Common EMS Treatment Guidelines

Developed by the
County Wide Protocol Committee
Lee County Florida
2010 (2010 Rev. 03.0) Update

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PARTICIPATING AGENCIES

	Level of Service Provided
Alva Fire and Rescue	BLS / Non Transport
Bayshore Fire Protection and Rescue Service District	BLS / Non Transport
Boca Grande Fire Control District	BLS / Non Transport
Bonita Springs Fire Control and Rescue District	ALS / Non Transport
Captiva Fire Control District	BLS / Non Transport
Cape Coral Fire, Rescue and Emergency Management Services	ALS / Non Transport
City of Fort Myers Fire Department	ALS / Non Transport
Estero Fire and Rescue District	ALS / Non Transport
Fort Myers Beach Fire Rescue EMS	ALS / Transport
Fort Myers Shores Fire and Rescue Control District	BLS / Non Transport
Iona McGregor Fire District	ALS / Non Transport
Lee County EMS	ALS / Transport
Lee County Airport Rescue and Fire Fighting	BLS / Non Transport
Lehigh Acres Fire Control District	ALS / Transport
Matlacha Pine Island Fire Control District	BLS / Non Transport
North Fort Myers Fire Control and Rescue District	BLS / Non Transport
San Carlos Park Fire Protection and Rescue District	ALS / Non Transport
Sanibel Fire and Rescue District	ALS / Non Transport
South Trail Fire Protection and Rescue District	ALS / Non Transport
Tice Fire and Rescue District	BLS / Non Transport
Upper Captiva Fire and Rescue District	BLS / Non Transport
Useppa Island Fire Department	BLS / Non Transport

TABLE OF CONTENTS

Section I: General Medical Guidelines

INTENT AND USE OF GUIDELINES

These medical treatment Guidelines have been developed as a part of the medical direction program for Emergency Medical Services (EMS) in Lee County, Florida. The treatment Guidelines have been designed as clinical guides, not as educational documents.

Some patients may require therapy not specified herein. The treatment Guidelines should not be construed as prohibiting such flexibility. The EMT-Basic or Paramedic must use his / her judgment in administering treatment in the following manner:

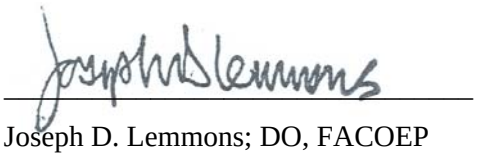
- The EMT-Basic, or Paramedic may determine that no specific treatment is needed; or
- The EMT-Basic, or Paramedic may consult medical direction before initiating any specific treatment; or
- The EMT-Basic or Paramedic may follow the appropriate treatment Guideline and then consult medical direction.

The Guidelines outline care for a typical case. As the Guideline continues, the assumption is usually made that previous steps were ineffective. For example, when treating a patient in ventricular fibrillation, the V-Fib Guidelines would be followed. If the patient's rhythm changed to PEA, then the PEA Guidelines would be followed. In this or other situations where a change is made to a different Guideline during the course of care, the paramedic's judgment must determine where entry into the new Guideline sequence is appropriate. It would be impractical to write Guidelines that specify every possible sequence of events. **The order of treatment listed may not be appropriate for all situations. In fact, not all treatment options may be indicated in every situation.** The paramedic's judgment must be relied upon to determine which of the authorized treatment procedures are appropriate for a given situation.

All patients who receive ALS care should be transported to the hospital, unless the patient refuses transport and signs a release. Contact with the receiving hospital emergency department is required for all patients transported, even in situations where ALS care has not been initiated. This policy is intended to provide emergency departments with sufficient notification of incoming patients to allow appropriate preparations to be made. Direct contact with the physician in the emergency department need only be made when seeking consultation.

Each and every patient responded to is to have Trip Sheet / Patient Care Report appropriately completed.

Finally, it is to be noted that ALS Non-transport units may not necessarily carry out certain procedures and treatment modalities as listed herein as compared to ALS transport units.



January 7, 2010

Joseph D. Lemmons; DO, FACOEP — Date

Medical Director

INTRODUCTION TO ADULT INITIAL ASSESSMENT AND MANAGEMENT

Guidelines in Section I pg. 4 (Adult Initial Assessment) and Section I pg. 6 (Pediatric Initial Assessment) are designed to guide the EMT-Basic or Paramedic in his or her initial approach to assessment and management of adult and pediatric patients. The Pediatric Initial Assessment Guideline should be used for infant and pediatric patients. The care is specified as **EMT-Basic and Paramedic** (BLS) and **Paramedic Only** (ALS).

- Adult: An individual greater than 8 years of age or greater than 40kg.
- Pediatric: An individual between 1-8 years of age or between 10-40 kg.
- Infant: An individual between 28 days-1 year of age or between 5-10 kg.
- Neonate: An individual from birth-28 days of age or less than 5 kg.

Adult Initial Assessment should be used on all adult patients for initial assessment. During this assessment, if the EMT-Basic or Paramedic determines that there is a need for airway management; Airway Management Guideline should be used for the management of the airway. These Guidelines are frequently referred to by other Guidelines, which may or may not override them in recommending more specific therapy.

Medical Supportive Care guideline (Section I pg. 12) presents the basic components of preparation for transport of medical patients. Due to the significant differences in priorities and packaging in the pre-hospital care of trauma and hypovolemia cases, a separate Trauma Supportive Care Guideline has been developed. After following Adult Initial Assessment Guideline, the Medical Supportive Care Guideline or Trauma Supportive Care Guideline may be the only Guideline used in medical emergency situations where a specific diagnostic impression and choice of additional Guideline(s) cannot be made. Judgment must be used in determining whether patients require ALS or BLS level care. This Guideline is frequently referred to by other Guidelines, which may or may not override it in recommending more specific therapy.

ADULT INITIAL ASSESSMENT

EMT-BASIC AND PARAMEDIC

Scene Size-up

A. Review of Dispatch Information.

B. Assess Need for Body Substance Isolation.

C. Assessment of Scene Safety.

D. Determine Mechanism of Injury / Nature of illness

E. Determine Number and Location of Patients.

F. Determine Need for Additional Resources.

2. Initial Assessment

A. General Impression of Patient.

B. Assess Mental Status (AVPU) – Maintain Spinal Immobilization PRN.

C. Chief Complaint

D. Assess Airway.

E. Assess Breathing.

F. Assess Circulation – Pulse, Major Bleeding, Skin Color and Temperature.

G. Assess Disability – Movement of Extremities / Defibrillation – VF / VT without pulse.

H. Expose and Examine Head, Neck, Chest, Abdomen, and Pelvis (Check back when patient is rolled on side).

I. Identify Priority Patients.

- Priority I – Indicates an unstable ALS patient.
- Priority II – Indicates a stable ALS patient.
- Priority III – Indicates a BLS patient.

3. **Initial Management** (see Adult / Pediatric Medical Supportive Care Guideline and Trauma Supportive Care Guideline)

4. Secondary Assessment

A. Conduct a Head-to-Toe Survey.

B. Neurological Assessment.

C. Pupillary Response.

D. Glasgow Coma Score.

E. Assess Vital Signs.

F. Respirations.

G. Pulse.

H. Blood Pressure.

I. Capillary Refill.

J. Skin Condition.

- Color.
- Temperature.
- Moisture.
- Lung sounds.

5. Obtain a Medical History.

A. **S** - Symptoms - Assessment of Chief Complaint.

- O – Onset and Location.
- P – Provocation.
- Q – Quality.
- R – Radiation.
- R – Referred.
- R – Relief.
- S – Severity.
- T – Time.

B. **A** - Allergies.

C. **M** - Medications.

D. **P** - Past Medical History.

E. **L** - Last Oral Intake.

F. **E** - Events Leading to Illness or Injury.

6. Other Assessment Techniques

A. Cardiac Monitoring.

B. Pulse Oximetry.

C. Capnography

D. Glucose Determination. (Accucheck)

E. Monitor Body Temperature.

PEDIATRIC INITIAL ASSESSMENT

EMT-BASIC, AND PARAMEDIC

1. Scene Size-up
    A. Review of Dispatch Information.
    B. Assess Need for Body Substance Isolation.
    C. Assessment of Scene Safety.
    D. Determine Mechanism of Injury / Nature of Illness.
    E. Determine Number and Location of Patients.
    F. Determine Need for Additional Resources.
    G. Note Anything Suspicious at the Scene – Medications, Household Chemicals, Ill Family Members.
    H. Assess any Discrepancies between History and Patient Presentation.
2. Initial Assessment
    F. General Impression of Patient (Pediatric Assessment Triangle)
        - Appearance.
        - Work of Breathing.
        - Circulation to Skin.
    G. Assess Airway.
    H. Assess Breathing.
    I. Assess Circulation. - Pulse, Major Bleeding, Skin Color, and Temperature.
    J. Assess Disability – Movement of Extremities / Defibrillation, as indicated.
    K. Expose and Examine the Patient as Appropriate Based on Age and Severity of Illness / Injury. Head (fontanel), Neck, Chest, Abdomen, and Pelvis (check back when patient is rolled on side).
    L. Initiate Measures to Prevent Heat Loss.
    M. Identify Priority Patients.
        - Priority I – Indicates an unstable ALS patient.
        - Priority II – Indicates a stable ALS patient.
        - Priority III – Indicates a BLS patient.
3. **Initial Management** (see Medical Supportive Care or Trauma Supportive Care Guideline).
4. Secondary Assessment
    A. Conduct Toe-to-Head Survey.
    B. Neurological Assessment.
        - Pupillary Response.

- Glasgow Coma Scale. (infant)

C. Assess Vital Signs.
   - Respirations.
   - Pulse.
   - Blood Pressure.
   - Capillary Refill.
   - Skin Condition.
     - Color.
     - Temperature.
     - Moisture
     - Lung Sounds

5. Obtain a Medical History.
   A. **S** - Symptoms - Assessment of Chief Complaint.
      - O – Onset and Location.
      - P – Provocation.
      - Q – Quality.
      - R – Radiation.
      - R – Referred.
      - R – Relief.
      - S – Severity.
      - T – Time.

   B. **A** - Allergies.
   C. **M**- Medications.
   D. **P** - Past Medical History.
   E. **L** - Last Oral Intake.
   F. **E** - Events Leading to Illness or Injury.
6. Other Assessment Techniques
   A. Cardiac Monitoring.
   B. Pulse Oximetry.
   C. Capnography
   D. Glucose Determination. (Accucheck)
   E. Monitor Body Temperature.

CORE PRINCIPLE
AIRWAY, VENTILATION, AND OXYGENATION

AIRWAY ADEQUACY

IMPORTANT CONCEPTS IN AIRWAY MANAGEMENT

The assessment and management of a patient's airway is the ***crucial*** initial priority in all circumstances. Usually, this is easily accomplished when faced with a talking, breathing, and coherent patient. Other times it is more difficult to determine if the patient's airway is compromised, ventilatory rate inadequate, or air exchange is poor. Additionally, there may be circumstances when airway adequacy may become rapidly compromised secondary to a disease or injury (i.e., thermal injury to the face or anaphylaxis). When these conditions exist, an airway management approach must be determined rapidly and early airway management must be considered a priority.

The purpose of establishing an adequate airway (or protecting an airway from compromise) is to allow appropriate movement of air to maintain oxygenation and to facilitate elimination of CO_2. There is a significant risk of hypoventilation and hypoxia with any airway intervention. This risk is often overlooked in the "heat of the battle." Sometimes, during the actual procedure, healthcare providers lose sight of the need for basic airway and ventilatory management. As procedural attempts continue, the patient's oxygenation status drastically decreases and their CO_2 dramatically rises. Both of these conditions are associated with significant potential to worsen patient outcome. The practice of pre-oxygenating a patient (creating an oxygen reseviour by nitrogen wash-out) before DAI is specifically to minimize the hypoxia associated with airway procedures.

Hypoxia has been shown to decrease survival from pre-hospital trauma, especially in head injury. Similarly, increases in CO_2 as a result of little or no ventilation (for example, during the time an advanced airway is being attempted) also decreases survival and worsens outcome in head injury patients. If the process of establishing an airway is prolonged (as much as 30 seconds), we may actually make the patient's outcome worse, even though the airway is established.

If attempts at advanced airway placement are difficult or prolonged, an assessment of the adequacy of BLS airway management must be made. It is better to maintain a BLS airway than make repeated or prolonged attempts to establish an advanced airway. All Providers on scene should be aware of periods of no ventilation (during airway management, transport or other circumstances) and make an effort to correct the situation immediately.

In patients that can be ventilated effectively with a BVM, advanced airway attempts should be limited to two (2) in the non-arrested patient. The decision to intubate a patient must ALWAYS be focused on the needs of the patient, availability of equipment, skill of the intubating Provider and possible use of more advanced tools or experienced Providers that are en route to successfully intubate with the fewest number of attempts possible. Repeated unsuccessful attempts to intubate a patient that can be effectively ventilated are harmful. The use or deference of a "Patients" second or third intubation attempt is not a question of pride or failed ability. It is the patient that potentially suffers. It is acceptable (and in many cases expected) for all responders to defer the 2nd or 3rd Intubation attempt to a more experienced Provider as we work as a **team** to secure the airway.

AIRWAY MANAGEMENT APPROACH

Our approach to airway management is extremely important. The best decision on how to manage an airway can be reached by answering the following questions:

- Is the airway being adequately maintained?

- Is there a need to clear the airway?
- Is the airway being protected against aspiration?
- Is ventilation adequate?
- Is oxygenation adequate?
- Is there a condition present, or is there a therapy required that mandates airway adjuncts?
- Do I have the tools to correct this problem?
- Do I have the skills to correct this problem?

Airway procedures should be implemented starting with the least and progressing to the most invasive:

- Manual maneuver (chin lift, jaw thrust, etc.),
- BLS adjuncts (NPA, OPA),
- Cardiac Arrest airway (King LTS-D),
- Orotracheal intubation,
- Rescue airway (LMA Supreme, King LTS-D),
- Surgical / needle cricothyrotomy

If the patient's airway cannot be maintained (i.e., inadequate ventilation), the Provider should immediately consider airway maneuvers (within their scope of practice) as listed above. If unable to establish an advanced airway, return to BLS maneuvers while evaluating the need for a rescue airway. If still unable to maintain adequate ventilation and/or airway protection, proceed to placement of the LMA, King LTS-D or other rescue airway. If STILL unable to ventilate, and the patient would be unlikely to survive, proceed to needle cricothyrotomy for the pediatric patient (10 years of age or less) or surgical cricothyrotomy (over 10 years old).

COMMON SENSE APPROACH TO FACILITATE DIFFICULT AIRWAY MANAGEMENT

- Audibly verbalize the procedure as it is being done (by intubating provider)
- Airway Axis Alignment by head repositioning (occipital / shoulder padding, "ramping", sniffing)
- Consider laryngeal manipulation,
- Change your position,
- Change the blade,
- Change the provider who is intubating (this is often overlooked as a significantly useful approach)
- Re-evaluate the need for an advanced airway versus expedited transport of patient to definitive care with BLS airway management
- Once the airway is established, secure it with tube holder

CONFIRMING AND MONITORING APPROPRIATE ADVANCED AIRWAY PLACEMENT

Once an advanced airway is placed, it is ***crucial*** that all efforts are made to ensure it is definitively placed. **All advanced airway placements must be confirmed by $ETCO_2$ capnography.**

Additionally, it is important to continuously monitor airway placement for changes related to movement or obstruction. It is essential that all advanced airway attempts, as well as confirmation of placement, be documented in the Patient Care Record (PCR) with copies of all monitoring equipment printouts (O_2 saturation and $ETCO_2$) when available.

Confirmation of an appropriately placed advanced airway is multi-faceted and should include:

- Visualizing the placement,
- Auscultating for breath sounds over both lungs and epigastrium,
- Observing for equal chest rise and fall,
- Monitoring $ETCO_2$ (capnography),

- Monitoring pulse oximetry,
- Monitoring changes in vital signs, especially skin color

Once an advanced airway has been established, management of the tube or catheter should be of the highest priority during any patient movement.

- An appropriately sized cervical collar should be applied immediately following successful placement and securing of the airway.
- If patient is to be transported, they should be placed on a backboard and secured.
    - The only exception would be patients who cannot tolerate a supine position (i.e. awake patient in respiratory distress, patient with pulmonary edema, etc.)
- The BVM is to be disconnected from the tube during any transitional movement including
    - Log-rolling patient onto a backboard
    - Moving patient onto a stretcher
    - Loading and unloading from ambulance or helicopter
    - Transfer to the hospital stretcher
    - The tube is to be reassessed following any patient movement

Appropriate demonstration of persistent $ETCO_2$ is the most reliable indicator of tube placement in our assessment toolbox. All advanced airway placement must be confirmed by $ETCO_2$ capnography. Additionally, it is important to continuously monitor tube placement for any changes related to movement or obstruction. Loss of $ETCO_2$ is an immediate indicator of significant change, whether it is loss of tube placement or loss of perfusion. ALL changes in $ETCO_2$ ***must*** be immediately evaluated to determine the reason for change.

VENTILATION / OXYGENATION – ADEQUATE / APPROPRIATE

INTRODUCTION

After it has been confirmed that the patient has a patent airway, the next step is to assess ventilation and oxygenation status. An initial assessment of respiratory rate and depth, skin color, and mental status will give a quick picture of whether the patient is breathing and oxygenating adequately.

Your physical assessment, $ETCO_2$ monitoring, and pulse oximetry provide a very accurate picture of how well the patient is being ventilated and oxygenated.

It is ***crucial*** that all Providers take responsibility for assessing adequate oxygenation and ventilation in every patient. This can be accomplished by monitoring:

- Respiratory rate and depth,
- Skin color,
- Capillary refill,
- Lung sounds,
- Work of breathing,
- Patient position (i.e. Tripod),
- Ability (inability) to maintain secretions,
- Pulse oximetry and $ETCO_2$ monitoring

OXYGENATION AND VENTILATION – THE IMPORTANT RELATIONSHIP

Ventilation is the mechanical aspect of breathing, in which O_2 moves into the lungs and CO_2 (normal by-product of metabolism) moves out of the lungs. Proper ventilation requires both adequate tidal volume (500-600 cc for an adult male) and respiratory rate.

Oxygenation is defined as "the addition of oxygen to any system, including the human body." With ventilation serving as the mechanical means of adding oxygen to the body, the patient must have sufficient oxygen available, and the ability for that oxygen to be utilized (O_2/CO_2 exchange). While ventilatory rate and depth are the key components, there are other factors that can affect whether or not the patient is being adequately oxygenated. Even if ventilation rate and depth are adequate, every patient must be evaluated for the need to have supplemental oxygen delivered and the most appropriate means for that to occur. Considerations in determining a patient's need for supplemental oxygen include:

- Level of consciousness
- Ventilation rate and depth
- Mental status
- Circulatory status
- Skin color
- Chief complaint
- Previous history
- Type of incident

A condition related to a patient's breathing depth and rate that can create uncertainty for Providers is hyperventilation. Because the patient is breathing at an excessive rate and/or depth, he/she expels too much CO_2. The lack of adequate CO_2 causes a drop in the acid levels of arterial blood resulting in a condition called alkalosis. (Simply, the buildup of excess base in the body's fluids) It is the alkalosis that causes many of the symptoms commonly associated with hyperventilation including anxiety, dizziness, numbness, tingling in the hands, feet, and lips, and a sense of difficulty breathing.

Hyperventilation can occur as a response to serious illness or, in a healthy person, as a response to psychological stress. In either case, the key is thorough assessment to identify treatable conditions. All patients suffering from hyperventilation should be given supplemental oxygen, calm reassurance in a professional manner in an effort to normalize their respiratory rate and depth, and be offered transport to the hospital.

When inadequate oxygenation is recognized, it is essential that steps be taken to immediately supplement the patient's oxygen intake. Remember our primary treatment goals for patients suffering from inadequate oxygenation include:

- Preventing or correcting hypoxia
- Normalizing CO_2
- Minimizing the effects of secondary injuries
- Decreasing airway resistance

Once it is determined that supplemental oxygen is required, the question would be "how much?" A truly correct answer can only be reached by thoroughly evaluating your patient's condition and considering the following guidelines:

- Nasal cannula at 2-6 L/min for patients suffering from minor injury or illnesses where lower liter flow is appropriate.
- Non-rebreather at 10-15 L/min (enough to keep reservoir filled) for patients presenting with altered mental status, obvious difficulty breathing, poor skin color, poor circulatory status, possible or confirmed CO Poisoning, etc.
- Bag-valve-mask at 15 L/min or greater (enough to keep reservoir filled) for patients with inadequate ventilation rate and/or depth

VENTILATION RATE AND DEPTH

A common pitfall in ventilation is to over-ventilate the patient by providing too much volume or too fast a rate.

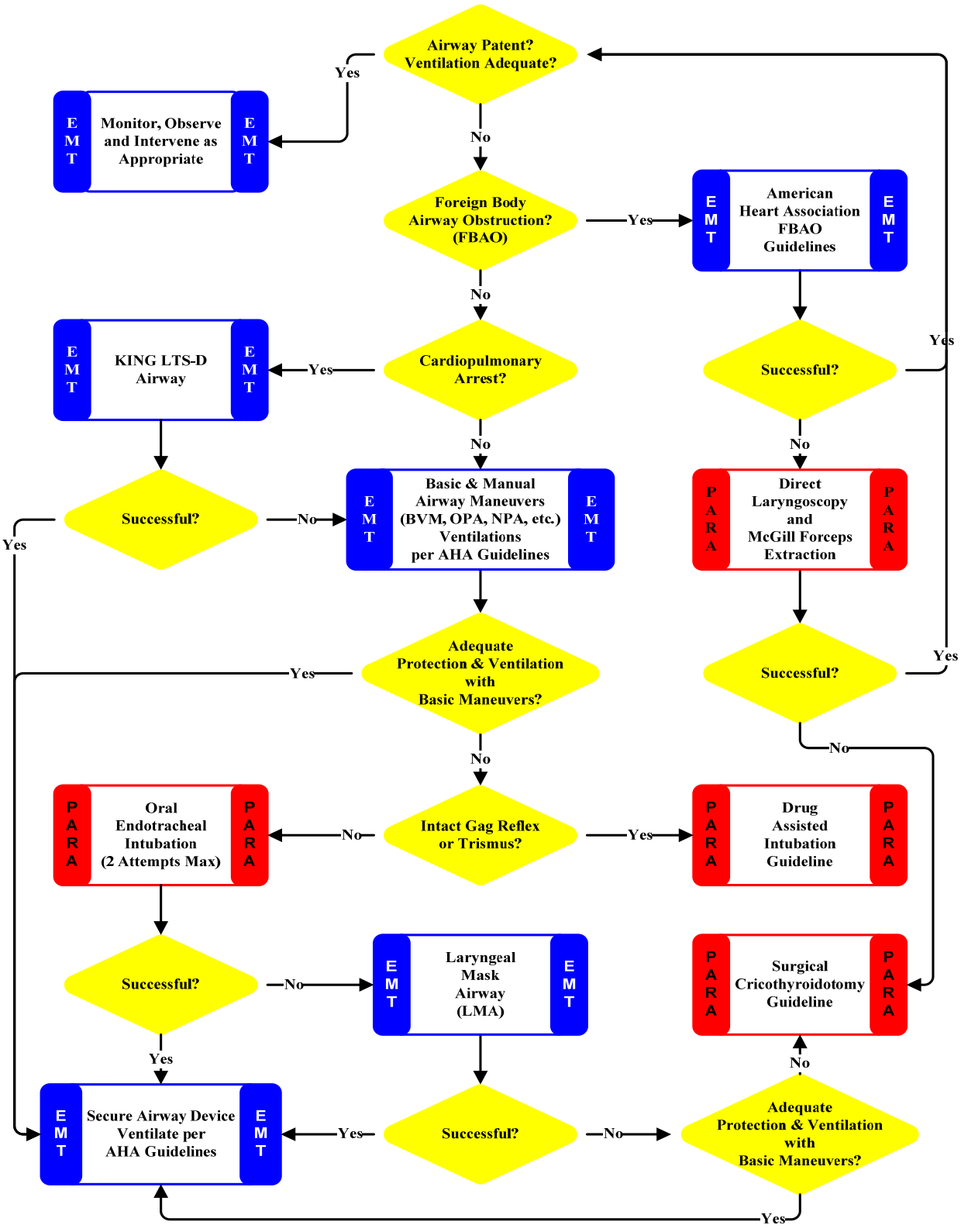
The physics that allow us to move air in and out of the lungs can also have a major impact on blood circulation (one more important inter-relationship between the ABCs). When a normally breathing patient takes in a breath, intrathoracic pressure decreases, allowing air to be "sucked in" due to the resulting pressure differential. This is in contrast to patients that are ventilated with positive pressure (whether intubated, Bag-Valve-Mask or Mouth-to-Mask). In these patients, we INCREASE intrathoracic pressure as we inflate the lungs. In this case, the heart itself is "squeezed" and doesn't fill as well or move blood forward as well. **Overly aggressive ventilation will have a dramatically adverse effect on circulation.** If we don't pay attention to rate and depth, we may actually harm the patient's circulation, drop their blood pressure, and decrease perfusion.

Ventilation depth and rate is variable and driven by the patient's condition. We must be mindful of the volume and rate at which we are ventilating the patient. The majority of adult patients should be ventilated at a rate of 12 breaths per minute (see below). Studies have shown that excessive ventilation rates significantly decreased coronary perfusion pressures and ultimately patient survivability. This is particularly true in cases of cardiac arrest. Each ventilation should be sufficient to create adequate chest rise and be delivered over one second.

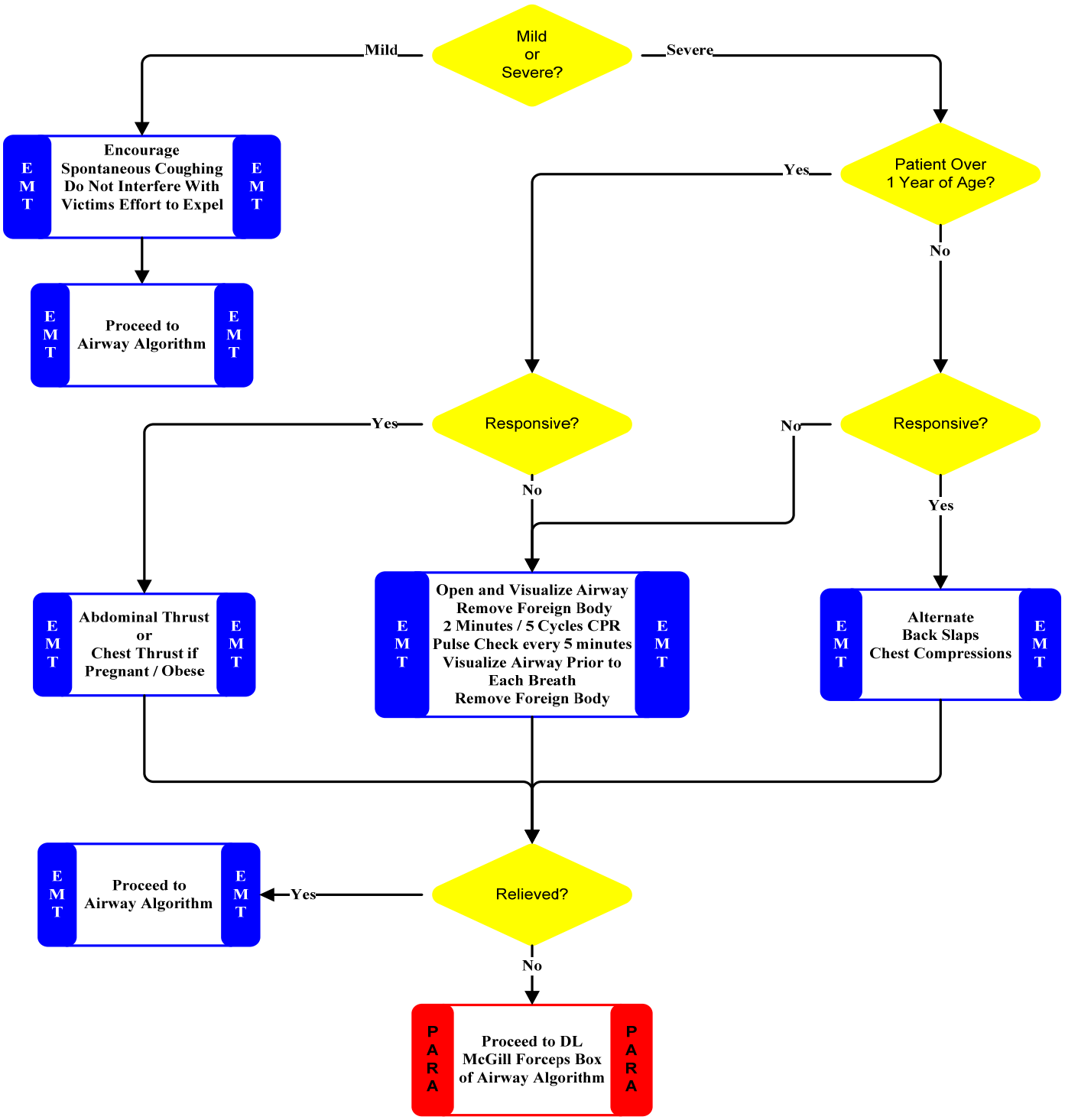
In the absence of $ETCO_2$ and pulse oximetry, rescue breathing (patients with a pulse) should be performed at the following rates

Age Group	Ventilatory Rate
Neonates	40-60 bpm
Infants and Children	12-20 bpm
Adults	10-12 pbm

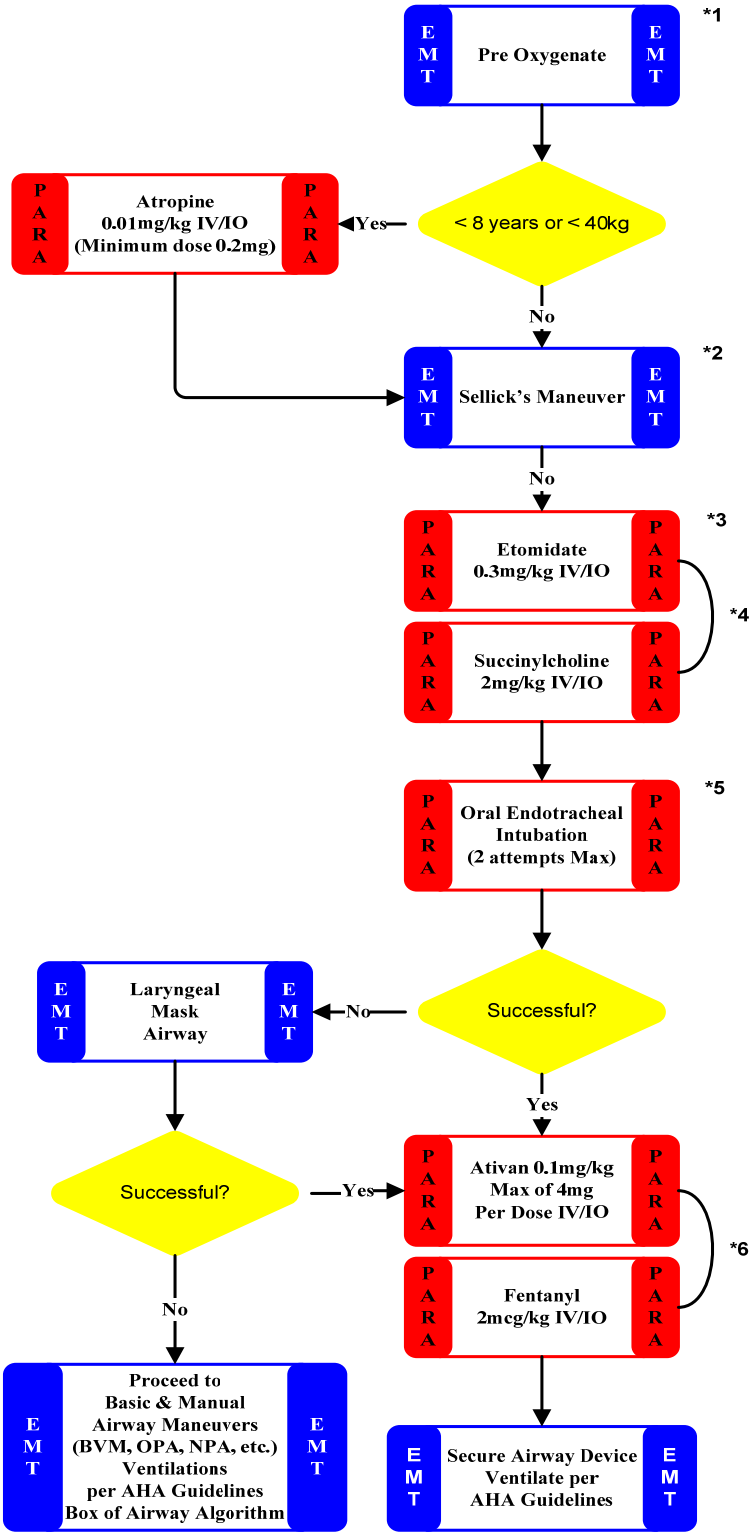
AIRWAY MANAGEMENT



FOREIGN BODY AIRWAY OBSTRUCTION



DRUG ASSISTED INTUBATION



Pearls

*1 - Goals: Avoid gastric insufflation and to promote a nitrogen washout/oxygen reservoir.
*2 - Sellick's Maneuver is maintained until the airway is secured by an advanced airway device (ETT or LMA).
*3 - If Etomidate is contraindicated, administer: Versed 0.05mg/kg IV/IO/IM/IN.
*4 - Sedation/Paralytic phase is done in "rapid sequence", "cocktail" fashion – no pause.
Exception to the Rule: When and if Succinylcholine is contraindicated or otherwise unavailable.
*5 - Lee County subscribes to the "2 and out" intubation principle…
2 intubation attempts (per patient) to yield a successful tracheal intubation.
*6 - Post intubation maintenance is done in "cocktail" fashion – no pause. Sedation and analgesia are administered immediately following confirmation of airway device placement.

- ***Patients should not be permitted to emerge from their induction state.***
- Post intubation agents may be repeated as indicated until desired effect has been achieved or hypotension ensues.
- Be alert for tachycardia, hypertension and tearing - these are hallmark signs of inadequate sedation in the presence and absence of neuromuscular blockers!
- If Ativan is unavailable, administer: Versed 0.05mg/kg IV/IO.
- If Fentanyl is unavailable, administer: Morphine 0.05mg/kg IV/IO.

MEDICAL SUPPORTIVE CARE

EMT-BASIC AND PARAMEDIC

1. Initial Assessment Guideline.
2. Airway Management Guideline.
3. If pulseless, refer to Cardiac Arrest Guideline.

PARAMEDIC ONLY

1. Monitor EKG PRN.
2. Establish IV as indicated.
3. Establish hospital contact for notification of incoming patient and obtaining consultation for additional orders.

NOTES:

1. A minimum of two full sets of V/S should be documented on all patient transports. For any hemodynamically unstable patient V/S should be obtained every 5 minutes and for stable patients every 15 minutes during transport and subsequently documented.
2. Authorized IV routes include all peripheral venous sites.
3. For hypotension, administer a fluid challenge (500ml) of NS or RL. Repeat fluid challenge until desired effect is achieved, monitoring for pulmonary edema before and after each infusion.
4. IV lock or medication access point (MAP) may be used in lieu of an IV bag in some patients, when appropriate. Any patient that will receive IV medications or Nitro SL should have an IV NS infusing to facilitate proper flushing of medications and fluid resuscitation if necessary.
5. When unable to establish an IV in the adult patient that needs to be resuscitated, an intraosseous or central line may be used.

TRAUMA SUPPORTIVE CARE

EMT-BASIC AND PARAMEDIC

1. Initial Assessment Guideline.-Initiate trauma alert, as directed by Trauma Transport Protocol (TTP).
2. Airway Management Guideline (manually stabilize c-spine PRN).
3. Correct any open wound / sucking chest wound (occlusive dressing).
4. Control hemorrhage.
5. Conduct focused history and a trauma physical exam.
6. If mechanism or signs / symptoms of injury suggests injury to the head, neck, thorax, or pelvis, Immobilize patient.
    A. **Sitting Patients** – Immobilization is to be completed using a KED or equivalent device along with a backboard with a minimum of 4 straps.
    B. **Lying or Standing Patients** – Immobilization is to be completed using a backboard with a minimum of 4 straps. In addition an appropriate size extrication collar, if possible, head blocks or an equivalent and tape / kling or equivalent are to be used to immobilize the head.
    C. **Rapid extrication** is only to be completed when:
        - A critical / unstable patient requires rapid transport,
        - A clear danger exists to the rescuer or patient,
        - You must move a stable patient to get access to a critical / unstable patient requiring rapid transport.

PARAMEDIC ONLY

7. Immediately correct any massive flail segment (intubate), tension pneumothorax (chest decompression), and / or cardiac tamponade (pericardiocentesis).
8. Monitor EKG PRN.
9. Perform quick-look EKG if patient is pulseless.
10. Establish IV of Lactated Ringers with appropriate infusion set.
11. Moderate to severe trauma IV/L.R. on a macro drip or a blood solution set and titrate to SBP 100 mmHg in adults and 70-80 mmHg in Peds. Do not attempt to "normalize" the BP. Permissive hypotension helps minimize blood loss until definitive measures are taken by a surgeon.
12. Intravenous access attempts shall not delay transport except when medications are necessary to establish a definitive airway.
13. Second and third lines in transport, if time and conditions allow.

PATIENT RESTRAINT

GENERAL

The use of patient restraints is authorized in all instances where a patient's ***violent*** behavior may jeopardize the safety of the patient or crew. Additionally, restraints may be used when a patient, judged to be incompetent to make rational decisions, exhibits ***violent*** behavior that may disallow necessary medical treatment. This situation falls under the guidelines of implied consent. When the decision to restrain a patient is made, either leather or cloth restraints may be used. Tape may be used on the forearms and lower legs, for additional security when cloth restraints are used on violent patients.

PATIENT POSITIONING

Patients should not be restrained in the supine position when there is a risk of vomiting and aspiration. Any patient under the influence of an intoxicating agent and / or with an AMS, and who is not intubated, should be placed in a head elevated position (if possible) if restraints are deemed necessary. It is understood that there are times when you must restrain a patient while they are supine. Caution is to be used with any patient you are unable to place in a head elevated position, while restraints are in place. This is to include all patients that require restraints and have spinal immobilization measures in place. Be alert and prepared to rotate the backboard to clear the patient's airway, and have suction equipment available and ready for use.

ASSESSMENT AND DOCUMENTATION

When a patient is restrained, the restraints shall be placed only tight enough to secure the extremity without compromising neurovascular function. Distal neurovascular function shall be checked and documented after application and every 10 minutes thereafter. The required test procedures to be followed are:

1. Grip strength-should be equal and strong on most patients.
2. Sensations-both upper and lower extremities should have good sensations, with absence of numbness.
3. Capillary refill-tests performed on both upper and lower extremities must result in a capillary refill time of less than 2 seconds.

The reason for restraining the patient and the results of all the above tests shall be documented on the patient care report. In addition, grip strength, sensation and capillary refill tests are to be performed and the results documented every 10 minutes. In the event of a short transport time, the results of a minimum of 2 sets are to be documented on your patient care report. One set must be completed upon arrival at the receiving facility.

HOSPITAL NOTIFICATION

The receiving facility shall be notified prior to arrival that a violent patient is in restraints and security should be available upon arrival.

REFUSAL OF CARE

POLICY

Any and all individuals that are involved as patients or potential patients should receive proper evaluation, treatment and transportation to the appropriate medical facility. There may be times when this policy may not be carried out due to a refusal of care. Prehospital personnel should utilize the refusal of care procedure in situations in which a patient refuses evaluation, treatment, and / or transportation.

A patient shall be defined as:

ANY INDIVIDUAL WHO ACTIVATES EMS FOR THEMSELVES

ANY INDIVIDUAL WITH AN INJURY OR ILLNESS

ANY INDIVIDUAL WITH A MEDICAL OR TRAUMATIC COMPLAINT

ANY INDIVIDUAL WITH A NEW ALTERED LEVEL OF CONSCIOUSNESS OR AMS

ANY INDIVIDUAL WHERE EMT / PARAMEDIC SUSPECTS INJURY DUE TO MECHANISM

DEFINITIONS

1. Patients ***ABLE*** to Refuse Care.

   A patient can refuse medical care based on the following guidelines:

   A. Capacity to understand - defined by the ability to understand the nature and consequences of their actions by refusing medical care and / or transportation, and

   B. Adult - eighteen (18) years of age or older, or:

   - An emancipated minor (a).
   - A married minor.
   - A legal representative for the patient (parent or guardian).

4. Patients NOT ABLE to Refuse Care.

   A person may be considered incompetent to refuse medical care and / or transportation if the severity of their medical condition prevents them from making an informed, rational decision regarding their medical care. Therefore, they may not refuse medical care and / or transportation based on the following guidelines:

   C. Altered level of consciousness (e.g. head injury or under the influence of alcohol and / or drugs).

   D. Suicide (attempt or verbal threat).

   E. Severely altered vital signs.

   F. Mental retardation and / or deficiency.

   G. Not acting as a "reasonable person would do, given the same circumstances".

   H. Under eighteen (18) years of age (except those outlined in above section - A. 1. b.).

2. Implied Consent.

    A. If a person is determined to be incompetent, they may be treated and transported under an "implied consent" (what the reasonable individual would consent to under the same circumstances).

    B. If the patient is transported and / or treated on the basis of implied consent, field personnel should use reasonable measures to ensure safe transport to the closest appropriate facility.

NOTE *(a)* An Emancipated Minor is a person under the age of 18 who:

- Is female, unmarried, and has a minor child, or
- Is married, or
- Is enlisted in military service, or
- Has been declared emancipated by court order.

An **unmarried minor female who is pregnant** may consent to medical care and treatment relating to her pregnancy. PHI about the pregnancy and any treatment related to it may not be released to anyone without the patient's authorization.

REFUSAL PROCEDURE

This procedure applies in both single and multiple patient situations.

1. Determine the mental status and extent and history of injury, mechanism, or illness.

    A. Ensure that the patient is conscious, alert, oriented and understands (mental reasoning) their condition (patient GCS = 15).

    B. Unless the patient specifically refuses, do a complete physical assessment, including one set of vital signs.

2. Inform the patient and / or responsible party (parent or guardian) of the potential consequences of their decision to refuse treatment and / or transport to a definitive-care facility (loss of life or limb, irreversible sequela), and ensure that the patient and / or responsible party fully understand.
3. All measures should be taken to convince the patient to consent, including enlisting the help of family or friends.
4. If the patient continues to refuse, the patient and / or responsible party may then sign a "Refusal of Care" form. Ensure that the following information is provided:

    A. That the release is against medical advice.

    B. That it applies to this instance only.

    C. That EMS should be requested again if necessary or desired.

5. After the "Refusal of Care" form is signed, it must be witnessed.
6. If the patient or responsible party will not sign the release, then document this on the EMS run report. If available, witness signatures should be obtained.
7. Where it is possible, patients will be left in the care of family, friends, or responsible parties.
8. Carefully document the assessment and vital signs, including all issues and circumstances indicated.

A CALL IS CONSIDERED CANCELLED IF:

- Prior to arrival on scene, dispatch cancels the call.
- After arrival on scene, no patient is found.

SUMMARY:
All patient contact results in either a transport to an ER, or a completed Refusal of Care form.

CONSIDERATIONS FOR PATIENT REFUSING TRANSPORT AFTER TREATMENT

It is the intent of Lee County EMS to transports all patients who have received ALS treatment to a receiving facility. In the event that the patient refuses transport after all attempts are made to convince them of the need for more definitive care, the following conditions should be met in order to not transport:

1. Patient has a history of the illness that initiated the call.
2. Patient has regained baseline mental status.
3. A full ALS / neurological assessment has been completed and documented.
4. Explain the risks / severity of not being transported and offer the benefits of being transported with witnesses.
5. A competent adult family member or friend is with, and will remain with the patient to call for help in the event of a recurrence.
6. Involve EMS Supervision and online medical control as needed for assistance with the above patient.
7. Patient must sign release and have adult family member or friend witness, if possible.
8. Case must be well documented to include evidence that each of the previous requirements has occurred.

LEE COUNTY SCHOOL TRANSPORTATION ACCIDENT WAIVER PROCEDURES

POLICY

Any and all students that are involve as patients or potential patients should receive proper evaluation, treatment and transportation to the appropriate medical facility. There may be times when this policy may not be carried out due to **no injuries, no complaints, and no mechanism of injury that dictates transport to a hospital**. Pre-hospital personnel should utilize the *School District Bus Accident Refusal Form* in situations in which a student meets the above mentioned criteria.

DEFINITIONS

1. Lee County School Transportation Accident-Student Responsibility Affidavit
    - This form shall be copied on yellow paper and shall only be used for the non-transport documentation of children that are occupants of a Lee County School District vehicle.
2. School Administrator
    - A school administrator/representative is dispatched to the scene of all school bus accidents and is responsible for the safety of the children on the bus and assures continued transport to their destination.
    - This is the only person permitted to sign the Student Responsibility Affidavit Form showing that the school board takes back legal custody of students not transported to a hospital.
3. Legal Custodian
    - While a child is an occupant of a Lee County School District vehicle they are in legal custody of the School District.
    - A parent or legal guardian of a student

PROCEDURE

1. Each student and School District employee shall be properly evaluated as per the Lee County Common EMS Treatment Guidelines. Children that have no injuries, no complaints and no mechanism of injury that dictates transport to a hospital may be left with a legal custodian that would include a School District Administrator or an actual parent of the child that arrives on scene.
2. Each student and School District employee shall have a separate EMS Patient Care Report completed documenting the evaluation of that individual.
3. Students that are not transported due to meeting the guidelines listed in Procedure A shall have their names PRINTED on the Lee County School Transportation Accident-Student Responsibility Affidavit.
4. The form must be completely filled out including the bus number and the School board Representative on scene shall print their name and sign the form at the bottom.
5. If multiple busses are involved a separate form for each bus shall be filled out and the appropriate students shall be listed.

ADVANCED DIRECTIVE PREEXISTING CONDITIONS

It is the intent of Lee County Common EMS providers to provide timely and appropriate treatment to all patients who call for assistance. At times, you will encounter a patient with a preexisting condition that may require emergent treatment. These same patients are under the direct care of their supervising physician who has prescribed treatments for these circumstances. If a patient under your care has a prescribed standing order from their physician (i.e.; Medic Alert Bracelet or a File of Life with specific physician instructions), make every effort to accommodate the direction of that order. Before any treatment, you must assure that the right patient receives the right dose of the right drug via the right route, and the medication has not expired. Any treatment that you provide must be within the scope of your training and knowledge. If at any time, you have concern or question related to such treatment, contact online medical control and / or a supervisor. Once any treatment is delivered, every attempt should be made to transport these patients to the most appropriate facility for further evaluation.[i]

DEATH IN FIELD

This Guideline is divided into separate sections that cover the different situations of death in the field that the paramedic will be presented with. All patients found in cardiac arrest will receive cardiopulmonary resuscitation unless an exception is met as outlined in the following sections:

1. Advanced Directives / Do Not Resuscitate Order (DNRO).
2. Determination of Death.
3. Discontinuance of CPR.

I. ADVANCED DIRECTIVES / DO NOT RESUSCITATE ORDER (DNRO).

A. LEGISLATIVE AUTHORITY.

Under Chapter 401.45, Florida Statues (F.S.) "Denial of Emergency Treatment Civil Liability" a competent adult, or an incompetent adult, through health care surrogate who was previously chosen, or proxy or guardian, has the right to be able to control decisions regarding medical care, including the withdrawal or withholding of life-prolonging procedures. This legislation authorizes EMS personnel to honor a prehospital Do Not Resuscitate Order (DNRO). This legislative authority does not include a "Living Will."

B. VALID DO NOT RESUSCITATE ORDERS.

1. An original yellow DNRO DOH Form 1896 executed as required by State Statute (with original signatures).
2. A copy on yellow paper (or similar color to the original) of DNRO DOH Form 1896 executed as required by State Statute (with original signatures).
3. The patient is wearing a bracelet, which identifies the patient and indicates the patient has executed a DNRO in accordance with DOH Form 1896.
    A. In this instance, EMS personnel MUST receive the original DNRO DOH Form 1896, or a copy on yellow paper, that contains original signatures (attach to EMS Run Report).
4. A DNRO document from a licensed health care facility or hospice facility, either the original or a copy. To honor a facility's DNRO it shall:
    A. State that it is a DNRO and provides instructions that the patient is not to be resuscitated in the event of cardiac or respiratory arrest.
    B. Have an effective date, which predates the date the assistance is requested.
    C. Includes the patient's full legal name typed or printed.
    D. Be signed by the patient's attending physician and include the physician's medical license number, telephone number, and date completed
    E. Be signed and dated by the patient if competent or if the patient is incompetent, by the patient's health care surrogate, legal guardian, or proxy.
    F. Be signed and dated by at least two witnesses.
5. Oral orders from non-physician staff members, or telephoned requests from an absent Physician do not adequately assure Paramedics that the proper decision making process has been followed and are NOT acceptable.

C. CONFIRMATION AND DOCUMENTATION.

1. The Paramedic must confirm the identity of the patient with a DNRO through a driver's license, other photo identification, or from a witness in the presence of the patient. If a witness is used to identify the patient, this shall be documented in the EMS Run Report and will include:

    A. The full name of the witness.

    B. The address and telephone number of the witness.

    C. The relationship of the witness to the patient.

II. DETERMINATION OF DEATH.

The EMT or PARAMEDIC may determine that the patient is dead / non-salvageable and decide not to resuscitate the patient under the following guidelines.

1. The patient may be determined to be dead / non-salvageable and will not be resuscitated or transported if all four (4) presumptive signs of death and at least one (1) conclusive sign of death are identified.

    A. The four presumptive signs of death that MUST be present are:

    - Unresponsiveness.
    - Apnea.
    - Pulseless.
    - Fixed pupils.

    B. In addition to the four presumptive signs of deaths, at least one (1) of the following conclusive signs of death that MUST be present:

    - Injuries incompatible with life (e.g. decapitation, massive crush injury, incineration, etc.).
    - Tissue decomposition.
    - Rigor Mortis of any degree with warm air temperature.
        a) Hardening of the muscles of the body, making the joints rigid.
    - Livor Mortis (Lividity) of any degree and / or generalized cyanosis.
        a) Venous pooling of blood in dependent body parts causing purple discoloration of the skin, which does blanch with pressure.

    C. Patients with suspected hypothermia, barbiturate overdose, or electrocution require full ALS resuscitation unless there are injuries incompatible with life or tissue decomposition.

2. A trauma victim who does not meet the "Determination of Death" criteria listed above may be determined to be dead / non-salvageable based on the following criteria:

    A. Pulselessness and apnea associated with:

    - Asystole (confirmed in two leads) and
        a) Blunt trauma arrest, or
        b) Prolonged extrication time (> 15 minutes) where no resuscitative measures can be initiated prior to extrication.
    - Arrest from primary brain injury or with no brain-stem reflexes; arrest from blunt multiple injuries.

- Arrest from blunt injury to torso.

B. Consideration should be given for the possibility of organ harvest; however this should not be the sole reason for resuscitation.

3. Absence of pulse or spontaneous respiration in a multiple casualty situation where EMS resources are required for stabilization of living patients. The local law enforcement agency, which has jurisdiction, will be responsible for the body once death has been determined. The body is to be left at the scene until a disposition has been made by the Medical Examiner's Office or local jurisdiction.

III. DISCONTINUANCE OF CPR.

PARAMEDIC ONLY

1. Resuscitation that is started in the field by EMS personnel cannot be discontinued without an order from medical direction. EMS personnel are not obligated to continue resuscitation efforts, which were started inappropriately by others at the scene. HOWEVER, contact with medical direction is necessary to cease resuscitative efforts in ALL situations.
2. When there is a delay in presenting a DNRO to EMS personnel, resuscitation must be started. However, once the DNRO is presented to EMS personnel, the EMT or PARAMEDIC with an order from medical direction may terminate resuscitation.
3. A PARAMEDIC with an order from medical direction may terminate resuscitation provided the following criteria are met:
    A. Appropriate BLS and ALS have been attempted without restoration of circulation and breathing.
    B. An advanced airway has been successfully utilized.
    C. Intravenous medication and counter shocks for ventricular fibrillation have been administered according to the appropriate treatment Guideline(s) (see Adult Guidelines or Pediatric Guidelines).
    D. Persistent asystole or PEA EKG patterns are present and no reversible causes are identified.
        - Patients with suspected hypothermia, barbiturate overdose, or electrocution require full ALS resuscitation, unless there are injuries incompatible with life or tissue decomposition.
4. Provide appropriate grief counseling or support to the patient's immediate family, bystanders, or others at the scene.
    A. Provide family members with appropriate referral information, if available.
5. Deceased Preparation.
    A. Once it has been determined that the patient is dead and resuscitation will not continue, cover the body with an EMS sheet. Do NOT use anything from the scene to cover the body to avoid transference of evidence. DO NOT remove any property from the body or the scene for any purpose.
    B. Contact the Lee County Medical Examiner’s Office at 277-5020.
    C. If it is determined that the deceased shall be transported to the medical examiner’s office, immediately notify the appropriate law enforcement agency. Remain on scene until either law enforcement or the Medical Examiner’s contracted transport service arrives.

D. If the Medical Examiner releases the deceased to a funeral home, the paramedic shall assist the family in making arrangements with the funeral home. The EMS agency is not required to remain on scene pending arrival of the transport service. Care shall be taken to ensure that the family member’s needs (such as arranging for a friend or other family member to come to the scene to provide support) are taken care of prior to departing the scene. This includes removal of control measures (i.e., IV line, electrodes, advanced airway).

E. Complete the EMS run report, documenting the above criteria, and leave a copy with the patient for the Medical Examiner's Office or fax a copy to the Medical Examiner's Office.

F. EKG rhythm documentation must be attached to the patient care report.

G. Consult the patient's family for "Organ Donor" information, if appropriate.

AIR TRANSPORT

The Air medical transport should be used when a critically ill and / or injured patient(s) will benefit from faster transport, with certified critical care clinicians, to an appropriate medical facility.

PROCEDURE:

1. Place "air medical transport" on standby when:
    - **A.** Call information obtained by Dispatch suggests the needs for air medical transport
2. Request "air medical transport" within the first 2 minutes of patient contact for:
    - **A.** Priority 1 Patients that exceed a ground transport time of 20 minutes or,
    - **B.** Priority 2 Patients that exceed a ground transport time of 20 minutes *and*:
        - will deteriorate to Priority 1 within 20 minutes or,
        - are involved in Mass Causality Incidents that overload EMS transport capabilities or,
        - are in remote areas that are difficult to access and / or egress

NOTES:

1. Any on-scene first responder (EMS or Fire), may request air medical transport.
2. After initial assessment, the attending paramedic on-scene may cancel air medical transport should the patient's condition not warrant the service or meet the criteria
3. The following patients are not appropriate for air medical transport:
    - Cardiopulmonary Arrest Patients with CPR In-Progress
    - Haz-Mat Patients (Regardless of Decontamination Status)
    - Priority 3 Patients
4. Lee Control must be notified if more than one patient requires air medical transport

(If available, additional air medical resources will be dispatched for additional patients)

5. The Pilot-in-Command monitors the general area weather. Ground crews should not attempt to determine if the weather is "good enough" for the aircraft to fly. Simply request the aircraft and let the pilot determine if the aircraft can safely complete the mission.

ENSURE PATIENT READINESS:

1. Establish control measures in accordance with the Lee County Common Treatment Guidelines

LANDING ZONES (LZ):

1. Fire departments are responsible for securing and preparing the LZs. It is necessary for fire personnel to separate themselves from the EMS operation as soon as possible in order to begin LZ preparations.
    - All LZs should be a minimum of 100' x 100' (day or night).
    - LZ security must be maintained for the duration of the event.
    - When hailed by the pilot, the LZ coordinator will provide a LZ report over the Lee County Air Ops frequency. This report should include the type of LZ (hard versus soft surface), wind direction and speed as well as any potential hazards that may be identified from the ground (wires, fences, signs, etc.).

- After the patient has been loaded in the aircraft, the pilot will advise the LZ coordinator that the aircraft is ready to depart. The LZ coordinator should clear the aircraft for take-off by looking around the LZ and to the sky for any other aircraft traffic in the vicinity.
- If at any time the LZ becomes unsafe for takeoff or landing, transmit "ABORT" three times over the radio and halt the operation until the unsafe condition is corrected.

TRANSFER OF CARE:

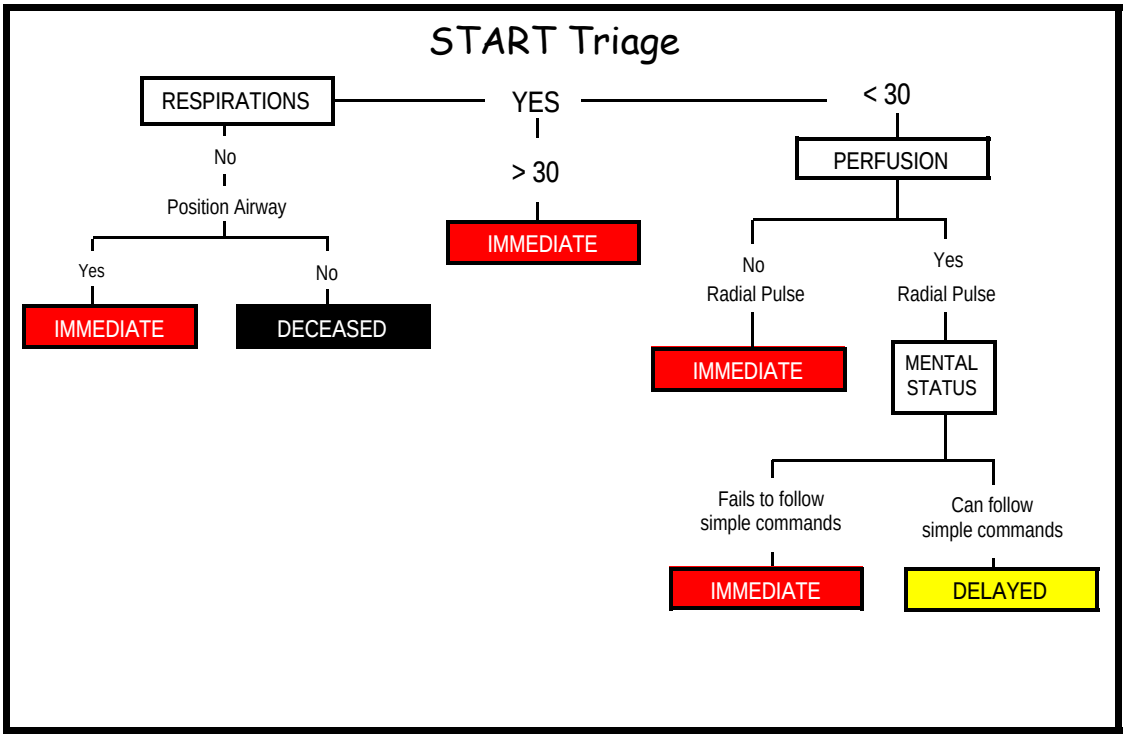
Excerpted from the Medical Director's Memorandum of 11 May 2005:

1. Prepare patient in treatment area or ambulance (bedside). This includes completing the Lee County Transfer of Care Worksheet with as much information as conditions allow. The top two copies of the worksheet shall be given to the flight team.
2. Upon arrival at bedside, the MEDSTAR team will immediately receive a patient report from the ground Paramedic-in-Charge.
3. The primary flight paramedic will assume team leader role and assume and / or direct the remaining patient care issues and treatment modalities.
4. The flight team will perform an appropriate patient assessment and determine the need for further emergent treatments based upon flight physiology.

MASS CASUALTY – START TRIAGE

GENERAL

This system is designed to assist rescuers to find the most seriously injured patients. As more rescue personnel arrive on scene, the patients will be re-triaged for further evaluation, treatment, stabilization, and transportation. A patient may be re-triaged many times and as often as time allows. Attempt to document as much information on each patient as time and conditions will allow. **For Pediatric patients, utilize *JUMPSTART* protocol**.



DEFINITIONS

• GREEN	• Minor
• YELLOW	• Delayed
• RED	• Immediate
• BLACK	• Deceased

•

STEP 1

Tell all patients who can get up and walk, to move to a specific and safe area. These patients are initially considered to be **GREEN** until examined later.

STEP 2

Begin where you stand and move in an orderly and systematic manner through the remaining victims, stopping at each patient for a quick assessment and tagging. The stop at each patient should never take more than one minute.

The following parameters are to be evaluated in order: **R**espirations, **P**erfusion & **M**ental Status (RPM).

RESPIRATIONS: If the patient is not breathing, quickly clear the mouth of any foreign matter, properly open the airway and re-evaluate respirations

- If no respirations: Tag BLACK

- If breathing > 30/minute: Tag **RED**
- If breathing < 30/minute: Proceed to perfusion evaluation

PERFUSION: Palpate a radial pulse.

- If no palpable radial pulse: Tag **RED**
- If radial pulse is present: Proceed to Mental Status evaluation

MENTAL STATUS Have the patient follow simple commands such as “Open your eyes”, “Close your eyes”, “Squeeze my hand”.

- If patient cannot follow these simple commands: Tag **RED**
- If patient is able to follow these simple commands: Tag either YELLOW OR **GREEN** based on mechanism of injury, injuries noted or your general impression.

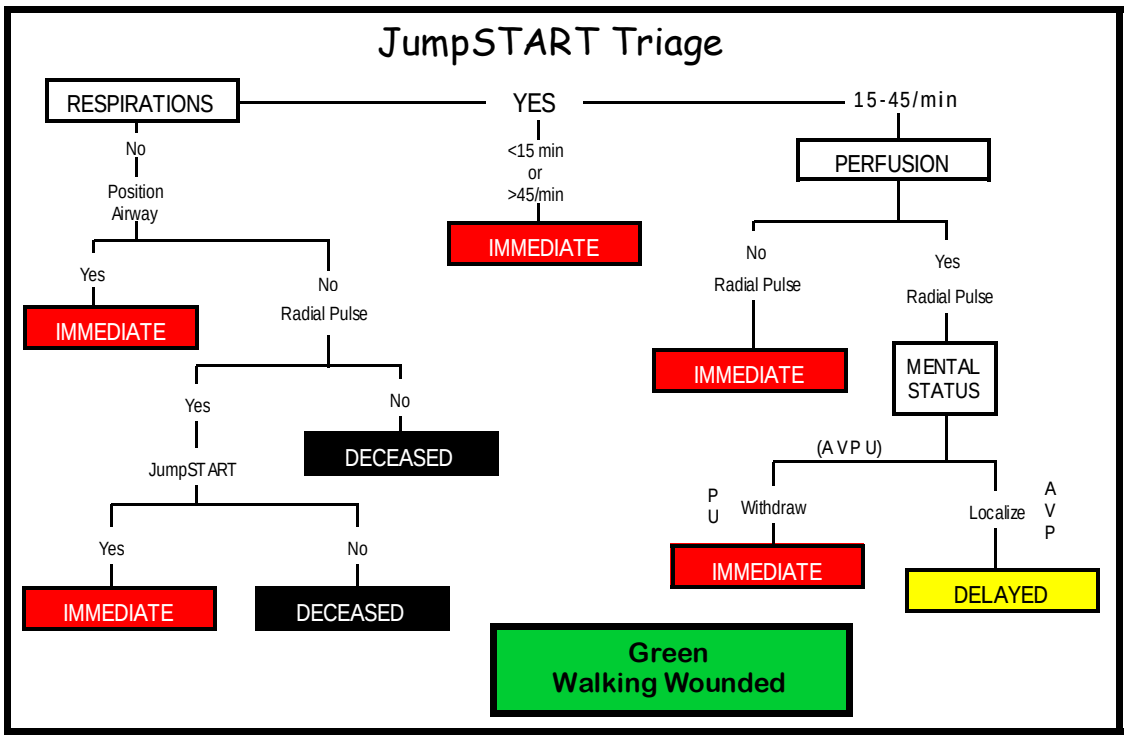
STEP 3

Repeat step 2 for the initial group of patients that were temporarily designated green and placed away from the immediate scene.

MASS CASUALTY – JUMPSTART TRIAGE

GENERAL

This system is to be used in concert with the START Triage system to assist rescuers to find the most seriously injured pediatric patients. As more rescue personnel arrive on scene, the patients will be re-triaged for further evaluation, treatment, stabilization, and transportation. A patient may be re-triaged many times and as often as time allows. Attempt to document as much information on each patient as time and conditions will allow.



DEFINITIONS

• GREEN	• Minor
• YELLOW	• Delayed
• RED	• Immediate
• BLACK	• Deceased

STEP 1

Tell all patients who can get up and walk, to move to a specific and safe area. These patients are initially considered to be **GREEN** until examined later. If an infant satisfies all of the physiologic "delayed" criteria (i.e., fulfill no "immediate" criteria) and appear to have no significant external injury, they may be triaged to the minor category.

STEP 2

Begin where you stand and move in an orderly and systematic manner through the remaining victims, stopping at each patient for a quick assessment and tagging. The stop at each patient should never take more than one minute.

The following parameters are to be evaluated in order: **R**espirations, **P**erfusion & **M**ental Status (RPM).

RESPIRATIONS: If the patient is not breathing, quickly clear the mouth of any foreign matter, properly open the airway and re-evaluate respirations

- If no respirations: Check for peripheral pulse
- If pulse is present: "JumpSTART" - Give 5 breaths
- If patient remains apneic after "JumpSTART": Tag BLACK
- If "JumpSTART" triggers spontaneous respirations: Tag **RED**
- If breathing < 15 or > 45/minute: Tag **RED**
- If breathing = 15 - 45/minute: Proceed to perfusion evaluation

PERFUSION: Palpate a peripheral pulse.

- If no palpable peripheral pulse: Tag **RED**
- If peripheral pulse is present: Proceed to Mental Status evaluation

MENTAL STATUS: Perform a rapid "AVPU" assessment, keeping in mind the apparent developmental stage of the child.

- If **A**lert, responds to **V**oice, or localizes **P**ain: Tag YELLOW
- If withdraws from **P**ain, postures, or **U**nresponsive: Tag **RED**

STEP 3

Repeat step 2 for the initial group of patients that were temporarily designated green and placed away from the immediate scene.

TRANSPORT DESTINATION GUIDELINE

Patients shall be transported to the most appropriate facility for treatment of their illness and or injury. The following list is to be used when determining the most appropriate facility for patient transport.

All traumas, not categorized under Trauma Alert Criteria, can be transported to **any** receiving hospital.

	STEMI	Stroke Alerts	Trauma Alert	Emergent Pediatrics	OB / GYN	Neonates	ICE Alert	Pedi Ortho
Lee Memorial								
Cape Coral								
Gulf Coast								
Health Park								
Naples								
North Collier								
Fawcett Memorial								
Charlotte Reg								
Peace River								
Sarasota								
Physicians Reg (Pine Ridge)								

The exception is that Health Park will not accept orthopedics other than Pediatric orthopedic. Trauma Alerts, regardless of age will be transported to Lee Memorial Hospital as the Level II Trauma Center.

- High-risk OB / GYN patients should be transported to Health Park and are defined as:
- Pregnant patient > 21 weeks who is seizing or is post seizure
- Pregnant patient > 21 weeks with suspected fetal abnormalities or fetal compromise
- Pregnant patient with pre-term labor < 34 weeks
- History of cardiac disease with chest pain, any gestation
- Home birth with pre-term or distressed infant
- Respiratory distress / acute asthma > 21 weeks

An OB / GYN patient with an imminent emergency may be transported to closest facility. A pregnant patient with gestation greater than 21 weeks who has been involved in a MVC and has the potential for fetal distress is considered a Trauma Alert.

All non-emergent pediatric patients may be transported to any facility.

All hospitals other than Health Park can accommodate Adult Orthopedic cases.

HAZMAT patients will be transported to Cape Coral Hospital

- Any patients with a history of renal failure or dialysis are to be transported to Lee Memorial Health Park, Cape Coral, or Lehigh Regional Hospital.
- Physician's Regional: No Neurosurgical Patients

FIREFIGHTER REHABILITATION GUIDELINE

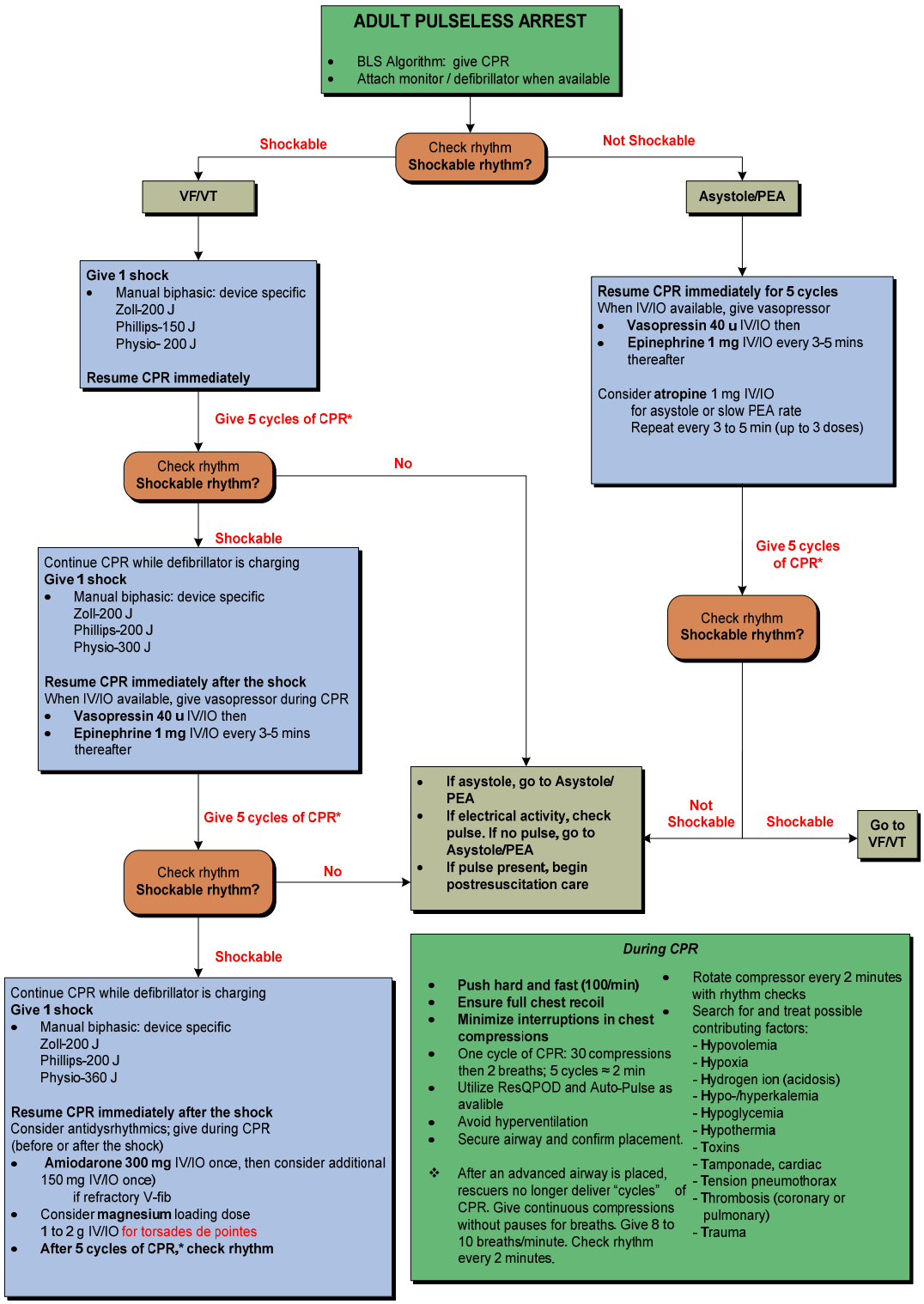
The purpose of this guideline is to create a policy that provides for the safety and well being of personnel during sustained emergency operations and potential or additional emergency operations that may occur later through the shift.

REHAB OPERATIONS

- The Rehabilitation Sector is to be established as advised by either the Incident Commander and / or the Safety Officer on any emergency scene, as required by the size, complexity, working time, etc.
- The Rehab Officer should receive a briefing form from the Incident Commander / Safety Officer as to the nature of the emergency, special hazards, etc.
- The Rehab Sector should be located in an area that provides for the optimal rehab of personnel, yet close to operations.
- Working crews are to be sent to rehab as intact crews and leave rehab the same. Ideally a paramedic should be assigned as the Rehab Officer (sector). This individual reports directly to the Incident Commander and the Safety Officer.
- The Rehab Officer should request additional personnel to assist in rehab as required.
- The rehab worksheet dated March 27, 1998 shall be utilized. Each and every area on the rehab form needs to be properly and thoroughly completed.
- No individual is to leave rehab until the Rehab Officer gives approval.
- Any individual that can not be cleared by the Rehab Officer, to return to duty or operations, shall be reported to the Incident Commander and Safety Officer.
- Any and all treatment in rehab shall be consistent with the Lee County Common EMS Treatment Guidelines.
- Any and all injuries will require that a Patient Care Report be completed.
- Upon termination of the Rehab Sector, an oral report and the completed rehab form(s) shall be given to the Incident Commander and / or the Safety Officer.

Section II: Cardiac Arrest

CARDIAC ARREST – INITIAL APPROACH
ADULT PULSELESS ARREST



POST- RESUSCITATION

History:	Signs and Symptoms:	Differential:
• Respiratory arrest • Cardiac arrest	• ROSC	• Continue to address specific differentials associated with the primary dysrhythmia / event.

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical / Trauma Supportive Care Guidelines o ResQPOD as appropriate o Accucheck: treat if < 60 mg/dl	o Same as adult
PARAMEDIC	**PARAMEDIC**
o Continuous EKG, SpO_2 and $ETCO_2$ monitoring o Obtain 12-lead EKG if time permits o **Normal Saline** 500 ml IV for hypo-tension / hypo-perfusion. o ***Amiodarone** 150 mg in100 ml D_5W over 10 minutes if converted from VF / VT. o **Bradycardia Protocol** if bradycardic o **Dopamine** 5-20 mcg/kg/min IV infusion titrated to SBP > 100 mmHg for hypo-perfusion.	o Consult Medical Control
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o

Pearls:

- **Appropriate Cardiac Arrest protocols should be followed on pulseless patients.**
- *If no antidysrhythmics were given before conversion of VF / VT, give loading dose then repeat as needed for ongoing dysrhythmias.
- ResQPOD ON when doing CPR, OFF when not doing CPR
- Hyperventilation is a significant cause of hypotension and recurrence of Cardiac Arrest in the post-resuscitative phase and must be avoided. Other common causes are hypovolemia, pneumothorax and reactions to ALS medications.
- Transition from BVM to CAREvent as soon as possible to avoid hyperventilation.
- The condition of post-resuscitative patients is dynamic, monitor closely.
- Following ROSC, many patients are tachycardic secondary to Epi / Atropine. Unless WCT / VT, allow time for the medications to metabolize and the HR to gradually normalize. Don't over-treat compensatory or induced tachycardias.
- Consult Medical Control for post-resuscitation patient management.

POST- RESUSCITATION INDUCED HYPOTHERMIA

History:	Signs and Symptoms:	Differential:
• V-Fib arrest • Pulseless V-Tach arrest	• ROSC	• Continue to address specific differentials associated with the primary dysrhythmia / event.

ADULT

EMT-BASIC PROVIDER

- Medical Supportive Care Guidelines
- #ResQPOD as appropriate
- Accucheck: treat if < 60 mg/dl

PARAMEDIC

- Continuous EKG, SpO_2 and $ETCO_2$ monitoring
- Obtain 12-lead EKG if time permits
  - **Expose patient, apply ice packs to axilla and groin (protect patient modesty)**
  - **Cold Normal Saline Bolus** 30 ml / kg up to 2 liters.
- ***Amiodarone** 150 mg in100 ml D_5W over 10 minutes (repeat if necessary)
- **Bradycardia Protocol** if bradycardic
- **Dopamine** 5-20 mcg/kg/min IV infusion titrated to SBP > 100 mmHg for hypo-perfusion.

PHYSICIAN ORDER ONLY

-

PEDIATRIC (<40 KG)

EMT-BASIC PROVIDER

-

PARAMEDIC

-

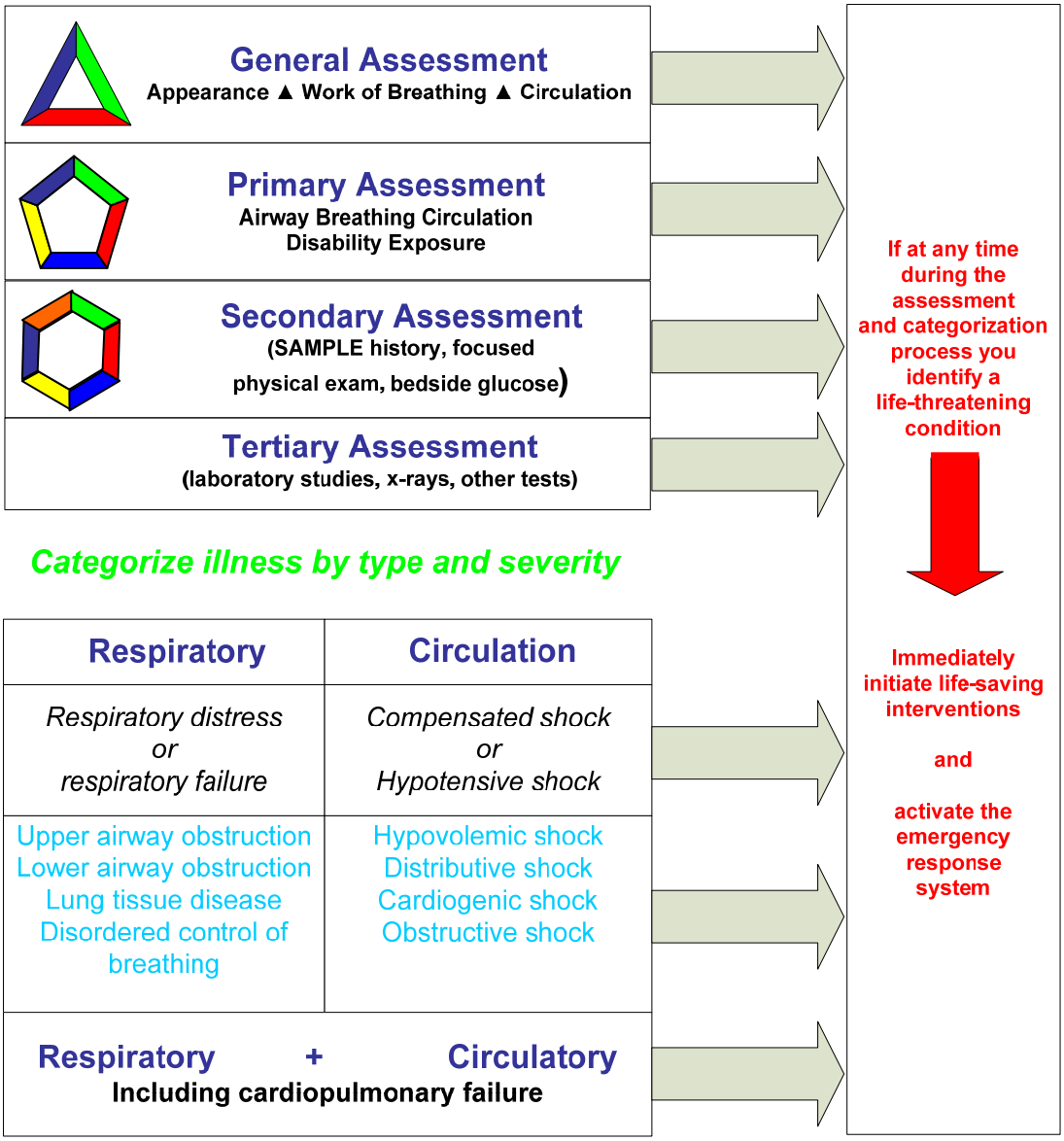
PHYSICIAN ORDER ONLY

-

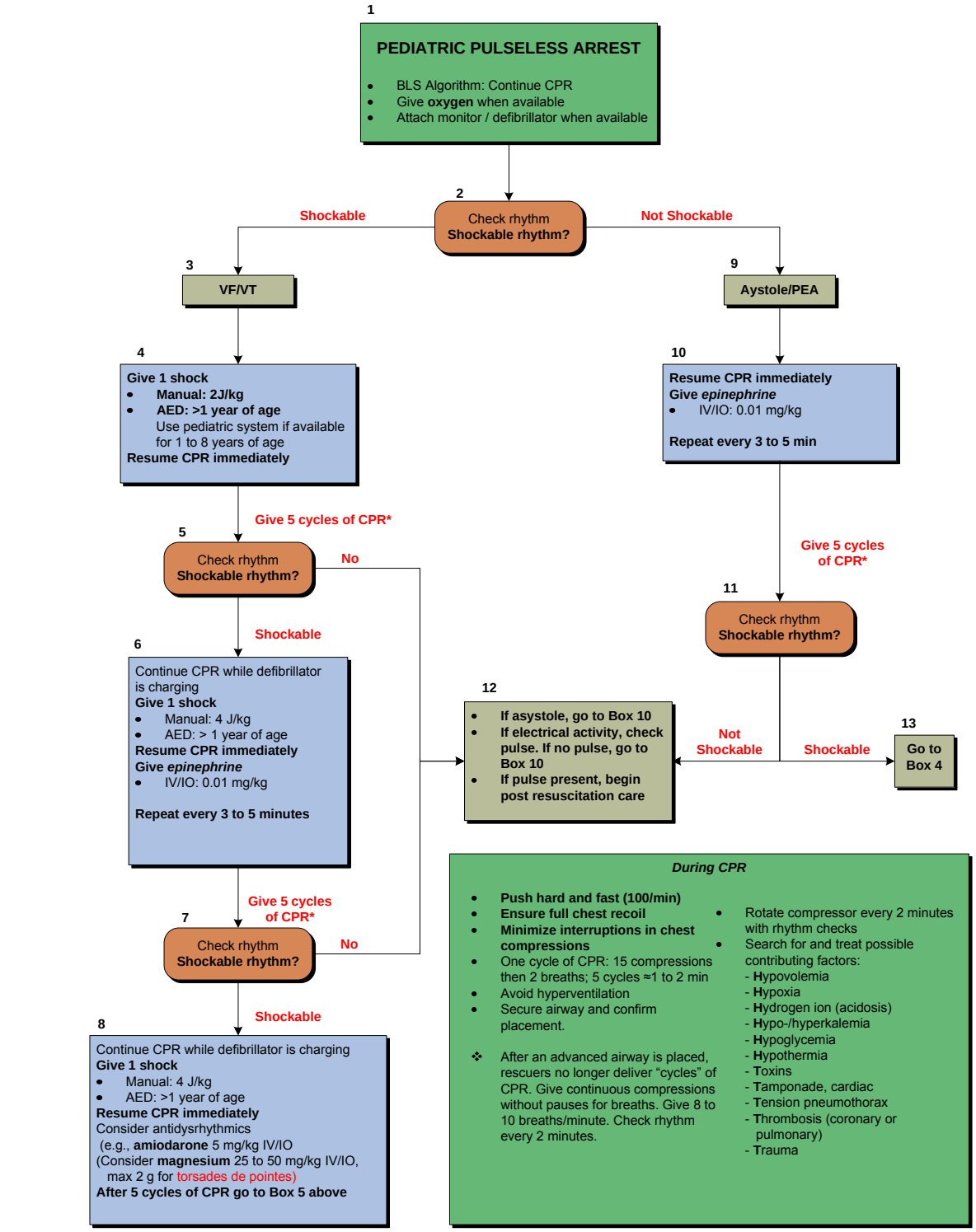
Pearls:

- *If no antidysrhythmics were given before conversion of VF / VT, give loading dose then repeat as needed for ongoing dysrhythmias.
- **Criteria for induced Hypothermia:**
  - ROSC following pulseless VT / VF
  - ROSC not related to blunt / penetrating trauma or hemorrhage
  - Patient remains unconscious / unresponsive post-ROSC
  - Age 16 or older
  - Temperature after ROSC > 34 c degrees
- Patients develop metabolic alkalosis with cooling. Do not hyperventilate.
- $ETCO_2$ target is 40 mmHg
- #ResQPOD ON when doing CPR, OFF when not doing CPR
- Hyperventilation is a significant cause of hypotension and recurrence of Cardiac Arrest in the post-resuscitative phase and must be avoided. Other common causes are hypovolemia, pneumothorax and reactions to ALS medications.
- Transition from BVM to CAREvent as soon as possible to avoid hyperventilation.
- The condition of post-resuscitative patients is dynamic, monitor closely.
- Following ROSC, many patients are tachycardic secondary to Epi / Atropine. Unless WCT / VT allow time for the medications to metabolize and the HR to gradually normalize. Don't over-treat compensatory tachycardias.
- Consult Medical Control for post-resuscitation patient management.

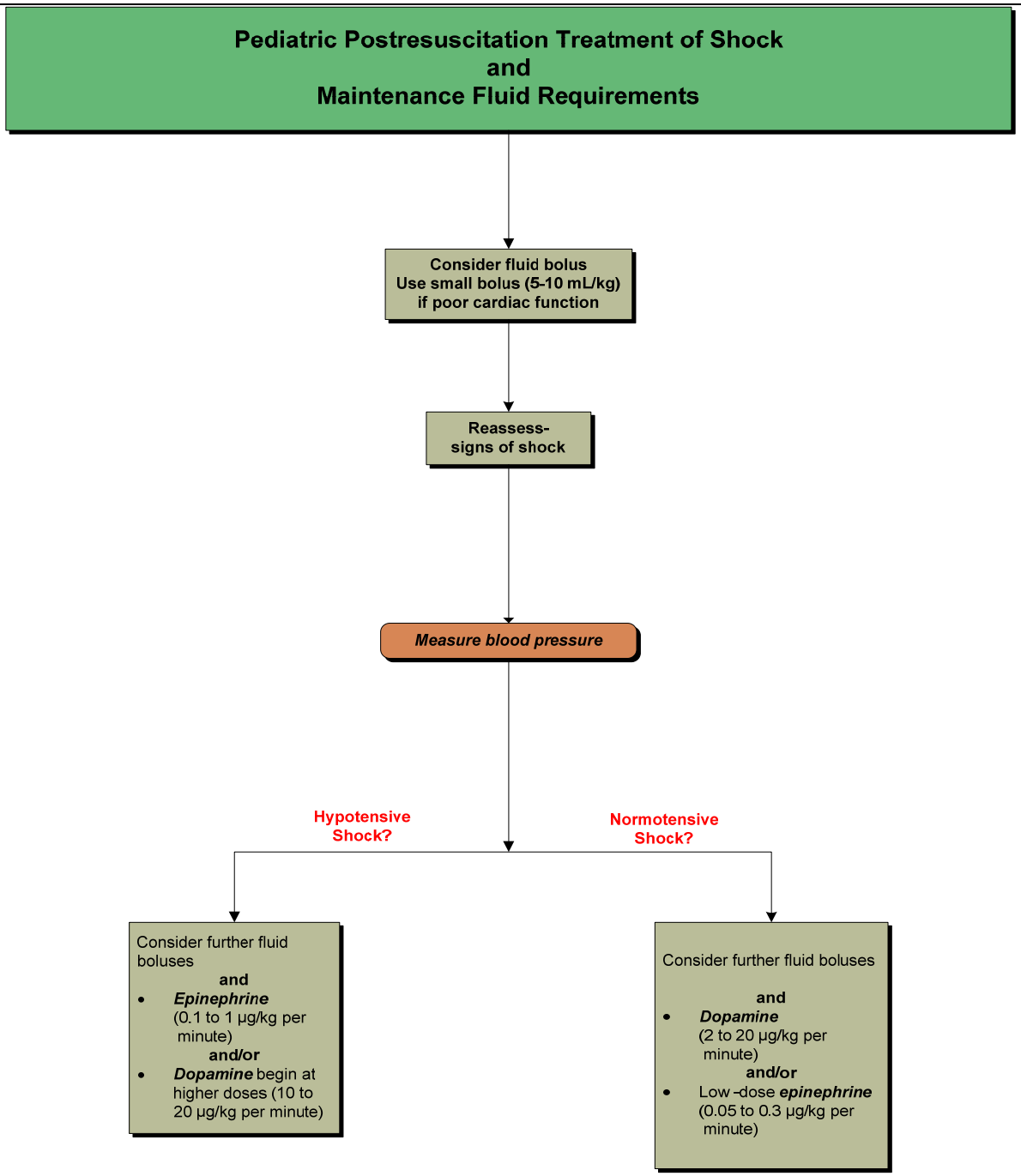
PEDIATRIC ASSESSMENT FLOWCHART



PEDIATRIC PULSELESS ARREST



PEDIATRIC POSTRESUSCITATION TREATMENT OF SHOCK



Section III: Cardiac Emergencies

ACUTE CORONARY SYNDROME - STEMI

History:	Signs and Symptoms:	Differential:
• **SAMPLE** • **OPQRST** • Age, gender, family Hx • Physical exertion • Emotional stress • Bleeding disorders • Cocaine / illicit drug use	• CP (pain, pressure, aching, tight) • Location (substernal, epigastric, arm, neck, jaw, shoulder, back) • Radiation of pain • Pallor, diaphoresis, temperature • Dyspnea / SOB • Nausea, vomiting, dizziness	• Trauma • Angina vs. MI • Pericarditis • PE • Asthma / COPD • Pleuritic pain • Esophageal spasm • Aortic aneurysm

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical Supportive Care Guidelines o Continuous SpO_2, $ETCO_2$, EKG monitoring o **ASA 324 mg (chewable)** if no recent Hx bleeding disorder or allergy o **Nitrolingual spray 0.4 mg SL (every 5 min)** as long as symptoms persist and no sign of hypo-perfusion.	o
PARAMEDIC	**PARAMEDIC**
o 12-lead EKG (+ STEMI = rapid transport to STEMI center) o ***Normal Saline (250-500ml)** for hypo-perfusion (RVI) o **Tridil drip 10 mcg/min IV** titrate to pain and SBP > 100 mmHg o **Morphine 2 mg SIVP** every 5 min (max total dose 0.1 mg/kg) as long as symptoms persist and no sign of hypo-perfusion	o On-line medical consultation
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o **Midazolam 1.0-2.0 mg** IV for significant anxiety unrelieved by MS and no sign of hypo-perfusion.	o

Pearls:

- STEMI = S-T segment elevation in two or more related leads. (Regardless of time).
- Medical Control should be notified if ACS patient has LBBB.
- Withhold Nitroglycerin in any patient who has used Viagra, Cialis, Levitra or similar mediation in the previous 48 hrs.
- Monitor V/S before and after each medication administration and q 5 min thereafter.
- Repeat 12-lead EKG every 10 minutes if possible.
- Diabetic, elderly and female patients often have atypical presentation or generalized complaints.
- Avoid pre-load reducing medication for hypotension / hypo-perfusion.
- Use pre-load reducing medication with caution in RVI and stop at any time s/s of hypoperfusion develop and resuscitate with IV fluids.
- *Avoid excessive fluid administration if evidence of pulmonary edema present i.e. JVD, crackles.

CONGESTIVE HEART FAILURE
CARDIOGENIC PULMONARY EDEMA

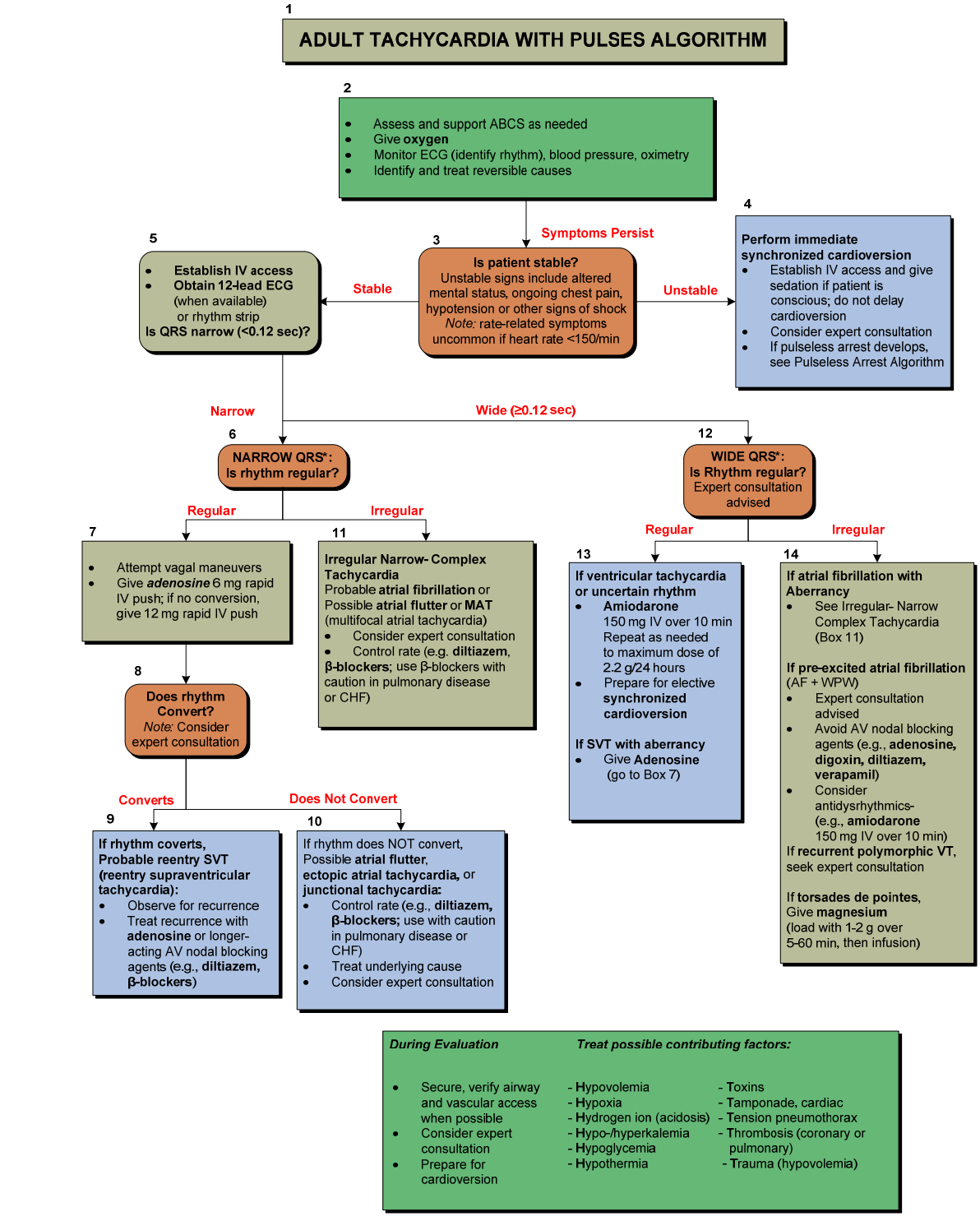
History:	Signs and Symptoms:	Differential:
• **SAMPLE** • **OPQRST** • CHF, CAD, STEMI • Medications: Digitalis, Lasix • Acute onset • Recent Hx of exertional SOB	• Respiratory distress, bilateral rales / crackles, wheezes • Anxiety, orthopnea • JVD, peripheral edema • Cool, pale, diaphoretic • Acute weight gain (fluid)	• COPD • MI, CHF • Aspiration • Pneumonia • Non-cardiac pulmonary edema • Asthma / anaphylaxis

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
• Medical Supportive Care Guidelines • Continuous SpO_2, $ETCO_2$, EKG monitoring • Nitrolingual spray 0.4 mg SL (every 1 min x 3) as long as symptoms persist and SBP > 100 mmHg or no sign of hypo-perfusion.	•
PARAMEDIC	**PARAMEDIC**
• CPAP / PEEP 5-10 cm/H_2O • 12-lead EKG (+ STEMI = rapid transport to STEMI center) • Tridil drip 10 mcg/min IV (increase by 10 mcg/min q-5 min) titrate to desired effect not to exceed 50 mcg/min while maintaining SBP > 100 mmHg. • Furosemide 40 mg SIVP repeat x1 in 5-10 min if not improving and no sign of hypo-perfusion • Morphine 2 mg SIVP q 5 min (max total dose 0.1 mg/kg) as long as symptoms persist and no sign of hypo-perfusion • Dopamine 5-20 mcg/kg/min IV infusion for hypo-perfusion. Titrate to maintain SBP > 100 mmHg	• On-line medical consultation
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
•	•

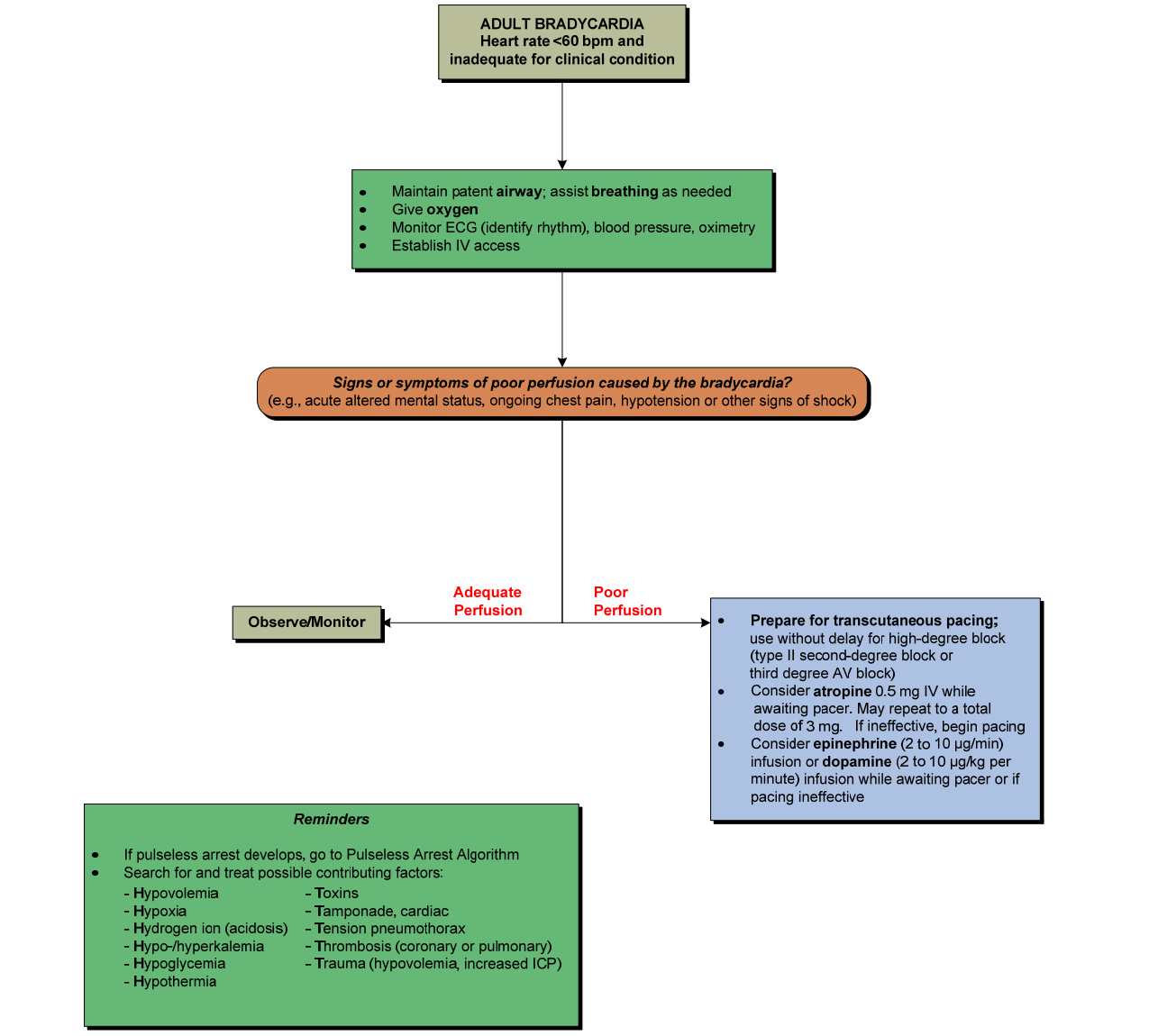
Pearls:

- STEMI = S-T segment elevation in two or more related leads. (regardless of time)
- Withhold Nitroglycerin in any patient who has used Viagra, Cialis, Levitra or similar mediation in the previous 48 hrs.
- Consider AMI in all these patients.
- Monitor V/S before and after each medication administration and every 5 minutes thereafter.
- Avoid pre-load reducing medication if s/s of hypo-perfusion.
- Avoid MS in somnolent patients.
- Avoid excessive fluid administration.
- Monitor level of consciousness and V/S carefully and move to advanced airway if condition deteriorates.

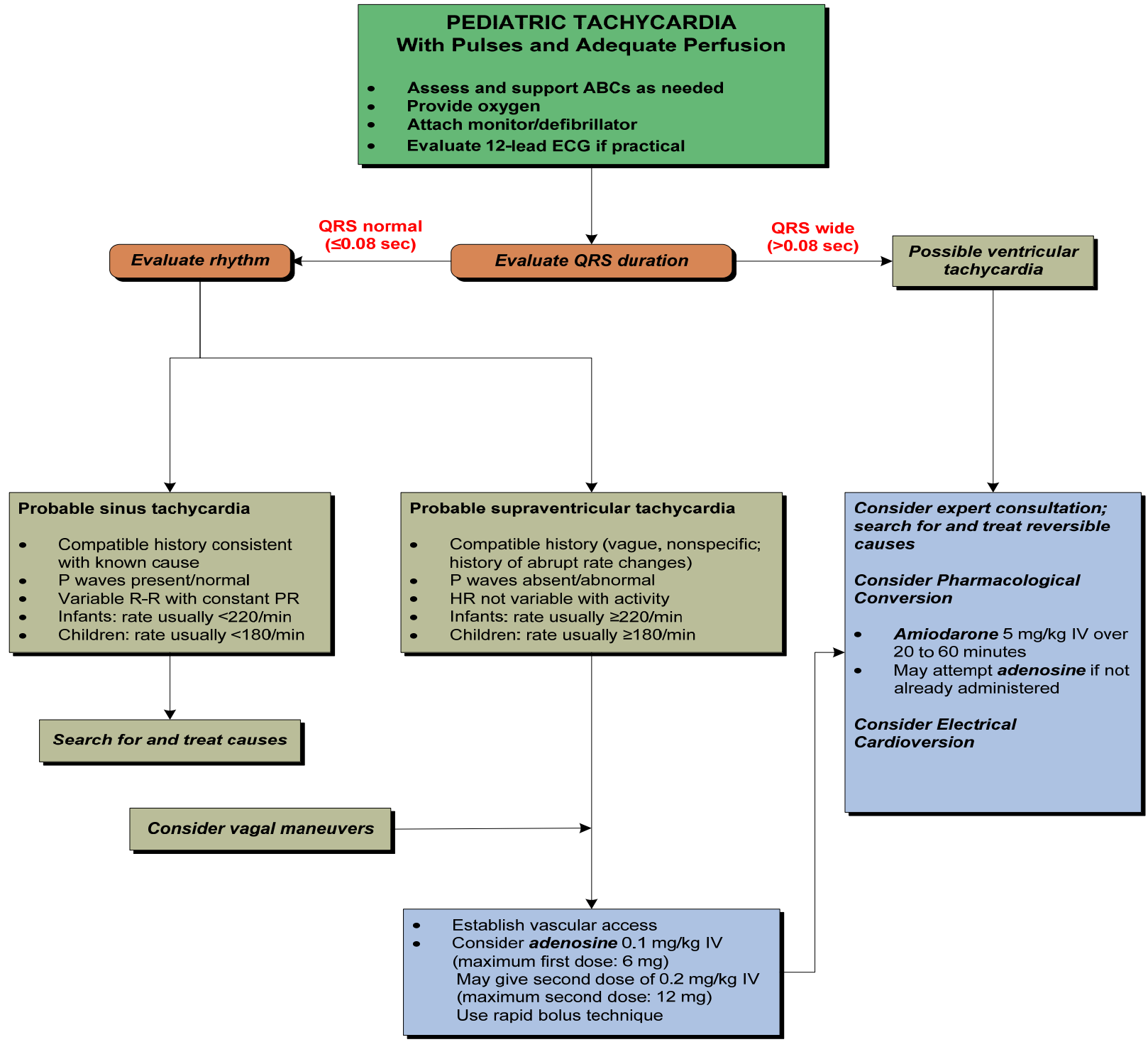
ADULT TACHYCARDIA WITH PULSES



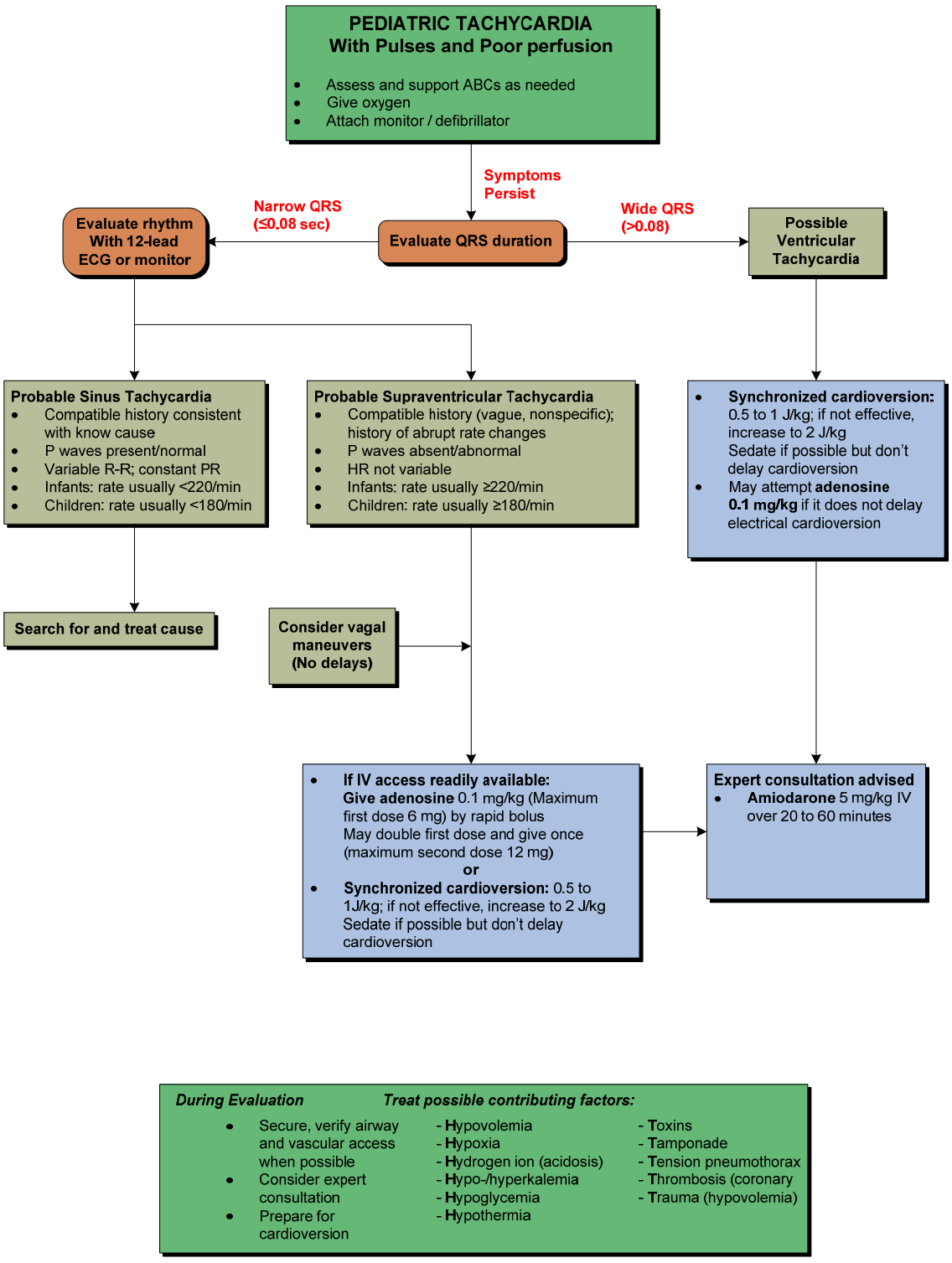
ADULT BRADYCARDIA



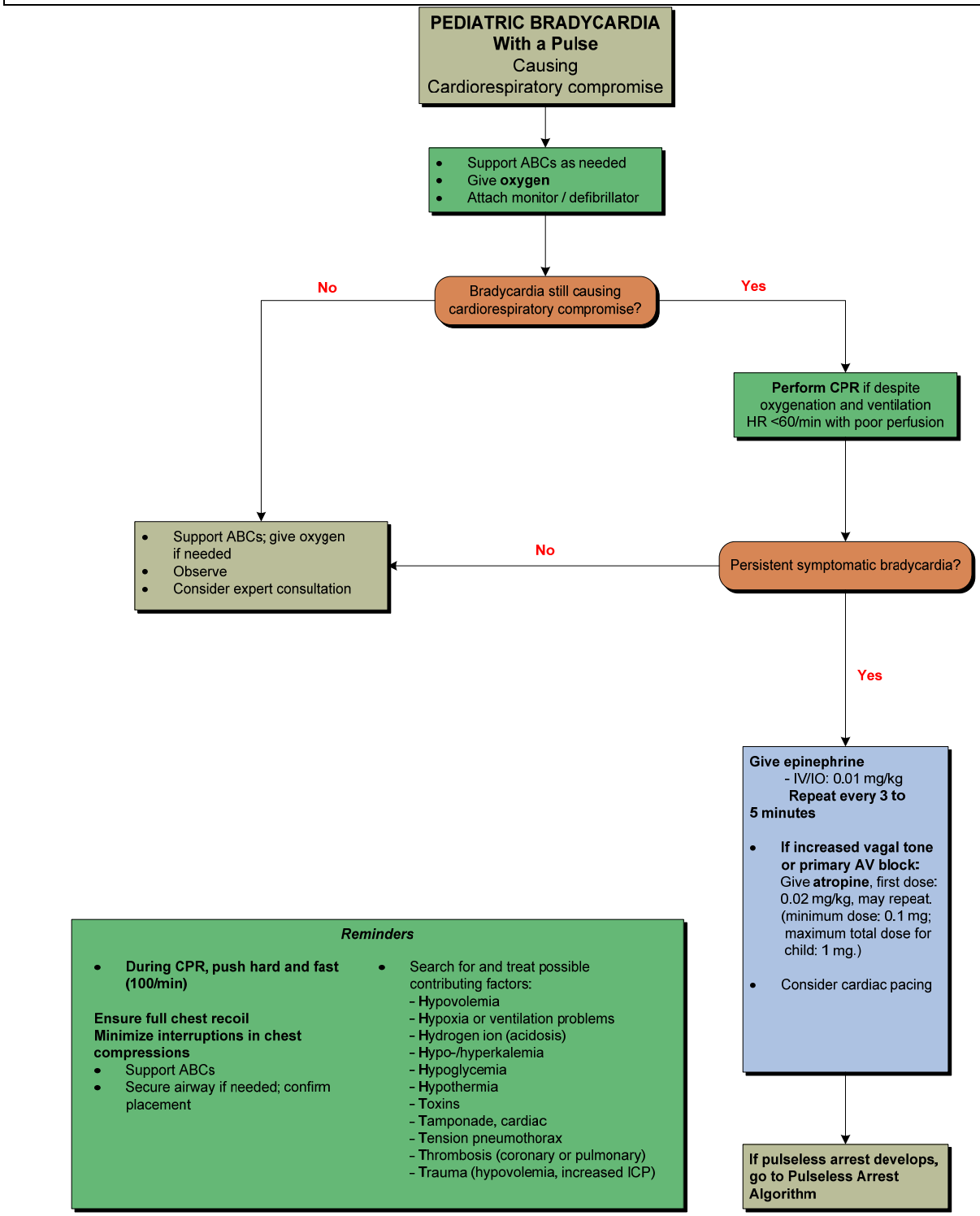
PEDIATRIC TACHYCARDIA WITH PULSES AND ADEQUATE PERFUSION



PEDIATRIC TACHYCARDIA WITH PULSES AND POOR PERFUSION



PEDIATRIC BRADYCARDIA WITH A PULSE



Section IV: Environmental Emergencies

DROWNING / SUBMERSION

History:	Signs and Symptoms:	Differential:
• **SAMPLE** • **OPQRST** • Submersion, regardless of depth. • Trauma: diving, MVC • Age of victim, Duration • Water temperature, contamination • ETOH, drugs, seizure	• Unresponsive / agitated / AMS • Coughing, gagging, vomiting • Barotrauma: Pain, headache, vertigo, bleeding from ears / nose, focal paralysis, paresthesias, visual disturbances, euphoria.	• Trauma • Pre-existing, contributory medical condition • Barotrauma: air embolism, decompression sickness, nitrogen narcosis

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical / Trauma Supportive Care Guidelines o Remove wet clothing and ensure warmth o Continuous SpO_2, $ETCO_2$, EKG monitoring o Focused BLS o **Albuterol 2.5 mg** AT for wheezing	o Medical / Trauma Supportive Care Guidelines o Remove wet clothing and ensure warmth o Continuous SpO_2, $ETCO_2$, EKG monitoring o Focused BLS o **Albuterol 2.5 mg** AT for wheezing
PARAMEDIC	**PARAMEDIC**
o **CPAP** / **PEEP** 5-10 cm/H_2O for s/s pulmonary edema o **Normal Saline 500 ml** IV bolus if evidence of hypovolemia exists. (repeat as needed) o **Dopamine 5-20 mcg/kg/min** IV infusion for hypo-perfusion	o **CPAP** / **PEEP** 5-10 cm/H_2O for s/s pulmonary edema o **Normal Saline 20 ml/kg** IV bolus if evidence of hypovolemia exists. (repeat as needed) o **Dopamine 5-20 mcg/kg/min** IV infusion for hypo-perfusion
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o

Pearls:

- **Appropriate Cardiac Arrest protocols should be followed on pulseless patients.**
- Rescuers should not enter the water unless specifically trained to do so. For victims struggling on the surface, throw the ResQ Disk and attempt to bring them to safety.
- Always maintain spinal precaution and immobilize if that possibility exists.
- Drowning is the leading COD among would-be rescuers.
- In cold water drowning, resuscitate until warm. (transport)
- All submersion victims should be transported for evaluation. Latent s/s develop as long as 24 hours post-submersion.
- SCUBA diver's dive computer or dive log should be transported with the patient.
- All suspected barotrauma patients should be transported to a facility that has hyperbaric chamber (D-1, D-2).

HYPERTHERMIA

History:	Signs and Symptoms:	Differential:
• **SAMPLE** • **OPQRST** • Exposure to increased temperatures and / or humidity. • Exertion; time and length of exposure • Child / Geriatric • ETOH , Rx and illicit drugs	• AMS, unconsciousness • Heat Stroke: hot / flushed / dry • Heat exhaustion: diaphoretic / pale • N/V, hypotension and / or shock • Syncope, fatigue, muscle cramps • Seizure	• Fever, sepsis, dehydration • Hypoglycemia • Agitated / Excited Delirium • DT's • CNS lesion / tumor • Hyperthyroidism

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical / Trauma Supportive Care Guidelines o **Accucheck**: treat if < 60 mg/dl o Remove from environment, remove clothing as appropriate • Normal mental status Cool patient with water to skin and increase evaporation • AMS Aggressive cooling to unclothed patient with water misting, fans, ice packs to groin, axilla and neck.	o Medical / Trauma Supportive Care Guidelines o **Accucheck**: treat if < 60 mg/dl o Remove from environment, remove clothing as appropriate • Normal mental status Cool patient with water to skin and increase evaporation • AMS Aggressive cooling to unclothed patient with water misting, fans, ice packs to groin, axilla and neck.
PARAMEDIC	**PARAMEDIC**
o **Normal Saline IV** 500 ml bolus (repeat as needed)	o **Normal Saline IV** 20 ml/kg bolus (repeat as needed)
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o

Pearls:

- **Appropriate Cardiac Arrest protocols should be followed on pulseless patients.**
- Very young and old more prone to develop heat emergencies.
- Cocaine, methamphetamine, amphetamines and salicylates may elevate body temps.
- Many Rx medications alter the body's thermoregulatory mechanism.
- Sweating generally diminishes / stops as the core temperature rises above 104^{o} F.

HYPOTHERMIA

History:	Signs and Symptoms:	Differential:
• **SAMPLE** • **OPQRST** • Exposure to environment even in normal ambient temperatures. • Child / Geriatric • ETOH , Rx and illicit drugs • Length of exposure, wet / dry	• Cold, clammy, shivering • AMS / unconsciousness • Hypotension / shock • Extremity pain / paresthesia • High dysrhythmia potential • Frostbite	• Sepsis or other shock state • Hypoglycemia • CNS insult: Stroke Head injury Spinal cord injury Tumor

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical / Trauma Supportive Care Guidelines o **Accucheck:** treat if < 60 mg/dl o Remove from environment / wet clothing; ensure, provide warmth o Handle patient gently, don't allow physical exertion	o Medical / Trauma Supportive Care Guidelines o **Accucheck:** treat if < 60 mg/dl o Remove from environment / wet clothing; ensure, provide warmth o Handle patient gently, don't allow physical exertion
PARAMEDIC	**PARAMEDIC**
o **Normal Saline** IV as needed (warmed if possible) o **Thiamine 100 mg** SIVP for hypoglycemic with evidence of ETOH abuse or malnourishment. o **$D_{50}W$** SIVP if hypoglycemic	o Consult Medical Control
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o

Pearls:

- **Appropriate Cardiac Arrest protocols should be followed on pulseless patients.**
- NO PATIENT DEAD UNTIL WARM AND DEAD. (> 95° F)
- Defibrillation and antidysrhythmics may be ineffective until patient warmed > 88-90° F.
- Primary V-fib common in patients < 88° F.
- Rough handling of the patient may cause V-fib.
- Hypothermia causes progressive bradycardias.
- Very young / old patients more susceptible to hypothermia.
- Obtain 12-lead if possible.

BITES AND ENVENOMATIONS

History:

- **SAMPLE**
- **OPQRST**
- Type of animal, wound location
- Domestic vs. Wild
- Previous reactions to similar event
- Allergy to antivenin or horse serum
- Immuno-compromised patient

Signs and Symptoms:

- Rash, punctures, wounds, bleeding
- Impaled retained stinger apparatus
- Pain, swelling, erythema
- Allergic reaction: urticaria, itching, wheezing / SOB, hypo-perfusion
- Syncope / near syncope / orthostatic
- N/V, muscle spasm, diaphoresis

Differential:

- Human bite
- Animal bite
- Snake envenomation
- Spider envenomation
- Hymenoptera envenomation
- Cnidaria (nematocysts)
- Stingray, catfish

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical / Trauma Supportive Care Guidelines o Immobilize affected limb if necessary o Appropriate specific treatment guidelines o **Allergic Reaction Protocol (if indicated)**	o Medical / Trauma Supportive Care Guidelines o Immobilize affected limb if necessary o Appropriate specific treatment guidelines o **Allergic Reaction Protocol (if indicated)**
PARAMEDIC	**PARAMEDIC**
o **Pain Control Protocol** o ***Midazolam 2 mg** SIVP -or- o ***Diazepam 5 mg** SIVP for Black Widow bite abdominal muscle spasm / pain.	o **Pain Control Protocol**
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o ***Midazolam / Diazepam**

Pearls:

- Human bites are highly infectious and should be treated by a physician.
- All mammal bites have the risk of Rabies exposure and <u>all bites / wounds risk bacterial infection.</u>
- Evidence of infection: pain, swelling, redness, drainage, warm / hot; red streaks and swollen lymph nodes proximal to wound.
- Indigenous venomous snakes in Lee County are: Eastern Diamondback and Pigmy rattlesnakes, Cottonmouth Water Moccasin and Coral Snake. There are many exotic species kept by dealers and citizens.
  - Coral snake venom is neuro-toxic and deadly, but rare and not as painful as a pit viper.
  - Pit viper envenomation is highly variable, 25 % are dry bites (no venom injected)
  - Envenomated bites are very painful with redness and swelling. (pit vipers)
  - No ice, tourniquets, cutting or sucking snake bites. Immobilize extremity in neutral position.
- *Black Widow spider bites are not acutely painful, but may progress to severe abdominal spasms.
- Stingray and catfish injuries should be immersed in very warm water ASAP for immediate pain relief. They need to be seen by a physician to r/o foreign body and dT / antibiotic prophylaxis.
- Jellyfish (cnidaria) should be removed from the skin with sea water or isopropyl alcohol. Pain Control if necessary.

ALLERGIC REACTION / ANAPHYLAXIS

History:	Signs and Symptoms:	Differential:
• **SAMPLE** • **OPQRST** • Onset and Location • Envenomation / sting / bite • Food / medication / plant exposure • PMHx of allergy / sensitivity • Pre-arrival medications	• Redness, itching, urticaria, rash • Cough, wheeze, respiratory distress • Angioedema • Chest tightness, throat constriction, tongue swelling, difficulty swallowing • Hypotension, tachycardia, pallor, diaphoresis	• Contact dermatitis • Vasovagal event • Asthma or COPD • Infection / Septic shock • FB upper airway obstruction • Drug OD / adverse effect

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical Supportive Care Guidelines o Continuous SpO_2, $ETCO_2$, EKG monitoring o ***Epi-Pen** Administer patient's prescribed auto-injector o **Albuterol 2.5 mg** AT for bronchospasm	o Medical Supportive Care Guidelines o Continuous SpO_2, $ETCO_2$, EKG monitoring o ***Epi-Pen** Administer patient's prescribed auto-injector o **Albuterol 2.5 mg** AT for bronchospasm
PARAMEDIC	**PARAMEDIC**
o **Normal Saline 500 ml** IV bolus if signs of hypo-perfusion and repeat as necessary o ****Diphenhydramine 50 mg** SIVP / IM o **Solumedrol 125 mg** SIVP o **Epinephrine 0.3 mg** IM (1:1,000) for patient in respiratory distress or shock o **Epinephrine (1:1,000) 2-10 mcg/min** IV infusion titrate to effect for anaphylaxis refractory to previous treatment. o **Epinephrine (1:10,000) 0.5 mg** SIVP if patient is pre-arrest (extremis)	o **Normal Saline 20 ml/kg** IV bolus if signs of hypo-perfusion and repeat as necessary o ****Diphenhydramine 1 mg/kg** SIVP / IM **(max 25 mg per dose)** o **Solumedrol 1 mg/kg** SIVP / IM for **patients > 2 y/o.** o **Epinephrine 0.01 mg kg** IM (1:1,000) **(max 0.3 mg per dose)** for patient in respiratory distress or shock o **Epinephrine (1:1,000) 1-5 mcg/min** IV infusion titrate to effect for anaphylaxis refractory to previous treatment.
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o

Pearls:

- Contact Medical Control prior to administering Epinephrine to patients who are > 50 y/o, have PMHx of CAD or have HR > 140 or SBP > 160.
- *Epi-Pen admistration is intended for responders with no ALS capibilities.
- Safely and rapidly eliminate the source of exposure, if possible.
- **Diphenhydramine for local reactions and rash; Diphenhydramine, Solumedrol and / or Epi for severe generalized reactions respectively.
- Per individual, each allergic reaction is generally worse than any previous reaction.

Section V: Medical Emergencies

ASTHMA /REACTIVE AIRWAY DISEASE / COPD

History:	Signs and Symptoms:	Differential:
• **SAMPLE** • **OPQRST** • Asthma, allergies • COPD- chronic bronchitis, emphysema, CHF. • Home Tx: O_2, nebulizers • Meds: Theophylline, steroids, $Beta_2$ inhalers • Toxic / noxious exposure	• SOB, respiratory distress / failure • Wheezing, rhonchi, diminished breath sound. • Increased resp. rate, effort, accessory muscles. • Tachycardia / bradycardia (late) • Fever, cough, sputum production (colored?) • Skin: dry, warm / hot, friable, purpuric. • SpO_2 < 92 %, $ETCO_2$ > 50 mmHg	• Asthma, COPD, CHF • Aspiration, FBAO • Anaphylaxis • Pulmonary embolus • Pleural effusion, pneumonia • Pneumothorax, pericardial tamponade • Hyperventilation syndrome, emotional • Toxic exposure: CO / smoke etc.

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical / Trauma Supportive Care Guidelines o Continuous SpO_2, $ETCO_2$, EKG monitoring o ***Epi-Pen** Administer patient's prescribed auto-injector o **Albuterol 2.5 mg** AT for wheezing	o Medical / Trauma Supportive Care Guidelines o Continuous SpO_2, $ETCO_2$, EKG monitoring o ***Epi-Pen** Administer patient's prescribed auto-injector o **Albuterol 2.5 mg** AT for wheezing
PARAMEDIC	**PARAMEDIC**
o **DuoNeb** AT if refractory to albuterol o **CPAP** / **PEEP** 5-10 cm/H_2O, titrate as needed o **Solumedrol 125 mg** SIVP Asthma • **Magnesium Sulfate 2 gm in 100cc D_5W** IV infusion over 10 mins for patients' refractory to above Tx. • **Epinephrine (1:1,000) 0.3 mg** IM for severe respiratory distress refractory to above Tx. • **Epinephrine infusion 2 mcg/min** titrate to effect for patient in extremis.	o **DuoNeb** AT if refractory to albuterol o **Solumedrol 1 mg/kg** SIVP **for patients > 2 y/o**. o **Epinephrine (1:1,000) 0.01 mg/kg (max 0.3 mg)** IM for patient in respiratory distress. o **Magnesium Sulfate 50 mg/kg (max 2 gm) in 100cc D_5W** IV infusion over 10 mins for patients refractory to above Tx. **(For patients > 2 y/o)** o **Epinephrine infusion 2 mcg/min** titrate to effect for patient in extremis. Croup / Epiglottitis / Bronchiolitis • **Normal Saline** AT if no evidence of bronchospasm. • **Epinephrine 3 mg (1:1,000) / 3.0 cc NS** AT if in extremis.
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o

Pearls:

- Contact Medical Control prior to administering Epinephrine to patients who are > 50 y/o, have PMHx of CAD or have HR > 140 or SBP > 160.
- *Epi-Pen admistration is intended for responders with no ALS capibilities.
- A 12–lead EKG should be obtained on all of these patients when possible.
- A silent chest in a patient in respiratory distress is considered a pre respiratory-arrest sign.

ABDOMINAL PAIN (NON-TRAUMA)

History:	Signs and Symptoms:	Differential:
• **SAMPLE** • **OPQRST** • Gender / age • PMHx (surgery) • Medication • Fever • Pregnancy	• Pain (visceral, somatic, referred) • Tenderness (location, rebound) • N/V, diarrhea, constipation • Olig / poly / dys / hematuria • Vaginal bleeding / discharge • Fever, pallor, cool, diaphoretic • Hyper / hypotension, tachy / bradycardia	• PUD / GERD / ACS • Cholecystitis, pancreatitis, gastritis • Renal colic, AAA, Pyelonephritis • PID, ovarian cyst / tumor, UTI • Bowel obstruction, appendicitis • Hernia, testicular torsion • Gastroenteritis, diverticulitis, Crohn's

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical Supportive Care Guidelines o Orthostatic vitals (if not already symptomatic)	o Medical Supportive Care Guidelines o Orthostatic vitals (if not already symptomatic)
PARAMEDIC	**PARAMEDIC**
o **Normal Saline 500 ml** IV bolus if symptomatic of hypo-perfusion and repeat as necessary o **Promethazine 6.25-12.5 mg** SIVP for vomiting o **Pain Management Guideline**	o **Normal Saline 20 ml/kg** IV bolus if symptomatic of hypo-perfusion and repeat as necessary o **Pain Management Guideline**
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o **Promethazine 0.1 mg/kg** SIVP 2-16 y/o

Pearls:

- Definitive care for abdominal pain occurs at the hospital and rapid transport may be indicated.
- Repeat vital signs after each fluid bolus and give additional fluids based on patient condition.
- Strict NPO should be maintained
- Use lower dose of Phenergan in the elderly; **always give slowly through wide open IV in all patients.**
- Abdominal pain in women of childbearing age assumed to be ectopic pregnancy until proven otherwise.
- Appendicitis begins as diffuse peri-umbilical pain later becoming intense and localized to the RLQ.

ALTERED MENTAL STATUS
HYPO / HYPERGLYCEMIA

History:	Signs and Symptoms:	Differential:
• **SAMPLE** • **OPQRST** • PMHx of DM, Medic Alert • Report or evidence of illicit drug use • Report or evidence of toxic ingestion • Acute change in baseline status • Trauma	• AMS: change from baseline • Agitated, violent, confused, somnolent • Hypoglycemia (cool, diaphoretic) • Hyperglycemic (warm, dry, Kussmal- resps. , diuresis, acidotic)	• Head trauma, shock, toxic • CNS (CVA, tumor, seizure, septic) • Thyroid, acidosis / alkalosis • Environmental exposure • Alcoholism, malnutrition • Pancreatic / adrenal tumor

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical Supportive Care Guidelines o Accucheck: treat if < 60 mg/dl o **Oral Glucose 15 gms** (+ self-protected airway)	o Medical Supportive Care Guidelines o Accucheck: treat if < 60 mg/dl o **Oral Glucose 7.5 gms** (+ self-protected airway)
PARAMEDIC	**PARAMEDIC**
o Hypoglycemic ▪ **Thiamine 100 mg** SIVP / IM **for** hypoglycemic w/ evidence of ETOH abuse or malnourishment. ▪ **$D_{50}W$ 25 gms** SIVP ▪ **Glucagon 1 mg** IM if no IV access o Hyperglycemic ▪ **Normal Saline 1000 ml** IV for BG > 350 mg/dl and / or signs of hypo-perfusion and dry lungs. Repeat if patient's condition dictates.	o Hypoglycemic ▪ **$D_{25}W$ 0.5 gm/kg** SIVP ▪ **Glucagon 0.1 mg/kg** IM **(max 1 mg)** if no IV access. o Hyperglycemic ▪ **Normal Saline 20 ml/kg** IV for BG > 350 and / or signs of hypo-perfusion. Repeat if patient's condition dictates.
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o

Pearls:

- Maintain high index of suspicion for the many causes of **AMS**
- Do NOT let alcohol confuse the clinical picture, alcoholics frequently develop hypoglycemia.
- Thiamine may be omitted if the patient has no sign or suspicion of malnutrition.
- Do not give oral glucose if the patient cannot protect their own airway.
- Hypoglycemics can be violent, protect emergency personnel and the patient with necessary restraint.
- All IV doses can be given IO.
- If hypoglycemic patient has insulin pump on, turn off or disconnect if at all possible.
- When patient's mental status returns to baseline, the patient should be encouraged to eat.

EXCITED / AGITATED DELIRIUM

History:	Signs and Symptoms:	Differential:
• **SAMPLE** • **OPQRST** • Situational crisis • Substance abuse / overdose • Psychiatric illness / medications • Injury to self or threats to others • Medic alert tag	• Anxiety, agitation, confusion • Affect change, bizarre behavior • Hallucinations, delusional thoughts • Combative / Violent • Suicidal / Homicidal thoughts • Hypertensive / Tachycardic • Adrenergic overstimulation	• Hypoxia / Trauma • Alcohol Intoxication • Medication effect / OD • Depression / Bipolar • Schizophrenia

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Scene Safety o Medical Supportive Guidelines • Appropriate levels of patient restraint for these patients must continually be evaluated, as patient condition may rapidly deteriorate and the potential for positional airway compromise develop. • Remove patient from stressful environment. o Focused history and physical exam. • Accucheck: treat if < 60 mg/dl. • If patient HOT to touch, begin passive and active cooling measures as soon as safe to do so.	o
PARAMEDIC	**PARAMEDIC**
o Continuous SpO_2, $ETCO_2$, EKG monitoring o **Normal Saline 1000m**l bolus to rehydrate / cool patient. o **Midazolam 5 mg** IM / IN with SBP> 100 mmHg or peripheral pulses present. -or- o **Midazolam 2.5– 5.0 mg** IV titrated to effect with SBP> 100 mmHg peripheral pulses present. o **Lorazepam 2.0 mg** IV if necessary.	o On-line medical consultation
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o

Pearls:

- Do NOT load a violent patient into the ambulance until the patient is adequately controlled with physical and / or chemical restraint.
- Be sure to consider possible medical / trauma causes for behavior (hypoglycemia, over-dose, substance abuse, hypoxia, hyperthermia, head injury, etc.).
- Patients should **not** be transported in a prone or hog-tied position. Any position that impedes respiration should be avoided.
- Do not overlook the possibility of associated domestic violence or child abuse.
- More than 1 liter of NS may be required for adequate hydration.
- If Cardiac Arrest or "pre-arrest", consider fluid bolus and Sodium Bicarb **early.**

PAIN & ANXIETY MANAGEMENT / SEDATION

History:	Signs and Symptoms:	Differential:
• Age , PMHx • Location • Onset, Duration, Nature • Severity (scale) • Allergies and current meds	• Severity (1-10 scale) • Quality (sharp, dull, crampy, tight) • Radiation, referred • Aggravating / relieving factors • Intermittent / constant	• Musculoskeletal • Abdominal • Cardiac / Pleuritic • Renal (colic) • Neurogenic (Varicella Zoster)

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical / Trauma Supportive Care Guidelines o Continuous SpO_2, $ETCO_2$, EKG monitoring	o Medical / Trauma Supportive Care Guidelines o Continuous SpO_2, $ETCO_2$, EKG monitoring
PARAMEDIC	**PARAMEDIC**
o **Fentanyl 2 mcg/kg** (per dose) SIVP / IM / IN titrate to effect for pain w/o evidence of hypo-perfusion. (may repeat once after 5 mins if necessary) o **Midazolam 2 mg (max 5 mg)** SIVP / IM / IN for severe anxiety and / or muscle spasm without evidence of hypo-perfusion. ➢ Pain related to IO use. • **Lidocaine 0.25 mg/kg** IO administered slowly through IO before bolus or meds in an alert patient.	o **Fentanyl 2 mcg/kg** (per dose) SIVP / IM / IN titrate to effect for pain w/o evidence of hypo-perfusion. (may repeat once after 5 mins if necessary) o **Midazolam 0.1 mg/kg (max 2 mg per dose)** SIVP / IM / IN for severe anxiety adversely affecting clinical status without evidence of hypo-perfusion. ➢ Pain related to IO use. • **Lidocaine 0.25 mg/kg** IO administered slowly through IO before bolus or meds in an alert patient.
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o **Lorazepam 1-2 mg SIVP**	o **Lorazepam 0.1 mg/kg SIVP(max 1 mg per dose)**

Pearls:

- Pain severity (1-10) is a vital sign to be recorded pre and post medication delivery and at disposition.
- Conscious sedation / maintenance is done in "cocktail" fashion – no pause. Sedation and analgesia are administered immediately following confirmation of airway device placement.
- Full V/S should be obtained before and after every medication and every 15 min there-after.
- All patients should have drug allergies documented prior to administering any medication.
- Opioids and Benzodiazepines cause respiratory depression. Use cautiously in patients with head injuries, COPD and respiratory distress. Airway / ventilation must be monitored closely.

OVERDOSE / TOXIC INGESTION

History:	Signs and Symptoms:	Differential:
• **SAMPLE** • **OPQRST** • Ingestion (suspected) of potentially toxic substance • Substance, route, quantity, time • Intentional, accidental, criminal • Available medication / illicit drugs	• Changes in mental status • Hypotension – hypertension • Bradycardia – tachycardia, dysrhythmias • Decreased – increased respiratory rate • Seizures, SLUDGEM, ataxia • Constricted – dilated pupils	• Acetaminophen (Tylenol) • NSAIDs (aspirin, ibuprophen) • Tricyclic antidepressants (TCAs) • Benzodiazepines / amphetamines • Cholinergics / anticholinergics • Opiates, sympathomimetics • Solvents, alcohols, organophosphates

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical / Trauma Supportive Care Guidelines o Continuous SpO_2, $ETCO_2$, EKG monitoring	o Same as adult
PARAMEDIC	**PARAMEDIC**
o **Normal Saline 500 ml** for hypotension without evidence of pulmonary edema. o **Naloxone 0.4-2.0 mg (per dose)** SIVP or IN for suspected opiate OD if respiratory rate < 12. **DO NOT** give naloxone to an intubated patient except when ordered by Medical Control or in cardiac arrest. o **Diphenhydramine 50 mg** IV / IM for patient with evidence of dystonic reaction. o **Sodium bicarbonate 1 mEq/kg** SIVP for TCA O.D. with sustained HR > 120, QRS > 100 ms. o **Dopamine 5-20 mcg/kg/min** IV infusion for hypotension unresponsive to fluids. Titrate to maintain SBP > 100 mmHg. o **Midazolam 2-10 mg (2 mg increments)** SIVP titrate to effect for hyperadrenergic state from (meth) amphetamines, cocaine or PCP use. Usually presents with HR>120 and HTN. o **Atropine 1-2 mg** SIVP q 5 min for SLUDGEM (no max dose)	o On-line medical consultation
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o

Pearls:

- Do not rely on patient's history of ingestion, especially in suicide attempt.
- Bring medicine bottles, containers, contents, emesis to ED.
- **Tricyclic Antidepressant (TCA)**: major area of toxicity: seizure, dysrhythmia, hypotension, AMS-coma. The patient may rapidly progress from alert to death.
- **Acetaminophen**: normal early, then N/V progressing to liver failure and death (especially with alcohol)
- **Opiates / Benzodiazepines**: Bradycardia, hypotension, respiratory depression / arrest.
- **Hyperadrenergics**: tachycardia, hypertension, hyperthermia, dilated pupils, seizures.
- **Cholinergics**: (wet) SLUDGEM, confusion, weakness, diaphoresis, seizure.
- **Anticholinergics**: (dry) delirium, tachycardia, dilated pupils, seizure, dysrhythmias.
- **Solvents**: N/V, changes in mental status, ataxia, dermatological changes.
- **Insecticides**: (organophosphates / carbamates) "see cholinergics"
- **MARK 1** kits contain Atropine 2 mg and pralidoxime 600 mg in an autoinjector for self administration.
- **Consider CPAP / PEEP for any patient with Pulmonary Edema.**
- **Consider contacting Poison Control Center for consultation: 1-800-222-1222 or Medical Control**

SEIZURE MANAGEMENT

History:	Signs and Symptoms:	Differential:
• **SAMPLE** • **OPQRST** • Witnessed seizure activity • PMHx of seizure, diabetes, trauma • Pregnancy. • Anticonvulsant medication • Medic Alert Bracelet	• AMS (unconsciousness, somnolence, agitation, confusion) • Diaphoretic, tachycardic • Incontinence, tongue bleeding • Primary / secondary trauma • Tonic / clonic activity • Substance abuse	• Head injury, tumor, CVA • Cardiac arrest, hypoxia, shock • Metabolic / electrolyte derangement • Meningitis / Encephalitis, fever • Alcohol / drug withdrawal • Eclampsia

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical / Trauma Supportive Care Guidelines o Continuous SpO_2, $ETCO_2$, EKG monitoring o Accucheck: treat if < 60 mg/dl	o Medical / Trauma Supportive Care Guidelines o Continuous SpO_2, $ETCO_2$, EKG monitoring o Accucheck: treat if < 60 mg/dl
PARAMEDIC	**PARAMEDIC**
o ***Midazolam 2.0-5.0 mg** SIVP / IO -or- o **Midazolam 5.0 mg** IM / IN if no IV / IO. o **Diazepam 5.0 mg** -or- **Lorazepam 2.0 mg** SIVP for seizures refractory to midazolam. o **Magnesium Sulfate 4 gms in 100 cc D_5W** wide open for active seizures secondary to eclampsia until seizure stops then slow to finish dose. o **Thiamine 100 mg** SIVP for hypoglycemic w/ evidence of ETOH abuse or malnourishment. o **$D_{50}W$ 25 gms** SIVP for hypoglycemia	o **Midazolam 0.1 mg/kg** SIVP / IO **(max 2 mg per dose)** -or- o **Midazolam 0.2 mg/kg** IM / IN **(max 5 mg per dose)** o **Diazepam 0.2 mg/kg (max 5 mg per dose)** -or- **Lorazepam 0.1 mg/kg (max 2 mg per dose)** SIVP for seizures refractory to midazolam. o **$D_{25}W$ 0.5 gm/kg** SIVP for hypoglycemia
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o

Pearls:

- ***Lorazepam is the preferred antiseizure medication if equally accessable.**
- Protect patient from injury during active seizure.
- 5 minutes of continuous seizure activity or two or more seizures w/o conscious period are emergent. Treat aggressively to stop seizure activity. Be prepared to support ventilations.
- All Benzodiazepines are respiratory depressants, closely monitor airway / ventilation status of patient and assist / control when necessary.
- Ensure patients experiencing febrile seizures are not excessively dressed or bundled and determine last acetaminophen / ibuprofen dose.

STROKE / CVA

History:	Signs and Symptoms:	Differential:
• **SAMPLE** • **OPQRST** • CVA, TIA • Recent surgery • ASCVD, Htn, DM • Atrial fibrillation • Meds (blood thinners), tobacco use	• AMS, headache, ataxia, seizure • Loss of cognition, speech or slurred speech. • Lateralizing motor / sensory deficit • Hypertension / hypotension • A-fib • Vertigo, visual disturbance	• Hypoglycemia • Seizure (post-ictus) • Bell's Palsy • Brain Tumor, AVM, abscess • CNS infection • Cardiac dysrhythmia • Drug OD / reaction

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical Supportive Care Guidelines o Continuous SpO_2, $ETCO_2$, EKG monitoring • Maintain SpO_2 > 92% while avoiding unnecessary high flow O_2. • Advance airway as needed. o Accucheck: treat if < 60 mg/dl o Cincinnati Stroke Scale: acutely positive = Stroke Alert	o
PARAMEDIC	**PARAMEDIC**
o 12-lead EKG (+ STEMI = transport to STEMI / STROKE center) o **Thiamine 100 mg** SIVP / IM for hypoglycemic w/ evidence of ETOH abuse or malnourishment. o **$D_{50}W$ 25 gms** SIVP if hypoglycemic	o On-line medical consultation
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o

Pearls:

- Stroke Alert = rapid transport to Stroke Center
- Monitor airway closely, dysphagia and vomiting are common.
- Correct hypoglycemia early
- Try to pinpoint on-set of symptoms and document time
- Avoid excessive fluid administration unless indicated
- Head of stretcher at least 30 degrees unless contraindicated

Section VI: OB / GYN

OBSTETRICAL EMERGENCIES

History:	Signs and Symptoms:	Differential:
• **SAMPLE** • **OPQRST** • Antihypertensive medication • Prenatal care • Gravida / Para	• Vaginal bleeding • Abdominal pain • Seizures, hypertension • Severe headache, visual changes • Edema – hands, face	• Pre-eclampsia / eclampsia • Placental abruption • Placenta previa • Spontaneous abortion • Therapeutic abortion

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical / Trauma Supportive Care Guidelines o Accucheck: treat is < 60 mg/dl	o
PARAMEDIC	**PARAMEDIC**
o **Magnesium Sulfate 4 gms/100 cc D_5W** wide open for active seizures secondary to eclampsia until seizure stops then slow to finish dose. o **Midazolam 2.0-5.0 mg** SIVP / IM / IN for eclamptic seizure not responsive to magnesium sulfate or for patients with seizure Hx not related to pregnancy. o **Diazepam 5.0 mg -or- Lorazepam 2.0 mg** SIVP for seizure refractory to the above treatment.	o On-line medical consultation
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o

Pearls:

- Severe headache, vision changes, or RUQ abdominal pain may indicate pre-eclampsia.
- In the setting of pregnancy, hypertension is defined as SBP > 140 or DBP > 90 mmHg.
- Maintain patient in a left lateral position to minimize risk of supine hypotensive syndrome.
- Ask patient to quantify any bleeding by # of pads used per hour.
- Magnesium Sulfate and benzodiazepines may cause hypotension and decreased respiratory drive, monitor the patient closely.

NORMAL DELIVERY PROCEDURES

- Apply gentle palm pressure to the infant's head to prevent explosive delivery and tearing of perineum.
  - As delivery occurs, suction mouth then nose.
  - If amnion is still intact as head delivers:
    - Instruct mother to stop pushing.
    - Gently tear open membrane and immediately suction mouth, then nose.
- Keep newborn warm and dry.
- Keep newborn at vaginal level until cord is cut.
  - Clamp the cord 6 & 9 inches away from baby and cut between the clamps.
- APGAR score at 1 minute and 5 minutes.

COMPLICATED DELIVERY

- **Significant blood loss or delayed placental delivery**.
  - Unless multiple birth is anticipated, begin fundal message.
  - **Lactated Ringers 250-500 cc** or as needed to maintain SBP 100 mmHg.
  - Encourage the newborn to breast feed.
- **Nuchal cord**
  - Attempt to slip cord over the head.
  - If cord is too tight to remove, immediately clamp and cut cord.

- **Prolapsed cord**
  - Maintaining a pulsatile cord is the objective.
    - Administer O_2 to mother.
    - Place mother in Trendelenburg or knee-chest position.
    - Place two fingers of gloved hand into vagina to raise presenting portion of newborn off the cord.
    - Maintain that position during rapid transport to OB facility.
    - Instruct mother to pant and not bear down with each contraction.
    - If possible, keep cord warm / moist with sterile saline dressings.
- **Breech presentation**
  - Administer O_2 to mother.
  - Support newborn's body as it is delivered.
  - Gently guide the infant upward to allow delivery of the posterior shoulder then downward to deliver the anterior shoulder.
  - As the head passes the pubis, apply gentle upward pressure until the mouth appears over the perineum and immediately suction the mouth, then nose.
  - If the head does not deliver, form a "V" with the index and middle finger on either side of the infant's nose. Push the vaginal wall from the face and maintain that position during rapid transport to an OB facility.
- **Shoulder dystocia**
  - Position mother on her Lt. side in a dorsal-knee-chest position to increase the diameter of the pelvis.
  - Attempt to guide the infant's head downward to allow the anterior shoulder to slip under the symphysis pubis. Avoid excessive force or manipulation.
  - Gently rotate the fetal shoulder girdle into the wider oblique pelvic diameter.
  - If delivery does not occur, maintain airway patency as best as possible and immediately transport to OB facility.
- **Stillborn / abortion**
  - All patients with suspected abortion should receive O_2, emotional support, and transportation for physician evaluation.
  - All products of conception should be carefully collected and transported with the mother to the hospital.

Section VII: Trauma

BURNS / ELECTROCUTION / SMOKE INHALATION

History:	Signs and Symptoms:	Differential:
• **SAMPLE** • **OPQRST** • Type: thermal, chemical, radiological, electrical • Length of exposure • Inhalation / airway injury • Other trauma	• Loss of consciousness, near syncopal • Hypotension / tachycardia / shock • Pain, edema, shivering • Respiratory distress • Airway compromise: singed facial hair, hoarseness / stridor /wheezing	• Superficial (1^o) redness/painful • Partial thickness (2^o) blistering • Full thickness (3^o) pearly white, charred, leathery • Chemical • Electrical • Radiation

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical / Trauma Supportive Care Guidelines o Stop the burning process, remove from the environment o Remove all jewelry / constricting items o Monitor airway closely and begin O_2 therapy early o Apply DSD to Burns > 15% BSA o Apply Water-Jel dressing to all burn areas < 15% BSA then cover to minimize evaporation / heat loss	o Medical / Trauma Supportive Care Guidelines o Stop the burning process, remove from the environment o Remove all jewelry / constricting items o Monitor airway closely and begin O_2 therapy early o Apply DSD to Burns > 15% BSA o Apply Water-Jel dressing to all burn areas < 15% BSA then cover to minimize evaporation / heat loss
PARAMEDIC	**PARAMEDIC**
o **NS 500 ml** IV if evidence of hypo-perfusion (repeat as necessary) o **Pain Control Guideline** o High voltage electrical injury or direct lightning strike with significant tissue destruction • **NS 1000 ml bolus** • **Sodium Bicarbonate 1 mEq/kg** (max 100 mEq) o Smoke inhalation / suspected CO/CN poisoning ▪ **Cyanokit 5 g** IV infusion over 15 mins for moderate to severe exposure as defined in table below.	o **NS 20 ml/kg ml** IV if evidence of hypo-perfusion (repeat as necessary) o **Pain Control Guideline** o High voltage electrical injury or direct lightning strike with significant tissue destruction • **NS 20 ml/kg bolus** • **Sodium Bicarbonate 1 mEq/kg** (max 50 mEq) o Smoke inhalation / suspected CO/CN poisoning • **Cyanokit 70 mg/kg** IV infusion over 15 mins for moderate to severe exposure as defined in table below.
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o

Pearls:

- Critical Burns: any burn > 25% BSA; 3^o burns > 10% BSA; 2^o and 3^o burns to the face, eyes, hands or feet; airway/respiratory burns; burns with extremes of age or co-morbidities; electrical burns.
- Early ET intubation is required in significant inhalation injuries.
- Consider Carbon Monoxide (CO) and Cyanide (CN) toxicity if removed from confined space. (see next page)
- Consider child/elder abuse in those populations.
- Burn patients are prone to hypothermia, minimize heat loss.
- Decontaminate all chemical/radiation burns before transport.
- Reverse triage electrocution/lightning strike victims.
- Safely evacuate patient from source and protect rescuers/public.

Clinical Severity

Suspected Carbon Monoxide (CO), Cyanide (CN), or Combined Exposure

Note: Pulse Oximetry may give false readings in patients exposed to CN, methemoglobin or CO

Mild Exposure	**Moderate Exposure**	**Severe Exposure**
+ soot in nose / mouth / oropharynx + Headache + Anxiety + Blurry vision	+ Soot in nose / mouth / oropharynx + Confusion / disorientation / AMS + Hypotension + Cardiac Dysrhythmias	+ Soot in nose / mouth / oropharynx + Coma / respiratory or cardiac arrest + Hypotension
• Administer 100% O_2 via NRB • Monitor SpO_2, SpCO, SpMet, $ETCO_2$, ECG • Reassess frequently	• Administer 100% O_2 via NRB • Monitor SpO_2, SpCO, SpMet, $ETCO_2$, ECG • Reassess frequently • Intubate / PEEP as indicated • Collect blood sample (marble, lavender, grey top) • If Hypotensive, give fluid challenge and administer Cyanokit. 5 g IV over 15 min. enroute to appropriate facility.	• Administer 100% O_2 with BVM and advanced airway / PEEP, as indicated • Monitor SpO_2, SpCO, SpMet, $ETCO_2$, ECG • Reassess frequently • Collect blood sample (marble, purple, grey top) • If Hypotensive, give fluid challenge and administer Cyanokit. 5 g IV over 15 min. enroute to appropriate facility. Monitor for clinical response / and need for second 5 g dose.

EXTREMITY TRAUMA / AMPUTATIONS / CRUSH INJURY

History:	Signs and Symptoms:	Differential:
• SAMPLE / DCAP-BTLS • OPQRST • Mechanism: crush / penetrating / amputation • Time / type of injury • Open vs. closed wound / fracture • Wound contamination	• Pain, swelling, deformity • Hypotension / hypovolemia / shock • Diminished sensory-motor function • Diminished distal pulse / cap refill • Diminished distal temperature • Abnormal limb coloration	• Abrasion • Contusion • Laceration • Dislocation / fracture • Crush / Amputation

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical / Trauma Supportive Care Guidelines	o Medical / Trauma Supportive Care Guidelines
PARAMEDIC	**PARAMEDIC**
o **Pain Management Guideline** o *Crush injury syndrome*: prior to release of compression when possible ▪ EKG monitoring for hyperkalemia ▪ **Normal Saline 1000cc** IV bolus ▪ **Sodium Bicarbonate 1 mEq/kg** SIVP	o **Pain Management Guideline** o *Crush injury syndrome*: prior to release of compression when possible ▪ EKG monitoring for hyperkalemia ▪ **Normal Saline 20 ml/kg** IV bolus ▪ **Sodium Bicarbonate 1 mEq/kg** SIVP
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o

Pearls:

- Uncomplicated fractures / dislocations with adequate circulation should be splinted in position of function.
- Fractures / dislocations with circulation compromise and / or angulation should be manipulated to restore circulation and be splinted in position of function if possible (following appropriate pain control if possible). If the attempt is unsuccessful, splint in position found and expedite transport.
  - Fractures and joint dislocations without a distal pulse or signs of circulation are a true emergency.
- For patients with potential pelvic fractures, the treatment of choice is application of the **SAM pelvic splint.**
- Isolated proximal femur (hip) fractures are usually best managed with anatomical splinting utilizing a scoop stretcher. Traction splints are not appropriate for proximal femur fractures.
- Femoral shaft fractures **may** be immobilized utilizing a traction splint unless one of the situations listed below is present:
  - If use would delay transport of a patient with life threatening condition (multiple trauma or trauma alert).
  - Injuries involving the knee joint.
  - Injuries involving the pelvis.
  - Partial amputation.
  - Ipsilateral lower leg Fx / injury.
- Incomplete Amputated body part or tissue
  - Direct pressure for hemorrhage control.
  - Splint affected digit or limb in position of function.
- Amputated body part or tissue
  - All retrievable tissue should be transported (do not delay transport for retrieval).
  - Rinse amputated part with NS, then wrap with sterile saline soaked dressing(s).
  - Place into a plastic bag or container then onto ice or cold pack.
  - Do not allow part / tissue to come into direct contact with ice.
- Tooth Avulsion

- Handle tooth by chewing surface only. (avoid touching the root)
- Rinse with water or saline. Do not scrub, dry or wrap tooth in tissue or cloth.
- Place tooth in container with (in order of preference)
  - Milk
  - NS
  - Water

- *Crush injury syndrome *
  - Constant crush injuries greater than 4 hours duration. (pinned, entrapment, building collapse etc.)
  - Most patients in whom the syndrome develops have an extensive area of involvement such as lower extremities and / or pelvis.
  - IV fluids and other treatment required prior to release of compression. (see in Tx area)
  - Early Sodium Bicarbonate alkalinizes the urine, controls hyperkalemia and acidosis.

HEAD INJURY / TBI

History:	Signs and Symptoms:	Differential:
• SAMPLE / DCAP-BTLS • OPQRST • Mechanism: blunt / penetrating • Loss of consciousness • Multiple trauma • Helmet use? or damage to helmet • Active / controlled bleeding	• AMS, unconsciousness • Pain, swelling, bleeding • Hypo / hypertension, brady / tachycardia • Abnormal craniofacial contour • Respiratory compromise • Vomiting, repetitive questioning • Unequal pupils, posturing	• Skull fracture • Traumatic Brain Injury: ▪ Concussion ▪ Epidural hematoma ▪ Subdural hematoma ▪ Subarachnoid hemorrhage • Stroke, Seizure, Hypoglycemic

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical / Trauma Supportive Care Guidelines o Continuous SpO_2, $ETCO_2$, EKG monitoring o Accucheck: treat is < 60 mg/dl	o Medical / Trauma Supportive Care Guidelines o Continuous SpO_2, $ETCO_2$, EKG monitoring o Accucheck: treat is < 60 mg/dl
PARAMEDIC	**PARAMEDIC**
o Basic / Advanced airway as needed -ventilate to maintain normal $ETCO_2$ (35-45 mmHg) o **Seizure protocol** as needed for seizure o **Dopamine 10-20 mcg/kg/min** IV infusion for persistent hypotension unresponsive to fluid. Titrate to maintain SBP >100 mmHg.	o Basic / Advanced airway as needed -ventilate to maintain normal $ETCO_2$ (35-45 mmHg) o **Seizure protocol** as needed for seizure o **Dopamine 10-20 mcg/kg/min** IV infusion for persistent hypotension unresponsive to fluid. Titrate to maintain SBP >80-100 mmHg.
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
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Pearls:

- If GCS < 12 consider air medical transport or rapid ground transport and < 8 intubation should be considered.
- Increased ICP may cause hypertension and bradycardia (Cushing's reflex).
- Do NOT overventilate, maintain normal $ETCO_2$ levels.
- Hypotension should be treated aggressively to maintain SBP ≥ 100 mmHg. (≥ 80 mmHg in Peds)
- Limit IV fluids if not hypotensive. (SBP>100 mmHg).
- Monitor and document changes in the level of consciousness.
- With potential or obvious skull fracture, use caution when applying direct pressure.
- Open skull fracture should be covered with non-pressure DSD.
- Control scalp / facial bleeding as above. Massive blood loss can result from small wounds.
- All clear fluid in the outer ear IS NOT CSF. (tears, sweat, water)

MULTIPLE TRAUMA

History:	Signs and Symptoms:	Differential:
• **SAMPLE / DCAP-BTLS** • **OPQRST** • Time and mechanism of injury • Damage to structure or vehicle • Location in structure or vehicle • Others injured or dead • Speed and details of MVC • Restraints / protective equipment	• Pain, swelling, deformity, open wounds • External / internal blood loss • AMS / unconsciousness • Hypotension / shock • Cardiac arrest	• Chest: Tension pneumothorax Hemothorax Flail chest Pericardial tamponade Open chest wound • Intra-abdominal bleeding • Pelvis / Femur fracture • Vertebral Fx / spinal cord injury • Head injury

ADULT	PEDIATRIC (<40 KG)
EMT-BASIC PROVIDER	**EMT-BASIC PROVIDER**
o Medical / Trauma Supportive Care Guidelines o Continuous SpO_2, $ETCO_2$, EKG monitoring o Airway / Ventilation control / support o Rapid Trauma Assessment and GCS o **Scene time < 10 minutes**	o Medical / Trauma Supportive Care Guidelines o Continuous SpO_2, $ETCO_2$, EKG monitoring o Airway / Ventilation control / support o Rapid Trauma Assessment and GCS o **Scene time < 10 minutes**
PARAMEDIC	**PARAMEDIC**
o **Lactated Ringer's IV** titrate to maintain SBP > 100 mmHg. Two large bore sites if possible. o **Pain Management Guideline** o **Needle Chest Decompression** if evidence of tension pneumothorax.	o **Lactated Ringer's IV** titrate to maintain SBP > 80 mmHg. o **Pain Management Guideline** o **Needle Chest Decompression** if evidence of tension pneumothorax.
PHYSICIAN ORDER ONLY	**PHYSICIAN ORDER ONLY**
o	o

Pearls:

- Rapid transport is the primary objective and most procedures should be done enroute.
- Request air medical transport early, when appropriate.
- Trauma Alert patients that are immediately accessible are frequently transported faster by ground.
- Control all blood loss that is accessible.
- Moderate to severe trauma IV/L.R. on a macro drip or a blood solution set and titrate to SBP 100 mmHg in adults and 70-80 mmHg in Peds. Do not attempt to "normalize" the BP. Permissive hypotension helps minimize blood loss until definitive measures are taken by a surgeon.
- Scalp and facial wounds bleed profusely, assure they are controlled.
- Absence of breath sounds alone does not equal tension pneumothorax.
- Apply SAM pelvic splint for suspected pelvic fractures.
- Reduce / align long bone fractures when possible.
- Always consider a medical event may have led to the traumatic event. i.e. hypoglycemia, seizure
- Cardiac Arrest secondary to blunt force trauma is rarely survivable.
- All traumatic cardiac arrest patients that resuscitation is attempted; bilateral needle chest decompression and pericardiocentesis should be performed in addition to standard resuscitative measures.
- Give LMH Trauma Alert-criteria as early as possible.

APPENDIX A: PHARMACOLOGY REFERENCE

ADENOCARD (ADENOSINE)

ACTIONS:
An endogenous nucleoside from human body cells, it slows conduction time through the AV-node restoring patients to a normal sinus rhythm.

INDICATIONS:
- Regular paroxysmal supraventricular tachycardia
- Regular narrow complex tachycardia

CONTRAINDICATIONS:
- 2nd or 3rd degree AV block
- Known sick sinus syndrome unless an artificial pacemaker is in place
- Known hypersensitivity to adenosine

PRECAUTIONS:
- Wide Complex Tachycardia
- Atrial Fibrillation and Atrial Flutter with a rapid ventricular response
- Patients with ASTHMA, or COPD
- Patients known or suspected of taking Theodur, Persantine or any product containing Dipyradamole

ADVERSE REACTIONS:
- Transient high grade AV block chest pain, palpitations, and shortness of breath.

DOSAGE:

ADULT:

- 6mg given rapidly (1-2 seconds) IV push, followed by a 20cc flush. Two additional doses of 12mg rapid IV push, followed by a 20cc flush may be given as indicated.

PEDIATRIC:

- 0.1mg/kg rapid IV push, followed by a 3-5cc flush (6mg max). A second dose of 0.2mg/kg rapid IV push, followed by a 3-5 cc flush, may be repeated (12mg max).
- Refer to Broselow tape

The half-life of Adenocard is 10 seconds. After drug administration flush the IV for 30 seconds.

ROUTE:
- IV. Should be administered through vascular access most proximal to central circulation.
- NOTE: not appropriate to be given IO. Adequate dose for IO has yet to be determined.

HOW SUPPLIED:
- 6 mg in a 2 ml pre-filled syringe. 12 mg in a 4 ml pre-filled syringe.

ASPIRIN (ASA)

ACTIONS:
Aspirin blocks pain impulses in the CNS, dilates peripheral vessels, and inhibits platelet aggregation.

INDICATIONS:
- Prevention of platelet aggregations in ischemia and thromboembolism
- Unstable angina
- Prevention of myocardial infarction or re-infarction

CONTRAINDICATIONS:
- Hypersensitivity to salicylates
- GI bleeding
- Active ulcer disease
- Hemorrhagic stroke
- Bleeding disorders

PRECAUTIONS:
- None

ADVERSE REACTIONS:
- Stomach irritation
- Indigestion
- Nausea or vomiting
- Allergic reaction

DOSAGE:
- 324 mg (4 tabs)

ROUTE:
- Chewed and swallowed

HOW SUPPLIED:
- 81 mg chewable tablets

ATIVAN (LORAZEPAM)

ACTION: (BENZODIAZAPINE)
Ativan is a benzodiazepine with antianxiety, sedative and anticonvulsant effects. When given IV, it appears to suppress the propagation of seizure activity produced by foci in the cortex, thalamus, and limbic areas.

INDICATIONS:
- Motor Seizures
- Status epilepticus
- Long acting sedation

CONTRAINDICATIONS:
- Hypersensitivity to lorazepam / benzodiazepines

PRECAUTIONS:
- Respiratory depression is more pronounced when patient has ingested alcohol or other CNS depressant drugs.
- Ativan is longer acting than Valium or Versed.
- Inadvertent intra-arterial injection may produce arteriospasm which may result in gangrene / amputation.
- Extreme caution must be used in elderly patients and patients with limited pulmonary reserve.

ADVERSE REACTIONS:
- Respiratory Depression
- Hypotension
- Bradycardia

DOSAGE:

Just before administration, an equal volume of saline should be mixed with Ativan.

ADULT:

- 0.1 mg/kg up to 4.0 mg per dose IV / IO

PEDS:

- 0.1 mg/kg IV / IO titrated to stop seizure (max 2.0 mg per dose)

ROUTE:
- IV, IO

ATROVENT (IPRATROPIUM BROMIDE)

ACTION: (ANTICHOLINERGIC)
Atrovent is an anticholinergic (parasympatholyitic) agent that inhibits vagally-mediated reflexes by antagonizing the action of acetylcholine on bronchial smooth muscle. The bronchodilation that results is site specific rather than systemic.

INDICATIONS:
- Persistant bronchospasm
- COPD exacerbation

CONTRAINDICATIONS:
- Hypersensativity to ipratrpium, or to atropine and its derivitives.

PRECAUTIONS:
- Use with caution in patients narrow-angle glaucoma

ADVERSE REACTIONS:
- Nausea / Vomiting
- Coughing
- Headache
- Tachycardia
- Dry Mouth
- Blurred vision

DOSAGE:

One unit dose vial of atrovent added to one unit dose vial of albuterol (aerosolized treatment) This is equivelant to DuoNeb and shall be used in all treatment guidlines that call for DuoNeb.

ADULT:

- 0.5 mg/2.5 ml vial (one unit dose)

PEDS:

- Same as Adult over the age of 12.

ROUTE:
- AT

ATROPINE SULFATE

ACTIONS: (ANTICHOLINERGIC)

Parasympathetic blocker, reducing vagal tone. Atropine is a Parasympatholytic (Anticholinergic) that acts to block acetylcholine receptors, thus inhibiting parasympathetic stimulation. Used in DAI to mitigate reflex bradycardia and suppress oral / nasal secretions.

INDICATIONS:

- Hemodynamically symptomatic bradycardias
- Heart blocks
- Asystole
- Organic phosphate poisoning
- Pre-medication for DAI

CONTRAINDICATIONS:

- Tachycardias
- Second Degree Type II and Third Degree heart blocks

PRECAUTIONS:

- If given in too small a dose, or if given too slowly, bradycardia may worsen.

ADVERSE REACTIONS:

- Dryness of the mouth and nose, blurred vision, dilated pupils, tachycardia, headache and restlessness

DOSAGE:

ADULT:

- Brady-Dysrhythmias: 0.5mg every 5 minutes to a maximum of 0.04mg/kg or 3 mg total dosage.
- Asystole: 1mg IV push to be repeated every three minutes to a maximum of 0.04mg/kg or 3 mg total dosage.
- Organic Phosphate Poisoning: 0.5-1 mg boluses, titrating until signs / symptoms resolve.

PEDIATRIC:

- Brady-Dysrhythmias: 0.02 mg/kg (0.1mg minimum dose). May be repeated every 5 minutes to a maximum total dose of 1 mg in a child and 2 mg in an adolescent.
- DAI 0.01mg/kg minimum of 0.2 mg. (Refer to DAI chart)
- Refer to Broselow tape for resuscitation dose

ROUTE:

- IV, IO, IM

HOW SUPPLIED:

- 1 mg in a 10 ml pre-filled syringe
- 0.5 mg in a 5 ml pre-filled syringe

BENADRYL (DIPHENHYDRAMINE HYDROCHLORIDE)

ACTION:
Benadryl is an antihistamine with anticholinergic (drying) and sedative side effects. Antihistamines compete with histamine for cell receptor sites during allergic reactions.

INDICATIONS:
- Anaphylaxis (administered after epinephrine)
- Allergic Reactions
- Dystonic reactions

PRECAUTIONS:
- Use with caution in patients with a history of asthma, cardiovascular disease, and hypertension
- Sedative effects are more pronounced when patient has ingested alcohol or other CNS depressants (barbiturates, phenothiazine, antidepressants, or narcotics)

ADVERSE REACTION:
- Tachycardia
- Hypotension
- Central Nervous System depression
- Nausea and vomiting

DOSAGE:

ADULT:

- 50 mg

PEDIATRIC:

- 1 mg/kg up to 25 mg

INFANT:

- 1 mg/kg

ROUTE:
- IV, IO, IM

HOW SUPPLIED:
- 50 mg in a 1 ml pre-filled syringe

CARDIZEM (DILTIAZEM)

ACTION:
Cardizem is a calcium channel blocker. Cardizem inhibits the influx of extra cellular calcium across both the myocardial and vascular smooth muscle cell membranes. The end result decreases the contractility of the myocardial smooth muscle, dilation of the coronary and systemic arteries.

INDICATIONS:
- Atrial Fibrillation
- Atrial Flutter
- Angina
- Hypertension
- Paroxysmal supraventricular tachycardia (PSVT) refractory to adenosine

CONTRAINDICATIONS:
- Patients with cardiogenic shock, or patients with a systolic B/P <90mmHg and hypoperfusion.
- Patients with known accessory pathway conditions (WPW)

PRECAUTIONS:
- Use with caution in patients with ventricular dysfunction, severe bradycardia or with previous conduction abnormalities
- It should not be used in obstetric patients
- Must be refrigerated

ADVERSE REACTION:
- Systemic hypotension
- Nausea / Vomiting
- Bradycardias
- Heart blocks
- Asystole

DOSAGE:
- 0.25 mg/kg IV over 2-3 minutes, not to exceed 20 mg.
- If necessary a second dosage of 0.35 mg/kg IV may be given over 2-3 minutes, not to exceed 25 mg.

*** NOTE: There is to be a 15-minute interval between 1st and 2nd dosage.**

ROUTE:
- IV, IO

HOW SUPPLIED:
- 25 mg in a 5 ml MDV

CORDARONE (AMIODARONE)

ACTIONS:

Antidysrhythmic drug with sodium channel blocking, and anti-sympathetic nervous system properties, resulting in negative dromotropic effect on the heart. Prolonged administration results in a lengthening of the cardiac action potential. Amiodarone possesses negative chronotropic effects slowing conduction and prolonging the refractory period. Amiodarone administration prolongs intranodal conduction and refractoriness of the atrioventricular node, but has no effect on the sinus node. Used in a wide variety of atrial and ventricular tachydysrhythmias and for rate control of rapid atrial arrhythmias in patients with impaired LV function.

INDICATIONS:

- Ventricular Fibrillation and Pulseless Ventricular Tachycardia.
- Treatment of Ventricular Tachycardia and Wide Complex Tachycardia of uncertain etiology
- Control of hemodynamically stable Ventricular Tachycardia when cardioversion is unsuccessful
- Used as adjunct to cardioversion of SVT and PSVT
- May be used for rate control in atrial fib and flutter when other therapies are ineffective or contraindicated
- Acceptable for termination of ectopic or multifocal atrial tachycardia with Left Ventricular dysfunction

CONTRAINDICATIONS:

- Torsade de Pointes
- Cardiogenic Shock
- Hypotension

PRECAUTIONS:

- May produce vasodilatation and hypotension, and negative inotropic effects
- Use with caution in renal failure, half-life can last up to 40 days

ADVERSE REACTIONS:

- Hypotension
- Headache
- Bradycardia
- AV conduction abnormalities
- Flushing

DOSAGE:

ADULT:

- Cardiac Arrest: 300 mg IV push, repeated in 3-5 minutes at 150 mgs if required.
- Wide Complex Tachycardia / SVT (stable): 150mg in 100 ml D_5W over 10 minutes, may repeat once.

PEDIATRIC:

- VF/ Pulseless VT is 5 mg/kg IVP / IO (max 300 mg)
- VT / SVT (with pulse) 5 mg/kg in 100 ml D_5W over 20-60 minutes (max 300 mg)

ROUTE:

- IV, IO

HOW SUPPLIED:

- 150 mg in a 3 ml prefilled syringe

CYANOKIT (HYDROXOCOBALAMIN)

ACTION:

- Cyanokit (hydroxocobalamin) has a high affinity for cyanide ions and is converted to cyanocobalamin (vitamin B_{12}). B_{12} is a water soluble vitamin that is then removed from the circulation and is readily excreted in the urine.

INDICATIONS:

- Cyanokit is indicated for the treatment of known or suspected cyanide poisoning. Cyanide poisoning may result from inhalation, ingestion, or dermal exposure to various cyanide containing compounds, including smoke from closed-space fires (smoke inhalation).
- Haz-mat and terrorist incidents involving cyanide

CONTRAINDICATIONS:

- None

PRECAUTIONS:

- Known anaphylactic reactions to hydroxocobalamin or cyanocobalamin.
- Transient increases in blood pressure during the infusion.
- A pre-treatment purple-top vacutainer should be drawn, if possible, because Cyanokit interferes with colorimetric determined lab parameters.

ADVERSE REACTIONS:

- Chromaturia (red urine)
- Erythema (skin redness), rash
- Increased blood pressure, headache
- Nausea/vomiting, diarrhea

DOSAGE:

- IV infusion through a dedicated IV line.
- After reconstitution, each vial contains 25 mg/ml

ADULT:

- 5 g (two 2.5 g vials) over 15 minutes

PEDS:

- 70 mg/kg (max 5 gms)

ROUTE:

- IV, IO

D_5W (5% DEXTROSE IN WATER)

ACTION:
D_5W is a hypotonic glucose solution, used to keep a vein open and to supply calories necessary for cell metabolism. While it will have an initial effect of increasing the circulatory volume, glucose molecules rapidly diffuse across the vascular membrane with a resultant free water increase. It has a pH of 4.3 and contains 5g of dextrose per 100ml.

INDICATIONS:
- Infusion of Cordarone or Magnesium Sulfate

CONTRAINDICATIONS:
- None for its intended use

PRECAUTIONS:
- N/A

ADVERSE REACTIONS:
- N/A

DOSAGE:
- 100 ml

ROUTE:
- IV infusion

HOW SUPPLIED:
- 100 ml bags

DEXTROSE ($D_{25}W$ / $D_{50}W$)

ACTION:
Dextrose in water supplies supplemental glucose in cases of hypoglycemia. D-50% is a hypertonic solution primarily used to elevate the blood sugar. It may be used to initially decrease intracranial pressure.

INDICATIONS:
- Hypoglycemia
- Coma of unknown origin
- Cardiac arrest
- And in rare instances cerebral edema

CONTRAINDICATIONS:
- Patients with increased ICP or intracranial hemorrhage

PRECAUTIONS:
- Perform a Glucometer check and draw a blood tubes prior to administration, if possible
- Localized venous irritation and tissue necrosis may result from infiltrated line

ADVERSE REACTIONS:
- Hyperglycemia
- Thrombophlebitis

DOSAGE:

ADULT:

- 25 grams of $D_{50}W$

PEDIATRIC:

- 0.5 gm / kg of $D_{25}W$
- Refer to Broselow tape

ROUTE:
- IV, IO

HOW SUPPLIED:
- $D_{50}W$ - 25 grams glucose in a 50 ml pre-filled syringe.
- $D_{25}W$ - 2.5 grams of glucose in a 10 ml pre-filled syringe.

DIPRIVAN (PROPOFOL)

ACTION:
Global anesthetic, sedative hypnotic for use in the sedation of an intubated patient. Produces hypnosis rapidly, within 30 seconds, with minimal excitation. Advantageous in that its effects reverse rapidly also. This is especially helpful in the patient whose neurologic status is in question.

INDICATION:
- Used for the continued sedation of the intubated patient including status post cardiac arrest or traumatic arrest

CONTRAINDICATIONS:
- In patients with know hypersensitivity to this drug
- Obstetric patients
- Patients with known allergies to eggs or sulfites
- Patients in cardiac or traumatic arrest
- Patients less than 3 years of age

PRECAUTIONS:
- Strict, aseptic technique must be utilized. This product contains no antibiotic preservatives and can support rapid growth of microbial organisms

ADVERSE REACTIONS:
- Nausea, vomiting, pain at the injection site, hypoventilation to apnea, snoring, hypotension, laryngospasm, and brady / tachycardia

DOSAGE AND ADMINISTRATION:
IV Infusion Only Through a Dedicated IV Line

ADULT:

- 5-50 mcg/kg/min titrated to effect. (Refer to DAI chart)

PEDIATRIC:

- 5 mcg/kg/min titrated to effect. (Refer to DAI chart)

HOW SUPPLIED:
- 500mg in a 50 ml vial (50 mg/ml)

DOPAMINE (INTROPIN)

ACTION:

Vasopressor – dose dependent alpha, beta, and dopaminergic agonist.

- Low dose - (0.5-2mcg/kg/min.) causes vasodilatation in renal, mesenteric, cerebral, and coronary arteries, via activation of the dopamine receptor sites.
- Intermediate dose - (2-10 mcg/kg/min.) produce a step-wise increase in contractility, automaticity, and conductivity via beta-receptor effects.
- High dose - (10-20mcg/kg/min.) the alpha receptor effects predominate producing peripheral vasoconstriction.
- Extremely high dose- (>20mcg/kg/min) renal and mesenteric vessels constrict resulting in decreased blood flow and significant peripheral vasoconstriction.

INDICATIONS:

- Hypoperfusion due to myocardial infarction, sepsis, severe congestive heart failure, and pulmonary edema
- Cardiogenic shock

CONTRAINDICATIONS:

- VF / VT

PRECAUTIONS:

- Correct any volume deficit before instituting dopamine therapy, unless otherwise directed.
- Do not mix with Sodium Bicarbonate; this deactivates Dopamine

ADVERSE REACTIONS:

- Ectopy, local tissue narcosis if line infiltrates, tachycardia, palpitations, dysrhythmia, hypotension, nausea and vomiting

DOSAGE:

- 400mg/250cc premixed bag yields 1600 mcg/ml
- Initiate therapy at rate of 5mcg/kg/min and titrate to a blood pressure of 100 systolic in adults and 80-90 in pediatric patients

ROUTE:

- IV, IO

HOW SUPPLIED:

- 400 mg in a 250 ml premix bag (1600 mcg/ml)
-

DUODOTE

ACTION:
DuoDote is an auto-injector containing Atropine and Pralidoxime Chloride. Atropine's ability to block acetylcholine receptors reduce respiratory secretions, relieve airway constriction, and may reduce respiratory paralysis. Pralidoxime reactivates the enzyme acetylcholinesterase, which allows acetylcholine to be degraded, thus relieving the parasympathetic over-stimulation (cholinergic crisis) caused by excess acetylcholine. Pralidoxime potentiates the effect of Atropine, and their ability to reduce respiratory paralysis is significantly improved when the two medications are administered together.

INDICATIONS:
- Organophosphate poisoning
- Nerve agent exposure

CONTRAINDICATIONS:
- Hypersensitivity (rare)

PRECAUTIONS:
- None

ADVERSE REACTIONS:
- Cardiac dysrhythmias, especially tachycardias
- Hypertension
- Hyperventilation
- Muscle weakness
- Nausea

DOSAGE:

ADULT:

- Mild symptoms, including dyspnea, increased secretions, chest tightness, nausea, vomiting, and cardiac dysrhythmias: Atropine 2.1 mg and Pralidoxime 600 mg IM by auto-injector. If patient condition stabilizes, no additional doses are necessary; if patient's symptoms progress to include severe symptoms below, administer two additional auto-injectors.

Severe symptoms, including copious secretions, severe dyspnea, involuntary urination/defecation, convulsions, altered mental status or unconsciousness: Administer three auto-injectors; consider anticonvulsants

PEDIATRIC:

None
-

DUONEB

ACTION:

DuoNeb is a combination medication, which contains both Albuterol & Ipatropium bromide.

- Albuterol is a selective beta-2 adrenergic receptor agonist, thereby decreasing bronchospasms.
- Ipatropium bromide is an anticholinergic (parasympatholytic) agent, which causes localized bronchodilation.

INDICATIONS:

- DuoNeb is indicated for relief of bronchospasms associated with asthma and chronic obstructive pulmonary disease, including chronic bronchitis and emphysema that is unresponsive to treatment with albuterol alone.

CONTRAINDICATIONS:

- Hypersensitivity to atropine or its derivatives
- Known hypersensitivity to Proventil

PRECAUTIONS:

- Monitor vital signs and use cautiously in patients with hypertension or cardiac disease

SIDE EFFECTS:

- Respiratory: Cough, exacerbation of symptoms.
- CNS: Nervousness, dizziness, headache.
- Cardiovascular: Palpitations.
- GI: Nausea, vomiting, GI distress.
- Other: Tremor, dry mouth, blurred vision.

DOSAGE:

ADULT / PEDIATRIC:

- One dose vial (3.0 ml NS) nebulized
- One dose

ROUTE:

- Nebulizer at 6 liters per minute

HOW SUPPLIED:

- 0.02% in a 3.0 ml vial

EPINEPHRINE

ACTION:
Alpha and beta adrenergic agonist that stimulates all the effects of the sympathetic nervous system except those affecting the arteries of the face and sweat glands; major sympathetic effects include: Positive chronotropic effect, positive inotropic effect, increased systemic vascular resistance, bronchodilation, assist in the conversion of ventricular fibrillation, and Increased cerebral blood flow in cardiac arrest.

INDICATIONS:
- Asystole
- Pulseless electrical activity
- Heart blocks, bronchospasms, and anaphylaxis.
- Ventricular fibrillation
- Pulseless ventricular tachycardia

CONTRAINDICATIONS:
- Hypovolemic Shock

PRECAUTIONS:
- Give cautiously in patients with hypertension, tachycardia, or who are pregnant.
- Do not mix with Sodium Bicarbonate. This results in a deactivation of the Epinephrine.

ADVERSE REACTIONS:
- Tachycardia, palpitations, anxiety and headache
- Increased myocardial oxygen demand

DOSAGE:

ADULT:

- Ventricular Fibrillation, Pulseless Ventricular Tachycardia, Pulseless Electrical Activity and Asystole – 1 mg of 1:10,000 repeated every three to five minutes.
- Asthma and Anaphylaxis 0.01mg/ml of 1:1,000 IM.
- Anaphylactic shock (life threatening) 1 mg of 1:1,000 in 250 NS started at 2-10 mcg/min and titrate to desired effect.
- Bradycardias and blocks: 1 mg/250cc starting at 2-10 mcg/min, titrating to desired effects.

PEDIATRIC:

- Resuscitation dose: 0.01mg/kg IV/IO. Refer to Broselow tape
- Asthma and Anaphylaxis 0.01 mg/kg IM
- Anaphylactic shock (life threatening) 1 mg of 1:1,000 in 250 NS started at 1-5 mcg/min and titrate to desired effect.
- Bradycardias and blocks: 1 mg/250cc starting at 1-5 mcg/min, titrating to desired effects.
-

ROUTE:
- IV, IM, IO, AT

HOW SUPPLIED:
- 1:1000 - 1 mg in a 1 ml ampule
- 1:10,000 - 1 mg in a 10ml pre-filled syringe.

ETOMIDATE (AMIDATE)

ACTION:

Etomidate is a non-barbiturate, anesthetic, sedative, hypnotic agent used for general anesthesia. Following rapid administration the onset of action will produce a loss of conscious of within 60 seconds. The exact mechanism of action has not been fully determined yet. Etomidate is capable of producing all levels of CNS depression, from light sleep to deep coma. Effects are dependent upon dosage, rate and route of administration. Its duration is 3-15 minutes.

INDICATIONS:

- General anesthesia, conscious sedation of patients prior to short-term invasive procedures (intubation, cardioversion, etc.)

CONTRAINDICATIONS:

- Known hypersensitivity to etomidate.
- Known adrenocortical steroid secretion depression (e.g.…Addison's Disease)
- Patients in cardiac or traumatic arrest

PRECAUTIONS:

- May induce seizure in patients with known seizure disorders unless the patient is pretreated with benzodiazepines prior to administration of Etomidate.

ADVERSE REACTIONS:

- Nausea, Vomiting / projectile vomiting, pain at the injection site, hyper / hypoventilation to apnea, snoring, hypo / hypertension, laryngospasm, brady / tachycardia, myoclonic activity and adrenocortical steroid suppression.

DOSAGE:

- 0.3mg/kg Slow IV Push over 10-20 seconds (Refer to DAI chart)

ROUTE:

- IV, IO

HOW SUPPLIED:

- 40mg in a 20ml Bristojet. (2mg/ml)

FENTANYL

ACTION:

Fentanyl is a potent narcotic analgesic. The principal actions of therapeutic value are analgesia and sedation. A dose of 100 mcg is approximately equivalent to 10 mg of Morphine. Fentanyl has less emetic activity than Morphine and significantly less histamine release than Morphine, which preserves cardiac stability. The onset of action is almost immediate when given IV, however, the maximal analgesic and respiratory depressant effect may not be noted for several minutes. The usual duration of the analgesic effect is 30-60 minutes after a single IV dose. Fentanyl, like all narcotics, is a respiratory depressant and all patients receiving Fentanyl should have pulse oximetry and $ETCO_2$ monitored. Virtually all patients complaining of moderate to severe pain, regardless of etiology, may be a candidate for pain management with Fentanyl. Narcan does antagonize Fentanyl, but usually requires much higher doses, 2-10 mgs.

INDICATIONS:

- For analgesic action of short duration
- Pain secondary to trauma
- Crush injuries
- Burn patients
- Musculoskeletal pain
- Abdominal pain

CONTRAINDICATIONS:

- Hypovolemia (uncorrected)
- Hypotension (relative)
- Head Injury (relative)
- Drug Hypersensitivity

PRECAUTIONS / ADVERSE REACTIONS:

- Fentanyl should be given slowly when administered IV, rapid IV administration may cause hypotension, N/V, bradycardia and Rigid Chest Wall Syndrome.
- Elderly and debilitated patients may not tolerate usual dosing.

DOSAGE:

ADULT AND PEDIATRIC

- 2 mcg/kg **slow** IV, or IM / IN (may repeat once after 5 mins if necessary)

ROUTE:

- IV, IO, IM, IN

HOW SUPPLIED:

- 250 mcg in 5cc MDV (50 mcg/cc)

GLUCAGON

ACTION:
Pancreatic hormone, Insulin antagonist. Increases the breakdown of glycogen to glucose and stimulates glucose synthesis, resulting in blood glucose elevation.

INDICATIONS:
- Persistent symptomatic hypoglycemia
- Unable to gain IV access
- Beta Blocker Overdose

CONTRAINDICATIONS:
- Hypersensitivity
- Only effective if liver glycogen is available
- May be ineffective in chronic states of hypoglycemia, starvation, and adrenal insufficiency
- Do not mix with saline

PRECAUTIONS:
- None

ADVERSE REACTIONS:
- Tachycardia
- Hypotension
- Nausea and vomiting
- Urticaria

DOSAGE:

ADULT:

- 1 mg IM

PEDIATRIC:

- 0.1 mg/kg (1 mg max dose)
- Refer to Broselow tape

ROUTE:
- IM

HOW SUPPLIED:
- Glucagon must be reconstituted (with provided diluent) before administration
- Dilute 1 unit (1 mg) white powder in 1 ml of diluting solution (1 mg/ml)

HEPARIN SODIUM

ACTION:
Heparin inhibits the clotting cascade by activating specific plasma proteins. Heparin is administered to patients with acute coronary syndromes (ACS) including STEMI, NSTEMI and unstable angina (USA). Heparin is also used in the prevention and treatment of all types of thromboses and emboli, DIC, arterial occlusions and Thrombophlebitis, and prophylactic ally to prevent clotting before and after surgery.

INDICATIONS:
- **Infusion monitoring during interfaculty transport only.**
- ACS / STEMI
- DVT
- Pulmonary Emboli
- Atrial Fibrillation

CONTRAINDICATIONS:
- Hypersensitivity / Allergy
- Active Bleeding / Bleeding Disorders
- Severe Thrombocytopenia
- Severe Hypertension

ADVERSE REACTION:
- Allergic Reaction (fever, chills, rash, Urticaria, N/V, diarrhea)
- Thrombocytopenia
- Hemorrhage
- Bruising

SYMPTOMS OF OVERDOSE:
- Bleeding is the chief sign of heparin over-dosage. Nosebleeds, blood in the urine or tarry stools may be noted as the first sign of bleeding. Easy bruising or patchily formations may precede frank bleeding.

DOSAGE:
- 80 units/kg IV bolus followed by 18 units/kg/hr maintenance infusion (many dosage protocols are used, this one is commonly used in Lee County Hospitals)

INTEGRILIN (EPTIFIBATIDE)

ACTION:

Integrilin reversibly binds with Glycoprotein (GP) IIb / IIIa receptors on the surface of platelets inhibiting the final common pathway for platelet aggregation. GP IIb / IIIa receptor blockade interferes with the binding on fibrinogen, von Willebrand factors and other platelet aggregation modulators to the surface of platelets thus preventing aggregation.

INDICATIONS:

- Infusion monitoring during interfacility transport only.
- For the treatment of ACS, for patients to be managed medically or those undergoing percutaneous coronary intervention (PCI).
- Heparin should be concurrently administered and monitored.

CONTRAINDICATIONS:

- Active internal bleeding
- Trauma or major surgery in the past 6 weeks
- Thrombocytopenia (< 100,000 cells/mcl)
- Severe uncontrolled HTN.
- Hypersensitivity

PRECAUTIONS / ADVERSE REACTIONS:

- Bleeding – most commonly from venous and arterial access sites.
- Hemorrhagic stroke and intracranial bleeding.
- Thrombocytopenia

DOSAGE:

ADULT

- Loading dose: 135-180 mcg/kg
- Infusion: 0.5-2.0 mcg/kg/minute

LACTATED RINGER'S

ACTION:
Lactated Ringer's is an isotonic crystalloid solution, used for fluid and electrolyte replacement. Lactated Ringer's remains in the vascular for 30-60 minutes.

INDICATIONS:
- Hypovolemic Shock
- Any condition causing body fluid loss

CONTRAINDICATIONS:
- Congestive Heart Failure
- Pulmonary Edema

PRECAUTIONS:
- Use with caution in patients with renal disease
- Monitor patients for signs and symptoms of circulatory overload

ADVERSE REACTIONS:
- Phlebitis
- Venous thrombosis
- Fluid overload

DOSAGE:
- Titrate to effect
- Pediatric patients start at 20 ml/kg

ROUTE:
- IV, IO

HOW SUPPLIED:
- 1000 ml bags

LASIX (FUROSEMIDE)

ACTION:
Potent vasodilator **(preload reducer)** and diuretic. Blocks the re-absorption of sodium in the Loop of Henle as well as the distal and proximal tubules.

INDICATIONS:
- Congestive heart failure
- Pulmonary Edema

CONTRAINDICATIONS:
- Dehydrated patients

PRECAUTIONS:
- Patients with hypersensitivity to sulfa may experience reactions to Furosemide
- May need higher dose in patients with renal failure
- Blood Pressure <90 systolic

ADVERSE REACTIONS:
- Hypotension
- Hypokalemia, electrolyte abnormalities, muscle cramps, weakness, thirst, light headiness, dizziness, nausea and vomiting

DOSAGE:

ADULT:

- 40 mg IV may be repeated once

PEDIATRIC:

- 1 mg/kg

ROUTE:
- IV, IO, IM

HOW SUPPLIED:
- 40 mg in 4 ml pre-filled syringe (10 mg/ml)

LEVOPHED (NOREPINEPHRINE)

ACTION:
Norepinephrine is an alpha- and $beta_1$- adrenergic agonist. Norepinephrine is a potent vasoconstrictor that also increases myocardial contractility (+ inotrope), and vasodilates the coronary arteries. Norepinephrine is rarely used in the pre-hospital setting.

INDICATIONS:
- **Infusion monitoring during interfacility transport only**
- Cardiogenic shock
- Neurogenic shock
- Inotropic support
- Hemodynamically significant hypotension refractory to other sympathomimetic amines

CONTRAINDICATIONS:
- Hypotensive patients with hypovolemia

PRECAUTIONS:
- Norepinephrine may cause fetal anoxia when used in pregnancy
- Increases myocardial oxygen requirements, raises B/P and heart rate.
- Infuse norepinephrine through a large, stable vein to avoid extravasation and tissue necrosis.
- Use infusion pump to ensure precise flow rate.
- Should be mixed with IV solutions containing dextrose.
- Do not administer in the same IV line as alkaline solutions.

ADVERSE REACTIONS:
- Headache
- Dysrhythmias
- Tachycardia
- Reflex Bradycardia
- Hypertension

DOSAGE:
Administer by intravenous infusion only.

ADULT:

- 0.5 – 1 mcg/min titrated to improve blood pressure (up to 30 mcg/min)

PEDIATRIC:

- 0.1 – 2 mcg/kg/min titrate to achieve desired B/P and systemic perfusion.

LIDOCAINE (XYLOCAINE)

ACTIONS:
Antiarrhythmic – decreases phase 4 depolarization inhibits impulse transmission in the myocardial nervous system.

INDICATIONS:
- Ventricular Fibrillation (in the absence of Amiodarone) (Class IIb)
- Pulseless Ventricular Tachycardia (in the absence of Amiodarone) (Class IIb)
- Significant ventricular ectopy in the setting of myocardial ischemia / infarction
- Stable Ventricular Tachycardia
- Wide Complex Tachycardia of unclear etiology

CONTRAINDICATIONS:
- Bradycardia with PVC's

PRECAUTIONS:
- Prophylactic use in MI's is not indicated
- Reduce dose (maintenance, not loading) with liver impairment or LV dysfunction
- Discontinue infusion at first sign of toxicity

ADVERSE REACTIONS:
- Lidocaine Toxicity (Light headiness, dizziness, blurred vision, nausea, vomiting, seizures, hypotension, bradycardia and central nervous system depression)

DOSAGE:

ADULT:

- Cardiac arrest from VF / VT, 1.5mg/kg
- Refractory VF, give additional 0.5 mg/kg dose every 5 minutes to max dose of 3 mg/kg
- Stable VT, WCT, significant ectopy, 1.5mg/kg IV push, repeat 0.5 mg/kg every 5 minutes to a max of 3 mg/kg

PEDIATRIC:

- Loading dose: 1 mg/kg (Refer to Broselow tape)
- Infusion: Utilize Broselow tape for appropriate concentration and infusion rates

ROUTE:
- IV, IO

HOW SUPPLIED:
- 100 mg in a 5 ml pre-filled

MAGNESIUM SULFATE

ACTIONS:

Magnesium is an intracellular electrolyte that is vital to many body functions. It acts as a physiological calcium channel blocker and blocks neuromuscular transmission. Hypomagnesemia will greatly affect the neuromuscular, gastrointestinal and cardiovascular systems. Hypomagnesemia is associated with cardiac arrhythmias, symptoms of cardiac insufficiency, and sudden death. Hypomagnesemia can cause refractory ventricular fibrillation. Administration of magnesium sulfate in the emergency setting appears to reduce the incidence of ventricular arrhythmias that follow an acute myocardial infarction.

Magnesium sulfate is a central nervous system depressant effective in the management of seizures associated with eclampsia. It is used for the initial therapy of convulsions associated with pregnancy. If Magnesium fails to control seizures, proceed with other anticonvulsant agents.

INDICATIONS:

- Cardiac arrest if suspected hypomagnesemia
- Torsades de Pointes
- Bronchospasm refractory to AT
- Life threatening arrhythmias with digitalis toxicity
- Eclampsia

CONTRAINDICATIONS:

- Heart Block or AMI

PRECAUTIONS:

- Magnesium should be administered slowly to minimize side effects
- Maintain continuous cardiac monitoring
- Use with caution in renal failure

ADVERSE REACTIONS:

- Flushing of the skin, sweating
- Central Nervous System depression
- Respiratory depression
- Hypotension
- Bradycardias and cardiac arrhythmias

DOSAGE:

ADULT:

- Torsades de pointes 2 grams in 100cc NS or D_5W over 10 minutes.
- Asthma: 2 grams in 100cc NS or D_5W over 10 minutes.
- Eclampsia: 4 grams in 100cc NS or D_5W wide open until seizure stops, then slow to finish dose.

PEDIATRIC:

- 50 mg/kg (max 2 gm) in 100cc NS or D_5W over 10-20 mins (Refer to Broselow tape)

HOW SUPPLIED:

- 5 grams in 10cc lifeshield syringe

MORPHINE

ACTION:
Morphine is central nervous system depressant and potent analgesic.

As such morphine provides both analgesia and sedative properties. It increases peripheral venous capacity and decreases venous return while providing mild arterial dilatation; central nervous system depression; decreases myocardial oxygen demand; decreases preload and after load. Increases venous capacity equaling to decrease in venous return, which in turn causes decrease in the systemic vascular resistance.

INDICATIONS:
- Ischemic heart pain
- Musculoskeletal pain
- Burns
- Acute pulmonary edema
- Chronic heart failure
- Non-hemorrhagic abdominal pain

CONTRAINDICATIONS:
- Allergy to Morphine
- Acute Mental Status Depression
- Acute Respiratory Depression
- Acute Perfusion Depression (Systolic BP < 100mmHg)

PRECAUTIONS:
- Hypotension

ADVERSE REACTIONS:
- Hypotension
- Central Nervous System depression
- Respiratory depression
- Nausea / vomiting

DOSAGE:

ADULT:

- Pain Management or Congestive Heart Failure / Pulmonary Edema

If systolic B/P is greater than 100 mm/Hg: Morphine 2mg. May be repeated in 2mg increments until desired effect, or the maximum dose of 0.1mg/kg has been administered
If more than maximum dose of Morphine Sulfate is required, call Emergency Department Physician for orders

PEDIATRIC:

- Titration up to a maximum dose of 0.1 mg/kg

ROUTE:
- IV, IO, IM

HOW SUPPLIED:
- 10mg in 1ml vial

NARCAN (NALOXONE)

ACTION:
Narcotic antagonist reverses the central nervous system and respiratory depression effects of narcotics; reverses the cardiovascular effects to a lesser extent. Naloxone competes for narcotic receptor sites in the brain, and displaces narcotic molecules from the opiate receptors.

INDICATIONS:
- Known or suspected narcotic overdoses involving the following:
- Morphine Demerol heroin
- Hydrocodone Dilaudid codeine
- Oxycodone Fentanyl methadone
- Known or suspected overdoses of the following synthetic narcotics:
- Nubian Talwin Stadol Darvon
- Unwitnessed cardiac arrests

CONTRAINDICATIONS:
- Hypersensitivity reaction
- Patients that have advanced airways in place.

PRECAUTIONS:
- Narcan should be administered cautiously, if at all, to patients who are known or suspected to be physically dependent on narcotics. Abrupt and complete reversal of narcotic effects by Naloxone can cause withdrawal-type effects.
- Avoid opiate reversal in the prehospital setting unless there is compelling medical justification to do so. Expect vomiting and combativeness following reversal. If used, naloxone should be given very slowly and titrated to adequate respiratory drive, not to awaken the patient.

ADVERSE REACTIONS:
- Aspiration
- Hypotension / hypertension
- Nausea / Vomiting
- Acute narcotic withdrawal syndrome (nausea, vomiting, sweating, tachycardia, hypertension, tremor, agitation, diarrhea, abdominal cramps, seizures, and cardiac arrest)

DOSAGE:

ADULT:

- 2 mg (higher doses 2-5mg may be required in Darvon OD)

PEDIATRIC:

- 0.1mg/kg with a maximum single dose of 2mg. (Refer to Broselow tape)

ROUTE:
- IV, IM, IO, IN

HOW SUPPLIED:
- 2 mg in a 2 ml pre-filled syringe

NITROGLYCERIN DRIP (TRIDIL)

ACTION:

Antianginal Agent: Nitroglycerin is a rapid smooth-muscle relaxant that reduces cardiac work and, to a lesser degree, dilates the coronary arteries. This results in increased coronary blood flow and improved perfusion of the ischemic myocardium. Relief of ischemia causes reduction and alleviation of chest pain. Pain relief following nitorglycerin administration usually occurs within 1-2 minutes, and the therapeutic effects can be observed up to 30 minutes later.

As a rapid-acting smooth-muscle relaxant, nitorglycerin causes vasodilation, which reduces preload. Decreased preload leads to decreased cardiac work and relaxation of the vascular smooth muscle and consequent dilation of the peripheral arteries and veins. Arteriolar relaxation reduces systemic vascular resistance and systolic arterial pressure, thereby reducing afterload, further reducing the workload of the myocardium.

INDICATIONS:

- Angina pectoris
- Myocardial infarction
- Congestive heart failure
- Hypertension

CONTRAINDICATIONS:

- Hypotension
- Increased intracranial pressure
- VIAGRA, and other similar acting medications taken within 48 hours

PRECAUTIONS:

- Volume-depleted patients may experience exaggerated hypotensive response
- Postural hypotension
- Right Inferior Infarct

ADVERSE REACTIONS:

- Headache
- Nausea / Vomiting
- Tachycardia
- Dizziness
- Palpitations
- Apprehension

DOSAGE:

- 25 mg in 250cc of D5W (100ug/cc). Starting at 5ug/min and titrate to effect.
- IV Infusion through a dedicated IV line.

ROUTE:

- IV infusion

HOW SUPPLIED:

- 25 mg in 250 ml of D_5W

NITROGLYCERIN SPRAY

ACTION:

Antianginal Agent: Nitroglycerin is a rapid smooth-muscle relaxant that reduces cardiac work and, to a lesser degree, dilates the coronary arteries. This results in increased coronary blood flow and improved perfusion of the ischemic myocardium. Relief of ischemia causes reduction and alleviation of chest pain. Pain relief following nitorglycerin administration usually occurs within 1-2 minutes, and the therapeutic effects can be observed up to 30 minutes later.

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PRECAUTIONS:

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- Postural hypotension
- Right / Inferior Infarct

ADVERSE REACTIONS:

- Headache
- Nausea / Vomiting
- Tachycardia
- Dizziness
- Palpitations
- Apprehension

DOSAGE:

- 0.4 mg that may be repeated as long symptoms persist and no hypo-perfusion

ROUTE:

- Sublingual

HOW SUPPLIED:

- Each aerosol contains 200-metered doses of 0.4mg

NORMAL SALINE (0.9% SODIUM CHLORIDE)

ACTION:
Normal saline is an isotonic crystalloid solution, used for fluid and electrolyte replacement. 0.9% normal saline contains 154 mEq's of sodium ions (Na+) and 154 mEq's of chloride (Cl-) ions per liter of thus making it isotonic with the extracellular fluid. It has a Ph of 5.0 and contains 900mg of sodium per 100ml.

INDICATIONS:
- Diabetic ketoacidosis
- Heat related emergencies
- Freshwater drowning
- Keep vein open

CONTRAINDICATIONS:
- Congestive Heart Failure
- Pulmonary Edema

PRECAUTIONS:
- Circulatory overload
- Renal disease
- Large volume infusion may dilute other electrolytes; Lactated Ringers may be a more prudent choice for large volume infusion

ADVERSE REACTIONS:
- Febrile response
- Infection at the injection site
- Venous thrombosis

DOSAGE:
- Titrate to effect; larger volumes may be required in patients suffering DKA

ROUTE:
- IV, IO, AT

HOW SUPPLIED:
- 250 ml bags, 1000 ml bags

OXYGEN

ACTION:
Increased concentrations of oxygen increase the saturation level in the hemoglobin in the red blood cell. This results in an increased oxygenation level at the tissue. Oxygen is required for the efficient breakdown of glucose into a usable energy form.

INDICATIONS:
- Hypoxia
- Oxygen should be used in any type of patient that has or may have a condition in which an increased oxygen level will decrease tissue hypoxia
- Chest pain
- Abdominal pain
- Trauma patients
- Respiratory distress
- Nitrogen washout

CONTRAINDICATIONS:
- None

PRECAUTIONS:
- Possible oxygen toxicity in COPD patients
- Never deprive the hypoxic patient of oxygen for fear of respiratory depression
- Thrombolic stroke patients with $SpO_2 > 93\%$

ADVERSE REACTIONS:
- None

DOSAGE:
- Patients in mild distress should receive 2 to 6 liters via a nasal cannula
- Patients in moderate to severe distress from should receive 100% oxygen via a 100% non-rebreather

ROUTE:
- Blow by, nasal cannulas, face masks, CPAP, advanced airways

HOW SUPPLIED:
- Self-Explanatory

PHENERGAN (PROMETHAZINE)

ACTIONS:

- Antiemetic, anticholinergic, sedative

INDICATIONS:

- Severe protracted vomiting

CONTRAINDICATIONS:

- Phenergan should not be given to children 16 years of age or less
- Systolic BP below 90mmHg
- Unresponsive or sedated patients (morphine may potentiate the sedative side effects of Phenergan)
- Patient with allergies to Phenothiazines (found in some tranquilizers and anti-histamines)
- Head injury is a relative contraindication due to possible sedative effects. Contact medical control for direction
- Pregnancy or the possibility of pregnancy.
- Coma
- Reyes's Syndrome

PRECAUTIONS:

- Watch for dystonic reactions
- Serious phlebitis / vascular injury

ADVERSE REACTIONS:

- Sedation, dizziness, dysrhythmia, hyperexcitability, hallucinations, seizures, sudden death, dystonic reactions

DOSAGE:

ADULT:

- 6.25 - 12.5 mg infused through a wide open IV of NS. (Repeat x 1 if necessary after 10 minutes)
- 12.5 – 25 mg IM

PEDS :

- 0.1mg/kg SIVP (physicians order only)

ROUTE:

- IV, IO, IM

HOW SUPPLIED:

- 25 mg/ml in 1ml Carpuject

PRALIDOXIME (2-PAM)

ACTION:
Pralidoxime reactivates the enzyme acetylcholinesterase, which allows acetylcholine to be degraded, thus relieving the parasympathetic over-stimulation (cholinergic crisis) caused by excess acetylcholine.

INDICATIONS:
- Organophosphate poisoning (after atropine)
- Nerve agent exposure

CONTRAINDICATIONS:
- Hypersensitivity to pralidoxime

PRECAUTIONS:
- Reduce dosage in cases of known renal insufficiency
- Pralidoxime is NOT recommended in carbamate poisoning.

ADVERSE REACTIONS:
- Tachycardia
- Hypertension
- Laryngospasm
- Hyperventilation
- Muscle weakness
- Nausea

DOSAGE:

ADULT:

- 600 mg IM by auto-injector (may repeat in 15 & 30 minutes) or 1-2 grams IV over 15-30 minutes

PEDS:

- 25-50 mg/kg IV over 15-30 minutes

PROVENTIL (ALBUTEROL SULFATE)

ACTIONS:

- A selective beta-2 adrenergic receptor agonist, thereby decreasing bronchospasms.

INDICATIONS:

- Asthma
- Chronic bronchitis
- Emphysema
- Anaphylaxes (bronchospastic component)
- Chronic Obstructive Pulmonary Disease (COPD)

CONTRAINDICATIONS:

- Known hypersensitivity to Proventil

PRECAUTIONS:

- Concern should be given in patients with a history of cardiovascular disease due to the beta-2 effect Albuterol has on the heart.
- Hypertension
- Sensitivity to the drug

ADVERSE REACTIONS:

- Tachycardia
- Palpitations
- Paradoxical bronchospasms
- Exacerbation of angina
- Anxiety
- Hypertension
- Palpitations

DOSAGE:

- One dose vial (2.5 mg in 3 ml NS) nebulized

ROUTE:

- Nebulizer at 6 liters per minute

HOW SUPPLIED:

- 2.5 mg in a 3 ml vial

SODIUM BICARBONATE

ACTION:
Alkalinizing agent used in the treatment of metabolic acidosis.

INDICATIONS:
- Any life – threatening acidosis
- Cardiac Arrest (after defibrillation, airway management, and other pharmaceutical interventions) Rarely administered in the first 10 minutes of resuscitation
- Tricyclic antidepressant overdose
- Known hyperkalemia
- Phenobarbital overdose

CONTRAINDICATIONS:
- Respiratory acidosis

PRECAUTIONS:
- Possible fluid overload in patients with a history of heart failure
- Precipitates calcium chloride
- Inactivates catecholamine's

ADVERSE REACTIONS:
- Metabolic alkalosis
- Tissue necrosis if the IV infiltrates.

DOSAGE:

ADULT:

- 1Meq/kg of 8.4% repeated in 10 minutes if necessary at 0.5 Meq/kg

PEDIATRIC:

- 1Meq/kg of 8.4% repeated in 10 minutes if necessary at 0.5 Meq/kg

NEONATE:

- 1 Meq/kg of 4.2% repeated in 10 minutes if necessary at 0.5 Meq/kg

ROUTE:
- IV, IO

HOW SUPPLIED:
- 8.4% - ADULT / PED: 50 mEq in 50 ml, in a pre-filled syringe.
- 4.2% - INFANT: 5 mEq in 10 ml, in a pre-filled syringe.

SOLUMEDROL (METHYLPREDNISOLONE)

ACTION:
Potent anti-inflammatory synthetic steroid

INDICATIONS:
- Control of severe allergic reactions, asthma attacks, and bronchospasm associated with COPD that does not respond to other treatments

CONTRAINDICATION:
- Known hypersensitivity, neonates, and patients with systemic fungal infections.

PRECAUTIONS:
- Use with caution in patients with GI Bleeding or diabetes

ADVERSE REACTIONS:
- Cardio: Fluid retention, hypertension / hypotension, dysrhythmia, CHF, electrolyte imbalance.
- CNS: Seizures, vertigo, and headache.
- GI: Nausea / vomiting, GI bleeding, abdominal distention, etc.
- General: Urticaria, anaphylactic reaction.

DOSAGE:

ADULT:

- 125mg

CHILDREN AGE 2-16 YEARS OF AGE:

- 1mg/kg Max dose 125 mg

ROUTE:
- IV, IO, IM

SUCCINYLCHOLINE (ANECTINE / QUELICIN)

ACTION:

A short acting, depolarizing neuro-muscular blocking agent. Combines with the cholinergic receptors in the motor nerves to cause depolarization. Neuromuscular transmission is thus inhibited, which renders the muscles unable to be stimulated by acetylcholine. Following IV injection, complete paralysis is obtained within 1 minute and persists for approximately 5-10 minutes. Effects then begin to fade, and a return to normal is seen within 6 minutes. Muscle relaxation begins in the eyelids and jaw. It progresses to the limbs, the abdomen, the diaphragm and intercostals and finally the vocal cords. Succinylcholine has no effect on consciousness.

INDICATIONS:

- Drug Assisted Intubation

CONTRAINDICATIONS:

- Known hypersensitivity to the drug
- Individuals with a history of malignant hyperthermia
- Known difficult airway (neck scar from previous airway OR)
- Obstructed airways
- Burns / crush injury > 24 hr
- Cardiac arrest
- Neuromuscular disorders
- Known or suspected hyperkalemia

PRECAUTIONS:

- High suspicion of “can’t intubate, can’t ventilate cause.”

ADVERSE REACTIONS:

- Hypotension
- Bradycardia
- Dysrhythmia
- Initial muscle fasciculation
- Malignant hyperthermia

DOSAGE:

ADULT / PEDIATRIC

- 2 mg/kg (Refer to DAI chart)

ROUTE:

- IV, IO

HOW SUPPLIED:

- 200 mgs in a 10ml vial (20 mg/ml)

THIAMINE (VITAMIN B1)

ACTION:
Thiamin is a necessary component for carbohydrate metabolism. Certain states such as alcoholism and malnourishment may affect the intake, absorption, and utilization of glucose.

INDICATIONS:
- Coma of unknown origin, especially if alcohol may be involved, with Thiamine given prior to glucose administration
- Delirium tremons, with Thiamine given prior to glucose administration

CONTRAINDICATIONS:
- Hypersensitive reaction to Thiamine

PRECAUTIONS:
- Thiamine should be administered prior to the administration of glucose

ADVERSE REACTIONS:
- Allergic reaction

DOSAGE:
- 100 mg

ROUTE:
- IV, IO, IM

HOW SUPPLIED:
- 100 mg in a 1 ml Carpuject

VALIUM (DIAZEPAM)

ACTION: (BENZODIAZAPINE)

Valium is a central nervous system depressant, anticonvulsant, sedative and hypnotic medication. It suppresses the spread of seizure activity through the motor cortex of the brain. It does not appear to abolish the abnormal discharge focus. It is also an effective muscle relaxant and can relieve severe muscle spasms.

INDICATIONS:

- Major motor seizures
- Status epilepticus
- Conscious sedation prior to cardioversion
- Muscle spasms
- Delirium tremors associated with acute alcohol withdrawal
- Acute anxiety states

CONTRAINDICATIONS:

- History of hypersensitivity to Valium

PRECAUTIONS:

- Respiratory depressant effects are more pronounced when patient has ingested alcohol or other CNS depressant agents
- Because Valium is a relativity short acting drug, seizure activity may recur
- Administer slowly until desired effects are obtained

ADVERSE REACTIONS:

- Respiratory depression
- Hypotension
- Bradycardia

DOSAGE:

ADULT:

- Sedation, seizures and muscle spasms 5 to 10mg, at a rate of 5mg/minute, if more is required contact ED Physician

PEDIATRIC:

- 0.2 mg/kg IV / IO Max 5mg per dose (Refer to Broselow Tape)

ROUTE:

- IV, IO

HOW SUPPLIED:

- 10 mg in a 2 ml Carpuject (5mg/ml)

VASOPRESSIN

ACTION: (HORMONE)

Hemodynamic measurements suggest it causes profound shunting of blood to the myocardium and brain and away from the muscles and skin. This may be mediated by the release of nitric oxide. In the brain Vasopressin provides significantly more perfusion during cardiopulmonary resuscitation than epinephrine, perhaps secondary to nitric acid release.

Unlike epinephrine, Vasopressin continues to cause intense vasoconstriction in the presence of the severe acidosis that accompanies cardiopulmonary arrest. Vasopressin possesses a longer duration of action than epinephrine. Unlike epinephrine, which significantly increases myocardial oxygen consumption via ß1-adrenergic receptor activation, Vasopressin enhances myocardial oxygen delivery and may increase cardiac contractility, without the marked increased in oxygen consumption observed with catecholamines.

INDICATION:

- Refractory Ventricular Fibrillation
- Pulseless Ventricular Tachycardia
- Asystole
- Pulseless Electrical Activity
- May be useful for hemodynamic support in vasodilatory shock (septic or anaphylactic shock)

CONTRAINDICATIONS:

- Known hypersensitivity to the drug
- Responsive patients with known coronary artery disease

PRECAUTIONS:

- Potent peripheral vasoconstrictor.
- Increased peripheral vascular resistance may provoke cardiac ischemia and angina

ADVERSE REACTIONS:

- Local or systemic allergic reactions

DOSAGE:

- Ventricular Fibrillation: 40 units, administered one time only
- Pulseless Ventricular Tachycardia: 40 units, administered one time only
- The half-life of Vasopressin is 10-20 minutes.

ROUTE:

- IV, IO

HOW SUPPLIED:

- 20 units in a 2ml vial

VERSED (MIDAZOLAM)

ACTION: (BENZODIAZAPINE)

Versed is a potent, short-acting Benzodiazepine with strong anti-seizure, hypnotic and amnesic properties. It is widely used as a sedative prior to cardioversion. Versed is 3-4 times more potent than Valium, with a 1.5 minute onset of action when administered intravenously and 15 minutes when administered intramuscularly. Versed has impressive amnesic properties making it the drug of choice for conscious sedation. Like all Benzodiazepine class drugs, Versed is a central nervous system depressant.

INDICATIONS:

- Primary benzodiazepine for seizure control and pharmacological restraint.
- Conscious sedation of patients prior to short-term invasive procedures (cardioversion, etc.)
- Alternative to Etomidate, Ativan, and Diprivan in DAI guideline.

CONTRAINDICATIONS:

- Hypersensitivity to the drug
- Narrow-angle glaucoma
- Obstetrical patients in the last few weeks of pregnancy

PRECAUTIONS:

- A slight to moderate decrease in mean arterial pressure, cardiac output, systemic vascular resistance and heart rate may be seen
- Lower dosages should be considered in patients that are debilitated or chronically ill

ADVERSE REACTIONS:

- Respiratory depression
- Laryngospasm
- Bronchospasm
- Respiratory depressant effects are more pronounced when patient has ingested alcohol or other CNS depressant agents
- Hypotension secondary to histamine release (treated with Benadryl)

DOSAGE:

ADULT:

- Conscious Sedation: 2 mg slow IV push, repeat as necessary in boluses of 0.5–2 mgs, titrated to the desired level of sedation, not to exceed a total dosage of 5mgs IV
- Seizures 2 – 5 mgs IV, IO, IN, IM
- NOTE: You may dilute 5mg of Versed in 9cc of saline to result in a 0.5mg/cc concentration for IV administration.

PEDIATRIC:

- 0.1 mg/kg SIVP (2 mg max single dose), or 0.2 mg/kg IM / IN, (5 mg max single dose).

ROUTE:

- IV, IO, IM, IN

HOW SUPPLIED:

- 5mgs in 1 ml Carpuject
-

APPENDIX B: BLS MEDICAL PROCEDURES / CHECKLISTS

AUTOMATIC EXTERNAL DEFIBRILLATION

INDICATIONS:

- Place AED on all pulseless patients to potentially identify and treat ventricular fibrillation or pulseless ventricular tachycardia.

CONTRAINDICATIONS / PRECAUTIONS:

- Do not place AED on patients with a pulse.
- Remove patient from standing water and wipe water from surface of chest.
- Do not place a defibrillation paddle or electrode directly over an implanted pacemaker or defibrillator.
- Remove transdermal medication patches and wipe area clean before placing defibrillation paddles or electrodes.
- Utilize pediatric pads, if available, for pediatric patients <8 years of age or <25 kg.

EQUIPMENT NEEDED:

- Automatic External Defibrillator (AED).

PROCEDURE:

1. Determine patient is unresponsive and pulseless.
2. Perform CPR until defibrillator is available.
3. Turn on AED.
4. Position patches on chest at sternum-apex.
5. Follow voice prompts.
6. Shock patient if advised by AED. Verbally and visually clear team-members, including yourself, from the patient.
7. Assess pulse.
8. If no pulse, perform CPR for 2 minutes.
9. Continue to follow AED voice prompts.

BAG-VALVE-MASK VENTILATION

INDICATIONS:

- Patient requiring positive pressure ventilation
- Patient in respiratory arrest
- Patient in severe respiratory distress

CONTRAINDICATIONS / PRECAUTIONS:

- None in adult patients or pediatrics
- Inflate only to chest rise
- Insure proper chest rise if pop off valve activates (peds only)

EQUIPMENT NEEDED:

- Bag-valve-mask with reservoir
- Oxygen tubing
- Oxygen bottle with regulator and flow meter
- Assorted clear masks

PROCEDURE:

1. Open the airway with jaw thrust or head tilt / chin lift
2. Insert an airway adjunct (oral or nasal airway)
3. Select proper bag: adult, child, infant
4. Select appropriate size mask
5. Connect reservoir and oxygen tubing
6. Create proper mask-to-face seal with the “EC” clamp technique
7. Ventilate adult patient once every 5 seconds and every 3 seconds for children and infants
8. Adjust oxygen liter flow to ensure reservoir bag stays inflated

BLOW-BY OXYGEN

INDICATIONS:

- Infant / child that will not tolerate a mask or nasal cannula
- Patient requiring supplemental low concentration oxygen

CONTRAINDICATIONS / PRECAUTIONS:

- Do not blow oxygen directly in the eye's of a newborn

EQUIPMENT NEEDED:

- Oxygen tubing
- Oxygen bottle and regulator with flow meter

PROCEDURE:

1. Explain procedure to patient if possible
2. Attach oxygen tubing to oxygen regulator
3. Adjust liter flow to 4-6 liters / minute
4. Place tubing approximately 1-2 inches from patients nose / mouth
5. Monitor patient as appropriate

CAREVENT

INDICATIONS:

- Emergency ventilatory support
- Respiratory arrest
- Cardiorespiratory arrest

CONTRAINDICATIONS:

- None

PRECAUTIONS:

- Over / under inflation (tidal volume) if not on correct device setting
- Never attach Carevent directly to an advanced airway. Always use Carevent circuit

EQUIPMENT NEEDED:

- Oxygen bottle and regulator with pigtail or wall mount O_2 port
- Carevent circuit

PROCEDURE:

1. Assure patency of advanced airway
2. Select the tidal volume / frequency of ventilation for the body weight of the patient
3. Attach Carevent via circuit and observe patient's chest rise / fall during ventilation
4. Monitor patient frequently for signs of adequate ventilation / oxygenation and reassess often
5. $ETCO_2$, SpO_2 and EKG should be monitored at all times during use
6. Thoroughly clean after each use

Automatic Adjustable Settings Selections

Control Position	1	2	3	4	5	6	7
Tidal Volume Vt (ml)	OFF	200	300	400	600	800	1100
Frequency (BPM)	OFF	20	15	15	12	12	12
Automatic Flowrate (LPM)	OFF	12	13.5	18	21.6	28.8	39.6
Body Weight (KG)	OFF	13.3-20	20-30	26.7-40	40-60	53.3-80	73.3-110

COMBITUBE

INDICATIONS:

- Patient in respiratory arrest
- Patient in cardiac arrest
- Airway adjunct when endotracheal intubation has failed

CONTRAINDICATIONS / PRECAUTIONS:

- Gag reflex present
- History of esophageal trauma, recent ingestion of caustic substances, known esophageal disease, tracheostomy or laryngectomy
- Under 5 feet tall
- Foreign body airway obstruction
- Patients suspected of hypoglycemia prior to dextrose administration

EQUIPMENT NEEDED:

- Combitube
- 100cc syringe
- 20cc syringe

PROCEDURE:

1. Confirm that the patient is being properly ventilated with high flow oxygen and a nasal or oral airway
2. Check / prepare airway device, test cuffs for leaks and lubricate
3. Pre-oxygenate patient
4. Remove the nasal or oral airway if necessary
5. Position head in neutral position
6. Perform a tongue jaw lift
7. Insert the device downward following the natural curvature of the pharynx stopping when teeth lie between the two black bands
8. Inflate blue pilot bulb with 100cc of air #1
9. Inflate white pilot bulb with 15cc of air #2
10. Ventilate through blue tube and observe for chest rise / fall with good lung sounds and no gastric sounds. #1
11. If no chest rise / fall or lung sounds, but have gastric sounds, ventilate through the clear tube #2
12. Confirm placement by observing chest rise / fall, good lung sounds and no gastric sounds

ENDOTRACHEAL INTUBATION PREPARATION

INDICATIONS:

- When Endotracheal Intubation is required

CONTRAINDICATIONS / PRECAUTIONS:

- None

EQUIPMENT NEEDED:

- Proper size ET tube
- Laryngoscope and proper blade for patient age
- Proper size stylette
- 10cc syringe
- BVM
- Oral tracheal or nasal pharyngeal airway
- C-Collar
- Commercially available ET holder

PROCEDURE:

1. Open airway with jaw thrust or head tilt chin lift
2. Ventilate patient using BVM with high flow oxygen
3. Pre-oxygenate patient until ready to begin intubation attempts
4. Make sure all equipment is ready and operational (cuff check, blade light, etc)

EPINEPHRINE AUTO-INJECTOR

INDICATIONS:

- The patient exhibits signs and symptoms of a severe allergic reaction
- (anaphylaxis), including respiratory distress or shock.

CONTRAINDICATIONS / PRECAUTIONS:

- None in a life-threatening allergic reaction.
- May see tachycardia, pallor, dizziness, chest pain, headache, nausea / vomiting or nervousness.

EQUIPMENT NEEDED:

- Auto-Injector
- Alcohol wipe

PROCEDURE:

1. Obtain patient's Auto-Injector.
2. Verify medication is not expired.
3. Remove the gray safety cap from the injector.
4. Place the tip of the injector against the lateral aspect of the patient's thigh, midway between the waist and the knee.
5. Push the injector firmly against the thigh until the spring-loaded needle is deployed and the medication has been injected, holding for at least 10 seconds.
6. Observe patient for either positive or untoward side effects.
7. Properly dispose of injector in sharps container.
8. Record drug administered, dose, route, name of person who administered drug, and effects.

GLUCOMETER

INDICATIONS:

- To determine blood glucose levels in patients with an altered level of consciousness.

CONTRAINDICATIONS / PRECAUTIONS:

- Use capillary blood per device manufacturer's direction.

EQUIPMENT NEEDED:

- Glucometer
- Test strips
- Alcohol wipe
- Lancet or blood-letting device
- 4x4 for bleeding control

PROCEDURE:

1. Calibration testing done per device manual.
2. Prepare test strip and Glucometer per device manual.
3. Cleanse site with alcohol prep.
4. Pierce desired site (fingertip-adult / heel-Infant) with lancet enough to initiate blood flow
5. Wipe initial blood sample with clean 4x4.
6. Compress capillary bed until second blood droplet develops.
7. Hold test strip to blood droplet. Allow test strip capillary action to draw blood sample into test strip.
8. Hold 4x4 on puncture site to control bleeding.
9. Properly dispose of lancet in sharps container.
10. Allow Glucometer to measure and display glucose reading.
11. Clean and restock Glucometer

HELMET REMOVAL

INDICATIONS:

- ALL motorcycle helmets shall be removed
- Patient's airway cannot be adequately accessed or secured
- If shoulder pads need to be removed for any reason, helmet must also be removed
- Helmet is not form fitted and head is loose inside helmet

CONTRAINDICATIONS / PRECAUTIONS:

- Shoulder pads could further compromise the C-spine if only the helmet is removed
- No respiratory distress and no need to access the airway
- If removal of facemask can facilitate airway maintenance

EQUIPMENT NEEDED:

- Two rescuers
- Scissors or shears
- Screwdriver

PROCEDURE:

1. Rescuer 1 maintains inline immobilization
2. Rescuer 2 cuts or loosens the chin strap
3. Rescuer 2 takes over inline immobilization
4. Rescuer 1 removes the helmet
5. Rescuer 1 takes over inline immobilization
6. Rescuer 2 applies an extrication collar

HIP IMMOBILIZATION

INDICATIONS:

- Hip fracture

Shortened and externally rotated

- Hip dislocation

Shortened and internally rotated

CONTRAINDICATIONS / PRECAUTIONS:

- Assessment of neurovascular status

EQUIPMENT NEEDED:

- Pillow
- Kling or cravats
- Scoop stretcher
- KED

PROCEDURE:

1. Slide cravats or similar lengths of Kling under knee area of both legs and position one high under the upper leg, one under the lower half of the upper leg and one just below the knees
2. Spread legs open by moving the unaffected leg
3. Place a pillow or blanket lengthways between legs and move unaffected leg back in position
4. Tie cravats or Kling around both legs
5. Disassemble scoop stretcher
6. Slide half of scoop stretcher under affected side while lifting up side of patient only enough to get stretcher in place
7. Slide other half of scoop stretcher under the unaffected side lifting up on patient only enough to attach both ends of scoop together
8. Pad as necessary for patient comfort
9. Secure patient to scoop with four straps

IMPEDANCE THRESHOLD DEVICE (ITD)(RESQPOD)

INDICATIONS:

- Cardiopulmonary Arrest.

CONTRAINDICATIONS / PRECAUTIONS:

- Responsive patient.
- Spontaneous breathing.
- Respiratory arrest.
- Effectiveness is dependant on the quality of CPR: remember to compress the chest 1.5 to 2 inches at a rate of 100 per minute.

EQUIPMENT NEEDED:

- Impedance Threshold Device (Res-Q-POD)
- BVM.
- Advanced airway.

PROCEDURE:

1. Place the ITD on face mask immediately at the start of CPR.
2. Ensure a continuous tight seal to the face during compressions and ventilations.
3. Once an advanced airway is in place, transfer the ITD to the advanced airway and turn on the ventilation timing lights.
4. Use ventilation timing device to ensure proper timing of ventilation.
5. If the patient experiences a return of spontaneous circulation, remove the ITD immediately; with re-arrest, immediately reattach the ITD.
6. If the ITD fills with fluid, remove the device, squeeze the bag to blow the fluid from the device, and continue its use.

INHALER ADMINISTRATION

INDICATIONS:

- Prescribed to patient's with diagnosed pulmonary disease
- Signs and symptoms of respiratory difficulty

CONTRAINDICATIONS / PRECAUTIONS:

- Altered mental status
- Inhaler is not prescribed to the patient
- Patient has already reach the maximum dose

EQUIPMENT NEEDED:

- Patient's prescribed metered dose inhaler

PROCEDURE:

1. Shake canister and mouthpiece well
2. Invert the device and hold it close to the patient's mouth
3. Advise patient to exhale, pushing as much air from lungs as possible
4. Place mouthpiece in patient's mouth and instruct patient to close his / her lips loosely around the mouthpiece with tongue underneath
5. Advise patient to inhale deeply, press down on canister quickly then release it (over 5 sec)
6. Instruct patient to hold his / her breath for 5 to 10 seconds before exhaling
7. Monitor patient for desired effects

IV THERAPY SET UP

INDICATIONS:

- For fluid replacement and / or medication administration.

CONTRAINDICATIONS / PRECAUTIONS:

- Selecting proper fluid and administration set as directed.

Mini drip (60 drops / ml) for medication administration or fluid restriction.
Maxi drip (10 drops / ml) for fluid infusion.
Ringers Lactate for electrolyte or fluid replacement (trauma or volume loss etiologies).
Sodium Chloride for electrolyte, fluid replacement (heat related illnesses), or medical patients.
D5W for medication infusions.

EQUIPMENT NEEDED:

- IV fluid
- Administration set
- Alcohol wipes
- Veniguard
- Gauze

PROCEDURE:

1. Obtain and set up alcohol wipes, constricting band, and gauze.
2. Examine IV solution for proper type, clarity and expiration date.
3. Review administration set for proper type, and remove from container.
4. With flow valve shut off, attach IV tubing to IV solution.
5. Squeeze drip chamber until half full.
6. Open flow valve and allow solution to run through entire tubing, expelling all air.
7. Do not contaminate either the connection at the IV bag, or the connection at the IV site.

KENDRICK EXTRICATION DEVICE (KED)

INDICATIONS:
(Any patient in a seated position meeting the following criteria)

- Any mechanism of injury present that would elicit injury to the cervical spine: Hyperextension, hyperflexion, compression, rotation, lateral stress, distraction injuries
- Possible mechanisms of injury to the spine: Blunt trauma above the clavicles, diving accidents, falls, MVA, shooting or stabbing near spinal column
- Complaints of neck or back pain
- Complaints of numbness or tingling in the presence of trauma
- Pain upon movement or palpation of the spinal column
- Obvious deformity of back or spinal column
- Loss of control of bladder or bowels in the presence of trauma
- Priapism in the presence of trauma
- Loss of sensation in the presence of trauma

CONTRAINDICATIONS / PRECAUTIONS:

- If another immobilization device is more appropriate for the situation
- If patient meets criteria for "Rapid Extrication" and another method or device is preferred
- If patient is too large for the device, consider other options
- Only use head pad if patient has a natural anterior curve to c-spine due to physical limitations, or if patient complains of pain when rolling shoulders back into device

EQUIPMENT NEEDED:

- KED
- Head straps
- Long backboard
- Four backboard straps

PROCEDURE:

1. Rescuer 1 applies manual inline immobilization
2. Rescuer 2 applies appropriate extrication collar
3. Rescuer 2 grasps upper torso and together with rescuer 1, leans patient forward as a unit allowing placement of the KED
4. Rescuer 2 places KED behind patient and centers the device with leg straps in stored position and all chest straps folded away
5. Both rescuers lean patient back into the KED as a unit
6. Remove leg straps from stored position and pull down and out of the way
7. Wrap torso section of KED around patient and assure that device is snug under the patients armpits
8. Connect the middle chest strap and make snug
9. Connect the lower chest strap and make snug
10. See Saw the leg straps under the buttocks and bring through legs and cross over to other side for fastening (For isolated groin injury only, attach to same side)

11. Place head strap around extrication collar and attach to head flap catching lower corner
12. Open head strap and place non-slip side against forehead just catching the eyebrows and attach to head flap catching upper corner
13. Connect the upper chest strap and make snug
14. *Head pad is to be used only with certain criteria (If used, place appropriate thickness behind head and place excess over top of head flap)

KING LTS-D TUBE

INDICATIONS:

- Patient in respiratory arrest.
- Patient in cardiac arrest
- Airway adjunct for appropriate patient needing airway / ventilatory support

CONTRAINDICATIONS:

- Gag reflex
- History of esophageal disease
- Ingested caustic substance

EQUIPMENT NEEDED:

- King Tube
- 80-100 cc syringe
- Water soluble lubricant

PROCEDURE:

1. Confirm patient is being properly ventilated with high flow oxygen.
2. Check / prepare King LTS-D Tube.
3. Position head in neutral position.
4. Hold the LTS-D at the connector with the dominant hand.
5. With non-dominant hand, hold mouth open and apply chin lift.
6. Using lateral approach, introduce tip into mouth.
7. Advance the tip behind the base of the tongue while rotating tube back to midline so that the blue orientation line faces the chin of the patient.
8. Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums.
9. Inflate the LTS-D with the appropriate volume of air for given tube size.
10. Attach the resuscitator bag to the LTS-D.
11. While bagging the patient, gently withdraw the tube until ventilation becomes easy and free flowing (large tidal volume with minimal airway pressure).
12. Adjust cuff inflation if necessary to obtain a seal of the airway at the peak ventilatory pressure employed.
13. Secure the LTS-D with commercial tube holder.
14. Advance 14-18F NG tube through gastric tube port in King Tube to reduce gastric pressure.

LARYNGEAL MASK AIRWAY SUPREME

INDICATIONS:

- Patient in respiratory arrest
- Patient in cardiac arrest
- Airway adjunct when endotracheal intubation has failed
- Temporary rescue airway in failed DAI

CONTRAINDICATIONS / PRECAUTIONS:

- Gag reflex present
- Tracheostomy or larynectomy
- Foreign body airway obstruction

EQUIPMENT NEEDED:

- LMA Supreme
- 20cc Syringe or larger
- Water soluble lubricant
- etC02 detection
- NG Tube

PROCEDURE:

1. Confirm the patient is being properly ventilated with high flow oxygen.
2. Select appropriate LMA. Check device; remove air with syringe while pressing cuff on a clean, hard, flat surface.
3. Lubricate posterior portion of device and NOT the mask itself.
4. Pre-oxygenate patient.
5. Remove nasal or oral airway if necessary.
6. Place head in neutral position or slightly extended (sniffing).
7. Insert device downward along hard palate. Stop when it is felt to “pop” into place or when resistance is felt.
8. Inflate the mask with appropriate volume according to size
9. Palpate pilot balloon to ensure patency of cuff.
10. Control ventilation via BVM. Use Carevent with caution.
11. Assess for air leakage. If leakage occurs, add air to cuff but DO NOT EXCEED maximum inflation noted on package or cuff.
12. Confirm placement with chest rise and fall, lung sounds, lack of gastric sounds and etC02 detection
13. Secure tube with tape

LONG BACKBOARD IMMOBILIZATION

INDICATIONS:

- Trauma patients that have an altered LOC
- Trauma patients that are under the influence of drugs / alcohol
- Any complaints of the following when associated with trauma:
- Pain to neck
- Tenderness to neck
- Painful movement of head / neck
- Paralysis
- Parasthesia
- Weakness or numbness to extremities
- When a mechanism of injury that occurred may be a cause for spinal injury
- Motor vehicle crash
- Diving accident
- Penetrating wounds in or near the spinal column
- Axial loads to patient's spine

CONTRAINDICATIONS / PRECAUTIONS:

- Proper placement of patient on backboard is essential

EQUIPMENT NEEDED:

- Extrication collar
- Long backboard
- Four backboard straps

PROCEDURE:

1. Patient. must be properly aligned on board
2. Place straps over patient's chest, pelvis, upper legs and lower legs
3. Once body is secure immobilize head to approved Head Immobilization Device (HID)

*Note- If patient is properly immobilized in a KED, an HID should not to be used, and may be contraindicated

NASAL CANNULA

INDICATIONS:

- Spontaneous breathing patient without respiratory compromise
- Patient unable to tolerate a mask

CONTRAINDICATIONS / PRECAUTIONS:

- Epistaxis

EQUIPMENT NEEDED:

- Nasal Cannula
- Oxygen bottle with regulator and flow meter

PROCEDURE:

1. Explain procedure to patient
2. Attach nasal cannula to oxygen regulator
3. Adjust liter flow to 2-6 liters / minute
4. Apply nasal cannula to patient

NASOPHARYNGEAL AIRWAY PLACEMENT

INDICATIONS:

- Patient not fully responsive
- Patient with a gag reflex
- Need assistance maintaining an open airway

CONTRAINDICATIONS / PRECAUTIONS:

- Improper sized airway
- Fractured facial bones
- Basilar skull fractures

EQUIPMENT NEEDED:

- Assorted sizes of nasopharyngeal airways
- Water soluble lubricant

PROCEDURE:

1. Explain procedure to patient if necessary
2. Select appropriate airway by measuring from the tip of the nose to the ear lobe
3. Lubricate airway with a water soluble lubricant
4. Insert the airway into the larger or more open nostril with the bevel facing towards the septum
5. If you meet resistance, gently rotate from side to side as you insert. If resistance continues remove and try the other nostril
6. Airway should rest against the flare of the nostril

NEBULIZER THERAPY

INDICATIONS:

- Asthma
- COPD
- CHF
- Certain chemical exposures

CONTRAINDICATIONS / PRECAUTIONS:

- Severely hypoxic patients should be intubated and the "IN-LINE ETT Application" should be used.

EQUIPMENT NEEDED:

- Proper medication per protocol
- Nebulizer device
- Oxygen
- CPAP Circuit (for IN-LINE CPAP Application)
- CareVent Circuit (for IN-LINE ETT Application)

PROCEDURE

STANDARD APPLICATION

1. Assemble nebulizer per manufacturers instructions
2. Place medication in bowl of nebulizer
3. Attach to oxygen with tubing and place at 6 LPM
4. Have patient begin treatment when mist is visible
5. Instruct patient to inhale slowly and deeply and hold breath for 3 to 5 seconds before exhaling
6. Continue until medication is depleted
7. Repeat treatment as necessary per protocol

IN-LINE CPAP APPLICATION

1. Assemble nebulizer per manufacture instructions. Do not attach the mouth piece.
2. Connect the nebulizer "T-Adapter" to the corrugated end of the CPAP circuit (where the mouth piece would go).
3. Attach the blue corrugated tubing from the nebulizer to the CPAP face mask.
4. Place medication in bowl of nebulizer.
5. Attach nebulizer to oxygen with tubing at 6lpm. Titrate oxygen to mist flowing towards the pt.

IN-LINE ETT APPLICATION

1. Assemble nebulizer per manufacture instructions. Do not attach the mouth piece.
2. Attach the CareVent circuit to the pt as if connecting the ventilator.
3. Connect the nebulizer "T-Adapter" to the corrugated end of the ventilator circuit (where the mouth piece would go).
4. Attach the blue corrugated tubing from the nebulizer to the BVM or CareVent.
5. Place medication in bowl of nebulizer.
6. Attach nebulizer to oxygen with tubing at 6lpm. Titrate oxygen to mist flowing towards the pt.

NON-REBREATHER MASK

INDICATIONS:

- Patient requiring high concentrations of oxygen
- Respiratory distress
- Cardiac related symptoms
- Shock / Trauma

CONTRAINDICATIONS / PRECAUTIONS:

- None for short term use

EQUIPMENT NEEDED:

- Non-rebreather mask
- Oxygen bottle and regulator with flow meter

PROCEDURE:

1. Explain procedure to patient
2. Check tank pressure (minimum 1000 psi)
3. Attach NRBM to oxygen regulator
4. Pre fill reservoir bag
5. Adjust liter flow to ensure reservoir bag stays inflated
6. Apply and adjust mask to the patient
7. Monitor reservoir bag for constant inflation

OROPHARYNGEAL AIRWAY PLACEMENT

INDICATIONS:

- Unconscious patient
- No gag reflex

CONTRAINDICATIONS / PRECAUTIONS:

- Responsive patient
- Gag reflex

EQUIPMENT NEEDED:

- Assorted sizes of oropharyngeal airways
- Suction

PROCEDURE:

1. Select appropriate size airway by measuring from the center of the mouth to the angle of the jaw or corner of the mouth to the ear lobe
2. Insert airway using the cross finger technique upside down with the tip pointing to the roof of the mouth
3. When airway comes in contact with the soft palate at the back of the roof of the mouth, gently rotate 180 degrees while continuing to advance the airway until the flat flange at the top of the airway rests on the patients front teeth
4. In pediatrics place directly in following the natural curvature of the airway
5. If patient gag's during insertion remove the airway

PULSE OXIMETERY

INDICATIONS:

- To determine effective oxygenation

CONTRAINDICATIONS / PRECAUTIONS:

- Hypothermia may cause false readings
- Hypotension
- Nail polish
- Jaundice
- Vasoconstrictive drugs
- Do not depend only on the device for proper oxygenation

EQUIPMENT NEEDED:

- Pulse oximeter with proper probe

PROCEDURE:

1. Turn on device
2. Place probe to proper body part
3. Read results on device

RAPID EXTRICATION (BTLS METHOD)

INDICATIONS:

- If the patient's life or the life of the rescuer is in immediate danger
- If the patient's condition requires immediate life saving intervention that cannot be done in the vehicle
- If a stable patient needs to be removed to gain access to a patient that requires immediate life saving intervention that cannot be done in the vehicle

CONTRAINDICATIONS / PRECAUTIONS:

- Stable patients
- Not to be implemented out of convenience
- Any patient that does not meet any of the above three criteria

EQUIPMENT NEEDED:

- Extrication collar
- Long backboard

PROCEDURE:

1. Manually immobilize patients head
2. Apply extrication collar
3. Slide long backboard onto seat and slightly under the pt.
4. Carefully supporting the neck, torso, and legs, turn the pt. with back toward the backboard
5. Lift the legs and lower the back to the backboard supporting spine manually
6. Slide the pt. to the proper position on the backboard
7. Properly strap and immobilize to long backboard

RAPID EXTRICATION (KED METHOD)

INDICATIONS:

- If the patients life or the life of the rescuer is in immediate danger
- If the patients condition requires immediate life saving intervention that cannot be done in the vehicle
- If a stable patient needs to be removed to gain access to a patient that requires immediate life saving intervention that cannot be done in the vehicle

CONTRAINDICATIONS / PRECAUTIONS:

- Stable patients
- Not to be implemented out of convenience
- Any patient that does not meet any of the above three criteria

EQUIPMENT NEEDED:

- Extrication collar
- KED
- Long backboard

PROCEDURE:

1. Manually immobilize patients head
2. Apply extrication collar
3. Properly place KED behind pt.
4. Keep leg straps in storage position
5. Secure the middle chest strap on the device
6. Secure the bottom chest strap on the device
7. Place a head strap over neck area of the extrication collar and secure to KED head piece
8. Place long backboard as close to pt. as possible
9. Rotate or move pt. onto long backboard
10. Slide the pt. to the proper position on the backboard
11. Properly strap and immobilize to long backboard

RAPID EXTRICATION (SHORT BACKBOARD METHOD)

INDICATIONS:

- If the patients life or the life of the rescuer is in immediate danger
- If the patients condition requires immediate life saving intervention that cannot be done in the vehicle
- If a stable patient needs to be removed to gain access to a patient that requires immediate life saving intervention that cannot be done in the vehicle

CONTRAINDICATIONS / PRECAUTIONS:

- Stable patients
- Not to be implemented out of convenience
- Any patient that does not meet any of the above three criteria

EQUIPMENT NEEDED:

- Extrication collar
- Short backboard
- Long backboard

PROCEDURE:

1. Manually immobilize patients head
2. Apply extrication collar
3. Place short board behind patient
4. Manually immobilize to short board
5. Place long board along side pt. (preferably the opposite side from where pt. is located)
6. While manually immobilizing pt. to board, a second rescuer lifts legs up from under knees, keeping pt. in seated position
7. Together, both rescuers rotate pt. in seated position placing back of pt. toward long board
8. Together, both rescuers lie pt. down on long board utilizing short board and keeping pt. in seated position
9. Slide pt. into proper position on long board utilizing short board and rescuer at knees
10. While manually immobilizing patient's head and upper torso, slide short board out from under in direction of patient's head
11. Properly strap and immobilize to long backboard

RESQ DISC

INDICATIONS:

- Rescue of drowning victims.

PRECAUTIONS:

- Rescuer safety is the number one concern.
- The rope from the ResQ Disc should never be attached directly to the rescuer. Hold the rope with two fingers so it maybe released immediately should victim start to pull the rescuer into the water.
- Use caution around the shorelines of bodies of water; footing maybe unstable.
- NEVER ENTER THE WATER TO ATTEMPT A WATER RESCUE.

EQUIPMENT NEEDED:

- ResQ Disc

PROCEDURE:

1. Pull tab on Velcro strap and let it drop to the ground
2. Unwind 20 feet or more of line and let it drop to the ground.
3. Stick your first two fingers into the loop on the strap end of the rope.
4. Put your right hand thumb into the thumb indent.
5. Pretend you are in the left hand batters box on a baseball diamond and want to throw the disc to the pitcher 90 feet away.
6. Pull your right hand back behind you, like you would if you had a bat ready to hit a pitch, rotate your shoulders back like a wind up with a bat.
7. When you throw, pull the disc in a straight line across your chest and extend your arm pointing at the pitcher who is your target.
8. Keep the disk horizontal (parallel or level to the ground) as you release it.
9. When you release the disk at the end of the throw, your wrist will snap the disc and cause it to rotate shedding the line.

SAM PELVIC SLING

INDICATIONS:

- Unstable open book pelvic ring fractures.

CONTRAINDICATIONS / PRECAUTIONS:

- Isolated trochanter fractures.
- Application prior to extrication.

EQUIPMENT NEEDED:

- SAM Pelvic Sling

PROCEDURE:

1. Unfold sling with white surface up.
2. Place white side of sling beneath patient at the level of the buttocks (greater trochanters / symphysis pubis)
3. Firmly close the sling by placing black Velcro side of flap down on black Velcro strip. Fold back material as needed. Try to place buckle close to mid line.
4. Grab orange free handle on outer surface of flap and release from flap by pulling upward.
5. With or without assistance, firmly pull both orange handles in opposite directions to tighten sling.
6. Keep pulling free handle until you feel or hear the buckle click.
7. As soon as the buckle clicks, **maintain tension** and firmly press orange handle onto the black Velcro strip. *Note: Do not be concerned if you hear a second "click" after the Sling is secured.*

SLING & SWATHE

INDICATIONS:

- Injury to the clavicle, shoulder, upper arm, elbow

CONTRAINDICATIONS / PRECAUTIONS:

- Shoulder injuries that don't allow proper positioning due to pain upon movement

EQUIPMENT NEEDED:

- Two slings, or
- One sling and roller bandage

PROCEDURE:

1. Position patient's arm against chest and at a 45° angle at the elbow, if possible
2. Place a sling over the patient's chest with short end behind the elbow, and one long point over the opposite shoulder and the other long point lying across the patient's lap
3. Bring the bottom point over the patient's arm over the injured shoulder
4. Tie the two long ends of the sling together behind patient's neck
5. Secure short end of sling over elbow with a knot or safety pin
6. Apply swathe (sling or roller bandage) around patient and over sling to secure arm in place

SPINAL IMMOBILIZATION (SEATED)

INDICATIONS:

- Trauma patients that have an altered LOC
- Trauma patients that are under the influence of drugs / alcohol
- Any complaints of the following when associated with trauma:
- Pain to neck
- Tenderness to neck
- Painful movement of head / neck / back
- Paralysis
- Parasthesia
- Weakness or numbness to extremities
- When a mechanism of injury that occurred may be a cause for spinal injury
- Motor vehicle crash
- Diving accident
- Penetrating wounds in or near the spinal column
- Axial loads to patient's spine

CONTRAINDICATIONS / PRECAUTIONS:

- DO NOT stand a pt. up and walk to a backboard
- DO NOT allow a seated pt. to move on his own to a backboard

EQUIPMENT NEEDED:

- Extrication collar
- KED or short backboard and / or long backboard

PROCEDURE:

1. If seated in a vehicle or any area that requires any movement of the pt. other than lying straight back onto a long backboard, follow procedures for applying the KED
2. If seated in a position that would require lying the pt. straight back onto a long backboard, use of a short backboard with manual immobilization is allowed
3. If seated in a position that would require lying the pt. straight back onto a long backboard, and there is adequate room, placing a long backboard against patient and lying down with manual immobilization is allowed
4. If seated in a chair, the option is to use a KED, short backboard or long backboard, whichever is determined to cause the least amount of patient movement

SPINAL IMMOBILIZATION (STANDING)

INDICATIONS:

- Trauma patient's that have an altered LOC
- Trauma patient's that are under the influence of drugs / alcohol
- Any complaints of the following when associated with trauma:
- Pain to neck
- Tenderness to neck
- Painful movement of head / neck
- Paralysis
- Parasthesia
- Weakness or numbness to extremities
- When a mechanism of injury that occurred may be a cause for spinal injury
- Motor vehicle crash
- Diving accident
- Penetrating wounds in or near the spinal column
- Axial loads to patient's spine

CONTRAINDICATIONS / PRECAUTIONS:

- DO NOT allow a standing patient to sit onto a long backboard
- DO NOT allow a standing patient to walk to a backboard.

EQUIPMENT NEEDED:

- Extrication collar
- Long backboard
- Four backboard straps
- Head immobilization device

PROCEDURE: (TWO PERSON TAKEDOWN TECHNIQUE):

1. RESCUER 1 applies manual in-line immobilization
2. RESCUER 2 applies an extrication collar
3. RESCUER 2 takes over manual immobilization from front
4. RESCUER 1 places long backboard behind patient with board touching heels of patient
5. While facing the patient RESCUER 1 places his inside hand under the arm of the patient and grasps hand hold of board higher than patient's armpit and manually immobilized patient's head with outside hand
6. RESCUER 2 repeats above from opposite side
7. While supporting patient's weight and manually immobilizing patient's head to board, slowly lower head of backboard to ground
8. Rescuers should go to a kneeling position to keep control of patient and to prevent injury
9. While a rescuer manually immobilizes patient's head, straddle the patient and slide up or down as needed to properly position onto board (short or tall patients)
10. Properly immobilize as per long backboard immobilization guidelines

PROCEDURE: (THREE PERSON TAKEDOWN TECHNIQUE):

1. RESCUER 1 applies manual in-line immobilization from behind

2. RESCUER 2 applies an extrication collar
3. RESCUER 3 slides a long backboard behind the patient from the side
4. Have patient fold his arms across his chest if able
5. While facing the patient RESCUER 2 places his inside hand under the arm of the patient and grasps a hand hold on the board higher than patient's armpit
6. RESCUER 3 repeats above from opposite side
7. While RESCUER 2 and RESCUER 3 support patient's weight and RESCUER 1 manually immobilizes patient's head to the board from behind and slowly lowers the head of backboard to the ground
8. Rescuers should go to a kneeling position to keep control of patient and to prevent injury
9. While a rescuer manually immobilizes patient's head, straddle the patient and slide up or down as needed to properly position onto board (short or tall pts)
10. Properly immobilize as per long backboard immobilization guidelines

SPINAL IMMOBILIZATION (SUPINE / PRONE)

INDICATIONS:

- Trauma patient's that have an altered LOC
- Trauma patient's that are under the influence of drugs / alcohol
- Any complaints of the following when associated with trauma:
- Pain to neck
- Tenderness to neck
- Painful movement of head / neck
- Paralysis
- Parasthesia
- Weakness or numbness to extremities
- When a mechanism of injury that occurred may be a cause for spinal injury
- Motor vehicle crash
- Diving accident
- Penetrating wounds in or near the spinal column
- Axial loads to patient's spine

CONTRAINDICATIONS / PRECAUTIONS:

- Proper placement of patient. on backboard is essential

EQUIPMENT NEEDED:

- Extrication collar
- Long backboard
- Four backboard straps

PROCEDURE: (LOGROLLING TECHNIQUE, MINIMUM OF 3, PREFERABLY 4 RESCUERS):

1. RESCUER 1 applies manual in-line immobilization
2. RESCUER 2 applies an extrication collar
3. RESCUER 2 kneels alongside patient. and grasps patient's shoulder and hip
4. RESCUER 3 kneels alongside patient. and grasps patient's back and behind the knee, crossing arms with RESCUER 2
5. RESCUER 4 (if available) kneels alongside patient. and grasps patient's upper leg and lower leg crossing arms with RESCUER 3
6. Together as a unit and under the command of the rescuer at the head, roll patient. onto side toward rescuers, leaning against rescuers upper legs
7. RESCUER 4 or another person places the backboard up against patient. at a 30°-40° angle and the head of the board approximately 12 inches past the patient's head
8. Together as a unit and under the command of the rescuer at the head, roll patient onto backboard, then lowering board to ground
9. All rescuers to straddle patient. with one rescuer at head, one grasping under the armpits, one grasping the hips, and one grasping the legs
10. On order of the rescuer at the head, slide patient as a unit as a unit to proper position onto backboard (no lateral movement)
11. Properly immobilize as per long backboard immobilization guidelines

PROCEDURE: (STRADDLE LIFT, MINIMUM OF 4 RESCUERS):

1. RESCUER 1 applies manual in-line immobilization
2. RESCUER 2 applies an extrication collar
3. RESCUER 2 grasps patient. under armpits
4. RESCUER 3 grasps patient. at hips
5. RESCUER 4 (if available) grasps patient. at lower legs
6. RESCUER 4 or other person places backboard in line with patient with foot of board above head of patient.
7. On order of rescuer at head, all rescuers to lift patient. off ground at same time the height equal to the thickness of the backboard
8. RESCUER 4 or other person slides board under patient. until in proper position for immobilization
9. On order of rescuer at head, all rescuers to lower patient to backboard
10. Properly immobilize as per long backboard immobilization guidelines

SPLINTING

INDICATIONS:

- Signs & Symptoms of a bone or joint injury including:
- Deformity or abnormal position of an extremity
- Pain and tenderness
- Grating
- Swelling, bruising or discoloration
- Guarding
- Exposed bone ends
- Joint locked into position.

CONTRAINDICATIONS / PRECAUTIONS:

- Realignment should only be attempted once, and only if there is severe neurovascular compromise (extremely weak or absent distal pulses)

EQUIPMENT NEEDED:

- As needed:
- Rigid splints
- Air splints
- Ladder splints
- SAM splints
- Kling
- Slings
- Pillow
- Vacuum splints

PROCEDURE:

1. Splint joints and bone ends above and below
2. Immobilize open and closed fractures in the same manner
3. Cover open fractures to minimize contamination
4. Check pulses, sensation, and motor function before and after splinting
5. Stabilize the extremity with gentle, in-line traction to a position of normal alignment
6. Immobilize a long bone extremity in a straight position that can easily be splinted
7. Immobilize joints as found; joint injuries are only aligned if there is no distal pulse
8. Apply cold to reduce swelling and pain
9. Apply compression to reduce swelling
10. Elevate the extremity if possible

SUCTIONING

INDICATIONS:

- Removal of blood, emesis, and secretions
- Removal of food particles or objects that can cause obstruction

CONTRAINDICATIONS / PRECAUTIONS:

- Ensure pre and post oxygenation

EQUIPMENT NEEDED:

- Appropriate suction device
- Proper suction catheter

PROCEDURE:

1. Turn on and prepare suction device
2. Assure presence of mechanical suction
3. Select proper suction catheter
4. Insert proper suction tip without applying suction
5. Apply suction to the oropharynx / nasopharynx during removal of the catheter
6. Limit suction times: adult 15seconds, infants and children 5 seconds
7. Stop suctioning immediately if heart rate drops in infants and children.

TRACTION SPLINT

INDICATIONS:

- Femur fracture

CONTRAINDICATIONS / PRECAUTIONS:

- Fractures to lower extremity of same leg
- Fracture to foot or ankle of same leg

EQUIPMENT NEEDED:

- Hare Traction Splint

PROCEDURE:

1. Rescuer 1 manually stabilizes the injured leg so that no motion occurs at the site of injury
2. Assess motor, sensory, and distal circulation in the injured extremity
3. Apply the ankle hitch
4. RESCUER 1 to apply manual traction while holding the ankle hitch just above the attachment ring(s) and pulling and supporting upper leg near fracture site
5. Measure the splint against the uninjured leg and adjust to extend from the ischial tuberosity to approximately 8-12 inches beyond the foot
6. RESCUER 1 raises injured leg while under traction and RESCUER 2 places splint in place
7. Apply the proximal ischial strap
8. Connect the “S” hook of the ratchet mechanism to the ring(s) of the ankle hitch
9. Wind the mechanism until the traction is equal to what is being manually applied by RESCUER 1
10. Further tighten ratchet as needed to reduce pain and align fracture
11. Secure the splint support straps around the leg
12. Re-evaluate proximal / distal securing devices
13. Re-assess motor, sensory, and distal circulation
14. Secure patient. to backboard
15. Secure splint to backboard as needed

VITAL SIGNS

INDICATIONS:

- Frequent assessment on all patients.
- At least 2 sets taken on all BLS patients.
- At least 3 sets taken on all ALS patients.

CONTRAINDICATIONS / PRECAUTIONS:

- None

EQUIPMENT NEEDED:

- Watch
- BP Cuff
- Stethoscope
- Penlight

PROCEDURE:

1. Assess Respirations (observe rate for 1 minute, quality, depth, patterns, efforts, and breath sounds).
2. Assess Pulse (count for 1 minute, feeling for quality, regularity,) Sites are carotid, brachial, femoral, posterior tibial and dorsalis pedis.
3. Assess Skin (observe for color, temperature, moisture, capillary refill < 2 seconds).
4. Assess Pupillary Reaction (observe size and reactivity to light).
5. Blood Pressure (Taken by palpation and auscultation).

APPENDIX C: ALS MEDICAL PROCEDURES / CHECKLISTS

BLOOD ALCOHOL SAMPLING

INDICATIONS:

- As requested by law enforcement.

CONTRAINDICATIONS / PRECAUTIONS:

- Do not use alcohol wipe to clean site.

EQUIPMENT NEEDED:

- Blood draw kit from law enforcement.
- IV catheter or vacutainer system.

PROCEDURE:

1. Prepare equipment.
2. Explain procedure to patient.
3. Apply constricting band or BP cuff.
4. Locate vein.
5. Clean site with betadine, not alcohol.
6. Enter vein with IV catheter or vacutainer needle.
7. Draw requested tubes from the kit.
8. Release band or cuff.
9. Hook up IV, MAP PRN or remove vacutainer needle.
10. Secure or cover site.
11. Label all tubes as directed (initials, date, time, patient's name).
12. Confirm with law enforcement procedure was done correctly, and return all items to kit.

CARDIAC MONITORING

INDICATIONS:

- All ALS patients shall have their EKG rhythm monitored.

CONTRAINDICATIONS / PRECAUTIONS:

- Do not delay transport of trauma patients to attach the EKG monitor.

EQUIPMENT NEEDED:

- Monitor / defibrillator.
- 3-4 electrodes.
- Razor.

PROCEDURE:

1. Treat patient per appropriate protocol
2. Shave excessive hair on chest to maximize electrode adhesion.
3. Place electrodes on limbs (L arm, R arm, L Leg, R Leg or trunk equivalent).
4. Adjust gain to the proper level.
5. Obtain baseline EKG tracing.
6. Interpret EKG:

- Analyze the rate (six-second or triplicate method).
- Analyze the rhythm (regular, irregular, pattern).
- Analyze the P-waves (present, regular, upright or inverted?).
- Analyze the P-R interval (normal duration 120 – 200 ms).
- Analyze the QRS complex (normal duration 40 – 120 ms).

CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

INDICATIONS

- Congestive heart failure / pulmonary edema
- Pulmonary edema secondary to near drowning
- Asthma
- COPD

CONTRAINDICATIONS / PRECAUTIONS:

- Patient less than 8 years of age
- Unable to maintain a patent airway
- Decrease level of consciousness
- Pneumothorax
- Facial Trauma / Burns
- Systolic BP less than 90 mmHg
- Recent surgery to face or mouth
- Epistaxis
- Patient unable to tolerate mask or pressure
- Pneumonia (relative contraindication)

EQUIPMENT NEEDED:

- CPAP Flow generator
- CPAP Mask kit
- Adjustable CPAP / PEEP valve
- Oxygen tank
- Quick connect pigtail
- Cardiac Monitor
- SpO_2 Monitor
- $ETCO_2$ Monitor

PROCEDURE:

1. Assemble mask kit during morning routine or after last CPAP call. Set CPAP / PEEP valve per appropriate guideline.
2. Patient should be in an upright position
3. Assure all monitoring devices are attached
4. Connect CPAP generator to quick connect pigtail
5. Turn on oxygen tank
6. Reassure the patient and explain procedure
7. Hold the mask on the patients face, gradually creating seal.
8. When pt. tolerates mask secure head straps, ensure snug fit.
9. Monitor patient condition and vitals every 5 minutes
10. Reassess patient breathing effort
11. For COPD pt, administer IN-LINE nebulized DuoNeb / Albuterol per appropriate guideline.
12. If necessary, titrate CPAP / PEEP valve up to 10 cm/H_2O if vitals are stable and breathing difficulty has not improved

13. If SpO_2 does not increase, titrate FiO_2 to a SpO_2 of at least 90% or administer supplemental oxygen via mask port for non adjustable CPAP generators.
14. Advise receiving hospital that you are transporting a patient currently ON CPAP and assure that they will have respiratory prepared.

CRICOTHYROTOMY (SURGICAL)

INDICATIONS:

- Airway not controllable by any other means
- Severe Facial Injuries where intubation cannot be performed

CONTRAINDICATIONS / PRECAUTIONS:

- Inability to identify anatomical landmarks
- Tracheal transection
- Children under 10 years old
- Underlying anatomical abnormalities

EQUIPMENT NEEDED:

- Scalpel blade
- 5.5 to 7.0 ET cuffed tube
- Antiseptic solution
- BVM with oxygen source
- Suction device
- Bulky dressing and tape

PROCEDURE:

1. Position Patient Supine with head and neck midline in neutral position
2. Locate anatomical landmarks of the neck and identify the cricothyroid membrane
3. Make a 2-cm vertical incision in the skin with the scalpel at the level of the cricothyroid membrane
4. With the cricothyroid membrane exposed, puncture it horizontally with scalpel. Using the handle of the scalpel or forceps rotate several times to spread tissue on each side.
5. Introduce the E.T. tube through the opening approximately 1 ½ inches and inflate the cuff.
6. Ventilate with BVM and auscultate lung sounds and ensure chest rise and fall.
7. Secure the E.T. tube with appropriate device
8. Ventilate with BVM and high flow oxygen

CRICOTHYROTOMY (NEEDLE)

INDICATIONS:

- Airway not controllable by any other means
- Severe Facial Injuries where intubation cannot be performed
- Recommended cricothyrotomy technique for the pediatric patient

CONTRAINDICATIONS / PRECAUTIONS:

- Inability to identify anatomical landmarks
- Trachael transection
- Underlying anatomical abnormalities

EQUIPMENT NEEDED:

- Towels
- 14 ga. catheter-over-needle
- 3 cc syringe
- 3 mm ET tube adapter
- Antiseptic solution
- BVM with oxygen source
- Suction device
- Bulky dressing and tape

PROCEDURE:

1. Position patient supine with a towel under the shoulders to hyperextend the neck
2. Locate anatomical landmarks of the neck and identify the cricothyroid membrane
3. Connect a 14 ga IV needle / catheter to a 3 cc syringe
4. Direct the 14 ga IV needle / catheter toward the midline, caudally and posteriorly, at a 45 degree angle.
5. Aspirate air to confirm placement in the trachea
6. Advance the catheter into the trachea, and remove needle.
7. Aspirate air to confirm placement in the trachea
8. Connect adapter from 3 mm ET tube to the IV hub
9. Attach BVM and ventilate
10. Assess lung sounds
11. Secure IV hub using dressings and tape

DRUG ASSISTED INTUBATION DOSAGE CHART

Drug Assisted Intubation Dosage Chart

WEIGHT in kg	WEIGHT in lbs	**ATROPINE 0.01 mg/kg**	**ETOMIDATE 0.3 mg/kg ***	**ETOM** in cc's	**SUX 2 mg/kg ***	**SUX** in cc's	**ATIVAN 0.1 mg/kg ****	**FENTANYL 2 mcg/kg ****	*VERSED 0.05 mg/kg*	*MORHPINE 0.05 mg/kg*
5 kg	11 lbs	**0.2 mg**	**1.5 mg**	0.75 cc	**10 mg**	0.5 cc	**0.5 mg**	**10 mcg**	*0.25 mg*	*0.25 mg*
10 kg	22 lbs	**0.2 mg**	**3.0 mg**	1.50 cc	**20 mg**	1 cc	**1 mg**	**20 mcg**	*0.5 mg*	*0.5 mg*
15 kg	33 lbs	**0.2 mg**	**4.5 mg**	2.25 cc	**30 mg**	1.5 cc	**1.5 mg**	**30 mcg**	*0.75 mg*	*0.75 mg*
20 kg	44 lbs	**0.2 mg**	**6.0 mg**	3.00 cc	**40 mg**	2 cc	**2 mg**	**40 mcg**	*1 mg*	*1 mg*
25 kg	55 lbs	**0.25 mg**	**7.5 mg**	3.75 cc	**50 mg**	2.5 cc	**2.5 mg**	**50 mcg**	*1.25 mg*	*1.25 mg*
30 kg	66 lbs	**0.3 mg**	**9.0 mg**	4.50 cc	**60 mg**	3 cc	**3 mg**	**60 mcg**	*1.5 mg*	*1.5 mg*
35 kg	77 lbs	**0.35 mg**	**10.5 mg**	5.25 cc	**70 mg**	3.5 cc	**3.5 mg**	**70 mcg**	*1.75 mg*	*1.75 mg*
40 kg	88 lbs	**0.4 mg**	**12.0 mg**	6.00 cc	**80 mg**	4 cc	**4 mg**	**80 mcg**	*2 mg*	*2 mg*
45 kg	99 lbs	**XXXX**	**13.5 mg**	6.75 cc	**90 mg**	4.5 cc	**4 mg**	**90 mcg**	*2.25 mg*	*2.25 mg*
50 kg	110 lbs	**XXXX**	**15.0 mg**	7.50 cc	**100 mg**	5 cc	**4 mg**	**100 mcg**	*2.5 mg*	*2.5 mg*
55 kg	121 lbs	**XXXX**	**16.5 mg**	8.25 cc	**110 mg**	5.5 cc	**4 mg**	**110 mcg**	*2.75 mg*	*2.75 mg*
60 kg	132 lbs	**XXXX**	**18.0 mg**	9.00 cc	**120 mg**	6 cc	**4 mg**	**120 mcg**	*3 mg*	*3 mg*
65 kg	143 lbs	**XXXX**	**19.5 mg**	9.75 cc	**130 mg**	6.5 cc	**4 mg**	**130 mcg**	*3.25 mg*	*3.25 mg*
70 kg	154 lbs	**XXXX**	**21.0 mg**	10.50 cc	**140 mg**	7 cc	**4 mg**	**140 mcg**	*3.5 mg*	*3.5 mg*
75 kg	165 lbs	**XXXX**	**22.5 mg**	11.25 cc	**150 mg**	7.5 cc	**4 mg**	**150 mcg**	*3.75 mg*	*3.75 mg*
80 kg	176 lbs	**XXXX**	**24.0 mg**	12.00 cc	**160 mg**	8 cc	**4 mg**	**160 mcg**	*4 mg*	*4 mg*
85 kg	187 lbs	**XXXX**	**25.5 mg**	12.75 cc	**170 mg**	8.5 cc	**4 mg**	**170 mcg**	*4.25 mg*	*4.25 mg*
90 kg	198 lbs	**XXXX**	**27.0 mg**	13.50 cc	**180 mg**	9 cc	**4 mg**	**180 mcg**	*4.5 mg*	*4.5 mg*
95 kg	209 lbs	**XXXX**	**28.5 mg**	14.25 cc	**190 mg**	9.5 cc	**4 mg**	**190 mcg**	*4.75 mg*	*4.75 mg*
100 kg	220 lbs	**XXXX**	**30.0 mg**	15.00 cc	**200 mg**	10 cc	**4 mg**	**200 mcg**	*5 mg*	*5 mg*
110 kg	242 lbs	**XXXX**	**33.0 mg**	16.50 cc	**210 mg**	10.5 cc	**4 mg**	**220 mcg**	*5.5 mg*	*5.5 mg*
120 kg	264 lbs	**XXXX**	**36.0 mg**	18.00 cc	**220 mg**	11 cc	**4 mg**	**240 mcg**	*6 mg*	*6 mg*
130 kg	286 lbs	**XXXX**	**39.0 mg**	19.50 cc	**230 mg**	11.5 cc	**4 mg**	**260 mcg**	*6.5 mg*	*6.5 mg*
140 kg	308 lbs	**XXXX**	**42.0 mg**	21.00 cc	**240 mg**	12 cc	**4 mg**	**280 mcg**	*7 mg*	*7 mg*

* = ETOM & SUX are administered in "cocktail fashion".

** = ATIVAN & FENTANYL (VERSED & MORPHINE) are administered in "cocktail fashion" and may be repeated as indicated until desired effect has been achieved or hypotension ensues.

END –TIDAL CO_2 DETECTORS

INDICATIONS:

- Adjunct used to help verify endotracheal tube placement, by displaying either colorimetric or electronic indicators.

CONTRAINDICATIONS / PRECAUTIONS:

- Results may be affected by recent consumption of carbonated beverages (transient finding), or in cases of low cardiac output.
- Always use this device in concert with frequent reassessment of lung sounds, pulse oximetry tracking, patient color and overall condition.

EQUIPMENT NEEDED:

- CO_2 detector (BVM with colorimetric device) or
- CO_2 detector (Separate device placed between ET tube and BVM)
- Electronic CO_2 monitor (Placed between ET tube and BVM)

PROCEDURE:

1. Complete intubation procedure and initial assessment of tube placement
2. Attach CO_2 monitor between ET tube and BVM
3. Ventilate with at least 6 cleansing breaths
4. Observe for color change (purple -.03% to yellow – 5%)
5. If electronic, monitor numerical values (35-45 torr)

ENDOTRACHEAL INTUBATION

INDICATIONS:

- When a patient cannot maintain his / her own airway
- When prolonged artificial ventilations are needed
- Provides a route for medication administration

CONTRAINDICATIONS / PRECAUTIONS:

- Severe oral trauma
- Patient needs to be well oxygenated prior to intubation attempts
- In-line stabilization should be performed for suspected cervical injured patients

EQUIPMENT NEEDED:

- Proper size E.T. tube
- Laryngoscope and proper size blade
- 10 ml syringe
- Proper size stylette for E.T. tube
- Secondary confirmation device
- C-Collar
- ET tube securing device

PROCEDURE:

1. Position the head properly and remove oral / nasal airway
2. With the left hand, insert the laryngoscope blade while displacing the tongue to the left
3. Direct the blade downward until in proper position with direct visualization of the glottic opening
4. Introduce the ET tube through the right corner of the mouth and advance the cuff through the glottic opening to approximately ½ - 1 inch past the vocal cords
5. Remove stylette
6. Inflate the cuff with 1cc of air per 1mm Internal Diameter of tube and disconnect the syringe from the cuff inlet port (example: an 8.0 tube = 8 cc air in cuff)
7. Ventilate the patient with appropriate device
8. Confirm proper placement by, auscultation of lungs bilaterally and over epigastrium, chest rise / fall, appropriate color change on $C0_2$ device, + Capnography, visualize # on tube
9. Secure the ET tube with appropriate device

EZ-IO

INDICATIONS:

- Adult or pediatric patients that need emergent vascular access after multiple failed IV attempts **AND** has one or more of the following:
- An altered mental status
- Respiratory compromise
- Hemodynamic instability
- Adult or pediatric patient in cardiac arrest.

CONTRAINDICATIONS / PRECAUTIONS:

- Ipsilateral extremity fracture.
- Previous ipsilateral orthopedic repair.
- Previous ipsilateral IO within 24 hours.
- Ipsilateral extremity infection.
- Inability to locate anatomical landmarks.

EQUIPMENT NEEDED:

- EZ-IO System.
- Appropriate IV solution.
- Lidocaine.

PROCEDURE:

1. Ensure appropriate body substance isolation.
2. Prepare EZ-IO driver and appropriate needle set EZ-IO AD for patients 40kg and greater. EZ-IO PD for patients 3 to 39kg.
3. Locate appropriate insertion site.
    a. Proximal Tibia
4. Prep insertion site using aseptic technique.
5. Stabilize site and insert (drive) appropriate needle
6. Remove EZ-IO driver from needle while stabilizing catheter hub.
7. Remove stylet from catheter.
8. Connect primed EZ-Connect (IV extension)
9. Administer Lidocaine 0.25 mg/kg IO (conscious patient only)
10. Rapid bolus flush EZ-IO catheter with crystalloid solution.
11. Begin crystalloid infusion after ensuring IO patency

- Utilize pressure for continuous infusions (pressure bags, infusion pumps, syringe bolus)

12. Dress site, secure tubing and apply EZ-IO wristband.
13. Monitor EZ-IO site and patient condition.
14. Remove EZ-IO within 24 hours of insertion.

F.A.S.T. 1 STERNAL I.O.

INDICATIONS:

- Unconscious / unresponsive adult trauma patient with no obvious signs of sternal fracture.
- Adult patient in cardiac arrest.
- Multiple unsuccessful peripheral I.V. attempts on an adult and documented.

CONTRAINDICATIONS / PRECAUTIONS:

- Do not perform if skin damage / compromise at infusion site is present.
- Do not perform if very severe osteoporosis and bone-softening conditions are present.
- Do not perform if patient has had a previous sternotomy.
- Do not perform is patient has a suspected fracture of sternum or manubrium.
- Do not perform on an extremely small adult.

EQUIPMENT NEEDED:

- F.A.S.T. 1 System
- Appropriate IV solution

PROCEDURE:

1. Undo or cut shirt to expose sternum
2. Assess the patient against precautions
3. Prepare insertion site, using aseptic technique
4. Remove the top half of backing from the patch
5. Locate the sternal notch
6. Match notch in patch to sternal notch
7. Verify patch placement
8. Secure top half of patch to body
9. Remove remaining backing and secure patch to body
10. Verify correct patch placement
11. Remove pre-use sharps cap from introducer
12. Place bone probe cluster needles in target zone
13. Press down on introducer until release occurs
14. Remove introducer
15. Protect the sharps
16. Attach end of infusion tube to right angle female connector on patch
17. Remove and discard syringe
18. Attach straight female connector to purged source of drugs or fluid
19. Secure protector dome to patch
20. Attach remover package to patient

IN-LINE INTUBATION

INDICATIONS:

- Patients with possible spinal injuries

CONTRAINDICATIONS / PRECAUTIONS:

- Requires two rescuers to properly perform

EQUIPMENT NEEDED:

- Intubation equipment
- Second rescuer

PROCEDURE:

1. Rescuer 1 to apply manual in-line stabilization from the patient's side
2. Proper position will be placing hands over patient's ears with little fingers under the occipital skull and the thumbs over the maxillary sinuses
3. Stabilization should be maintained in a neutral position throughout the intubation procedure

INTRAMUSCULAR INJECTION

INDICATIONS:

- For the administration of certain medications

CONTRAINDICATIONS / PRECAUTIONS:

- Avoid accidental administration into a blood vessel by aspirating prior to injection.

EQUIPMENT NEEDED:

- Syringe, medication
- needle (21ga 1 ½")
- Alcohol swab
- Band-Aid

PROCEDURE:

1. Prepare equipment, medication to be given
2. Explain procedure to patient
3. Select proper injection site
   (deltoid / dorsogleuteal / vastus lateralis)
4. Clean site with alcohol swap, starting with small circles and working into larger ones.
5. Hold skin taut
6. Puncture the skin and enter the muscle at a 90 degree angle.
7. Aspirate for blood return. (If positive, remove needle)
8. Inject medication
9. Cover with Band-Aid
10. Dispose of needle / syringe in sharps container
11. Observe for positive or untoward effects.
12. Document drug given, time given, route, effects and person administering drug.

INTRAOSSEOUS CANNULATION

INDICATIONS:

- Used when traditional peripheral venous access cannot be achieved.
- Reserved for critical patients, mostly pediatric, who require venous access for fluid or medication therapies.

CONTRAINDICATIONS / PRECAUTIONS:

- Fracture above the site (tibial / pelvic).

EQUIPMENT NEEDED:

- Intraosseous needle
- 10 cc syringe filled with Saline
- Alcohol or betadine pad
- IV fluid / Administration set Bulky dressings / tape / kling

PROCEDURE

- Prepare equipment: Examine IO needle to ensure trochar is lined up with bevel. Draw up 10 ml saline in syringe.
- Locate site. (1-3cm below and just medial to the tibial tuberosity)
- Cleanse the area with alcohol or betadine, using antiseptic technique.
- Support the leg by placing a towel under the knee and leg.
- Grasp the thigh and knee above and lateral to the insertion site. Wrap the fingers and thumb around the knee to stabilize the proximal tibia. Do not allow any portion of your hand to rest behind the insertion site.
- Insert the needle at determined site of the anteromedial aspect of the proximal tibia.
- Penetrate the skin, and use a boring type motion to penetrate the bony cortex at a 90 degree angle, or slightly caudal.
- Stop advancing the needle when there is a sudden decrease of resistance, or you feel a “pop”.
- Unscrew cap, remove trochar and attach 10ml syringe.
- Flush IO needle with 10ml Saline. If resistance or tissue edema is noted, terminate procedure.
- Remove syringe.
- Connect IV tubing.
- Secure IO needle with kling, gauze, and secure similar to an impaled object.
- Continue to monitor ease of fluid infusion, as well as any changes in the soft tissue.
- Dispose of trochar in sharps container
- Document time, date, location, needle, person who did the procedure, and site assessment

IV ACCESS - PERIPHERAL

INDICATIONS:

- Vascular access for the administration of medications or fluids.

CONTRAINDICATIONS / PRECAUTIONS:

- Do not cannulate at or distal to fracture sites.
- Use caution when initiating IV access into feet or ankles.
- DO NOT reinsert needle into a catheter once withdrawn.

EQUIPMENT NEEDED:

- IV fluid
- Administration set
- Alcohol wipes
- Veniguard
- Gauze
- IV Catheter

PROCEDURE:

1. Explain procedure to patient.
2. Apply constricting band or BP cuff.
3. Locate vein of choice.
4. Clean site with alcohol swab using aseptic technique.
5. Stabilize vein by holding pressure distal to point of insertion.
6. Enter vein with bevel up.
7. Observe flash, advance catheter over the needle.
8. Draw blood sample.
9. Remove constricting band.
10. Remove needle, placing in sharps container. Apply pressure to proximal end of IV catheter to prevent blood return, while holding catheter hub.
11. Release constricting band.
12. Attach IV tubing to catheter, releasing pressure over IV catheter.
13. Infuse IV fluid, and observe for tissue swelling or resistance to infusion.
14. Secure site with Veniguard.
15. Set fluid rate as directed.
16. Document date, time, site, catheter size, fluid used, rate of infusion and person performing the procedure.

IV DRUG PREPARATION / ADMINISTRATION

INDICATIONS:

- For the administration of all IV medications.

CONTRAINDICATIONS / PRECAUTIONS:

- Allergic Reactions.
- Untoward Reactions (hypotension, etc. as related to each specific drug's effects).

EQUIPMENT NEEDED:

- Alcohol wipes
- Syringes / Needles / Medication
- IV Fluid

PROCEDURE:

1. Confirms: Right patient / Right drug / Right dose, Right route / Right time. Determines allergies.
2. Verifies medication is not expired.
3. Verifies fluid is not cloudy, discolored, and box has not been tampered with.
4. Properly prepares medication.
5. Expels air from syringe.
6. Clean off injections site with alcohol wipe.
7. Insert needle, or blunt tip cannula into injection site.
8. Administer desired dose.
9. Remove syringe and disposes of properly.
10. Flush medication with 20ml of fluid (IV or bolus).
11. Monitor patient for positive or adverse effects.
12. Document name of drug given, time given, route, dose, name of person administering drug and effects of administration

MANUAL DEFIBRILLATION

INDICATIONS:

- Ventricular fibrillation or pulseless ventricular tachycardia.

CONTRAINDICATIONS / PRECAUTIONS:

- Do not shock asystole, pulseless electrical activity, or productive non-arrest rhythms.
- Remove patient from standing water and wipe water from surface of chest.
- Do not place a defibrillation paddle or electrode directly over an implanted pacemaker or defibrillator.
- Remove transdermal medication patches and wipe area clean before placing defibrillation paddles or electrodes.

EQUIPMENT NEEDED:

- EKG monitor / defibrillator.
- Electrode gel (if paddles utilized).

PROCEDURE:

1. Determine patient is unresponsive and pulseless.
2. Perform CPR until defibrillator is available.
3. Set lead select switch to “paddle” mode (or lead I, II, or III if monitor leads are used).
4. Apply conductive gel to paddles (if utilized).
5. Position paddles or patches on chest at sternum-apex.
6. Verbally and visually clear team-members, including yourself, from the patient.
7. Charge defibrillator and shock at recommended AHA guidelines. Pediatric dosage is generally 2 joules/kg initially, repeated at 4 joules/kg if required.
8. Reconfirm the rhythm prior to each shock.
9. Provide appropriate post-resuscitation support.

MEDICATION ADMINISTRATION PORT (MAP)

INDICATIONS:

- To obtain IV Access for future fluid or medication administration.

CONTRAINDICATIONS / PRECAUTIONS:

- IV at or below fracture site.

EQUIPMENT NEEDED:

- IV catheter
- Saline Lock device
- Syringe
- Saline
- Alcohol swab
- Veniguard

PROCEDURE:

1. Prepare all equipment.
2. Apply constricting band or BP cuff.
3. Locate vein of choice.
4. Clean site using aseptic technique.
5. Cannulate vein.
6. Remove constricting band and withdraw needle.
7. Attach MAP.
8. Flush with 3ml of saline via syringe or pre-filled system.
9. Observe site for swelling or increase in resistance to fluid infusion.
10. Cover site with Veniguard.
11. Dispose of needle in sharps container, syringe per SOP.
12. Document date, time, site, size, IV catheter, amount of flush and person performing procedure.

Administer all IV medication through a running IV infusion

NASOGASTRIC TUBE PLACEMENT

INDICATIONS:

- As an adjunct in gastric emptying for nonparticulate overdoses (ingestions)
- To decompress the stomach after intubation (ET, King) to reduce the possibility of vomiting

CONTRAINDICATIONS / PRECAUTIONS:

- Patient who has ingested caustic substances
- Esophageal tumors / esophageal varices
- Significant facial trauma
- Pediatric patients
- Basilar skull fractures

EQUIPMENT NEEDED:

- Double – Lumen Levin tube (proper size)
- Water-soluble lubricant
- Tape
- 50ml irrigation syringe
- Emesis basin
- Suction unit

PROCEDURE

1. Explain procedure to patient
2. Measure tube from patient's stomach to ear to the tip of the nose
3. Lubricate tip and first 2 to 3 inches of tube
4. Place patient in high Fowler's position with neck flexed forward
5. Instruct patient to sip small amounts of water and swallow on command during procedure to assist in passage of the tube
6. Insert the tube along the floor of an unobstructed nostril, choose nostril with the most open channel
7. Gently and slowly advance the tube while patient continues to swallow until the tube is at the desired level noted by the marks on tube
8. If patient begins to cough or choke stop and allow the patient to rest, if problem persists remove tube and start again
9. After tube insertion is complete, verify placement by injecting 20 to 30ml of air into the tube while auscultating the epigastric region for sounds of air movement, leave syringe attached until aspiration of stomach contents is initiated
10. Secure the tube with tape to the nose and cheek
11. Lavage stomach contents by injecting 100ml to 150ml bolus of normal saline into the tube and allow the return of gastric contents by aspiration
12. Document amount of fluid infused and returned by lavage

NEEDLE CHEST DECOMPRESSION (ANTERIOR APPROACH)

INDICATIONS:

- Tension Pneumothorax associated with closed chest trauma and the following signs and symptoms:
- Respiratory distress / anxiety or restlessness
- JVD (if not hypovolemic)
- Decreasing LOC
- Initially tachycardic, but later will be bradycardic
- Hypotension
- Tracheal deviation (very late sign)
- Absent breath sounds

CONTRAINDICATIONS / PRECAUTIONS:

- Not all signs and symptoms listed above will be present
- Must enter skin above the ribs to avoid neurovascular bundle
- Creation of a pneumothorax may occur if not already present
- Laceration of the lung is possible if poor technique is used

EQUIPMENT NEEDED:

- 10cc syringe
- 14 or 16ga IV catheter / minimum 2" length
- 3-way stopcock

PROCEDURE:

1. Attach the needle to syringe and prep skin
2. Insert needle / syringe straight in into the second intercostal space in the midclavicular line, just above the top of the rib
3. Advance the catheter forward while applying negative pressure to the plunger until the hub of the needle is in contact with the patient's skin
4. Confirmation of tension pneumothorax will be evident by the plunger of the syringe being pushed out, or ease of pulling back on plunger
5. If confirmed, remove needle and syringe
6. Attach 3-way stopcock and close until relief of pressure is needed again (not necessary with advanced airway in place with positive pressure ventilation)
7. If negative pressure is attained from pulling back on plunger, remove entire catheter
8. If frank blood is present when pulling back on plunger, remove entire catheter

NEEDLE CHEST DECOMPRESSION (ANTERIOR-AXILLARY APPROACH)

INDICATIONS:

- Tension Pneumothorax associated with closed chest trauma and the following signs and symptoms:
- Respiratory distress / anxiety or restlessness
- JVD (if not hypovolemic)
- Decreasing LOC
- Initially tachycardic, but later will be bradycardic
- Hypotension
- Tracheal deviation (very late sign)
- Absent breath sounds
- For use when the anterior approach is inaccessible.

CONTRAINDICATIONS / PRECAUTIONS:

- Not all signs and symptoms listed above will be present
- Must enter skin above the ribs to avoid neurovascular bundle
- Creation of a pneumothorax may occur if not already present
- Laceration of the lung is possible if poor technique is used

EQUIPMENT NEEDED:

- 10cc syringe
- 14 or 16ga IV catheter / minimum 2" length
- 3-way stopcock

PROCEDURE:

1. Attach the needle to syringe and prep skin
2. Insert needle / syringe straight in into the fourth intercostal space in the mid-axillary line, just above the top of the rib (in line with the nipple)
3. Advance the catheter forward while applying negative pressure to the plunger until the hub of the needle is in contact with the patient's skin
4. Confirmation of tension pneumothorax will be evident by the plunger of the syringe being pushed out, or ease of pulling back on plunger
5. If confirmed, remove needle and syringe
6. Attach 3-way stopcock and close until relief of pressure is needed again (not necessary with advanced airway in place with positive pressure ventilation)
7. If negative pressure is attained from pulling back on plunger, remove entire catheter
8. If frank blood is present when pulling back on plunger, remove entire catheter

PERICARDIOCENTESIS

INDICATIONS:

- When a Cardiac Tamponade represents an immediate threat to life including:
- Cardiac arrest (most often with PEA)
- Shock or severe cardiovascular collapse
- Look for Jugular vein distention, muffled heart sounds and hypotension (Beck's Triad)
- An elevated Central Venous Pressure is the single best way to distinguish pericardial tamponade from hemorrhagic shock

CONTRAINDICATIONS / PRECAUTIONS:

- Beck's Triad is only present in 30% of patients with Pericardial Tamponade
- Watch for re-developing signs / symptoms and repeat procedure as necessary

EQUIPMENT NEEDED:

- 60cc syringe
- 18 ga X 3 ½" spinal needle

PROCEDURE:

1. Attach the syringe and needle
2. Locate the xiphoid process
3. Insert the needle just to the left of the patient's xiphoid and inferior to the left rib
4. At a 45° angle to the patient, advance the syringe and needle slowly, aiming toward the patient's left mid-clavicle
5. While advancing slowly, apply negative pressure to the syringe
6. Once fluid is encountered, stop advancing the needle and continue aspirating
7. Aspirate up to 60cc, then remove needle and syringe
8. Reassess for improvement
9. Repeat process as necessary

RAD-57 PULSE CO-OXIMETER

INDICATIONS:

- Continuous noninvasive monitoring of:
- Oxygen saturation of arterial hemoglobin (SpO_2)
- Pulse rate
- Carbon Monoxide concentration in arterial blood (SpCO)
- Carboxyhemoglobin saturation (SpMet)
- Methemoglobin concentration in arterial blood (SpMet)

CONTRAINDICATIONS / PRECAUTIONS:

- If low perfusion indication is frequently displayed, find a better perfused monitoring site
- Elevated levels of Carboxyhemoglibin (COHb) may lead to inaccurate SpO_2 measurements
- Elevated levels of Methemoglobin (MetHb) will lead to inaccurate SpO_2 measurements

EQUIPMENT NEEDED:

- RAD-57 monitor
- Sensor

PROCEDURE:

1. Place sensor on non-dominant ring finger of patient
2. Press the Power button to turn the oximeter on
3. Verify all front-panel indicators momentarily illuminate and an audible tone is heard
4. Monitor the patient
5. To turn off, press and hold the Power On/Off button for 2 seconds

SUBCUTANEOUS MEDICATION ADMINISTRATION

INDICATIONS:

- For the administration of certain medications.

PRECAUTIONS:

- Avoid accidental administration into a blood vessel by aspirating prior to injection.

EQUIPMENT NEEDED:

- Syringe, medication
- Needle (23-25ga ½" - 5/8")
- Alcohol swab

PROCEDURE:

1. Prepare equipment, medication to be given.
2. Explain procedure to patient.
3. Select proper injection site (Deltoid, anteroproximal aspect of quadricep, back or abdomen).
4. Clean site with alcohol swab using aseptic technique.
5. Elevate the SQ tissue by pinching the injection site.
6. With bevel up, insert the needle at a 45 degree angle.
7. Aspirate for blood return. If positive, remove needle.
8. Inject medication.
9. Massage site with alcohol swab.
10. Dispose of needle / syringe in sharps container.
11. Observe for positive or untoward effects.
12. Document drug given, time given, route, effects and person administering drug.

SYNCHRONIZED CARDIOVERSION

INDICATIONS:

- Tachycardia with serious signs and symptoms related to the tachycardia.

PRECAUTIONS:

- Cardioversion is generally unnecessary for heart rates <150 bpm.
- If delays in cardioversion occur and clinical conditions are critical, proceed with immediate unsynchronized defibrillation.

EQUIPMENT NEEDED:

- BSI
- EKG monitor / defibrillator
- Electrode gel
- Peripheral IV supplies

PROCEDURE:

1. Take B.S.I. precautions
2. Obtain vital signs and assess patient condition.
3. Place patient on high flow oxygen.
4. Identify rhythm on the cardiac monitor.
5. Insert peripheral IV as soon as possible
6. Identify and treat underlying causes of tachycardia prior to cardioversion
7. Premedicate whenever possible
   (Valium 5-10 mg IV or Versed 1-2 mg IV)
8. Turn on the synchronizer switch and verify that the monitor is detecting the R waves.
9. Press and hold the discharge buttons until the defibrillator discharges on the next R wave.
10. Cardiovert (synchronized)
    50j, 75j, 120j, 150j, 200j – Biphasic
11. Ensure synchronizer is enabled prior to each shock.
    (Varies with each monitor / defibrillator manufacturer)

TRANSCUTANEOUS PACING

INDICATIONS:

- May be used for all symptomatic bradycardias.

CONTRAINDICATIONS:

- Do not pace patients with severe hypothermia.
- Asystolic cardiac arrest for greater than 20 minutes.

EQUIPMENT NEEDED:

- EKG monitor / defibrillator / pacer
- Peripheral IV supplies.

PROCEDURE:

1. Treat patient per Bradycardia Protocol.
2. Identify rhythm on the cardiac monitor.
3. Insert peripheral IV as soon as possible
4. If patient is conscious and aware of situation during pacing, administer Valium 5-10 mg IV or Versed 1-2 mg IV. Refer to Conscious Sedation Protocol.
5. Apply pacing electrodes.
6. Set the pacemaker to 80 beats per minute.
7. Set the output setting to 0.
8. Turn on the pacer.
9. Slowly increase the output until ventricular capture is detected.
10. Reassess the vital signs. Adjust the rate and amperage as necessary to maintain perfusion.

TUBE CHECK DEVICES

INDICATIONS:

- Aid in determination of correct ET tube placement

CONTRAINDICATIONS / PRECAUTIONS:

- None when used correctly

EQUIPMENT NEEDED:

- Department approved tube check device

PROCEDURE:

BULB TYPE DEVICE:

1. Compress the bulb and place the device on the end of the ET tube
2. If the device easily refills, the tube is in the trachea
3. If the device is difficult or fails to refill, the tube is in the esophagus

SYRINGE TYPE DEVICE:

1. Place syringe on the end of the ET tube
2. Create negative pressure on the syringe
3. If syringe easily is aspirated, the tube is in the trachea
4. If the syringe is difficult or fails to aspirate, the tube is in the esophagus

UMBILICAL VEIN CANNULATION

INDICATIONS:

- For the administration of medications or fluids in the newborn.

PRECAUTIONS:

- Accidental infusion of fluids directly into the liver by inserting the catheter too deep.

EQUIPMENT NEEDED:

- IV fluid and administration set
- Scalpel
- 3.5 or 5 French Umbilical Vein Catheter (UVC)
- Umbilical ties
- Tape
- Dressing

PROCEDURE:

1. Prepares equipment.
2. Loosely tie umbilical tie at base of cord.
3. Hold the umbilical stump firmly and trim (with a scalpel) several cm above the abdomen.
4. Locate the umbilical vein.
5. Insert the UVC until blood is freely obtained. Do not insert the UVC more than 6-8 cm. past umbilicus.
6. Draw blood sample if needed.
7. Secure catheter in place by tightening the tie at the base of the stump, and tape / cover with a sterile dressing.
8. Monitor site for any changes.
9. Dispose of scalpel in sharps container.
10. Document date, time, type of catheter, fluid infusion and securing method.

VAGAL NERVE STIMULATION

INDICATIONS:

- Vagal maneuvers increase vagal nerve stimulation and can slow an SVT and even convert it to a normal sinus rhythm.

CONTRAINDICATIONS:

- Carotid sinus massage contraindicated in those with suspected carotid atherosclerosis, including those of late middle age and the elderly.
- Never attempt simultaneous bilateral carotid sinus massage.
- Occular pressure is contraindicated.

EQUIPMENT NEEDED:

- EKG monitor / defibrillator.

PROCEDURE:

VALSALVA

1. Treat patient per Tachycardia Protocol.
2. Identify rhythm on the cardiac monitor.
3. Monitor the EKG and obtain a continuous readout. Terminate valsalva at the first sign or slowing or heart block.
4. Instruct patient to bear down, as if attempting to have a bowel movement, or cough forcefully.

CAROTID SINUS MASSAGE

1. Treat patient per Tachycardia Protocol.
2. Identify rhythm on the cardiac monitor.
3. Position patient supine, slightly hyperextending the head
4. Gently palpate each carotid pulse separately. Auscultate each side for carotid bruits. Do not attempt carotid sinus massage if the pulse is diminished or if carotid bruits are present.
5. Monitor the EKG and obtain a continuous readout. Terminate massage at the first sign or slowing or heart block.
6. Tilt the patient's head to either side. Place your index and middle finger over one artery, below the angle of the jaw and as high up on the neck as possible.
7. Firmly massage the artery by pressing it against the vertebral body and rubbing.
8. Maintain pressure for no longer than 5-10 seconds.
9. If the massage is ineffective, you may repeat it, preferably on the other side of the patient's neck.

VENOUS CATHETERIZATION

INDICATIONS:

- Access of an existing venous catheter for medication or fluid administration when no other access sites are available.

CONTRAINDICATIONS:

- Do not use with patients showing signs or symptoms of infection at the insertion site.

PRECAUTIONS:

- Always maintain universal precautions and utilize aseptic technique throughout insertion and maintenance procedures.

EQUIPMENT NEEDED:

- Facemask
- Gloves
- Betadine swab
- 20 ga infusion set (Adult patients)
- 22 ga infusion set (Pediatric patients)
- 10 cc syringe with saline

PROCEDURE:

1. Prepare all equipment.
2. Don appropriate PPE.
3. Cleanse area around port, using standard invasive procedures preparation technique.
4. Insert needle at 90 degrees to the port.
5. Advance needle until it contacts the bottom of the port reservoir.
6. Aspirate 3-5 cc of blood to confirm proper placement
7. Flush needle with 10 cc of saline, observing for swelling and resistance. ** If there is any evidence of infiltration, pain, clotting or resistance during infusion, do not use the needle.
8. Secure device using Veniguard
9. Administer medication / fluids slowly, observing for any signs of infiltration.
10. Record procedure, any complications, fluid or medications administered on the Patient Care Report.

12 LEAD EKG

INDICATIONS:

- Complaints of chest pain or discomfort
- Drug overdoses
- Epigastric pain
- Unexplained diaphoresis
- Dyspnea
- Unexplained syncope
- CHF / Pulmonary Edema
- Thoracic back pain in the absence of trauma
- Dysrhythmia

CONTRAINDICATIONS:

- None.

PRECAUTIONS:

- Do not perform 12 Lead EKG until life-threatening conditions are managed.
- Do not delay transport of the cardiac patient to perform the 12 Lead EKG.

EQUIPMENT NEEDED:

- 12 Lead EKG machine.
- 10 electrodes.
- Razor.

PROCEDURE:

1. Treat patient per AMI protocol
2. Shave excessive hair on chest to maximize electrode adhesion.
3. Place electrodes on limbs (L arm, R arm, L Leg, R leg).
4. Place electrodes on chest:

- V1: 4th interspace right parasternal border.
- V2: 4th interspace left parasternal border.
- V3: Diagonally between V2 and V4.
- V4: 5th interspace at mid-clavicular line.
- V5: Anterior-axillary line in line with V4.
- V6: Mid-axillary line in line with V4 and V5.

- Perform 12 Lead EKG.

5. Interpret EKG:

- ST-segment elevation.
- Ischemic T-wave inversion.
- Nondiagnostic or normal EKG.
- Mimic: pericarditis
- Unreadable: new or presumably new LBBB.

APPENDIX D: Forms

Lee County EMS

STROKE ALERT CHECKLIST

DATE & TIMES				
Date:	Dispatch Time:	EMS Arrival Time:	EMS Departure Time:	ED Arrival Time:

BASIC DATA					
Patient Name		Age		Gender	
Witness Name		Witness Phone			
Last Time Without Symptoms					
Blood Glucose					

HISTORY	YES	NO
Severe Headache		
Head Trauma at Onset		

EXAMINATION		✓ IF ABNORMAL
Subarachnoid Hemorrhage?	Level of Consciousness (AVPU)	
	Neck Stiffness (cannot touch chin to chest)	
Pre-hospital Stroke Scale	Speech (repeat "You can't teach an old dog new tricks")	
	Facial Droop (show teeth or smile)	
	Arm Drift (close eyes and hold out both arms)	

STROKE ALERT CRITERIA	**YES**	**NO**
Time of onset < 5 hours?		
Any abnormal finding on examination?		
Deficit not likely due to head injury?		
Blood glucose > 50?		

⇩

IF ANSWER IS **YES** TO **ALL** STROKE ALERT CRITERIA,
CALL **STROKE ALERT** & TRANSPORT PATIENT **URGENTLY**
TO THE NEAREST STROKE CENTER

EN ROUTE, PERFORM MORE COMPLETE NEURO ASSESSMENT IF TIME ALLOWS

Destination Hospital		**Hospital Contact**	

LEE COUNTY SCHOOL TRANSPORTATION ACCIDENT

STUDENT RESPONSIBILITY AFFIDAVIT

Agency_____ PCR/RUN #_____ Date _____

School _____ Bus # _____

The students listed below have been evaluated by Emergency Responders and it has been determined that no complaints or injuries were found present at the time of exam, thus the need for transport to an Emergency Department by ambulance was deemed unnecessary.

The below signed takes legal custody of students listed below and hereby releases and holds harmless Emergency Medical Service (EMS), The EMS Care Providers, The EMS Medical Director(s), the responding Lee County Fire/Rescue Districts(s), the Lee County Board of County Commissioners, the City of Cape Coral, the City of Ft. Myers, and the Medical Control Physician(s) from any liability for any medical consequences, which may result in any way related to the non-transport of listed students.

1.	21.
2.	22.
3.	23.
4.	24.
5.	25.
6.	26.
7.	27.
8.	28.
9.	29.
10.	30.
11.	31.
12.	32.
13.	33.
14.	34.
15.	35.
16	36.
17.	37.
18.	38.
19.	39.
20.	40.

SCHOOL BOARD REPRESENTATIVE	**RESCUE SERVICE REPRESENTATIVE**
Printed Name _____	Witness _____
Signature _____	Signature _____

Lee County Common Transfer of Care Worksheet

Incident #:_____ Date:_____ Location:_____ Unit#:_____

Disp:	:	Enroute:	:	On Scene:	:	Avail:	:	Leave Scene	:

☐ Trauma Alert ☐ Cardiac Alert ☐ Stroke Alert ☐ Other Call Type:_____

Time of Alert:_____:_____ Criteria:_____ ETA to Hospital:_____

If Paramedic Discretion, give reason:_____

Mechanism of Injury:_____

☐ MVC: Restrained: Y ☐ N ☐ ☐ Mortorcycle: Helmet: Y ☐ N ☐

Patient Age: _____ Sex: **M** / **F** Injury site/type:_____

Time	Medic	Treatment / Intervention	Vital Signs			GCS	Skin	Pupils
			B/P	HR	RR			

Patient Name:_____ Date of Birth:_____

Address:_____ City:_____ State:_____ Zip:_____

Phone #:_____ SS#:_____

Hx of Present Illness/Injury:	

Past Med Hx:	

Meds:		Allergies:	

Physical Exam:	

Crew:	

Top copy: receiving hospital Middle copy: transporting unit Bottom copy: initial responding unit

LEE COUNTY COMMON M.C.I. - TACTICAL WORKSHEET

Incident Information (All)

Incident Type:
Location:
Time:
Command Post:
Staging:
Helispot:

Check List (Command)

☐	Size Up
☐	Initial Patient Estimate: 10 20 50 100
☐	Additional Resources (ie: IMT/MRU)
☐	Establish Staging
☐	Make Assignments (ie: Triage/Treatment/Transport)
☐	Mutual Aid
☐	Hospital Bed Status (Note On Back)
☐	Additional Supplies (ie: 2 MCI Trailers - 25 Patients Each)
☐	Buses
☐	P.I.O.
☐	Red Cross
☐	Medical Examiners Office
☐	Critical Incident Stress Management Team
☐	
☐	
☐	
☐	

Status Report / Number of Victims (Medical)

#	TIME	RED	YELLOW	GREEN	D.O.A.	TOTAL
1	:					
2	:					
3	:					
4	:					
5	:					
6	:					
7	:					
8	:					
9	:					
10	:					

Ambulance Resources (Staging)

Unit	Enroute	Staging	Trans.	Assignment

Revised: 04/23/08

HOSPITAL TRANSPORT LOG (Transport)

TRIAGE TAG #	PATIENT NAME	RED	YELLOW	GREEN	D.O.A.	TRANS BY	TRANS TO	COMMENTS

HOSPITAL BED STATUS (Transport)

HOSPITAL	RED	YELLOW	GREEN
D-1 (LMH)			
D-2 (SWR)			
D-3 (LRH)			
D-4 (CCH)			
D-5 (GCH)			

SENT / AVAILABL

HOSPITAL	RED	YELLOW	GREEN
D-6 (NCH)			
D-7 (HPH)			

Revised: 04/23/08

Trauma Transport Protocol Lee County EMS

Current as of February 2009

The following protocol meets the requirements set forth in Florida Administrative Code (F.A.C.), Chapter 64E - 2 entitled Pre-Hospital Requirements for Trauma Care.

I. DISPATCH PROCEDURES

A. Upon receipt of any call for help that is determined to be trauma related, the Communications Operator shall solicit the following information from the caller:

1. Approximate number of patient(s) involved.
2. The location of the injured patient(s).
3. The extent and severity of the patient(s) injuries.
4. The patient(s) apparent state of consciousness. Example: Do the injured victims appear conscious or unconscious?
5. The type of traumatic incident, with particular regard to the possible mechanism of injury (i.e., car vs. car, car vs. tree, explosion, gunshot, fire, etc.).

B. The Communications Operator will then dispatch the closest EMS unit along with the nearest fire department (FD) response unit to the location of the incident. The closest responding units will be determined by utilizing information derived from Lee County's Enhanced 911 / Computer- Aided Dispatch System.

C. The first ALS unit arriving on scene of a trauma related incident would then advise Communications of the severity of the situation. If it is determined that it is a multi-casualty incident, (MCI = >6 pt. to be transported) additional ALS units and an EMS Supervisor will be dispatched to the scene. Any additional requests for EMS resources will be determined by the on-scene EMS Incident Commander.

D. Other emergency response agencies that may be on-scene prior to EMS (e.g., Fire Department / Law Enforcement First Responders should relay requests for additional resources through their respective On-Scene Officer / Incident Commander. The Officer / Incident Commander shall contact their Communications Operator who will place an automated ring down call to *Lee Control (EMS Dispatch Center).* Refer to II. (B) for determination of closest unit(s) for response.

II. PRE-HOSPITAL GUIDELINES

A. Upon arrival at the location of a trauma related incident, the EMS team will assure that each injured adult person is medically assessed under the guidelines of this protocol and insure transport to the closest State Approved Trauma Center (S.A.T.C.).

B. For each injured patient, the EMS team will

1) assess the condition, determine the vital signs, and determine the Glasgow Coma Scale score; and

2) identify the trauma patient as a *TRAUMA ALERT PATIENT* if the trauma patient meets the criteria listed on the Adult and Pediatric Trauma Scorecard Methodology (Attachments A and B).

D. If the condition(s) of the patient(s) exceed the resources of the EMS personnel on scene, then a request for additional assistance should be made through Lee Control. The Communications Operator will dispatch the most appropriate ALS unit (air or ground) to the scene of the incident.

E. The LCEMS helicopter will be sent as an initial response ALS unit to trauma patients in remote or inaccessible areas of Lee County. These areas are determined by the information provided by the Enhanced 911 and CAD Systems at the Communications Center. Ground ALS units will be sent to all trauma calls (except as previously mentioned). LCEMS personnel on the scene of any trauma call, may request the helicopter, when air transport would be the quickest means for the trauma patient to arrive at the S.A.T.C.

III. TRAUMA ALERT GUIDELINES

A. When it is determined by the on-scene EMS personnel that trauma patient(s) meet any one of the criteria listed in Section II C and / or D, they will notify Communications that a Trauma Alert Situation exists. They will also state the mechanism (i.e.; GSW, MVC, etc.) and the anatomical location of injury or injuries, and the approximate time before arriving at the S.A.T.C.

B. The Communications Operator will then notify the S.A.T.C. of the Trauma Alert patient(s), via automatic telephone ring down using the words "TRAUMA ALERT". The Communications Operator will relay the information provided by the on scene EMS personnel and an approximate ETA when available or if known. The Communications Operator should update the ETA once the unit begins transport to the S.A.T.C.

C. In addition to notifying Communications that a Trauma Alert situation exists, the Paramedic in charge shall make telemetry contact with the S.A.T.C. as soon as possible. The telemetry presentation shall include, but not be limited to, the following for each patient(s):

1. Chief complaint
2. Mechanism of injury
3. Anatomy of injury
4. Vital signs (including GCS, if applicable)
5. Treatment(s)

6. Estimated time of arrival

D. Once an adult / pediatric trauma patient is designated as a *TRAUMA ALERT* they cannot be downgraded by the EMS team. Paramedics shall continue their assessment of the *TRAUMA ALERT PATIENT* en route to the S.A.T.C. and advise the Trauma Team via telemetry of any change in the patient's condition.

NOTE:
The telemetry presentation is a critical component of the Trauma Call. It allows the S.A.T.C. to properly prepare for the patient. It also allows for the most appropriate personnel to be called in to the S.A.T.C. It is appreciated that there may be a rare instance where telemetry contact is just not feasible (difficulty managing the patient, close geographic proximity, etc.) Every attempt must be made to make this essential contact. The information listed above (C), are those items deemed most important by the S.A.T.C.

IV. TRAUMA TRANSPORT DESTINATION CRITERIA

A. Lee Memorial - Cleveland Campus (LMHCC) is the closest S.A.T.C. for Lee County. LMHCC is a Level II S.A.T.C. All *TRAUMA ALERT* patient(s) will be transported to the S.A.T.C.

B. The only exception to transporting the *TRAUMA ALERT* patient(s) to the S.A.T.C. would be:

1. a patient in cardiac arrest with all control measures in place; or
2. the EMS crew is unable to achieve control measures and the patient will succumb to their injuries without such measures being in place before reaching the S.A.T.C.;
3. a (closer) hospital is contacted on telemetry and agrees to assist with these control measures before continuing to transport to the S.A.T.C..

C. OB Trauma Alert patients who are at risk for fetal distress shall be transported to the S.A.T.C.

V. TRANSPORT DEVIATIONS OR DIVERSIONS

A. If the S.A.T.C. is temporarily unable to provide adequate trauma care to the *Trauma Alert Patient(s),* the EMS Team may determine to transport the patient(s) to a capable hospital closest to the scene of the traumatic incident. This hospital must be contacted prior to transport and confirm that they are equipped and capable to handle the *TRAUMA ALERT* patient(s).

B. All deviations or diversions are to be documented, in their entirety on the corresponding Patient Care Report (PCR) in accordance with the F.A.C. 64E - 2.

VI. INTER-FACILITY / INTERAGENCY TRANSPORTS

A. If an Inter-facility transfer for established *Trauma Alert Patient(s)* becomes necessary, the emergent response of the closest EMS ambulance will occur.

B. Hendry, Glades, Collier or Charlotte County EMS may request the use of the Lee County EMS helicopter for the transport of Trauma Alert Patients to the S.A.T.C. in Lee County.

The Lee County EMS helicopter will be available for the transport of these Trauma Alert patients when such transport will not compromise the fulfillment of the helicopter's primary responsibility to the patients of Lee County.

C. Certain patients transported to the trauma center will require rapid stabilization and transport to a specialized care hospital outside Lee County. When the Lee County EMS helicopter transports a trauma alert patient to the trauma center and the trauma surgeon advises the flight medic that the patient may require a STAT inter-facility transfer, the following will occur:

1. The flight paramedic will stay at the trauma center while the trauma team assesses & stabilizes the patient. (This process should take no longer than 20 minutes.) The flight paramedic will contact LEE CONTROL via ARD and explain details to the communications operator. The communications operator will notify the appropriate EMS supervisor(s) regarding the inter-facility transfer.
2. The closest EMS supervisor will respond to the trauma center and coordinate the transfer with the trauma team, LEE CONTROL and helicopter pilot.
3. The pilot will assess the fuel load, weather, etc. and make whatever arrangements necessary for the transfer. This may require the pilot to return to their station for additional fuel, weather check, etc. The pilot will coordinate through the EMS supervisor at the trauma center.

This systems approach should facilitate the best inter-agency teamwork for the optimum possible patient outcome.

VII. DOCUMENTATION OF THE TRAUMA CALL

A. Every patient who sustains blunt or penetrating trauma and is transported shall have a LCEMS Patient Care Report (PCR) completed in accordance with LCEMS Protocol, S.O.P. and the F.A.C. 64E-2. Each completed PCR shall be delivered with the patient at time of disposition.

B. Any traumatized patient who is pronounced dead on scene shall have a PCR completed by one of the EMS crewmembers, Specialist or Supervisor. These PCRs are to be completed in accordance to the PCR manual and subsequent memoranda. These PCRs are to be returned to the administrative office for processing. Copies of these PCRs may be given to on-scene investigators in accordance with LCEMS SOPs.

VIII. LEE COUNTY'S STATE APPROVED TRAUMA CENTER

A. S.A.T.C. - Level Two

Lee Memorial Health Systems - Cleveland Campus
2665 Cleveland Avenue
P.O. Box 2218
Fort Myers, FL 33902

IX. OTHER LEE COUNTY HOSPITALS

A. Cape Coral Hospital - Lee Memorial Health System
636 Del Prado Boulevard
Cape Coral, FL 33990

B. Southwest Florida Regional Medical Center
2727 Winkler Avenue
Fort Myers, FL 33901

C. Gulf Coast Hospital
13681 Doctor's Way
Fort Myers, FL 33912

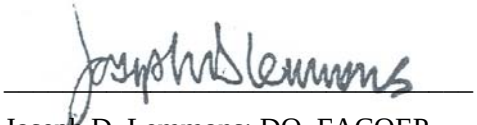
D. Lehigh Regional Medical Center
1500 Lee Boulevard
Lehigh Acres, FL 33936

E. Health Park Medical Center - Lee Memorial Health System
9981 Health Park Circle
Fort Myers, FL 33908

IX. DEVIATION STATEMENT

Any deviation from these Trauma Transport Protocols will be documented and justified on the LCEMS Patient Care Report (PCR).

This protocol is valid only when signed by the current LCDPS-EMS Medical Director. Each page will be denoted with implementation date and Medical Director's signature.



January 7, 2010

Joseph D. Lemmons; DO, FACOEP — Date

Medical Director

Lee County EMS
Adult Trauma Scorecard Methodology

Name:_____ PCR#_____

The EMT or Paramedic will assess the conditions of those injured persons with anatomical and physiological characteristics of a person sixteen (16) years of age or older for the presence of at least one of the following four (4) criteria to determine whether to transport as a trauma alert. These four criteria are to be applied in the order listed, and once any one criterion is met that identifies the patient as a trauma alert, no further assessment is required to determine the transport destination.

Criteria:

☐ 1. Meets color-coded triage system (see below):

Component

Airway	Respiratory Rate > 30 ☐ B	Active Airway Assistance (1) ☐ R
Circulation	Sustained HR > 120 ☐ B	Lack of Radial Pulse with Sustained HR > 120 or BP < 90 mmHg ☐ R
Best Motor Response	BMR = 5 ☐ B	BMR < 4 or Presence of Paralysis or Suspicion of Spinal Cord Injury or Loss of Sensation ☐ R
Cutaneous	Soft Tissue Loss (2) or GSW to the the Extremities ☐ B	2° or 3° Burns > 15% TBSA or Amputation Proximal to the Wrist or Ankle or Any Penetrating Injury to Head, Neck or Torso (3) ☐ R
Longbone Fracture (4)	Single FX. Site Due to MVA or Fall > 10 ft. ☐ B	Fractures of > 2 Longbones ☐ R
Age	> 55 Years ☐ B	
Mechanism of Injury	Ejection from Vehicle (5) or Deformed Steering Wheel (6) ☐ B	

■ **R = RED, any one (1) - transport as a trauma alert.** ■ **B = BLUE, any two (2) - transport as a trauma alert**

☐ 2. GCS < 12 (Patient must be evaluated via GCS if not identified as a trauma alert after the application of criteria 1).

☐ 3. Meets local criteria (specify): Traumatically injured OB patient with the potential of fetal distress.

☐ 4. Patient does not meet any of the trauma criteria listed above but, in the judgement of the EMT or paramedic, should be transported as a trauma alert (document).

1. Airway assistance beyond administration of oxygen.
2. Major degloving injuries, or major flap avulsion (> 5 in.)
3. Excluding superficial wounds in which the depth of the wound can be determined.
4. Longbone include the humerus, (radius/ulna), femur, (tibia/fibula).
5. Excluding motorcycle, moped, all terrain vehicle, bicycle or open body of pickup truck.
6. Only applies to the driver of vehicle.

Lee County EMS
Pediatric Trauma Scorecard Methodology

The EMT or Paramedic shall assess the conditions of those injured individuals with anatomical and physical characteristics of a person fifteen years of age or younger for the presence of one or more of the following three (3) criteria to determine the transport destination per 64E-2.001 Florida Administrative Code, (F.A.C.):

CRITERIA:

☐ 1) Pediatric Trauma Triage Checklist: The individual is assessed based on each of the six (6) physiologic components listed below (left column). The single, most appropriate criterion for each of the components is selected (along the row to the right). Refer to the color-coding of each criterion and the legend below to determine the transport destination:

COMPONENT			
SIZE	>20 Kg (44+ lbs.) ☐ G	12-20 Kg (22-43 lbs.) ☐ G	WEIGHT ≤ 11 Kg or LENGTH ≤ 33 INCHES ON A PEDIATRIC LENGTH AND WEIGHT EMERGENCY TAPE ☐ B
AIRWAY	NORMAL ☐ G	SUPPLEMENTED O_2 ☐ G	ASSISTED or INTUBATED (1) ☐ R
CONSCIOUSNESS	AWAKE ☐ G	AMNESIA or LOSS OF CONSCIOUSNESS ☐ B	ALTERED MENTAL STATUS (2) or COMA or PRESENCE OF PARALYSIS or SUSPICION OF SPINAL CORD INJURY or LOSS OF SENSATION ☐ R
CIRCULATION	GOOD PERIPHERAL PULSES; SBP > 90 mmHg ☐ G	CAROTID OR FEMORAL PULSES PALPABLE, BUT THE RADIAL OR PEDAL PULSE NOT PALPABLE or SBP < 90 mmHg ☐ B	FAINT OR NON-PALPABLE RADIAL OR FEMORAL PULSE or SBP < 50 mmHg ☐ R
FRACTURE	NONE SEEN or SUSPECTED ☐ G	SINGLE CLOSED LONG BONE (3) FRACTURE (4) ☐ B	OPEN LONG BONE (3) FRACTURE (5) or MULTIPLE FRACTURE SITES or MULTIPLE DISLOCATIONS (5) ☐ R
CUTANEOUS	NO VISIBLE INJURY ☐ G	CONTUSION or ABRASION ☐ G	MAJOR SOFT TISSUE DISRUPTION (6) or MAJOR FLAP AVULSION or 2^0 OR 3^0 BURNS TO ≥ 10% TBSA or AMPUTATION (7) or ANY PENETRATING INJURY TO HEAD, NECK, or TORSO (8) ☐ R

R = RED, any **one (1)** – transport as a trauma alert B = BLUE, any **two (2)** – transport as a trauma alert G = GREEN, follow local protocols

☐ 2) Meets local criteria (specify):

☐ 3) Patient does not meet any of the trauma criteria listed above, but the EMT or Paramedic can call a "Trauma Alert" if, in his or her judgement, the trauma patient's condition warrants such action. Must be documented on run report pursuant to 64E-2.013, (F.A.C

1. Airway assistance includes manual jaw thrust, single or multiple suctioning, or use of other adjuncts to assist ventilatory efforts.
2. Altered mental status includes drowsiness, lethargy, inability to follow commands, unresponsiveness to voice, totally unresponsive.
3. Longbones include the humerus, (radius/ulna), femur, (tibia/fibula).
4. Longbone fractures do not include isolated wrist or ankle fractures.
5. Longbone fractures do not include isolated wrist or ankle fractures or dislocations.
6. Includes major degloving injury.
7. Amputation proximal to wrist or ankle.
8. Excluding superficial wounds where the depth of the wound can be determined.

References

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- Sanders. M.J. Paramedic Textbook. Mosby. St. Louis. 2000.
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- Scott, J. Tampa General Burn SOG. Tampa Burn Unit. 2001.
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- Core Principle Airway, Ventilation, and Oxygenation. Travis County EMS, Travis County Texas.

LEE COUNTY
SOUTHWEST FLORIDA
BOARD OF COUNTY COMMISSIONERS

(239) 344-5410
Writer's Direct Dial Number:

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District Two

Ray Judah
District Three

Tammy Hall
District Four

John E. Albion
District Five

Donald D. Stilwell
County Manager

David M. Owen
County Attorney

Diana M. Parker
County Hearing Examiner

May 11, 2005

To all Lee County EMS and Fire personnel,

This letter is to serve as a directive for the transfer of care to MEDSTAR.

It is understood that patients requiring air medical transport are either of critical nature or have the potential of becoming critical within a short period of time. There may be numerous personnel performing the necessary tasks to prepare the patient for air transport. In order to make the transfer of care consistent and effective, please follow the steps listed below:

- ❑ Ensure the Landing Zone (LZ) is controlled and the LZ information is communicated to MEDSTAR, as per the present policy.
- ❑ Prepare patient in treatment area or ambulance (bedside). This includes completing the Lee County Transfer of Care Worksheet with as much information as conditions allow. The top two copies of the worksheet shall be given to the flight team.
- ❑ Upon arrival at bedside, the MEDSTAR team will immediately receive a patient report from the ground Paramedic-in-Charge.
- ❑ The primary flight paramedic will immediately assume team leader role and assume and/or direct the remaining patient care issues and treatment modalities.
- ❑ The flight team will perform an appropriate patient assessment and determine the need for further emergent treatments based upon flight physiology.
- ❑ The ground crew will follow directions from the flight team regarding the transfer and loading of the patient from the scene.

This directive is to take effect immediately.

Joseph D. Lemmons, DO
Medical Director
Lee County Emergency Medical Services

P.O. Box 398, Fort Myers, Florida 33902-0398 (239) 335-2111
Internet address http://www.lee-county.com
AN EQUAL OPPORTUNITY AFFIRMATIVE ACTION EMPLOYER

LEE COUNTY
SOUTHWEST FLORIDA
BOARD OF COUNTY COMMISSIONERS

(239) 344-5410
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Donald D. Stilwell
County Manager

Dawn M. Deer
County Attorney

Diana M. Parker
County Hearing Examiner

April 14, 2005

To all Lee County EMS Paramedics and EMT's,

This letter is to serve as a directive for the management of patients who have been exposed to the effects of a tazer gun.

- ❑ Assess and ensure scene safety.
- ❑ Assess patient per Lee County Treatment Guidelines, performing the appropriate Initial Assessment.
- ❑ If any complaints are offered, or any abnormal findings are noted on the Initial Assessment, continue care by referring to the appropriate Treatment Guidelines. If patient condition warrants, transport to the most appropriate receiving facility.
- ❑ DO NOT REMOVE THE TAZER BARBS FROM ANY PATIENT. TREAT THE BARBS LIKE ANY OTHER IMPALED OBJECT, AND STABILIZE IN THE POSITION FOUND.
- ❑ Ensure the appropriate documentation regarding your findings are noted in your patient care report.

This directive is effective immediately, and will be sent to all Lee County Law Enforcement agencies to ensure they are aware of our responsibilities for this type of incident.

Joseph D Lemmons

Dr. Joseph D. Lemmons
Medical Director
Lee County EMS

P.O. Box 398, Fort Myers, Florida 33902-0398 (239) 335-2911
Internet address: http://www.lee-county.com
AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER

Florida Department of Health
Bureau of Emergency Medical Services
ALS Ambulance Inspection Form

Variance for
Lee County Emergency Medical Services
Inter-Facility Transfer Division

64E-2.003 Requirement — ALS IFT Ambulance Variance

IMPACT Eagle Uni-Vent
Ventilator Model 754

Joseph D. Lemmons, DO, FACOEP
Medical Director
Lee County Emergency Medical Services

February, 2008

Florida Department of Health
Bureau of Emergency Medical Services
BLS Ambulance Inspection Form

Variance for
Lee County Emergency Medical Services
Inter-Facility Transfer Division

64E-2.002 Requirement	BLS IFT Ambulance Variance
	Ambu Laryngeal Mask
	KING Tube
	Blood Glucose Monitor
	Oral Glucose - 15 Gm
	Pulse Oximetry

Joseph D. Lemmons, DO, FACOEP
Medical Director
Lee County Emergency Medical Services

February, 2008

LEE COUNTY
SOUTHWEST FLORIDA

BOARD OF COUNTY COMMISSIONERS

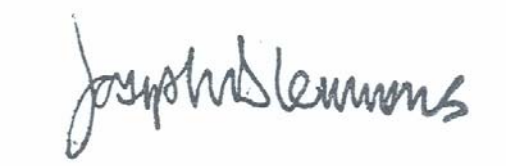
March 24, 2009

Division of Emergency Medical Operations
4052 Bald Cypress Way, Bin C-18
Tallahassee, Florida 32399-1738

To Whom It May Concern:

Lee County Emergency Medical Services, is approved to use the AMBU cervical immobilization device (CID), part numbers 000281000 (adult) & 000281106 (small adult, pediatric and infant).

Respectfully,



Dr. Joseph Lemmons
Medical Director
Lee County Emergency Medical Services

From: Mary_Lewis2@doh.state.fl.us
Sent: Tuesday, April 14, 2009 9:09 AM
To: Tuttle, Scott
Cc: Roy_Pippin@doh.state.fl.us
Subject: Electronic protocols

Electronic protocols Page 1 of 1

9/1/2009

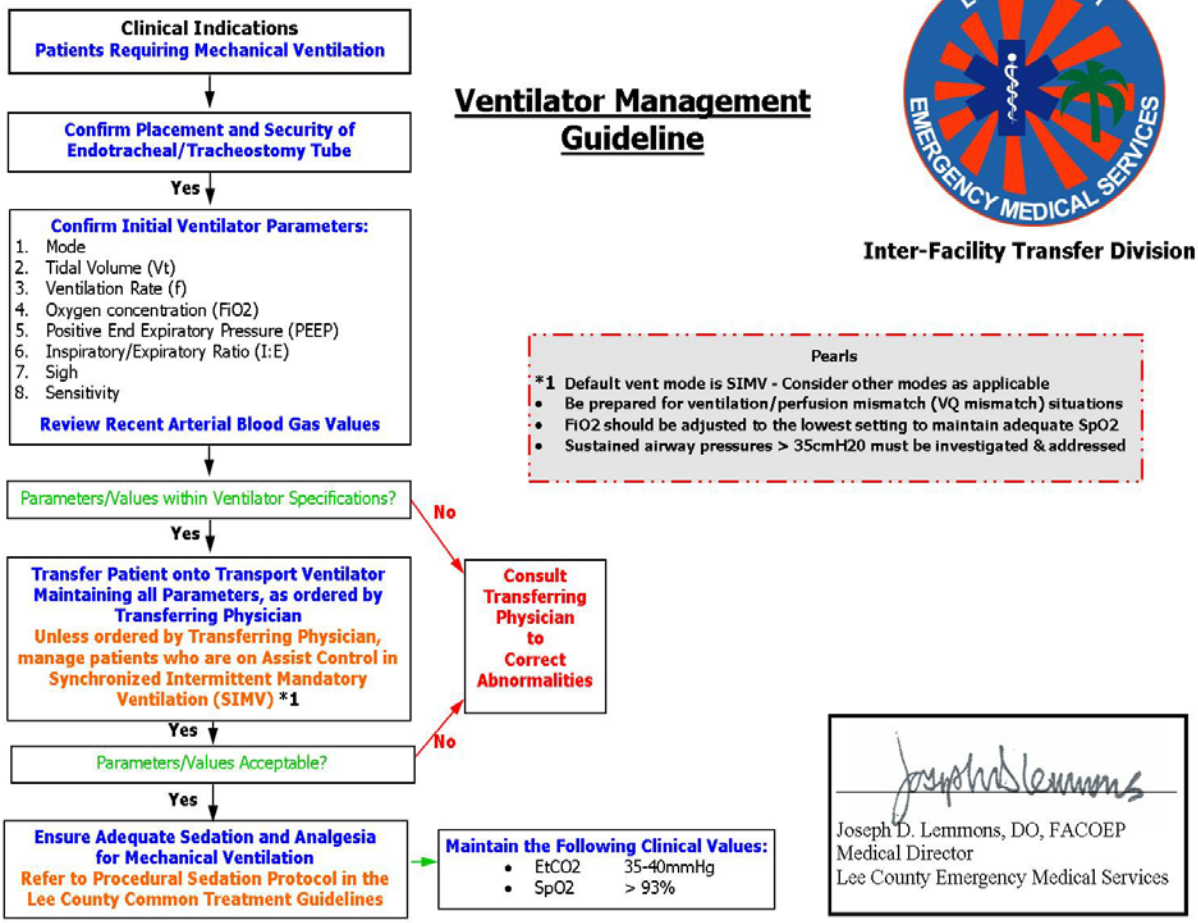
Scott, In regards to our telephone conversation this morning, electronic protocols would be considered equipment switched over when changing trucks. As with any other required piece of equipment, if the vehicle is subject to call, the protocols would be required to be on that vehicle. However, as discussed the out of service trucks do not have narcotics, monitors, etc so a "hard copy" of the protocols would not be required. If you have any questions please feel free to contact me anytime.

Regards,

Shelly Lewis, Paramedic

Compliance Officer
Florida Department of Health
Bureau of Emergency Medical Services
4052 Bald Cypress Way, Bin C-18
Tallahassee, Florida 32399-1738
Phone: (850) 245-4440 ext. 2771
Fax: (850) 245-4378
Check our website at: www.fl-ems.com

Mission: To promote and protect the health and safety of all people in Florida through the delivery of quality public health services and promotion of health care standards.


Clinical Indications
Patients Requiring Mechanical Ventilation
Confirm Placement and Security of Endotracheal/Tracheostomy Tube
Yes
Confirm Initial Ventilator Parameters:
1. Mode
2. Tidal Volume (Vt)
3. Ventilation Rate (f)
4. Oxygen concentration (FiO2)
5. Positive End Expiratory Pressure (PEEP)
6. Inspiratory/Expiratory Ratio (I:E)
7. Sigh
8. Sensitivity
Review Recent Arterial Blood Gas Values
Parameters/Values within Ventilator Specifications?
No
Yes
Transfer Patient onto Transport Ventilator Maintaining all Parameters, as ordered by Transferring Physician
Unless ordered by Transferring Physician, manage patients who are on Assist Control in Synchronized Intermittent Mandatory Ventilation (SIMV) *1
Consult Transferring Physician to Correct Abnormalities
Yes
Parameters/Values Acceptable?
No
Yes
Ensure Adequate Sedation and Analgesia for Mechanical Ventilation
Refer to Procedural Sedation Protocol in the Lee County Common Treatment Guidelines
Maintain the Following Clinical Values:
• EtCO2 35-40mmHg
• SpO2 > 93%
Ventilator Management Guideline
LEE COUNTY EMERGENCY MEDICAL SERVICES
Inter-Facility Transfer Division
Pearls
*1 Default vent mode is SIMV - Consider other modes as applicable
• Be prepared for ventilation/perfusion mismatch (VQ mismatch) situations
• FiO2 should be adjusted to the lowest setting to maintain adequate SpO2
• Sustained airway pressures > 35cmH20 must be investigated & addressed
Joseph D. Lemmons, DO, FACOEP
Medical Director
Lee County Emergency Medical Services

Updates Endnotes

4-15-09

Deleted D-2 from dialysis transport destination protocol.
Deleted Physicians Regional: No GI patients.

4-20-09

Added to Multiple Trauma Pearls: Moderate to severe trauma IV/L.R. on a macro drip or a blood solution set and titrate to SBP 100 mmHg in adults and 70-80 mmHg in Peds.

4-30-09

Added ICE protocol and D-5 as destination.
Added FMBFD to participating agencies.

6-5-09

Atropine pharmacology page changed CAM to DAI; page A-6
Diprivan pharmacology page changed CAM to DAI; page A-13
Etomidate pharmacology page changed CAM to DAI; page A-17
Succinylcholine pharmacology page changed CAM to DAI; page A-38
Versed pharmacology page changed CAM to DAI, added Ativan to alternate; page A-42
Ambu laryngeal mask changed CAM to DAI; page B-2
O^2 dose adjusted to 2-6 lpm; route adjusted to reflect devices, added caution for strokes; page A-32
Surgical Cricothyroidotomy removed nasal intubation; page C-6
Needle Cricothyroidotomy removed nasal intubation; page C-7
Transportation Guideline added LMHP for Induced Hypothermia.

7/21/2009

DAI algorithm inserted
Airway algorithm inserted
FBAO algorithm inserted
FBAO verbiage removed
Pain Management title changed to include Conscious Sedation
Added max dose to versed in Pain Management
Added PEARL for Conscious Sedation in Pain Management
Fentanyl dose changed to 2 mcg/kg
Removed Crash Airway Management page
Etomidate pharmacology paged changed CAM to DAI, IO route added
Removed DAI Page
Removed DAI algorithm
Added Core Principal Airway, Ventilation, Oxygenation

8/25/09

Transport guidelines updated to include Physicians Regional for STEMI.
Find and replace performed on O2 changed to O_2 and CO2 to CO_2
Credit to Travis County EMS in references
State required cervical collar letter added to references
State acceptance of electronic protocols added

11-10-09

Changed ALM to LMA Supreme with changes in procedure.

11-24-09

Update Ativan dosing from 2 mg Max to 4 mg.

1-5-10

Added neonate to Initial Assessment and Management

1-7-10
Added Note #1 to Medical Supportive Care r/t V/S.