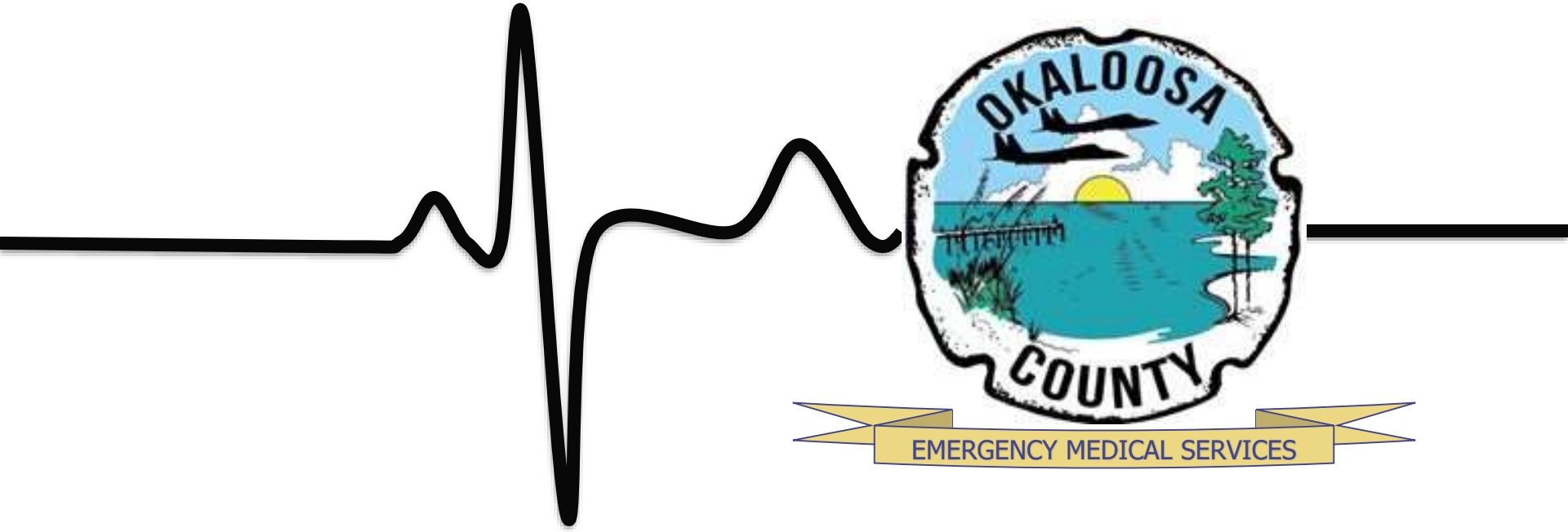
OKALOOSA COUNTY
EMERGENCY MEDICAL SERVICES

Advanced Life Support Protocols



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10.01.2018

Okaloosa County Emergency Medical Services

EMS Protocol Medical Director Signature Form

The attached Emergency Medical Protocols are the official Advanced Life Support Protocols for the Okaloosa County Department of Public Safety and are approved for use by the Paramedics of Okaloosa County, to care for the sick and injured.

Reviewed & Approved : *Christopher Tanner, MD* **Date :** *October 1, 2018*

Christopher Tanner, MD

Authorization Signature Form

OKALOOSA COUNTY EMERGENCY MEDICAL GUIDELINES

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I. General Information

I. General Information

Statement Of Purpose

The intention of Advanced Life Support Protocols in a pre-hospital health care delivery system is to facilitate the rapid dispersal of adequate and acceptable measures aimed at stabilizing the sick and injured. These procedures are written to better define the responsibilities of Okaloosa County Paramedics, to decrease the chance of confusion at any emergency scene and to ensure a coordinated and efficient procedure for treatment and transport to a designated medical facility. These protocols are to be followed as closely as possible on each and every patient encountered by all Paramedics when hospital medical direction is not readily available or impractical based on patient condition. If a Paramedic encounters a medical or trauma situation not specifically covered by these protocols, the Paramedic should follow the standard of care as outlined in the 1998 United States Department of Transportation Paramedic curriculum and the current AHA ECC Guidelines. Off duty Okaloosa County Paramedics, governed by the Okaloosa County EMS Medical Director(s), may render care as outlined in these protocols within the geographical boundaries of Okaloosa County, unless the paramedic has responded as a representative for an outside First Responder Fire Department or US Military Firefighter. At times, Okaloosa County paramedics are required to respond to scenes in counties other than Okaloosa, including disaster aid responses as required by state or federal agencies and mutual aid responses. Okaloosa County paramedics are authorized by the Okaloosa County EMS Medical Director(s) to perform within the scope of the Okaloosa County Standing Orders under these circumstances. This policy applies only to Okaloosa County paramedics, who are on duty, working for an Okaloosa County EMS agency at the time of the incident.

Authorization

These Advanced Life Support Protocols have been developed and circulated for use by Okaloosa County EMS Paramedics in the pre-hospital emergency care of the sick and injured, under authority granted in **Chapter 401 Florida Statutes, and 64 J Florida Administrative Code.** Changes to these protocols can only be made and promulgated by the Okaloosa County Medical Director(s). Certified Paramedics approved by the Okaloosa County Medical Director(s), are the only personnel authorized to perform ALS procedures called for in these protocols, except as authorized by the Okaloosa County Medical Director(s).

Guidelines for Treatment

The following general measures shall be applied to help promote speed and efficiency when rendering emergency medical care to the sick and injured. These protocols constitute guidelines for treatment and may be altered at the discretion of the supervising hospital physician, providing those revisions are within the standard practice of emergency care.

A) When applicable, verbal consent should be obtained prior to treatment. Respect the patient's right to privacy and dignity. Courtesy, concern, and common sense will assure the patient of the best possible care.

B) Paramedics should transport all patients treated with ALS measures to the hospital. Patients have the right to refuse all, or any portion of treatment or transport. Patients refusing transport after ALS measures are instituted require contact with Medical Control. All refused treatments and/ or transports must be completely and accurately documented in the PCR.

C) Appropriate therapy must be continued during transport if indicated. Vital signs should be monitored and recorded frequently on all patients during transport. All transported patients shall have at least two sets of vital signs taken and documented. Emergency personnel should bring medication bottles with the patient and or accurately document the medications and dosages for the receiving facility.

D) All critically unstable patients must be transported to the nearest licensed hospital with emergency room services.

Examples of Unstable patients (not all-inclusive): Hemodynamic instability, non-patent airway, lack of IV/IO access in the presence of severe hypotension, pericardial tamponade, tension pneumothorax not managed by needle decompression, contractions < 3 minutes apart post rupture of amniotic membranes.

All other patients should be transported to the nearest appropriate facility, except if the patient or legal guardian insists on transport to a more distant facility, or unless specifically addressed in individual protocols.

Reference: *Specialty Hospital Transport Destination Protocol*, Page 10

Guidelines for Treatment

E) The consequences of this decision must be thoroughly explained to all parties involved. All details involved in the decision must be recorded on the Patient Care Report.

F) Under no circumstances should a critically unstable patient be transported to a hospital that is not the closest qualified facility on the basis of telephone orders from the patient's private physician. Should the patient's physician object to the treatment and or transport arrangements made by the Paramedic on scene, simply explain that you are following the protocol and refer the Physician to the Okaloosa County Medical Director(s). For the patient's physician to give orders regarding treatment and or transport; ***The physician must be on-scene and willing to accompany the patient to the hospital. Refer to OCEMS SOP 441.00.***

G) If the family has contacted the private physician, extreme tact and courtesy must be used. Your primary concern is the patient. Treatment and or transportation should not be delayed or hindered in order to speak with a private physician. If time is critical, have the family inform the physician to contact the destination hospital. No telephone orders may be taken from any physician other than the Okaloosa County Medical Director(s) or the receiving hospital's ER Physician, unless, so authorized by the Okaloosa County Medical Director(s).

H) In the event OCEMS depletes its stock of Normal Saline due to the nation wide shortage of Normal Saline for IV administration, authorization is granted for the following exception to the Okaloosa County Department of Public Safety, Emergency Medical Services Division Protocol.

The following fluids are authorized for use as a substitute for Normal Saline Intravenous administration:

Lactated Ringers 1000cc or 500cc bags

D5w/.45 Normal Saline 1000cc or 500 cc bags

D5w or .45 Normal Saline (Half Normal Saline)

Any of the above can be used in emergency situations in place of normal saline. Saline locks should be used for routine IV starts when fluid resuscitation is not indicated.

Guidelines for Treatment

I) Should a physician present at an emergency scene and wish to alter the protocols or supervise the care of a patient, he/she must provide a valid Florida Physician's License and a current ACLS certification card. The physician must be informed that he/she is taking full responsibility of the patient, must sign all medical reports, and must accompany the patient to the hospital. The receiving hospital should be notified prior to relinquishing control to the physician on scene.

J) Physicians who activate the 911 system for treatment of patients in their office, need **NOT** provide proof of licensure nor an ACLS card. These physicians may give orders on their patients, providing those orders **DO-NOT** conflict with these protocols or are otherwise not outside the standard of practice for emergency care. Should an ER Physician give additional orders, the physician's name should be documented on the Patient Care Report.

K) Medical communications are to be established via radio or telephone (via Dispatch patch) with the appropriate facility ASAP into the call. Contact can be made during or after the appropriate protocol has been initiated. Orders can only be given by the receiving facilities ER physician or the Okaloosa County Medical Director(s). Should one of these physician's give additional orders, the physician's name should be documented on the Patient Care Report.

L) Blood Drawing Procedure: Blood specimens will be drawn by certified Paramedics for blood alcohol analysis upon request of an authorized Law Enforcement Officer. The blood should only be drawn with a sealed kit provided by the Officer. The following information must be documented on a Patient Care Report:

1) Officer's name, **2)** Officer's ID number, **3)** Kit opened by the Paramedic, or in the presence of the Paramedic, **4)** Type of skin prep used, **5)** Number of tubes drawn, **6)** All tubes placed back in kit, **7)** Kit resealed by Paramedic or in the presence of the paramedic, **8)** Note any problems with the incident. See Appendix.

The Okaloosa County Medical Director(s) should be notified if the blood drawing procedure conflicts with patient care.

Guidelines for Treatment

M) Properly executed **DO NOT RESUSCITATE ORDERS** (Reference Appendix I, Page136-137) will be honored. If CPR has been initiated and a valid DNRO is discovered, resuscitation efforts should be ceased. If necessary, contact Medical Control for guidance.

N) Lesser invasive procedures should be attempted prior to higher invasive whenever possible. This includes, but is not limited to, attempting I.V.'s prior to I.O. access.

System Overview

Patient care must remain the most important priority. Teamwork, cooperation, and communication are desired and considered essential to our goals. Okaloosa County EMS shall be responsible for primary response of BLS and/or ALS transport units. EMS personnel shall assume immediate control and initiate an EMS command system as deemed appropriate and as specified in the OCEMS Standard Operating Procedure 429.00.

If hazardous conditions exist, the Incident Commander shall take immediate steps to control the hazard and protect the patient(s), Fire Department, and non-Fire Department personnel as deemed appropriate.

In mass casualty or mutual aid situations, Okaloosa County Paramedics may elect to turn patients over to other agencies. The Paramedic shall provide the transporting agency with all necessary and available information in a timely manner regarding the patient's condition and treatment rendered.

Upon completion of this interaction, the Paramedic crews will give any assistance necessary to the transport agency to assure continuity of care, quick, safe, proper loading and transport to the designated medical facility.

Patient Refusals

A patient may refuse treatment and/or transport to the hospital if all of the following conditions are met:

1) The patient is competent to make the decision to refuse.
2) A clear explanation is given to the patient regarding the need for emergency care and transportation and the possible consequences that may develop without medical attention.
3) A patient care report using the SOAP format is completed.
4) Efforts to encourage the patient to be transported to the hospital are documented.
5) At least two sets of vital signs are obtained and documented.
6) The name of the physician contacted (when contact is necessary per protocol) is documented.
7) For diabetic refusals, include 2 glucose checks.
8) Instructions to the patient to call 911 and seek medical attention and transport to the hospital if their condition deteriorates, or if they change their mind regarding transport are documented.
9) The name of the individual signing the patient refusal, if other than the patient is included in documentation.
10) Obtain a witness signature from a family member, friend, law enforcement officer, or a firefighter is obtained. As a last resort, a fellow EMS provider should witness the signature.
11) If the patient refuses to sign the electronic EMS refusal, attempt to obtain the signature from a family member, friend, law enforcement, or fire department personnel. Document the name of the individual who signed for the patient in the patient care report narrative.

Patient Refusals

Competent Individual

The following individuals are considered competent to refuse treatment and transport:

1) One who is awake, alert, and oriented to person, place, and time.
2) One who understands the circumstances of the current situation
3) Does not appear to be under the influence of alcohol, drugs or other mind altering substances, or circumstances that may interfere with mental function.
4) One who is not a clear danger to self or others
5) Is 18 years of age or older, or an emancipated minor.

Minor Patient Refusing Care and Transport

A minor patient cannot refuse transport without the consent of a parent or legal guardian. If a parent or legal guardian is not present, contact may be made via telephone for permission. Document the parent or legal guardian's name in the patient care report narrative.

Emancipated Minor

The following individuals are able to make refusal decisions for themselves, assuming all other requirements listed above are met:

1) A person under the age of 18 who has been granted emancipation by the court.
2) A validly married individual.

Patient Refusals

Patient Incapable of Competently Objecting to Treatment and Transport

Any patient who is incapable of competently objecting to treatment or transport shall be transported for further evaluation and treatment. Police assistance should be sought, if needed.

Patient Refusing Transport after Treatment has been Initiated

Medical Control should be contacted in all cases when a patient has been administered any medications (including oxygen) or other advanced treatment (including IV) by EMS personnel, and the patient is refusing transport. Once all attempts at convincing the patient the need for transport have failed, have the patient sign a refusal and document appropriately.

Transporting a Patient Refusing a Specific Treatment/Procedure Required by OCEMS Protocols

The following procedure should be followed when a patient refuses treatment required by OCEMS protocol:

1) Explain the need for the treatment procedure and possible consequences of not allowing this treatment or procedure.
2) If the patient continues to refuse the treatment or procedure, have the patient sign a "Transport and Refusal Treatment" on the Patient Care Report (PCR).
3) Attempt to obtain a witness signature, if possible.

Beach Operations

Medical emergencies on the Gulf-side beaches of Okaloosa Island and Destin

1) Successful resuscitation of patients in cardiac arrest or systemic compromise must be founded on the positive effects of BLS care. All resuscitation efforts made by Beach Safety and first responding Fire Departments staff should therefore be limited to providing good effective BLS and rapidly packaging and transport. The initial focus will be placed on BLS stabilization and transport off the beach to a staging ambulance close to the scene where effective ALS care can be initiated. Based on the forgoing:

   a) Beach responders will ensure that all patients are receiving appropriate and effective BLS care, are appropriately packaged, and are being transported to the staging area within a reasonable time after securing access to the patient.

   b) ALS equipped beach responders will bring all ALS equipment to the beach. ALS equipped beach responders will initiate ALS care as indicated by the patient's condition upon arrival at the staging area where EMS transport has not yet arrived.

2) Staging points for EMS –Ambulance and secondary responders on Okaloosa Island will be established by Ocean West Tower or Okaloosa Fire Command. Destin Fire Command will assign staging points in Destin. EMS ambulance crews shall remain at their assigned staging areas at the beach access ways and shall not come to the scene on the beach unless otherwise requested by command on scene. The patient is better served and resources are more efficiently used when the EMS Ambulance crews make preparations at the staging area to receive critical patients while lifeguards and fire department first responders package and transport the patient to them. EMS transport and secondary responders will make preparations at the staging area for taking over patient care and transporting to the appropriate facility.

OCEMS Transport Destinations

1) **STEMI Alert (Cardiac Alert):** All patients with acute ST Elevation Myocardial Infarction (STEMI) shall be transported to the closest facility capable of percutaneous coronary intervention (PCI), within 10 minutes. Transport immediately upon recognizing a STEMI.

2) **Stroke Alert:** Patients meeting the "Stroke Alert" criteria as determined by the **STROKE ALERT CHECKLIST** (Pg 52) shall be transported to a designated stroke hospital (North Okaloosa MC, Twin-Cities Hosp., Fort Walton Beach MC, Destin ER, SHH-P)

3) Trauma Alert: Patients meeting "Trauma Alert" status as per the State of Florida DOH Scorecard methodology (Reference Pg 70-72) shall be transported to a State Approved Trauma Center (SATC). Refer to the OCEMS Trauma Transport Policy.

Note: ***In the event that a Trauma Center is on BY-PASS Status, then the patient shall be transported to the closest Initial Receiving Hospital (IRH).***

4) Dive Accident/Decompression Injury: All Dive Accident/ Decompression Injury patients shall be transported to the closest local facility for stabilization and, if needed, transported via interfacility to a hyperbaric chamber facility for definitive care.

5) OB Patient: All patients with an estimated gestational age greater than or equal to 20-weeks, regardless of complaint, should go to an OB hospital unless they meet trauma, stroke, or cardiac transport criteria. **Note:** Minor falls can lead to an abruption in 6% of all cases. These patients will need monitoring in Labor and Delivery. All medical concerns will have OB concerns as well.

6) Psychiatric Patients: Crew and the patients safety are paramount; All psychiatric patients transported to or from any facility should be transported on the stretcher with all stretcher straps applied to ensure the patient's safety. In the instance(s) that the facility requesting transport has more than one patient that is to be taken to the same location, the patients that are not on the stretcher shall be seated on the bench seat with the proper seatbelts applied.

In the event a stable patient is requesting transport outside of Okaloosa County, the on duty Branch Commander shall be contacted for authorization, unless transport was arranged in advance (SHH-EC is considered within our catchment area).

Interfacility Transfers of Critical Patients

from Hospitals and Outpatient Surgical Centers located within facilities with admitting capability

This policy is designed to assure sufficient information is provided to meet the personnel and equipment needs for interfacility transfer of a critical patient by Okaloosa County Emergency Medical Services (OCEMS). The transferring physician/hospital is responsible for the orders to care for the patient until arrival and transfer of care at the receiving hospital. The OCEMS crew responsible for transport must be familiar with the orders covering the care of the patient during transport, and must be capable of providing any care required during the transport. The EMS Branch Commander and/or EMS Medical Director(s) will assist in assessing critical patient care needs and coordinating transport needs with facilities prior to patient transport. IF, AFTER PATIENT CONTACT, ANY PARAMEDIC FEELS THE CRITICAL NATURE OF A PATIENT IS BEYOND THE SCOPE OF THEIR PRACTICE OR TRAINING, HE/SHE SHOULD NOTIFY THE ON DUTY Branch COMMANDER IMMEDIATELY AND THEY SHOULD NOT DEPART THE TRANSFERRING HOSPITAL.

Interfacility Transfer of Critical Patients

From Hospitals and Outpatient Surgical Centers located within facilities that have patient admitting capability

For critical patients requiring transfer between facilities:

(When Identified by Dispatch)
Dispatch will:

1. Notify the facility requesting the patient transfer that the EMS Branch Commander will contact them to discuss patient transfer issues. Dispatch will obtain the responsible medical provider's contact information.

The EMS Branch Commander may be contacted by the transferring facility at 850-585-9173 (South Branch) or 850-826-0351 (North Branch). The EMS Medical Director(s) serves as consultant to the EMS supervisor and the transferring facility. The EMS Medical Director may be contacted at ***850-585-6555****. Interfacility transport of critical patients should not occur prior to consultation with the EMS supervisor and/ or Medical Director.*

2. Notify the EMS Branch Commander of the request for a critical patient transfer and will provide the contact information of the responsible medical provider.
3. Dispatch the closest available unit to the facility with the direction that the unit "stand by to load".

(When Not identified by Dispatch)

1. Dispatch closest available unit to the facility with "customary instruction"
2. Paramedic on scene has identified the potential critical nature of the patient transfer.
3. The Paramedic will notify dispatch over the radio of the critical patient transfer.
4. The Paramedic will notify the on duty Branch Commander of the critical patient transfer and provide relevant information regarding the transport.

Interfacility Transfer of Critical Patients

From Hospitals and Outpatient Surgical Centers located within facilities that have patient admitting capability

The EMS Branch Commander will:

1. Review the critical patient information to determine the need for additional resources and the appropriateness for transfer by a ground OCEMS unit.
2. Make recommendations and assist with arrangements of an alternative means of transport if other than OCEMS ground transportation is required.
3. Make recommendations and ask for assistance from the transferring hospital when there is a need for additional resources from their staff or facility, which will be required during the OCEMS transport.
4. Consult with EMS Medical Director(s), if needed.
5. Assure that the OCEMS crew transporting the patient is familiar with the equipment and orders governing the care of the patient during transport.
6. Advised dispatch that the crew is clear to conduct the transport.

The OCEMS Paramedic will:

1. Review the orders governing the care of the patient during the transfer to the receiving facility.
2. Assure that the required patient care falls within the scope of practice of the paramedic and any ancillary staff that are accompanying the transport crew.
3. Be familiar with any medication and equipment that is required for transport.
4. Confirm receipt of the contact information for the medical provider that is assuming patient care at receiving facility.

Interfacility Transfer of Critical Patients

from Hospitals and Outpatient Surgical Centers located within facilities with admitting capability

The EMS Branch Commander will:

1. Review the critical patient information to determine the need for additional resources and the appropriateness for transfer by ground OCEMS unit. Make recommendation and assist with arrangement of alternative transportation if other than OCEMS ground transportation required.
2. Make recommendation to the transferring hospital of any additional resources from their staff or facility, which will be required during the OCEMS transport. If the patients care falls outside the paramedics scope of practice and no hospital staff is available to accompany the patient, an assessment should be made to determine if the OCEMS Critical Care Transport Team would be a better resource to utilize.
3. Consult with EMS Medical Director(s) as needed.
4. Assure OCEMS transport crew and any hospital staff and other staff accompanying patient during transport are familiar with the orders governing the care of the patient during transport and equipment and medications necessary to accomplish the care of the patient during transport.
5. Clear transport crew to transport patient in coordination with dispatch.

The OCEMS Paramedic will:

1. Assess patient for potential critical nature if not identified as such by dispatch. If critical, get medical provider contact information and contact dispatch. If dispatched as “stand by to load”, transport patient after consultation with EMS Branch Commander or EMS Medical Director(s).
2. Review the orders governing the care of the patient during transfer to the receiving facility.
3. Assure required care falls within the scope of practice of the paramedic, any ancillary staff accompanying the transport crew, and the equipment available prior to departure, and designate plan of care during transport.
4. Assure receipt of the contact information for medical provider assuming care at receiving facility.

Infectious Disease Protocol

A) At all times, use standardized precautions as outlined in OCEMS SOP 303.00 including the following:

1) Wearing of gloves to prevent contact with patient's body fluid.
2) Wearing of appropriate masks and protective eyewear during procedures likely to generate droplets of body fluids.
3) Wearing of gowns during procedures likely to generate splashes of body fluids.
4) Proper disposal of sharps in approved containers only. (***No recapping of needles***)
5) Proper cleaning, disinfecting and disposing of equipment and supplies.
6) Cleansing of hands thoroughly before and after patient contact, and after removal of gloves.

Contact : ***is defined as blood, blood products, or body fluids coming in contact with "intact skin"***
Exposure : *is defined as blood, blood products, or body fluids coming in contact with "non- intact"* ***skin. Examples include; lacerations, abrasions, puncture wounds, and needle stick injuries.***
Exposures may also occur through mucous membranes such as; mouth, eyes, nose, and respiratory tract.

Infectious Disease Protocol

B) If personnel become exposed, follow the procedures listed in the OCEMS SOP 303.00.

These procedures include:

1) The contaminated area should be washed thoroughly with an appropriate cleaning solution as soon as possible.
2) The employee(s) who have sustained an exposure shall accompany the source patient to the hospital.
3) Advise the E.R. Physician that an exposure has occurred and request that the source patient be tested.
4) Advise the on duty EMS supervisor.
5) Contact Risk Management ASAP.
6) Complete all applicable paperwork in a timely manner.

General Patient Assessment

The current American Heart Association Guidelines for BLS standards should be utilized for all patients

Initial Assessment: The initial assessment is utilized to assess for life-threatening situations. The Initial Assessment and appropriate therapy should be completed immediately and efficiently upon reaching the patient. The Paramedic will decide if ALS measures are warranted. When appropriate, stabilizing therapy (i.e., cervical spine immobilization) should be instituted simultaneously with the survey. The EMT/Paramedic should complete the Initial Assessment within 60 seconds, checking and or performing the following:

General Impression: Note the patient's approximate age, gender, weight, activity, position, obvious injuries/ distress, and general appearance.

LOC: Utilize **AVPU**, **A**-Alert, **V**-Responds to verbal stimuli, **P**-Responds to painful stimuli, **U**-Unresponsive

Assess Airway: Consider C-Spine precautions. Establish and maintain a patent airway. Determine the rate and quality of respirations.

Breathing: Reference Respiratory Distress Protocol Pg 48

1) Look, listen, and feel for air movement

2) Support respirations as needed/indicated

3) Auscultate lung sounds

The 4-Abdominal Quadrants

RUQ Liver-Gallbladder	**LUQ** Spleen-portion of the Liver- Pancreas Stomach
RLQ Appendix-R Ovary-Bladder if distended	**LLQ** L-Ovary-Bladder if distended

Remember: Universal Precautions and Body Substance Isolation

General Patient Assessment

Circulation: Assess Carotid and Femoral pulses. If indicated perform CPR. Check pallor, diaphoresis, and capillary refill. Check the neck for Jugular Vein Distention. Skin temperature should also be evaluated during the assessment.

Hemorrhage: Control hemorrhage as appropriate- may be performed first if exsanguinating hemorrhage present.

Baseline Vitals: Respirations, Pulse, Skin color/temperature, Blood Pressure

Rapid Trauma Survey: Scan and take a quick survey of the patient's entire body for any critical problems. Expose the head, neck, chest, abdomen, and pelvis to look for significant hemorrhage, respiratory compromise, and other life-threatening injuries in the trauma patient.

For isolated injuries, a focused exam shall be performed on the specific areas. For multiple trauma and altered mentation, a Rapid Trauma Survey and Detailed exam shall be completed.

Detailed Exam: The Detailed Exam occurs after the initial assessment has been completed and appropriate action has been taken. It is a complete examination designed to check for specific, although not necessarily life-threatening injuries. The Detailed Exam can be performed in conjunction with the Initial Assessment or when appropriate throughout patient treatment. The Paramedic should perform and/or check for the following;

Utilize **SAMPLE** to obtain patient history

S- Signs, Respirations, Pulse, BP, SaO2, Skin color and Temperature

A- Allergies

M- Medications, bring medications to the hospital and document on the Medical Report.

P- Past medical history

L- Last oral intake

E- Events leading up to this incident

General Patient Assessment

Head-to-toe Survey: Utilize DCAP-BTLS-IC-PMS **(Scan the body for the following)**

- **Head:** Battle's sign, DCAP, periorbital ecchymosis, hyphema, pupils, CSF from nose or ears, mouth for broken teeth, dentures, breath odor
- **Neck:** stair-stepping in C1-C7, JVD, TD, DCAP, BTLS
- **Shoulders:** Sub-Q emphysema, DCAP, BTLS, IC, nitro patch/ paste, pacemaker
- **Chest:** lung sounds, paradoxical movement, heart tones, scars, DCAP, BTLS, IC
- **Abdomen:** guarding, rigidity, masses, Cullen Sign, Grey Turner, palpate all 4 Quadrants, DCAP, BTLS.
- **Hip and Pelvis :** incontinence, priaprism, DCAP, BTLS, IC, **(NO PELVIC ROCK)**
- **Extremities:** Legs, shortening or rotation, edema of the ankles, DCAP, BTLS, IC, PMS

  Arms, needle tracks, medical alert bracelets, dialysis shunt, radial pulse, DCAP, BTLS, IC, PMS
- **Back:** check the back from the head to the feet, DCAP, BTLS, IC,

D = Deformities	**B = Burns**	**T = Tenderness**	**P = Pulse**
C = Contusions	**L = Lacerations**	**I = Instability**	**M = Motor**
A = Abrasions	**S = Swelling**	**C = Crepitus**	**S = Sensation**
P = Penetrations			

"Cullen Sign" is bruising around the umbilicus. "Grey Turner" is bruising at the flanks.

Airway Maintenance and Oxygen Administration

In reference to specific treatment protocols as ***"Secure an Airway and administer supplemental oxygen as indicated,"*** the following guidelines should be followed:

Airway Management: Clear obstructed airways using the appropriate techniques. If necessary, utilize an appropriate airway device to maintain the airway: OPA, NPA, ETT, LMA, Cricothyrotomy.

Foreign Body Obstruction: If BLS measures and the Heimlich Maneuver do not clear the airway, perform direct laryngoscopy and attempt to remove the foreign body with the use of Magill forceps or suction. Perform Endotracheal Intubation, if necessary, and check ETT placement by Auscultation, end tidal CO2 detector, and continuous waveform capnography. ***Capnography may not be accurate if little or no circulation exists. Normal CO2 is 35-45 mmHg.***

If the obstruction cannot be cleared by any other means, perform a Cricothyrotomy procedure. Reference Appendix G, Pg 134 (or Appendix S, Pg 146 for pediatrics). The decision to perform this procedure should be made quickly into the call, as to prevent hypoxia from causing neurological damage.

Assisting Respirations: If it is necessary to assist respirations for more than one minute, consider intubating the patient. An Automatic Transport Ventilator (CAREvent®) or BVM with reservoir connected to 100% oxygen should be utilized when assisting respirations with 15 LPM. Attempt Orotracheal as indicated. Difficult Intubations may require the administration of **sedatives and paralytics**. Reference the Rapid Sequence Induction Protocol, Section II, Pages 22-26.

Post-resuscitation, all efforts should be made to maintain an SaO2 of >94%, but <100%, avoiding hypoxia and hyperoxia.

Immobilize the head of all intubated patients

Airway Maintenance and Oxygen Administration

Secondary Airways: An LMA may be used if 3 initial attempts at intubation are unsuccessful. The LMA should be left in place, unless deemed misplaced (do not attempt to intubate after LMA use). Medications shall not be administered via the LMA.

Cricothyrotomy: is a surgical procedure for **adult** patients. Needle Cricothyrotomy is utilized for the pediatric patient < 8 y/o and/ or 50kg. This procedure is to be used only after all other airway measures have failed or are not practical. Appendix G, Pg 134 (or Appendix S, Pg 146 for pediatrics).

Suctioning: As indicated to clear an airway

Oxygen administration:

1) Nasal Cannula (NC) 2 – 6 LPM

2) Non-rebreather (NRM) 10 – 15 LPM

3) Pediatric simple face mask (minimum of 6 LPM must be used)

The pulse oximeter should be applied on all patients with cardiac, respiratory, or neurological complaints before administering oxygen. Document the room air SaO2 on the Patient Care Report. Patients with known COPD and CO2 retention and patients in minimal respiratory distress should receive low-flow O2.

The EMT may administer intranasal (IN) Narcan to combat respiratory insufficiency secondary to a suspected opioid overdose.

In cardiac arrest, standard resuscitative measures should take priority over Narcan administration, with a focus on high-quality CPR (compressions plus ventilation).

Tiered Response to 911 Calls: Patient Transport by an Emergency Medical Technician in a Basic Life Support Ambulance.

The following provisions apply exclusively to the entities operating under the Okaloosa County EMS Medical Protocol (Okaloosa County EMS, North Bay Fire Control District, Destin Fire Control District, Okaloosa Island Fire Control District, Fort Walton Beach Fire Department, and Ocean City – Wright Fire Control District).

A patient may be treated, transported and attended by an emergency medical technician at the basic life support level of care if, upon initial assessment it is determined that the patient is conscious and alert per their normal state, all vital signs are stable, and peripheral intravenous or intraosseous therapy is not required for medication administration or fluid resuscitation. A patient must be attended by a paramedic during transport when, in the clinical judgement of the assessing healthcare provider, the patient requires continuous advanced life support monitoring and/or treatment. If a patient being transported at the basic life support level of care and attended by an emergency medical technician becomes unconscious, has a change in mental status or becomes unstable, a paramedic will immediately be requested for intercept. The basic life support unit will not delay continuous transportation and will coordinate appropriate initial receiving facility notification and rendezvous with intercepting unit.

For a patient that has been examined at the advanced life support level by a paramedic – cardiac monitoring, blood glucose testing, or other advanced life support exam – where the findings are normal or unremarkable in relation to the patient's overall clinical presentation, and the patient is otherwise determined to be stable, patient care can be turned over to an emergency medical technician for transport to the closest appropriate facility at the basic life support level of care. A patient may be attended by an emergency medical technician when, in the clinical judgement of the assessing healthcare provider, the patient does not require continuous advanced life support monitoring and/or treatment.

The healthcare provider may turn patient care over to the OCEMS paramedic or Medical Commander only when physically present, regardless of whether continuous advanced life support monitoring and/or treatment are required. In such circumstances, it is the responsibility of the OCEMS paramedic or Medical Commander to determine the appropriate level of transport for the patient and ensure its execution. In the event that the there is a disagreement between the fire department paramedic and the EMS paramedic regarding the level of transport, the medical commander will be contacted on EMS TAC-1 for further guidance. The ultimate decision for transport level rests with the Medical Commander.

A critically ill or injured patient requiring immediate advanced life support transport and/ or immediate paramedic care to prevent loss of life, and in the absence of an OCEMS advanced life support ambulance, may, at the discretion of the responding Fire Company Officer, be transported to the closest appropriate facility in a basic life support ambulance under the direct care of an advanced life support fire department paramedic. In any such circumstances, the Fire Department paramedic may use either the advanced life support equipment provided in the responding ambulance or the organic advanced life support equipment from the fire apparatus to conduct patient monitoring and provide care.

II. Rapid Sequence Induction

II. Rapid Sequence Induction (RSI)

Statement Of Purpose

The intention of these RSI Protocols in a pre-hospital health care delivery system is to facilitate the rapid airway management in the critical patient. This RSI procedure shall only be utilized when other less invasive airway management techniques have failed or are impractical.

Authorization

These RSI protocols have been developed and circulated for use by Paramedics in the pre-hospital emergency care of the sick or injured, under authority granted in **Chapter 401 Florida Statutes, and 64 J Florida Administrative Code.**

Changes to these RSI protocols can only be made and promulgated by the Okaloosa County Medical Director(s). These protocols are to be followed as closely as possible on each and every patient who is a candidate for Rapid Sequence Induction.

Paralytic Medications Expirations:

1) Liquid paralytic agents should be discarded 2 weeks after removal from refrigeration or anytime discoloration or particulate material is noted. The 2 week expiration date should be calculated from the day it was removed from refrigeration and handwritten onto the vial.

2) Powdered paralytic agents may be maintained until the expiration date on the drug label unless reconstituted. Once reconstituted, the unused portion should be discarded per direction on the drug label.

Indications for RSI

Seizure/Convulsive Disorders

Multi-System Trauma

Head Injury (GCS 8 or Less)

Trismus (Lock-jaw) or Clenched teeth

Burn Injuries to the Upper Airway

Contraindications For RSI

Absolute:

Limited vocal cord visualization, due to major facial/laryngeal trauma

Patients that cannot be ventilated with a Bag Valve Mask (or some other means) due to trauma or anatomical reasons

Contraindications of RSI

Relative:

Excessive weight

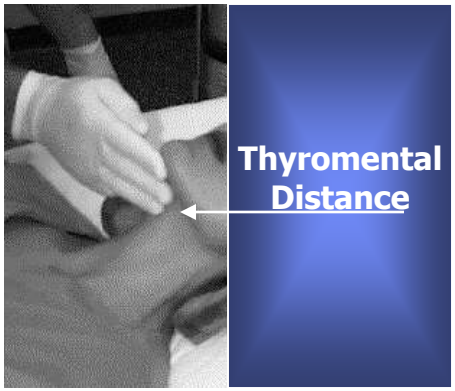
Mallampati Class of III or IV

C-Spine immobilization concerns

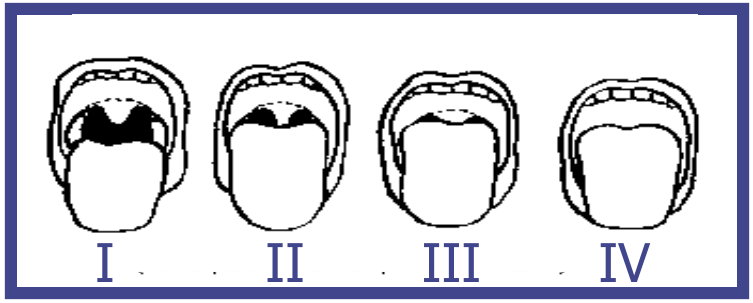
Large incisors or "Buck-teeth"

Thyromental distance of < 3 finger widths

Thyromental Distance: The distance from the bottom of the chin, to the top of the Thyroid Cartilage



Mallampati Classifications



Mallampati Classification, relates to the size of the patient's mouth, tongue, and pharynx.

RSI Procedure…

1) Rule out contraindications and anticipate the difficult intubation.

2) Prepare intubation equipment, have back-up airway such as an LMA and Cricothyrotomy equipment ready.

3) Pre-oxygenate the patient with 100% O2 x2 minutes.

a) NRBM is preferred method

b) If rate, volume, and/or effort indicate, use BVM with Cricoid Pressure and maintain pressure until ETT placement confirmed

4) Monitor and record an EKG strip, SaO2, and **ETCO2.**

5) Only **one** sedative agent should be administered prior to succinylcholine unless otherwise directed by medical control.

Administer **Versed:**	**Adult 0.1mg/kg** via **IV/IO/IM (Maximum 10mg)** **Pedi 0.1mg/kg** via **IV/IO/IM; (Maximum 4mg)**	**(Preferred when suspected increased ICP w/hypertension)**
	or	
Administer **Ketamine:**	**Adult and Pediatric Dose is 2mg/kg IV/IO/IM**	**(Preferred when pt is hypotensive)**

* Allow medication to take effect (approx 2 minutes)

6) Provide and maintain cricoid pressure until tube placement is confirmed.

Continued…..

RSI Procedure continued

6) Provide and maintain cricoid pressure until tube placement is confirmed.

7) Consider additional medications for the following circumstances:

* If Bradycardia exists, administer **Atropine 0.5 mg IV/IO, up to 3mg Total** until normocardic.
* If pediatric (< 16) **Atropine 0.02mg/kg IV/IO (up to 1.0mg per dose; up to 3mg Total)** must be administered.
* If Increased ICP suspected or acute Asthma present, administer **Lidocaine1.0 mg/kg IV/IO** 3 minutes prior to intubation attempts unless contraindicated.

8) After 2 minutes and the Versed takes effect, administer **Succinylcholine 1.5 mg/kg (pedi 2.0 mg/kg) IV/IO/IM,** after an additional 2 minutes and the Succinylcholine takes effect perform the intubation.

8a) If unable to intubate x 3 total attempts, maintain cricoid pressure and ventilate with BVM. Consider LMA or surgical cricothyrotomy.

9) Confirm intubation with auscultation, continuous waveform capnography, and end tidal CO2 detector, then secure tube in place noting the depth at the teeth. Ventilate patient to maintain EtCO2 between 35-45 mmHg (30-35 mmHg if Cerebral Herniation suspected)

10) To keep the patient sedated, and 10 minutes after the administration of Versed or Ketamine, administer **Valium 5mg IV/IO/IM (Pedi 0.2mg/kg, max 4mg) -or- Versed 2.5mg IV/IO** before the patient begins to wake.

* For continued paralysis, administer **Vecuronium 0.1mg/kg IV/IO (Adult and Pedi)** after ETT placement confirmed, and 5-7 minutes after Succinylcholine administration.
* For continued sedation administer **Valium q 10 minutes NTE 20mg -or- Versed 2.5mg IV/IO q 5 minutes** during long term paralysis unless contraindicated.
* If needed to maintain paralysis on prolonged transports, half of the initial dose of **Vecuronium** may be administered every 30 minutes. Confirm adequate ventilations and continued sedation when paralytic therapy is prolonged.

11) Continue to monitor the patient, pain level, and sedation level. Treat as indicated.

Confirm ETT placement by utilizing clinical techniques: Visualization, Auscultation, and continuous Waveform EtCO2.
Normal CO2 is 35 to 45 mmHg

III. Medical Emergencies

Abdominal Pain/ Nausea & Vomiting

1) Perform initial assessment.

2) Perform detailed exam.

3) Obtain a complete history, including potential for pregnancy if female.

4) Secure an airway and administer supplemental oxygen as indicated.

5) Monitor and record an EKG strip. Obtain 12 lead EKG if indicated (refer to Pg 36).

6) Initiate IV 0.9% NaCl KVO. Administer fluids as needed.

7) Manage pain with **Fentanyl** (unless contraindicated) **1-2 mcg/kg, slow IV/IO/IM push or rapid IN push.** Dosing may be repeated every **5 minutes** and titrated to desired effect or until an "endpoint is met", up to a **maximum cumulative dose of 3 mcg/kg** prior to Medical Control contact.

8) Evaluate blood glucose level, treat as appropriate.

9) Administer **Ondansetron 4mg IV/ IM** for adult patients with prolonged nausea and/or vomiting*
*confirm with the patient that they have not had any previous history of adverse reactions or actual allergies to Ondansetron prior to administration.

10) Alternate pain medications:

Ketamine 0.5mg/kg IV/IO/IM. Onset 2-3 minutes with approx 20 min duration. May repeat until desired effect is achieved.

Toradol 30mg IV/IM x1. Contraindicated with GI bleeding, pregnancy, ASA or NSAID allergy, head injuries, patients on anticoagulants, or under 18 years old.

4-Abdominal Quadrants

RUQ Liver-Gallbladder	**LUQ** Spleen-portion of the Liver- Pancreas Stomach
RLQ Appendix-R Ovary-Kidney/ureter	**LLQ** L-Ovary-Bladder if distended

•Causes of abdominal pain can rarely be determined in the field
•Consider catastrophic causes of abdominal pain such as a ruptured Abdominal Aortic Aneurysm or Ectopic pregnancy, when signs of shock are present.
•In cases when prolonged nausea and vomiting is present, conduct orthostatic vital signs and administer fluids as appropriate.

Acute Pulmonary Edema/CHF

1) Perform initial exam.

2) Perform detailed exam, when appropriate. If S/S of Cardiogenic shock are present (BP < 90 systolic) reference the Cardiac-related Hypotension Protocol, Pg 43

3) Secure an airway and administer supplemental oxygen as indicated. Apply pulse oximeter and document pre and post SaO2 readings.

4) If the L.O.C. is normal, administer **Continuous Positive Airway Pressure** (CPAP). If Altered LOC, provide positive pressure ventilations with BVM as needed. Consider RSI.

5) Place patient in the seated position with legs dependent (lower than the upper body).

6) Monitor and record an EKG strip. Every attempt at obtaining a 12 lead EKG should be made.

7) Initiate IV 0.9% NaCl KVO rate.

8) Evaluate blood glucose level, treat as appropriate.

9) Administer **Nitroglycerin 0.4mg SL**. Repeat every 3-5 minutes until max dose of 3 metered doses, **Note:** Contraindicated in patients taking any of the ED medications, i.e., Viagra, Levitra, and Cialis, or marked bradycardia or tachycardia, or hypotension.

10) Administer **Lasix 1mg/kg slow IV/IO push** or double their current prescribed dosage.

11) Contact Medical Control for further orders.

Suspect Pneumonia in the elderly patient presenting with a temperature of > 100° F

Agitated Delirium Protocol

This protocol is to be used in conjunction with Law Enforcement, in which cases of suspected Agitated Delirium may exist. (i.e. normally after LE has tried to control a combative patient via physical restraint and/or by Taser.

Background: Agitated (excited) Delirium is a condition in which a person is in a psychotic state and extremely agitated. Mentally, the subject is unable to focus and process any rational thought. In this state it is also difficult for the patient to focus his/her attention on one thing. Physically, the patient's organs are functioning at such an excited rate they begin to actually "shut down." These two factors occurring at the same time cause a person to act erratically enough that they become a danger to themselves and the public.

Causes of *Agitated Delirium* include: overdose on a stimulate or hallucinogenic drugs, drug withdrawal, psychiatric patient off of medication, illness, low blood glucose, psychosis and/or head trauma.

Any patient exhibiting any of the following S/S will be treated by OCEMS and transported to the closest appropriate facility for further evaluation:

a) Evidence of *Agitated Delirium* prior to restraint by LE via physical and/or by Taser

b) Known or suspected cocaine, amphetamine, or hallucinogenic drug use

c) Cardiac history

d) Altered level of consciousness

e) Hyperthermia – temperature > 102°F

f) SOB, CP, nausea, or headache

g) Diaphoresis unexplained by environment

h) Suspected C-spine or other significant musculo-skeletal injury

S/S of Agitated Delirium
Bizarre and aggressive behavior
Dilated pupils
High body temperature
Incoherent speech
Inconsistent breathing patterns
Fear and/or panic
Diaphoresis
Shivering
Patient may present nude

Agitated Delirium Protocol Continued

Procedure:

1) Ensure via LE that the scene is secure and the patient is safe to approach; EMS should not attempt to subdue the patient

2) Attempt to reasonably address the patients concerns

3) Assume the patient has a medical cause of agitation and treat reversible causes, if known.

4) For adult patients with profound agitation that poses a risk to the patient and providers, administer **Ketamine 2-4mg/kg IM (Buttocks or Thigh)**, through clothing if necessary. Allow 1-5 minutes for onset. Ketamine duration should last approx 45 minutes. **NOTE: ER Physician must be notified of the Ketamine administration prior to crew departure from ER.**

5) Apply restraints as referenced in the *Violent and/or Impaired Patient Protocol – Pg 58* –**DO NOT** inhibit patients breathing

6) **Only** if combativeness persists, administer ***Versed 5.0mg IM*/IN/IV/IO**– Reference Page 58. Pay close attention to the airway and breathing status; be prepared to assist ventilations and provide suctioning. If bronchorrhea develops, administer **Atropine 0.5mg IV.**

7) Administer O2 via NRM (or BVM if rate, volume, and effort indicate) at 15 LPM ***as soon as possible***, regardless of SaO2 reading

8) Start 2 large bore IV's as soon as it is safely possible- administer 2,000mL NS bolus. If hyperthermia suspected, infuse ***Sodium Bicarbonate 50mEq IVPB w/ cool 1000cc NS*** (May repeat once if hyperthermia persists and/or signs of hypotension)

9) Test blood glucose

10) Transfer patient to the ambulance and set AC to lowest temperature. (LE should "ride in" w/ patient and crew)

11) Monitor patient

Note: Agitated/ Excited Delirium is not reported in children and use of Ketamine is not expected in pediatric patients

If patients arrests – Administer ***Sodium Bicarbonate 100mEq IV push*** as first line treatment and follow appropriate ACLS Protocol.

Patient w/ S/S of *Agitated Delirium* can move into cardiac arrest rather quickly. The goal should be to place them on high-flow O2, sit them up, cool them down and avoid positional asphyxia.

Allergic Reactions

Including generalized reactions to insect stings

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated. Consider **nebulized Albuterol treatment at 2.5mg/3mL NS** if patient exhibits S/S of respiratory distress.

4) Monitor and record an EKG strip.

5) Initiate IV 0.9% NaCl appropriate rate.

6) Generalized allergic reactions characterized by Uticaria (rash), administer **Benadryl 50mg IM or slow IVP.**

7) Generalized allergic reactions characterized by any of the following: Hypotension (< 100 systolic), respiratory distress, wheezes, and edema of the tongue, administer **Epinephrine 1:1,000 0.3mg (0.3mL's) IM.** Administer **Benadryl 50mg slow IVP.** Administer fluids to maintain adequate peripheral perfusion, as needed.

8) In severe anaphylactic shock (all S/S of a severe allergic reaction coupled with cardiovascular collapse) where cardiac arrest is imminent and a BP is unobtainable:

Administer **Epinephrine 1:10,000 0.3mg (3mL's) slow IV/IO push,** followed by **Benadryl 50mg slow IV/IO push,** if not already given. Administer fluids to maintain adequate peripheral perfusion, as needed.

9) Contact Medical Control for further orders.

Epinephrine acts by constricting blood vessels, which in turn increases the blood pressure. It also widens the airway. Benadryl does not stop the reaction however, it does relieve some of the symptoms. True Anaphylaxis is a medical emergency and requires immediate treatment in the Emergency Room.

Altered Mental Status

1) Perform initial assessment.

2) Check for signs of head trauma, and perform detailed exam when appropriate.

Normal blood glucose levels range from 60mg/dl – 120mg/dl

3) Secure an airway and administer supplemental oxygen as indicated.

4) Monitor and record an EKG strip.

5) Initiate an IV 0.9% NaCl KVO rate. **Note:** If a LOC is related to seizure activity, reference the Seizure Protocol, Pg 49.

6) Check blood glucose level via Glucometer, and document on the Patient Care Report.

7) If patient blood glucose **<60mg/dl,** administer **D10 100mL IV/IO**.

Oral glucose may be given if the patient is conscious and able to swallow.

8) Check blood glucose after administration of D10, and document appropriately.

9) If patient remains less than 60mg/dl after 2 minutes, administer an additional 100 Ml of D10 and facilitate transport. **Do not remain on scene to obtain a refusal.**

10) If IV access is unobtainable, administer **Glucagon 1mg IM.**

11) If no response, and there is a high index of suspicion for acute opiate or narcotic pain killer overdose, administer **Narcan in 0.5mg IVP/IM (or 1mg IN)** increments until improvement of respiratory status. May repeat in 2-3 minutes for IV/IN use and repeated in10 minutes for IM use, not to exceed 10mg cumulative dose.

12) Contact Medical Control for further orders.

Note: If patient is believed to be an alcohol abuser and requires D10, administer Thiamine 100mg IV/IO/IM prior to administering D10.

The primary treatment of acute narcotic overdose is airway control. Once the airway is controlled, Narcan takes on only a secondary role. If drug overdose is strongly suspected, give Narcan prior to D10

The EMT may administer intranasal (IN) Narcan

ASYSTOLE

If Asystole is confirmed in two leads, inquire or search for a valid DNRO. Do not delay initiation of care during this search (Reference Appendix I, P-136-137)

1) Perform initial assessment and CPR (30:2) at a rate of 100-120 compressions per minute.

2) Perform a detailed exam, when appropriate.

3) Obtain a EKG, and confirm Asystole in at least 2 leads. Record an EKG strip. If there is the possibility that V-Fib exists, follow the appropriate protocol.

4) Secure an airway and administer supplemental oxygen as indicated.

5) Initiate IV/ IO 0.9% NaCl KVO rate. Administer fluids as indicated.

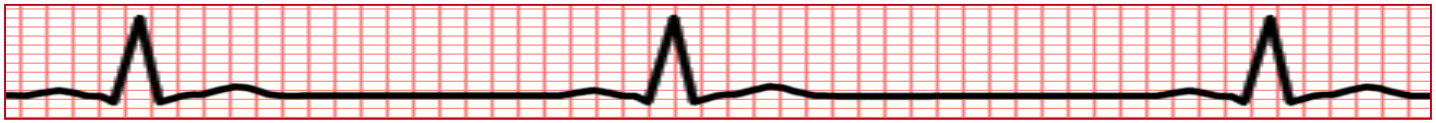
6) Administer **Epinephrine 1:10,000 1mg IV/ IO or 2mg ETT.** (IV preferred). Repeat Epinephrine every 3-5 minutes as long as it is indicated.

7) If there is an indication of high vagal tone or organophosphate poisoning consider and administer **Atropine 1mg IV/ IO or 2mg ETT.** Circulate with CPR, repeat every 3-5 minutes to a total of **3mg (6mg maximum via ETT).**

8) Consider and treat possible causes (Reference the Cardiac Arrest Protocol, Pg 37).

9) Contact Medical Control for further orders.

If complexes are restored at any time during therapy, follow the appropriate protocol



Bradycardia - Stable

<60 BPM

No signs or symptoms of being hemodynamically compromised

1) Perform initial assessment.

2) Perform detailed exam and be prepared to apply pacer pads, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

4) Monitor and record an EKG strip. Obtain 12 lead EKG.

5) Initiate IV 0.9% NaCl KVO.

6) Monitor patient. Proceed to unstable protocol if patient begins to exhibit signs or symptoms of being hemodynamically compromised.

Hemodynamically unstable patients include Absolute (<60 BPM) or Relative Bradycardia (< 100 BPM) accompanied with Hypotension. Note: HR and BP should be evaluated together.

AV Blocks

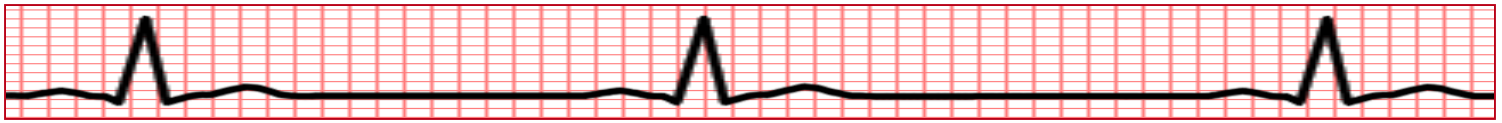
First Degree Block: Constant PRI >.20 Seconds, QRS < .10 Seconds

Second Degree Type I- Wenckebach: PRI becomes progressively longer; **"Going-Going-Gone"**

***Second Degree Type II- Mobitz II:** PRI is constant, some P waves are not followed by a QRS

***Third Degree Block:** P waves show no relationship to the QRS, no relationship between P and R waves

* High degree AV Blocks should be closely monitored for instability



Bradycardia - Unstable

1) Perform initial assessment.

2) Perform detailed exam and apply pacer pads.

Absolute: HR < 60 BPM. **Relative:** HR <100 BPM with Hypotension

3) Secure an airway and administer supplemental oxygen as indicated.

HR and BP should be evaluated together.

4) Monitor and record an EKG strip, obtain 12-Lead EKG.

5) Initiate IV 0.9% NaCl KVO rate. Administer fluids as needed.

6) If patient is in a 3rd Degree Block with wide complexes, or 2nd Degree Heart Block Type II, attempt cardiac pacing. If successful, consider sedation (#10) and provide rapid transport.

7) Administer **Atropine 0.5mg IVP or 1mg ETT.**

8) If no response after 3 minutes, administer **Atropine 0.5mg IVP or 1mg ETT.**

9) If no response, activate external pacemaker.

10) If the situation, time, consciousness, and BP permits, administer **Versed 2.5mg IV/IN/IM/IO** (an additional **2.5 mg may be administered in 10-minutes if needed**); if hypotensive, consider **Ketamine 1mg/kg IV/IO/IM**. Do not delay pacing for sedation if the patient is severely unstable.

11) If Pacing is unsuccessful, turn Pacer off, and admin **Atropine 1mg IVP.** Can repeat once in 3 min to a total IV dose not to exceed 3mgs.

12) If no response to the aforementioned treatment, administer one of the following:

Dopamine 5mcg/kg/minute IV and titrate to a maximum of **20mcg/kg/minute** or until systolic BP is > 90mmHg.

Epinephrine 2mcg/min and then titrate to a maximum of **10mcg/min** or until systolic BP is > 90mmHg.

Chronotropic drug infusions are recommended as an alternative to pacing symptomatic and unstable bradycardia

Atropine administration should not delay implementation of external pacing for patients with poor perfusion.

Contact Medical Control for further orders

Cardiac Alert – STEMI ALERT

Cardiac Alert – STEMI ALERT

All patients with acute ST Elevation Myocardial Infarction (STEMI) shall be transported to the closest facility capable of percutaneous coronary intervention (PCI), within 10 minutes. Transport immediately upon recognizing a STEMI. DO NOT DELAY PATIENT CARE ON SCENE ATTEMPING A PROCEDURE THAT CAN BE ACCOMPLISHED EN ROUTE UNLESS THAT PROCEDURE AT THAT MOMENT IS A LIFE SAVING PROCEDURE.

All cardiac patients should receive 2 IV's: a large bore IV of 0.9% NaCl, and a secondary saline lock. For all STEMI Alert patients without s/s of pulmonary edema, administer a 300mL fluid bolus; if hypotensive, administer up to 2 additional boluses. If no improvement, consider Dopamine or Epinephrine infusion (reference Hypotension Protocol, pg 43)

Expedite transport while not compromising patient care. Contact dispatch immediately and advise that you have a "STEMI Alert". When en route advise the receiving facility which leads are elevated, any pertinent cardiac history (i.e., CABG, previous caths, etc.), and an ETA.

Obtain a 12-Lead EKG on all patients who meet the following criteria: (Paramedic discretion on patient's < 30 yr old)

1) Chest Pain
2) Dysrhythmia (HR > 150 or < 50) (Frequent PVC's or other abnormalities)
3) Epigastric pain (unless associated with G.I. Bleed)
4) Thoracic back pain without trauma
5) Diaphoresis (unless explained by fever)
6) Shortness of breath
7) CHF/PE
8) Abnormal appearing Leads, I, II, and III EKG rhythm strips
9) Syncope/near syncope
10) Post ROSC (for any age)

Reference The Chest Pain Protocol (Pg 38) for treatment procedures.

Reference Appendix (X) Pg 155-156 for 12-Lead Interpretation.

Nitro patches and/or paste should be carefully removed from patients, especially if patient is hypotensive.

Follow current AHA Guidelines

Cardiac Arrest

Note: **If down-time is known or estimated to be five (5) minutes or longer and NO CPR was being performed upon arrival, initiate CPR and perform for two (2) minutes prior to the first defibrillation.**

CPR should be performed per the current AHA Guidelines with an emphasis on chest compressions (30 compressions/ 2 breaths) at 100-120 compressions per minute

1) Perform initial assessment.

2) Perform a detailed exam, when appropriate.

3) Obtain an EKG, confirm rhythm, and record an EKG strip.

4) Reference the appropriate protocol.

5) Provide BLS/ALS support according to current AHA standards, until **Effective** circulation and respirations have been restored, the patient has been turned over to the receiving hospital, or resuscitation efforts have been terminated (Reference Appendix L, Pg 139).

6) Maintain adequately performed CPR, with as little interruption as possible.

7) Secure an airway and provide supplemental oxygen as indicated. During resuscitation, maintain an EtCO2 >10mmHg at all times.

8) Initiate an IV or IO 0.9% NaCl KVO rate. Administer fluids as indicated.

9) If unable to obtain IV or IO access, the appropriate medications can be administered via ETT.

10) Consider and rule out the following, in all arrests that do not respond to standard ACLS procedures:

Acidosis: Consider **Sodium Bicarbonate 1mEq/Kg.**

Hypovolemia: Consider **Fluid Bolus at 300mL 0.9% NaCl.** Repeat as needed.

Hypothermia: Consider warming the patient.

Hypoglycemia: Check blood glucose and treat as appropriate.

Drug Overdose: Consider antidote.

Tension Pneumothorax: Consider Pleural Decompression (Reference Appendix U, Pg 149).

CO Poison/ Smoke Inhalation: Consider use of the Cyanokit (Reference Pg 64)

Consider termination of efforts for those patients who do not respond to standard ACLS Procedures. Reference Appendix (L) Page 139

After ROSC, maintain SaO2 between 94-99% and transport to a PCI capable hospital

Chest Pain Protocol

1) Perform initial assessment.

2) Monitor and record a 12-Lead EKG as soon as possible; for patients ≥30 years old with non-traumatic CP, the target timeframe is within 5 minutes

3) Perform detailed exam, when appropriate.

4) Provide oxygen if pt dyspneic, is hypoxemic, has obvious signs of heart failure, has an oxygen saturation <94% or the oxygen saturation is unknown. Titrate oxygen therapy to maintain an oxyhemoglobin saturation of ≥94%.

5) Keep the patient calm and limit exertion.

6) Administer **chewable baby aspirin 324mg,** if patient is not allergic or if pt hasn't taken any aspirin PTA.

7) Initiate IV of 0.9% NaCl at kvo or appropriate rate. If time allows initiate a second capped IV.

8) Administer **Nitroglycerin 0.4mg SL**. If unable to obtain IV access and b/p is greater than 90 systolic, NTG may be admin SL

NOTE: Repeat SL Nitro every 3-5 minutes until a max dose of 3 metered doses or pain is 0/10.

Systolic Blood Pressure must be greater than 90. Nitro is contraindicated in patients who have taken any of the Erectile Dysfunction (ED) medications in the previous 72 hours, including: Viagra, Levitra, and Cialis.

9) Manage pain with **Fentanyl** (unless contraindicated)

> **1-2 mcg/kg, slow IV/IO/IM push or rapid IN push,** Dosing may be repeated every **5 minutes** and titrated to desired effect or until an "endpoint is met", **up to a maximum cumulative dose of 3 mcg/kg** prior to Medical Control contact.

10) Contact receiving hospital for further orders.

Alternate pain medications:

Ketamine 0.5mg/kg IV/IO/IM. Onset 2-3 minutes with approx 20 min duration. May repeat until desired effect is achieved.

Toradol 30mg IV/IM x1. *Contraindicated with GI bleeding, pregnancy, ASA or NSAID allergy, head injuries, patients on anticoagulants, or under 18 years old.*

Indications for CPAP

Indications for CPAP are as follows:

1) Awake, spontaneously breathing patient. (mandatory for all conditions listed below)

2) Respiratory distress not responsive to basic protocol treatments.

3) Flail chest.

4) CHF/Pulmonary edema.

5) COPD/ Asthma (you may add a nebulizer treatment inline with CPAP in this instance).

6) Pneumonia.

7) Near drowning

Contraindications are as follows:

1) Facial deformity/trauma.

2) Aspiration risk.

3) Protracted vomiting.

4) Inability to cooperate.

5) Loss of Consciousness.

6) Pneumothorax.

7) Cardiogenic Shock.

8) Dive accidents / decompression sickness where the possibility of barotrauma exists

Monitor for Hypotension induced by CPAP usage

Diabetic Emergencies- Hypoglycemia

1) Perform initial assessment.

2) Check for signs of head trauma, and perform detailed exam when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

4) Monitor and record an EKG strip.

5) Initiate an IV 0.9% NaCl KVO rate. Ensure IV patency prior to administration of IV Dextrose.

Note: If an altered LOC is related to seizure activity, reference the Seizure Protocol (Pg 49).

6) Check blood glucose level via Glucometer, and document on the Patient Care Report.

7) If patient blood glucose **<60mg/dl,** administer **D10 100mL IV/IO**.

Oral glucose may be given if the patient is conscious and able to swallow.

8) Check blood glucose after administration of D10, and document appropriately.

9) If patient remains less than 60mg/dl after 2 minutes, administer another **100 mL of D10**

10) If IV access is unobtainable, administer **Glucagon 1mg IM.**

11) If no response, and there is a high index of suspicion for acute opiate or narcotic pain killer overdose, refer to the Overdose Protocol (Pg 44)

12) Contact Medical Control for further orders.

Note: If patient is believed to be an alcohol abuser and requires D10, administer Thiamine 100mg IV/IO/IM prior to administering D10.

Diabetic Emergencies- Hyperglycemia

1) Perform initial assessment.

2) Perform detailed exam when appropriate. Assess for Kussmaul's Respirations, warm and dry skin, dry mucus membranes, abdominal pain, fruity/ acetone odor on breath- if present, suspect DKA

3) Secure an airway and administer supplemental oxygen as indicated.

4) Monitor and record an EKG strip. Obtain a 12 lead EKG, if time permits.

5) Check blood glucose level via Glucometer, and document on the Patient Care Report.

6) Initiate an IV 0.9% NaCl KVO rate.

Note: If an altered LOC is present and related to seizure activity, reference the Seizure Protocol (Pg 49). If IV access cannot be established within 2 attempts, provide immediate transport and continue care en route to hospital.

7) If blood glucose **≥300mg/dl**, administer **500mL NaCl x2** if no pulmonary edema noted. Repeat as needed.

8) Check blood glucose after administration of fluids, and document appropriately.

9) Provide transport to the Hospital ER for long-term care.

10) Contact Medical Control for further orders.

Fluid resuscitation is a critical part of treating DKA. IV solutions replace extravascular and intravascular fluids, as well as electrolyte losses.

Hypertension

Criteria for treatment: Blood pressures that exceed 200 Systolic or 120 Diastolic without associated impairment of cardiopulmonary function. If the patient has Chest Pain, reference the Cardiac Chest Pain Protocol (Pg 38) If patient has S/S of Stroke, reference the Stroke Protocol (Pg 50)

1) Perform initial assessment.

2) Perform detailed exam.

3) Secure an airway and administer supplemental oxygen as indicated.

4) Monitor and record an EKG strip.

5) Initiate IV 0.9% NaCl KVO rate.

If the patient is pregnant, reference the Pre-Eclampsia Protocol (Pg 96)

6) Contact Medical Control for further orders.

Hypotension

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

4) If patient has dyspnea or rales, **do not** place in Trendelenburg position.

5) Monitor and record an EKG strip. Obtain a 12 lead EKG.

6) Initiate an IV 0.9% NaCl at appropriate rate.

Non-Cardiac Hypotension

Example: Prolonged vomiting or diarrhea, poor skin turgor, GI or vaginal bleeding, increased pulse rate, dry mucous membranes, sepsis. Basically S/S of dehydration.

I) Administer a **500mL bolus of 0.9% NaCl**.

Repeat as needed, if systolic BP is < 90mmHg and lung sounds are clear.

II) If no sign of improvement after 3 boluses, administer **Dopamine 5-20mcg/kg/minute** and titrate to achieve a BP of at least 90 systolic.

Cardiac related Hypotension

Example: Inferior Wall MI with Right Ventricular Infarct, Cardiogenic Shock

I) In the absence of pulmonary edema, administer **300mL bolus of 0.9% NaCl**, repeat x1 as needed .

II) If no improvement after 2 boluses or the patient has pulmonary edema, administer **Dopamine 5-20mcg/kg/minute or Epinephrine infusion 2-10mcg/minute (if bradycardic and hypotensive, or PDI induced)** and titrate to achieve a systolic BP of at least 90mmHg. Reference pages 122 &123.

Nitro patches and/or paste should be carefully removed. Contact receiving hospital for further orders.

If hypotension is secondary to Sepsis, consider referencing Sepsis Alert Protocol (Pg 48a).

Overdose

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Secure an Airway and administer supplemental oxygen as indicated.

4) The Conscious Patient: Monitor patient's condition and contact the hospital and or Poison Control for further orders.

The Unconscious Patient: Consider restraint of intubated/non intubated patients prior to administering any reversing agents, such as Narcan.

5) Evaluate the patient's blood glucose level and reference the Altered Mental Status Protocol, Pg 32.

6) Initiate IV 0.9% NaCl KVO rate.

7) Monitor and record an EKG strip.

8) Administer **Narcan in 0.5mg IV/IO/IM (or 1mg IN)** increments until improvement of respiratory status. May repeat in 2-3 minutes for IV/IO/IN use and repeated in10 minutes for IM use, not to exceed 10mg cumulative

9) The primary goal of treatment for any narcotic overdose is airway control. Once the airway is controlled, Narcan takes on a secondary role.

10) Try to identify the ingested substance and time of ingestion. The pill bottles should be brought to the hospital.

The EMT may administer intranasal (IN) Narcan.

Narcotics such as Oxycontin and Morphine will cause (miosis) constricted pupils.

Cocaine may cause dilated pupils.

Overdose- Cocaine

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer supplemental airway as indicated.

4) Observe for S/S of cocaine ingestion: **agitation, PVC's, dilated pupils, tachycardia, hypertension, and hyperthermia.**

5) Monitor and record an EKG strip.

6) Initiate IV 0.9% NaCl KVO rate.

7) If seizures are present or if the patient is combative, administer **Versed 5.0mg IV/IN/IM/IO.**

8) If seizure activity continues, repeat **Versed 5.0mg IV/IN/IM/IO.**

9) If chest pain is present, administer **Versed 2.5mg IV/IN/IM/IO** once and follow the Chest Pain Protocol, Pg 38.

10) If the patient has a significant tachycardia (Rates > 150) secondary to the cocaine overdose, the patient may respond to **Sodium Bicarbonate 1mEq/kg IV/IO (adult and pedi);** may repeat in 15 minutes.

11) Contact Medical Control for further orders

Versed (Midazolam) is the drug of choice for Seizures. It may be given IM to the actively seizing patient.

Pain Management (Adult)

Indications and Contraindications are the same for the adult patient as in the Pediatric Pain Management Protocol.

Administering Fentanyl requires constant patient evaluation and monitoring (i.e., EKG, BP, SaO2, ETCo2...).

Discontinue medication administration if any of the following **"endpoints"** develop:

A) Hypotension

B) Slurred speech

C) Respiratory depression

D) Pain relief

E) S/S of allergic reaction

Reversal Agent: (Ref: Overdose Protocol, P-44)
Narcan in 0.5mg IVP/IM (or 1mg IN) increments until improvement of respiratory status. May repeat in 2-3 minutes for IV/IN use and repeated in10 minutes for IM use, not to exceed 10mg cumulative dose.

1) For **ADULT** pain management administer:

Manage pain with **Fentanyl** (unless contraindicated) **1-2 mcg/kg, slow IV/IO/IM push or rapid IN push,** Dosing may be repeated every **5 minutes** and titrated to desired effect or until an "endpoint is met", **up to a maximum cumulative dose of 3 mcg/kg** prior to Medical Control contact.

The paramedic may contact Medical Control (Medical Director(s), receiving ER Physician) for additional doses of Fentanyl if necessary during extended transports.

Alternate pain medications:

Ketamine 0.5mg/kg IV/IO/IM. Onset 2-3 minutes with approx 20 min duration. May repeat until desired effect is achieved.

Toradol 30mg IV/IM x1. Contraindicated with GI bleeding, pregnancy, ASA or NSAID allergy, head injuries, patients on anticoagulants, or under 18 years old.

Pulseless Electrical Activity

1) Perform initial assessment.

2) PERFORM CPR

3) Obtain the EKG rhythm, check leads and record an EKG strip.

4) Secure an airway and administer supplemental oxygen as indicated.

5) Initiate IV/ IO 0.9% NaCl at appropriate rate.

6) Administer **Epinephrine 1:10,000 1mg IV/ IO** or **2mg ETT**. (IV preferred). **Repeat Epinephrine every 3-5 minutes** as long as it is indicated.

7) Consider and treat possible causes:

Acidosis: Consider **Sodium Bicarbonate 1 mEq/kg.**

Hypovolemia: Consider **fluid bolus 500mL** (**Hypovolemia is one of the most common causes of PEA**). Repeat as needed.

Hypothermia: Consider warming the patient.

Hypoglycemia: Check blood glucose and treat as indicated; **D10**

AMI: Consider **Dopamine 5-20mcg/kg/min IV infusion**.

Drug Overdose: Consider antidote.

Tension Pneumothorax: Pleural Decompression.

8) If there is an indication of high vagal tone or organophosphate poisoning consider and administer **Atropine 1mg IV/ IO or 2mg ETT.** Repeat every 3-5 minutes to a total of **3mg (6mg maximum via ETT).**

9) Contact Medical Control for further orders.

Respiratory Distress

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated. Apply pulse oximeter and document pre and post SaO2 readings.

4) Place and transport the conscious patient in the upright seated position with high-flow oxygen.

If patient is Hypotensive keep patient supine. If the patient is in cardiogenic shock **(CHF with Hypotension)** See appropriate protocol.

5) Monitor and record an EKG strip. Obtain a 12 lead EKG.

Severe Bronchospasm: Including, **Asthma, Asthmatic Bronchitis,** and **COPD.**

1) Secure an airway and administer supplemental oxygen as indicated. Apply pulse oximeter and document pre and post SaO2 readings.

2) Initiate an IV 0.9% NaCl KVO rate.

3) Administer **nebulized Albuterol treatment 2.5mg/3mL NS.** Treatment should not cause a delay in transport

4) If no response, the nebulized Albuterol treatment may be repeated 1 time. Consider CPAP.

5) If nebulized Albuterol treatments are unsuccessful, and patient is < 40 y/o, w/o cardiac disease, and severe respiratory distress continues, consider **Epinephrine 1:1,000 0.3mg IM.**

6) Contact Medical Control for further orders.

Sepsis Alert

A Sepsis Alert will be instituted for patients meeting the following 3 criteria:

1) Suspected infection
2) Two or more of the following
   - I. Temp >100.4 or < 96.8
   - II. Resp Rate > 20/min
   - III. HR > 90/min
3) ETCO2 ≤ 25

Life Support Measures:

1) Notify Hospital of incoming Sepsis Alert
2) Supplemental Oxygen: NRB
3) Full ALS Assessment and treatment
4) IV 0.9% NaCl
   - I. Administer 250 ml boluses until SBP>90 mmHg
   - II. Total fluid not to exceed 2000 ml
   - III. Boluses may be given in rapid succession if SBP remains <90 mmHg
     - Make sure to report amount of fluid administered to the ED
   - IV. If SBP remains <90 mmHg after 2000 ml fluids:
     - Dopamine infusion at 5-20 mcg/kg/min to maintain SBP >90 mmHg

Seizure- Adult

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

4) Monitor and record an EKG strip.

5) Consider immobilizing the C-Spine in patients with possible Trauma.

6) Evaluate the blood glucose level and treat accordingly.

7) Initiate IV 0.9% NaCl KVO rate.

8) If patient is **actively seizing** (Grand Mal/ Focal) administer **Midazolam (Versed) 5mg IV/IN/IM/IO.**

Do not wait for IV access if patient is actively seizing; Versed may be administered IM

9) If seizure activity continues after 3 minutes, repeat **Midazolam (Versed) 5mg IV/IN/IM/IO** one time.

10) May use **Valium 5mg IV/IM** if Versed ineffective

11) Prepare to provide oxygenation via Bag Valve Mask and consider Intubation.

Midazolam (Versed) is a Schedule IV Benzodiazepine (sedative/hypnotic) that acts on many levels of the CNS to produce generalized CNS depression

Stroke Patient Assessment (Stroke Alert)

1) Support the ABC's and provide supplemental oxygen to hypoxemic (e.g., oxygen saturation <94%) stroke patients or those with unknown oxygen saturations.

2) Perform Blood Pressure Monitoring

3) Perform Blood Glucose Check. Follow the Diabetic Emergencies- Hypoglycemia protocol if <60mg/dl.

4) Monitor and record an EKG strip

5) Initiate bilateral IV's 0.9% NaCl KVO rate proximal to the wrist.

6) **DO NOT** treat hypertension in the field for patients with S/S of stroke

7) Perform pre-hospital stroke scales (Cincinnati Stroke Scale [CSS] and RACE [if >3.5 hour onset]) reference Pg 50(a) and follow the Stroke Patient Decision Algorithm for transport destination.

8) Determine and document the time of symptom onset in a time of day format (e.g., 3:45 A.M.)

9) Ask the family/co-workers about medications and past medical history

10) Take a family member and/or witness to the hospital if the patient cannot speak. Obtain a contact number, if possible.

11) Treat as a load-and-go situation- **Immediately notify dispatch of the Stroke Alert.**

12) Notify the hospital ASAP

13) Transport the patient to the nearest appropriate Stroke Center* or Landing Zone

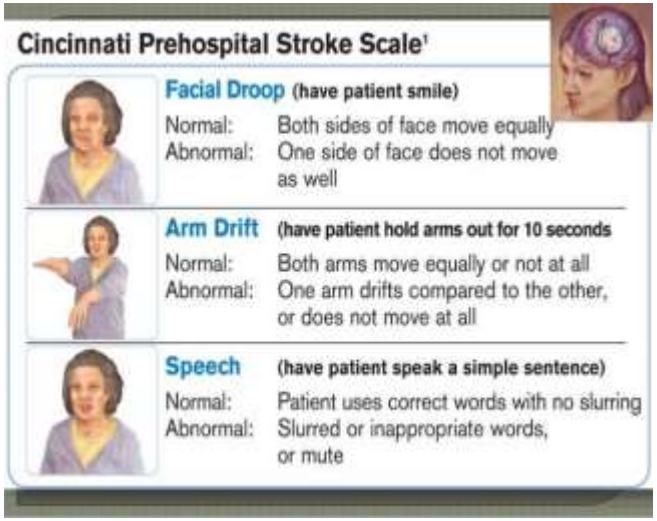
*Utilize the decision algorithm for destination determination

14) Utilize the Stroke Alert Checklist and document in the PCR. A copy shall be left at the receiving ED.

(Reference Pg 52 for the "Stroke Alert Checklist")

Pre-Hospital Stroke Scales

CSS

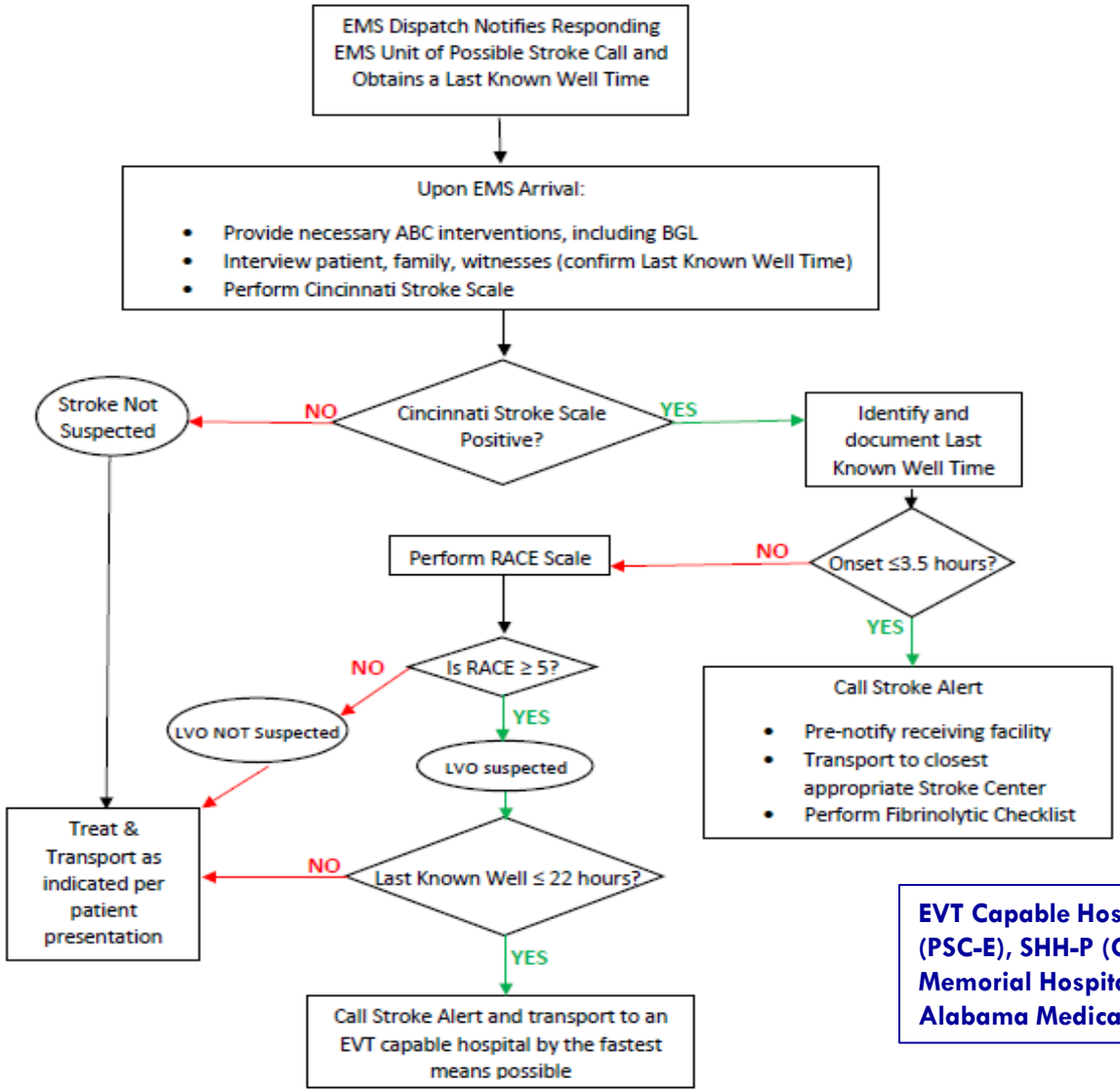


EMS R.A.C.E. Stroke Scale

ITEM	INSTRUCTION	R.A.C.E. SCORE
Facial Palsy	Ask the patient to show their teeth: "Smile"	0- Absent (symmetrical)
		1- Mild (slight asymmetry)
		2- Moderate to Severe (complete asymmetry)
Arm Motor Function	Extend the arms of the patient 90 degrees (if sitting) or 45 degrees (if supine) palms up	0- Normal to Mild (limb upheld for more than 10 seconds)
		1- Moderate (limb upheld less than 10 seconds)
		2- Severe (patient unable to raise arm against gravity)
Leg Motor Function	Extend the leg of the patient 30 degrees (in supine) one leg at a time	0- Normal to Mild (limb upheld for more than 5 seconds)
		1- Moderate (limb upheld less than 5 seconds)
		2- Severe (patient unable to raise leg against gravity)
***Head and Eye Deviation**	Observe range of motion of eyes and look for head turning to one side	0- Absent (normal eye movement to both sides, and no head deviation was observed)
		1- Present (eyes and/ or head deviation to one side was observed)
***Aphasia (if patient has RIGHT sided weakness)**	Ask the patient to follow two verbal orders: "Close your eyes" and "Make a fist"	0- Normal (performs both tasks correctly)
		1- Moderate (performs one task correctly)
		2- Severe (performs neither task)
Agnosia (if the patient has LEFT sided weakness)	Ask the patient "Who's arm is this?" when showing him or her the weak arm and "Can you move your arm?"	0- Normal (appropriate or correct answer)
		1- Moderate (either does not recognize the limb or states that they can move it but can't)
		2- Severe (does not recognize the limb and states that they can move it but can't)
***Head/ Eye Gaze Deviation or if patient is mute and does not follow commands = high likelihood of Large Vessel Occlusion**		**R.A.C.E. SCALE TOTAL: _____ (max score is 9)**

Any score above 4 is a Stroke Alert and high likelihood of an LVO

Stroke Patient Decision Algorithm



EVT Capable Hospitals: Baptist Hospital (PSC-E), SHH-P (CSC), Tallahassee Memorial Hospital (CSC), Southeast Alabama Medical Center (PSC-E)

Stroke Patient Assessment (cont.)

If any of the below listed Fibrinolytic Contraindications exist, transport directly to a CSC or PSC-E facility as a 'Stroke Alert'.

- Time of onset of stroke S/S > 3.5 hours. (including waking up with S/S after sleeping greater than 3.5 hours)
- Prior stroke or serious head injury within the previous 3-months.
- Major surgery within the previous 14-days.
- Acute intracranial hemorrhage.
- Gastrointestinal or urinary tract bleeding within the previous 21-days.
- Therapeutic dose of low molecular weight heparin (LMWH) with 24 hours of onset.
- Patients on Factor Xa Inhibitors (apixaban, Arixtra, betrixaban, Bevyxxa, edoxaban, Eliquis, fondaparinux, rivaroxaban, Savaysa, Xarelto).

Patients with a positive Cincinnati Stroke Scale (CSS) and have an onset time of ≤3.5 hours shall be transported to the closest Acute Stroke Ready Hospital (ASRH) or Primary Stroke Center (PSC) by the fastest mode available as a 'Stroke Alert'.

Stroke patients that have a suspected subarachnoid hemorrhage shall be transported to a Comprehensive Stroke Center (CSC) by the fastest mode available.

- Common signs of subarachnoid hemorrhage: sudden worst-ever headache, sudden & unexplained decrease in LOC, neck discomfort, significantly elevated BP, GCS <15, severe nausea/ vomiting.

ASRH: TCH, NOMC, Destin ER, SHH-EC
PSC: FWBMC
PSC-E: Baptist & Southeast Alabama MC
CSC: SHH-P & Tallahassee Mem. Hosp.

Stroke Alert Protocol (Checklist)

February 2018-Okaloosa/ Walton

FLORIDA EMERGENCY MEDICAL SERVICES

STROKE ALERT CHECKLIST

DATE & TIMES

Date:	Dispatch Time:	EMS Arrival Time:	EMS Departure Time:	ED Arrival Time:

BASIC DATA

Patient Name _____ Age _____ Gender ____

Witness(es) Name _____ Witness(es) Phone _____ (Cell Phone #, Home #, Work #)

Last Time Known Well/Normal Without Symptoms (onset) _____

Blood Glucose _____

Prehospital Stroke Scale (Check if abnormal)

Basic Stroke Scale

Cincinnati FAST Stroke Scale: ☐ Facial Droop ☐ Arm Drift ☐ Abnormal Speech

☐ Other Basic Stroke Scale (CPSS[A], LAPSS[A], BE-FAST[A], MEND[A], others)_____

Advanced Stroke Scale (Predictive of Large Vessel Occlusion (LVO[A])]

☐ LAMS[A] ☐ RACE[A] ☐ CPSSS[A] ☐ NIHSS[A] ☐ VAN[A] ☐ FAST-ED[A]

☐ Other Advanced Stroke Scales

(Enter Scale and Result _____ _____ _____ ____)

Comprehensive Stroke Center (CSC)	YES	NO
If ANY of the following are positive, transport EMERGENTLY to CSC / PSC-E / TSC / Stroke Interventional Hospital:		
1. Onset >3.5 and < 22 hours (Okaloosa) / Onset >3 hours and <21 hours (Walton)		
2. High Suspicion of Major Stroke/LVO on Advanced Stroke Scale		
3. High suspicion of SAH/ICH – see Stroke Alert Criteria below		
4. IV Lytic contraindications		
5. Wake Up Stroke (option to transport to facility capable of required assessment, such as CT Perfusion or MRI/MRA)		

Stroke Alert Criteria	YES	NO
IF ANSWER IS YES TO ALL OF THE FOLLOWING STROKE ALERT CRITERIA, CALL STROKE ALERT & TRANSPORT EMERGENTLY to MOST APPROPRIATE, CLOSEST AVAILABLE STROKE CENTER (if within a reasonable distance), (Acute Stroke Ready Hospital (ASRH), PSC, or CSC / PSC-E / TSC / Stroke Interventional Hospital)		
1. Onset <3.5 hours (ASRH[P], PSC[P], PSC-E / TSC[P], or CSC[P]); <22 hours (CSC, PSC-E / TSC)?		
2. Any abnormal focal neurological finding on examination?		
3. Absence of head trauma causing deficits?		
4. Absence of stroke symptom response to hypoglycemic treatment?		
Additional Stroke Alert Criteria to Consider for Transport to CSC:		IF ABNORMAL
Suspicion of Subarachnoid Hemorrhage? Sudden worst-ever headache; Sudden & unexplained decrease LOC; Onset after activity, with severe nausea/vomiting, neck discomfort especially with movement, GCS<15, significantly elevated BP		

EN ROUTE, PERFORM MORE COMPLETE NEURO ASSESSMENT IF TIME ALLOWS

DESTINATION STROKE CENTER _____ STROKE CENTER _____

[A] ASRH = Acute Stroke Ready Hospital
BE-FAST = Balance Eyes Face Arm Speech
CSC = Comprehensive Stroke Center
CPSSS = Cincinnati Pre-Hospital Stroke Severity Scale
FAST-ED = Field Assessment Stroke Triage for Emergency Destination
GCS = Glasgow Coma Scale
LAMS = Los Angeles Motor Scale
LAPSS = Los Angeles Pre-Hospital Stroke Score
LVO = Large Vessel Occlusion
MEND = Miami Emergency Neurologic Deficit
NIHSS = Natl. Inst. Of Health Stroke Scale
PSC = Primary Stroke Center
PSC-E = Certified PSC – Endovascular Capable
RACE = Rapid Arterial Occlusion Evaluation
TSC = Thrombectomy Capable Stroke Center
VAN = Vision, Aphasia, Neglect

Stroke Alert Checklist

The Stroke Alert Checklist has been designed to help the paramedic quickly determine the status of the patient presenting with stroke-like S/S. The Stroke Alert Patient should be treated as a load-and-go situation. The Stroke Alert Checklist shall be utilized on every patient with stroke-like S/S. A copy of the checklist shall be left with the receiving Emergency Department.

The original shall be attached to the patients paperwork.

Supraventricular Tachycardia- *Stable*

Rates > 150

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

4) Monitor and record an EKG strip. Obtain a 12-lead EKG.

5) Initiate IV 0.9% NaCl KVO rate. Administer fluids as needed.

6) Rule out and manage non-cardiac causes such as fever, hypovolemia, anxiety, physical exertion, and electrolyte imbalance.

7) Attempt Vagal Maneuver: **Avoid Carotid Sinus Massage.**

8) If EKG rhythm is regular and monomorphic and is unknown SVT or Atrial Tachycardia, administer **Adenosine 6mg Rapid IVP and flush IV line with 20mL NaCl**.

9) If no change, repeat **Adenosine 12mg rapid IVP**

10) If EKG rhythm is Atrial Fibrillation/ A-Flutter, or unknown SVT that did not respond to Adenosine, administer **Cardizem 0.25mg/kg IVP over 2-minutes**. After15 minutes, may repeat **0.35mg/kg IVP over 2 minutes** for rate control if first dose is ineffective.

11) If no response, contact Medical Control for further orders.

Note: If hypotension is secondary to the administration of Cardizem – administer Calcium Chloride 500mg and 0.9% NaCl 500mL IVP (provided lungs are clear).

Patients with an atrial fibrillation duration of >48 hours are at an increased risk for cardioembolic events. Electric or pharmacologic cardioversion should not be attempted in these patients unless the patient is unstable

In preparation for administering Adenosine, consider utilizing the antecubical vein (AC) with at least an 18-gauge catheter.

Supraventricular Tachycardia - Unstable

Rates > 150

Unstable: Decreased LOC, Hypotension, Pulmonary edema, and/or Chest Pain

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

4) Monitor and record an EKG strip. Obtain a 12 lead EKG when time permits.

5) Initiate IV 0.9% NaCl KVO rate. Administer fluids as needed.

6) Rule out and manage non-cardiac causes such as fever, hypovolemia, electrolyte imbalance, and ***drug abuse.***

7) If the situation and time permits, administer **Adenosine 6mg rapid IVP (if rhythm is regular and monomorphic)** prior to performing synchronized cardioversion.

8) If the situation, time, consciousness, and BP permits administer **Versed 2.5mg IV/IO;** if hypotensive, consider Ketamine 1mg/kg IV/IO/IM. Do not delay synchronized cardioversion for sedation if the patient is severely unstable.

9) Perform **synchronized cardioversion** ASAP. Repeat as needed until rhythm is corrected. Follow the manufacturers recommended joules settings.

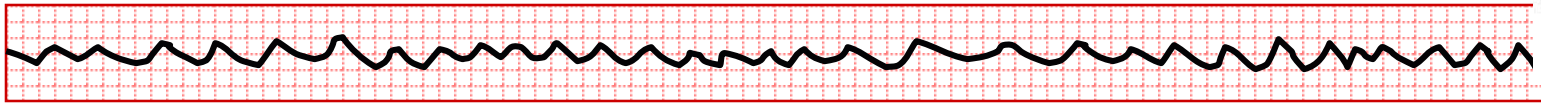
10) Contact Medical Control for further orders.

Note: PSVT and Atrial Flutter often respond to lower energy levels- start with 50 Joules

Physio-Control: 100, 200, 300, 360 joules

Philips: 100, 150, 200 joules

Ventricular Fibrillation/Pulseless Ventricular Tachycardia



1) Designate a *Team Leader*
2) Switch airway & compression personnel frequently
3) Person performing compressions should 'defib' pt.
4) Plug inline CO2 filter into monitor prior to applying to ETT.
5) If good CPR was performed prior to EMS arrival, go straight to 'defib'

1) Perform an initial assessment.

2) IF UNWITNESSED (by EMS) PERFORM CPR FOR 2-MINUTES PRIOR TO DEFIBRILLATION.

3) IF WITNESSED (by EMS) DEFIBRILLATE AS SOON AS DEFIBRILATOR AVAILABLE.

4) Defibrillate (P-C 200j or Philips 150j)

5) Immediately resume CPR for (an additional) 2-minutes after each defibrillation

6) Secure an airway and administer supplemental oxygen as indicated- do not interrupt CPR for intubation.

7) Initiate IV(s)/ IO 0.9% NaCl KVO rate. Administer fluids as needed.

8) Administer **Epinephrine 1:10,000 1mg IV/ IO** or **2mg ETT**. (IV preferred). Repeat Epinephrine every 3-5 minutes as indicated.

9) If V-Fib continues, **defibrillate (P-C 300j or Philips 150j)**

10) Administer **Amiodarone 300mg IV/IO push**.

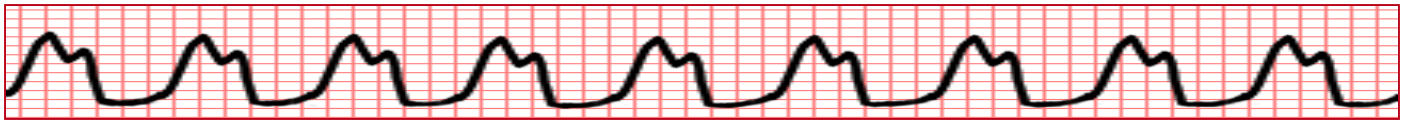
11) If V-Fib continues, **defibrillate (P-C 360j or Philips 150j)** and Administer **150 mg Amiodarone IV/IO push.**

Repeat sequence of CPR 2-minutes – vasopressor, defibrillate—CPR 2 min—antidysrhythmic, defibrillate—CPR 2 min—vasopressor, defib - etc…

Consider and Treat possible causes ***(see Pg 37)*** ***including Magnesium deficiency.***

If at any time the rhythm changes, follow the appropriate Protocol. If patient is in (Torsades-de-Pointes) administer 1-2 Grams of Magnesium Sulfate IV/IO push.

Once complexes are restored, follow the appropriate protocol.



Ventricular Tachycardia- Stable

Ventricular Rates of >150

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

4) Obtain and record a 12-Lead EKG strip.

5) Place Quik-Combo pads on patient and be prepared. If patient becomes unstable, proceed to the unstable V-Tach protocol. If uncertain if a rhythm is VT or SVT, assume all wide complex tachycardia are V-Tach. If still uncertain, contact the receiving facility. If known to be SVT with aberrancy and rhythm is regular and monomorphic, administer **Adenosine 6mg rapid IVP**, may repeat at **12mg rapid IVP.**

6) Initiate IV 0.9% NaCl KVO rate. Administer fluids as needed.

7) If not contraindicated, administer **Amiodarone 150mg IV over 10 minutes.** May repeat, if indicated (NTE 2.2gm's within 24 hours).

8) If Amiodarone contraindicated or unsuccessful, proceed to synchronized cardioversion as needed

9) Administer **Versed 2.5mg IV/IO** for sedation prior to cardioversion.

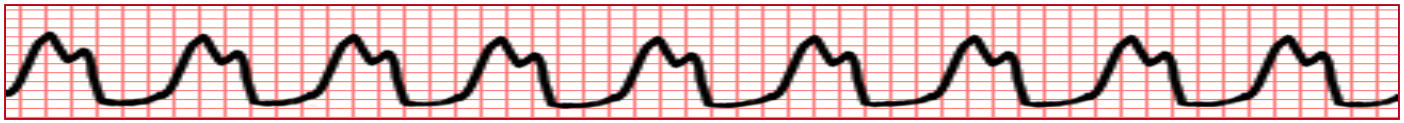
10) Perform **synchronized cardioversion** ASAP. Repeat as needed until rhythm is corrected. Follow the manufacturers recommended joules settings. (P-C: 100, 200, 300, 360j. Philips: 100, 150, 200j)

Note: If cardioversion is successful, **DO NOT** administer any additional antiarrhymics.

11) If V-Tach continues, **synchronized cardiovert at highest recommended joules**.

12) Contact receiving facility for further orders.

Amiodarone Drip: Mix 150mg into a 50mL 0.9% NaCl, given over 10 minutes.



Ventricular Tachycardia- Unstable

Unstable S/S: Decreased LOC, Hypotension, Pulmonary edema, and/ or Chest pain

Ventricular Rates of >150

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

4) Obtain and record an EKG strip. If time permits, obtain a 12-Lead EKG.

5) Place Quik-Combo pads on patient and be prepared. If uncertain if a rhythm is VT or SVT, assume all wide complex tachycardia are V-Tach. If still uncertain, contact the receiving facility.

Note: Do Not delay cardioversion for sedation or establishment of IV

6) Initiate IV 0.9% NaCl KVO rate (time permitting)

7) If the situation, time, consciousness, and BP permits, administer **Versed 2.5mg IV/IO**; if hypotensive, consider **Ketamine 1mg/kg IV/IO/IM**. Do not delay synchronized cardioversion for sedation if the patient is severely unstable.

8) Perform **synchronized cardioversion** ASAP. Repeat as needed until rhythm is corrected. Follow the manufacturers recommended joules settings. (P-C: 100, 200, 300, 360j. Philips: 100, 150, 200j)

Note: If cardioversion is successful, DO NOT administer any antiarrhymics

9) If V-tach continues or if it recurs, check for an Amiodarone allergy. If not contraindicated, administer **Amiodarone 150mg IV over 10 minutes**. May repeat, if indicated (NTE 2.2gm's within 24 hours).

10) Contact receiving facility for further orders.

Violent and/or Impaired Patient

This protocol is intended for use when a patient(s) becomes violent and/or combative and is an immediate threat to him or herself, the EMS crew and/or others. Always protect the patient's airway.

1) Have patient placed under the Baker Act via Law Enforcement when appropriate

2) Rule out causes other than psychiatric such as, CVA, hypoxia, hypoglycemia etc.

3) Law Enforcement should physically restrain patient only when necessary – **AVOID POSITIONAL ASPHYXIA**

4) Administer **Ketamine 2-4mg/kg IM (Buttocks or Thigh)**, through clothing if necessary. Allow 1-5 minutes for onset. Ketamine duration should last approx 45 minutes.

NOTE: The ER Physician must be notified of the administration prior to the crews departure from the ER.

5) Only if combativeness persists, administer **Versed 5.0mg IM/IN/IV/IO**. Pay close attention to the airway and breathing status; be prepared to assist ventilations and provide suctioning. If bronchorrhea develops, administer **Atropine 0.5mg IV. Be prepared to manage airway and/or respiratory depression.**

Note: Ketamine may cause laryngospasms. This very rare adverse reaction presents with stridor and respiratory distress. After every administration of Ketamine:

a) Prepare to provide respiratory support including BVM ventilations and suctioning which are generally sufficient; ET Intubation should be of last resort

b) Institute cardiac monitoring, pulse oximetry and continuous waveform capnography

c) Establish IV or IO access

d) Check blood glucose

e) Establish and maintain physical restraints once safe to approach the patient

f) Always have suction available; If nausea and vomiting are present, administer **Ondansetron 4mg IV/ IM** as needed.

g) Monitor for hypersalivation (bronchorrhea)- Suction is usually sufficient. If profound and causing airway difficulty, administer **Atropine 0.5mg IV.**

IV. Toxic Chemical/Gas Exposure/WMD

Carbon Monoxide Poisoning/ Hydrofluoric Acid

Carbon Monoxide Poisoning: Reference the CYANOKIT Protocol Pg 64

1) Secure and Airway and administer High-flow oxygen via NRM. If patient was exposed to high heat conditions, consider intubation early.

2) Monitor for non-cardiogenic pulmonary edema.

3) Evaluate the blood glucose level.

4) If respiratory depression, administer **Narcan 0.5mg IV/IO/IM push (or 1mg IN)** if suicide attempt is suspected. May repeat one time.

5) Consider transporting the patient to a hyperbaric facility if possible.

Cherry-red skin is characteristic of someone who has sustained Carbon Monoxide Poisoning

Hydrofluoric Acid: 2016 ERG Guide# 157, ID# 1790

1) Absolute rescuer protection is paramount (Full respiratory protection, SCBA).

2) Skin Burns: flush area with large amounts of sterile water.

3) Eye Burns: flush for 30-minutes with 0.9% NaCl.

4) Inhalation injury: 100% oxygen.

Note: After patient decontamination, an EKG should be performed to determine if the patient has a prolonged QT. If confirmed, administer **Calcium Chloride 1gram IV/IO push. HF exposure will lead to a drop of ionized calcium and elevate the potassium level in the blood thus causing a prolonged QT, arrhythmia and ultimately death.**

Hydrofluoric Acid is utilized in the purification of both aluminum and uranium. It is also used to etch glass and to remove surface oxides from silicon in the semiconductor industry. It can also be used to remove impurities from stainless steel in a process known as "Pickling"

Carbon Monoxide Poisoning

COhb Level %	Signs & Symptoms	Treatment
0-4	Minor Headache	Observe/02
5-9	Headache	100% 02
10-19	Dyspnea / headache	100% 02 / ER Evaluation
20-29	Headache, nausea, dizziness	100% 02, ALS TP Consider HB
30-39	Severe headache, vomiting, Altered LOC	100% 02, ALS TP, HB
40-49	Confusion, syncope, tachycardia	ABCs, 100% 02, Air Transport HB Chamber
50-59	Seizures, shock, apnea, coma	ABCs, 100% 02 Air Transport HB Chamber
60 >	DEATH	

Note: *Keep in mind the S/S listed above are a result of cellular hypoxia brought on by the blockage of O2 absorption by cyanide. This is evidenced by the S/S of hypoxia, no matter what the pulse oximetry indicates.*

Chlorine/Chloramine

Chlorine: 2016 ERG Guide# 124, ID# 1017

1) Rescuer protection is paramount (Full respiratory protection, SCBA).

2) Patient decontamination will be necessary.

3) Secure and control airway as indicated. Administer high-flow 100% oxygen via NRBM. If airway is compromised by secretions, consider intubation early.

4) Administer **5mL's 0.9% NaCl via nebulizer**

Chloramine is a white crystalline powder utilized instead of Chlorine to protect against microbes to reduce the level of disinfection by-products, in compliance with EPA rules.

Hazardous Materials Classification System

Classifications:

Class 1: Explosives

Class 2: Gases

Class 3: Flammable liquids and combustible liquids

Class 4: Flammable solids

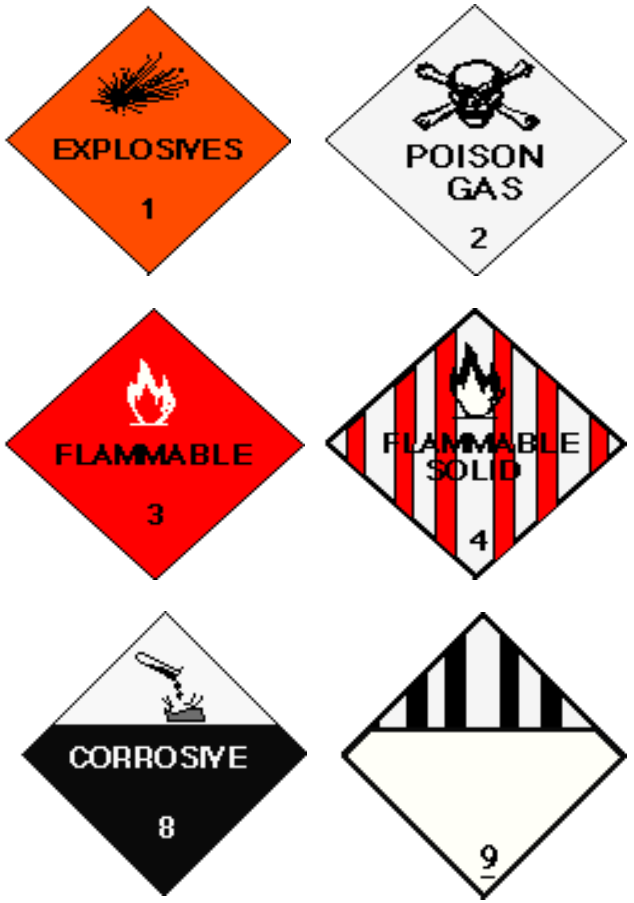
Class 5: Oxidizers and Organic peroxides

Class 6: Toxic materials and Infectious substances

Class 7: Radioactive

Class 8: Corrosives

Class 9: Miscellaneous dangerous goods



Organophosphate Poisoning

The classic S/S of organophosphate poisoning are:

S.L.U.D.G.E. Salivation, **L**acrimation, **U**rination, **D**efecation, **G**astrointestinal **I**rritation, **E**mesis(N/V)

Approach any unknown hazardous incident/exposure with extreme caution. Utilize full respiratory protection (SCBA) when necessary to facilitate treatment of the contaminated patient.

Follow the General Patient Assessment Protocol

The DuoDote Auto injector is a single 2.1mg Atropine and 600mg Pralidoxime Chloride packaged injector designed for IM administration.

This method is useful when IV access is unobtainable and rapid intervention is paramount. Multiple injectors are required for higher doses in severe reactions.

In severe cases, **Atropine 2mg IM** should be administered every 5-minutes until secretions are dry and/or nearly dry and ventilation can be accomplished with ease. The need for ventilation may continue for at least 3-hours.

SMOKE INHALATION – ADULT (CYANOKIT® Protocol)

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

MILD EXPOSURE - S/S = Positive soot in nose, mouth and oropharynx

1) Administer 100% 02 via NRM

2) Monitor Pulse Oximetry and CO (if available)

3) Monitor and record an EKG strip.

4) Reassess frequently

MODERATE EXPOSURE - S/S = Positive soot in nose, mouth and oropharynx. Confusion, disorientation, AMS, and hypotension.

1) Administer 100% 02 via NRM and/or BVM if required

2) Intubate if indicated

3) Initiate IV/IO of NS at TKO

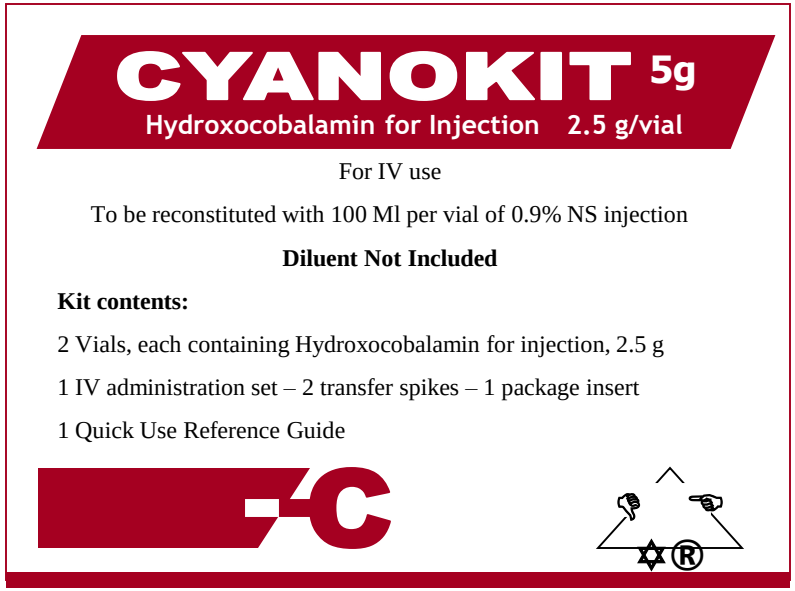
4) Monitor and record an EKG strip, pulse oximeter and CO (if available)

5) Consider fluid if hypotensive

6) Cyanokit® 5 grams IV/IO drip > 15-minutes (on scene or enroute)

7) Treat other presenting S/S and transport to ***Appropriate facility for injury.***

Continued . . .



Smoke Inhalation Continued . . .

SEVERE EXPOSURE – Positive soot in the nose, mouth and oropharynx. Patient is comatose, hypotension and/or cardiac/resp. arrest

1) Administer 100% 02 via NRM, BVM and/or intubation

2) Initiate IV/IO of NS at TKO

3) Administer **CYANOKIT at 5 grams IV/IOPB** and monitor for clinical response

4) If hypotensive, administer fluid challenge

5) Monitor and record an EKG strip, pulse oximeter and CO (if CO monitor is available).

6) Treat other presenting S/S and transport to **Appropriate facility**

Note: Do not administer the Cyanokit for patients in cardiac arrest that have burns of greater than 50%

A CO Monitor Kit should be utilized if available.
Reference CO Poisoning Levels (Reference Pg 60)

WMD General Information (Awareness Level)

CHEMICAL AGENTS:

Nerve Agents - (Sarin – Tabun – Soman – Cyclohexyl – VX – Novichok agents and other organophosphorus compounds including carbamates and pesticides) **Treatment:** ***Atropine at 2mg every 5-minutes*** (average dose 6-15mg). ***Pralidoxime Chloride (2-PAMCl)*** at 600-1800 IM and/or 1.0grams IV over 20-30 minutes. Diazepam or Lorazepam to prevent seizures.

Cyanides – hydrogen cyanide(HCN) and cyanogen chloride. Familiar "almond" odor. **Treatment:** 100% 02 via NRM. Reference CYANOKIT Protocol - page 64

In this age of international and domestic terrorism, rescuer safety must be paramount. Full respiratory protection(SCBA) shall be utilized when approaching the scene of an unknown hazard. Acts of terrorism shall be treated like what they are – a crime scene.

Additional resources:

Poison Control (800) 222-1222

Department Of Justice hotline (800) 424-8802

CDC Emergency Response (770) 488-7100

V. General Trauma

V. General Trauma Protocol

Definitions and Criteria:

Trauma Alert Patient: Any person who has incurred a single or multi-system physical injury or wound due to external force, as specified in Chapter 401 Florida Statutes, 64-J Florida Administrative Code, and in the OCEMS Trauma Transport Policy.

Trauma Center: A facility that is in compliance with department pamphlet HRSP 150-9 and has been issued a certificate of verification as a state-sponsored or provisional Trauma Center by the State Of Florida.

Trauma Alert patients should be transported to State Approved Trauma Center (SATC). If air transport is not available or their time to the scene is greater than 20 minutes, transport by ground to a SATC. If immediate stabilization is needed, or if an MCI exists, the patient may be transported to the closest licensed hospital with ER services.

Trauma Arrest: Any patient found without signs of life in the field secondary to a traumatic injury, i.e., no respirations, no pulse or measurable vital signs, and/or reflexes. The emergency crew on scene will decide if resuscitation efforts are appropriate for the patient found in Trauma Arrest. **The decision should be made based on the patient's age, medical condition, type and severity of trauma, and "down" time of arrest**

The Golden Period: The time the patient is injured until he/she arrives in the Operating Room.

Management Sequence

Upon arrival at the scene rescue personnel shall:

1) Assess and ensure scene safety.

2) For MCI's, utilize the START methodology to triage patients.

3) Perform Rapid Trauma Survey as guided by ITLS/ PHTLS and initiate treatment. Secure an airway prior to transport. **Attempts to initiate IV/IO therapy shall not delay transport.** Reference the Patient Assessment Protocol, Pages 17-19.

4) Initiate a **"Trauma Alert"** for patients meeting the Trauma Transport Criteria, reference Pg 69-72.

5) Transport to a SATC if patients meet Trauma Alert Criteria. If not, the patient should be transported to the closest Initial Receiving Hospital (IRH).

The patient encode (radio report) should include, the mechanism of injury, vitals, Glasgow Coma Score, criterion (if Trauma Alert), mode of transportation, and an ETA.

Trauma patients meeting Transport Criteria with a ground time greater than **20-minutes** should be transported by the safest and fastest route possible (helicopter). This includes any prolonged on scene time, due to extended extrication.

On scene time should be limited to 10 minutes. If on scene time exceeds 10 minutes, the reasons and rationale shall be documented on the Patient Care Report.

Transport Guidelines/ State of Florida DOH Trauma Scorecard

Whenever possible minimize on scene time to 10-minutes with the major trauma patient. Transport immediately by ground or air if applicable, after BLS immobilization with cervical device and securing the patients airway.

Impaled objects should not be removed from the major trauma patient unless they threaten or compromise the airway. The patient and the object should be immobilized to prevent movement. If the patient is impaled on an object, the object should be cut off at a short distance from the skin and immobilized during transport.

Treatment must be continued during transport, vital signs and EKG evaluation should be monitored and recorded frequently on all ALS and major Trauma patients. The secondary survey and IV/IO attempts should be performed en route. Reference the General Patient Assessment Protocol, Pages 17-19.

All patients meeting the criteria summarized below and on Pg 69-72, shall be transported, when possible, to the designated State Approved Trauma Center (SATC).

Trauma Transport Scorecard Methodology Criterion:

Patients meeting any one of the following criterion, should be transported as a "Trauma Alert".

1) Meets the color-coded triage system, Pg 70

2) GCS $\leq$ 12 (Patients must be evaluated via GCS if not identified as a Trauma Alert after Criterion number one)

3) Meets local criteria (OCEMS has no Local Criteria at the present time)

4) Paramedic Judgment (must justify and document justification in the PCR)

Adult Trauma Scorecard Methodology

(One Red = Trauma Alert)

(Two Blues = Trauma Alert)

This Adult Scorecard is to be utilized for persons age 16 and older

Airway	**Respiratory Rate of 30 or greater**	**Active Airway Assistance (1)**
Circulation	**Sustained HR OF 120 BPM or greater**	**Lack of radial pulse with a Sustained HR > 120 or BP < 90 mmHg**
Best Motor Response	**BMR = 5**	**BMR = 4 or less or presence of Paralysis, or suspicion of spinal cord Injury or loss of sensation**
Cutaneous	**Soft Tissue loss (2) or GSW to the extremities**	**2nd or 3rd degree burns to 15% or more TBSA or amputation proximal to the Wrist or ankle or any penetrating Injury to the head, neck, or torso (3)**
Long-bone Fracture (4)	**Single FX site due to MVA or Fall, 10 Feet or more**	**FX of 2 or more Long-bones (4)**
Age	**55 Years or older**	
Mechanism Of Injury	**Ejection from a vehicle (5) or deformed steering wheel (6)**	

Special Notes

1) Airway assistance beyond administration of 02

2) Major de-gloving injuries, or major flap avulsion(>5")

3) Excluding superficial wounds in which the depth of the wound can be determined

4) Long-bone, including Humerus, Radius and Ulna, the Femur, and the Tibia and Fibula.

5) Excluding motorcycle, moped, ATV, bicycle, or open body of a pick-up truck

6) Only applies to the driver

Pediatric Trauma Scorecard Methodology

This Pediatric Scorecard is to be utilized for persons age 15 or less

(One Red = Trauma Alert)

(Two Blues = Trauma Alert)

(Green = Follow local Protocols)

Size	>20kg (>44 pounds)	>11 – 20 Kg (24 – 44 pounds)	Less than or equal too 11 Kg (24pounds) Length less than or equal too 33 inches
Airway	Normal	Supplemented O2	Assisted or Intubated (1)
Consciousness	Awake	Amnesia or Any reliable history of loss consciousness	Altered Mental Status (2) or Coma or Paralysis or suspected spinal cord injury or loss of sensation
Circulation	Good Peripheral Pulse; Systolic BP Greater than 90mmHg	Carotid or Femoral Pulse palpable; Systolic BP between 90 – 50mmHg	Weak or No Palpable Radial or Femoral pulse; Systolic BP < 50mmHg
Fracture	None seen or suspected	Single closed long bone (3) fracture (4)	Open long bone (3)fracture (5) or multiple fracture sites or multiple dislocations (5)
Cutaneous	No visible injury	Contusion – Abrasion - Laceration	Major Tissue disruption (6) Or major flap avulsion or 2° or 3° burns to more than or equal too 10% TBSA or amputation (7) or any penetrating injury to the head, neck or torso (8)

Guidelines Continued:

Pediatric Scorecard Criterion continued:

1) Airway assistance includes manual jaw thrust, continuous suctioning, or use of other adjuncts to assist ventilatory efforts.

2) Altered mental states include; drowsiness, lethargy, inability to follow commands, unresponsiveness to voice, totally unresponsive.

3) Long bones include the humerus, (radius, ulna) femur, (tibia, fibula).

4) Long bones do not include isolated wrist or ankle fractures.

5) Long bone 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.

If the patient is significantly injured but does not meet a specific transport criterion, contact the Trauma Center and ask for a consultation with the attending surgeon.

In the event that a facility providing a specialty required by a particular patient is on by-pass, it will be considered no more capable of handling that patient than a facility not offering the particular specialty. The patient will be transported to the nearest facility for stabilization, and then transferred to a facility that is able to provide the necessary care.

Trauma Patients meeting the transport criteria with a ground transport time greater than 20-minutes should be transported by AIR

Abdominal/ Head Trauma

Abdominal Trauma

1) Assess the abdomen for evisceration, distension and tenderness during the Primary survey. If obvious distension or severe tenderness is present, consider upgrading the patient to a "Trauma Alert".

2) Establish 2 large bore IV lines of 0.9% NaCl TKO. Establishing the IV's should not delay transport.

3) If S/S of Shock are present, administer only enough fluids to maintain peripheral pulses The goal is to maintain a SBP 90-100 mm hg. Do not grossly exceed this range with normal saline infusions.

4) Eviscerations should be covered with a moistened sterile dressing. Sterile water and/or NaCl as your primary source. (Transport with patient properly immobilized and consider flexing knees to a 45 degree angle to reduce strain on abdomen).

5) Manage pain with **Fentanyl** (unless contraindicated) **1-2 mcg/kg, slow IV/IO/IM push or rapid IN push,**
Dosing may be repeated every **5 minutes** and titrated to desired effect or until an "endpoint is met",
up to a maximum cumulative dose of 3 mcg/kg prior to Medical Control contact.

Alternate pain medications:

Ketamine 0.5mg/kg IV/IO/IM. Onset 2-3 minutes with approx 20 min duration. May repeat until desired effect is achieved.

Toradol 30mg IV/IM x1. Contraindicated with GI bleeding, pregnancy, ASA or NSAID allergy, head injuries, patients on anticoagulants, or under 18 years old.

Head Trauma

1) Secure an airway and administer supplemental oxygen as indicated, while maintaining C-Spine immobilization.

Intubate any unconscious patient with a head injury. Consider RSI as necessary.

2) Determine the patient's GCS early and continually reassess the patient.

3) Transport patients without S/S of shock with the head of the stretcher elevated at 30° (degrees).

4) Establish 2 large bore IV lines of 0.9% NaCl TKO. Establishing IV lines should not delay transport.

5) If S/S of shock are present, administer only enough fluids to maintain a systolic BP of 110-120mmHg. Do NOT allow for hypotension.

6) Obtain a Blood Glucose level on all patients with Altered Mental Status while en route to the hospital.

Herniation Syndrome

Hyperventilate at a rate of 20 breaths/minute for any unconscious patient presenting with: dilation of the pupil on the side of injury, hemi-paralysis on the side opposite the injury, decerebrate posturing. **Hyperventilation of the head injury patient is only indicated if herniation syndrome is present.**

Decerebrate - Stiff and extended extremities and retracted head secondary to a lesion or traumatic injury to the brain stem. (away from the core)

Decorticate - Arms flexed, fists clenched and legs extended secondary to a lesion or injury to the upper brain stem. (toward-the-core)

Maintain EtCO2 level between 30-35 mmHg – use waveform capnography to continuously measure

Burns

CLASSIFICATIONS:

First Degree – dry, red wound, no blistering or potential blistering and painful.

Second Degree – Epidermal layer is lost and varying layers of the Dermis is exposed. Moist, red/pink wound base. Blisters may be open or intact. The Second Degree burn is extremely painful.

Third Degree – Epidermis and Dermis are destroyed. Dry, leathery, white, brown or charred. Decreased or absent sensation.

THERMAL BURNS: "Stop the Burning"

1) Perform Initial Exam.

2) Perform Detailed Exam when appropriate. Remove jewelry and restrictive clothing.

3) Utilize Sterile "tepid" water or 0.9% NaCl for irrigation and cooling. **DO NOT USE REFRIGERATED WATER OR ICE.**

4) Secure an airway and administer supplemental oxygen as indicated. Respiratory involvement as evidenced by smoke inhalation should receive 100% humidified oxygen.

5) Estimate the burn size and Body Surface Area involved.

MINOR BURNS:

First Degree burns involving less than 20% of the body surface.

Second Degree burns involving less than 15% of the body surface.

Third Degree burns of less than 2% of body surface (if the face, hand or feet are not involved).

Treatment of Minor Burns –

1) Cover the first degree burned areas with a **moistened** clean sheet, for second and/or third degree burned areas use a **dry** clean sheet.

2) Manage pain with **Fentanyl** (unless contraindicated) **1-2 mcg/kg, slow IV/IO/IM push or rapid IN push.** Dosing may be repeated every **5 minutes** and titrated to desired effect or until an "endpoint is met", **up to a maximum cumulative dose of 3 mcg/kg** prior to Medical Control contact.

Alternate pain medications:

Ketamine 0.5mg/kg IV/IO/IM. Onset 2-3 minutes with approx 20 min duration. May repeat until desired effect is achieved.

Toradol 30mg IV/IM x1. Contraindicated with GI bleeding, pregnancy, ASA or NSAID allergy, head injuries, patients on anticoagulants, or under 18 years old.

3) Contact receiving hospital for further orders.

Continued…

Burns Continued:

MODERATE TO CRITICAL BURNS: All burns, regardless of the degree, are critical if they are complicated by respiratory tract and/or major injuries and fractures. **Third Degree** burns involving the face, hands or feet. Third Degree burns which involve more than 10% of body surface. **Second Degree** burns which involve more than 30% of the body surface.

TREATMENT of Moderate or Critical Burns –

1) **Stop the burning process: cool the burned area with room temperature water from any clean source x1-2 minutes.**

   DO NOT INDUCE HYPOTHERMIA

2) Cover the burned area with a clean dry sheet. **DO NOT MOISTEN THE SHEET** (this can cause the sheet to stick to the burn).

3) Initiate IV/IO(s) of 0.9% NaCl. Administer fluids as needed.

4) Manage pain with **Fentanyl** (unless contraindicated) **1-2 mcg/kg, slow IV/IO/IM push or rapid IN push.** Dosing may be repeated every **5 minutes** and titrated to desired effect or until an "endpoint is met", **up to a maximum cumulative dose of 3 mcg/kg** prior to Medical Control contact.

Alternate pain medications:

Ketamine 0.5mg/kg IV/IO/IM. Onset 2-3 minutes with approx 20 min duration. May repeat until desired effect is achieved.

Toradol 30mg IV/IM x1. Contraindicated with GI bleeding, pregnancy, ASA or NSAID allergy, head injuries, patients on anticoagulants, or under 18 years old.

5) Patients with Second or Third Degree burns of more than 15% body surface area must be transported to a State Approved Trauma Center (SATC).

6) Contact the receiving hospital for further orders.

CHEMICAL BURNS:

1) Perform Initial Exam.

2) Perform Detailed Exam

3) Secure an airway and administer supplemental oxygen as indicated.

4) Irrigate the burned area with large volumes of water unless it is a dry chemical burn. If it is a dry chemical burn (lime, soda ash) brush the chemical off the patient as completely as possible prior to irrigation. Refer to Toxic/ Chemical Protocol

Continued…

Burns Continued

5) Initiate IV(s) of 0.9% NaCl. Administer fluids as indicated.

6) Manage pain with **Fentanyl** (unless contraindicated) **1-2 mcg/kg, slow IV/IO/IM push or rapid IN push,.** Dosing may be repeated every **5 minutes** and titrated to desired effect or until an "endpoint is met", **up to a maximum cumulative dose of 3 mcg/kg** prior to Medical Control contact.

7) Cover the area with a dry clean sheet.

8) Patients with Second or Third Degree burns of more than 15% body surface area must be transported to a State Approved Trauma Center (SATC).

9) Contact the receiving hospital for further orders.

ELECTRICAL BURNS:

1) Perform Initial Exam.

2) Perform Detailed Exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

4) Perform Spinal Motion Restriction

5) Initiate IV of 0.9% NaCl, administer fluids as indicated. **In lightning strikes, fluid administration should be restricted.**

6) Manage pain with **Fentanyl** (unless contraindicated) **1-2 mcg/kg, slow IV/IO/IM push or rapid IN push.** Dosing may be repeated every **5 minutes** and titrated to desired effect or until an "endpoint is met", **up to a maximum cumulative dose of 3 mcg/kg** prior to Medical Control contact.

7) Apply cardiac monitor and obtain 12 lead EKG, treat as indicated.

8) Contact the receiving hospital for further orders.

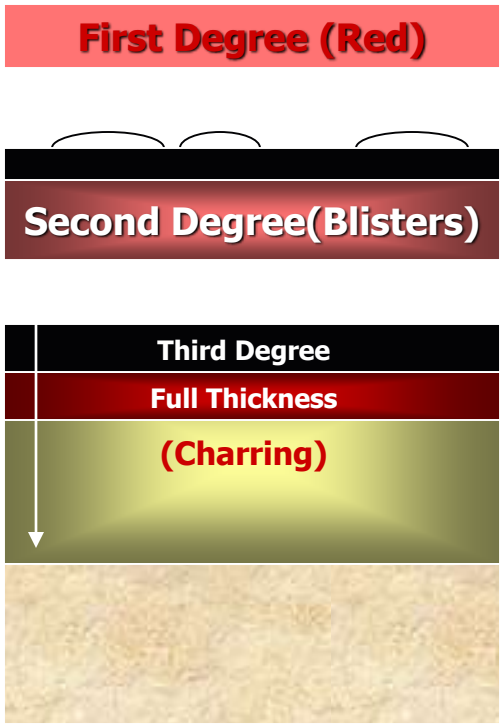
Alternate pain medications:

Ketamine 0.5mg/kg IV/IO/IM. Onset 2-3 minutes with approx 20 min duration. May repeat until desired effect is achieved.

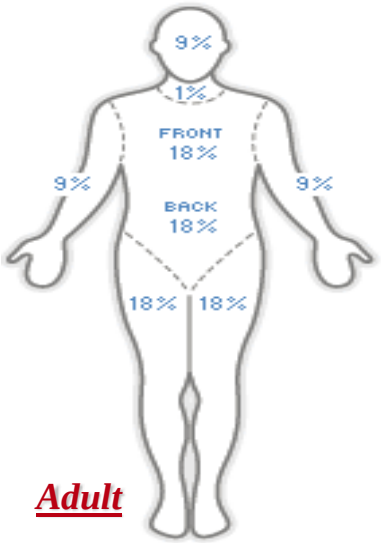
Toradol 30mg IV/IM x1. Contraindicated with GI bleeding, pregnancy, ASA or NSAID allergy, head injuries, patients on anticoagulants, or under 18 years old..

All high voltage electrical burns are considered critical burns until proven otherwise and should be treated as a high priority and transported to a Trauma Center.

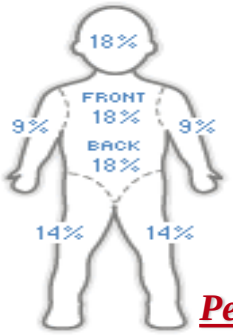
Burn Chart



Characteristics of Burns



Adult



Pediatric

Layers of the Skin

Epidermis

Dermis

(Nerve Endings)

Subcutaneous

(Fatty Tissue)

Chest Trauma

Chest Trauma

SUCKING CHEST WOUND (SCW):

1) Seal the wound initially with a gloved hand until an occlusive dressing (with flutter valve) can be applied to the wound. If more than one SCW is present, seal the remaining wounds with occlusive material (petroleum gauze, aluminum wrap, or veniguard).

2) Assess the patient for possible exit wounds and seal with occlusive material.

3) Continually reassess lung sounds and remain alert for signs of tension pneumothorax.

TENSION PNEUMOTHORAX:

1) Assess the patient for signs of developing or existing tension pneumothorax; dyspnea, tachypnea, diminished lung sounds, distended neck veins, poor compliance of the BVM if the patient is intubated.

2) If signs of tension pneumothorax are present and the patient presents with one or more of the following: loss of radial pulse, decreasing level of consciousness, or respiratory distress, perform Needle Decompression on the affected side of the chest.

Reference Appendix U, Pg 149

FLAIL CHEST: three or more ribs, fractured in two or more places.

1) Stabilize the flail segment with manual pressure initially.

2) Apply a bulky trauma dressing to the flail segment and tape to both sides of the chest wall. For large segments consider intubation and PEEP; for small segments consider CPAP

3) Consider RSI and/or Intubation for any patient in severe respiratory distress.

4) Reassess the patient's lung sounds and remain alert for signs of tension pneumothorax.

Crush (reperfusion) Injuries

BACKGROUND: Although uncommon in pre-hospital medicine; crush injuries (a.k.a. reperfusion injury) can certainly occur in times of natural and manmade disaster. Early and aggressive treatment is paramount in the patient suspected of having a crush injury. The victim may die during extrication and/or weeks later from a variety of complications related to the injury.

Example: Your patient has a steel beam lying across both mid-shaft femurs for approximately ***60-minutes***. The patient is AAOX4 w/ normal vital signs.

Pathophysiology: 1) The cells distal to the occlusion (beam) go from a state of aerobic to anaerobic metabolism excreting lactic acid. **2)** The principle intracellular ion potassium shifts into the intravascular space. **3)** Muscle cells begin to die. **4)** EMS arrives to remove the beam and now the "flood-gates" are open for lactic acid, potassium and dead or dying cells to circulate to the primary organs. **5)** The patient slips into a state of hyperkalemia (denoted by peaked T-waves present on EKG), than V-Fib and ultimately asystole. **6)** If the patient is lucky enough to survive to the ER he or she could still die days later from a drop in pH and renal failure as the kidneys are desperately trying to filter out the dead cells.

Pre-hospital management of a suspected crush (reperfusion) injury – patients w/ an extremity or extremities trapped for 60-minutes or greater by a heavy object w/ occlusion of peripheral perfusion.

1) PPE and rescuers' safety, along w/ scene stabilization, is paramount.

2) Gain access to patient and perform a initial assessment.

3) Administer O2 as indicated.

4) Initiate IV therapy (proximal to the injury or in opposite extremity) and administer **Sodium Bicarbonate 50 mEq w/ 1000 mL's of NS IV.**

5) Perform secondary and ongoing exam - monitor vitals

6) Package (consider C-spine precautions) and transport patient to Trauma Center.

7) If prolonged entrapment occurs of more than ***4-hours*** then other medications such as nebulized Albuterol (which blocks the uptake of potassium) and Calcium Chloride for (hyperkalemia) can be administered at 1 gram followed by a 50cc flush of NS may be considered.

Eye Emergencies

1) Perform Initial Assessment.

2) Perform Detailed Exam, when appropriate.

TOXIC CHEMICAL/BURNS:

1) Remove contact lens, if present.

2) Flush the eyes with 2000mL's of 0.9% NaCl.

Flush Alkaline for a minimum of 20-minutes.

Flush Acids for a minimum of 10-minutes.

3) Contact the receiving hospital for further orders.

TRAUMATIC INJURIES:

1) Stabilize penetrating objects.

2) Apply sterile dressings to both eyes. **NEVER USE PRESSURE.**

3) Contact receiving hospital for further orders.

THE EYE

Pupil – The opening in the center of the Iris that allows light to enter.

Iris – The colored portion of the eye that regulates the amount of light that reaches the Retina.

Sclera – The white and vascular portion of the eye.

Spinal Motion Restriction

It is the intent of these Trauma Protocols to provide guidance to the provider managing trauma patients who require spinal motion restriction. Spinal motion restriction is defined as "application of a cervical collar and maintenance of the spine in neutral alignment." The long spine boards shall only be used as an extrication device and no longer be considered a therapeutic intervention.

Indications:

1) Focal neurological deficits on motor or sensory exam
2) High risk patients:
    a) Ejection from a vehicle
    b) Motorcycle crash >20 mph
    c) Auto vs. pedestrian or bicycle @ >20 mph
    d) Axial load to the head (i.e., diving)
    e) Fall from 3x the patients height
3) Low risk patients who:
    a) Have point tenderness on palpation of spinous processes
    b) Are not reliable and competent:
        i. Not at baseline level of alertness
        ii. Have evidence of clinical intoxication
        iii. Have distracting injury
        iv. Are unable to communicate adequately

Spinal Motion Restriction - continued

Precautions:

•Research has shown patients with penetrating trauma without neurological deficits are negatively affected by the use of a long spine board and cervical collar as an immobilization device.

•If neurological deficit is noted, use the spinal motion restriction procedure.

Procedures:

•Determine if the patient meets the aforementioned criteria for spinal motion restriction

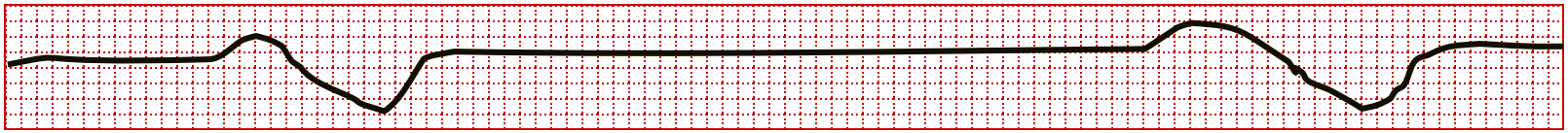
- •Perform a neurological assessment prior to implementing spinal motion restriction
- •Apply appropriately sized cervical collar maintaining neutral alignment. If movement causes pain, stabilize the head and neck in position found.
- •Ambulatory patient: If the patient is ambulatory on scene or has no neurological deficits and is able to self-extricate from a vehicle or situation, position the stretcher by the patient. Have the patient lay on the stretcher in a position of comfort. Limit movement of the spine as much as possible during this process.
- •Non-ambulatory patients: If the patient is non-ambulatory and requires movement, a long spine board or scoop stretcher may be used as an extrication device and carried to the ambulance stretcher. The device should be removed as soon as practical.
- •The KED can be used as an extrication device if the other options are not feasible. The KED is not to be used in patients who are neurologically intact and are able to self-extricate from the vehicle. The KED is not to be used with patients who require a rapid extrication.
- •If a rigid extrication device is used to transfer the patient to the ambulance stretcher it must be removed prior to transport.
- •Have the patient lay as flat as possible once on the ambulance stretcher. It is acceptable to place padding underneath the patient's head to ensure inline stabilization.
- •Make certain repeat neurological assessment is completed and documented after each change in the patient's position.

Trauma Arrest

The Emergency Crew on the scene will decide if resuscitation efforts are appropriate for the patient found in Trauma Arrest. The decision shall be based on the patient's medical condition, type and severity of trauma, and "down" time of arrest.

Treatment of patients in cardiorespiratory arrest varies as to the mechanism of injury and whether or not they exhibit any signs of life **(pulse, respiration, or reflexes)** on initial evaluation. Generally, trauma patients who are found with no signs of life in the field have suffered overwhelming cardiovascular or Central Nervous System (CNS) injuries, which are not amenable to surgical treatment under any circumstances. The survival rate on these patients is essentially zero and attempts at resuscitation are futile.

Patients suffering cardiorespiratory arrest after treatment has begun, should be transported to the Initial Receiving Hospital (IRH) by ground transportation.



MDL Graphics

VI. Environmental Emergencies

Dive Accident/Decompression Sickness

1) Perform initial assessment (obtain information regarding the depth of the dive(s), i.e., > 33 feet, duration and frequency).

2) Perform detailed exam, when appropriate.

3) Place patient supine if unconscious; position of comfort if conscious and alert

4) Administer High-flow oxygen via NRM at 15 LPM if breathing spontaneously. If not, secure an airway and administer high-flow oxygen via BVM

5) Monitor and record an EKG strip. Treat any arrhythmias as per the appropriate protocol.

6) Consider administration of **ASA 324 mg PO**

7) Initiate IV 0.9% NaCl, **administer 300mL fluid bolus**

A) If patient is apneic or obtunded, assist respirations and intubate.

B) If patient is experiencing dyspnea, or decreased breath sounds, SOB, or hemoptysis, decrease the IV fluids to KVO.

C) Rule out Tension Pneumothorax (seen frequently in Dive accident patients).

Note: There is no support for Left Lateral Decubitus Position or Trendelenburg as previously recommended. Trendelenburg has been shown to be harmful (except possibly in the initial 20-minutes after surfacing)

8) Transport patient to the closest facility for stabilization. If needed, transportation arrangements can be made via interfacility transfer to a hospital with hyperbaric chamber capabilities. Reference Transport Destination Protocol Pg 10.

9) Divers in cardiac arrest should be transported to the closest hospital for stabilization. If needed, transportation arrangements can be made via interfacility transfer to a hospital with hyperbaric chamber capabilities. Case studies indicate divers with up to one hour of CPR have been successfully resuscitated under pressure.

10) Any patient that has used SCUBA gear or compressed air within a 24-hour period preceding a medical complaint, and has any S/S of decompression sickness, should be considered a Dive Emergency, unless the patient is clearly a victim of unrelated trauma.

Drowning/Near-Drowning

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

Consider CPAP if Near-Drowning event; refer to CPAP Protocol

Consider early intubation of all unconscious drowning victims

4) Consider C-Spine injury and take appropriate Spinal Motion Restriction precautions.

5) Initiate IV 0.9% NaCl KVO rate. If hypotensive, (usually due to large fluid shifts in near drowning patients) **administer 300mL fluid bolus**. May repeat as indicated. If patient remains hypotensive, **Dopamine** may be indicated. Reference the Hypotensive Protocol Pg 43.

6) If patient is in Cardiac Arrest, follow the appropriate protocol.

Sodium Bicarbonate should be considered early in the management of cardiac arrest secondary to prolonged submersion, as significant metabolic acidosis may exist.

7) Contact receiving hospital for further orders.

8) Consider placement of an appropriately sized nasogastric/ orogastric tube and secure.

If in the Paramedic's judgment the possibility of hypothermia exists, no drowning/submersion patient is to be pronounced at the scene.

Paramedics shall **STRONGLY ENCOURAGE** all submersion patients to be transported to the nearest appropriate ER.

Heat/ Cold Emergencies

Rough handling including rough intubation attempts may precipitate V-Fib. Over aggressive treatment of Bradycardia and Hyperventilation may cause V-Fib as well. Hypothermic arrest patients must be re-warmed in the hospital before determination of death can be made.

Heat related emergencies (Including Heat exhaustion and Heat stroke)

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

4) Move the patient to a cool environment and remove clothing as indicated.

5) Initiate IV 0.9% NaCl KVO rate. If a patient has S/S of dehydration, administer a 500 ml fluid bolus and reassess. Repeat bolus as indicated, provided lung sounds are clear.

6) Monitor and record an EKG strip.

7) Evaluate blood glucose level, treat as appropriate.

8) Cool the patient with water and fanning.

Apply ice packs to the patient's neck, axillae & groin. **Do not use cold water baths**

Cold emergencies (Hypothermia)

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

4) Monitor and record a EKG strip; Pt. may present with a characteristic **"J" wave.**

5) Initiate an IV 0.9% NaCl KVO rate.

6) Evaluate blood glucose level, treat as appropriate.

7) Remove wet clothing and warm patient with blankets.

8) Contact receiving hospital for further orders.

Exertional Heat Stroke- While certified Athletic Trainers (AT) are present

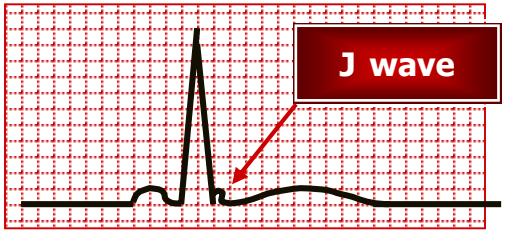
-If the athlete is currently in the care of a certified AT and submerged in a cold water tub, follow the direction of the AT.

-The AT will monitor the patient's core body temperature and continue the cold water immersion until the temp ≤ 101.5°f.

-It is strongly recommended that any patient that has been cold water immersed be transported to the ER for evaluation; all attempts to transport the patient should be made.

-If at any time the patient becomes critically unstable, the patient shall be immediately transported to the closest ER with traditional cooling techniques performed enroute.

The "J" wave or "Osborne" wave is an extra " blip" after the R-wave. It is usually seen in Lead-I, and is common in the Hypothermic patient. The etiology of this electrical event is unknown.



Marine Stings/Bites

1) Perform initial assessment.

2) Perform detailed exam, when appropriate

3) Remove the tentacles or residue by flushing the area with sea-water or 0.9% NaCl. BSI (Sleeves/gloves) ***The tentacles on the Man-Of-War jellyfish can reach lengths of 165 feet.*** Do not use fresh water. Tentacles can be scraped off using a plastic object such as a credit card.

4) Secure an airway and administer supplemental oxygen as indicated

5) To neutralize the poison, apply Jellyfish Squish, or equivalent, to the affected area. Do not rub or massage the skin. If transport is needed, this procedure should not delay transport. Application of a heat pack (40-45◦ C max) for up to 20 minutes is optional for pain relief during transport.

6) If S/S of allergic reaction occur, reference the Allergic Reaction Protocol Pg 31.

7) Inform the patient that other S/S such as dizziness, hypotension, or allergic reaction may occur and need immediate medical attention.

8) Administer pain medications as needed to relieve the pain (Refer to the Pain Management protocol).

Note: Immobilization of the affected limbs and/ or application of pressure bandages to the affected areas should be avoided.

Portuguese Man-Of-War, Images from keybiscayne.com

Phylum Chordata (Stingray)

Other poisonous species include the Sea Urchin, Cone Shell, Saltwater Catfish, and Scorpionfish

Snake Bite

Do not apply ice

Coral Snake (Image by B. Mansell)

1) Secure the scene and perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Inquire about a history of sensitivity, allergies, and time of bite.

4) Secure an airway, and administer oxygen as indicated.

5) Initiate IV 0.9% NaCl KVO in the uninvolved extremity.

6) Monitor the vitals and obtain an EKG strip.

7) Place the patient supine and immobilize the affected extremity in the neutral position. Place the affected extremity below the level of the heart in a dependent position.

8) Check for signs of respiratory distress, fang marks, edema, ecchymosis. Remove any constrictive jewelry or clothing and mark the area of edema with a pen.

9) Check for distal pulses and neurologic function of the involved extremity.

10) Attempt to identify the snake.

Caution: Do not handle the snake. Snakes can transmit venom through their fangs even when deceased.

11) Contact the receiving hospital early, and transport the patient ASAP.

There are 45 species of snakes in Florida, with only 6 being venomous. The Dusky, Pygmy, and Eastern Diamondback are the 3 rattlesnakes found in Florida. The Coral, Copperhead, and Cottonmouth are the other 3 poisonous snakes that reside in Florida.

VII. Obstetric Emergencies

Ante partum/3rd Trimester Bleeding

Includes:

Abruptio Placenta: The separation of the placenta from the wall of the uterus. Patient may complain of suprapubic "tearing" pain and may have dark vaginal bleeding. May be asymptomatic.

Placenta Previa: Occurs when the placenta is attached very low in the uterus, it covers all or part of the cervix. Occurs in approximately 1 in 200 pregnancies ; more commonly in mothers > 35 y/o. Patient presents with painless vaginal bleeding.

Uterine Rupture: The actual tearing or rupturing of the uterus. May be caused by abdominal trauma or labor in a woman with a previous uterine scar. The patient may present with signs and symptoms of hypovolemic shock.

1) Perform initial assessment.

2) Perform detailed exam and initiate rapid transport to an OB Facility, if possible..

3) Administer oxygen. Record the SaO2 reading prior to, and after administration.

4) Initiate IV 0.9% NaCl. Administer fluids as needed. Consider 2 large bore IV's if bleeding and/ or hypotension present.

5) Transport Gravid patients in position of Left Uterine Displacement (supine with towels under right flank).

6) Contact the receiving facility for further orders.

7) Never attempt to examine the patient internally.

Pregnant patients who have sustained any abdominal trauma should strongly be encouraged to seek medical evaluation at the most appropriate facility.

Breech Birth

1) Perform initial assessment.

2) Perform detailed exam, and initiate rapid transport to OB Facility, if possible.

3) Administer 100% oxygen. Document the SaO2 reading.

4) Discourage the mother from pushing or bearing down- Encourage breathing through pursed lips.

5) If the infants head is not delivered within 3-minutes of the body:

A) Elevate the mother's hips.

B) Using a gloved hand, form a "V" and attempt to push the vaginal wall away from the infants mouth and nose and administer 100% oxygen (blow-by) at the earliest possible time.

C) If an umbilical cord is palpated around the infants neck, gently slip the cord over the head. Do not force the cord.

D) Never attempt to pull the baby out or push a presented limb back in!

E) Transport to the nearest hospital with the mother's hips elevated and the baby's airway maintained while en route.

6) In all cases of abnormal fetal presentation, notify the hospital and inquire about further orders.

Breech births are characterized by babies who present limbs first, and/or buttocks. It is more common in premature infants.

Newborn Management

1) Upon delivery of the infant, supportive care as indicated. Perform initial assessment.

2) In cases of severe obstruction of the airway due to meconium, consider intubation and suctioning.

3) Dry and wrap the infant to keep warm.

4) Record APGAR score at 1, 5, and10 minutes Reference Pg 92

5) After umbilical cord stops pulsating, apply one clamp at 3" and one at 6" from the infant. Cut the cord between the clamps.

6) Contact the receiving facility for further orders

Perform BLS if any of the following exists (utilize an EKG to aid in determining HR):

If HR falls < 100 BPM, provide ventilations via Bag Valve Mask on room air, if indicated apply oxygen and titrate to response.

If HR is < 60 BPM, or between 60-80 BPM and not increasing, perform chest compressions at 120/minute. Stop chest compressions when a HR of 80 or greater is reached. (Continue ventilations via BVM until HR >100 BPM)

If the respiratory rate falls < 40/minute, support with BVM using 100% oxygen, at a rate of 40/minute.

Reference the Infant Resuscitation Chart, Pg 92

Do not delay care to stimulate the infant more than twice
Newborn suctioning is only recommended if the newborn presents as non-vigorous, there is an obvious obstruction to spontaneous breathing or they require positive-pressure ventilation
Delayed cord clamping for at least 1 minute for term and preterm infants not requiring resuscitation

Continued…

Newborn Management

APGAR SCALE

Sign	0 points	1 point	2 points
Appearance (skin color)	pale or blue-gray all over	normal, except for arms and legs	normal over entire body
Pulse (heart rate)	absent	less than 100 beats per minute	100 beats per minute or higher
Grimace (reflex)	no response	grimace	squeeze, cough, cry, or pulls away
Activity (muscle tone)	absent	arms and legs are flexed	active movement
Respiration	absent	breathing is slow or irregular	breathing is good, baby is crying

Infant Resuscitation Chart

Obstetric Emergencies

Normal Delivery: All Obstetrical emergencies should be transported to the closest facility that offers obstetrical care.

1) Perform initial assessment/ Age of Mother / Allergies/ Medications

2) Perform detailed exam, including a good history:

BSI: Gloves, Gown, Eye Protection

- Number of previous pregnancies **(GRAVIDA)**
- Number of previous viable births (**PARA**)
- Document multiple births/ Alcohol or narcotic use during pregnancy/ Prenatal care
- Due date/ Any complications with current / Previous pregnancies
- Show of blood, document time and amount of LMP
- Ruptured Amniotic Membrane - document time, color and odor of fluid.
- Fetal Movement / Contractions - document from start of first contraction to start of next

Physical exam; assess vitals, evaluate the stage of labor, secure an airway and administer supplemental oxygen (if necessary), assist in delivery by controlling the expulsion of the presenting parts.

Place the mother in a comfortable position (head up, Left Lateral position at 30 degree angle)

Continued…

Obstetric Emergencies

Normal Delivery continued

Discourage the mother from "pushing down".

Do not apply manual pressure to the uterine fundus prior to the birth of the child.

Do not pull or push on the fetus.

Do not allow sudden hyperextension of the infant's head.

3) If the cord is wrapped tightly around the infant's neck, slip it over the shoulder. If this cannot be performed, clamp the cord in 2 places and cut between the clamps.

4) If the mother is experiencing excessive bleeding, initiate IV 0.9% NaCl at the appropriate rate.

5) Upon delivery of the infant, follow the Newborn Management Protocol, Pg 91-92.

6) Document the delivery time.

7) Apply firm continuous pressure, manually massaging the uterine fundus until the Placenta delivers.

8) Preserve the Placenta in a "Red Bio-Hazard bag" for inspection by the receiving hospital.

9) Contact the receiving facility for further orders.

Prolapsed Cord

1) Perform initial assessment.

2) Perform detailed exam, and initiate rapid transport.

3) Secure an airway and administer supplemental high-flow oxygen, Document SaO2 readings prior to, and after oxygen administration.

4) Place the mother in an exaggerated Trendelenberg position or knee-chest position.

5) Verify a pulse in the umbilical cord.

> ***If no pulse, utilize a sterile gloved hand and push the baby up into the uterus and away from the compressed cord, until a pulse returns in the cord. Hold this position, as necessary, to maintain a pulse in the cord.***
>
> ****Do not attempt to push the cord back****

6) Wrap the exposed cord in a moist sterile dressing.

7) Contact the receiving hospital for further orders.

A Prolapsed Cord occurs when the umbilical cord slides down into the pelvis and becomes compressed between the pelvis and fetus. This action can actually pinch off fetal circulation. Fetal death is certain without quick intervention.

Pre-Eclampsia and Eclampsia

Pre-Eclampsia: A syndrome characterized by HTN, generalized edema, and protein in the urine, usually in the last trimester of pregnancy. Headache and altered mental status are seen as the condition progresses.

Eclampsia: All of the aforementioned S/S with the addition of seizure and possible coma.

1) Perform initial assessment.

2) Perform detailed exam.

3) Administer supplemental oxygen as needed.

4) Initiate IV 0.9% NaCl KVO rate.

Magnesium Sulfate
may be administered
Deep IM at 2 Gram/4mL per buttock

If the patient is in Eclampsia administer **2-4 Grams Magnesium Sulfate IV push or 4 Grams Deep IM into the buttocks (2g per buttock)**

5) Contact the receiving hospital for further orders.

The antidote for Magnesium Sulfate is Calcium Chloride 1-2 grams slow IV push.

If seizure persists despite the aforementioned treatment, contact the receiving facility for the possibility of Versed administration. (It must be approved by the receiving hospital's ER or OB Physician in this setting). Versed may complicate the delivery by causing respiratory depression in the fetus. Remember, eclampsia is not epilepsy!

VIII. Pediatric Medical Emergencies

Pediatric Medical Emergencies

General Pediatric Rules

- Pediatric cardiac dysrhythmias are usually caused by extra cardiac factors such as hypoxia, hypercarbia, acidosis, or shock.
- Heart rates may give clues to the problem, (i.e., bradycardia could be an indication of an airway problem. Tachycardia would indicate hypovolemia, through dehydration and/or trauma).
- Treat the underlying causes.
- Infants and children < 8 y/o or 50kg presenting with serious or life threatening medical problems should be transported to the closest facility, unless it is trauma related.
- The Broselow Pediatric Resuscitation Tape should be utilized in appropriate situations, as rapidly as possible, for accurate treatment of the pediatric patient.
- If available, pulse oximeters should be utilized on all pediatric patients in distress.
- Blood glucose testing should be performed on all pediatric patients in distress, and treated as indicated.
- If intubation is required, utilize an appropriate CO2 monitor.
- Pediatric patients who do not respond to standard treatment should be evaluated and treated for:

  Hypovolemia, Hypoxia, Hypothermia, Hypoglycemia, Hydrogen Ion (Acidosis), Hypo-/Hyperkalemia, Hypothermia, Toxins (Drug Overdose), Tamponade (Cardiac), Thrombosis (Coronary or Pulmonary), Trauma, and Tension Pneumothorax.

Continued…

Pediatric Medical Emergencies

- For children showing signs of shock, (i.e., decreased LOC, pallor, mottling, poor distal perfusion, and/or delayed capillary refill), treat with airway management and oxygenation, and obtain vascular access. Administer **fluid bolus at 20mL/ kg**.
- Always contact the receiving facility for further orders.
- Remember, children are not small adults. They will compensate much longer, but when they decompensate they do so quickly.

The key to a positive outcome is recognizing the severity of the condition, and treating it accordingly.

Age	Respirations	Heart Rate	Systolic BP
Newborn	30 – 60	85-205	60 – 74
1- 6 weeks	30 – 60	85-205	75 – 95
6wks-6mos.	25 – 40	100-190	90 – 105
6mos-2yrs	24 – 40	100-190	70 – 105
3-years	24 – 40	60-140	70 – 110
4-5 years	22 – 34	60-140	70 – 110
6- 12 years	18 – 30	60-140	80 – 115
13-18 years	12 - 16	60-100	95 - 130

This chart shows expected normal Pediatric Vital Signs for the ages indicated.

Pediatric Abdominal Pain/ Nausea & Vomiting

1) Perform initial assessment.

2) Perform detailed exam.

3) Obtain a complete history, including potential for pregnancy if female (and age appropriate).

4) Secure an airway and administer supplemental oxygen as indicated.

5) Monitor and record an EKG strip. Obtain 12 lead EKG if indicated (refer to Pg 36).

6) Initiate IV 0.9% NaCl KVO. Administer fluids as needed.

7) Manage pain with **Fentanyl** (unless contraindicated) **1-2 mcg/kg, slow IV/IO/IM push or rapid IN push.** Dosing may be repeated every **5 minutes** and titrated to desired effect or until an "endpoint is met", up to a **maximum cumulative dose of 3 mcg/kg** prior to Medical Control contact.

8) Evaluate blood glucose level, treat as appropriate.

9) Administer **Ondansetron 0.15mg/ kg, NTE 4mg** for patients with prolonged nausea and/or vomiting* *confirm with the patient that they have not had any previous history of adverse reactions or actual allergies to Ondansetron prior to administration.

4-Abdominal Quadrants

RUQ Liver-Gallbladder	**LUQ** Spleen-portion of the Liver- Pancreas Stomach
RLQ Appendix-R Ovary-Kidney/ureter	**LLQ** L-Ovary-Bladder if distended

- **Causes of abdominal pain can rarely be determined in the field**
- **Consider catastrophic causes of abdominal pain such as a ruptured Abdominal Aortic Aneurysm or Ectopic pregnancy, when signs of shock are present.**
- **In cases when prolonged nausea and vomiting is present, conduct orthostatic vital signs and administer fluids as appropriate.**

Pediatric Allergic Reactions

1) Perform initial exam.

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

- Document The SaO2 reading.

4) Monitor and record an EKG strip.

5) If patient presents with signs of Bronchoconstriction or Shock, administer **Epinephrine 1:1,000 0.01mg/kg IM** every 10-15 minutes (Alternate IM sites), or **0.01 mg/kg of 1:10,000 IV/IO** if IM dose is ineffective or severe reaction occurs. Do Not exceed 0.3mg.

6) Initiate IV/IO 0.9% NaCl. Administer **20mL/kg NS fluid bolus** for severe reactions with shock. Repeat as needed.

7) Dilute and administer **nebulized Albuterol treatment 1.25mg in 3mL NS**.

8) For signs of Histamine release, (Uticaria, edema, watery eyes, etc) administer **Benadryl 2mg/kg IV/IO/IM. (Do Not Exceed 50mg)**

9) Contact receiving facility for further orders.

Patients with Anaphylactic reactions must be watched closely for S/S of airway obstruction. If the patient moves to cardiopulmonary arrest, reference the appropriate protocol.

Pediatric Altered Mental Status

1) Perform initial assessment.

2) Perform a detailed exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

4) Monitor and record a EKG Strip.

If Seizure is suspected, follow the Seizure Protocol (Pg 108).

5) Initiate IV/IO 0.9% NaCl KVO

6) Test blood glucose, if delay does not cause deterioration. (60-120mg/dl is the normal range)

7) If Hypoglycemic, administer **D10W 5-10 ml's/kg** for pediatrics, **D10W 5-10ml's/kg** for newborns.

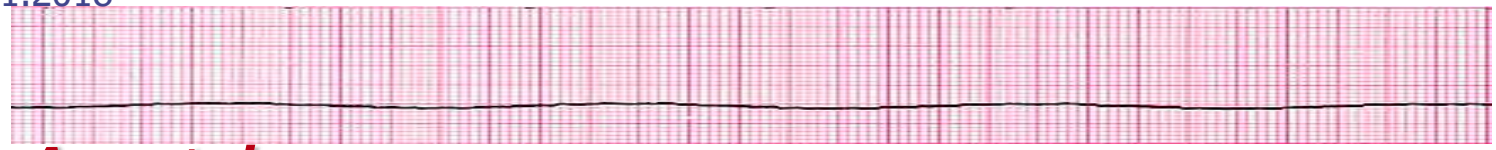
- Preterm neonates and term neonates ≤ 45mg/dl
- Infants, Children, Adolescents ≤ 60mg/dl

If IV is unobtainable, may administer **Glucagon 0.01 mg/kg (max dose 1mg/dose) IM** for children under 20kg and **1mg (1 unit)** for children over 20kg may repeat every 5- 20 minutes if no response for 1-2 more doses

8) If the patient does not respond to treatment, administer **Narcan 0.01mg/kg IV/IO/IM/IN (0.02mg ET)** increments until improvement of respiratory status; May repeat every 3 minutes up to a maximum of 2mg.

9) Contact the receiving facility for further orders.

D10 is D50 in 200mL of Normal saline. Take 50mLs out of a 250mL bag and add D50.



Asystole

1) Perform initial assessment.

2) Perform detailed exam, when appropriate initiate CPR: 30:2 single rescuer, 15:2 two rescuers.

3) Monitor and record an EKG strip. Asystole must be confirmed in at least 2-Leads.

If there is a possibility of V-Fib, follow the appropriate protocol.

4) Secure an airway. Once a definitive airway has been established perform continuous chest compressions for cycles of 2 minutes each.

5) Initiate IV / IO 0.9% NaCl KVO

6) Administer **Epinephrine 1:10,000 0.01 mg/kg (0.1ml/kg) IV/IO. (ETT: 0.1 mg/kg [0.1 ml.kg] Epi 1:1,000)**

circulate for 2-minutes with chest compressions.

7) Repeat Epinephrine every 3-5 minutes.

8) If no response, consider and treat possible causes.

Reference the General Pediatric Rules Protocol, Pg 97-98

9) Contact receiving facility for further orders

The size of a ETT can be estimated by dividing the child's age by 4, then add 4.

Example: A 4 y/o patient : 4÷4 = 1 + 4 = 5. The patient would need a 5mm ETT (The size denotes the inside diameter of the tube).

Pediatric Bradycardia

This Protocol includes 3rd degree heart blocks

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Monitor and record an EKG strip.

4) Secure an airway and administer supplemental oxygen as indicated.

Bradycardia is often associated with conditions such as hypoxemia, hypotension, and acidosis. Evaluate the airway and administer oxygen prior to drug therapy.

Perform chest compressions despite 30-60 seconds of oxygenation and 30-60 seconds of ventilations, if the HR is < 60 for an infant or < 60 for a child with S/S of decompensation.

5) Secure an IV / IO 0.9% NaCl KVO

6) Administer **Epinephrine 1:10,000 0.01 mg/kg (0.1 ml/kg) IV/ IO. (ETT: 0.1 mg/kg [0.1 ml/kg] Epi 1:1000)**

Repeat every 3 – 5 minutes at the same dose, for Bradycardia.

7) For patients > 1 y/o, administer **Atropine 0.02 mg/kg IV/IO (ETT: 0.04 – 0.06 mg/kg)**

Maximum single dose – for child: 0.5 mg, for adolescent: 1mg

Maximum total dose – for child: 1mg, for adolescent: 2mg

Do not administer Atropine to patients < 1 year of age.

8) Consider cardiac pacing

9) If patient does not respond to treatment, consider and treat possible causes. Reference The General Pediatric Rules Protocol, Pg 97-98

10) Contact receiving facility for further orders

Croup/Epiglottitis

Croup: A common Viral infection of young children. S/S may include barking cough, and inspiratory stridor. Slow onset, may have history of being sick for several days.

Epiglottitis: Is a Bacterial infection of the epiglottis, usually occurs in children > the age of 4, and has faster onset than Croup.

Epiglottitis is a serious medical condition. S/S may include drooling, pain with swallowing, fever of 102-104 F°, no barking cough.

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Transport patient in position of comfort. Allow the parent to remain with the patient to reduce stress, if necessary.

4) Administer **humidified oxygen (nebulizer with 3mL 0.9% NaCl) via nebulizer mask**, if patient will tolerate. The mask may be held if the child shows resistance to the device. If no response or patient begins to worsen, consider **0.3mg's of EPI 1:1,000 nebulized in 2.5mL's of NaCl**. Monitor closely, including EKG.

5) If the patient is cyanotic or has altered mental status, ventilatory assistance via BVM may be needed. Do not introduce oral airways, tongue blades, or any other devices in the patient's mouth, as this may precipitate complete airway obstruction.

6) If complete airway obstruction occurs and no other airway can be established, reference the Pediatric Needle Cricothyrotomy Appendix S, Pg 163.

7) Contact receiving facility for further orders.

Overdose/Poisoning

1) Perform initial assessment.

2) Perform detailed exam when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

4) Evaluate blood glucose level, treat as appropriate (see diabetic protocol)

5) Initiate proper treatment according to type of drug ingested

- TRICYCLIC ANTI-DEPRESSANTS:
  - **Sodium Bicarbonate: 1mEq/kg IV/IO**, then **0.5mEq/kg/10 min.**
- OPIODS:
  - **Naloxone:** ≤5yo or ≤20kg: **0.01mg/kg IV/IO/IM/IN;** ≥5yo or >20kg: **0.4mg IV/IO/IM/IN** increments until improvement of respiratory status; May repeat every 3 minutes, up to a maximum of 2mg
- COCAINE:
  - **Valium 0.2 mg/kg IV/IO/IM -or- Versed 0.1mg/kg IV/IN/IM/IO,** not to exceed a 2 mg single dose. (When seizures are present)
- CALCIUM CHANNEL BLOCKER
  - **Calcium Chloride 10%: 20 mg/kg (0.2 ml/kg) IV/IO** over 5-10 minutes, if there is a beneficial effect give an infusion of 20-50 mg/kg per hour

6) Contact The Poison Control Center at 1-800-222-1222 and/ or the receiving facility for direction. Locate and identify the toxic substance if possible.

General Rules:

- Routes of Exposure: Inhalation, Injection, Ingestion, and Absorption.
- Do Not induce Vomiting

Pediatric Pain Management

Indications and Contraindications are the same for the Pediatric patient as in the Adult Pain Management Protocol.

Administering Fentanyl requires constant patient evaluation and monitoring (i.e., EKG, BP, SaO2, EtCO2…).

Discontinue medication administration if any of the following **"endpoints"** develop:

A) Hypotension

B) Slurred speech

C) Respiratory depression

D) Pain relief

E) S/S of allergic reaction

Reversal Agent:
(Ref: Pediatric Overdose Protocol, P-98)
Naloxone: ≤5yo or ≤20kg: **0.01mg/kg**
IV/IO/IM/SQ/IN; ≥5yo or >20kg: **0.4mg**
IV/IO/IM/SQ/IN increments until improvement of respiratory status; May repeat q 3 minutes, up to a maximum of 2mg

1) For pediatric pain management administer**:**

Fentanyl (unless contraindicated) **1-2 mcg/kg, slow IV/IO/IM push or rapid IN push,**
Dosing may be repeated every **5 minutes** and titrated to desired effect or until an "endpoint is met", **up to a maximum cumulative dose of 3 mcg/kg** prior to Medical Control contact.

The paramedic may contact Medical Control (Medical Director(s), receiving ER Physician) for additional doses of Fentanyl if necessary during extended transports or for an alternate medication if necessary as listed below.

Alternate pain medication: Ketamine 0.5mg/kg IV/IO/IM. Onset 2-3 minutes with approx 20 min duration. May repeat until desired effect is achieved.

Respiratory Distress

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

4) Administer diluted **nebulized Albuterol treatment 1.25mg in 3mL NS** for Bronchoconstriction or Rhonchi, repeat as needed q 20 min.

5) Obtain vitals including an EKG, continuous waveform capnography, and SpO2.

Treatment takes approximately 5 minutes of flow time. Treatment should not delay transport. Nebulized Albuterol treatment may be administered to the patient via nebulizer and/or modified NRB mask.

6) If the patient is in severe respiratory distress; administer **Epinephrine 1:1,000 0.01mg/kg IM (0.01ml/kg 1:1,000)**

- Do not exceed 0.5 mg

7) Contact the receiving facility for further orders.

Seizures

1) Perform initial assessment.

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer high-flow 100% supplemental oxygen as indicated.

4) Immobilize the Cervical Spine in patients with suspected trauma.

5) If patient is actively seizing, slowly administer (over 2 minutes) **Versed 0.1mg/kg IV/IN/IM/IO -or- Valium 0.2mg/kg IV or 0.5mg/kg Rectally NTE 5mg.** Use the Broselow Tape to estimate the weight in kilograms.

Do not wait for IV access if patient is actively seizing; Valium may be administered Rectally

If Seizures are not abolished within 5 minutes after the initial dose, slowly administer a second dose of Versed 0.1mg/kg IV/IN/IM/IO -or- Valium 0.2mg/kg IV or 0.5mg/kg Rectally NTE 5mg.

Prepare to support the airway via BVM in case of respiratory depression.

6) Initiate IV 0.9% NaCl KVO rate.

7) Test blood glucose level, (60-120mg/dl is the normal range). Treat as appropriate.

- Preterm neonates and term neonates…≤ 45mg/dl
- Infants, Children, Adolescents……≤ 60mg/dl

Dextrose (D10) Ref: Page 111
D10W 5-10 ml's/kg for Pedi/Newborns

8) If seizures are due to hyperthermia, actively try to cool the patient's body temperature by removing clothing and fanning with cool air. **DO NOT** cover the patient with wet towels or apply ice and/or give any liquids to drink. **DO NOT** cool to the point of shivering.

9) Contact receiving hospital for further orders.

Febrile Seizures occur in patients usually up to the age of 3

Shock

- **Compensated Shock:** is defined as inadequate tissue perfusion with a BP still in the normal range.
- **De-compensated Shock:** is inadequate tissue perfusion accompanied with Hypotension.
- **Hypovolemic Shock:** is characterized by decreased preload leading to reduced stroke volume and low cardiac output.
- **Distributive Shock:** is characterized by inappropriate distribution of blood volume with inadequate organ and tissue perfusion.
    - Most common forms of Distributive Shock are Septic shock, Anaphylactic shock and Neurogenic shock.
    - **Sepsis:** Can be diagnosed when the child demonstrates 2 or more of the following S/S, fever, tachypnea and tachycardia.
- **Septic Shock:** can be defined by the presence of Hypotension, despite fluid administration, or when normotension is maintained only with Vaso-active drug support.
- **Cardiogenic Shock:** is characterized by decreased cardiac output, tachycardia, and high systemic vascular resistance, and tachypnea due to pulmonary edema.
- **Obstructive Shock:** is a condition of impaired cardiac output caused by a physical obstruction of blood flow.
    - Most common forms of Obstructive Shock are Cardiac Tamponade, Tension Pneumothorax, Massive Pulmonary Embolism and Ductal-dependent congenital heart lesions.

Shock (continued)

Assessment should include:

1) General Impression, How does the child present? Is this normal or suspected behavior for this age group?

2) The ABC's/ SAMPLE the parent and/or caregiver.

3) Position the patient to position of comfort, if unstable and hypotensive place in trendelenburg unless respiratory compromise is present.

4)CPR if indicated.

5) High-flow O2, support ventilations as indicated.

6) Consider early vascular IV/IO access

7) Fluid bolus of **0.9% NaCl 20mL/kg IV/IO over 5-20 minutes**, repeat boluses to restore BP and tissue perfusion.

8) Monitor SpO2, ETCO2 as indicated, heart rate / rhythm, blood pressure, blood glucose level, neurologic function, temperature, urine output.

9) Consider Dopamine, if indicated.

10) Anticipate Pulmonary Edema.

11) Evaluate the Blood Glucose Level, and treat as indicated.

- Preterm neonates and term neonates……≤ 45mg/dl
- Infants, Children, Adolescents…….≤ 60mg/dl

12) Rapid Transport.

Dextrose (D10) Ref: Page 111
D10W 5-10 ml's/kg for Pedi/Newborns

Supraventricular Tachycardia (SVT)

SVT in the pediatric patient is considered as follows:

Without S/S of dehydration, hypovolemia, and/or fever

- **HR ≥ 220/min in an Infant.**
- **HR ≥ 180/min in a Child.**

1) Perform initial assessment. Determine if patient is stable or unstable

2) Perform detailed exam, when appropriate.

3) Secure an airway and administer supplemental oxygen as indicated.

- Do not delay cardioversion in the unstable patient for the sake of intubation.

4) Monitor and record an EKG strip.

5) Consider vagal maneuvers

6) If patient is **unstable,** perform **synchronized cardioversion: 0.5 – 1 J/kg,** repeat at **2 J/kg** if needed.

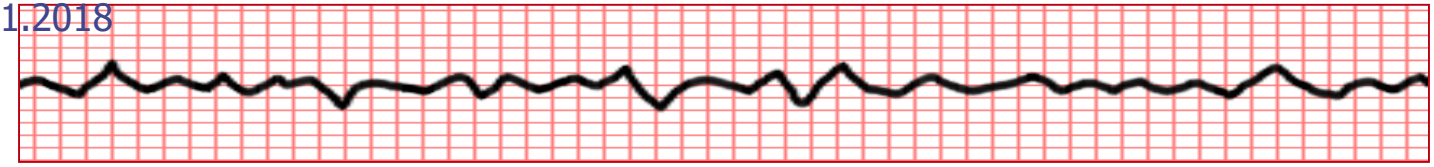
7) Initiate IV/IO 0.9% NaCl KVO.

8) Consider and treat underlying causes.

9) If the patient appears to be **stable,** administer **Adenosine 0.1 mg/ kg rapid IVP**

- Maximum first dose **6mg**
- May give second dose of **0.2 mg/kg IV**
- Maximum second dose **12mg**

10) Contact the receiving facility for further orders



Ventricular Fibrillation/Pulseless V-Tach

1) Perform initial assessment.

2) Perform detailed exam, when appropriate. initiate CPR: 30:2 single rescuer, 15:2 two rescuers.

3) Defibrillate at **2-4 Joules / kg** and resume CPR for 2 minutes.

- Pediatric pads/ paddles are used for patients up to 1 year of age or 10kg
- Adult paddles are used on patients older than 1 year or weigh more than 10kg.
- Adult devices may be used as long as they are not touching when applied and there is at least 3cm of space

4) Secure an airway. Once a definitive airway (ETT or LMA) has been established perform continuous chest compressions for cycles of 2 minutes each.

5) After 2 minutes of CPR **Defibrillate at a minimum of 4 Joules/ kg (Not to exceed 10 J/ kg)** if VF or VT still present

6) Initiate IV/IO of 0.9% NaCl KVO

7) Administer **Epinephrine 1:10,000 0.01 mg/kg (0.1 ml/kg). (ETT: 0.1 mg/kg [0.1 ml/kg] Epi 1:1000)** ***DURING CPR***

- Repeat Epinephrine every 3 – 5 minutes

Volume of Epinephrine is always consistent, only the concentration changes. Use 1:10,000 for IV/IO route and 1:1,000 for ETT route. The dose is always 0.1mL/ kg.

8) After 2 minutes of CPR **Defibrillate a minimum of 4 Joules/ kg (Not to exceed 10 J/ kg)**

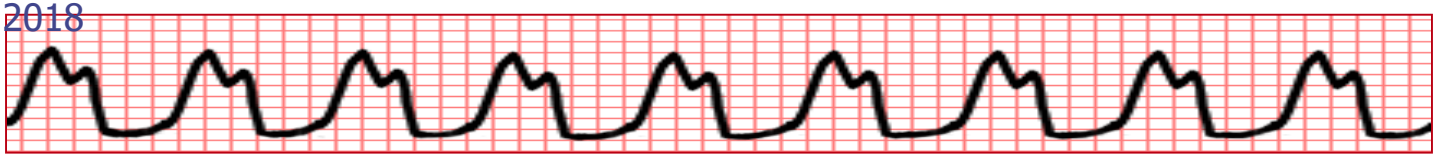
9) Administer **Amiodarone 5mg/kg IV/ IO.** ***DURING CPR***

10) After 2 minutes of CPR **Defibrillate a minimum of 4 Joules/ kg. Do not exceed 10 Joules/ kg or maximum adult dose.**

11) If no response, consider and treat possible causes.

Reference the General Pediatric Rules Protocol, Pg 97-98.

12) Contact receiving facility for further orders.



Ventricular Tachycardia with Pulses

1) Perform initial assessment.

2) Perform detailed exam, when appropriate. Determine if patient is **stable** or **unstable**

3) Monitor and record an EKG strip.

4) Secure an airway and administer supplemental oxygen as indicated.

- Do not delay cardioversion in the unstable patient for the sake of intubation.
- Document the SaO2 readings.

5) If patient is **unstable:**

- perform **synchronized cardioversion: 0.5 – 1 J/kg, repeat at 2 J/kg** if needed.

  If synchronized cardioversion is unsuccessful, establish a **Amiodarone infusion at 5 mg/kg over 20 – 60 minutes**

-or-

- If high index of suspicion that underlying rhythm is SVT with an aberrancy, refer to the SVT Protocol (Pg 111).

6) Initiate IV/IO 0.9% NaCl KVO

7) If patient is **stable,** administer **Amiodarone 5mg/kg IV/IO over 20 – 60 minutes.**

8) If patient does not respond to the aforementioned treatment, contact the receiving facility for further orders, consider and treat possible causes.

Reference the General Pediatric Rules Pg 97-98.

Violent and/or Impaired Patient- Pediatric

This protocol is intended for use when a patient(s) becomes violent and/or combative and is an immediate threat to him or herself, the EMS crew and/or others. Always protect the patient's airway.

1) Have patient placed under the Baker Act via Law Enforcement when appropriate

2) Rule out causes other than psychiatric such as, CVA, hypoxia, hypoglycemia etc.

3) Law Enforcement should physically restrain patient only when necessary – **AVOID POSITIONAL ASPHYXIA**

4) Administer **Ketamine 1mg/kg IM (Buttocks or Thigh)**, through clothing if necessary. Allow 1-5 minutes for onset. Ketamine duration should last approx 45 minutes.

NOTE: The ER Physician must be notified of the administration prior to the crews departure from the ER.

5) Only if combativeness persists, administer **Versed 0.1mg/kg IM/IN/IV/IO**. Pay close attention to the airway and breathing status; be prepared to assist ventilations and provide suctioning. If bronchorrhea develops, administer **Atropine 0.02mg/kg IV. Be prepared to manage airway and/or respiratory depression.**

Note: Ketamine may cause laryngospasms. This very rare adverse reaction presents with stridor and respiratory distress. After every administration of Ketamine:

a) Prepare to provide respiratory support including BVM ventilations and suctioning which are generally sufficient; ET Intubation should be of last resort

b) Institute cardiac monitoring, pulse oximetry and continuous waveform capnography

c) Establish IV or IO access

d) Check blood glucose

e) Establish and maintain physical restraints once safe to approach the patient

f) Always have suction available; If nausea and vomiting are present, administer **Ondansetron 0.1mg/kg IV/ IM (max 4mg)** as needed.

g) Monitor for hypersalivation (bronchorrhea)- Suction is usually sufficient. If profound and causing airway difficulty, administer **Atropine 0.02mg/kg IV.**

10 mL

EPINEPHRINE
Injection, USP

1: 10,000

1mg (0.1mg/mL)

PROTECT FROM LIGHT

LIFESHIELD®

Glass

ABBOJECT®

Unit of use Syringe

With male luer lock
Adapter and 20-Gauge
Protected needle

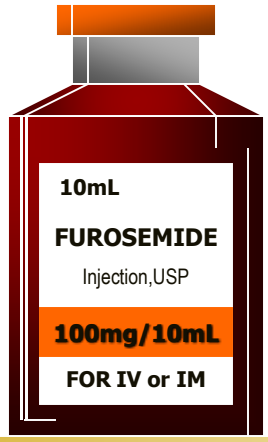
℞ ONLY

Adenocard

6mg/2mL

For Rapid Bolus
Intravenous Use

2mL (fill volum



50mL 8.4% SODIUM
BICARBONATE Injection, USP
50mEq (1 mEq/mL)

ATROPINE SULFATE
Injection, USP

1 mg (0.1mg/mL)

IX. Pharmacology

Listed Alphabetically

Adult Medication Dosages

PFS = pre-filled syringe

Medication	*Dosage*	*Packaging*
Adenosine	6mg and/or 12mg rapid IV/IO push	6mg Vial or 6mg PFS
Amiodarone	150mg Infusion over 10 minutes or 300mg IV/IO push	150mg/3mL Ampule
Anectine (succinylcholine)	1.5mg/kg (2.0mg/kg Pedi)	200mg/ 20mL Vial
Aspirin	324mg PO	81mg/Tablet
Atropine	0.5mg – 1mg IV/IO (2mg/ ETT)	1mg/10mL PFS
Benadryl	50mg IV/IO/IM	50mg/1mL Vial
Calcium Chloride	500mg – 1000mg IV/IO	1Gram/10mL Vial
Cardizem (diltiazem)	0.25mg/kg IVP over 2-minutes. After 15 minutes, may repeat at 0.35mg/kg IVP over 2 minutes	25mg/5mL Lyo-Ject Syringe or 50mg/10mL Vial
D50	D10 IV/IO	25 Grams/50mL PFS
Dopamine	5 – 20mcg/kg/minute Infusion	400mg/10mL Vial

Adult Medication Dosages

Epinephrine 1 : 1,000	0.3mg IM	1mg/1mL Ampule
Epinephrine 1 : 10,000	1mg IV/IO (2mg via ETT)	1mg/ 10mL PFS
Fentanyl	1-2 mcg/kg IV/IO/ IM slow IV push, or Rapid IN push.	100 mcg Vial
Glucagon	1mg IM	1 mg Vial
Ketamine	Violent/ Impaired or Agitated Delirium: 2-4mg/kg IM (Buttock or Thigh); Pain 0.5mg/kg IV/IO/IM; Pacing, Burns, & Cardioversion: 1mg/kg IV/IO/IM	500 mg Vial
Lasix	1mg/kg slow IV/IO push	100mg/10mL Vial
Lidocaine	1.0mg/kg IV/IO	100mg/5mL PFS
Magnesium Sulfate	1 – 4 Grams IV/IO/IM push	5 Grams/10mL Vial
Ondansetron HCL	4mg IV/IO/IM	4mg Vial

Adult Medication Dosages

Narcan (naloxone)	0.5mg IV/IO/IM (ETT 0.8mg); 1mg IN	2mg/ 2mL
Nitroglycerin (Nitrostat)	0.4mg SL	200 Metered Dose Spray 0.4mg SL Tablet
Proventil (albuterol)	2.5mg Nebulized	2.5mg/3mL Plastic Ampule
Sodium Bicarbonate	1mEq/kg IV/IO	50mEq/50mL PFS
Thiamine	100mg IV/IO	100mg/2mL Vial
Toradol	30mg IV/IM x1	30mg/ 1mL Vial
Valium	5.0mg IV/IO/IM	10mg/ 2mL vial
Vecuronium	0.1mg/ kg IV/IO	1mg/mL when reconstituted in 10mL bacteriostatic water
Versed (midazolam)	0.1mg/kg IV/IO/IM/IN; 2.5-5mg IV/IO/IM/IN	5mg/1mL Vial

Pediatric Medication Dosages

Medication	Dosage	Packaging
Adenosine	0.1mg/kg IV/IO Maximum of 6mg	6mg vial / 6mg PFS
Amiodarone	5mg/kg IV/IO	150mg / 3mL Ampule
Atropine	0.02mg/kg (0.2mL /kg) IV/IO (0.04mg/kg ETT) Max 2mg	1mg/10mL PFS
Benadryl	2.0mg/kg IV/IO/IM; Maximum of 50mg	50mg / 1mL Vial
Cardizem (diltiazem)	Cardizem is rarely indicated, contact medical control	25mg/5mL Lyo-Ject Syringe or 50mg/10mL Vial
Dextrose (D10W) Ref: Page 94	5-10 ml's/kg for Pedi/Newborns	Must dilute D50 to D10 with NS
Dopamine	2-20mcg/kg/min. Titrate to desired effect.	400mg/ 10mL Vial
Epinephrine 1:1,000	0.01mg/kg IM Maximum of 0.5mg/kg. May repeat in arrest situations.	1mg/1mL Ampule
Epinephrine 1:10,000	0.01mg/kg IV/IO	1mg/ 10mL PFS
Fentanyl	1-2 mcg/kg SLOW IV/IO/IM push, Rapid IN Push	100 mcg/2 mL vial
Fluid Challenge	20mL/kg of 0.9% NaCl IV/IO. For cardiogenic shock, poisoning(eg, calcium channel blocker or Beta blocker), and/or newborns (<30 days) administer 10mL/Kg	1000mL Bag

Pediatric Medication Dosages

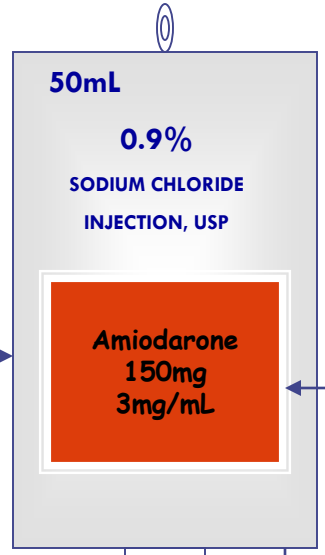
Glucagon	0.5 mg IM up to 24kg, over 24kg 1mg IM	1mg Vial
Ketamine	0.5-1mg/kg IV/IO/IM/IN	500mg/5ml Vial
Lasix	1mg/kg IV/IO. Maximum dose of 20mg	100mg/10mL Vial
Lidocaine	1mg/kg IV/IO (2mg/kg ETT)	100mg/5mL PFS
Magnesium Sulfate	25 mg/kg IV/IO over 20 minutes, maximum 2 grams	5 Grams/10mL Vial
Narcan	0.1mg/kg equal or less than 20kg. May administer up to 2mg for patients over 20kg's	2mg/ 2mL
Ondansetron HCL	0.1mg/kg IV/IO/IM	4mg Vial
Proventil/Albuterol	1.25mg – 2.5mg Nebulized	2.5mg/3mL Plastic Vial
Sodium Bicarbonate	1mEq/kg	50mEq/50mL PFS
Thiamine	Thiamine is rarely indicated, contact medical control	100mg/2mL Vial
Valium	0.2 mg/kg IV/IO/IM	10mg vial
Vecuronium	0.1mg/kg IV/IO	1mg/mL when reconstituted with 10mL bacteriostatic water
Versed/Midazolam	0.05mg/kg - 0.1mg/kg IV/IN/IM/IO not to exceed 10mg/dose	5mg/1mL Vial

Amiodarone Infusion

V-Tach w/ a pulse Mix 150mg into a 50mL (3mg/mL) 0.9% NaCl, Administer over 10-minutes (15mg/minute)(Use 10gtts/mL drip set)

Maintenance Infusion Mix 150mg into a 50mL (3mg/mL) 0.9% NaCl, Administer at 1mg/min

	Mix 150mg in 50ml (3mg/ml)	
V-Tach With a Pulse	150mg/10min	50ml/hr
Maintenance Infusion	1mg/min	20ml/hr



Always label the bag when administering any medication

Amiodarone is a Class III Antiarrhythmic used for life-threatening ventricular rhythms. It acts to slow the sinus rate.

Amiodarone is diluted into an infusion to help reduce the risk of Hypotension. If Hypotension develops, slow rate of infusion.

Yields 3.0mg/mL

V-Tach with Pulse

50gtts/minute utilizing the

10 drops/mL administration set

Maintenance Infusion

1 mg/minute utilizing the

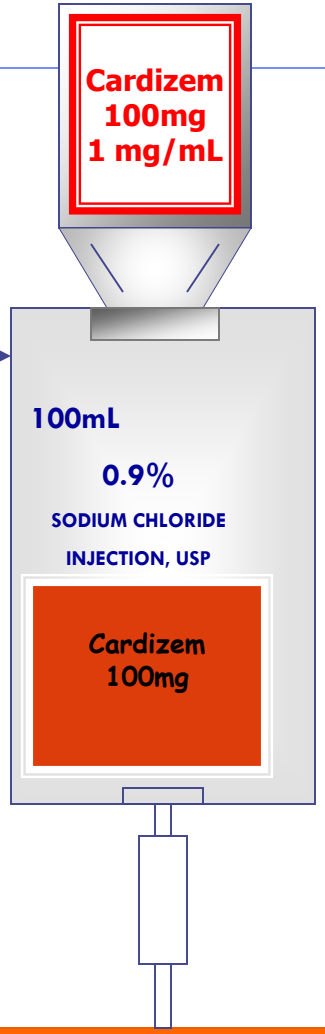
10 drops/mL administration set

Set Dial-A-Flow at 20 mL/hr

Cardizem Infusion

Mix 100mg into a 100mL 0.9% NaCl, Administer 0.25mg/kg over 2-minutes

	Mix 100mg in 100ml (1mg/mL)					
	Patient Weight in Kg					
Bolus doses in mL's	50	60	70	80	90	100
1st Dose 0.25 mg/kg mL/hr	12.5mL 375mL/hr	15mL 450mL/hr	17.5mL 525mL/hr	20mL 600mL/hr	22.5mL 675mL/hr	25mL 750mL/hr
2nd Dose 0.35 mg/kg ml/min	17.5mL 525mL/hr	21mL 630mL/hr	24.5mL 735mL/hr	28mL 840mL/hr	31.5mL 945mL/hr	35mL 1050mL/hr



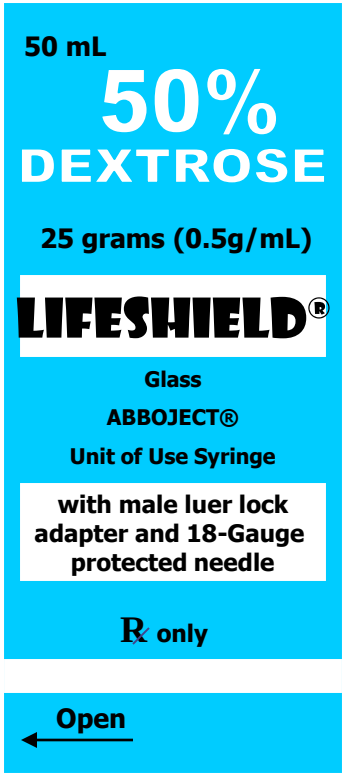
You must pay close attention to the established time frames, once the initial 2 minutes dosing period is complete, a second dose may be needed but only after a period of 15 minutes has lapsed.

A maintenance drip may be necessary and medical control will be contacted for proper dosage

Cardizem is a calcium channel blocker used to control rapid ventricular response associated with atrial fibrillation and flutter

It slows conduction through the AV node, causes vasodilation, decreases rate of ventricular response, decreases myocardial oxygen demand

50% Dextrose (D50)



"D50" Inside the numbers.

1) D50 = 25 grams of Dextrose diluted into 50mL's of solution (prepackaged).

2) D25 = 12.5 grams of Dextrose diluted into 50mL's of solution (can be made by expelling 25mL's of solution from the D50 syringe and then simply drawing up 25mL's of 0.9% NaCl. Which yields 25% Dextrose).

3) D10 = Withdraw 50 mL of 0.9% NaCl from 250 IV bag and discard.
Place the amp of D50 (25G) into the 200 IV bag Which yields 10% Dextrose.

Diabetes overview:

Diabetes Insipidus: Is the inadequate secretion or resistance of the kidney to the action of the antidiuretic hormone (ADH). Major S/S are polydipsia (thirst) and polyuria (frequent urination).

Diabetes Mellitus Type I: Insulin-dependent. Usually occurs before the age of 30. The patient may need insulin injections and dietary modifications to control blood sugar levels. Cells in the pancreas that produce insulin are damaged – so they may produce little or no insulin.

Diabetes Mellitus Type II: Non insulin-dependent. Usually occurs in obese adults over the age of 40. The cells in the pancreas are able to produce insulin, just not enough.

Hyperglycemia is caused by insulin deficiency

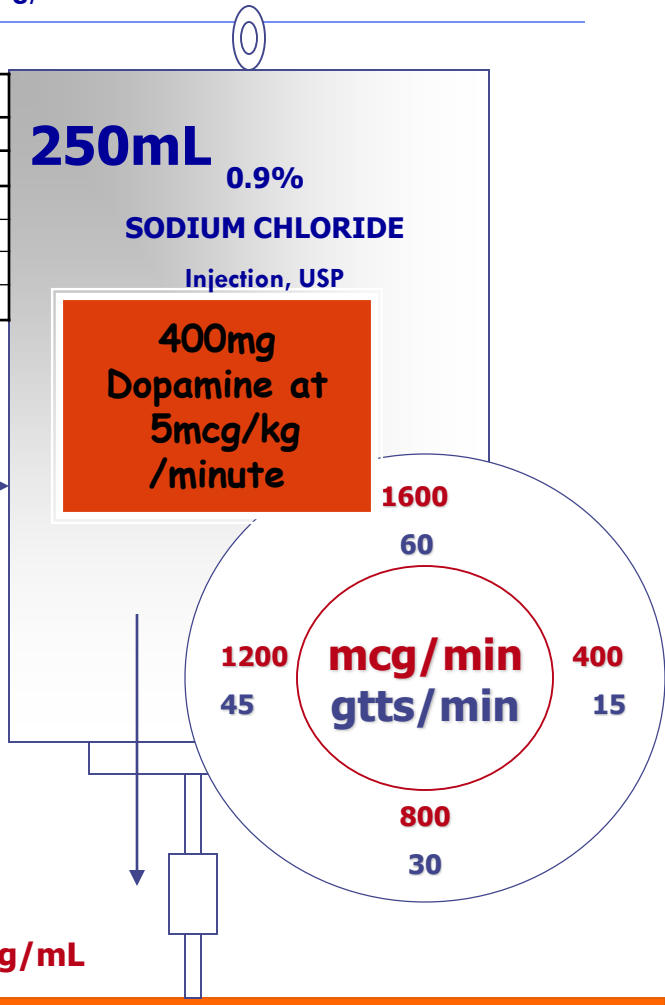
Hypoglycemia is caused by an excess of insulin or medication

Dopamine Infusion

Mix 400mg into a 250mL 0.9% NaCl, which yields 1600mcg/mL. The dose is 5mcg/kg/minute

	Mix 400mg in 250ml NSS (1600mcg/ml) Patient Weight in Kg											
mcg/kg/min	2.5	5	10	20	30	40	50	60	70	80	90	100
5mcg	*	1	2	4	6	8	9	11	13	15	17	19
10mcg	1	2	4	8	11	15	19	23	26	30	34	38
15mcg	1.4	3	6	11	17	23	28	34	39	45	51	56
20mcg	2	4	8	15	23	30	38	45	53	60	68	75

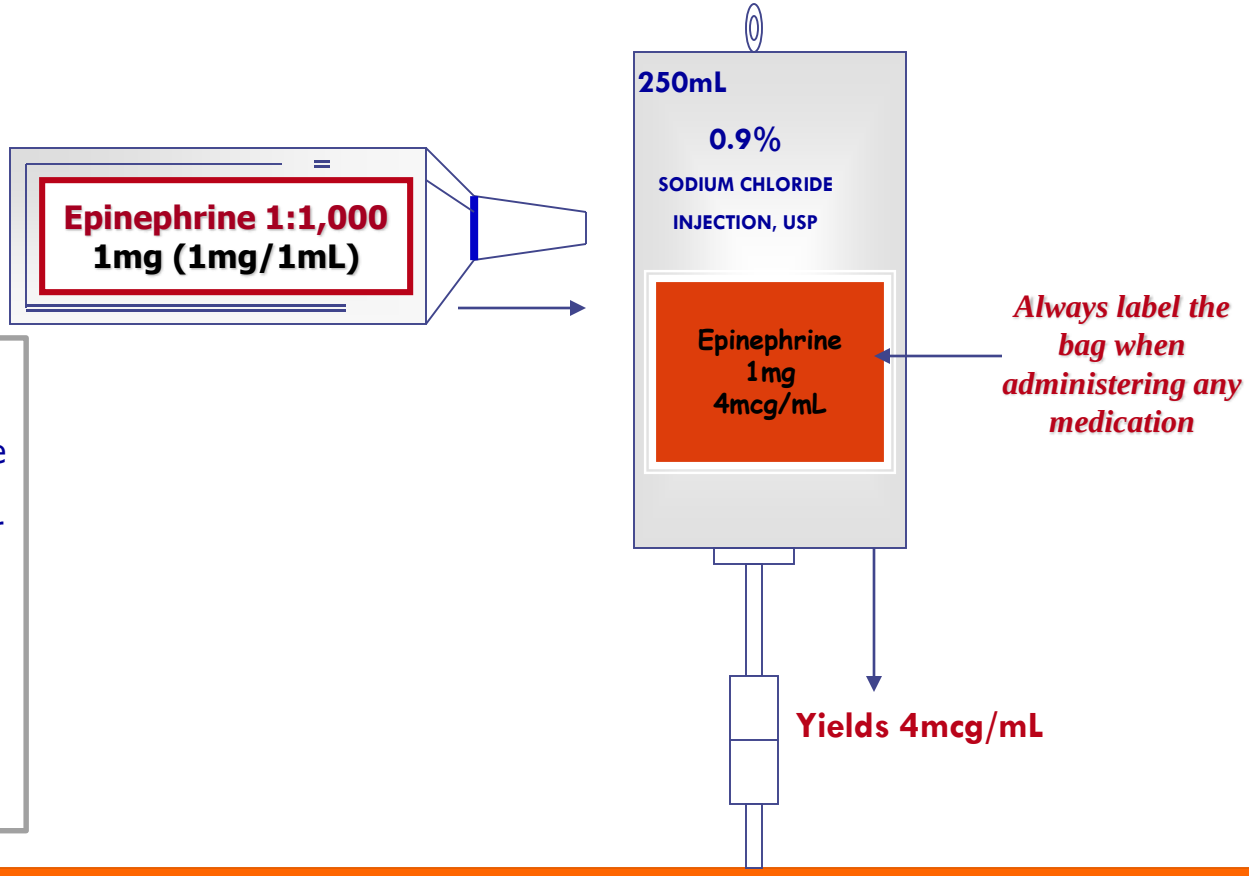
Dopamine is a Vasopressor that increases Blood Pressure by acting on both the *Alpha* and *Beta 1* receptors.



Epinephrine Infusion

2-10 mcg/min

Mix 1mg (1:1,000) in 250ml NSS (4mcg/ml)								
Mcg/min	2	3	4	5	6	7	8	9	10
mL/hr	30	45	60	75	90	105	120	135	150



Severe hypotension

Can be used when pacing and atropine fail, when hypotension accompanies bradycardia (profound bradycardia), or with phosphodiesterase enzyme inhibitor use

2-10 mcg/min infusion; titrate to response

IX. Pharmacology

In accordance with HRS, Chapter 64J Florida Administrative Code, a log shall be maintained for Fentanyl, Versed, Ketamine and Valium (Controlled Medications). All medications used, removed, or missing must be logged in the appropriate places. Refer to OCEMS SOP 417.00 for the comprehensive policy.

The controlled medication log shall contain:

1) The vehicle or unit ID number (may be listed on the front cover of the Controlled Medication Log).

2) The legible name of the Paramedic conducting the inventory.

3) The Paramedic's identification number.

4) The date and time of the inventory.

5) The drug's name, volume, quantity and expiration date.

Note: Medications dated for example, Fentanyl **July 04**, would expire at the **end** of July 2004, unless otherwise indicated.

6) The incident (run) number and the amount for each medication administered.

7) The printed name and signature of the administering Paramedic.

8) The printed name and signature of the person witnessing the disposal of the unused portion.

9) No lines in the log should be skipped or left blank.

Non-controlled medications must be logged:

1) On the Patient Care Report.

Continued…

OCEMS Units will carry:	
600mcg	Fentanyl
20mg	Versed
1000mg	Ketamine
20mg	Valium

Medication Log

Each ALS Lock Box will have a dedicated key that will be kept in the possession of the Paramedic assigned to that vehicle. The only other key that can open this box will be a master key held by the Logistics Supervisor, or department designee. During shift change, the off-going Paramedic will turn the key over to the on-coming Paramedic **AFTER** they jointly verify that the medications are present, and without signs of tampering. The Paramedic who is carrying the key is responsible for medications within the assigned ALS Box.

Keys are to be carried by the Paramedic at all times, and not left in the vehicle.

This procedure will be followed each time the drug key is turned over to any other shift personnel.

Expired Medications:

Expired medications will be removed and submitted to **Logistics** on the first day of each new month. Expired narcotics will be submitted to the EMS Branch Commander for replacement.

Missing or Broken Medications:

Missing or broken medications will be replaced immediately by the discovering crew, and reported to the crew's supervisor. Missing or broken narcotics will be IMMEDIATELY reported to the crew's supervisor.

These guidelines are based upon Federal DEA and State of Florida regulations and are referenced in OCEMS SOP 417.00

The "Rave" Drugs

Cocaine: Is a Stimulant/Anesthetic. AKA – coke, crack, flake, snow (Common S/S: HA, NV, CP, tachycardia, AMI, HTN, seizure, dilated pupils). Reference the Cocaine Protocol, Pg 45.

Ecstasy (MDMA): Is a Stimulant/Hallucinogen. AKA – XTC, X, love drug, MDMA, empathy. (Common S/S: euphoria, hallucinations, agitation, nausea, teeth grinding, HTN, tachycardia, heart and renal failure, dilated pupils, CVA)

GHB (Gamma Hydroxy Buterate): Is a Depressant. AKA – G, easy lay, liquid X, cherry meth (Common S/S: euphoria, sedation, dizziness, myoclonic jerking, NV, HA, bradycardia, apnea)

Hallucinogens: Alter perception. AKA – LSD, psilocybin mushrooms (Common S/S: anxiety, panic, NV, disorientation, hallucinations)

Ketamine (KETALAR®): Is a Dissociative Anesthetic. AKA – Special K, Vitamin K, horse tranquilizer (Common S/S: sedation, babbling, tachycardia, hallucinations, paranoia, coma, seizure, NV, respiratory depression, egocentrism, nystagmus)
Nystagmus *is involuntary eye movement, which can result in some degree of vision loss.*

PCP (Phencyclidine): Tranquilizer. AKA – peace pills, angel dust, horse tranquilizer (Common S/S: nystagmus, disorientation, HTN, hallucinations, catatonia, sedation, paralysis, stupor, mania, tachycardia, dilated pupils, status epilepticus)

Rohypnol (Flunitrazepam): Benzodiazepine. AKA – roofies, Mexican Valium, row-shay (Common S/S: anterograde amnesia, hypotension, sedation, dizziness, confusion, coma)

Oxycontin: Narcotic. (Common S/S include: pinpoint pupils, respiratory and CNS depression, confusion, drowsiness, mood changes, N/V, apathy, LOC, coma and reduced vision) to name a few.

Reference the Overdose Protocol, Pg 44.

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®

Intent

Critical Care Transport protocols & procedures may be utilized by credentialed, and authorized by the Okaloosa County EMS Medical Director(s), Critical Care Transport Paramedics (CCT-P) during the interfacility transfer of critical care patients only. The scope of practice of the CCT-P shall be guided by the transferring physicians written orders. If an order is received that deviates from these protocols, or is outside the training and comfort level of the CCT-P, the OCEMS Medical Director shall be contacted prior to departure from the transferring hospital for directives.

Abbreviations & Terms

- **ETSN** **E**ar-to-sternal **n**otch (airway position, previously known as "sniffing position"), performed by elevating the patient's head, and confirmed from the patient's side by visualizing that the auditory canal is level with sternum and parallel to the ground.
- **ELM** External Laryngeal Manipulation, also know as "Bimanual Laryngoscopy", similar to BURP
- **IIRR** "If incomplete response, repeat", applies to transient or incomplete responses to initial doses of medications, e.g. repeat doses of nebulized albuterol in the face of continued wheezing and difficulty breathing
- **MAP** Mean Arterial Pressure
- **MIH** Mobile Integrated Healthcare services that are designed to enhance, coordinate, effectively manage, and integrate out-of-hospital care
- **OLMC** **O**n-**L**ine **M**edical **C**ontrol
- **PIE** **P**rogressive **I**nsertion **E**piglottoscopy, or epiglottis identification laryngoscopy, prior to exposing vocal folds during intubation
- **PCMH** Patient Centered Medical Home refers to the function and/or group of providers through which individuals receive comprehensive, patient-centered, and coordinated care
- **SBP/DBP** Systolic Blood Pressure/Diastolic Blood pressure - all units of measurement are in mmHg, e.g. SBP > 90 means Systolic Blood Pressure > 90 mmHg

Terms

- **Atropinization** Drying of mucus membranes and airway secretions resulting from appropriate dosing of atropine in organophosphate poisoning
- **Drug-Assisted Airway** Pharmacologic and procedural induction of sedation or unconsciousness to facilitate advanced airway management
- **Hemodynamic Instability** Abnormal or unstable low blood pressure. Signs and symptoms include diminished organ function (e.g. AMS, pallor/diaphoresis) due to a low perfusion (blood flow) state; may be manifested as absolute hypotension (e.g. SBP < 90 in adults) or relative hypotension in patients with signs of poor perfusion.
- **Inframammary Line** The anatomic location used to guide needle thoracostomy insertion site selection
- **Needle Thoracostomy** Insertion of a large-bore catheter into the chest for the purpose of relieving a tension pneumothorax
- **Serial EKGs** Repeat EKGs, at minimum 2-tracings prior to arrival at the destination
- **Waveform Capnography** The visual representation of the measured exhaled carbon dioxide in graphic form as opposed to a numeric value. Visualized as a 4-phase generally square shaped waveform with each breath. Monitoring is required for all patient's receiving advanced airway intervention, including endotracheal intubation or blind insertion supraglottic airway

Blood & Blood Products

1. A written consent is required for administration of any blood product. The consent is to be obtained by the sending facility, and a copy should be included in the patient's chart for transport to the receiving facility.

2. Every patient receiving blood or blood products is to have a recipient band in place.

3. If product is infusing at time of initial patient contact, verify facility transfusion checklist.

   a. Patient's name and hospital number matched with transfusion record form (attached to product bag).

   b. Type and number on transfusion record form matched with product bag.

   c. Pre-transfusion temperature, pulse, respirations and blood pressure are documented on transfusion record form.

   d. Nurse administering product has signed, dated and timed the transfusion record form.

   e. All original copies of the transfusion slip should remain with the patient. Sending facility should make a copy of this for their records.

4. If CCT-P is going to initiate the transfusion of blood or blood products during transport, verify the order and facility transfusion checklist with patient's primary RN prior to transport.

5. Obtain necessary equipment, i.e. tubing, filters, etc. from sending facility to administer transfusion.

6. Prior to administering blood or blood products en route, the CCT-P will complete the facility's pre-transfusion checklist and document accordingly on the product slip and in the CCT-P run report.

7. Blood or blood products may NOT be piggybacked into an existing IV line. When administering via a multi-lumen central venous catheter it is suggested that the most distal lumen not already in use (e.g. vasopressors) be utilized.

8. Vital signs including temperature should be obtained and recorded 15 min, 45 min and then 1 hour, at a minimum, after initiating the transfusion until completed. If patient spikes a temperature 2˚F greater than baseline, discontinue the blood infusion.

9. If the transfusion is completed en route, it is the CCT-P responsibility to document on the transfusion slip the date and time completed, amount given, whether or not the blood is warmed, if a reaction occurred and post-transfusion vital signs. All completed bags and tubing should be turned over to the receiving facility with the patient.

10. It is the receiving facility's responsibility to return the transfusion slip to the sending facility's blood bank.

Whole Blood, Packed RBCs, Frozen RBCs, FFP, Platelets & Cryoprecipitate

1. Verify transfusion checklist.

2. Prime Y-type blood tubing with Normal Saline and begin infusion slowly.

3. Attach blood bag to Y-type blood tubing. Clamp tubing to saline. Open clamp to blood and adjust flow to run slowly for the first 15 minutes. If no adverse reaction, increase flow based on patient condition and transfusion times.

   a. Whole Blood: 1-1/2 – 3 hours

   b. Packed RBC's: 1-1/2 – 3 hours

   c. Washed Packed Cells: 2 hours maximum

   d. Fresh Frozen Plasma: 30 min (all units must be infused within 4 hours from thaw time)

   e. Platelets: 30 min max

Chest Tube Management Procedure

1. Inspect the patient's chest wall to ensure that all connections are tight and that the tubing is not kinked. Also check the skin around the insertion site for subcutaneous emphysema. Be sure that all connections are tight and that all connections between the tube and the chest drain system are secured with non-porous tape.
2. Note color, consistency and amount of drainage.
3. Note any air leak in the water chamber. Ask the sending facility staff RN if there has been a prior leak.
4. Mark Pleur-evac (or other drainage system) with a pen at the current level of drainage in the system.
   - → Be alert to sudden changes in the amount of drainage.
   - → A sudden increase indicates hemorrhage or sudden patency of a previously obstructed tube.
   - → A sudden decrease indicates chest tube obstruction or failure of the chest tube or drainage system.
5. Adjust wall suction to create a gentle rolling of bubbles in the water seal chamber or until suction indicator in appropriate range. Vigorous bubbling results in water loss. Note that some systems do not include a water seal chamber and therefore may not bubble.
6. Verify the level of the suction control chamber is at the level prescribed by the physician (usually -20 cm).
7. Do not clamp the patient's drainage tube at any time during travel. The water seal in the unit prevents backflow of air, whether or not suction is applied.
8. Position patient in semi-fowlers (if condition allows) to enhance air and fluid evacuation. NEVER raise the chest tube above the chest or the drainage will backup into the chest. Avoid any dependent loops as drainage problems and tube obstruction may occur. The tubing should be coiled flat on the bed and from there fall in a straight line to the chest drainage system.
9. After placing the patient in the ambulance, place the Pleur-evac next to the cot and secure with 3" tape

Extracorporeal Membrane Oxygenation (ECMO)

ECMO accredited staff must be present to manage and maintain changes during transport.

Unlike standard cardiopulmonary bypass which provides cardiopulmonary support following cardiac surgery or cardiac arrest, ECMO provides longer-term support, typically over 3-10 days.

Prevention of complications is fundamental to successful ECMO care. Ensure and document the following prior to initiation of transport.

1. Securing Cannula: All ECMO lines MUST be secured at 2 points with properly adherent skin dressings. Initial securing is the responsibility of the cannulator (physician) and cannot be delegated.
2. Prior to transport, ensure that backup components of critical items are available
3. Cannula positions: Cannula position must be confirmed radiographically by medical staff prior to transport.
4. ECMO Cannula dressings: Sterility must be maintained and insertion sites kept unsoiled.
5. Patient Movement: Prevent tension or torsion to the ECMO circuits during patient movement.

Hemodynamic Monitoring Procedure

All patients who are transported by a Critical Care Paramedic that have invasive pressure lines will be monitored continuously with the use of a cardiac monitor. All pulmonary artery catheters will be monitored during transport. The following standards will be achieved on all patients meeting the criteria for hemodynamic monitoring.

1. Assess the pressure waveform displayed on the sending facility monitor.
2. Obtain a pre-transport strip of waveform from sending facility's monitoring equipment as well as a post- transport strip from receiving facility's monitoring equipment.
3. Obtain current pressure readings from the monitor and patient care records.
4. The CCT-P will evaluate the pressure transducer for compatibility with the CCT-P equipment. If the line is not compatible, the pressure line must be changed to facilitate monitoring by the CCT-P unit during the transport.
5. Flush the invasive line prior to changing over to CCT-P equipment to ensure patency.
6. Once line has been changed over, flush any visible air out of line via stopcock before flushing to patient.
7. The pressure bag will be inflated to 300 mmHg.
8. The pressure cable will be connected to the monitor and the patient end will be connected to the transducer port on the pressure tubing.
9. The transducer will be placed at the Phlebostatic axis (4th intercostal space, mid-chest level) line and taped securely.
10. All excess tubing will be coiled and taped in an orderly fashion.
11. The pressure line will be zeroed and calibrated to the monitor.
12. The waveform will be identified by the labels provided in the monitor (PA, ART).
13. The waveform will be assessed on the monitor, a pressure reading will be obtained and a strip will be obtained and submitted with the patients chart.

Intra-Aortic Balloon Pump (IABP) Procedure

The CCT-P will utilize a RN or perfusionist from the sending facility to maintain the IABP.

1. Review the most recent 12-lead EKG. Select lead with greatest R-Wave amplitude. Place patient in this lead on cardiac monitor for continuous monitoring during transport. Limit chest artifact. EKG leads for the IABP will be secured with tape to the patient's chest and maintained during transport. Lead selection may need to be changed in order to get the best R-wave and capture on the balloon pump (if EKG triggered).
2. Arterial line shall be maintained on the IABP. If a transducer is used, ensure that it is directly connected to the pump and in working order. Maintain adequate arterial tracing. If radial site is used, secure arm with arm board to protect site during transport. Secure tubing.
3. Evaluate balloon insertion site. Note balloon size in the medical record. Check dressing site appearance. Monitor site frequently (every 15 minutes and as needed) during transport. Instruct patient to keep affected leg straight. Ensure that a knee immobilizer is in place prior to transport for additional reinforcement.
4. Establish baseline condition. Evaluate hemodynamics and clinical condition.
5. Hemodynamic assessment will include: temperature; blood pressure; respiration rate and quality; heart rate and rhythm; arterial blood pressure; Augmented pressures, MAP; CVP; PAP; augmented diastolic pressure (ADP). Document findings including patient's weight.
6. Evaluate pulses, both radial sites as well as posterior tibial and dorsalis pedis to facilitate subsequent localization during transport, also capillary filling times and extremity temperature.
7. Review lab values and trends.
8. Maintain H.O.B. at lowest point tolerated by patient, never to exceed 30 degrees.
9. Evaluate and closely monitor urinary output. All patients will have an in-dwelling urinary catheter.
10. Maintain IABP at prescribed timing/ratio (i.e.: 1:1; 1:2; 1:4). Evaluate effects.
11. Document hemodynamics. Document: IABP type, model and trigger (EKG, A-Line)

Precautions:

→ Never leave balloon pump inactive in patient for more than 20-30 minutes (i.e., not inflating and deflating). Thrombosis formation could occur after 30 minutes. Utilize 60 ml syringe to manually fill and deflate balloon.

→ Balloon leak: Observe tubing for blood. If blood is observed in the pneumatic tubing, shut off the balloon pump and leave intact. Maintain sterile technique and notify the physician and receiving facility immediately.

→ IABP Failure: Evaluate patient's condition and hemodynamics. Troubleshoot the device and make every effort to correct the problem and maintain the patient's safety. If IABP is inoperable for greater than 20-30 minutes, inflate IABP manually with 60 cc syringe every 3-5 minutes to avoid clot formation (Inflate with 10cc less than balloon size).

→ Ensure IABP battery is charged and Helium tank level is sufficient for transport. The balloon pump should be plugged into the ambulance inverter or generator outlets during transport.

→ Ensure there is ample tubing length for transfer and loading the patient into the ambulance. Secure the IABP tubing at patient end and stretcher end, but not mid-line. Put loops in tubing if length permits.

→ If bleeding is observed at the insertion site, apply direct pressure to the site until bleeding stops

→ If CPR is required, the IABP should be switched to "pressure trigger" mode

Mechanical Ventilation Procedure

All patients who are transported by the Critical Care Transport Unit will be monitored closely for the following:

1. Pulse oximetry- will be continuous and these patients will maintain an O2 saturation of 90% or above. The pulse oximeter readings will be documented on the patient care record (EPCR) prior to departure from the sending facility and every 15 minutes throughout the duration of the transport. Report from the sending facility should include the patient's normal range of SpO2. This will set the parameters for the CCT-P team regarding SpO2. Some patients will not have, nor maintain an SpO2 of 90% or greater due to their underlying pulmonary condition. Documentation of the reason for the variance from the CCT-P standard of care is essential.
2. Capnography- will be continuously monitored in all intubated patients. Tracheostomy patients will have capnography/ capnometry monitored when indicated. Examples would be abnormal vital signs and/or changes from normal condition. Titrations in respiratory rate and/or tidal volume may be made in order to maintain EtCO2 at normal range of 35-45 mmHg or level prescribed by physician or patient condition. Some patients will not have an EtCO2 within the desired range due to their underlying condition. Documentation of the reason for the variance from the CCT-P standard of care is essential.
3. Ventilator settings- will be documented on the run sheet, as well as any changes that are made during the transport.
4. Endotracheal- or tracheal suctioning will be performed using aseptic technique when to maintain a patent airway; the type, color and amount of secretions will be documented on the run sheet.
5. Sedation: Patients that require sedation and/or a paralytic to maintain adequate oxygenation and reduce anxiety will be provided with medication as per protocol.
6. Tracheostomy Patients: The CCT-P will ensure that all patients whose airway is maintained by a tracheostomy tube will be provided with the obturator and an additional tracheostomy tube prior to leaving the sending facility.
7. AMBU Bag: The CCT-P will ensure that a bag valve mask (BVM) resuscitator is kept with the patient at all times. This will ensure adequate ventilation management in the event of mechanical ventilator failure.
8. Communication: Communicate with a vent patient, prior to switching to the CCT-P vent, the differences they will experience. Continue to talk with the patient and attempt to alleviate anxiety/restlessness.
9. Scene Call- In the presence of any advanced field airway, either placed by the CCT-P or prior to arrival, the CCT-P may utilize the ventilator with the initial recommended settings setting (waveform EtCO2 required)
10. Patients on home ventilators- will remain on current ventilator for transport ensuring there is adequate power supply.

Patient may be moved over to the CCT-P ventilator if:

a. Clinical indication (respiratory compromise) is present
b. CCT-P is unfamiliar with home ventilator and family is unable to accompany patient during transport
c. Equipment constantly malfunction/alarms

GOALS:

1. To maintain pulmonary management of the ventilator dependent patient during transport.
2. To maintain or improve the patient's level of care.
3. To prevent complications of oxygen toxicity/dependence by providing the appropriate FiO2.
4. To provide quality patient care utilizing the transport team approach.
5. To prevent complications of positive pressure ventilation.

Pulmonary Artery Catheter Procedure

1. Check and document PCWP at sending facility ONLY. Check PA systolic, diastolic and mean pressures at sending facility and every 10 minutes.

The Pulmonary Artery Capillary Pressure (PCWP) will only be obtained at the sending facility

a. Normal Mean Values:

i. Pulmonary Artery Pressure (PAP) Systolic 15-30 mmHg Diastolic 4-12 mmHg

ii. Pulmonary Artery Capillary Pressure (PCWP): 4-10 mmHg

iii. Central Venous or Right Atrial Pressure (CVP): 0-12 mmHg

(Therapeutic ranges may be somewhat higher than the above values)

b. Exceptions:

i. The optimal mean PCWP (wedge) may be 15-20 mmHg in patients with compromised left ventricular function, post-op stress or post MI.

ii. For patients with COPD and respiratory failure, expect PCWP pressures in the range of 30-50 mmHg. PCWP should be normal in pure pulmonary hypertension.

2. Trends in PAP and PCWP pressures are the most significant factors in detecting significant physiological changes in the patient's condition. Be sure to obtain history of these values prior to transport.

3. Inspect and document the insertion site. Note and document the PA insertion depth.

4. Calibrate the transducer at the beginning of the transfer before the patient is transferred over to the stretcher and with any major position changes.

5. Maintain pressurized flush system at 300 mmHg.

6. If change in waveform occurs, contact Medical Control for direction.

7. Follow set parameters for specific IV vasoactive drips as ordered by transferring physician.

Respiratory Insufficiency with Advanced Airway in Place

- Ensure adequate pain control and sedation
- Apply ventilator, as appropriate; initial recommended settings (see chart below), Waveform EtCO2 required
- If hypoxemic and dysynchronous with ventilator, and if refractory to optimized FiO2 and PEEP
  - Vecuronium – 0.1 mg/kg IVP for paralysis, IIRR x 1
  - Soft restraints to prevent self-extubation, as appropriate
- If hemodynamically stable (SBP > 90), and if continuous sedation required
  - Propofol - 10-100 mcg/kg/min, titrate as appropriate
- If advanced airway required (not already in place) follow the RSI Protocol

	Adult	Pediatric
TV	5ml/kg ideal body weight	5ml/kg to adequate chest rise
Mode	Volume Control	Volume Control
FiO2	30%-100% (Titrate O2 to SpO2 ≥ 90%)	100%
RR	12-20 Bpm (Titrate to EtCO2 of 35-45 mmHg)	Peds:20-30, Adolescents:15 (Titrate to EtCO2 of 35-45 mmHg)
PEEP	5 cmH2O	5 cmH2O
I:E	1:2 (exception of Asthma 1:4)	1:2 (exception of Asthma 1:4)
Titrate setting to patient condition		

Stroke/CVA/TIA

- Nicardipine (25 mg/250 ml NS) - 5 mg/hr to max 15 mg/hr

  If MAP drops 25% or more

  - Decrease by 2.5 mg/hr

  If Acute Ischemic Stroke

  - If candidate for, or if already treated with, tPA
    - Titrate to SBP ≤ 180 and DBP ≤ 105

  If not a candidate for tPA

  - Only treat for SBP >220 or DBP >120
  - Discuss blood pressure parameters with sending facility if suspected or confirmed concomitant disease process potentially requiring more aggressive anti-hypertensive management:

    (e.g. Active ischemic coronary disease, heart failure, aortic dissection, hypertensive encephalopathy, acute renal failure, or pre-eclampsia/ eclampsia)

Transvenous Pacemaker Procedure

1. Place a new battery in the temporary pacemaker and test it prior to use.

2. Connect pacer wires to Temporary Pacemaker Cables with leads/heartwires - the patient cable with lead or heartwire plugs into socket on top of unit. In the absence of patient cables, temporary transvenous leads plug directly into the two smaller sockets.

3. Match the positive (+) and negative (-) leads to the positive (+) and negative (-) sockets or clips (as applicable). There may be instances where the leads are reversed in polarity to obtain capture. CCT-P will connect in the same manner as the sending facility.

4. Set the pacemaker controls

    a. Set the sensitivity (the highest number is least sensitive; the lowest is most sensitive)

5. Demand mode - (withholds its pacing stimulus after sensing a spontaneous depolarization) set the sensitivity value to detect intrinsic activity.

    a. Set pacemaker's rate 10 bpm slower than patient's intrinsic rate (the sense indicator will flash regularly)

    b. Reduce milliamps (output) to the minimum value (this avoids risk of competitive pacing).

    c. Sensitivity should be set at its lowest value necessary to ensure mechanical capture, and should be increased only to the point of stopping any oversensing.

    d. Restore original pulse generator rate and output values.

6. If asynchronous mode is indicated (stimulates at a fixed, preset rate independently of the electrical and/or mechanical activity of the heart) turn sensitivity dial to ASYNC (not the preferred mode for critical care transport).

    a. Set the rate and milliamps (output)

    b. Set the milliamps (output) at 5 and the rate at 60 or as directed by the physician orders.

7. Turn the pacemaker ON

8. Check the monitor to ascertain that capture (depolarization of the atria and/or ventricles) is obtained- if not, increase the milliamps slowly until capture is obtained, this is the threshold (minimum electrical stimulus needed to consistently elicit a cardiac depolarization). Then set the milliamps at two (2) x the threshold.

Setting stimulation threshold:

1. Ensure the patient is connected to pacemaker and being monitored on EKG.

2. Set pulse generator rate at least 10 ppm faster than the patient's intrinsic rate (The pace indicator will be flashing regularly at the set rate).

3. Decrease the milliamps (output) until 1:1 capture is lost (the pace and sense indicators will be flashing intermittently).

Ventricular Assist Device Procedure (Impella)

The CCT-P will utilize a RN from the sending facility to maintain the Impella Ventricular Assist device.

The Impella is intended for partial circulatory support using an extracorporeal bypass unit, for periods from 6 hours (Impella 2.5) to 2 weeks (Impella 5.0).

1. Document position of Impella as reported by sending facility. If possible, bring reports and/or imaging studies that document confirmation of placement.

2. Observe sheath site for signs of bleeding, swelling or hematoma.

3. Review last vital signs, presence or absence & location of pedal pulses.

4. Determine if the patient has chest discomfort, pain or shortness of breath.

5. The HOB should never be moved from the position it was originally established at. Movement of the HOB is the primary cause of migration of the Impella during transport. Most patients will need to remain flat throughout transport. Under no conditions is HOB ever to exceed 30˚.

6. Refer to hemodynamic monitoring protocol for arterial line maintenance.

Precautions:

→ In sure that the stopcock on the peel-away introducer or repositioning sheath is always kept in the closed position. Significant bleeding can occur if the stopcock is left in the open position.

→ CPR should be initiated immediately per OCEMS protocol if indicated for any patient supported by the impella. When initiating CPR, reduce the impella flow rate. When cardiac function has been restored, return flow rate to the previous level and assess placement signals on the controller

→ During defibrillation, do NOT touch the impella catheter, cables or automated impella controller.

→ Infusion through the sideport of the introducer can be done only after all air is removed from the introducer. If performed, the infusion should be done for flushing purposes only and NOT for delivering therapy or monitoring blood pressure.

Ventricular Assist Device Procedure (all others)

While some VADs produce pulsatile flow, most VADs use continuous flow technology, thereby creating a non-pulsatile continuous flow. This means most patients with a VAD will not have a palpable pulse and, therefore, taking a blood pressure with a manual cuff and stethoscope will rarely allow you to auscultate a pressure. It is imperative that the type and model of VAD be identified (i.e. HeartWare HVAD vs Jarvik 2000 FlowMaker). Important aspects of transport include allowing a family member to ride along with the patient because the family member can be an invaluable resource. They are often trained in the operation of the equipment and know how to handle an emergency, and can also be a comfort to the patient.

Refer to device specific manual for setup and troubleshooting or questions. Verify you are using the most current procedure manual before operation.

If patient not responsive to pain and has capillary refill > 3 seconds (inadequate perfusion)

If CPR and defibrillation can be performed on the patient (see VAD reference or documentation)

1.Refer to Cardiac Arrest Protocol

If CPR and defibrillation are contraindicated

1. Check controller for alarms. (I.e. low battery, driveline malfunction, pump stopped.)
2. Auscultate and feel left upper abdominal quadrant for a continuous whirring sound and vibrations.
3. Determine if there is a “hand pump” or external device to utilize.
4. Remember not to perform chest compressions because they could dislodge the pump, making the patient bleed to death. (Unless the patient is in obvious cardiac arrest and the pump isn’t working. Use the assistance of the VAD coordinator to figure this out before starting any compressions).
5. Perform all other BLS/ACLS protocols as written.
6. Avoid kinking or twisting driveline when strapping the patient onto the stretcher.
7. Keep batteries and controller in reach and secured to the patient during transport. Keep them dry.
8. Take the patient’s emergency travel bag when leaving the scene. (It has an extra controller, batteries and the VAD coordinator’s emergency contact number.) Access back up controller and power sources as needed.
9. Monitor and document all IBP (in hospital), EKG, and Wave form ETC02 and ventilator settings every 15 minutes.
10. Contact online medical control for further instructions.

*If feasible, transport the patient to their implant hospital. If not, transport to the nearest most appropriate hospital.

Ventriculostomy Monitoring Procedure

1. Maintain patient's head position per physician's order (usually 30 degrees).
2. Check and document dressing site and appearance.
3. Confirm level of drain and any other patient specifics in regards to monitoring, as follows.
    a. Review physician's order to place ventriculostomy to either drain or monitor.
        i. If ventriculostomy is placed to drain:
        - Verify that the stopcock at the zero level is opened to the drainage bag side. The drip chamber is placed so that the zero level is at the foramen of Monroe (Point of communication between the 3rd and lateral ventricles of the brain). Anatomical landmark for foramen of Monroe is the external auditory canal. Ensure the Buretrol is moved so that the pressure line is at the ordered level of drainage.

        ii. If ventriculostomy is set to monitor:
        - Do not collect measurements during transport.
4. The system must be secured on a pole at all times. The system is adjusted to obtain the zero level.
5. If tubing becomes occluded during transport, do not flush or manipulate line. Notify receiving staff upon arrival.
6. Document on PCR drainage amount, color, ICP and any other pertinent information.

APGAR Scoring Table

Background Information:

The APGAR Scoring System is widely utilized as a indicator of the need for resuscitation of the newborn. Five objective signs are evaluated and the total score is noted at 1-minute and again at 5-minutes after the complete birth of the infant. If the 5-minute APGAR score is less than 7, additional scores are obtained every 5-minutes for a total of 20-minutes. The HR of the newborn is determined by listening to the chest with a stethoscope or by palpating the umbilical cord stump for arterial pulsations. Respiratory activity is judged by the newborn's breathing effort and rate. Muscular tone is best seen in the extremities in response to stimulation. Reflex activity is best evaluated during suctioning of the naso and oropharynx or when handling the infant. Most newborns score only 1 for color both at 1 and 5-minutes of age (as there is some degree of peripheral cyanosis/acrocyanosis. The need for immediate resuscitation can be more rapidly assessed by evaluating the HR, reparatory activity and color, than by the total APGAR score. Since even a short delay in initiating resuscitation may result in a long delay in establishing spontaneous and regular respirations and/or HR. It should not be delayed while obtaining the 1-minute score.

Sign	0	1	2	Score	
				1-Minute	5-Minute
Appearance (Skin)	Blue/Pale	Body is pink, extremities blue	Completely pink		
Heart Rate	Absent	<100	>100		
Grimace	No response	Grimaces/irritability	Cries		
Activity	Limp	Some Flexion	Active motion		
Respiratory effort	Absent	Slow and irregular	Strong Cry		
			Total =		

Automatic Transport Ventilators

CAREvent®: Is a timed cycled, constant flow, gas powered ventilator designed to deliver 10-20 breaths per minute (BPM) with a tidal volume range of 200-1100mL.

Indications: Patients > 20kg or 44 pounds that are apneic or have agonal respirations requiring ventilatory support.

Contraindications: Patients with suspected unrelieved pneumothorax, or unrelieved tension pneumothorax, water ascent injury, or patients whom weigh < 20kg/44 pounds.

Procedure:

1) Connect to a O2 cylinder and turn on the cylinder slowly.

2) Set tidal volume to equal 6 – 7mL/kg of body weight.

3) Set breath per minute per AHA Guidelines (Adult at 12-BPM – Child at 20-BPM).

4) Attach a disposable patient circuit to patient valve assembly.

5) If intubated, attach a CO2 detector inline between the endotracheal tube adapter and the disposable circuit. If available use a capnometer.

6) Monitor the patient closely for effective ventilation, or spontaneous respirations.

7) If spontaneous respirations occur, the CAREvent® will go into demand mode and supplement the patient's respirations. In this mode it will deliver only those breaths necessary to maintain the set BPM.

CAREvent®ALS

The Baker Act and Related Laws

The Baker Act (Chapter 394, Part I, F.S.) is actually The Florida Mental Health Act. It ***does not authorize the provision of medical treatment***. It may be initiated by a Certified Law Enforcement Officer. A Law Enforcement Officer may give EMS Personnel verbal permission to treat a patient under the auspices of the Baker Act. The Law Enforcement Officer must physically accompany the patient to the receiving facility and complete all related Baker Act Forms. Ensure the Officer's name and ID number are clearly documented on the Patient Care Report.

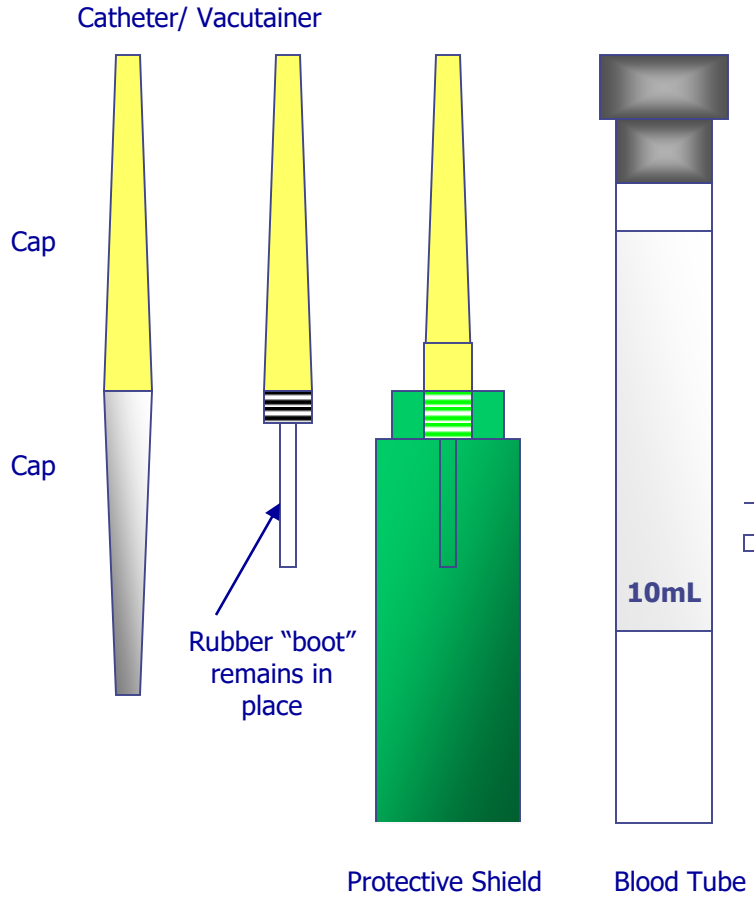
It is important to remember; the Baker Act relates to mental illness only.

The Marchman Act (Chapter 397, F.S.) This Act states that: A person may be taken into custody by a Law Enforcement Officer and court ordered into treatment for "substance abuse impairment". This means a condition involving the use of alcoholic beverages or any psychoactive or mood-altering substance to such a manner as to induce mental, emotional, or physical problems and cause socially dysfunctional behavior.

The Emergency Examination and Treatment of Incapacitated Persons Act (Chapter 401.445, F.S.) This Act gives EMS Personnel the power to treat without informed consent if the person at the time of exam or treatment is intoxicated, under the influence of drugs or otherwise incapable of providing informed consent without fear of having to respond to civil suits. This Act is specifically tailored for pre-hospital use.

Reference the 2004 Baker Act Handbook

Blood Drawing Kit



Steps for assembly;

1) Remove bottom (white cap) from catheter

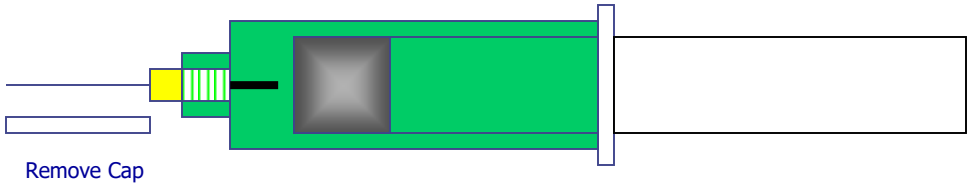
2) Attach catheter to protective shield

3) Slide blood tube inside the protective shield. **Do not** "seat" the tube until skin penetration has been established. Doing so, could inactivate the vacuum.

4) Remove top (yellow cap) from catheter

5) Gain venous access

6) Slide (seat) blood tube firmly in position



The illustration (above) shows the equipment when properly assembled to initiate the procedure.

Note: Florida Highway Patrol (FHP) may utilize a different brand of kit however, the components are essentially identical.
Reference: Blood Drawing Procedure Protocol in the General Information section, Pg 4.

Combat Application Tourniquet (C-A-T™)

The **Combat Application Tourniquet®** (C-A-T®) is a small and lightweight one-handed tourniquet that completely occludes arterial blood flow in an extremity. The C-A-T® uses a Self-Adhering Band and a Friction Adaptor Buckle to fit a wide range of extremities combined with a one-handed windlass system. The windlass uses a free moving internal band to provide true circumferential pressure to an extremity. The windlass is then locked in place; this requires only one hand, with the Windlass Clip™. The C-A-T® also has a Hook-and-Loop Windlass Strap™ for further securing of the windlass during patient transport.

Step 1: **Route the Self-Adhering Band Around the Extremity**
Step 2: **Pass the Band Through the Outside Slit of the Buckle**
Step 3: **Pull the Self-Adhering Band Tight**
Step 4: **Twist the Rod**
Step 5: **Lock the Rod in Place**
Step 6: **Secure the Rod With the Strap**
Step 7: **Record the Time of Application on the Strap**

Common Medical Abbreviations

$\overline{a}$ = before

aa = of each

AED = automated external defibrillator

AAOX4 = awake, alert, and oriented to person, place, time, and events

abd. = abdomen

Ab. = abortion

a.c. = before meals

aq = water

AF = atrial fibrillation

ARDS = Adult Respiratory Distress Syndrome

AT = atrial tachycardia

AV = atrioventricular

b.i.d. = twice a day

BSA = body surface area

BS = blood sugar and/or breath sounds

$\overline{c}$ = with

CC or **C/C** = chief complaint

CHF = congestive heart failure

CNS = central nervous system

c/o = complains of

CO = carbon monoxide

CO^2 = carbon dioxide

D/C = discontinue

DM = diabetes mellitus

DOE = dyspnea on exertion

DPT = diphtheria, pertussis and tetanus vaccine

DT's = delirium tremens

DVT = deep venous thrombosis

Dx = diagnosis

ECG – EKG = electrocardiogram

EDC = estimated date of confinement

e.g. = for example

ENT = ear, nose, and throat

ETOH = alcohol by definition is any chemical compound containing the Hydroxl group OH.

ETOH is the abbreviation of Ethanol (grain alcohol)

fl = fluid

FROJM = Full range of joint motion

fx = fracture

GB = gall bladder

Gm – g = gram

gr. = grain

GSW = gun shot wound

gtt. = drop

GU = genitourinary

GYN = gynecologic

h, hr. = hour

H/A = headache

H. (H) = hypodermic

Hb. – Hgb = hemoglobin

Hg = mercury

H & P = history and physical

hs = at bedtime

Hx = history

IC = intracardiac

ICP = intracranial pressure

Common Medical Abbreviations

JVD = jugular venous distention

KVO = keep vein open

LAC = laceration

LBP = lower back pain

LBBB = left bundle branch block

LSB = Long Spine Board

MAEx4 = moves all extremities x 4

NaCl = sodium chloride

NAD = no apparent distress

NPO = nothing by mouth

NKA = no known allergies

OD = overdose

O.D. = right eye

O.S. = left eye

PEARL = pupils equal and reactive to light

PID = pelvic inflammatory disease

p.o. = by mouth

1° = primary, first degree

PTA = prior to admission

pt. = patient

PT = physical therapy

q = every

q.h. = every hour

q.i.d. = four times a day

RBBB = right bundle branch block

RHD = rheumatic heart disease

R/O = rule out

ROM = range of motion

Rx = take, treatment

$\overline{s}$ = without

S/S = signs and symptoms

ss = half

TIA = transient ischemic attack

t.i.d. = three times a day

TPR = temperature, pulse, respirations

V.S. = vital signs

y.o. = years old

Medical Terminology (commonly misspelled words)

Alzheimer's

Anaphylaxis

Aneurysm

Apnea

Catecholamine

Contrecoup

Cor pulmonale

Decerebrate

Decorticate

Dyspnea

Ecchymosis

Emphysema

Meniere's

Mesothelioma

Cricothyrotomy

Cricothyrotomy is an emergency lifesaving procedure. It is an invasive technique that allows rapid entrance into the airway for temporary ventilation and oxygenation in those patients in which airway control is not possible by other methods. It is indicated to relieve partial or complete upper airway obstruction, complete upper airway obstruction, or to secure an airway in a patient who can not be ventilated adequately by other means when all other manual maneuvers for improving the airway have been used without success. Direct visualization with the laryngoscope should be attempted to improve the airway by using Magill forceps to remove the foreign body if indicated.

When the decision is made to perform a Cricothyrotomy, the following procedures should be followed:

1) Hyperextend the patient's neck (unless cervical spine injury is suspected). This position brings the larynx and cricothyroid membrane into the extreme anterior position.

2) Locate the cricothyroid membrane between the thyroid and cricoid cartilages by palpating the depression caudal (towards the feet) to the midline Adam's apple.

3) Clean the area well with Betadine solution.

4) Using a scalpel, make a **vertical** incision through the skin, down to the cricothyroid membrane, then make a small **horizontal** incision through the membrane.

5) Once the scalpel has passed into the membrane, use forceps to maintain the opening.

6) Insert a size **5.0** cuffed endotracheal tube through the incision.

7) Ventilate the patient with a BVM with 10-15 LPM of oxygen.

8) Auscultate lung sounds for proper tube placement. If present, inflate the cuff with 10mL's of air and secure the tube.

DNRO (Florida Department of Health Form 1896)

Chapter 401.45, Florida Statutes

The EMT or Paramedic shall withhold or withdraw cardiopulmonary resuscitation upon presentation of the following:

1) Original or completed copy of DOH Form 1896, The form must be signed by the patient's physician, the patient, and/or the patient's health care surrogate, proxy, court appointed guardian, or person with durable power of attorney.

2) Patient Identification Device (PID) which is simply a miniature copy of the DNRO. It is attached to the form and designed for portability. It is acceptable, provided it is signed and complete as aforementioned above.

3) Upon verifying the identity of the patient who is the subject of the DNRO form or P.I.D. Verification shall be obtained from the patient's driver license, other photograph identification, or from a witness in the presence of the patient.

4) During each transport, the Paramedic shall ensure that a copy of the DNRO form or the P.I.D. accompanies the live patient. EMS personnel shall provide comforting, pain-relieving and any other medically indicated care, short of respiratory or cardiac resuscitation.

5) A DNRO may be revoked at any time by the patient, if signed by the patient, or the patient's health care surrogate, proxy, or court appointed guardian, or the person acting pursuant to a durable power of attorney.

DNRO

HEALTH

State of Florida
DO NOT RESUSCITATE ORDER

(please use ink)

Patient's Full Legal Name: _____ Date: _____
(Print or Type Name)

PATIENT'S STATEMENT

Based upon informed consent, I, the undersigned, hereby direct that CPR be withheld or withdrawn.
(If not signed by patient, check applicable box):

- ☐ Surrogate
- ☐ Court appointed guardian
- ☐ Proxy (both as defined in Chapter 765, F.S.)
- ☐ Durable power of attorney (pursuant to Chapter 709, F.S.)

(Applicable Signature) (Print or Type Name)

PHYSICIAN'S STATEMENT

I, the undersigned, a physician licensed pursuant to Chapter 458 or 459, F.S., am the physician of the patient named above. I hereby direct the withholding or withdrawing of cardiopulmonary resuscitation (artificial ventilation, cardiac compression, endotracheal intubation and defibrillation) from the patient in the event of the patient's cardiac or respiratory arrest.

(Signature of Physician) (Date) Telephone Number (Emergency)

(Print or Type Name) (Physician's Medical License Number)

DH Form 1896, Revised December 2002

PHYSICIAN'S STATEMENT

I, the undersigned, a physician licensed pursuant to Chapter 458 or 459, F.S., am the physician of the patient named above. I hereby direct the withholding or withdrawing of cardiopulmonary resuscitation (artificial ventilation, cardiac compression, endotracheal intubation and defibrillation) from the patient in the event of the patient's cardiac or respiratory arrest.

(Signature of Physician) (Date) Telephone Number (Emergency)

(Print or Type Name) (Physician's Medical License Number)

HEALTH State of Florida DO NOT RESUSCITATE ORDER

PATIENT'S STATEMENT

- ☐ Surrogate
- ☐ Proxy (both as defined in Chapter 765, F.S.)
- ☐ Court appointed guardian
- ☐ Durable power of attorney (pursuant to Chapter 709, F.S.)

The Patient Identification Device

(PID)

X. Appendix (I) *DNRO Continued Page 152*

Endotracheal Intubation/Confirmation Adjuncts

CO2 Detectors: The End-Tidal CO2 Detector attaches to the endotracheal ET tube and a breathing device (BVM/ Carevent) to detect numerical or waveform measurements of End-Tidal CO2. The end-tidal CO2 continuously monitors the concentration of CO2 molecules that absorb infrared light at the end of each breath.

Normal CO2 Values are 35mmHg – 45mmHg. In the poorly perfusing patient such as with cardiac arrest, it is not uncommon to see readings in the 10mmHg – 15mmHg range.

Indications:

1) To assist verification of endotracheal tube placement after intubation and during transport.

2) To detect approximate ranges of End-Tidal CO2 when clinically significant.

3) To assist with determining the effectiveness of positive ventilations and patient oxygenation.

Caution:

1) Results are not conclusive, the endotracheal tube should be immediately removed unless correct anatomic placement can be confirmed with certainty by other means.

2) This device should not be used in conjunction with heated humidifier or nebulizer. Excessive humidity will affect accuracy.

3) The EtCO2 detector may not register a breath when the EtCO2 is less than 8mmHg. In cardiac standstill, re-establishment of cardiac output and pulmonary perfusion by adequate cardiopulmonary resuscitation is necessary to increase End-Tidal CO2 levels detectable by CO2 Detector.

4) This device cannot be used to detect oropharyngeal tube placement. Standard clinical assessment should be used.

X. Field Medical Documentation

The Patient Care Report is the "True" legal document regarding patient care. The report should be clear, concise and complete.

1) Patient Care Reports shall be initiated on all patients with a medical complaint (without exception).

2) If you assess and vitalize a patient and find no obvious medical problem, a Patient Care Report shall be generated (without exception).

BLS Documentation: Basic Life Support Patient Care Reports are just as important as ALS. The report should include at least two set of patient vital signs. Refusals shall be signed by the patient when applicable. A witness's signature to the refusal should be obtained when possible. Family members, Police Officers, and Crew members are all good sources for this procedure.

ALS Documentation: Advanced Life Support Patient Care Reports shall be completed as accurately as possible. The report shall include at least two sets of patient vital signs. Any conscious, alert and orientated patient without s/s of head injury or intoxication that refuses medical treatment for a medical emergency shall sign an "informed refusal". The paramedic should include as much detail as possible in his/her narrative for the refusal – including the paramedic's recommendation, patient rationale for refusal etc. **AVOID** using terms such as "no medical need" and/or "P.U.T.S.".

Patient's accepting medical treatment and transport shall sign the Patient Care Report. If the patient is not capable of signing, simply state the reason in the PCR and attempt to have receiving nurse sign.

Trauma Alert: Document at least two sets of vital signs and the patient's Glasgow Coma Score. It is equally important to document any and all reasons for prolonged on-scene times greater than ten (10) minutes, the time the provider called the "Alert", and the criteria used to determine the "Alert".

Field Termination

Under the following well-defined circumstances, resuscitative efforts may be discontinued by EMS for patients who do not respond to an adequate trial of resuscitative therapy. Patients for whom resuscitative efforts may be discontinued in the pre-hospital setting include patients who are in an asystolic rhythm, apneic, normothermic, and fail an adequate trial of resuscitative therapy defined as **ALL** of the following.

1) Achieved airway control via tracheal intubation or LMA, confirmed proper tube placement and secured the tube to prevent dislodgement.

2) Achieved effective oxygenation and ventilation.

3) Defibrillated when appropriate.

4) Obtained vascular access and administered Epinephrine, Atropine (if indicated), and antiarrythmics as appropriate.

5) Considered, searched for, and corrected reversible causes or special resuscitation circumstances (Reference page 37) Arrests that do not respond to standard ACLS procedures).

6) Observed continuous and documented pulseless arrest after all of the above have been accomplished.

7) Profound hypothermia and Toxin/ Drug overdose are not present.

8) The Medical Director(s) or the online Medical Control with Emergency Physician is available to give order to cease efforts after ALL of the aforementioned treatments have been initiated.

EMS must have successfully completed ALL of the above requirements prior to termination of efforts. The inability to successfully complete any one of these requirements invalidates this protocol.

Social support should be made available to the patient's family, i.e. Nursing Home Staff, ALF Staff, Pastoral Services, etc.

Glasgow Coma Score (A test to determine the extent of a Brain Injury)

Response Value	1	2	3	4	5	6
EYE Opening	None	Pain	Voice	Spontaneous		
VERBAL Response	None	Incoherent Words	Inappropriate Words	Confused	Oriented	
MOTOR Response	None	Extension To Pain	Flexion To Pain	Withdraw From Pain	Localizes Pain	Obeys Command

A score of 13 correlates with a Mild Brain Injury. 9-12 is Moderate. 8 or less is Severe. 3 usually equates to Death.

Accessing : Implanted port in the acutely ill patient

1)Palpate the area over the port to locate the center rubber hub.

2) It is preferred for the patient to turn head away from the site if possible and apply mask. Provider should also wear a mask.

3) Using aseptic technique clean the site with alcohol followed by betadine prior to access.

4) With clean hands don sterile gloves utilizing sterile technique and port access kit.

5) Use thumb and first finger to stabilize the port.

6) Introduce a non-coring 45 degree needle or Huber needle perpendicularly to the hub and press down firmly using care not to perforate the back of the port.

7) Check placement by aspirating blood from the access. Flush port with 10 cc's of Normal Saline and secure with 4x4 for support and venaguard.

8) Administer normal saline drip at KVO rate to prevent thrombus

Note: If unable to aspirate blood or feel resistance or swelling when flushing the needle it should be removed immediately and disposed of. Contact medical control for further orders with the acute patient.

Due to inaccessibility of a heparin flush, it is imperative a pre-hospital drip of normal saline at KVO should be utilized to prevent clotting.

Initiation and Discontinuation of CPR

1) CPR should be initiated in all cases where the patient is found in cardiopulmonary arrest, unless special criteria apply. **If at least one of the following conditions are found, CPR may be withheld.**

A) Lividity

B) Rigor Mortis

C) Blunt or penetrating Trauma found without signs of life. Reference the Trauma Arrest Protocol, P-76.

D) Decomposition.

E) A valid DNRO is discovered.

2) Document the time, and the applicable clinical criteria or DNRO order.

3) Special Situations: A) Triage situations during Mass Casualty Incidents. Resources may be insufficient to provide the greatest good for the greatest number of patients. **B)** A physician in attendance-The patient's physician is in attendance and requests that the patient be given limited or no resuscitative effort. Document the name of the physician and the time the order was given. This order, whether verbal or in writing, must be given by a Florida licensed MD or DO to be legal.

Discontinuation of CPR in progress:

4) a. If CPR has been initiated and a valid DNRO is discovered, resuscitative efforts should cease. If necessary, contact the Medical Director(s) or receiving facility for assistance.

Continued…

Discontinuation of CPR/Living Will

4) b. When EMS withholds CPR because of a DNRO, a copy of the DNRO itself, should be made and attached to the Patient Care Report.

5) The presentation of a valid DNRO form does not relieve EMS of the responsibility to provide interventions in the non-arrested patient, short of **intubation and defibrillation.** Other medically indicated and comforting care and therapy should be initiated. Pain relieving measures may be particularly appropriate in such cases.

Living Will:

6) a. Do not confuse a DNRO with a Living Will. Living Wills serve an entirely different purpose and may not influence the acute application of resuscitation.

b. In general a Living Will is made prior to a terminal condition while a patient is in good physical and mental health. While this prior declaration may assist a physician in charting a course of treatment for a critically ill patient, EMS personnel can not substitute it for a pre-hospital DNRO.

c. A LIVING WILL IS NOT THE SAME AS A PHYSICIANS DNRO, and can be respected **ONLY** when accompanied by a DNRO, or in cases of obvious death.

7) The paramedic is legally obligated to provide the level of care commensurate with the situation, based on their knowledge that the patient is in need of such care.

Intubation (Pediatric)

The pediatric patient is very reliant on oxygen with hypoxemia the major cause of cardiopulmonary arrest in the age group. Delivery of oxygen in the highest tolerable concentration is indicated. **Note:** ***The use of Bag Valve Mask ventilations w/OPA-NPA, is acceptable in the pediatric patient equal to or less than 8-years of age, if unable to intubate.***

The following rules are to be utilized when intubating the pediatric patient:

1) The endotracheal tube can be sized by several methods to include the Broselow Tape, size of the nares or pinky finger. Remember, to ready not only the indicated size, but a tube which is .5mm in the next larger and smaller sizes. (This is especially important in smaller children when the uncuffed tube is utilized relying on an anatomical seal).

2) The anatomy of the airway is different than the adult patient and very apparent vocal cords may not be anticipated. Due to the over-abundance of tissue in the posterior pharynx in infants, the tracheal opening may simply present as the anterior opening found in the sub-glottic region. Anytime the pediatric patient is intubated, or prolonged bag valve mask ventilation (>3 minutes) occurs, a naso-gastric tube should be inserted (Reference Appendix R, Pg 162). This procedure will ensure that gastric distention is relieved and maximum ventillatory support is achieved.

3) The endotracheal tube (ETT) will be secured as soon as correct placement is assured by auscultation of lung sounds. Do not let go of the ETT during this process! Tape should be applied to the maxiliar region of the face only! (Tape applied to the mandibular region may cause extubation if the mouth opens during transport, etc.)

4) The most experienced crew members should be charged with airway control and great care should be exercised when moving the patient from one surface to another in order to assure that accidental extubation does not occur.

When assessing the child for intubation complications (Bradycardia, cyanosis, etc.) remember to assess in order of the following causes:

1) Displaced ETT (right mainstem, esophagus, etc).

2) Obstructed ETT (kinked, secretions in the tube etc).

3) Pneumothorax (spontaneous, traumatic).

4) Equipment failure (O2 supply, BVM reservoir, etc).

MAD: Mucosal Atomization Device

Contraindications for a MAD include the following conditions:

Damaged nasal mucosa may inhibit absorption of the medication.

- •Nasal trauma.
- •Epistaxis (nose bleed).
- •Nasal congestion or discharge.
- •Any recognized nasal mucosal abnormality.

Procedure:

1) Prepare the equipment / medication

2) Draw the medication into the syringe:

a. Maximum adult and pediatric administration is 1 mL per nostril.

b. Med should be split with ½ of the dose given in one nostril and the other ½ given in the other nostril.

3) Expel all of the air from the syringe.

4) Securely attach the mucosal atomizer to the syringe.

5) The patient should be in a recumbent or supine position. If the patient is sitting, compress the nares after administration.

6) Using your free hand to hold the crown of the head stable, place the tip of the atomizer snugly against the nostril aiming slightly up and inward (towards the top of the opposite ear).

7) Briskly compress the syringe plunger to properly atomize the medication.

8) Monitor the patient.

Nasogastric Tube Insertion

Nasogastric Tube insertion is indicated to relieve gastric distention in the ventilated patient who meet the following criteria:

1) The adult patient with noticeable gastric distention that interferes with ventilatory support.

2) Any pediatric patient that is intubated or receives long term (> 3-minutes) ventilation by BVM.

Note: This procedure should not be performed in the presence of frontal head trauma where the cribriform plate may be fractured.

Procedure:

1) Ready the proper size tube (adult 16f) Pediatrics as per the Broselow Tape 6-16f. 60mL Syringe, water soluble lubricant and tape.

2) Measure the tube by placing over the stomach region and extend to the ear and then to the nose. (Note the tube mark at this time).

3) Lubricate the end of the tube and insert into the largest nare, advancing until the tube mark noted above is at the nare opening. The conscious patient can assist while swallowing during insertion.

4) Verify placement by auscultating epigastric sounds while inserting 20-30mL's of air.

5) Tape in place and note the depth of the tube on the Patient Care Report.

Needle Cricothyrotomy

This procedure may be used to relieve an upper airway obstruction after unsuccessful attempts at establishing an airway in the **Pediatric Patient.**

1) Hyperextend the patient's neck (unless cervical spine injury is suspected). This procedure brings the larynx and cricothyroid membrane into the extreme anterior position.

2) Locate the cricothyroid membrane between the thyroid and cricoid cartilages by palpating the depression caudally (towards the feet) to the midline Adam's Apple.

3) Clean the area well with Betadine.

4) Use a 14 Gauge Angiocatheter to puncture the cricothyroid membrane, caudally (Needle slightly angled toward the feet), placing the needle into the trachea slightly. A syringe may be used to aspirate free air while entering the trachea.

5) Thread the catheter into the trachea removing the needle, hold securely in place.

6) Attach a 3mm endotracheal tube adapter and ventilate using a BVM only, allowing for a prolonged exhalation phase.

7) Verify placement.

This is a temporary measure which may increase exhalation time and CO2 retention. Rapid transport following this procedure is indicated.

Accessing: PICC Line or Central Venous Catheters

Protocol Process:

1) With clean hands use proper PPE (gloves).

2) Using aseptic technique, clean the hub with an alcohol prep.

3) Lines should have heparin solution resting within and need to be flushed with normal saline.

•Note: If sudden chest pain occurs, stop flush immediately. If any resistance is felt do not force the flush. There can be more than one lumen present and an attempt can be made at the second or third lumen. If resistance continues attempt IO access or call medical control for instructions.

4) Medication administration may be completed at this time.

5) Administer maintenance drip of normal saline at KVO rate to prevent thrombus.

Access of PICC lines should be limited to those occasions when IV access cannot be obtained or in which the time to establish IV access may significantly alter the chances for survival

Pleural Decompression

The patient with a tension pneumothorax may exhibit any or all of the following signs and symptoms:

1) Shortness of breath, **2)** chest pain, **3)** cyanosis, **4)** tracheal deviation (not always present), **5)** hyperresonance on the side of the pneumothorax, **6)** wide changes in BP with respirations, **7)** diminished or absent lung sounds on the affected side, **8)** reduced BP, **9)** distended neck veins (may not be present if there is associated severe hemorrhage), **10)** shock.

Pleural Decompression should be performed according to the Brady ITLS 6th Edition guidelines. Page 115

The indication for performing emergency decompression is the presence of a **tension pneumothorax with decompensation** as evidenced by **more than one** of the following: **A)** respiratory distress and cyanosis, **B)** loss of radial pulse (late sign), **C)** decreasing level of consciousness.

1) Administer high flow oxygen and ventilatory assistance, if indicated.

2) Identify the **2nd** or **3rd** intercostal space on the anterior chest at the midclavicular line, on the same side as the pneumothorax.

3) Prep the area with a Betadine solution.

4) Insert a **14G or 16G 5mm/2 inch** catheter into the prepared intercostal space.

5) Insert the catheter through the parietal pleura until air escapes. It should exit under pressure.

6) Remove the needle and secure with a one-way valve. Leave in place until it is replaced by a chest tube at the hospital.

Pulse Oximeters

Pulse oximeters are used for the detection of hypoxemia in arterial oxyhemoglobin. The following guidelines will be used for measuring the severity of respiratory distress:

- **Mild Distress:** SaO2 of 94% or greater
- **Moderate Distress:** SaO2 of 85-93%
- **Severe Distress:** SaO2 of < 85%

Indications:

1) Patients with known History of and/or complaining of, respiratory distress or disease, cardiac conditions, and neurological problems.

2) To monitor distal oxygenation of extremity fractures and dislocations.

3) Patients treated and/or transported with oxygen.

Precautions:

1) Patients with carbon monoxide inhalation may yield slightly higher oxygen saturation readings than actual blood oxygen saturations. Other gases and medical conditions may alter the saturation readings.

2) Patients wearing false fingernails and/or paint may affect the accuracy of the reading when the finger probe is used.

The probe may be rotated 90° to help facilitate a reading.

3) Low flow states, such as severe hypotension, cardiac arrest, etc. will cause the pulse oximeter to not register.

START Triage/MCI Operations (Cheat Sheet)

The goal of the START program is to provide the "greatest good for the greatest number of patients".

Definitions:

MCI = Mass Casualty Incident (Any incident where first responders capabilities are exceeded)

Level I = 5-10 patients

Level II = 11-20 patients

Level III = > 20 patients

Level IV = 100-1000 patients

Level V = > 1000 patients

Groups needed:

Command – Triage – Treatment – Transport – Staging –

Extrication – Haz-Mat – Landing Zone – Re-hab

The patient assessment process is based on the following;

R- respirations - <10 and/or > 30

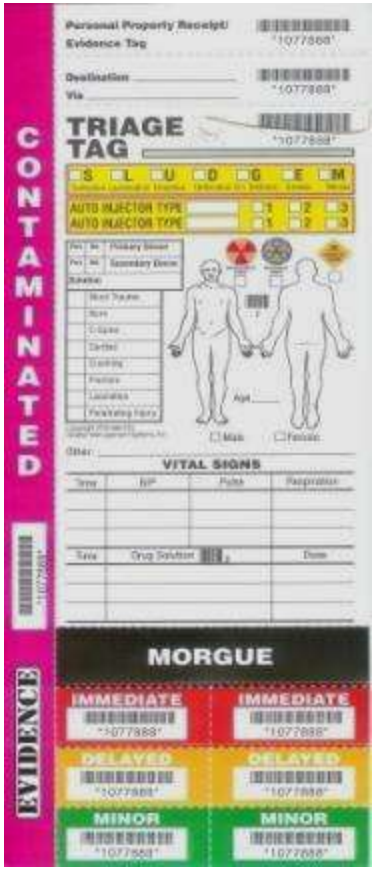
P- perfusion/pulse – capillary refill > 2-seconds

M- mental status – follow commands

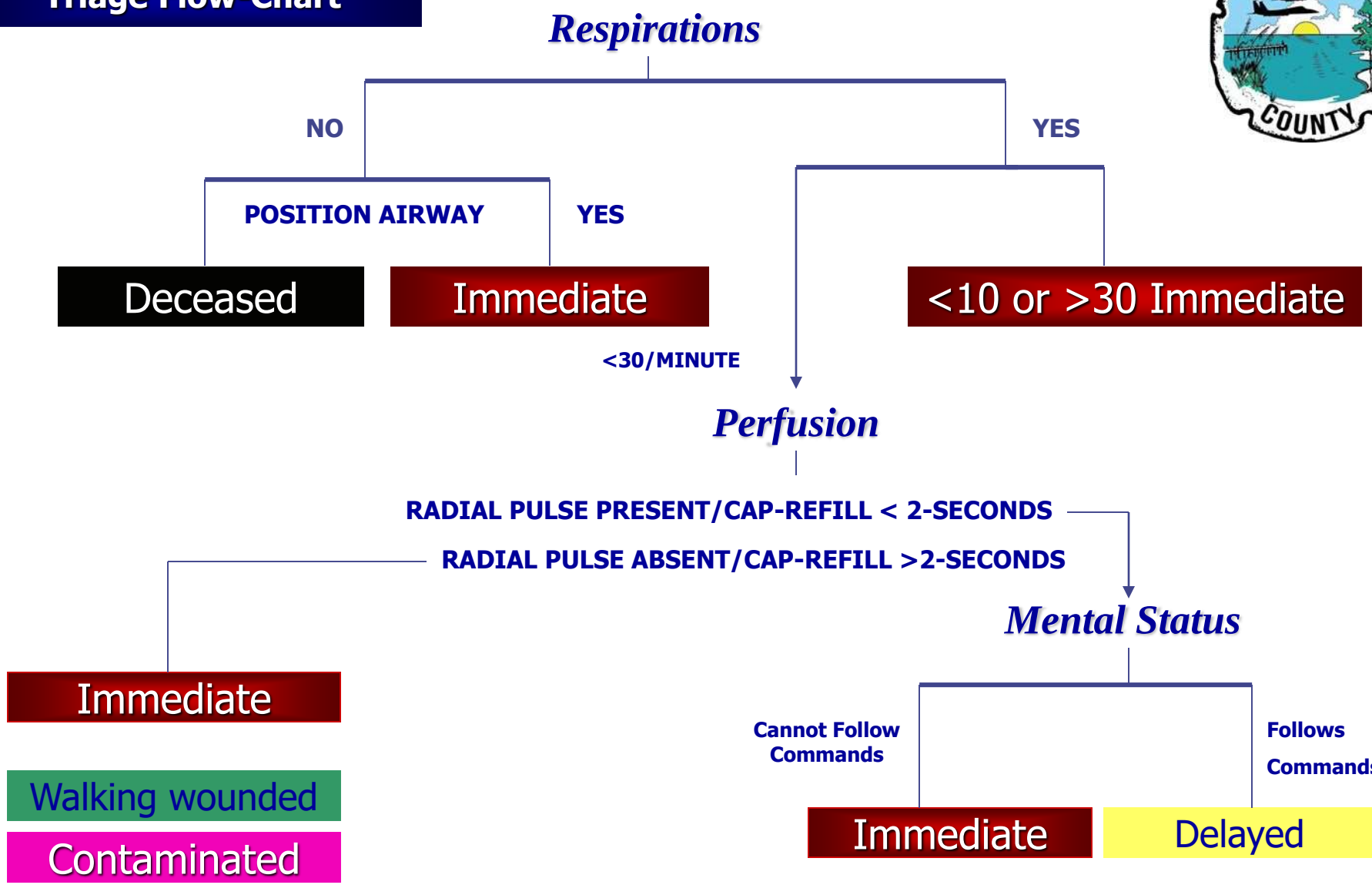
The colors of Triage	Deceased
Immediate	Contaminated
Delayed	Walking wounded

New Statewide Triage Tag

(Front)

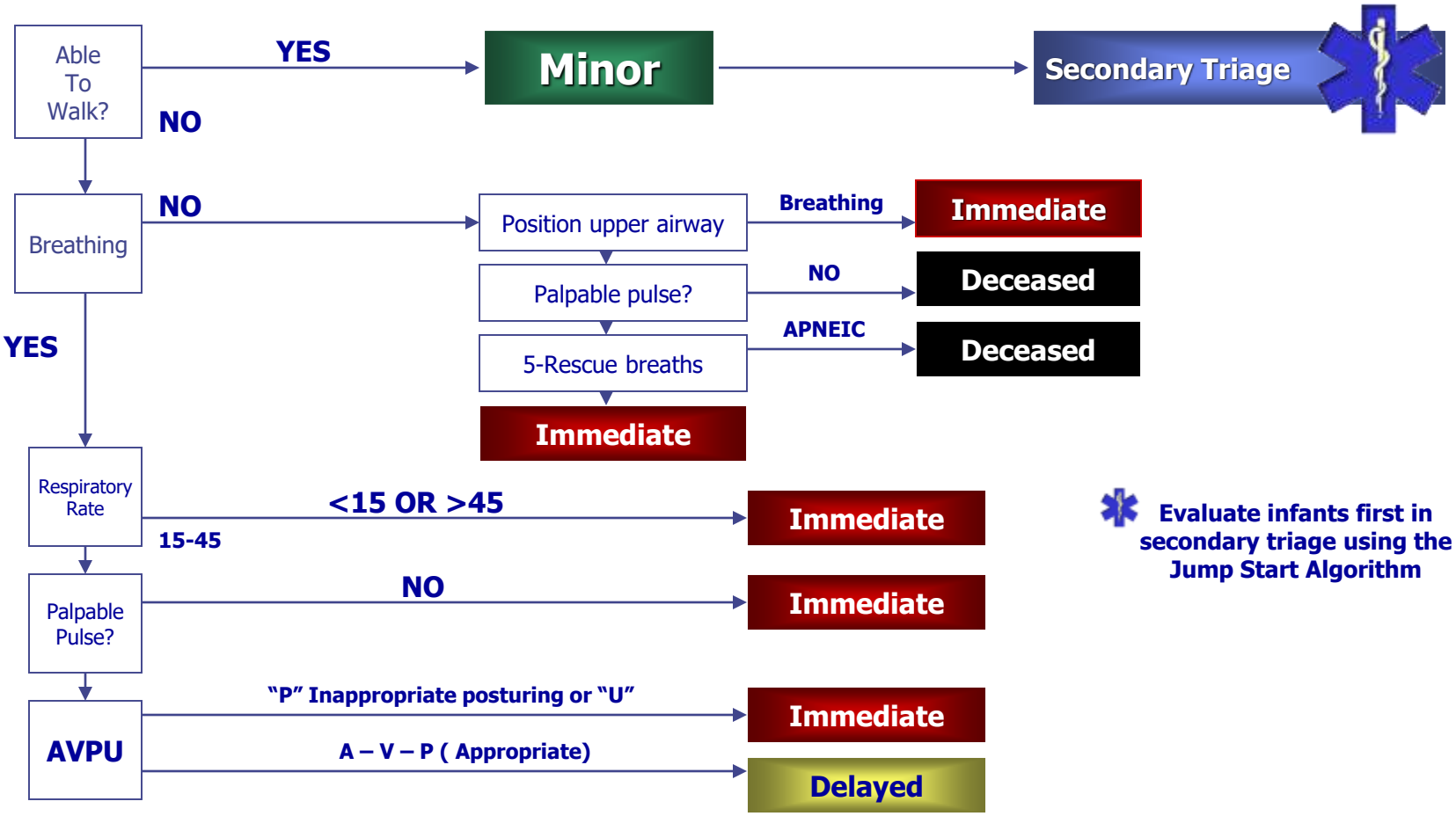


Triage Flow Chart



X. Appendix (X) START Flow Chart Page 168

Pediatric "Jump" START



Taser Dart Treatment Protocol

Assessment and Documentation: (The Paramedic will document each step on PCR)

1. Location of the probes on the patient's body.
2. Events leading up to LEO / EMS arrival.
3. Physical / Neuro assessments, Blood Glucose and two sets of vital signs (pulse, respirations and blood pressure).
4. SAMPLE History.
5. Care provided.

Removal of Probe(s) by EMS Provider: (Document each step)

1. Place one hand on the area where the probe is embedded and stabilize the skin surrounding the puncture site.
2. Place second hand firmly around the probe, and in one swift fluid motion, pull the probe straight out from the puncture site.
3. Inspect the probes for broken/missing tips, transport to ER if barb broken/missing.
4. Cleanse puncture sites and apply an adhesive bandage as needed.
5. Extracted probes (sharps) are considered evidence and should be given to LEO for disposal.
6. Suggest patient be evaluated by MD if signs of infection occur.

CONTRAINDICATIONS

-TASER barbs shall not be removed if barbs have penetrated any of the following: (Intra-oral / Intra-ocular)
-Patient has a GCS < 15 (altered mental status)
-Patient has abnormal vital signs:

Heart rate < 60 or sustained at > 110
Systolic blood pressure < 90 mmHg or > 180 mmHg
Respirations < 12 or > 30

-Rule out other reasons for violent and combative behavior including intoxication, psychosis, hypoxia, hypoglycemia, overdose, or CNS infection, etc. (Ref: Violent and/or Impaired Patient Protocol, P155 : Agitated Delirium Protocol, P158-159)

****CONTACT MEDICAL CONTROL FOR ADDITIONAL ORDERS IF NEEDED****

12-Lead Interpretation

Definitions

ST Elevation: The ST segment rises above the isoelectric line from the " J " point, an indication of acute injury.

"J" point: The point where the QRS complex ends and the ST segment begins.

Ischemia: A deficit between blood supply and demand.

Injury: Damage to the cardiac tissue caused by ischemia.

Necrosis: Death of tissue that cannot be reversed. Seen on the EKG as a pathological Q-wave.

1) Check QRS for width (Lead I is a good lead for this) 0.12 seconds is too wide.

2) Look at V1. Upward defection with a QRS > 0.12 (3 Boxes) indicates a RBBB. A downward deflection with a QRS of > 0.12 is an indication of a LBBB.

3) Leads II, III, and aVF = Inferior wall

4) V1 - V2 = Septal wall

5) V3 - V4= Anterior wall

6) V5 – V6 = Low lateral wall

7) Leads I and aVL = High lateral wall

Scan The EKG for ST Elevation (≥1mm in limb leads or precordial leads). ST Elevation is measured at the "J" Point.

ST Elevation is a sign of acute injury.

T-wave inversion is a sign of ischemia and may be associated with acute MI.

Pathological Q-wave is ¼ of the height of the entire QRS or >40 msec wide, it indicates an old infarct (if ST is normal). New infarct if ST is elevated.

12-Lead Placement

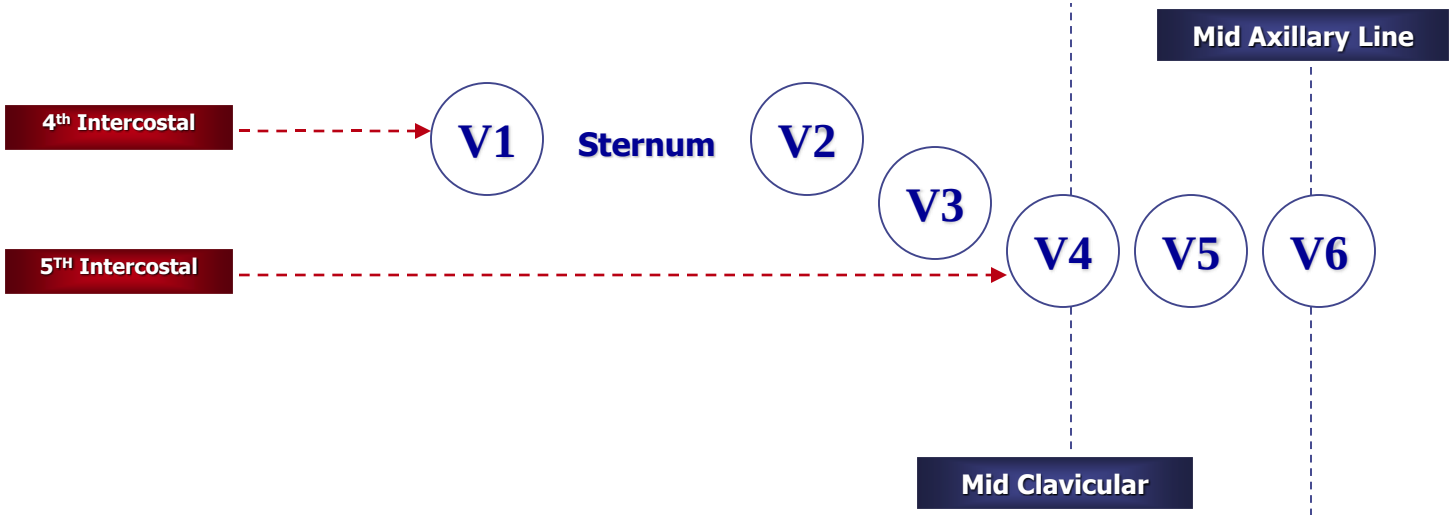
V1 is placed at the 4th intercostal space, just right of the sternum.

V2 is placed at the 4th intercostal space just left of the sternum.

V3 is placed between V2 and V4

V4 is placed on the mid clavicular line and 5th intercostal space.

V5 is simply placed between V4 and V6

V6 is placed on the mid axillary line, horizontal with V4

The Lifepak™12 Cardiac Monitor takes about 20 seconds to acquire the 12-Lead strip. During this time the patient must remain motionless.