

Lee County



Common Treatment Guidelines

Rewrite Date: 04/2016

Current Revision Date: 12/2016

Section 100

Forward

Section 100 – Forward

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Date	Guideline Number & Title	Change/Impact Synopsis
10.2016	Section 200 – Clinical Guidelines	<ul style="list-style-type: none"> • Renumbered to: <ul style="list-style-type: none"> ○ General: 200.-- ○ CardioPulmonary Arrest: 210.-- ○ Medical: 220.-- ○ Trauma: 230.-- ○ Environmental: 240.-- ○ Obstetrical/Gynecological: 250.-- • Updated all medications bold type • Updated all PEARLS un-bolded type • Corrected various typographical errors • Corrected various cosmetic/formatting errors
10.2016	100.03: Transfer of Care MOU (Now 100.04)	<ul style="list-style-type: none"> • Added Douglas S. Lee, MD • Added “transition to team leader role” under transporting EMT/Paramedic
10.2016	200.01: Universal Care (Remains 200.01)	<ul style="list-style-type: none"> • Added: Lactated Ringer’s Solution preferred balanced-based isotonic crystalloid
10.2016	200.04: Pain Anxiety Procedural Sedation Management (Remains 200.04)	<ul style="list-style-type: none"> • Renamed to Procedural Sedation, Analgesia & Anxiety Management to mirror 2016 national standard • Removed Procedural Sedation – <i>Option #2</i> (all ALS services now have Ketamine) • Updated Procedural Sedation – <i>Option #1</i> dosing: <ul style="list-style-type: none"> ○ Adult from 2mg/kg to 1mg/kg IV/IO ○ Pediatric from 1mg/kg to 0.5mg/kg IV/IO
10.2016	200.06: Spinal Motion Restriction (Now 230.01)	<ul style="list-style-type: none"> • Moved from Section 200 General to Section 230 Trauma (No content changes)
10.2016	200.20: Neonatal Cardiac Arrest (Now 210.07)	<ul style="list-style-type: none"> • Added Neonate Initial Cardiopulmonary Resuscitation reference
10.2016	200.24: Lee County Pit Crew Resuscitation Model - Adult (Now 210.11)	<ul style="list-style-type: none"> • Updated to 2016 recommended standards
10.2016	200.25: Lee County Pit Crew Resuscitation Model - Pediatric (Now 210.12)	<ul style="list-style-type: none"> • Added new guideline
10.2016	200.33: Chest Pain ACS STEMI (Now 220.08)	<ul style="list-style-type: none"> • Added Continuous Nitrate Therapy – Option #1 (Tridil) & Option #2 (Nitropaste) to mirror Congestive Heart Failure Pulmonary Edema Guideline • Updated Nitrolingual Spray to generic Nitroglycerin in BLS section • Added language for monitor STEMI diagnostic interpretation • Added PEARL for serial ECG monitoring • Created new STEMI Checklist • Updated PEARLS to mirror Congestive Heart Failure Pulmonary Edema Guideline

10.2016	200.34: Congestive Heart Failure Pulmonary Edema (Now 220.09)	<ul style="list-style-type: none"> Updated Nitrolingual Spray to generic Nitroglycerin in BLS section Created new STEMI Checklist
10.2016	200.35: Diabetic Emergencies Hypo & Hyperglycemia (Now 220.10)	<ul style="list-style-type: none"> Removed provision in ALS Option #1 PEARL that limits D10% – <i>“not to exceed 250cc/25gm”</i>
10.2016	200.37: Reactive Airway Disease (Now 220.12)	<ul style="list-style-type: none"> Removed Epinephrine 3mg in 3cc NS AT for extremis Epiglottitis (contraindicated)
10.2016	200.39: Sepsis (Now 220.14)	<ul style="list-style-type: none"> Updated to Sepsis 3 (3.1) standards Added new qSOFA PEARLS Updated Sepsis Checklist to qSOFA plus etCO2 Created Sepsis Alert Criteria
10.2016	200.40: Stroke (Now 220.15)	<ul style="list-style-type: none"> Updated Differential Impressions Updated PEARLS Added new Stroke Checklist
10.2016	200.51: Lee County Trauma Transport Protocol	<ul style="list-style-type: none"> Removed; not County-wide applicable
10.2016	200.52: Lee County Cervical Collar Memorandum of Understanding	<ul style="list-style-type: none"> Removed; not County-wide applicable
10.2016	200.53: Bites Envenomations (Now 240.01)	<ul style="list-style-type: none"> Updated Cnidaria to Jellyfish Updated Hymenoptera to Ant, Bee, Wasp
10.2016	200.54: Drowning Submersion (Now 240.02)	<ul style="list-style-type: none"> Corrected Pediatric Epinephrine Infusion dosage
10.2016	200.57: Childbirth (Now 250.02)	<ul style="list-style-type: none"> Updated Meconium Aspiration Syndrome to 2015 NRP standards
10.2016	210.05: Maternal Cardiac Arrest	<ul style="list-style-type: none"> Added new guideline
10.2016	300.01[3]: Pharmacology Reference	<ul style="list-style-type: none"> Added Ketamine contraindication: Catecholamine Depleted States (Cardiogenic Shock, Cardiac Transplant Candidate)
12.2016	220.16: Toxidrome Emergencies Overdose & Poisoning	<ul style="list-style-type: none"> Updated Opioid Toxidrome; Naloxone dosing (adult & pediatric), indications for use, and PEARLS
12.2016	300.01[4]: Pharmacology Reference; Naloxone	<ul style="list-style-type: none"> Updated adverse effects

Medical Director's Credo:

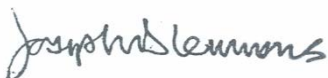
The delivery of Emergency Medical Services (EMS) is, by nature, inherently dynamic. Because of this, the Lee County Common Treatment Guideline is designed to be a clinical job aid and not intended to be an educational document. The LCCTG is a standardized approach to best practice patient care that encompass evidence-based guidelines (EBG). The focus of the LCCTG is patient-centric and supports the evolution of new EMS research. The LCCTG serves as a resource to clinical medicine while maximizing patient care and ensuring patient safety and outcome regardless of existing resources or capabilities.

It is impractical to write a guideline for every condition or specific case. As such, the LCCTG outlines care for a typical case or condition. As a guideline continues, the assumption can be made that previous steps were ineffective or the patient condition changed. For example, when treating a patient in ventricular fibrillation, the AHA ACLS Pulseless Arrest Algorithm would be followed. If the patient has a return of spontaneous circulation, the AHA ACLS ROSC Algorithm would then be followed. In situations where a change is made to a different guideline during the course of care, the paramedic must determine where entry into the new guideline sequence is appropriate. The order of treatment listed may not be appropriate for all situations. In fact, not all procedure options may be indicated in every situation. The provider's clinical judgment, and ability to consult with medical control as needed, must be relied upon to determine which authorized treatment procedure is appropriate for a given condition or situation.

The Universal Care and Patient Safety Guidelines are included in each clinical guideline. This reduces the need for reiteration of basic principles, history and physical exam, and other considerations. In addition, provisions for pediatric patients and any applicable or current PEARL (Physical Evidence and Reasoned Logic) have been interwoven in the guidelines.

Pre-hospital providers are obligated to adhere to the principle of *primum non nocere* — “*first, do no harm.*” For many providers, the notion of doing no harm can be complex. This notion can be magnified when providers or agencies repeatedly accept a lesser standard of performance until that lesser standard becomes the normal. This behavior is known as normalization of deviance. In EMS, normalization of deviance can be defined as performing de facto procedures that appear to be absent of harm or deemed safe by tradition when in fact they are not. Providers end up performing “automatic” procedures that may not be beneficial or may have undesirable patient outcomes. One fundamental goal of the LCCTG is to promote critical thinking of all pre-hospital providers; thus, developing technicians into clinicians. This development begins with framework and the most basic element in medicine – History and Physical Exam (H&P). Without this, the provider cannot reasonably determine which guideline to follow. Missed H&P opportunities can lead to harm and unfavorable patient outcome. All EMTs/Paramedics must maintain a heightened awareness as to the best course of action for optimal and compassionate patient care.

The organizations that drive the LCCTG are the American Heart Association (AHA), National Association of EMS Physicians (NAEMSP), American College of Emergency Physicians (ACEP), American College of Osteopathic Emergency Physicians (ACOEP), American College of Surgeons–Committee on Trauma (ACS-COT), Lee Memorial Health System, and neighboring county EMS agencies.



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01 October 2012 (**Reaffirmed: October 2016**)

Lee County Emergency Medical Services members,
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The primary mission of any emergency medical service is to provide life and limb saving interventions while effecting rapid transport to definitive care. A smooth and orderly "transfer of care" between the non-transport and the transport EMT/Paramedic is essential for good patient outcome. This transition or transfer of care is largely dependent upon the ability of both parties to give and receive information to optimize patient safety. This includes the transfer of subjective (SAMPLE history) and objective (exam) information and all interventions rendered prior to the arrival of the transporting service.

From time to time the focus of the transfer of care becomes convoluted and when it does, the end result is often a less than desirable transition from the non-transport first responders to the transporting service.

This directive is to restate the position of the Medical Directors regarding transfer of care from a non-transport to the transporting service. In order to make the transfer of care consistent, effective and timely, the following inter-agency/intra-department measures should be used:

- The non-transport EMT/Paramedic, if first on-scene, should:
 - ensure scene safety,
 - make patient contact,
 - obtain a SAMPLE history,
 - perform a physical exam,
 - provide life and limb saving interventions while preparing the patient for transport,
 - provide the transport service with a hand-off report.
- When the transport service arrives on-scene, the transporting EMT/Paramedic should:
 - confirm or ensure scene safety,
 - receive a verbal report from the non-transport service while simultaneously making patient contact,
 - transition to team leader role,
 - confirm or obtain a SAMPLE history,
 - perform a physical exam,
 - continue and/or provide life and limb saving interventions, in concert with the non-transport EMT/Paramedic, while orchestrating and preparing the patient for transport,
 - execute transport while continuing/providing interventions as necessary and indicated.
 - provide a hand-off report to the Emergency Department staff.

All EMT/Paramedic providers must maintain a heightened awareness as to the best course of action for optimal and compassionate patient care. The measures or steps noted above are best practice driven and should not be considered a hierarchy but rather a continuum of care. This continuum must focus on: 1) performing a thorough patient exam, 2) providing necessary interventions/goal directed therapy based upon the exam and, 3) having a constant situational attentiveness for and movement towards definitive care.

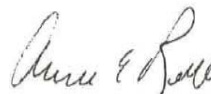
Cooperation between all EMT/Paramedic providers, regardless of certification levels or credentials, is encouraged and expected.



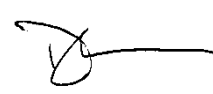
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Section 200
Clinical Guidelines

Goals:

To facilitate appropriate initial assessment and management of any EMS patient and link to appropriate specific guidelines as dictated by the findings within the universal care guideline

The following represents age/weight classification:

- Adult: 8 years of age or greater than 40kg (8yo or >40kg)
 - Pediatric: 1 – 8 years of age or between 10 – 40kg (1 – 8yo or >10 but <40kg)
 - Infant: 1 month – 1 year of age or between 5 – 10kg (1mo – 1yo or >5 but <10kg)
 - Neonate: Birth – 1 month of age or less than 5kg (Birth – 1mo or <5kg)

PEARL | For purposes of admission criteria, the Lee Memorial Health System (LMHS) considers any patient less than 18 years-old to be “pediatric”

General Actions:

Response

1. Review dispatch information
2. Consider need for additional resources

Scene Arrival and Size-Up

1. Use appropriate body substance isolation (BSI)
2. Use appropriate personal protective equipment (PPE)
3. Evaluate and ensure scene safety
4. Determine number and location of persons involved versus patients
5. Consider need for additional resources

Patient Approach

1. Determine mechanism of injury (MOI) and/or nature of illness (NOI)
2. If appropriate, begin triage and initiate mass casualty incident (MCI) procedures
 - A. START
 - B. Jump START

Primary Assessment and Life-Saving Interventions

1. General Impression – Sick versus Not Sick:
 - A. Appearance
 - B. Work-of-Breathing
 - C. Circulation to Skin
2. Mental Status:
 - A. Awake/Alert
 - B. Responds to Verbal Stimuli (RVS)
 - C. Responds to Painful Stimuli (RPS)
 - D. Unconscious/Unresponsive



Patient Awake or Responding to Verbal Stimuli, use: <i>A-B-C Assessment</i>	Patient Responding to Physical Stimuli or Unresponsive, use: <i>C-A-B Assessment</i>
<p>3. Airway Status:</p> <ul style="list-style-type: none"> • Natural • Artificially Secured • Compromised <ul style="list-style-type: none"> • Proceed to Airway Ventilation Oxygenation Management Guideline • Obstructed <ul style="list-style-type: none"> • Proceed to Airway Ventilation Oxygenation Management Guideline 	<p>3. Circulation Status:</p> <ul style="list-style-type: none"> • Central and Peripheral Pulses – present, absent, rate & quality <ul style="list-style-type: none"> • Absent, Hypotensive or Hypoperfused? Proceed to appropriate Guideline • Major Hemorrhage <ul style="list-style-type: none"> • Hemorrhaging? Proceed to appropriate Trauma Guideline • Skin Color, Temperature and Condition
<p>4. Breathing Status:</p> <ul style="list-style-type: none"> • Work-of-Breathing • Respirations – present, absent, rate & quality • Auscultate Lung Sounds <ul style="list-style-type: none"> • Adventitious? Proceed to appropriate Guideline 	<p>4. Airway Status:</p> <ul style="list-style-type: none"> • Natural • Artificially Secured • Compromised <ul style="list-style-type: none"> • Proceed to Airway Ventilation Oxygenation Management Guideline • Obstructed <ul style="list-style-type: none"> • Proceed to Airway Ventilation Oxygenation Management Guideline
<p>5. Circulation Status:</p> <ul style="list-style-type: none"> • Central and Peripheral Pulses – present, absent, rate & quality <ul style="list-style-type: none"> • Absent, Hypotensive or Hypoperfused? Proceed to appropriate Guideline • Major Hemorrhage <ul style="list-style-type: none"> • Hemorrhaging? Proceed to appropriate Trauma Guideline • Skin Color, Temperature and Condition 	<p>5. Breathing Status:</p> <ul style="list-style-type: none"> • Work-of-Breathing • Respirations – present, absent, rate & quality • Auscultate Lung Sounds <ul style="list-style-type: none"> • Adventitious? Proceed to appropriate Guideline
<p>6. Disability Status:</p> <ul style="list-style-type: none"> • Defibrillation required? • Gross Motor/Sensory Function? <ul style="list-style-type: none"> • Moves all extremities? Eyes? • Blood Glucose? • Cervical Motion Restriction? 	<p>6. Disability Status:</p> <ul style="list-style-type: none"> • Defibrillation required? • Gross Motor/Sensory Function? <ul style="list-style-type: none"> • Moves all extremities? Eyes? • Blood Glucose? • Cervical Motion Restriction?
<p>7. Exposure:</p> <ul style="list-style-type: none"> • Evaluate illness or injury, remove clothing as necessary • Medic Alert bracelets or ID? 	<p>7. Exposure:</p> <ul style="list-style-type: none"> • Evaluate illness or injury, remove clothing as necessary • Medic Alert bracelets or ID?

SAMPLE History and Physical Examination

1. Obtain a SAMPLE and OPQRST History
2. Conduct an Adult: Head-to-Toes exam or **Pediatric: Toes-to-Head exam** or
3. Conduct a focused, detailed or ongoing systems exam:
 - A. Neurological
 - AVPU
 - Glasgow Coma Score
 - Stroke Assessment
 - Pupil Response
 - Pain Scale
 - Sedation Scale
 - B. Pulmonary
 - Auscultate Lung Sounds
 - C. Cardiovascular
 - D. Gastrointestinal & Genitourinary
 - E. Integumentary
 - F. Musculoskeletal (Trauma Exam)
4. Assess Vital Signs:
 - A. Pulse
 - B. Blood Pressure
 - C. Respirations
 - D. Skin Color, Temperature and Condition
 - E. Capillary Refill
5. Non-Invasive Monitor Assessment (as applicable or indicated):
 - A. Cardiac
 - Standard monitoring
 - 12 Lead ECG
 - B. Blood Pressure
 - C. Capnography
 - D. Pulse Oximetry
 - E. Blood Glucose
 - F. Temperature
6. Collect and transport documentation related to patient's history (e.g., emergency information form, medical records, Medic Alert, DNR form, etc.)

Impression

1. Develop differential impression of the case
 - A. Triple Differential Impression
 - e.g., Altered Mental Status: *Hypoglycemia vs. Stroke vs. Organic Brain Syndrome*
 - e.g., Acute Coronary Syndrome: *STEMI vs. Unstable Angina vs. Pulmonary Emboli*

Treatment

- Refer to appropriate clinical guideline(s)
- General control measures and principles:
 - A. Establish an airway as prescribed by the Airway | Ventilation | Oxygenation Management Guideline

- B. Ensure adequate ventilation as prescribed by Airway | Ventilation | Oxygenation Management Guideline
 - Ventilation target: etCO₂ 40mmHg; normal capnography
- C. Administer oxygen as prescribed by Airway | Ventilation | Oxygenation Management Guideline
 - Oxygenation target: SpO₂ 94% – 99%; normal plethysmograph
- D. Correct tension pneumothorax with pleural needle decompression
 - Primary approach: Anterior – 2nd or 3rd intercostal space, midclavicular line
 - Secondary approach: Lateral – 4th or 5th intercostal space, midaxillary line
- E. Correct open pneumothorax with an appropriate occlusive dressing
- F. Establish vascular access as appropriate and indicated for condition
 - Intravenous-certified EMTs may start IVs under the supervision of a credentialed Paramedic (upper extremity only)
- G. First-line therapy for closed-system hypotension/hypoperfusion is crystalloid fluid resuscitation
 - Lactated Ringer’s Solution preferred balanced-based isotonic crystalloid
 - Lactated Ringer’s Solution is preferred for hemorrhaging patients that are operative candidates
- H. Arrest compressible hemorrhages by direct pressure, pressure dressing, tourniquet use, rapid transport, and crystalloid fluid resuscitation to temporize physiology
 - BP target: permissive hypotension – restoration of peripheral pulses (unless otherwise stipulated)
- I. Mitigate non-compressible hemorrhages by rapid transport and crystalloid fluid resuscitation to temporize physiology
 - BP target: permissive hypotension – restoration of peripheral pulses (unless otherwise stipulated)
- J. Any patient that receives IV or IO medications must have a running crystalloid infusion
PEARL | No medications will be administered directly via medication port or saline lock
- K. Correct hypoglycemia as prescribed by appropriate Guideline
 - Blood Glucose target: bG > 60mg/dL and < 300mg/dL
- L. Provide Spinal Motion Restriction as prescribed by appropriate Guideline
- M. Splint/immobilize suspected pelvic fractures with a commercial pelvic binder
- N. Splint/immobilize fractured/dislocated limbs in a natural or functional position, above and below the fracture site, to prevent further soft tissue or neurovascular injury
- O. Manipulate/realign angulated, isolated, limb fractures or dislocations with neurovascular compromise to restore distal circulation – then splint/immobilize
- P. Traction splint isolated, closed, femur fractures
- Q. Provide environmental protection and thermopreservation to all high acuity patients unless otherwise stipulated by specific Guideline
 - Temperature target: 98.6°F (37°C)*PEARL | Cold blood does not clot – Hibler’s Method preserves body heat and mitigates Lethal Triad*
- R. Provide corneal protection to unconscious patients

(continued)

Assign Clinical Priority

1. Priority 1 — unstable advanced life support patient; requiring immediate emergent medical attention for a life and/or limb threatening illness or injury
2. Priority 2 — stable advanced life support patient; requiring medical attention but not immediately endangering patient's life
3. Priority 3 — basic life support patient; requiring non-emergent medical attention

Determine Disposition

1. Mode—Consider mode of transport (air, land, water, etc.)
2. Status—Evaluate need for emergent (lights and sirens) versus non-emergent transportation

Communications

1. Notification to the receiving hospital should be made for all patient transports
2. Medical Control contact must be made for termination of cardiopulmonary resuscitation efforts
3. Medical Control consultation is encouraged for any out-of-the-ordinary cases

Reassessment

1. Re-vital sign unstable patients every 5 minutes
2. Re-vital sign stable patients at a minimum of every 15 minutes
3. A minimum of 2 assessments are required for every patient transport

Transfer of Care

1. Relay assessment findings and care provided to providers assuming responsibility for patient(s) in accordance with the 01 October 2012 Medical Director's Transfer of Care Memorandum of Understanding (Forward Section: Introduction)

PEARL | Transfer of Care between the non-transport and transport providers is essential for good patient outcome

Goal(s):

To provide a consistent and standardized foundation for patient, provider, department and system safety.

General Actions:

- Maintain, at all times, a heightened situational awareness for patient and provider safety
PEARL | Provider safety takes precedence over patient care and apparatus
- Providers will don Body Substance Isolation protection as appropriate/necessary
- Providers will don Respiratory Isolation protection as appropriate/necessary
- Providers will be aware of legal issues and patient rights as they pertain to and impact patient care (e.g., Patients with functional needs, Children with special needs, and Baker & Marchman Act patients)
- Providers will function within and will not exceed their defined Scope-of-Practice
- Every patient contact is to have a Patient Care Report (ePCR) unless defined otherwise in this Guideline

Basic Life Support Actions:

- Safety belts/restraints and side rails will be used during any stretcher movement in accordance with manufacturer recommendations
- Environmental protection will be provided to all patients – Hibler's Method of Thermopreservation will be provided to all patients in or potentially in hemorrhagic shock states
- Corneal protection will be provided to unconscious patients

Advanced Life Support Actions/Considerations:

- Be prepared to adjust management based on patient age and/or co-morbidities
- Ensure six (6) Medication Rights before the administration of any pharmacology agent:
 - 1) Right patient
 - 2) Right drug
 - 3) Right dose
 - 4) Right route
 - 5) Right time
 - 6) Right documentation
- Maximum weight-based dose of medication administered to pediatric patients should not exceed the maximum adult dose except where specifically stated in a patient care guideline
- Pediatric medications are administered in accordance with Length-Based Resuscitation Tape
- Reduced medication dosages may apply to patients with co-morbidities and renal disease (e.g., on dialysis, diagnosis of chronic renal insufficiency, severe cirrhosis or end-stage liver disease)
- Any medication errors, clinical misadventures, near miss events or unanticipated patient outcomes will be reported immediately to the receiving physician and respective department supervisor(s)

Medical Control Actions/Orders/Requests:

- Medical Control Physicians will provide sound medical direction in accordance with evidence-based standards

Goal(s):

To provide evidence-based and reasoned logic core principles for Progressive Airway, Ventilation and Oxygenation management.

General Actions:**AIRWAY**

Airway management is a clinical mindset and a constellation of skills, tools and techniques that are deployed to establish and/or manage non-natural airways. Airway management is not one treatment modality; it is a progression of interventions ranging from least invasive (BLS) to the most invasive (ALS) as necessary to achieve sufficient ventilation and adequate oxygenation.

PEARL | The primary goal of progressive airway management is to start simple, work through the various levels and stop when the airway is patent

PEARL | When placing an advanced airway, every effort must be made to avoid iatrogenic hyper/hypocapnea, hypotension, bradycardia and SpO2 desaturation events

The risk versus benefit relationship of prehospital endotracheal intubation must be weighed carefully. Endotracheal intubation is associated with worse outcomes among pediatrics, closed head/traumatic brain injuries and poly-trauma patients when compared to BLS airway care. Endotracheal intubation is also associated with interruptions in chest compressions during CPR, which is associated with worse patient outcomes.

Generally speaking, indications for prehospital endotracheal intubation can be narrowed to the following:

- I. inability to ventilate and/or oxygenation with non-invasive tools and techniques,
- II. inability to manage secretions with conventional methods,
- III. high index of suspicion for laryngeal edema

PEARL | If endotracheal intubation be required, providers will adhere to the “2 and out” philosophy — 2 laryngoscopic attempts per case (direct or video) to yield a successful tracheal intubation

PEARL | Airway axis alignment is a crucial to endotracheal intubation – the heads-up sniffing position substantially increases the likelihood of obtaining a better laryngeal view

PEARL | Video Laryngoscopy (VL) is preferential to Direct Laryngoscopy (DL)

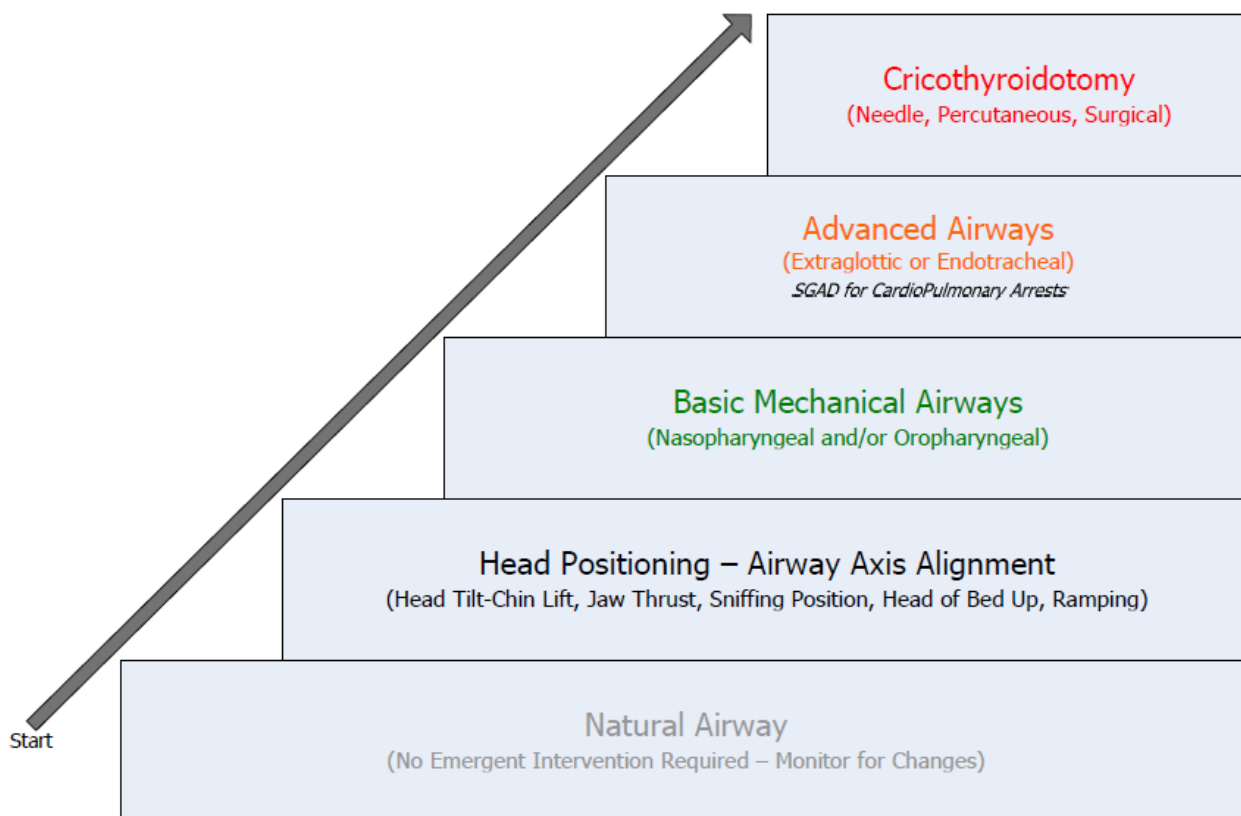
PEARL | An endotracheal intubation attempt is defined as passing the laryngoscope blade and/or endotracheal tube beyond the teeth with the intent to intubate the trachea

PEARL | Cervical collars can help reduce the risk tube dislodgment and should be used with any advanced airway

PEARL | Advanced airways will be secured with the appropriate commercial restraint or other clinically recognized technique

PEARL | Gastric tubes should be inserted with all advanced airways to help reduce gastric distention and to avoid soiled or contaminated airway conditions

The below graph illustrates the desired pathway for Progressive Airway Management:



VENTILATION AND OXYGENATION – AN IMPORTANT RELATIONSHIP

Ventilation is the mechanical aspect of breathing in which air moves into the lungs and CO₂ (normal byproduct of metabolism) moves out of the lungs. Proper ventilation requires both adequate tidal volume and respiratory rate. Oxygenation is defined as, “The addition of oxygen to any system, including the human body. Oxygenation may also refer to the process of treating a patient with oxygen, or of combining a medication or other substance with oxygen.”

With ventilation serving as the mechanical means of adding oxygen to the body, the patient must have sufficient oxygen, and the ability for that oxygen to be utilized (O₂/CO₂ exchange). While ventilatory volume and rate are the key components, other factors can affect whether or not the patient is being adequately oxygenated. Even if the ventilation volume and rate are adequate, every patient must be evaluated for the need to have supplemental oxygen delivered and the most appropriate mechanism for that to occur. Considerations in determining a patient’s need for supplemental oxygen are determined from the patient’s presenting condition coupled with History and Physical Exam.

Hyperventilation is condition where a patient’s respiratory volume and rate can create uncertainty. The lack of adequate CO₂ causes a drop in the acid levels resulting in alkalosis. Iatrogenic hyperventilation by prehospital providers is very controversial for the following reason. CO₂ is a potent vasodilator. When CO₂ drops as a result of iatrogenic hyperventilation (aggressive positive pressure ventilation), blood vessels constrict. When arterial vessels constrict, blood flow to vital organs is minimized. In the case of a brain injured patient, iatrogenic hyperventilation will reduce blood flow to the injury/ischemic zone (penumbra)

resulting in an increase in morbidity/mortality and poor patient outcome.

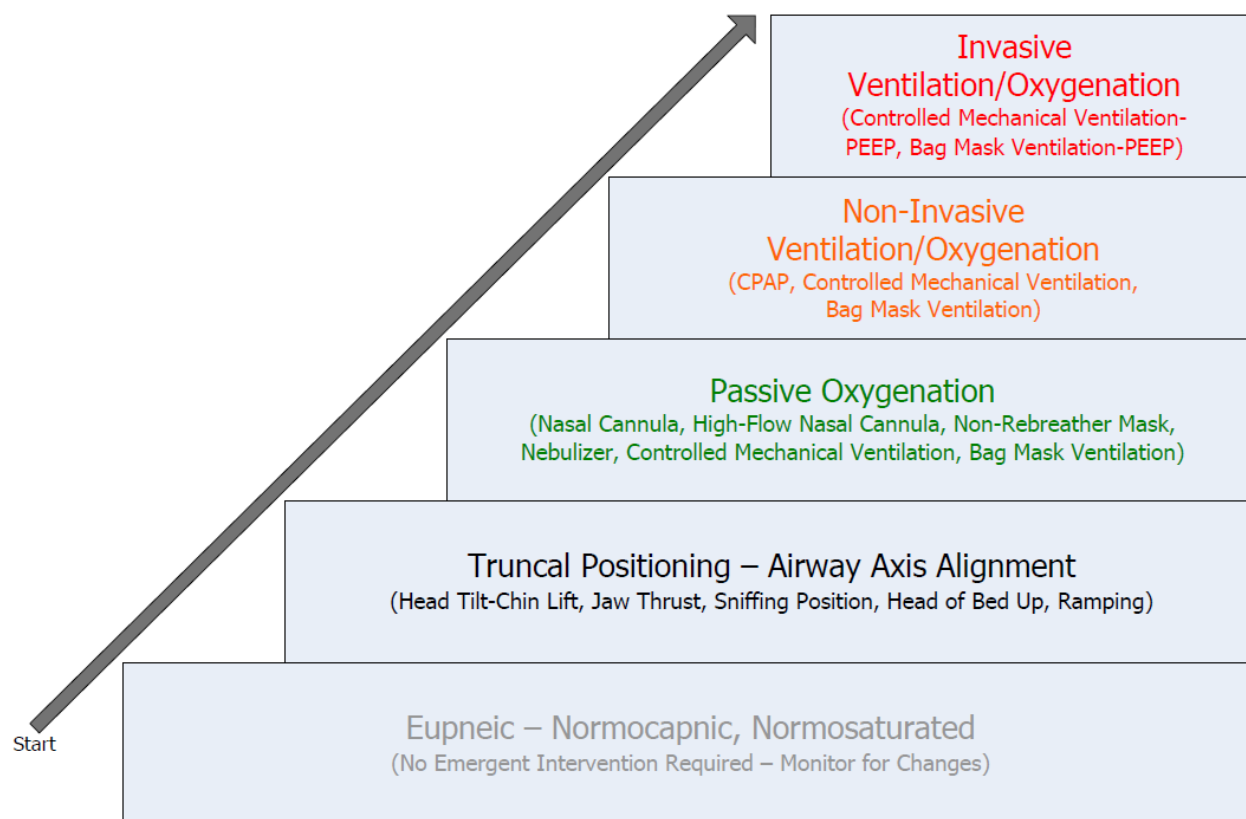
When inadequate oxygenation is recognized ($SpO_2 < 94\%$), it is essential to supplement the patient's oxygen intake. Primary treatment goals for patients suffering from inadequate oxygenation include:

- I. Preventing or correcting hypoxia
- II. Optimizing $etCO_2$ and SpO_2
- III. Minimizing the effects of secondary and/or iatrogenic injury
- IV. Decreasing airway resistance

Positive End-Expiratory Pressure, or PEEP, is an effective way to improve oxygenation in patients that are non-invasively or invasively ventilated. In patients who have respiratory embarrassment and increased work-of-breathing, PEEP stents open closed alveoli and recruits lung thus increasing surface area for gas exchange. PEEP also increases functional residual capacity (FRC) which improves pulmonary reserve between breaths. In prehospital care, the range of PEEP is generally 5 – 15cmH₂O (classic settings: 5, 7.5, 10, 12.5, and 15). Providers should routinely start low and titrate as needed. PEEP is not a “if a little is good, more must be better” theory. To that end, tight-lung patients (reactive airway disease) typically do better at 5cmH₂O while wet-lung patients (congestive heart failure/pulmonary edema) may require 7.5 – 15cmH₂O. PEEP greater than 15cmH₂O can result in an increase in intrathoracic pressure thus causing a decrease in venous return and cardiac output.

PEARL | PEEP is contraindicated in cardiopulmonary arrest & grossly hypotensive patients

The below graph illustrates the desired pathway for Progressive Ventilation/Oxygenation Management:



PEARL | Apneic Nasal Oxygenation (nasal cannula at 15lpm) has been shown to improve oxygen saturation in apneic patients during advanced airway management placement

VENTILATION/PERFUSION – YET ANOTHER CRITICAL RELATIONSHIP

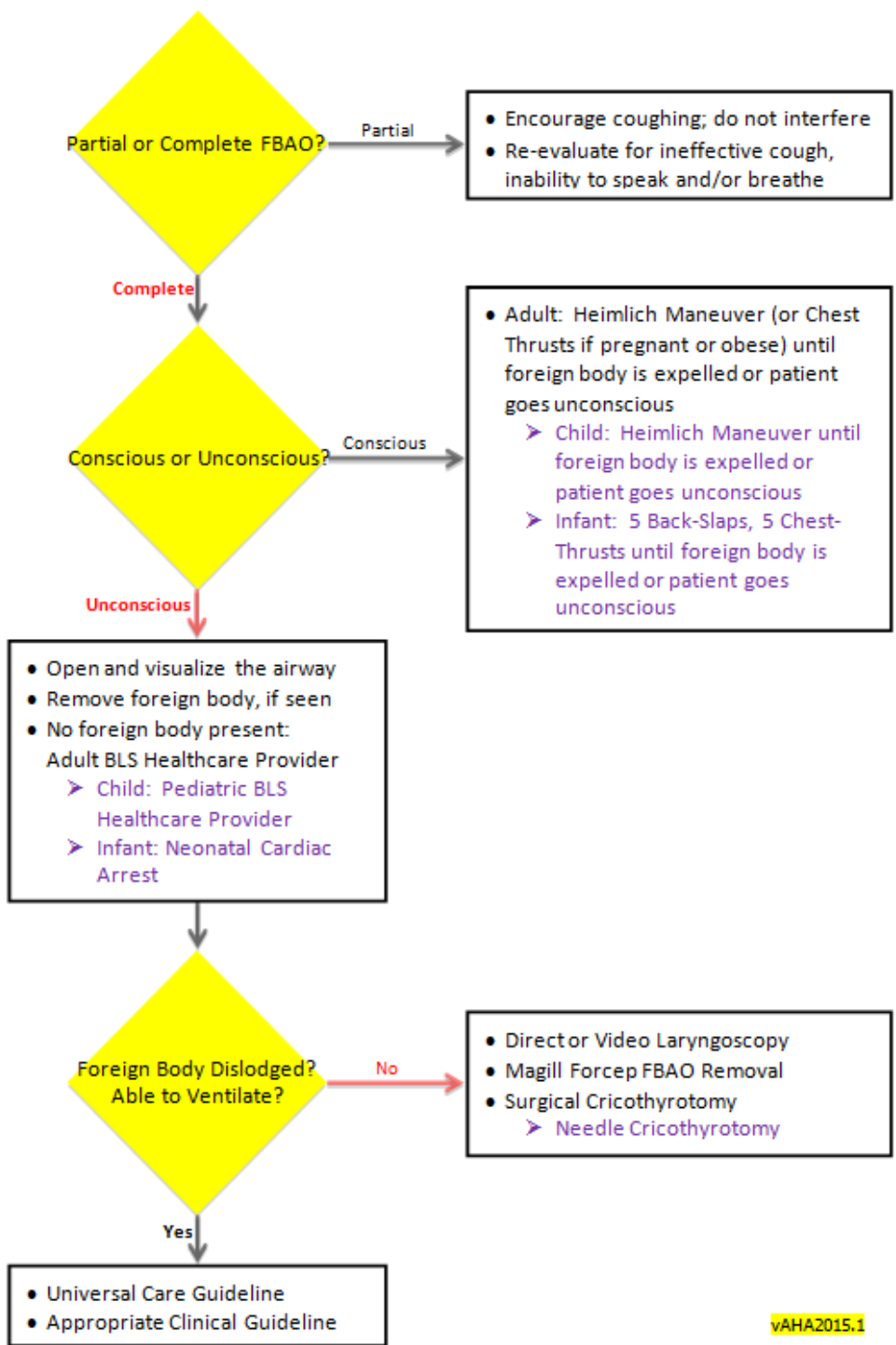
A common pitfall in ventilation is to over-ventilate patients by providing too much tidal volume (Vt) or too fast a minute rate (Vf). The physics that allow mammals to move air in and out of the lungs can also have a major impact on blood circulation. When a normally breathing patient takes a breath, intrathoracic pressure decreases allowing air to be drawn into the lungs as a result of the pressure gradient. In patients that receive positive pressure ventilation (PPV), intrathoracic pressure is increased as the lungs are inflated. This increase can squeeze the heart and impair filling and forward blood movement. Unregulated PPV will have a dramatic adverse effect on circulation/perfusion. When attention is not paid to PPV volume and rate, the patient can be harmed as a result of an imbalance between alveolar ventilation and pulmonary capillary blood flow. This imbalance is known as ventilation/perfusion (V/Q) mismatching. Iatrogenic V/Q mismatching can be mitigated by the use of controlled mechanical ventilation (CMV) devices or automated transport ventilators (ATVs). Ventilation volume and rate should be guided by the use of waveform capnography or etCO₂ in concert with American Heart Association Guidelines.

PEARL | Supine positioning can result in a marked reduction in functional residual capacity – Airway/Pulmonary patients should be transported in semi-Fowler's position whenever possible

PEARL | Controlled Mechanical Ventilation (CMV) or the use of an Automated Transport Ventilator (ATV) is preferential to Bag Mask Ventilation (BMV)

PEARL | Waveform capnography (etCO₂) and pulse oximetry are required for all advanced airway/ventilation cases – colorimetric etCO₂ device may be used for initial CO₂ detection when continuous waveform capnography is not immediately available

Foreign Body Airway Obstruction



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Differential Impressions:

- Musculoskeletal Pain (Fractures, Crush Injuries, Burns, Chronic Back/Vertebral or Inflammation Disease Process)
- Skin/Integumentary Pain (Burns, Soft Tissue Injuries)
- Ischemic Cardiac Pain (Acute Coronary Syndromes)
- Abdominal Pain (Renal Colic/Inflammation Disease, Cholecystitis, Diverticulitis, Bowel Obstruction)
- Neurogenic Pain (Herpes/Varicella Zoster)
- Sickle Cell Crisis
- Peridental Pain
- Severe Anxiety
- Procedural Sedation

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Ice pack therapy (for simple Musculoskeletal & Skin/Integumentary Trauma Pain)
 - Pediatric: Ice pack therapy (for simple Musculoskeletal & Skin/Integumentary Trauma Pain)

Advanced Life Support Actions/Considerations:

- *Acute Pain Conditions:*
Fentanyl 1mcg/kg IV, IO, IM, IN; repeat q 10minutes PRN
 ➤ Pediatric: **Fentanyl 0.5mcg/kg IV, IO, IM, IN;** repeat q 10minutes PRN

 - *Severe Anxiety:*
Midazolam 2mg IV, IO, IM, IN; repeat q 10minutes PRN
 ➤ Pediatric: **Midazolam 0.1mg/kg IV, IO, IM, IN;** may q 10minutes PRN
 PEARL | *For severe anxiety and/or muscle spasm without evidence of hypoperfusion*

 - *Procedural Sedation:*
Ketamine 1mg/kg IV, IO; repeat q 10minutes PRN
 ➤ Pediatric: **Ketamine 0.5mg/kg IV, IO;** repeat q 10minutes PRN
 PEARL | *IV/IO Ketamine must be diluted with an equal volume of Normal Saline*
 PEARL | *Contraindicated in catecholamine depleted states*
- or**
- **Ketamine 5mg/kg IM**
 ➤ Pediatric: **Ketamine 5mg/kg IM**

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

Differential Impressions:

- Central Nervous System origins
- Digestive Tract disorder
- Food poisoning/Alcohol use
- Gastrointestinal distress
- Genitourinary origins
- Infectious origins
- Metabolic origins
- Medication/Toxin induced
- Neurological origins
- Oncology origins
- Pregnancy
- Psychological disorders
- Sepsis
- Stroke
- Traumatic Brain Injury
- Viral origins

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Place in cool, well ventilated environment
- Reduce outside stimulus (lights, noise, motion, etc.)

Advanced Life Support Actions/Considerations:

- **Crystalloid Resuscitation 10cc/kg** as necessary/indicated
 - Pediatric: Crystalloid Resuscitation 20cc/kg as necessary/indicated
 - PEARL | Maintain strict NPO status*
- **Ondansetron 4mg IV**
 - Pediatric: Ondansetron 0.1mg/kg IV
 - PEARL | First-line therapy for nausea and vomiting*
- **Diphenhydramine 50mg IV/IM**
 - Pediatric: Diphenhydramine 1mg/kg IV/IM
 - PEARL | First-line therapy for motion sickness*
 - PEARL | Second-line therapy for nausea and vomiting*

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

Goal(s):

- To establish a guideline for the management and documentation of restraining patients
- Primary consideration: The use of patient restraints is authorized in all instances where a patient's behavior may jeopardize the safety of the patient or crew
- Secondary consideration: Restraints may be used when a patient lacks decisional capacity to make rational decisions and exhibits behavior that may disallow necessary medical treatment

PEARL | This is implied consent

General Actions:

- Crew safety – Escaping Violent Encounters (EVE)
- Request law enforcement
PEARL | Carefully evaluate the risk-benefit of mechanical patient restraint versus chemical/pharmacological restraint
- When appropriate, attempt less restrictive means of management including, verbal de-escalation
- Excited Delirium Syndrome Guideline as necessary/indicated

Patient Positioning

- Patients will be restrained in the supine, head-up position
- Patients may be restrained in a lateral recovery, head-up position as an alternative
- Patients will be mechanically restrained using a commercial soft restraint system or, if in custody, hand-cuffs or shackles as deemed appropriate by law enforcement
- Patients will not be restrained in the prone position

Assessment and Documentation

- When a patient is restrained, the restraints shall be placed only tight enough to secure the extremity without compromising neurovascular function. Distal neurovascular function shall be checked and documented after application and every 10 minutes thereafter using the following test procedures:
 - ❖ Grip strength – should be equal and strong on most patients
 - ❖ Sensations – upper and lower extremities must have good sensations and absence of numbness
 - ❖ Capillary refill – upper and lower extremities must result in a capillary refill time of less than 2 seconds
- The reason for restraining a patient and the results of all the above tests shall be documented in the patient care report
- Grip strength, sensation and capillary refill tests are to be performed and the results documented every 10 minutes
- In the event of a short transport time, the results of a minimum of 2 sets are to be documented with one set to be completed upon arrival at the receiving facility

Hospital Notification

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

Goal(s):

- First consideration: patients shall be transported to a local facility of their choice
PEARL | Informed consent is key to delivering the right patient, to the right facility... the first time
- Second consideration: patients should be transported to the closest appropriate facility for treatment of their primary illness and/or injury

General Actions:

- Mode of transport (ground, air or water) is determined by the highest medical authority providing direct patient care; it should not be determined by any other emergency responder(s), bystander(s), or family member(s)
Refer to Air Medical Transport Guideline when considering air mode of transport
- Status of transport (lights and siren use) is determined by the EMS Transport Provider with the highest medical authority providing direct patient care. The decision to run lights and sirens should be justified by the need for time sensitive medical intervention that is beyond the capabilities of the transport unit.
PEARL | Provider and public safety takes precedent over patient care and apparatus health
- The Lee County DPS/EMS Destination Coordinator facilitates the optimal delivery of patients to the most appropriate facility and can make recommendations on the most appropriate destination, off-load times, specialty care center availability/capability and facility problems. Prior to transporting a patient to the hospital, the transport unit shall contact and provide the Destination Coordinator with the, gender, chief complaint/condition, patient priority and desired transport destination.
- Regionalized systems of care and/or specialty care centers (e.g., STEMI {ST Elevation Myocardial Infarction}, Stroke, Trauma, etc.) may necessitate transport to a hospital beyond the nearest facility
Refer to Specialty Care Center table
- ❖ **CardioPulmonary Arrest:** *Patients, regardless of age, who are transported in CardioPulmonary Arrest or deteriorate to CardioPulmonary Arrest in transit, shall be transported to the closest facility*
- ❖ **Cardiac:** *STEMI Alert, Acute Coronary Syndrome (ACS), and Return of Spontaneous Circulation (ROSC) patients should be transported to the closest STEMI/Percutaneous Coronary Intervention (PCI) facility*
- ❖ **Stroke:** *Stroke Alert patients should be transported to the most appropriate Stroke facility based upon the clinical differential (Primary versus Comprehensive versus Neurosurgical Stroke Center) as determined by the Lee County Stroke Assessment/Checklist*
- ❖ **Trauma:** *Trauma Alert patients, regardless of age, shall be transported to the closest trauma center*
- ❖ **Sepsis:** *Sepsis Alert patients may be transported to any admit facility*
- ❖ **Adult Orthopedic:** *Adults with simple extremity fractures (SEFx) or dislocations may be transported to any facility*
 - **Pediatric Orthopedic:** *Children with simple extremity fractures (SEFx) or dislocations, excluding the elbow, may be transported to any facility*
PEARL | SEFx = isolated, closed, distal extremity (below the elbow or knee) fracture or dislocation without neurovascular compromise or need for surgical intervention
PEARL | Elbow fractures/dislocations in children are not considered SEFx

- ❖ **Adult Orthopedic Surgery:** *Adults that may require orthopedic surgery or have a neurovascular injury should be transported to the closest adult orthopedic admit facility*
 - **Pediatric Orthopedic Surgery:** *Children that may require orthopedic surgery should be transported to the closest pediatric orthopedic admit facility*
- ❖ **Adult Medical-Surgical:** *Adults that have a high probability for general medical-surgical admission (GMSA) can be transported to any facility*
 - **Pediatric Medical-Surgical:** *Children that have a high probability for general medical-surgical admission (GMSA) should be transported to the closest pediatric admit facility*
PEARL | Pediatric GMSA = possible appendicitis, bowel obstruction and/or any signs of peritoneal irritation
- ❖ **Obstetrical/Gynecology:** *High-risk obstetrical patients shall be transported to a neonatal intensive care facility*
PEARL | Patients with an imminent obstetrical emergency shall be transported to the closest OB/GYN facility
- ❖ **Oncology:** *Oncology Alert patients (on or receiving chemotherapy with a fever 100.4 or greater) shall be transported to an oncology admit facility*
- ❖ **Hazmat:** *Patients exposed to hazardous materials can be transported to any facility following appropriate prehospital decontamination*
- ❖ **Hyperbaric:** *In Lee County, patients with a high probability for hyperbaric oxygen therapy should be transported to Gulf Coast Medical Center*
- ❖ **Envenomation:** *Venomous snake and spider bites/stings can be transported to Lee Memorial Hospital and all Collier County facilities. Mammal and marine bites/stings can be transported to any facility.*
- Freestanding Emergency Departments are becoming more prevalent in the community. Freestanding EDs are licensed through the Florida Department of Health but their ambulance reception capabilities can vary from facility to facility.
Refer to Freestanding Emergency Department table
- The EMS Transport Provider shall advise the receiving facility, as early as possible, of a patient en-route to that facility

Specialty Care Centers

Lee County	STEMI Alert/PCI	Stroke Alert	Trauma Alert	Pediatric Admit	OB/GYN	Neonate	Adult Ortho Admit	Pedi Ortho Admit	Oncology Alert/Admit	Helipad
Lee Memorial Hospital D1 ED Phone: 239.343.2329		P	✓ L2				✓		✓	✓
Lehigh Regional Medical Center D3 ED Phone: 239.368.4410							✓			✓
Cape Coral Hospital D4 ED Phone: 239.424.2222		P			✓		✓			✓
Gulf Coast Medical Center D5 ED Phone: 239.343.0434	✓	C			✓		✓			✓
HealthPark Medical Center D7 ED Phone: 239.343.6279	✓			✓	✓	✓		✓		✓
Collier County	STEMI Alert/PCI	Stroke Alert	Trauma Alert	Pediatric Admit	OB/GYN	Neonate	Adult Ortho Admit	Pedi Ortho Admit	Oncology Alert/Admit	Helipad
Naples Community Hospital - DT D6 ED Phone: 239.624.2611	✓	C					✓		✓	✓
Physicians Regional Medical Center - PR D13 ED Phone: 239.304.4737	✓	P					✓			✓
Naples Community Hospital - North D14 ED Phone: 239.552.7709		P		✓	✓	✓	✓	✓		✓
Physicians Regional Medical Center - CB D15 ED Phone: 239.354.6191		P					✓			✓
Charlotte County	STEMI Alert/PCI	Stroke Alert	Trauma Alert	Pediatric Admit	OB/GYN	Neonate	Adult Ortho Admit	Pedi Ortho Admit	Oncology Alert/Admit	Helipad
Englewood Hospital D8 ED Phone: 941.473.5810	✓	P					✓			✓
Fawcett Memorial Hospital D9 ED Phone: 941.627.6131	✓	P					✓		✓	No
Bayfront Health Punta Gorda D10 ED Phone: 941.637.2529		P							✓	✓
Bayfront Health Port Charlotte D11 ED Phone: 941.766.4255	✓	P		✓	✓	✓	✓	✓		✓
Sarasota County	STEMI Alert/PCI	Stroke Alert	Trauma Alert	Pediatric Admit	OB/GYN	Neonate	Adult Ortho Admit	Pedi Ortho Admit	Oncology Alert/Admit	Helipad
Venice Regional Bayfront Health D12 ED Phone: 941.483.4177	✓	P								No
Sarasota Memorial Hospital D16 ED Phone: 941.364.5591	✓	C	✓ L2	✓	✓	✓	✓	✓	✓	✓

Freestanding Emergency Departments

Collier County	STEMI Alert/PCI	Stroke Alert	Trauma Alert	Pediatric Admit	OB/GYN	Neonate	Adult Ortho Admit	Pedi Ortho Admit	Oncology Alert/Admit	Helipad
NCH Northeast (Naples Community Hospital) 15420 Collier Blvd, Naples, FL 34120 D17 ED Phone: 239.624.8728										No
Sarasota County	STEMI Alert/PCI	Stroke Alert	Trauma Alert	Pediatric Admit	OB/GYN	Neonate	Adult Ortho Admit	Pedi Ortho Admit	Oncology Alert/Admit	Helipad
North Port ER (Sarasota Memorial Hospital) 2345 Bobcat Village Center Road, North Port, FL D18 ED Phone: 941.257.2800				✓	✓		✓	✓	✓	✓

vDecember2015

Goal(s):

- To provide a guideline for the use of air medical transport
- Primary consideration: Air medical transport should be used when a critically ill and/or injured patient will benefit from faster transport and reduced out-of-hospital time

General Actions:**Procedure & Criteria**

- Place “air medical transport” on standby when:
 - ❖ Call information obtained by Dispatch suggests the need for air medical transport
- Request “air medical transport” within the first 2 minutes of patient contact for:
 - ❖ Priority 1 patients that exceed a ground transport time of 30 minutes or,
 - ❖ Priority 2 patients that are inaccessible by roads (e.g., remote wilderness areas and bridgeless barrier islands)

Notes

1. Any on-scene first responder may request air medical transport
2. Any LCEMS Supervisor, on-scene or not, may request air medical transport based on available information at that time
3. Lee Control may provide information to air medical transport and request an auto-launch
4. Air medical crews may request information from Lee Control and decide to auto-launch
5. After initial assessment, the highest medical authority providing direct patient care should cancel air medical transport if the patient’s condition does not warrant the service or meet the criteria
 - PEARL | *The following patients are not appropriate for air medical transport:*
 - Cardiopulmonary Arrest patients (CPR in-progress)
 - Haz-Mat patients (Regardless of Decontamination Status)
 - Priority 3 patients
6. Lee Control must be notified if more than one patient requires air medical transport (if available, additional air medical resources will be dispatched for additional patients)
7. Ground crews should not attempt to determine if the weather is “good enough” for the aircraft to fly – simply request the aircraft and the pilot will determine if the mission can be accepted

Landing Zones (LZ)

1. Fire department personnel are responsible for preparing/securing LZs and assuming the LZ Controller role
2. It is necessary for fire personnel to separate themselves from the EMS operation as soon as possible in order to begin LZ preparations
 - A. All LZs should be a minimum of 100’ x 100’ (day or night)
 - LZs must be illuminated at the corners with strobe and/or a steady-burn light source
 - Hard surface LZs (highway, parking lots, etc) are preferential to soft surface LZs
 - B. Once established, the LZ Controller will ensure LZ security the duration of the event
 - C. When requested by the pilot, the LZ Controller will provide a LZ report. This report should include the type of LZ (hard versus soft surface), wind direction and speed and any potential hazards that may be identified from the ground (wires, fences, signs, etc.).

PEARL | *Ground to air radio traffic should be limited to LZ information only – no patient information*

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

Transfer of Care

- Prepare patient in treatment area or, preferably, in the ambulance
- Complete the Lee County Transfer of Care Worksheet with as much information as conditions allow (top two copies of the worksheet shall be given to the Air Crew Members)
- Relay assessment findings and care provided to the Air Crew Members (ACM)
- The primary ACM will immediately assume team leader role and assume and/or direct the remaining patient care issues and treatment modalities
- The ACM will perform an appropriate patient assessment and determine the need for further emergent treatments based upon flight physiology
- The ground crew will follow directions from the flight team regarding the transfer and loading of the patient from the scene

PEARL | Transfer of Care between the non-transport and the transport providers is essential for good patient outcome

Goal(s):

- To establish a guideline for the management and documentation of situations in where patients or potential patients refuses evaluation, treatment, and/or transportation to a hospital in accordance with state and local statute

General Actions:**Definitions**

- **Patient:** A patient shall be defined as an individual who meets one of more of the following criteria:
 - ❖ Any individual with a medical or traumatic complaint
 - ❖ Any individual with an illness or injury
 - ❖ Any individual with a new altered mental status
 - ❖ Any individual in the same event as a significantly ill and/or injured party (e.g., motor vehicle crash, structural collapse, explosion, toxic fume environment, etc.)
 - ❖ Any individual who, at the discretion of the highest medical authority providing direct patient care, demonstrates a high index of suspicion for illness or injury (EMT or Paramedic judgment)
- **Responsible Party:** A designated decision maker (DDM) when a patient is not of decisional capacity or has legally transferred their healthcare decision making to another party (legal guardian, power of attorney, healthcare surrogate, etc.)
- **Unable to Locate or No Patient Found:** Unit arrives in the vicinity of a given location but no event or Person Involved (PI) could be found could be located
- **No Care Required:** Unit arrives on-scene and the Person Involved (PI) does not meet “patient” criteria
- **Treated, No Transport:** Unit arrives on-scene, makes contact with the Person Involved (PI), the PI is determined to be a Patient, an evaluation and/or intervention is performed and the Patient ultimately declines to be transported to a hospital (Patient Refusal Form required)
- **Treatment and Transport Refused:** Unit arrives on-scene, makes contact with the Person Involved (PI), the PI is determined to be a Patient ultimately refuses evaluation, treatment and declines to be transported to a hospital (Patient Refusal Form required)

Refusal of Care

- There are three components to a valid refusal of care. In the absence of any of these components, the refusal can be deemed legally invalid; thus, resulting in high liability for the providers, their respective department and their respective medical director. The three components are:
 - ❖ Competence: 1) Any patient who is of adult age (18 years of age or older) or legally emancipated is competent to refuse care. 2) A parent or legal guardian (responsible party) who refuses care on behalf of their minor child (or children).
 - ❖ Decisional Capacity: Any patient who is Alert & Oriented x4 (person, place, time and situation) with the ability to understand the nature and consequences of their actions by refusing evaluation, treatment, and/or transportation
 - ❖ Informed Refusal: Patients must be fully informed about his/her medical condition, the risks and benefits associated with the proposed treatment and the risks associated with refusing evaluation, treatment, and/or transportation

Emancipation

- ❖ Medical: A female less than 18 years of age who is unmarried, pregnant and/or has a minor child

may consent to medical care relating to her pregnancy and can make medical decision on behalf of the unborn or born child.

- ❖ Legal: A person less than 18 years of age but at least 16 years of age who is married, enlisted in military service or has been declared emancipated by court order

PEARL | No minor less than 16 years of age can be emancipated in Florida

Patients able to refuse care

- 1) Must be competent
- 2) Must have decisional capacity
- 3) Must be informed of the risks associated with refusing evaluation, treatment, and/or transportation

Patients not able to refuse care

- 1) Incompetent – less than eighteen (18) years of age or not legally emancipated
- 2) Lacks Decisional Capacity – not acting as a "reasonable person would do, given the same circumstances"
- 3) Altered mental status (e.g., head injury or under the influence of alcohol and/or drugs)
- 4) Suicidal ideations or gestures
- 5) Mental defect, disability or deficiency (e.g., mental retardation)
- 6) Severely altered or impaired vital signs

Implied Consent

- 1) If a patient is determined to be incompetent and/or lacks decisional capacity, they may be evaluated, treated and transported under "implied consent" (what the reasonable individual would consent to under the same circumstances)
- 2) If the patient is evaluated, treated and transported on the basis of implied consent, providers should use reasonable measures to ensure safe transport to the closest appropriate facility

Refusal of Care Procedure

- 1) Perform a Primary Assessment, History and Physical Examination; including a complete Vital Sign Assessment
- 2) Fully inform the patient or responsible party about his/her medical condition, the risks and benefits associated with the proposed treatment and the risks associated with refusing evaluation, treatment, and/or transportation
- 3) Ensure the patient or responsible party fully understands the potential consequences of their decision
- 4) Attempt to convince the patient or responsible party to consent; including enlisting the help of family or friends
- 5) Reattempt to convince the patient or responsible party to consent; including enlisting the help of family or friends
- 6) If the patient or responsible party continues to refuse:
 - a. complete a Refusal of Care in its entirety,
 - b. obtain the patient's or responsible party signature
 - c. obtain a witness name and signature
- 7) Where it is possible, patients will be left in the care of family, friends, or responsible parties

PEARL | All patient contact results in either a transport or a completed Refusal of Care

Goal(s):

This **protocol** is divided into three separate sections that cover the different situations involving death in the field that the paramedic will encounter. All patients found in cardiac arrest will receive cardiopulmonary resuscitation unless an exception is met as outlined in the following sections:

- I. Advanced Directives/Do Not Resuscitate Orders (DNRO)
- II. Determination of Death
- III. Discontinuance of CPR

General Actions:**ADVANCED DIRECTIVES/DO NOT RESUSCITATE ORDERS (DNRO)**

Legislative authority. Under Florida Administrative Code (FAC) 64J-2.018. Do Not Resuscitate Order (DNRO) Form and Patient Identification Device.

1. An EMT or paramedic shall withhold or withdraw cardiopulmonary resuscitation:
 - a. Upon the presentation of an original or a completed copy of DH Form 1896, Florida Do Not Resuscitate Order Form, December 2004, which is incorporated by reference and available from DOH at no cost, or, any previous edition of DH Form 1896; or
 - b. Upon the presentation or observation, on the patient, of a Do Not Resuscitate Order patient identification device.
2. The Do Not Resuscitate Order:
 - a. Form shall be printed on yellow paper and have the words "DO NOT RESUSCITATE ORDER" printed in black and displayed across the top of the form. DH Form 1896 may be duplicated, provided that the content of the form is unaltered, the reproduction is of good quality, and it is duplicated on yellow paper. The shade of yellow does not have to be an exact duplicate;
 - b. Patient identification device is a miniature version of DH Form 1896 and is incorporated by reference as part of the DNRO form. Use of the patient identification device is voluntary and is intended to provide a convenient and portable DNRO which travels with the patient. The device is perforated so that it can be separated from the DNRO form. It can also be hole-punched, attached to a chain in some fashion and visibly displayed on the patient. In order to protect this device from hazardous conditions, it shall be laminated after completing it. Failure to laminate the device shall not be grounds for not honoring a patient's DNRO order, if the device is otherwise properly completed.
3. The DNRO form and patient identification device must be signed by the patient's physician. In addition, the patient, or, if the patient is incapable of providing informed consent, the patient's health care surrogate or proxy as defined in Section 765.101, F.S., or court appointed guardian or person acting pursuant to a durable power of attorney established pursuant to Section 709.08, F.S., must sign the form and the patient identification device in order for them to be valid. The form does not need to be notarized, once signed the form does not expire.
4. An EMT or paramedic shall verify the identity of the patient who is the subject of the DNRO form or patient identification device. Verification shall be obtained from the patient's driver license, other photo identification, or from a witness in the presence of the patient. If a witness is used to identify the patient, this fact shall be documented in the EMS Run Report, which must include the following information:
 - a. The full name of the witness

- b. The address and telephone number of the witness
- c. The relationship of the witness to the patient
5. During each transport, the Providers shall ensure that a copy of the DNRO form or the patient identification device accompanies the live patient. The Providers shall provide comforting, pain-relieving and any other medically indicated care, short of respiratory or cardiac resuscitation.
6. A DNRO may be revoked at any time by the patient, if signed by the patient, or the patient's health care surrogate, or proxy or court appointed guardian or person acting pursuant to a durable power of attorney established pursuant to Section 709.08, F.S. Pursuant to Section 765.104, F.S., the revocation may be in writing, by physical destruction, by failure to present it, or by orally expressing a contrary intent.
7. Oral orders from non-physician staff members or telephoned requests from an absent physician do not adequately assure EMT/paramedics that the proper decision-making process has been followed and are NOT acceptable.

Specific Authority 381.0011, 401.45(3) FS. Law Implemented 381.0205, 401.45, 765.401 FS. History—New 11-30-93, Amended 3-19-95, 1-26-97, Formerly 10D-66.325, Amended 2-20-00, 11-3-02, 6-9-05, Formerly 64E-2.031.5.

DETERMINATION OF DEATH

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

- A. The patient may be determined to be dead/non-salvageable and will not be resuscitated or transported if all four (4) presumptive signs of death and at least one (1) conclusive sign of death are identified.
 1. The four presumptive signs of death that MUST be present are:
 - a. Unresponsiveness
 - b. Apnea
 - c. Pulseless
 - d. Fixed dilated pupils
 2. In addition to the four presumptive signs of deaths, at least one (1) of the following conclusive signs of death MUST be present:
 - a. Injuries incompatible with life (e.g., decapitation, massive crush injury, incineration)
 - b. Tissue decomposition
 - c. Rigor mortis of any degree with warm air temperature. (Hardening of the muscles of the body, making the joints rigid)
 - d. Liver mortis (lividity) of any degree (venous pooling of blood in dependent body parts causing purple discoloration of the skin, which does blanch with pressure)
 3. Patients with suspected hypothermia, barbiturate overdose, or electrocution require full ALS resuscitation unless they have injuries incompatible with life or tissue decomposition.
 4. Providers may contact medical direction for a "determination of death" whenever support in the field is desired. Clearly state the purpose for the contact as part of the initial hailing.
 5. Children are excluded from this protocol unless EMS personnel make contact with medical direction for consultation. Only in cases of obvious, prolonged death should CPR not be started or discontinued on infants, children, or young adults, or in cases in which an unexpected death has occurred.
- B. A trauma victim who does not meet the "Determination of Death" criteria listed above may be determined to be dead/non-salvageable based on the following criteria:

1. Pulselessness and apnea associated with asystole (confirmed in two leads) and
 - a. Blunt trauma arrest
 - b. Prolonged extrication time (more than 15 minutes) where no resuscitative measures can be initiated prior to extrication
 - An additional rhythm assessment is required, followed by at least one reassessment after 15 minutes
 - c. Arrest from primary brain injury or with no brain stem reflexes; arrest from blunt multiple injuries
 2. If there is any concern regarding leaving the patient at the scene, begin resuscitation and transport.
 3. Consideration should be given for the possibility of organ harvest; however, this should not be the sole reason for resuscitation.
- C. Absence of pulse or spontaneous respiration in a multiple-casualty situation where EMS resources are required for stabilization of living patients.

PEARL | The local law enforcement agency that has jurisdiction will be responsible for the body once death has been determined. The body is to be left at the scene until a disposition has been made by the Medical Examiner's Office or the local jurisdiction.

DISCONTINUANCE OF CPR

- A. Resuscitation that is started in the field by EMS personnel cannot be discontinued without an order from medical direction. EMS personnel are not obligated to continue resuscitation efforts that were started inappropriately by others at the scene. However, contact with medical control is necessary to cease resuscitative efforts in ALL situations.

PEARL | Resuscitations involving pediatrics and emergency services personnel are highly charged and emotional – careful consideration must be made when contemplating field termination

- B. When there is a delay in presenting a DNRO to EMS personnel, resuscitation must be started. However, once the DNRO is presented to EMS personnel, the EMT or paramedic with an order from medical direction may terminate resuscitation.
- C. A paramedic with an order from medical control may terminate resuscitation provided the following criteria are met:
1. Appropriate BLS and ALS have been attempted without restoration of circulation and breathing.
 2. Advanced airway has been successfully accomplished.
 3. Intravenous (IV, IO, ET) medication and countershocks for ventricular fibrillation have been administered according to the appropriate treatment protocol(s) (see Adult Protocols or Pediatric Protocols).
 4. Persistent asystole or agonal ECG rhythm patterns are present and no reversible causes are identified.
 5. Patients with suspected hypothermia, barbiturate overdose, or electrocution require full ALS resuscitation, unless they have injuries incompatible with life or tissue decomposition.

PEARL | Unless deemed a crime scene, place of business resuscitations will not be terminated in the field (e.g., retail stores, restaurants, places of worship, etc.)

PEARL | Maternal resuscitations (pregnancy >24weeks) will not be terminated in the field

- D. Provide appropriate grief counseling or support to the patient's immediate family, bystanders, or others at the scene.
1. Provide family members with appropriate referral information, if available.

E. Deceased patient preparation:

1. Once death has been determined and resuscitation will not continue, cover the body with a sheet or other suitable item. If the death is a suspected homicide (crime scene), do not cover the body. Do not remove any property from the body or the scene for any purpose.
2. Immediately notify the appropriate law enforcement agency (if not done already), and remain on scene until their arrival.

PEARL | *The local law enforcement agency that has jurisdiction will be responsible for the body once death has been determined. The body is to be left at the scene until a disposition has been made by the Medical Examiner's Office or the local jurisdiction.*

3. Contact the Medical Examiner's office:

State of Florida, Office of the District 21 Medical Examiner (Serving: Lee, Hendry, and Glades Counties)

Telephone: 239.277.5020 – Primary contact number

Telephone: 239.931.3748 – Secondary/After Hours contact number

4. Complete an electronic patient care report (ePCR) as soon as possible, documenting the previously mentioned criteria, and post or upload the ePCR for retrieval by the Medical Examiner's Office.
5. In the absence of an ePCR program linked to the Medical Examiner's Office, the ePCR can be faxed or emailed to the Medical Examiner's Office at:
Contact the Medical Examiner's office:
State of Florida, Office of the District 21 Medical Examiner (Serving: Lee, Hendry, and Glades Counties)
Fax: 239.277.5017
email: me21@leegov.com
6. ECG rhythm strips or ECG electronic file must be attached to the ePCR.
7. Advanced airway placement may be verified by two paramedics for patients who are determined to be dead in the field or for whom resuscitation measures have ceased. The advanced airway should be left in place and its confirmation should be recorded on the ePCR. Improperly placed advanced airway tubes should be left in place and reported to the appropriate personnel (proper advanced airway tube placement must be confirmed prior to terminating resuscitation).
8. Consult the patient's family for "organ donor" information, if appropriate.

Goal(s):

To provide a consistent and standardized foundation for triage and treatment of mass casualty incidents.

General Actions:

- If first on-scene, ensure radio transmitted scene size-up prior to exiting vehicle
- Establish Incident/Unified Command
- Establish TAC Communications
- Perform a Needs Assessment based upon:
 - Level 1 MCI: 6 – 10 Patient Transports
 - Level 2 MCI: 11 – 20 Patient Transports
 - Level 3 MCI: 21 – 100 Victims
 - Level 4 MCI: 101 – 1000 Victims
 - Level 5 MCI: 1000+ Victims

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Perform START or JumpSTART
 - R – Respirations
 - P – Perfusion
 - M – Mental Status

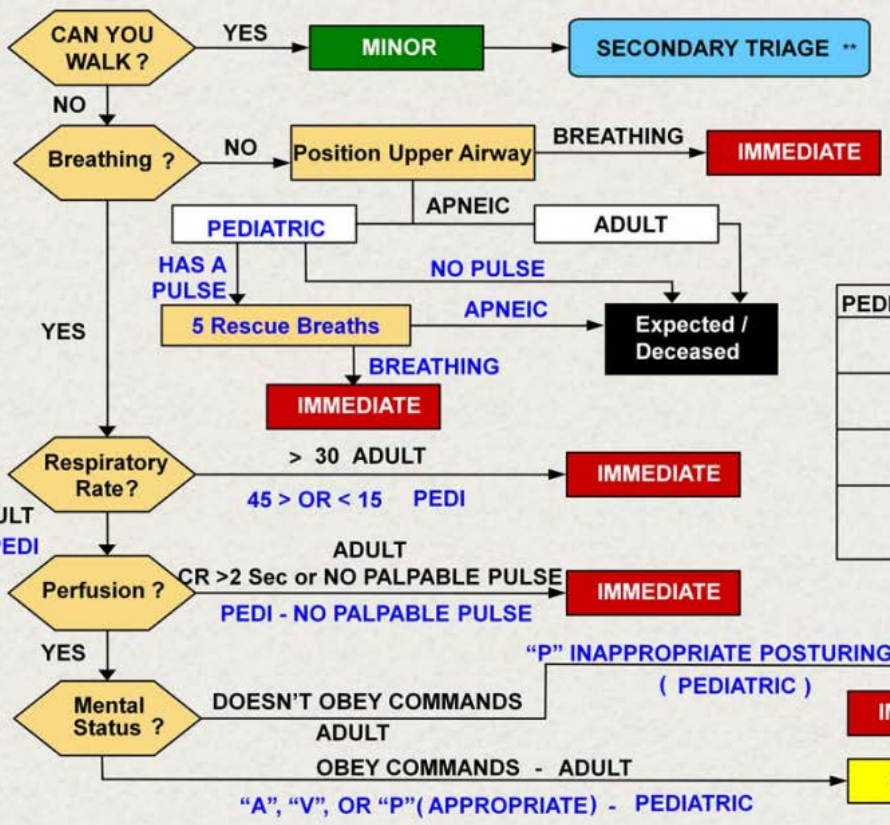
Advanced Life Support Actions/Considerations:

- None

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

Combined START/JumpSTART Triage



** Using the JS algorithm evaluate all children first who did not walk under their own power. Evaluate infants first in secondary triage using entire JS algorithm !

PEDI Neurological Assessment	
A	Alert
V	Responds to Verbal Stimuli
P	Responds to Painful Stimuli
U	Unresponsive To Noxious Stimuli

[Http://www.starttriage.com](http://www.starttriage.com)

[Http://www.jumpstarttriage.com](http://www.jumpstarttriage.com)

Goal(s):

- To establish procedures for Emergency Services Personnel Rehabilitation
- Primary consideration: Emergency operations require significant physical activity, but no personnel will be required to perform emergency operations beyond safe levels of physical or mental endurance
- Purpose: This guideline is intended to examine and evaluate the physical and mental status of emergency services personnel working on an emergency incident or a training exercise and determine which treatment, if any, is necessary/ indicated

General Actions:**Responsibilities**

- Emergency Services Personnel (ESP):
 - 1) Are responsible for reporting to the Rehab Group when ordered to do such by a commanding officer
 - 2) Are to advise the commanding officer when any member of his/her crew is in need of rehab
- Incident Commander (IC)/Unified Command (UC): Must ensure all personnel receive the proper rest, refreshments, medical evaluation, monitoring, and clearance
- Rehab Supervisor (RS):
 - 1) Is ideally led by a paramedic
 - 2) Reports directly to the IC/UC and the Incident Safety Officer (ISO).
 - 3) Function includes:
 - Report to the IC/UC and obtain rehabilitation requirements
 - Locate and establish a rehab site
 - Identify the EMS requirements and request additional personnel to assist as required
 - Provide required resources for rehabilitation
 - Check vital signs, monitor for heat stress, and signs of medical issues
 - Document medical monitoring on Lee County Common Incident Rehab Worksheet
 - Provide medical care and transportation to medical facilities as required
 - Inform the IC/UC and ISO when personnel require transportation to the treatment at a medical facility
 - Ensure documentation of any medical care provided
 - a. Any and all injuries will require a Patient Care Report to be completed

Establishment of the Rehab Group

- Location:
 - 1) If a specific location has not been designated, the RS shall select an appropriate location based on site characteristics and designations such as fire apparatus, ambulance, nearby garage, or make-shift rehab structure.
 - 2) The RS shall notify the IC/UC where the rehab area has been established
- Site Characteristics:
 - 1) Preferably upwind
 - 2) Far enough away from hot zone/tactical area that members may safely remove their Personal Protective Equipment (PPE)
 - 3) Large enough to accommodate the number of personnel expected with a separate area for members to remove PPE

- 4) Preferably shaded; protected from elements
 - 5) Away from exhaust fumes
 - 6) Provide access to SCBA/SCUBA replenishment/refill equipment
 - 7) Easy ingress and egress for ambulance traffic
 - 8) Able to accommodate prompt re-entry back into the operation upon complete rehabilitation
 - 9) Away from spectators and the media
- Resources:
 - 1) Fluids/food – potable drinking water, sports beverages, ice, food, and snacks
 - 2) Medical monitoring equipment
 - 3) Tarps
 - 4) Water supply for active cooling (wet towels, misting fans, ice vests, forearm immersion chairs)
 - 5) Blankets and warm, dry clothing for winter months
 - 6) Chairs (if available)

Rehab Procedure

- Entry:
 - 1) Collect accountability passport(s)/tags and place on status board
 - 2) Log names on the Lee County Common Incident Rehab Worksheet
 - 3) Dress-down incoming personnel
 - 4) Assign to the seating area
- Initiate Medical Monitoring:
 - 1) Normal Parameters as noted on the Lee County Common Incident Rehab Worksheet

PEARL | Have high index of suspicions for and be prepared to act on Life Threatening Signs & Symptoms
- Initiate Cooling:
 - 1) Passive
 - ❖ Removal of PPE
 - ❖ Remove to a cooler environment
 - 2) Active
 - ❖ Cold packs
 - ❖ Cool, wet towels
 - ❖ Forearm immersion buckets/tubs
 - ❖ Misting fans
 - ❖ Ice vests
- Begin Hydration:
 - ❖ Water/fluids

PEARL | Avoid caffeine and carbonated beverages
- Rest time:
 - ❖ Minimum: 10 minutes
 - ✓ Normal Vital Signs, may be released
 - ✓ Abnormal Vital Signs, 10 additional minutes in rehab
 - ✓ Abnormal Vital Signs, move to Medical Treatment Area
- Release:
 - 1) ESP that cannot be cleared shall be reported to the IC/UC and ISO

PEARL | The RS and ISO retain final authority to ground any ESP

 - 2) All ESP departing rehab shall retrieve their Passports from the RS
 - 3) Completed Lee County Common Incident Rehab Worksheets shall be given to the IC/UC or ISO

Lee County Common Incident Rehab Worksheet

INCIDENT LOCATION: _____ INCIDENT NUMBER: _____ DATE: _____

Name						
Assigned Unit						
Initial Evaluation Time						
Blood Pressure						
Pulse Rate						
Respirations						
Temperature [tympanic] [core] [oral] Circle						
SpO2 Level						
SpCO Level**						
SpMet Level**						
Injuries	Y N	Y N	Y N	Y N	Y N	Y N
C/O illness	Y N	Y N	Y N	Y N	Y N	Y N
FF Hydrated?	Y N	Y N	Y N	Y N	Y N	Y N
Treatment Given*	Y N	Y N	Y N	Y N	Y N	Y N
2nd Eval. Time (10 minutes from Initial)						
Blood Pressure						
Pulse Rate						
Respirations						
Tympanic Temp.						
SpO2 Level						
SpCO Level**						
SpMet Level**						
3rd Eval. Time (20 minutes from initial)						
Blood Pressure						
Pulse Rate						
Respirations						
Tympanic Temp.						
SpO2 Level						
SpCO Level**						
SpMet Level**						
Return to Work Time						
[Initials of IC refusing recommendations]						

*If Medical Tx given see Patient Care Report
 **If Equipment Available

- | |
|--|
| <p>Symptoms Requiring Transport to ER</p> <ul style="list-style-type: none"> Chest Pain SOB Dizziness Altered Mental Status Nausea |
|--|

Parameters that must be met to be released

- Temperature: ≤100.6°F
- Heart Rate: <100bpm
- Respiratory Rate: Between 12-20/min
- Blood Pressure: Systolic <160 and Diastolic <100
- Pulse Oximetry (SpO2): >91% on room air
- CO Levels (SpCO): <10% of baseline

Any signs or symptoms outside these parameters shall be sent to Treatment Area

*****NO PERSON SHOULD BE RELEASED FROM REHAB UNTIL CLEARED BY THE REHAB OFFICER**

* As Incident Commander I am overriding the recommendations made by the Rehab Officer by initialling above and taking full responsibility of my actions by signing here: _____ print: _____

Rehab Officer: (Print) _____ (Signature) _____ Page ___ of ___

Goal(s):

- To establish a guideline for the management and documentation of accidents/crashes involving a Lee County School Board vehicle with Lee County School Board students and/or employees on-board

General Actions:**Definitions**

- **Lee County School Board Administrator/Representative:** An administrator/representative of the Lee County School Board who is dispatched to the scene of all accident/crashes involving a Lee County School Board vehicle and is responsible for and assumes custody of the students on the bus
- **Lee County School Transportation Accident-Student Responsibility Affidavit:** The authorized 2-part form used for non-patient deemed students who will be remaining in the custody of the Lee County School Board
- **Legal Custodian:** 1) School Administrator/Representative, 2) Parent or legal guardian (responsible party)
- **Patient:** a patient shall be defined as an individual who meets one or more of the following criteria:
 - ❖ Any individual with a medical or traumatic complaint
 - ❖ Any individual with an illness or injury
 - ❖ Any individual with a new altered mental status
 - ❖ Any individual in the same event as a significantly ill and/or injured party (e.g., motor vehicle crash, structural collapse, explosion, toxic fume environment, etc.)
 - ❖ Any individual who, at the discretion of the highest medical authority providing direct patient care, demonstrates a high index of suspicion for illness or injury (EMT or Paramedic judgement)
- **No Care Required:** Unit arrives on-scene and the Person Involved (PI) does not meet “patient” criteria as prescribed above

Procedure

- 1) All Lee County School Board students and employees involved in an accident/crash while on a Lee County School Board vehicle shall be evaluated as prescribed by the Lee County Common Treatment Guidelines
- 2) Students that do not meet patient criteria, in accordance with the definition, may be left in the custody of a legal custodian
- 3) Students that are not patients or transported shall have their names printed on the Lee County School Transportation Accident-Student Responsibility Affidavit form
- 4) The Lee County School Transportation Accident-Student Responsibility Affidavit form will be filled out completely; including the bus number and school name
- 5) A legal custodian on-scene shall print their name and sign the form at the bottom acknowledging custody of the students
- 6) If multiple Lee County School District vehicles are involved, a separate Lee County School Transportation Accident-Student Responsibility Affidavit form shall be completed for each vehicle
- 7) All Lee County School Transportation Accident-Student Responsibility Affidavit forms shall be scanned and attached to an electronic patient care report (ePCR) for the department/service handling the event – Disposition: No Care Required
- 8) Any Lee County School Board student and employee that is deemed to be a patient, shall have a separate ePCR completed – regardless of the disposition (Transport, No-Transport or Refusal of Care)

Agency _____ PCR/RUN # _____ Date _____

School _____ Bus # _____

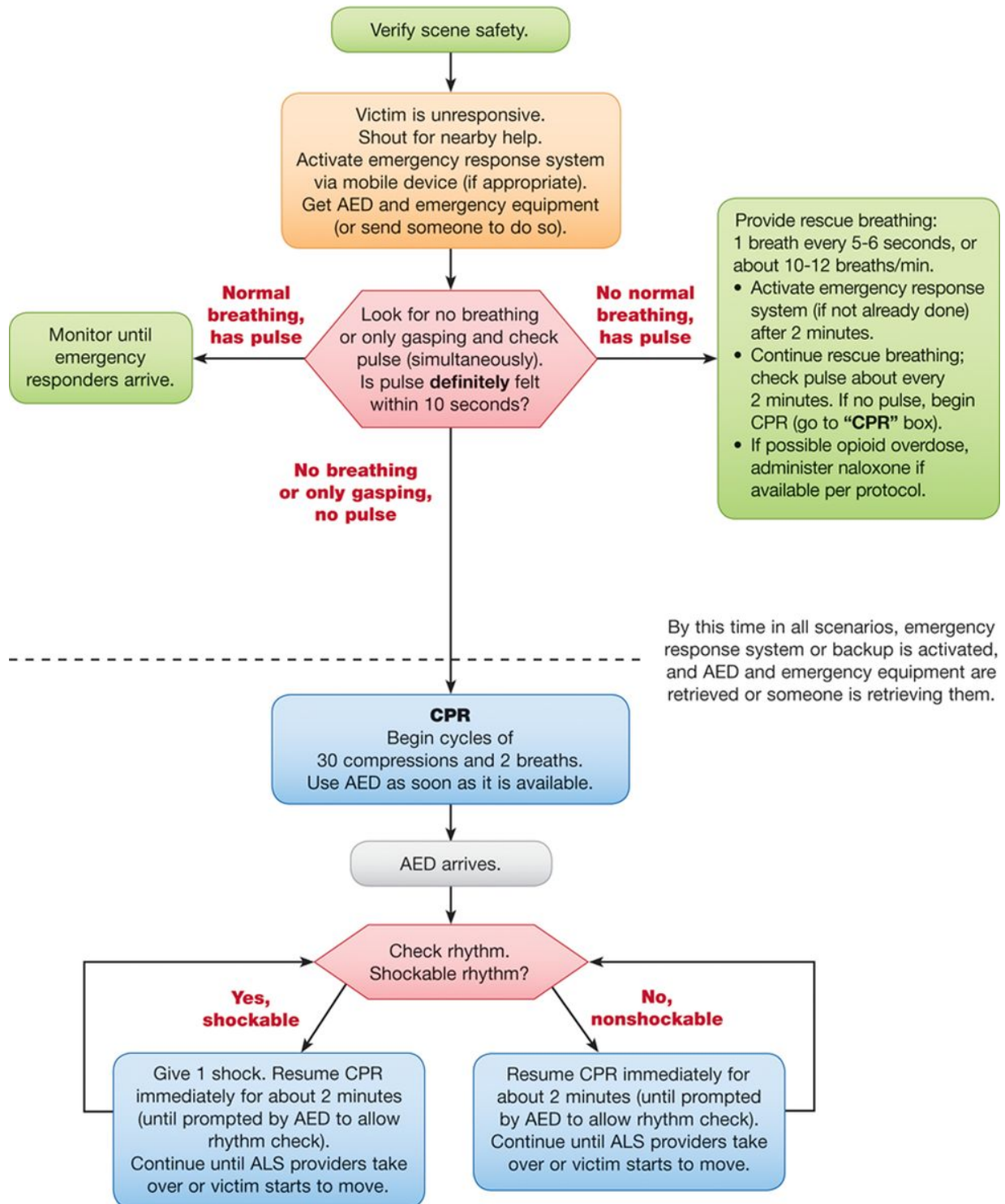
The students listed below have been evaluated by Emergency Responders and it has been determined that no complaints or injuries were found present at the time of exam, thus the need for transport to an Emergency Department by ambulance was deemed unnecessary.

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

1.	21.
2.	22.
3.	23.
4.	24.
5.	25.
6.	26.
7.	27.
8.	28.
9.	29.
10.	30.
11.	31.
12.	32.
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20.	40.

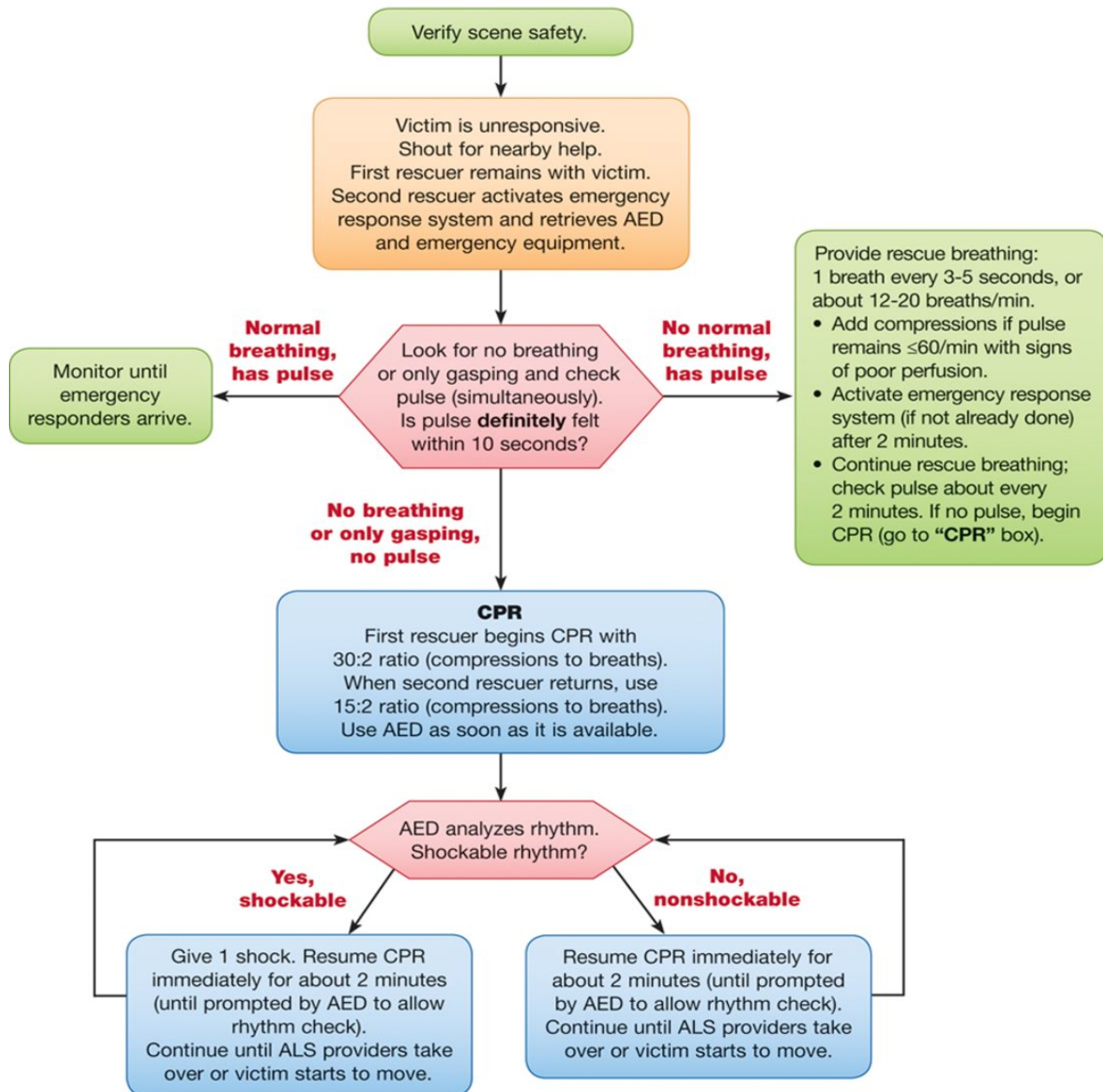
SCHOOL BOARD REPRESENTATIVE	RESCUE SERVICE REPRESENTATIVE
Printed Name _____	Witness _____
Signature _____	Signature _____

**BLS Healthcare Provider
Adult Cardiac Arrest Algorithm—2015 Update**



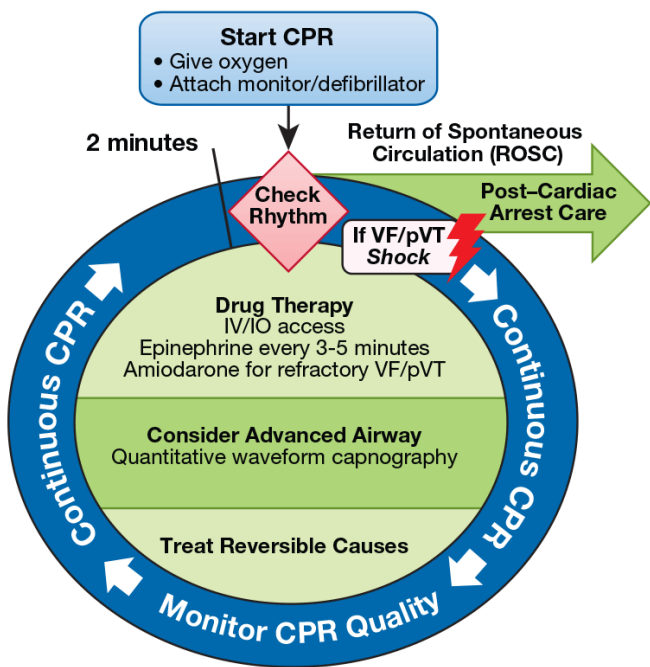
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**BLS Healthcare Provider
Pediatric Cardiac Arrest Algorithm for 2 or More Rescuers—2015 Update**



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Adult Cardiac Arrest Circular Algorithm – 2015 Update



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CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Rotate compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
 - If PETCO₂ <10 mm Hg, attempt to improve CPR quality
- Intra-arterial pressure.
 - If relaxation phase (diastolic) pressure <20 mm Hg, attempt to improve CPR quality.

Shock Energy for Defibrillation

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

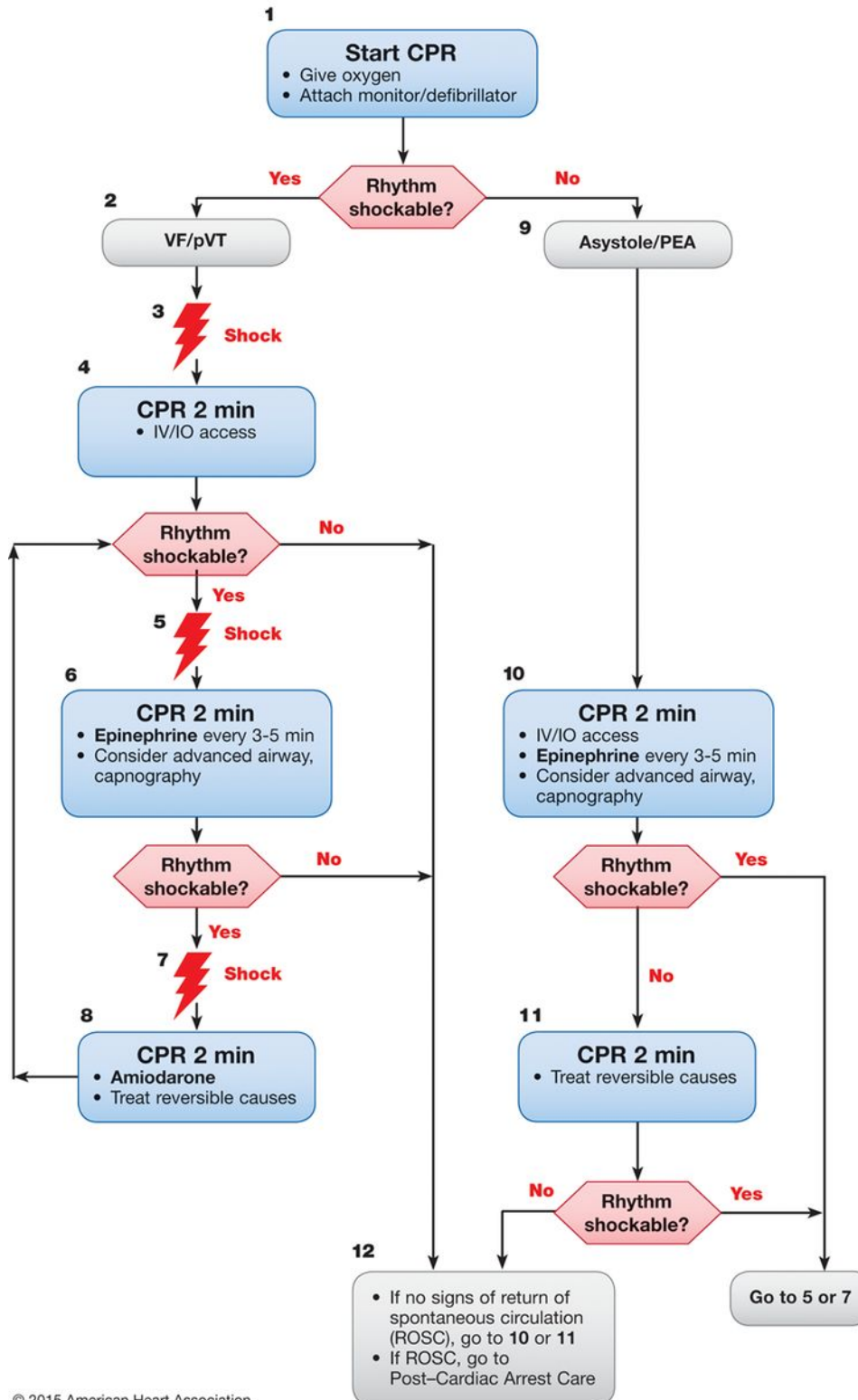
Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Abrupt sustained increase in PETCO₂ (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

Reversible Causes

- **Hypovolemia**
- **Hypoxia**
- **Hydrogen ion (acidosis)**
- **Hypo-/hyperkalemia**
- **Hypothermia**
- **Tension pneumothorax**
- **Tamponade, cardiac**
- **Toxins**
- **Thrombosis, pulmonary**
- **Thrombosis, coronary**

Adult Cardiac Arrest Algorithm—2015 Update



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- Hypothermia
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- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary

Maternal Cardiac Arrest

First Responder

- Activate maternal cardiac arrest team
- Document time of onset of maternal cardiac arrest
- Place the patient supine
- Start chest compressions as per BLS algorithm; place hands slightly higher on sternum than usual

Subsequent Responders

Maternal Interventions

Treat per BLS and ACLS Algorithms

- Do not delay defibrillation
- Give typical ACLS drugs and doses
- Ventilate with 100% oxygen
- Monitor waveform capnography and CPR quality
- Provide post-cardiac arrest care as appropriate

Maternal Modifications

- Start IV above the diaphragm
- Assess for hypovolemia and give fluid bolus when required
- Anticipate difficult airway; experienced provider preferred for advanced airway placement
- If patient receiving IV/IO magnesium prearrest, stop magnesium and give IV/IO calcium chloride 10 mL in 10% solution, or calcium gluconate 30 mL in 10% solution
- Continue all maternal resuscitative interventions (CPR, positioning, defibrillation, drugs, and fluids) during and after cesarean section

Obstetric Interventions for Patient With an Obviously Gravid Uterus*

- Perform manual left uterine displacement (LUD)—displace uterus to the patient's left to relieve aortocaval compression
- Remove both internal and external fetal monitors if present

Obstetric and neonatal teams should immediately prepare for possible emergency cesarean section

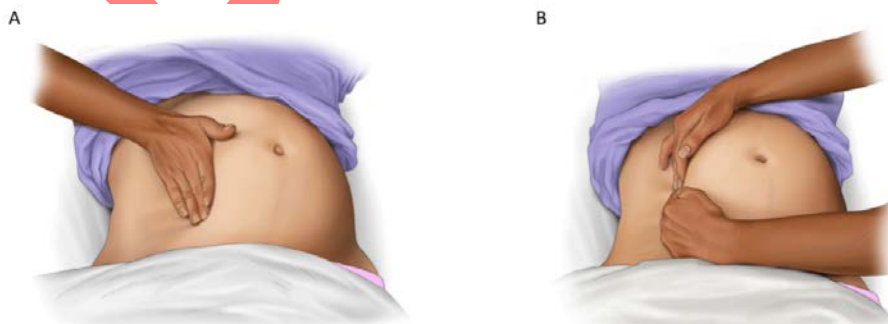
- If no ROSC by 4 minutes of resuscitative efforts, consider performing immediate emergency cesarean section
- Aim for delivery within 5 minutes of onset of resuscitative efforts

*An obviously gravid uterus is a uterus that is deemed clinically to be sufficiently large to cause aortocaval compression

Search for and Treat Possible Contributing Factors (BEAU-CHOPS)

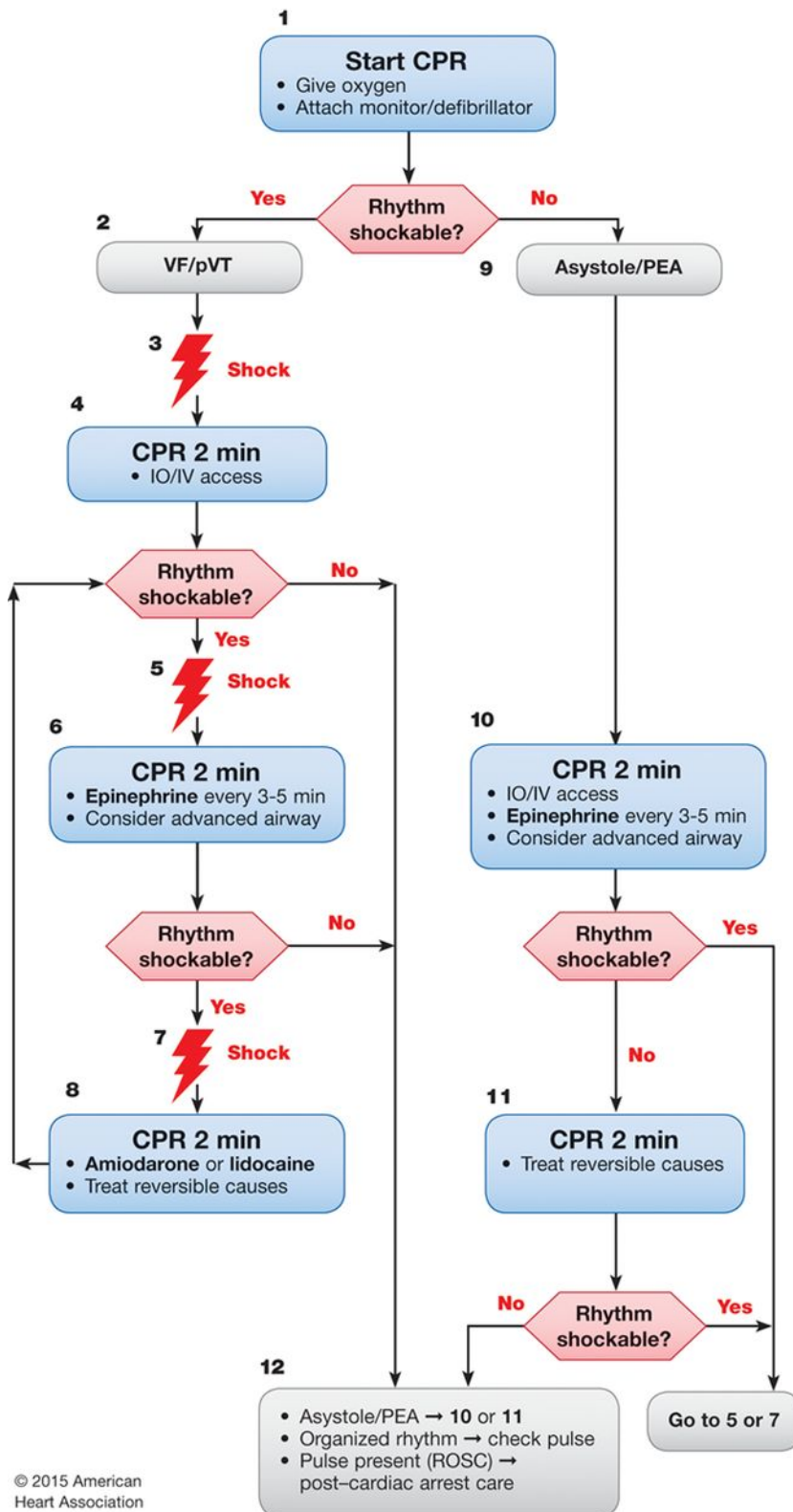
- B**leeding/DIC
- E**mbolism: coronary/pulmonary/amniotic fluid embolism
- A**nesthetic complications
- U**terine atony
- C**ardiac disease (MI/ischemia/aortic dissection/cardiomyopathy)
- H**ypertension/preeclampsia/eclampsia
- O**ther: differential diagnosis of standard ACLS guidelines
- P**lacenta abruptio/previa
- S**epsis

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A, Manual LUD, performed with one-handed technique. B, Two-handed technique during resuscitation.

Pediatric Cardiac Arrest Algorithm—2015 Update



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CPR Quality

- Push hard ($\geq\frac{1}{2}$ of anteroposterior diameter of chest) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Rotate compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 15:2 compression-ventilation ratio.

Shock Energy for Defibrillation

First shock 2 J/kg, second shock 4 J/kg, subsequent shocks ≥ 4 J/kg, maximum 10 J/kg or adult dose

Drug Therapy

- **Epinephrine IO/IV dose:** 0.01 mg/kg (0.1 mL/kg of 1:10 000 concentration). Repeat every 3-5 minutes. If no IO/IV access, may give endotracheal dose: 0.1 mg/kg (0.1 mL/kg of 1:1000 concentration).
- **Amiodarone IO/IV dose:** 5 mg/kg bolus during cardiac arrest. May repeat up to 2 times for refractory VF/pulseless VT.
- **Lidocaine IO/IV dose:** Initial: 1 mg/kg loading dose. Maintenance: 20-50 mcg/kg per minute infusion (repeat bolus dose if infusion initiated >15 minutes after initial bolus therapy).

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

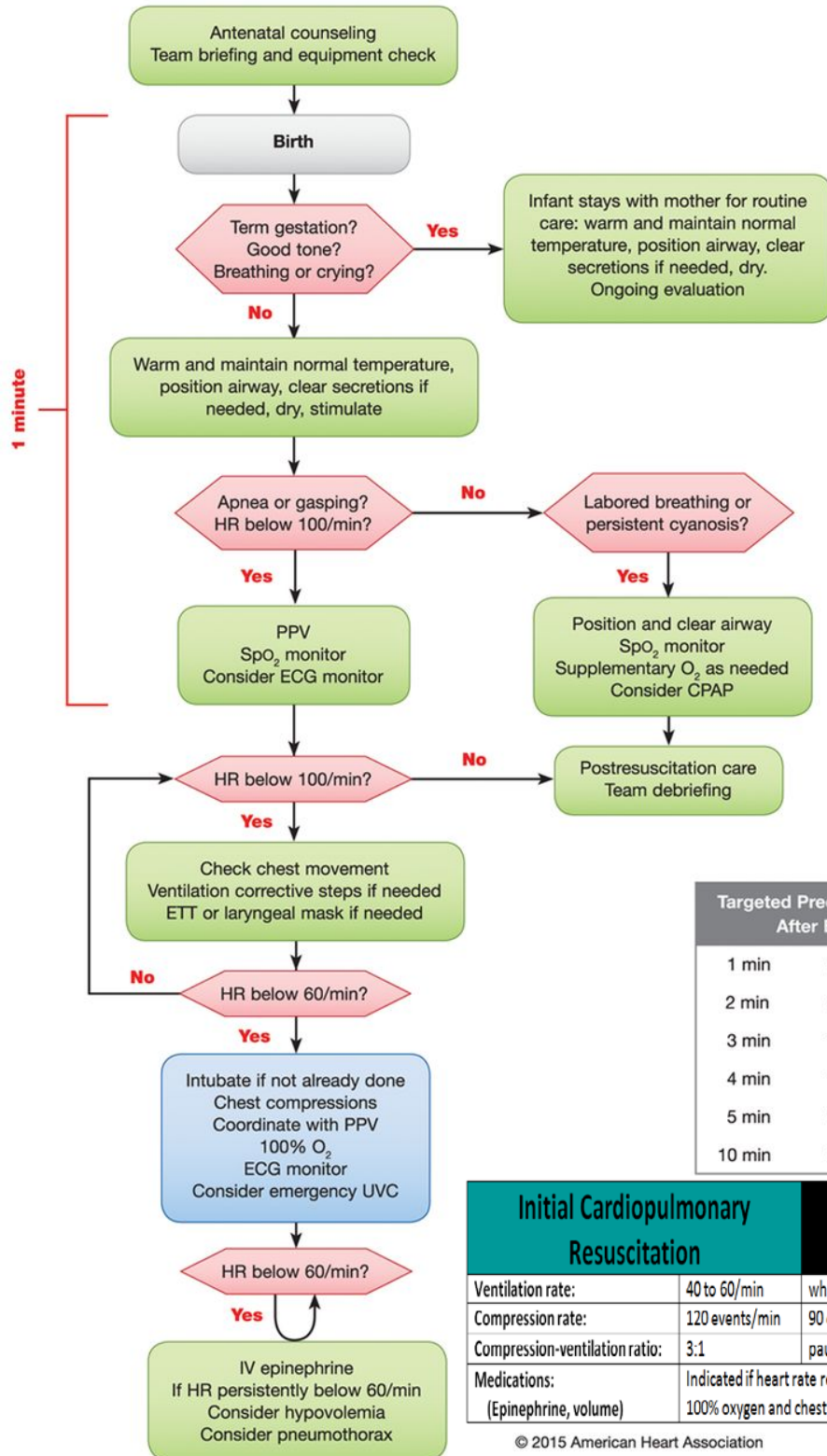
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- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary

Neonatal Resuscitation Algorithm – 2015 Update



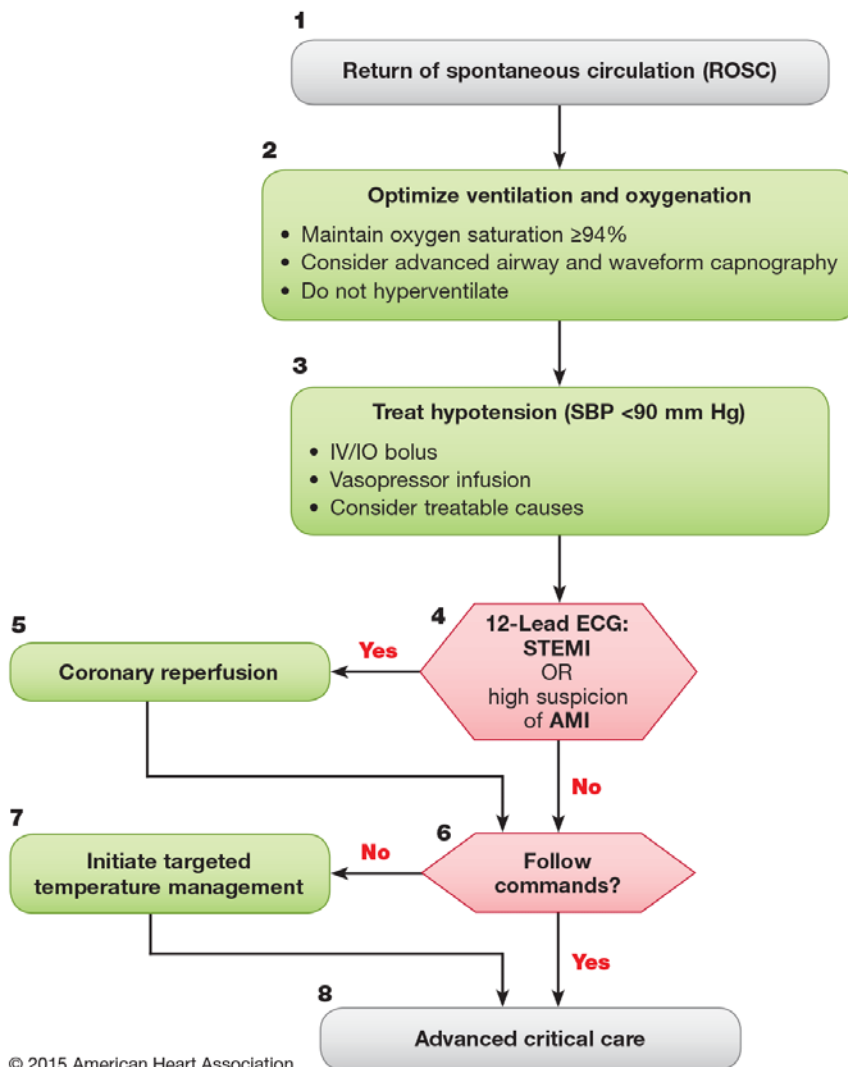
INDICATIONS FOR USE:

The Neo-tee T-Piece Resuscitator is a gas powered emergency resuscitator intended to provide pulmonary support by means of a face mask or advanced airway. It is intended for ***use with neonates and infants weighing less than 10kg (22lbs).***

***Remember: "10/12/20/5 Rule"***

- 1) "10": set the oxygen flowmeter at 10LPM and attached the Neo-Tee oxygen tubing
- 2) "12": set the PIP controller to the 12 o'clock position
 - "20": PIP controller set at 12 o'clock yields 20cmH₂O Peak Inspiratory Pressure
- 3) "5": set the PEEP at 5cmH₂O
- 4) Confirm settings – 20/5
- 5) Ventilate

Adult Immediate Post-Cardiac Arrest Care Algorithm—2015 Update



Doses/Details

Ventilation/oxygenation:
 Avoid excessive ventilation. Start at 10 breaths/min and titrate to target PETCO₂ of 35-40 mm Hg. When feasible, titrate FIO₂ to minimum necessary to achieve SpO₂ $\geq 94\%$.

IV bolus:
 Approximately 1-2 L normal saline or lactated Ringer's

Epinephrine IV infusion:
 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

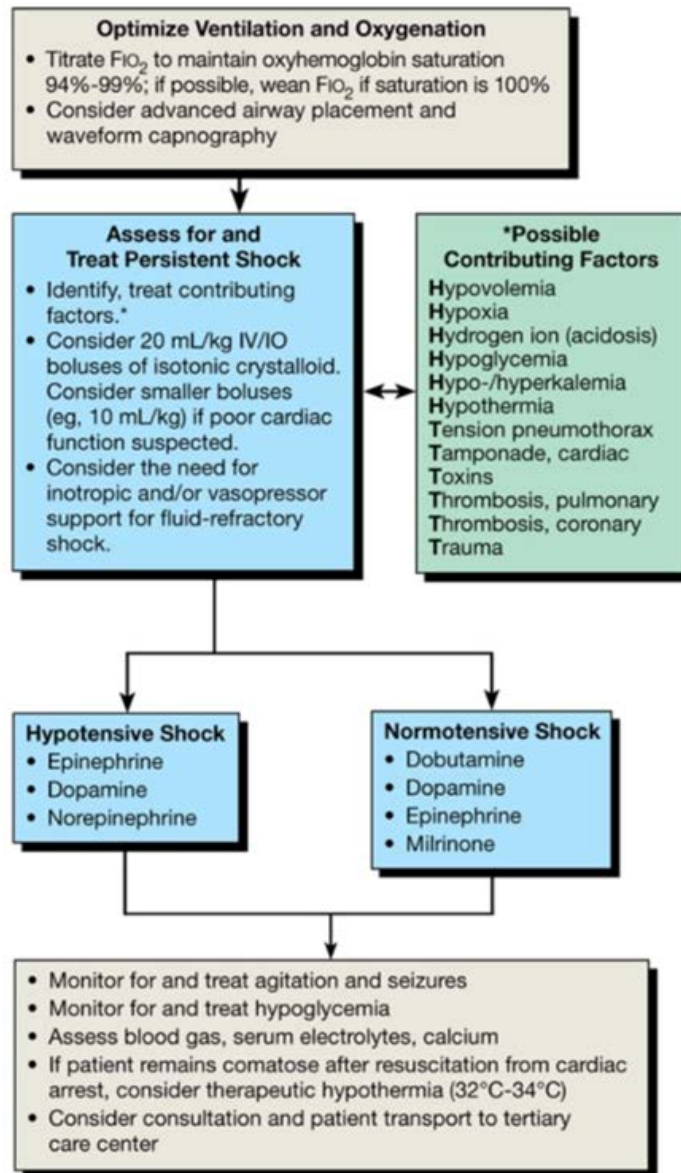
Dopamine IV infusion:
 5-10 mcg/kg per minute

Norepinephrine IV infusion:
 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

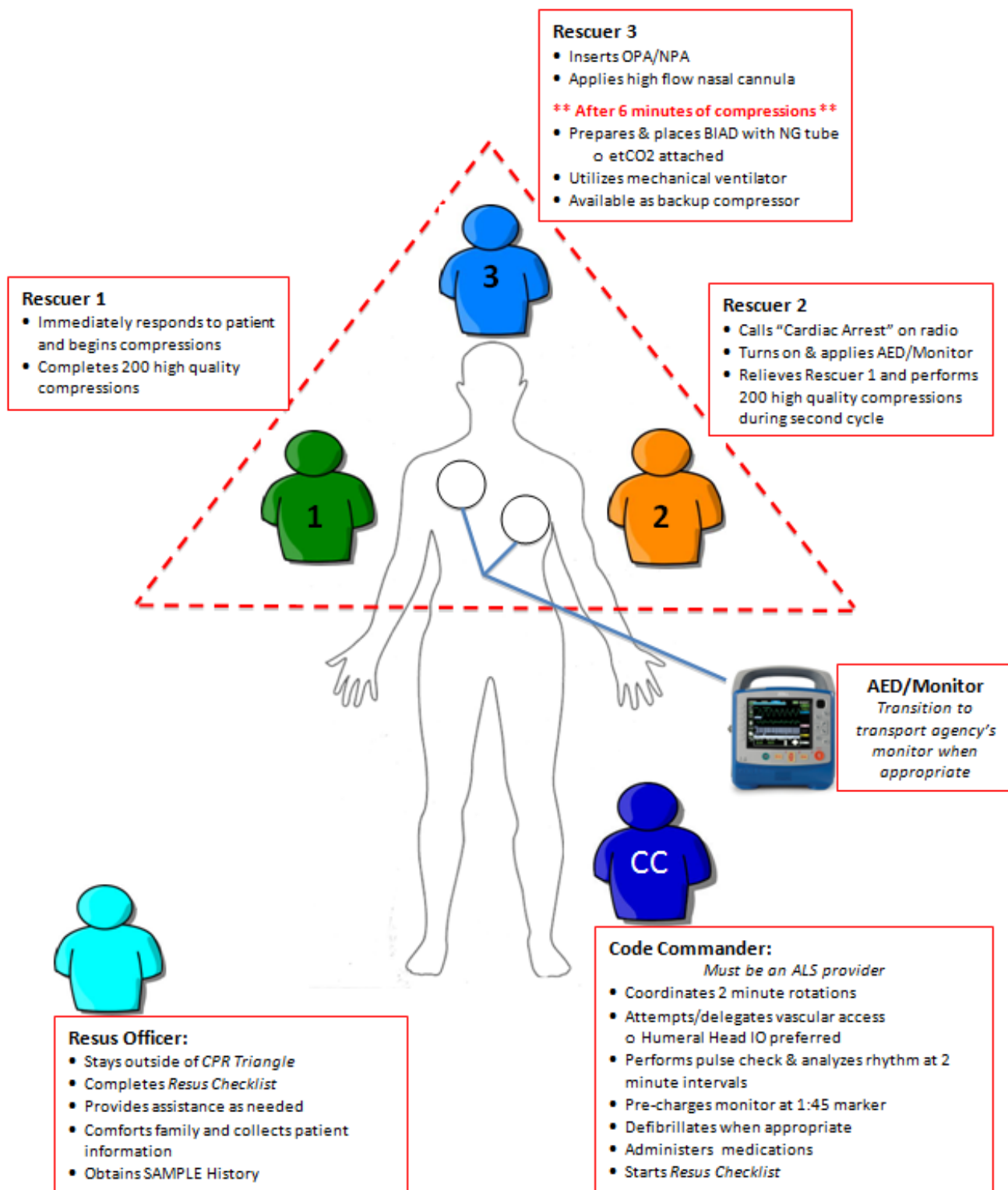
Reversible Causes

- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-/hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary

Pediatric Immediate Post-Cardiac Arrest Care Algorithm

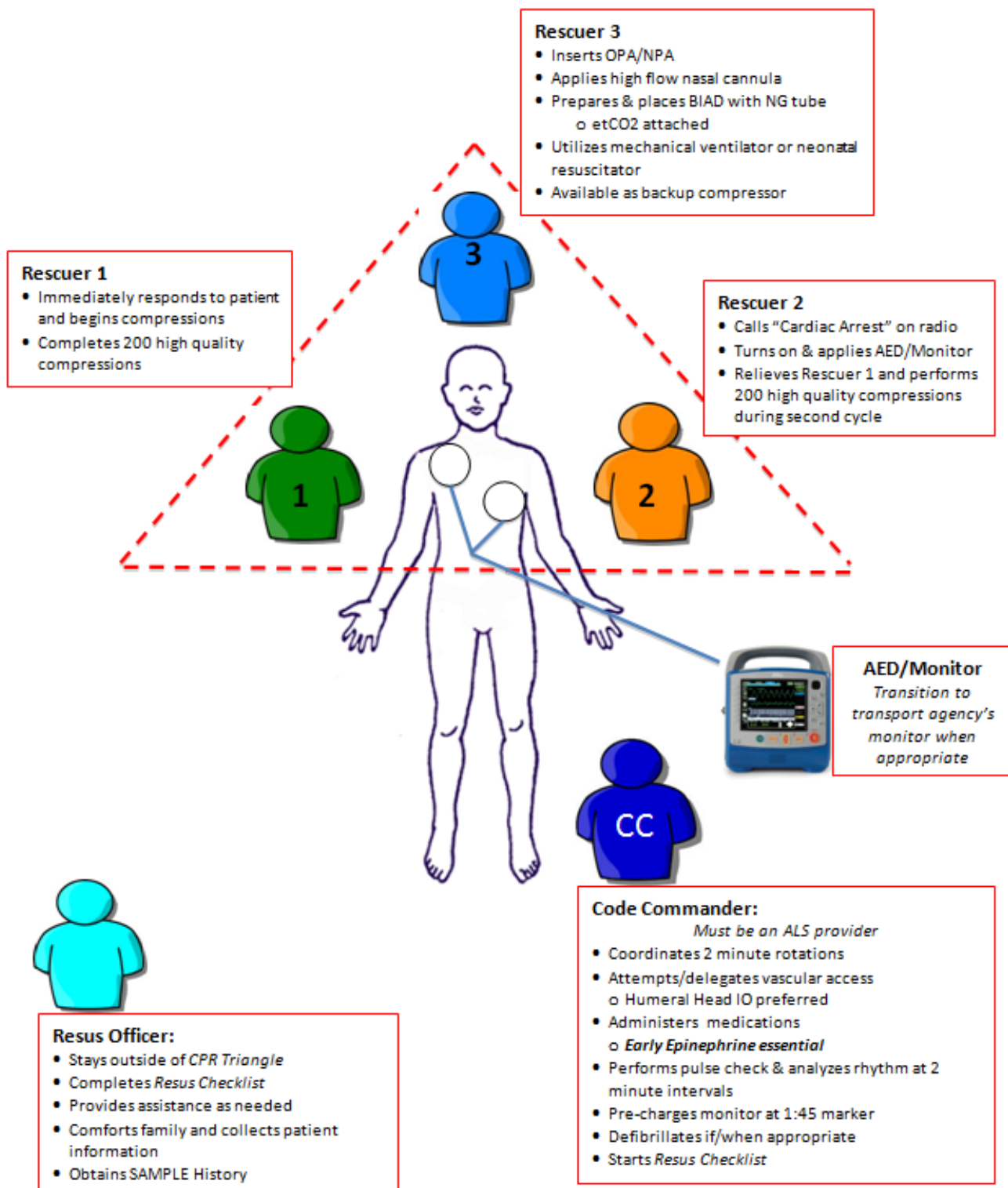


Pit Crew Resuscitation Model – Adult v4.0

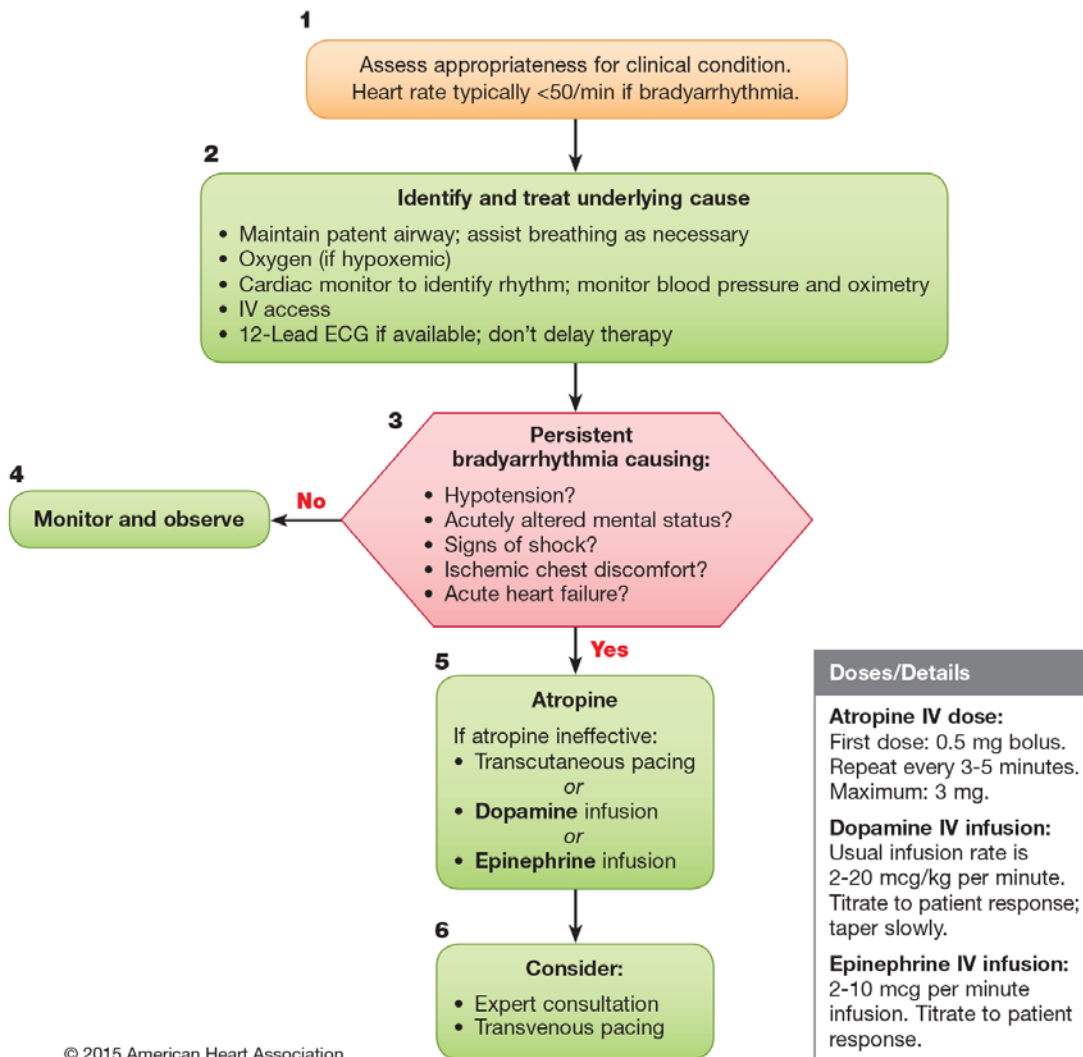


Pit Crew Resuscitation Model – Pediatric v4.0

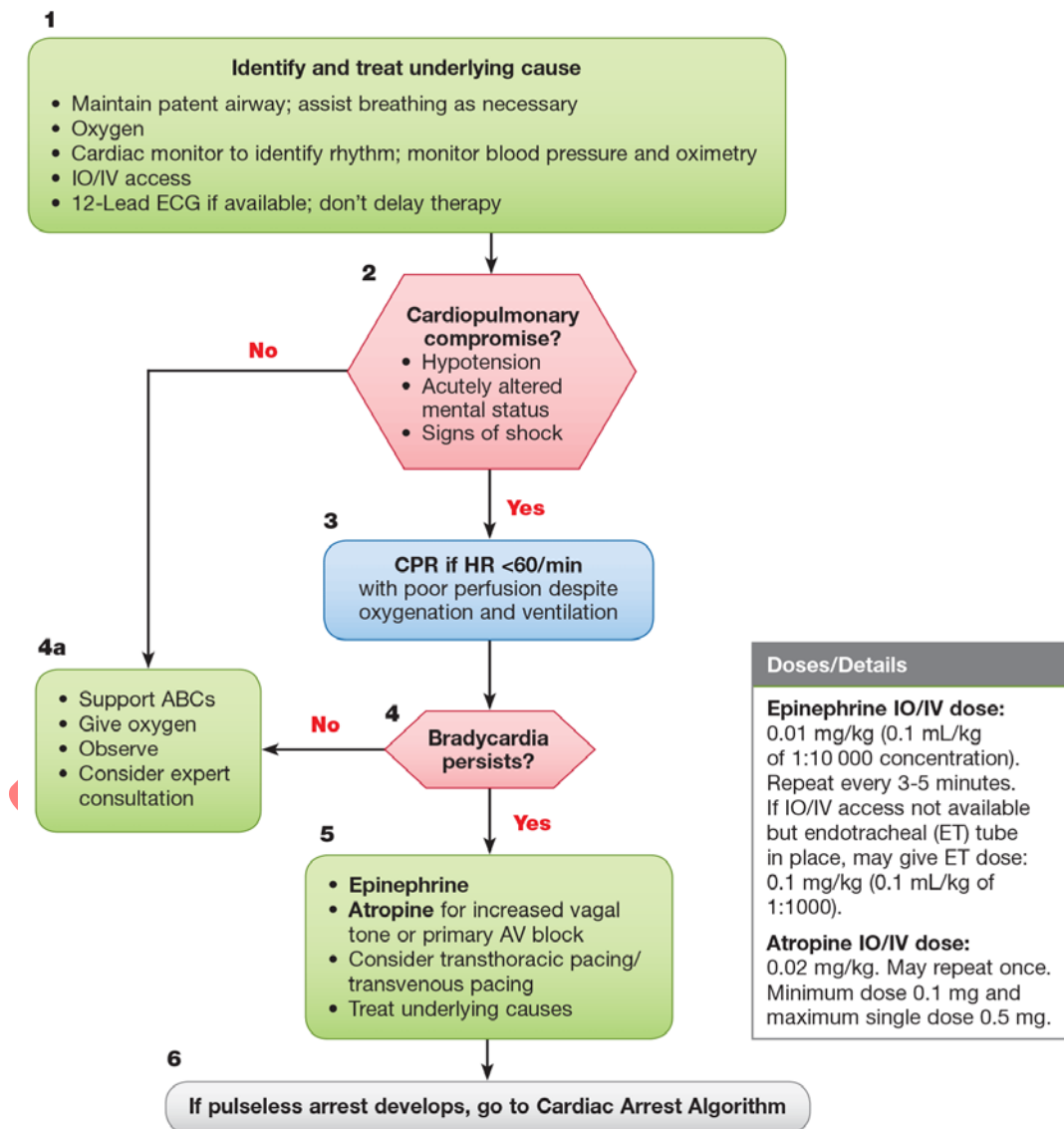
(1 month to 8 years of age, or 5 to 40kg)



Adult Bradycardia With a Pulse Algorithm

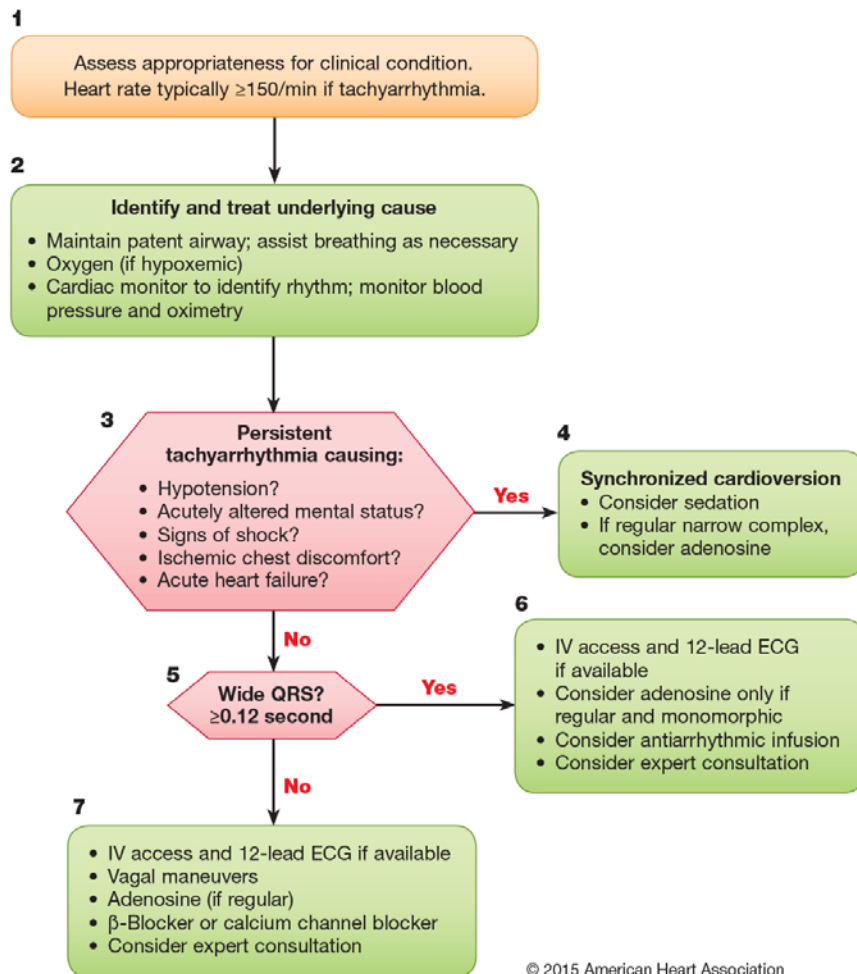


Pediatric Bradycardia With a Pulse and Poor Perfusion Algorithm



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Adult Tachycardia With a Pulse Algorithm



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Doses/Details

Synchronized cardioversion:
Initial recommended doses:
 • Narrow regular: 50-100 J
 • Narrow irregular: 120-200 J biphasic or 200 J monophasic
 • Wide regular: 100 J
 • Wide irregular: defibrillation dose (not synchronized)

Adenosine IV dose:
First dose: 6 mg rapid IV push; follow with NS flush.
Second dose: 12 mg if required.

Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia

Procainamide IV dose:
20-50 mg/min until arrhythmia suppressed, hypotension ensues, QRS duration increases >50%, or maximum dose 17 mg/kg given. Maintenance infusion: 1-4 mg/min. Avoid if prolonged QT or CHF.

Amiodarone IV dose:
First dose: 150 mg over 10 minutes. Repeat as needed if VT recurs. Follow by maintenance infusion of 1 mg/min for first 6 hours.

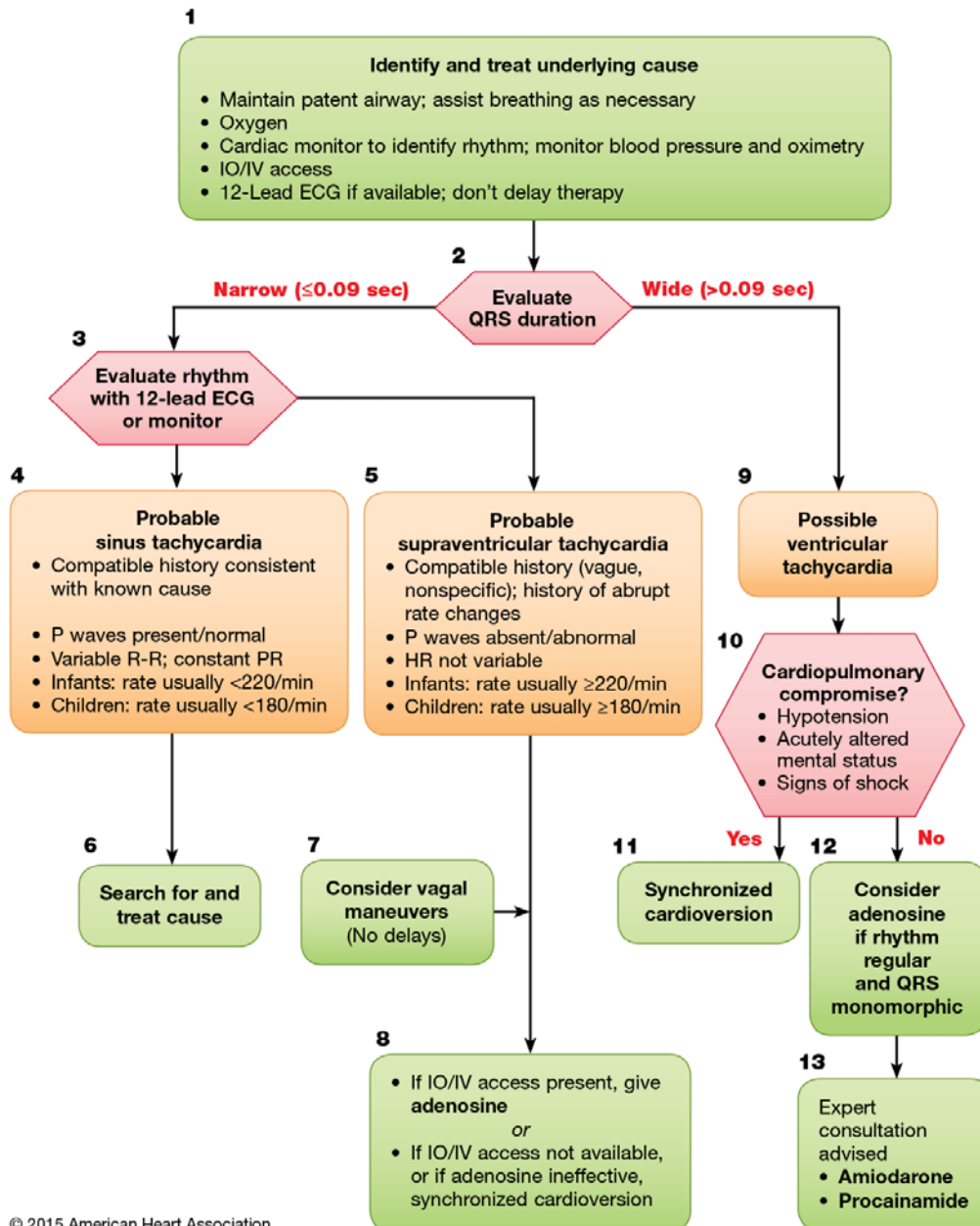
Sotalol IV dose:
100 mg (1.5 mg/kg) over 5 minutes. Avoid if prolonged QT.

LCCTG Supplement

Calcium Channel Blocker for Stable Narrow-QRS, Irregular Tachycardia

Diltiazem (Cardizem) IV dose:
First dose: 0.25mg/kg (max dose 20mg)
Second dose: 0.35mg/kg (max dose 25mg if required)

Pediatric Tachycardia With a Pulse and Poor Perfusion Algorithm



Doses/Details
Synchronized Cardioversion Begin with 0.5-1 J/kg; if not effective, increase to 2 J/kg. Sedate if needed, but don't delay cardioversion.
Drug Therapy
Adenosine IO/IV dose: First dose: 0.1 mg/kg rapid bolus (maximum: 6 mg). Second dose: 0.2 mg/kg rapid bolus (maximum second dose: 12 mg). Amiodarone IO/IV dose: 5 mg/kg over 20-60 minutes or Procainamide IO/IV dose: 15 mg/kg over 30-60 minutes Do not routinely administer amiodarone and procainamide together.

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Differential Impressions:

- Acute Abdominal Syndrome
- Cholecystitis
- Colitis
- Crohn's Disease
- Diverticulitis
- Pancreatitis
- Peptic Ulcer Disease
- Pelvic Inflammatory Disease
- Renal Colic
- Urinary Tract Infection
- Abdominal Aortic Aneurysm
- Appendicitis
- Bowel Obstruction
- Ectopic Pregnancy
- Incarcerated Hernia
- Rupture Ovarian Cyst

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline

Advanced Life Support Actions/Considerations:

- **Crystalloid Resuscitation 10cc/kg IV/IO** as necessary/indicated
 - **Pediatric: Crystalloid Resuscitation 20cc/kg IV/IO** as necessary/indicated
- Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated
 - **Pediatric: Pain | Anxiety | Procedural Sedation Management Guideline** as necessary/indicated
- Nausea | Vomiting Management Guideline as necessary/indicated
 - **Pediatric: Nausea | Vomiting Management Guideline** as necessary/indicated
- Esophageal Food Bolus Obstruction:
Glucagon 1mg IV
- **Epinephrine 0.1 – 0.5mcg/kg/min IV/IO Infusion** as necessary/indicated

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated
 - **Pediatric: Epinephrine 0.1 – 1mcg/kg/min IV/IO Infusion**

Differential Impressions:

- Localize Allergic Reaction
- Systemic Anaphylaxis Reaction
- Anaphylactic Shock
- Angioedema
- Systemic Anaphylactoid Reaction
- Anaphylactoid Shock
- Transfusion Reaction

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- EpiPen IM
 - Pediatric: EpiPen, Jr. IM
- Albuterol 2.5mg AT
 - Pediatric: Albuterol 2.5mg AT

Advanced Life Support Actions/Considerations:

- Epinephrine (1:1000) 0.5mg IM
 - Pediatric: Epinephrine (1:1000) 0.01mg/kg IM (Maximum Dose: 0.3mg IM)
 - PEARL | *First-line therapy for anaphylaxis/anaphylactoid reactions/shock*
 - PEARL | *Use with caution in the elderly and with known heart disease*
 - PEARL | *No absolute contraindication for anaphylaxis/anaphylactoid reactions/shock*
- Crystalloid Resuscitation 10cc/kg IV/IO; repeat PRN
 - Pediatric: Crystalloid Resuscitation 20cc/kg IV/IO; repeat PRN
 - PEARL | *Second-line therapy for anaphylaxis/anaphylactoid reactions/shock*
- Diphenhydramine 50mg IV/IM
 - Pediatric: Diphenhydramine 1mg/kg IV/IM
- CPAP 5 – 15cm/H2O PEEP
- Albuterol 2.5mg AT; repeat PRN
 - Pediatric: 2.5mg AT; repeat PRN
 - PEARL | *Persistent “shark-fin” capnogram suggests on-going bronchospasm*
- DuoNeb: Albuterol 2.5mg & Ipratropium 0.5mg AT
- Methylprednisolone 125mg SIVP
 - Pediatric: Methylprednisolone 1mg/kg SIVP
- Epinephrine 0.1 – 0.5mcg/kg/min IV/IO Infusion as necessary/indicated
- Epinephrine (1:10,000) 0.5mg IV/IO
 - PEARL | *For pre or peri-cardiopulmonary arrest states*

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated
- Repeat DuoNeb: Albuterol 2.5mg & Ipratropium 0.5mg AT
 - Pediatric: Epinephrine 0.1 – 1mcg/kg/min IV/IO Infusion

Differential Impressions:

- Mental Illness
- Psychiatric Emergencies
- Substance Abuse
- Baker Act
- Marchman Act

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Communicate in a calm and nonthreatening manner
- Respect the dignity of the patient
- Request law enforcement as necessary/indicated for:

Baker Act consideration:

Florida Statute Chapter 394, Part I, is also known as the Florida Mental Health Act. The Baker Act provides legal procedures for patients with known or suspected mental illness. This includes mental health examinations and treatment and provides authorization to police, physicians, mental health professional and the courts to dictate certain medical care for persons who pose a threat of harm to themselves or to others.

PEARL | Baker Act is not intended for patients who are competent, are without mental illness, have decisional capacity, and have been informed yet still desire to refuse care against medical advice

PEARL | Organic causes of behavioral change must be considered and ruled out

PEARL | Law enforcement will provide EMS with a Baker Act Form (3052a), and as required for EMS safety, will accompany or follow the ambulance to the hospital

or

Marchman Act consideration:

Florida Statute Chapter 397, Part V, provides legal procedures for patients with known or suspected conditions involving substance abuse. This includes mental health examinations and treatment and provides authorization to police, physicians, mental health professional and the courts to dictate certain medical care for persons who are impaired and pose a threat of harm to themselves or to others or is so impaired that he is incapable of appreciating his need for substance abuse services.

PEARL | Marchman Act is not intended for patients who are competent, have decisional capacity, and have been informed yet still desire to refuse care against medical advice

PEARL | Organic causes of behavioral change must be considered and ruled out

- Patient Restraint Guideline as necessary/indicated
- Excited Delirium Guideline as necessary/indicated

PEARL | Teamwork between prehospital providers and law enforcement improves patient care

Advanced Life Support Actions/Considerations:

- Excited Delirium Guideline as necessary/indicated
 - *Pediatric: Excited Delirium Guideline as necessary/indicated*

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

Differential Impressions:

- Chest Pain – Cardiac Pathology
- STEMI (ST Elevation Myocardial Infarction)
- Acute Coronary Syndrome (ACS)
- Unstable Angina Pectoris
- NSTEMI (Non-ST Elevation Myocardial Infarction)

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- **Aspirin 324mg PO (chewable)**
PEARL | Withhold for patients with known contraindications or if prior to arrival aspirin administration has been confirmed – full dose and chewable
- **Nitroglycerin 0.4mg SL;** may repeat q 5minutes for as long as symptoms persist without evidence of hypoperfusion
PEARL | Nitrates should be withheld in patients with initial systolic blood pressures less than 90mmHg, in patients with marked bradycardia or tachycardia, and in patients with known or suspected right ventricular infarction (RVI)
PEARL | Nitrates are contraindicated in patients who have used erectile dysfunction type medications in the previous 48 hours

Advanced Life Support Actions/Considerations:

- 12 Lead ECG
PEARL | STEMI Checklist Positive = STEMI Alert
PEARL | STEMI Alert and Acute Coronary Syndrome (ACS) patients should be transported to the closest STEMI/Percutaneous Coronary Intervention (PCI) facility
PEARL | Repeat q 5 minutes for high index of suspicion of evolving cardiac condition
- **Crystalloid Resuscitation 10cc/kg IV/IO** as necessary/indicated
PEARL | for Right Ventricular Infarct (RVI) – repeat as necessary/indicated while in the absence of pulmonary edema
- Continuous Nitrate Therapy – Option #1:
Tridil Infusion 10 – 50mcg/min IV/IO; titrate to desired effect in increments of 10 mcg/min q 5 minutes remaining vigilant for hypotension/hypoperfusion – not to exceed 50mcg/min
PEARL | Nitrates should be withheld in patients with hypotension, marked bradycardia or tachycardia, and in patients with known or suspected right ventricular infarction (RVI)
or
Continuous Nitrate Therapy – Option #2:
Nitropaste 1in TD (transdermal; chest wall)
PEARL | Nitrates should be withheld in patients with hypotension, marked bradycardia or tachycardia, and in patients with known or suspected right ventricular infarction (RVI)
- Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated
PEARL | for severe pain unresponsive to nitroglycerin or in cases where nitrates cannot be given due to hypoperfusion
- Nausea & Vomiting Management Guideline as necessary/indicated

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

STEMI		
Monitor Interpretative Statement	<ul style="list-style-type: none"> • Indicates STEMI; good tracing, stable baseline and free of artifact? 	<input type="checkbox"/>
<i>Or</i>		
Paramedic Interpretation	<ul style="list-style-type: none"> • ECG shows 1mm of ST segment elevation in 2 or more contiguous leads? • QRS width < 120ms (0.12s) or RBBB with ST segment elevation? • ECG good tracing, stable baseline and free of artifact? 	<input type="checkbox"/>
Any boxes checked = <i>STEMI Alert</i>		

Lead Summary

I Lateral Circumflex Artery	aVR	V1 Septal Left Anterior Descending Artery	V4 Anterior Right Coronary Artery
II Inferior Right Coronary Artery	aVL Lateral Circumflex Artery	V2 Septal Left Anterior Descending Artery	V5 Lateral Circumflex Artery
III Inferior Right Coronary Artery	AVF Inferior Right Coronary Artery	V3 Anterior Right Coronary Artery	V6 Lateral Circumflex Artery

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Differential Impressions:

- Congestive Heart Failure
- Pulmonary Edema
- Right Heart Failure
- Left Heart Failure
- Non-Cardiac Pulmonary Edema (e.g., Drowning)

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- **Nitroglycerin 1.2mg (x3 0.4mg) SL**; may repeat q 1minute PRN for as long as symptoms persist without evidence of hypoperfusion

PEARL | Nitrates should be withheld in patients with hypotension, marked bradycardia or tachycardia, and in patients with known or suspected right ventricular infarction (RVI)

PEARL | Nitrates are contraindicated in patients who have used erectile dysfunction type medications in the previous 48 hours

Advanced Life Support Actions/Considerations:

- **CPAP 5 – 15cm/H2O PEEP**
- Continuous Nitrate Therapy – Option #1:
Tridil Infusion 10 – 50mcg/min IV/IO; titrate to desired effect in increments of 10 mcg/min q 5 minutes remaining vigilant for hypotension/hypoperfusion – not to exceed 50mcg/min

PEARL | Nitrates should be withheld in patients with hypotension, marked bradycardia or tachycardia, and in patients with known or suspected right ventricular infarction (RVI)

or

Continuous Nitrate Therapy – Option #2:

Nitropaste 1in TD (transdermal; chest wall)

PEARL | Nitrates should be withheld in patients with hypotension, marked bradycardia or tachycardia, and in patients with known or suspected right ventricular infarction (RVI)

- 12 Lead ECG

PEARL | STEMI Checklist Positive = STEMI Alert

PEARL | STEMI Alert and Acute Coronary Syndrome (ACS) patients should be transported to the closest STEMI/Percutaneous Coronary Intervention (PCI) facility

PEARL | Repeat q 5 minutes for high index of suspicion of evolving cardiac condition

- **Crystalloid Resuscitation 10cc/kg IV/IO** as necessary/indicated
PEARL | For Right Ventricular Infarct (RVI) and hypotension/hypoperfusion
- **Epinephrine 0.1 – 0.5mcg/kg/min IV/IO Infusion** as necessary/indicated
PEARL | For Right Ventricular Infarct (RVI) and hypotension/hypoperfusion

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

STEMI		
Monitor Interpretative Statement	<ul style="list-style-type: none"> Indicates STEMI; good tracing, stable baseline and free of artifact? 	<input type="checkbox"/>
<i>Or</i>		
Paramedic Interpretation	<ul style="list-style-type: none"> ECG shows 1mm of ST segment elevation in 2 or more contiguous leads? QRS width < 120ms (0.12s) or RBBB with ST segment elevation? ECG good tracing, stable baseline and free of artifact? 	<input type="checkbox"/>
Any boxes checked = <i>STEMI Alert</i>		

Lead Summary

I Lateral Circumflex Artery	aVR	V1 Septal Left Anterior Descending Artery	V4 Anterior Right Coronary Artery
II Inferior Right Coronary Artery	aVL Lateral Circumflex Artery	V2 Septal Left Anterior Descending Artery	V5 Lateral Circumflex Artery
III Inferior Right Coronary Artery	AVF Inferior Right Coronary Artery	V3 Anterior Right Coronary Artery	V6 Lateral Circumflex Artery

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Differential Impressions:

- Hypoglycemia (blood glucose <60mg/dL)
- Hypoglycemic Insult
- Iatrogenic Hypoglycemia
- Hyperglycemia (blood glucose >300mg/dL)
- Diabetic Ketoacidosis (DKA)
- Hyperosmolar Hyperglycemia State (HHS)

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- bG < 60mg/dL:

Oral Glucose 15 – 30gm PO

- **Pediatric: Oral Glucose 15 – 30gm PO**

PEARL | For patients with intact airway reflexes

Advanced Life Support Actions/Considerations:

- bG < 60mg/dL with vascular access – Option #1:

Thiamine 100mg IV/IM

PEARL | For adults with evidence of alcohol abuse or signs of malnourishment

Dextrose 10% 125 – 250cc (12.5 – 25gm) IV titrated to return of normal mental status

- **Pediatric: Dextrose 10% 5cc/kg IV** titrated to return of normal mental status

PEARL | As normal mental status is restored, stop infusion and re-check blood glucose:

bG >60mg/dL, discontinue the remainder of infusion,

bG <60mg/dL, continue infusion

or

- bG < 60mg/dL with vascular access – Option #2:

Thiamine 100mg IV/IM

PEARL | For adults with evidence of alcohol abuse or signs of malnourishment

Dextrose 50% 12.5 – 25gm IV

- **Pediatric: Dextrose 25% 0.5gm/kg IV**

- bG < 60mg/dL without vascular access:

Glucagon 1mg IM

- **Pediatric: Glucagon 0.5mg IM**

- bG > 300mg/dL with vascular access:

Crystalloid Resuscitation 20cc/kg IV/IO; repeat PRN

- **Pediatric: Crystalloid Resuscitation 20cc/kg IV/IO; repeat PRN**

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

Differential Impressions:

- Psychiatric or Psychological behavioral violence
- Pharmacological or Substance Abuse violence
- Toxidrome rage
- Metabolic storm
- Infectious agitation
- Conditions that result in agitated, violent, or uncooperative behavior that pose imminent threat or danger to self or others

PEARL | Exclusion Criteria: Agitated or violent behavior due to medical conditions including, but not limited to: 1) Head trauma, 2) Hypoglycemia, 3) Hypoxia

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
 - PEARL | Reduce external stimuli – lights, sirens, horns, etc.*
- Patient Restraint Guideline
 - PEARL | Must be adequately controlled prior to loading and transporting*
 - PEARL | ExDS patients shall not be packaged or transported prone, hog-tied or in any position that may impede pulmonary function*
- Hyperthermia Guideline as necessary/indicated

Advanced Life Support Actions/Considerations:

- Ketamine 5mg/kg IM
 - PEARL | Loading dose not to exceed 500mg*
- or
- Midazolam 5mg IM/IN/IV
 - PEARL | Loading dose with peripheral pulses present*
- Crystalloid Resuscitation 10cc/kg IV/IO
 - Pediatric: Crystalloid Resuscitation 20cc/kg IV/IO
- Hyperthermia Guideline as necessary/indicated
- If patient emerges from loading dose:
 - Ketamine 2.5mg/kg IV/IO/IM/IN
 - PEARL | IV/IO Ketamine must be diluted with an equal volume of Normal Saline*
 - or
 - Midazolam 2.5 – 5mg IV/IO/IM/IN
 - PEARL | Benzodiazepines are preferential to Ketamine for emergence dosing and antiseizure coverage*

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated
 - Pediatric: Contact Medical Control

Differential Impressions:

- Asthma and Asthma-Like Syndrome
- Chronic Obstructive Pulmonary Disease
- Aspiration
- Toxic Inhalation (vapor, fume, or smoke)
- Upper Respiratory or Pulmonary Viral Infection
- Pneumonia

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- **Albuterol 2.5mg AT**
 - **Pediatric: Albuterol 2.5mg AT**
- **EpiPen IM**
 - **Pediatric: EpiPen, Jr. IM**

Advanced Life Support Actions/Considerations:

- **CPAP 5 – 15cm/H2O PEEP**
 - PEARL | *PEEP not to exceed 7.5cm/H2O in “tight lung” pathology*
- **Albuterol 2.5mg AT; repeat PRN**
 - **Pediatric: 2.5mg AT** (repeat as necessary)
 - PEARL | *Persistent “shark-fin” capnogram suggests on-going bronchospasm*
- **DuoNeb: Albuterol 2.5mg & Ipratropium 0.5mg AT**
- **Crystalloid Resuscitation 10cc/kg IV/IO as necessary/indicated**
 - **Pediatric: Crystalloid Resuscitation 20cc/kg IV/IO as necessary/indicated**
 - PEARL | *For evidence of dehydration or to mobilize secretions in prolonged “tight lung” pathology*
- **Magnesium Sulfate 2gm in 100cc D5W IV Infusion over 10 minutes**
 - **Pediatric: Magnesium Sulfate 50mg/kg in 100cc D5W IV Infusion over 10 minutes**
- **Epinephrine (1:1000) 0.5mg IM**
 - **Pediatric: Epinephrine (1:1000) 0.01mg/kg IM (Maximum Dose: 0.3mg IM)**
 - **Pediatric: Normal Saline 3cc AT** (for suspected Croup)
 - PEARL | *For suspected croup or laryngotracheobronchitis*
 - **Pediatric: Epinephrine (1:1000) 3mg in 3cc NS AT**
 - PEARL | *For extremis croup, laryngotracheobronchitis or bronchoillitis*
- **Methylprednisolone 125mg SIVP**
 - **Pediatric: Methylprednisolone 1mg/kg SIVP**

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated
- **Repeat DuoNeb: Albuterol 2.5mg & Ipratropium 0.5mg AT**
- **Epinephrine 0.1 – 0.5mcg/kg/min IV/IO Infusion as necessary/indicated**
 - **Pediatric: Epinephrine 0.1 – 1mcg/kg/min IV/IO Infusion**

Differential Impressions:

- Epilepsy
- Central Nervous System origins
- Closed Head/Traumatic Brain Injury
- Infectious origins (i.e., Febrile)
- Metabolic origins
- Medication/Toxin induced
- Neurological origins
- Oncology origins
- Pregnancy (i.e., Eclampsia)
- Psychological disorders
- Stroke
- Viral origins

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- bG <60mg/dL:
Diabetic Emergencies | Hypo & Hyperglycemia Guideline

Advanced Life Support Actions/Considerations:

- bG Normal, Not Pregnant:
Midazolam 2.5 – 5.0mg IV/IO; may repeat q 10minutes PRN
 - **Pediatric: 0.1mg/kg IV/IO**
PEARL | *Pediatric maximum dose IV/IO 2mg*
 - or
 - **Midazolam 5.0mg IM/IN**; may repeat q 10minutes PRN
 - **Pediatric: Midazolam 0.2mg/kg IM/IN**
PEARL | *Pediatric maximum dose 5mg*
-
- bG Normal, Mid to Late Trimester Pregnancy or early post-partum phase:
Eclampsia Guideline
-
- **Crystalloid Resuscitation 10cc/kg IV/IO** as necessary/indicated
 - **Pediatric: Crystalloid Resuscitation 20cc/kg IV/IO** as necessary/indicated

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

Differential Impressions:

- Sepsis – qSOFA
- Septic Shock | Distributive Shock (MAP <65mmHg)
- Pneumosepsis
- Meningeal Sepsis
- Gastro-Intestinal Sepsis
- Septicemia
- Urosepsis
- Skin/Wound Sepsis

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - Pediatric: Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - PEARL | *Cold blood does not clot – Hibler’s Method preserves body heat and reduces Lethal Triad*
 - PEARL | *If hyperthermic, do not attempt to cool – fever fights the infection*
- Complete Sepsis Assessment/Checklist
 - PEARL | *Sepsis Checklist (qSOFA + etCO2) Positive = Sepsis Alert*
 - PEARL | *Early recognition and goal-directed therapy reduces mortality*

Advanced Life Support Actions/Considerations:

- CPAP 5 – 15cm/H2O PEEP
 - PEARL | *for SpO2 < 94%*
 - PEARL | *Use with caution – contraindicated for hypoperfused conditions*
- Crystalloid Resuscitation 20cc/kg, repeat PRN
 - Pediatric: Crystalloid Resuscitation 20cc/kg, repeat PRN
 - PEARL | *First-line therapy for hypotension/shock – target MAP to 70 – 110mmHg*
 - PEARL | *Crystalloid is paramount for survival; do not withhold in normotensive patients*
 - PEARL | *If hyperthermic, do not attempt to cool – fever fights the infection*
- Epinephrine 0.1 – 0.5mcg/kg/min IV/IO Infusion as necessary/indicated
 - PEARL | *Second-line therapy for hypotension/shock – target MAP to 70 – 110mmHg*
 - PEARL | *Initiate only after 2L crystalloid infused*

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated
 - Pediatric: Epinephrine 0.1 – 1mcg/kg/min IV/IO Infusion

Sepsis 3.1 qSOFA + etCO2			
Infection	• Suspected	Fever, UTI/ URI symptoms, etc	<input type="checkbox"/>
	• Known	Taking antibiotics, visible, etc	
Sepsis	• Altered Mental Status	Confused off normal baseline, lethargy, etc	<input type="checkbox"/> Any 2 <input type="checkbox"/>
	• Tachypnea	RR ≥ 22/min	
	• Hypotension	SBP < 100mmHg (consider "lower than normal BP")	
Capnography	• Hypocapnea	etCO2 ≤ 29mmHg	<input type="checkbox"/>
			All boxes checked = <i>Sepsis Alert</i>

Differential Impressions:

- Ischemic Stroke
 - Thrombotic
 - Embolic
 - Large Vessel Occlusion
 - Transient Ischemic
- Hemorrhagic Stroke
 - Intracerebral
 - Subarachnoid
 - Epidural
 - Subdural

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- bG <60mg/dL:
Diabetic Emergencies | Hypo & Hyperglycemia Guideline
PEARL | Dextrose may worsen neurological outcome in stroke – use cautiously
- Perform Lee County Stroke Assessment/Checklist
PEARL | FAST Stroke Positive = Stroke Alert
PEARL | VAN Stroke Positive = VAN Positive Stroke Alert
PEARL | Stroke facility determined by the clinical differential (Primary versus Comprehensive versus Neurosurgical) in accordance with the Stroke Assessment/Checklist

Advanced Life Support Actions/Considerations:

- **Crystalloid Resuscitation 10cc/kg IV/IO** as necessary/indicated
 - **Pediatric: Crystalloid Resuscitation 20cc/kg IV/IO** as necessary/indicated
PEARL | Crystalloid Resuscitation is aimed at maintaining cerebral perfusion
- Nausea | Vomiting Management Guideline as necessary/indicated
PEARL | Antiemetic therapy is aimed at reducing intracranial pressure

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

Ischemic Stroke FAST VAN			
Includes: Thrombotic & Embolic Stroke, Large Vessel Occlusion Stroke and Transient Ischemic Stroke			
Step 1 – Perform FAST Exam			
F	• Face	Unilateral facial droop or palsy?	<input type="checkbox"/>
A	• Arms	Unilateral arm or pronator drift, or other weakness?	<input type="checkbox"/>
S	• Speech	Slurred speech, difficulty speaking or new onset confusion?	<input type="checkbox"/>
T	• Time	Last seen well < 9 hours or wake-up?	Time: :
Any FAST boxes checked = <i>Stroke Alert</i>			
Step 2 – Perform Weakness Exam			
Weakness	• Arm Weakness	Unilateral arm drift, pronator drift, or other weakness?	<input type="checkbox"/>
Arm weakness box checked = Proceed to VAN Exam – Step 3			
<ul style="list-style-type: none"> • No arm weakness = <i>Stroke Alert for Closest Stroke Center (Primary or Comprehensive)</i> • No arm weakness but, last seen well > 2.5 hours or wake-up = <i>Stroke Alert for Comprehensive Stroke Center</i> 			
Step 3 – Perform VAN Exam			
V	• Visual	Visual disturbance, double vision or new onset blindness?	<input type="checkbox"/>
A	• Aphasia	Expressive, receptive or mixed?	<input type="checkbox"/>
N	• Neglect	Forced gaze, inability to track or ignoring one side?	<input type="checkbox"/>
Any VAN boxes checked = <i>VAN Positive Stroke Alert for Comprehensive Stroke Center</i>			

Hemorrhagic Stroke		
Includes: Intracerebral, Subarachnoid, Epidural and Subdural Hemorrhage		
Perform Hemorrhagic History & Exam		
Hemorrhagic	<ul style="list-style-type: none"> • Worst headache ever? • Severe nausea or vomiting? • Acute hypertension? • Seizure preceding stroke like or focal neurological deficits? • Sudden and unexplained depressed mental status? 	<input type="checkbox"/>
High Index of Suspicion for Hemorrhagic Stroke = <i>Stroke Alert for Comprehensive Stroke or Neurosurgical Center</i>		

Differential Impressions:

- Opioid Ingestion (Opium, Heroin, Codeine, Codones, Meperidine, Methadone, etc.)
- Sedative-Hypnotic Ingestion (Benzodiazepines, GHB, Antihistamines, Alcohol, Barbiturates, etc.)
- Cholinergic Exposure (Organophosphates, Nerve Agents, Mushrooms, etc.)
- Anticholinergic Ingestion (Antihistamines, Tricyclics, Phenothiazines, Antidiarrheals, etc.)
- Sympathomimetic Ingestion (Cocaine, Amphetamines, Methamphetamines, Ecstasy, MDPV, etc.)
- Hallucinogen Ingestion (PCP, LSD, Cannabinoids, Ecstasy, Flakka, Bath Salts, etc.)
- Antipsychotic Ingestion / Extrapiramidal Syndromes
- Toxic Inhalation (Smoke, Cyanide, etc.)
- Alkali Exposure
- Poly-Pharmacologic Events

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Patient Restraint Guideline
 - PEARL | *Patients must be adequately controlled prior to loading and transporting*
 - PEARL | *Patients shall not be packaged or transported prone, hog-tied or in any position that may impede pulmonary function*
- Refer to Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
- Dermal Decontamination as necessary/indicated
- Contact Poison Control for consultation: **Poison Control Center 1-800-222-1222**

Advanced Life Support Actions/Considerations:

- **Crystalloid Resuscitation 10cc/kg IV/IO** as necessary/indicated
 - **Pediatric: Crystalloid Resuscitation 20cc/kg IV/IO** as necessary/indicated
 - PEARL | *For the majority of Toxidromes, the solution to pollution is dilution*
 - PEARL | *Crystalloid may be repeated as necessary/indicated*
 - **Consider CPAP 5 – 15cm/H2O PEEP**
 - Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
-
- Opioid (Narcotic):
 - Naloxone 0.4 – 0.5mg IV/IO/IM/IN;** may repeat q 3 – 5minutes PRN to improve intrinsic airway patency, ventilation, oxygenation; primary goal is to restore spontaneous respiration
 - **Pediatric: 0.01mg/kg IV/IO/IM/IN;** may repeat q 3 – 5minutes PRN to improve intrinsic airway patency, ventilation, oxygenation; primary goal is to restore spontaneous respiration
 - PEARL | *For known or evidence of opioid ingestion with apnea or shallow respirations*
 - PEARL | *Basic Progressive Airway | Ventilation | Oxygenation Management, while preparing naloxone, is the key to a safe patient encounter*
 - PEARL | *Titrate dose of naloxone to intrinsic ventilation and oxygenation improvement; etCO2 <45mmHg and SpO2 >93%*
 - PEARL | *Not appropriate with advanced airway placement and in cardiopulmonary arrest; not effective for non-opioid drug ingestion*

- Sedative-Hypnotic:
Supportive Therapy

- Hallucinogen:
Excited Delirium Syndrome Guideline

- Cholinergic:
Atropine 1 – 2mg IV/IO q 5minutes till resolved
PEARL | For SLUDGEM – No maximum dose

- Anticholinergic:
Sodium Bicarbonate 1mEq/kg IV/IO
PEARL | For Tricyclic Overdose with heart rate >120bpm & QRS >100ms

- Sympathomimetic:
Midazolam 2mg IV/IO/IM/IN may repeat q 5minutes PRN until heart rate & blood pressure normalize
PEARL | For hyperadrenergic states with heart rate >120bpm

- Beta-Blocker:
Glucagon 1mg IV/IO

- Toxic Inhalation:
Burn | Electrocutation | Smoke Inhalation Guideline

- Dystonic Reactions/Extrapyramidal Syndrome:
Diphenhydramine 50mg IV/IM

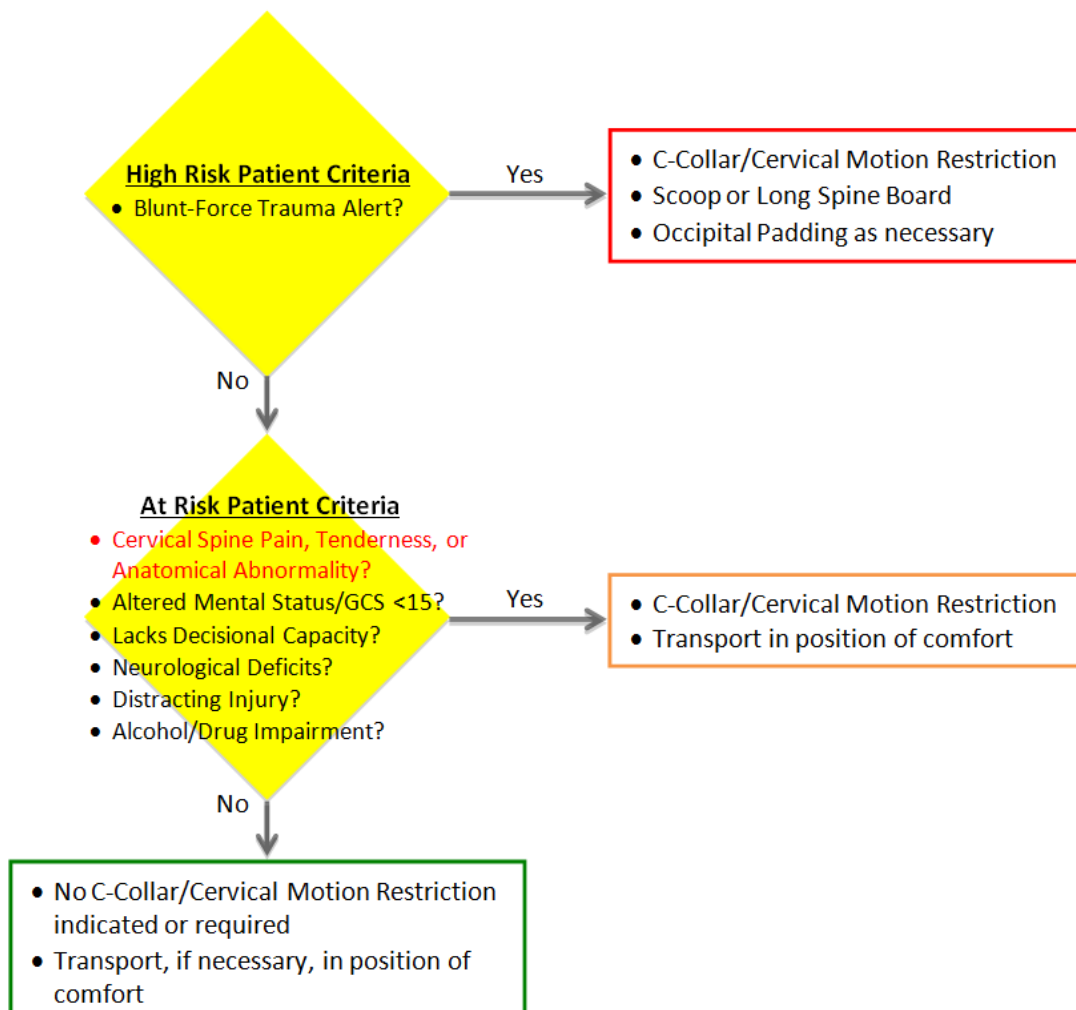
Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

Goal(s):

- To provide evidence-based and reasoned logic core principles for spinal motion restriction in patients that have sustained injury/trauma
- Rigid Spine Devices are extrication/transfer tools – not a therapeutic intervention
 - PEARL | *Blunt-Force Trauma Alerts require a rigid spine device for ease of transfer and patient safety*
 - PEARL | *Scoop stretchers are preferential to long spine boards*
 - PEARL | *Penetrating Trauma Alerts do not benefit from or require a rigid spine device*
 - PEARL | *Precautionary spinal immobilization offers no patient value; may result in iatrogenic injury*

Basic Life Support Actions:



Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

Differential Impressions:

- Falls
- Motor Vehicle Crash
- Pedestrian
- Battery
- Hanging
- Other Impact Injury

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Spinal Motion Restriction Guideline
 - Pediatric: Spinal Motion Restriction Guideline
- Hemorrhage Control:
 - Direct Pressure
 - Pediatric: Direct Pressure
 - Pressure Dressing
 - Pediatric: Pressure Dressing
 - Tourniquet
 - Pediatric: Tourniquet
- Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - Pediatric: Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - PEARL | *Cold blood does not clot – Hibler's Method preserves body heat and mitigates Lethal Triad*
- Pelvic Splinting as necessary/indicated
 - Pediatric: Pelvic Splinting as necessary/indicated
- Extremity Splinting as necessary/indicated
 - Pediatric: Extremity Splinting as necessary/indicated
- Perform Trauma Triage Criteria & Methodology Assessment Checklist
 - PEARL | *1 Red, 2 Blue, GCS <12 or Paramedic Discretion = Trauma Alert*
 - Pediatric: Perform Pediatric Trauma Triage Criteria & Methodology Assessment Checklist
 - PEARL | *1 Red, 2 Blue, Altered Mental Status or Paramedic Discretion = Trauma Alert*

Advanced Life Support Actions/Considerations:

- Pleural Needle Decompression as necessary/indicated
 - Pediatric: Pleural Needle Decompression as necessary/indicated
- **Crystalloid Resuscitation IV/IO** as necessary/indicated
 - Pediatric: **Crystalloid Resuscitation IV/IO** as necessary/indicated
 - PEARL | *Perfusion target: permissive hypotension; peripheral pulses present – restrict crystalloid*
- Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated
 - Pediatric: Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated
- Pericardiocentesis as necessary/indicated

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

Differential Impressions:

- Gunshot Wound
- Stab Wound
- Impalement
- Other Sharp Force Injury

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Hemorrhage Control:
 - Direct Pressure
 - Pediatric: Direct Pressure
 - Pressure Dressing
 - Pediatric: Pressure Dressing
 - Tourniquet
 - Pediatric: Tourniquet
 - Occlusive Dressing
 - Pediatric: Occlusive Dressing
- Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - Pediatric: Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - PEARL | *Cold blood does not clot – Hibler's Method preserves body heat and mitigates Lethal Triad*
- Extremity Splinting as necessary/indicated
 - Pediatric: Extremity Splinting as necessary/indicated
- Perform Trauma Triage Criteria & Methodology Assessment Checklist
 - PEARL | *1 Red, 2 Blue, GCS <12 or Paramedic Discretion = Trauma Alert*
 - Pediatric: Perform Pediatric Trauma Triage Criteria & Methodology Assessment Checklist
 - PEARL | *1 Red, 2 Blue, Altered Mental Status or Paramedic Discretion = Trauma Alert*

Advanced Life Support Actions/Considerations:

- Pleural Needle Decompression as necessary/indicated
 - Pediatric: Pleural Needle Decompression as necessary/indicated
- **Crystalloid Resuscitation IV/IO** as necessary/indicated
 - Pediatric: **Crystalloid Resuscitation IV/IO** as necessary/indicated
 - PEARL | *Perfusion target: permissive hypotension; peripheral pulses present – restrict crystalloid*
- Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated
 - Pediatric: Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated
- Pericardiocentesis as necessary/indicated

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated
 - Pediatric: Pericardiocentesis as necessary/indicated

Differential Impressions:

- Isolated Closed Head Injury
- Traumatic Brain Injury
- Subdural Hematoma
- Epidural Hematoma
- Intracranial Hemorrhage

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Spinal Motion Restriction Guideline
 - Pediatric: Spinal Motion Restriction Guideline
- Hemorrhage Control:
 - Direct Pressure
 - Pediatric: Direct Pressure
 - Pressure Dressing
 - Pediatric: Pressure Dressing
- Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - Pediatric: Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - PEARL | Cold blood does not clot – Hibler's Method preserves body heat and reduces Lethal Triad*
- Perform Trauma Triage Criteria & Methodology Assessment Checklist
 - PEARL | 1 Red, 2 Blue, GCS <12 or Paramedic Discretion = Trauma Alert*
 - Pediatric: Perform Pediatric Trauma Triage Criteria & Methodology Assessment Checklist
 - PEARL | 1 Red, 2 Blue, Altered Mental Status or Paramedic Discretion = Trauma Alert*

Advanced Life Support Actions/Considerations:

- Crystalloid Resuscitation 10cc/kg IV/IO; repeat PRN
 - Pediatric: Crystalloid Resuscitation 20cc/kg IV/IO; repeat PRN
 - PEARL | First-line therapy for hypotension to reduce secondary brain insult*
- Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated
 - Pediatric: Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated
- Nausea | Vomiting Management Guideline as necessary/indicated
 - Pediatric: Nausea | Vomiting Management Guideline as necessary/indicated
 - PEARL | Antiemetic therapy is aimed at reducing intracranial pressure*
- Seizure Guideline as necessary/indicated
 - Pediatric: Seizure Guideline as necessary/indicated

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated
- Epinephrine 0.1 – 0.5mcg/kg/min IV/IO Infusion
 - Pediatric: Epinephrine 0.1 – 1mcg/kg/min IV/IO Infusion
 - PEARL | Second-line therapy for hypotension to reduce secondary brain insult – target MAP = 70mmHg*

Differential Impressions:

- Isolated Spinal Cord Injury
- Neurogenic Shock
- Spinal Shock
- Complete & Incomplete Cord Injury
- Central Cord Syndrome
- Anterior Cord Syndrome
- Posterior Cord Syndrome
- Brown-Séquard Syndrome

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Spinal Motion Restriction Guideline
 - Pediatric: Spinal Motion Restriction Guideline
- Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - Pediatric: Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - PEARL | *Cold blood does not clot – Hibler’s Method preserves body heat and mitigates Lethal Triad*
- Perform Trauma Triage Criteria & Methodology Assessment Checklist
 - PEARL | *1 Red, 2 Blue, GCS <12 or Paramedic Discretion = Trauma Alert*
 - Pediatric: Perform Pediatric Trauma Triage Criteria & Methodology Assessment Checklist
 - PEARL | *1 Red, 2 Blue, Altered Mental Status or Paramedic Discretion = Trauma Alert*

Advanced Life Support Actions/Considerations:

- Crystalloid Resuscitation 10cc/kg IV/IO; repeat PRN
 - Pediatric: Crystalloid Resuscitation 20cc/kg IV/IO; repeat PRN
 - PEARL | *First-line therapy for hypotension secondary to Distributive Shock*
- Atropine 0.5mg IV/IO; repeat x1
 - Pediatric: Atropine 0.02mg/kg IV/IO; repeat x1 (minimum dose 0.1mg/maximum dose 0.5mg)
 - PEARL | *Second-line therapy for hemodynamically significant bradycardia*
- Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated
 - Pediatric: Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated
- Nausea | Vomiting Management Guideline as necessary/indicated
 - Pediatric: Nausea | Vomiting Management Guideline as necessary/indicated
 - PEARL | *Antiemetic therapy is aimed at reducing airway compromise from vomiting*
- Seizure Guideline as necessary/indicated
 - Pediatric: Seizure Guideline as necessary/indicated

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated
- Epinephrine 0.1 – 0.5mcg/kg/min IV/IO Infusion
 - Pediatric: Epinephrine 0.1 – 1mcg/kg/min IV/IO Infusion
 - PEARL | *Third-line therapy for hypotension secondary to Distributive Shock – target MAP = 70mmHg*

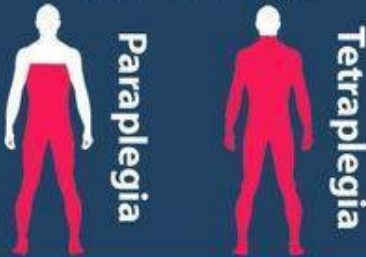
Spinal Cord Injury Infographic

Types of Spinal Cord Injury

Prepared and designed by
www.apparelyzed.com
 spinal cord injury peer support

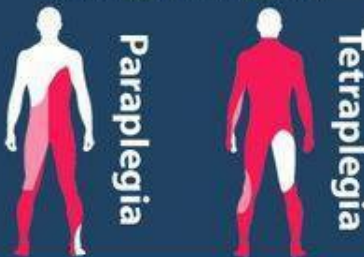
Complete Spinal Cord Injury

Complete loss of motor and sensory function below the spinal cord injury.



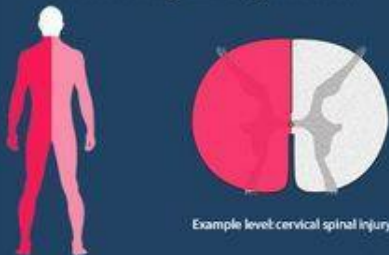
Incomplete Spinal Cord Injury

Partial random preservation of motor or sensory function below the spinal cord injury.



Common Types of Incomplete Spinal Cord Injuries

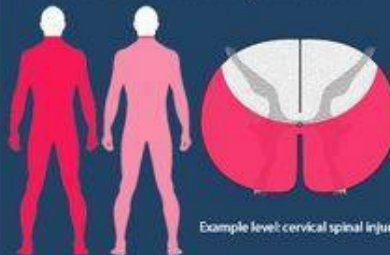
Brown-Séquard Syndrome



Example level: cervical spinal injury

Below injury level, motor weakness or paralysis on one side of the body (hemiparaplegia). Loss of sensation on the opposite side (hemianesthesia).

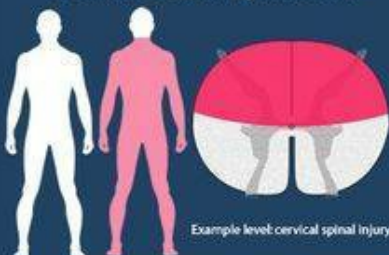
Anterior Cord Syndrome



Example level: cervical spinal injury

Below injury level, motor paralysis and loss of pain and temperature sensation. Proprioception (position sense), touch and vibratory sensation preserved.

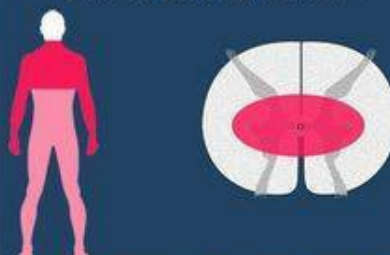
Posterior Cord Syndrome



Example level: cervical spinal injury

Below injury level, motor function preserved. Loss of sensory function: pressure, stretch, and proprioception (position sense).

Central Cord Syndrome



Results from cervical spinal injuries. Greater motor impairment in upper body compared to lower body. Variable sensory loss below the level of injury.

Cervical Nerves:

- Diaphragm
- Deltoids
- Biceps
- Wrist extensors
- Rotates arm
- Triceps
- Bends fingers

- C1
- C2
- C3
- C4
- C5
- C6
- C7

Cervical

Thoracic Nerves:

- Spread fingers
- Chest muscles
- Abdominal muscles
- Muscles in the back

- T1
- T2
- T3
- T4
- T5
- T6
- T7
- T8
- T9
- T10
- T11
- T12

Thoracic

Lumbar Nerves:

- Hip muscles
- Thigh muscles
- Knee Muscles
- Foot muscles

- L1
- L2
- L3
- L4
- L5

Lumbar

Sacral Nerves:

- Bladder and bowel
- Sexual function

- S1
- S2
- S3
- S4
- S5

Sacral

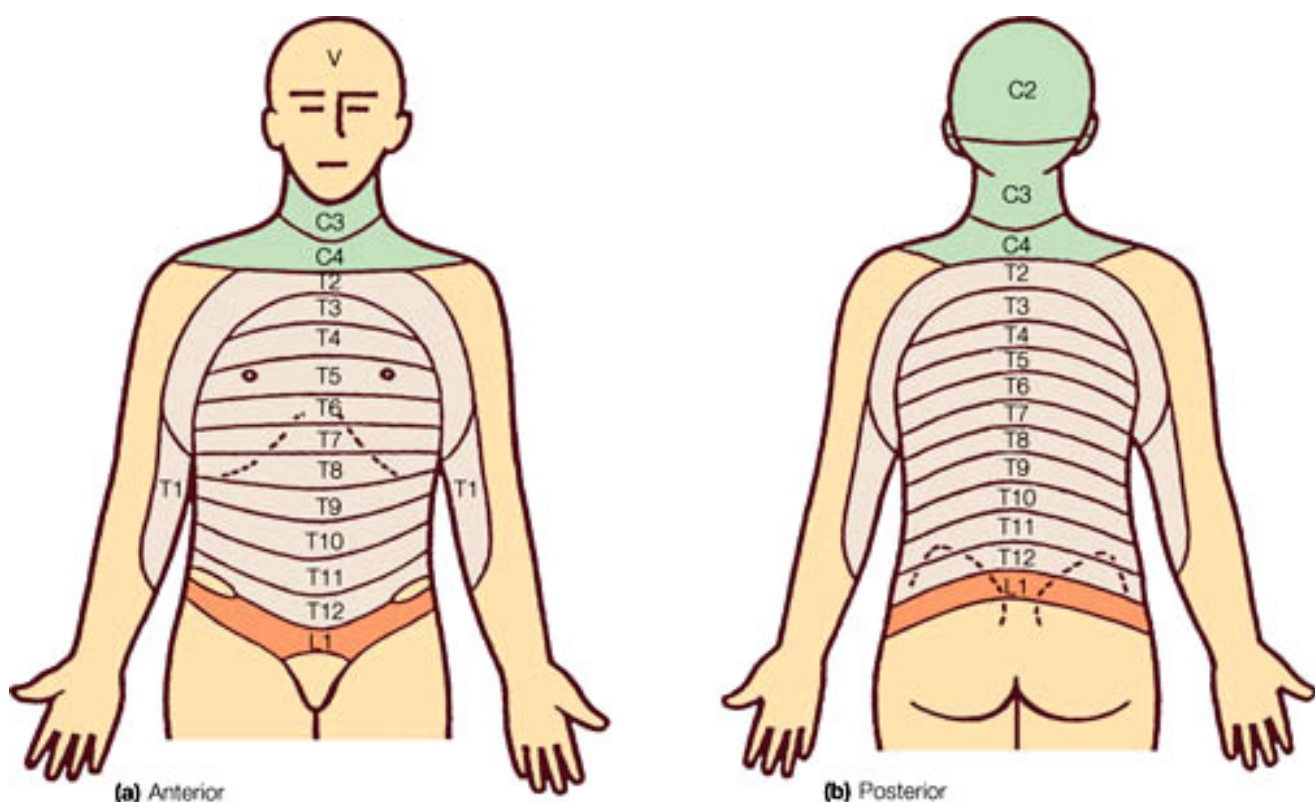
Sources: www.apparelyzed.com
www.wikipedia.org
sci.rutgers.edu

Key:

- Normal Function
- Impaired Motor Function
- Impaired Sensory Function

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Differential Impressions:

- Burns (Thermal, Chemical, Electrical, Radiation)
- Electrocutation (AC, DC)
- Smoke Inhalation
- Toxic Fume Inhalation

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Spinal Motion Restriction Guideline
 - Pediatric: Spinal Motion Restriction Guideline
 - PEARL | *Electrocutions may be coupled with Blunt Force Trauma*
- Hemorrhage Control:
 - Direct Pressure
 - Pediatric: Direct Pressure
 - Pressure Dressing
 - Pediatric: Pressure Dressing
 - Tourniquet
 - Pediatric: Tourniquet
- Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - Pediatric: Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - PEARL | *Burns = hypothermia – Hibler's Method preserves body heat and mitigates Lethal Triad*
- Burn Care:
 - <15% BSA – Stop the burning process, WaterJel Dressing
 - Pediatric: <15% BSA – Stop the burning process, Waterjel Dressing
 - >15% BSA – Stop the burning process, Dry Dressing
 - Pediatric: >15% BSA – Stop the burning process, Dry Dressing
 - Remove jewelry and constricting items
 - Pediatric: Remove jewelry and constricting items
 - PEARL | *Critical Burns: All burns >25% BSA; 3° burns >10% BSA; 2° and 3° burns to the face, eyes, hands, feet or genitalia; inhalation burns; burns with extremes of age or co-morbidities; electrical burns.*
- Extremity Splinting as necessary/indicated
 - Pediatric: Extremity Splinting as necessary/indicated
- Perform Trauma Triage Criteria & Methodology Assessment Checklist
 - PEARL | *1 Red, 2 Blue, GCS <12 or Paramedic Discretion = Trauma Alert*
 - Pediatric: Perform Pediatric Trauma Triage Criteria & Methodology Assessment Checklist
 - PEARL | *1 Red, 2 Blue, Altered Mental Status or Paramedic Discretion = Trauma Alert*

Advanced Life Support Actions/Considerations:

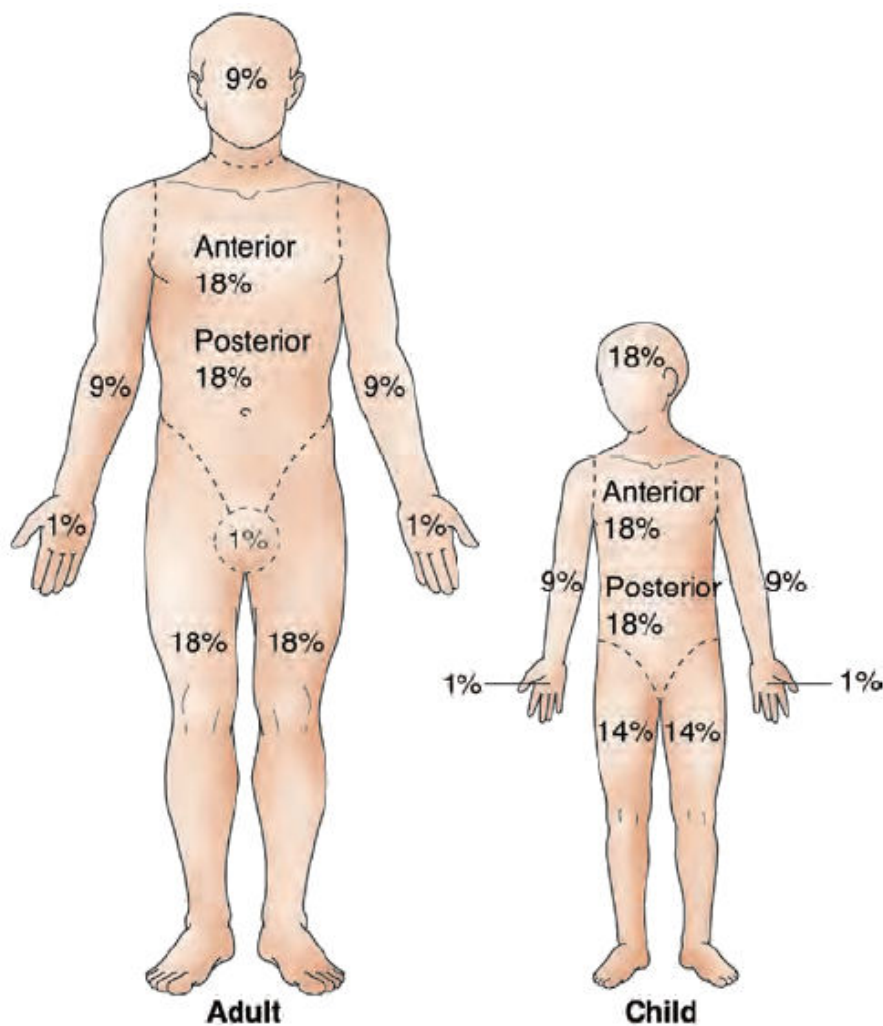
- Crystalloid Resuscitation 10cc/kg IV/IO as necessary/indicated
 - Pediatric: Crystalloid Resuscitation 20cc/kg IV/IO as necessary/indicated
- Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated
 - Pediatric: Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated

(continued)

- High Voltage Electrical Injury or Direct Lightning Strike with significant tissue destruction:
Sodium Bicarbonate 1mEq/kg IV/IO
 ➤ Pediatric: Sodium Bicarbonate 1mEq/kg IV/IO
- Smoke Inhalation:
 Reactive Airway Disease Guideline
 ➤ Pediatric: Reactive Airway Disease Guideline
- Smoke Inhalation, Carbon Monoxide or Cyanide Toxicity:
Cyanokit 5gm (1 Kit) IV/IO over 15minutes

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated
 ➤ Pediatric: Cyanokit 70mg/kg IV/IO over 15minutes



Differential Impressions:

- Explosion
- Structural Collapse
- Amputations
- Crush Injury Syndrome

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Spinal Motion Restriction Guideline
 - Pediatric: Spinal Motion Restriction Guideline
 - PEARL | Blast injuries may be coupled with primary and secondary Blunt Force Trauma
 - PEARL | Crush injuries may be coupled with Blunt Force Trauma
- Hemorrhage Control:
 - Direct Pressure
 - Pediatric: Direct Pressure
 - Pressure Dressing
 - Pediatric: Pressure Dressing
 - Tourniquet
 - Pediatric: Tourniquet
- Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - Pediatric: Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - PEARL | Cold blood does not clot – Hibler’s Method preserves body heat and reduces Lethal Triad
- Burn | Electrocutation | Smoke Inhalation Guideline as necessary/indicated
 - Pediatric: Burn | Electrocutation | Smoke Inhalation Guideline as necessary/indicated
 - PEARL | Burns may be coupled with Blast Injury
- Pelvic Splinting as necessary/indicated
 - Pediatric: Pelvic Splinting as necessary/indicated
 - PEARL | Blast injuries may be coupled with primary and secondary Blunt Force Trauma
 - PEARL | Crush injuries may be coupled with Blunt Force Trauma
- Extremity Splinting as necessary/indicated
 - Pediatric: Extremity Splinting as necessary/indicated
- Perform Trauma Triage Criteria & Methodology Assessment Checklist
 - PEARL | 1 Red, 2 Blue, GCS <12 or Paramedic Discretion = Trauma Alert
 - Pediatric: Perform Pediatric Trauma Triage Criteria & Methodology Assessment Checklist
 - PEARL | 1 Red, 2 Blue, Altered Mental Status or Paramedic Discretion = Trauma Alert

Advanced Life Support Actions/Considerations:

- Pleural Needle Decompression as necessary/indicated
 - Pediatric: Pleural Needle Decompression as necessary/indicated
- Crystalloid Resuscitation IV/IO as necessary/indicated
 - Pediatric: Crystalloid Resuscitation IV/IO as necessary/indicated
 - PEARL | Perfusion target: permissive hypotension; peripheral pulses present – restrict crystalloid
- Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated
 - Pediatric: Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

- **Sodium Bicarbonate 1mEq/kg IV/IO**

➤ **Pediatric: Sodium Bicarbonate 1mEq/kg IV/IO**

PEARL | For Crush Injury Syndrome >4 hours - alkalinizes urine, controls hyperkalemia and acidosis

Differential Impressions:

- Foreign Body/Substance (not embedded)
- Foreign Body (impaled object)
- Corneal Abrasion
- Lacerated Globe
- Global Rupture
- Protruding Eye
- Orbital Fracture
- Retinal Artery Occlusion

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Foreign Body/Substance (not embedded) & Corneal Abrasion:
Irrigation 2L or 20 minutes

PEARL | Remove any caustic powder prior to irrigation

Tetracaine 2gtts q 10 minutes

- Pediatric: Tetracaine 2gtts q 10 minutes

PEARL | Tetracaine is contraindicated in open globe injuries

- Foreign Body (impaled object), Globe Injury and/or Protruding Eye:
 - i. Shield or cup dress affected eye
 - ii. Consider loose cover to unaffected eye to reduce eye movement
 - iii. Protect loss of fluids: apply saline moistened dressing as necessary
 - iv. Consider C-Collar to reduce head movement
 - v. Elevate stretcher head

PEARL | Tetracaine is contraindicated in open globe injuries

- Orbital Fracture and Retinal Artery Occlusion
 - i. Shield or cup dress affected eye
 - ii. Consider loose cover to unaffected eye to reduce eye movement
 - iii. Consider C-Collar to reduce head movement
 - iv. Elevate stretcher head

PEARL | Tetracaine is contraindicated in open globe injuries

Advanced Life Support Actions/Considerations:

- Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated
- Nausea & Vomiting Management Guideline as necessary/indicated

PEARL | Antiemetic therapy is aimed at reducing intraocular pressure

- Crystalloid Resuscitation IV/IO as necessary/indicated

- Pediatric: Crystalloid Resuscitation IV/IO as necessary/indicated

PEARL | Perfusion target: permissive hypotension; peripheral pulses present – restrict crystalloid

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

Adult Trauma Triage Criteria & Methodology

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

Criteria:		
<input type="checkbox"/> 1. Meets color-coded triage system (see below)		
<input type="checkbox"/> 2. GCS \leq 12 (Patient must be evaluated via GCS if not identified as a trauma alert after application of criterion 1.)		
<input type="checkbox"/> 3. Meets local criteria (specify): _____		
<input type="checkbox"/> 4. Patient does not meet any of the trauma criteria listed above but, in the judgment of the EMT or paramedic, should be transported as a trauma alert (document) _____		
COMPONENT		
AIRWAY	RESPIRATORY RATE OF 30 or GREATER <input type="checkbox"/> B	ACTIVE AIRWAY ASSISTANCE ¹ <input type="checkbox"/> R
CIRCULATION	SUSTAINED HR OF 120 BEATS PER MINUTE or GREATER <input type="checkbox"/> B	LACK OF RADIAL PULSE WITH SUSTAINED HEART RATE (>120) or BP <90 mmHg <input type="checkbox"/> R
BEST MOTOR RESPONSE	BMR =5 <input type="checkbox"/> B	BMR = 4 or LESS or PRESENCE OF PARALYSIS, or SUSPICION OF SPINAL CORD INJURY or LOSS OF SENSATION <input type="checkbox"/> R
CUTANEOUS	SOFT TISSUE LOSS ² or GSW TO THE EXTREMITIES <input type="checkbox"/> B	2ND OR 3RD ⁰ BURNS TO 15% or MORE TBSA or AMPUTATION PROXIMAL TO THE WRIST or ANKLE or ANY PENETRATING INJURY TO HEAD, NECK, or TORSO ³ <input type="checkbox"/> R
Longbone FRACTURE⁴	SINGLE FX SITE DUE TO MVA or FALL 10' or MORE <input type="checkbox"/> B	FRACTURE OF TWO or MORE Longbones <input type="checkbox"/> R
AGE	55 YEARS or OLDER <input type="checkbox"/> B	
MECHANISM OF INJURY	EJECTION FROM VEHICLE ⁵ or DEFORMED STEERING WHEEL ⁶ <input type="checkbox"/> B	

■ R = any **one (1)** - transport as a trauma alert

■ B = any **two (2)** - transport as a trauma alert

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

Pediatric Trauma Scorecard Methodology

The EMT or Paramedic shall assess the condition of those injured individuals with anatomical and physical characteristics of a person fifteen (15) years of age or younger for the presence of one or more of the following three (3) criteria to determine the transport destination per 64E-2.001, Florida Administrative Code, (F.A.C.):

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

COMPONENT

SIZE	> 20 Kg (44+ lbs.) <input type="checkbox"/> G	>11-20 Kg (24-44 lbs.) <input type="checkbox"/> G	WEIGHT ≤ 11 Kg or LENGTH ≤ 33 INCHES ON A PEDIATRIC LENGTH AND WEIGHT EMERGENCY TAPE <input type="checkbox"/> B
AIRWAY	NORMAL <input type="checkbox"/> G	SUPPLEMENTED O ₂ <input type="checkbox"/> G	ASSISTED or INTUBATED (1) <input type="checkbox"/> R
CONSCIOUSNESS	AWAKE <input type="checkbox"/> G	AMNESIA or LOSS OF CONSCIOUSNESS <input type="checkbox"/> B	ALTERED MENTAL STATUS (2) or COMA or PRESENCE OF PARALYSIS or SUSPICION OF SPINAL CORD INJURY or LOSS OF SENSATION <input type="checkbox"/> R
CIRCULATION	GOOD PERIPHERAL PULSES; SBP > 90 mmHg <input type="checkbox"/> G	CAROTID or FEMORAL PULSES PALPABLE, BUT THE RADIAL OR PEDAL PULSE NOT PALPABLE or SBP < 90-mmHg <input type="checkbox"/> B	FAINT OR NON-PALPABLE CAROTID OR FEMORAL PULSE or SBP < 50 mmHg <input type="checkbox"/> R
FRACTURE	NONE SEEN or SUSPECTED <input type="checkbox"/> G	SINGLE CLOSED LONG BONE (3) FRACTURE (4) <input type="checkbox"/> B	OPEN LONG BONE (3) FRACTURE (5) or MULTIPLE FRACTURE SITES or MULTIPLE DISLOCATIONS (5) <input type="checkbox"/> R
CUTANEOUS	NO VISIBLE INJURY <input type="checkbox"/> G	CONTUSION or ABRASION <input type="checkbox"/> G	MAJOR SOFT TISSUE DISRUPTION (6) or MAJOR FLAP AVULSION or 2 ^o or 3 ^o BURNS TO ≥10% TBSA or AMPUTATION (7) or ANY PENETRATING INJURY TO HEAD, NECK, or TORSO (8) <input type="checkbox"/> R

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

- 2) Meets local criteria (specify): all pediatric trauma alert patients will be transported to the closest facility if air support is not available.
- 3) Patient does not meet any of the trauma criteria listed above, but the EMT or Paramedic can call a "Trauma Alert" if, in his or her judgment, the trauma patient's condition warrants such action. Must be documented on run report pursuant to 64E-2.013, (F.A.C.)

1. Airway assistance includes manual jaw thrust, 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 or fibula).
4. Long bone fractures 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.

Differential Impressions:

- Human bite
- Animal bite
- Snake bite/envenomation
- Spider bite/envenomation
- Ant, Bee, Wasp bite/envenomation
- Jellyfish sting
- Stingray/Catfish sting

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Human & Animal:
Irrigate and dress wounds as necessary/indicated
PEARL | Human Bites are highly infectious
- Snake & Spider:
Immobilize extremity in neutral position
PEARL | No ice, tourniquets, cutting or suctioning of site
- Ant, Bee, Sawfly, Wasp:
Remove/scrape off stingers/venom sacs with a blunt-edge object (e.g., credit card or tongue depressor)
- Jellyfish:
Remove from skin with sea water, rinse with vinegar (if available) and immerse in very warm water
- Stingray/Catfish:
Do not remove barb – immerse in very warm water
- Allergic Reaction | Anaphylaxis Guideline as necessary/indicated
➤ *Pediatric: Allergic Reaction | Anaphylaxis Guideline as necessary/indicated*

Advanced Life Support Actions/Considerations:

- Allergic Reaction | Anaphylaxis Guideline as necessary/indicated
➤ *Pediatric: Allergic Reaction | Anaphylaxis Guideline as necessary/indicated*
- **Crystalloid Resuscitation 10cc/kg IV/IO** as necessary/indicated
➤ *Pediatric: Crystalloid Resuscitation 20cc/kg IV/IO as necessary/indicated*
- Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated
➤ *Pediatric: Pain | Anxiety | Procedural Sedation Management Guideline as necessary/indicated*
- Nausea | Vomiting Management Guideline as necessary/indicated
➤ *Pediatric: Nausea | Vomiting Management Guideline as necessary/indicated*

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

Differential Impressions:

- Drowning
- Submersion

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - Pediatric: Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
- Reactive Airway Disease Guideline as necessary/indicated
 - Pediatric: Reactive Airway Disease Guideline as necessary/indicated

Advanced Life Support Actions/Considerations:

- CPAP 5 – 15cm/H2O PEEP
- Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - Pediatric: Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
- Reactive Airway Disease Guideline as necessary/indicated
 - Pediatric: Reactive Airway Disease Guideline as necessary/indicated
- Crystalloid Resuscitation 10cc/kg IV/IO as necessary/indicated
 - Pediatric: Crystalloid Resuscitation 20cc/kg IV/IO as necessary/indicated
 - PEARL | Resuscitate cold water drowning until warm – transport
- Epinephrine 0.1 – 0.5mcg/kg/min IV/IO Infusion as necessary/indicated

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated
 - Pediatric: Epinephrine 0.1 – 1mcg/kg/min IV/IO Infusion

Differential Impressions:

- Environmental Hypothermia
- Environmental Hyperthermia

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Hypothermia
 - Passive External Rewarming
 - Remove from cold environment, remove wet clothing
 - Hibler's Method of Thermopreservation
 - Pediatric: Passive External Rewarming
 - Pediatric: Remove from cold environment, remove wet clothing
 - Pediatric: Hibler's Method of Thermopreservation

PEARL | Handle gently to reduce lethal arrhythmias
- Hyperthermia
 - Passive External Cooling – fans, misting, and/or ice packs to groin, axilla and neck
 - Remove from hot environment, remove clothing
 - Pediatric: Passive External Cooling – fans, misting, and/or ice packs to groin, axilla and neck
 - Pediatric: Remove from hot environment, remove clothing

PEARL | Withdrawal cooling as core temperature approaches 100.0°F/37.7°C

Advanced Life Support Actions/Considerations:

- Hypothermia
 - Warm Crystalloid Resuscitation 10cc/kg IV/IO** as necessary/indicated
 - Pediatric: **Warm Crystalloid Resuscitation 20cc/kg IV/IO** as necessary/indicated

PEARL | Rough patient handling may cause ventricular fibrillation

PEARL | Hypothermia is susceptible to progressive bradycardias
- Hyperthermia
 - Cool Crystalloid Resuscitation 10cc/kg IV/IO** as necessary/indicated
 - Pediatric: **Cool Crystalloid Resuscitation 20cc/kg IV/IO** as necessary/indicated

PEARL | Withdrawal cooling as core temperature approaches 100.0°F/37.7°C

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

Differential Impressions:

- Pre-Eclampsia
- Eclampsia
- Post-Partum Eclampsia (<4weeks post partum)
- 3rd Trimester Hypertension
- 3rd Trimester Proteinuria
- 3rd Trimester Headache
- 3rd Trimester Edema
- 3rd Trimester Visual Changes
- 3rd Trimester Seizure Activity
- Early Post-Partum Seizure Activity (<4weeks post partum)

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Place in left lateral recumbent position
- bG < 60mg/dL:
Diabetic Emergencies | Hypo & Hyperglycemia Guideline as necessary/indicated

Advanced Life Support Actions/Considerations:

- bG < 60mg/dL with vascular access:
Diabetic Emergencies | Hypo & Hyperglycemia Guideline as necessary/indicated

- bG Normal, is Pregnant or early Post-Partum:
Magnesium Sulfate 4gm in 100cc D5W IV Infusion over 20 minutes
PEARL | Magnesium Sulfate is first-line therapy for eclamptic tonic-clonic seizure activity
or
Magnesium Sulfate 4gm IM (2gm in each gluteus)
PEARL | Magnesium Sulfate is first-line therapy for eclamptic tonic-clonic seizure activity
or
Midazolam 2.5 – 5.0mg IV/IO; may repeat q 10minutes PRN
PEARL | Midazolam is second-line therapy for eclamptic tonic-clonic seizure activity when Magnesium Sulfate is otherwise unavailable or ineffective
or
Midazolam 5.0mg IM/IN; may repeat q 10minutes PRN
PEARL | Midazolam is second-line therapy for eclamptic tonic-clonic seizure activity when Magnesium Sulfate is otherwise unavailable or ineffective

- **Crystalloid Resuscitation 10cc/kg IV/IO** as necessary/indicated

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

Differential Impressions:

- Normal Spontaneous Vaginal Delivery
- Complicated Spontaneous Vaginal Delivery
- Stillborn Delivery
- Newborn Distress Delivery

Basic Life Support Actions:

- Universal Care Guideline
 - Patient Safety Guideline
 - Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated
 - *Pediatric: Exposure Emergencies | Hypo & Hyperthermia Guideline as necessary/indicated*
 - PEARL | Cold blood does not clot – Hibler's Method preserves body heat and mitigates Lethal Triad*
 - Normal Delivery Procedure
 - ❖ Place the mother on a firm surface and elevate hips
 - ❖ Inspect the vaginal area for impending delivery (crowning), or any signs of abnormal presentation – prolapsed amniotic sac, limb presentation, cord presentation, or breech presentation
 - PEARL | Signs of imminent delivery include: membrane rupture or bloody show, contractions, urge to move bowels and/or urge to push*
 - ❖ Apply gentle palm pressure to the infant's head to prevent explosive delivery and tearing of perineum
 - ❖ As delivery occurs, suction mouth then nose
 - ❖ If amnion is still intact as head delivers, instruct mother to stop pushing and gently tear open membrane and immediately suction mouth, then nose
 - ❖ Keep newborn warm and dry
 - ❖ Stimulate the newborn as necessary/indicated
 - ❖ Maintain the newborn at vaginal level until cord is cut
 - ❖ Clamp the cord 6 and 9 inches away from baby and cut between the clamps
 - ❖ Document the time of delivery and perform APGAR score at 1 and 5 minutes
 - Complicated Delivery Procedures
 - Nuchal Cord:*
 - ❖ Place the mother on a firm surface and elevate hips
 - ❖ Inspect the vaginal area for impending delivery (crowning), or any signs of abnormal presentation – prolapsed amniotic sac, limb presentation, cord presentation, or breech presentation
 - ❖ Apply gentle palm pressure to the infant's head to prevent explosive delivery and tearing of perineum
 - ❖ As delivery occurs, attempt to slip the umbilical cord over the newborn's head
 - ❖ If umbilical cord is too tight to maneuver, immediately clamp and cut
 - ❖ Continue with delivery, suction mouth then nose
-
- Prolapsed Cord:*
 - ❖ Do not delay transport
 - PEARL | Primary objective: maintain a pulsatile umbilical cord*
 - ❖ Place the mother in knee-to-chest position
 - ❖ Instruct the mother to pant and not push with each contraction
 - ❖ Apply upward manual pressure through the vagina lifting the presenting newborn anatomy away

from and off the umbilical cord

- ❖ With the umbilical cord now pulsating, maintain that position and transport

Limb Presentation:

- ❖ Do not delay transport
- ❖ Place the mother head down with pelvis elevated position
- ❖ Instruct the mother to pant and not push with each contraction
- ❖ Maintain that position, do not pull on the exposed limb and transport

Breech Presentation:

- ❖ Do not delay transport
- ❖ Place the mother head down with pelvis elevated position
- ❖ Instruct the mother to pant and not push with each contraction
- ❖ Deliver the anterior shoulder in a gentle, controlled fashion, then deliver the posterior shoulder and the remainder of the newborn
- ❖ As the newborn's head passes the pubis, apply gentle upward pressure until the mouth appears over the perineum and immediately suction the mouth, then nose
- ❖ If the head does not deliver, form a "V" with the index and middle finger on either side of the infant's nose.
- ❖ Push the vaginal wall from the face, maintain that position and transport

Postpartum Hemorrhage:

- ❖ Massage the uterus/fundus from pubis toward umbilicus
PEARL | Do not pack vagina to arrest bleeding
- ❖ Encourage newborn breast feeding

Newborn Distress:

- [Pediatric: AHA Neonatal Cardiac Arrest Algorithm as necessary/indicated](#)

Advanced Life Support Actions/Considerations:

- Complicated Delivery Procedures

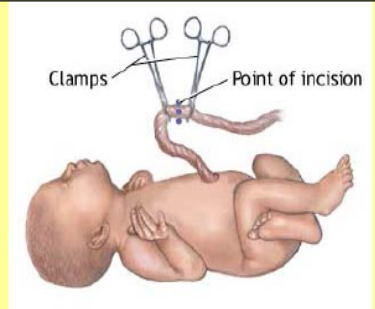
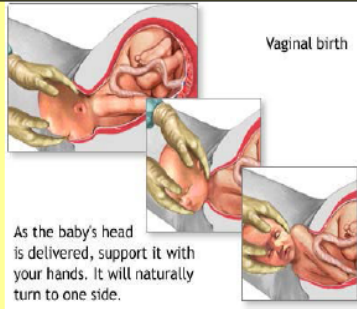
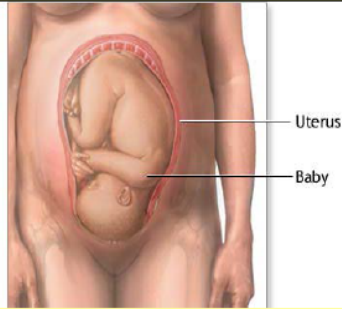
Meconium Aspiration Syndrome:

- ❖ If the baby is not vigorous (depressed respiratory effort, poor muscle tone, and/or heart rate <100/min): Direct laryngoscopy, intubate, and suction the ETT for no longer than 5 seconds. If no meconium is retrieved, do not repeat intubation and suction. If meconium is retrieved and no bradycardia is present, reintubate and suction. If heart rate is <100/min, administer positive pressure ventilation and consider suctioning again later.
- ❖ If the baby is vigorous (normal respiratory effort, normal muscle tone, and heart rate >100/ min): **Do not electively intubate.** Gently clear secretions/meconium from mouth and nose with a bulb syringe.
- Vaginal Bleeding Guideline as necessary/indicated
- **Crystalloid Resuscitation 10cc/kg IV/IO** as necessary/indicated
➤ [Pediatric: AHA Neonatal Cardiac Arrest Algorithm as necessary/indicated](#)
- Nausea | Vomiting Management Guideline as necessary/indicated

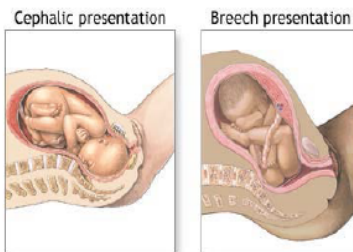
Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

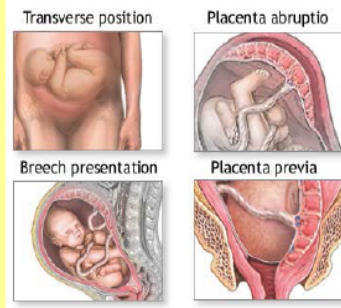
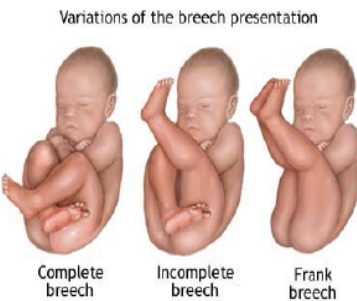
Normal vaginal delivery:



Other delivery presentations:



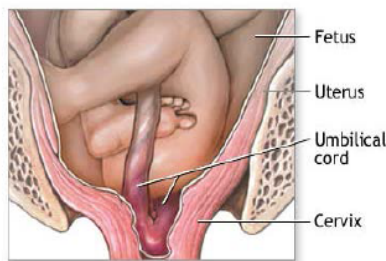
Delivery presentation is the position of the presenting part of the fetus (head, feet, etc.) as it comes down the birth canal



Fetus in posterior presentation



Prolapsed umbilical cord












Fetus in transverse lie presentation



APGAR

Test Scoring

	Score 0	Score 1	Score 2	1 Minute	5 Minute
A ppearance					
	Blue all over	Blue only at extremities	No blue coloration		
P ulse	No pulse	<100 beats/min.	>100 beats/min.		
G rimace					
	No response to stimulation	Grimace or feeble cry when stimulated	Sneezing, coughing, or pulling away when stimulated		
A ctivity					
	No movement	Some movement	Active movement		
R espiration	No breathing	Weak, slow, or irregular breathing	Strong cry		
				Total:	Total:

Differential Impressions:

- Abrutio placenta
- Ectopic pregnancy rupture
- Placenta previa
- Inevitable abortion
- Spontaneous abortion
- Therapeutic abortion
- Threatened abortion
- Endometrosis
- Memorrhagia
- Postpartum hemorrhage
- Sexual battery/Vaginal trauma
- Uterine rupture

Basic Life Support Actions:

- Universal Care Guideline
- Patient Safety Guideline
- Provide emotional support
 - PEARL | *Any products of conception should be collected and transported with the patient*
 - PEARL | *In the case of a sexual battery, attempt to preserve evidence*
- If pregnant and if delivery is not imminent, transport in left lateral recumbent position
- If postpartum, massage the uterus/fundus and encourage newborn breast feeding
 - PEARL | *Do not pack vagina to arrest bleeding*

Advanced Life Support Actions/Considerations:

- **Crystalloid Resuscitation 10cc/kg IV/IO** as necessary/indicated
- **Epinephrine 0.1 – 0.5mcg/kg/min IV/IO Infusion** as necessary/indicated

Medical Control Actions/Orders/Requests:

- Consult as necessary/indicated

Section 300

Pharmacology Reference

Medication Class	Indications Contraindications	Adverse Effects
Adenosine <i>(Adenocard)</i> Antiarrhythmic	<ul style="list-style-type: none"> Stable Narrow-Complex Tachycardia Supraventricular Tachycardia Paroxysmal Supraventricular Tachycardia <ul style="list-style-type: none"> Known Atrial Fibrillation or Flutter 2nd and 3rd Degree Heart Block Sick Sinus Syndrome Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> Chest Pain Dizziness Dyspnea Headache Facial Flushing Palpitations Transient Asystole Nausea/Vomiting
Albuterol <i>(Proventil)</i> <i>(Ventolin)</i> Bronchodilator, Selective Beta ₂ Agonist	<ul style="list-style-type: none"> Reactive Airway Disease Anaphylaxis Toxic Fume Inhalation <ul style="list-style-type: none"> Symptomatic Tachycardia Ischemic Chest Pain Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> Anxiety Dizziness Palpitations Paradoxical Bronchospasm Tachycardia Tremors Nausea/Vomiting
Amiodarone <i>(Cordarone)</i> Antiarrhythmic, Sodium, Calcium, and Potassium Channel Blocker	<ul style="list-style-type: none"> Ventricular Fibrillation Wide-Complex Tachycardia Pulseless Ventricular Tachycardia <ul style="list-style-type: none"> Hypotension 2nd and 3rd Degree Heart Block Congestive Heart Failure Symptomatic Bradycardia Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> AV Conduction Abnormalities Bradycardia Headache Hypotension Torsade de pointes Nausea/Vomiting
Aspirin <i>(None)</i> NSAID, Platelet Aggregation Inhibitor, Antipyretic	<ul style="list-style-type: none"> Ischemic Chest Pain <ul style="list-style-type: none"> Bleeding Disorders Gastrointestinal Bleeding Peptic Ulcer Disease Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> Anaphylaxis Occult Bleeding Gastrointestinal Irritation Tinnitus Nausea/Vomiting
Atropine Sulfate <i>(Atropen)</i> Parasympathetic Blocker, Anticholinergic	<ul style="list-style-type: none"> Symptomatic Bradycardia (pulse producing) Heart Blocks Organophosphate Poisoning Nerve Agent Exposure <ul style="list-style-type: none"> None in Emergency Situations 	<ul style="list-style-type: none"> Blurred Vision Dilated Pupils Dizziness Dry Mucus Membranes Palpitations Reflex Bradycardia Tachycardia Nausea/Vomiting

Medication Class	Indications Contraindications	Adverse Effects
Dextrose (D10%) (D25%) (D50%) (InstaGlucose - oral) Glucose, Caloric Supplement	<ul style="list-style-type: none"> • Hypoglycemia • Intracranial Hemorrhage • InstaGlucose: Inability to Protect Airway (swallow or manage secretions) 	<ul style="list-style-type: none"> • Extravasation Injury • Hyperglycemia • Tissue Necrosis • Thrombophlebitis • Rebound Hypoglycemia
Diltiazem (Cardizem) Calcium Channel Blocker	<ul style="list-style-type: none"> • Atrial Fibrillation with Rapid Ventricular Response • Atrial Flutter • Refractory Paroxysmal Supraventricular Tachycardia • Hypotension/Hypoperfusion • 2nd and 3rd Degree Heart Block • Ventricular Tachycardia • Wolfe-Parkinson White Syndrome • Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> • Asystole • Bradycardia • Dizziness • Heart Blocks • Hypotension • Nausea/Vomiting
Diphenhydramine (Benadryl) Antihistamine (H1), Anticholinergic, Antiemetic	<ul style="list-style-type: none"> • Allergic Reactions • Anaphylaxis • Motion Sickness/Nausea • Dystonia/Extrapyramidal Symptoms (EPS) • Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> • Central Nervous System Depression • Palpitations • Tachycardia • Thickened Bronchial Secretions • Nausea/Vomiting
Epinephrine (Adrenalin) (EpiPen) (EpiPen, Jr) Sympathomimetic, Alpha & Beta Adrenergic Agonist	<ul style="list-style-type: none"> • CardioPulmonary Arrest • Anaphylaxis • Reactive Airway Disease • Pediatric Croup • Bradycardia • Shock • None in Emergency Situations 	<ul style="list-style-type: none"> • Anxiety • Chest Pain • Headache • Palpitations • Tachycardia • Tremors • Ventricular Ectopi • Nausea/Vomiting
Fentanyl (Sublimaze) Narcotic Analgesic	<ul style="list-style-type: none"> • Pain Management • Sedation • Intoxication • Pregnancy • Stroke • Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> • Bradycardia • Hypotension • Rigid Chest Wall Syndrome • Nausea/Vomiting

Medication Class	Indications Contraindications	Adverse Effects
Glucagon <i>(Glucagen)</i> Pancreatic Hormone	<ul style="list-style-type: none"> Hypoglycemia without vascular access Esophageal Food Bolus Obstruction Beta Blocker Overdose Calcium Channel Blocker Overdose <ul style="list-style-type: none"> Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> Hypotension Palpitations Tachycardia Nausea/Vomiting
Hydroxocobalamin <i>(Cyanokit)</i> Cyanide Poisoning Antidote	<ul style="list-style-type: none"> Smoke Inhalation Suspected or Known Cyanide Poisoning <ul style="list-style-type: none"> None in Emergency Situations 	<ul style="list-style-type: none"> Headache Chromaturia (Red Urine) Erythemia/Skin Rash Facial Flushing Diarrhea Nausea/Vomiting
Ipratropium Bromide <i>(Atrovent)</i> <i>(Duoneb – when premixed with Albuterol)</i> Bronchodilator, Anticholinergic	<ul style="list-style-type: none"> Reactive Airway Disease Anaphylaxis Toxic Fume Inhalation <ul style="list-style-type: none"> Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> Blurred Vision Coughing Chest Pain Dizziness Dry Mucus Membranes Palpitations Paradoxical Bronchospasm Tachycardia Tremors Nausea/Vomiting
Ketamine <i>(Ketalar)</i> Dissociative Anesthetic, Sedative, Analgesic	<ul style="list-style-type: none"> Excited Delirium Syndrome (ExDS) Procedural Sedation <ul style="list-style-type: none"> Catecholamine Depleted States (Cardiogenic Shock, Cardiac Transplant Candidate) Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> Emergence Phenomenon Hypersalivation Laryngospasm Transient Hypertension Transient Tachycardia Nausea/Vomiting
Lactated Ringer's Solution <i>(Lactated Ringer's Injection)</i> Isotonic Crystalloid	<ul style="list-style-type: none"> Crystalloid Resuscitation <ul style="list-style-type: none"> None in Emergency Situations 	<ul style="list-style-type: none"> Fluid overload Thrombophlebitis
Lidocaine <i>(Xylocaine)</i> Anesthetic, Antiarrhythmic	<ul style="list-style-type: none"> Intraosseous Anesthetic <ul style="list-style-type: none"> 2nd and 3rd Degree Heart Block Bradycardia Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> Confusion Facial Flushing Injection Site Burning/Pain Muscle Spasms Seizures Nausea/Vomiting

Medication Class	Indications Contraindications	Adverse Effects
Magnesium Sulfate <i>(none)</i> Intracellular Electrolyte, Calcium Channel Blocker	<ul style="list-style-type: none"> • Torsades de Pointes • Refractory Ventricular Tachycardia • Refractory Pulseless Ventricular Tachycardia • Reactive Airway Disease • Eclampsia Seizure <ul style="list-style-type: none"> • 2nd and 3rd Degree Heart Block • Patients on Digitalis • Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> • Central Nervous System Depression • Hypotension • Respiratory Depression • Nausea/Vomiting
Methylprednisolone <i>(Solumedrol)</i> Glucocorticoid Steroid	<ul style="list-style-type: none"> • Reactive Airway Disease • Anaphylaxis <ul style="list-style-type: none"> • Known Hypersensitivity • Age < 2year old 	<ul style="list-style-type: none"> • Dizziness • Hypertension • Gastrointestinal Irritation • Vertigo • Nausea/Vomiting
Midazolam <i>(Versed)</i> Benzodiazepine, Anticonvulsant, Sedative	<ul style="list-style-type: none"> • Seizure Disorders • Procedural Sedation <ul style="list-style-type: none"> • Hypotension • Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> • Bradycardia • Bronchospasm • Central Nervous System Depression • Laryngospasm • Hypotension • Nausea/Vomiting
Naloxone <i>(Narcan)</i> <i>(Evzio)</i> Narcotic Antagonist	<ul style="list-style-type: none"> • Opioid Overdose <ul style="list-style-type: none"> • Advanced Airway Management • Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> • Cardiac Arrhythmias • Pulmonary Edema • Seizures/Skeletal Tremors • Violent Behavior • Nausea/Vomiting
Nitroglycerin <i>(Nitrostat)</i> <i>(Nitrobid)</i> <i>(Nitropaste)</i> <i>(Tridal)</i> Vasodilator, Antianginal, Smooth Muscle Relaxant	<ul style="list-style-type: none"> • Acute Coronary Syndromes • Unstable Angina • STEMI • Congestive Heart Failure/Pulmonary Edema <ul style="list-style-type: none"> • Hypotension • Right Ventricular Infarct • Erectile Dysfunction Medication intake in the past 48 hours • Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> • Dizziness • Facial Flushing • Headache • Hypotension • Palpitations • Nausea/Vomiting
Normal Saline Solution <i>(Saline 0.9% Injection)</i> Isotonic Crystalloid	<ul style="list-style-type: none"> • Crystalloid Resuscitation <ul style="list-style-type: none"> • None in Emergency Situations 	<ul style="list-style-type: none"> • Fluid overload • Thrombophlebitis

Medication Class	Indications Contraindications	Adverse Effects
Ondansetron <i>(Zofran)</i> Antiemetic, Serotonin Antagonist	<ul style="list-style-type: none"> • Nausea/Vomiting • Prolonged QT Syndrome • Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> • Hypotension • Tachycardia • Extrapyramidal Syndrome • Facial Flushing • Fever • Headache • Seizure • Prolonged QT Interval
Oxygen <i>(none)</i>	<ul style="list-style-type: none"> • Conditions with increased oxygen demands, respiratory distress/insufficiency, or illness or injury resulting in impaired ventilation and/or perfusion • Nitrogen Wash-Out for Airway Management • None in Emergency Situations 	<ul style="list-style-type: none"> • Respiratory Depression in COPD
Pralidoxine <i>(2-Pam)</i> <i>(Protopam Chloride)</i> <i>(Duodote – when premixed with Atropine)</i> Nerve Agent Antidote	<ul style="list-style-type: none"> • Nerve Agent Exposure • Organophosphate Poisoning • None in Emergency Situations 	<ul style="list-style-type: none"> • Blurred Vision • Dilated Pupils • Dizziness • Dry Mucus Membranes • Palpitations • Tachycardia • Nausea/Vomiting
Sodium Bicarbonate <i>(none)</i> Alkalinizing Buffer Agent	<ul style="list-style-type: none"> • CardioPulmonary Arrest • Metabolic Acidosis • Tricyclic Overdose • Known Hyperkalemia • Alkalosis 	<ul style="list-style-type: none"> • Metabolic Acidosis • May crystallize in IV solutions when mixed with Epinephrine
Tetracaine <i>(Tetravisc)</i> Ocular Anesthetic	<ul style="list-style-type: none"> • Eye Irritation • Eye Foreign Body/Substance • Corneal Abrasion • Open Globe Injury • Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> • Ocular burning sensation • Ocular redness • Ocular tearing
Thiamine <i>(Vitamin B1)</i> Carbohydrate Metabolite	<ul style="list-style-type: none"> • Adults with evidence of alcohol abuse or signs of malnourishment prior to the administration of Dextrose • Known Allergy/Hypersensitivity 	<ul style="list-style-type: none"> • None

Section 400
Clinical Procedures

Category	Procedure	Reference	Scope of Practice	
Airway	Airway Maneuvers: Manual	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	BLS	
	Airway Positioning: Head/Truncal	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	BLS	
	Airway Suctioning	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	BLS	
	Airway Adjuncts: Nasopharyngeal	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	BLS	
	Airway Adjuncts: Oropharyngeal	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	BLS	
	Supra Glottic Airway: LMA (i-gel)	http://us.intersurgical.com/info/igel-emergency-medicine	BLS	
	Supra Glottic Airway: King Tube	http://www.georgiadogs.com/ot/sports-medicine/files/2012_EAPs/king_ltd_detailed_guide.pdf	BLS	
	Supra Glottic Airway: Combitube	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	BLS	
	Foreign Body Airway Obstruction: Heimlich	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	BLS	
	Foreign Body Airway Obstruction: Forceps	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	ALS	
	Laryngoscopy: Direct	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	ALS	
	Laryngoscopy: Video	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	ALS	
	Endotracheal Intubation: Nasal	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	ALS	
	Endotracheal Intubation: Oral	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	ALS	
	Endotracheal Intubation: Stoma	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	ALS	
	Cricothyrotomy: Surgical	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	ALS	
	Cricothyrotomy: Needle	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	ALS	
	Airway Extubation	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	ALS	
	Breathing	Oxygen Delivery Adjuncts	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	BLS
		Ventilation: CPAP	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	ALS
Ventilation: PEEP		http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	ALS	
Ventilation: BVM		http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_015.pdf	BLS	
Ventilation: Automated		http://otwo.com/hand-held-automatic-ventilators-resuscitators/carevent-als/	BLS	
Pleural Decompression: Needle		http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_042.pdf	ALS	
Circulation	CPR: Manual	https://eccguidelines.heart.org/index.php/circulation/cpr-ecc-guidelines-2/	BLS	
	CPR: Mechanical (ZOLL AutoPulse)	http://www.zoll.com/medical-products/cardiac-support-pump/autopulse/	BLS	
	CPR: Mechanical (Physio-Control LUCAS)	http://www.physio-control.com/WCProductDetails.aspx?id=2147484788	BLS	
	Defibrillation: Manual	ZOLL Physio-Control Philips Cardiac Science	ALS	
	Defibrillation: Automated	ZOLL Physio-Control Philips Cardiac Science	BLS	
	Cardioversion: Synchronized	ZOLL Physio-Control Philips	ALS	
	Transcutaneous Pacing	ZOLL Physio-Control Philips	ALS	
	LVAD Maintenance	Manufacturer Specific	ALS	
	Vagal/Valsalva Maneuver	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_022.pdf	ALS	
	Pericardiocentesis	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_042.pdf	ALS	
	Hemorrhage Control: Direct Pressure	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_038.pdf	BLS	
	Hemorrhage Control: Pressure Dressing	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_038.pdf	BLS	
	Hemorrhage Control: Hemostatic	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_038.pdf	BLS	
	Hemorrhage Control: Occlusive	http://ems.ibpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_042.pdf	BLS	

	Hemorrhage Control: Tourniquet	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_038.pdf	BLS
	Vascular Access: IV Peripheral	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_014.pdf	ILS
	Vascular Access: IV External Jugular	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_014.pdf	ALS
	Vascular Access: IO Peripheral	http://www.teleflex.com/en/usa/ezioeducation/index.html	ALS
	Medication Administration: IV/IO	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_014.pdf	ALS
	Medication Administration: IM	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_014.pdf	ALS
	Medication Administration: SQ	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_014.pdf	ALS
	Medication Administration: PO	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_014.pdf	ALS
Disability	Musculoskeletal: Cervical Spine Restriction	Lee County Spinal Motion Restriction Guideline	BLS
	Musculoskeletal: Spinal Immobilization	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_041.pdf	BLS
	Musculoskeletal: Extremity Splinting	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_044.pdf	BLS
	Musculoskeletal: Traction Splinting	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_044.pdf	BLS
	Musculoskeletal: Pelvic Splinting	http://www.sammedical.com/products/sam-pelvic-sling-ii/	BLS
	Soft Tissue: General Wound Care	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_038.pdf	BLS
	Soft Tissue: Burn Care	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_039.pdf	BLS
	Soft Tissue: Irrigation	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_038.pdf	BLS
Exposure	Cooling	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_045.pdf	BLS
	Warming	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_045.pdf	BLS
	OB: Childbirth	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_046.pdf	BLS
	OB: Post Partum Care	http://ems.jbpub.com/sanders/paramedic/docs/PPT_Lectures/Chapter_046.pdf	BLS