not transported, the patient shall sign the refusal form. If the patient refuses to sign the refusal form, EMS shall have a minimum of two witnesses sign the refusal indicating that the patient did refuse treatment/transport and refused to sign the form.
8. If the patient is not transported, EMS shall document that the law enforcement personnel were advised of the possible consequences of not taking the patient into custody and allowing EMS treatment and transport. The ranking law enforcement officer on the scene also must sign the patient chart, indicating that he/she received the instructions and advice of the EMS personnel. If the officer refuses to sign, then EMS shall document this on the chart.

## Patient Consent and Refusal Policy (continued)

### **Adult Patients**

#### **Incompetent**

Incompetent adult patient is defined as any adult patient who is not capable of making his or her own decisions regarding medical care. This includes:

- Mentally ill patients
- Mentally retarded
- Patients with an organic brain deficit, such as Alzheimer's disease.

Patient's Guardian is Present, Can Provide Proof of Guardianship (Durable Power of Attorney).

#### **Assessment and Interventions**

1. The patient himself may not refuse any assessment, treatment, or transportation by EMS. Consent for or refusal of EMS services must be obtained from the patient's guardian.
2. The patient's guardian **MUST** demonstrate to EMS that the guardian is oriented
3. If the guardian is adequately oriented, the EMS provider shall obtain a patient assessment.

If the guardian refuses any assessment component or intervention after satisfactorily establishing that his/her mental status is adequate to refuse, the EMS providers shall comply with the guardian's request unless directed otherwise by Medical Control or law enforcement.

4. EMS shall offer treatment and transportation of the patient to the guardian.
5. EMS shall inform the guardian of the possible consequences of the apparent injury/illness if further medical care is not sought.
6. EMS shall provide the guardian with instructions as to what further actions should be taken, to always include at least:
  - Any immediate care or management for the injury/illness
  - To call EMS back if any further problems
  - The patient is to be seen by a physician as soon as possible.

#### **Documentation**

1. EMS shall document what proof was offered as to the guardian's identification as the patient's legal guardian.
2. EMS shall document that the guardian was offered treatment and/or transport for the patient by EMS.
3. EMS shall document that the guardian refused the offer(s).
4. EMS shall document what instructions were given to the guardian, and that the guardian acknowledged the instructions.
5. The guardian shall sign the refusal form. If the guardian refuses to sign the refusal form, EMS shall have a minimum of two witnesses sign the refusal indicating that the guardian did refuse treatment/transport and refused to sign the form.
6. If Patient's Guardian is Present and Cannot Provide Proof of Guardianship (Durable Power of Attorney) contact medical control for authorization to accept refusal.

#### **Patient's Guardian is Not Present.**

##### **Assessment and Interventions**

1. If the patient's medical problem is urgent, then EMS shall initiate assessment, treatment, and transport immediately. Contact with the patient's guardian shall become the responsibility of the receiving hospital or law enforcement.
2. If the patient's medical problem is not urgent, EMS should attempt to contact the patient's guardian by phone if possible. If the patient's guardian is not contacted within 10 minutes, EMS shall initiate treatment and transport.

## Patient Consent and Refusal Policy (continued)

3. If the patient's guardian is contacted by telephone and, after receiving a report on the patient's assessment and recommendations from the EMS personnel, wishes to refuse further treatment and/or transport, EMS shall contact Medical Control. Medical Control may elect to:
  - Allow EMS to accept the refusal by telephone.
  - Allow EMS to await the guardian's arrival at the scene, if the delay will not endanger the patient nor endanger the community by keeping the EMS unit out of service for an extended period of time
  - Reject the guardian's refusal and order EMS to provide appropriate treatment and transportation.
4. A minimum of two EMS personnel (or one EMS personnel and one other witness, not related to the patient) must directly hear the patient's guardian:
  - Identify himself
  - Identify the patient
  - Identify himself as the guardian of the patient
  - Decline the offer of EMS treatment and/or transport.

### **Child Patient, Guardian Present**

Patient's guardian is refusing EMS assessment, treatment, and/or transport, and EMS agrees with the guardian's decision.

### **Assessment and Interventions**

The patient himself may not refuse any assessment, treatment, or transportation by EMS. Consent for, or refusal of, EMS services must be obtained from the patient's guardian.

Follow the same process as for Adult Incompetent Patients

### **Child Patient, Guardian Present with Abuse or Neglect Suspected**

Patient's guardian is refusing EMS assessment, treatment, and/or transport, and EMS suspects abuse or neglect of the patient.

### **Assessment and Interventions**

1. If the guardian refuses, EMS shall call law enforcement to the scene and notify the officer that EMS suspects abuse or neglect of the patient but that the guardian is refusing EMS treatment/transportation.
2. It shall be the primary responsibility of law enforcement to determine if sufficient evidence exists to necessitate taking the child into protective custody and imposing medical care against the guardian's wishes.
3. If law enforcement does not wish to require the guardian to accept EMS transport of the patient or take the child into custody, EMS shall contact Medical Control.
  - Medical Control may elect to communicate with the guardian (or family/friends) and/or law enforcement directly, and may elect to provide additional direction to the EMS personnel.
4. If there is any evidence that the patient may have any medical problem, then the patient, if transported, **MUST** be transported by EMS. The transport may **NOT** be referred to any other entity, including law enforcement.

### **Documentation**

1. EMS shall document what evidence indicated to the EMS personnel that the patient was a victim of abuse or neglect.
2. EMS shall document that the guardian was offered treatment and/or transport for the patient by EMS.
3. EMS shall document that the guardian refused the offer(s).

## Patient Consent and Refusal Policy (continued)

4. EMS will document if the assistance of family/friends was enlisted, what role law enforcement played, and that Medical Control was contacted. EMS will also document any instructions or interaction from law enforcement and/or Medical Control.
5. If the patient is not transported, EMS shall document what instructions were given to the guardian, and that the guardian acknowledged the instructions. EMS shall also document if the instructions were given to others as well (family, friends), and who received the instructions.
6. If the patient is not transported, EMS shall document that the law enforcement personnel were advised of the possible consequences of not taking the patient into custody and allowing EMS treatment and transport. The ranking law enforcement officer on the scene also should sign the patient chart, indicating that he/she received the instructions and advice of the EMS personnel.
7. If the patient is not transported, the guardian shall sign the refusal form. If the guardian refuses to sign the refusal form, EMS shall have a minimum of two witnesses sign the refusal indicating that the guardian did refuse treatment/transport and refused to sign the form.

### **Child Patient, Patient's Guardian is not present. Assessment and Interventions**

1. The patient himself may not refuse any assessment, treatment, or transportation by EMS. Consent for or refusal of EMS services must be obtained from the patient's guardian.
2. If the patient's medical problem is urgent, then EMS shall initiate assessment, treatment, and transport immediately. Contact with the patient's guardian shall become the responsibility of the receiving hospital or law enforcement.
3. If the patient's medical problem is not urgent, EMS should attempt to contact the patient's guardian by phone if possible. If the patient's guardian is not contacted within 10 minutes, EMS shall initiate treatment and transport.
4. If the patient's guardian is contacted by telephone (EMS must be reasonably certain of the identification of the individual as the guardian and the orientation/mental status of the guardian) and, after receiving a report on the patient's assessment and recommendations from the EMS personnel, wishes to refuse further treatment and/or transport, EMS shall contact Medical Control. Medical Control may elect to:
  - Allow EMS to accept the refusal by telephone.
  - Allow EMS to await the guardian's arrival at the scene, if the delay will not endanger the patient nor endanger the community by keeping the EMS unit out of service for an extended period of time
  - Reject the guardian's refusal and order EMS to provide appropriate treatment and transportation.
5. A minimum of two EMS personnel (or one EMS personnel and one law enforcement officer) must directly hear the patient's guardian:
  - Identify himself
  - Identify the patient
  - Identify himself as the guardian of the patient
  - Decline the offer of EMS treatment and/or transport.

### **Documentation**

1. EMS shall document that the guardian was contacted and was offered treatment and/or transport for the patient by EMS.
2. EMS shall document that the guardian refused the offer(s).
3. EMS shall document what instructions were given to the guardian, and that the guardian acknowledged the instructions.
4. Chart must also reflect that Medical Control was contacted
5. If the refusal is being accepted via telephone, then the refusal form shall reflect the guardian's name and the fact that the guardian was contacted by phone and refused. A minimum of two EMS personnel shall sign the refusal form witnessing the phone refusal.

## Patient Consent and Refusal Policy (continued)

### **Child Patient, Patient's Guardian is Not Present, Patient Has No Injury/Illness.**

#### **Assessment and Interventions**

1. EMS shall thoroughly assess the patient to be certain that the patient has no medical problem or injury.
2. Should the patient have any medical problem or injury, the child will be treated as outlined in the preceding two sections.
3. If after an assessment EMS determines that the child has no medical problem or injury, EMS shall attempt to make contact with the child's guardian via telephone.
4. If EMS can make contact with the guardian, EMS will have the guardian come to the scene or designate an adult who may take responsibility for the child.
5. If the guardian is unavailable, EMS may release the child to the custody of law enforcement if law enforcement agrees to take responsibility for the child.
6. EMS may only release the child to:
  - The guardian directly.
  - An adult designated by the guardian.
  - A law enforcement officer.

#### **Documentation**

1. EMS shall document all assessment information, clearly indicating that the child had no medical problem or injury.
2. EMS shall document that the guardian was contacted and that the child was subsequently released to the guardian or to another adult designated by the guardian OR That EMS was unable to make contact with the guardian and that the child was released to law enforcement.
3. The individual taking custody of the child from EMS shall sign the patient's chart indicating that they are taking responsibility for the child. The EMS personnel shall document the name and relationship of the person.

# 100 Cardiac Arrest: Asystole/PEA

## ECA

- ABC, CPR and AED, per AHA Guidelines
- Initial Use of oropharyngeal airway and BVM is acceptable

### ECA STOP

## EMT

- King Airway.

### EMT STOP

## INTERMEDIATE

- Vascular access, Normal Saline 500 ml IV bolus
- Advanced Airway

### INTERMEDIATE STOP

## PARAMEDIC

- Cardiac Monitor
- Epinephrine 1:10,000 dose 1.0 mg IV; repeat every 3 to 5 minutes
- Atropine 1 mg IV; repeat every 3 minutes to max of 0.04 mg/kg
- Consider pacing

### PARAMEDIC STOP

## Key Points/Considerations

- Check Asystole in more than 1 lead
- This protocol reflects current ACLS guidelines at time of publication.

### During CPR

- **Push hard and fast (100/min)**
- **Ensure full chest recoil**
- **Minimize interruptions in chest compressions**
- One cycle of CPR: 30 compressions then 2 breaths; 5 cycles = 2 min.
- Avoid hyperventilation
- Secure airway and confirm placement
- After an advanced airway is placed, rescuers no longer deliver “cycles” of CPR. Give continuous chest compressions without pauses for breaths. Give 8-10 breaths/minute. Check rhythm every two minutes.
- Rotate compressions every two minutes with rhythm checks
- Search for and treat possible contributing factors:
  - Hypovolemia
  - Hypoxia
  - Hydrogen Ion (acidosis)
  - Hypo-hyperkalemia
  - Toxins
  - Tamponade, cardiac
  - Tension pneumothorax
  - Thrombosis (coronary or pulmonary)
  - Trauma

## Cardiac Arrest: Withholding of Resuscitation

- Resuscitative efforts for patients in cardiac arrest should not be initiated if:
  - Multi-patient incidents as described in the Multi-patient/Triage protocol
  - Decapitation
  - Decomposition
  - Rigor mortis
  - Dependent lividity
  - Visible trauma to the head or chest that is clearly incompatible with life
  - Valid Do Not Attempt Resuscitation directives as described in this protocol
  - Mechanical Ventilation with one or more of the above statements
- For all other patients in respiratory or cardiac arrest, in whom appropriateness of resuscitation is questionable, the EMS provider **MUST** start BLS care, including defibrillation.

# 101 Cardiac Arrest: Ventricular Fibrillation / Pulseless V-Tach

## ECA

- ABC, AED and CPR per AHA Guidelines. Defibrillate as necessary, but if arrival on scene is delayed > 4 minutes, 5 cycles of CPR should be done before defibrillation.

### ECA STOP

## EMT

- Secure airway. Initial Use of oropharyngeal airway and BVM is acceptable, with King airway device deferred until a suitable time.

### EMT STOP

## INTERMEDIATE

- Vascular access, Normal Saline 500 ml IV bolus
- Advanced Airway options

### INTERMEDIATE STOP

## PARAMEDIC

- Cardiac Monitor
- Epinephrine 1:10,000 dose 1.0 mg IV; repeat every 3 to 5 minutes
- Five cycles of CPR, then check rhythm
- Consider ONE of the following:
  - Lidocaine 1 to 1.5 mg/kg IV/IO. Repeat 0.5 to 0.75 mg/kg IV/IO, max 3 doses or 3.0 mg/kg
  - Amiodarone (Cordarone) 300 mg IV/IO. Repeat 150 mg in 3 – 5 minutes
  - Magnesium 1 to 2 grams IV/IO for torsades de pointes
- If pulses return, administer another dose of the antiarrhythmic given:
  - Lidocaine 1.5 mg/kg IV/IO to max of 3.0 mg/kg OR
  - Amiodarone (Cordarone) 150 mg in 100 ml Normal Saline over 10 minutes (10 ml/min) may repeat in 10 minutes, once.
- Within 10 minutes of last dose of Lidocaine given start maintenance infusion:
  - Lidocaine infusion of 1-4mg/min

### PARAMEDIC STOP

## Key Points/Considerations

- Transport patient to the closest hospital
- If Cardiac Arrest is Trauma related then all interventions after airway should be done during transport to the closest hospital by ground ambulance
- Maximize dose of each antiarrhythmic before considering using another
- This protocol reflects current ACLS guidelines at time of publication.

Continue CPR while defibrillator is charging. **Give one shock.** Manual biphasic: device specific (same as first shock or higher dose) (if unknown, use 200j). AED: device specific. Monophasic: 360j. **Resume CPR immediately after the shock.** Consider antiarrhythmics (see above): give during CPR (before or after the shock)

# 102 Cardiac: Chest Pain - Acute Coronary Syndrome – Suspected

## ECA

- ABC and vital signs
- Airway management with high concentration oxygen

### ECA STOP

## EMT

- Assist patient with their own prescribed Nitroglycerin (1 dose), if SBP is >120 mmHg
- Aspirin 324 mg (4 x 81 mg tabs)

### EMT STOP

## INTERMEDIATE

- Vascular access

### INTERMEDIATE STOP

## PARAMEDIC

- Cardiac Monitor
- 12 Lead EKG, if available, for STEMI
- For ST Elevation MI, with ½ mm or more of elevation in 2 contiguous leads, or machine computer notes “Acute MI”, do not delay transport. Strongly recommend transport to facility capable of primary angioplasty if transport time is less than one hour. Notify receiving hospital as soon as possible to discuss transport options.
- Nitroglycerin 0.4 mg per dose, up to 3 doses, 5 minutes apart, provided the patient’s systolic BP is above 100 mmHg
- Morphine 2mg every 3-5 minutes slow IV push to max dose of 10mg
- Phenergan 12.5 mg IV
- If systolic BP drops below 100 mmHg: Normal Saline 250 ml IV bolus

### PARAMEDIC STOP

## Key Points/Considerations

- Focus on maintaining ABC, pain relief, rapid identification, rapid notification and rapid transport to an appropriate facility
- Vitals, including 12 Lead EKG, should be monitored frequently during transport
- The first dose of Nitroglycerin may be administered while preparing to establish vascular access
- A total of 3 doses of Nitroglycerin may be administered by pre-hospital providers
- Withhold Nitro if the patient is also taking Viagra, Cialis or Lavetra.

# 103 Cardiac: Cardiogenic Shock

## ECA

## EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Place patient supine unless dyspnea is present

 **ECA and EMT STOP**

## INTERMEDIATE

- Vascular access
- Normal Saline 250 ml IV bolus; recheck lung sounds and repeat if unchanged

 **INTERMEDIATE STOP**

## PARAMEDIC

- Cardiac Monitor
- 12 Lead EKG, if available
- If UNSTABLE, Dopamine infusion 5-20 micrograms/kg/min titrated to systolic B/P of 110

 **PARAMEDIC STOP**

## Key Points/Considerations

- For patients with Suspected Acute Coronary Syndrome and signs of Hypoperfusion
- UNSTABLE is defined as systolic BP less than 90 mmHg and/or decreased level of consciousness
- Refer to Dysrhythmias protocols as needed

## 104 Cardiac: Wide Complex Tachycardia with a Pulse

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Have AED available

 ECA and EMT STOP

### INTERMEDIATE

- Vascular access

 INTERMEDIATE STOP

### PARAMEDIC

- Cardiac Monitor
- 12 Lead EKG, if available
- If STABLE and regular rhythm, Amiodarone (Cordarone) 150 mg in 100 ml Normal Saline, infused over 10 minutes, or prepare for synchronized cardioversion
- If UNSTABLE, consider sedation with Midazolam or Diazepam (see Procedural Sedation Protocol)
- Synchronized cardioversion. Repeated as needed, maximum 3 times
- If rhythm is converted: Amiodarone (Cordarone) 150 mg in 100 ml NS IV, over 10 minutes, OR prepare for cardioversion
- Magnesium 2 gm IV, over 20 minutes for STABLE patient, over 2 minutes for UNSTABLE patient or as first choice if Torsades is suspected

 PARAMEDIC STOP

### Key Points/Considerations

- If no pulse treat as V-Fib
- UNSTABLE is defined as ventricular rate > 150 bpm with symptoms of chest pain, dyspnea, altered mental status, pulmonary edema, ischemia, infarction or hypotension (systolic BP < 90 mmHg)
- Wide Complex is defined as a QRS complex greater than .12 seconds
- Start cardioversion at 50 Joules
- This protocol reflects current ACLS guidelines at time of publication.

## 105 Cardiac: Narrow Complex Tachycardia with Rate > 150

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen

 **ECA and EMT STOP**

### INTERMEDIATE

- Vascular access at a site as close as possible to central circulation

 **INTERMEDIATE STOP**

### PARAMEDIC

- Cardiac Monitor
- Vagal Maneuver
- 12 Lead EKG, if available
- If STABLE Regular Rhythm: Adenosine (Adenocard) 6 mg IV, then Adenosine (Adenocard) 12 mg IV. If no conversion, may repeat Adenosine (Adenocard) 12 mg once in 1 – 2 minutes
- If UNSTABLE, consider sedation with Diazepam (Valium) 5 mg IV or Midazolam (Versed) 2 mg IV
  - Synchronized cardioversion starting at 50 Joules

 **PARAMEDIC STOP**

### Key Points/Considerations

- Do NOT use carotid sinus massage as vagal maneuver
- UNSTABLE is defined as ventricular rate > 150 BPM with symptoms of chest pain, dyspnea, altered mental status, pulmonary edema, ischemia, infarction or hypotension (systolic bp < 90 mmHg)

# 106 Cardiac: Symptomatic Bradycardia / Heart Blocks

## ECA

## EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Have AED available

## ECA and EMT STOP

## INTERMEDIATE

- Vascular access

## INTERMEDIATE STOP

## PARAMEDIC

- Cardiac Monitor - prepare for pacing
- Atropine 0.5 mg IV
- 12 Lead EKG, if available
- Repeat Atropine 0.5 mg IV, every 3 min, up to a max of 0.04 mg/kg
- Consider Transcutaneous pacing, consider Procedural Sedation Protocol
- Dopamine infusion 2-10 mcg/kg/min

## PARAMEDIC STOP

## Key Points/Considerations

- Only treat bradycardia if patient is symptomatic
- Symptomatic presentation includes chest pain, dyspnea, altered mental status, pulmonary edema, ischemia, infarction or hypotension (systolic BP < 90 mmHg)

### Prepare for Transcutaneous Pacing;

Use without delay for high-degree block (type 2 second degree block or third degree AV block)

- Consider **Atropine** 0.5 mg IV while awaiting pacer. May repeat to a total of 3 mg. If ineffective, begin pacing.
- **Dopamine** (2-10 mcg/min) infusion while awaiting pacer, or if pacer ineffective

### Reminders

If Pulseless arrest develops, go to Pulseless Arrest Algorithm

Search for and treat possible contributing factors:

**Hypovolemia**  
**Hypoxia**  
**Hydrogen Ion (acidosis)**  
**Hypo-hyperkalemia**  
**Toxins**  
**Tamponade, cardiac**  
**Tension pneumothorax**  
**Thrombosis (coronary or pulmonary)**  
**Trauma (hypovolemia, increased ICP)**

## 107 General: Nausea and/or Vomiting

ECA

EMT

- ABC and vital signs
- Airway management with high concentration oxygen

 ECA and EMT STOP

INTERMEDIATE

- Vascular access
- Normal Saline 250 ml bolus IV

 INTERMEDIATE STOP

PARAMEDIC

- Cardiac Monitor
- Phenergan 12.5mg IV or 25mg IM, may repeat once in 5 minutes

 PARAMEDIC STOP

Key Points/Considerations

## 108 General: Pain Management

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen

 **ECA and EMT STOP**

### INTERMEDIATE

- Vascular access

 **INTERMEDIATE STOP**

### PARAMEDIC

- Morphine 5mg IV or IM Morphine may be repeated once after 5 minutes, with a maximum total given not to exceed 20 mg
- Phenergan 12.5 mg IV or 25 mg IM, if patient becomes nauseous
- Consider Midazolam (Versed) 0.05 mg/kg IV, IM if Anxiety is a problem due to pain level

 **PARAMEDIC STOP**

### Key Points/Considerations

- For patients with:
  - Severe burns without hemodynamic compromise
  - Suspected isolated extremity fractures or dislocations with severe pain
- Contraindications to standing order pain management: altered mental status, hypoventilation, hypotension, multi-systems trauma, undiagnosed abdominal pain, head injury

## 109 General: Patient Restraint

### ECA

### EMT

- Call for Law Enforcement
- ABC and vital signs
- Airway management with high concentration oxygen, if tolerated
- Check blood glucose level, if equipped. If level is abnormal refer to Diabetic Protocol

 **ECA and EMT STOP**

### INTERMEDIATE

- Vascular access if possible and safe for provider

 **INTERMEDIATE STOP**

### PARAMEDIC

- Midazolam 0.5mg increments up to 10mg IV/IM/IN until desired effect (see dosage table for MAD)
- Diazepam 2-10mg IV until desired effect

 **PARAMEDIC STOP**

### Key Points/Considerations

- For patients at risk of causing physical harm to emergency responders, the public and/or themselves
- Patient must NOT be transported in a face-down position
- If the patient is in police custody and/or has handcuffs on, a police officer must accompany the patient in the ambulance to the hospital
- EMS personnel may only apply “soft restraints” such as towels, cravats or commercially available soft medical restraints

## 110 General: Procedural Sedation

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen

### ECA and EMT STOP

### INTERMEDIATE

- Vascular access

### INTERMEDIATE STOP

### PARAMEDIC

- Cardiac Monitor
- Continuous pulse oximetry
- Midazolam 0.5mg increments up to 10mg IV/IM until desired effect
- Diazepam 2-10mg IV until desired effect

### PARAMEDIC STOP

### Key Points/Considerations

- For patients with the following anxiety producing or painful procedures including:
  - Cardioversion
  - Transcutaneous pacing
  - Post-Intubation Sedation, following confirmed endotracheal intubation

## 111 General: Snake Bites/Marine Emergencies

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Continuous pulse oximetry
- If coral snake bite wash wound immediately with copious amounts of water
- Immobilize limb and splint at level of Heart

#### **IF Stingray:**

If stinger is still in place, remove to reduce the toxins introduced; if available heat the wound with heat packs or hot water to denature the toxins. If using hot water the water should be as warm as is tolerated but insure that the water will not burn the skin.

#### **IF Jellyfish:**

If tentacles are present remove and wash wound immediately with copious amounts of NS not water. If available apply meat tenderizer (papain) to the wound to denature the toxins.

 **ECA and EMT STOP**

### INTERMEDIATE

- Vascular access

 **INTERMEDIATE STOP**

### PARAMEDIC

- Cardiac Monitor
- Refer to pain management protocol

 **PARAMEDIC STOP**

### Key Points/Considerations

- Ice or cooling to the bite area results in more severe tissue damage and has little effect on venom movement:
- Movement expedites the spread of the venom. Therefore, the patient's physical activity **MUST** be kept to an absolute minimum

## 112 General: Environmental Exposure Emergencies

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Remove patient from the hot or cold environment
- External cooling with copious amounts of water for Heat related emergencies
- Continuous pulse oximetry

 ECA and EMT STOP

### INTERMEDIATE

- Vascular access

 INTERMEDIATE STOP

### PARAMEDIC

- Cardiac Monitor
- Refer to Seizure protocol as needed
- Diazepam 2-10mg IV if a Hyperthermia patient begins to shiver from cooling efforts
- Phenergan 12.5mg IV, may repeat once in 5 minutes for Adult

 PARAMEDIC STOP

### Key Points/Considerations

- External Cooling should be accomplished by:
- Removing excessive clothing
- Sponging with wet towels
- AVOID Overcooling and shivering
- Hypothermic patients should have wet clothes removed and warmed with layers of blankets.

## 113 Medical: Anaphylaxis

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Determine if patient has utilized his/her own Epi Pen
- Implement BLS Epinephrine Protocol

 ECA and EMT STOP

### INTERMEDIATE

- Vascular access
- Normal Saline 500 ml IV bolus

 INTERMEDIATE STOP

### PARAMEDIC

- Cardiac Monitor
- Epinephrine 1:1,000 dose 0.5 mg subcutaneously, if patient has hypotension and/or respiratory distress w/airway swelling, hoarseness, stridor or wheezing
- Diphenhydramine (Benadryl) 25 mg IV or 50 mg IM
- Albuterol 2.5 mg in 3 ml (unit dose) + Atrovent (Ipratropium) 0.5 mg in 2.5 ml (unit dose) mixed together, via nebulizer or ET tube; may repeat to a total of three doses
- Epinephrine 1:10,000 dose 0.5 mg via ET tube if intubated
- Additional Albuterol unit dose, via nebulizer
- Dopamine infusion 5 – 20 micrograms/kg/min

 PARAMEDIC STOP

### Key Points/Considerations

- If an EMT has administered an Epi Pen, or the patient utilized his/her own epinephrine auto injector, use caution when administering additional epinephrine subcutaneously

## 114 Medical: Diabetic Emergencies

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Check blood glucose level, if equipped and authorized
  - If blood glucose reading <80 and patient is able to swallow, give oral glucose 1 unit dose (19-24 gm).
  - If blood glucose >400, call MICU intercept if not already enroute
  - If not equipped to check blood glucose level and blood glucose is suspected to be low and patient is able to self administer and swallow on command, give oral glucose one unit dose
- Call for MICU Intercept if unable to swallow on command, or mental status remains altered following administration of oral glucose

### ECA and EMT STOP

### INTERMEDIATE

- Vascular access
- If glucose level is below 80 and patient cannot swallow on command, administer Dextrose 50% 25 grams IV; may redose if hypoglycemia recurs during transport
- If glucose level is above 400, administer Normal Saline 250 ml IV bolus
- If unclear history or suspicion of alcohol abuse administer Thiamine 100mg IV or IM

### INTERMEDIATE STOP

### PARAMEDIC

- If unable to obtain vascular access, Glucagon 1 mg IM or SQ
- Additional 250 ml Normal Saline IV bolus, if patient is hyperglycemic
- Additional Dextrose 50 %, if patient is hypoglycemic
- 

### PARAMEDIC STOP

### Key Points/Considerations

- If the patient's blood glucose level is below 80 and the patient is a known diabetic with a patent airway, who is able to self administer and swallow on command, administer oral glucose or equivalent rather than establishing vascular access, if possible

# 115 Medical: Overdose or Toxic Exposure

## ECA

## EMT

- Decontamination as needed
- ABC and vital signs
- Airway management with high concentration oxygen
- Determine what was taken, when and how much, if possible
- If OD of oral or parenteral hypoglycemic agent is suspected, check blood glucose level, if equipped and authorized. If level is abnormal refer to Diabetic Protocol
- If patient is alert, and transport time is >20 minutes, contact Poison Control 1-800-222-1222.

## ECA and EMT STOP

## INTERMEDIATE

- Vascular access
- For symptomatic opiate overdose: Naloxone (Narcan) 0.4 q 2 min up to 2 mg maximum IV, IM
- If glucose level is below 80 and patient cannot swallow on command, administer Dextrose 50% 25 grams IV; may redose if hypoglycemia recurs during transport
- If unclear history or suspicion of alcohol abuse administer Thiamine 100mg IV or IM

## INTERMEDIATE STOP

## PARAMEDIC

- Cardiac Monitor
- Consider 12 Lead EKG if tachycardia, if available
- Sympathomimetic OD (cocaine or amphetamines): Midazolam (Versed) 0.05 mg/kg IV, IM or atomized intranasal(see dosage for MAD)
- Organophosphate poisoning: Atropine 2 – 5 mg IV per dose until secretions dry
- Dystonic reaction: Diphenhydramine (Benadryl) 50 mg IV or IM
- Tricyclic antidepressant OD: Sodium Bicarbonate 1 mEq/kg IV until QRS complex narrows

## PARAMEDIC STOP

## Key Points/Considerations

- Includes patients who are unconscious/unresponsive without suspected trauma or other causes, and patients with a brief loss of consciousness
- If patient is a suspected narcotic overdose (due to history and/or physical findings) administer Naloxone prior to checking blood glucose level
- Dystonic reaction is uncontrolled muscle contractions of face, neck or tongue
- Examine 12 Lead EKG for QRS widening or QT prolongation

## 116 Medical: Active Seizures

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Check blood glucose level, if equipped. If level is abnormal refer to Diabetic Protocol

### ECA and EMT STOP

### INTERMEDIATE

- Vascular access

### INTERMEDIATE STOP

### PARAMEDIC

- For an actively seizing pregnant patient, consult the Eclampsia protocol
- Cardiac Monitor
- Diazepam (Valium) 5 mg IV, if patient continues to seize repeat up to 20 mg
- If vascular access cannot be obtained:
  - Midazolam (Versed) 5 mg IM or atomized intranasal may repeat once(see MAD dosage chart) OR
  - Diazepam (Valium) 10 mg rectally, up to 20 mg

### PARAMEDIC STOP

### Key Points/Considerations

- Protect the patient and EMS crew from injury during the seizure
- Remove the needle from the syringe for rectal administrations
- Refer to the Eclampsia protocol if patient is pregnant

## 117 Medical: Shock / Hypoperfusion

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Place patient in supine position unless dyspnea is present
- Place patient in modified Trendelenburg position, if tolerated

### ECA and EMT STOP

### INTERMEDIATE

- Vascular access
- If no pulmonary edema:
  - Additional vascular access for fluid
  - Normal Saline 500 ml bolus IV; check lung sounds, repeat NS Bolus if lung sounds unchanged

### INTERMEDIATE STOP

### PARAMEDIC

- Cardiac Monitor
- 12 Lead EKG, if available
- Repeat Normal Saline 500 ml bolus IV, up to 3 times
- Consider Dopamine infusion 2-20mcg/kg/minute titrated to systolic B/P of 110 mmHg

### PARAMEDIC STOP

### Key Points/Considerations

- UNSTABLE is defined as Systolic BP < 90 mmHg and/or decreased level of consciousness
- Consider and treat causes of hypoperfusion, including anaphylaxis, toxic ingestions, cardiac rhythm disturbances, myocardial infarction, sepsis, ruptured AAA, ectopic pregnancy, trauma, etc.

## 118 Medical: Suspected Stroke/Hypertensive Crisis

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Perform neurological exam including Cincinnati Pre-Hospital Stroke Scale, if CPSS is positive for 2 indicators, immediately notify receiving facility
- Check blood glucose level, if equipped. If level is abnormal refer to Diabetic Protocol
- Determine the exact time patient was last in usual state of health and/or seen without symptoms by interviewing patient, family, and bystanders

### ECA and EMT STOP

### INTERMEDIATE

- Vascular access

### INTERMEDIATE STOP

### PARAMEDIC

- Cardiac Monitor
- 12 lead EKG, if available
- If systolic BP is greater than 200 or diastolic BP is greater than 110 then Nitroglycerin 0.4mg SL, may repeat every 5 minutes up to 3 doses
- If systolic BP is greater than 240 or diastolic BP is greater than 140 then Labetalol 20mg slow IV, may repeat once in 10 minutes if needed at 40mg slow IV
- Phenergan 12.5mg IV for Nausea/Vomiting

### PARAMEDIC STOP

### Key Points/Considerations

- Cincinnati Pre-Hospital Stroke Scale:
  - Have the patient repeat “It is sunny outside today”. Assess for correct use of words, without slurring
  - Have the patient show teeth and smile, assess for facial droop
  - Have the patient close eyes and hold arms straight out for 10 seconds. Assess for arm drift or unequal movement of one side
- Transport should be to a Facility that at a minimum has the ability to perform a CT Scan and Thrombolytics on suspected CVA patients.

# 119 Respiratory: Acute Asthma

## ECA

- ABC and vital signs
- Airway management with high concentration oxygen
- Determine if patient has utilized his/her own asthma medications
- Assist patient with their own medications as appropriate

### ECA STOP

## EMT

- Albuterol 2.5 mg in 3 ml (unit dose), via Nebulizer; repeat to a total of three doses.

### EMT STOP

## INTERMEDIATE

- Vascular access, if not improving with first nebulizer treatment

### INTERMEDIATE STOP

## PARAMEDIC

- Albuterol 2.5 mg in 3 ml (unit dose) + Atrovent (Ipratropium) 0.5 mg in 2.5 ml (unit dose) mixed together, via nebulizer or ET tube; may repeat to a total of three doses
- Consider Cardiac Monitor
- Consider 12 Lead EKG, if available
- If clinical presentation shows severe distress
  - Epinephrine 1:1,000 dose 0.3 – 0.5 mg (0.3 - 0.5 ml) subcutaneously, OR
  - Epinephrine 1: 10,000 dose 0.5 mg IV or 0.5mg in 10 ml via ET tube

### PARAMEDIC STOP

## Key Points/Considerations

- Remember, “All that wheezes is not asthma!” Consider allergic reaction, airway obstruction, pulmonary edema, COPD exacerbation
- A total of 3 doses of Albuterol and Atrovent may be administered by pre-hospital providers
- Epinephrine should only be used if patient’s tidal volume is so small that nebulizer medications can’t work

# 120 Respiratory: Acute Pulmonary Edema

## ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Sit patient upright, if possible

 **ECA and EMT STOP**

### INTERMEDIATE

- Vascular access

 **INTERMEDIATE STOP**

### PARAMEDIC

- Cardiac Monitor
- Albuterol 2.5 mg in 3 ml (unit dose) + Atrovent (Ipratropium) 0.5 mg in 2.5 ml (unit dose) mixed together, via nebulizer, if wheezes are present
- CPAP, if equipped
- 12 Lead EKG, if available
- Nitroglycerin 0.4 mg, every 2-5 minutes sublingual to max of 3 doses, if the patient's systolic BP is above 100 mmHg
- Furosemide (Lasix) 40 mg IV over 2 – 3 minutes, may repeat once.
- Morphine 2mg IV, may repeat every 5 minutes up to 10mg
- RSI if impending respiratory failure

 **PARAMEDIC STOP**

### Key Points/Considerations

- All patients with rales do not have pulmonary edema — consider the possibility of pneumonia or chronic obstructive pulmonary disease (COPD) exacerbation
- May administer first dose of Nitroglycerin while preparing to establish vascular access
- Withhold Nitro if the patient is also taking Viagra, Cialis or Lavetra.

## 121 Respiratory: COPD Exacerbation

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Assist patient with their own medications as appropriate

 ECA and EMT STOP

### INTERMEDIATE

- Vascular access if not improving

 INTERMEDIATE STOP

### PARAMEDIC

- Cardiac Monitor
- Albuterol 2.5 mg in 3 ml (unit dose) + Atrovent 0.5 mg in 2.5 ml (unit dose) mixed together, via nebulizer or ET tube; may repeat to a total of three doses
- 12 Lead EKG, if available
- RSI if impending failure.

 PARAMEDIC STOP

## 122 Respiratory: Upper Airway Obstruction / Stridor

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Consider mechanical obstruction and treat accordingly

 ECA and EMT STOP

### INTERMEDIATE

- If unconscious, attempt removal of object with Magill forceps; CPR, as indicated
- Consider using smaller than usual ET tube
- Vascular access

 INTERMEDIATE STOP

### PARAMEDIC

- Cardiac Monitor
- If patient in complete obstruction; perform surgical airway.

 PARAMEDIC STOP

## Trauma: General

### Key Points/Considerations

- Trauma Arrest patients go to the closest hospital
- Patients with unmanageable airway go to the closest hospital
- All times start at the time the EMS provider determined the patient to be UNSTABLE
- Notify the receiving facility as early as possible giving brief description of mechanism of injury, and estimated time of arrival
- UNSTABLE patients should be enroute to the hospital/landing zone within 10 minutes of disentanglement/extrication
- Amputated body parts should be cleaned with Normal Saline and placed in a plastic bag and kept cool with a commercial cold pack. Part should be brought to the hospital with the patient, but do not delay definitive care to search for part.
- All Musculo-skeletal and soft tissue injuries should be bandaged and immobilized as indicated by the patient's condition and after life threatening injuries have been treated.
- All Trauma patients with MOI consistent with the possibility of Head and Spinal injuries should be immobilized in accordance with ITLS/PHTLS standards. Refusal of immobilization by patient must be documented and a signature obtained on PCR.

# Trauma: Trauma Triage and Transport

## Trauma Patient Characteristics

Major trauma is present if the patient's physical findings meet any one of the following criteria:

Physiologic parameters and /or unstable vital signs

- Hemodynamic compromise (hypotension, pallor, tachycardia, diaphoresis)
- Respiratory compromise (respiratory rate < 10 or > 29)
- Altered mental status (GCS < 13, RTS < 11, PTS < 9)
- Multi-system blunt or penetrating trauma with unstable vital signs

Anatomical Injury

- Penetrating injury of head, neck, torso, or groin
- Injury in combination with burns > 20% TBSA or in combination with burns involving the face, airway, hands, feet, or genitalia
- Total or partial amputation of extremity above digits
- Extremity injury with absence of distal pulses
- Severe crush injury with numbness or severe pain
- Paralysis or suspected spinal injury
- Flail chest
- Two or more long bone fractures (humerus or femur)
- Open or suspected depressed skull fracture
- Unstable pelvis or suspected pelvic fracture

## Mechanism of Injury

Major trauma is present if the patient's mechanism of injury meets any one of the following criteria

- Roll-over
- Ejection from vehicle
- Death of occupant in same vehicle
- Auto-pedestrian injury with significant impact (> 5 mph)
- Motorcycle crash > 20 mph or with separation of rider from motorcycle
- High-speed impact (initial speed > 40 mph, major auto deformity, intrusion into passenger compartment > 12 inches)
- Fall from  $\geq$  20 feet
- High index of suspicion by prehospital provider

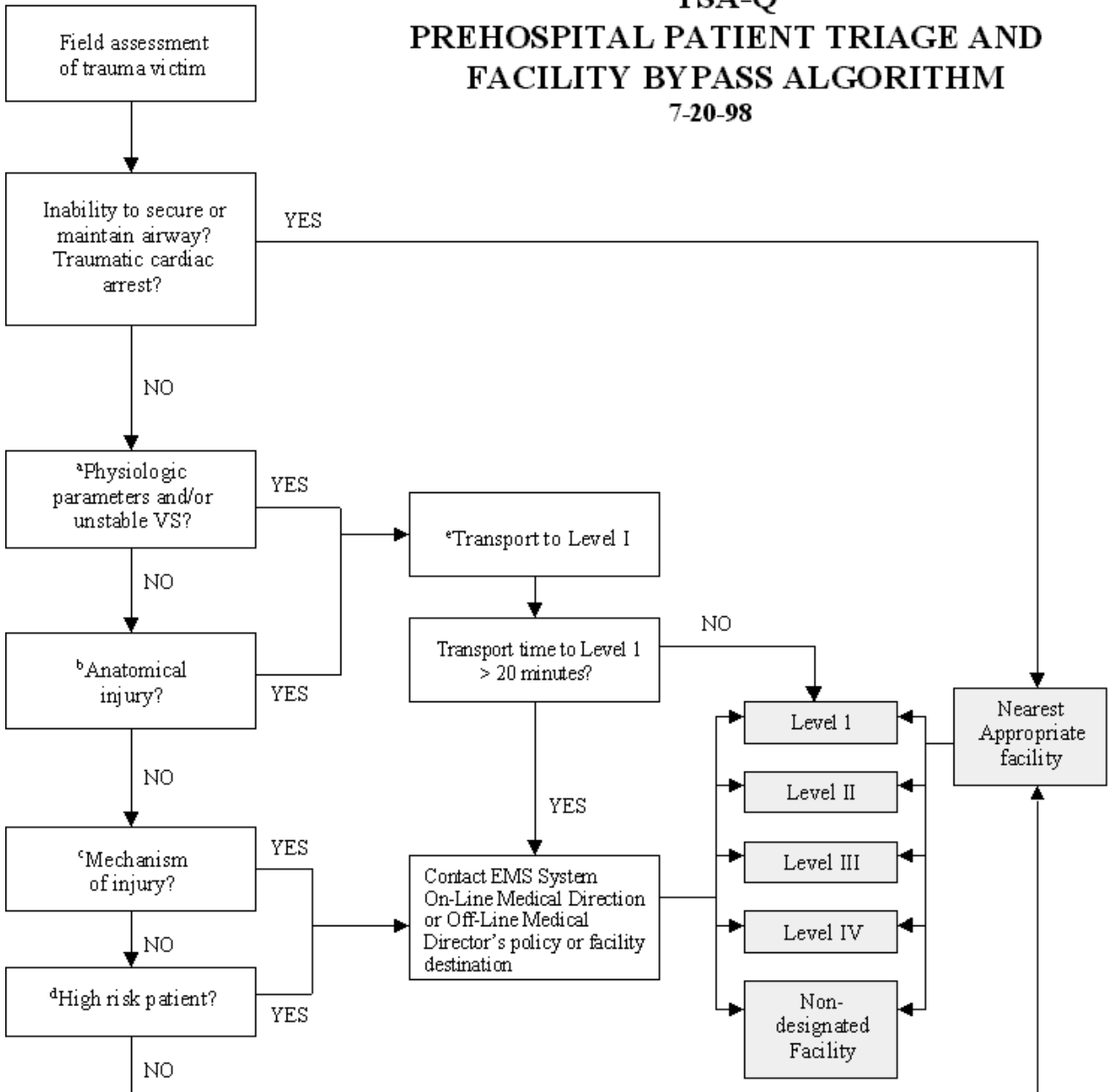
## High Risk Patients

If a patient does not meet the above criteria for Major Trauma, but has sustained an injury and has one or more of the following criteria, they are considered a "High Risk Patient".

- Age < 5 or > 55 years
- Known cardiac disease or respiratory disease
- Insulin-dependent diabetic
- Alcoholics with cirrhosis or liver disease
- Patients with known malignancy or bleeding disorders
- Pregnancy
- Underlying acute or chronic medical condition

# Trauma: Trauma Triage and Transport

## TSA-Q PREHOSPITAL PATIENT TRIAGE AND FACILITY BYPASS ALGORITHM 7-20-98



**NOTE:**

- a, b, c, d: defined in section "Prehospital Patient Triage Guidelines for Trauma Center Destination"  
 e: considerations based upon patient assessment, distance, transport time, method of transport, patient request, EMS resource availability/capability, weather conditions, regional disaster plan

## 123 Trauma: Burns

### ECA

### EMT

- Stop the burning. Remove any clothing, jewelry, etc.
- ABC and vital signs
- Airway management with high concentration oxygen
- Consider aeromedical intercept for direct transport to a Burn Center
- Use dry sterile dressings
- Burns to the eye require copious irrigation with Normal Saline

 ECA and EMT STOP

### INTERMEDIATE

- Vascular access at 2 sites

 INTERMEDIATE STOP

### PARAMEDIC

- If patient has signs of airway involvement be prepared to intubate or use surgical airway
- Refer to the Pain Management protocol
- Refer to Trauma Triage and Transport protocol

 PARAMEDIC STOP

### Key Points/Considerations

- Be alert for other injuries, including cardiac dysrhythmias
- If hazardous materials, notify the destination hospital immediately to allow for decontamination

## 124 Trauma: Chest Trauma

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- If sucking chest wound, cover with occlusive dressing; if dyspnea increases, release the dressing momentarily during exhalation
- Contact receiving hospital as soon as possible

 ECA and EMT STOP

### INTERMEDIATE

- Vascular access, using the side opposite the injury if possible using large bore catheter

 INTERMEDIATE STOP

### PARAMEDIC

- If patient is in need of airway management RSI is to be used before other intubation attempts
- If the patient has the following, Paramedics may proceed with needle decompression after appropriate airway management:
  - Signs and symptoms consistent with a tension Pneumothorax (absence of breath sounds on one side, extreme dyspnea, jugular vein distention, cyanosis despite administration of 100% O<sub>2</sub>, or tracheal deviation) – AND
  - Evidence of hemodynamic compromise (unexplained hypotension, narrowed pulse pressure and tachycardia)

 PARAMEDIC STOP

### Key Points/Considerations

- **Begin transportation as soon as possible and perform ALS treatment enroute to the hospital**
- Signs and symptoms of a Tension Pneumothorax: absent lung sounds on one side, extreme dyspnea, jugular vein distention (JVD), cyanosis (even with 100% oxygen), tracheal deviation AND hypotension
- Hemodynamic compromise is defined as: hypotension, narrowed pulse pressures and tachycardia
- Thoracic decompression is a serious medical intervention that requires a chest tube in the hospital

## 125 Trauma: Hypoperfusion / Hypovolemia (Shock)

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen

 **ECA and EMT STOP**

### INTERMEDIATE

### PARAMEDIC

- Vascular access
- If COMPENSATED SHOCK:
  - Normal Saline, 1 liter, then 500 ml/hour
- IF DECOMPENSATED SHOCK:
  - Additional vascular access, infuse Normal Saline, 2 liters, then 500 ml/hour

 **INTERMEDIATE and PARAMEDIC STOP**

### Key Points/Considerations

- COMPENSATED SHOCK is defined as significant mechanism of injury AND tachypnea, tachycardia, pallor, or restlessness, AND Systolic BP greater than 90 mmHg
- DECOMPENSATED SHOCK is defined as clinical picture of shock AND Systolic BP less than 90 mmHg
- A falling BP is a LATE sign of shock
- Contact receiving hospital early, with “Trauma Alert” call, giving brief description of mechanism of injury and estimated time of arrival

## 126 OB/Gyn: Childbirth all Certification Levels

### Management of a Normal Delivery

- Support the baby's head over the perineum.
- If the membranes cover the head after it emerges, tear the sac with your fingers or forceps to permit escape of the amniotic fluid. Suction meconium in amniotic fluid as needed. Suction oropharynx and nostrils with a bulb syringe. Depress the bulb syringe before placing in the baby's mouth or nose.
- Gently guide the head downward until the shoulder appears. The other shoulder is delivered by gentle upward traction. The infant's face should be upward at this point.
- If the cord is around the neck, loosen cord and attempt to slip over head. If unable to do so, clamp it with two clamps, cut the cord between the clamps, and unwrap the cord from around the neck.
- Clamp the umbilical cord with two clamps and cut the cord between them.
- Assess APGAR score.
- Transport as soon as possible to closest appropriate facility

### Management of a Breech Delivery

- Contact Hospital immediately
- Support the buttocks or extremities until the back appears.
- Grasp the baby's **ILIAC WINGS** and apply gentle downward traction. **DO NOT** pull on the legs or back, as this may cause spine dislocation or adrenal hemorrhage.
- Gently swing the infant's body in the direction of least resistance. By swinging anteriorly and posteriorly, both shoulders should deliver posteriorly.
- Splint the humerus bones with your two fingers and apply gentle traction with your fingers.
- Gentle downward compression of the uterus will assist in head delivery. Swing the legs upward until the body is in a vertical position. This will permit delivery of the head.
- Transport as soon as possible to closest appropriate facility

### Management of Prolapsed Cord or Limb Presentation

- Contact Hospital immediately
- Place the mother in a face-up position with hips elevated
- Place a gloved hand in the vagina and attempt to hold the baby's head away from the cord.
- Keep the cord moist using a sterile dressing and sterile water
- Transport as soon as possible to closest appropriate facility

## APGAR Score

- Score should be recorded at 1 minute and 5 minutes after birth
- Do not withhold resuscitation efforts to determine APGAR score

SIGN	0	1	2
A- Appearance	Blue, pale	Body pink, extremities blue	Completely pink
P – Pulse	Absent	Below 100 bpm	Above 100 bpm
G- Grimace (reflexes – flick soles of feet)	No response	Grimace	Vigorous cry
A- Activity (muscle tone)	Limp	Some flexion	Active motion
R- Respirations	No effort	Weak, irregular	Strong cry

## OB/Gyn: Childbirth (continued)

### Key Points

- Determine the estimated date of expected birth, the number of previous pregnancies and # of live births
- Determine if the amniotic sac (bag of waters) has broken, if there is vaginal bleeding or mucous discharge, or the urge to bear down.
- Determine the duration and frequency of uterine contractions
- Examine the patient for crowning. If delivery is not imminent, transport as soon as possible. If delivery is imminent, prepare for an on-scene delivery.
- If multiple births are anticipated but the subsequent births do not occur within 10 minutes of the previous delivery transport immediately.
- After delivery of the placenta gently massage the uterus
- Bring the placenta and any other tissue to the hospital for inspection
- Suction thick meconium as soon as possible, using no more than 100 mmHg of suction.
- Endotracheal suctioning only if thick meconium is present and child is lethargic/obtunded.
- Transport as soon as possible to closest appropriate facility

## 127 OB/Gyn: Eclampsia

### ECA

### EMT

- ABC vital signs
- Airway management with high concentration oxygen

 **ECA and EMT STOP**

### INTERMEDIATE

- Vascular access

 **INTERMEDIATE STOP**

### PARAMEDIC

- If patient is seizing or has had a witnessed seizure, Magnesium 2gm over 2 minutes IV and 2gm IM
- Diazepam (Valium) 5 mg IV, if patient continues to seize repeat up to 20 mg
- If vascular access cannot be obtained:
  - Diazepam (Valium) 10 mg rectally, up to 20 mg
- Phenergan 12.5 mg IV, may repeat once
- If systolic BP is greater than 240 or diastolic BP is greater than 140 after the Mag Sulfate, then Labetalol 20mg slow IV, may repeat every 10 minutes at 40mg if needed up to 300mg

 **PARAMEDIC STOP**

### Key Points/Considerations

- Pre-eclampsia is defined as BP greater than 140/90 in a pregnant patient (or one who has recently given birth) with severe headache, confusion and/or hyper-reflexia
- Eclampsia is the above with seizure activity

## 128 OB/Gyn: Pre-term Labor (24 – 37 weeks)

### ECA

### EMT

- ABC vital signs
- Airway management with high concentration oxygen

 ECA and EMT STOP

### INTERMEDIATE

- Vascular access.
- Normal saline 500ml IV bolus

 INTERMEDIATE AND CCT STOP

### PARAMEDIC

- Additional Normal Saline 500ml IV bolus

 PARAMEDIC STOP

### Key Points/Considerations

- Transport to the closest appropriate hospital.
- Notify destination hospital ASAP

## Pediatric Emergencies

- For these protocols, pediatric patients are defined as children 8 years of age or less
- Procedures for Paramedics include the following clinical situations, but are not limited to:
  - Cardiac or Respiratory Arrest
  - Cardiac Dysrhythmias (Bradycardia, Supraventricular Tachycardia)
  - Asthma/Acute Bronchospasm
  - Anaphylaxis/Allergic Reaction
  - Stridor
  - Seizures
  - Pain Management
  - Sedation
  - Altered Mental Status/Overdose
  - Diabetic Emergencies
  - Major Trauma
  - Hypoperfusion
- Have a Broselow Pediatric Tape or similar device available to accurately determine the correct medication dosage
- Normal Vital Signs for Infants and Children:

Age	Respirations	Pulse	Systolic BP
Newborn	30 – 60	100 – 180	>60
Infant (< 1 year)	30 – 60	100 - 160	>60
Toddler (1 – 3 years)	24 – 40	90-150	>70
Preschooler (3 – 5 years)	22 – 34	80-140	>75
School-aged (6 – 8 years)	18 – 30	70-120	>80

From American Academy of Pediatrics, Pediatric Education for Prehospital Professionals

## 129 Pediatric Cardiac Arrest: Asystole or PEA

### ECA

### EMT

- ABC and CPR, per AHA Guidelines
- Airway management with high concentration oxygen via BVM with oropharyngeal airway

### 🛑 ECA and EMT STOP

### INTERMEDIATE

- Advanced Airway.
- Vascular access

### 🛑 INTERMEDIATE STOP

### PARAMEDIC

- Cardiac Monitor
- Epinephrine 1:1,000 dose 0.1 mg/kg (0.1 ml/kg) IV or IO; repeat Epinephrine every 3-5 minutes
- Repeat Epinephrine every 3 – 5 minutes
- Normal Saline 20 ml/kg rapid IV or IO bolus

### 🛑 CCT AND PARAMEDIC STOP

### Key Points/Considerations

- Call Medical Control and begin transport to the closest hospital as soon as possible
- Confirm asystole in more than 1 lead
- Perform CPR for 5 cycles between medication doses
- Check for hypoglycemia

#### During CPR

- **Push hard and fast (100/min)**
- **Ensure full chest recoil**
- **Minimize interruptions in chest compressions**
- One cycle of CPR: 30 compressions then 2 breaths; 5 cycles = 2 min.
- Avoid hyperventilation
- Secure airway and confirm placement
- After an advanced airway is placed, rescuers no longer deliver “cycles” of CPR. Give continuous chest compressions without pauses for breaths. Give 8-10 breaths/minute. Check rhythm every two minutes
- Rotate compressions every two minutes with rhythm checks
- Search for and treat possible contributing factors:
  - Hypovolemia
  - Hypoxia
  - Hydrogen Ion (acidosis)
  - Hypo-hyperkalemia
  - Toxins
  - Tamponade, cardiac
  - Tension pneumothorax
  - Thrombosis (coronary or pulmonary)
  - Trauma

# 130 Pediatric Cardiac Arrest: Ventricular Fibrillation / Pulseless V-Tach

## ECA

## EMT

- ABC and CPR per AHA Guidelines
- Defibrillation, if equipped (AED for patient > 1 year old)
- Airway management with high concentration oxygen via BVM with oropharyngeal airway

## ⬮ ECA and EMT STOP

## INTERMEDIATE

- Advanced Airway
- Vascular access

## ⬮ INTERMEDIATE STOP

## PARAMEDIC

- Cardiac Monitor
- Epinephrine 1:10,000 dose 0.01 mg/kg IV or IO or Epinephrine 1:1,000 dose 0.1 mg/kg ET
- Repeat Epinephrine every 3 – 5 minutes
- Defibrillate at 2 J/kg between doses of medication
- Consider Magnesium 25 – 50 mg/kg IV/IO to maximum of 2 gm for torsades de pointes
- Consider the use of ONE of the following:
  - Lidocaine, 1 mg/kg IV, IO or ET. Repeat twice as needed
  - Amiodarone (Cordarone) 5 mg/kg (Amiodarone 150 mg diluted in 100ml, 1.5 mg/ml) IV, IO; repeat twice as needed
- Sodium Bicarb 1mEq/Kg IV if metabolic acidosis suspected

## ⬮ PARAMEDIC STOP

## Key Points/Considerations

- Treat V-Tach without a pulse as V-fib
- Use the small (pediatric) pads for patients less than 10 kg; if unavailable, use adult pads
- Initial defibrillation 2 J/kg
- Defibrillate at 4 J/kg after each medication administration
- V-fib cardiac arrest is rare in children. Consider toxic ingestions including tricyclic antidepressants.

### During CPR

**Push hard and fast (100/min)**

**Ensure full chest recoil**

**Minimize interruptions in chest compressions**

One cycle of CPR: 30 compressions then 2 breaths; 5 cycles = 2 min. Avoid hyperventilation Secure airway and confirm placement

After an advanced airway is placed, rescuers no longer deliver “cycles” of CPR. Give continuous chest compressions without pauses for breaths. Give 8-10 breaths/minute. Check rhythm every two minutes. Rotate compressions every two minutes with rhythm checks.

Search for and treat possible contributing factors: **Hypovolemia, Hypoxia, Hydrogen Ion (acidosis), Hypo-**hyperkalemia, **Toxins, Tamponade, cardiac, Tension pneumothorax, Thrombosis (coronary or pulmonary), Trauma**

## 131 Pediatric Cardiac: Symptomatic Bradycardia

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- If heart rate is bradycardic and patient's mental status and respiratory rate are decreased, ventilate with BVM and oropharyngeal airway
- If symptomatic bradycardia persists despite oxygenation and ventilation, start CPR

 **ECA and EMT STOP**

### INTERMEDIATE

- Advanced airway
- Vascular access

 **INTERMEDIATE STOP**

### PARAMEDIC

- Cardiac Monitor
- Epinephrine 1:10,000 dose 0.01 mg/kg IV or IO or Epinephrine 1:1,000 dose 0.1 mg/kg ET
- Repeat Epinephrine every 3 – 5 minutes
- Atropine 0.02 mg/kg, with a minimum dose 0.1 mg IV, IO or ET
- Repeat Atropine once in 5 minutes, to maximum total dose of 0.04 mg/kg
- Transcutaneous pacing
- Epinephrine Infusion 0.1 – 1.0 mcg/kg/min

 **PARAMEDIC STOP**

### Key Points/Considerations

- Newborn/Infant bradycardic if pulse less than 80 bpm; child over 1 year of age bradycardic if pulse less than 60 bpm
- Symptomatic includes poor systemic perfusion, hypotension, respiratory difficulty or altered level of consciousness
- If bradycardia is due to increased vagal tone or primary AV block give atropine before giving epinephrine
- Do not treat asymptomatic bradycardia.

# 132 Pediatric Cardiac: Tachycardia with Pulses and Poor Perfusion

## ECA

## EMT

- ABC and vital signs
- Airway management with high concentration oxygen

### ECA and EMT STOP

## INTERMEDIATE

- Vascular access
- Normal Saline 20 ml/kg IV bolus; may repeat once

### INTERMEDIATE STOP

## PARAMEDIC

- Cardiac Monitor
- 12 Lead EKG, if available
- UNSTABLE patient
  - Synchronized cardioversion 0.5 – 1 J/kg.
  - Consider sedation if vascular access available (see Pediatric Procedural Sedation Protocol)
- Stable patient, wide QRS:
  - Amiodarone (Cordarone) 5 mg/kg (Amiodarone 150 mg diluted in 100ml, 1.5 mg/ml) IV, IO; over 20 minutes
  - Lidocaine 1 mg/kg IV
- Stable patient, narrow QRS:
  - Adenosine (Adenocard) 0.1 mg/kg (max 6 mg); may repeat at 0.2 mg/kg (max dose 12 mg)

### PARAMEDIC STOP

## Key Points/Considerations

- Newborn/Infant SVT if pulse greater than 220 bpm; child over 1 year of age SVT if pulse greater than 180 bpm, with no discernable p-waves
- The most common causes of Sinus Tachycardia in children are fever and dehydration
- UNSTABLE includes cardio-respiratory compromise, hypotension, or altered level of consciousness
- Do not treat asymptomatic tachycardia.

### **During Evaluation:**

- Secure, with airway and vascular access when possible
- Consider expert consultation
- Prepare for cardioversion

**Treat Possible Contributing Factors:** Hypovolemia, Hypoxia, Hydrogen Ion (acidosis), Hypo-hyperkalemia, Toxins, Tamponade, cardiac, Tension pneumothorax, Thrombosis (coronary or pulmonary), Trauma

## 133 Pediatric: Acute Asthma

### ECA

- ABC and vital signs
- Airway management with high concentration oxygen

### ECA STOP

### EMT

- Determine if patient has been given his/her own asthma medications
- Albuterol 2.5 mg in 3 ml (unit dose) via nebulizer; repeat to a total of three doses.

### EMT STOP

### INTERMEDIATE

- If patient not improving, vascular access

### INTERMEDIATE STOP

### PARAMEDIC

- Cardiac Monitor
- Epinephrine 1:1,000 dose 0.01 mg/kg subcutaneously, if patient in severe distress; max 0.5 mg

### PARAMEDIC STOP

### Key Points/Considerations

- Absence of breath sounds can be indicative of status asthmaticus. Be prepared for imminent respiratory arrest

## 134 Pediatric: Anaphylaxis

ECA

EMT

INTERMEDIATE

- ABC and vital signs
- Airway management with high concentration oxygen
- Determine if patient has been given his/her own Epi-Pen
- Implement BLS Epinephrine Protocol

 ECA, EMT AND INTERMEDIATE STOP

PARAMEDIC

- Vascular access
- Cardiac Monitor
- Epinephrine 1:1,000 dose 0.01 mg/kg (0.01 ml/kg) subcutaneously; max 0.5 mg (0.5 ml)
- Albuterol 2.5 mg in 3 ml (unit dose) + Atrovent 0.5 mg in 2.5 ml (unit dose) mixed together, via nebulizer.
- Diphenhydramine (Benadryl) 1 mg/kg IV or IM; max dose 25 mg
- For cardiovascular collapse: Epinephrine 1:10,000 dose 0.01 mg/kg (0.1 ml/kg) IV, IO or ET; max dose 0.5 mg

 PARAMEDIC STOP

Key Points/Considerations

# 135 Pediatric: Diabetic Emergencies

## ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Check blood glucose level, if equipped
- If blood glucose is known or suspected to be low and patient is able to self administer and swallow on command, give oral glucose one unit dose (19-24 grams)

### ECA and EMT STOP

## INTERMEDIATE

- Vascular access
- If blood glucose below 80 (60 for neonates):

Patient's Age	Amount of Dextrose
Less than 1 year old	D12.5 - 2 ml/kg IV
1 – 8 years old	D25 - 2 ml/kg IV

- If blood glucose above 400 and signs of dehydration administer fluid bolus:

Patient's Age	Amount of Normal Saline
Less than 1 year old	10 ml/kg
1 – 8 years old	20 ml/kg

### INTERMEDIATE STOP

## PARAMEDIC

- Glucagon 1 mg IM

### PARAMEDIC STOP

## Key Points/Considerations

- If the patient's guardian wishes to refuse transport for the patient and you have administered any medications you must contact ER Physician or Director of Operations/Shift Supervisor prior to completing the refusal

## 136 Pediatric: Hypoperfusion - Shock

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen

 ECA and EMT STOP

### INTERMEDIATE

- Vascular access
- Normal Saline
  - 10 ml/kg IV bolus - infants less than 1 month old
  - 20 ml/kg IV bolus

 INTERMEDIATE STOP

### PARAMEDIC

- Cardiac Monitor

 PARAMEDIC STOP

### Key Points/Considerations

- For patients with hypovolemia due to bleeding, vomiting, diarrhea or septic shock.
- Diagnostic criteria for hypotension includes: capillary refill time > 2 seconds, cool, clammy or mottled skin, inability to recognize parents, restlessness, listlessness, tachycardia, tachypnea, systolic BP less than 70 mmHg (2 years and older) or systolic BP less than 60 mmHg (less than 2 years old).
- Contact the receiving hospital early

## 137 Pediatric: Overdose or Toxic Exposure

### ECA

#### EMT

- ABC and vital signs
- Airway management with high concentration oxygen
- Determine what was taken, when and how much, if possible
- Check blood glucose level, if equipped, if altered mental status is present, or if overdose of oral hypoglycemic agents is suspected. If level is abnormal, refer to Pediatric Diabetic Protocol

 ECA and EMT STOP

### INTERMEDIATE

- Vascular access
- For symptomatic opiate overdose: Naloxone (Narcan) 0.1 mg/kg IM or atomized intranasal. Max 2 mg

 INTERMEDIATE STOP

### PARAMEDIC

- Cardiac Monitor
- For symptomatic patient with:
  - Organophosphate poisoning: Atropine 0.05 mg/kg IV per dose every 3 – 5 minutes, until secretions dry
  - Dystonic reaction: Diphenhydramine (Benadryl) 1.0 mg/kg IV or IM.  
(*Dystonic reaction is uncontrolled contractions of face, neck or tongue.*)
  - Sympathomimetic ingestion (cocaine or amphetamines): Midazolam (Versed) 0.1 mg/kg IV or IM or intranasal(see MAD dosage chart)

 PARAMEDIC STOP

### Key Points/Considerations

- Includes patients who are unconscious/unresponsive without suspected trauma or other causes, and patients with a brief loss of consciousness

# 138 Pediatric: Severe Pain Management

ECA

EMT

INTERMEDIATE

- ABC and vital signs
- Airway management with high concentration oxygen

 **ECA, EMT AND INTERMEDIATE STOP**

PARAMEDIC

- Cardiac Monitor
- Vascular access
- Morphine 0.05 mg/kg IV or IM (SEE KEY POINTS BELOW)
- Phenergan (Phenergan) 0.1 mg/kg IV or IM, if patient over 5 years old and becomes nauseous

 **PARAMEDIC STOP**

Key Points/Considerations

- For patients with:
  - Severe burns without hemodynamic compromise
  - Suspected isolated extremity fractures or dislocations with severe pain
- Contraindications to standing order pain management: altered mental status, hypoventilation, hypotension, multi-systems trauma, undiagnosed abdominal pain, head injury
- This protocol may NOT be used in conjunction with the Pediatric Procedural Sedation Protocol.

## 139 Pediatric: Procedural Sedation

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen

### ECA and EMT STOP

### INTERMEDIATE

- Vascular access

### INTERMEDIATE STOP

### PARAMEDIC

- Cardiac Monitor
- Continuous pulse oximetry
- Midazolam (Versed) 0.05 mg/kg IV for Transcutaneous pacing or post-intubation
  - May be repeated every 5 minutes as needed if SBP > 100

### PARAMEDIC STOP

### Key Points/Considerations

- For patients with the following anxiety producing or painful procedures including:
  - Cardioversion
  - Transcutaneous pacing
  - Post-Intubation Sedation, following confirmed endotracheal intubation
- Not for disentanglement or management of suspected fractures without Medical Control
- This protocol may NOT be used in conjunction with the Pain Management Protocol

## 140 Pediatric: Nausea and Vomiting

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen

 ECA and EMT STOP

### INTERMEDIATE

- Vascular access if hypotensive or signs and symptoms of Hypoperfusion

 INTERMEDIATE STOP

### PARAMEDIC

- Cardiac Monitor
- Continuous pulse oximetry
- Phenergan 0.5 mg/kg IV for up to 12.5mg for children 5 – 12 years of age
  - Not for children under 5
  - For children over 12 use adult dosage

 PARAMEDIC STOP

### Key Points/Considerations

## 141 Pediatric: Active Seizures

### ECA

### EMT

### INTERMEDIATE

- ABC and vital signs
- Airway management with high concentration oxygen
- Check blood glucose level, if equipped and agency is authorized. If level is abnormal refer to Pediatric Diabetic Protocol

### ECA, EMT AND INTERMEDIATE STOP

### PARAMEDIC

- Secure airway
- Cardiac Monitor
- Consider vascular access
- If patient continues to seize:
  - Diazepam (Valium) 0.2 mg/kg IV or IO. Max dose 10 mg.
  - If no vascular access;
    - Versed 0.2mg/kg IM, may repeat once in 5 minutes. Max of 5mg per dose.
    - Or, Versed, Intranasal per M.A.D. dosing chart
    - Or, Valium 0.5mg/kg rectal or Intramuscular, may repeat once in 5 minutes. Max of 5mg per dose.

### PARAMEDIC STOP

### Key Points/Considerations

- Protect the patient and EMS crew from injury during the seizure
- Remove the needle from the syringe for rectal administrations

## 142 Pediatric: Stridor

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen (as tolerated)
- Consider mechanical obstruction and treat accordingly

### ECA AND EMT STOP

### INTERMEDIATE

- If patient unconscious attempt removal of object with Magill forceps
- Secure airway; consider using smaller than usual ET tube
- Vascular access

### INTERMEDIATE STOP

### PARAMEDIC

- Cardiac Monitor
- Epinephrine 1:1,000 dose 0.3 mg (0.3 ml) mixed with 3 ml Normal Saline, via nebulizer

### PARAMEDIC STOP

### Key Points/Considerations

## 143 Pediatric: Trauma Hypoperfusion / Hypovolemia

### ECA

### EMT

- ABC and vital signs
- Airway management with high concentration oxygen

 **ECA and EMT STOP**

### INTERMEDIATE

- Vascular access
- Normal Saline 20 ml/kg IV bolus

 **INTERMEDIATE STOP**

### PARAMEDIC

- Cardiac Monitor

 **PARAMEDIC STOP**

### Key Points/Considerations

- Diagnostic criteria for UNSTABLE includes: capillary refill time > 2 seconds, cool, clammy or mottled skin, inability to recognize parents, restlessness, listlessness, tachycardia, tachypnea, systolic BP less than 70 mmHg (2 years and older) or systolic BP less than 60 mmHg (less than 2 years old).
- A falling BP is a LATE sign of shock
- Contact receiving hospital early, with “Trauma Alert” call, giving brief description of mechanism of injury and estimated time of arrival

# Airway Management

## ECA

- Oxygen therapy using non-rebreather mask 10-15 lpm, NRB
- Oxygen therapy using nasal cannula, 2-6 lpm, if patient will not tolerate NRB
- Oxygen therapy using bag valve mask 15-25 lpm, BVM
- Nasopharyngeal airways
- Oropharyngeal airways
- BVM assisted ventilation

## ECA STOP

## EMT

- King Airway

## EMT STOP

## INTERMEDIATE

- Oral endotracheal intubation

## INTERMEDIATE STOP

## PARAMEDIC

- Continuous Positive Airway Pressure (CPAP), if available
- Nasal Endotracheal intubation.
- RSI, if equipped
- Surgical Airway, if equipped

## PARAMEDIC STOP

## Key Points

- Medication facilitated intubation is to be performed only by paramedics who have received specific training and are approved by the medical director
- Tidal Volume settings for portable transport ventilators: 5 – 7 ml/kg
- Always have a BVM available when using a portable transport ventilator
- Intubation may be attempted on all patients 2 times total by an Intermediate or Paramedic on scene, then placement of the King Airway should be utilized.
- Intubation attempts must be limited to 15 seconds in duration.
- A cervical collar should be placed on all intubated patients to assist secure placement of the airway device.
- Contraindications for use of King Airway:
  - Patients with esophageal disease, pharyngeal hemorrhage, tracheostomy or laryngectomy
  - Patients who have ingested a caustic substance
  - Patients with known obstruction of larynx and/or trachea

## 144 Blood Draw for Law Enforcement

### Key Points

- Blood draws for law enforcement purposes in the field are prohibited.

# Inter-Hospital Transport

## EMT

### INTERMEDIATE

- An EMT or EMT-I may transport stable patients with a secured saline lock device in place, as long as no fluids or medications are attached to the port. The EMT or EMT-I must assure that the venous access site is secured and dressed prior to leaving the medical facility.
- EMT-I may monitor an unmedicated IV of NS, D5W, or LR in any combination

### EMT AND INTERMEDIATE STOP

## PARAMEDIC

- **All Paramedics doing inter-hospital transport MUST have agency-specific training on any non-protocol medications, procedures and all specialized inter-hospital transport equipment**
- Paramedics may transport a patient between hospitals with the following IV Infusions, provided the medication is ordered and provided by the transferring physician
- Be certain to clarify orders regarding medication titration prior to departure
- The IV medication must be run on an infusion pump
- Medications that are not on this list may be transported by a Paramedic if a written order is received from transferring physician and the indications, contraindication, complications, dosage and monitoring indicators are given to the paramedic by the sending hospital.

### AMIODARONE (CORDARONE)

- Usual Dose: 1 mg/min infusion for first 6 hours, then 0.5 mg/min infusion
- Slow infusion rate by one-half or discontinue if hypotension or symptomatic bradycardia occurs

### DILTIAZEM (CARDIZEM)

- Usual dose: 10-15 mg/hr infusion
- Discontinue if hypotension or symptomatic bradycardia occurs

### GP IIb/IIIa RECEPTOR INHIBITORS

- Aggrastat (tirofiban): 0.1-0.15 micrograms/kg/min
- Integrilin (eptifibatide): 0.5-2 micrograms/kg/min
- Reopro (abciximab): 10 micrograms/min
- Monitor patient for signs of bleeding around IV sites, hemoptysis, hematuria, and/or epistaxis
- Discontinue if any signs or symptoms of bleeding complications

### HEPARIN

- Usual dosage: 18 units/kg/hr
- Monitor patient for signs of bleeding around IV sites, hemoptysis, hematuria, and/or epistaxis
- Discontinue if any signs or symptoms of bleeding complications

### NITROGLYCERIN

- Usual dosage: 10-200 micrograms/min
- Monitor blood pressure every 5 minutes
- Discontinue if systolic blood pressure falls below 90 mm Hg, or if diminishing mental status occurs with diminishing blood pressure. If systolic blood pressure returns to above 100 mm Hg, follow the Suspected AMI Protocol

## Inter-Hospital Transport (continued)

### Propofol (Diprivan)

- Usual dosage: Maintenance 100-200 micrograms/kg/min with intermittent bolus of 20-50 mg PRN
- Monitor blood pressure every 10 minutes
- Decrease dose if twitching, bucking, jerking, clonic/myoclonic movements occur

### Aminophylline

- Usual dosage: 0.5mg/kg/hr
- Children and young adult smokers may need 1.0 mg/kg/hr
- Discontinue drip if the heart rate rises above 140BPM, Nausea and Vomiting, greater than 6 PVCs per minute or Ventricular Tachycardia.

### Procainamide

- Usual dosage: 1-4 mg/min
- Discontinue if hypotension occurs or QRS widens more than 50%

### Mannitol

- Usual dosage: 0.25-1.0gm/kg
- Rate will be set by transferring physician
- Discontinue if hypotension occurs.

### Cardizem

- Usual dosage: 0.25mg/kg bolus, may repeat at 0.35mg/kg prn, with a 10-15 mg/hr infusion
- Discontinue drip if hypotension or symptomatic bradycardia occur

### Insulin (Regular)

- Usual dosage: 0.1 unit/kg/hour
- Blood Glucose monitored every 30 minutes
- Discontinue drip if symptomatic hypoglycemia occurs and follow the Diabetic Emergencies Protocol

### Potassium

- Usual dosage: not faster than 10 mEq/hour
- The patient must be on a cardiac monitor AT ALL TIMES during this infusion.

 **PARAMEDIC STOP**

## Inter-Hospital Transport (continued)

### Specialty Care Transport

- Paramedics that have attended approved supplemental training focused on Specialty Care Transports and have been credentialed by the agency's Medical Director may transport a patient between hospitals with IV infusions and advanced modalities, provided the medication is ordered and provided by the transferring physician.
- All medications and interventions utilized must be covered within Agency protocols
- Be certain to clarify orders regarding medication titration prior to departure
- The IV medications must be run on an infusion pump

### Key Points/Considerations

- After assessing the patient and reviewing the patient's records and transfer orders, determine if the patient's current condition is appropriate for the provider's level of training, experience and available equipment.
- Evaluate the patient's airway status prior to departing the transferring facility. Secure the airway as indicated by Protocols.
- Prior to or during the transport, contact the agency's medical director, the transferring/sending physician or the receiving physician for clarification, or to discuss any concerns.
- If there are any changes in the patient's condition that are not covered by the prescribed orders or agency protocols contact Medical Control. If a total failure of communications occurs and the patient is unstable and decompensating, follow standing orders and go to the closest hospital emergency department.
- An appropriately trained nurse, respiratory therapist, physician assistant, nurse practitioner or physician from the sending facility must accompany the patient for any prescribed treatments or modalities for which the designated provider is not credentialed by their agency.
- There must be an appropriate communication device in the transporting vehicle.
- Specialty Care Transports (SCT) are a subset of Inter-Hospital Transports, and can only be done by Paramedics credentialed by the medical director of the agency performing the transport.
- Each Inter-hospital transport must be reviewed by the agency as part of the QI program.

# Blood Transfusion Maintenance

## PARAMEDIC

1. The patient must be transferred in accordance with the applicable interfacility transfer protocols.
2. The patient must have received the necessary medical exams and clearance prior to receiving a transfusion.
3. The physician shall inform the patient or responsible party of the reasons for the blood transfusion, as well as the risks/benefits associated with the procedure. Permission for the transfusion should be documented in the transfer record.
4. Prior to transfer, the physician shall give the Paramedic any necessary patient information, including the reason for the transfusion.
5. Blood bank documents must be available to accompany the patient to the receiving hospital.
6. Paramedic must take blood draw tubes from the sending hospital for use should a reaction occur
  - one purple top tube
  - two red top tubes

### PROCEDURES:

1. Prior to transporting the patient, the Paramedic **MUST** check the following:
  - A. Confirm the order for blood transfusion.
  - B. **Only accept a blood transfusion that has already been started by the originating facility.**
  - C. Make sure the patient is wearing an **ID bracelet** with his/her name and hospital ID number from the hospital of origin.
  - D. Confirm the patient's name and ID number on the bracelet match those on the unit of blood, and verify the patient's identity with the nurse.
  - E. Verify that the unit of blood has not been issued for more than **four** hours.
  - F. If more than one unit is to be transfused, all of the units should be hung by the nurse at the originating facility. **Paramedics MAY NOT initiate any units for transfusion.**

Assess and confirm the patency of the transfusion site prior to leaving the hospital. If the site becomes red and shows signs of infiltration during transport, the Paramedic or should start a new IV as soon as possible. This IV should be **large bore** (at least 18 gauge). The blood may be restarted using this new IV for the transfusion.
2. The following criteria must be met:
  - A. Blood transfusions **must** be infused through a primary IV of Normal Saline.
  - B. Blood **must** be transfused through a filter, using only hospital issued tubing for transfusions.
  - C. Empty blood bags and the attached tubing **must** be saved for disposal at the **receiving** hospital by the staff.
  - D. Vital signs *including lung sounds* should be assessed at the following intervals:
    - **5 minutes after the start of each unit of blood**
    - **15 minutes after the start of each unit**
    - **every hour the blood is running**
    - **at the completion of the unit of blood**

Make sure to document the time the transfusion was started at the originating hospital so that these parameters are accurate. Vitals may also include temperature if a thermometer is available.

## Blood Transfusion Maintenance (continued)

3. The Paramedic in charge must anticipate and react appropriately to blood transfusion reactions, whether they are hemolytic, allergic, or circulatory overload. The blood transfusion must be stopped if the patient develops any of the following:
  - A. **Shortness of breath or chest pain**
  - B. **Flushing of the torso and/or itching**
  - C. **Sudden and unexplained pain in the neck, chest or lumbar area**
  - D. **Hives and/or rash**
  - E. **Pulmonary edema and/or wheezing**
  - F. **Shaking chills**
  - G. **Signs and symptoms of shock: elevated pulse. Hypotension, etc.**
  
4. For any of these signs or symptoms, the Paramedic or Critical Care Technician should:
  - A. **Stop the transfusion** and run Normal Saline at 250 cc/hr.
  - B. Establish another IV and obtain blood samples to include:
    - one purple top tube
    - two red top tubes

Label the tubes with the patient's name, date, time and ID #.
  - C. Treat the patient as per the Shock Protocol.
  - D. The Paramedic's options for treatment may include:
    - Option A: Fluid challenge with Normal Saline*
    - Option B: Diphenhydramine, 50 mg, IV or IM*
    - Option C: Epinephrine, 1:1,000, 0.3-0.5 mg, SQ*

**UNDER NO CONDITION MAY THE TRANSFUSION BE RESTARTED UNTIL THE PATIENT  
HAS BEEN EXAMINED BY A PHYSICIAN.**

# Physician on the Scene

## Physician Licensed in Texas

- Verify the identity and specialty of the physician with the patient, family members or through any written credentials. The physician must be licensed in Texas.
- If the identity **CANNOT** be verified, follow patient care protocols.
- If the identity **CAN** be verified, request the physician go with the patient in the ambulance.
- If the physician is willing to accompany the patient in the ambulance, make equipment available to the physician for his/her treatment and transportation of the patient.
- If the physician is not willing to accompany the patient in the ambulance, initiate treatment per the protocols.
- If you are called to a physician's office, the patient is under the physician's care until the physician releases the patient to your care.
- If there are any conflicts or questions, follow protocols.

## Key Points

- Pertains to contact prior to or after the arrival of the EMS unit if the physician wants to assume control of the patient.

# Emergency Incident Rehab

## Key Points

- Agency procedures may be used in place of these guidelines as appropriate if developed from industry standard models such as the NFPA or USFA or others.
- For events, including drills, fire ground operations, hazardous materials incidents, lengthy extrications and any other event where personnel are wearing protective gear and fluid loss is a concern.
- When a person arrives in rehab with no significant complaints:
  - Encourage the person to drink at least 8 ounces of fluid.
  - An EMT should do a visual evaluation for signs of heat exhaustion or fatigue. If the person exhibits any signs of heat exhaustion or fatigue, take their vital signs.
  - If any vital signs is out of the range listed below, protective gear should be removed, and the person should rest for at least 15 minutes, with continued oral hydration.
    - Blood Pressure: Systolic >150 mm Hg or Diastolic > 100 mm Hg.
    - Respirations: >24 per minute.
    - Pulse: >110 per minute.
    - Temperature > 100.6 (If monitoring equipment available)
  - If vital signs return to within criteria limits, the person may be released.
  - If vital signs are still beyond the limits, continue rehab for another 15 minutes and determine if further intervention may be needed.
  - If after 30 minutes the vital signs are above the limits, transport to the hospital should be initiated.
- If a person arrives at the rehab area with complaints of chest pain, shortness of breath or an altered mental status follow the appropriate protocol. The person may not return to duty.
- An irregular pulse mandates ALS intervention, cardiac monitoring, and removal from duty or the event.
- Names and vital signs for each person evaluated should be recorded on a log sheet for the incident.
- A PCR should be written on any person transported to the hospital
- More aggressive treatment should be used during extremes of temperature.
- Consider carbon monoxide poisoning during prolonged exposure to smoke.

## Transfer of Care

### Key Points

- Each provider is responsible for the patient while in his/her care. The transferring or receiving provider will not be responsible for their counterpart's actions.
- Patients may be transferred to a provider with the same or higher level of training.
- When transferring patients both the receiving and transferring providers should:
  - Ensure that all patient information is transferred to the receiving provider including: chief complaint, past medical history, current history, vital signs and care given prior to the arrival of the receiving provider
  - Assist the receiving provider until they are ready to assume total patient care.
- The receiving provider must document patient care given prior to receiving the patient.
- Each provider involved in the patient's care (BLS First Response, BLS Ambulance, ALS Ambulance, and MICU) will complete a PCR, detailing the care given to the patient while he/she was in their care.
- PCR documentation must be delivered to the receiving hospital within 24 hours of the call.

# Vascular Access

## ECA

### EMT

- No options

 EMT STOP

## INTERMEDIATE

- Adult IV
- Pediatric IV

 INTERMEDIATE STOP

## PARAMEDIC

- Adult IO, if equipment is present and Paramedic is authorized for procedure
- Pediatric IO

 PARAMEDIC STOP

## Key Points

- IV sites include peripheral veins, including upper and lower extremities (below the knees) and external jugular veins in adults. Pediatric sites include upper and lower extremities (below the knees) and the scalp. External jugular veins may be used if peripheral sites lack perfusion
- Intraosseous access is to be used only in cases of critical patients where it may be life saving.
- Pediatric vascular access should only be obtained if there is a critical intervention to perform, such as a fluid bolus in a decompensated shock patient or glucose administration in a hypoglycemic diabetic. There are no “prophylactic” IV lines placed in children.
- For pediatric vascular access use burette or 100 ml NS for patients 10 kg or less. If patient is 11 – 25 kg use 100 or 250 ml NS.
- The number of vascular access attempts, the provider making the attempt, the site of the attempt, the catheter size, the solution and the infusion rate and total fluid administered must be noted on the PCR.
- Good clinical judgment will dictate the maximum number of vascular access attempts.
- Pre-existing Vascular Access Devices, including central lines, PICC lines and dialysis catheters can be accessed for unstable patients. See Vascular Devices.

# Vascular Devices, Pre-Existing

## PARAMEDIC

### Procedure

- Identify device.
- If the patient needs a lifesaving intervention, establish access to the device.
- No prophylactic IV lines may be established into pre-existing vascular devices.
- Procedure to establish access to Pre-Existing Vascular Access Device:
  - Discontinue any solution flowing into the pre-existing vascular device.
  - Put on clean gloves.
  - Cleanse injection site. Do not remove or unscrew cap, unless no other means of accessing the device is possible.
  - Remove any clamps on vascular access and slowly withdraw 10 ml of fluid from the port and discard the fluid.
  - Inject 5 ml Normal Saline. If bolus does not inject freely, or you could not draw off the initial 10ml, then the access must not be used.
  - If the device is patent, inject the remaining 5 ml from the syringe.
  - Secure administration set to access site.
  - Maintain Normal Saline KVO through device
  - Administer fluid bolus and/or medications as you would for peripheral IV.
  - If the access device is damaged and begins to leak, clamp it 1 inch from the skin entry site with a padded, non-serrated hemostat.

### Key Points

- Pre-existing vascular devices include Central Venous Catheters (CVC), Peripheral Inserted Central Catheters (PICC) and Renal Dialysis Lines.
- **Implanted ports and fistulas are not considered pre-existing vascular devices and cannot be accessed by the pre-hospital provider.**
- Percutaneous catheters below the nipple may not be for vascular access and must not be used
- Once the device is accessed, continuous flow of Normal Saline must be maintained

# Clinical Procedures and Skills

## **Blood Glucose Determination with glucometer device**

### Equipment and Supplies:

Glucometer

Lancets or needles

Alcohol preps

Reagent strips

4x4's, non-sterile

### Procedure:

1. Explain procedure to patient. Don appropriate PPE.
2. Insert reagent strip into glucometer and activate glucometer as per manufacturer's directions.
3. Select site for blood sample. For adults, the preferred site is the lateral surface of a finger tip. For children who have not yet begun to walk, the preferred site is the lateral surface of the heel.
4. Clean site thoroughly with alcohol prep.
5. Position site dependently to increase local capillary congestion.
6. Make small puncture wound using lancet or needle.
7. Allow a drop of blood to "well-drop" onto reagent strip.
8. When glucometer device indicates that an adequate sample has been detected, set glucometer aside to complete evaluation. Apply direct pressure to puncture site with 4x4 until bleeding has stopped and tape in place.
9. Read blood glucose level from glucometer and record.
10. Dispose of lancet/needle, reagent strip and 4x4 appropriately.

# Electrocardiogram Single or 12 Lead (ECG)

## Equipment and Supplies:

12 Lead capable ECG monitor.

Patient cables (electrodes).

Monitoring electrode patches.

## Procedure:

A. Turn on monitor and attach patient cables to monitor as per manufacturer's instructions.

B. Apply electrode patches to patient. If at all possible, apply to clean, dry skin.

Electrode patches are to be placed as follows for standard monitoring:

1. Right arm in the mid-humerus area, either anteriorly or laterally (or distal right clavicle area).
2. Left arm in the mid-humerus area, either anteriorly or laterally (or distal left clavicle area).
3. Left leg, anywhere between the hip and the lower calf, laterally (or left chest, midaxillary, below the 12th rib).
4. Right leg, anywhere between the hip and the lower calf, laterally (or Right chest, midaxillary, below the 12th rib).
5. Attach the patient cables to the electrode patches.
6. Select the desired lead (I, II, or III) to view in monitor.

- Record a strip of the ECG of at least 12 seconds duration. Record any changes in rhythm or any significant changes in rate. Record "pre" and "post" ECG strips before and after any intervention that will affect the cardiac rhythm or rate (meds, electrical therapy, etc.).
- If using a machine with a memory function, be sure to record or otherwise store the summary or memory of the patient contact prior to disabling the function.

## 12 Lead Monitoring

### Introduction:

Prehospital 12 Lead ECG benefit the cardiac patient by alerting the receiving facility to a potential cardiac episode whereby the patient could be a candidate for and benefit from the early intervention of Fibrinolytic therapy. With early recognition and base-line 12 lead monitoring in the prehospital setting, the door to therapy threshold will be drastically reduced.

### Indications:

As stated in the protocols.

### Contraindications:

12-lead ECG should not be utilized in trauma patients unless a suspected cardiac incident caused the event. Do not delay transport in order to obtain a 12-lead ECG, 3 or 4 lead ECG is monitoring of choice for trauma patients.

### Precautions:

On female patients always place leads V3 – V6 under the breast rather than on the breast.

Never use the nipples as a reference point for electrode location as the nipple location may vary widely from patient to patient.

A normal ECG does not definitely rule out an MI nor should it be justification for no transport of a patient.

### Procedure:

1. Whenever possible attempt to obtain 12 lead ECG with the patient in the supine position. If the patient does not tolerate this position place them in a semi-reclined or sitting position.
2. Prep the skin and shave hair as necessary.
3. Apply electrodes as specified by the chart below.
4. Connect the cables to the monitor as per manufactures specifications, and connect the appropriate leads to the corresponding electrodes.

## Electrocardiogram Single or 12 Lead (ECG) continued

5. Obtain the 12 lead while the patient is not moving if possible. As the patient to remain as still as possible for approximately 10 seconds while the monitor is capturing the rhythm and providing pertinent information about the rhythm. DO NOT rely solely on the monitor interpretation of the rhythm.
6. Inform the receiving facility that a 12 lead has been obtained and also specify it in your documentation.
7. Document your finding base on your interpretation of the strip and include it as part of your narrative.

### **Lead Placement Chart**

Limb Leads should be placed on the patient as in any other situation. See the above section on limb lead placement.

Precordial (chest) Leads should be placed across the patient's chest noting the above precaution in the following positions:

- V1 4th intercostal space to the right of the patients' sternum.
- V2 4th intercostal space to the left of the patients' sternum.
- V3 Directly between leads V2 and V4
- V4 5th intercostal space at the left midclavicular line.
- V5 5th intercostal space at the left anterior axillary line.
- V6 5th intercostal space at the left midaxillary line.

# Endotracheal Medication Administration

**Indications:**

Patient requiring medication administration in which IV access cannot or has not been achieved  
AND

Endotracheal intubation has been achieved.

**Contraindications:**

Pulmonary edema

**Authorization:**

Administration of the following medications via the ET tube:

- Atropine
- Epinephrine
- Lidocaine
- Naloxone.

**Equipment:**

Appropriate medications for administration

Appropriate syringes and needles for medication administration

Normal saline for dilution

**Procedure:**

1. Re-evaluate placement of ET tube and breath sounds; ensure that ET tube is properly placed and breath sounds are clear.
2. Draw up medication(s) to be administered as per normal procedure. The dose of all medications given via ET is to be doubled from the standard IV dose.
3. Dilute medication with normal saline to a total volume of 10 ml.
4. Ensure that patient is well oxygenated.
5. Disconnect BVM or ventilator from ET tube connector.
6. Instill medication into ET tube with syringe.
7. Reconnect BVM or ventilator and hyperventilate patient for 5 – 10 breaths.
8. Re-evaluate ET tube placement.

# External Jugular IV

## **Indications:**

Initial, primary venous access or secondary access in any critical patient unconscious or otherwise at risk for imminent death

In any urgent patient in whom access cannot be obtained in 3 attempts at other peripheral sites

## **Contraindications:**

None

- **NOTE: DO NOT compromise c-spine while establishing EJ IV.**

## **Equipment and Supplies:**

- IV catheter (over-the-needle type) of appropriate gauge
- Alcohol preps
- 4x4s
- Band-aid and tape or commercial securing device ("Venigaurd")
- IV fluid bag of appropriate fluid as per protocol
- Volume administration set (10gtts/ml).
- 10 cc syringe.

## **Procedure:**

1. Select and prepare equipment. Attach 10cc syringe to hub of catheter/needle to assist in identification of placement in patients with low or no cardiac output.
2. Select IV fluid. Check for expiration date and visually examine for contamination.
3. Connect administration set and extension set.
4. Clear air from IV tubing. Don appropriate personal protective (infection control) items.
5. Identify external jugular vein.
6. Prepare site with alcohol.
7. Stabilize vein at site with distal (or cephalic) pressure.
8. Direct needlepoint caudally (toward chest). Pierce skin just lateral to vein.
9. Advance needle/catheter until needle enters lumen of vein (recognized by change in resistance and return of blood into catheter hub). In patients with low or no cardiac output, it may be necessary to aspirate for blood with the syringe to confirm entry into the lumen. Once the needle has entered the lumen, advance the catheter/needle assembly very slightly farther into the lumen. This ensures that the catheter has entered the vessel.
10. Stop advancing the needle. Advance the catheter off the needle and into the vein.
11. Withdraw needle from catheter. If needed, gentle pressure may be applied proximal to catheter to stop bleeding from catheter.
12. Attach IV tubing to catheter hub.
13. Open IV to wide open briefly, and check for good flow and lack of extravasation.
14. If IV patent, secure catheter/tubing with tape/band-aid or commercial device.
15. Set IV flow to desired rate.
16. Properly dispose of contaminated equipment/supplies.

# External (Transcutaneous) Cardiac Pacing

## **Indications:**

Used as initial or secondary treatment modalities in Bradycardic, asystolic and agonal dysrhythmias and that result in insufficient perfusion as evidenced by the symptoms of shock, hypotension or decreased level of consciousness.

## **Contraindications:**

None

## **Equipment and Supplies:**

- Cardiac monitor/defibrillator with pacing capability
- ECG monitoring supplies and equipment
- Pacing pads, 1 set
- Pacing lead wires, 1 set
- Small scissors or razor

## **Procedure:**

1. Apply anterior adhesive electrode on left side of sternum. If possible place pads on clean dry skin. If necessary, shave or trim hair.
2. Place posterior electrode just below left scapula.

- **NOTE: Anterior/Anterior placement of electrodes may be used if the anterior/posterior is not feasible.**

3. Attach the lead wires to the electrodes as prescribed by the manufacturer.
4. Turn pacer on. DO NOT start current flow yet.
5. Set pacer rate at 80 bpm.
6. Start pacer current.
7. Increase milliamp setting by 20's until a capture is obtained or up to the maximum energy available from the device.

- **NOTE: Electrical capture is usually evident by a wide QRS and tall, broad T-waves. In some patients it may be less obvious, noted only by a change in QRS morphology. Mechanical capture may be evident by a palpable pulse, rise in blood pressure, improved level of consciousness, and improved skin color/temperature.**

8. Once electrical capture is obtained begin decreasing Ma by 5's until capture is lost.
9. Then increase Ma by 5's until electrical capture is regained. This will be the electrical or stimulation threshold (the minimum level of electrical energy needed to consistently depolarize the heart muscle).
10. Check for a pulse to determine the presence of mechanical capture.
11. If there is electrical capture but not mechanical capture, increase the rate only, up to a maximum of 120. DO NOT increase the energy (if electrical capture is achieved).
12. If no response is obtained from maximum pacing output at a rate from 80 - 120, interrupt pacing and continue with the appropriate cardiac protocol. Intermittently check for possible capture using maximum pacer setting.
13. If mechanical capture is obtained, interrupt pacing every 2-3 minutes to check for return of spontaneous pulse for 5-10 seconds.

# Defibrillation

## AED

### INDICATIONS

Electrical defibrillation is currently the most effective method for converting ventricular fibrillation (VF) or pulseless ventricular tachycardia (VT) to a life sustaining rhythm.

### CONTRAINDICATIONS/PRECAUTIONS

1. Success of defibrillation depends largely on the amount of time the patient has been in VF or VT. For this reason, in the cardiac arrest situation, it is essential to check the rhythm and defibrillate as early as possible.
2. In the pediatric patient, defibrillation should occur as per the AHA Guidelines.

### PROCEDURE

1. While one team member is doing a primary survey and starting CPR, a second team member (if available) should be obtaining a patient history. One AED trained member should be preparing the AED unit and apply the electrode pads to the patient.
2. The AED operator should turn on the AED and attach the defibrillation pads as follows:
  - Pressing the Sternum pad on the right border of the sternum, with the top edge of the pad just touching the right clavicle.
  - Pressing the Apex pad on the left lower ribs, at the anterior axillary line.
  - Connect the AED unit electrode wires
3. Have the team members stop CPR and check for a pulse. If no pulse, clear the patient and press the ANALYZE button.
4. If a treatable rhythm, clear all persons from the patient and press the SHOCK button.
5. If an untreatable rhythm, resume CPR and transport the patient as soon as possible. Analyze the patient's rhythm every five cycles of CPR (about two minutes).
6. Once the shock has been delivered, continue as per the AHA Guidelines.
7. If a treatable rhythm occurs while in the ambulance, STOP THE VEHICLE to analyze the rhythm and shock the patient. If a pulse returns after any defibrillation, continue the administration of 100% oxygen and monitor the patient's vital signs and rhythm while enroute to the hospital.
8. If the patient has an untreatable rhythm and no pulse:
  - Continue CPR.
  - Start transporting the patient.
  - ANALYZE the patient's rhythm every five cycles of CPR (about two minutes).
  - If a treatable rhythm occurs, STOP THE VEHICLE and follow the defibrillation procedure outlined in this section.
9. Continue the use of the AED as per the AHA Guidelines
10. If you will be traveling through an area that can provide a higher level of care, if at all possible, make arrangements to meet that agency prior to leaving the scene or arrange to intercept with that agency while enroute to the hospital.

# Defibrillation (continued)

## Manual

### INDICATIONS

Electrical defibrillation is currently the most effective method for converting ventricular fibrillation (VF) or pulseless ventricular tachycardia (VT) to a life sustaining rhythm. Staff may use defibrillation on standing orders.

### CONTRAINDICATIONS/PRECAUTIONS

1. Success of defibrillation depends largely on the amount of time the patient has been in VF or VT. For this reason, in the cardiac arrest situation, it is essential to check the rhythm and defibrillate as early as possible.
2. Another important factor in the success of defibrillation is paddle/electrode placement. Proper placement calls for the Sternum paddle/electrode (-) to be placed to the right of the upper sternum just below the right clavicle and the Apex paddle/electrode (+) to be placed just to the left of the left nipple in the midaxillary line.
3. In the pediatric patient, defibrillation is weight related (2 Joules/kg initially). Refer to the Broselow Pediatric Resuscitation Tape to approximate energy settings prior to defibrillation.

### PROCEDURE

1. Confirm the patient is in ventricular fibrillation or ventricular tachycardia and has no pulse.
2. Apply conductive gel to the paddles, or apply the electrodes.
3. Select the appropriate energy level for the algorithm or patient age/weight and charge the paddles/electrodes.
4. Recheck the rhythm and start recording strip.
5. Stop CPR. If paddles are being used, apply them as above to the patient's chest.
6. Call "clear" and make sure there are no personnel (including yourself) in contact with the patient.
7. Deliver the countershock by depressing both thumb buttons at the same time (if using paddles), or by pressing the "shock" button (if using electrodes)..
8. Recheck the rhythm. Resume treatment as appropriate for the rhythm, including countershocks as per AHA Guidelines.

### SYNCHRONIZED CARDIOVERSION

#### INDICATIONS

Synchronized cardioversion is the treatment of choice for supraventricular and ventricular tachydysrhythmias when the patient is unstable or the dysrhythmia is refractory to drug therapy when the patient is stable.

The procedure is the same for defibrillation (see previous page) except:

1. The patient will be conscious, so sedation should be considered prior to cardioversion.
2. The synchronizer circuit must be turned on and there must be capture marks on the QRS complexes or the defibrillator will not synchronize correctly. If there are no marks, adjust the EKG size accordingly.
3. If at any time the patient becomes unstable, or if unable to perform synchronized cardioversion, cardiovert without synchronization.

# INTRAVENOUS THERAPY

## INDICATIONS

1. Types of intravenous infusions used:
  - A. Volume Replacement Infusions: The general use is to replace body electrolytes or to replace fluid volume. Normal Saline is used with a macro drip administration set and large bore IV catheters.
  - B. Medication Line: The general use is to establish venous access when medication is needed. Normal Saline is used with a macro drip administration set and an IV catheter of sufficient size to keep the vein open and administer IV push medications (large bore catheters are helpful during arrests when large volumes of medications must be pushed).
  - C. Saline Lock: The general use is to establish venous access when medication may be needed.

## CONTRAINDICATIONS/PRECAUTIONS

1. In adults, the veins of the extremities and the external jugular veins may be used on standing orders. Standing orders for pediatric IV sites include the upper and lower (below the knees) extremities, scalp, and intraosseous infusion.
2. Patients with IV access in place must not be left unattended. Infusion rates must be watched carefully to prevent over hydration.
3. Prep the venipuncture site preferably with both povidone-iodine and isopropyl alcohol.

## EQUIPMENT

The following equipment must be carried on all ALS units IN THE AAREMS REGION:

1. Solutions and administration sets:
  - Normal Saline in 500 cc plastic bags or plastic bottles, (250 & 1000 cc bag optional)
  - Macro drip administration sets (10 or 15 drops = 1 ml),
  - Micro drip administration sets (60 drops = 1 ml),
  - Extension sets with injection ports,
  - Soluset or Buretrol IV administration sets,
  - Saline well injection sites.
2. IV catheters and needles:
  - 14, 16, 18, 20, 22, and 24 gauge IV catheter over needles,
  - Jamshidi or other approved bone marrow needle for intraosseous infusion.

## GENERAL PROCEDURES

1. Generally, distal veins should be attempted before more proximal ones.  
(In supraventricular tachycardia, where use of Adenosine is anticipated, use an antecubital vein, if available)
2. Avoid placing IVs in injured extremities.
3. Always wear gloves when starting IVs.
4. Try to avoid using the right antecubital site for IV access in cardiac patients. Frequently these patients undergo catheterization or thrombolysis and that site is the primary site used for those procedures.
5. The number of IV attempts, person(s) attempting, site/location, catheter size, solution, time started and infusion rate MUST be reported on the Prehospital Care Report.
6. While there is no maximum number of times an IV may be attempted, the amount of discomfort caused the patient must be weighed against the NEEDS of the patient. After two attempts on a patient who does not need medication “right now”, consider transport. If your patient is hypovolemic and is entrapped, it may make more sense to continue attempts. GOOD JUDGMENT on the part of all will supplant any thoughts of maximum attempt numbers.

# MEDICATIONS

## ADMINISTRATION PROCEDURES

1. Medications may be given only:
  - A. On the order of a physician, either verbally or by specific written standing orders.
  - B. By a Paramedic, Intermediate, EMT or ECA or a student under the supervision of his/her preceptor.
  - C. When selected from the medication formulary in this manual.
  - D. When administered according to operating procedures in this protocol according to certification level.
2. The attending staff member is responsible for patient presentation, confirming orders and medication box control.
3. When administering the medication:
  - A. Write the order down if verbal.
  - B. Read the medication container to be sure it is the right one and check the expiration date.
  - C. Administer the medication as ordered and document the time.
  - D. Evaluate the patient for the effects of the medication
  - E. **WHEN ANY MEDICATIONS ARE ADMINISTERED, THEY MUST BE DOCUMENTED ON A PCR CONTINUATION FORM.**

## SUPPLY AND INVENTORY PROCEDURES

The type, dose, content and minimum quantity of each medication are reflected on the medication formulary contained within this manual. NO medications other than those listed on the medication schedule may be carried by any agency in the system.

1. Each unit **MUST** conduct a regularly scheduled inventory of all medications and keep a record of said inventory.
2. All medications should be stored according to the Temperature Control Policy for each agency.

### Key Points/Considerations - Medications

- Only medications listed may be carried by on an Ambulance.
- Local variations in concentration and volume may exist because of restocking necessity.
- Medications should be protected from extremes of temperature at all times.
- Use a micro drip administration set for Dopamine infusions
- Specific concentrations and total quantities of controlled substances (Diazepam, Midazolam, and Morphine) should be in accordance with the Agency's Controlled Substance Plan.
- Medications are only to be carried in TEXAS DSHS Approved Vehicles and cannot be carried in a private/personally owned vehicle at any time.

# BLS EPI-PEN Protocol

## INDICATION

Patients experiencing an anaphylactic reaction and/or severe asthma. Any respiratory system involvement of anaphylaxis may include audible wheezing, difficulty breathing or swallowing. The following symptoms may be indicated:

- Stridor
- Bronchospasm / wheezing / diminished breath sounds
- Severe abdominal pain
- Respiratory distress (nasal flaring or grunting in pediatric patients)
- Tachycardia
- Shock (SBP < 100)
- Edema of the tongue, lips, face
- Generalized urticaria / hives

## EQUIPMENT

Auto injector EpiPen

Auto injector EpiPen Jr

EMT-Basic with Sub-Q Training:

Epinephrine 1:1000 1mg/1ml Ampule

1cc insulin type syringe

## PROCEDURE

- Remove allergens
- Administer **Epinephrine 1:1000 SQ**
  - Adult (>30 kg/ 66 lbs) - Adult Auto-Injector (0.3 mg SQ/ 0.3 cc).
  - Infant and child (<30kg/ 66lbs) - Pediatric Auto-Injector (0.15mg SQ/ 0.15cc).
- Record time of injection & reassess in 2 minutes.
- Monitor airway and be prepared to assist with ventilations if necessary.
- A second injection in 5 minutes may be necessary.
- Transfer care to ALS/MICU unit as patient condition warrants.

## Nebulized Albuterol for BLS Responders

- This protocol is for patients between one and sixty-five years of age, who are experiencing an exacerbation of their previously diagnosed asthma.
- Request Advanced Life Support if available.
- Do not delay transport to the appropriate hospital.
- For patients with a history of Angina, Myocardial Infarction, Arrhythmia or Congestive Heart Failure, medical control **MUST** be contacted prior to administration of Albuterol!

### Procedure

1. Perform initial assessment.
2. Assure that the patient's airway is open and that the breathing and circulation are adequate.
3. Administer high concentration oxygen.
4. Place the patient in the Fowler's or Semi Fowler's position.
5. Do not allow physical activity or exertion.
6. Assess vital signs, ability to speak in complete sentences, accessory muscle use, wheezing.
7. Begin transportation.
8. Administer Albuterol Sulfate 2.5mg, one (1) unit dose in a nebulizer at a flow rate of 4 – 6LPM. **DO NOT delay transport to complete medication!**
9. Re-assess vital signs, ability to speak in complete sentences, accessory muscle use, wheezing.
10. If patient's symptoms persist, a second administration of Nebulized Albuterol may be administered. A maximum of two (2) total doses may be given.
11. Ongoing assessment. Obtain and record the patient's vital signs enroute as often as the situation indicates.
12. Record all patient care information, including the patient's medical history and all treatment provided on a Prehospital Care Report (PCR).

# NEEDLE CRICOTHYROTOMY

## (Quicktrach)

### INDICATIONS:

1. Patients requiring emergency assisted ventilation when all other conventional methods of ventilation (BVM, Endotracheal intubation and/or King Airway) have failed.
2. Obstructed airway that cannot be cleared.

### CONTRAINDICATIONS:

1. Tracheal transection
2. Children less than 12 years of age
3. When any other less invasive maneuver allows ventilation of the patient

### ADULT PROCEDURE:

1. This procedure is performed on standing order.
2. Preoxygenate the patient, if possible.
3. Identify the anterior surface of the neck and clean area with Betadine or alcohol.
4. Position the patient supine with the head slightly extended. Head extension is contraindicated if c-spine trauma is suspected.
5. Locate cricothyroid membrane. The cricothyroid membrane is a 1 to 1.5 cm membrane that lies inferior to the thyroid cartilage and superior to the first tracheal ring. It is located by palpating the protuberant midline portion of the thyroid cartilage (Adam's apple) and then moving the fingertip inferiorly 1.5 cm until it rests in a soft, flat depression between the thyroid cartilage and the first tracheal ring.
6. Place your thumb and index finger of your non-dominant hand on either side of the tracheal cartilage to stabilize the trachea, and to anchor/stretch the skin slightly.
7. Use adult Quicktrach kit (4.0 mm I.D.) to pierce the skin and cricothyroid membrane at a 45 degree angle, directing the catheter tip inferiorly while pulling suction on the syringe. Aspiration of free air confirms entry into the tracheal lumen.
8. When the catheter tip enters the tracheal lumen, a slight give will be felt. The patient may also cough when the catheter stimulates the tracheal wall.
9. Slide the catheter sheath forward until it is snug against the skin, then withdraw the needle.
10. Attach Quicktrach flex tube to the catheter end.
11. Attach BVM to top end of Quicktrach flex tube and begin ventilating. Confirm correct placement by listening to lung sounds.
12. Secure catheter in place using pre-attached strap to Quicktrach ensuring hub of catheter is snug against the neck.
13. Contact the Emergency Department to inform them the Quicktrach has been used.

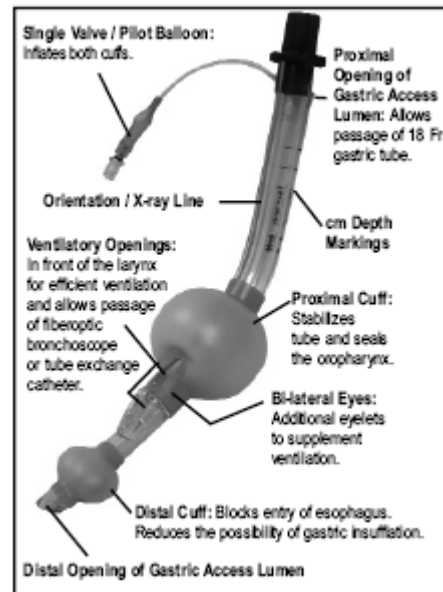
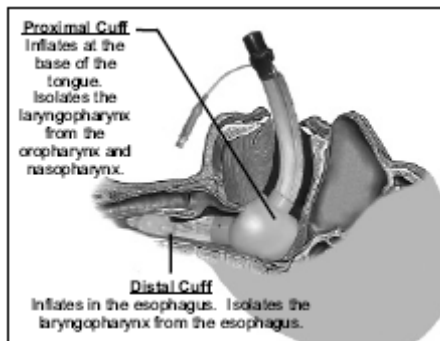
# King Airway

## INDICATIONS

- Following unsuccessful endotracheal intubation:
  - Endotracheal intubation provides a definitive airway. Every attempt should be made to secure an airway with an endotracheal tube. Following two (2) unsuccessful attempts to place an endotracheal tube, or if it appears additional endotracheal intubation attempts would be unsuccessful, use of the King Airway should be considered.
  - The King Airway may be considered the initial airway of choice in the pulseless/apneic patient.

## CONTRAINDICATIONS

- Patients who are conscious or who have an intact gag reflex
- Patients under four (4) feet in height
- Patients with known esophageal disease (varicies, alcoholism, cirrhosis etc.) or ingestion of caustic substances



# King Airway (Continued)

## **WARNINGS/PRECAUTIONS**

- The KING LTS-D does not protect the airway from the effects of regurgitation and aspiration.
- High airway pressures may divert gas either to the stomach or to the atmosphere.
- Intubation of the trachea cannot be ruled out as a potential complication of the insertion of the KING LTS-D.
- After placement, perform standard checks for breath sounds and utilize an appropriate carbon dioxide monitor as required by protocol.
- Lubricate only the posterior surface of the KING LTS-D to avoid blockage of the ventilation apertures or aspiration of the lubricant.
- The KING LTS-D is not intended for re-use.
- During transition to spontaneous ventilation, airway manipulations or other methods may be needed to maintain airway patency.

## **PROCEDURE**

1. Body Substance Isolation (BSI)
2. Attach pulse oximeter and/or ETCO<sub>2</sub> to monitor oxygen saturation and/or CO<sub>2</sub> readings.
3. Using the information provided, in the package insert choose the correct KING LTS-D size, based on patient height.
4. Test cuff inflation system by injecting the maximum volume of air into the cuffs. Remove all air from both cuffs prior to insertion.
5. Apply a water-based lubricant to the beveled distal tip and posterior aspect of the tube, taking care to avoid introduction of lubricant in or near the ventilatory openings.
6. Pre-oxygenate patient with 100% oxygen for at least 1 minute.
7. Team Leader should begin timing King Airway placement attempt at cessation of BVM ventilations for procedure
8. Position the head. The ideal head position for insertion of the KING LTS-D is the "sniffing position". However, the angle and shortness of the tube also allows it to be inserted with the head in a neutral position.
9. Hold the KING LTS-D at the connector with dominant hand. With non-dominant hand, hold mouth open and apply chin lift.
10. With the KING LTS-D rotated laterally 45-90° such that the blue orientation line is touching the corner of the mouth, introduce tip into mouth and advance behind base of tongue. Never force the tube into position.
11. As tube tip passes under tongue, rotate tube back to midline (blue orientation line faces chin).
12. Without exerting excessive force, advance KING LTS-D until proximal opening of gastric access lumen is aligned with teeth or gums.
13. With a syringe inflate the KING LTS-D, inflate cuffs with the minimum volume necessary to seal the airway at the peak ventilatory pressure employed (just seal volume).
14. Attach the BVM to the 15 mm connector of the KING LTS-D. While gently bagging the patient to assess ventilation, simultaneously withdraw the airway until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).
15. Depth markings are provided at the proximal end of the KING LTS-D which refer to the distance from the distal ventilatory openings. When properly placed with the distal tip and cuff in the upper esophagus and the ventilatory openings aligned with the opening to the larynx, the depth markings give an indication of the distance, in cm, from the vocal cords to the upper teeth.
16. Attach ETCO<sub>2</sub> monitoring device to adaptor and follow guidelines for its use, if available.

## King Airway (Continued)

17. Confirm proper position by auscultation, chest movement and verification of CO<sub>2</sub> by capnography, if available.
  - Do not let go of the King Airway until secured
18. Secure KING LTS-D to patient using tape or an approved commercial device. **DO NOT COVER THE PROXIMAL OPENING OF THE GASTRIC ACCESS LUMEN.** The gastric access lumen allows the insertion of up to a 18 Fr diameter gastric tube into the esophagus and stomach.
19. Immediately following successful placement of the King Airway apply an appropriately sized cervical collar.
20. In the event a C-collar will not fit, manual inline stabilization should be utilized and if transported; blankets, towels and tape should be used appropriately to restrict cervical spinal motion. No exceptions.

# INTRAOSSUEOUS (IO) PROTOCOL

## **PRACTITIONER QUALIFICATIONS:**

- Adult and older children IO may only be done in systems with an FDA approved device available.
- Only paramedics may initiate an adult or older child IO (7-12 years).
- Training on IO cannulation at site specific to IO device.
- Demonstration of competency in the skill in a training setting.

## **TO QUALIFY FOR INTRAOSSUEOUS CANNULATION, THE PATIENT MUST MEET ALL OF THE FOLLOWING CRITERIA:**

1. Have a very unstable, life threatening situation.
2. The paramedic is unable to establish IV access after two attempts or 90 seconds of searching for a suitable vein.

## **SITE OF CANNULATION:**

1. All ages: Site specific to IO device.

## **EQUIPMENT FOR IO CANNULATIONS:**

1. Alcohol and/or iodine preps
2. Saline for irrigation
3. IV administration set
4. Tape
5. 10cc syringe
6. Age appropriate IO injection device: Any FDA approved IO device may be used consistent with manufacturer specifications and instructions.

## **PROCEDURE FOR IO CANNULATION**

1. Prepare the infusion setup.
2. Palpate landmarks and identify insertion site.
3. Using aseptic technique, prepare the injection site (alcohol, betadine and alcohol)
4. Adjust the trocar depth (age dependant).
5. **DEPLOY THE DEVICE PER MANUFACTURER SPECIFICATIONS.**
6. Confirm proper positioning in the medullary space:
  - The needle should stand without support.
  - After removing the trocar and attaching a 10cc syringe to the device, aspiration should produce a blood/marrow mixture.
7. Attach IV tubing to needle and begin administration (fluid should flow freely).
8. Check for extravasation.
9. Secure needle and tubing.
10. Observe for complications.
11. Notify medical control of successful placement and location.
12. Needle size, location and any difficulties with insertion should be recorded on the patient care form.
13. All ALS Drugs and fluids may be given through the IO device.

# Rapid Sequence Intubation (RSI)

## **Indications:**

Patient requiring endotracheal intubation, in which endotracheal intubation cannot be accomplished via other (non-surgical) means OR Patients with increased intracranial pressure requiring airway control (RSII is to be used before other intubation attempts).

## **Equipment and Supplies:**

- Standard intubation equipment and supplies
- Standard IV access and fluid administration equipment and supplies.
- Syringes and syringe needles (or needle-less connectors) as appropriate.
- Medications to include:
  - Atropine
  - Lidocaine
  - Succinylcholine
  - Versed

## **Procedure:**

1. Don appropriate PPE.
2. Adequately ventilate/oxygenate the patient with 100% O<sub>2</sub>.
3. Assemble and prepare airway, IV equipment, and medications.
4. Establish peripheral IV access, with normal saline infusion.
5. Premedicate the patient:
  - IF the patient has signs/symptoms of increased ICP (head injury, CVA):
    1. Lidocaine 1.0 mg/kg IV (2-3 minutes prior to intubation).
  - IF adult patient with a heart rate of less than 60 OR pediatric patient:
    1. Atropine 0.01 mg/kg (maximum dose 0.5 mg) IV (2 minutes prior to administration of Succinylcholine).
6. Sedate the patient:
  - Midazolam 2.5 mg IV may repeat once if needed in 3 min.
7. Paralyze the patient.
  - Apply cricoid pressure
  - Administer Succinylcholine 1.0 mg/kg IV (2.0 mg/kg for pediatric patient).
  - IF paralysis is not induced within 2 minutes:
    1. check the patency of the IV (failure to induce paralysis is usually the result of failure of the IV line)
    2. administer atropine 0.01 mg/kg IV
    3. administer second dose of Succinylcholine at 2.0 mg/kg IV
8. Intubate and ventilate the patient as per standard procedure.
9. IF additional sedation is required:
  - Midazolam 5.0 mg IV as needed to maintain sedation.

# Thoracentesis, Needle (Chest Decompression)

## INDICATION

Patient with a suspected tension pneumothorax

- Closed or penetrating chest trauma with respiratory distress
- Absent breath sounds on the side of the injury
- SBP less than 90 mmHg in adults or SBP less than 80 mmHg in children, with signs of shock

## PROCEDURE

1. Identify the second intercostal space on the side of the pneumothorax:
  - Place a finger on the clavicle at its midpoint.
  - Run this finger straight down the chest wall to locate the first palpable rib below the clavicle.
  - The second intercostal space lies just below this rib, midway between the clavicle and the nipple line.
  - Cleanse the area with an alcohol or povidone-iodine swab.
2. Select a 14 or 16 gauge, 2 ¼ inch IV catheter (children: 16 gauge, 1 ¼ inch). Remove the flash chamber cap. Do not use needle-safe IV catheters.
3. Attach a syringe filled with sterile water or saline to the needle hub of the catheter.
4. Advance the needle into the second intercostal space. Assure you enter the thoracic cavity by passing the needle just over the top of the rib to avoid interference with the blood vessels and nerves that run along the underside of the rib.
5. As you enter the pleural space, you will feel a pop and note bubbling air through the fluid in the syringe.
6. Advance the catheter into the chest and then withdraw the needle and syringe. Be careful not to kink the catheter.
7. Attach a one-way flutter valve to the catheter:
  - Asherman chest seal, or similar device, over the barrel of the catheter.
  - Finger cut off of a latex or similar examination glove (secure to catheter hub prior to performing the Thoracentesis).
8. Secure the catheter in place with tape, being careful not to block the port or kink the catheter.
9. Monitor the patient's vital signs and breath sounds for a recurring tension pneumothorax.
10. If signs and symptoms are not relieved by the initial Thoracentesis, or signs and symptoms recur, decompress the chest again by placing additional catheters adjacent to the original catheter.

## • Key Points

- For an open pneumothorax, immediately cover the open area with a gloved hand. Once materials are available, cover the area with an occlusive dressing.
- An open pneumothorax that has been sealed with an occlusive dressing may result in a tension pneumothorax. In that instance, the increase in pleural pressure may be relieved by briefly removing the dressing. If that air release does not occur or the patient's condition remains unchanged, gently spread the chest wound open with a gloved hand, allowing the trapped air to escape.

# Continuous Positive Airway Pressure (CPAP)

## INDICATION

Conscious patient in severe respiratory distress due to suspected pulmonary edema with oxygen saturation less than 90% on high flow oxygen via non-rebreather mask.

## CONTRAINDICATIONS

- Altered mental status, inability to follow commands.
- Hypoventilation requiring ventilatory assistance.
- Upper airway/facial trauma or abnormalities that prevent nasal mask from sealing.
- Open stoma or tracheotomy.
- Severe cardio-respiratory instability.
- Pulmonary edema from any etiology other than CHF.
- SBP less than 100 mm Hg.

## PROCEDURE

1. Assess patient and initiate high flow oxygen as indicated.
  2. Monitor pulse oximetry.
  3. Apply CPAP if oxygen saturation less than 90% on high flow oxygen via non-rebreather mask.
    - Connect CPAP device to suitable oxygen supply.
    - Attach breathing circuit to CPAP device and ensure device is functioning properly.
    - Apply and secure breathing circuit mask to patient.
    - Titrate increases in positive airway pressure until improvement in patient pulse oximetry and symptoms
- **WARNING: Do not exceed pressures of 10 cm H<sub>2</sub>O.**
4. Reassess the patient.
  5. Transport as soon as feasible.

## • Key Points

- Pulse oximetry should be monitored continuously during use of CPAP.
- Advise the receiving emergency department of CPAP use as soon as possible.

# End-Tidal CO2 Detection/Monitoring, Capnography

## INDICATIONS

1. Confirmation, monitoring and documentation of endotracheal intubation.

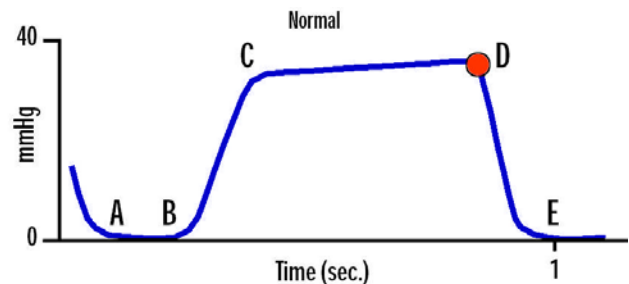
## PROCEDURE

1. Confirm tube placement via physical exam
2. Use an ETCO2 confirmation device to verify proper tube placement.
3. After verifying proper tube placement, replace the secondary confirmation device with the capnography device and use according to manufacturer's instructions.
4. Secure the endotracheal tube and resume ventilations at the appropriate rate. Do not use continuous hyperventilation.
5. Observe the waveform and numerical values that appear during exhalation after a total of 6 breaths.
6. ETCO2 numerical values and corresponding capnograph should be compared to normal values and morphology.

### Normal ETCO2 Values

35 – 45 mmHg

A	End of Inhalation
B	Beginning of exhalation
B-D	Exhalation of alveolar gas
D	End of exhalation and point of Maximal or highest CO2 Concentration
D-E	Inhalation



ETCO2 should be discontinued while administering Nebulized medications

Capnography is only an adjunct to careful patient assessment

Do not use Capnography as the sole method of assessing correct tube placement.

Capnography may not indicate right main stem bronchus intubation or pyriform placement.

# Mucosal Atomizer Device (MAD)

## Purpose

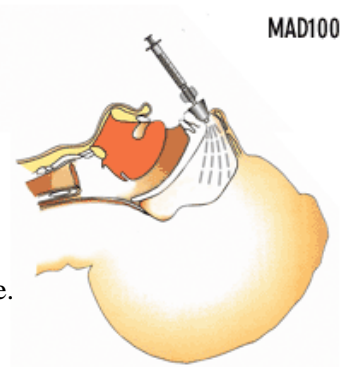
The Mucosal Atomizer Device (MAD) may be used as an alternative drug delivery adjunct for patients without IV access who require urgent medication administration.

## Medications That May Be Administered via Intranasal (IN) Route:

- Midazolam for seizures or sedation (follow Dosage Chart Below)
- Naloxone for opiate overdose - maximum 1ml per nostril

## Procedure:

1. Determine appropriate medication dose per applicable protocol.
2. Draw medication into syringe and carefully dispose of sharps.
3. Place mucosal atomizer on the end of the syringe and screw into place.
4. Gently insert the atomizer into the nare. Stop once resistance is met.
5. Rapidly administer the medication.
6. Document the results in the patient care record.



## Contraindications:

Do not administer medications via the IN route if the patient's nose is bleeding or if nasal congestion or nasal discharge is present.

## Precautions:

Nasal administration does not always work for every patient.

Nasal administration is less likely to be effective if the patient has been abusing inhaled vasoconstrictors such as cocaine.

Patient age (yr)	Weight (kg)	IN Midazolam volume in ml (assuming 5mg/ml concentration)
Midazolam volume dose (mg)		
Neonate	3	0.12 ml 0.6 mg
<1	6	0.24 ml 1.2 mg
1	10	0.40 ml 2.0 mg
2	14	0.56 ml 2.8 mg
3	16	0.64 ml 3.2 mg
4	18	0.72 ml 3.6 mg
5	20	0.80 ml 4.0 mg
6	22	0.88 ml 4.4 mg
7	24	0.96 ml 4.8 mg
8	26	1.04 ml 5.2 mg
9	28	1.12 ml 5.6 mg
10	30	1.20 ml 6.0 mg
11	32	1.28 ml 6.4 mg
12	34	1.36 ml 6.8 mg
Small teenager	40	1.60 ml 8.0 mg
Adult or full grown teenager	50 or more	2.0 ml 10.0 mg

# Taser Dart Removal

EMS staff may be called by police after a TASER has been used on a suspect. EMS staff may be requested to remove probes from skin. Once probes have been removed paramedics need not transport if patient refuses EMS transport.

## Procedure

1. The attendant recognizes that once a TASER has been used against a perpetrator and the scene has been secured, a medical evaluation is required to ensure the perpetrator is safe to be taken into custody.
2. The attendant is aware that if patients meet refusal of transport criteria, have their darts removed, and do not request transport to hospital, they may be released into police custody, without hospital attendance.
3. The attendant is fully aware that the default procedure is always transport to hospital by ambulance with police in attendance and that this is always an option, regardless.
4. The attendant recognizes that TASER dart removal in the field should proceed only if ALL criteria for refusal of transport are met.
5. After a fifteen minute observation period in the field (starting from arrival at patient's side) all of the following criteria must be met:
  - Patient must have a GCS of 15
  - Patient must have a heart rate of <110 bpm, respiratory rate >12, O2 saturation >94%, systolic blood pressure >100mmHg and <180mmHg
  - No dart has penetrated the eye, face, neck, breasts (females), axilla or genitals
  - Patient has no other acute medical or psychiatric condition requiring medical evaluation, such as:
    1. Traumatic injury sustained in TASER induced fall or police encounter
    2. Hypoglycemia
    3. Acute psychiatric disturbance or agitated delirium
    4. No tetanic muscle contractions
    5. Patient is not requesting transport to hospital.
    6. Patient is 17 years of age or older
    7. Patient has had tetanus booster in last ten years. If tetanus status is unknown, the patient may be taken to hospital by police if all other treat and release criteria are met. (Police are to be informed that it is the responsibility of the police service to ensure that the patient receives a tetanus booster within 72 hours. This advice must be documented of the PCR.)
    8. All darts which have been deployed are accounted for
6. The attendant recognizes that if all of the above criteria are met, the following steps may be followed for TASER dart removal:
  - Ensures that the TASER device is no longer applying electrical charge prior to contacting the patient, darts, or wires.
  - Use scissors to cut the wire at the base of each dart cylinder to disconnect the dart(s) from the TASER cartridge.
  - Wearing gloves, grasp the cylinder of the TASER dart between the thumb and index finger of one hand. Remove the dart with a quick, firm pull directed perpendicular to the skin surface. Dispose of the dart in a sharps container, being careful not to poke oneself with the barb. Repeat this step for each embedded dart.

## Taser Dart Removal (Continued)

- Cleanse each dart wound and the surrounding skin with saline-soaked gauze or alcohol pad.
- Cover each area with a Band-Aid or other sterile dressing. Inform the patient and police that this may be removed in 24 – 48 hours.
- Ask the patient if they would like to be taken to the hospital. If the patient refuses, document the patient's refusal as per guideline. If the patient wishes transport to hospital, then transport is to be initiated.
- If the patient refuses transport, instruct the patient to seek medical attention immediately, if he/she develops any signs of infection around one or more of the wounds (fever, increased pain, redness, heat, swelling, purulent discharge).

### **Documentation Requirements**

The following information must be documented on the patient care report form:

1. Patient's presenting signs and symptoms, including vital signs, level of consciousness and oxygen saturation.
2. Indications for protocol use.
3. Time of removal
4. Location (anatomic) of dart embedment
5. Findings / results of dart removal
6. Repeat assessment, including vital signs, level of consciousness and oxygen saturation, as indicated.
7. Changes from baseline, if any, that occur during treatment or transport.

# Medication Formulary

Medication Name	Amount
Adenosine (Adenocard)	30 mg
Amiodarone (Cordarone)	450 mg
***Albuterol (Proventil)	5 mg
Aspirin	324 mg
Atropine	4 mg
***Atrovent (Ipratropium bromide)	1 mg
Dextrose 50%	50 grams
Diazepam (Valium)	20 mg
Diphenhydramine (Benadryl)	50 mg
Dopamine	400 mg
Epinephrine 1:1,000	2 mg
Epinephrine 1:10,000	5 mg
Furosemide (Lasix)	2-40mg or 100 mg
Glucagon	1 mg
Labetalol	300mg
Lidocaine 2% (IV)	300 mg
Lidocaine 1gram	1 Gram
Magnesium Sulfate	2 grams
Midazolam (Versed)	10 mg
Morphine	20 mg
Naloxone (Narcan)	4 mg
Nitroglycerin (spray or tablets)	1.2mg
Normal Saline 0.9% 500cc, 250cc or 1000cc	3000cc minimum
Oxygen 1-D Cylinder 1-M or larger	200psi
Glucose Solution Oral (Glucose)	31grams X 2
D5W 500cc or 250cc and 100cc	1 each
Promethazine (Phenergan)	25 mg
Sodium Bicarbonate	100 mEq
*Succinylcholine (Anectine)	200 mg
Thiamine	100mg

\*\*\* Combivent may be used in place of Atrovent and Albuterol

\_\_\_\_\_  
 Dane Simons, MD  
 Medical Director  
 Matagorda County EMS

\_\_\_\_\_  
 Date

\_\_\_\_\_  
 Effective Date

\_\_\_\_\_  
 Expiration Date



## Medication Infusions

**Amiodarone (Cordarone):** 150 mg in 100 ml Normal Saline or D5W = 1.5 mg/ml

Infusion Rate	Admin Set: 10 drops/ml	Admin Set: 15 drops/ml
5 ml/min (over 10 min)	50 drops/min	75 drops/min

**Lidocaine:** 200 mg in 100 ml Normal Saline = 2 mg/ml

Infusion Rate	Admin Set: 60 drops/ml
1 mg/min	30 drops/min
2 mg/min	60 drops/min
3 mg/min	90 drops/min
4 mg/min	120 drops/min

**Epinephrine:** 1 mg in 250 ml Normal Saline = 4 micrograms/ml

Infusion Rate	Admin Set: 10 drops/ml	Admin Set: 15 drops/ml	Admin Set: 60 drops/ml
1 microgram/min	2.5 drops/min	3.5 drops/min	15 drops/min
2 micrograms/min	5 drops/min	7 drops/min	30 drops/min
4 micrograms/min	10 drops/min	15 drops/min	60 drops/min
6 micrograms/min	15 drops/min	22 drops/min	90 drops/min
8 micrograms/min	20 drops/min	30 drops/min	120 drops/min
10 micrograms/min	25 drops/min	37 drops/min	150 drops/min

**Magnesium:** 2 gm in 100 ml Normal Saline = 20 mg/ml

Infusion Rate (over 20 min)	Admin Set: 10 drops/ml	Admin Set: 15 drops/ml
5 ml/min	50 drops/min	75 drops/min

**Dopamine:** 400 mg in 250 ml Normal Saline = 1600 micrograms/ml

Infusion Rate (micrograms/kg/min)	Weight in kilograms											
	50	55	60	65	70	75	80	85	90	95	100	105
5	9	10	11	12	13	14	15	16	17	18	19	20
10	18	20	22	24	26	28	30	32	34	36	38	39
15	28	31	34	37	39	42	45	48	51	53	56	59
20	38	41	45	49	53	56	60	64	68	71	75	79

Drip rates/min, using a 60 drops/ml administration set

## Medications

### Adenosine (Adenocard)

**Class:** Antiarrhythmic

**Actions:** slows AV conduction

**Indications:** symptomatic PSVT (Narrow Complex Tachycardia)

**Contraindications:** second- or third-degree heart block, sick-sinus syndrome, known hypersensitivity to the drug.

**Precautions:** Arrhythmias, including blocks, are common at the time of cardioversion. Use with caution in patients with asthma.

**Side Effects:** Facial flushing, headache, shortness of breath, dizziness, and nausea.

**Dosage:** 6 mg given as a rapid IV bolus over a 1-2 second period; if, after 1-2 minutes, cardioversion does not occur, administer a 12-mg dose over 1-2 seconds.

**Routes:** IV; should be administered directly into a vein or into the medication administration port closest to the patient and followed by flushing of the line with IV fluid.

**Pediatric Dosage:** Safety in children has not been established.

### Amiodarone (Cordarone)

**Class:** Antiarrhythmic

**Actions:**

**Indications:** Recurrent V-Fib, Unstable V-Tach

**Contraindications:** First, second- or third-degree heart block, sick-sinus syndrome, cardiogenic shock, known hypersensitivity to the drug.

**Precautions:** Blood Pressure, Heart Rate and QTc should be monitored closely

**Side Effects:** Phlebitis, Hypotension, PR and QT interval prolongation AV Block.

**Dosage:** Arrest: 300mg IV/IO push in 20 CC NS followed by ONE 150mg push in 3-5 minutes. Arrhythmias: 150mg IV over 10 minutes, may repeat in 10 minutes.

**Routes:** IV/IO.

**Pediatric Dosage:** 5mg/kg IV/IO over 20 minutes. (150mg in 100cc = 1.5mg/ml)

### Albuterol (Proventil) (Ventolin)

**Class:** Sympathomimetic ( $\beta_2$  selective)

**Actions:** Bronchodilation

**Indications:** Asthma reversible bronchospasm associated with COPD

**Contraindications:** Known hypersensitivity to the drug, symptomatic tachycardia

**Precautions:** Blood pressure, pulse, and EKG should be monitored use caution in patients with known heart disease

**Side Effects:** Palpitations, anxiety, headache, dizziness, and sweating

**Dosage:** *Metered Dose Inhaler:* 1-2 sprays (90 micrograms per spray)

*Small-Volume Nebulizer:* 0.5 ml (2.5 mg) in 2.5 ml normal saline over 5-15 minutes

**Routes:** Inhalation

**Pediatric Dosage:** 0.15 mg (0.03 ml)/kg in 2.5 ml normal saline by small volume nebulizer

## Aspirin (Bufferin)

**Class:** Platelet inhibitor/anti-inflammatory.

**Actions:** Blocks platelet aggregation.

**Indications:** New-onset chest pain suggestive of MI signs and symptoms suggestive or recent CVA.

**Contraindications:** Patients with history of hypersensitivity to the drug.

**Precautions:** GI bleeding and upset.

**Side Effects:** Heartburn, nausea and vomiting, wheezing.

**Dosage:** 150-325 mg PO or chewed.

**Routes:** PO.

**Pediatric Dosage:** not recommended.

---

## Atropine

**Class:** Parasympatholytic (anticholinergic).

**Actions:** Blocks acetylcholine receptors, increases heart rate, and decreases gastrointestinal secretions.

**Indications:** Hemodynamically-significant bradycardia, hypotension secondary to bradycardia, asystole, organophosphate poisoning.

**Contraindications:** None when used in emergency situations.

**Precautions:** Dose of 0.04 mg/kg should not be exceeded except in cases of organophosphate poisonings, tachycardia, and hypertension.

**Side Effects:** Palpitations and tachycardia, headache, dizziness, and anxiety, dry mouth, pupillary dilation, and blurred vision, urinary retention (especially older males).

**Dosage:** Bradycardia: 0.5 mg every 5 minutes to maximum of 0.04 mg/kg.

Asystole: 1 mg.

Organophosphate poisoning: 2-5 mg.

**Routes:** IV, ET (ET dose is 2 - 2.5 times IV dose).

**Pediatric Dosage:** Bradycardia: 0.02 mg/kg

Maximum single dose (child 0.5 mg) (adolescent 1.0 mg)

Maximum total dose (child 1.0 mg) (adolescent 2.0 mg)

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## Dextrose 50%

**Class:** Carbohydrate.

**Actions:** Elevates blood glucose level rapidly.

**Indications:** Hypoglycemia.

**Contraindications:** None in the emergency setting.

**Precautions:** A blood sample should be drawn before administering 50% dextrose.

**Side Effects:** Local venous irritation.

**Dosage:** 25 grams (50 ml).

**Routes:** IV.

**Pediatric Dosage:** 0.5 g/kg slow IV; should be diluted 1:1 with sterile water to form a 25% solution.

## Diazepam (Valium)

**Class:** Tranquilizer (Benzodiazepine).

**Actions:** Anticonvulsant, skeletal muscle relaxant, sedative.

**Indications:** Generalized seizures, status epilepticus, premedication before cardioversion, skeletal muscle relaxant, acute anxiety states.

**Contraindications:** Patients with a history of hypersensitivity to the drug.

**Precautions:** Can cause local venous irritation. Has short duration of effect. Do not mix with other drugs because of possible precipitation problems.

**Side Effects:** Drowsiness, hypotension, respiratory depression, apnea.

**Dosage:** Status epilepticus: 5-10 mg IV.

Acute anxiety: 2-5 mg IM or IV.

Premedication before cardioversion: 5-15 mg IV.

**Routes:** IV (care must be taken not to administer faster than 1 ml/min)

IM rectal.

**Pediatric Dosage:** Status epilepticus: 0.1 - 0.2 mg/kg.

## Diphenhydramine (Benadryl)

**Class:** Antihistamine.

**Actions:** Blocks histamine receptors, has some sedative effects.

**Indications:** Anaphylaxis, allergic reactions, Dystonic reactions due to phenothiazines.

**Contraindications:** Asthma, nursing mothers.

**Precautions:** Hypotension.

**Side Effects:** Sedation, dries bronchial secretions, blurred vision, headache, palpitations.

**Dosage:** 25-50 mg.

**Routes:** Slow IV push deep IM.

**Pediatric Dosage:** 2-5 mg/kg.

---

## Dopamine (Intropin)

**Class:** Sympathomimetic.

**Actions:** Increases cardiac contractility, causes peripheral vasoconstriction.

**Indications:** Hemodynamically significant hypotension (systolic BP of 70-100 mmhg) not resulting from hypovolemia, cardiogenic shock.

**Contraindications:** Hypovolemic shock where complete fluid resuscitation has not occurred.

**Precautions:** Should not be administered in the presence of severe tachyarrhythmias. Should not be administered in the presence of ventricular fibrillation, ventricular irritability. Beneficial effects lost when dose exceeds 20 µg/kg/min.

**Side Effects:** Ventricular tachyarrhythmias, hypertension, palpitations.

**Dosage:** 2-20 µg/kg/minute. Start low and increase as needed.

Method: 400 mg should be placed in 250 ml of NS giving a concentration of 1600 µg/ml.

**Routes:** IV drip only.

**Pediatric Dosage:** 2-20 µg/kg/minute.

## Epinephrine 1:1,000

**Class:** Sympathomimetic.

**Actions:** Bronchodilation.

**Indications:** Bronchial asthma, exacerbation of COPD, allergic reactions.

**Contraindications:** Patients with underlying cardiovascular disease, hypertension, pregnancy, patients with tachyarrhythmias.

**Precautions:** Should be protected from light. Blood pressure, pulse, and EKG must be constantly monitored.

**Side Effects:** Palpitations and tachycardia, anxiousness, headache, tremor.

**Dosage:** 0.3-0.5 mg.

**Routes:** Subcutaneous (IV and ET for pediatric cardiac arrest).

**Pediatric Dosage:** 0.01 mg/kg up to 0.3 mg.

---

## Epinephrine 1:10,000

**Class:** Sympathomimetic.

**Actions:** Increases heart rate and automaticity.

Increases cardiac contractile force.

Increases myocardial electrical activity.

Increases systemic vascular resistance.

Increases blood pressure.

Causes Bronchodilation.

**Indications:** Cardiac arrest, anaphylactic shock severe reactive airway disease.

**Contraindications:** Epinephrine 1:10,000 is for intravenous or endotracheal use; it should not be used in patients who do not require extensive resuscitative efforts.

**Precautions:** Should be protected from light. Can be deactivated by alkaline solutions.

**Side Effects:** Palpitations, anxiety, tremulousness, nausea and vomiting.

**Dosage:** cardiac arrest: 0.5-1.0 mg repeated every 3-5 minutes.

severe anaphylaxis: 0.3-0.5 mg (3-5 ml); occasionally and Epinephrine drip is required.

**Routes:** IV, IV drip, ET.

**Pediatric Dosage:** 0.01 mg/kg initially. Subsequent doses, Epinephrine 1:1,000 should be used at a dose of 0.1 mg/kg.

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## Furosemide (Lasix)

**Class:** Potent diuretic.

**Actions:** Inhibits reabsorption of sodium chloride, promotes prompt diuresis, vasodilation.

**Indications:** Congestive heart failure, pulmonary edema.

**Contraindications:** Pregnancy, dehydration.

**Precautions:** Should be protected from light, dehydration.

**Side Effects:** Few in emergency usage.

**Dosage:** 40-80 mg.

**Routes:** IV.

**Pediatric Dosage:** 1 mg/kg.

## Glucagon

**Class:** Hormone (antihypoglycemic agent).

**Actions:** Causes breakdown of glycogen to glucose.

Inhibits glycogen synthesis.

Elevates blood glucose level.

Increases cardiac contractile force.

Increases heart rate.

**Indications:** Hypoglycemia.

**Contraindications:** Hypersensitivity to the drug.

**Precautions:** Only effective if there are sufficient stores of Glycogen within the liver. Use with caution in patients with cardiovascular or renal disease. Draw blood glucose before administration.

**Side Effects:** Few in emergency situations.

**Dosage:** 0.25-0,50 mg (unit) IV 1.0 mg, IM.

**Routes:** IV, IM.

**Pediatric Dosage:** 0.03 mg/kg.

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## Ipratropium (Atrovent)

**Class:** Anticholinergic.

**Actions:** Causes bronchodilation, dries respiratory tract secretions.

**Indications:** Bronchial asthma, reversible bronchospasm associated with chronic bronchitis and emphysema.

**Contraindications:** Patients with history of hypersensitivity to the drug, should not be used as primary agent in acute treatment of bronchospasm.

**Precautions:** Blood pressure, pulse, and EKG must be constantly monitored.

**Side Effects:** Palpitations, dizziness, anxiety, tremors, headache, nervousness, dry mouth.

**Dosage:** Small-volume nebulizer: 500 µg should be placed in small volume nebulizer (typically administered with a β agonist).

**Routes:** Inhalation only.

**Pediatric Dosage:** Safety in children has not been established.

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## Labetalol (Trandate) (Normodyne)

**Class:** Sympathetic blocker.

**Actions:** Selectively blocks  $\gamma_1$  receptors and nonselectively blocks  $\beta$  receptors.

**Indications:** Hypertensive crisis.

**Contraindications:** Bronchial asthma, congestive heart failure, heart block, bradycardia, cardiogenic shock.

**Precautions:** Blood pressure, pulse, and EKG must be constantly monitored. [Atropine](#) and transcutaneous pacing should be available.

**Side Effects:** Bradycardia, heart block, congestive heart failure, bronchospasm, postural hypotension.

**Dosage:** Method 1: 20 mg by slow IV infusion over 2 minutes; doses of 40 mg can be repeated in 10 minutes until desired supine blood pressure is obtained or until 300 mg of the drug has been given.

Method 2: 200 mg placed in 500 ml d5w to deliver 2 mg/minute.

**Routes:** IV infusion or slow IV bolus as described earlier.

**Pediatric Dosage:** Safety in children has not been established.

## Lidocaine (Xylocaine)

**Class:** Antiarrhythmic.

**Actions:** Suppresses ventricular ectopic activity, increases ventricular fibrillation threshold, reduces velocity of electrical impulse through conductive system.

**Indications:** Malignant PVCs, ventricular tachycardia, ventricular fibrillation, prophylaxis of arrhythmias associated with acute myocardial infarction and thrombolytic therapy, premedication prior to rapid sequence induction.

**Contraindications:** High-degree heart blocks, PVCs in conjunction with bradycardia.

**Precautions:** Dosage should not exceed 300 mg/hr. Monitor for CNS toxicity. Dosage should be reduced by 50% in patients older than 70 years of age or who have liver disease in cardiac arrest, use only bolus therapy.

**Side Effects:** Anxiety, drowsiness, dizziness, and confusion, nausea and vomiting, convulsions, widening of QRS.

**Dosage:** Bolus: Initial bolus of 1.5 mg/kg; additional boluses of 0.5 - 0.75 mg/kg can be repeated at 8-10-minute intervals until the arrhythmia has been suppressed or until 3 mg/kg of the drug has been administered; reduce dosage by 50% in patients older than 70 years of age.

Drip: after the arrhythmia has been suppressed a 2-4 mg/minute infusion may be started to maintain adequate blood levels.

**Routes:** IV bolus, IV infusion.

**Pediatric Dosage:** 1 mg/kg.

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## Magnesium Sulfate

**Class:** Anticonvulsant/Antiarrhythmic.

**Actions:** CNS depressant, anticonvulsant, antiarrhythmic.

**Indications:** Obstetrical eclampsia (toxemia of pregnancy), pre-eclampsia/PIH, cardiovascular severe refractory ventricular fibrillation, pulseless ventricular tachycardia, post-MI as prophylaxis for arrhythmias, torsades de pointes (multi-axial ventricular tachycardia).

**Contraindications:** Shock, heart block.

**Precautions:** Caution should be used in patients receiving digitalis. Hypotension. [Calcium Chloride](#) should be readily available as an antidote if respiratory depression ensues. Use with caution in patients in renal failure.

**Side Effects:** Respiratory depression, drowsiness.

**Dosage:** 1-4 g.

**Routes:** IV, IM.

**Pediatric Dosage:** Not indicated.

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## Midazolam (Versed)

**Class:** Benzodiazepine tranquilizer.

**Actions:** Hypnotic, sedative.

**Indications:** Premedication prior to cardioversion/RSI, acute anxiety states.

**Contraindications:** Patients with known hypersensitivity to the drug, narrow-angle glaucoma, shock.

**Precautions:** Emergency resuscitation equipment should be available. [Flumazenil \(Romazicon\)](#) should be available. Dilute with normal saline or D5W prior to intravenous administration. Respiratory depression more common with Midazolam than with other Benzodiazepines.

**Side Effects:** Drowsiness, hypotension, amnesia, respiratory depression, apnea.

**Dosage:** 1.0- 2.5 mg IV. See dosage chart for MAD usage

**Routes:** IV, IM, IN.

**Pediatric Dosage:** 0.03 mg/kg.

## Morphine

**Class:** Narcotic.

**Actions:** CNS depressant, causes peripheral vasodilation, decreases sensitivity to pain.

**Indications:** Severe pain, pulmonary edema.

**Contraindications:** Head injury, volume depletion undiagnosed abdominal pain, patients with history of hypersensitivity to the drug.

**Precautions:** Respiratory depression (Narcan should be available), hypotension, nausea.

**Side Effects:** Dizziness, altered level of consciousness.

**Dosage:** IV: 2-5 mg followed by 2 mg every few minutes until the pain is relieved or until respiratory depression ensues.

IM: 5-15 mg based on patient weight.

**Routes:** IV, IM.

**Pediatric Dosage:** 0.1-0.2 mg/kg IV.

## Naloxone (Narcan)

**Class:** Narcotic antagonist.

**Actions:** Reverses effects of narcotics.

**Indications:**

- Narcotic overdoses including the following: Codeine, Demerol, Dilaudid, Fentanyl, Heroin, Lortabs, Methadone, Morphine, Paregoric, Percodan, Tylox, Vicodin, synthetic analgesics,
- Overdoses including the following: Darvon, Nubain, Stadol, Talwin, alcoholic coma,
- To rule out narcotics in coma of unknown origin.

**Contraindications:** Patients with a history of hypersensitivity to the drug.

**Precautions:** Should be administered with caution to patients dependent on narcotics as it may cause withdrawal effects. Short-acting, should be augmented every 5 minutes.

**Side Effects:** none.

**Dosage:** 1-2 mg for IN administration 1 mg should be administered in each nostril

**Routes:** IV, IM, IN.

ET (ET dose is 2.0-2.5 times IV dose).

**Pediatric Dosage:** < 5 years old > 5 years old 0.1 mg/kg 2.0 mg.

## Nitroglycerin

**Class:** Antianginal.

**Actions:** Smooth-muscle relaxant, decreases cardiac work, dilates coronary arteries, dilates systemic arteries.

**Indications:** Angina pectoris, chest pain associated with myocardial infarction.

**Contraindications:** Hypotension.

**Precautions:** Constantly monitor vital signs. Syncope can occur.

**Side Effects:** Dizziness, hypotension, headache.

**Dosage:** One tablet administered under the tongue; may be repeated in 10-15 minutes; no more than three tablets in a 15-minute period; spray should not be inhaled.

**Routes:** Sublingual

**Pediatric Dosage:** Not indicated.

## Oxygen (O<sub>2</sub>)

**Class:** gas.

**Actions:** Necessary for cellular metabolism.

**Indications:** Hypoxia.

**Contraindications:** None.

**Precautions:** Use cautiously in patients with COPD, humidify when providing high-flow rates.

**Side Effects:** Drying of mucous membranes.

**Dosage:** Cardiac arrest: 100%.

Other critical patients: 100%.

Titrate to O<sub>2</sub> Saturation of 95% or higher.

**Routes:** Inhalation.

**Pediatric Dosage:** 24-100% as required

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## Promethazine (Phenergan)

**Class:** Antihistamine (h<sub>1</sub> antagonist).

**Actions:** Mild anticholinergic activity, antiemetic, potentiates actions of analgesics.

**Indications:** Nausea and vomiting, motion sickness, to potentiate the effects of analgesics, sedation.

**Contraindications:** Comatose states, patients who have received a large amount of depressants (including alcohol).

**Precautions:** Avoid accidental intra-arterial injection.

**Side Effects:** May impair mental and physical ability, drowsiness.

**Dosage:** 25 mg.

**Routes:** IV.

**Pediatric Dosage:** 0.5 mg/kg.

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## Sodium Bicarbonate

**Class:** Alkalinizing agent.

**Actions:** Combines with excessive acids to form a weak volatile acid, increases pH.

**Indications:** Late in the management of cardiac arrest, if at all, tricyclic antidepressant overdose, severe acidosis refractory to hyperventilation.

**Contraindication:** Alkalotic states.

**Precautions:** Correct dosage is essential to avoid overcompensation of pH. Can deactivate catecholamines. Can precipitate with calcium preparations. Delivers large sodium load.

**Side Effects:** Alkalosis.

**Dosage:** 1 mEq/kg initially followed by 0.5 mEq/kg every 10 minutes as indicated by blood gas studies.

**Routes:** IV.

**Pediatric Dosage:** 1 mEq/kg initially followed by 0.5 mEq/kg every 10 minutes.

## Succinylcholine (Anectine)

**Class:** Neuromuscular blocking agent (depolarizing).

**Actions:** Skeletal muscle relaxant, paralyzes skeletal muscles including respiratory muscles.

**Indications:** To achieve paralysis to facilitate endotracheal intubation.

**Contraindications:** Patients with known hypersensitivity to the drug.

**Precautions:** Should not be administered unless persons skilled in endotracheal intubation are present. Endotracheal intubation equipment must be available. Oxygen equipment and emergency resuscitative drugs must be available. Paralysis occurs within 1 minute and lasts for approximately 8 minutes.

**Side Effects:** Prolonged paralysis, hypotension, bradycardia.

**Dosage:** 1-1.5 mg/kg (40-100 mg in an adult).

**Routes:** IV.

**Pediatric Dosage:** 1 mg/kg.

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## Thiamine (Vitamin B1)

**Class:** Vitamin.

**Actions:** Allows normal breakdown of glucose.

**Indications:** Coma of unknown origin, alcoholism, delirium tremens.

**Contraindications:** None in the emergency setting.

**Precautions:** Rare anaphylactic reactions have been reported.

**Side Effects:** Rare, if any.

**Dosage:** 100 mg.

**Routes:** IV, IM.

**Pediatric Dosage:** Rarely indicated.

**Matagorda County EMS**

**EMT-Basic Approved for Sub-Q Epi Administration**

**Matagorda County EMS**

Employee	State ID #	Certification
Cox, Frank	TX: 163035	EMT Basic
Cruz, Celestina	TX: 706765	EMT Basic
De La O, Ana	TX: 700601	EMT Basic
Gibbs, Teresa	TX: 158517	EMT Basic
Goodman, Jodie	TX: 703457	EMT Basic
Kiddy, Michael	TX: 702871	EMT Basic
Parrott, Brenda	TX: 148060	EMT Basic
Popp, Cody	TX: 174199	EMT Basic
Salazar, Joann	TX: 168298	EMT Basic

**Date Effective: 04/01/2009**

**Date Expires: 03/31/2010**

**Authorized by:**

