Common EMS Treatment Guidelines

Developed by the
County Wide Protocol Committee
Lee County Florida
2007 (2007-01) Update

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PARTICIPATING AGENCIES

Agency	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 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

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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 First Responder, EMT, or Paramedic must use his/her judgment in administering treatment in the following manner:

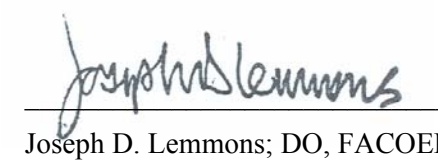
- The First Responder, EMT, or Paramedic may determine that no specific treatment is needed; or
- The First Responder, EMT, or Paramedic may consult medical direction before initiating any specific treatment; or
- The First Responder, EMT, or Paramedic may follow the appropriate treatment Guideline and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



Joseph D. Lemmons; DO, FACOEP Date

Medical Director

INTRODUCTION TO ADULT INITIAL ASSESSMENT AND MANAGEMENT

Guidelines in Section I pg. 9 (Adult Initial Assessment) and section I pg. 11 (Pediatric Initial Assessment) are designed to guide the First Responder, EMT 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 **First Responder, EMT 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 0-1 years of age or less than 10 kg.

Adult Initial Assessment should be used on all adult patients for initial assessment. During this assessment, if the First Responder, EMT 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. 17) 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

FIRST RESPONDER, EMT 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.
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.
        - Pupillary Response.
        - Glasgow Coma Score.
    - **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.
        - **1.** O – Onset and Location.
        - **2.** P – Provocation.
        - **3.** Q – Quality.
        - **4.** R – Radiation.
        - **5.** R – Referred.
        - **6.** R – Relief.
        - **7.** S – Severity.
        - **8.** 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.** Glucose Determination.
    - **D.** Monitor Temperature.
    - **E.** Capnography

PEDIATRIC INITIAL ASSESSMENT

FIRST RESPONDER, EMT, 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
    - **A.** General Impression of Patient (Pediatric Assessment Triangle)
        - Appearance.
        - Work of Breathing.
        - Circulation to Skin.
    - **B.** Assess Airway.
    - **C.** Assess Breathing.
    - **D.** Assess Circulation. - Pulse, Major Bleeding, Skin Color, and Temperature.
    - **E.** Assess Disability – Movement of Extremities / Defibrillation, as indicated.
    - **F.** 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).
    - **G.** Initiate Measures to Prevent Heat Loss.
    - **H.** 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.

1. O – Onset and Location.

2. P – Provocation.

3. Q – Quality.

4. R – Radiation.

5. R – Referred.

6. R – Relief.

7. S – Severity.

8. 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. Glucose Determination.

D. Monitor Temperature.

E. Capnography

AIRWAY MANAGEMENT

FIRST RESPONDER, EMT, AND PARAMEDIC

1. Initial Assessment Guideline.
2. If spontaneous breathing is present without compromise:
    - **A.** Monitor breathing during transport.
    - **B.** Administer oxygen via nasal cannula (2-6 L/min) PRN
3. If spontaneous breathing is present with compromise:
    - **A.** Maintain airway (e.g. modified jaw thrust / head tilt-chin lift)
    - **B.** Administer oxygen via non-rebreather mask (liter flow sufficient to keep reservoir inflated).
    - **C.** If unconscious, insert oropharyngeal or nasopharyngeal airway PRN .
    - **D.** Assist ventilations with BVM PRN when ventilations are less than 12 min.
    - **E.** Suction PRN.

PARAMEDIC ONLY

- **F.** Pulse oximeter, as soon as possible.
- **G.** Consider End Tidal CO2 sampling.
- **H.** If patient accepts oropharyngeal airway, consider need for advanced airway.
- **I.** Consider utilizing Crash Airway Management procedure for airway management.

FIRST RESPONDER, EMT, AND PARAMEDIC

4. If spontaneous breathing is absent:
    - **A.** Maintain airway (e.g. modified jaw thrust / head tilt-chin lift).
    - **B.** Insert oropharyngeal or nasopharyngeal airway.
    - **C.** Assist ventilations with BVM.
    - **D.** Suction PRN.
    - **E.** If Intubation is not available, insert LMA or Combitube.

PARAMEDIC ONLY

- **F.** Perform endotracheal intubation.
    - Confirm ETT placement.
    - Secure ETT with commercial tube holder.
    - Attach end-tidal CO2 monitoring device (Capnography).
    - Monitor SpO2 with pulse oximeter.
    - Apply cervical collar to minimize risk of extubation.
    - Reassess and document tube placement after loading patient, during transport, and just prior to patient transfer onto ER stretcher.

G. If unable to intubate and patient cannot be adequately ventilated by other means

(see A – E above), perform cricothyroidotomy and provide rapid transport.

AIRWAY OBSTRUCTION

Causes of upper airway obstruction include the tongue, foreign bodies, swelling of the upper airway due to edema and trauma to the airway. Differentiation of the cause of upper airway obstruction is essential to determining the proper treatment.

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline.
2. If air exchange is inadequate and there is a reasonable suspicion of foreign body airway obstruction (FBAO), apply abdominal thrusts.

PARAMEDIC ONLY

3. If unable to relieve FBAO, visualize with laryngoscope and extract foreign body with Magill forceps.
4. If obstruction is due to trauma and/or edema, or if uncontrollable bleeding into the airway causes life-threatening ventilatory impairment, perform endotracheal intubation.
5. If unable to intubate and patient cannot be adequately ventilated by other means, perform cricothyroidotomy.

NOTE:

If air exchange is adequate with a partial airway obstruction, do not interfere and encourage patient to cough up obstruction. Continue to monitor for adequacy of air exchange. If air exchange becomes inadequate continue with Guideline.

CONSCIOUS SEDATION

PARAMEDIC ONLY

The use of Versed to sedate a patient prior to pacing or cardioversion is authorized and at the discretion of the paramedic. The amount of Versed necessary to sedate a patient will vary from patient to patient. It is of utmost importance to monitor the patient's vital signs; cardiac status and oxygen saturation while the patient is sedated. The following guidelines are to be followed concerning the use of Versed.

1. Initial dose is 2 mg slow IV push.
2. After two-minute period to allow the medication to become fully effective, additional boluses may be administered and titrated to effect.
3. Only in very rare instances will more than 5 mg will be needed to sedate a patient.
4. Maximum allowable dosage is 5 mg/IV.
5. If IV access is unavailable, administer 0.2mg/kg intranasal via MAD.

MEDICAL SUPPORTIVE CARE

FIRST RESPONDER, EMT AND PARAMEDIC

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

PARAMEDIC ONLY

4. Monitor ECG PRN.
5. Establish IV as indicated.
6. Establish hospital contact for notification of incoming patient and obtaining consultation for additional orders.

NOTES:

1. Authorized IV routes include all peripheral venous sites.
2. When obtaining IV access, follow the Blood Draw procedure below as time and conditions allow:
    - **A.** Draw tubes in this order: Marble, Purple, Green, Blue.
    - **B.** Clearly label on **EACH** tube: Patient name and date of birth or social security number date of draw, time of draw, initials of person drawing samples.
    - **C.** Place tubes in a zip-lock bag and maintain visible accountability throughout patient care.
    - **D.** If blood is drawn on multiple patients, the Paramedic shall adhere to the above standards to ensure proper labeling and identification.
    - **E.** If there is any question regarding the adherence to the above standards, the blood will not be used.
3. For hypotension, administer a fluid challenge (500ml) of NS or RL. Repeat fluid challenge until desired effects is achieved, monitoring for pulmonary congestion 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 should have an IV NS infusing to facilitate proper flushing of medications.
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

FIRST RESPONDER, EMT 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 ECG PRN.
    - **A.** Perform quick-look ECG if patient is pulseless.
9. Establish IV of Lactated Ringers with appropriate infusion set.
    - **A.** Draw blood if time and conditions allow.
    - **B.** Moderate to severe trauma IV/L.R. on a macro drip or a blood solution set and titrate to effect.
    - **C.** Intravenous access attempts shall not delay transport except when medications are necessary to establish a definitive airway.
    - **D.** Second and third lines in transport, if time and conditions allow.

PAIN MANAGEMENT

PARAMEDIC ONLY

Morphine for pain control can be administered without a physician on-line order in the following conditions:

INDICATIONS:

- Ischemic Heart Pain
- Musculoskeletal Pain / Injuries including suspected fractures & significant soft tissue trauma.
- Burns
- Non-Hemorrhagic Abdominal Pain (i.e., Renal Colic, Renal Stones, Cholecystitis, Diverticulitis, Appendicitis, etc.)

CONTRAINDICATIONS:

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

TREATMENT GUIDELINES:

- Medical / Trauma Supportive Guideline
- Morphine IV... 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.
- Ensure the Readiness of Resuscitative Measures. Anticipate respiratory support, reversal agent/antidote (Narcan) and antiemetic therapy (Phenergan).
- Call for orders if additional dosages are needed.

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 who is not intubated, should be placed in a seated position 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 seated 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.

DEFINITIONS

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

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

A. Competent - 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:

1. An emancipated minor (a).

2. A married minor.

3. A legal representative for the patient (parent or guardian).

2. 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:

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

B. Suicide (attempt or verbal threat).

C. Severely altered vital signs.

D. Mental retardation and/or deficiency.

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

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

3. 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 whom:

- 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.

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 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 – SIGNAL 7

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.

A. 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 is identified.

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

      a. Unresponsiveness.

      b. Apnea.

      c. Pulseless.

      d. Fixed pupils.

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

      a. Injuries incompatible with life (e.g. decapitation, massive crush injury, incineration, etc.).

      b. Tissue decomposition.

      c. Rigor Mortis of any degree with warm air temperature.

         1) Hardening of the muscles of the body, making the joints rigid.

      d. Liver Mortis (Lividity) of any degree and/or generalized cyanosis.

         1) Venous pooling of blood in dependent body parts causing purple discoloration of the skin, which does blanch with pressure.

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

B. 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:

   1. Pulselessness and apnea associated with:

      a. Asystole (confirmed in two leads) and

         1) Blunt trauma arrest, or

         2) Prolonged extrication time (> 15 minutes) where no resuscitative measures can be initiated prior to extrication.

b. Arrest from primary brain injury or with no brain-stem reflexes; arrest from blunt multiple injuries.

c. Arrest from blunt injury to torso.

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

C. 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

A. 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.

B. 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.

C. A PARAMEDIC with an order from medical direction may terminate resuscitation provided the following criteria are met:

1. Appropriate BLS and ALS have been attempted without restoration of circulation and breathing.

2. Endotracheal intubation has been successfully accomplished.

3. Intravenous medication and counter shocks for ventricular fibrillation have been administered according to the appropriate treatment Guideline(s) (see Adult Guidelines or Pediatric Guidelines).

4. Persistent asystole or agonal EKG patterns are present and no reversible causes are identified.

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

D. Provide appropriate grief counseling or support to the patient's immediate family, bystanders, or others at the scene.

1. Provide family members with appropriate referral information, if available.

E. Deceased Preparation.

1. Once it has been determined that the patient has expired and resuscitation will not continue, cover the body with a sheet or other suitable item. DO NOT remove any property from the body or the scene for any purpose.

2. Contact the Lee County Medical Examiner’s Office at 277-5020.

3. 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.

4. 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, ET Tube).
5. 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 via Department's EMS Division.
6. EKG rhythm documentation must be attached to the patient care report.
7. Endotracheal (ET) tube placement may be verified by two responders for patients who are determined dead in the field or resuscitation measures have ceased. The ET tube's confirmation should be recorded on the EMS run report. Improperly placed ET tubes should be left in place and reported to the appropriate personnel. (Proper ET tube placement must be confirmed prior to terminating resuscitation.)
8. Consult the patient's family for "Organ Donor" information, if appropriate.

AIR TRANSPORT

The MEDSTAR aircraft should be used when critically ill and/or injured patient(s) will benefit from faster transport, with certified critical care clinicians, to an appropriate medical facility. MEDSTAR is the air and ground critical care transport service of Lee County Emergency Medical Services serving Southwest Florida.

The guidelines were developed based on the following principles:

- The best way to use the aircraft is to depend on the person best able to make a decision about the patient's condition. That person is the paramedic on-scene.
- The aircraft is primarily a means of transporting Priority 1 patients.
- Time to the hospital is the single greatest determinant in your decision to use the aircraft.

GUIDELINES

- The first responders (EMS or Fire) should place the aircraft on standby if they believe that it may be needed. It is appropriate and preferred to place the aircraft on standby prior to arrival if information received suggests the possibility of a priority one patient. Lee Control may also place the aircraft on standby if, based on information received, they believe that air medical services may be required.
- Any on-scene first responder (EMS or Fire), may request the aircraft.
- After initial assessment, the highest ranking medical provider on-scene may cancel air medical services.
- Lee Control must be notified if more than one patient requires air medical services. If available, additional aircraft will be dispatched for additional priority one patients.
- Once on-scene, the flight crew may cancel requests for additional air medical resources.

PRIORITY 1 PATIENTS

Priority 1 Patients should be transported by air medical services when ground transportation to the appropriate medical facility will exceed 15-20 minutes. (Distance and traffic should be considered when making this decision.)

PRIORITY 1 PATIENTS DEFINED

- Patients meeting Trauma Alert Criteria
- Patients meeting Stroke Alert Criteria
- Patients meeting Cardiac Alert Criteria
- Unstable Advanced Life Support patients
- Post Cardiac or Traumatic Arrest patient (that has developed a perfusing rhythm)

PRIORITY 2 PATIENTS

Priority 2 patients should not routinely be transported by air medical services. However, there are circumstances where it is appropriate to air transport Priority 2 patients. The paramedic should consider using the air medical services for Priority 2 patients only when:

- The patient has a high potential to become unstable/decompensate **and** ground transport time to an appropriate medical facility is greater than 35 minutes.
- A Mass Casualty Incident (MCI) of six or more patients overloads the ground transport system. Travel time and patient priority for air medical transport must still be observed.
- Difficult access situations such as wilderness rescue, barrier islands or ambulance access or egress is hampered by road conditions, weather and/or traffic.

PATIENTS WHO SHOULD NOT FLY

- Priority 3 patients
- Patients in cardiopulmonary arrest (medical or trauma)
- Combative psychotic patients

OB PATIENTS

OB patients, meeting Priority 1 or 2 criteria, can be transported in MEDSTAR 1 (EC145). Check for availability before requesting for OB transport. MEDSTAR 2 (BO105) cannot safely transport OB patients because of the aircraft cabin configuration.

PREPARING THE PATIENT FOR FLIGHT

PATIENT READINESS

- Will the patient fly? Some conscious, alert and oriented patients may refuse flight.
- Establish appropriate treatment control measures per Lee County Common Treatment Guidelines.
- Hearing protection is to be placed on all patients when possible.

REQUESTED INFORMATION

The following information is to be given to Lee Control when you have a patient to be flown to a medical facility.

- The patient's priority
- Call type
- Transport destination
- Landing zone coordinator (i.e., Fire District where the aircraft will land)

WEATHER CONDITIONS

The pilot will be monitoring the general area weather. Ground crews should not attempt to determine if the weather is "good enough" for the aircraft to fly. Request the aircraft and let the pilot determine if the aircraft can safely complete the mission. The ground crew should advise Lee Control of significant environmental changes at the scene such as hail starting to fall.

PATIENT LOADING/UNLOADING

All movement around the aircraft is at the direction of the flight crew. Follow directions from the flight team regarding the transfer and loading of the patient onto the helicopter.

The flight crew may ask for your assistance in loading the patient into the aircraft. Working around a running aircraft can be very dangerous so pay careful attention to the flight crew's direction(s).

LANDING ZONES (LZ)

The on-scene fire department is responsible for securing and preparing the LZ prior to the arrival of the aircraft. 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 requested by the pilot, the LZ coordinator will provide a LZ report over the 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.
- Direct radio communications with the LZ coordinator should be established for every night landing. In the event of radio failure, the LZ coordinator should attempt contact on alternate means such as a LCEMS hand held radio and continue to communicate with the pilot.

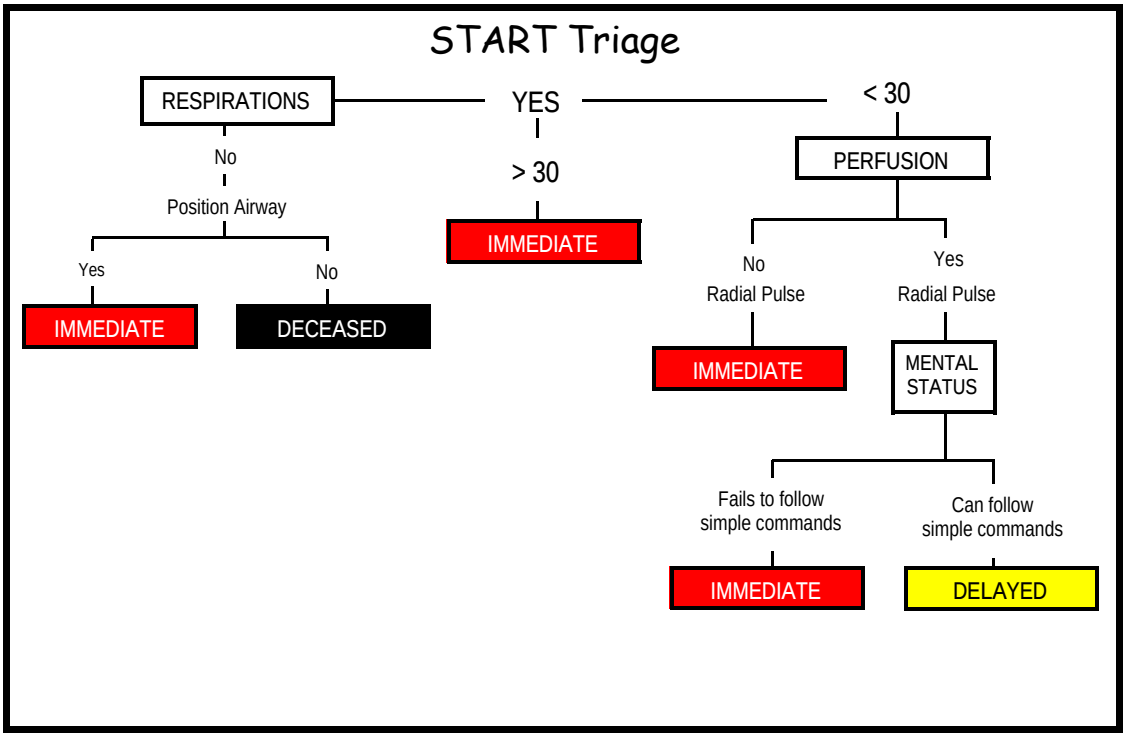
TRANSFER OF CARE

- 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 on-scene 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.

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.

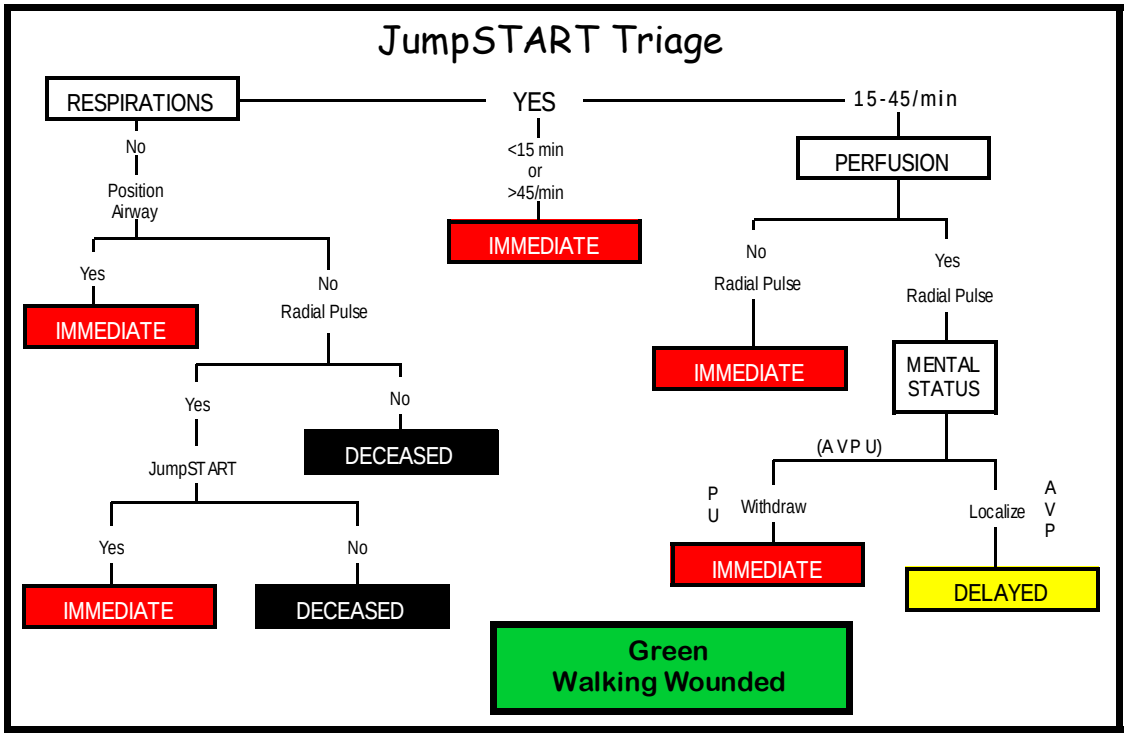
STEP 3

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.

Cardiac Alert / AMI	Stroke Alerts	Trauma Alert	Emergent Pediatrics	OB/GYN	Neonates	Pediatric Orthopedic
Health Park	**SW Regional**	**Lee Memorial Cleveland Campus**	**Health Park**	**Health Park**	**Health Park**	**Health Park**
SW Regional	**North Collier**		**Gulf Coast**	**Cape Coral**		**Gulf Coast**
Naples	**Naples Community**		**North Collier**	**Gulf Coast**		
	Lee Memorial Cleveland Campus			**North Collier**		
Charlotte Reg	Fawcett Memorial		Peace River	Peace River	Peace River	
Sarasota	Sarasota		Sarasota	Sarasota	Sarasota	
Venice						

All traumas, not categorized under Trauma Alert Criteria, can be transported to **any** receiving hospital. 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, Southwest Regional Medical Center, or Leigh Regional Hospital.
- Physician's Regional No GI Patients, 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

This Guideline is to be used in the initial management of all cardiac arrest patients. First Responders and EMTs shall provide BLS resuscitative care until the arrival of an ALS unit. Paramedics shall consult this Guideline prior to advancing to other more specific cardiac arrest Guidelines.

FIRST RESPONDERS, EMT, AND PARAMEDIC

1. Assess responsiveness
2. Airway: Open the airway. Place an oral or nasal airway.
3. Breathing: provide two breaths (2 seconds per breath)
4. Circulation: assess pulse
    - **A.** If pulse present, perform rescue breathing (1 breath every 5 seconds)
    - **B.** If no pulse, proceed to next line.
5. Perform CPR
    - **A.** For 2 minutes if arrest not witnessed and response is more than 4 or 5 minutes.
    - **B.** Until an AED or monitor/defibrillator is available (for sudden collapse).

NOTE: Good quality CPR improves a patient's chances for survival. The critical concepts for quality CPR include:

- Push hard, push fast: compress at a rate of 100 compressions per minute
- Allow full chest recoil after each compression
- Minimize interruptions to less than 10 seconds
- Avoid hyperventilation

	Adult Adolescent & older	**Child** 1 year to adolescent	**Infant** Under 1 year	**Neonate** < 28 days
Ratio*	30:2	30:2 15:2 (2 rescuer)		3:1
Compression Depth	1½ - 2 inches	⅓ - ½ Depth of chest		

* Compressions (Approximately 100/min) and ventilations (8 to 10/min) are asynchronous after placement of advanced airway: endotracheal tube, Combi-tube, or LMA.

6. Determine Rhythm (Only apply an AED to a pulseless patient.)

First Responders / EMTs	Paramedics
Power on the AED Attach AED electrodes Auto Analyze ("Clear!") Follow AED prompts Perform CPR for 2 minutes	Medical Supportive Care Guideline Refer to appropriate cardiac arrest Guideline

Repeat	

VENTRICULAR FIBRILLATION OR PULSELESS WIDE COMPLEX TACHYCARDIA

PARAMEDIC ONLY

1. Cardiac Arrest – Initial Approach Guideline
2. **Defibrillate** @ 200 joules biphasic[ii] / 360 joules monophasic *(a)*
3. **CPR**, 5 cycles or 2 minutes without interruption:
   - **A.** Endotracheal Intubation, if unable or delayed: place Combi-tube, or LMA.
   - **B.** Start at least one **IV of NS or LR**.
4. **Defibrillate** @ 200 joules biphasic[iii] / 360 joules monophasic *(a)*
5. **CPR** 2 minutes/**Rhythm Check/CPR** (while drug administered and defibrillator charged)
   - **A. Vasopressin** 40 units IV then **Epinephrine** 1mg IV every 3-5 minutes *(b)*
6. **Defibrillate** @ full output, repeating defibrillation @ this energy selection for duration of VF or VT without a pulse *(a)*
7. **CPR/Rhythm Check/CPR** (while drug administered and defibrillator charged)/**Defibrillate**
8. **Amiodarone**, 300 mg IV. **Repeat step # 7.**
   - **A.** For symptomatic ventricular irritability (R on T, runs of VT), proceed to *(a)*
9. **Amiodarone**, 150 mg IV. **Repeat step # 7.**
   - **A.** For symptomatic ventricular irritability (R on T, runs of VT), proceed to *(a)*
10. Lidocaine, 1.5 mg/kg IV. **Repeat step # 7.** If converted, monitor patient.[iv]
11. Lidocaine, 1.5 mg/kg IV. **Repeat step # 7.** If converted, monitor patient.[v]
12. For suspected Torsades[vi], consider **Magnesium** 1-2g IV (as indicated). **Repeat step # 7**. If converted, monitor patient.
13. Consider **Sodium Bicarbonate** @ 1 mEq/kg, if pre-cardiac arrest acidosis is suspected.
14. **Monitor** patient and treat accordingly to signs/symptoms.

NOTES:

(a) If converted to a pulse-producing rhythm, administer Amiodarone 150mg in 100cc of D_5W over 10 minutes.

(b) If unable to initiate IV or IO, administer first dose only of Vasopressin and Epinephrine via ET Tube at double the IV/IO dose, followed by flush until IV is established.

ASYSTOLE

This Guideline is to be used for patients in Asystolic Cardiac Arrest. As with PEA, the only hope for resuscitation of a person in asystole is to identify and treat a reversible cause.

PARAMEDIC ONLY

15. Cardiac Arrest – Initial Approach Guideline
16. **Vasopressin** 40 units IV then **Epinephrine** 1mg every 3-5 minutes. *(a)*
17. **Atropine** 1mg, every 3 minutes up to a total of 3 mg or 0.04 mg/kg.*(a)*
18. Consider **Sodium Bicarbonate** @ 1 mEq/kg, if pre-cardiac arrest acidosis is suspected.
19. Consider termination of efforts.
    - **A.** Consider quality of efforts.
    - **B.** Atypical clinical features present?
    - **C.** Support for termination of resuscitation present?

Note:

(a) If unable to initiate IV or IO, administer first dose only of Vasopressin, Epinephrine, or Atropine via ET tube at double the IV/IO dose, followed by flush until IV is established.

PULSELESS ELECTRICAL ACTIVITY

This Guideline is to be used for patients who present with Pulseless Electrical Activity (PEA). PEA is often associated with specific clinical states that can be reversed when identified early and treated appropriately.

The most frequent causes of PEA are:

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen Ion – acidosis
- **H**yper-Hypokalemia
- **H**ypothermia
- **H**ypoglycemia

Tablets (drug overdose, accidents)
Tamponade, Cardiac
Tension Pneumothorax
Thrombosis, Coronary (ACS)
Thrombosis, Pulmonary (embolism)
Trauma

PARAMEDIC ONLY

1. Cardiac Arrest – Initial Approach Guideline
2. Search for treatable cause.
3. Volume challenge as indicated: 500ml for adults, 20ml/kg in peds.
    A. Titrate fluid to desired effects. Doses may be repeated PRN.
4. Vasopressin 40 units IV then Epinephrine 1mg every 3-5 minutes. *(a)*
5. If heart rate is below 60 bpm, Atropine 1mg, every 3 minutes up to a total of 3 mg. *(a)*
6. Consider Sodium Bicarbonate @ 1 mEq/kg, if pre-cardiac arrest acidosis is suspected.
7. Consider termination of efforts.
    A. Consider quality of efforts.
    B. Atypical clinical features present?
    C. Support for termination of resuscitation present?

NOTE:

(a) If unable to initiate IV or IO, administer first dose only of Vasopressin, Epinephrine or Atropine via ET tube at double the IV/IO dose, followed by flush until IV is established.

TRAUMATIC CARDIAC ARREST

The decision to attempt resuscitation of a traumatic arrest should be based on the paramedic's judgment as to the possibility of survival and/or the possibility of organ harvest. There are instances where resuscitation of a traumatic arrest is not warranted (see Death in the Field – Signal-7 Guideline).

FIRST RESPONDER, EMT AND PARAMEDIC

1. Trauma Supportive Care Guideline
2. Rapidly prepare patient for transport and then expeditiously transport patient to the closest receiving facility. The Trauma Center, if a viable option, shall be the destination of choice.

PARAMEDIC ONLY

3. If indicated volume challenge; administer 500ml for adults, and 20ml/kg in peds. Titrate fluid to desired effects. Doses may be repeated.
4. Avoid use of vasopressors in cases of suspected hypovolemia.

Section III: Cardiac Emergencies

ACUTE CORONARY SYNDROME

This Guideline is used for the patient that is experiencing chest pain or discomfort. Other signs and/or symptoms that may or may not be present include: dyspnea, diaphoresis, nausea/vomiting, weakness/fatigue, etc. If these additional signs and symptoms are present in the absence of chest pain or discomfort, AMI may still be present. This guideline should be followed when an ACS is suspected.

CARDIAC ALERT CRITERIA

- ST segment elevation of at least 1 mm, in 2 or more contiguous leads, or new onset LBBB

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Guideline
2. ASA 324mg chewable, if no recent or current bleeding problem, not allergic to ASA.
3. Nitrolingual spray 0.4 mg (If systolic B/P is greater than 100 mm Hg). May be repeated in 3-5 minutes as needed, if systolic B/P is greater than 100 mm Hg. *(a)*

(EMTs may assist patients in taking their own prescribed nitroglycerin.)

PARAMEDIC ONLY

4. Conduct 12 lead ECG. *(b) (c)*
5. Lopressor 5mg slow IV at 5 minute intervals to a total of 15mg. **USE IN CARDIAC ALERT PATIENT ONLY.** *(d)*
6. Consider a Tridil drip at 5-10 ug/min if the systolic blood pressure is over 100 mm Hg and there are no signs of hypoperfusion and pain is ongoing. Titrate up in 5ug/min increments for pain control while monitoring the blood pressure and general perfusion. Tridal should only be infused through a dedicated IV line.
7. Morphine 2mg (If systolic B/P is greater than 100 mm/Hg). May be repeated in 2mg increments until desired effect, or the maximum dose of 0.1mg/kg has been administered.

NOTES:

(a) Do not use nitrates, lasix or morphine in patients with RV infarction and hypotension as it may worsen hypotension. If hypotension develops, bolus 250 ml of Normal Saline while monitoring for pulmonary congestion. Additional fluid challenges may be administered as needed, until desired effects are achieved.

(b) Suspect right ventricular infarction in patients with inferior infarction (ST-Segment elevation in leads II, III, and aVF), hypotension and clear lung fields. In patients with suspected right ventricular infarction, obtain an ECG of the right side of the heart by precordial leads V-3R and V-4R.

(c) A Cardiac Alert will not be called unless a 12 lead is obtained.

(d) Heart rate must remain above 60 and systolic B/P greater than 100 mm/Hg.

ACUTE PULMONARY EDEMA, HYPOTENSION AND SHOCK

This Guideline is to be used for patients with CHF and/or hemodynamic instability from acute myocardial infarction. The combination of hypotension (SBP < 100 mm Hg) and pulmonary edema constitutes clinical cardiogenic shock.

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Guideline

PARAMEDIC ONLY

ACUTE PULMONARY EDEMA:

2. Nitrolingual spray 0.4 mg every 1 (0ne) minute X three (3) doses or until SBP less than 140 mmHg.
3. If the patient has spontaneous respirations and has a self maintained airway, initiate **CPAP** per protocol *
4. Lasix 40 mg. An additional 40 mg may be repeated in 5-10 minutes
5. Morphine 2mg. (If systolic B/P is greater than 100 mm/Hg). May be repeated in 2mg increments until desired effect, or the maximum dose of 0.1mg/kg has been administered.
6. Tridil drip at 5 ug/min if the systolic B/P is greater than 100 and there are no signs of hypoperfusion. Titrate in 5ug/min increments to desired effect. (**Only through dedicated IV line**)

HYPOTENSION:

- Dopamine drip: (400 mg/250cc/NS or premix bag), start 5mcg/kg/min and titrate to achieve a blood pressure of 100 systolic in adults and 80-90 in peds.

*Use caution when using CPAP in cardiogenic pulmonary edema because of the possibility of increasing the rate of infarction. Watching for any worsening signs of ischemia (ST segment elevation or worsening chest pain) and consider terminating CPAP and intubating.

WIDE COMPLEX TACHYCARDIA

This Guideline shall be used in the management of patients in Ventricular Tachycardia. Patients diagnosed as "unstable" will immediately be treated with urgent, electric, synchronized cardioversion. Use only one antidysrythmic medication. If patient does not convert with maximum dose treat as unstable (synchronize cardiovert).

PARAMEDIC ONLY

STABLE PATIENT

If Monomorphic VT :

1. Medical Supportive Guideline
2. Amiodarone, 150 mg in 100cc of D5W to be infused over 10 minutes.
   or
   Lidocaine, 1.5 mg/kg, if unsuccessful, repeat Lidocaine @ 0.5mg/kg q 5minutes up to a maximum dose of 3mg/kg [(a)].

If Polymorphic (suspect Torsades de Pointe)

1. Medical Supportive Guideline
2. Magnesium Sulfate 1g in 100cc D_5W or NS over 10 minutes.

*** Do not use Amiodarone in Torsades de Pointes ***

UNSTABLE PATIENT

Ventricular rate more than 150 along with one of the following: chest pain, shortness of breath, decreased level of consciousness, relative hypotension, or pulmonary edema.

1. Medical Supportive Guideline
2. Cardiovert (synchronized) @100 joules, 200 joules, 300 joules, 360 joules monophasic (or equivalent biphasic energy level). Repeat cardioversion @ maximum joules after each medication is administered for duration of WCT. [(b)]
3. Amiodarone, 150 mg in 100cc of D5W to be infused over 10 minutes. If unsuccessful, repeat cardioversion @ 360 joules (or equivalent biphasic energy level).

NOTES:

[(a)] If converted to a pulse-producing rhythm, re-bolus every 10 minutes with 0.5mg/kg Lidocaine up to a max of 3mg/kg total dose.

[(b)] If converted to a pulse-producing rhythm, administer Amiodarone 150mg in 100cc of D_5W over 10 minutes

SYMPTOMATIC ATRIAL FIBRILLATION/ATRIAL FLUTTERS

Stable Patient

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Guideline

PARAMEDIC ONLY

Do not convert the patient's rhythm if it has been present for over 48 hours unless the status of the patient dictates.

2. Cardizem, 0.25 mg/kg, IV over 2-3 minutes **(Not** considered a chemical cardioverting agent)
   A. Do not to exceed 20 mg.
   B. A second dose of 0.35 mg/kg IV over 2–3 minutes can be given in 15 minutes. Do not exceed 25 mg.

Stable Patient in Atrial Fibrillation with WPW.

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Guideline

PARAMEDIC ONLY

If WPW is present and the duration is less than 48 hours:

2. Amiodarone 150 mg in 100cc of D_5W to be infused over 10 minutes.

If the duration has been greater than 48 hours contact Medical Control

Unstable Patient: Severe chest pain, or shortness of breath, or decreased level of consciousness, or relative hypotension, or pulmonary edema then:

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Guideline

PARAMEDIC ONLY

2. Cardiovert (synchronized) 100 joules, 200 joules, 300 joules, 360 joules (or equivalent biphasic energy levels).

PREMATURE VENTRICULAR CONTRACTION (PVCS)

This Guideline is to be used in the management of patients who have premature ventricular contractions.

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Guideline

PARAMEDIC ONLY

2. Treat only if patient is symptomatic from:

   - Multi-focal PVCs with hemodynamic compromise, **or**

   - Short runs of Ventricular Tachycardia, **or**

   - R on T phenomenon

   Do not treat unifocal PVCs that are not coupling or R on T.

3. Amiodarone, 150 mg in 100cc of D_5W to be infused over 10 minutes.

   or

   Lidocaine, 1.5 mg/kg, if unsuccessful, repeat Lidocaine @ 0.5mg/kg q 5 minutes up to a maximum dose of 3mg/kg (a).

NOTES:

(a) If ectopy resolves, re-bolus every 10 minutes with 0.5mg/kg Lidocaine up to a max of 3mg/kg total dose **or** begin a Lidocaine drip based upon the total amount of Lidocaine administered

Adult	**Peds** up to 38 kgs
1-2 mg/kg – 3 mg/minute	See Broselow Resuscitation Tape
3 mg/kg – 4 mg/minute	

If patient is over 70 years of age, has liver disease, or a history of CHF, drip rates are to be cut in half.

Treat Lidocaine induced seizures with Valium. Terminate Lidocaine administration.

Administer Valium: Start with 5 mg IV and then give additional 2-3 mg increments titrating to effect. However, do not exceed 10 mg maximum dosage without a physician's order. In pediatric patients 0.2 mg/kg IV or 0.5 mg/kg rectally, not to exceed a total of 10mg.

SYMPTOMATIC BRADYCARDIA

This Guideline is to be used in the management of symptomatic bradycardia. Symptoms include: hypotension (systolic BP <90 mmHg), ventricular escape beats, altered mental status, chest pain, dyspnea, or ischemia/infarction on 12 lead ECG.

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Guideline

PARAMEDIC ONLY

2. Atropine 0.5-1 mg, repeat every 3-5 minutes (maximum total dose 0.04 mg/kg or 3 mg) (a) (b) (c).
3. Consider external pacemaker at 80 BPM
4. If patient is conscious and aware of situation during pacing, administer Valium 5-10 mg IV or Versed 1-2 mg IV.

(a) If patient is experiencing chest pain in the presence of bradycardia with hypotension, perform 12 ECG (inferior wall MI may be associated with right ventricular MI). Consider pacing and IV fluids prior to the use of Atropine.

(b) Consider pacing before maximum dose of Atropine.

(c) For 2nd degree AV block type II and 3rd degree AV block, Atropine is contraindicated and external pacer should be used.

SUPRA VENTRICULAR TACHYCARDIA (SVT)

This Guideline is to be used in the management of patients with supra-ventricular tachycardias.

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Guideline

PARAMEDIC ONLY

2. If stable, consider vagal stimulation.

   If the patient is on Methylxanthines, Persantine, or any product containing Dipyradamole, use caution when giving Adenocard. No IVs distal to the A/C should be used for Adenocard. Use with caution in elderly patients.

3. Adenocard 6mg Rapid IV bolus followed by a 20 cc flush of saline.
4. Adenocard 12mg Rapid IV bolus followed by a 20 cc flush of saline.

   If Adenocard is contraindicated, or does not work

5. Cardizem .25mg/kg over 2 minutes.
   A. Do not to exceed 20 mg.
   B. A second dose of .35 mg/kg over 2 – 3 minutes can be given in 15 minutes. Do not exceed 25 mg.

   If the patient is unstable

6. Cardiovert (synchronized) 100 joules, 200 joules, 300 joules, 360 joules (or equivalent biphasic energy levels). Repeat cardioversion @ maximum joules after each medication is administered for duration of SVT.

Section IV : Environmental Emergencies

NEAR DROWNING

FIRST RESPONDER, EMT AND PARAMEDIC

1. Trauma Supportive Guideline

PARAMEDIC ONLY

2. Determine pertinent history (duration of submersion, depth, water temperature, possible seizure, drug and/or alcohol use).
3. Treat dysrhythmia per specific Guideline(s).
4. CPAP may be considered if patient exhibits signs and symptoms of pulmonary edema
5. Maintain body temperature, dry and warm patient.
6. **All near drowning patients should be transported to the hospital**, regardless of how well they may seem to have recovered. Delayed death or complications due to pulmonary edema or aspiration pneumonia are not uncommon.

HEAT RELATED ILLNESS

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline
   Remove patient from environment.
2. Remove appropriate clothing and if necessary cool patient with wet towels. **Do not cool the body temperature to below 101F.**

HEAT CRAMPS

- Administer Gator-Aid diluted 50% with water if patient's condition allows.

PARAMEDIC ONLY

HEAT EXHAUSTION

- If decreased B/P or increased heart rate consider IV/Normal Saline with 500cc volume challenge.

HEAT STROKE

- IV/Normal Saline. Titrate to patient's signs and symptoms.
- Transport A.S.A.P. In heat stroke, no more than two attempts on the scene for an IV are allowed so that transport is not delayed.
- Treat seizures per appropriate Guideline

MARINE LIFE ENCOUNTERS

FIRST RESPONDER, EMT AND PARAMEDIC

1. Trauma Supportive Care Guideline
2. If an allergic reaction present, follow Allergic Reaction Guideline.

   JELLYFISH

   - Flush the area with vinegar or alcohol, or apply shaving cream or meat tenderizer paste.

   STINGRAY

   - Apply a heat pack until the affected area can be placed in the hottest water possible that the patient can tolerate, without scalding.
3. If patient is not transported, advise that an x-ray of the wound site is needed and to receive a tetanus shot if outdated.

PARAMEDIC ONLY

4. Refer to Pain Management Guideline as necessary.

POISONOUS SNAKE BITE AND ENVENOMATION

FIRST RESPONDER, EMT AND PARAMEDIC

1. Trauma Supportive Care Guideline
2. Remove jewelry on affected limb and immobilize affected area if possible.
3. Keep affected body part lower than heart.
4. Contact receiving facility for specific treatments.

ANAPHYLACTIC REACTIONS

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline
2. Remove patient from source.
3. Place in trendelenburg according to signs/symptoms.
4. Administer patient's prescribed Epinephrine, via an auto-injector.

   (Only EMTs and Paramedics may administer Epinephrine via auto-injector)

PARAMEDIC ONLY

5. Epinephrine 0.3 mg sub-q (1:1,000 solution),
   A. Use Epinephrine with caution in patients over 45 years of age and/or with a history of coronary artery disease or hypertension.
   B. If infant or pediatric, up to 30 kgs epinephrine 0.01mg/kg, sub-q (1:1,000 solution) if over 30 kgs. 0.3 mg sub-q. If the patient is exhibiting signs of bronchospasm, administer Albuterol 2.5mg via Nebulizer.
6. Benadryl IV or IM if no IV avalable,
   A. Infants-1mg/kg
   B. Peds-25mg
   C. Adults-50 mg
7. If wheezing is present, administer Albuterol updraft.
   - For intubated patients, utilize the IN-LINE ETT application for nebulized medications.
8. Repeat Updraft as necessary with Albuterol only.
9. Solumedrol 125 mg IV (16 years and older only) Children age 2-16 years of age 1mg/kg **On Physician Orders.**
10. If patient has signs/symptoms of shock with a decreased B/P and altered LOC, start an Epinephrine drip, 1 mg of 1:1,000 in 250 cc/NS and start at 2mcg/min and titrate to effect while monitoring blood pressure and symptoms.

Section V: Medical Emergencies

CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)\REACTIVE AIRWAY DISEASE /ASTHMA

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline
2. Assist patient in taking his/her inhaler. (Only EMT's and Paramedics may assist patients in taking their medication)

PARAMEDIC ONLY

MILD DISTRESS*

1. Administer Albuterol updraft via Nebulizer:
   A. For patients who have previously used their Albuterol inhaler without relief, administer a combination of Albuterol/Atrovent (DuoNeb) via Nebulizer.
2. Repeat updraft as necessary using only Albuterol
3. If refractory to above treatments administer Solu-Medrol 125 mg IV (16 years or older only).

MODERATE-SEVERE DISTRESS**

4. Initiate CPAP at 5 cm H_2O
   A. Titrate FiO2 to a SpO2 of at least 92%
   B. If patient does not improve within 1-2 minutes, consider increasing CPAP to 7.5 cm H_2O.
5. Administer Albuterol updraft via nebulizer by "IN-LINE CPAP Application":
   A. For patients who have previously used their Albuterol inhaler without relief, administer a combination of Albuterol/Atrovent (DuoNeb) via Nebulizer.
   B. For intubated patient, utilize the "IN-LINE ETT Application" for nebulized medication.
6. Repeat updraft as necessary using only Albuterol
7. Administer Solu-Medrol 125 mg IV (16 years or older only)
8. If patient is in severe respiratory distress administer Epinephrine (1:1,000) 0.3 mg subcutaneous.

INFANTS AND PEDIATRICS

Refer to treatment steps #1-3 above.

A. If patient is in severe respiratory distress, administer Epinephrine:
   B. For patients up to 30 kgs, Epinephrine 0.01mg/kg, sub-q (1:1,000 solution)
   C. For patients over 30 kgs., Epinephrine 0.3 mg sub-q. (1:1,000 solution)
   D. Children 2-16 years of age Solumedrol 1mg/kg ON PHYSICIAN ORDERS ONLY.

* Mild Respiratory Distress is classified as an increased work of breathing above the patient's baseline.

** Moderate-Severe Respiratory distress is patient's exhibiting two or more of the following:

-Respiratory rate greater than 25 per minute.

-SpO2 less than 94%

1. -Use of accessory muscle

CROUP / EPIGLOTTITIS

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline
2. Get the patient into the bathroom and fill the room full of steam if ALS transport is more than 10 minutes away or take the patient outside into the fresh air.
3. Do not insert any object in the breathing patient's oropharynx.

PARAMEDIC ONLY

4. Consider administration of a Saline updraft (6 ml saline) at 6 LPM for duration of transport.
5. Be prepared to intubate, or perform needle cricothyroidotomy if respiratory arrest occurs.

HYPERVENTILATION SYNDROME

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline
2. Be calm and reassuring. Carefully explain to the patient why this is happening.
3. Successful treatment requires that the patient gain control of his / her own breathing.

   This may require firm instruction to the patient to slow his / her breathing down.
4. Administer O_2 at 6 LPM. Titrate down to zero LPM. Monitor pulse oximetry. If SPO_2 is within the high 90's, do not put on O_2. If SPO_2 is below 90, there may be a cause for the increased respiratory rate and oxygen should be administered and a careful assessment done to locate a cause.

ACUTE ABDOMEN

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline
2. Place in trendelenburg according to signs/symptoms.

DIABETIC EMERGENCIES

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline.
2. Administer Oral-Glucose or sugar-based food or drink if patient is symptomatic, including neuro-related deficits. Administer only if patient has an intact gag reflex.

PARAMEDIC ONLY

3. Perform glucose test with finger stick. If glucose is 60 mg/dL or below and patient is symptomatic, administer glucose as specified in #5 below.
4. Consider Thiamine 100 mg. IV. (For the suspected alcoholic or malnourished patient)
5. If patient is stuporous or unconscious, administer D50W 25grams slow IV [(a)]. **For Pediatrics, Refer to Broselow Tape.**
6. If unable to initiate IV, administer Glucagon 1 mg IM, if available.
7. Perform second glucose test with finger stick. If glucose is 60 mg/dL or below and patient remains symptomatic, administer D50W 25grams slow IV [(a)].
8. If blood glucose is greater than 350 mg/dL with signs of dehydration, administer Normal Saline 500 ml IV, if not contraindicated.

[(a)] To avoid infiltration and resultant tissue necrosis, Dextrose 50% should be given slow IV with intermittent aspiration of IV line to confirm IV patency followed by saline flush.

CONSIDERATIONS FOR PATIENT REFUSING TRANSPORT AFTER TREATMENT[vii]

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 must be met in order to not transport:

1. Patient must have a history of diabetes.
2. Patient has regained baseline mental status.
3. A full ALS/neurological assessment has been completed and documented.
4. Document a pre and post D50W blood glucose reading as well as any food intake provided to the patient.
5. Explain the risks/severity of not being transported and offer the benefits of being transported with witnesses.
6. 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.
7. Involve EMS Supervision and online medical control as needed for assistance with the above patient.
8. Patient must sign release and have adult family member or friend witness, if possible.
9. Case must be well documented to include evidence that each of the previous requirements have occurred.

HYPOVOLEMIC SHOCK

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline.
2. Control hemorrhage if applicable (direct pressure/elevation/ice pack/pressure point).
3. Place in trendelenburg according to signs/symptoms.

PARAMEDIC ONLY

4. If indicated Fluid Challenge:

ADULTS:

- Administer 500ml. Fluid Challenges may be repeated PRN.

PEDIATRICS:

- Administer 20ml/kg. (Refer to Broselow tape) Fluid Challenges may be repeated PRN.

OVERDOSE/POISONING

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline.
2. Determine what was taken, when, how much, and what has been done prior to your arrival.

Consult Poison Control (1-800-222-1222) or Receiving Emergency Department Physician to determine treatment strategy.

PARAMEDIC ONLY

3. For patients with a patent airway and adequate ventilations, slowly titrate Narcan up to 2 mg until mental status is deemed appropriate. **** DO NOT ADMINISTER NARCAN TO ANY INTUBATED PATIENT. (except cardiac arrest)**
4. Repeat Narcan, up to a total of 4 mg as necessary.

COMA/UNCONSCIOUSNESS

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline
2. If unknown etiology or mechanism for spinal cord injury is present, package patient.

PARAMEDIC ONLY

3. Consider need for intubation [(a).]
4. Draw blood samples prior to drug administration (for hospital).
5. Perform glucose test with finger stick. If glucose is 60 mg/dL or below, continue with # 6 and #7. If glucose is above 350 mg/dL and symptoms of DKA, administer fluid challenge [(b).]
6. Consider Thiamine 100 mg. IV. (For the suspected alcoholic or malnourished patient)
7. D50W 25 grams slow IV [(c).]
8. Re-evaluate need for intubation.
9. Perform second glucose test with finger stick. If glucose is 60 mg/dL or below and patient remains symptomatic, administer D50W 25grams slow IV [(c).]

[(a)] Use appropriate discretion regarding immediate intubation of patients who may quickly regain consciousness, such as hypoglycemics after D50W.

[(b)] If blood glucose is greater than 350 mg/dL with signs of dehydration, administer Normal Saline or L.R. 500 ml IV, if not contraindicated.

[(c)] To avoid infiltration and resultant tissue necrosis, Dextrose 50% should be given slow IV with intermittent aspiration of IV line to confirm IV patency followed by saline flush.

SEIZURES

This Guideline should be used when the patient has witnessed continuous convulsions (generalized tonic-clonic seizure) or repeating episodes without regaining consciousness or sufficient respiratory decompensation.

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline
2. Do not try to restrain patient, move dangerous objects away from patient.
3. If unknown etiology, or mechanism for spinal cord injury is present, package patient.

PARAMEDIC ONLY

4. Valium: start with 5 mg IV and then give additional 2-3 mg increments titrating to effect. However, do not exceed 10 mg maximum dosage without a physician's order. (If no IV access, intranasal **Versed** @ 0.2 mg/kg of a 5mg/ml solution via MAD, not to exceed 5 mg).

A. Pediatric

- 0.2 mg/kg Valium IV, or if no IV access,
- 0.2 mg/kg intranasal **Versed** (using a 5mg/ml solution via MAD) not to exceed 5 mg., or
- 0.5 mg/kg Valium rectally, not to exceed a total of 10mg. (Refer to Broselow tape)

5. Perform glucose test with finger stick. If glucose is 60 mg/dL or below, continue with # 5 and #6.If glucose is above 350 mg/dL and symptoms of DKA, administer fluid challenge [(a)]
6. Consider Thiamine 100 mg. IV. (For the suspected alcoholic or malnourished patient)
7. D50W 25grams slow IV [(b)]

A. Pediatric

- give 0.5 g/kg or 2 ml/kg of D_{25}. (Refer to Broselow tape)

8. If unable to start IV, administer Glucagon 1 unit IM, if available.
9. If Eclamptic female, refer to Pre-Eclampsia / Eclampsia Protocol
10. If seizure is unwitnessed and a drug overdose is suspected, give 2 mg Narcan IV, if no response to Dextrose.

[(a)] If blood glucose is greater than 350 mg/dL with signs of dehydration, administer Normal Saline or LR 500 ml IV, if not contraindicated.

[(b)] To avoid infiltration and resultant tissue necrosis, D50W should be given slow IV with intermittent aspiration of IV line to confirm IV patency followed by saline flush.

[(c)] Versed can be used as 2nd line drug for seizures when Valium fails in adults only. Adult dosage should be 2-5 mg IV. Watch for respiratory depression, assistance should be provided if necessary.

CONSIDERATIONS FOR PATIENT REFUSING TRANSPORT AFTER TREATMENT[viii]

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 must be met in order to not transport:

1. Patient must have a history of seizures.
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 have occurred.

STROKE / T.I.A.

This Guideline is used for those patients exhibiting signs consistent with acute Stroke / CVA / "Brain Attack" (altered mental status, slurred speech, loss of function of any body part, hemiplegia, loss of vision, weakness of facial muscles, loss of sensation, drooling, etc.). Other causes should be ruled out (hypoglycemia, drug overdose, hypoxia, etc.).

STROKE ALERT CRITERIA

- Stroke signs and symptoms of less than 3-hour duration.

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline
    - **A.** Provide low flow oxygen (2-4 lpm) unless patient is hypoxic.
2. Place patient in sitting position and keep the head midline and the head of the stretcher at 30 degrees or greater.
3. Conduct focused history and medical physical exam.
4. Complete Prehospital Stroke Checklist.
5. Immediate transport to ER and notify ER of a stroke-alert/stroke patient.
6. Do not give aspirin or treat hypertension.
7. Transport to appropriate facility.

NAUSEA AND VOMITING

INCLUSION CRITERIA

Patients complaining of **severe** *uncomplicated* nausea and vomiting.

FIRST RESPONDERS, EMT, PARAMEDICS

1. Medical Supportive Care Guidelines
2. Place patient in position of comfort

PARAMEDIC ONLY

1. If the patient is complaining of abdominal pain, refer to Pain Management Protocol
2. Manage ABC's as necessary
3. Monitor Vital Signs including pulse oximetry
4. Establish IV access, draw bloods and infuse NS KVO
5. Consider the causes of the nausea and vomiting and begin other treatments as necessary
6. Paramedic Standing Orders (for protracted vomiting only):
    - **A.** Phenergan 12.5mg IV slowly through a wide open saline infusion.
    - **B.** Phenergan 25mg IM if no IV access can be obtained
7. If desired effect is not seen within 15 minutes, contact medical control for further orders

POSSIBLE SIDE EFFECTS

1. Sedation, drowsiness, dizziness, blurred vision, tremors, excitation, nervousness, hypotension, tachycardia, bradycardia
2. Dystonic reaction (uncontrolled muscle contractions of the face, neck and tongue). If dystonic reaction occurs:
    - **A.** Benadryl 25mg IV
    - **B.** Benadryl 50mg IM

Section VI: OB / GYN

NORMAL DELIVERY

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline.
2. Position patient supine with buttocks elevated, thighs spread, knees flexed, and feet flat.
3. With supplies from the OB kit, drape each thigh and the abdomen, with the sheets provided.
4. During each contraction have the mother breathe with puffs through her mouth.
5. With your gloved hands at the mother's vagina, guide the baby's head out with your fingers spread evenly around the head to prevent an explosive delivery.
6. Allow the head to rotate while supporting it with one hand, suction out the mouth and then the nose with a bulb syringe. Do not forcefully rotate the head.
7. For delivery of the lower shoulder guide the head upward. This will be rapidly followed by delivery of the upper shoulder.
8. Support the rest of the baby's body as it is delivered.
9. Once delivered, place the baby on its side to allow for drainage, resuscitation if necessary.
10. The baby should begin breathing within 30 seconds. If not, rub the back and soles of the feet to stimulate breathing.
11. Place 1 clamp 10 inches from the baby and then a second 3 inches back toward the baby.
12. Now cut the cord between the two clamps, if bleeding continues, place another clamp behind the second clamp.
13. Wrap the baby in a warm blanket or sheet, place a small hooded cap upon its head, if environmental temperature is cool, place aluminum foil around blanket/sheet, record the time of birth and complete the APGAR scale.
14. The placenta should deliver within 20 to 30 minutes. When it does, save it and all other tissue that may accompany it. If the placenta does not deliver in 20 minutes, watch for twins.
15. After the placenta delivers, place a bulky dressing over the vagina and have the mother bring legs back together.
16. If vaginal bleeding continues, rub the uterus and place the child at the mother's breast. If bleeding continues,
17. Place in trendelenburg according to signs/symptoms.

SPONTANEOUS ABORTION

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline.
2. Reassure patient.
3. Place a bulky dressing over the vagina if hemorrhaging.
4. Save all blood soaked dressings and/or tissue expelled from the vagina.

ECLAMPSIA

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline.

PARAMEDIC ONLY

2. Magnesium Sulfate, if patient is hypertensive and seizing, administer 4 g in 100cc D_5W or NS over 10-20 minutes, titrating to effect. If patient continues to seize after 2 minutes of Magnesium Sulfate infusion, proceed to line 3.
3. Valium, start with 5 mg IV and then give additional 2-3 mg increments titrating to effect.

SUPINE HYPOTENSION SYNDROME

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline
2. Reassure the patient.
3. Position patient in the left lateral recumbent position. COMPLICATIONS OF PREGNANCY.

Placenta Previa: Placenta is formed in an abnormal location, usually the lower uterine wall, and will not allow for a normal carrying of the fetus. Bleeding but no pain.

Abruptio Placenta: Placenta separates from the uterine wall. Usually seen in the third trimester. Abdominal pain may be referred to the shoulder. This is a true OB emergency. May result in abortion of the fetus.

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline
2. Reassure the patient.
3. Place a bulky dressing over the vagina.
4. Place patient in trendelenburg according to signs/symptoms.
5. Transport A.S.A.P. to OB facility, in left lateral recumbent position if possible.

BREECH / LIMB PRESENTATION

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline
2. Reassure the patient.
3. If buttock presentation followed by delivery, follow Normal Delivery Guideline. However, if the head does not deliver, place a gloved hand into the vagina forming a v-shape with your fingers, and advance until your fingers are on either side of the baby's nose. Then push the vaginal wall away from the baby's face.
4. Transport A.S.A.P. to OB facility and make contact with the emergency room physician.

DO NOT TRY TO PULL ON A LIMB OR PUSH IT BACK IN.

PROLAPSED UMBILICAL CORD

FIRST RESPONDER, EMT AND PARAMEDIC

1. Medical Supportive Care Guideline
2. Reassure patient.
3. Place the mother in a head-down position with her buttocks higher than her shoulders and positioned on her left side.
4. Place a moist sterile sheet or towel gently around the protruding cord.
5. Place one gloved hand gently into the vagina to relieve the pressure off the cord.
6. Transport A.S.A.P. to OB facility and make contact with an emergency room physician.

DO NOT UNDER ANY CIRCUMSTANCE ATTEMPT TO PUSH THE CORD AND BABY INTO THE VAGINA.

NEONATAL RESUSCITATION

FIRST RESPONDER, EMT AND PARAMEDIC

1. Provide warmth
2. Position, clear airway, as necessary

   A. Place blanket or towels under shoulders to maintain proper head position.

   B. Suction mouth then nose with bulb syringe.

   C. **Paramedic Only.** If fluid contains meconium and infant has absent or decreased respirations, decreased muscle tone, or heart rate < 100 bpm, perform direct laryngoscopy after birth for suctioning of residual meconium from the hypopharynx and trachea.

   MECHANICAL SUCTION SHOULD BE SET NO HIGHER THAN 100mmHg. (a)

3. Dry, stimulate, reposition
4. Give O_2, as necessary
5. Evaluate respirations, heart rate, and color.

   A. If breathing is normal and heart rate > 100 provide supportive care

   B. If Apneic or heart rate < 100 go to line 6.

6. Provide bag-valve-mask ventilations

   A. If heart rate > 100 provide ongoing care

   B. If heart rate < 60 go to line 7

7. Administer chest compressions.

   A. Maintain a 3:1 ratio of compressions to ventilations (approximately 100 compressions a minute).

   B. If heart rate remains < 60 go to line 8

PARAMEDIC ONLY

8. Administer Epinephrine 0.01 mg/kg IV/IO of a 1:10,000 solution. (Refer to Broselow tape) Repeat every 3 to 5 minutes as indicated. An ECG monitor shall be placed prior to the administration of Epinephrine.
9. If vascular access is needed for the newborn, place an umbilical vein catheter.

(a) Attach meconium aspirator directly to ET tube to facilitate tracheal suctioning. If meconium is significant, repeat intubation process (each time with a clean ET tube) until little or no meconium is present.

Section VII: Trauma

HEAD INJURIES

FIRST RESPONDER, EMT AND PARAMEDIC

1. Trauma Supportive Care Guideline
2. If not hypotensive (systolic BP <90 mmHg), elevate head of backboard 30 degrees (12-18 inches).

PARAMEDIC ONLY

1. If signs of brainstem herniation exist (e.g. pupillary dilation, asymmetric pupillary reactivity, or motor posturing), consider intubation and hyperventilating the patient per the following guidelines:

- Adult ventilations: 20/min
- Pediatric ventilations: 30/min
- Infant ventilations: 35/min

Intubated head-injured patients **NOT** exhibiting signs of brainstem herniation will be ventilated per normal ventilatory parameters.

ORTHOPEDIC EMERGENCIES

FIRST RESPONDER, EMT AND PARAMEDIC

1. Trauma Supportive Care Guideline
2. Check for motor movement, sensation, and circulation. [(a)]
3. Apply steady traction if necessary. [(b)]
4. Apply 4x4 and ice pack to site.
5. Apply a splint to the affected site, splinting as found, covering open fracture sites with a moist sterile dressing, splinting the joint above/below the fracture site.
6. Reassess motor movement, circulation and sensation

PARAMEDIC ONLY

1. Initiate IV on known or possible long bone fractures, dislocations, open fractures, or pelvic fractures.
2. Refer to Pain Management Guideline.

[(a)] All jewelry distal to the site of injury is to be removed and documented.

[(b)] Do not reduce a compound fracture if it will take a contaminated bone fragment and move it back under the skin. Angulated fractures with absent distal circulation shall be straightened until a pulse returns.

SOFT TISSUE INJURIES

FIRST RESPONDER, EMT AND PARAMEDIC

1. Trauma Supportive Care Guideline
2. Place in trendelenburg according to signs and symptoms and treat per Hypovolemic Shock Guideline

CLOSED WOUNDS:

- Apply 4x4 and ice pack, splint if necessary.

OPEN WOUNDS:

- Expose the wound and remove foreign matter from surface.
- Control bleeding by direct pressure, ice pack, elevation, and pressure point.

AMPUTATIONS/AVULSED PARTS:

- Place part/parts on a moist sterile dressing and place in a plastic bag. Then place this bag in a larger plastic bag containing ice.

PUNCTURE WOUNDS/ IMPALED OBJECTS:

- Do not remove object.
- Cover area with a moist sterile dressing and then cover this with a dry dressing.
- Treat as per Hypovolemic Shock Guideline.

EVISCERATION:

- Do not replace organs.
- Cover area with a moist sterile dressing and then cover this with a dry dressing.
- If possible have patient flex their legs.

PARAMEDIC ONLY

1. IV/LR, as condition requires.
2. Refer to Pain Management Guideline if necessary.

BURNS

FIRST RESPONDER, EMT AND PARAMEDIC

1. Trauma Supportive Guideline
2. Secure source and remove victim.
3. Remove all clothing and jewelry from the area.
4. Complete burn scale.

THERMAL BURNS

- Stop burning process with NS, cover with sterile, dry dressing or burn gel.

CHEMICAL BURNS

- If dry powder, brush away as much as possible and then flood area with copious amount of irrigation saline or water for at least 20 minutes.
- If liquid, flood the area for a minimum of 20 minutes.

ULTRAVIOLET BURNS

- Bandage both eyes with soaked saline eye pads.

CRITICAL BURNS:

- Superficial burns greater that 75%.
- Partial thickness burns greater that 30%.
- Full thickness burns greater that 10%.
- All burns of the hands, feet, joints, and face.
- Circumferential burns.
- Any burn that involves the respiratory tract.
- Transport critical burns to Lee Memorial Hospital Cleveland Campus.

PARAMEDIC ONLY

1. Refer to pain management Guideline.
2. If circumferential burn to the chest that is restricting ventilation, perform an escharotomy.

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/IO 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/IO. Should be administered through vascular access most proximal to central circulation.

HOW SUPPLIED:

- 6 mg in a 2 ml pre-filled syringe. 12 mg in a 4 ml pre-filled syringe.
- 6 mg in a 2 ml vial

ASPIRIN

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

ROUTE:

- Chewed and swallowed

HOW SUPPLIED:

- 81 mg chewable tablets

ATROPINE (ATROPINE SULFATE)

ACTIONS:

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

INDICATIONS:

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

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

ROUTE:

- IV, IM, IO or ET (Ped ET dose os 0.02 mg/kg)

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:

- 25 mg

INFANT:

- 1 mg / kg

ROUTE:

- IV, IM

HOW SUPPLIED:

- 50 mg in a 1ml vial
- 50 mg in a 1 ml pre-filled syringe

CARDIZEM

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.
- 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

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

HOW SUPPLIED:

- 25 mg in a 5 ml pre-filled syringe.

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 **(stable)**: 150mg in 100 ml D_5W over 10 minutes

PEDIATRIC:

- Pediatric dose in VF/pulseless VT is 5 mg / kg

- Pediatric dose in perfusing supraventricular and ventricular arrhythmias is 5mg / kg over 20-60 minutes (max of 15 mg /kg / day).
- Refer to Broselow tape

ROUTE:

- IV

HOW SUPPLIED:

- 150 mg in a 3 ml vial

D5W (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 P^h 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 (D25W/D50W)

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 D50W

PEDIATRIC:

- 0.5 gm / kg of D25W
- Refer to Broselow tape

ROUTE:

- IV

HOW SUPPLIED:

- D50W - 25 grams glucose in a 50 ml pre-filled syringe.
- D25W - 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 CAM chart)

PEDIATRIC (> 3 YEARS):

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

HOW SUPPLIED:

- 500mg in a 50 ml vial

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 doses (2-10 mcg/kg/min.) produce a step-wise increase in contractility, automaticity, and conductivity via beta-receptor effects.
- High doses (10-20mcg/kg/min.) the alpha receptor effects predominate producing peripheral vasoconstriction.

Extremely high dose (>20mcg/kg) renal and mesenteric vessels constrict resulting in decreased blood flow.

INDICATIONS:

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

CONTRAINDICATIONS:

- Tachydysrhythmias
- VF

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 1600mcg/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 10 ml pre-filled syringe
- 400 mg in a 250 ml premix bag

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 anticholenergic (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.
- Endotracheal Dose is 2 times the IV dose (give one time only)
- Asthma and Anaphylactic reactions 0.3ml of 1:1,000 is given sq.
- Anaphylactic shock (life threatening) 1 mg of 1:1,000 in 250 NS started at 2 mcg / min and titrate to effect.
- Bradycardias and blocks: 1 mg/250cc starting at 2 mcg / min, titrating to desired effects.

PEDIATRIC:

- Resuscitation dose : 0.01mg/kg IV/IO. Refer to Broselow tape

ROUTE:

- IV, IM, IO, ET, SQ. (Ped ET dose is 0.1 mg/kg 1 :1000 followed by 3-5 ml flush)

HOW SUPPLIED:

- 1:1000 - 1 mg in a 1 ml ampule, 30mg in 30cc multi-dose vial
- 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 CAM chart)

ROUTE:

- IV

HOW SUPPLIED:

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

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)

LACTATED RINGERS

ACTION:

Lactated Ringers is an isotonic crystalloid solution, used for fluid and electrolyte replacement. Lactated Ringers 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 X2

PEDIATRIC:

- 1 mg/kg

ROUTE:

- IV, IM

HOW SUPPLIED:

- 40 mg in 8 ml pre-filled syringe

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 an additional 0.5 mg/kg dose q 5 minutes to a maximum dose of 3 mg/kg
- Tracheal administration is 3 mg/kg (used for initial dose)
- 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 (up to 38kgs):
- Loading dose: 1 mg/kg (Refer to Broselow tape)
- Infusion: Utilize Broselow tape for appropriate concentration and infusion rates

ROUTE:

- IV, IO, ET

HOW SUPPLIED:

- 100 mg in a 5 ml pre-filled
- 1 Gram in a 250 ml premix bag

LOPRESSOR (METOPROLOL)

ACTIONS:

Lopressor is a beta-adrenergic blocking agent that competes with beta-adrenergic agonists for available beta receptor sites on the membrane of cardiac muscle, bronchiole smooth muscle, and the smooth muscle of blood vessels. The beta-1 blocking action on the heart decreases heart rate, conduction velocity, myocardial contractility, and cardiac output.

INDICATIONS:

- To reduce myocardial ischemia and damage in AMI patients.

CONTRAINDICATIONS:

- Heart Failure
- Second- or third-degree AV block
- Cardiogenic Shock
- Hypotension
- Bradycardia
- Bronchospastic airway disease
- Hypersensitivity to Lopressor

PRECAUTIONS:

- MUST be given slowly IV
- Concurrent IV administration with other AV slowing drugs, i.e. Cardizem and amiodarone, can cause severe bradycardia and hypotension.
- Should be used with caution in patients with liver or renal dysfunction.

ADVERSE REACTIONS:

- Bradycardia
- AV conduction delays
- Hypotension

DOSAGE:

ADULT

- 5mg slow IV at 5 minute intervals to a total of 15 mg.

HOW SUPPLIED:

- 5mg/5ml MDV.

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 torsades or suspected Hypomagnesemia suspected
- Ventricular Fibrillation refractory to Amiodarone
- Torsades de Pointes with a pulse
- 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:

- VF/ Pulseless VT: 1 gram IVP
- Stable VT / Torsades de pointes 1gm in 100cc D_5W over 10 minutes.
- Eclampsia: 4 grams in 100cc D_5W or NS over 10 –20 minutes

PEDIATRIC:

- 50 mg/kg (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, 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

PRECAUTIONS:

- Narcan should be administered cautiously 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.

ADVERSE REACTIONS:

- Aspiration
- Hypotension/hypertension
- Ventricular arrhythmias
- 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, SQ, ET

HOW SUPPLIED:

- 2 mg in a 2 ml pre-filled syringe

NITROGLYCERIN DRIP (TRIDAL)

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 nitroglycerine 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, nitroglycerine 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 36 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 nitroglycerine 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 one or two more times depending on the patient's blood pressure

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

HOW SUPPLIED:

- 100 ml bags, 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

ADVERSE REACTIONS:

- None

DOSAGE:

- Patients in mild distress should receive 4 to 6 liters via a nasal cannula
- Patients in moderate to severe distress from should receive 100% oxygen via a 100% non-rebreather
- Severe multiple trauma patients, cardiac arrest patients, severe pulmonary edema, etc., should be orally or nasally intubated

ROUTE:

- Self-Explanatory

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:

- 12.5mg infused through a wide open IV of NS.

ROUTE:

- IV or IM

PROVENTIL (ALBUTEROL SULFATE)

ACTIONS:

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

INDICATIONS:

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

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 catecholamines

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: 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 On Physician Orders

ROUTE:

- IV

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 focal cords. Succinylcholine has no effect on consciousness.

INDICATIONS:

- Crash Airway Management

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:

- 2 mg/kg (Refer to CAM chart)

PEDIATRIC:

- 2 mg/kg (Refer to CAM chart)

ROUTE:

- IV

HOW SUPPLIED:

- 200 mgs in a 10ml vial

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 tremors, 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, IM

HOW SUPPLIED:

- 100 mg in a 1 ml vial
- 200 mg in a 2 ml vial

VALIUM (DIAZEPAM)

ACTION: (BENZODIAZAPINE)

Valium is a central nervous system depressant, anticonvulsant, sedative and hypnotic medication. Valium is the principal anticonvulsant used in the prehospital setting. It suppresses the spread of seizure activity through the motor cortex of the brain. It does not appear to abolish the abnormal discharge focus.

Peek effects of Valium are seen 5 to 10 minutes after administration.

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 (1ml per minute)

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 (Refer to Broselow Tape)
- 0.5 mg/kg rectal (Refer to Broselow tape)

ROUTE:

- IV, IM, rectal

HOW SUPPLIED:

- 10 mg in a 2 ml vial

VASOPRESSIN

ACTION: (HORMONE)

The mechanism of action of Vasopressin during cardiac arrest is poorly understood. 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:

Versed is a potent, short-acting Benzodiazepine with strong 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:

- Conscious sedation of patients prior to short-term invasive procedures (cardioversion, etc.)
- Versed may be used as a 2nd line drug in seizures, where Valium does not work.
- Alternative to Etomidate and Diprivan in CAM 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. (Intranasal: 0.2 mg/kg of a 5 mg/ml solution)
- NOTE: You may dilute 5mg of Versed in 9cc of saline to result in a 0.5mg/cc concentrated.

PEDIATRIC:

- 0.1 mg/kg with a maximum dose not to exceed 5 mg IVP, or 0.2 mg/kg intranasal via MAD, not to exceed 5 mg.

ROUTE:

- IV, IM, Intranasal

HOW SUPPLIED:

- 5 mgs in a 1ml vial

APPENDIX B: BLS MEDICAL PROCEDURES / CHECKLISTS

AMBU LARYNGEAL MASK

INDICATIONS:

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

CONTRAINDICATIONS / PRECAUTIONS:

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

EQUIPMENT NEEDED:

- ALM
- 20cc Syringe
- Water soluble lubricant
- etC02 detection

PROCEDURE:

1. Confirm the patient is being properly ventilated with high flow oxygen.
2. Select appropriate ALM size based on patient weight in kg. 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.
7. Insert device downward along hard palate. Stop when it is felt to “pop” into place or when resistance is felt.
8. Inflate the same amount of air that was removed in step 2
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 or tube holder

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

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 or known esophageal disease.
- Under 5 feet tall
- Tracheostomy or laryngectomy
- 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.

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

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 set (60 drops / ml) for medication administration or fluid restriction.
  - Maxi drip set (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)

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 4-6 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

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 oropharygeal 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

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 pt's 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 pt's life or the life of the rescuer is in immediate danger
- If the pt'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
- KED
- Long backboard

PROCEDURE:

1. Manually immobilize pt's 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 pt's life or the life of the rescuer is in immediate danger
- If the pt'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
- Short backboard
- Long backboard

PROCEDURE:

1. Manually immobilize pt's 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

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.

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 pt's that have an altered LOC
- Trauma pt'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/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 ECG rhythm monitored.

CONTRAINDICATIONS / PRECAUTIONS:

- Do not delay transport of trauma patients to attach the ECG 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 or chest).
4. Adjust gain to the proper level.
5. Obtain baseline ECG tracing.
6. Interpret ECG:
    - 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 0.12 - 0.20 seconds).
    - Analyze the QRS complex (normal duration 0.04 – 0.12 seconds).

CHEST ESCHAROTOMY

INDICATIONS:

- Circumferential full thickness burns to the chest that impedes chest expansion when ventilating an intubated patient via a BVM
- Inability to maintain adequate tidal volume when ventilating an intubated patient via a BVM
- O2 Saturation will be insufficient

CONTRAINDICATIONS / PRECAUTIONS:

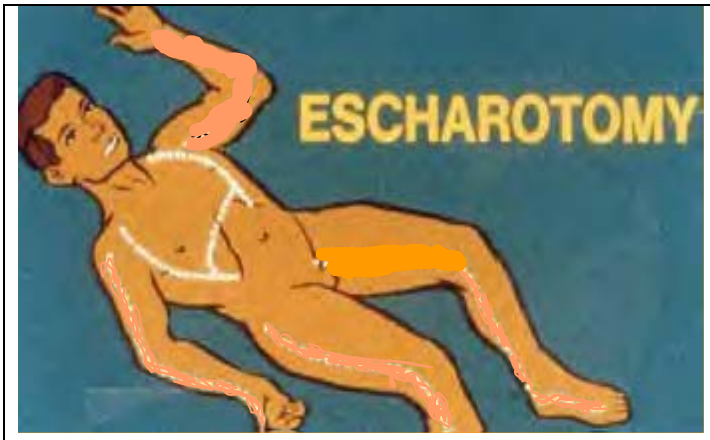
- Rule out upper airway obstruction as a cause of ventilatory difficulty
- Ventilatory compromise may be due to laryngeal edema

EQUIPMENT NEEDED:

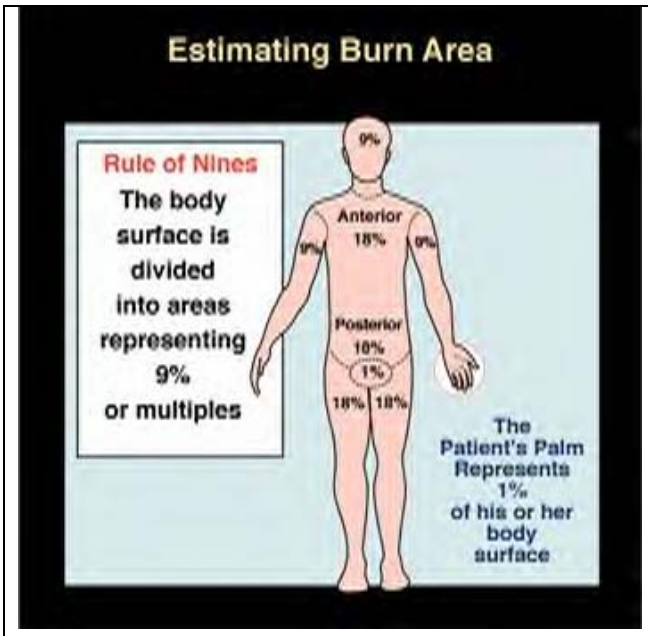
- Sterile scalpel
- Intubation equipment
- Dry sterile dressings

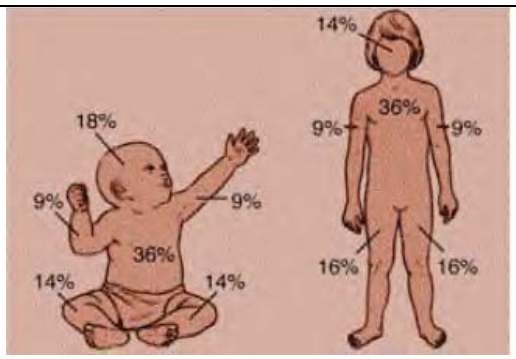
PROCEDURE:

1. Continue to attempt positive pressure ventilation
2. Intubate, if not already done
3. Using a sterile scalpel, perform incisions deep enough to allow bulging of underlying tissue
4. Perform one vertical incision in the anterior axillary line just below the level of the armpit to approximately the 12th rib. Repeat on other side. Look for skin to "split open" if pressure is significant
5. Perform a horizontal incision from the top of one vertical incision to the top of the other incision
6. Perform a horizontal incision across the lower border of the chest (near the diaphragm) connecting both vertical incisions at the bottom
7. Reassess to determine whether ventilatory ability has improved
8. Cover the chest wall with dry sterile dressings
9. Transport to a trauma center is required



- Obtain medical control authorization before attempting this procedure.
- Consider upper airway obstruction and the need for intubation or cricothyrotomy BEFORE considering chest wall escharotomy.
- Escharotomy to the extremities is not allowed in the field. This procedure is rarely performed in the Emergency Room setting.


Estimating Burn Area
Rule of Nines
The body surface is divided into areas representing 9% or multiples
9%
Anterior
18%
9%
9%
Posterior
18%
1%
18%
18%
The Patient's Palm Represents 1% of his or her body surface


14%
18%
36%
9%
9%
9%
9%
36%
16%
16%
14%
14%

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
- SPO2 Monitor
- etCO2 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 if vitals are stable and breathing difficulty has not improved
13. If SPO2 does not increase, titrate FiO2 to a SpO2 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.

CRASH AIRWAY MANAGEMENT PROCEDURE

INDICATIONS:

- Patients who may require active airway management when conventional intubation is not possible.

CONTRAINDICATIONS / PRECAUTIONS:

- Any contraindication involving the medications involved in the procedure

EQUIPMENT NEEDED:

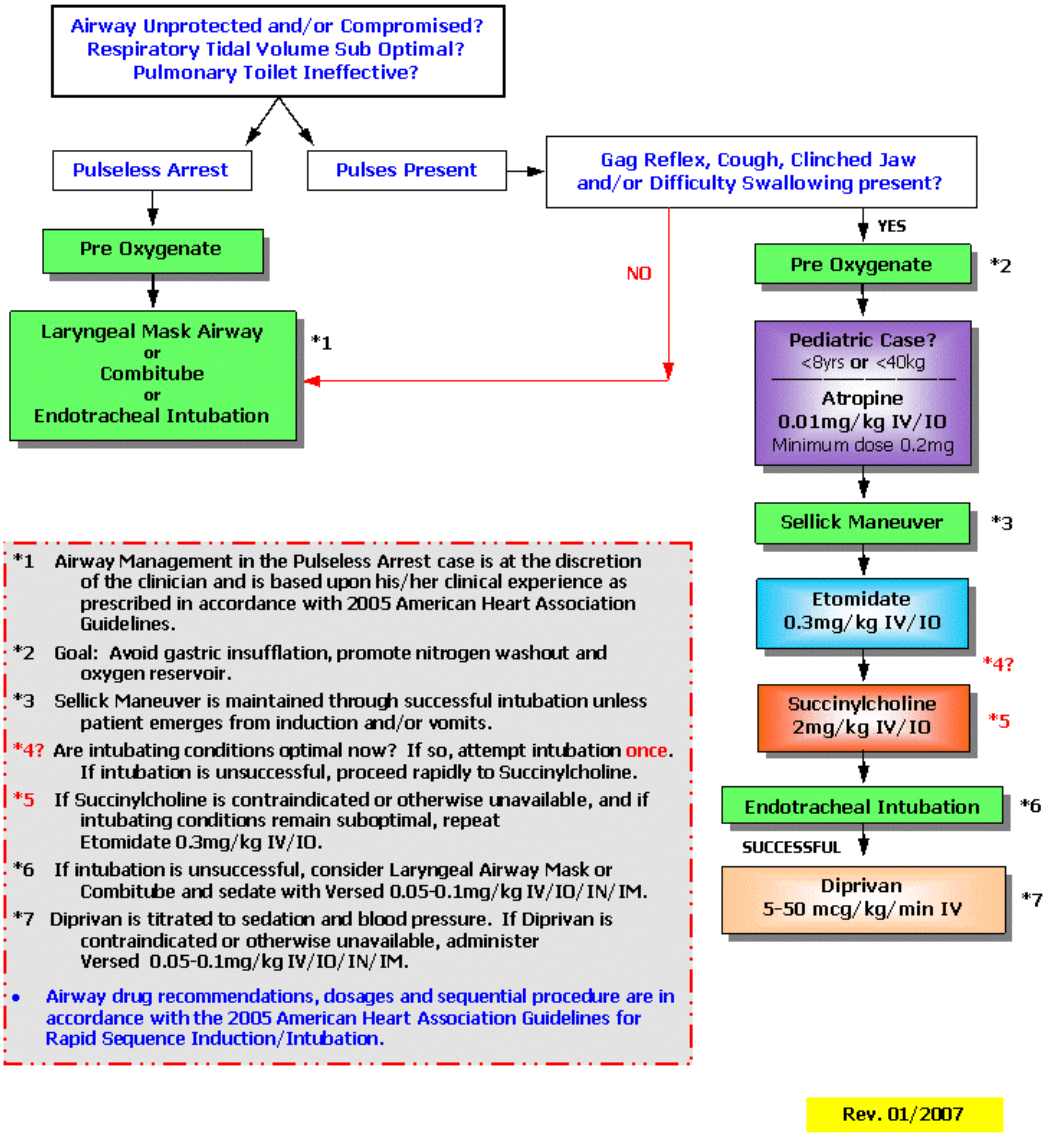
- Crash Airway Management kit
- Intubation equipment
- Suction
- C-Collar
- Bag-valve Mask with vent circuit
- Commercially available ET holder
- Temperature Strip

PROCEDURE:

1. Properly position patient's head
2. CALL AIRWAY ALERT
3. Administer active or passive ventilation for 3-5 minutes while continuing on with procedure
4. Initiate IV
5. Connect patient to monitoring equipment (EKG, NIBP, SPO2)
6. If pediatric patient administer Atropine 0.01mg/kg with minimum dose of 0.2mg
7. Administer Etomidate 0.3mg/kg IV over 15-20 seconds. May be repeated X 1.
8. Wait 15 seconds and attempt intubation.
9. If unable to intubate administer Succinylcholine 2mg/kg IV push
10. Attempt intubation
11. If able to intubate, pass tube and secure
12. If unable to intubate, refer to rescue airways
13. If patient begins to regain consciousness or become combative or could compromise the intubation administer Diprivan (propofol) at 25-50 mcg/kg/min and titrated to sedation

<u>RESCUE AIRWAYS:</u>

- Combitube
- LMA
- Oral/Nasal airway and BVM
- BVM alone
- Surgical Cricothyrotomy


Airway Unprotected and/or Compromised?
Respiratory Tidal Volume Sub Optimal?
Pulmonary Toilet Ineffective?
Pulseless Arrest
Pulses Present
Gag Reflex, Cough, Clinched Jaw and/or Difficulty Swallowing present?
YES
NO
Pre Oxygenate
Laryngeal Mask Airway or Combitube or Endotracheal Intubation
*1
Pre Oxygenate
*2
Pediatric Case? <8yrs or <40kg
Atropine 0.01mg/kg IV/IO Minimum dose 0.2mg
Sellick Maneuver
*3
Etomidate 0.3mg/kg IV/IO
*4?
Succinylcholine 2mg/kg IV/IO
*5
Endotracheal Intubation
*6
SUCCESSFUL
Diprivan 5-50 mcg/kg/min IV
*7
*1 Airway Management in the Pulseless Arrest case is at the discretion of the clinician and is based upon his/her clinical experience as prescribed in accordance with 2005 American Heart Association Guidelines.
*2 Goal: Avoid gastric insufflation, promote nitrogen washout and oxygen reservoir.
*3 Sellick Maneuver is maintained through successful intubation unless patient emerges from induction and/or vomits.
*4? Are intubating conditions optimal now? If so, attempt intubation once. If intubation is unsuccessful, proceed rapidly to Succinylcholine.
*5 If Succinylcholine is contraindicated or otherwise unavailable, and if intubating conditions remain suboptimal, repeat Etomidate 0.3mg/kg IV/IO.
*6 If intubation is unsuccessful, consider Laryngeal Airway Mask or Combitube and sedate with Versed 0.05-0.1mg/kg IV/IO/IN/IM.
*7 Diprivan is titrated to sedation and blood pressure. If Diprivan is contraindicated or otherwise unavailable, administer Versed 0.05-0.1mg/kg IV/IO/IN/IM.
• Airway drug recommendations, dosages and sequential procedure are in accordance with the 2005 American Heart Association Guidelines for Rapid Sequence Induction/Intubation.
Rev. 01/2007

Crash Airway Management Medications

WEIGHT in kg	WEIGHT in lbs	Atropine 0.01 mg/kg	Etomidate 0.3 mg/kg	Etomidate in cc's	Sux 2 mg/kg	Sux in cc's	Diprivan Minimum 5 mcg/kg/min	Diprivan Mid Range 25 mcg/kg/min	Diprivan Maximum 50 mcg/kg/min
5 kg	11 lbs	0.2 mg	1.5 mg	0.75 cc	10 mg	0.5 cc	XXXX	**XXXX**	XXXX
10 kg	22 lbs	0.2 mg	3.0 mg	1.50 cc	20 mg	1 cc	XXXX	**XXXX**	XXXX
15 kg	33 lbs	0.2 mg	4.5 mg	2.25 cc	30 mg	1.5 cc	XXXX	**XXXX**	XXXX
20 kg	44 lbs	0.2 mg	6.0 mg	3.00 cc	40 mg	2 cc	0.60 gtts/min*	**3.00 gtts/min***	6.00 gtts/min*
25 kg	55 lbs	0.25 mg	7.5 mg	3.75 cc	50 mg	2.5 cc	0.75 gtts/min*		7.50 gtts/min*
30 kg	66 lbs	0.3 mg	9.0 mg	4.50 cc	60 mg	3 cc	0.90 gtts/min*	**4.50 gtts/min***	9.00 gtts/min*
35 kg	77 lbs	0.35 mg	10.5 mg	5.25 cc	70 mg	3.5 cc	1.05 gtts/min*		10.50 gtts/min*
40 kg	88 lbs	0.4 mg	12.0 mg	6.00 cc	80 mg	4 cc	1.20 gtts/min*	**6.00 gtts/min***	12.00 gtts/min*
45 kg	99 lbs	XXXX	13.5 mg	6.75 cc	90 mg	4.5 cc	1.35 gtts/min*		13.50 gtts/min*
50 kg	110 lbs	XXXX	15.0 mg	7.50 cc	100 mg	5 cc	1.50 gtts/min*	**8.00 gtts/min***	15.00 gtts/min*
55 kg	121 lbs	XXXX	16.5 mg	8.25 cc	110 mg	5.5 cc	1.65 gtts/min*		16.50 gtts/min*
60 kg	132 lbs	XXXX	18.0 mg	9.00 cc	120 mg	6 cc	1.80 gtts/min*	**9.00 gtts/min***	18.00 gtts/min*
65 kg	143 lbs	XXXX	19.5 mg	9.75 cc	130 mg	6.5 cc	1.95 gtts/min*		19.50 gtts/min*
70 kg	154 lbs	XXXX	21.0 mg	10.50 cc	140 mg	7 cc	2.10 gtts/min*	**11.00 gtts/min***	21.00 gtts/min*
75 kg	165 lbs	XXXX	22.5 mg	11.25 cc	150 mg	7.5 cc	2.25 gtts/min*		22.50 gtts/min*
80 kg	176 lbs	XXXX	24.0 mg	12.00 cc	160 mg	8 cc	2.40 gtts/min*	**12.00 gtts/min***	24.00 gtts/min*
85 kg	187 lbs	XXXX	25.5 mg	12.75 cc	170 mg	8.5 cc	2.55 gtts/min*		25.50 gtts/min*
90 kg	198 lbs	XXXX	27.0 mg	13.50 cc	180 mg	9 cc	2.70 gtts/min*	**14.00 gtts/min***	27.00 gtts/min*
95 kg	209 lbs	XXXX	28.5 mg	14.25 cc	190 mg	9.5 cc	2.85 gtts/min*		28.50 gtts/min*
100 kg	220 lbs	XXXX	30.0 mg	15.00 cc	200 mg	10 cc	3.00 gtts/min*	**15.00 gtts/min***	30.00 gtts/min*
110 kg	242 lbs	XXXX	33.0 mg	16.50 cc	210 mg	10.5 cc	3.30 gtts/min*	**16.00 gtts/min***	33.00 gtts/min*
120 kg	264 lbs	XXXX	36.0 mg	18.00 cc	220 mg	11 cc	3.60 gtts/min*	**18.00 gtts/min***	36.00 gtts/min*
130 kg	286 lbs	XXXX	39.0 mg	19.50 cc	230 mg	11.5 cc	3.90 gtts/min*	**20.00 gtts/min***	39.00 gtts/min*
140 kg	308 lbs	XXXX	42.0 mg	21.00 cc	240 mg	12 cc	4.20 gtts/min*	**21.00 gtts/min***	42.00 gtts/min*

CRICOTHYROTOMY (SURGICAL)

INDICATIONS:

- Airway not controllable by any other means
- Severe Facial Injuries where Oral or Nasal Intubation cannot be performed

CONTRAINDICATIONS / PRECAUTIONS:

- Inability to identify anatomical landmarks
- Trachael transsection
- Children under 10 years old
- Underlying anatomical abnormalities

EQUIPMENT NEEDED:

- Scalpel blade
- 5.5 to 7.0 E.T. 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 Oral or Nasal Intubation cannot be performed
- Recommended cricothyrotomy technique for the pediatric patient

CONTRAINDICATIONS / PRECAUTIONS:

- Inability to identify anatomical landmarks
- Trachael transsection
- 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

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 colorimetic 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 CO2 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 10–12cc of air and disconnect the syringe from the cuff inlet port
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 C02 device, visualize # on tube
9. Secure the ET tube with appropriate device

ENDOTRACHEAL MEDICATIONS

INDICATIONS:

- When intravenous access cannot be established

CONTRAINDICATIONS / PRECAUTIONS:

- Pulmonary edema

EQUIPMENT NEEDED:

- Proper medication used for ET administration route
- Lidocaine, Vasopressin, Epinephrine, Atropine
- 10cc flush

PROCEDURE:

1. Have patent ET tube in place with confirmed placement
2. Prepare medication for 2 to 21/2 times the intravenous dose
3. Hyperventilate patient
4. Inject medication directly into the ET tube followed by a 10cc flush
5. Resume ventilations with several large ventilations post administration of medication
6. Monitor patient for desired therapeutic effects

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

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. Pierce desired site (fingertip-adult / heel-Infant) with lancet enough to initiate blood flow
4. Squeeze enough blood onto test strip per device manual.
5. Hold 4x4 on puncture site to control bleeding.
6. Place strip into Glucometer, if applicable.
7. Properly dispose of lancet in sharps container.
8. Allow Glucometer to measure and display glucose reading.
9. Clean and restock Glucometer

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

INTERNAL JUGULAR VEIN CANNULATION

INDICATIONS:

- Central Line IV Access used when traditional peripheral venous access cannot be achieved.
- Reserved for critical patients who required venous access for fluid or medication therapies.

CONTRAINDICATIONS / PRECAUTIONS:

- Damage to the arteries, ducts, pleura and nerves in proximity to the procedural path.

EQUIPMENT NEEDED:

- BSI
- 16ga 3 -1/2" IV catheter
- 10 cc syringe
- Alcohol or betadine pad
- IV fluid / Administration set flushed
- Veniguard / tape

PROCEDURE:

1. Prepare equipment (Attach needle to syringe)
2. Place patient in Trendelenburg position, and turn patient's head to the right or left (right preferred).
3. Locate site for needle entrance. (The apex of the sternal and clavicular heads of the strenocleidomastoid muscle)
4. Direct the needle caudally at a 30 degree angle to the frontal plain, aiming towards the ipsilateral nipple.
5. Advance slowly, maintaining negative pressure on the syringe until blood is aspirated freely into the syringe.
6. Advance the catheter over the needle.
7. With extreme caution not to let any air into the catheter, remove the syringe and needle. Cap the end of the catheter until the IV tubing is connected.
8. Secure site with Veniguard and tape PRN
9. Observe site for infiltration, and observe patient for other complications related to this 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 (19-21ga 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 / rectus femoris)
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

1. Prepare equipment: Examine IO needle to ensure trochar is lined up with bevel. Draw up 10 ml saline in syringe.
2. Locate site. (1-3cm = one finger's width below and just medial to the tibial tuberosity)
3. Cleanse the area with alcohol or betadine, using antiseptic technique.
4. Support the leg by placing a towel under the knee and leg.
5. 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.
6. Insert the needle at determined site of the anteromedial aspect of the proximal tibia.
7. Penetrate the skin, and use a boring type motion to penetrate the bony cortex at a 90 degree angle, or slightly caudal.
8. Stop advancing the needle when there is a sudden decrease of resistance, or you feel a "pop".
9. Unscrew cap, remove trochar and attach 10ml syringe.
10. Flush IO needle with 10ml Saline. If resistance or tissue edema is noted, terminate procedure.
11. Remove syringe.
12. Connect IV tubing.
13. Secure IO needle with kling, gauze, and secure similar to an impaled object.
14. Continue to monitor ease of fluid infusion, as well as any changes in the soft tissue.
15. Dispose of trochar in sharps container
16. 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:

- ECG 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 (or clinically equivalent biphasic energy level). 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 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

NASOTRACHEAL INTUBATION

INDICATIONS:

- Patient's requiring a secure airway with spontaneous respirations

CONTRAINDICATIONS / PRECAUTIONS:

- Epistaxis
- Intracranial tube placement in patient's with basilar skull fractures
- Vagal Stimulation
- Injury to nasal septum
- Potential rise in ICP

EQUIPMENT NEEDED:

- Proper cuffed ET Tube size without stylette
- Xylocaine jelly or water soluble lubricant
- Hurricane spray if available
- BAM device if available

PROCEDURE:

1. Properly positions patient's head
2. Have patient attempt to take deep breaths, upon inspiration
3. Advance tube, bevel towards septum along nasal floor, the right nostril should be attempted first unless contraindicated
4. Slowly advance tube along the natural curvature of the airway until larynx is met
5. During early inspiration quickly advance tube until airflow is heard through the tube, this should place the cuff of the tube ¼ to ½ inches past the vocal cords
6. Inflate cuff with 10-12cc of air and disconnect syringe from the cuff inlet port
7. Confirm proper placement by, auscultation of lungs bilaterally and over epigastrium, chest rise/fall, appropriate color change of a C02 device
8. Secure tube with appropriate device

NEBULIZER THERAPYINDICATIONS:

- Asthma
- COPD
- CHF
- Certain chemical exposures

CONTRAINDICATIONS / PRECAUTIONS:

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

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 and place at 6lpm. Titrate oxygen to mist flowing towards the pt.

IN-LINE ETT APPLICATION (FIGURE 1)

1. Assemble nebuilzer 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 and place at 6lpm. Titrate oxygen to mist flowing towards the pt.

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
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 (MID-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
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

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

RECTAL VALIUM ADMINISTRATION

INDICATION:

- Administration of Benzodiazapines in pediatric seizure patients when IV or IO access is not possible or would delay the administration of medication in the case of status seizure.

CONTRAINDICATIONS:

- Hypersensitivity to medication to be administered

PRECAUTIONS:

- Any physical anomaly that may precluded the administration of a medication rectally

EQUIPMENT NEEDED:

- Lubricant
- Tuberculin or 3-5cc syringe without needle

OR

- Existing Carpujet with 14ga IV catheter

OR

- Feeding Tube
- 3cc syringe with saline

PROCEDURE:

1. Prepare all necessary equipment
2. Don all protective equipment
3. Position patient in a decubitus (knee-chest) position or supine with legs held apart
4. Insert lubricated feeding tube, syringe, or Carpuject with catheter approx. 5cm into rectum
5. Inject medication
6. Remove syringe or Carpuject and attach saline syringe
7. Flush catheter with 1cc saline
8. Remove syringe and catheter holding buttocks together
9. Tape buttocks closed as needed
10. Observe for positive or untoward effects.
11. Document drug given, time given, route, effects and person administering drug.

SUBCLAVIAN VEIN CANNULATION

INDICATIONS:

- Central Line IV access used when traditional peripheral venous access cannot be achieved.
- Reserved for critical patients who required venous access for fluid or medication therapies.

PRECAUTION:

- Damage to the arteries, ducts, pleura and nerves in proximity to the procedural path.

EQUIPMENT NEEDED:

- 16ga 3 -1/2" IV catheter
- 10 cc syringe
- Alcohol or betadine pad
- IV fluid / Administration set
- Veniguard / tape

PROCEDURE:

1. Prepare equipment (Attach needle to syringe)
2. Place patient in Trendelenburg position, and turn patient's head to the right or left.
3. Locate site for needle entrance. (The junction between the medial and middle thirds of the clavicle). The right subclavian vein is preferred.
4. Cleanse the site with alcohol or betadine using aseptic technique
5. Introduce the needle (bevel caudally) 1 cm below the junction of the middle and medial thirds of the clavicle.
6. Palpate the suprasternal notch, and slowly advance the needle, parallel to the body, towards this landmark.
7. Using negative pressure, continue to advance the needle until blood is freely aspirated into the syringe.
8. Advance the catheter over the needle. With extreme caution not to let any air into the catheter, remove the syringe and needle. Cap the end of the catheter until the IV tubing is connected.
9. Secure site with Veniguard and tape PRN.
10. Observe site for infiltration, and observe patient for other complications related to this procedure.

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
- ECG 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
    100j, 200j, 300, 360j – Monophasic
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:

- ECG 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:

- ECG monitor/defibrillator.

PROCEDURE:

VALSALVA

1. Treat patient per Tachycardia Protocol.
2. Identify rhythm on the cardiac monitor.
3. Monitor the ECG 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 ECG 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 CATHETERS

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. Donn 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 ECG

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

EQUIPMENT NEEDED:

- 12 Lead ECG 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
   - V2: 4th interspace left parasternal.
   - 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.
5. Perform 12 Lead ECG.
6. Interpret ECG:
   - ST-segment elevation.
   - Ischemic T-wave inversion.

    - Nondiagnostic or normal ECG.

- Mimic: pericarditis

- Unreadable: new or presumably new LBBB.

APPENDIX D: Forms

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

Trauma Transport Protocol Lee County EMS

Current as of January 2007

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, 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).

Λ *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.

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.

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LEE COUNTY
SOUTHWEST FLORIDA
BOARD OF COUNTY COMMISSIONERS

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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
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AN EQUAL OPPORTUNITY AFFIRMATIVE ACTION EMPLOYER

Updates Endnotes

[i] July 27, 2007

[ii] July 27, 2007

[iii] July 27, 2007

[iv] July 27, 2007

[v] July 27, 2007

[vi] July 27, 2007

[vii] July 27, 2007

[viii] July 27, 2007