OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

INDEX - MAIN

MAIN INDEX

GENERAL

CARDIAC
RESPIRATORY

MEDICAL

TRAUMA

OBSTETRICAL

PEDIATRIC

MAIN INDEX

PHARMACOLOGY

TRAUMA
TRANSPORT
PROTOCOLS

LVAD
EMS GUIDE

POLICIES

PROCEDURES

PHONE
NUMBERS

This document is an electronic reproduction of the Protocols approved by the Dr. David Nonell, the Medical Director for Manatee County Emergency Medical Services. A signed print copy is available at the Manatee County Public Safety Center, 2101 47th Terrace East, Bradenton, FL 34203.

MANATEE COUNTY EMERGENCY MEDICAL SERVICES
COMMUNITY
PARAMEDIC
"MORE THAN LIGHTS AND SIRENS"

MANATEE COUNTY EMS SYSTEM

COMMUNITY PROTOCOLS

STANDARDS AND PRACTICE

BASIC AND ADVANCED LIFE SUPPORT POLICIES, PROCEDURES, PROTOCOLS, AND ASSOCIATED REFERENCES

David Nonell, MD, FACEP
Medical Director

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

PATIENT CARE PROTOCOLS

CERTIFICATION

This is to certify that these protocols have been written and are approved by the Medical Director of Manatee County Emergency Medical Services for use by Manatee County EMS, Community Paramedicine, Marine Rescue/Beach Patrol, and participating Fire Districts within Manatee County.

The policies, procedures, and protocols contained herein permit specific emergency procedures pursuant to Florida State Statute and Florida Administrative Code in lieu of a direct order issued by a Supervising Physician. These protocols shall be effective August 7th, 2020.

David C. Nonell, M.D.,
Medical Director, MCEMS

DISCLAIMER

Persons other than the employees, officers, or agents of the Manatee County EMS system accessing this information assume full responsibility for the use of this material. Such persons also understand and agree that all parties named herein and the Medical Director of Manatee County Emergency Medical Services are not responsible for any claim, loss, or damage arising from the use of this material.

INTRODUCTION

This manual shall serve as the guideline for Emergency Medical Technicians and Paramedics when providing quality out-of-hospital medical care in Manatee County to persons in need. These protocols are only to be used when the EMT or Paramedic is on duty and acting as a duly authorized representative of the Manatee County Emergency Medical Services Medical Director.

GENERAL POLICIES

*The **EMT/PARAMEDIC** shall perform his/her duties in accordance with the standards established in Chapter 401 of the Florida Statutes.*

*The **EMT/PARAMEDIC** shall adhere to all current treatment protocols and standing orders unless otherwise directed by the Supervising Physician or Medical Director.*

*It is the responsibility of the **EMT/PARAMEDIC** to stay informed about changes within this document.*

*Upon arrival at the Emergency Department, the **EMT/PARAMEDIC** will verbally relay all pertinent information regarding the patient and provide a draft or electronic copy of the Patient Care Report. The crew may reasonably assist Emergency Department personnel in the transition of the patient's care.*

Under routine circumstances, all ALS procedures will be performed by Florida State Certified Paramedics who have been cleared to function as a Paramedic by the MCEMS Medical Director. Advanced airway procedures including delayed sequence intubation, crichothyrotomy, and needle crichothyrotomy, may only be performed by Credentialed or Charge Paramedics cleared by the Medical Director. Under certain extreme circumstances, such as mass casualty incidents (MCIs,) basic and advanced paramedics may be directed by EMS supervisors to perform duties beyond their normal scope of practice. Paramedics, not employed by a state licensed provider in Manatee County, responding to incidents within Manatee County under mutual aid agreements may perform ALS procedures approved by their respective Medical Director while attending patients in Manatee County for whom they have taken responsibility.

Unless specifically contradicted in these orders, or by the Supervising Physician, recommendations and guidelines of the American Heart Association text books of Advanced Cardiac Life Support and Pediatric Advanced Life Support, and the American College of Surgeons text book of Prehospital Trauma Life Support or International Trauma Life Support will be followed.

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

INDEX - POLICIES

INDEX - POLICIES

INDEX - POLICIES

INDEX - POLICIES

ABANDONED NEWBORNS

The purpose of this guideline is to establish the scope of responsibility for the Paramedics and EMTs finding or accepting an abandoned newborn, pursuant to Florida State Statute.

1. Perform an evaluation of the newborn's condition. If child abuse is suspected, contact Law Enforcement and the Abuse Hotline immediately. 1-800-96-ABUSE (1-800-962-2873)

2. Place the newborn in a warm environment and provide emergency care as needed.

3. Notify ECC that a newborn has been brought to/left at your location.

4. If present, attempt to obtain any medical information available from the parent, such as: date of birth, birth weight, location of delivery, prenatal care complications during pregnancy or delivery, gestation age of pregnancy, condition of the newborn since the delivery.

5. Attempt to determine from the parent if this is an anonymous abandonment, terminating all parental rights.

6. Transport the child to the nearest receiving facility.

BLS TRANSPORTS

1. Any patient who has been evaluated by the Charge Paramedic and/or Lead Paramedic/ EMT on a BLS transport may be considered a BLS patient. These patients may be attended by an EMT as determined by the Medical Director.

- Patient presenting with minor injury who does not require treatment with medications other than oral medications for mild symptoms (including pain management).
- Patient presenting with minor illness who does not require treatment with medications other than oral medications for mild symptoms (including pain management).
- Patient presenting with specific, well defined minor complaint and DO NOT require intervention with medication OR IV fluids.
- Emotionally disturbed patients who are stable and DO NOT require intervention with medication or IV fluids.
- Any other patient who does not require ALS treatment as indicated by the Medical Director.
- An EMT may attend a patient with an IV line in place that only needs to be monitored.

2. Guidelines for performance during transport:

- Run reports for patient transport with an EMT in attendance must clearly state in the remarks section "EMT was in attendance of the patient."
- The EMT will perform his duties in accordance with the standards established in Chapter 401 of the Florida Statutes and the appropriate rules of the Department of Health.
- The EMT will adhere strictly to all current protocols unless otherwise directed by the Supervising Physician or the Medical Director.
- It is the responsibility of the EMT to keep informed about changes in policies and protocols.
- Any change in patient status is to be immediately reported to the Charge Paramedic, at which time he/she will take over attendance of the patient on an ALS unit. On a BLS unit, the lead EMT/Paramedic shall determine whether to call for an ALS unit based on proximity to the receiving facility, ETA of ALS, and patient condition.
- BLS reports shall be reviewed and signed by all crewmembers.

CANCELLATION OF RESPONSE

One of the primary purposes of EMS is to provide a viable service to the community by providing Quality Out-of-Hospital Emergency Medical Care and Transportation on request. Under certain conditions, the responding EMS/FIRE unit may cancel the response.

EMS/FIRE units may cancel a response if:

1. Advised by ECC that no patients are on the scene as reported by other on duty fire, EMS, or police personnel at the scene.

2. Patient has been evaluated by a physician in a health care facility (i.e. doctor's office, nursing home) and requested cancellation of the response.

3. Advised by an off duty EMT or paramedic on the scene, who shall identify him/herself to ECC by ID number or name, that services are not needed; This shall be considered first party denying injury and units may cancel with approval from their respective EMS or Fire chief officer unless the incident is a high mechanism accident (rollover, entrapment, etc) then units shall continue non-emergency.

4. Canceled by a higher authority.

All units shall change status from emergency to non-emergency response if:

1. Advised by any on-scene EMS, Fire, or LE personnel to run non-emergency.

2. "Cancelled" by **non-**EMT or **non**-paramedic personnel in which case the unit(s) shall continue in to check on patient's status unless otherwise directed by a higher authority.

The Medical Director, EMS Chief, or EMS chief officer may cancel EMS unit responses regardless of the provisions set forth in this Policy.

Fire chief officers may cancel fire unit responses in conjunction with the EMS chief officer regardless of the provisions set forth in this Policy.

CRIME SCENES

1. A potential crime scene is defined as **the place of a suspicious, violent, and/or unexplained act or occurrence.**

2. Examples of crime scenes may include, but are not limited to:
   - Shootings / Stabbings
   - Hangings / Suicide Attempts
   - Battery (assault)
   - Illicit drug use

3. As a responder, you may be exposed to an enormous amount of information that **must remain confidential**. **DO NOT** release any information related to a crime scene to anyone other than an official from the investigating law enforcement agency, Critical Incident Stress Manager, MCEMS Medical Director or designee, or personnel immediately involved in patient care (this includes hospital and aero-medical personnel.)

4. If you feel a scene may not be secure notify ECC of such, select a staging area, and wait for the arrival of law enforcement.

5. When you **must** enter a crime scene:
   - Note any possible evidence such as items out of place, weapons and blood patterns.
   - Ensure that all equipment is readily available and in a controlled space.
   - **Limit the number of personnel** who enter a crime scene and when entering, walk as close to the walls as possible (most evidence will be in the center pathway of halls and rooms). Use the same path to exit the scene as you did to enter it.
   - Move, touch, and disturb items **ONLY** when necessary to gain access to the patient(s). If movement is absolutely necessary for patient care, document items moved, touched, or disturbed. If a patient is obviously DOA according to protocol, **DO NOT DISTURB** the scene.
   - When removing a victim's clothing, if feasible, pull it off. If this is not possible, when cutting clothes **DO NOT** cut through existing holes in the clothing. Once removed, turn the clothes over to law enforcement in a bio-hazardous container.

6. All trash generated by EMS must be placed in a trash bag, or in the jump kit, so that it will not become introduced into the crime scene. In the event that such items become introduced to the crime scene they are now considered evidence and must remain on the scene.

7. If a firearm is present:
   - **DO NOT move it unless absolutely necessary**.
   - Document type of firearm (if known) and the position in which it was found.
   - Document any other pertinent information (bullet casings, magazines, etc.)

8. If a patient is involved in a hanging:
   - If the victim is DOA, **DO NOT** move the body.
   - If the patient must be moved for resuscitation efforts, **DO NOT** cut through the knot.
   - If known, document the type of knot used.

DEFINITION OF A PATIENT

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

1. A patient shall be defined as:

   - ANY INDIVIDUAL WHO **ACTIVATES EMS FOR THEMSELVES**
   - ANY INDIVIDUAL WITH AN **INJURY OR ILLNESS**
   - ANY INDIVIDUAL WITH A **MEDICAL OR TRAUMATIC COMPLAINT**
   - ANY INDIVIDUAL WITH AN **ALTERED MENTAL STATUS**
   - ANY INDIVIDUAL WHO EXPERIENCED **ANY LOSS OF CONSCIOUSNESS**
   - ANY INDIVIDUAL WHO REQUIRES EMS PERSONNEL TO COME IN **DIRECT CONTACT TO ASSIST** (i.e. lift assist, transfer, etc)
   - ANY INDIVIDUAL WHOM **LAW ENFORCEMENT REQUESTS** EMS TO EVALUATE

2. All patients as defined above **shall**:

   - Be evaluated per either the Adult or Pediatric Assessment Protocol.
   - Require a PCR\EHR completed per the Documentation of PCR\EHR policy.

3. **Initial ALS procedures**, including, but not limited to, airway control, oxygen administration, intravenous lines, electrical therapies, and medication administration, shall be performed at the location the patient is found. The only exceptions include:

   - Sepsis Alert
   - STEMI Alert
   - Stroke Alert
   - Trauma Alert
   - Situations involving hazardous atmospheres
   - Any real threat to responders
   - IV's may be established en-route on any stable patient that does not require any further treatment. Any deviation from the above must be fully documented.

DESIGNATION OF MEDICAL DIRECTION AND MEDICAL CONSULT

1. The Medical Director hereby designates the Emergency Care Center Staff Physician in Manatee, Sarasota, Pinellas, or Hillsborough Counties as Supervising Physicians for the purpose of providing on-line medical direction.

2. Orders issued by the Supervising Physician shall be followed unless responsibility is specifically delegated to an on-site physician.

3. Informed consent shall be obtained from all competent patients prior to evaluation and treatment.

4. For communication with hospitals not on the primary radio system, personnel may call ECC via radio or phone and request a patch to the emergency room phone so that all communication is recorded.

DETERMINATION OF DEATH

1. This policy establishes criteria for determination of death when encountering patients that would not benefit from medical treatment.

2. An **Obvious DOA** patient is identified if he is described by one of the following categories:

- Patient with obvious lethal injury, **OR**
- Patient with **ALL** the following signs of early death:
  - Unresponsive to all stimuli
  - No pulse
  - No respirations
  - No heart sounds
  - Pupils are fixed and dilated
  - Asystole
  - Documented downtime greater than 15 min. (Care should be taken to rule out hypothermia, acute alcohol intoxication, and/or drug overdose), **OR**
- A patient with one or more of the following signs of death:
  - Eyes in which the cornea is wrinkled, cloudy or milky
  - The body temperature is cool. This will be dependent upon the environment in which the patient is found. If hypothermia is suspected, CPR should be initiated.
  - Rigor mortis
  - Post mortem lividity
  - Putrification

3. Response may be cancelled with approval of a chief officer if ECC through the MPDS process determines that the patient is an obvious DOA.

4. EMS units will cancel prior to arrival if any Fire unit advises that the patient is a DOA, and likewise for Fire units if EMS advises the same.

DOCUMENTATION OF A PATIENT CARE

For every patient contact, licensed providers must document the items below at a minimum using ESO Solutions EHR. Non-licensed providers may use other software and at a minimum contain patient demographics, vital signs, and a narrative, and provide the licensed provider the information they obtain if they arrived first.

1. A clear history of the present illness including chief complaint, time of onset, associated complaints, pertinent positives/negatives, mechanism of injury, etc. The report should be thorough enough to re-create the clinical situation after it has faded from memory.
2. An appropriate physical assessment that may include pupil assessment, breath sounds, motor function, abdominal exam, chest exam, head exam, extremity exam, etc. This information should be included in the appropriate section of the report.
3. At least two complete sets of vital signs for transports, one for refusals (pulse, respirations, and one auscultated blood pressure.) These vital signs should be repeated and documented after every drug administration, prior to patient transfer, and as needed during transport of an ALS patient. Refer to the Documentation of Vital Signs Policy.
4. Nonstandard medical abbreviations should be avoided. Approved list is contained in these protocols.
5. For drug administrations, you must document the dosage of the drug, route of administration, time of administration, and response to drug. This included treatments prior to arrival.
6. A complete listing of treatments performed in chronological order. Any response to these treatments should also be listed. This included treatments prior to arrival.
7. For patients with an extremity injury, neurovascular status must be noted before and after immobilization.
8. For patients with spinal immobilization, document motor function before and after spinal immobilization.
9. For IV administration, the size of IV catheter, placement of IV, number of attempts, type of fluid, and flow rate.
10. All ECG data should be imported into the report.
11. For patients that receive intubation, please note the centimeter mark at teeth, methods to confirm placement, size of ET tube, and number of attempts.
12. Any requested orders, whether approved or denied, should be documented clearly.
13. Narcotic Usage should be documented per the latest department policy.
14. All crew members should review the content of the report for accuracy and sign.
15. Once the call is completed, patient care information may not be modified for any reason. Corrections or additions should be in the form of an addendum.
16. For all patients who receive EMS medications or procedures (beyond KVO IV) the report should be completed prior to leaving the hospital. When possible, all reports should be completed prior to leaving the hospital. Attempt should be made to complete and lock the report within four hours so the report is available to the hospital.

DOCUMENTATION OF PATIENT CARE

DOCUMENTATION OF PATIENT CARE

DOCUMENTATION OF VITAL SIGNS

Vital signs are a key component in the evaluation of any patient. A complete set of vital signs shall be documented for any patient who meets the definition of a patient policy.

1. An initial set of vital signs includes:
    - GCS / AVPU
    - Pulse rate and Pulse Oximetry
    - Temperature if available
    - Systolic **AND** diastolic blood pressure
    - Respiratory rate
    - Lung Sounds
    - Pain / severity (when appropriate)
    - End Tidal CO2 (Advanced airway or respiratory patient if available)

2. When no ALS treatment is provided, palpated blood pressures are acceptable for **REPEAT** vital signs.

3. When any components of vital signs are obtained using the cardiac monitor, the data should be exported electronically to the patient care report. Where values are inconsistent with manually obtained values, they may be edited to reflect manually obtained values.

4. Document situations that preclude the evaluation of a complete set of vital signs.

5. Under normal circumstances, vital signs should be assessed every 10 minutes on priority yellow and priority green patients. Priority red patients should have vital signs assessed every 5 minutes or more frequently if condition dictates.

6. All patients will have the initial blood pressure measured utilizing a manual cuff and stethoscope. All subsequent blood pressures may be taken with the automatic cuff.

7. Any abnormal vital sign should be repeated and monitored closely.

EQUIPMENT FAILURE

1. As soon as an essential equipment failure is recognized, contact ECC, advise of the failure, and have the nearest appropriate resource dispatched which has the equipment you need.

2. Based on the condition of the patient, advise the incoming resource to respond either emergency or non-emergency.

3. Closely monitor and treat the patient to the best of your ability with the remaining functional equipment. **Consider transport and rendezvous with appropriate resource if patient condition and situation dictates it (i.e. Critical, STEMI, Stroke Alert, etc.)**

4. Except in unusual circumstances, the original attending MCEMS provider should continue treatment for the patient until arrival at the hospital, regardless of which unit is actually transporting the patient.

5. All documentation of care should be reported on the transporting units PCR/EHR, regardless of which unit arrived first. For EMS billing, the actual transporting units report is the record that can be billed.

6. Notify your supervisor as soon as reasonably possible without delaying patient care. For minor failures it is appropriate to wait until conclusion of the call.

7. All equipment associated with the failure shall be gathered and secured for inspection by the appropriate agencies supervisor (EMS-District Chief, Fire Department-Battalion Chief, etc). **This equipment shall not be used for any further patient care until examined and repaired by the agency that owns the equipment.** Document the failure on the appropriate agencies form or software.

8. If the failure delayed or interfered with patient care, it should be documented fully on the PCR/EHR.

9. For heart monitor lead failures, defib pads may be used to monitor patients ECG if non-cardiac related.

ESTABLISHING COMMUNICATIONS WITH SUPERVISING PHYSICIAN

1. Telemetry communications shall be established for priority red patients.

2. Telemetry communications shall be established for all priority yellow and priority green patients with patient age, brief description of the complaint, treatments, and priority given. Should the Paramedic/EMT require direction or orders they may expand more.

3. Telemetry communications may be established immediately in any circumstance if, in the paramedic's discretion, patient care will benefit from early contact.

4. Upon the confirmation of a Trauma Alert, the Paramedic shall establish communication with the receiving Trauma Center and give a brief summary including GCS, trauma criteria, airway status, and ETA to the facility.

6. Immediately life threatening refusals against medical advice:

- Try to encourage the patient to seek treatment and transport.
- Verify patient meets the criteria to refuse.
- MCEMS Charge Paramedic shall establish telemetry communication with the supervising physician of the closest receiving facility to request additional support in trying to encourage the patient to be transported.
- If patient still refuses, obtain a refusal signature and document all of the above in the PCR/EHR.
- Use other parties on scene for witness of the refusal (family, LE, etc.)

ESTABLISHING COMMUNICATION WITH SUPERVISING PHYSICIAN

HONORING DO NOT RESUSCITATE ORDERS

This policy provides the steps necessary in honoring **DO NOT RESUSCITATE ORDERS.** A baseline understanding of the different types of advanced directives is important. The extent to which supportive care must be administered shall be determined based on the following criteria:

Definitions:

- **DNRO (Do Not Resuscitate Order)** refers to HRS form 1896, Florida Pre-hospital Do Not Resuscitate Order. This is an order directing Emergency Medical Services personnel to withhold cardiopulmonary resuscitation and related procedures in the event of cardiac or respiratory arrest.

- **Living Wills** are declarations by persons to explain the extent to which life saving measures shall be delivered given a terminal illness. Florida Statutes do not recognize these as valid documents for withholding pre-hospital resuscitation, and shall not be interpreted or honored without physician order.

1. Evaluate the patient's condition to determine if an acute situation exists. If acute, treat the nature of the illness.

2. Obtain a copy of the Do Not Resuscitate Order, HRS form 1896 or DNRO Bracelet with the appropriate written data. An additional Advanced Directive or Living Will may be required to accompany patient transfer information.

When **DNRO** obtained:

- Cardio-respiratory arrest - do not proceed with resuscitation efforts.
- Critical patient-provide comfort measures* and transport to appropriate hospital.

*Comfort measures include supplemental oxygen and medication. (Intubation and CPR are not considered comfort measures and therefore should not be performed.) If a patient needs cardioversion and has a pulse, consult with patient or healthcare surrogate first and follow their wishes, if not able contact hospital via telemetry.

3. If at any time a HRS DNRO form or bracelet exists, but is not available, proceed with care following appropriate protocol.

4. The paramedic shall consult a Supervising Physician if he/she is uncertain as to the appropriateness of the care for the patient.

5. At any time the patient, healthcare surrogate or proxy (whose signature or name is on the DNRO per Florida Rule) may revoke the provisions of the DNRO. If in doubt of family's permission to override the DNRO consult medical control.

6. If patient is not transported, and has a valid DNRO, document in the appropriate section of the PCR/EHR.

7. Medical consult is not required to terminate efforts if care started prior to DNRO presentation.

HONORING DO NOT RESUSCITATE ORDERS

HONORING DO NOT RESUSCITATE ORDERS

HONORING DO NOT RESUSCITATE ORDERS

PATIENT REQUESTED HOSPITAL BYPASS

Hospital Bypass is defined as a patient transport to a hospital other than the closest appropriate receiving facility that provides the required medical or trauma services as described in the Protocol for Transport Destination Criteria.

1. The Medical Director recommends transport of any patient to the closest appropriate facility. However, we recognize a patient's right to choose their own transport destination. If patient is stable, you may transport to requested hospital in Manatee or Sarasota County. Additionally, patients may be transported to South Bay Hospital in Hillsborough County.

2. If the patient is unstable, contact the **Requested Hospital** by radio if able, otherwise by phone through ECC, and verify the requested services are available and give details as to why the patient should be transported to the closest facility. When patient requests transport to a distant facility you must verify that the requested facility is not on diversion and services required by the patient are available. The requested hospital must approve the patient's bypass request.

3. If the bypass is approved and the condition of the patient deteriorates, re-contact the requested hospital by radio/phone and determine if the Supervising Physician wishes to change transport destination to a closer hospital.

4. If outside the range of the 800 MHz radio, attempt to contact the closest hospital. If unable to make contact, utilize the Communications Plan book to obtain a telephone number.

5. Fully document all deviations of standard procedures and conversations with receiving facilities.

PEARL

Pediatric patients may be better served at a pediatric facility. If a pediatric patient may benefit from a pediatric specialized hospital it is critical to follow the above policy. This may require ECC contacting the facility by telephone.

PEARL

INTERFACILITY TRANSPORTS

The purpose of this guideline is to establish the scope of responsibility for paramedics and Nurses participating in inter-facility transports.

1. The call shall be dispatched through ECC as any other call. This process must be approved by an duty EMS District Chief.

2. The response status to the facility will depend upon the urgency of the call.

3. Patient information and report shall be obtained from the attending staff.

4. If the patient requires infusion pumps, ventilators or any other equipment during transport that the EMS personnel have not been trained to use, the EMS paramedic shall request a member of the attending staff to accompany the patient during transport.

5. If the facility cannot send a qualified person to accompany the patient, the EMS paramedic shall contact their supervisor for direction.

6. The accompanying staff from the facility shall be responsible for monitoring and managing the equipment sent with the patient in addition to assisting the EMS personnel with the care of the patient.

7. The Advanced or Charge Paramedic will attend the patient.

8. All accompanying personnel and equipment shall be returned to the original facility in a timely manner.

9. A complete PCR is required for each patient. Documentation shall include type of call (Interfacility unscheduled.)

INTERFACILITY TRANSPORTS
INTERFACILITY TRANSPORTS
INTERFACILITY TRANSPORTS

MANDATORY REPORTING OF NEGLECT AND ABUSE

MANDATORY REPORTING OF NEGLECT AND ABUSE

Florida Statute 415 requires the reporting of detected abuse, neglect, or exploitation of children, elderly persons, or disabled adults. The Florida Department of Health has determined that EMTs and Paramedics are included in the category of health professionals that are required to submit a written follow-up report after an initial contact on the phone. Any person making a report pursuant to this policy is immune from liability that may be incurred or imposed.

Definitions:

- **ABUSE** defines the infliction of physical or psychological injury to a child, elderly person, or disabled adult so as to adversely affect such person's physical or psychological condition; **OR** the failure of a care-giver to take reasonable measures to prevent the recurrence of physical or psychological injury.
- **EXPLOITATION** includes, but is not limited to, improper or illegal use or management of a person, funds, assets, or property; **OR** the use of power of attorney or guardianship for one's own profit or advantage.
- **NEGLECT** defines the failure or omission on the part of the care-giver or person to provide the care and services necessary to maintain physical and mental health including, but not limited to, food, clothing, medicine, shelter, supervision, and medical services, that a prudent person would deem essential for the well-being of that person.

Policy:

- When an incident occurs involving a child, elderly person, or disabled adult with suspicious circumstances and a strong potential for death or disability that may be the result of abuse or neglect, request ECC to have law enforcement respond.
- When transporting a patient and suspicion of abuse, neglect, or exploitation is involved according to the above definitions, emergency department personnel must be alerted to your suspicions. Additionally, you must notify your supervisor of the situation.
- Regardless of transport, the Paramedic will make an initial report **as soon as possible** through the following toll free number: **1-800-962-2873** (operational 24 hours a day).
- PCR narrative should document case number given during report to abuse line.

NON-TRANSPORT OF PATIENTS

NON-TRANSPORT OF PATIENTS

1. Patients that have the capacity to understand their condition maintain the right to refuse care and/or transport.

- Patients **ABLE** to refuse care:

  - Must have the capacity to understand – defined by the ability to understand the nature and consequences of their actions by refusing medical care and/or transportation **AND**

    Must be:
    - Eighteen (18) years of age or older, or
    - An emancipated minor as defined by the State of Florida
    - A married minor, or
    - A legal representative for the patient (parent or guardian) (may take refusal by phone with witness and person able to identify patient demographics)

- Patients **NOT ABLE** to refuse care:

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

    - Altered level of consciousness (i.e. head injury or under the influence of alcohol and/or drugs.)
    - Suicide (attempt or verbal threat.)
    - Severely altered vital signs
    - Mental retardation and/or deficiency
    - Not acting as a “reasonable person would do, given the same circumstances.”
    - Under eighteen (18) years of age (except those outlined in above section.)

Refusals at educational facilities (elementary-high school) should be handled in such a manner to involve the patient’s guardians as soon as possible. If a guardian can not be reached school staff may have the right to determine treatment and transport (paper work depending.) If any question involve Law Enforcement and District Chief.

2. All patients refusing service will be:

- Informed of the availability of service and offered treatment and transport in a non-confrontational, polite manner
- Advised to call 911 for emergency service if needed
- Advised that they accept full responsibility for their actions

Continued:

3. For immediate life threatening refusals, follow the policy "Establishing Communication with Supervising Physician".

4. Diabetic patients treated for chronic onset hypoglycemia do not require a high risk refusal as long as they meet the criteria for refusing transport.

5. All responses, with parties meeting criteria for "Definition of a Patient", shall have an ePCR completed.

6. Documentation:

- Non-transport refusal ePCR's shall be authored in accordance with the level of care the patient would have received had they been transported. For ALS patients, the Charge Paramedic shall author the ePCR. For BLS patients, an EMT, Paramedic, or Charge Paramedic may author the ePCR. The Charge Paramedic shall review refusals prior to signing the ePCR.

- In the report narrative, describe the patient encounter, advice given, that the patient is alert and oriented to person, place, and time, and that the patient understands the recommendations given.

- Complete the "Patient Refusal of Care" in the ePCR.

- Read and discuss the release form. The patient and/or gaurdian must sign the release form along with a witness. It is preferred that the witness be non-EMS personnel.

7. At no time will responders discuss the cost of transport, patients insurance status (other than to gather for billing purposes), hospital billing or insurance practices, status of system/ unit availability, or any other non-clinical subject in an attempt to influence a patent's decision to accept or refuse treatment.

PATIENT WITHOUT A PROTOCOL

Anyone requesting EMS service will receive ALS evaluation, care, and an offer of transportation in a systematic, orderly fashion regardless of the patient's problem or condition.

Procedure:

1. Treatment and medical direction for all patient encounters, which can be triaged into an EMS patient care protocol, is to be initiated by protocol.

2. When confronted with an emergency or situation that does not fit into an existing EMS patient care protocol, the **Universal Patient Care Protocol** should be used to treat the patient and a **Supervising Physician** should be contacted for further instructions if needed.

PATIENT WITHOUT A PROTOCOL
PATIENT WITHOUT A PROTOCOL
PATIENT WITHOUT A PROTOCOL

PHYSICIAN ON SCENE

PRIMARY PHYSICIAN / PHYSICIAN ON SCENE

A Paramedic is permitted to take orders by telephone or other means of communications from the patient's primary physician under any of the following conditions:

- The physician is known to paramedic by voice.
- The physician identifies self and repeats said orders to at least two members of the crew.
- Orders are presented in signed written format.

The supervising physician at receiving facility must be notified and this notification documented on the patient care report.

NON - PRIMARY PHYSICIAN

This guideline pertains only to those situations in which a non-primary physician is physically present on scene of a medical or trauma emergency. In the event that the physician on scene wishes to direct the care of the patient(s) and, therefore, assumes the responsibility for the patient(s), the physician on scene must be informed of and agree to the following conditions prior to assuming care of the patient(s):

- The physician must show proper identification and a current Florida physician's license.
- The physician must agree to sign a written statement attesting to physician's assumption of responsibility for patient care.
- The physician must remain with patient(s) on scene and during transport to the receiving hospital. Patient care may be transferred at the receiving hospital, with report by physician, to medical staff.
- The physician on scene must be informed that Supervising Physician at receiving hospital will be contacted and, will make the final decision, regarding assumption of patient care by the physician on scene.

If the above conditions are met, the physician on scene may assume the responsibility for patient care.

The following form is provided to document the physician assuming care along with the responsibilities of both the Paramedic and Physician.

PHYSICIAN ON SCENE FORM

PARAMEDIC'S RESPONSIBILITY

- Remain tactful, calm, and courteous.
- Follow the procedure conditions.
- Offer assistance to the physician on scene. The paramedic may perform any procedures that are within the scope of practices of that individual as defined by Manatee County Protocols.
- Maintain control of drugs and equipment. Inform attending physician of equipment available.
- Maintain active communication with the Supervising Physician at the receiving hospital.
- Complete the necessary PCR and Consent Form. Obtain appropriate signatures.

PHYSICIAN'S RESPONSIBILITY

PHYSICIANS, PLEASE READ CAREFULLY. IF YOU DESIRE TO TAKE CHARGE OF THE ACCIDENT/ILLNESS SCENE, YOU MUST:

1. Show your current Florida Medical License, unless known, to Emergency Medical personnel on the scene.

2. Agree to take full responsibility for care and treatment of the patient(s) involved in this incident.

3. Accompany the patient(s) in the ambulance to the medical facility most appropriate to receive the patient(s).

PHYSICIAN'S SIGNATURE:_____

PROFESSIONAL LICENSE:_____

DATE: _____

WITNESS: _____

DATE: _____

The Paramedic in charge of the scene will be notifying the Receiving Facility that you are on scene and accepting responsibility for the medical treatment rendered. The supervising physician at the Receiving Facility may relinquish control upon proper notification.

PHYSICIAN ON SCENE FORM
PHYSICIAN ON SCENE FORM
PHYSICIAN ON SCENE FORM

POLICY
CONFIRMATION OF ORDERS

CONFIRMING / QUESTIONING MEDICAL TELEMETRY ORDERS

The purpose of this policy is to provide the field paramedic with a systematic procedure to confirm appropriateness of unusual orders received via telemetry. The objective is to eliminate any error in carrying out orders.

Communications shall be concise and to the point. A questionable order shall be repeated and the specific reason for questioning the order explained (see examples). If the questionable order is repeated by the hospital and supervising physician is not on the telemetry radio but rather his designee, then request supervising physician contact and repeat the order and the specific reason for request of confirmation. If, while the supervising physician is in direct contact with the field paramedic, the order is repeated, and the supervising physician is aware of your question and confirms the order, the field paramedic shall comply with the lawful order of the supervising physician.

In the event the supervising physician is unavailable to make direct contact with the field paramedic and the order is thought to be detrimental to the well being of the patient, you may make contact with another facility.

Upon completion of the call, a copy of the report, telemetry recording, an informational report referencing the call shall be submitted to the department's respective quality assurance officer through their quality improvement process.

EXAMPLES:

"Manatee, you have ordered 2mg Morphine IV, did you understand Mr. Doe has a known allergy to Morphine. Do you still request this order despite this allergy?"

"Blake, you have ordered 2.5mg Epinephrine SC. This is ten times our normal dose of 0.25mg. Are you still requesting this order?"

"Manatee, Alpha One I am requesting direct supervising physician contact with this unit."

"Doctor, I shall comply with the stated order after restating my concerns. Please document these concerns."

NOTE: In all situations described, tactful, concise communications shall be used.

CONFIRMATION OF ORDERS
CONFIRMATION OF ORDERS

POLICY
SAFE TRANSPORT OF PATIENTS

SAFE TRANSPORT OF PATIENTS

Patient Security:

- Any patient being transported via the ambulance stretcher by Manatee County Emergency Medical Service shall have the two shoulder straps and three body straps in place and snug.
- Straps should be placed according to manufacture's guidelines.
- If the patient's condition prohibits the use of the stretcher straps in the above described manner it will be documented on the PCR the reason why the straps could not be used.
- While a patient is in the care of MCEMS and on the stretcher, EMS personnel will be in control of the stretcher and auto-loader if equipped. This will include all raising, lowering and lifting of the stretcher.
- If lifting assistance is required, EMS personnel will be in control of either the side control handle, main control handle, or the lower control handle. All raising and lowering will be at the command of the EMS personnel controlling the control handle.

Without special considerations children are at risk of injury when transported by EMS. EMS must provide appropriate stabilization and protection to pediatric patients during EMS transport. Specialized pediatric equipment shall be utilized. At no time should a child or infant be transported on the lap of another occupant.

Procedure:

- Drive cautiously at safe speeds observing traffic laws.
- Tightly secure all monitoring devices and other equipment.
- Ensure EMS personnel, the patient, and any other occupants use available restraint systems.
- Transport adults and children who are not patients, properly restrained, in an alternate passenger vehicle, whenever possible.
- Do not allow parents, caregivers, or other passengers to be unrestrained during transport.
- Do not have the child/infant held in the parent's, caregiver's, or EMS personnel's arms or lap during transport.
- For patients with respiratory distress or other medical conditions that can be worsened by stress, make every attempt to optimize safety while comforting the child.
- Do not transport the pediatric patient who is assessed as meeting trauma alert criteria in a child seat that was involved in a collision that produced the child's injury.

SAFE TRANSPORT OF PATIENTS

SAFE TRANSPORT OF PATIENTS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

INDEX - GENERAL

INDEX - GENERAL

INDEX - GENERAL

INDEX - GENERAL

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

UNIVERSAL PATIENT CARE

HISTORY	SIGNS/SYMPTOMS
• SAMPLE	• Meets Definition of a patient • Patient without a protocol

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

SCENE SAFETY

PPE (Consider Airborne or Droplet if indicated)

BRING ALL NECESSARY EQUIPMENT TO PT SIDE

↓

INITIAL ASSESSMENT

ADULT ASSESSMENT PROCEDURE
or
PEDIATRIC ASSESSMENT PROCEDURE
(Pediatric Measuring Tape defines the pediatric patient, except for Trauma Alert, then less than 16 years old)

↓

PULSES PRESENT? —NO→ **MEETS CRITERIA FOR DEATH?**

YES ↓

NO ↓

CARDIAC ARREST PROTOCOL

E	VITAL SIGNS	BLS TRANSPORT PROVIDER MAY ACQUIRE AND TRANSMIT ECG IF EQUIPPED
P	IMMEDIATE 12/15 LEAD IF INDICATED	
E	OXYGEN IF INDICATED	

↓

GO TO APPROPRIATE PROTOCOL

UNIVERSAL PATIENT CARE

UNIVERSAL PATIENT CARE

PEARLS

- Minimum assessment is vital signs, lung sounds, and location of injury or complaint.
- Any patient meeting the "Definition of a Patient" policy must have a report completed.
- Orthostatic vital signs should be performed in situations where volume status is in question.

PEARLS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

AIRWAY CONTROL

HISTORY

- Cardiac or respiratory arrest
- Severe respiratory distress
- Head/Chest Trauma

SIGNS/SYMPTOMS

- Apneic, Respiratory rate < 8 or > 30 per minute
- Patient cannot maintain airway

AIRWAY CONTROL

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

UNIVERSAL PATIENT CARE

E VENTILATE PATIENT AT 8-12 BPM

P MONITOR ECG / CAPNOGRAPHY
IV PROCEDURE

E PREPARE INTUBATION EQUIPMENT
HAVE BOUGIE AND MEDICAL DIRECTOR APPROVED VIDEO LARYNGOSCOPE READY

PATIENT ≤ 15 YEARS OF AGE — YES → CR FACILITATED AIRWAY PEDIATRIC

NO

PATIENT MEETS PARAMETERS FOR DSI — NO → CR FACILITATED AIRWAY ADULT

YES

CR DSI PROCEDURE

E DSI CHECKLIST

VISUALIZATION BY TWO PROVIDERS VIA VIDEO LARYNGOSCOPY

CR Continued Sedation
KETAMINE 2MG/KG IV/IO

CONTACT MEDICAL CONTROL

AIRWAY CONTROL

PEARLS

- Maintain C-Spine immobilization for patients with suspected spinal injury.
- Laryngeal manipulation may be used to assist with difficult intubations.
- **ETT/I-Gel placement shall be verified by the following procedures:**
  1. **Direct visualization of tube through vocal cords (ETT Only).**
  2. **Observe chest rise and fall with each ventilation.**
  3. **Absent epigastric sounds.**
  4. **Auscultate breath sounds, confirm air exchange in both right and left lung fields.**
  5. **Positive Capnography and Capnometry (If Available).**
  6. **If any time placement of the ETT is in doubt, insert Video Laryngoscope and visually confirm.**
  7. **Placement shall be re-verified any time the patient is moved and at patient's final destination.**
  8. **Secure the ETT/i-gel with approved ETT holder/ i-gel securing device or medical tape and a cervical collar.**

PEARLS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

FACILITATED AIRWAY

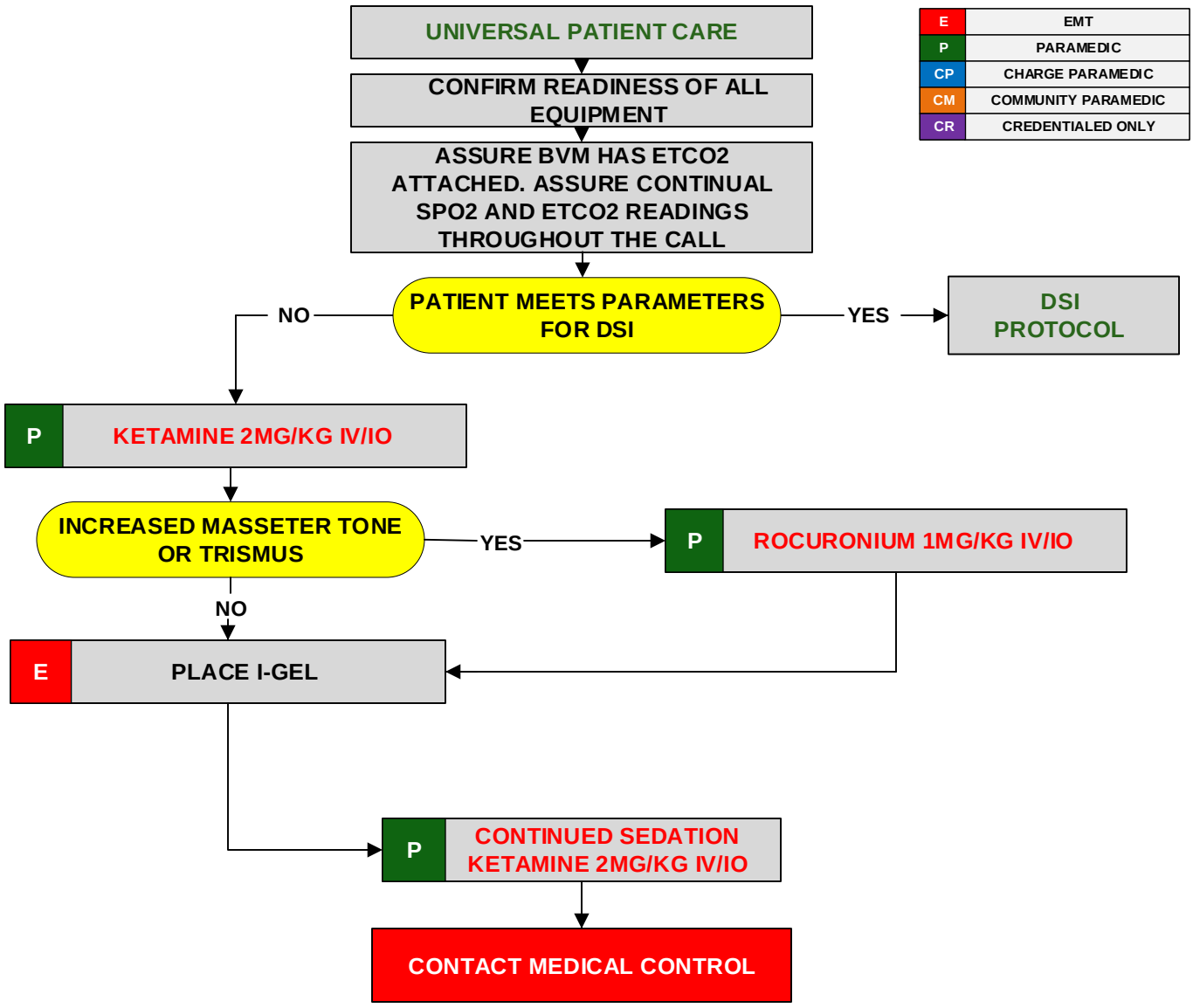
HISTORY

- Failure to protect from aspiration and protect airway
- Patients who can not tolerate DSI procedure
- “Bailout” from DSI procedure
- Failure to ventilate or oxygenate spontaneously

SIGNS/SYMPTOMS

- Low blood pressure
- Inability to maintain adequate oxygen saturation
- Multisystem Trauma
- Trismus
- Unable to maintain and protect airway

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY



FACILITATED AIRWAY

FACILITATED AIRWAY

PEARLS

- This protocol is for patients who can not tolerate the DSI procedure due to hemodynamic instability or inability to properly oxygenate the patient.
- Patient presents with poor perfusion (Multi-system Trauma, Sepsis, MODS, etc.)
- Ketamine should be given slow IV push over 60 seconds.
- Ketamine may be given 4MG/KG IM if the patient is combative.
- Pre-load i-gel with 12fr suction catheter.

PEARLS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

DELAYED SEQUENCE INTUBATION

HISTORY

- Use of DSI checklist is mandatory
- CR This protocol is only for use by credentialed paramedics

SIGNS/SYMPTOMS

- ≥ 16 years of age
- Combative patient with suspected head injury
- Trismus
- Unable to maintain and protect airway

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

DELAYED SEQUENCE INTUBATION

E **UNIVERSAL PATIENT CARE**

CONFIRM READINESS OF ALL EQUIPMENT

ASSURE BVM HAS PEEP AND ETCO2 ATTACHED. ASSURE CONTINUAL SPO2 AND ETCO2 READINGS THROUGHOUT THE CALL

PATIENT MEETS PARAMETERS FOR DSI

YES → CR **DSI PROCEDURE**

CR **DSI PROCEDURE**

E **DSI CHECKLIST**

VISUALIZATION BY TWO PROVIDERS VIA VIDEO LARYNGOSCOPY, ETCO2,WAVEFORM,PRESENT LUNG AND ABSENT EPIGASTRIC SOUNDS

NO → CR **FACILITATED AIRWAY PROTOCOL**

CR **CONTINUED SEDATION KETAMINE 2MG/KG IV/IO**

CONTACT MEDICAL CONTROL

DELAYED SEQUENCE INTUBATION

PEARLS

- In situations where the patient is unconscious with trismus or with intact gag reflex the **DSI** protocol may be utilized.
- Prior to **DSI**, the systolic blood pressure should be a minimum of **100mmHg**.
- Match pre-intubation respiratory rate if it is rapid (medical). Most likely compensation for metabolic acidosis.
- **BVM** with **PEEP** is required for alveolar recruitment when oxygenation alone does not improve SpO2.
- Use of the **DSI Checklist** during the procedure is **mandatory.**
- **Ketamine** may be given **4MG/KG IM** if the patient is combative.

PEARLS

DELAYED SEQUENCE INTUBATION

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

PAIN CONTROL ADULT

HISTORY

- Location and Duration
- Severity – MCEMS Alder Hey or Wong-Baker Scale
- Past medical history
- Medications, Allergies

SIGNS/SYMPTOMS

- Quality (Sharp, dull, etc)
- Radiation
- Reaction to movement / inspiration
- Increase on palpation

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

UNIVERSAL PATIENT CARE

IDENTIFY PAIN SEVERITY AND TYPE, CONSIDER MOI, AND CIRCUMSTANCES

MILD PAIN

PATIENT ABLE TO FUNCTION WITHOUT ASSISTANCE

- E — CONSIDER TYLENOL 1GM PO

MODERATE / SEVERE

- MUSCULOSKELETAL WITHOUT SUSPECTED FRACTURE
- KIDNEY STONES

- P — MONITOR ECG IV PROCEDURE
- P — TORADOL 15MG*
- P — IF NEEDED AFTER 10 MINUTES APPLY CAPNOGRAPHY KETAMINE 10-20MG

MODERATE / SEVERE

PATIENT UNABLE TO FUNCTION WITHOUT ASSISTANCE

- P — MONITOR ECG IV PROCEDURE
- P — APPLY CAPNOGRAPHY KETAMINE 10-20MG
- P — IF NEEDED AFTER 10 MINUTES REPEAT KETAMINE 10-20MG

CONTACT MEDICAL CONTROL

PAIN CONTROL ADULT

PAIN CONTROL ADULT

PEARLS

- If suspected internal bleeding, including intracranial, or if there is a suspected acute abdomen with a need for surgery do not use **TORADOL**.
- **TORADOL** should not be given in pregnancy, patients with NSAID allergy, aspirin-sensitive asthma, peptic ulcer disease, fractures, or patients with renal insufficiency.
- **KETAMINE**- 10 or 20MG dose may be given depending on patient medical history, weight, age, liver disease or paramedic discretion. If patient is age 65 or older, has liver disease, is less than 70kg use 10mg dose.
- **KETAMINE** - Add to 100ml bag/micro drip and open wide. Reassess vitals every **5 minutes.**
  If no 100ml bags available dilute in 30ml syringe and give over 5 minutes.
- **MORPHINE 2MG IV/IO** may be used in place of **KETAMINE if not available**. Repeat every 5 minutes to **max of 10MG**
- * If IV access can not be established can be given **IM**.
- Pain should be assessed and documented using Alder Hey or Wong-Baker scale before and after pain medication is administered.
- For **sickle cell crisis** a **500cc** fluid bolus should be administered along with high flow oxygen.

PEARLS

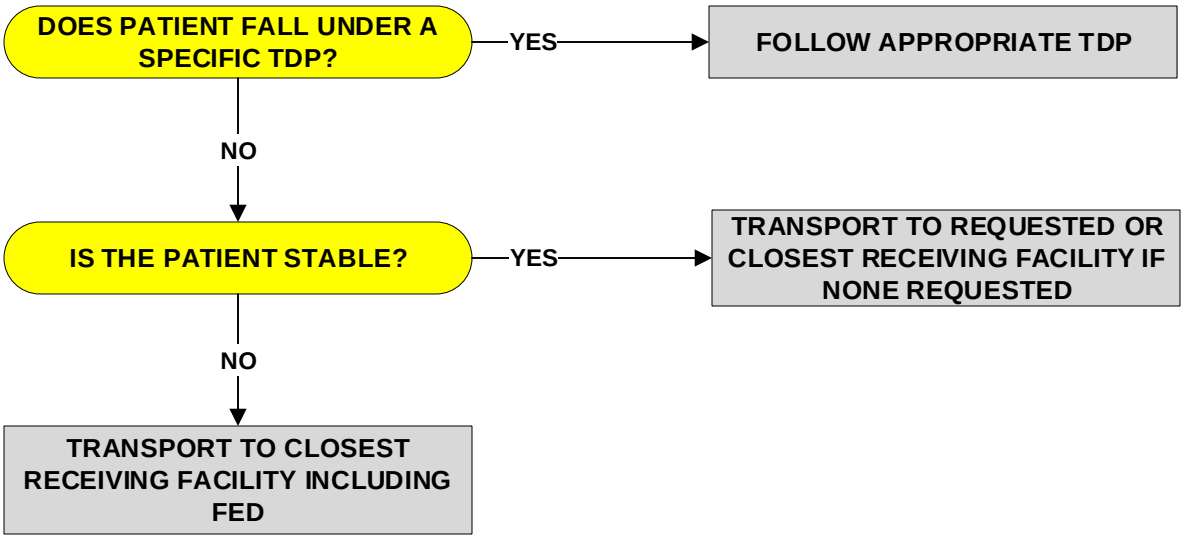
OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

TRANSPORT DESTINATION PLAN – GENERAL ADULT

Under most circumstances, patients shall be transported to a receiving facility that best meets the patient's requirements. There are several criteria to consider when making a destination decision; patient's condition, patient's preference, and status of receiving facilities.

Purpose

- Identify the most appropriate receiving facility based on patient condition
- Stable patients may be transported to the hospital of choice if they provide the needed services.
- Unstable patients should be transported to the closest receiving facility that provides the needed services



PRIMARY LOCAL RECEIVING FACILITIES
BLAKE MEDICAL CENTER
DOCTOR'S HOSPITAL OF SARASOTA
DOCTOR'S HOSPITAL OF SARASOTA (FED)
LAKEWOOD RANCH MEDICAL CENTER
MANATEE MEMORIAL HOSPITAL
SARASOTA MEMORIAL HOSPITAL
SOUTH BAY HOSPITAL

SURROUNDING RECEIVING FACILITIES REQUIRE DISTRICT CHIEF APPROVAL
BAYFRONT MEDICAL CENTER
BRANDON REGIONAL MEDICAL CENTER
DESOTO MEMORIAL HOSPITAL
FLORIDA HOSPITAL WAUCHULA
LAKELAND REGIONAL MEDICAL CENTER
ST. JOSEPH'S HOSPITALS
TAMPA GENERAL HOSPITAL
ANY OTHER HOSPITAL NOT LISTED

PEARLS

- All patients not covered by another TDP are to be transported using this protocol. This plan is in effect 24/7/365

PEARLS

TDP – GENERAL ADULT

TDP – GENERAL ADULT

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

TRANSPORT DESTINATION PLAN - PEDIATRICS

PEDIATRIC PATIENT DEFINITION

TRAUMA – AGE LESS THAN 16 YEARS OLD
MEDICAL – FITS ON THE BROSLOW TAPE
NEONATE – LESS THAN 28 DAYS OLD, OR IF PREMATURE LESS THAN 28 DAYS FROM DUE DATE.

Purpose

- Identify the best hospital destination based on symptom onset time, vital signs, response to treatment, and predicted transport time
- Minimize the time from EMS contact to definitive care

TDP - PEDIATRICS

PEDIATRIC TRAUMA ALERT < 16 YEARS OLD — YES →
- BAYFRONT MEDICAL CENTER
- TAMPA GENERAL HOSPITAL (BURNS)
- ST. JOSEPHS TAMPA

AIR TRANSPORT UNLESS DRIVE TIME IS LESS THAN FLIGHT TIME PLUS SCENE TIME(10 MINUTES)

NO ↓

CARDIAC ARREST — YES → CLOSEST EMERGENCY DEPARTMENT INCLUDING FED

NO ↓

POST CARDIAC ARREST OR IMMEDIATE LIFE THREAT — YES → CLOSEST EMERGENCY DEPARTMENT NOT INCLUDING FED

NO ↓

STABLE PATIENT THAT MAY REQUIRE ADMISSION OR A NEWBORN — YES →
- MANATEE MEMORIAL
- SARASOTA MEMORIAL
- ALL CHILDREN'S HOSPITAL

NO ↓

STABLE PATIENT MINOR ILLNESS/INJURY

YES ↓

REQUESTED OR CLOSEST EMERGENCY DEPARTMENT INCLUDING FED

HELICOPTER TRANSPORT MAY BE CONSIDERED AND APPROVED BY DISTRICT CHIEF IF TRANSPORT IS NEEDED FOR CRITICALLY SICK CHILDREN NOT MEETING TRAUMA ALERT CRITERIA
(POST DROWNING WITH INTACT AIRWAY)

TDP - PEDIATRICS

PEARLS

- All pediatric patients must be transported according using this plan. This plan is in effect 24/7/365
- All pediatric care is based on the appropriate protocol
- Patients with a high probability of being admitted should be transported to a hospital with a pediatric unit.
- Parents requesting All Children's Hospital – The Charge Paramedic must make a judgment call based on their clinical findings and whether or not it would be detrimental to the patients condition to delay care in the hospital.

PEARLS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

TRANSPORT DESTINATION PLAN - STEMI

STEMI (ST Elevation Myocardial Infarction)

- 12 lead ECG criteria of 1mm ST elevation in two or more contiguous leads

Purpose

- Rapidly identify the closest facility to regain coronary reperfusion
- Minimize scene time to 15 minutes or less
- Early activation/notification to the receiving facilty

TDP - STEMI

STEMI IDENTIFIED

↓

EARLY STEMI NOTIFICATION TO CLOSEST PCI CAPABLE HOSPITAL
TRANSMIT 12 LEAD

- Blake Medical Center
- Doctor's Hospital (Not FED)
- Lakewood Ranch Medical Center
- Manatee Memorial Hospital
- Sarasota Memorial Hospital

IF PATIENT REQUEST FARTHER HOSPITAL FOLLOW HOSPITAL BY PASS POLICY

↓

LIMIT SCENE TIME TO 15 MINUTES OR LESS

↓

TRANSPORT TO CLOSEST PCI CAPABLE HOSPITAL UNLESS BYPASS POLICY FOLLOWED

RADIO TELEMETRY

- Age and gender
- Cardiologist
- History, allergies
- Clinical presentation
- 12 lead findings

CONSIDERATIONS

- Known LBBB
- Presence of LVH
- Profound tachycardia
- Pacemaker activity

TDP - STEMI

PEARLS

- All STEMI patients must be transported according using this plan. This plan is in effect 24/7/365
- All STEMI care is based on the chest pain / STEMI protocol
- Rule out false STEMI's caused by the consideration listed

PEARLS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

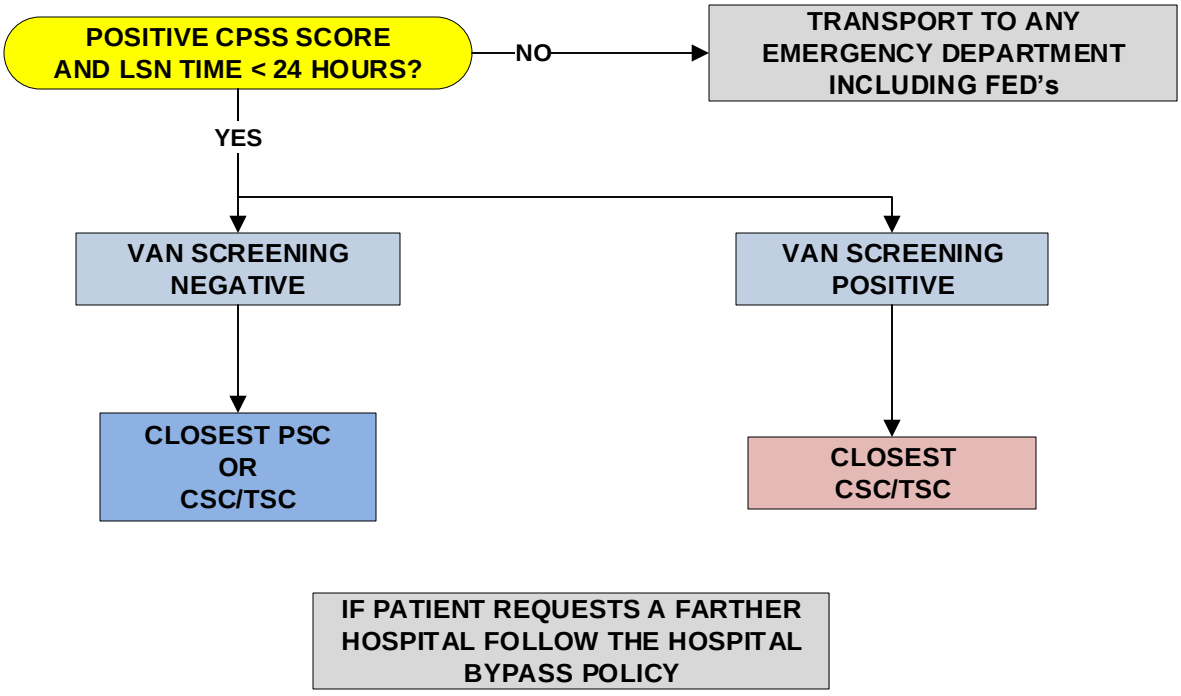
TRANSPORT DESTINATION PLAN - STROKE

Stroke Patient
A patient with symptoms of an acute stroke as identified by a validated stroke scale

Last Seen Normal Time (LSN)
Defined as the last witnessed time the patient was symptom free.

Purpose

- Minimize the time from onset of stroke symptoms to definitive care.
- Quickly diagnose a stroke using a validated stroke screen.
- Rapidly identify the best receiving facility based on the last seen normal time, location of patient, and predicted transport time.



IF PATIENT REQUESTS A FARTHER HOSPITAL FOLLOW THE HOSPITAL BYPASS POLICY

PRIMARY STROKE CENTERS (PSC)	COMPREHENSIVE/ THROMBECTOMY-CAPABLE STROKE CENTERS (CSC/TSC)
DOCTORS HOSPITAL LAKEWOOD RANCH MED CENTER SOUTH BAY HOSPITAL	BLAKE MEDICAL CENTER MANATEE MEMORIAL SARASOTA MEMORIAL BAYFRONT HOSPITAL TAMPA GENERAL

IF TRANSPORT TIME EXCEEDS 30 MINUTES CONSIDER AIR TRANSPORT. IF ETA PLUS 10 MINUTES SCENE TIME IS GREATER THAN GROUND TRANSPORT TIME, THEN GROUND TRANSPORT

PEARLS

- All stroke patients must be transported according using this plan. This plan is in effect 24/7/365
- All stroke care is based on the stroke protocol
- If the patient has a positive Cincinnati Prehospital Stroke Scale, a VAN screening must be completed and documented
- Stroke patients with a positive VAN screening and onset time within 24 hours should be transported to a comprehensive/thrombectomy capable stoke center for definitive treatment
- Primary Stroke Center= PSC
- Comprehensive Stroke Center =CSC
- Thrombectomy Capable Stroke Center=TSC

PEARLS

TDP - STROKE

TDP - STROKE

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

TRANSPORT DESTINATION PLAN – TRAUMA AND BURNS

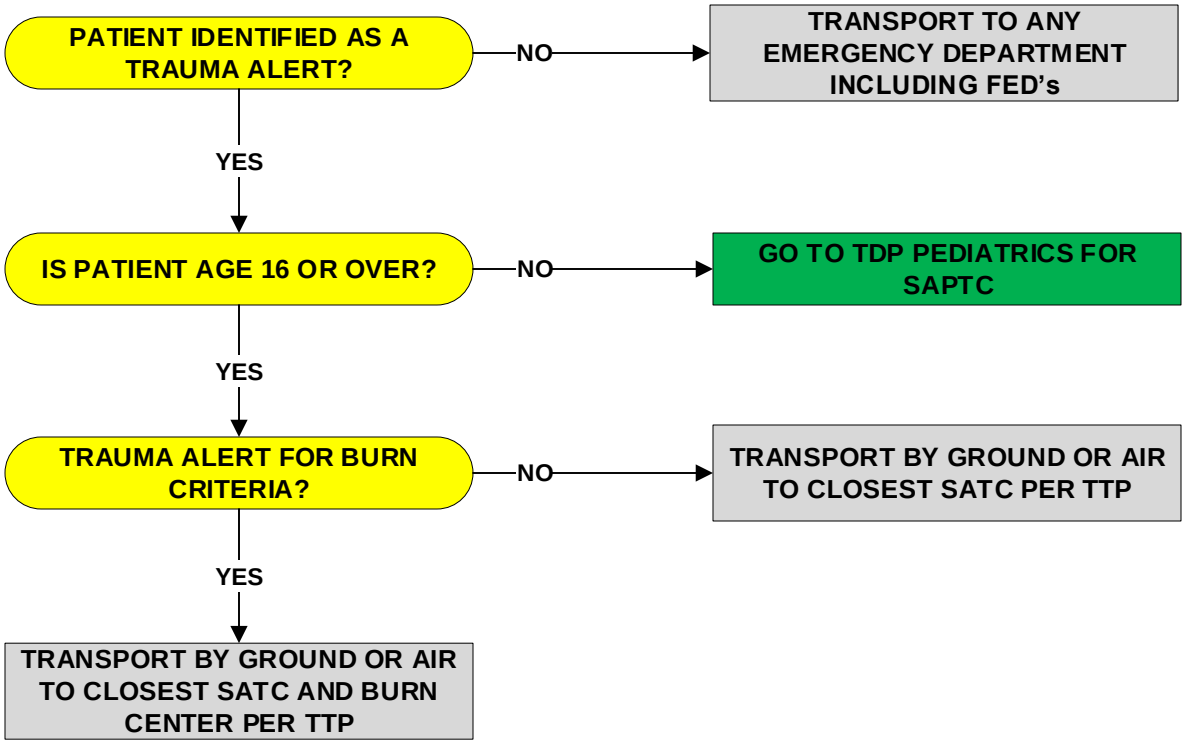
Trauma Alert Patient
A patient with injuries or findings as identified in the Trauma Transport Protocols

Trauma Alert Burn Patient
As above, but involving burns that require a trauma and burn center

Purpose

- Minimize the time from injury to treatment at an appropriate facility.
- Minimize scene time, goal is 15 minutes or less.
- Rapidly identify the best receiving facility based on the Trauma Transport Protocols

TDP – TRAUMA AND BURNS



STATE APPROVED TRAUMA CENTERS (SATC)

BAYFRONT MEDICAL CENTER
BLAKE MEDICAL CENTER
SARASOTA MEMORIAL
LAKELAND REGIONAL MEDICAL CENTER
ST JOSEPH'S TAMPA
TAMPA GENERAL HOSPITAL

STATE APPROVED TRAUMA AND BURN CENTERS

BLAKE MEDICAL CENTER
TAMPA GENERAL

STATE APPROVED PEDIATRIC TRAUMA CENTERS (SAPTC)

BAYFRONT MEDICAL CENTER (ACH)
ST JOSEPH'S TAMPA
TAMPA GENERAL (BURNS)

TDP – TRAUMA AND BURNS

PEARLS

- All trauma patients must be transported according using this plan and the Trauma Transport Protocols. This plan is in effect 24/7/365
- All trauma care is based on the TTP and trauma related protocols
- Approved Manatee County Trauma Transport Protocols

PEARLS

TDP – TRAUMA AND BURNS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

TRANSPORT DESTINATION PLAN – OBSTETRIC

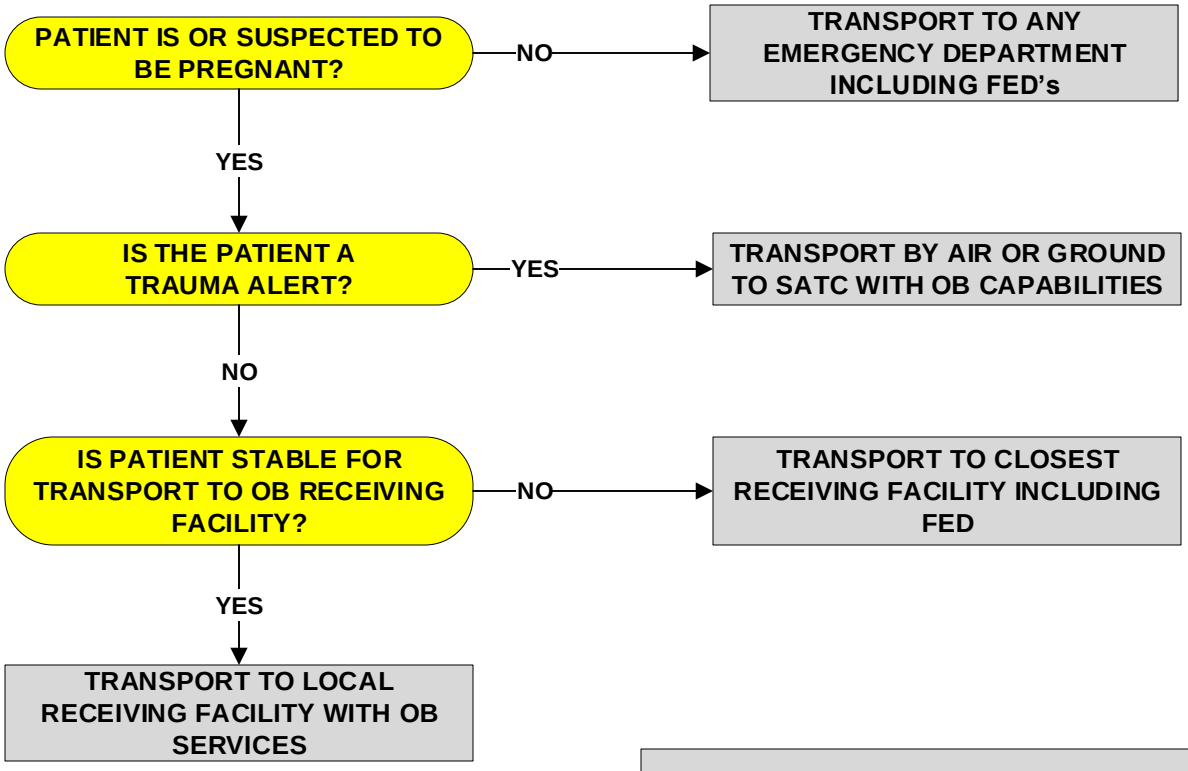
Obstetric Patient
A patient who is known or suspected to be pregnant and/or in labor

Trauma Alert Obstetric Patient
As above, but involving injuries or burns that require a trauma and burn center

Purpose

- Rapidly identify the most appropriate receiving facility based on condition and/or the Trauma Transport Protocols

TDP – OBSTETRIC



TDP – OBSTETRIC

STATE APPROVED TRAUMA CENTERS (SATC) THAT ACCEPT OB PATIENTS

BAYFRONT MEDICAL CENTER
BLAKE MEDICAL CENTER
SARASOTA MEMORIAL
LAKELAND REGIONAL MEDICAL CENTER
ST JOSEPH'S TAMPA
TAMPA GENERAL HOSPITAL

LOCAL RECEIVING FACILITIES WITH OB SERVICES

MANATEE MEMORIAL HOSPITAL
LAKEWOOD RANCH MEDICAL CENTER
SARASOTA MEMORIAL

STATE APPROVED TRAUMA AND BURN CENTERS THAT ACCEPT OB PATIENTS

BLAKE MEDICAL CENTER
TAMPA GENERAL

PEARLS

- All obstetric patients must be transported to a facility with OB services unless life threat exists. This plan is in effect 24/7/365
- All obstetric care is based on the obstetric protocols

PEARLS

TDP – OBSTETRIC

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

TRANSPORT DESTINATION PLAN - FED

Adult and Pediatric patients may be transported to Free Standing Emergency Departments: exceptions are outlined in this plan

Purpose

- Transport patients to the closest appropriate receving facility of their choice, unless otherwise indicated by their clinical condition or other transport destination plan.

TDP - FREE STANDING ED

PATIENT REQUIRES TRANSPORT TO AN EMERGENCY DEPARTMENT AND REQUESTS TRANSPORT TO A FED

NO → **FOLLOW TRANSPORT DESTINATION POLICY OR APPROPRIATE TRANSPORT DESTINATION PLAN**

YES ↓

DOES PATIENT HAVE ANY OF THE FOLLOWING?

- Suspected pregnancy related complaint or active labor
- An open fracture
- A condition covered by another transport destination plan (STEMI, stroke, trauma/ burns, pediatrics) or patient is post cardiac arrest with advanced airway in place

YES → **POLITELY INFORM PATIENT THAT THEIR CONDITION CANNOT BE TREATED PROPERLY AT A FED; STRONGLY SUGGEST THAT THE PATIENT CHOOSE ANOTHER APPROPRIATE FACILITY. FOLLOW HOSPITAL BYPASS POLICY IF PATIENT INSISTS ON TRANSPORT TO FED.**

NO ↓

TRANSPORT THE PATIENT TO THE EMERGENCY DEPARTMENT OF THEIR CHOICE INCLUDING A FREE STANDING EMERGENCY ROOM

TDP - FREE STANDING ED

PEARLS

- An urgent care center is NOT a FED
- A free standing Emergency Department (FED) is a full-service emergency facility that is bound by EMTALA and affialiated with a local hospital system. Patients may be admitted directly to a hospital room from these facilities; the only difference is that the hospital beds are not at the same location as the emergency department

PEARLS

TDP - FREE STANDING ED

INDEX – CARDIAC / RESPIRATORY

POLICIES | PROCEDURES | PHONE NUMBERS

INDEX – CARDIAC / RESPIRATORY

INDEX – CARDIAC / RESPIRATORY

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

CARDIAC ARREST

HISTORY

- Events leading to the arrest
- Estimated downtime
- Past medical history, Medications
- Existence of terminal illness, DNR or Living Will
- Signs of lividity, rigor mortis

SIGNS/SYMPTOMS

- Unresponsive
- Apneic
- Pulseless

CARDIAC ARREST

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

UNIVERSAL PATIENT CARE

CRITERIA FOR DEATH MET?

YES → WITHHOLD CPR

NO

E TEAM FOCUSED CPR

ALS AVAILABLE?

NO

SUSPECTED CARDIAC AND WITNESSED ARREST? BYSTANDER OR PROVIDER

YES

NO

E AUTOMATED DEFIBRILLATION PROCEDURE

E VENTILATE AT 30:2 OPA AND/OR BILAT NPA'S

INTERRUPT COMPRESSIONS ONLY AS PER AED PROCEDURE.

E CONSIDER I-GEL AFTER 3 ROUNDS OF CPR COMPLETE (6 MINUTES) AND NO ALS ON SCENE. VENTILATE WITH 1 BREATH EVERY 6 SECONDS GIVE NO MORE THAN 12 BREATHS PER MINUTE

YES

E DEFIB AT 120j or AED Selected

INITIATE CARDIO-CEREBRAL RESUSCITATION PROTOCOL

YES

P ASSESS ECG RHYTHM

SUSPECTED CARDIAC AND WITNESSED ARREST IN VENTRICULAR FIB OR TACH?

NO

GO TO APPROPRIATE PROTOCOL

- V-FIB / PULSELESS V-TACH
- PEA / ASYSTOLE
- PEDIATRIC PULSELESS ARREST

CARDIAC ARREST PATIENTS SHOULD BE TREATED WHERE FOUND FOR 20 MINUTES. EFFORTS TO RESTORE CIRCULATION IS THE PRIMARY GOAL

CARDIAC ARREST

PEARLS

- Success is based on proper planning and execution. Procedures require space and patient access. Make room to work.
- **CPR** should not be interrupted for more than 10 seconds; 15 seconds under extreme circumstances.
- **CPR** may only be discontinued per the Termination of Resuscitation protocol.
- **ADEQUATE** compressions (100 TO 120 CPM) with timely defibrillation are the keys to success.

PEARLS

CARDIAC ARREST

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

CARDIOCEREBRAL RESUSCITATION

HISTORY

- Past medical history / medications
- Events leading to arrest
- Renal Failure / dialysis

SIGNS/SYMPTOMS

- Witnessed arrest by bystander or provider, suspected cardiac. Not to be used in trauma, overdose, etc.
- Ventricular fibrillation or pulseless ventricular tachycardia on ECG

CARDIOCEREBRAL RESUSCISTATION

CARDIAC ARREST PROTOCOL

E	200 CONTINUOUS COMPRESSIONS
E	APPLY OXYGEN NRB 15 LITERS
E	ANALYZE RYTHYM / PULSE CHECK
E	DEFIB AT 150j OR AED SELECTED
E	200 CONTINUOUS COMPRESSIONS
E	ANALYZE RYTHYM / PULSE CHECK
E	DEFIB AT 200j OR AED SELECTED
E	200 CONTINUOUS COMPRESSIONS
E	ANALYZE RYTHYM / PULSE CHECK

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

AT ANY TIME

Return of Spontaneous Circulation

Go to Post Resuscitation Protocol

AT ANY TIME

Rhythm Changes to nonshockable rhythm

Go to Appropriate Protocol

P	DEFIBRILLATE 200 JOULES*	P
P	ESTABLISH IV/IO**	P
P	EPINEPHRINE 1MG**	P
P	DEFIBRILLATE 200 JOULES*	P
P	AMIODARONE 300MG	P
P	INTUBATION PROCEDURE	P
P	DEFIBRILLATE 200 JOULES*	P
P	EPINEPHRINE 1MG	P
P	CONSIDER SODIUM BICARB 1MEQ/KG	P
P	DEFIBRILLATE 200 JOULES*	P
P	AMIODARONE 150MG	P
P	INTUBATION PROCEDURE	P

FOR TORSADES DE POINTES ADMINISTER MAG SULFATE 2GM IV/IO

**IV AND DRUG THERAPY CAN BE STARTED DURRING CCR IF AVAILABLE MANPOWER ALLOWS

FOLLOW V-FIB PULSELESS V-TAC PROTOCOL AFTER SECOND AMIODARONE ADMINISTRATION

CARDIOCEREBRAL RESUSCISTATION

PEARLS

- *Immediately resume 2 minutes of CPR beginning with compressions. If a pulse is detected during CPR that is not directly associated with compressions, check rhythm and follow Post Cardiac Event protocol.
- If no IV, drugs that can be given down ETT should have dose doubled and flushed with 5cc saline. IV/IO is the preferred route.
- Treatment priorities are: uninterrupted compressions, defibrillation, then IV access and airway control.
- **Torsades:** Administer **Magnesium Sulfate 2 Gm IVP** (not slow). If patient converts, follow with maintenance drip **1 GM in 250cc D5W @ 1 GM/HR** (pre-programmed in pump).

PEARLS

CARDIOCEREBRAL RESUSCISTATION

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

V-FIB OR PULSELESS VENTRICULAR TACH

HISTORY

- Events leading to the arrest
- Estimated downtime
- Past medical history, Medications
- Existence of terminal illness, DNR or Living Will

SIGNS/SYMPTOMS

- Unresponsive
- Ventricular fibrillation or pulseless ventricular tachycardia on ECG

V-FIB OR PULSESS VENTRICULAR TACH

BEGIN 2 MINUTES OF CPR IF ARREST NOT WITNESSED

***2 MINUTES OF HIGH QUALITY CPR SHOULD BE INITIATED IMMEDIATELY AFTER EACH DEFIBRILLATION**

CARDIAC ARREST PROTOCOL

P	DEFIBRILLATE 120 JOULES*
P	ESTABLISH VENOUS ACCESS IV/IO
P	EPINEPHRINE 1MG IVP
P	DEFIBRILLATE 150 JOULES*
P	AMIODARONE 300MG IVP
P	DEFIBRILLATE 200 JOULES*
P	INTUBATE and OXYGENATE
P	EPINEPHRINE 1MG IVP
P	DEFIBRILLATE 200 JOULES*
P	AMIODARONE 150MG IVP
P	CONSIDER SODIUM BICARB 1MEQ/KG
P	DEFIBRILLATE 200 JOULES*
P	EPINEPHRINE 1MG IVP
P	DEFIBRILLATE 200 JOULES*
P	LIDOCAINE 1.5 MG/KG IVP BOLUS
P	DEFIBRILLATE 200 JOULES*
P	EPINEPHRINE 1MG IVP
P	DEFIBRILLATE 200 JOULES*
P	REPEAT LIDOCAINE 1.5 MG/KG IVP
P	DEFIBRILLATE 200 JOULES*

CONTACT MEDICAL CONTROL

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

FOR TORSADES DE POINTES ADMINISTER MAG SULFATE 2GM IV/IO

AT ANY TIME

Return of Spontaneous Circulation

Go to Post Resuscitation Protocol

AT ANY TIME

Rhythm Changes to nonshockable rhythm

Go to Appropriate Protocol

V-FIB OR PULSESS VENTRICULAR TACH

PEARLS

- **SODIUM BICARB** may be repeated every 10 minutes at 0.5 mEq/kg.
- Immediately resume 2 minutes of CPR beginning with compressions.
- If no IV, drugs that can be given down ETT should have dose doubled and flushed with 5cc saline. IV/IO is preferred
- Reassess and document endotracheal tube placement and ET C02 frequently, after every move, and at arrival to ED.
- Treatment priorities are: uninterrupted compressions, defibrillation, then IV access and airway control.
- **Torsades:** Administer **Magnesium Sulfate 2 Gm IVP**. Maintenance drip 1 GM in 250cc D5W @ 1 GM/HR (PUMP)

PEARLS

V-FIB OR PULSESS VENTRICULAR TACH

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

PEA / ASYTOLE

HISTORY

- Events leading to the arrest
- Estimated downtime
- Past medical history, Medications
- Existence of terminal illness, DNR or Living Will
- Suspected overdose or hypothermia

SIGNS/SYMPTOMS

- Unresponsive
- No shockable rythym on ECG

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

CARDIAC ARREST PROTOCOL

P **ESTABLISH VENOUS ACCESS IV/IO**

TREAT CORRECTABLE CAUSES

HYPOXIA
TENSION PNUEMOTHORAX

- E **ASSESS LUNG SOUNDS***
  ADEQUATE VENTILATION*
- P **INTUBATION PROCEDURE***
  CHEST DECOMPRESSION*

HYPOVOLEMIA
HYPOGLYCEMIA
ACIDOSIS

- P **500ml FLUID BOLUS***
- P **D10 or D50 25GM***
- P **SODIUM BICARB 1MEQ/KG***

TOXINS
HYPOTHERMIA

- E **NARCAN 2MG***
- E **WARM PATIENT***

P **EPINEPHRINE 1MG IV/IO**
REPEAT EVERY 3-5 MINS

P **FOR SUSTAINED PEA**
CONSIDER DOPAMINE
5-20MCG/KG/MIN

CONTACT MEDICAL CONTROL

***CHECK PULSES AFTER EVERY INTERVENTION**

AT ANY TIME

Return of Spontaneous Circulation

Go to Post Resuscitation Protocol

PEA / ASYSTOLE

PEA / ASYSTOLE

PEARLS

- Good ventilation, oxygenation, and treatment of causes are key factors in improving the survival of these patients.
- For suspected overdose may repeat **Narcan 2mg IV/IO every 2 minutes to maximum of 10MG.**
- May repeat **Sodium Bicarb every 10 minutes at 0.5 meq/kg.**
- **DOPAMINE Drip:** Add 400mg Dopamine to 250 ml D5W. Titrate to a B/P of 90 systolic. Initial drip rate should start at 5mcg/kg/min.

PEARLS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

POST CARDIAC EVENT

HISTORY

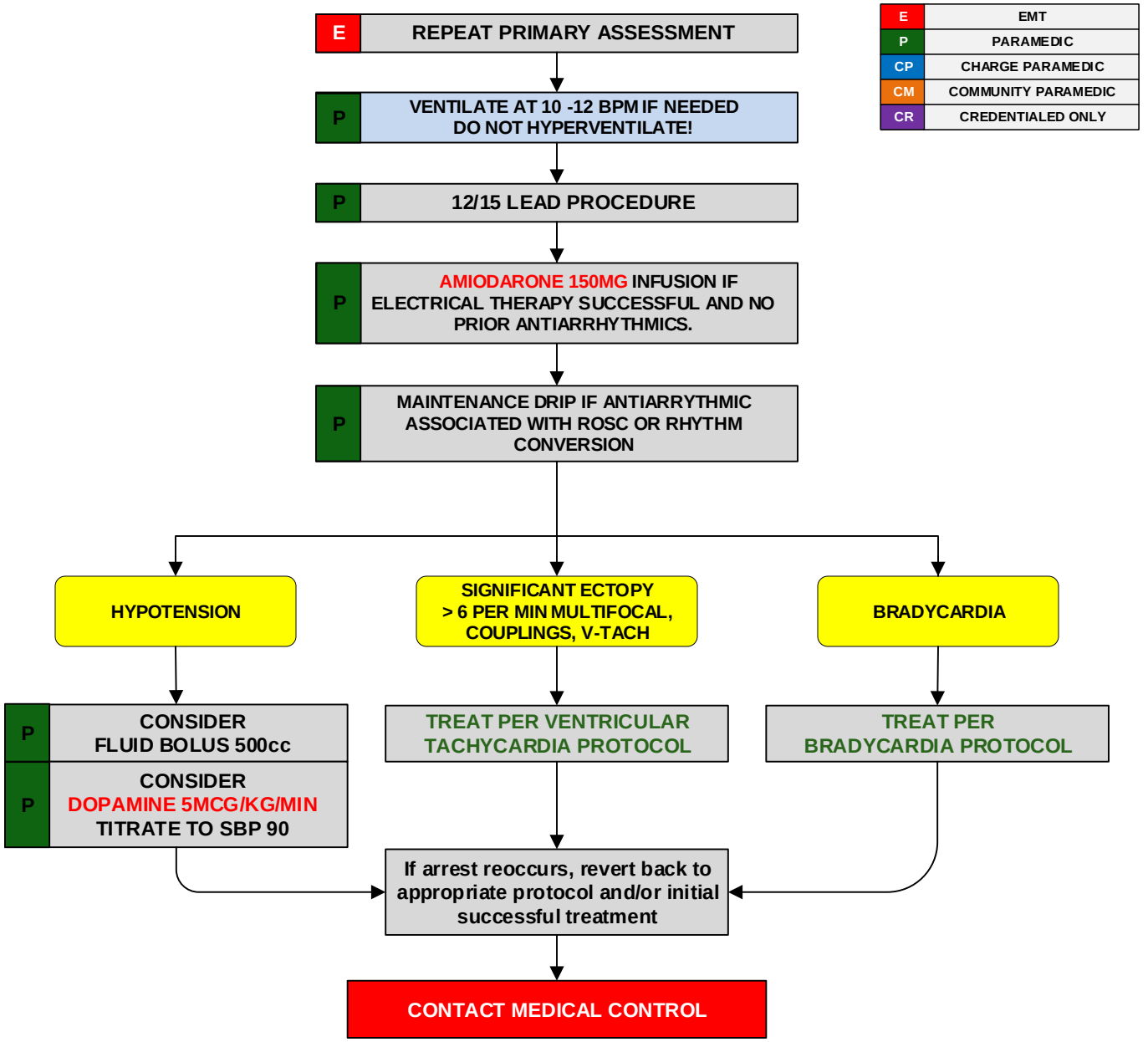
- Cardiac Arrest
- Respiratory Arrest
- Tachyarrhythmia

SIGNS/SYMPTOMS

- Return of Spontaneous Circulation (ROSC)
- Successful Cardioversion

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

POST CARDIAC EVENT



POST CARDIAC EVENT

PEARLS

- The goals of post-resuscitation care are to preserve neurologic function, prevent secondary organ injury, diagnose and treat the cause of illness, and enable the patient to arrive at the receiving facility in an optimal physiologic state.
- Airway/oxygenation and a rapid ECG are the priorities.

PEARLS

POST CARDIAC EVENT

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

TEAM FOCUSED CPR

HISTORY	SIGNS/SYMPTOMS
• Cardiac Arrest	• Workable cardiac arrest • Imminent cardiac arrest

TEAM FOCUSED CPR

FIRST ARRIVING BLS/ALS UNIT

DESIGNATE POSITIONS

1- COMPRESSOR ONE

- BEGINS 2 MINUTES OF COMPRESSIONS
- ROTATES WITH COMPRESSOR 2
- IF NO LEADER VENTILATES PATIENT DURING OFF-CYCLE IF NOT CARDIOCEREBRAL RESUSCITATION (CCR)

2- COMPRESSOR TWO

- APPLIES AED OR CARDIAC MONITOR
- APPLIES NRB MASK IF CCR
- ROTATES WITH COMPRESSOR 1
- IF NO LEADER VENTILATES PATIENT DURING OFF-CYCLE IF NOT CCR

3- CODE LEADER

- IN CHARGE OF RESUSCITATION
- VENTILATES PATIENT IF NEEDED
- OPERATES AED OR CARDIAC MONITOR
- ESTABLISHES IV ACCESS
- MAY BE COMPRESSOR 2 IF TWO MAN CREW
- FILLS ANY ROLE AS NEEDED

SECOND ARRIVING BLS/ALS UNIT

RE- DESIGNATE POSITIONS ABOVE PLUS THESE AS AVAILABLE

4- AIRWAY

- MAINTAINS PATIENT AIRWAY
- PROVIDES VENTILATIONS AS NEEDED
- SECURES ADVANCED AIRWAY

5- MEDICATION

- ESTABLISHES IV ACCESS IF NOT OBTAINED
- PREPARES AND ADMINISTERS MEDICATION
- MAY HAVE FUNCTIONS OF POSITION #6 IF NOT ENOUGH PERSONNEL AVAILABLE

6- CARDIAC MONITOR

- OPERATES CARDIAC MONITOR AND DELIVERS SHOCKS AS INDICATED
- ENSURES ALL PERSONNEL ARE CLEAR WHEN DELIVERING SHOCKS
- ASSISTS POSITION #5

TEAM FOCUSED CPR

PEARLS

Heirarchy for Lead / Code Leader

- Charge Paramedic / Community Paramedic
- Paramedic
- EMT

PEARLS

TEAM FOCUSED CPR

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

TERMINATION OF RESUSCITATION

HISTORY	SIGNS/SYMPTOMS
• Cardiac Arrest	• 20 Minutes of CPR or CCR • No response to treatment

20 MINUTES OF RESUSCITATION COMPLETED?

TERMINATE RESUSCITATION IF ALL OF THE FOLLOWING ARE TRUE:
1. ALS RESUSCITATION EFFORTS FOR 20 MINUTES WITHOUT ROSC
2. DEFINITIVE AIRWAY IN PLACE
3. IV/IO IN PLACE
4. NO SHOCKABLE RHYTHM PRESENT
5. ETCO2 IS AT OR BELOW 20 mmHG THROUGHOUT EFFORT

DO NOT TERMINATE RESUSCITATION WITHOUT CONSULATION IF ANY OF THE FOLLOWING ARE TRUE:
1. PATIENT IS MOVING/BREATHING OR ROSC AT ANY POINT
2. CAUSED BY TRAUMA, POISONING, OR OVERDOSE
3. < 18 YEARS OF AGE
4. PREGNANT
5. WITNESSED BY BLS OR ALS CREW
6. PERSISTANT, RECURRING, OR REFRACTORY VF/VT

CONTACT MEDICAL CONTROL FOR TERMINATION WITH FOLLOWING

1. WAS BYSTANDER CPR PERFORMED?
2. WAS ARREST WITNESSED BY EMS?
3. WHAT IS THE TOTAL TIME WORKED?
4. WHAT IS THE ETCO2 VALUE?
5. WHAT INTERVENTIONS WERE DONE?
6. WHAT WAS THE TIME OF LAST SHOCK?
7. ADVISE OF ADVANCED DIRECTIVES

TERMINATION OF RESUSCITATION

TERMINATION OF RESUSCITATION

PEARLS

- Document all the above criteria and treaments in the ePcr when terminating efforts
- If crime scene, note all pertinent findings in the narrative

PEARLS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

WIDE COMPLEX TACHYCARDIA

HISTORY

- Syncope / Near syncope
- History of palpitations / heart racing
- Past medical history
- Drugs (Nicotine, Cocaine)
- Diet (Caffeine, Diet pills)
- Chest pain

SIGNS/SYMPTOMS

- Runs or sustained V-Tach on ECG
- Shortness of Breath
- Chest Pain
- Dizziness
- Rate usually > 150-180bpm
- **QRS > 0.12 secs**

WIDE COMPLEX TACHYCARDIA

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

UNIVERSAL PATIENT CARE

P **12/15 LEAD PROCEDURE**

P **ESTABLISH IV/IO ACCESS**

PRESENTS WITH ONE OF THE FOLLOWING: *CHEST PAIN, HYPOTENSION, AMS, OR CHF*

NO (STABLE)

P **AMIODARONE INFUSION***

P **LIDOCAINE 1.5MG/KG IVP**

P **LIDOCAINE 1.5MG/KG IVP**

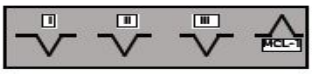
CONSULT ORDERS: CARDIOVERT 100j

SUCCESFUL CONVERSION GO TO POST CARDIAC EVENT PROTOCOL

TORSADES DE POINTES ADMINISTER MAG SULFATE 2GM IV/IO OVER 2-5 MINUTES

Key 3 can not rule out V-Tac but can help rule it in.

ERAD and Upright V1 (MCL-1)



Upright V1 (MCL-1)
"BIG mountain, little mountain
"steeple" or "fireman's hat"

Negative V1 (MCL-1)
Fat "R" wave
Notch or slur to downstroke

V-6 (MCL-6)
Any negative complex

YES (UNSTABLE)

CP **CONSIDER SEDATION VERSED 2.5MG IVP**

P **SYNC CARDIOVERSION 100j**

P **SYNC CARDIOVERSION 150j**

P **SYNC CARDIOVERSION 200j**

P **AMIODARONE INFUSION***

P **SYNC CARDIOVERSION 200j**

P **LIDOCAINE 1.5MG/KG**

P **SYNC CARDIOVERSION 200j**

P **LIDOCAINE 1.5MG/KG**

P **SYNC CARDIOVERSION 200j**

CONSULT ORDERS: SYNC CARDIOVERSION 200j

WIDE COMPLEX TACHYCARDIA

PEARLS

- ***AMIODARONE Infusion:** Add 150mg Amiodarone to 100ml D5W. Drip at 100gtts/min on FLUSH setting.
- Anytime a rhythm converts with an anti-arrhythmic, a maintenance drip should be started.
- **AMIODARONE Drip:** Add 150mg Amiodarone to 250ml D5W Drip at 100gtts/min on MICRO setting.
- **LIDOCAINE Drip:** Place 1 GM into 250cc bag of D5W. Drip at 2mg/min on MICRO setting. May titrate up to 4mg/min as needed to abolish PVC's.

PEARLS

WIDE COMPLEX TACHYCARDIA

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

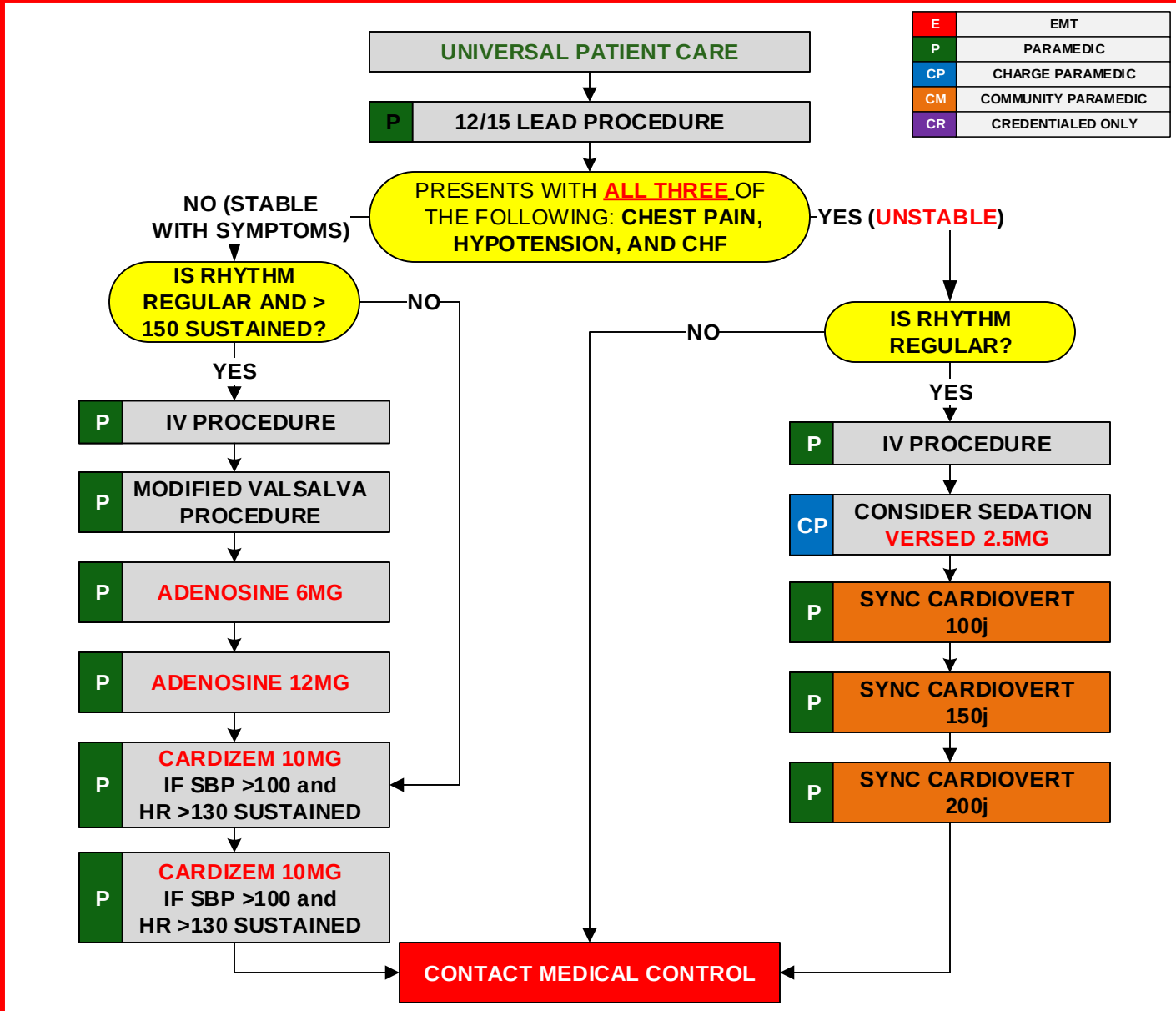
NARROW COMPLEX TACHYCARDIA

HISTORY

- Syncope / Near syncope
- History of palpitations / heart racing
- Past medical history
- Drugs (Nicotine, Cocaine)
- Diet (Caffeine, Diet pills)
- Fever
- Hypovolemia

SIGNS/SYMPTOMS

- Systolic blood pressure < 90mm/hg
- Congestive Heart Failure
- Chest Pain
- Anxious
- Palpitations
- Sinus HR > 150 sustained
- Atrial HR > 130 sustained



PEARLS

- **CARDIZEM Drip:** Add 25 mg Cardizem (25ml) to 100ml D5W. Drip at 20 gtts/minute on MICRO setting.
- Paroxysmal Supraventricular Tachycardia is a narrow complex tachycardia with a rate >150 BPM.
- Monitor for hypotension after administration of Cardizem.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- Monitor for respiratory depression and hypotension associated with Versed.

NARROW COMPLEX TACHYCARDIA

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

BRADYCARDIA

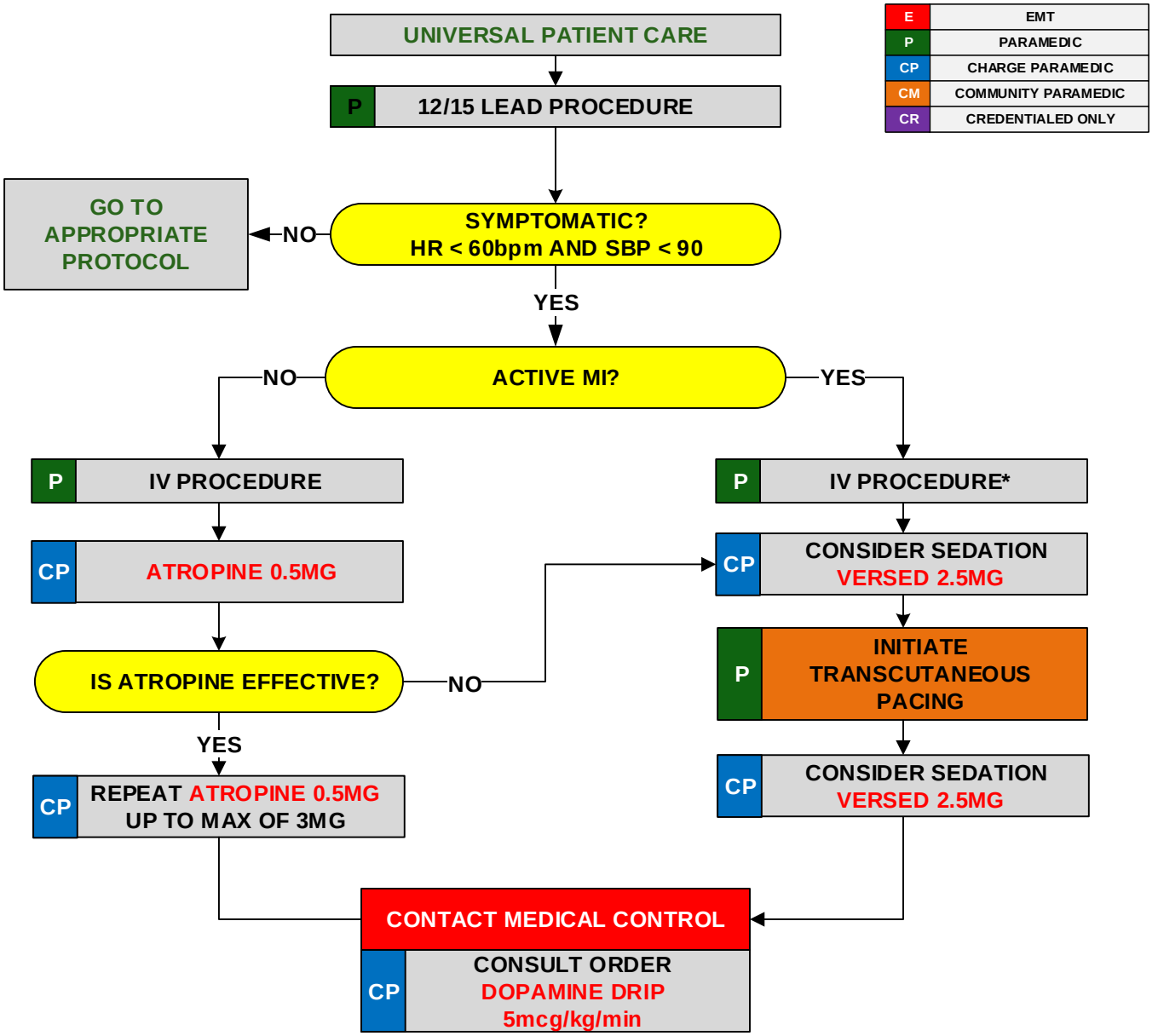
HISTORY

- Syncope / Near syncope
- Internal pacemaker
- Past medical history
- Calcium channel blockers, Clonidine, Digoxin use

SIGNS/SYMPTOMS

- Systolic blood pressure < 90mm/hg
- Heart rate < 60bpm
- Pale and Clammy

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY



BRADYCARDIA

BRADYCARDIA

PEARLS

- **TCP:** Set the rate at 80 bpm. Start at 40 mA and increase up to the mA needed for mechanical capture (femoral pulse) and electrical capture are obtained and the rate match. Do not reduce once capture is obtained.
- *If unable to obtain venous access in a timely manner, intiate TCP without access.
- Monitor for respiratory depression and hypotension associated with Versed.

PEARLS

BRADYCARDIA

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

CHEST PAIN / STEMI
SUSPECTED CARDIAC EVENT

HISTORY

- Age, Pmh, Meds, Allergies
- Use of VIAGRA, LEVITRA, CIALIS
- Recent physical exertion
- Assess **OPQRST**
- 12 Lead – **STEMI** is elevation ≥ one mm in two or more contiguous leads, or provider intuition based on symptoms and ECG

SIGNS/SYMPTOMS

- CP (pain, pressure, aching, vice-like tightness)
- Location/ Radiation (substernal, epigastric, arm, jaw, neck, shoulder and upper back)
- Angina equivalents
- SOB, N/V, vertigo, syncopy

CHEST PAIN / STEMI / SUSPECTED CARDIAC EVENT

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

UNIVERSAL PATIENT CARE

12/15-LEAD PROCEDURE WITHIN 3 MINUTES OF PT CONTACT

STEMI → **CALL STEMI ALERT, TRANSMIT ECG, KEEP SCENE TIME MINIMAL**

NON STEMI

- E — **ASPIRIN 324MG PO**
- E — **ASSIST WITH ONE PATIENT NITROGLYCERIN 0.4MG IF SBP >100 AND CP**
- P — **NITROGLYCERIN 0.4MG IF SBP >100 AND CP**
- P — **IV PROCEDURE**
- P — **NITROGLYCERIN 0.4MG MAX OF 3 DOSES IF SBP >100 AND CP**
- P — **MORPHINE 2 MG IF NEEDED FOR CP MAY REPEAT UP TO 10MG**
- **CONTACT MEDICAL CONTROL IF NEEDED**

STEMI

- E — **ASPIRIN 324MG PO**
- **RIGHT SIDE INVOLVEMENT?**

NO

- P — **NITROGLYCERIN 0.4mg IF SBP >100 AND CP**
- P — **NITROGLYCERIN PASTE 1 INCH IF SBP >100* AND CP**
- P — **IV PROCEDURE**
- P — **NITROGLYCERIN 0.4mg MAX OF 3 DOSES IF SBP >100 AND CP**

YES

- P — **IV PROCEDURE LARGE BORE**
- P — **FLUID BOLUS 500ml**
- P — **NITROGLYCERIN PASTE 1 INCH IF SBP >100* AND CP**

***REMOVE NITRO PASTE IF SBP DROPS <100 SYSTOLIC**

- P — **FOR CP MORPHINE 2 MG IF SBP >100 MAY REPEAT UP TO 10MG**
- **CONTACT MEDICAL CONTROL GIVE PATIENT LAST NAME, DOB, AND CARDIOLOGIST**

CHEST PAIN / STEMI / SUSPECTED CARDIAC EVENT

PEARLS

- **AHA discourages routine administration of oxygen to ACS patients.** Only administer to maintain SpO2 of 94%.
- Avoid **NITROGLYCERIN** in any patient who has used **VIAGRA(Sildenafil) or LEVITRA(Vardenafil)** in the past 24 hours or **CIALIS(Tadalafil)** in the past 36 hours.
- For **PVC's** that are couplings or runs of V-Tac in the presence of chest pain, administer **AMIODARONE INFUSION**. If infusion is successful, start **AMIODARONE MAINTENANCE DRIP**.
- For a prolonged QT (>460) administer **LIDOCAINE** instead of **AMIODARONE**. **LIDOCAINE** Bolus 1.5mg/kg followed by **Lidocaine Maintenance Drip.** May titrate up to 4mg/min as needed to abolish PVC's.
- Diabetics, geriatric, and female patients often have atypical pain or only generalized complaints.

PEARLS

CHEST PAIN / STEMI / SUSPECTED CARDIAC EVENT

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

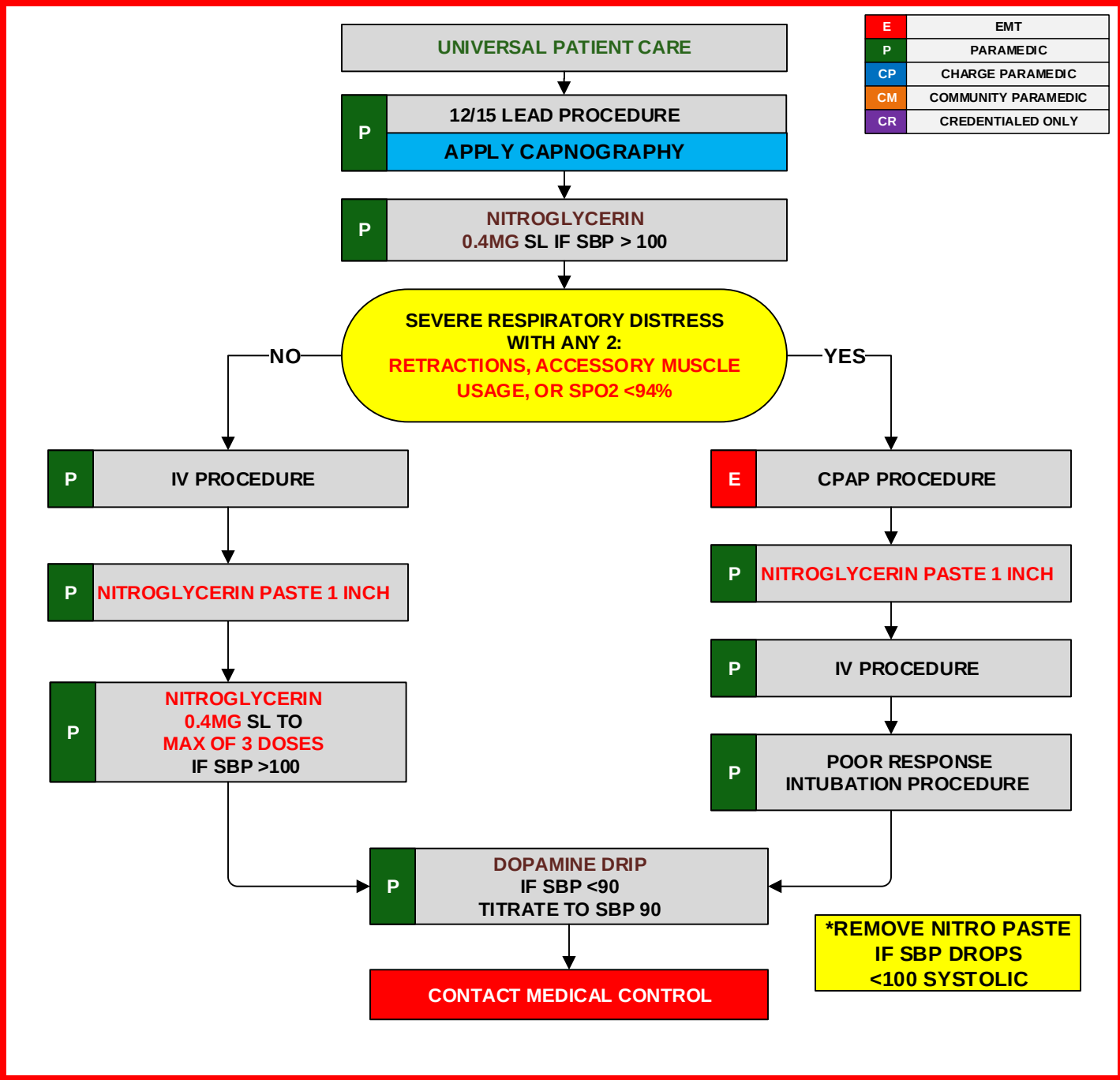
CHF / PULMONARY EDEMA

HISTORY

- Congestive Heart Failure
- Past medical history
- Medications (Digoxin,Lasix)
- Cardiac history – past MI

SIGNS/SYMPTOMS

- Respiratory distress, bilateral rales, wheezes
- Apprehension, orthopnea
- Jugular vein distention, peripheral edema
- Hyper/Hypotension
- Chest pain



CHF / PULMONARY EDEMA

CHF / PULMONARY EDEMA

PEARLS

- Avoid **Nitroglycerin** in any patient who has used **VIAGRA** or **LEVITRA** in the past 24 hours, or **CIALIS** in the past 36 hours.
- Careful monitoring of LOC, Capnography, BP, and Respiratory Status with above interventions is essential.

PEARLS

CHF / PULMONARY EDEMA

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

COPD / ASTHMA

HISTORY

- Asthma, COPD, Chronic bronchitis, emphysema, CHF
- Home treatment (Oxygen, Nebulizer)
- Medications (Theophylline, steroids, inhalers)
- Toxic exposure, smoke inhalation

SIGNS/SYMPTOMS

- Pursed lip breathing, Increased rate and effort
- Decreased ability to speak
- Wheezing, rhonchi, rales, stridor
- Use of accessory muscles
- Fever cough

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

COPD / ASTHMA

UNIVERSAL PATIENT CARE

P 12/15 LEAD PROCEDURE
APPLY CAPNOGRAPHY

IF HR <150BPM AND SBP <190

E ALBUTEROL 2.5MG NEB

P ABOVE PLUS
ATROVENT 500MCG NEB

SEVERE RESPIRATORY DISTRESS WITH ANY 2:
RETRACTIONS, ACCESSORY MUSCLE USAGE, or SPO2 <94%

NO

P IV PROCEDURE

P SOLU-MEDROL 125MG*

P REPEAT
ALBUTEROL 2.5MG NEB
ATROVENT 500MCG NEB
IF HR <150BPM AND SBP <190

YES

E PROCEED WITH CPAP

P IV PROCEDURE

P SOLU-MEDROL 125MG*

P REPEAT THROUGH CPAP
ALBUTEROL 2.5MG NEB
ATROVENT 500MCG NEB
IF HR <150BPM AND SBP <190

P IF POOR RESPONSE
INTUBATION PROCEDURE

CONTACT MEDICAL CONTROL

P MAG SULFATE DRIP
2 GMS OVER 10 MINS

COPD / ASTHMA

PEARLS

- Attempt to differentiate **CHRONIC OBSTRUCTIVE PULMONARY DISEASE** or **BRONCHIAL ASTHMA** from **WHEEZES** associated with **PULMONARY EDEMA.**
- **CAPNOGRAPHY** can be a valuable tool to aid in your assessment.
- Do not withhold **OXYGEN** from any patient in severe respiratory distress.
- A silent chest in respiratory distress is a pre-respiratory arrest sign.
- ***SOLU-MEDROL** - Use caution with patients who have Diabetes Mellitus, Renal Failure, Cirrhosis, and history of dysrythymias

PEARLS

COPD / ASTHMA

INDEX – MEDICAL

INDEX – MEDICAL

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

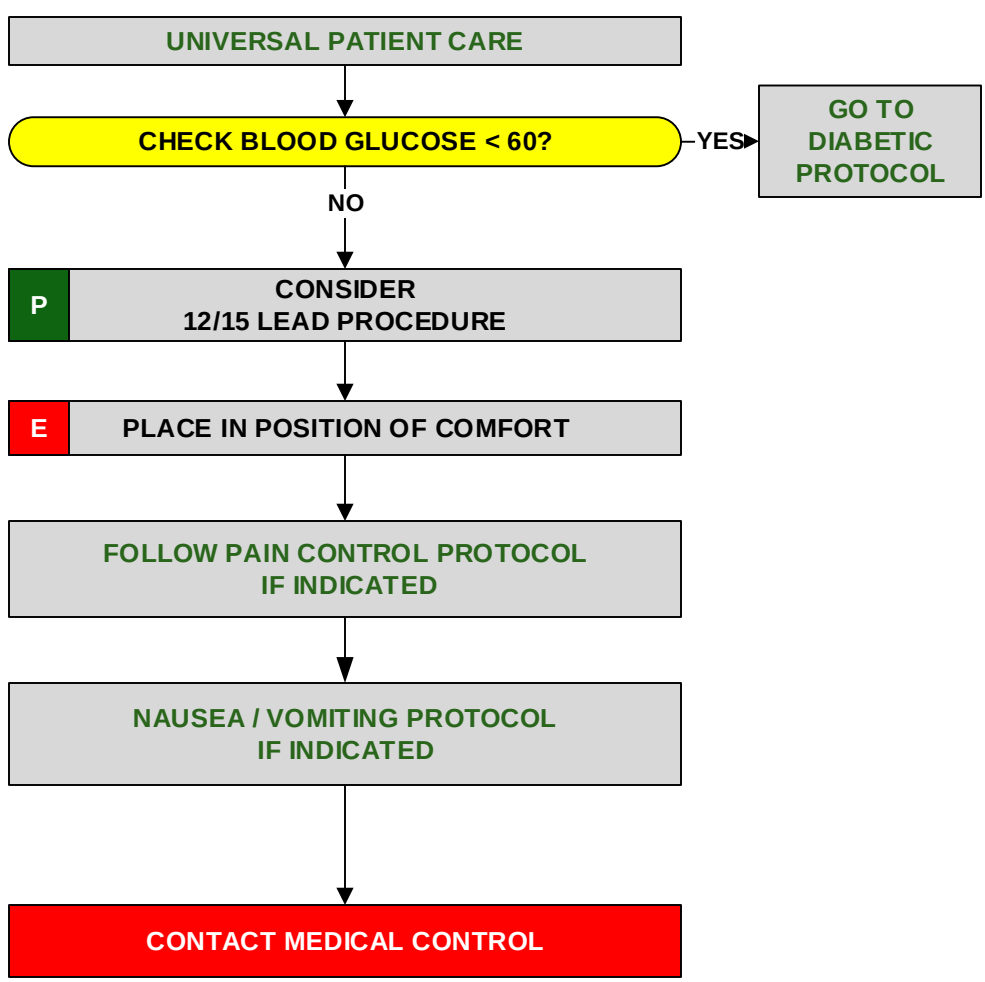
ABDOMINAL COMPLAINTS

HISTORY

- Past surgeries, history
- Medications
- OPQRT
- Fever
- Not Pregnant
- Menstrual history

SIGNS/SYMPTOMS

- Pain, Tenderness
- Nausea and/or vomiting
- GI/GU complaints
- Vaginal bleeding/discharge
- Associated symptoms – Fever, headache, weakness, malaise, cough, AMS, rash



E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

ABDOMINAL COMPLAINTS

ABDOMINAL COMPLAINTS

PEARLS

- Abdominal pain in women of childbearing age should be treated as an ectopic pregnancy until proven otherwise. Follow **OB EMERGENCIES** protocol for pregnant patients
- The field diagnosis of abdominal aneurysm should be considered with abdominal pain in patients over 50.
- Appendicitis may present with vague, peri-umbilical pain which migrates to the RLQ over time.

PEARLS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

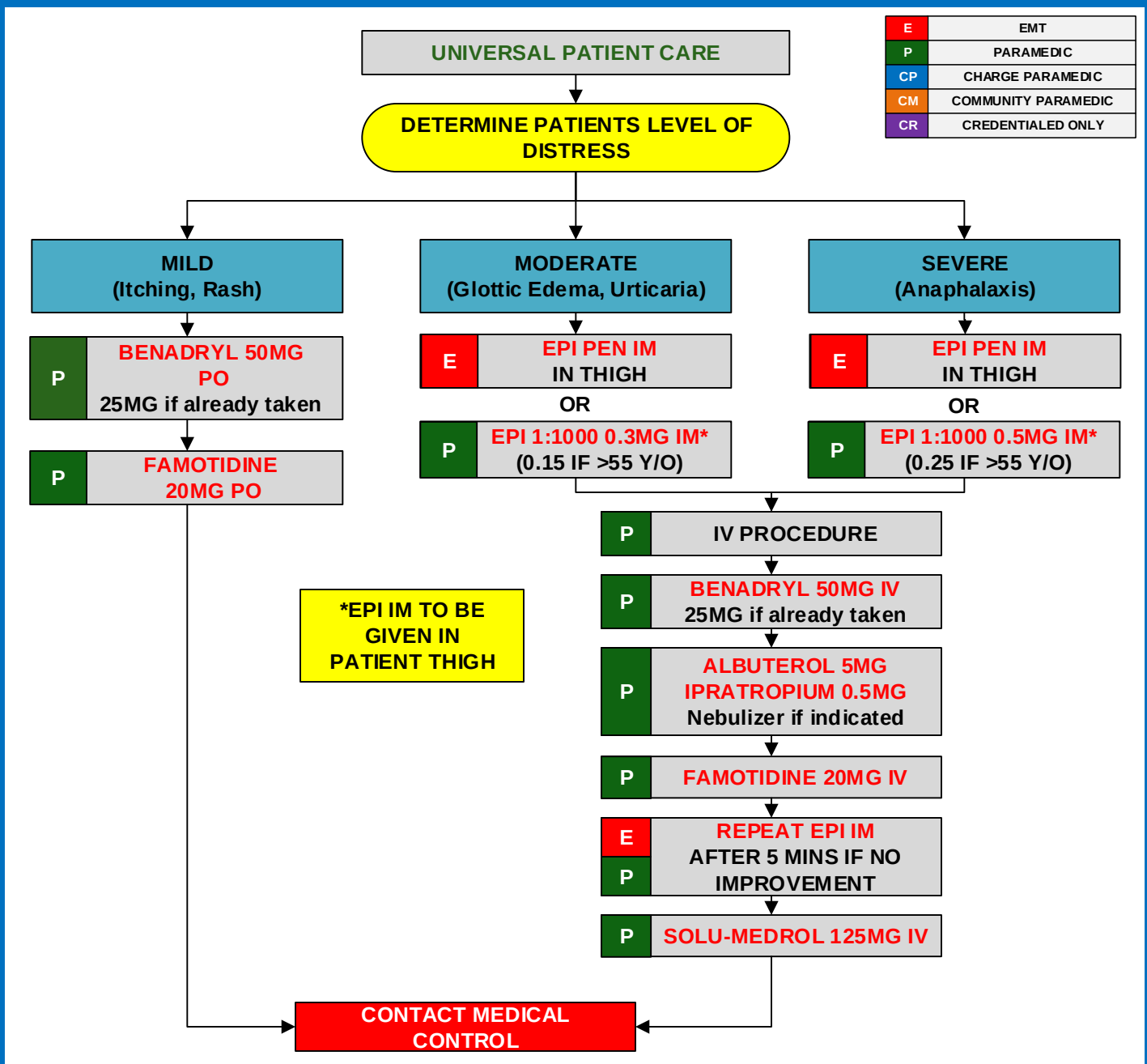
ALLERGIC REACTION

HISTORY

- Onset and location
- Insect sting or bite
- Food/medication allergy or exposure
- Past history of reactions
- Not Pregnant
- Medication history

SIGNS/SYMPTOMS

- Itching, rash, or hives
- Glottic Edema – Partial airway obstruction
- GI/GU complaints
- Vaginal bleeding/dischrge
- Associated symptoms – Fever, headache, weakness, malaise, cough, AMS, rash



PEARLS

- Anytime a patient receives **EPINEPHRINE 1:1000,** they should also receive **BENADRYL**.
- The shorter the onset from contact to symptoms, the more severe the reaction.
- Anaphylaxis is an acute generalized antigen-antibody reaction that can be rapidly fatal. These reactions can present as a mild to severe response. Management is based upon the severity of the reaction.

PEARLS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

COMBATIVE/BEHAVIORAL

HISTORY

- Situational crisis
- Psychiatric illness / medications
- Injury/threat to self or others
- Medic alert tag
- Substance abuse – K2, Spice, etc
- Diabetes

SIGNS/SYMPTOMS

- Anxiety, agitation, confusion
- Hallucinations
- Delusional thoughts, bizarre behavior
- Combative/violent
- Expression of suicidal thoughts
- **Age 16 or older**

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

COMBATIVE BEHAVIORAL

UNIVERSAL PATIENT CARE

E PROTECT PROVIDERS AND PATIENT FROM INJURY

BLOOD GLUCOSE < 60?

YES → DIABETIC EMERGENCIES PROTOCOL

NO

PATIENT EXHIBITING SIGNS OF EXCITED DELIRIUM?

NO

P HALDOL 10MG IM
BENADRYL 50MG IM

P IV PROCEDURE IF ABLE

CP ATIVAN 2MG IV/IM/IN* AFTER 5 MINUTES IF COMBATIVE

CP ATIVAN 2MG IV/IM/IN* AFTER 5 MINUTES IF COMBATIVE

YES

CP KETAMINE 2MG/KG IVP* OR KETAMINE 4MG/KG IM*

CP VERSED 5MG IVP/IM/IN* AFTER 2 MINUTES IF STILL COMBATIVE

P IV PROCEDURE

*APPLY CAPNOGRAPHY ONCE PATIENT CONDITION ALLOWS

P 12/15 LEAD PROCEDURE

CONTACT MEDICAL CONTROL

Excited Delirium:

- Paranoia
- Disorientation
- Hyper-aggression
- Tachycardia
- Hallucination
- Diaphoresis
- Incoherent speech or shouting
- Seemingly Superhuman strength or endurance (typically while trying to resist restraint)
- Hyperthermia (overheating)/ profuse sweating (even in cold weather)
- Inappropriately clothed e.g. having removed garments

COMBATIVE BEHAVIORAL

PEARLS

- Consider **HALDOL** for patients with history of psychosis or extremely agitated patients who present a danger to themselves or others.
- Be sure to consider **ALL** possible medical/trauma causes for behavior such as hypoglycemia, overdose, substance abuse, hypoxia, and head injury.
- All patients who receive either physical or chemical restraint must be continuously observed by ALS personnel.

PEARLS

COMBATIVE BEHAVIORAL

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

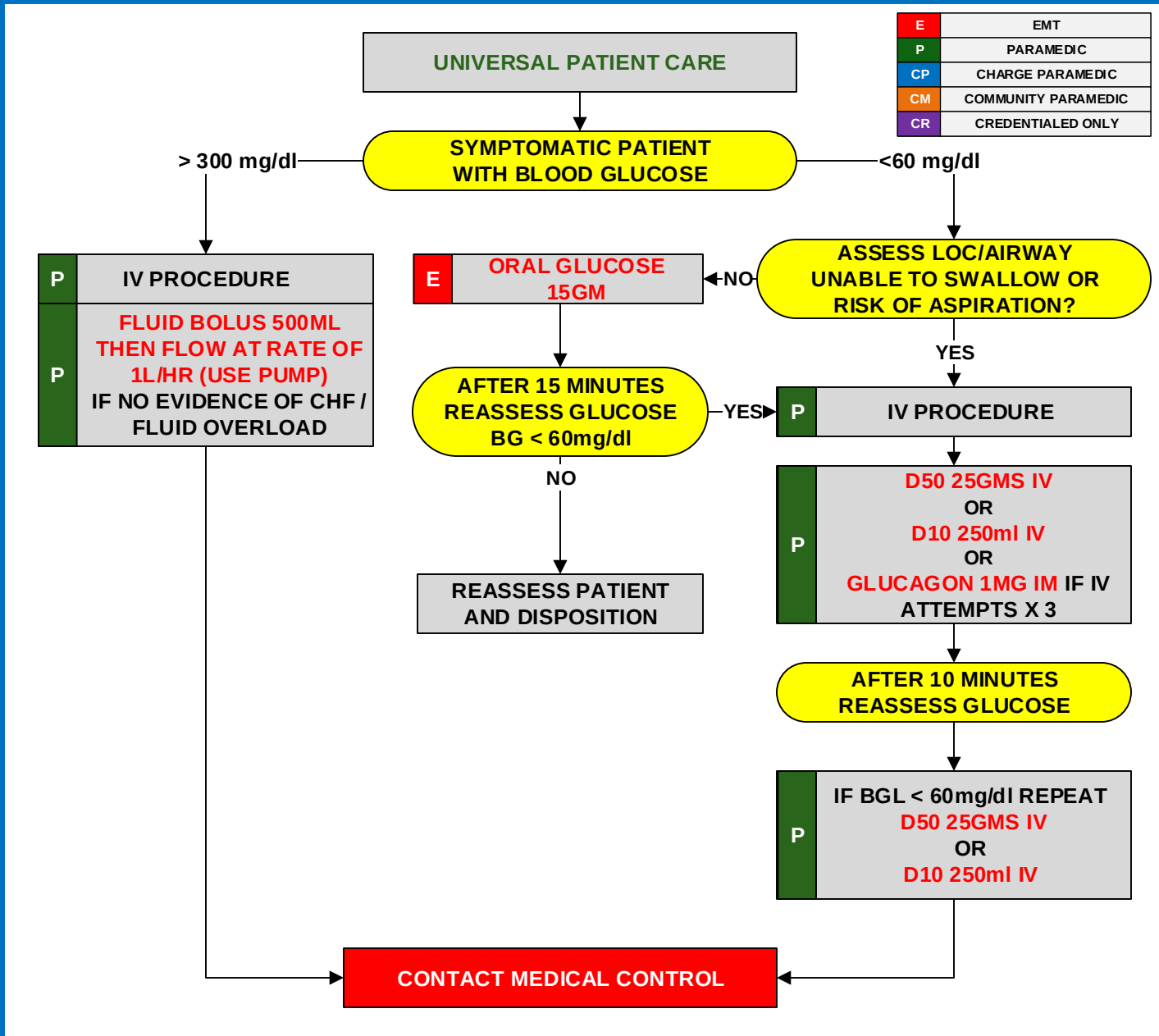
DIABETIC EMERGENCIES

HISTORY

- Known diabetic, medic alert tag
- Past medical history
- Medications
- Change in condition

SIGNS/SYMPTOMS

- Decreased mental status
- Change in baseline mental status
- Bizarre behavior
- Hypoglycemia (cool, diaphoretic skin)
- Hyperglycemia (warm, dry skin, fruity breath, kussmaul respirations, signs of dehydration)



DIABETIC EMERGENCIES

DIABETIC EMERGENCIES

PEARLS

- It is safer to assume hypoglycemia than hyperglycemia if doubt exists. Recheck blood glucose after D50, D10, or Glucagon.
- Dose of D50 or D10 may be titrated to effect. Effect being patient returns to baseline mentation.
- Administer **THIAMINE 100MG IVP** with Dextrose if suspected alcoholism or patient on chemotherapy.
- **DO NOT** let alcohol confuse the clinical picture. Alcoholics frequently develop hypoglycemia.
- Consider soft restraints if necessary for patients and/or personnel safety. Document if applied.

PEARLS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

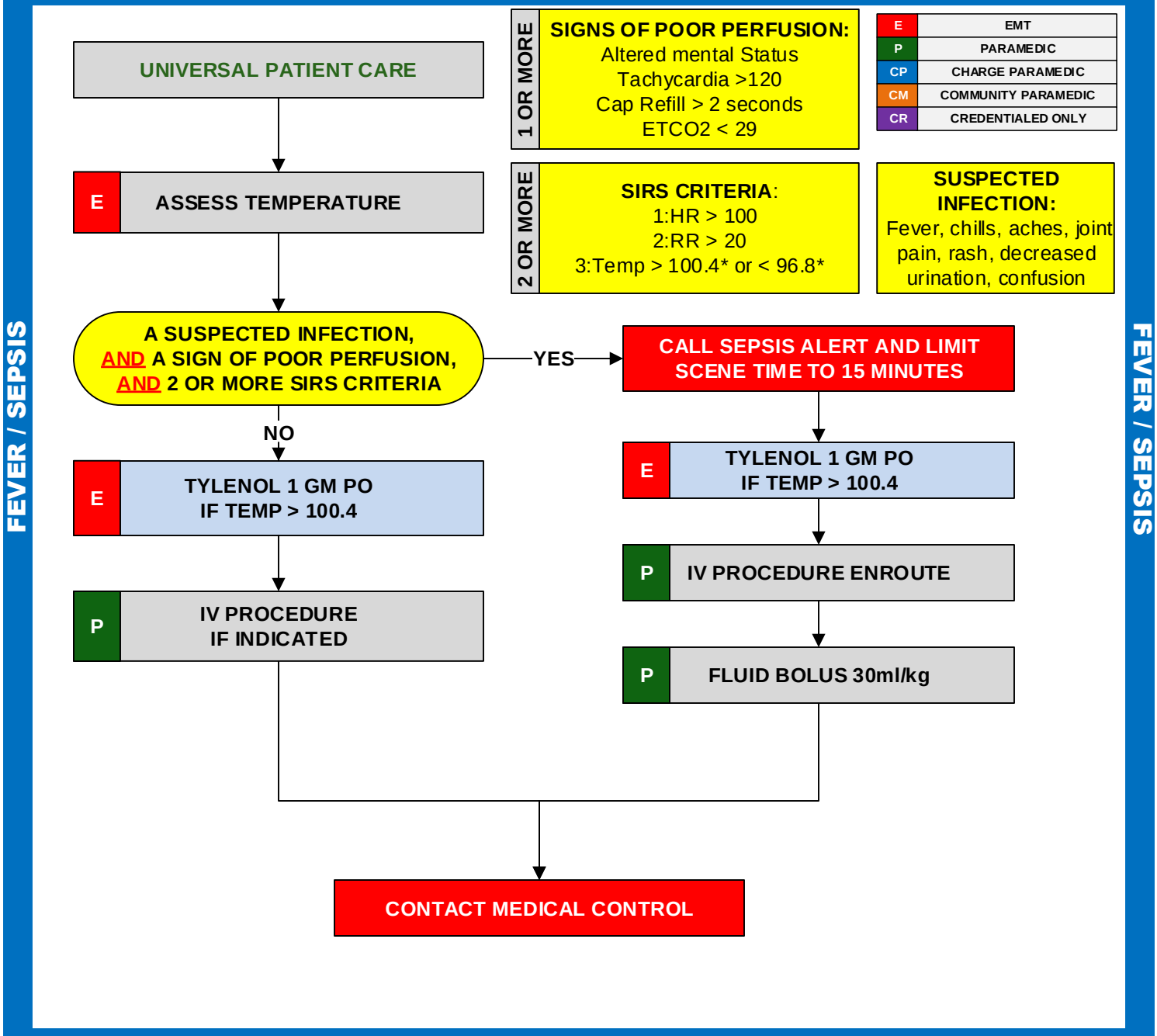
FEVER / SEPSIS

HISTORY

- Virus
- Bacterial infection
- Sepsis
- Cancer
- Autoimmune disease
- Hyperthyroidism

SIGNS/SYMPTOMS

- Altered mental status
- Weakness, fatigue
- Sweating, chills, rash
- Cough, sore throat
- Headache
- Muscle aches



PEARLS

- Avoid Tylenol in patients with liver problems.
- For temp > 103°F begin passive cooling techniques including removing excess clothing.
- For temp > 106°F see **HEAT EXHAUSTION/STROKE** Protocol.
- **DO NOT** administer **TYLENOL** if pt has taken it within the last **4 hrs.**

PEARLS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

HYPERTENSION

HISTORY

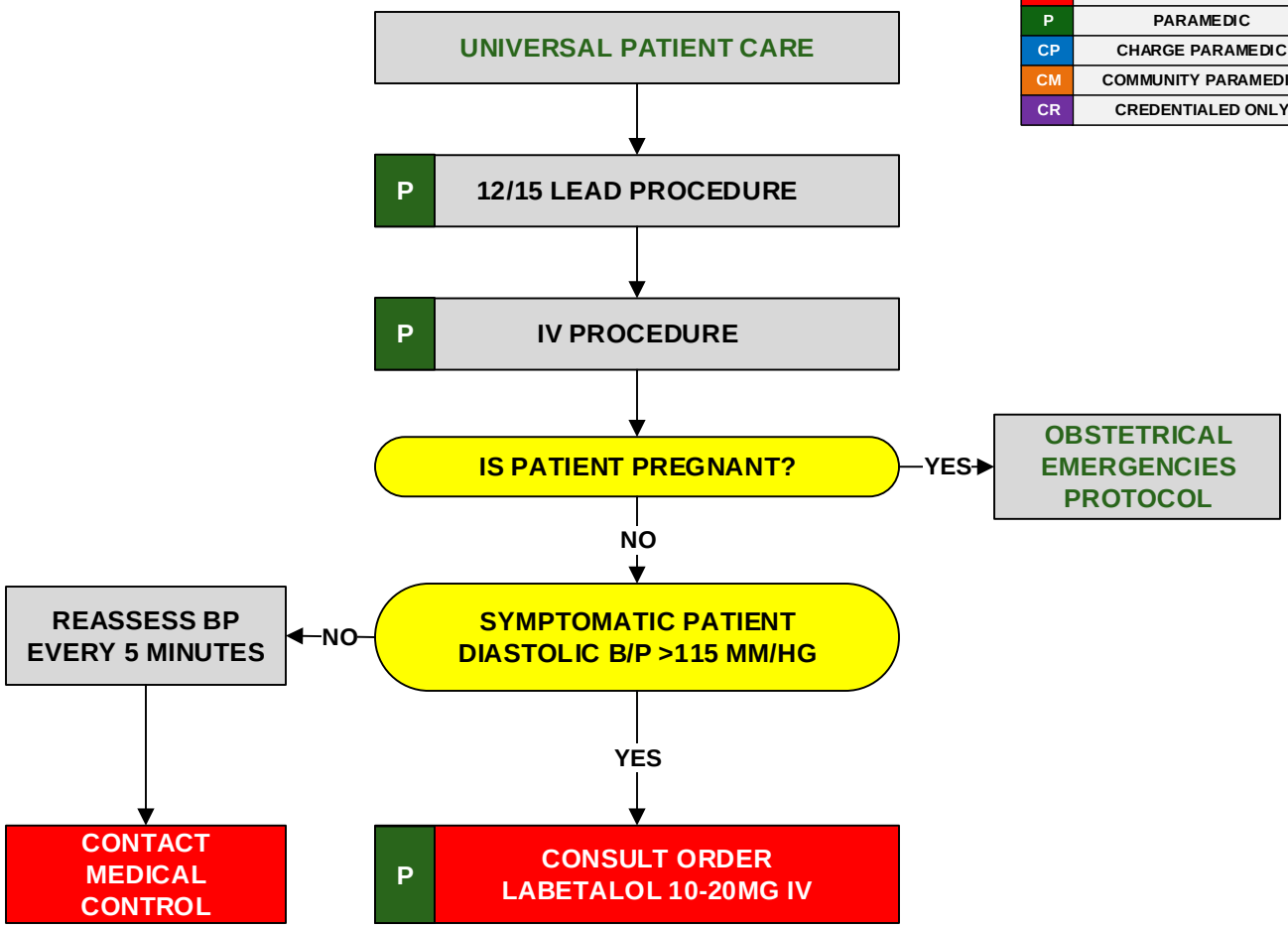
- Documented hypertension
- Related diseases: diabetes, CVA, renal failure, cardiac history
- Medications (compliance?)
- Viagra, Levitra, Cialis
- Pregnancy

SIGNS/SYMPTOMS

- Headache
- Nosebleed
- Blurred vision
- Dizziness
- Systolic > 220 Diastolic > 100 for non pregnant patient

HYPERTENSION

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY



HYPERTENSION

PEARLS

- Never treat blood pressure based on one set of vital signs.
- Symptomatic hypertension is typically revealed through end organ damage to the cardiac, CNS or renal systems.
- All symptomatic patients with hypertension should be transported with their head elevated if possible.
- Symptomatic hypertensive crisis occurs in less than one percent of patients with hypertension.

PEARLS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

MEDICAL HYPOTENSION / SHOCK

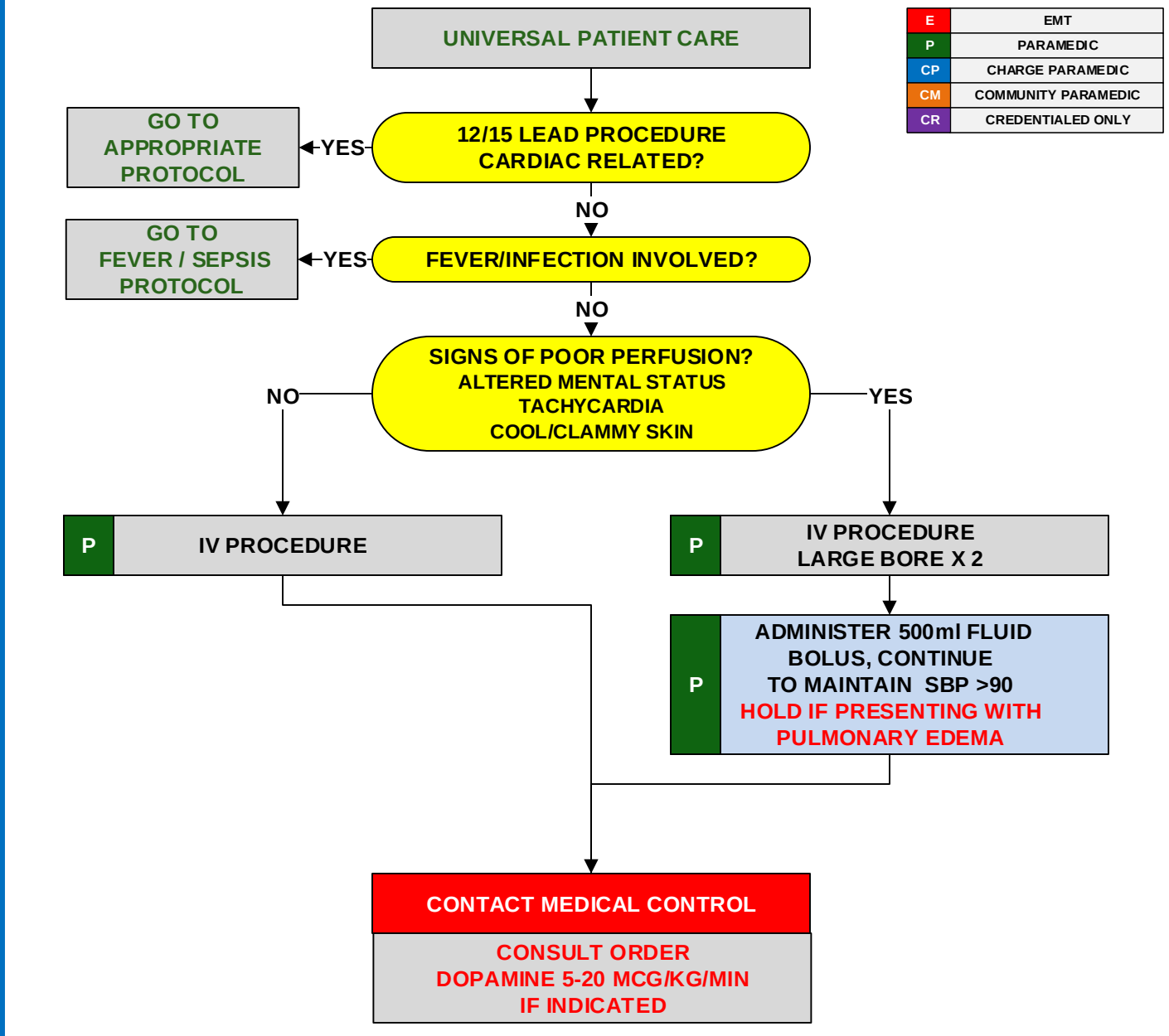
HISTORY

- Immunocompromised patients
- Undergoing chemotherapy or radiation treatment
- Recent surgery
- Pre-existing infections – pnuemonia, meningitis, UTI
- IV drug use
- GI/GU hemorrhaging

SIGNS/SYMPTOMS

- Restlessness, confusion, AMS
- Weakness, dizzyness
- Weak rapid pulse
- Pale, cool, clammy skin
- Delayed capillary refill
- Hypotension
- Coffee ground emesis, dark tarry stool

MEDICAL HYPOTENSION / SHOCK



MEDICAL HYPOTENSION / SHOCK

PEARLS

- Consider all possible causes of shock and treat per appropriate protocol.
- For ongoing hypotension, poor perfusion, or pulmonary edema: **CONTACT MED CONTROL**.
- **DOPAMINE Drip:** Add 400mg Dopamine to 250 ml D5W. Titrate to a B/P of 90 systolic. Initial drip rate should start at 5mcg/kg/min.

PEARLS

MEDICAL HYPOTENSION / SHOCK

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

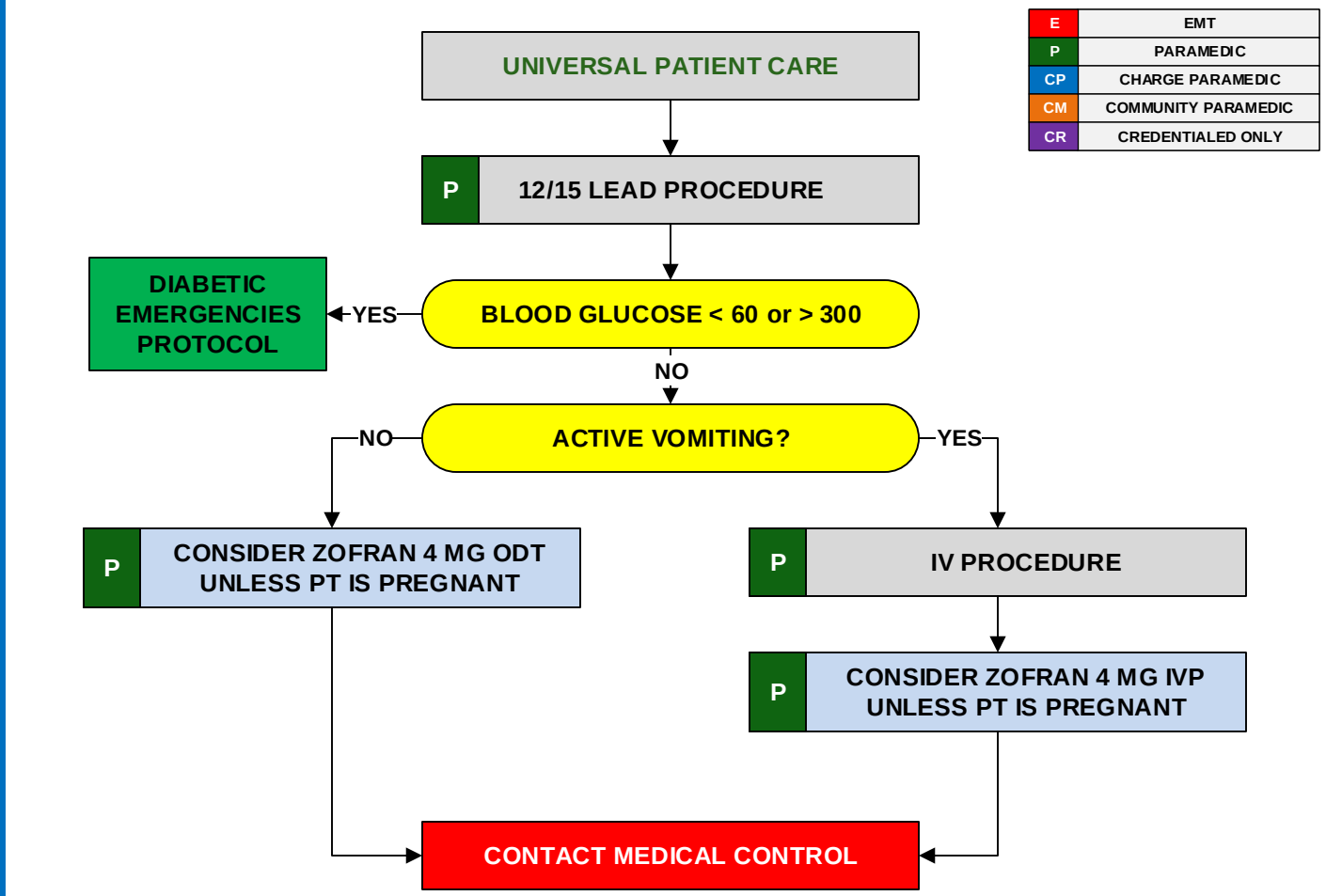
NAUSEA / VOMITING

HISTORY

- Time of last meal
- Last bowel movement / emesis
- Improvement or worsening with food or activity
- Duration of problem
- Other sick contacts
- Past medical / surgical history
- Medications
- Menstrual history (pregnancy)
- Travel history

SIGNS/SYMPTOMS

- Pain
- Character of pain (constant, intermittent, sharp, dull, etc)
- Distension
- Constipation
- Diarrhea
- Anorexia
- Radiation



NAUSEA / VOMITING

NAUSEA / VOMITING

PEARLS

- This protocol may be used in addition to other protocols that address the patient's underlying condition. Proceed to appropriate protocol.
- Maintain a high suspicion of a cardiac event for persons with diabetes or neuropathies.
- Patients with active vomiting should be treated with **ZOFRAN** 4mg IVP.

PEARLS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

OVERDOSE / EXPOSURE GENERAL

HISTORY

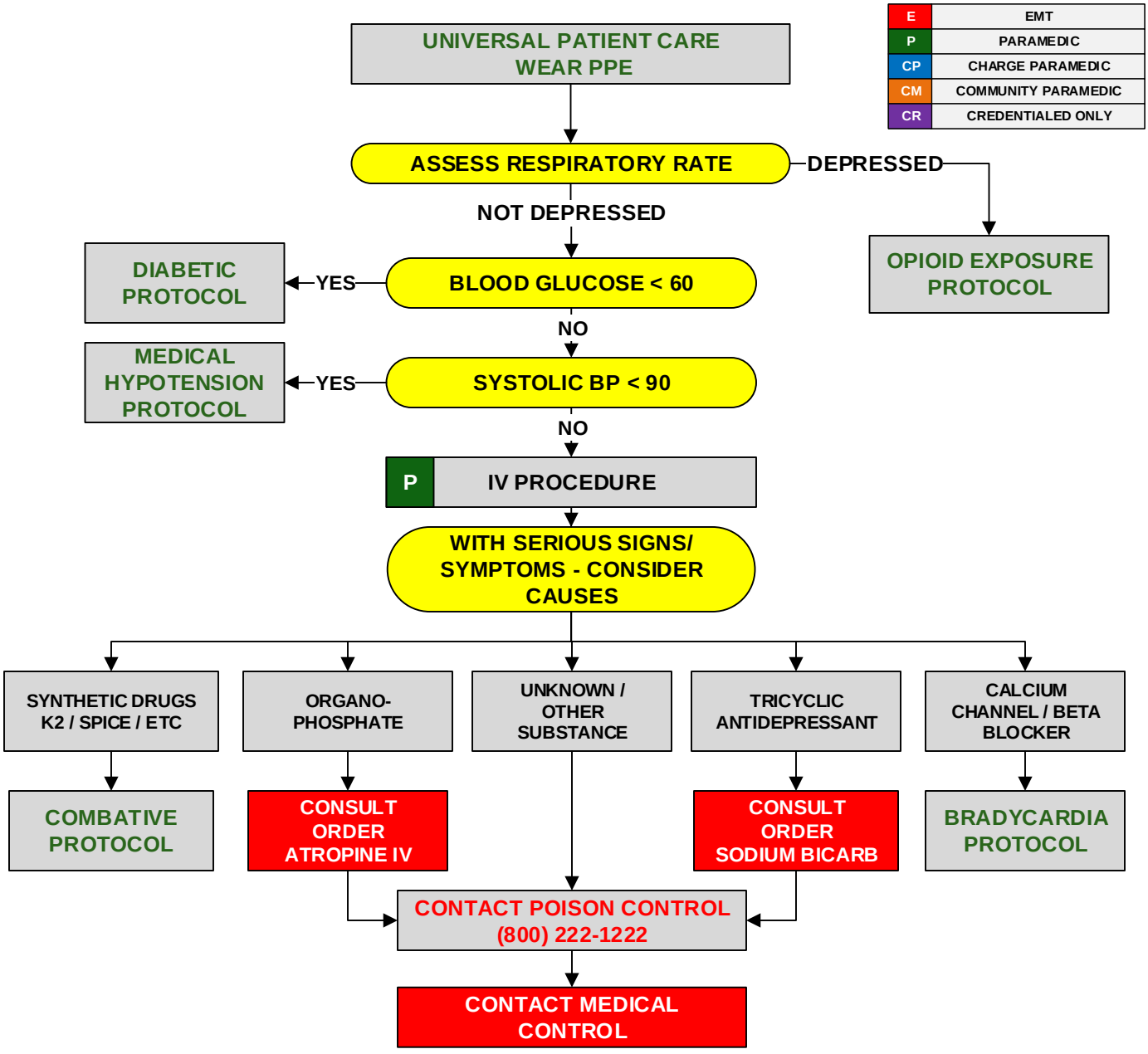
- Substance ingested/exposed to: Route and Quantity
- Time of ingestion/exposure
- Reason (Suicidal, accidental, criminal)
- Medical history
- Medications

SIGNS/SYMPTOMS

- Mental status change
- Decreased respiratory rate
- Bizarre behavior
- Seizures
- Tachycardia, dysrhythmias
- SLUDGE, DUMBBELS

OVERDOSE / EXPOSURE

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY



OVERDOSE / EXPOSURE

PEARLS

- Determining the type of substance taken is critical in these patients. Any evidence of the substance should be documented and taken with the patient either by EMS of law enforcement if substance is illegal.
- Consider soft restraints if necessary for patients and/or personnel safety. Document if applied.

PEARLS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

SUSPECTED OPIOID EXPOSURE

HISTORY

- Substance ingested/exposed to: Route and Quantity
- Time of ingestion/exposure
- Reason (Suicidal, accidental, criminal)
- Medical history
- Medications

SIGNS/SYMPTOMS

- Mental status change
- Decreased respiratory rate
- Respiratory arrest
- Bizarre behavior
- Seizures
- Tachycardia, dysrhythmias

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

SUSPECTED OPIOID EXPOSURE

UNIVERSAL PATIENT CARE
WEAR PPE IF INDICATED

E ASSESS AIRWAY

P APPLY CAPNOGRAPHY

RESPIRATORY DEPRESSION?

NO

P IV PROCEDURE

E BLOOD GLUCOSE

YES

E VENTILATE WITH OPA AND/OR NPAS AND BVM

E NARCAN 0.4 – 4 MG IN/IM PRELOADED

OR

P NARCAN 1 – 2 MG IV/IN/IM

P IV PROCEDURE

E NARCAN 1 – 2 MG IV/IN/IM
P Titrate (MAX 6MG) until return of respiratory drive, NOT GIVEN TO RESTORE CONSCIOUSNESS

E BLOOD GLUCOSE

IF AT ANY TIME PATIENT BECOMES COMBATIVE GO TO COMBATIVE PROTOCOL

CONTACT MEDICAL CONTROL

SUSPECTED OPIOID EXPOSURE

PEARLS

- **Narcan shall only be given for respiratory depression (RR < 8 bpm). Level of consciousness is NOT an indication for treatment with Narcan.**
- Suspected opiate overdoses must be transported to a receiving facility for observation. Use law enforcement as a resource for patients refusing transport.
- Consider soft restraints if necessary for patients and/or personnel safety prior to the administration of Narcan. Document if applied.

PEARLS

SUSPECTED OPIOID EXPOSURE

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

POLICE CUSTODY

HISTORY

- Traumatic injury
- Drug abuse
- Cardiac history
- History of asthma
- Psychiatric history

SIGNS/SYMPTOMS

- External signs of trauma
- Palpitations
- Diaphoresis
- Shortness of breath
- Altered mental status
- Intoxication/Substance abuse

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

POLICE CUSTODY

UNIVERSAL PATIENT CARE

EVIDENCE OF TRAUMATIC INJURY OR MEDICAL ILLNESS

YES → GO TO APPROPRIATE PROTOCOL AND TRANSPORT

NO

USE OF OC (PEPPER SPRAY) OR TASER

OC SPRAY

E ASSESS BREATHING AND TREAT IF INDICATED PER PROTOCOL

E IRRIGATE EYES/FACE REMOVE INVOLVEDCLOTHING

TASER

DO NOT REMOVE BARBS LEO MAY REMOVE

SUSPECTED SPINAL INJURY?

YES → SPINAL PRECAUTION PROTOCOL

NO

PATIENT COMBATIVE?

YES → BEHAVIORAL COMBATIVE PROTOCOL

NO

P 12/15 LEAD PROCEDURE

P IV PROCEDURE IF INDICATED

COORDINATE DISPOSITION WITH LAW ENFORCEMENT AND ATTEMPT TRANSPORT

CONTACT MEDICAL CONTROL

POLICE CUSTODY

PEARLS

- Patients exhibiting signs of excited delirium are at high risk for sudden death and should be transported by EMS.
- Patients in law enforcement devices must be accompanied or followed by law enforcement during transport.
- All patients in law enforcement custody retain the right to request transport. This should be coordinated with law enforcement.
- All patients in policy custody who called MCEMS are treated as a patient and require evaluation and transport or signed refusal.
- Skin exposed to OC spray should be treated with Dawn dish soap.
- For legal blood draws requested by Law Enforcement, a PCR shall be completed along with vital signs using the universal patient care protocol.

PEARLS

POLICE CUSTODY

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

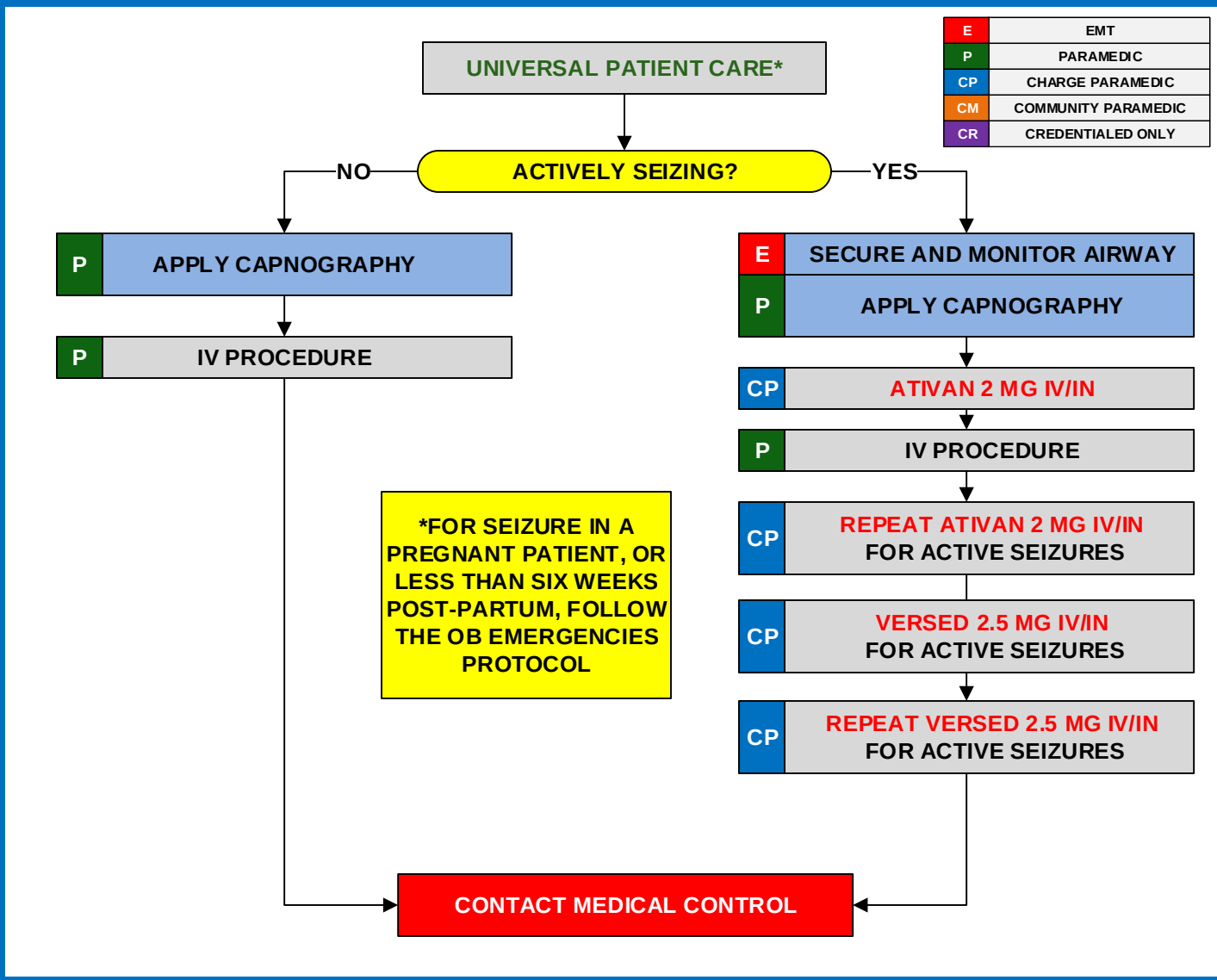
SEIZURES

HISTORY

- Reported / witnessed seizure activity
- Previous seizure activity
- Medical alert tag
- Seizure medications
- History of trauma, diabetes, or pregnancy

SIGNS/SYMPTOMS

- Decreased mental status
- Sleepiness
- Incontinence
- Observed seizure activity
- Evidence of trauma / tongue biting
- Unconscious



SEIZURES

SEIZURES

PEARLS

- **ATIVAN** may be given intranasal using the IVP dose if unable to establish IV access.
- Status epilepticus is defined as two or more successive seizures without a period of consciousness or recovery. This is a **TRUE EMERGENCY** requiring rapid airway control, treatment, and transport.
- **IO Access is indicated for Status Epilepticus, not isolated seizures**
- **Grand mal seizures** (generalized) are associated with loss of consciousness, incontinence, and tongue trauma.
- **Focal seizures** (petit mal) affect only a part of the body and are usually not associated with a loss of consciousness.
- **Jacksonian seizures** are seizures which start as a focal seizure and become generalized.
- Be prepared for airway problems and continued seizures.

PEARLS

SEIZURES

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

SUSPECTED STROKE

HISTORY

- Previous CVA, TIA
- Atrial Fibrillation, Cardiac/Vascular surgery
- Medications (Blood thinners)
- Diabetes, Hypertension, CAD, recent trauma

SIGNS/SYMPTOMS

- AMS, weakness, paralysis
- Visual disturbance, blindness
- Aphasia, dysarthria
- Headache, vertigo, dizzyness
- Hypertension

SUSPECTED STROKE

UNIVERSAL PATIENT CARE

CHECK BLOOD GLUCOSE < 60? — YES → GO TO DIABETIC PROTOCOL

NO

E DETERMINE LAST SEEN NORMAL TIME

E CINCINNATI STROKE SCALE

CSS = POSITIVE

CSS = NEGATIVE

P VAN ASSESSMENT

CP IF ONSET OF SYMPTOMS < 24 HOURS
CALL STROKE ALERT
LIMIT SCENE TIME TO 15 MINUTES

FOLLOW EMS STROKE TRIAGE AND DESTINATION PLAN

P 12/15 LEAD PROCEDURE

P IV PROCEDURE

CONTACT MEDICAL CONTROL
ADVISE LSN TIME AND
PRIMARY PHYSICIAN

CONSULT ORDER FOR SYSTOLIC BP OVER 180 FOR 10-20 MG OF LABETALOL

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

CINCINNATI STROKE SCALE	
FACE	One side is weak or flaccid
ARM	One arm is weak or immobile
SPEECH	Speech is slurred, inappropriate words, or mute

VAN ASSESSMENT	
VISUAL	Gaze, vision loss, double vision
APHASIA	Unable to follow commands, naming difficulties, or can't repeat phrases
NEGLECT	Ignoring one side of the body, loss of sensation
ANY OF THE ABOVE WITH UNILATERAL ARM WEAKNESS	

SUSPECTED STROKE

PEARLS

- With a Stroke Alert and duration of symptoms of less than 24 hours, scene times should be minimized. Consider delay of procedures such as venous access until transport is underway.
- Be alert for airway problems such as difficulty swallowing and vomiting.
- CSS=Cincanatti Stroke Scale
- **Objects for patient to identify during VAN Assessment are pen, watch, phone**
- Phrase to repeat for VAN Assessment is "**Today is a Sunny Day**". Commands are **close eyes open eyes, close fist open fist**.

PEARLS

SUSPECTED STROKE

INDEX – TRAUMA

INDEX – TRAUMA

INDEX – TRAUMA

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

BITES / ENVENOMATIONS

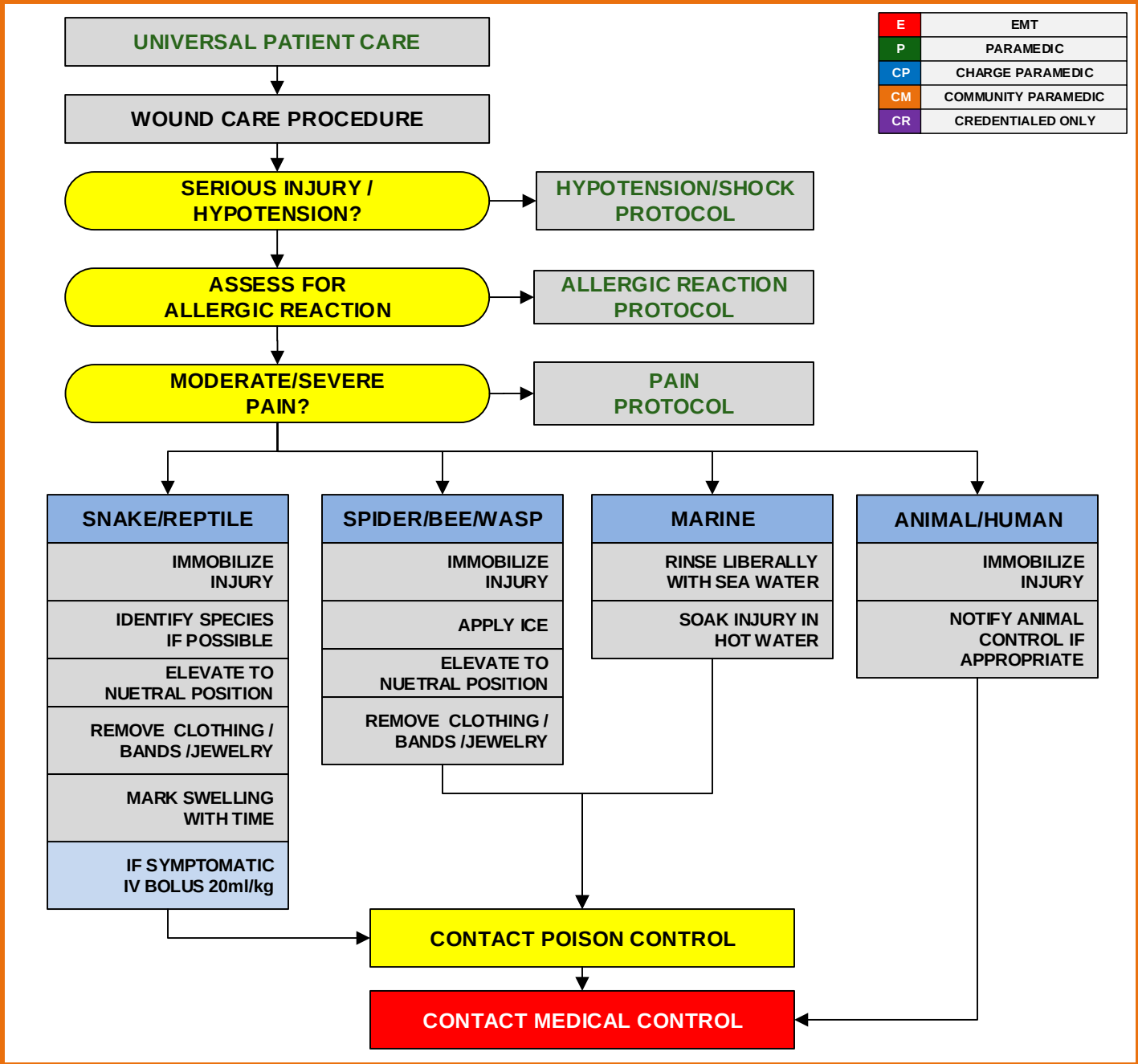
HISTORY

- Type of bite / sting
- Description of animal / insect / reptile
- Time, location, size of bite / sting
- Domestic vs. wild
- Tetanus or rabies risk
- Immunocompromised patient

SIGNS/SYMPTOMS

- Rash, skin break, wound
- Pain, swelling, redness
- Evidence of infection
- Allergic reaction, difficulty breathing
- Hypotension or shock

BITES / ENVENOMATIONS



BITES / ENVENOMATIONS

PEARLS

- When transport time exceeds fifteen minutes and there is evidence of snake envenomation, consider rubber constricting band proximal to the site of bite if bite is on an extremity. The constricting band should be just tight enough to restrict lymphatic blood flow, NOT venous flow and should be able to slip finger under constricting band.

PEARLS

BITES / ENVENOMATIONS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

BITES / ENVENOMATIONS

COMMON VENOMOUS SNAKES AND SPIDERS IN MANATEE COUNTY

COTTONMOUTH WATER MOCCASIN

HEMOTOXIC

SIGNS/SYMPTOMS

- PAIN / SWELLING / BRUISING
- VOMITING
- SHOCK
- SYSTEMIC HEMORRHAGING
- METALLIC TASTE IN MOUTH

EASTERN DIAMONDBACK RATTLESNAKE

HEMOTOXIC, NECROTISING

SIGNS/SYMPTOMS

- INTENSE PAIN
- VOMITING
- SHOCK
- SYSTEMIC HEMORRHAGING
- SWELLING/DISCOLORATION
- TACHYCARDIA/ARRHTHMIAS

PYGMY RATTLESNAKE

HEMOTOXIC, NECROTISING

SIGNS/SYMPTOMS

- PAIN / SWELLING / BRUISING
- VOMITING
- SHOCK
- SYSTEMIC HEMORRHAGING
- SWELLING/DISCOLORATION
- TACHYCARDIA/ARRHTHMIAS

CORAL SNAKE

NUEROTOXIC

SIGNS/SYMPTOMS

- WEAKNESS
- PARALYSIS
- SLURRED SPEECH
- DIFFICULTY BREATHING

BLACK WIDOW

SIGNS/SYMPTOMS
(ONSET 1 TO 3 HOURS)

- INTENSE PAIN
- MUSCLE CRAMPS
- NAUSEA
- VOMITING
- SWEATING

BROWN RECLUSE

SIGNS/SYMPTOMS
(ONSET 2 TO 6 HOURS)

- INTENSE PAIN
- BLISTERING
- SWELLING

Snake Bite: Attempts to capture or kill the snake are not recommended because of the risk of additional injury. If uncertainty exists about whether a particular snake is venomous, consider taking photographs of the snake from a safe distance of at least 6 feet away

Give general support of airway, breathing and circulation per advanced cardiac life support (ACLS) protocol with oxygen, monitors, 2 large bore intravenous lines, and fluid challenge. Minimize activity (if possible), remove jewelry or tight-fitting clothes in anticipation of swelling, and transport the patient to the ED as quickly and as safely as possible. Use a pen to mark and time the border of advancing edema often enough to gauge progression.

BITES / ENVENOMATIONS

BITES / ENVENOMATIONS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

BURNS CHEMICAL

HISTORY

- Route of exposure, Time of injury
- Inhalation injury
- Other trauma
- LOC
- Past medical history / Medications

SIGNS/SYMPTOMS

- Burns, pain, swelling
- Dizziness, Level of Consciousness
- Hypotension / shock
- Airway compromise
- Hoarseness / wheezing

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

IF UNABLE TO ID CHEMICAL CONTACT POISON CONTROL

SCENE SAFETY – DECON/PPE
RAPID ID USING ERG

UNIVERSAL PATIENT CARE

E STOP BURNING PROCESS
EXPOSE AREA

ASSESS AIRWAY PATENCY

NOT PATENT → INTUBATION OR FACILITATED INTUBATION

PATENT

<5% TBSA 2nd/3rd DEGREE

NO INHALATION INJURY, NOT INTUBATED
NORMOTENSIVE
GCS 14 OR GREATER

- E REMOVE JEWELRY/ CONSTRICTING ITEMS
- E COOL WOUND NORMAL SALINE
- E STERILE DRESSING
- P IV PROCEDURE
  If indicated
  NS 1ml/kg/hr
- P PAIN MANAGEMENT
  If indicated

5-15% TBSA 2nd/3rd DEGREE

SUSPECTED INHALATION INJURY OR REQUIRING INTUBATION FOR AIRWAY STABILIZATION
HYPOTENSION OR GCS 13 OR LESS
FACE, HANDS, OR GENETALIA

>15% TBSA 2nd/3rd DEGREE

BURNS WITH MULTIPLE TRAUMA
BURNS WITH AIRWAY COMPROMISE
CIRCUMFERENTIAL EXTREMITY BURNS

MANAGEMENT OF TRAUMA

- E REMOVE JEWELRY/ CONSTRICTING ITEMS
- E IRRIGATE WITH WATER FOR 15 MINUTES*
- P IV PROCEDURE X 2
  LARGE BORE
  NS 500ml/hr
  OR TITRATE BP >90
- P PAIN MANAGEMENT
- P 12/15 LEAD PROCEDURE

TDP - BURNS

CONTACT MEDICAL CONTROL

BURNS - CHEMICAL

BURNS - CHEMICAL

PEARLS

- **If identified as reactive to water, brush as much as possible off.**
- * Irrigate with Normal Saline or Sterile Water is preferred, however, if not available do not delay irrigation and use bottled or tap water. Flush the area as soon as possible with the cleanest readily available water or saline solution for at least 15 minutes.
- Do not overlook the possibility of child abuse with children and chemical burn injuries.

PEARLS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

BURNS
ELECTRICAL / THERMAL

HISTORY

- Fire, explosion, flash, electrocution
- Inhalation injury
- Other trauma
- LOC
- Past medical history / Medications

SIGNS/SYMPTOMS

- Burns, pain, swelling
- Dizziness
- LOC
- Hypotension / shock
- Singed facial or nasal hair
- Hoarseness / wheezing

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

12/15 LEAD PROCEDURE EARLY IF ELECTRICAL

UNIVERSAL PATIENT CARE

E — **STOP BURNING PROCESS EXPOSE AREA**

ASSESS AIRWAY PATENCY

NOT PATENT → **INTUBATION OR FACILITATED INTUBATION**

PATENT

<5% TBSA 2nd/3rd DEGREE
NO INHALATION INJURY, NOT INTUBATED
NORMOTENSIVE
GCS 14 OR GREATER

- E — REMOVE JEWELRY/ CONSTRICTING ITEMS
- E — COOL WOUND NORMAL SALINE
- E — STERILE DRESSING
- P — IV PROCEDURE If indicated; NS 1ml/kg/hr
- P — PAIN MANAGEMENT If indicated

5-15% TBSA 2nd/3rd DEGREE
SUSPECTED INHALATION INJURY OR REQUIRING INTUBATION FOR AIRWAY STABILIZATION
HYPOTENSION OR GCS 13 OR LESS
FACE, HANDS, OR GENETALIA

>15% TBSA 2nd/3rd DEGREE
BURNS WITH MULTIPLE TRAUMA
BURNS WITH AIRWAY COMPROMISE
CIRCUMFERENTIAL EXTREMITY BURNS

MANAGEMENT OF TRAUMA

- E — REMOVE JEWELRY/ CONSTRICTING ITEMS
- E — DRY STERILE DRESSING
- P — IV PROCEDURE X 2 LARGE BORE; NS 500ml/hr OR TITRATE BP >90
- P — PAIN MANAGEMENT
- P — 12/15 LEAD PROCEDURE EARLY IF ELECTROCUTION

TDP - BURNS

CONTACT MEDICAL CONTROL

PEARLS

- Circumferential burns to extremities are dangerous due to potential vascular compromise secondary to soft tissue swelling.
- Do not overlook the possibility of child abuse with children and chemical burn injuries.

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

NEAR DROWNING / DROWNING

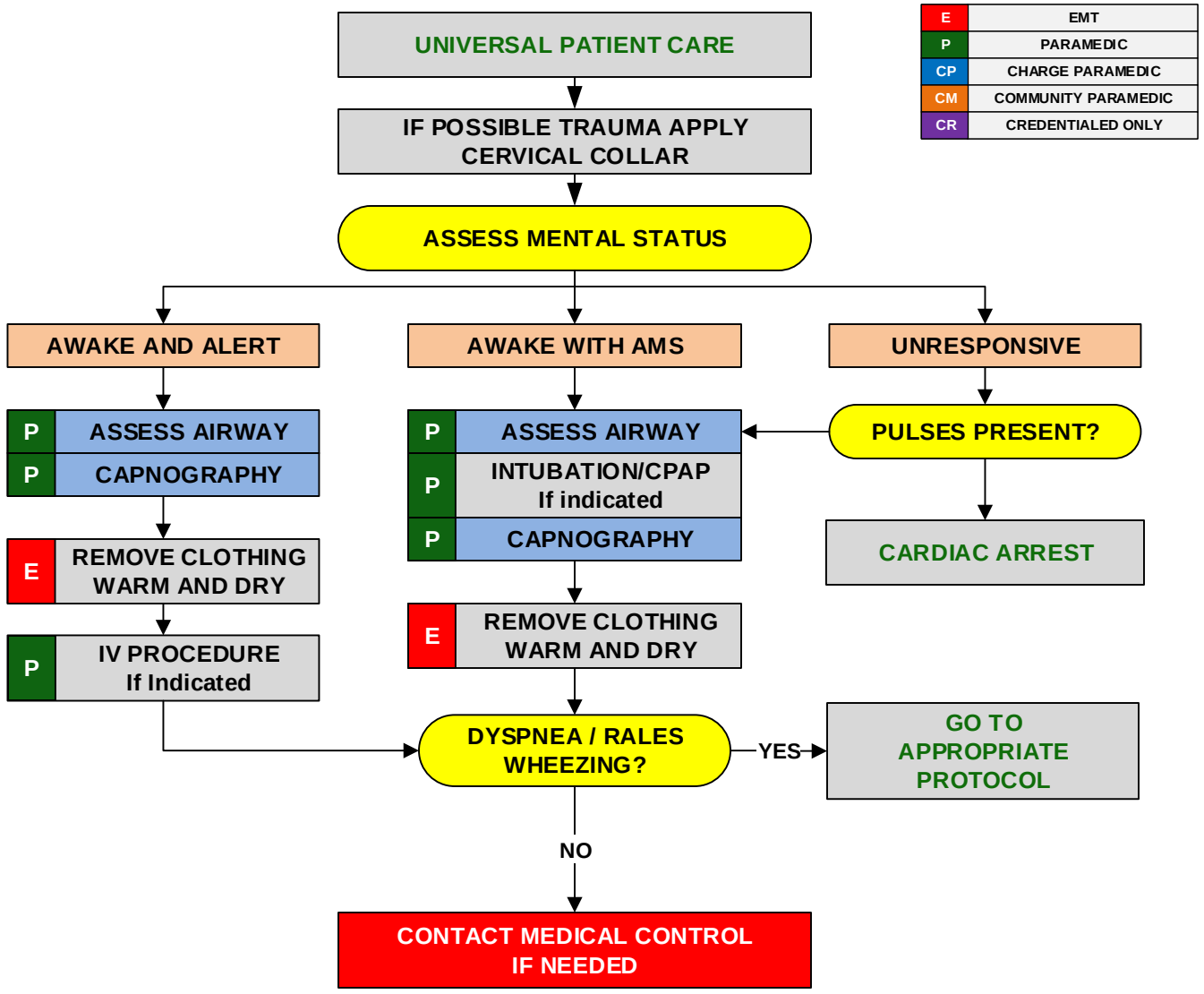
HISTORY

- Submersion in water regardless of depth
- Possible history of trauma ie: diving board or shallow water diving
- Duration of immersion
- Temperature of water
- Fresh / Salt water

SIGNS/SYMPTOMS

- Unresponsive
- Mental status change
- Decreased or absent vital signs
- Vomiting
- Coughing
- Rales / Rhonchi

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY



PEARLS

- With cold water drowning resuscitation may be effective even with extended down time.
- All victims should be transported for evaluation due to potential for **SECONDARY DROWNING** over the next several hours.
- **Drowning is a leading cause of death among would-be rescuers.**
- Allow appropriately trained and certified rescuers to remove victims from areas of danger.

PEARLS

NEAR DROWNING / DROWNING

NEAR DROWNING / DROWNING

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

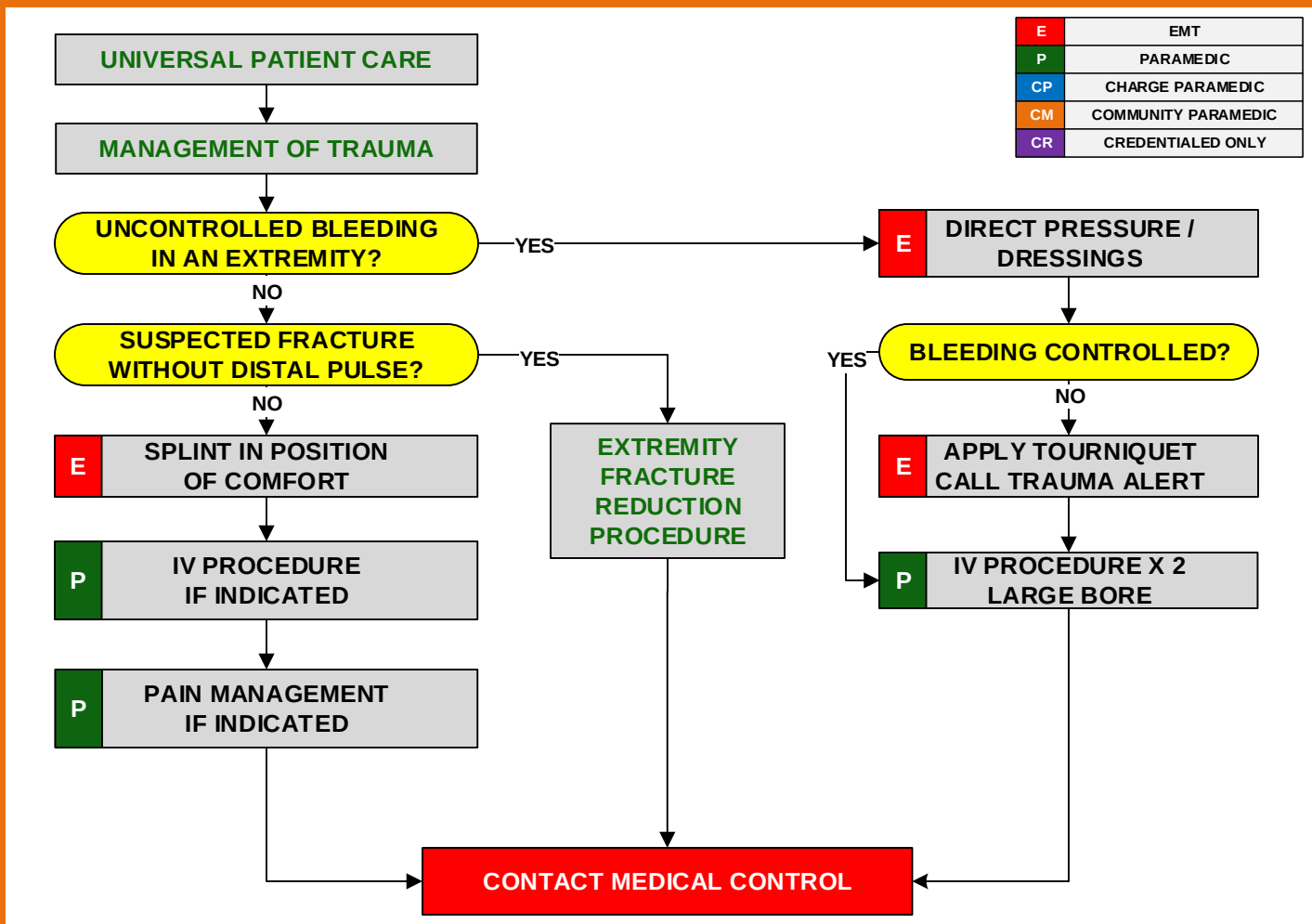
SUSPECTED FRACTURE /DISCLOCATION AND EXTREMITY INJURIES

HISTORY

- Fracture/Dislocation
- Arterial Bleeding
- Crush Injury
- Past medical history / Medications

SIGNS/SYMPTOMS

- Deformity, pain, swelling
- Weak or absent distal pulse
- Hypotension / shock
- Arterial bleed



FX / DISLOCATION -EXTREMITY INJURIES

FX / DISLOCATION -EXTREMITY INJURIES

PEARLS

- Peripheral nuerovascular status is important and should be examined and documented.
- Time is essential in a patient with vascular compromise, get your District Chief involved early to weigh the options.
- Hip dislocations and knee/elbow fractures have a high incidence of vascular compromise.
- Blood loss may be concealed or not apparent with extremity injuries.
- **MCI or obvious life threatening hemorrhage: Consider Tourniquet procedure FIRST.**

PEARLS

FX / DISLOCATION -EXTREMITY INJURIES

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

HYPERTHERMIA

HISTORY

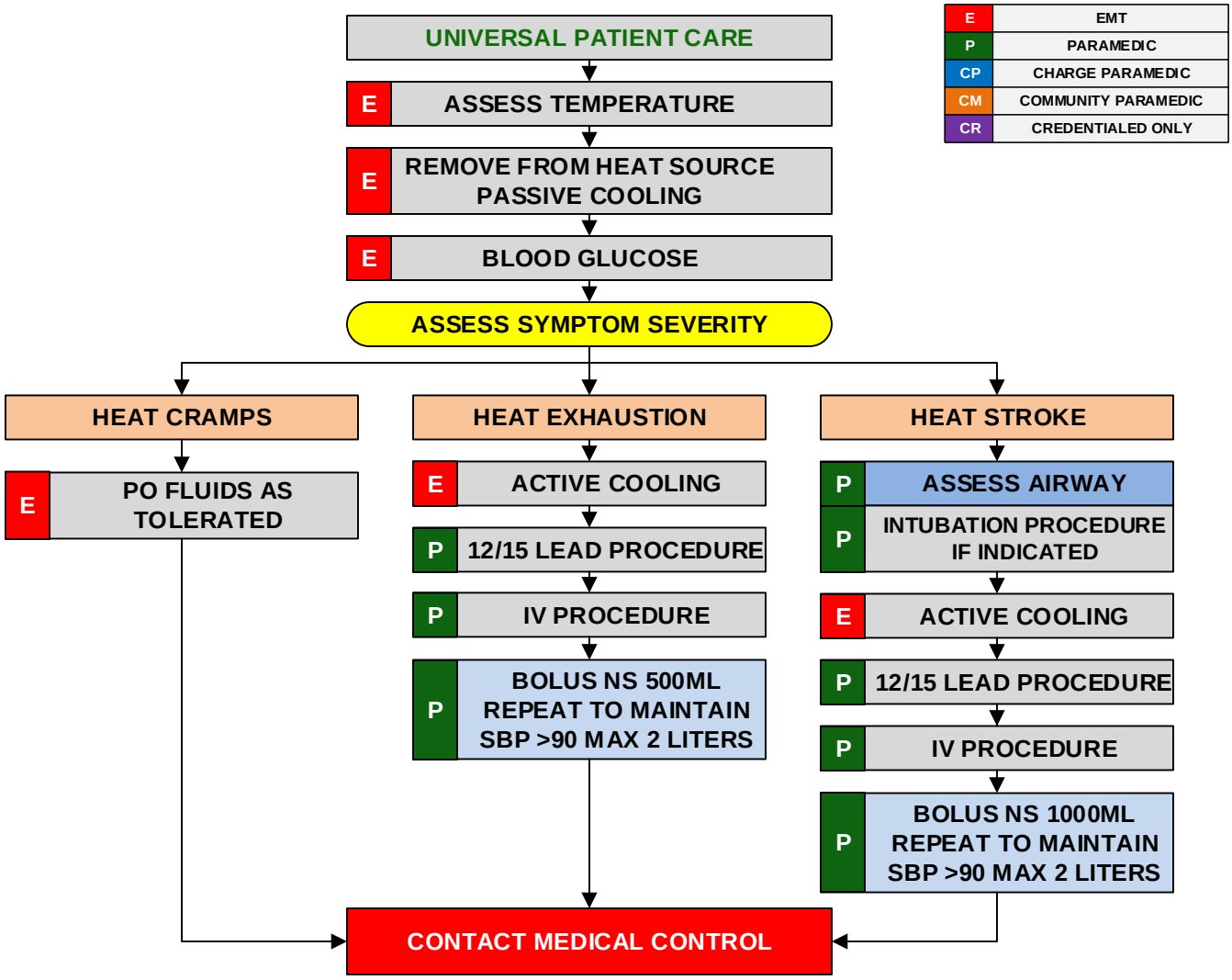
- Exposure to increased temperatures and / or humidity
- Past medical history / medications
- Extreme exertion
- Time and length of exposure
- Poor PO intake
- Fatigue and or / muscle cramping

SIGNS/SYMPTOMS

- Altered mental status or unconsciousness
- Hot, dry or sweaty skin
- Hypotension or shock
- Seizures
- Nausea

HYPERTHERMIA

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY



HYPERTHERMIA

PEARLS

- Extremes of age are more prone to heat emergencies.
- Patients are predisposed by use of tricyclic antidepressants, phenothiazines, anticholinergic medications, and alcohol.
- Cocaine, Amphetamines, and Salicylates may elevate body temperature.
- Sweating generally disappears as body temperature rises above 104 degrees F.
- Intense shivering may occur as patient is cooled.
- **HEAT CRAMPS** consist of benign muscle cramping secondary to dehydration and is not associated with an elevated temperature.
- **HEAT EXHAUSTION** presents with dehydration, salt depletion, dizziness, fever, weakness, mental status changes, headache, cramping, and nausea/vomiting. Vital signs usually reflect tachycardia, hypotension, and an elevated temperature.
- **HEAT STROKE** presents with dehydration, tachycardia, hypotension, temperature >104 degrees, and an altered mental status..

PEARLS

HYPERTHERMIA

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

HYPOTHERMIA

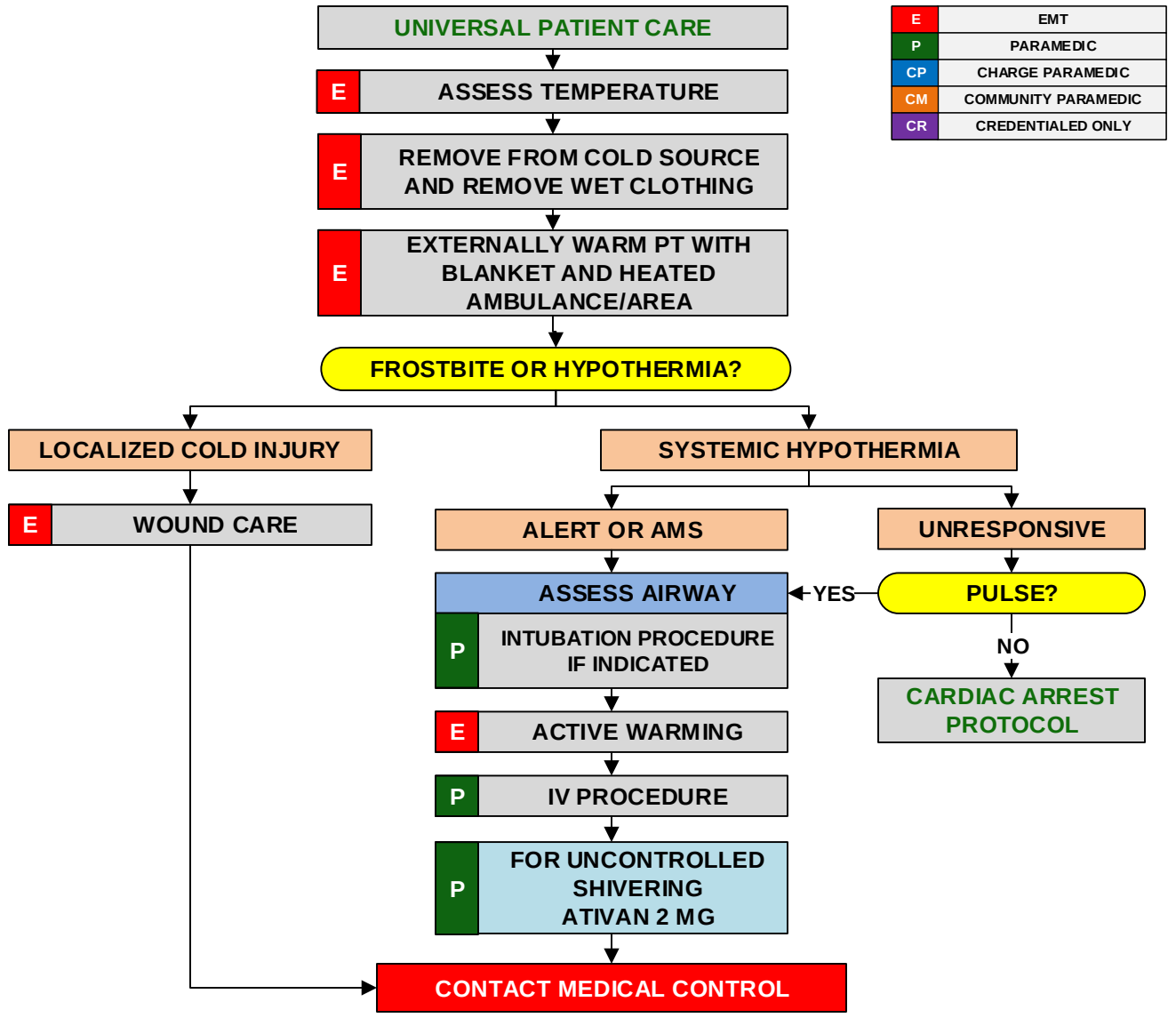
HISTORY

- Past medical history
- Medications
- Exposure to environment even in normal temperatures
- Exposure to extreme cold
- Extremes of age
- Length of exposure / Wetness

SIGNS/SYMPTOMS

- Cold, clammy
- Shivering
- Mental status change
- Extremity pain or sensory abnormality
- Bradycardia
- Hypotension or shock

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY



HYPOTHERMIA

HYPOTHERMIA

PEARLS

- **NO PATIENT IS DEAD UNTIL WARM AND DEAD.**
- Defined as core temperature <95 degrees F.
- Extremes of age are more susceptible.
- With temperatures less than 88 degrees F, ventricular fibrillation is most common cause of death. Handling patients gently may prevent this. These patients rarely respond to defibrillation.
- If the temperature is unable to be measured, treat the patient based on the suspected temperature.
- Hypothermia may produce severe bradycardia.
- Shivering stops below 90 degrees F.

PEARLS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

INHALATION / CYANIDE EXPOSURE

HISTORY	EARLY SIGNS/SYMPTOMS	LATE SIGNS/SYMPTOMS
• Smoke Inhalation with high potential of cyanide exposure • Signs/Symptoms not responding to treatment	• Headache, Mental status change • Chest Tightness / Pain • Dyspnea • Dilated Pupils • Tachypnea • Nausea/ Vomiting	• Bradypnea • Hypotension • Coma • Cardiac Arrest • Cardiovascular Collapse

INHALATION / CYANIDE EXPOSURE

HIGH SUSPICION OF CYANIDE EXPOSURE

- Exposed within last 48 hours to a structure fire
- Respiratory distress unrelieved by oxygen
- Known contact with industrial chemicals that use cyanide (metal plating, photo processing, plastics production, etc)
- Cardiac Arrest within 48 hours of exposure to a structure fire

UNIVERSAL PATIENT CARE
WEAR PPE AS DIRECTED BY COMMAND/HAZMAT

↓

MANAGEMENT OF TRAUMA

↓

ESTABLISH BASELINE SPO2 PRIOR TO ADMINISTERING OXYGEN 100%

↓

REMOVE CLOTHING
GROSS DECON IF SUDDEN ONSET

↓

12/15 LEAD PROCEDURE

IV PROCEDURE

↓

SIGNS / SYMPTOMS RESPONDING TO TREATMENT

YES → **MONITOR AND TRANSPORT**

NO ↓

ADVISE ECC OF "CYANIDE ALERT" TO CLOSEST FACILITY

↓

ONSET TYPE IS:

SUDDEN due to
- DIRECT CHEMICAL CONTACT
- UPON EXITING FIRE

↓

FULL BSI WITH PAPR/SCBA

ENSURE GROSS DECON PRIOR TO TRANSPORT

DELAYED due to
- PRIOR CONTACT WITH CHEMICAL
- INHALATION OF FIRE GASES

↓

USE PAPR MASK

↓

TRANSPORT AND ESTABLISH 2ND IV

↓

CONTACT MEDICAL CONTROL

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

FIRE/HAZMAT REQUIRED ON THESE INCIDENTS. DO NOT ENTER HAZARDOUS ENVIROMENTS WITHOUT PROTECTION

INHALATION / CYANIDE EXPOSURE

PEARLS

- Fire Department command will dictate protection levels in coordination with HAZMAT.
- Primary goal is to provide effective treatment, crew protection, and early hospital notification.
- Respiratory protection for crew during transport is required.

PEARLS

INHALATION / CYANIDE EXPOSURE

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

MANAGEMENT OF TRAUMA

HISTORY

- Time and mechanism of injury
- Damage/Location to/in structure or vehicle
- Speed and details of MVC
- Restraints / protective equipment
- Past medical history

SIGNS/SYMPTOMS

- Pain, swelling
- Deformity, lesions, bleeding
- Altered mental status or unconscious
- Hypotension or shock
- Arrest

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

RAPID TRAUMA ASSESSMENT
DETERMINE TRAUMA ALERT

UNIVERSAL PATIENT CARE

E ASSESS AIRWAY / VENTILATE
IF APPROPRIATE RR <8 or >30

ASSESS BREATHING:

E STABILIZE FLAIL SEGMENT
SEAL SUCKING CHEST WOUND

P DECOMPRESS TENSION PNEUMO

CALL TRAUMA ALERT AS SOON AS IDENTIFIED, CONTACT RECEIVING FACILITY AND GIVE CRITERIA / ETA

E ASSESS CIRCULATION
CONTROL MAJOR BLEEDING → FRACTURE / EXTREMITY TRAUMA

E NECK TO TOE
RAPID TRAUMA EXAM

TRAUMA ALERT?
UPDATE ETA WHEN ENROUTE

YES → TRANSPORT IMMEDIATELY PER TDP, ONLY EXCEPTION IS AIRWAY MANAGEMENT
SCENE TIME GOAL <15 MINS

NO

E SECONDARY ASSESSMENT

P IV PROCEDURE
IF INDICATED

P PAIN MANAGEMENT
IF INDICATED

TDP - TRAUMA

P REASSESS INTERVENTIONS

P IV PROCEDURE
LARGE BORE X TWO

P NS 500ml FLUID BOLUS
REPEAT TO MAINTAIN BP > 90

E SECONDARY ASSESSMENT
IF ABLE

P PAIN MANAGEMENT
IF INDICATED

CONTACT MEDICAL CONTROL

MANAGEMENT OF TRAUMA

MANAGEMENT OF TRAUMA

PEARLS

- The primary objective of major trauma management is rapid stabilization and transport to an appropriate receiving facility.
- Clothing should be removed to ensure a complete assessment.
- Follow the approved Trauma Transport Protocols

PEARLS

MANAGEMENT OF TRAUMA

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

BAROTRAUMA / SCUBA EMERGENCIES

HISTORY

- Recent scuba diving
- Max depth and number of dives
- Dive profile if available
- “Bottom Time” in dives
- Rate of ascent, safety stops used?
- Dive gas: air vs. mixed

SIGNS/SYMPTOMS

- Dizziness/Vertigo
- Respiratory distress and/or trauma
- Subcutaneous emphysema
- CNS Depression
- Joint pain
- “Bubbles” in body tissue

BAROTRAUMA / SCUBA EMERGENCIES

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

UNIVERSAL PATIENT CARE

DIVER ALERT NETWORK (DAN) (919)684-9111

IF DROWNING GO TO DROWNING PROTOCOL

DETERMINE TYPE

DECOMPRESSION ILLNESS (BENDS)

ONSET 1-6 HOURS

ASSESS AIRWAY

E HIGH FLOW OXYGEN

P IV PROCEDURE

DO NOT USE POSITIVE PRESSURE DEVICES ON THESE PATIENTS

AIR EMBOLISM

RAPID ONSET

ASSESS AIRWAY

P INTUBATION If indicated

E HIGH FLOW OXYGEN

E LEFT LATERAL RECUMBENT

P IV PROCEDURE

CONSIDER AIR TRANSPORT TO HYPERBARIC CHAMBER

CONTACT MEDICAL CONTROL

PEARLS

- With cold water drowning resuscitation may be effective even with extended down time.
- All victims should be transported for evaluation due to potential for worsening over the next several hours.
- **Drowning is a leading cause of death among would-be rescuers.**
- Allow appropriately trained and certified rescuers to remove victims from areas of danger.
- Injuries related to compressed air **(SCUBA)** need to be treated rapidly. This includes high-flow oxygen and recompression therapy in a hyperbaric chamber.
- **AIR EMBOLISM (EXPANSION INJURY)** usually occurs very rapidly following a dive. Signs and symptoms can include cough, chest pain, SOB, pulmonary edema, nausea/vomiting, paralysis, seizure, coma, and cardiac arrest.
- **DECOMPRESSION SICKNESS (THE BENDS)** usually occurs one to six hours after a dive. Symptoms include musculoskeletal pain or pain with associated neurological deficit.

PEARLS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

SPINAL MOTION RESTRICTION

ASSESSMENT

- Assess the scene to determine the risk of injury. Mechanism alone should not determine if a patient requires cervical spine immobilization.
- Assess the patient in the position he/she is found; Initial assessment should focus on determining whether or not a cervical collar needs to be applied.
- The providers clinical judgement is paramount in the decision to immobilize the spine. **Mechanism of Injury, clinical findings, and risk factors must be considered.**

CLINICAL INDICATIONS W/MOI

- AMS or inability to communicate
- Incapacitating intoxication
- Distracting painful injury
- Neurological deficit
- Spinal pain or tenderness

Risk Factors

- Advanced Age
- Concomitant head injury

SPINAL MOTION RESTRICTION

DO NOT HESITITATE TO PLACE A COLLAR IF UNCERTAIN

UNIVERSAL PATIENT CARE
ANY TRAUMATIC OR UNKNOWN REASON UNCONSCIOUS PATIENT

E — RAPID TRAUMA ASSESSMENT WITH MANUAL C-SPINE RESTRICTION

E — ASSESS MECHANISM OF INJURY, CLINICAL FINDINGS, AND RISK FACTORS

DOES PATIENT WARRANT FULL C-SPINE IMMOBILIZATION BASED ON ABOVE?

NO → E — FOR CERVICAL INJURY APPLY CERVICAL COLLAR ONLY

YES → E — FULLY IMMOBILIZE PATIENT

MANAGEMENT OF TRAUMA

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

SPINAL MOTION RESTRICTION

CLINICAL FINDINGS WHICH REQUIRE AT MINIMUM, PLACEMENT OF A C-COLLAR

- **COMPLAINT OF, OR PAIN UPON PALPATION OF MIDLINE NECK OR SPINE**
- **ANY ABNORMAL MENTAL STATUS (EXTREME AGITATION) OR NEUROLOGICAL DEFICIT**
- **ANY EVIDENCE OF ALCOHOL INTOXICATION**
- **A SEVERE OR PAINFUL DISTRACTING INJURY IS PRESENT**
- **COMMUNICATION BARRIER PREVENTS ACCURATE ASSESSMENT**

PEARLS

- Patients with pain will usually self limit movement
- If extrication is required
  a. From a vehicle: After placing a cervical collar if indicated, children in a booster seat and adults should be allowed to self extricate. For infants and toddlers already strapped in a car with a built-in harness, extricate the child while strapped in his/ her car seat.
  b. Other situations requiring extrication: A long board or KED may be used for extrication using the lift and slide rather than logroll technique.
  c. Patients should not be routinely transported on long spine boards, unless clinical situation warrants long spine board use. An example may be facilitation of immobilization of multiple extremity injuries or an unstable patient where removal of a board will delay transport and or other treatment priorities.
- Patients with penetrating injury to the neck should not receive spinal immobilization, regardless of whether they are exhibiting neurological symptoms or not. Doing so can lead to delayed identification of injury or airway compromise, and has been associated with increased mortality.

PEARLS

INDEX – OBSTETRIC

INDEX – OBSTETRIC

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

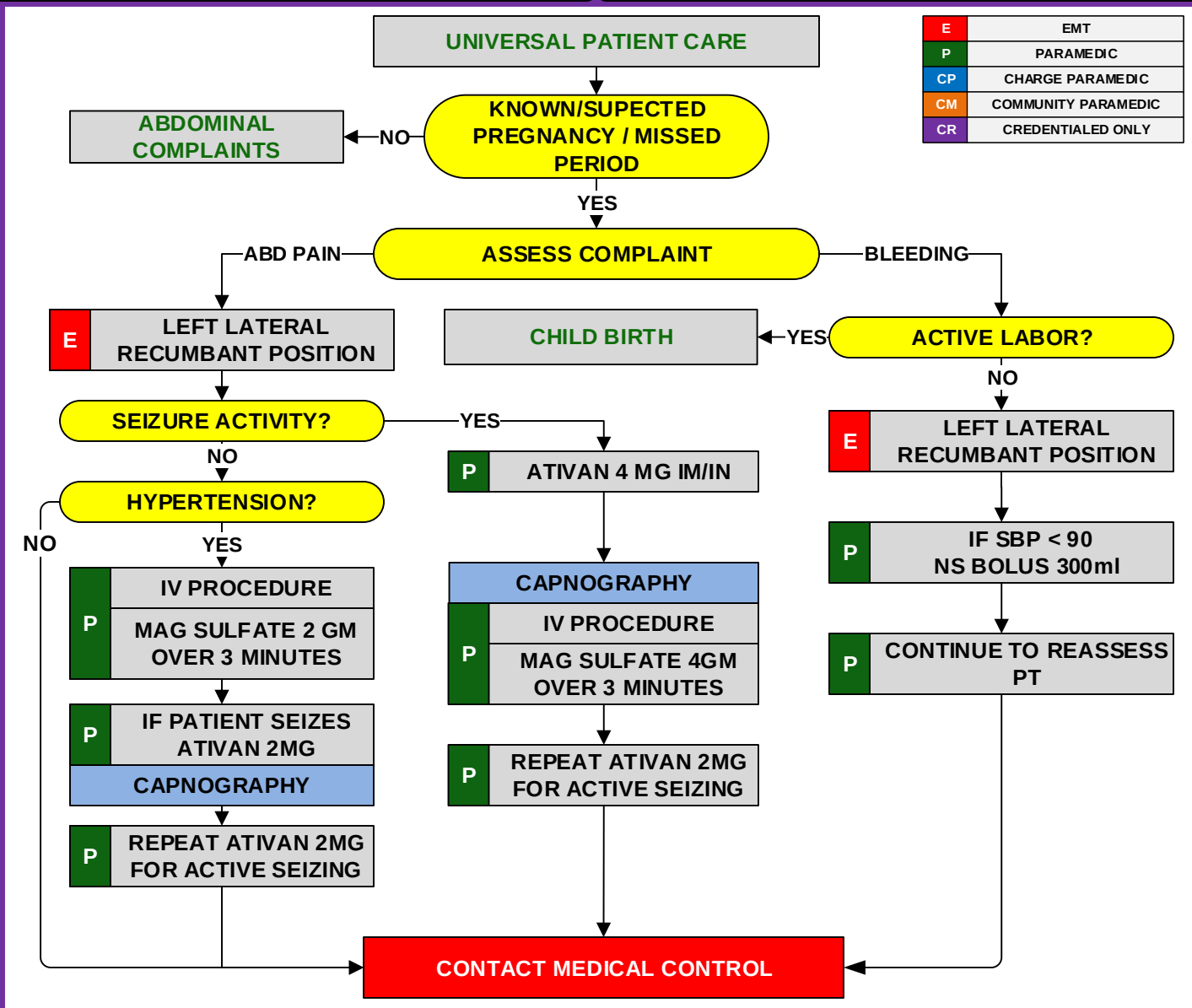
OBSTETRICAL EMERGENCIES

HISTORY

- Past medical history
- Hypertension meds
- Prenatal care
- Prior pregnancies / birth
- Gravida / Para
- Miscarriages

SIGNS/SYMPTOMS

- Vaginal bleeding
- Abdominal pain
- Seizures
- Hypertension
- Severe headache
- Visual changes
- Edema of Hands and Face



PEARLS

- Severe headache, vision changes, or RUQ pain may indicate preeclampsia.
- In the setting of pregnancy, hypertension is defined as a BP greater than 140 systolic or greater than 90 diastolic.
- Maintain patient in a left lateral position to minimize risk of supine hypotension syndrome.
- Ask patient to quantify bleeding – number of pads used per hour.
- Any pregnant patient involved in a MVC should be seen immediately by a physician for evaluation and fetal monitoring.
- Magnesium may cause hypotension and decreased respiratory drive. **USE WITH CAUTION**.
- With known pregnancy and severe vaginal bleeding consider miscarriage.
- Post-partum hemorrhage usually occurs after birth and before placenta is delivered. Always treat early if suspected.

PEARLS

OBSTETRICAL EMERGENCIES

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

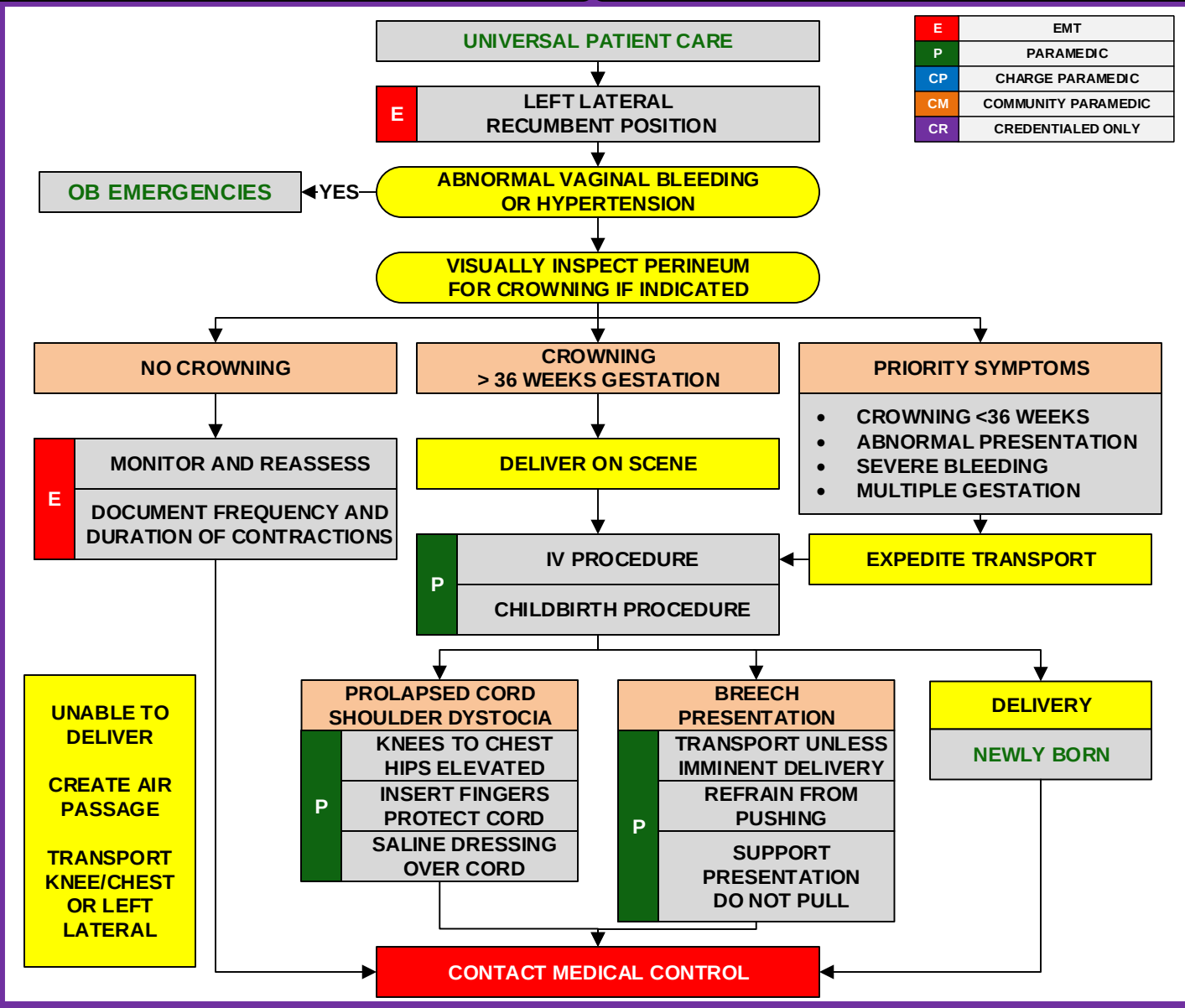
CHILD BIRTH

HISTORY

- Due date
- Time contractions started / how often
- Rupture of membranes
- Gravida / Para
- High risk pregnancy

SIGNS/SYMPTOMS

- Spasmotic pain
- Vaginal discharge or bleeding
- Crowning or urge to push
- Meconium



PEARLS

- Document all times including frequency and duration of contractions, and delivery.
- If maternal seizures occur, refer to the OB Emergencies protocol.
- After the delivery of the placenta, massaging the uterine fundus (lower abdomen) will promote uterine contraction and help to control post-partum bleeding.
- Encourage mother to nurse the baby. Keep baby warm with stocking cap and blankets.
- Some perineal bleeding is normal after birth. Large quantities of blood or free bleeding are abnormal.
- If **LIMB PROLAPSE** occurs have the mother assume knee-chest position. **DO NOT ALLOW MOTHER TO BEAR DOWN**.
- If unable to remove **CORD AROUND NECK** place 2 clamps 2" apart and cut the cord between the clamps. Unwrap the cord ends from around the baby's neck. Finish delivering the baby in less than 4 minutes.

PEARLS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

NEWLY BORN

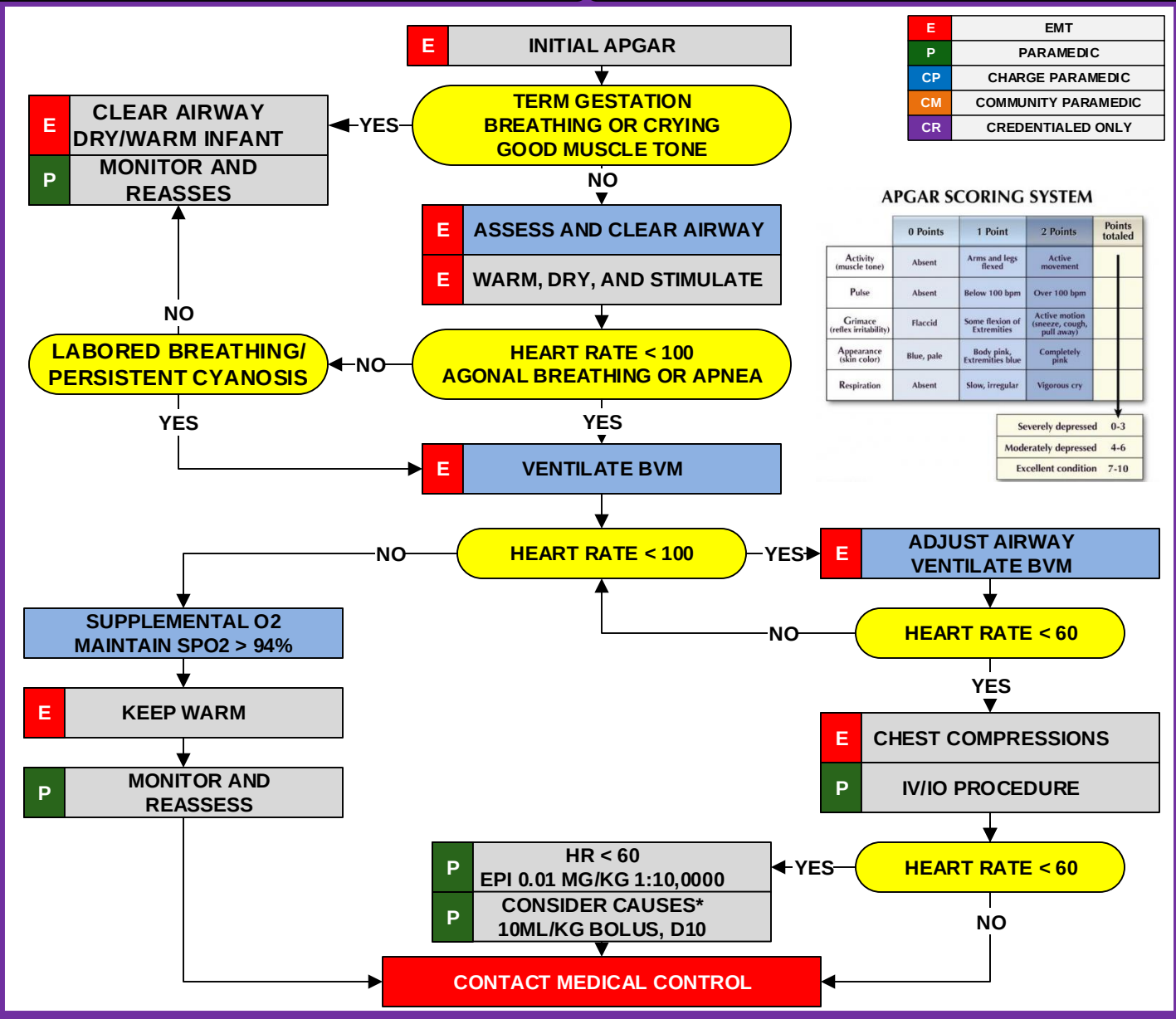
HISTORY

- Due date, gestational age
- Multiple gestation, delivery difficulties
- Meconium
- Medications (maternal)
- Maternal risk factors (smoking, sustance abuse)

SIGNS/SYMPTOMS

- Respiratory distress
- Peripheral cyanosis or mottling
- Central cyanosis (abnormal)
- Bradycardia
- Altered LOC

NEWLY BORN



NEWLY BORN

PEARLS

- Most newborns requiring resuscitation will respond to BVM ventilations, compressions, and/or epinephrine
- *Consider hypovolemia, pneumothorax, or hypoglycemia if not responding
- **Most important vital signs in the newborn are respiratory rate/effort and heart rate**
- Heart rate best assessed by auscultation.
- **Expected pulse oximetry readings:** Following birth at 1 minute = 60-65%, 2 minutes = 65-70%, 3 minutes = 70-75%, 4 minutes = 75-80%, 5 minutes = 80-85%, 10 minutes = 85-95%
- CPR in newborns is 120 compressions/minute with a 3:1 compression to ventilation ratio.
- Keep newborn warm!
- D10 = D50 diluted (1ml D50 with 4ml NS)

PEARLS

NEWLY BORN

INDEX – PEDIATRIC

INDEX – PEDIATRIC

INDEX – PEDIATRIC

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

PEDIATRIC CARDIAC ARREST

HISTORY

- Events leading to the arrest
- Estimated downtime
- Past medical history, Medications
- Existence of terminal illness, DNR, or living will
- Signs of lividity, rigor mortis
- Signs of Abuse

SIGNS/SYMPTOMS

- Unresponsive
- Apneic
- Pulseless

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

PEDIATRIC CARDIAC ARREST

UNIVERSAL PATIENT CARE
LEO NOTIFICATION

CRITERIA FOR DEATH MET? — YES → **WITHHOLD CPR**

NO

NEWLY BORN OR < 28 DAYS OLD? — YES → **NEWLY BORN**

NO

E TEAM BASED CPR

COMPRESSION RATE 100-120
INFANT – 1.5 INCHES
CHILD – 2 INCHES
ROTATE COMPRESSORS
PULSE CHECKS < 10 secs

ALS AVAILABLE?

NO

- **E** AUTOMATED DEFIBRILATOR PROCEDURE (If pads fit)
- **E** BLS AIRWAY MANAGEMENT
- INTERRUPT COMPRESSIONS ONLY AS PER AED PROCEDURE.
  VENTILATE WITH ONE BREATH EVERY 3-5 SECONDS
- **E** CONSIDER I-GEL AFTER 3 ROUNDS OF CPR COMPLETE (6 MINUTES) AND NO ALS ON SCENE – IF CORRECT SIZE AVAILABLE

YES

- **P** ASSESS ECG RHYTHM
- **E** BLS AIRWAY MANAGEMENT
- GO TO APPROPRIATE PROTOCOL
  - PEDIATRIC VFIB/VTAC
  - PEDIATRIC AYSTOLE/PEA

CARDIAC ARREST PATIENTS SHOULD BE WORKED WHERE FOUND FOR 20 MINUTES. AIRWAY AND EFFORTS TO RESTORE CIRCULATION IS THE PRIMARY GOAL

PEDIATRIC CARDIAC ARREST

PEARLS

- Success is based on proper planning and execution. Procedures require space and patient access. Make room to work.
- **CPR** should not be interrupted for more than 10 seconds, or 15 under extreme circumstances.
- **CPR** by ALS personnel may only be discontinued upon order of the Supervising Physician
- Consider ALS Backup.
- **ADEQUATE** compressions with timely defibrillation are the keys to success.

PEARLS

PEDIATRIC CARDIAC ARREST

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

PEDIATRIC V-FIB / PULSELESS V-TACH

HISTORY

- Estimated downtime, Events leading to arrest
- Past Medical history
- Medications
- Possibility of foreign body
- Hypothermia
- Suspected abuse

SIGNS/SYMPTOMS

- Unresponsive
- Cardiac arrest

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

***2 MINUTES OF HIGH QUALITY CPR SHOULD BE INITIATED IMMEDIATELY AFTER EACH DEFIBRILLATION**

CARDIAC ARREST PROTOCOL

- P **DEFIBRILLATE 2 JOULES/KG**
- P **ESTABLISH VENOUS ACCESS IV/IO**
- P **EPINEPHRINE 1:10,000**
  0.01 MG/KG IV/IO
  OR
  EPINEPHRINE 1:,1000
  0.1 MG/KG ETT
- P **DEFIBRILLATE 4 JOULES/KG**
- P **INTUBATION PROCEDURE**
- P **AMIODARONE 5MG/KG IV/IO**
  MAX DOSE 300MG
- P **DEFIBRILLATE 6 JOULES/KG**
- P **EPINEPHRINE 1:10,000**
  0.01 MG/KG IV/IO
  OR
  EPINEPHRINE 1:1000
  0.1 MG/KG ETT
- P **DEFIBRILLATE 8 JOULES/KG**
- P **AMIODARONE 5MG/KG IV/IO NOT TO EXCEED TOTAL OF 450MG**
- **CONTACT MEDICAL CONTROL**

AT ANY TIME

Return of Spontaneous Circulation

Go to Post Resuscitation Protocol

AT ANY TIME

Rhythm Changes to nonshockable rhythm

Go to Appropriate Protocol

PEDIATRIC V-FIB / PULSELESS V-TACH

PEDIATRIC V-FIB / PULSELESS V-TACH

PEARLS

- **Maximum doses: Epinephrine 1:10,000 – 1 mg (**each administration) **Amiodarone - 450mg total**
- For ventricular fibrillation in children less than 8 yoa, rapid defibrillation is the most effective treatment.
- Go to **PEDIATRIC POST RESUSCITATION** protocol if return of spontaneous circulation occurs at any point.

PEARLS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

PEDIATRIC
PEA / ASYSTOLE

HISTORY

- Estimated downtime, Events leading to arrest
- Past Medical history
- Medications
- Possibility of foreign body
- Hypothermia
- Suspected abuse

SIGNS/SYMPTOMS

- Unresponsive
- Cardiac arrest

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

CARDIAC ARREST PROTOCOL

P **ESTABLISH VENOUS ACCESS IV/IO**

TREAT CORRECTABLE CAUSES

HYPOXIA
TENSION PNEUMOTHORAX

- E **ASSESS LUNG SOUNDS***
  ADEQUATE VENTILATION*
- P **INTUBATION PROCEDURE***
  CHEST DECOMPRESSION*

HYPOVOLEMIA
HYPOGLYCEMIA
ACIDOSIS

- P **20ML/KG FLUID BOLUS***
- P **D25 0.5 GM/KG OR D10 5ML/KG***
- P **SODIUM BICARB 1MEQ/KG***

***CHECK PULSES AFTER EVERY INTERVENTION**

TOXINS
HYPOTHERMIA

- P **NARCAN 0.1 MG/KG***
- E **WARM PATIENT***

P **EPINEPHRINE 1:10,000**
0.01 MG/KG IV/IO
OR
EPINEPHRINE 1:1000
0.1 MG/KG ETT
REPEAT EVERY 3-5 MIN

CONTACT MEDICAL CONTROL

AT ANY TIME

Return of Spontaneous Circulation

Go to Post Resuscitation Protocol

PEDIATRIC PEA / ASYSTOLE

PEDIATRIC PEA / ASYSTOLE

PEARLS

- **Maximum doses: Epinephrine 1:10,000 – 1 mg (**each administration) **Amiodarone - 450mg total**
- For ventricular fibrillation in children less than 8 yoa, rapid defibrillation is the most effective treatment.
- Go to **PEDIATRIC POST RESUSCITATION** protocol if return of spontaneous circulation occurs at any point.

PEARLS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

PEDIATRIC WIDE COMPLEX TACHYCARDIA

HISTORY

- Syncope / Near syncope
- History of palpitations / heart racing
- Past medical history, Drug Use
- Congenital heart disease
- Respiratory distress
- QRS > 0.9

SIGNS/SYMPTOMS

- Runs or sustained V-Tach on ECG
- Shortness of Breath
- Chest Pain
- Dizziness
- Heart rate **CHILD >180/bpm**
  INFANT >220/bpm
- **NO RADIAL PULSES = UNSTABLE**

PEDIATRIC WIDE COMPLEX TACHYCARDIA

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

UNIVERSAL PATIENT CARE

P **12/15 LEAD PROCEDURE**

P **ESTABLISH IV/IO ACCESS**

SIGNS OF POOR PERFUSION? HYPOTENSION, ALOC, OR SHOCK

NO (STABLE)

P **ADENOSINE 0.1 MG/KG IF REGULAR AND MONOMORPHIC**

P **AMIODARONE INFUSION 5 MG/KG OVER 20 MINS**

P **AMIODARONE MAINTENANCE DRIP 5 MCG/KG/MINUTE**

YES (UNSTABLE)

CP **CONSIDER SEDATION VERSED 0.1 MG/KG IV/IO**

P **SYNC CARDIOVERSION 1 j/kg**

P **SYNC CARDIOVERSION 2 j/kg**

P **SYNC CARDIOVERSION 2 j/kg**

CONTACT MEDICAL CONTROL

PEDIATRIC WIDE COMPLEX TACHYCARDIA

PEARLS

- Anytime a rhythm converts with an anti-arrhythmic, a maintenance drip should be started.
- **AMIODARONE MAINTENANCE DRIP:** 5-15mcg/kg/min-titrate to effect to prevent return of PVC's or V-Tach.
- Carefully evaluate the rhythm to distinguish Sinus Tachycardia, SVT, and Ventricular tachycardia.
- Pediatric pads should be used in children < 10 kg or Pediatric Measuring Tape color purple.
- Monitor for respiratory depression and hypotension if **VERSED** is used.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- **DO NOT** delay synchronized cardioversion to obtain IV access.

PEARLS

PEDIATRIC WIDE COMPLEX TACHYCARDIA

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

PEDIATRIC NARROW COMPLEX TACHYCARDIA

HISTORY

- Syncope / Near syncope
- History of palpitations / heart racing
- Past medical history
- Drug use OR toxic ingestion
- Congenital heart disease
- Respiratory distress

SIGNS/SYMPTOMS

- Runs or sustained V-Tach on ECG
- Shortness of Breath
- Chest Pain
- Dizziness
- Heart rate **CHILD 1-8 yrs >180/bpm**
  INFANT < 1 yrs >220/bpm

PEDIATRIC NARROW COMPLEX TACHYCARDIA

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

UNIVERSAL PATIENT CARE

P 12/15 LEAD PROCEDURE

P ESTABLISH IV/IO ACCESS

SIGNS OF POOR PERFUSION?
HYPOTENSION, ALOC, OR SHOCK

NO (STABLE)

DETERMINE PROBABLE TACHYCARDIA TYPE

SINUS

P SEARCH FOR AND TREAT CAUSES

FEBRILE
DEHYDRATION
DRUG EXPOSURE

GO TO APPROPRIATE PROTOCOL

SUPRAVENTRICULAR

P VAGAL MANUEVERS
ICE PACK / VALSAVA

P ADENOSINE
0.1 MG/KG
MAX 6MG

P ADENOSINE
0.2 MG/KG
MAX 12MG

CONTACT MEDICAL CONTROL
CONSULT ORDER -
AMIODARONE

YES (UNSTABLE)

CP CONSIDER SEDATION
VERSED 0.1 MG/KG IV/IO

P SYNC CARDIOVERSION 1 j/kg

P SYNC CARDIOVERSION 2 j/kg

P SYNC CARDIOVERSION 2 j/kg

PEDIATRIC NARROW COMPLEX TACHYCARDIA

PEARLS

- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- Monitor for respiratory depression and hypotension if Versed is used.
- Carefully evaluate the rhythm to distinguish Sinus Tachycardia, SVT, and Ventricular Tachycardia.
- Separating the child from the caregiver may worsen the child's clinical condition.
- Pediatric pads should be used in children < 10 kg or Pediatric Measuring Tape color purple.
- Therapy for Sinus Tachycardia is aimed at treating the underlying cause. Fever, pain, sepsis, or blood loss are typical causes in children.
- DO NOT delay synchronized cardioversion to obtain IV access.

PEARLS

PEDIATRIC NARROW COMPLEX TACHYCARDIA

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

PEDIATRIC POST CARDIAC EVENT

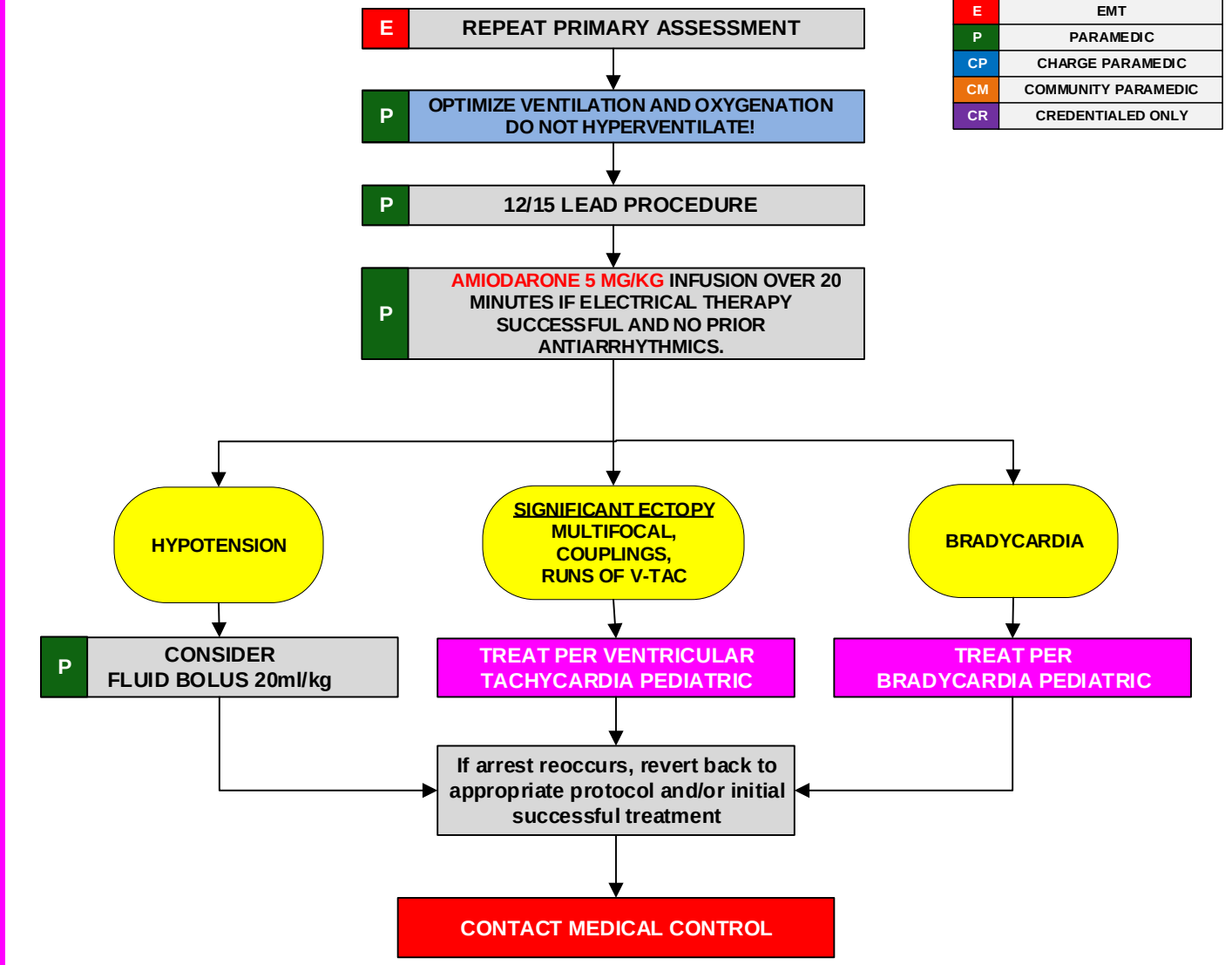
HISTORY

- Cardiac Arrest
- Respiratory Arrest
- Tachycardia

SIGNS/SYMPTOMS

- Return of Spontaneous Pulse (ROSC)
- Post Cardioversion

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY



PEDIATRIC POST CARDIAC EVENT

PEDIATRIC POST CARDIAC EVENT

PEARLS

- **AMIODARONE DRIP:** 5-15mcg/kg/min-titrate to effect (PVCs are relieved)
- When **ROSC** occurs from use of antiarrhythmic drug, a maintenance drip should be established.
- The condition of post-resuscitation patients fluctuates rapidly and continuously, thus requiring close monitoring. Appropriate post-resuscitation management may be planned in consultation with medical control.
- Hyperventilation is a significant cause of hypotension and recurrence of cardiac arrest in the post resuscitation phase and must be avoided at all costs.
- The majority of pediatric arrests are due to airway problems.
- Hypoglycemia, severe dehydration, and narcotic effects may produce bradycardia.

PEARLS

PEDIATRIC POST CARDIAC EVENT

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

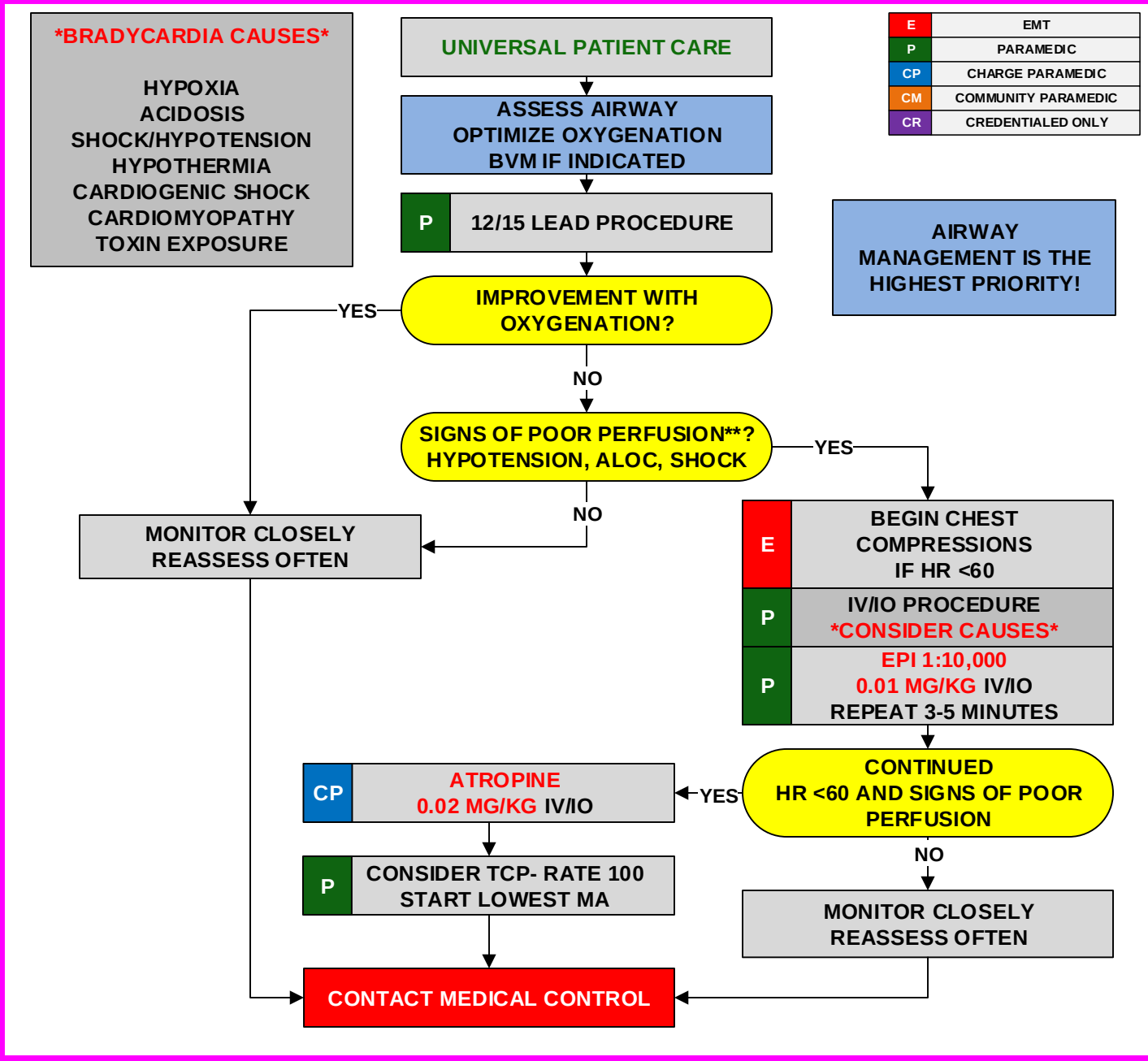
PEDIATRIC BRADYCARDIA

HISTORY

- Past Medical History, Medications
- Respiratory distress or arrest
- Congenital Disease
- Toxins or exposure
- Foreign body in airway

SIGNS/SYMPTOMS

Decreased heart rate
Hypotension
Shock: poor end organ perfusion
Chest pain or discomfort
Altered level of consciousness
Sudden Collapse



PEDIATRIC BRADYCARDIA

PEDIATRIC BRADYCARDIA

PEARLS

- **Airway management is the highest priority.**
- **Symptomatic bradycardia indicates poor perfusion, hypotension, lack of brachial pulses, altered LOC, and/or respiratory difficulty.
- The majority of pediatric arrests are due to airway problems.
- Hypoglycemia, severe dehydration, and narcotic effects may produce bradycardia.

PEARLS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

PEDIATRIC RESPIRATORY DISTRESS

HISTORY

- Past Medical History, Medications
- Respiratory distress or arrest
- Congenital Disease
- Toxins or exposure
- Foreign body in airway

SIGNS/SYMPTOMS

Decreased heart rate
Hypotension
Shock: poor end organ perfusion
Chest pain or discomfort
Altered level of consciousness
Sudden Collapse

PEDIATRIC RESPIRATORY DISTRESS

PEDIATRIC PATIENTS DETERIORATE QUICKLY

HAVE AIRWAY EQUIPMENT READILY AVAILABLE AND PREPARED

UNIVERSAL PATIENT CARE

P — 12/15 LEAD PROCEDURE IF INDICATED

ASSESS LUNG SOUNDS AND PATIENT PRESENTATION
USE CAUTION IF SUSPECTED CROUP / EPIGLOTITUS

WHEEZING / ASTHMA

E — NEBULIZER ALBUTEROL 2.5 MG
P — IPRATROPIUM 0.5 MG
P — FOR SEVERE DISTRESS EPI 1:1000 0.01MG/KG IM THIGH
P — ESTABLISH IV/IO ACCESS
P — SOLU-MEDROL 2 MG/KG IV

UPPER AIRWAY CROUP / EPIGLOTITIS

P — FOR ACTIVE STRIDOR WHILE AT REST BLOW BY NEBULIZER EPI 1:1000 3MG IN 3ML NS

MONITOR AND TRANSPORT CAREFULLY. DO NOT SEPARATE FROM KNOWN ADULT IF PATIENT REMAINS CALM

PULMONARY EDEMA

P — HIGH FLOW OXYGEN POSITION SITTING UPRIGHT WITH KNEES BENT AT 90 DEGREES
P — ESTABLISH IV/IO ACCESS

TRANSPORT PER TDP PEDIATRIC

CONTACT MEDICAL CONTROL

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

PEDIATRIC RESPIRATORY DISTRESS

PEARLS

- **ASTHMA** is a disease of the lungs in which muscle spasms in the small air passageways and the production of large amounts of mucus result in airway obstruction.
- **DO NOT** adjust a child's position. They will protect their airway by their body position.
- **BRONCHIOLITIS** is a viral infection typically affecting infants. It results in wheezing which may not respond to albuterol.
- **CROUP** typically affects children < 2yoa. It is viral with a gradual onset. Fever may be present, but drooling is uncommon.
- **EPIGLOTTITIS** typically affects children > 2 yoa. It is bacterial with fever, rapid onset, and possible stridor. Patients typically sit up to keep airway open and drooling is common. Airway manipulation may worsen the condition.

PEARLS

PEDIATRIC RESPIRATORY DISTRESS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

PEDIATRIC SHOCK / HYPOTENSION

HISTORY

- Blood loss – gastrointestinal bleeding,
- Fluid loss – vomiting, diarrhea, fever
- Infection
- Allergic reaction
- Congenital defects

SIGNS/SYMPTOMS

- Restlessness, confusion
- Weakness, dizziness
- Weak rapid pulse
- Pale, cool, clammy skin
- Delayed capillary refill
- Hypotension

PEDIATRIC SHOCK / HYPOTENSION

HYPOTENSION IS DEFINED AS

AGE 11+
<90 SYSTOLIC

AGE 1-10
BP OF 70 + (AGE X 2)

AGE < 1
SIGNS OF POOR PERFUSION

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

UNIVERSAL PATIENT CARE

ASSESS AIRWAY

E — **12/15 LEAD PROCEDURE IF INDICATED**

P — **IV/IO PROCEDURE**

IDENTIFY PROBABLE CAUSE

CARDIOGENIC SHOCK OR NEONATE

P — **FLUID BOLUS 10 ML/KG NS**

P — **CARDIOGENIC SHOCK ONLY - IF NO EFFECT DOPAMINE 5 MCG/KG/MIN**

VOLUME LOSS INFECTION/SEPSIS

P — **FLUID BOLUS 20 ML/KG NS**

P — **IF NO EFFECT, AND PT REMAINS SYMPTOMATIC REPEAT FLUID BOLUS 20 ML/KG NS**

CONTACT MEDICAL CONTROL

PEDIATRIC SHOCK / HYPOTENSION

PEARLS

- DO NOT rely solely on blood pressure to diagnose shock.
- Falling or low blood pressure, tachycardia, cold clammy skin, confusion, or restlessness are all signs of hypovolemia.
- Remember children and young adults compensate well and distress will not be apparent in early stages.
- DO NOT overlook the possibility of child abuse.

PEARLS

PEDIATRIC SHOCK / HYPOTENSION

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

PEDIATRIC ALLERGIC REACTION

HISTORY

- Onset and location
- Insect sting or bite
- Food allergy / exposure
- Medication allergy / exposure
- New clothing (Soap, detergent)
- Past history of reactions / Past medical history
- Medication history (Epi pen)

SIGNS/SYMPTOMS

- Glottic edema – Partial airway obstruction (Stridor,Cyanosis or Dysphoria)
- Anaphylactic shock
- Bronchospasm (Wheezing prolonged exhalation phase)
- Severe urticaria (Facial, tongue or mouth edema)

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

PEDIATRIC ALLERGIC REACTION

UNIVERSAL PATIENT CARE

DETERMINE PATIENTS LEVEL OF DISTRESS

MILD (Itching, Rash)

P — BENADRYL 1MG/KG LIQUID PO MAX 50MG

MODERATE (Glottic Edema, Urticaria)

E — EPI PEN JR 0.15 IM IN THIGH

OR

P — EPI 1:1000 0.01 MG/KG IM THIGH

SEVERE (Anaphalaxis)

E — EPI PEN JR 0.15 IM IN THIGH

OR

P — EPI 1:1000 0.01 MG/KG IM THIGH

P — IV PROCEDURE

P — BENADRYL 1 MG/KG IV/IM

P — ALBUTEROL 2.5MG Nebulizer if indicated

P — FAMOTIDINE 1 MG/KG IV/PO, MAX 20MG

E P — REPEAT EPI IM AFTER 5 MINS IF NO IMPROVEMENT

CONTACT MEDICAL CONTROL

PEDIATRIC ALLERGIC REACTION

PEARLS

- Anytime a pediatric patient receives **EPINEPHRINE 1:1000,** they should also receive **BENADRYL 1 mg/kg, unless it was given PO prior**. Contact medical control for direction.
- The shorter the onset from contact to symptoms, the more severe the reaction.
- Anaphylaxis is an acute generalized antigen-antibody reaction that can be rapidly fatal. These reactions can present as a mild to severe response. Management is based upon the severity of the reaction.

PEARLS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

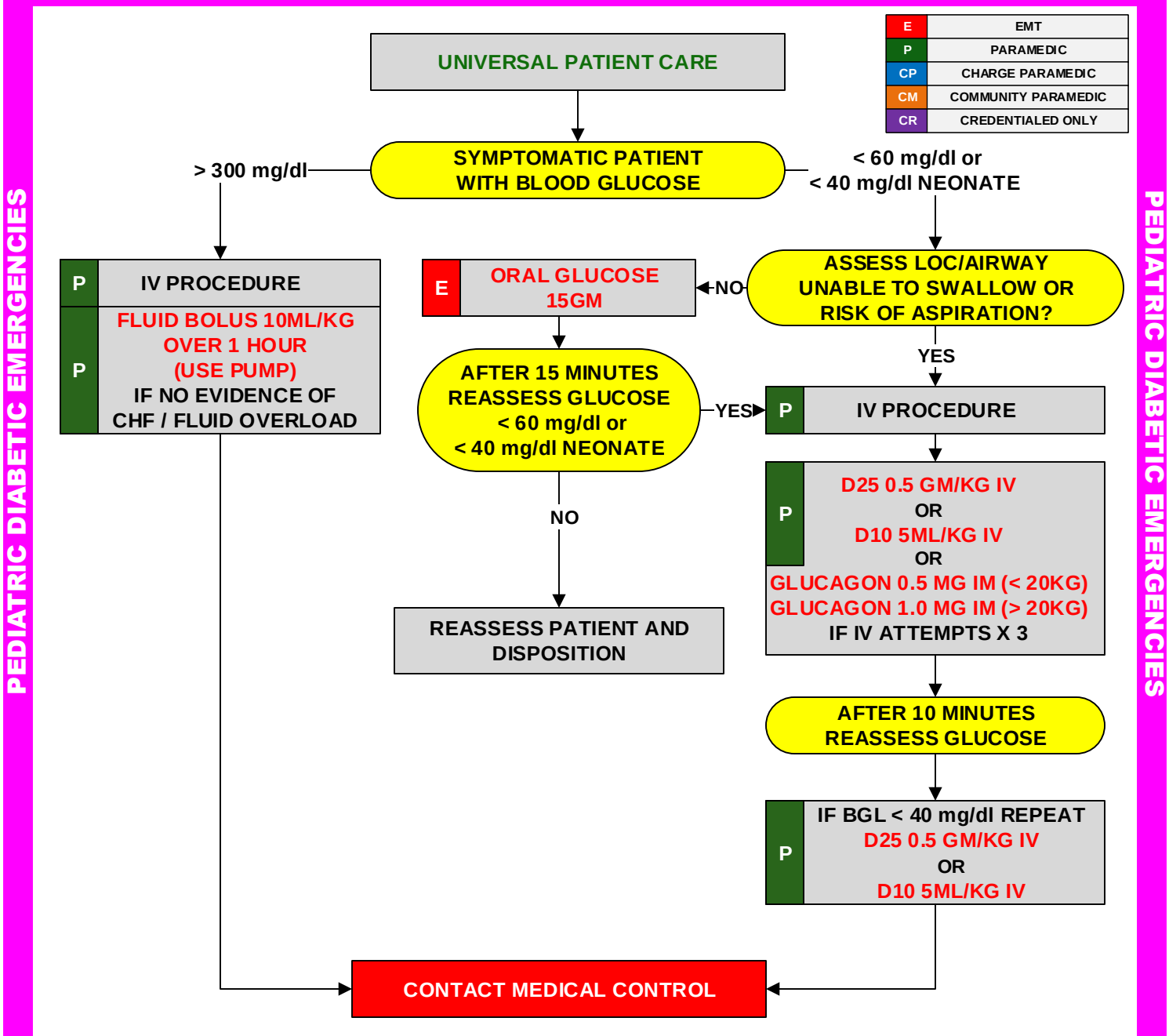
PEDIATRIC DIABETIC EMERGENCIES

HISTORY

- Known diabetic, medic alert tag
- Past medical history
- Medications
- Change in condition
- Neonate is 0-28 days old

SIGNS/SYMPTOMS

- Decreased mental status
- Change in baseline mental status
- Bizarre behavior
- Hypoglycemia (cool, diaphoretic skin)
- Hyperglycemia (warm, dry skin, fruity breath, kussmaul respirations, signs of dehydration)



PEARLS

- It is safer to assume hypoglycemia than hyperglycemia if doubt exists. Recheck blood glucose after D50, D10, or Glucagon.
- Dose of D25 or D10 may be titrated to effect. Effect being patient returns to baseline mentation.
- Consider soft restraints if necessary for patients and/or personnel safety. Document if applied.

PEARLS

PEDIATRIC DIABETIC EMERGENCIES

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

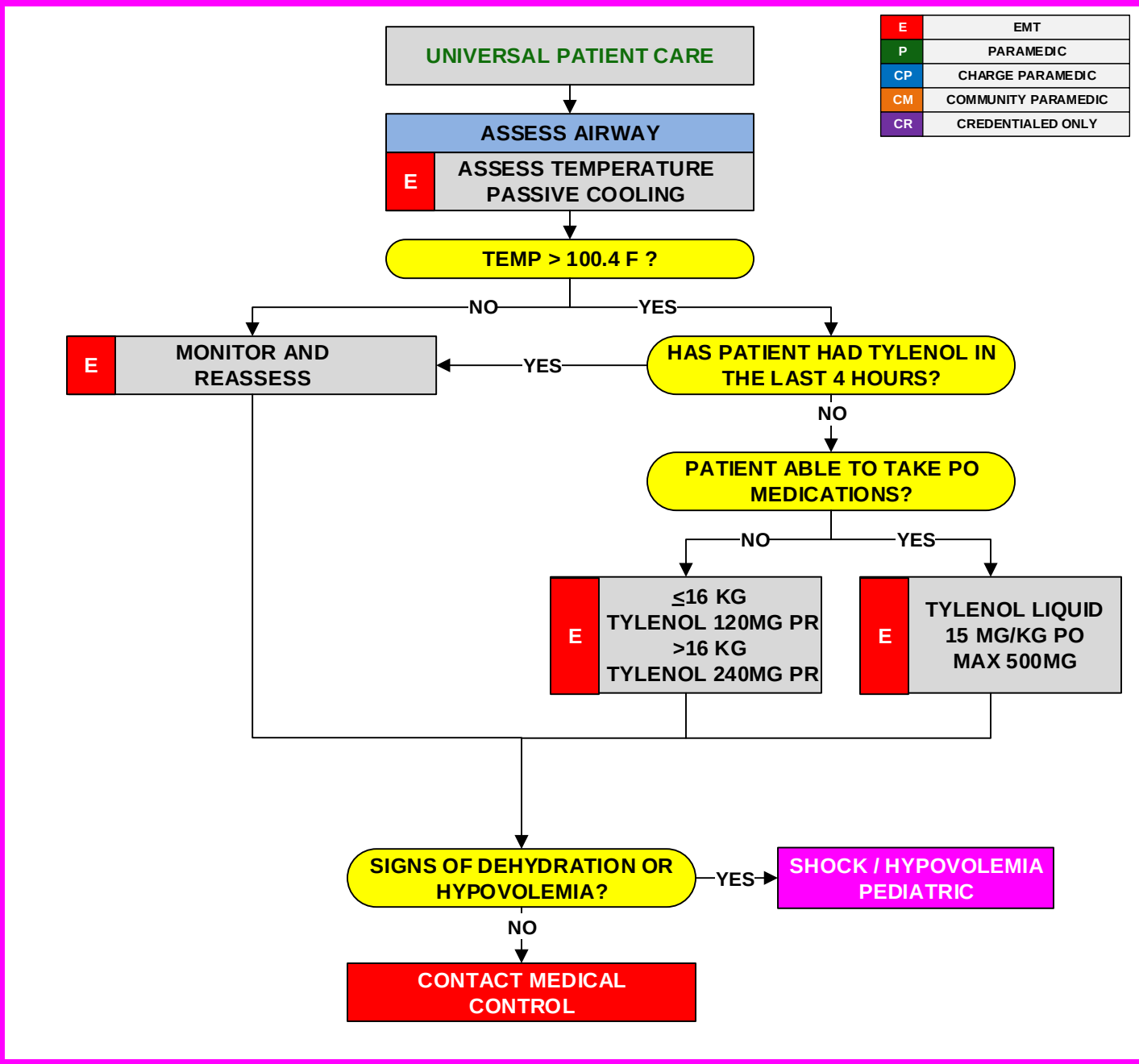
PEDIATRIC FEVER MANAGEMENT

HISTORY

- Virus
- Bacterial infection
- Sepsis
- Cancer
- Autoimmune disease
- Hyperthyroidism
- Illicit drug exposure

SIGNS/SYMPTOMS

- Altered mental status
- Weakness, fatigue
- Sweating, chills
- Cough, sore throat
- Rash
- Headache
- Muscle aches



PEDIATRIC FEVER MANAGEMENT

PEDIATRIC FEVER MANAGEMENT

PEARLS

- Avoid Tylenol in patients with liver problems.
- **DO NOT** administer **TYLENOL** if pt has had it within the last **4 hrs.**
- The decision to initiate IV access must be considered by a risk versus benefit evaluation by the Charge Paramedic.

PEARLS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

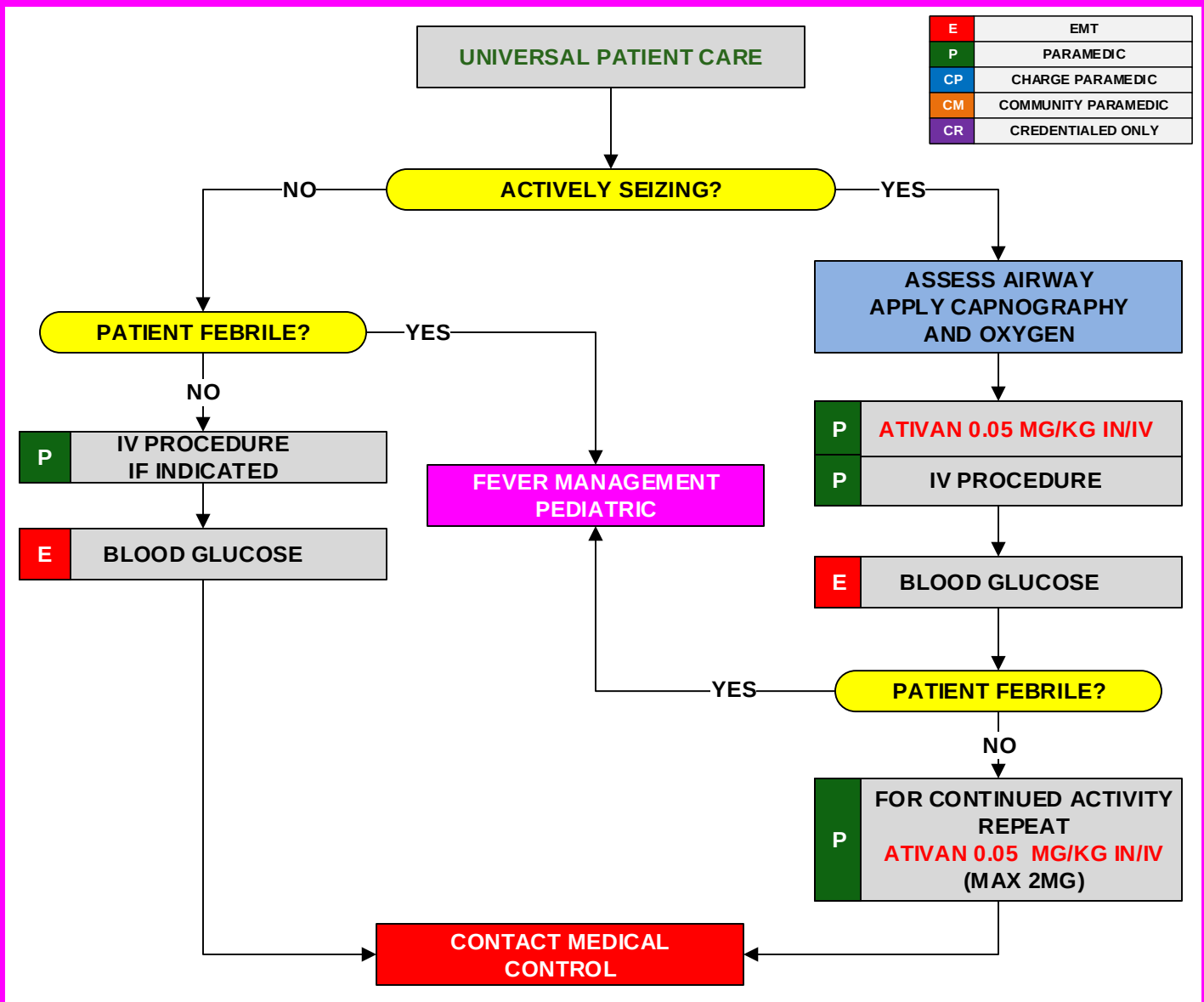
PEDIATRIC SEIZURE

HISTORY

- Reported / witnessed seizure activity
- Previous seizure activity
- Medical alert tag
- Seizure medications
- History of recent head trauma
- History of diabetes
- Congenital abnormality

SIGNS/SYMPTOMS

- Decreased mental status
- Sleepiness
- Observed seizure activity
- Evidence of trauma / tongue biting
- Unconscious
- Hot, dry skin or elevated body temperature



PEDIATRIC SEIZURE

PEDIATRIC SEIZURE

PEARLS

- **ATIVAN** may be given intranasal using the IVP dose if unable to establish IV access.
- Status epilepticus is defined as two or more successive seizures without a period of consciousness or recovery. This is a **TRUE EMERGENCY** requiring rapid airway control, treatment, and transport.
- **Grand mal seizures** (generalized) are associated with loss of consciousness, incontinence, and tongue trauma.
- **Focal seizures** (petit mal) affect only a part of the body and are not usually associated with a loss of consciousness.
- **Jacksonian seizures** are seizures which start as a focal seizure and become generalized.
- Be prepared for airway problems and continued seizures.
- If febrile, remove clothing and sponge with room temperature water.
- **In infants, a seizure may be the only evidence of a closed head injury.**

PEARLS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

PEDIATRIC PAIN MANAGEMENT

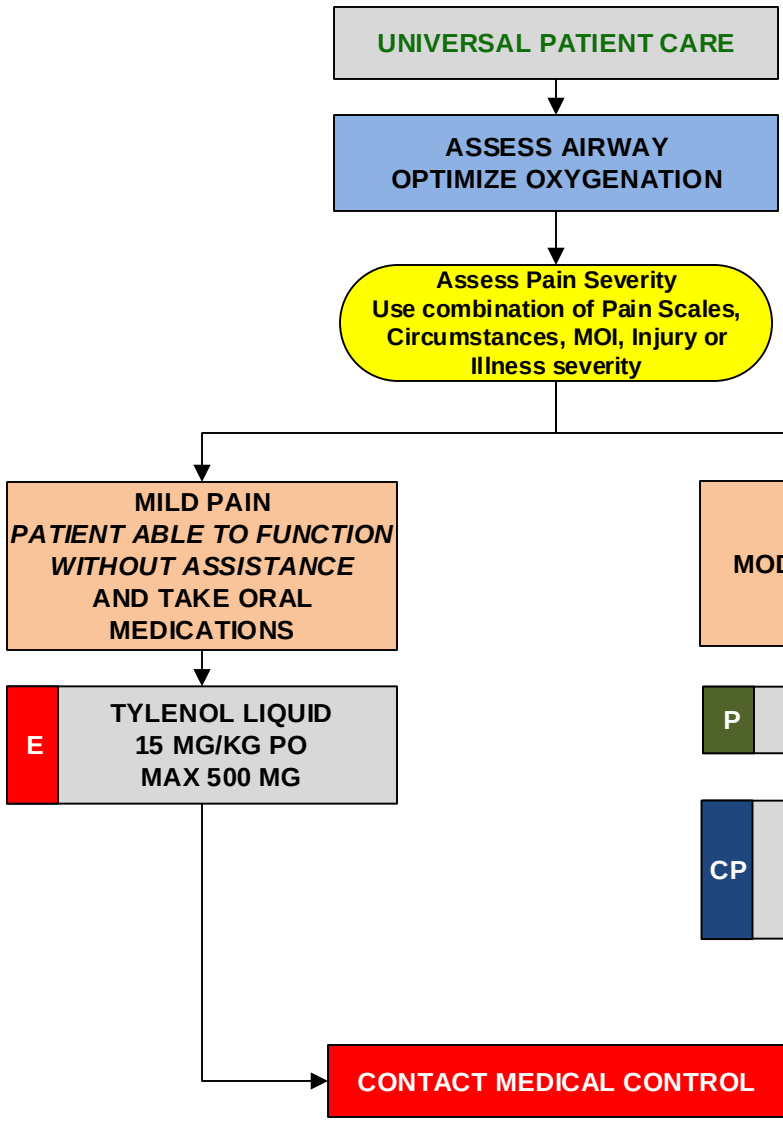
HISTORY

- Past Medical History, Medications, Allergies
- Location
- Duration
- Severity – Alder Hey, Wong Baker Scale
- Sickle cell disease
- Kidney stones

SIGNS/SYMPTOMS

- Severity
- Quality
- Radiation
- Relation to movement, respiration
- Increase on palpation
- **AGE – 1 TO 15**

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY



PEDIATRIC PAIN MANAGEMENT

PEDIATRIC PAIN MANAGEMENT

PEARLS

- Reassess vitals every 5 minutes or more often as needed and observe for respiratory depression, bradycardia, and hypotension.
- This protocol applies to patients 1-15 years of age. **CONTACT MEDICAL CONTROL** for patients less than 1 year of age.
- If **Ketamine** unavailable, **Morphine 0.1 mg/kg** may be used and repeated **ONCE** after 5 minutes.
- Pain should be assessed and documented using the FLACC or the Wong-Baker "faces" scale before and after pain medication is administered.
- If further dosing is needed or if patient is exhibiting signs of hypoperfusion **CONTACT MEDICAL CONTROL**.

PEARLS

OFFICE OF THE MEDICAL DIRECTOR
MANATEE COUNTY, FL

PEDIATRIC TOXINS / EXPOSURE

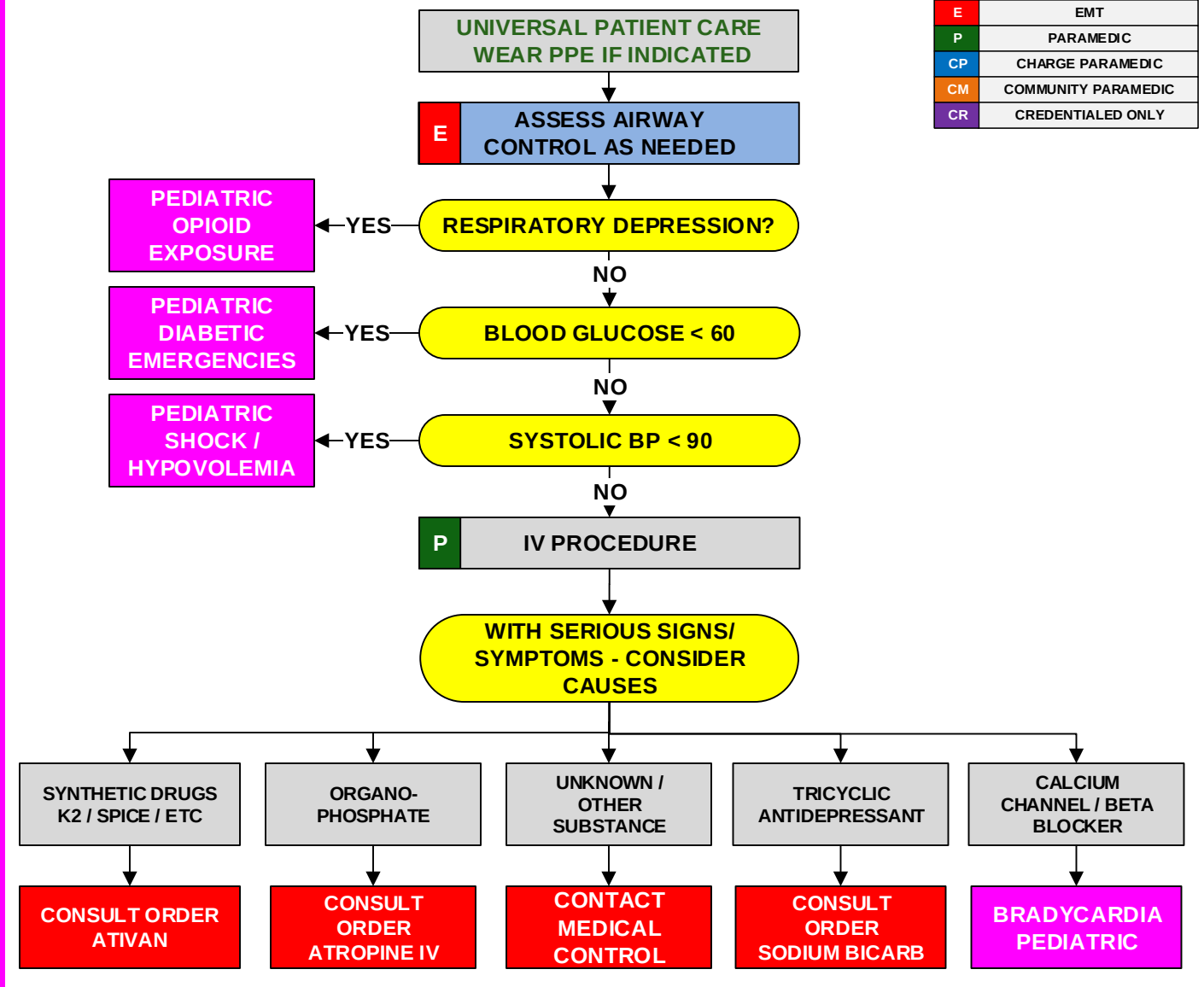
HISTORY

- Substance ingested/exposed to: Route and Quantity
- Time of ingestion/exposure
- Reason (Suicidal, accidental, criminal)
- Medical history
- Medications

SIGNS/SYMPTOMS

- Mental status change
- Decreased respiratory rate
- Bizarre behavior
- Seizures
- Tachycardia, dysrhythmias
- SLUDGE, DUMBBELS

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY



PEDIATRIC TOXINS / EXPOSURE

PEDIATRIC TOXINS / EXPOSURE

PEARLS

- Determining the type of substance taken is critical in these patients. Any evidence of the substance should be documented and taken with the patient either by EMS or law enforcement if substance is illegal.
- Consider soft restraints if necessary for patients and/or personnel safety. Document if applied.

PEARLS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

PEDIATRIC OPIOID EXPOSURE

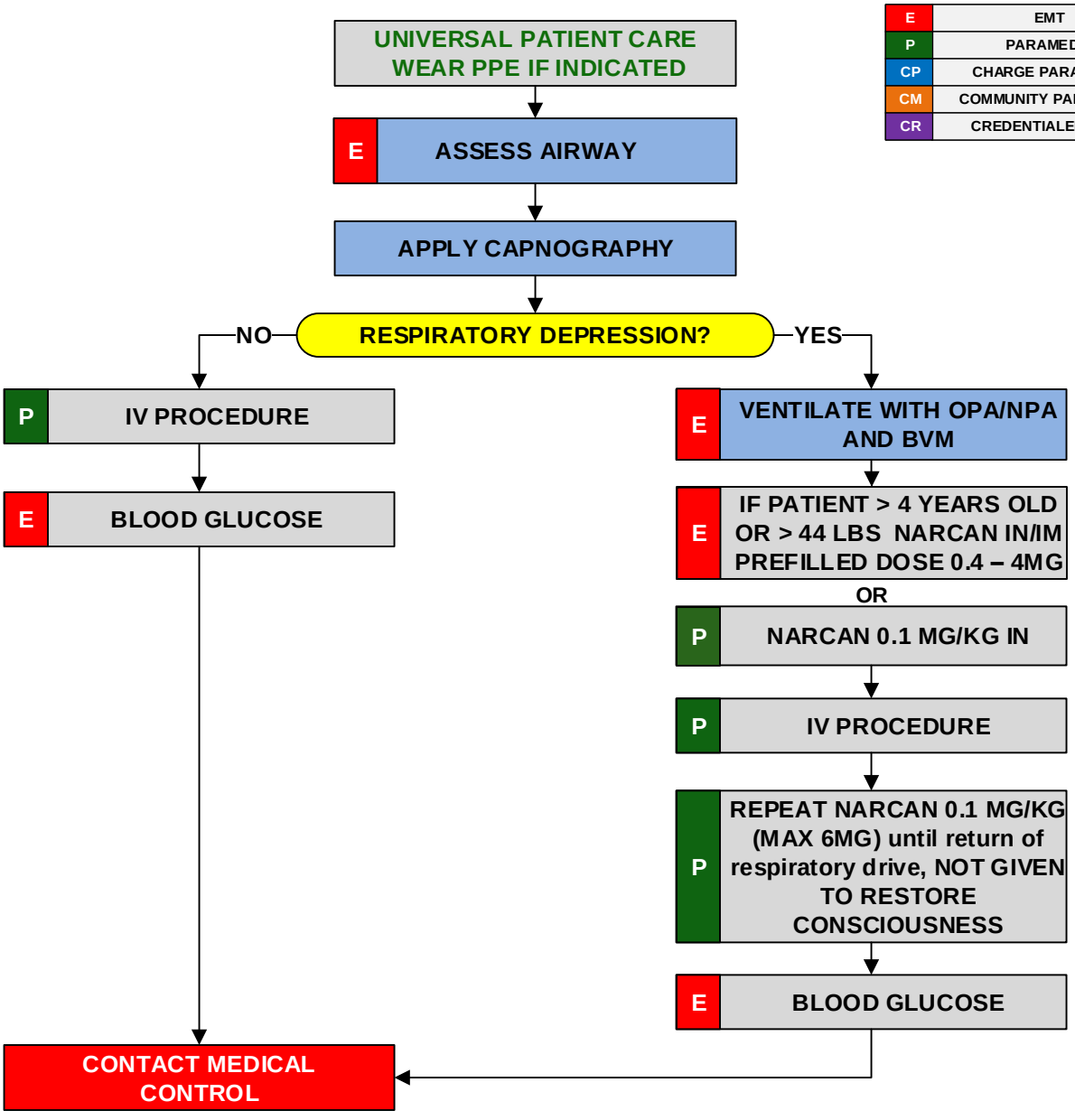
HISTORY

- Substance ingested/exposed to: Route and Quantity
- Time of ingestion/exposure
- Reason (Suicidal, accidental, criminal)
- Medical history
- Medications

SIGNS/SYMPTOMS

- Mental status change
- Decreased respiratory rate, respiratory arrest
- Bizarre behavior
- Seizures
- Tachycardia, dysrhythmias

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY



PEDIATRIC OPIOID EXPOSURE

PEDIATRIC OPIOID EXPOSURE

PEARLS

- Determining the type of substance taken is critical in these patients. Any evidence of the substance should be documented and taken with the patient either by EMS or law enforcement if substance is illegal.
- Consider soft restraints if necessary for patients and/or personnel safety. Document if applied.

PEARLS

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

PEDIATRIC FACILITATED AIRWAY

HISTORY

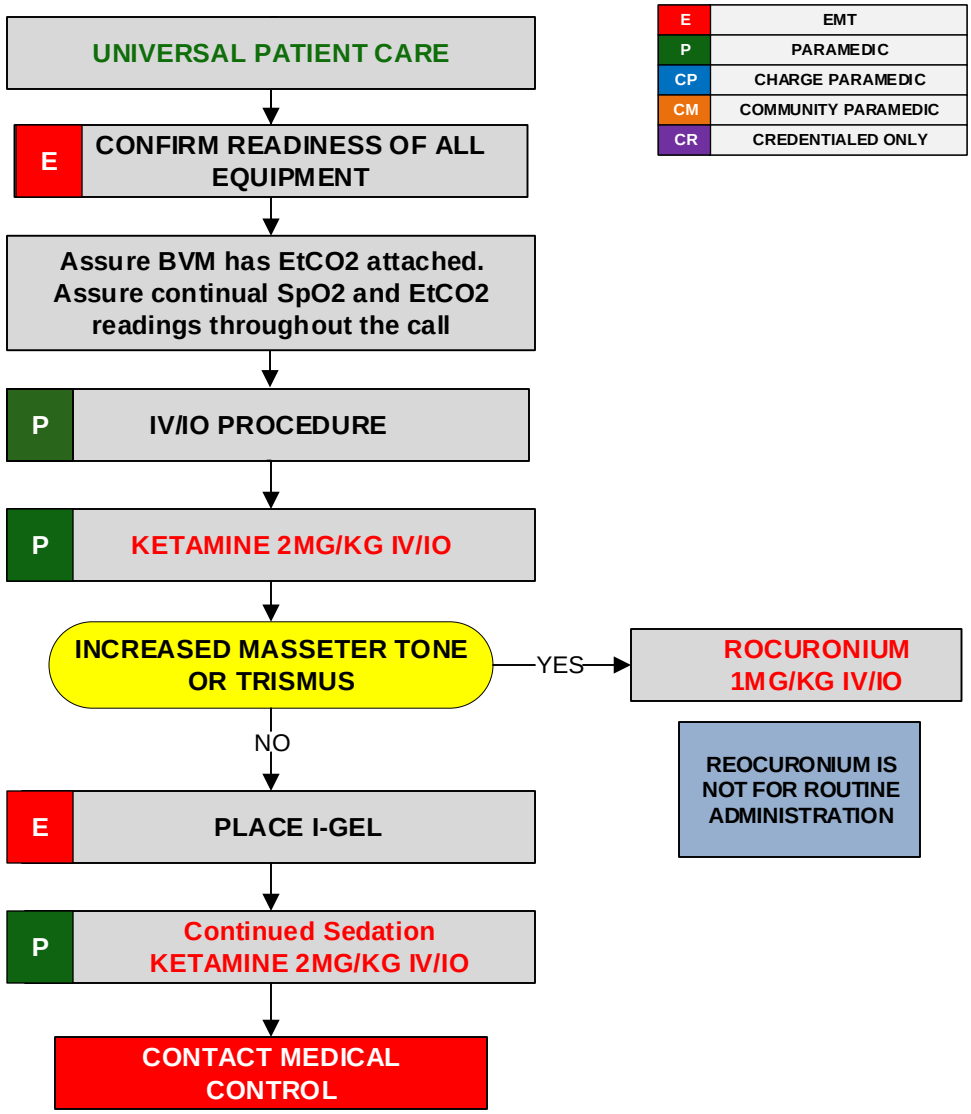
- Failure to protect from aspiration and protect airway
- Failure to ventilate or oxygenate spontaneously
- Severe respiratory distress
- Altered level of consciousness

SIGNS/SYMPTOMS

- Patients ≤ 15 years old
- Low blood pressure
- Inability to maintain adequate oxygen saturation
- Multisystem Trauma
- Trismus

E	EMT
P	PARAMEDIC
CP	CHARGE PARAMEDIC
CM	COMMUNITY PARAMEDIC
CR	CREDENTIALED ONLY

PEDIATRIC FACILITATED AIRWAY



PEDIATRIC FACILITATED AIRWAY

PEARLS

- Continuously monitor SpO2 and HR.
- Rocuronium is not to be given routinely. It should only be given when increased masseter tone prevents I-GEL delivery.
- Ketamine should be given slow IV push over 60 seconds
- Pre-load I-GEL with 12fr suction catheter.
- Pediatric patients may require ramping to meet ear to sternal notch
- Consider fluid administration if SBP < [(age in years x 2) + 70]

PEARLS

PEDIATRIC FACILITATED AIRWAY

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

INDEX - PROCEDURES

INDEX – PROCEDURES

INDEX - PROCEDURES

ASSESSMENT ADULT	ASSESSMENT PEDIATRIC	BLOOD GLUCOSE
ORTHOSTATIC VITAL SIGNS	PULSE OXIMETRY	PAIN ASSESSMENT
BOUGIE	CAPNOGRAPHY	CHEST DECOMPRESSION
CPAP	SURGICAL CRICH	NEEDLE CRICH
ENDOTRACHEAL INTUBATION	I-GEL	VIDEO LARYNGOSCOPE
OROGASTRIC TUBE PLACEMENT	OXYGEN THERAPY	SUCTIONING
VENTILATOR	FACILITATED AIRWAY	DELAYED SEQUENCE INTUBATION (DSI)
12 / 15 LEAD ECG	AED	CARDIOVERSION
AUTOPULSE	MANUAL DEFIBRILLATION	TRANSCUTANEOUS PACING
BLOOD ALCOHOL DRAW	BBRAUN IV PUMP	INTRAVENOUS ACCESS
INTRAOSSEOUS ACCESS	MEDICATION ADMINISTRATION	INTRANASAL MEDICATION ADMINISTRATION
MODIFIED VALSALVA	BVF/BACTRERIAL VIRAL FILTER	VIRAL SYNDROME TOOL
CAT TOURNIQUET	EXTREMITY FRACTURE REDUCTION	PHYSICAL RESTRAINTS
SPINAL IMMOBILIZATION	SPLINTING	WOUND CARE

INDEX - POLICIES

ASSESSMENT PROCEDURE
ASSESSMENT - ADULT

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Any patient requiring a medical evaluation that is too large to be measured with a Pediatric Length Based Tape.
2. Trauma Alert: Age ≥ 16 years old

Procedure:

1. Scene size-up, including universal precautions, scene safety, environmental hazards assessment, and need for additional resources.
2. Initial assessment includes a general impression as well as the status of the patient's airway, breathing, and circulation.
3. Assess mental status (AVPU) and disability (GCS.)
4. Establish spinal immobilization if suspicious of spinal injury.
5. Control major hemorrhage and assess overall priority of patient.
6. Perform a focused history and physical exam based on patient's chief complaint making efforts to protect patient privacy and modesty.
7. Assess need for critical interventions. If none are anticipated, downgrade or cancel additional responding units as appropriate.
8. Complete critical interventions and perform a complete secondary exam to include a baseline set of vitals as directed by protocol.
9. Transport Unit: Maintain an ongoing assessment throughout transport including patient response/possible complications of interventions, need for additional interventions, and assessment of evolving patient complaints/conditions.
10. Document all findings and information associated with the assessment, procedures performed, and any administration of medications in the ePCR (Licensed provider).

ASSESSMENT - ADULT

ASSESSMENT PROCEDURE
ASSESSMENT - PEDIATRIC

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Any child that can be measured with a Pediatric Length Based Tape.
2. Trauma Alert: Age < 16 years old

Procedure:

1. Scene size-up, including universal precautions, scene safety, environmental hazards assessment, and the need for additional resources.
2. Assess patient using the pediatric triangle of ABC's:
   - Airway and appearance: speech/cry, muscle tone, inter-activeness, look/gaze, movement of extremities.
   - Work of breathing: absent or abnormal airway sounds, use of accessory muscles, nasal flaring, body positioning.
   - Circulation to skin: pallor, mottling, cyanosis.
3. Establish spinal immobilization if suspicious of spinal injury.
4. Establish responsiveness appropriate for age.
5. Color code using Pediatric Length Based Tape.
6. Assess disability (pulse, motor function, sensory function, capillary reaction.)
7. Obtain a focused history and perform physical exam. Pediatric patients easily experience hypothermia and thus should not be left uncovered any longer than necessary to perform an exam.
8. Record vital signs per Documentation of Vital Signs Policy.
9. Obtain a SAMPLE history including immunizations.
10. Treat chief complaint as per protocol.

ASSESSMENT - PEDIATRIC
ASSESSMENT - PEDIATRIC

ASSESSMENT PROCEDURE
BLOOD GLUCOSE

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Patients with suspected hypoglycemia
   (diabetic emergencies, change in mental status, bizarre behavior, etc.)

Procedure:

1. Gather and prepare equipment.
2. Blood samples for performing glucose analysis should be obtained using capillary blood from a finger stick.
3. Prepare the site by cleaning the area with alcohol.
4. Use all universal precautions.
5. Pierce the skin using the supplied finger stick device and place correct amount of blood on reagent strip or site on glucometer per the manufacturer's instructions.
6. Time the analysis as instructed by the manufacturer.
7. Document the glucometer reading and treat the patient as indicated by the analysis and protocol.
8. Repeat glucose analysis as indicated for re-assessment after treatment and as per protocol.

ASSESSMENT – BLOOD GLUCOSE
ASSESSMENT – BLOOD GLUCOSE
ASSESSMENT – BLOOD GLUCOSE

ASSESSMENT PROCEDURE
ORTHOSTATIC VITAL SIGNS

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Patients with suspected intravascular fluid deficit/dehydration

Contraindications:

1. Patients unable to be placed in supine position (i.e. pulmonary edema)
2. Patients obviously volume depleted based on physical exam (i.e. hypovolemic shock)

Procedure:

1. Gather and prepare standard sphygmomanometer and stethoscope.
2. With the patient supine, obtain pulse and blood pressure.
3. Have the patient sit upright.
4. After 30 seconds, obtain blood pressure and pulse.
5. If the systolic blood pressure falls more than 30 mmHg, or the pulse rises more than 20 bpm, the patient is considered to be fluid deficient.
6. If a patient experiences dizziness upon sitting or is obviously dehydrated based on history or physical exam, formal orthostatic examination should be omitted and fluid resuscitation initiated.

ASSESSMENT – ORTHOSTATIC VITAL SIGNS

ASSESSMENT PROCEDURE
PULSE OXIMETRY

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. All patients, baseline vital sign

Procedure:

1. Apply probe to patient's finger or any other digit as recommended by the device manufacturer.
2. Allow machine to register saturation level.
3. Record time and initial saturation measurement (on room air if possible) in the patient care report.
4. Verify pulse rate on machine with actual pulse of the patient.
5. Monitor critical patients continuously until arrival at the hospital. If recording a one-time reading, monitor patients for a few minutes as oxygen saturation can vary.
6. Document percent of oxygen saturation every time vital signs are recorded and in response to therapy to correct hypoxemia.
7. In general, normal saturation is 97-99%. Below 94%, suspect a respiratory compromise.
8. Use the pulse oximetry as an added tool for patient evaluation. Treat the patient, not the data provided by the device.
9. The pulse oximetry reading should never be used to withhold oxygen from a patient in respiratory distress or when it is the standard of care to apply oxygen despite good pulse oximetry readings, such as chest pain.
10. Factors which may reduce the reliability of the pulse oximetry reading include:
    a) Poor peripheral circulation (blood volume, hypotension, hypothermia)
    b) Excessive pulse oximeter sensor motion
    c) Fingernail polish (may be removed with acetone pad)
    d) Carbon monoxide bound to hemoglobin
    e) Irregular heart rhythms (atrial fibrillation, SVT, etc.)
    f) Jaundice
    g) Placement of BP cuff on same extremity as pulse ox probe

ASSESSMENT – PULSE OXIMETRY

GENERAL PROCEDURE
PAIN ASSESSMENT

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Adult or Pediatric patient with a complaint of pain.

Procedure:

1. Use MCEMS modified Alder Hey Triage Pain Scale or Wong Baker facial pain scale.
2. Assess patient, Alder Hey can be used for sedated/unresponsive patients as well as alert patients.

MODIFIED ALDER HEY TRAIGE PAIN SCALE

VERBAL

Score 0 Adult has no complaint and acting normal. Pedi is not crying and is acting appropriate for age.
Score 1 Adult has occasional complaint of pain and is easily distracted from pain. Pedi is crying but is consolable or is quiet and responding negatively to caregiver/EMS
Score 2 Adult has persistent complaints of pain. Pedi is inconsolable, crying and/or persistently complaining about pain

FACIAL EXPRESSION

Score 0 Adult/Pedi have normal expression
Score 1 Adult/Pedi Expressions that suggest pain or distress less than 50% of the time
Score 2 Adult/Pedi Expressions that suggest pain or distress greater than 50% of the time

MOVEMENT (This relates to how the patient moves their whole body)

Score 0 Adult/Pedi Acts normal
Score 1 Adult/Pedi Movement is reduced or notably restless or uncomfortable
Score 2 Adult/Pedi Movement is abnormal. very still/rigid or writhing in agony/shaking

ACTIVITY (This relates to the patients behavior towards the affected area)

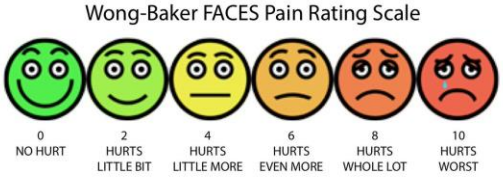
Score 0 Adult/Pedi Acts normal
Score 1 Adult/Pedi Exhibiting increased awareness of affected area. i.e. by touching, rubbing, pointing, sparing or limping
Score 2 Adult/Pedi Affected area is held tense or defended so that touching it is deterred, non weight bearing

COLOR

Score 0 Adult/Pedi Normal
Score 1 Adult/Pedi Pale in color
Score 2 Adult/Pedi Very Pale "green" the color that sometimes can be seen with nausea or fainting - extreme pallor

INDICATORS	SCORE - 0	SCORE - 1	SCORE - 2
VERBAL	No Complaint/Cry Normal Conversation	Consolable, Not Talking, Negative Occasional Complaint	Inconsolable, Constant Complaint of Pain
FACIAL EXPRESSION	Normal	Occasional Grimace/Wince	Constant Grimace
ACTIVITY	Normal	Touching, Rubbing, or Limping	Defensive or Tense, Non-weight bearing
MOVEMENT	Normal	Reduced or Restless	Immobile or Thrashing
COLOR	Normal	Pale	Very Pale or "Green"

Wong-Baker FACES Pain Rating Scale



GENERAL – PAIN ASSESSMENT
GENERAL – PAIN ASSESSMENT

AIRWAY PROCEDURE
BOUGIE DEVICE

E	Not Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Patient meets clinical indications for oral intubation
2. **Anytime performing intubation should be readily available**

Contraindications:

1. Age less than eight
2. ETT size less than 6.5mm

Procedure:

1. Prepare, position and oxygenate per the intubation procedure
2. Select proper ET tube without stylet, test cuff, and prepare suction.
3. Lubricate the distal end including cuff of the endotracheal tube (ETT) and the distal ½ of the Bougie.
4. Using laryngoscopic techniques, visualize the vocal cords if possible using bimanual laryngoscopy as needed.
5. Introduce the Bougie with curved tip anteriorly and visualize the tip passing the vocal cords or above the arytenoids if the cords cannot be visualized.
6. Once inserted, gently advance the Bougie until you meet resistance. If you do not meet resistance, you likely have an esophageal insertion and procedure should be re-attempted.
7. Withdraw the Bougie ONLY to a depth sufficient to allow loading of the ETT while maintaining proximal control of the Bougie.
8. Gently advance the ETT over the Bougie until you have reached the appropriate depth.
9. If you are unable to advance the ETT into the trachea and the Bougie and ETT are adequately lubricated, withdraw the ETT slightly and rotate the ETT 90 degrees COUNTER clockwise to turn the bevel of the ETT posteriorly. If this technique fails to facilitate passing the ETT, you may attempt direct laryngoscopy while advancing the ETT.
10. While maintaining a firm grasp on the proximal end of the ETT, gently pull the Bougie out from the ETT.
11. Confirm tracheal placement according to the oral tracheal intubation procedure and secure ETT.

AIRWAY – BOUGIE DEVICE
AIRWAY – BOUGIE DEVICE
AIRWAY – BOUGIE DEVICE

AIRWAY PROCEDURE
CAPNOGRAPHY

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Shall be used on all endotracheal or alternate airways.
2. Shall be used on respiratory patients when a differential diagnosis cannot be determined (CHF vs. COPD), or any patient on CPAP.
3. Shall be used to monitor respiratory status after the administration of Narcan to determine the need for a repeat dose.
4. Shall be used prior to and after administering any medication that can cause respiratory depression. (Ativan, Versed, Ketamine, Morphine, Dilaudid, etc).

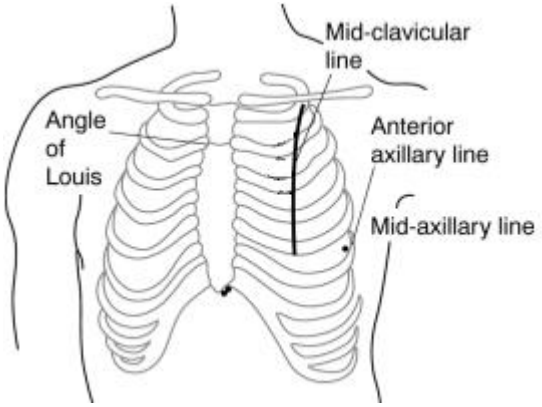
Procedure:

1. Attach capnography sensor to endotracheal tube or alternate airway. For patients who are breathing apply capno cannula device.
2. Note the CO_2 level and waveform changes. Levels and changes must be documented any time capnography is used.
3. The capnometer shall remain in place with the airway and be monitored throughout the prehospital care and transport.
4. Any loss of CO_2 detection or waveform indicates an airway problem and should be corrected and documented.
5. Document the procedure and results on the patient care report.

AIRWAY – CAPNOGRAPHY

AIRWAY PROCEDURE
PLUERAL CHEST DECOMPRESSION

E	Not Authorized
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable



Clinical Indications:

1. Patients with absent or diminished lung sounds on the affected side and accompanied by one or more of the following:
   - ► Jugular vein distention
   - ► Tracheal deviation away from the side of the injury (often a late sign)
   - ► Restlessness and anxiety
   - ► Hyper-resonance to percussion on the affected side
   - ► Hypotension non-responsive to fluid replacement with one or more of the above signs

2. Patients in traumatic arrest with chest or abdominal trauma for whom resuscitation is indicated. These patients may require chest decompression even in the absence of the signs above.

Procedure:

1. Ensure personal protective equipment is worn (gloves, eye protection, etc.)
2. Administer high flow oxygen.
3. Identify and prep the site:
   a. Locate the second intercostal space in the mid-clavicular line on the same side as the pneumothorax.
   b. Prepare the site with an appropriate anti-septic solution.
4. Insert the catheter into the skin over the third rib and direct it just over the top of the rib (superior border) into the interspace.
5. Advance the catheter through the parietal pleura until a “pop” is felt and air or blood exits under pressure through the catheter, then advance catheter only to chest wall.
6. Remove the needle, leaving the plastic catheter in place.
7. Secure the catheter hub to the chest wall with dressings and tape.
8. Consider placing a finger cut from an exam glove over the catheter hub. Cut a small hole in the end of the finger to make a flutter valve. Secure the glove finger with tape or a rubber band. If necessary, control the air flow through the catheter hub with your gloved thumb or utilize Ascherman chest seal device.

AIRWAY – PLUERAL CHEST DECOMPRESSION
AIRWAY – PLUERAL CHEST DECOMPRESSION
AIRWAY – PLUERAL CHEST DECOMPRESSION

AIRWAY PROCEDURE
CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

CPAP should be applied to all patients in severe respiratory distress secondary to suspected Pulmonary Edema, COPD or asthma with two or more of the following conditions:

1. Retractions
2. Accessory Muscle use
3. SpO2 < 94% at any time

Contraindications:

1. Respiratory or Cardiac Arrest
2. Systolic BP < 90 mmHg
3. Lack of airway protective reflexes
4. Significant altered level of consciousness such that patient is unable to follow verbal instructions
5. Vomiting or active upper airway GI bleed
6. Suspected pnuemothorax
7. Trauma
8. Patient size or anatomy prevents adequate mask seal

Procedure:

1. Place patient in a seated position and explain the procedure.
2. Assess vital signs (BP, HR, RR, SpO2, and ETcO2.
3. Activate and apply the CPAP mask, secure with provided straps progressively tightening as tolerated to minimize air leaks.
4. Operate CPAP device per manufacturer as follows:
   - Adjust flow to 8 lpm initially. Monitor patient continuously.
   - Adjust pressure following manufacturer instructions to achieve the most stable respiratory status utilizing the signs described below as a guide.
   - Do not exceed 10cm peep on manometer.
   -Treat with in-line nebulized medications as needed.
5. Reassess patient for improvements and document accordingly.
6. Observe for signs of deterioration or failure to respond to CPAP*:
   - Decrease level of consciousness.
   - Sustained or increased heart rate, respiratory rate, or blood pressure.
   - Sustained low or decreasing SpO2 readings.
   - Rising ETcO2 levels or other evidence of ventilatory failure.
   - Diminished or no improvement in tidal volume.

***If any of the above are present, reassess the patient for signs of a pnuemothorax. Ensure patients blood pressure is still >90 mmHg. Troubleshoot the equipment and consider endotracheal intubation.**

AIRWAY – CPAP
AIRWAY – CPAP

AIRWAY PROCEDURE
CRICOTHYROTOMY - SURGICAL

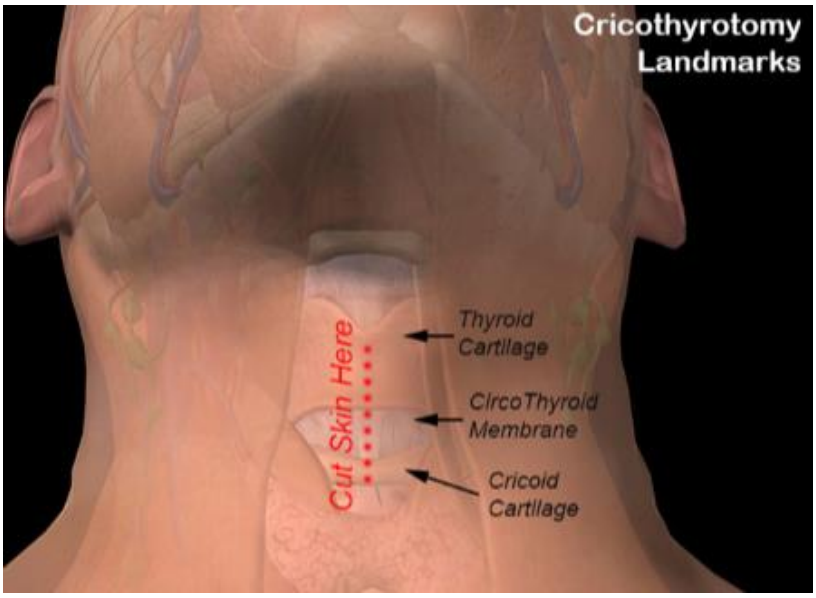
E	Not Authorized
P	Not Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Complete airway obstruction not responding to other methods.
2. Destructive facial trauma impeding normal airway adjuncts.
3. This procedure is a last resort to obtain an airway.

Procedure:

1. Continue to attempt basic airway maneuvers. **Do not attempt in moving ambulance!**
2. Assemble equipment (Cricothyrotomy Kit).
3. Identify the **thyroid cartilage** (Adams apple) and Caudally, identify the **cricoidthyroid membrane which is** a flat area before the cricoid cartilage.
4. Prep the site with provided anti-septic if time permits.
5. Incise the skin covering the **cricoid membrane** along the midline, vertically creating a 2.5cm incision with the scalpel.
6. Carefully make a second incision transversely through the **cricoid membrane** with the scalpel.
7. Enlarge opening with end of scalpel handle or gloved finger.
8. Insert **6.5 mm cuffed Murphy ET tube** into opening and inflate cuff with 5 - 10 ml of air.
9. Ventilate with a BVM reservoir and 100% oxygen and auscultate breath sounds.
10. Secure ET tube with a folded Vaseline gauze pad (4 X 4) around incision and tape in place.
11. Continually monitor for development of complications including; dislodged tube or soft tissue bleeding.



AIRWAY – CRICOTHYROTOMY - SURGICAL
AIRWAY – CRICOTHYROTOMY - SURGICAL
AIRWAY – CRICOTHYROTOMY - SURGICAL

AIRWAY PROCEDURE
CRICOTHYROTOMY - NEEDLE

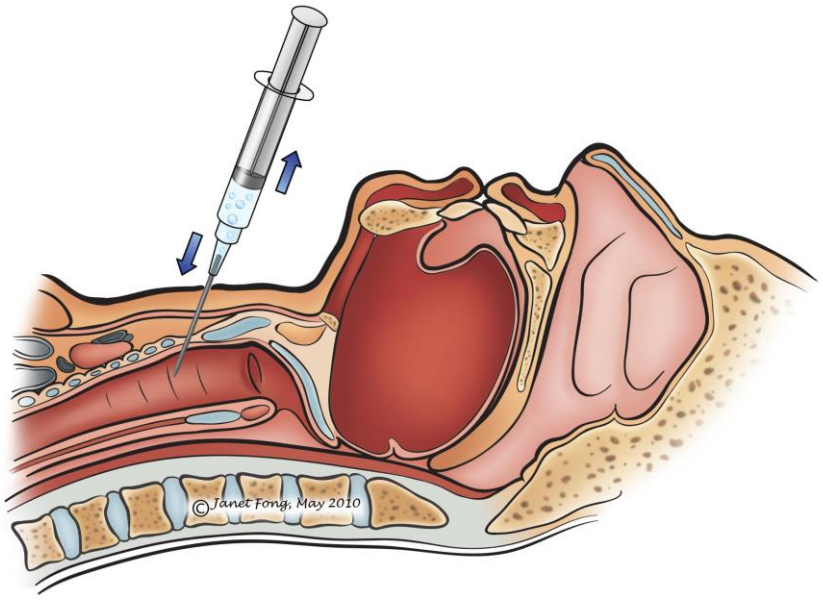
E	Not Authorized
P	Not Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

The needle cricothyrotomy should be used for pediatric patients (0 to 8 yrs) with COMPLETE upper airway obstruction.

Procedure:

1. Every attempt should be made to ventilate the patient with the bag-valve-mask technique before opting to perform this procedure.
2. Assemble equipment.
3. Identify the **thyroid cartilage** (Adams apple) and Caudally, identify the **cricoid membrane which is** a flat area before the cricoid cartilage.
4. Prep the site with provided anti-septic if time permits.
5. Attach a 20 ga needle attached to a syringe the through the cricoid membrane. Confirm placement by aspirating air.
6. Remove the needle and insert a 14 ga angiocath at a 45 degree angle caudally. Remove the stylette and aspirate air to confirm placement.
7. Attach a 3.0 ETT adapter to the hub of the 14 ga catheter and ventilate with a bag-valve.
8. Remove the bag-valve from the hub to allow for exhalation.
9. Monitor patient carefully.



AIRWAY – CRICOTHYROTOMY - NEEDLE

AIRWAY PROCEDURE
ENDOTRACHEAL INTUBATION

E	Not Authorized
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

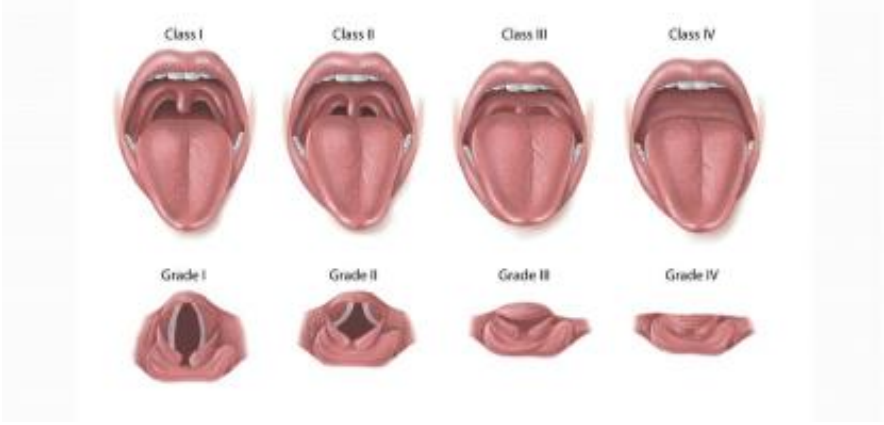
1. Hypoxic or compromised airway
2. Respiratory arrest

Contraindications:

Relative contraindications:
1. Blood clotting abnormalities
2. Upper neck hematomas or deformities
3. Predicted difficult airway based on airway assessment

Procedure:

1. Prepare, position, and insert OPA/Bilateral NPA's while applying 100% oxygen via BVM.
2. Select proper endotracheal tube and have suction, Video Laryngoscope, and bougie ready.
3. Utilize passive oxygenation with a nasal cannula at 12-15 lpm prior to and during attempts.
4. Using laryngoscope, identify landmarks, and visualize vocal cords. (Use bimanual laryngoscopy to assist you.)
5. Limit each intubation attempt to 30 seconds with BVM between attempts.
6. Visualize tube passing through vocal cords.
7. Inflate the cuff with 10 cc of air.
8. **Apply end-tidal capnography reading device and begin ventilating patient.**
9. Auscultate bilaterally for equal breath sounds and absence of sounds over the epigastrium. If you are unsure of placement, remove tube and ventilate patient with bag-valve mask.
10. Secure the tube using approved device.
11. Consider using Video Laryngoscopy if ET intubation efforts are unsuccessful.
12. Document ETT size, time, result (success,) and placement location by the centimeter marks either at the patient's teeth or lips on the patient care report. Document all devices used to confirm initial tube placement.
13. Document positive or negative breath sounds and ETCO2 before and after each movement of the patient.
14. Proper placement of endotracheal tube must be confirmed by MD or DO (if not possible respiratory therapist) prior to transferring patient off of EMS stretcher at the emergency room.
15. Document verification of endotracheal tube placement upon arrival at receiving facility by ED staff.



AIRWAY – ENDOTRACHEAL INTUBATION

AIRWAY PROCEDURE
I-GEL

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

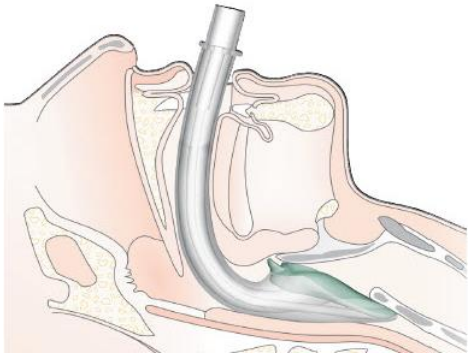
1. Apneic patient without gag reflex when ALS is more than 6 minutes (3 CPR cycles) out **(BLS)**
2. Inability to adequately ventilate with a BVM **(BLS)**
3. Airway assessment reveals a difficult airway
4. Inability to secure an advanced airway where traditional and video laryngoscopy have failed

Contraindications:

- Responsive patients with an intact gag reflex
- Trismus, limited mouth opening, pharyngo-perilaryngeal abscess, oral trauma or masses.

Procedure:

1. Pre-oxygenate with BVM. Select the appropriate size I-Gel
2. Open the I-Gel package, and on a flat surface take out the protective cradle containing the device.
3. In the final minute of pre-oxygenation, remove the I-Gel and transfer it to the palm of the same hand that is holding the protective cradle, supporting the device between the thumb and index finger. Place a small bolus of a water-based lubricant, such as K-Y Jelly, onto the middle of the smooth surface of the cradle in preparation for lubrication. Do not use silicone based lubricants.
4. Grasp the I-Gel with the opposite (free) hand along the integral bite block and lubricate the back, sides and front of the cuff with a thin layer of lubricant. This process may be repeated if lubrication is not adequate, but after lubrication has been completed, **check that no BOLUS of lubricant remains in the bowl of the cuff or elsewhere on the device.** Avoid touching the cuff of the device with your hands.
5. Position the device so that the I-Gel cuff outlet is facing towards the chin of the patient.
7. Grasp the lubricated I-Gel firmly along the integral bite block. Position the device so that the I-Gel cuff outlet is facing towards the chin of the patient.
8. The patient should be in the 'sniffing the morning air' position with head extended the neck flexed. The chin should be gently pressed down before proceeding to insert the I-Gel. If cervical spine injury is suspected, the I-Gel may be inserted with the head in the neutral position.
9. Introduce the leading soft tip into the mouth of the patient in a direction towards the hard palate.
10. Glide the device downwards and backwards along the hard palate with a continuous but gentle push until a definitive resistance is felt.
11. At this point the tip of the airway should be located into the upper esophageal opening and the cuff should be located against the laryngeal framework. The incisors should be resting on the integral bite-block. Confirmation shall be made with EtCO2 when available.
12. The I-Gel should be secured using the available stabilizer strap with sufficient tension to secure it in place. Adjust as necessary.
13. Document indications for use, number of attempts, size, and steps taken to confirm placement.



AIRWAY – I-GEL

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

AIRWAY PROCEDURE
VIDEO LARYNGOSCOPE

E	Not Authorized
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Need to place an advanced airway

Contraindications:

1. The diameter of the oral cavity will not accommodate the device

Procedure:

1. Prepare and check all equipment and contingency equipment/devices
2. If using channeled blade, lubricate ET tube and advance into channel (Do not use stylette) stopping at the distal end of blade channel.
3. Hold King Vision, lightly at the lowest point (roughly where handle meets superior end of channel).
4. Suction patient prior to insertion of the blade. Continuous suction should then follow during intubation attempt to prevent secretions from obscuring camera lens.
5. If unable to insert blade into oropharnyx due to patient anatomy (camera contacting chest), or CPR in progress, disconnect camera from blade then reinsert blade into oropharynx and reattach camera.
6. **Video Laryngoscopy is not a displacement device.** Blade insertion should be midline. In some cases, the tongue may need to be held with thumb if possible.
7. If vocal cords are viewed, but when tube is advanced it goes into the esophagus;
   Channeled Blade: Back tube out until it is no longer visible in the camera. Back out blade slightly and reattempt.
   Standard Blade: Back out blade slightly and reattempt.
8. If the ET tube advances laterally while using the channeld blade, back the tube out until it is no longer visible in the camera. Rotate the ET tube opposite the direction it was advancing and reattempt.
9. Remove the Video Laryngoscope and confirm tube placement according to traditional standards including capnography.
10. Dispose and decon equipment according to manufacturer recommendations.

All Video Laryngoscopes in use must be approved by the Medical Director.

AIRWAY – KING VISION

AIRWAY PROCEDURE
OROGASTRIC TUBE PLACEMENT

E	Not Authorized
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

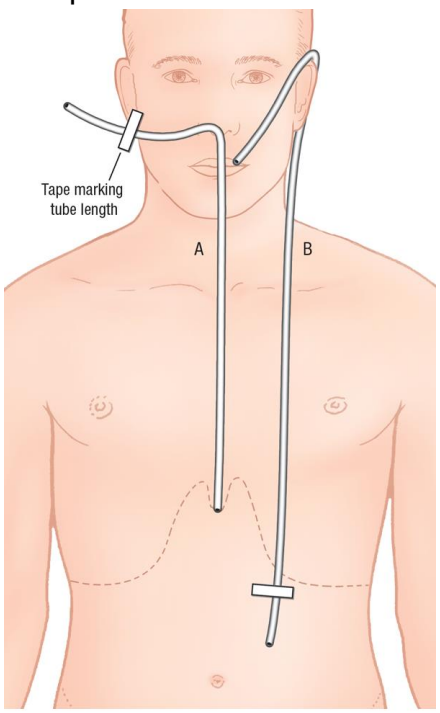
1. Decompress the stomach because of risk of aspiration or difficulty ventilating
2. Patient with advanced airway, and/or being ventilated

Contraindications:

1. Caustic substance ingestion
2. Esophageal varices or other esophageal diseases

Procedure:

1. Measure tube from the corner of the mouth, to the angle of the jaw or earlobe then to just below the xiphoid process (inferior part of sternum)
2. Mark this spot either by holding the tube at this point or with a piece of tape
3. Lubricate the distal tip and begin slowly advancing into the oropharynx until the appropriate depth is reached
4. Confirm tube by injecting 30-50cc of air while auscultating the epigastric region. If the tube is in the stomach, a “gurgling” noise will be heard. If the tube is in the esophagus or trachea, the sounds will be muffled.
5. If the tube has been confirmed, secure in place with tape.
6. Connect to suction as needed.
7. May use port provided with I-Gel.



AIRWAY – OROGASTRIC TUBE PLACEMENT

AIRWAY – OROGASTRIC TUBE PLACEMENT

AIRWAY – OROGASTRIC TUBE PLACEMENT

AIRWAY PROCEDURE
OXYGEN THERAPY

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Supplemental oxygen shall be administered to any patient with a room air SpO2 of <94%
2. Supplemental oxygen may be administered to patients who are oxygen dependent

Procedure:

1. Administer one hundred percent (100%) oxygen by non-rebreather mask to patients where indicated by protocol or patient condition.

2. Patients experiencing cyanosis or severe respiratory distress unrelieved by 100% 02 via mask may be candidates for CPAP/Intubation.

3. Any patients may be treated at the discretion of the paramedic with oxygen 2 - 6 liters/ minute by nasal cannula.

4. In patients who cannot tolerate a face-mask, it is better to administer oxygen by any means than no oxygen at all.

5. Any of the following patients represent high risk for aspiration of gastric contents and must be under constant observation by trained personnel, especially with face-mask in place:

    a. Impaired consciousness
    b. Intoxicated patients
    c. Head injured patients
    d. Restrained patients in supine posture

AIRWAY – OXYGEN THERAPY

AIRWAY PROCEDURE
SUCTIONING

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Obstruction of the airway (secondary to secretions, blood, or any other substance) in a patient who cannot maintain or keep the airway clear.
2. Use of a video laryngoscope

Procedure (Basic):

1. Ensure suction device is in proper working order with suction tip in place.
2. Pre-oxygenate the patient as needed.
3. Explain the procedure to the patient if they are coherent.
4. Examine the oropharynx and remove any potential foreign bodies or material that may occlude the airway if dislodged by the suction device.
5. If applicable, remove ventilation devices from the airway.
6. Use the suction device to remove any secretions, blood, or other substance.
7. The alert patient may assist with this procedure.
8. Re-attach ventilation device (i.e. bag-valve mask) and ventilate or assist the patient.
9. Record the time and result of the suctioning in the run report or electronic health record (licensed providers).

Procedure for Intubated patient (Advanced):

1. Select appropriate size french suction catheter.
2. Insert the catheter into the endotracheal tube. Once the desired depth has been reached, occlude the thumb port and remove the suction catheter slowly.
3. Small volume (< 10 ml) of normal saline lavage may be used as needed.
4. Re-attach ventilation device and ventilate the patient.
5. Record the time and result of the suctioning in the patient care report.

AIRWAY – SUCTIONING

AIRWAY PROCEDURE
PNEUPAC VENTILATOR

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

To manage the ventilations of a patient during a prolonged or inter-facility transport of an intubated patient. The ventilator may also be used with a BVM during initial airway management in any patient or prior to intubation.

Complications:

Failure to constantly monitor the patient clinically, while using this equipment may lead to serious injury or death.

Procedure:

1. Perform functional test when setting up the device to check that the device is assembled correctly.
2. To avoid harm to the patient, pre-use checks must be performed before each use.
3. Assess breath sounds frequently and assess the patient's respiratory status, noting any decrease in oxygen saturation.
4. If any significant change in patient condition occurs, including vital signs, oxygen saturation, or there is a concern regarding ventilator performance/alarms, remove the ventilator from the patient and ventilate by other means.
5. Note the use of ventilator settings and any changes and document on the run report or electronic health record (licensed providers).
6. Do not immerse ventilator in water or any other liquid.
7. Clean and replace parts as outlined in user's manual.

Note:

Consider the DOPE pneumonic for problems with the ventilator.

D- dislodgement
O- obstruction
P – pneumothorax
E - equipment (including operator) problem

AIRWAY – PNUEPAC VENTILATOR

CR CREDENTIALED ONLY

FACILITATED AIRWAY

Purpose:

For patients who cannot tolerate the Delayed Sequence Intubation procedure due to poor hemodynamic status or inability to properly oxygenate the patient. This procedure may be used as an alternative to airway control with full DSI or if you must "bailout" of the DSI procedure due to complications. This should ONLY be used when the DSI procedure is contraindicated and airway management must be performed.

Clinical Indications:

- Need for airway management when full DSI procedure is not indicated
- Hypotension or poor perfusion status (Multi-system Trauma, Sepsis, MODS, etc.)
- Inability to achieve oxygen saturation above 94%

Contraindications:

- Patients who are able to tolerate DSI procedure.
- Documented allergy or hypersensitivity to Ketamine.

1. Obtain IV/IO Access
2. Ventilate patient with positive pressure ventilation, bi-lateral NPA, OPA's and proper positioning with 2 person BVM.
3. Administer **Ketamine 2 MG/KG** slow IV push*
4. Pre-load I-GEL with 12 french suction catheter
5. Place I-GEL and confirm with waveform capnography.
6. Continue BVM ventilations or place transport ventilator
7. Advance suction catheter 1 to 2" and attach suction to protect airway against gastric contents
8. After 10 minutes, or as needed, administer **Ketamine 2 MG/KG** for continued disassociation and analgesia.
9. Contact Medical Control if needed

*If patient presents with a prominent masseter tone that complicates I-GEL placement, administer **Rocuronium 1 MG/KG** IV/IO

AIRWAY PROCEDURE
DELAYED SEQUENCE INTUBATION

CR CREDENTIALED ONLY

Clinical indications

Delayed Sequence Intubation (DSI) may be used in settings where the patient is unconscious with trismus or an intact gag reflex. In these situations, our patients may require rapid goal-oriented airway management. One of the following conditions shall be present in order to utilize this procedure.

1. Failure to ventilate or oxygenate spontaneously
2. Failure to maintain airway patency
3. Rapid deterioration of clinical presentation

For example, but not limited to:

- Failure to protect from aspiration and protect airway
- Closed head injury
- Trauma patients with a GCS of 8 or less
- Trismus or clenched teeth
- Status epilepticus
- Respiratory exhaustion such as severe asthma, CHF, or COPD with hypoxia and refractory to initial treatments.
- Overdose with altered mental status where the loss of airway is inevitable
- Cyanide and carbon monoxide toxicity where loss of airway is inevitable
- Swelling of upper airway such as anaphylaxis, angio-neurotic edema, and super-heated gas inhalation.
- Burn patients with airway involvement and inevitable loss of patency

Use of the DSI checklist during the procedure is mandatory.

Procedure for Credentialed Paramedics

- Prior to DSI the systolic BP should be a minimum of 100 mmhg. Fluid bolus may be administered.
- Place EtCO2 nasal cannula @6 LPM then record the value and respiratory rate
- Sedate with Ketamine 2mg/kg IV/IO slowly over 60 seconds
- Replace EtCO2 cannula with standard nasal cannula and flow at max flush rate

CONTINUED ON NEXT PAGE

DELAYED SEQUENCE INTUBATION

AIRWAY PROCEDURE
DELAYED SEQUENCE INTUBATION

CR CREDENTIALED ONLY

- Pre-oxygenate with 2 person BVM technique, HOB elevated @ 15*, EtCO2, and PEEP set at minimum 5 cm/H2O.
  - May increase PEEP to 10 cm/H2O if unable to achieve 94% SpO2

- Maintain SpO2 ≥ 94% for at least 3 minutes (use a timing device)

- Administer Rocuronium 1mg/kg IV/IO. Wait 90 seconds for full effect (use a timing device)

  - If paralysis is not achieved at the 90 second mark an additional 0.5 mg/kg IV/IO may be administered. Proceed with intubation as soon as paralysis is achieved.

- Perform endotracheal intubation using video laryngoscopy

  - If unable to intubate or if SpO2 drops below 94% within 30 seconds, stop and gently ventilate with BVM for 30-60 seconds.

- Confirm intubation with at least 2 sets of eyes on video laryngoscope, auscultation, physical findings and capnography.

Additional Information

- If unable to intubate on first two attempts, insert iGEL

- If still unable to ventilate appropriately consider performing cricothyrotomy

- Consider follow up sedation with ketamine 2mg/kg IV/IO q 20min or more frequently after DSI

- If bradycardia occurs during intubation halt intubation and continue ventilation. Consider symptomatic bradycardia protocol if patient meets criteria.

- Documentation of all events is paramount. Time of administration of ketamine, time of initial EtCO2, continuous EtCO2 values and EtCO2 with ET verification upon transfer of care.

DELAYED SEQUENCE INTUBATION
DELAYED SEQUENCE INTUBATION
DELAYED SEQUENCE INTUBATION

DSI CHECKLIST

Pre-procedure
- ❑ 4 lead ECG in place
- ❑ SpO2 in place w/good pleth wave
- ❑ EtCO2 w/every breath
- ❑ Accurate BP monitoring ≥ 100mmHg
- ❑ PROTECT: Pt.ear to sternal notch and raise HOB at least 15*

Equipment
- ❑ Pre-oxygenation assembly BVM, EtCO2, PEEP
- ❑ Intubation kit
- ❑ King Vision
- ❑ Timing Device
- ❑ Suction
- ❑ C-collar
- ❑ I-GEL & Bougie readily available

PROTECT
- ❑ **P**t ears to sternal notch
- ❑ **R**aise the mandible
- ❑ **O**PA/NPA
- ❑ **T**humbs down masking
- ❑ **E**tCO2 with every breath
- ❑ **C**heck PEEP/Oxygen
- ❑ **T**ension/Distension

Sedation and Pre-oxygenation
- ❑ Correct hypotension with fluids
- ❑ Administer **Ketamine 2mg/kg IV/IO**, Pre-intubation EtCO2 _____ Post-Ketamine, pre-intubation RR _____
- ❑ Replace EtCO2 cannula with **standard nasal cannula** at **max flush rate.**
- ❑ Perform 2 handed mask seal w/preoxygenation assembly & s**et PEEP to at least 5cm/H2O**
  - Adequate breathing & SpO2 ≥ 94%: BVM seal with **NO** ventilations
  - Adequate breathing& SpO2 < 94%: BVM seal with **NO** ventialtions AND increase PEEP to **10cm/H2O**
  - Inadequate breathing: BVM seal with ventilations 1 breath/5-6 sec: SpO2 < 94% despite increase in PEEP
- ❑ Maintain **SpO2 ≥ 94%** for **at least 3 minutes**
  - Use timing device to record pre-oxygenation duration: **Time Sp02 > 94%**_____
- ❑ Administe**r Rocuronium 1mg/kg IV/IO** & wait at least **90** seconds or until paralysis is achieved
  - **Time Rocuronium administered**_____

Intubate Patient
- Use continuous suction during intubation attempt

You MUST IMMDEIATELY discontinue intubation attempt if ANY of the following occurs:

☐ SpO2 drops < 94% ☐ Peri-intubation arrest ☐ significant decrease in HR ☐ CPM calls for "abort"

Attempt#1	**Attempt#2**
Attempt start time _____ Attempt completion time _____ Lowest SpO2 during attempt _____ % Lowest HR during attempt _____ bpm	Attempt start time _____ Attempt completion time _____ Lowest SpO2 during attempt_____% Lowest HR during attempt _____bpm
Unsuccessful ❑ Resume DSI pre-oxygenation procedure and maintain SpO2 ≥ 94% for at least 3 minutes - Correct any peri-intubation hypotension with fluid - 500ml Bolus may repeat, Goal SBP > **100 mmhg** ❑ Switch airway operator to a different medic for the seconds and last attempt ❑ If second attempt is unsuccessful, place iGEL or ventilate until breathing returns **Once Successful** ⟶	**Successful** ❑ Confirm placement with direct visualization with 2 sets of eyes ❑ EtCO2 ❑ Lung and epigastric sounds ❑ Secure ET tube ❑ Place c-collar to restrict head and neck movement ❑ Reassess tube placement If possible, attempt to match pre-intubation respiratory rate if elevated

Post intubation sedation and analgesia
Ketamine 2 mg/kg slow IV/IO
- At least every 20 minutes or more frequently PRN. Watch for signs of lacrimation or spike in vital signs
  - Reassess tube placement frequently and after moving patient
  - Note that the paralytic (Rocuronium) lasts longer than the first ketamine dose
  - A **second dose of Ketamine** is a requirement for adequate analgesia

DELAYED SEQUENCE INTUBATION

DELAYED SEQUENCE INTUBATION

DSI CHECKLIST

ECG PROCEDURE
12/15 LEAD ECG

BENCHMARK
Obtain 12 lead within three (3) minutes of patient contact

E	Not Authorized
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Suspected cardiac patient
2. Post cardiac arrest
3. Electrical injuries
4. CHF
5. Complaint between the nose and navel

Procedure:

1. Assess patient and monitor cardiac status.
2. If patient is unstable, definitive treatment is the priority. If patient is stable or stabilized after treatment, perform a 12-Lead ECG.
3. Prepare ECG monitor and connect patient cable with electrodes.
4. Expose chest and prep as necessary. Modesty of the patient should be respected.
5. Apply chest leads and extremity leads using the following landmarks:

- RA -Right arm or as directed by manufacturer
- LA -Left arm or as directed by manufacturer
- RL -Right leg below inguinal ligament
- LL -Left leg below inguinal ligament
- V1 -4th intercostal space at right sternal border
- V2 -4th intercostal space at left sternal border
- V3 -Directly between V2 and V4
- V4 -5th intercostal space at midclavicular line
- V5 -Level with V4 at left anterior axillary line
- V6 -Level with V5 at left midaxillary line

Prolonged QTc Table	
Heart Rate	QTc
40	> 510
50	> 460
60	> 430
70	> 410
80	> 390
90	> 360
100	> 340
120	> 320
150	> 280
180	> 250
200	> 240

6. Instruct patient to remain still.
7. Press the appropriate button to acquire the 12-lead ECG and for identification purposes mark the 12 lead with the letter “A”.
8. If STEMI suspected, transmit EKG to receiving facility.
9. Perform a 15-lead ECG if a inferior MI is diagnosed or no STEMI is recognized on the 12 Lead.
10. Apply the chest lead and posterior leads utilizing the following landmarks.

- V4R -move V4 to the 5th intercostal space right midclavicular line
- V8 -move V5 to the 5th intercostal space midscapula on the left
- V9 -move V6 to the 5th intercostal space immediately left of the vertebral column

11. Acquire the 15-lead ECG and for identification purposes mark the 15-lead with the letter “B”.
12. Label the 15-lead ECG recording identifying V4 as V4R , V5 as V8 and V6 as V9
13. If STEMI suspected convey your findings via telemetry to receiving facility.
14. Document the procedure, time, and results in the electronic health record (Licensed Provider).

ECG – 12/15 LEAD ECG

ECG PROCEDURE
AED USE

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Patients in cardiac arrest.
2. Age < 8 years, use Pediatric Pads if available.

Contraindications:

1. Pediatric patients where the pads cannot be placed without touching one another.

Procedure:

1. **If multiple rescuers available, one rescuer should provide uninterrupted chest compressions while the AED is being prepared for use. Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.**
2. Remove any medication patches on the chest and wipe off any residue.
3. Apply defibrillator pads per manufacturer recommendations. Use alternate placement when implanted devices (pacemakers, AICDs) occupy preferred pad positions.
4. If necessary, connect defibrillator leads: white to the anterior chest pad and the red to the posterior pad.
5. Activate AED for analysis of rhythm.
6. **Stop CPR and clear the patient** for rhythm analysis. Keep interruption in CPR as brief as possible.
7. Defibrillate if appropriate by depressing the "shock" button. Assertively state "CLEAR" and verify that no one, including yourself, is in contact with the patient prior to defibrillation. The sequence of defibrillation charges is preprogrammed for all devices.
8. Begin CPR immediately after delivery of the defibrillation.
9. After two minutes of CPR, check a pulse, analyze rhythm, and defibrillate if indicated. Repeat this step every two minutes.
10. If "no shock advised" appears, perform CPR for two minutes and then check a pulse and reanalyze.
11. Continue treatment as indicated.
12. The Zoll X series monitor/defibrillator may be used by an EMT as an AED if no other device is available.

If pulse returns:

See Post Cardiac Event protocol.

ECG – AED USE

ECG PROCEDURE
AUTOPULSE

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. The AutoPulse is an automated battery powered chest compressor. The AutoPulse provides chest compressions. Use of the AutoPulse will minimize rescuer fatigue and provide consistent compressions. The AutoPulse is to be used only in situations where rescuers would normally be doing CPR.

Contraindications:

1. Trauma
2. Patients > 300 lbs

Procedure:

1. Ensure scene safety. Initiate BSI precautions.
2. Request additional help if needed.
3. If patient is pulseless and non-breathing, immediately begin CPR. If CPR is already in progress , continue until monitor / defibrillator is attached to patient and you are ready to analyze the rhythm.
4. Never delay the start of treatment waiting for the AutoPulse.
5. While CPR is in progress, prepare the AutoPulse and place on patient according to manufacturers recommendations.
6. Push green button once to start sizing cycle.
7. Push green button second time to start compression cycle.
8. Ventilate the patient according to AHA standards.
9. Continue with normal resuscitative efforts.
10. Because motion can cause the patient to shift, it is important to do regular checks of the patients alignment to the to the AutoPulse and the LifeBand. If moving the patient on the AutoPulse always utilize the immobilization straps.
11. Replace battery when low or if battery warning is heard.
12. If at any time a system error occurs with the Autopulse, immediately remove it and revert to manual CPR.

ECG – AUTOPULSE

ECG PROCEDURE
CARDIOVERSION

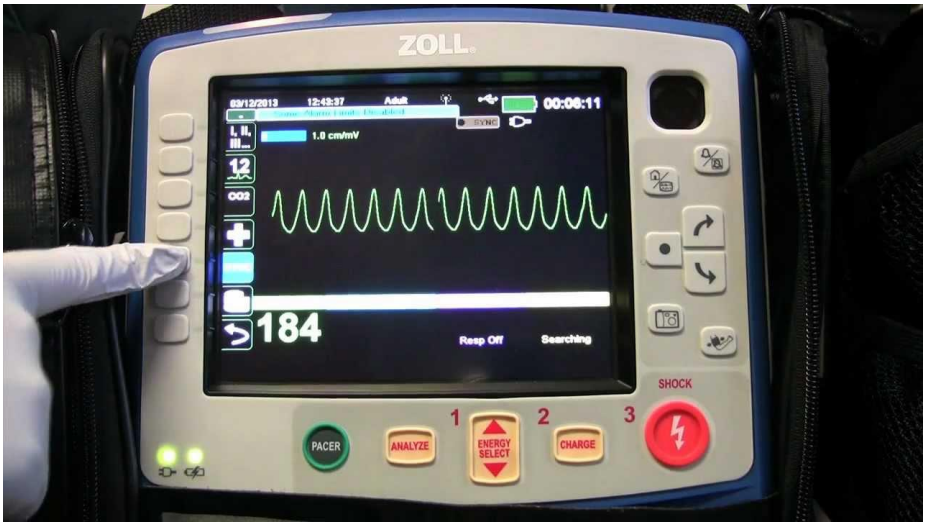
E	Not Authorized
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

Unstable patient with a tachydysrhythmia
(rapid atrial fibrillation, supraventricular tachycardia, ventricular tachycardia.)

Procedure:

1. Ensure the patient is attached properly to a monitor/defibrillator capable of synchronized cardioversion.
2. Have all equipment prepared for unsynchronized cardioversion/defibrillation in case patient condition worsens.
3. Consider the use of versed prior to cardioversion.
4. Set energy selection to the appropriate setting.
5. **Set monitor/defibrillator to synchronized cardioversion mode.**
6. Make certain all personnel are clear of patient.
7. **Press and hold** the shock button to cardiovert. Stay clear of the patient until you are certain the energy has been delivered. NOTE: It may take the monitor/ defibrillator several cardiac cycles to "synchronize," so there may be a delay between activating the cardioversion and the actual delivery of energy.
8. Note patient response and perform immediate unsynchronized cardioversion/ defibrillation if the patient's rhythm has deteriorated into pulseless ventricular tachycardia/ventricular fibrillation.
9. If the patient's condition is unchanged, repeat steps 2 to 8 above, following the appropriate guideline for the rhythm.
10. Note procedure, response, and time in the patient care report.



ECG – CARDIOVERSION

ECG PROCEDURE
MANUAL DEFIBRILLATION

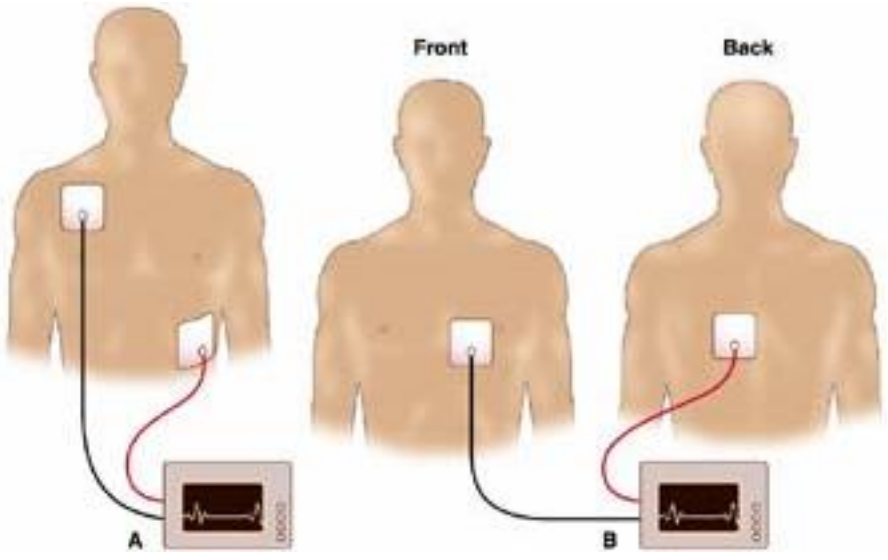
E	Not Authorized
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

Cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia

Procedure:

1. **Ensure chest compressions are adequate and keep interruption compressions as brief as possible. Adequate CPR is a key to successful resuscitation.**
2. Clinically confirm the diagnosis of cardiac arrest and identify the need for defibrillation.
3. Apply hands-free pads to the patient's chest in the proper position (Anterior/Posterior or Apex Sternal position.)
4. Select the appropriate energy level.
5. Charge the defibrillator to the selected energy level. **Continue chest compressions while the defibrillator is charging.**
6. **Hold compressions, assertively state "CLEAR" and verify that no one, including yourself, is in contact with the patient.**
7. Deliver the countershock by depressing the shock button for hands-free operation.
8. Immediately resume chest compressions and ventilations for two minutes. After two minutes of CPR, analyze rhythm and check for pulse only if appropriate for rhythm.
9. Repeat the procedure every two minutes as indicated by patient response and ECG rhythm.
10. **Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.**



ECG – MANUAL DEFIBRILLATION

ECG PROCEDURE
TRANSCUTANEOUS PACING

E	Not Authorized
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

Monitored heart rate less than 60 beats per minute with systolic blood pressure less than 90 mm/hg.

Procedure:

1. Apply lead wires and ensure clear tracing.
2. Apply defibrillation/pacing pads.
3. Press the lead quick access key and select I, II, or III to provide the largest amplitude QRS complex.
4. Verify that R-waves are being properly detected by QRS tone, display on R-wave, and the heart rate display matches the patient's pulse rate.
5. Consider the use of Versed for sedation.
6. Push green "Pacer" button, this brings up the pacer settings menu.
7. Verify the pacer mode is "Demand"
5. Verify heart rate is set to 80 BPM.
6. Select the "Start Pacer" from the pacer settings menu.
7. Note pacer spikes on EKG screen.
8. Slowly increase output in the pacer settings menu until electrical capture is noted.
9. Output increases my 10 mA increments, and decreases by 5 mA increments until capture is obtained. The shape and size of the paced ECG waveforms can vary depending on the ECG lead configuration chosen; variation from patient to patient can be expected.
10. If electrical capture is observed, assess femoral pulse for corresponding mechanical capture. If successful, reassess and obtain vital signs.
11. If unable to capture while at maximum current output, stop pacing immediately.
12. Document the procedure and patient response in the EHR.

ECG – TRANSCUTANEOUS PACING

IV PROCEDURE
BLOOD ALCOHOL DRAW

E	Not Authorized
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Collection of a patient's blood for analysis.
2. This procedure must be done by a paramedic at the request of, and observed by, a law enforcement officer.
3. Can only be done while on scene of a response, EMS cannot be summoned only to perform a blood alcohol draw.

Procedure:

1. Utilize universal precautions.
2. The law enforcement officer will remove the parts of the kit and hand them to the Paramedic as needed. Two (2) vials from the kit will be filled with blood. The tube marked CONTROL will stay in the kit at all times. It will not be used for the collection of blood.
3. Select appropriate blood-drawing devices.
4. The Paramedic drawing the blood should use the pad provided in the kit to clean the site. The foil envelope that the swab came in should be placed back in the biological Specimens box. The swab itself may be disposed of after use.
5. Draw appropriate tubes of blood for testing. When done performing blood draw, check patient's glucose level.
6. Hand the vials back to the law enforcement officer as they are filled. They should be rocked gently at least ten (10) times by the officer. Do not shake vials vigorously.
7. Dispose of all other equipment appropriately. It is not needed for evidence.
8. The Paramedic that draws the blood must sign the Blood Collection Form, section three (3.)
9. An EMS EHR must be created with all information documented accurately. If patient refuses care/transport document as any other refusal including signatures and witnesses.
10. The law enforcement officer is responsible to complete steps 7-10 on the instruction form included in the kit.

IV – BLOOD ALCOHOL DRAW

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

IV PROCEDURE
BBRAUN INFUSOMAT SPACE IV PUMP

The infusion pump will be utilized to regulate flow of IV solution or IV continuous medication infusions during treatment and transport. **Only** approved medications from the MCEMS protocols will be allowed to be used within the pump . Medications must be run within the parameters preprogrammed into the pump.

E	Not Authorized
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

1. Ensure the unit is properly positioned and secured prior to attaching IV tubing to patient.
2. Only connect to patient once the line has been correctly inserted into the pump and completely primed.
3. Ensure that the pump is properly installed. Check the equipment for completeness and damages. Do not attach the infusion bag below the pump level.

To begin Infusion:

1. Put the spike vertically into the infusion bag. Fill the bottom part of the drop chamber by max. 2/3.
2. Fill the infusion line from top to bottom, then close the roller clamp.
3. Press power button switch on the device. Observe the automatic self-test: The message “Self-test active” and the software version are displayed, two audible tones sound and all three LEDs (yellow, green/red and blue) flash once. Information about the power supply and the set pressure level are indicated. In addition, the line type appears at first (provided that the line is already inserted). Then, the accumulated air volume and the max. size of air bubbles is indicated which is triggering the air alarm of the device.
4. Press the open door button to continue with inserting the line.

   Caution: You may only insert the line while the device is switched on and the line guide element is inserted. Otherwise, there is the danger of freeflow.

5. Insert the infusion line from right to the left. Make sure that the line is routed straight. At first route the line through the upstream sensor. Then, insert the two hole clip. In the next step, attach the white clip without twisting the tubing.
6. Insert the freeflow clamp (green lock) in the opened aperature, in the direction indicated by the arrow, until the opening lever locks in and the safety clamp squeezes the lines (flashing signal lamp goes out). Close the pump door. Then select the original space line with the indicated directional button then open the roller clamp.
7. Press the prime function if you have not already primed the IV tubing with the medication. It is recommended to prime the tubing prior to insertion in the pump. Press the down directional arrow to skip this step.
8. The next screen in view will be the Manatee County EMS confirmation screen. Press the left directional arrow to proceed.
9. Select the appropriate medication from the drug library. If the medication is weight based you will be prompted to enter the weight of the patient prior to starting the medication. If necessary enter the patient weight in kilograms using the directional arrows then press OK to confirm.
10. Establish the patient connection.
11. Press start button to start the infusion. Running arrows on the display and the green LED indicate the pump is infusing.

Note: The running infusion can be cancelled at any time by pressing Start/Stop button.

IV – BBRAUN INFUSOMAT IV PUMP

IV PROCEDURE
BBRAUN INFUSOMAT SPACE IV PUMP

End of Infusion:

1. Press Start/Stop button to stop the infusion. The green LED goes out. Close the roller clamp and interrupt the patient connection.
2. Press the open door button. Answer the question whether the pump door is to be opened with the directional button.
3. Press down the green opening lever completely until it locks in place.
4. Remove the line and close the pump door.
5. Press power button 3 sec to switch off the pump.

E	Not Authorized
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

Display message	**Pre-alarm reason:**
● **VTBI near end**	The preselected volume is nearly infused.
● **Time near end**	The preselected time is almost over.
● **Battery nearly empty**	The battery is almost discharged.
● **KVO active**	VTBI/time are reached and the pump continues the infusion at the KVO-rate.

Operating alarms:

Operating alarms lead to an interruption of the infusion. An audible tone sounds, the red LED flashes The display states “Alarm“ and the reason for the operating alarm. The signal tone and alarm are cleared with OK button. Corrections are to be made according to the alarm reason.

Display message	**Alarm reason:**
VTBI infused	The preselected volume was infused. Continue therapy or select new therapy.
Time expired	The preselected time has ended. Continue therapy or select new therapy.
Battery empty	The battery pack is discharged. Connect to power.
Pressure high	An occlusion occurred in the system. The set pressure level was exceeded. A bolus reduction is automatically initiated by the pump. Check if tubing contains kinks or is damaged.
KVO finished	The KVO-time has ended. Continue therapy or set new therapy.
Battery cover on **removed**	The battery cover is not properly engaged on the battery compartment. When pushing the battery cover listen for “click”.
Check upstream	The upstream sensor triggers an alarm. Check if roller clamp is closed or infusion line is kinked.
Air bubble "/" Accumulated air	Air inside the system. Check the line for small air bubbles and disconnect from patient to repeat priming, if necessary.

Reminder Alarms:

Reminder alarms occurs when a line is inserted, the pump does not deliver, no value is edited and the device is not operated for two minutes. An acoustic tone sounds, the yellow LED blinks and the display states “Reminder alarm!” Confirm and clear alarm with OK button.

IV – BBRAUN INFUSOMAT IV PUMP

IV – BBRAUN INFUSOMAT IV PUMP

IV PROCEDURE
INTRAVENOUS ACCESS

E	Not Authorized
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Any patient who requires medication or fluid administration

Procedure:

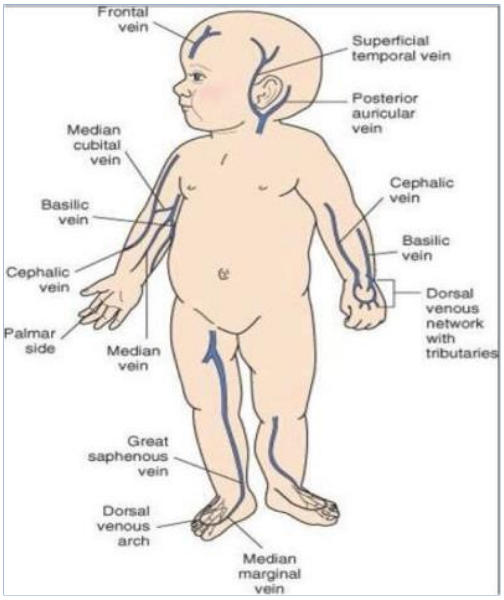
1. Saline locks will be used on all patients requiring intravenous access.
2. IV fluids shall only be used when indicated based on the patient assessment and condition.
3. Selected catheter size should be based upon the patient's condition and size of veins.
4. Guideline for choice of intravenous site.

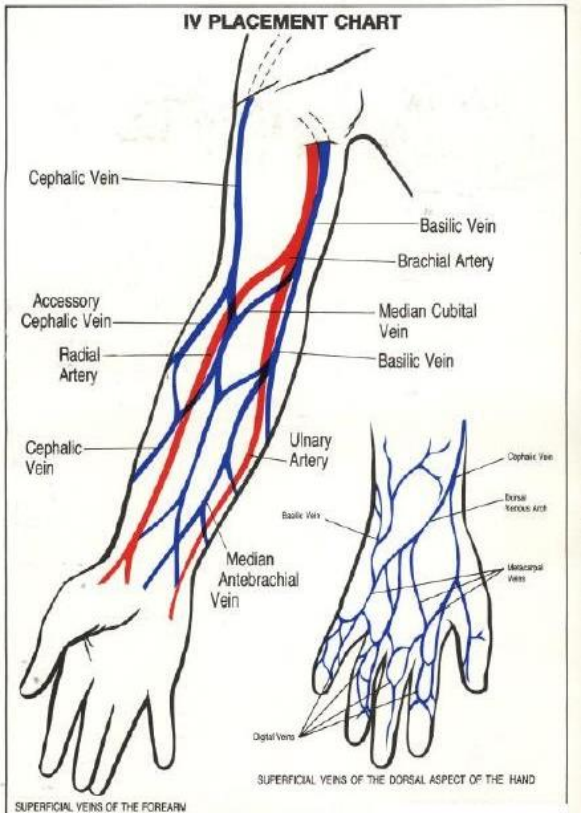
A. Use distal hand, wrist and forearm veins for common applications.

B. Use the veins in the antecubital fossa and external jugular vein for cardiac arrest and cardiac patients requiring adenosine. For all other critical patients utilize the most distal site in the arm that can sustain a large bore IV if indicated.

C. Avoid using veins associated with the following:

1. Burns
2. Skin rashes and infections
3. Fractures and dislocations
4. Dialysis shunts and fistulas
5. Previous mastectomy side





IV – INTRAVENOUS ACCESS
IV – INTRAVENOUS ACCESS

IV PROCEDURE
INTRAOSSEOUS ACCESS

E	Not Authorized
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

****CONSIDER ALTERNATE ROUTES OF MEDICATION ADMINISTRATION PRIOR TO IO, INCLUDING INTRAMUSCULAR AND INTRANASAL****

Clinical Indications:

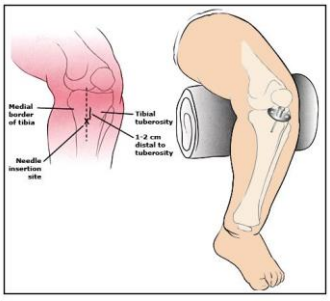
1. Any critical adult patient where intravenous attempts are unsuccessful and access is needed
2. Any critical pediatric patient where intravenous access is not readily identifiable

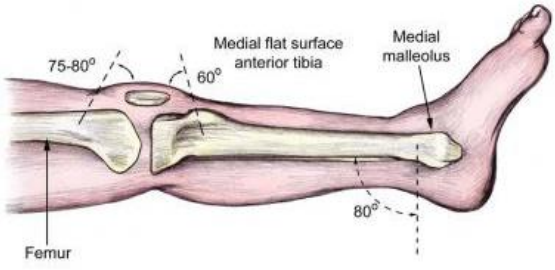
Contraindications:

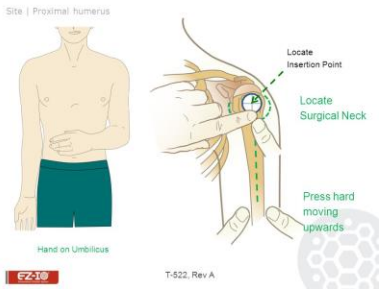
1. Fracture proximal to proposed intraosseous site
2. History of Osteogenesis imperfecta
3. Current or prior infection at proposed intraosseous site
4. Previous intraosseous insertion or joint replacement at the selected site

Procedure:

1. Use personal protective equipment.
2. Select insertion site:
   a. Proximal Tibia: Find the anteriormedial aspect of the proximal tibia (bony prominence below the knee cap.) The insertion location will be 1-2 cm (2 finger widths) below.
   b. Distal Tibia: If the patient is >12 years old; identify the anteriormedial aspect of the distal tibia (2 cm proximal to the medial malleolus.)
   c. Humeral Head: If the patient is >12 years old, then identify the prominence of the humeral head by placing the supine patient's elbow on the floor or stretcher and placing the palm of the same extremity over the umbilicus. Palpate the middle of the humeral shaft, moving toward the head, locating the greater tubercle. Pinch the anterior and posterior humerous with the other hand ensuring that you have located the midline of the tubercle. Palpate for the most prominent area. Check arm adduction to avoid insertion site nerve injury.
3. Prep the site with provided anti-septic.
4. Using the intraosseous device, position the IO needle at a 60° to 90° angle, aimed away from the near joint and any growth plate, insert until a "pop" or "give" is felt or resistance is lost. Do not advance the needle any further.
5. Remove the introducer and place in an approved sharps container.
6. Secure the needle site prior to connecting supplied tubing.
7. You may **slowly** administer 20 mg of 2% (1cc) Lidocaine in adult patients. This may be repeated to a maximum of 60 mg (3 cc.) Flush rapidly with 10cc of NS.
8. Attach the drip set and adjust the flow rate. A pressure infuser may assist with achieving desired flows.
9. Following the administration of any IO medications, flush the IO line with 10 cc of NS.







IV – INTRAOSSEOUS ACCESS

MEDICATION PROCEDURE
MEDICATION ADMINISTRATION

E	Authorized as Indicated
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

Patient requires administration of medication by approved EMT or Paramedic.

Definition:

Any pharmacological intervention used to treat, prevent, or reduce signs and symptoms of diseases, disorders, and/or traumatic injuries. Medication administration routes include the following: Intramuscular, Intravenous, Intraosseous, Oral, Endotracheal, Perirectal, Inhaled, and subcutaneous.

Procedure:

Prior to the administration of any medication ensure the following are reviewed and/or verbalized by at least two providers, if available.

The 8 Rights of Medication Administration

1. Right Patient
2. Right Dose
3. Right Medication
4. Right Route
5. Right Time
6. Right documentation
7. Right to know about the medication
8. Right to refuse the medication

MED – MEDICATION ADMINISTRATION

MEDICATION PROCEDURE
INTRANASAL ADMINISTRATION

E	Authorized for Narcan only
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

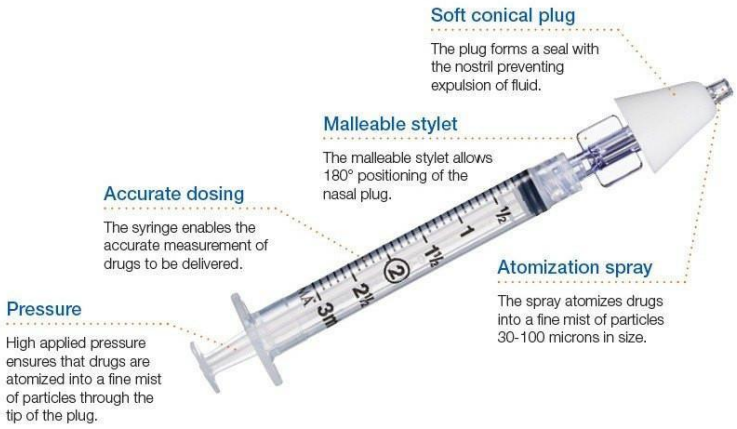
Patient without IV access requiring urgent medication administration

Medications that can be administered:

1. Ativan (ALS)
2. Ketamine (ALS)
3. Narcan (BLS/ALS)
4. Versed (ALS)

Procedure:

1. Determine appropriate medication dose per applicable protocol or predosed nasal spray.
2. Draw medication into syringe and carefully dispose of sharps.
3. Place mucosal atomizer on the end of the syringe and screw into place.
4. Gently insert the atomizer into the nare. Stop once resistance is met.
5. Rapidly administer the medication, max 1 ml per nare if possible.
6. Document the results in the patient care record or EHR (Licensed Provider).



GENERAL PROCEDURE
C.A.T. TOURNIQUET

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Unable to control major extremity bleeding with direct pressure

Procedure:

1. Apply tourniquet proximal to the wound and not over any joints.
2. Patients clothing should be cut away from where the tourniquet is applied so that it is clearly visible. Never cover up the tourniquet and ensure that it is visible at all times.
3. Monitor pulse and blood pressure in accordance with MCEMS protocols.
4. At the time of patient transfer, document and communicate tourniquet application. If the patient is conscious, they should be instructed to let everyone they come in contact with know that they have a tourniquet in place.
5. Monitor injury site for recurrent hemorrhage and adjust tourniquet tightness if necessary.
6. Leave tourniquet in place until the hemorrhage can be directly controlled by a physician.
7. Children under 50 lbs (23 kg) may be too small for tourniquet to fit a 4” diameter forearm.

GENERAL – C.A.T. TOURNIQUET

GENERAL PROCEDURE
EXTREMITY FRACTURE REDUCTION

E	Not Authorized
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

****Reduction of fractures in the field is not ideal and transport time to definitive care should be considered prior to performing. ALLOWING A PHYSICIAN TO PERFORM IN A CONTROLLED ENVIROMENT IS IDEAL FOR PATIENT OUTCOME****

Clinical Indications:

1. Suspected isolated closed fracture of upper or lower extremity resulting in vascular compromise (Absence of pulses) in the injured extremity, **along with** extended scene or transport time to definitive care.

Contraindications:

1. Multiple suspected fractures in the injured extremity
2. Multi-system trauma patients with more **critical interventions** needed. i.e. airway compromise and/or hemodynamically unstable
3. Open fractures **(High risk for infection, should not be performed in the field)**
4. Femur fracture – Utilize hare traction splint

Procedure:

1. Contact an EMS District Chief and request a physician to the scene if scene delay (entrapped, isolated location, etc.) Verify the absence of circulation to the extremity.
2. Make contact with Supervising physician at the Trauma Center that will receive the patient to request orders for sedation if the procedure must be performed in the field by a paramedic.
3. Flex the knee 30 degrees and grasp the patient's ankle or wrist.
4. Slowly apply in line counter traction until shortening of the limb is resolved and circulation has returned.
5. Successful completion of the procedure should result in disimpaction of the fracture and reduce the deformity.
6. Any remaining angulation can be corrected by placing the heel of one hand under the fracture while applying pressure with the other hand.
7. Splint the limb, above and below the fracture site. Consider posterior long leg splinting for lower extremity fractures, allowing for swelling to subside and reducing the risk of compartment syndrome.
8. Reassess neurovascular status.

GENERAL – EXTREMITY FRACTURE REDUCTION
GENERAL – EXTREMITY FRACTURE REDUCTION
GENERAL – EXTREMITY FRACTURE REDUCTION

GENERAL PROCEDURE
MODIFIED VALSAVA MANUEVER

E	Not Authorized
P	Authorized with CPM
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

Patient in stable narrow complex tachycardia.

Definition:

The Valsalva maneuver is performed by moderately forceful attempted exhalation against a closed airway, usually done by closing one's mouth, pinching one's nose shut while pressing out as if blowing up a balloon. Variations of the maneuver can be used either in medical examination as a test of cardiac function and autonomic nervous control of the heart, or to clear the ears and sinuses (that is, to equalize pressure between them) when ambient pressure changes, as in diving, hyperbaric oxygen therapy, or air travel.

Procedure:

1. Perform a 12/15 lead ECG and confirm diagnosis of SVT. Monitor ETC02.

2. Prepare equipment
   A. Manual BP cuff manometer
   B. Oxygen tubing

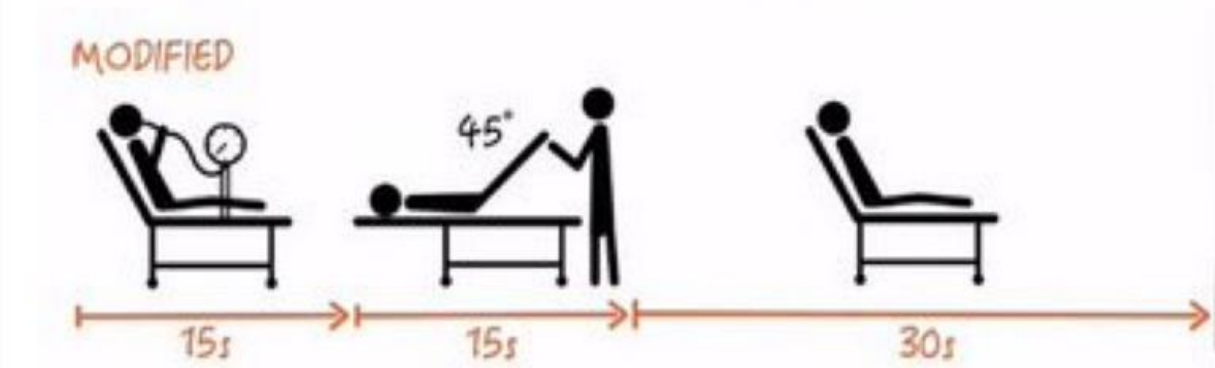
3. Explain the procedure to the patient

4. Ensure patient is in fowlers position and have them blow in to oxygen tubing maintaining 40 mmhg for 15 seconds.

5. Lie patient flat and raise legs to 45* for 15 seconds.

6. Return patient to fowlers position for 30 seconds.

7. Reassess patient , reassess rhythm and proceed appropriately.



GEN – MODIFIED VALSALVA

AIRWAY PROCEDURE
BVF (BACTERIAL VIRAL FILTER)

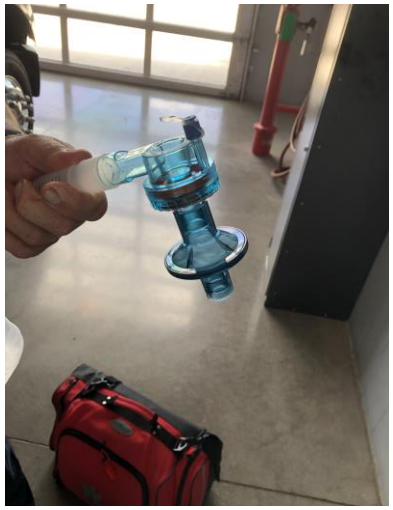
E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

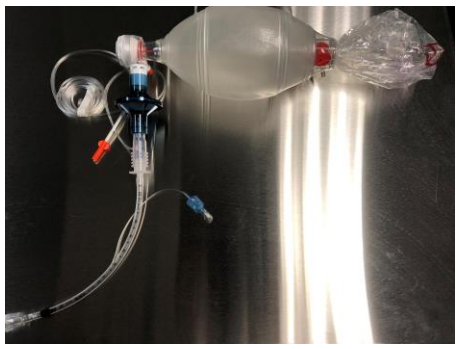
Clinical Indications:

1. If available this device shall be used on all inline airway devices
3. Devices such as CPAP Bag Valve Mask, i-gel, Endotracheal Tube, and Ventilator
4. BVF/Bacterial Viral Filters are single patient use and disposable

Examples of attachments to airway devices:







AIRWAY – BVF

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

GENERAL PROCEDURE
VIRAL SYNDROME TOOL

GENERAL- VIRAL SYNDROME TOOL

YES	NO	Criteria
Yes	No	Patient age is less than 2 or greater than 55 years
Yes	No	Patient has a suspected viral syndrome with 2 or more of the following symptoms: fever, cough body aches, new onset shortness of breath or sore throat
Yes	No	Patient has a history of immunosuppression, or is taking medicines that depress the immune system (cancer, undergoing chemotherapy, transplant patient, HIV, etc.)
Yes	No	Patient is pregnant
Yes	No	Patient has a underlying medical condition of heart disease, hypertension, diabetes, kidney disease, sickle cell disease, obesity, liver disease, cerebrovascular disease, dementia, diabetes, COPD or lung disease
Yes	No	Patient has a heart rate outside these parameters; 60:110 bpm (age 13-55); (age 2-5 years: 80-140 bpm; 6-12 years : 70-120 bpm)
Yes	No	Patient has a systolic blood pressure outside these parameters: 110-180 mmHg (age 13-55 years); (age 2-5 years: > 80mmHg; age 6-12 years: > 90mmHg)
Yes	No	Oxygen saturation (SPO2) less than 94%
Yes	No	Patient's lung sounds are abnormal (diminished, wheeze, rales, rhonchi)
Yes	No	Respiratory rate outside the parameters for age of patient,, or difficulty breathing
Yes	No	Patient is unable to ambulate without difficulty/assistance
Yes	No	Patient disagrees to home self care

ANY CHECKS in a YES box indicate that patient transport should be encouraged.

If ALL CHECKS are in NO box , patient may provide self-care at home. Refer to Non-Transport of Patients Policy in Manatee County EMS Protocols. Assure patient has resources such as transportation and medical care (primary care doctor, clinic, urgent care access, pharmacy/prescription access)

Any patient may be transported at the EMS Clinician's discretion.

Refusal is required if a patient is not transported.

GENERAL PROCEDURE
PHYSICAL RESTRAINTS

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

Any patient who may harm himself/herself, or others, may be gently restrained to prevent injury to the patient or crew. This restraint must be introduced in a humane manner and used only as a last resort. Other means to prevent injury to the patient or crew must be attempted first. These efforts could include reality orientation, distraction techniques, or other less restrictive therapeutic means. Physical restraint should be a last resort technique.

Procedure:

1. Attempt less restrictive means of managing the patient.
2. Ensure that there are sufficient personnel available to physically restrain the patient safely.
3. Restrain the patient in a lateral or supine position. No devices such as backboards, splints, or other devices will be placed on top of the patient. The patient will never be restrained in the prone position.
4. The patient must be under direct observation by the EMS crew at all times. This includes direct visualization of the patient as well as cardiac and pulse oximetry monitoring.
5. The extremities that are restrained will have a circulation check at least every 15 minutes. The first of these checks should occur as soon after placement of the restraints as possible. This **MUST** be documented on the patient care report.
6. If the above actions are unsuccessful, or if the patient is resisting the restraints, follow appropriate medical protocol.
7. If a patient is restrained by law enforcement personnel with handcuffs or other devices that EMS personnel cannot remove, a law enforcement officer must either accompany the patient to the hospital in the transporting EMS vehicle or follow the ambulance to the transport facility.

GENERAL – PHYSICAL RESTRAINTS

GENERAL PROCEDURE
SPINAL IMMOBILIZATION

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indication:

Patient assessment through Spinal Immobilization protocol reveals a suspected spinal cord injury.

Recommended equipment includes:

1. Rigid extrication cervical collar.
2. Cervical immobilization device.
3. Long spine board (short spine board, not KED, for pediatrics.)
4. Sufficient number of straps to prevent any movement of the torso and extremities in a vertical, horizontal, rotational or lateral direction.
5. Sufficient padding to fill voids, prevent lateral movement and maintain the head in a neutral position.
6. A KED or other short spine board device should be utilized for any victim located in a sitting position or confined space where such a device would be suitable. (NOTE: Critical patients require rapid extrication techniques.)
7. A child in a child safety seat can be properly restrained in the position found by utilizing blanket rolls or similar devices to fill the voids. Only if there is airway compromise should the child be removed from the seat. Remember to move along the long axis.

All immobilization should be performed prior to movement of the patient. Should the patient have already moved from the initial scene or be found ambulatory after the incident, there is still a need to immobilize. A standing backboard technique may be utilized for these patients. Adhere to ITLS immobilization guidelines.

GENERAL – SPINAL IMMOBILIZATION

GENERAL PROCEDURE
SPLINTING

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Immobilization of an extremity for transport, either due to suspected fracture, sprain, or injury
2. Immobilization of an extremity for transport to secure medically necessary devices such as intravenous catheters

Procedure:

1. Assess and document pulses, sensation, and motor function prior to placement of the splint. If no pulses are present and a fracture is suspected, consider reduction of the fracture prior to placement of the splint. See Closed Reduction of Extremity Fracture Procedure.
2. Remove all clothing from the extremity.
3. Select a site to secure the splint both proximal and distal to the area of suspected injury, or the area where the medical device will be placed.
4. Do not secure the splint directly over the injury or device.
5. Place the splint and secure with Velcro, straps, bandage material (e.g., kling, kerlex, cloth bandage, etc.) depending on the splint manufacturer and design.
6. Document pulses, sensation, and motor function after placement of the splint. If there has been a deterioration in any of these three parameters, remove the splint and reassess.
7. If a femur fracture is suspected and there is no evidence of pelvic fracture or instability, the following procedure may be followed for placement of a femoral traction splint:

    a) Assess neurovascular function as in #1 above.
    b) Place ankle device over the ankle.
    c) Place the proximal end of the traction splint on the posterior side of the affected extremity, being careful to avoid placing too much pressure on genitalia or open wounds. Make certain the splint extends proximal to the suspected fracture. If the splint will not extend in such a manner, reassess possible involvement of the pelvis.
    d) Extend the distal end of the splint at least six inches beyond the foot.
    e) Attach the ankle device to the traction crank.
    f) Twist until moderate resistance is met.
    g) Reassess alignment, pulses, sensation, and motor function. If there has been deterioration in any of these three parameters, release traction and reassess.

8. Document the time, type of splint, and the pre and post assessment of pulse, sensation and motor function in the patient care report.

GENERAL – SPLINTING

GENERAL PROCEDURE
WOUNDCARE

E	Authorized
P	Authorized
CP	Authorized
CM	Authorized
CR	Not Applicable

Clinical Indications:

1. Protection and care for open wounds prior to and during transport.

Procedure:

1. Use personal protective equipment, including gloves, gown, and mask as indicated.
2. If active bleeding, elevate the affected area if possible and hold direct pressure. Do not rely on “compression” bandage to control bleeding. Direct pressure is much more effective.
3. Once bleeding is controlled, irrigate contaminated wounds with saline as appropriate (this may have to be avoided if bleeding was difficult to control.) Consider analgesia per protocol prior to irrigation.
4. Cover wounds with sterile gauze/dressings. Check distal pulses, sensation, and motor function to ensure the bandage is not too tight.
5. Monitor wounds and/or dressings for bleeding throughout transport.
6. Document the wound and assessment and care in the patient care report.

GENERAL – WOUNDCARE

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

INDEX - PHARMACOLGY

ACETAMINOPHINE	ADENOSINE	ALBUTEROL
AMIODARONE	ASPIRIN	ATROPINE
DEXTROSE 10,50	DILTIAZEPAM (CARDIZEM)	DIPHENHYDRAMINE (BENADRYL)
DOPAMINE	EPINEPHRINE	ETOMIDATE (AMIDATE)
FAMOTIDINE (PEPCID)	GLUCAGON	GLUCOSE (ORAL)
HALOPERIDOL (HALDOL)	IPRATROPIUM (ATROVENT)	KETALORAC (TORADOL)
KETAMINE	LABETOLOL (NORMADYNE)	LIDOCAINE
LORAZEPAM (ATIVAN)	MAGNESIUM SULFATE	METHYL-PREDNISOLONE (SOLU-MEDROL)
MIDAZOLAM (VERSED)	MORPHINE SULFATE	NALOXONE (NARCAN)
NITROGLYCERIN	ORDANSETRON (ZOFRAN)	ROCURONIUM (ZEMURON)
SODIUM BICARBONATE	SUCCINYLCHOLINE (ANECTINE)	THIAMINE

INDEX - PHARMACOLOGY
INDEX - PHARMACOLOGY
INDEX - PHARMACOLOGY

ACETAMINOPHEN (TYLENOL)

PHARMACOLOGY

PROTOCOL	**ADULT**	Pain Management Fever / Sepsis
	PEDI	Pain Management Fever Management
CLASS		Analgesics, antipyretic
ACTION		May work peripherally to block pain impulse generation; may also inhibit prostaglandin synthesis in CNS
INDICATIONS		Pain control, fever control
CONTRAINDICATIONS		Hypersensitivity, severe acute liver disease
DOSING	**ADULT**	1000 mg po
	PEDI	10 mg/kg po

ACETAMINOPHEN (TYLENOL)

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

ADENOSINE/ADENOCARD

PHARMACOLOGY

PROTOCOL	**ADULT**	Narrow Complex Tachycardia
	PEDI	Narrow Complex Tachycardia Wide Complex Tachycardia
CLASS		Antidysrhythmics
ACTION		Slows conduction through AV node and interrupts AV reentry pathways, which restores normal sinus symptoms
INDICATIONS		Tachycardias
CONTRANDICATIONS		Second and Third degree AV block, sick sinus syndrome, symptomatic bradycardia, asthma, known bronchoconstrictive or bronchospastic lung disease
DOSING	**ADULT**	6 mg IV push over 1-3 seconds Repeat 12 mg IV push over 1-3 seconds Repeat once only, use stopcock and flush with 20 ml after each dose
	PEDI	0.1 mg/kg IV push over 1-3 seconds (Max 6mg) Repeat 0.2 mg/kg IV push over 1-3 seconds (Max 12 mg) Repeat once only, use stopcock and flush with 10 ml after each dose

ADENOSINE/ADENOCARD
ADENOSINE/ADENOCARD
ADENOSINE/ADENOCARD

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

ALBUTEROL

PHARMACOLOGY

PROTOCOL	**ADULT**	COPD/Asthma Allergic Reaction
	PEDI	Respiratory Distress Allergic Reaction
CLASS		Beta-2 agonist
ACTION		Beta-2 receptor agonist with some beta-1 activity; relaxes smooth muscle with little effect on heart rate
INDICATIONS		Bronchospasm
CONTRAINDICATIONS		Hypersensitivity, tachycardia secondary to heart condition
DOSING	**ADULT**	2.5-5 mg in nebulizer
	PEDI	2.5 mg in nebulizer

ALBUTEROL

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

AMIODARONE (Cordarone)

PHARMACOLOGY

PROTOCOL	**ADULT**	Cardiac Arrest Cardiocerebral Resuscitation V-Fib/Pulseless V-Tach Chest Pain/STEMI/Suspected Cardiac Event Post Cardiac Event Wide Complex Tachycardia
	PEDI	V-Fib/Pulseless V-Tach Wide Complex Tachycardia Post Cardiac Event
CLASS		Class III antidysrhytmics
ACTION		Inhibits adrenergic stimulation; affects sodium, potassium, and calcium channels; markedly prolongs action potential and repolarization; decreases AV conduction and sinus node function
INDICATIONS		Wide complex tachycardia, ventricular fibrillation
CONTRAINDICATIONS		Hypersensitivity, severe sinus node dysfunction, 2nd or 3rd degree heart block, cardiogenic shock
DOSING	**ADULT**	300 mg IV push (VF) Repeat 150 mg IV push (VF) 150 mg in 100 ml Infusion (VT, CP)
	PEDI	5 mg/kg IV push (VF) Repeat 5 mg/kg IV push (VF) Max dose 450 mg 5 mg/kg IV infusion over 5 minutes (VT)

AMIODARONE

ASPIRIN

PHARMACOLOGY

PROTOCOL	**ADULT**	Chest Pain/STEMI/Suspected Cardiac Event
	PEDI	Not used
CLASS		Antiplatelet agent, non-steroidal anti-inflammatory (NSAID)
ACTION		Inhibits synthesis of prostaglandin by cyclooxygenase; inhibits platelet aggregation; has antipyretic and analgesic activity
INDICATIONS		ACS, Analgesic/antipyretic, A-Fib, CAD, Stroke/TIA
CONTRAINDICATIONS		Hypersensitivity to aspirin or NSAIDs, bleeding GI ulcers, hemophilia, lactating mother, ulcerative colitis
DOSING	**ADULT**	324 mg po
	PEDI	Not used

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

ATROPINE

PHARMACOLOGY

PROTOCOL	**ADULT**	Bradycardia Overdose/Exposure
	PEDI	Bradycardia Toxins/Exposure

CLASS	Anticholinergic, toxicity antidotes

ACTION	Competitively inhibits action of acetylcholinesterase on autonomic effectors innervated by postganglionic nerves

INDICATIONS	Bradysystolic cardiac arrest, symptomatic bradycardia, organophosphate and carbamate toxicity
CONTRAINDICATIONS	Hypersensitivity, suspected myocardial infarction

DOSING	**ADULT**	Bradycardia 0.5 mg IV/IO Max 3 mg OPP Exposure – Call for orders
	PEDI	Bradycardia 0.5 mg IV/IO Max 3 mg OPP Exposure – Call for orders

ATROPINE

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

DEXTROSE 10%, 50%

PHARMACOLOGY

PROTOCOL	**ADULT**	PEA/Asystole Diabetic Emergencies
	PEDI	PEA/Asystole Diabetic Emergencies Newly Born

CLASS	Glucose-elevating agents; metabolic and endocrine, other
ACTION	Parental dextrose is oxidized to carbon dioxide and water, and provides 3.4 kilocalories/gram of d-glucose
INDICATIONS	Hypoglycemia
CONTRAINDICATIONS	Hyperglycemia, anuria, diabetic coma, intracranial or intraspinal hemorrhage, dehydration with delirium

DOSING – D10	**ADULT**	250 ml IV Titrate to effect
	PEDI	2-5 ml/kg IV

DOSING – D50	**ADULT**	25 gms IV Titrate to effect
	PEDI	Not Used

DEXTROSE 10%, 50%
DEXTROSE 10%, 50%
DEXTROSE 10%, 50%

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

DILTIAZEM (Cardizem)

PHARMACOLOGY

PROTOCOL	**ADULT**	Narrow Complex Tachycardia
	PEDI	Not used
CLASS		Calcium channel blocker, antidysrhythmic type IV
ACTION		Inhibits extracellular calcium ion influx across membranes of myocardial cells and vascular smooth muscle cells, resulting in inhibition of cardiac and vascular smooth muscle contraction and thereby dilating main coronary and systemic arteries; substantial inhibitory effects on cardiac conduction system, acting principally at AV node, with some effects at sinus node
INDICATIONS		Management of narrow complex tachycardias
CONTRAINDICATIONS		Hypersensitivity, tachycardia secondary to heart condition
DOSING	**ADULT**	10 mg IVP Drip – 25mg in 100ml – 20 gtts MICRO
	PEDI	Not used

DILTIAZEM (CARDIZEM)

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

DIPHENHYDRAMINE
(BENADRYL) PHARMACOLOGY

PROTOCOL	**ADULT**	Allergic Reaction Combative/Behavioral
	PEDI	Allergic Reaction
CLASS		Antihistamine – first generation
ACTION		Histamine H1-receptor antagonist of effector cells in respiratory tract, blood vessels, and GI smooth muscle
INDICATIONS		Urticarial and/or pruritis in the management of allergic reaction, management of dystonia/ akasthesia
CONTRAINDICATIONS		Documented hypersensitivity, premature infants and neonates
DOSING	**ADULT**	25 mg to 50 mg IV/IM/PO
	PEDI	1 mg/kg IV/IM/PO Max dose 50 mg

DIPHENHYDRAMINE (BENADRYL)
DIPHENHYDRAMINE (BENADRYL)
DIPHENHYDRAMINE (BENADRYL)

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

DOPAMINE

PHARMACOLOGY

PROTOCOL	**ADULT**	Pea/Asystole Post Cardiac Event Bradycardia CHF/Pulmonary Edema Medical Hypotension/Shock
	PEDI	Shock/Hypotension
CLASS	Inotropic agent; catecholamine; pressor	
ACTION	Acts on both dopaminergic and adrenergic neurons. Stimulates both beta-1-adrenergic and dopaminergic receptors, producing cardiac stimulation and renal vasodilation	
INDICATIONS	Pressor agent in the treatment of shock (MI, cardiac decompensation, etc)	
CONTRAINDICATIONS	Documented hypersensitivity, pheochromocytemia, ventricular fibrillation, uncorrected tachycardias	
DOSING	**ADULT**	5 to 20 mcg/kg/min on IV pump
	PEDI	5 to 20 mcg/kg/min on IV pump

DOPAMINE

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

EPINEPHRINE

PHARMACOLOGY

PROTOCOL	**ADULT**	Allergic Reaction Cardiocerebral Resuscitation V-Fib/Pulseless V-Tach PEA/Aystole
	PEDI	Allergic Reaction V-Fib/Pulseless V-Tach PEA/Aystole Respiratory

CLASS	Alpha/beta adrenergic agonist
ACTION	Strong alpha adrenergic effects, which cause an increase in cardiac output and heart rate, a decrease in renal perfusion and peripheral vascular resistance, resulting in vasoconstriction and increased vascular permeability. Strong beta-1 and moderate beta-2-adrenergic effects, resulting in bronchial amooth muscle relaxation
INDICATIONS	Severe anaphylaxis, shock, cardiac arrest, nebulized for croup/bronchiolitis, asthma
CONTRAINDICATIONS	Documented hypersensitivity, cardiac dilatation, and coronary insufficiency

DOSING	**ADULT**	EPIPEN 0.3 mg 1:10,000 – 1 mg IV/IO/ET 1:1,000 – 0.3 to 0.5 mg IM
	PEDI	EPIPEN JR. 0.15 mg 1:1,000 3 mg in 3 ml Nebulized 1:1,000 0.01 mg/kg IM 1:1,000 0.1 mg/kg ET 1:10,000 0.1 mg/kg IV/IO

ETOMIDATE (AMIDATE)

PHARMACOLOGY

PROTOCOL	**ADULT**	Facilitated intubation
	PEDI	Not Used

CLASS	General anesthetic
ACTION	Short acting, non-barbituate hypnotic, lacking analgesix properties used for induction of general anesthesia
INDICATIONS	Induction of general anesthesia to facilitate intubation
CONTRAINDICATIONS	Suspected sepsis

DOSING	**ADULT**	0.3 mg/kg IV/IO
	PEDI	Not Used

ETOMIDATE (AMIDATE)

ETOMIDATE (AMIDATE)

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

FAMOTIDINE (PEPCID)

PHARMACOLOGY

PROTOCOL	ADULT	Allergic Reaction
	PEDI	Allergic Reaction

CLASS	Histamine H2 antagonist

ACTION	Blocks H2 receptors of gastric partial cells, leading to inhibition of gastric secretions

INDICATIONS	For the management of gastric or duodenal ulcers, gastroesophageal reflux, as an adjunct in the treatment of urticarial and/or pruritus in allergic reaction

CONTRAINDICATIONS	Documented hypersensitivity to famotidine or other H2-receptor antagonists

DOSING	ADULT	20 mg IV/IO/PO
	PEDI	1 mg/kg IV/IO Max 20 mg

GLUCAGON

PHARMACOLOGY

PROTOCOL	**ADULT**	Diabetic Emergencies
	PEDI	Diabetic Emergencies

CLASS	Hypoglycemia antidotes, glucose elevating agent
ACTION	Stimulates cAMP synthesis to accelerate hepatic glycogenolysis and gluconeogenesis. Relaxes smooth muscle of GI tract
INDICATIONS	Management of hypoglycemia for patient who cannot take oral glucose and IV access is unobtainable
CONTRAINDICATIONS	Documented hypersensitivity, pheochromocytoma, insulinoma

DOSING	**ADULT**	1 mg IM
	PEDI	< 20 kg – 0.5 mg IM > 20 kg – 1 mg IM Max dose 1 mg IM

GLUCAGON

GLUCOSE ORAL

PHARMACOLOGY

PROTOCOL	**ADULT**	Diabetic Emergencies
	PEDI	Diabetic Emergencies

CLASS	Glucose-elevating agent
ACTION	After absorption, glucose is distributed in the tissues and provides a prompt increase in circulating blood glucose
INDICATIONS	Hypoglycemia
CONTRAINDICATIONS	Unconscious, absent gag reflex, inability to swallow

DOSING	**ADULT**	15 gms PO
	PEDI	15 gms PO

HALOPERIDOL (HALDOL)

PHARMACOLOGY

PROTOCOL	**ADULT**	Combative / Behavioral
	PEDI	Not Used

CLASS	First generation antipsychotic
ACTION	Antagonizes dopamin-1 and dopamine-2 receptors in brain; depresses reticular activating system and inhibits release of hypothalamic and hypophyseal hormones
INDICATIONS	Acute psychosis or agitated/violent behavior refractory to non-pharmacologic interventions
CONTRAINDICATIONS	Documented hypersensitivity, Severe CNS depression, Parkinson's disease, Coma

DOSING	**ADULT**	10 mg IM
	PEDI	Not Used

HALOPERIDOL (HALDOL)

IPRATROPIUM (ATROVENT)

PHARMACOLOGY

PROTOCOL	**ADULT**	COPD/Asthma Allergic Reaction
	PEDI	Respiratory Distress
CLASS		Anticholinergics, respiratory
ACTION		Anticholinergic agent; inhibits vagally mediated reflexes by antagonizing acetylcholine action; prevents increase in intracellular calcium concentration that is caused by interaction of acetylcholine with muscarinic receptors on bronchial smooth muscle
INDICATIONS		Bronchospasm
CONTRAINDICATIONS		Hypersensitivity, tachycardia secondary to heart condition
DOSING	**ADULT**	500 mcg via nebulizer
	PEDI	500 mcg via nebulizer

IPRATROPIUM (ATROVENT)

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

KETALORIC (TORADOL)

PHARMACOLOGY

PROTOCOL	**ADULT**	Pain Management
	PEDI	Not Used
CLASS		Non-steroidal anti-inflammatory drug (NSAID)
ACTION		Inhibits synthesis of prostaglandins in body tissues by inhibiting at least 2 cyclo-oxygenase (COX) isoenzymes, COX-1 and COX-2. May inhibit chemotaxis, alter lymphocyte activity, decrease proinflammatory cytokine activity, and inhibit neutrophil aggregation; these effects may contribute to anit-inflammatory activity
INDICATIONS		Management of moderate pain, kidney stones
CONTRAINDICATIONS		Allergy to aspirin, ketolorac, or other NSAIDS; women in active labor or breastfeeding, renal impairment associated with volume depletion, previous or current GI bleeding, intracranial bleeding, coagulation defects, patients with high risk of bleeding, and fractures
DOSING	**ADULT**	15 mg IV
	PEDI	Not Used

KETALORIC (TORADOL)
KETALORIC (TORADOL)
KETALORIC (TORADOL)

KETAMINE

PHARMACOLOGY

PROTOCOL	**ADULT**	Combative/Behavioral Facilitated Airway/ DSI Pain Management
	PEDI	Pain Management
CLASS		General anesthetics, systemic
ACTION		Produces dissociative anesthesia, Blocks N-methyl D-aspartate (NMDA) receptor
INDICATIONS		Acute management of pain, sedation
CONTRAINDICATIONS		Known hypersensitivity, conditions in which a rise in blood pressure would be hazardous
DOSING	**ADULT**	Pain Management 10– 20 mg in 100ml Facilitated Airway/DSI 2mg/kg IV/IO Combative - 2 mg/kg IV, 4 mg/kg IM
	PEDI	0.1 mg/kg IV/IN 0.3 mg/kg IM Max 10 mg Pain Management Only

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

LABETALOL (NORMADYNE)

PHARMACOLOGY

PROTOCOL	**ADULT**	Hpertension
	PEDI	Not Used

CLASS	Sympathetic blocker; alpha-adrenergic blocker, beta-adrenergic blocker
ACTION	Combines both selective, competitive alpha1-adrenergic blocking and nonselective, competitive beta-adrenergic blocking activity in a single substance. These actions decrease blood pressure without reflex tachycardia and without a significant reduction in heart rate.
INDICATIONS	Management of blood pressure in severe hypertension
CONTRAINDICATIONS	Bronchial asthma, greater than first degree heart blocks, cardiogenic shock, severe bradycardia

DOSING	**ADULT**	10 to 20 mg IV Requires physician order
	PEDI	Not Used

LABETALOL (NORMADYNE)

LABETALOL (NORMADYNE)

LIDOCAINE

PHARMACOLOGY

PROTOCOL	**ADULT**	V-Fib/Pulseless V-Tach Wide Complex Tachycardia Chest Pain / STEMI / Suspected Cardiac Event
	PEDI	Not Used

CLASS	Class 1b antidysrhythmics
ACTION	Combines with fast sodium channels and thereby inhibits recovery after repolarization, resulting in decreasing myocardial excitability and conduction velocity
INDICATIONS	Management of refractory or recurrent ventricular fibrillation or pulseless ventricular tachycardia
CONTRAINDICATIONS	Severe degrees of SA/AV/intraventricular heart blocks, known allergy, Wolff-Parkinson-White syndrome

DOSING	**ADULT**	1.5 mg/kg IV/IO Drip – 1 Gm in 250 cc, 1-4 mg/min
	PEDI	Not Used

LIDOCAINE
LIDOCAINE

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

LORAZEPAM (ATIVAN)

PHARMACOLOGY

PROTOCOL	**ADULT**	Combative/Behavioral Hypothermia Obstetrical Emergencies Seizures
	PEDI	Seizures

CLASS	Anticonvulsants; antianxiety agent; anxiolytics; benzodiazepines
ACTION	Sedative hypnotic with short onset of effects and relatively long half-life; by increasing the action of gamma-aminobutyric (GABA), which is a major inhibitory neurotransmitter in the brain
INDICATIONS	Management of seizures, uncontrolled shivering in hypothermia, and management of agitated or violent patients suffereing behavioral emergencies
CONTRAINDICATIONS	Severe degrees of SA/AV/intraventricular heart blocks, known allergy, Wolff-Parkinson-White syndrome

DOSING	**ADULT**	2 to 4 mg IV/IO/IN
	PEDI	0.05 mg/kg IV/IN Max 2 mg

LORAZEPAM (ATIVAN)

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

MAGNESIUM SULFATE

PHARMACOLOGY

PROTOCOL	**ADULT**	Cardiocerebral Resuscitation V-Fib/Pulseless V-Tach Wide Complex Tachycardia Obstetrical Emergencies
	PEDI	Not Used

CLASS	Class V antidysrhythmic, electrolyte
ACTION	Depresses CNS, blocks peripheral neuromuscular transmission, produces anticonvulsant effects; decreases amount of acetlcholine released at end-plate by motor nerve impulse. Slows rate of sino-atrial (SA) node impulse formation in myocardium and prolongs conduction time. Promotes movement of calcium, potassium, and sodium in and out of cells and stabilizes excitable membranes
INDICATIONS	Management of torsades de pointes or for severe bronchoconstriction with impending respiratory failure, seizure during the third trimester of pregnancy or in the postpartum patient
CONTRAINDICATIONS	Hypersensitivity, myocardial damage, diabetic coma, heart block, hypermagnesemia, hypercalcemia

DOSING	**ADULT**	2 to 4 gms IV/IO
	PEDI	Not Used

MAGNESIUM SULFATE

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

METHYLPREDNISOLONE

(SOLU- MEDROL) PHARMACOLOGY

PROTOCOL	**ADULT**	COPD / Asthma Allergic reaction
	PEDI	Respiratory Distress

CLASS	Cotricosteroid, anti-inflammatory agent
ACTION	Potent glucocorticoid with minimal to no mineralocorticoid activity. Modulates carbohydrate, protein, and lipid metabolism and maintenance of fluid and electrolyte homeostasis. Prevents inflammation by controlling rate of protein synthesis, suppressing migration of polymorphonuclear leukocytes (PMNs) and fibroblasts, reversing capillary permeability, and stabilizing lusomes at the cellular level
INDICATIONS	Management of acute bronchospastic disease
CONTRAINDICATIONS	Untreated serious infections, documented hypersensitivity

DOSING	**ADULT**	125 mg IV
	PEDI	2 mg/kg IV

METHYLPREDNISOLONE (SOLU-MEDROL)
METHYLPREDNISOLONE (SOLU-MEDROL)
METHYLPREDNISOLONE (SOLU-MEDROL)

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

MIDAZOLAM (VERSED)

PHARMACOLOGY

PROTOCOL	**ADULT**	Airway Control Facilitated Intubation Wide Complex Tachycardia Narrow Complex Tachycardia Bradycardia Combative/Behavioral Seizures
	PEDI	Wide Complex Tachycardia Narrow Complex Tachycardia
CLASS		Anticonvulsants; antianxiety agent; anxiolytics; benzodiazepines
ACTION		Binds receptors at several sites within the CNS, including the limbic system and reticular formation; effects may be mediated through GABA receptor system; increase in nueronal membrane permeability to chloride ions causes hyperpolarization and stabilization of the nueronal membrane
INDICATIONS		Management of seizures and agitated or violent patients suffering behavioral emergencies, sedation
CONTRAINDICATIONS		Documented hypersensitivity, severe respiratory depression, sleep apnea
DOSING	**ADULT**	2.5 to 5 mg IV/IM/IN
	PEDI	0.1 mg/kg IV/IO

MIDAZOLAM (VERSED)

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

MORPHINE SULFATE

PHARMACOLOGY

PROTOCOL	**ADULT**	Chest Pain/STEMI/Suspected Cardiac Event Pain Management
	PEDI	Pain Management

CLASS	Opioid Analgesic
ACTION	Narcotic agonist-analgesic of opiate receptors; inhibits ascending pain pathways, thus altering response to pain; produces analgesia, respiratory depression, and sedation; suppresses cough by acting centrally in medulla
INDICATIONS	Management of acute pain
CONTRAINDICATIONS	Documented hypersensitivity, respiratory depression, acute or severe bronchial asthma, upper airway obstruction, heart failure due to lung disease, delirium tremens, seizure disorders

DOSING	**ADULT**	2 mg IV q 5 minutes Max 10 mg
	PEDI	0.1 mg/kg IV Max 2mg

MORPHINE SULFATE

MORPHINE SULFATE

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

NALOXONE (NARCAN)

PHARMACOLOGY

PROTOCOL	**ADULT**	PEA/Asystole Suspected Opioid Exposure
	PEDI	PEA/Asystole Suspected Opioid Exposure

CLASS	Opioid reversal agent
ACTION	Competitive opioid antagonist; synthetic congener of oxymorphone
INDICATIONS	Reversal of acute opioid toxicity
CONTRAINDICATIONS	Documented hypersensitivity

DOSING	**ADULT**	1-2 mg IN/IM/IV Max 6 mg Preload BLS 0.4 to 4 mg IM/IN
	PEDI	0.1 mg/kg IN/IM/IV Max 6 mg Preload BLS 0.4 to 4 mg IM/IN If patient > 4 years old and 44 pounds

NALOXONE (NARCAN)

NITROGLYCERIN (NITROSTAT, NITROBID) PHARMACOLOGY

PROTOCOL	**ADULT**	Chest Pain/STEMI/Suspected Cardiac Event CHF/Pulmonary Edema
	PEDI	Not Used

CLASS	Nitrates, anti-anginal
ACTION	Causes systemic venodilation, decreasing preload. Relaxes smooth muscle via dose-dependent dilation of arterial and venous beds to reduce both preload and afterload, and myocardial oxygen demand
INDICATIONS	Management of angina, reduction of preload in pulmonary edema
CONTRAINDICATIONS	Documented hypersensitivity, recent use of erectile dysfunction medication (Viagra 24 hours, Cialis/ Levitra 48 hours), hypotension < 100 systolic

DOSING	**ADULT**	0.4 mg SL q 5 minutes 1 inch of paste
	PEDI	Not Used

NITROGLYCERIN (NITROSTAT, NITROBID)

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

ORDANSETRON (ZOFRAN)

PHARMACOLOGY

PROTOCOL	**ADULT**	Abdominal Complaints Nausea/Vomiting
	PEDI	Not Used

CLASS	Antiemetic, selective 5-HT3 antagonist
ACTION	Selective 5-HT3 receptor antagonist; binds to receptors in both periphery and CNS, with primary effects in GI tract. Has no effect on dopamine receptors and therefore does not cause extrapyramidol symptoms

INDICATIONS	Management of nausea or vomiting
CONTRAINDICATIONS	Documented hypersensitivity, avoid in patients with congenital long QT syndrome

DOSING	**ADULT**	4 mg IV/ODT
	PEDI	Not Used

ORDANSETRON (ZOFRAN)
ORDANSETRON (ZOFRAN)
ORDANSETRON (ZOFRAN)

ROCURONIUM

PHARMACOLOGY

PROTOCOL	**ADULT**	Delayed Sequence Intubation Facilitated Airway
	PEDI	Facilitated Airway
CLASS		Paralytic
ACTION		Aminosteroid non-depolarizing neuromuscular blocker
INDICATIONS		Adjunct to general anesthesia to enable Delayed Sequence intubation or Facilitated Airway
CONTRAINDICATIONS		Known hypersensitivity
DOSING	**ADULT**	DSI and Facilitated Airway – 1 mg/kg IV/IO can repeat 0.5mg/kg IV/IO if full paralysis not achieved
	PEDI	Facilitated Airway 1 mg/kg IV/IO

ROCURONIUM
ROCURONIUM
ROCURONIUM

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

SODIUM BICARBONATE

PHARMACOLOGY

PROTOCOL	**ADULT**	Cardiocerebral Resuscitation V-Fib/Pulseless V-Tach PEA/Asystole Overdose/Exposure
	PEDI	PEA/Asystole V-Fib/Pulseless V-Tach

CLASS	Antidote, other
ACTION	Increases blood and urinary pH by releasing a bicarbonate ion, which in turn neutralizes hydrogen ion concentrations

INDICATIONS	Management of cardiac arrest in cases which either hyperkalemia or tricyclic antidepressant overdose are suspected as contributory
CONTRAINDICATIONS	Documented hypersensitivity, severe pulmonary edema, known alkalosis, hypernatremia, or hypocalcemia

DOSING	**ADULT**	1 mEq/kg IV/IO
	PEDI	1 mEq/kg IV/IO

SODIUM BICARBONATE

SODIUM BICARBONATE

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

SUCCINYLCHOLINE (ANECTINE) PHARMACOLOGY

PROTOCOL	**ADULT**	Facilitated Intubation
	PEDI	Not Used

CLASS	Paralytic
ACTION	Depolarizing agent that combines with the cholinergic receptors of the motor end plates to produce depolarization. This may be observed as fasciculation. Onset of paralysis is rapid, less than one minute, and with single administration lasts 4-6 minutes. While there is no direct effect on the myocardium, changes in EKG may result from vagal stimulation. **Anectine has no effect on the consciousness.**

INDICATIONS	Neuromuscular blockade to facilitate intubation
CONTRAINDICATIONS	Skeletal muscle myopathies

DOSING	**ADULT**	1.5 mg/kg IV/IO
	PEDI	Not Used

SUCCINYLCHOLINE (ANECTINE)

THIAMINE

PHARMACOLOGY

PROTOCOL	**ADULT**	Diabetic Emergencies
	PEDI	Not Used

CLASS	Vitamin B1
ACTION	Thiamine is vitamin B1, a cofactor needed for the utilization of glucose

INDICATIONS	Treatment with Dextrose on patients suffering from alcoholism or under treatment with chemotherapy
CONTRAINDICATIONS	Documented hypersensitivity

DOSING	**ADULT**	100 mg IV
	PEDI	Not Used

MANATEE COUNTY EMS SYSTEM

TRAUMA TRANSPORT PROTOCOLS

EMERGENCY MEDICAL SERVICES
MANATEE COUNTY, FLORIDA

Effective April 28th, 2019

Signed Copy on File

David Nonell, MD, FACEP - Medical Director
Manatee County Emergency Medical Services

TRAUMA TRANSPORT PROTOCOL

INDEX

TRAUMA TRANSPORT PROTOCOL

TRAUMA TRANSPORT PROTOCOL

I. PURPOSE:

To ensure that the condition of all trauma patients, both adult and pediatric, is assessed utilizing the methodology described herein to determine the appropriate destination as provided in Florida Administrative Code.

II. DISPATCH PROCEDURE:

The Incident Reporting Dispatchers (IRD) of the Manatee County Emergency Communications Center (ECC) located in the Manatee County Public Safety Center will ascertain the following information from the 911 caller:

- **A.** Location of incident
- **B.** Type of incident
- **C.** Telephone number of caller
- **D.** Estimated number of injured
- **E.** Extent and severity of injuries
  - **1.** Conscious or Unconscious
  - **2.** Breathing or Apneic
- **F.** Extrication indicated
- **G.** Hazards – Hazardous material involved

III. DETERMINATION / RESPONSE OF CLOSEST UNIT:

A. Response is determined by utilizing Computer Aided Dispatch (CAD) along with the Medical Priority Dispatch System (MPDS) which recommends the closest appropriate EMS unit(s). First responder level care, extrication and fire suppression are provided by local area fire departments. Automatic response is initiated by station/unit alert tones in all trauma related incidents. These incidents may consist of industrial accidents, multi-casualty incidents or other calls as requested. Law enforcement is alerted through the CAD system or phone in any call deemed necessary.

B. The CAD system routinely polls the GPS positions of each ambulance and assists in the selection of the closest appropriate unit for response.

C. The closest appropriate station/unit is selected and notified.

D. Units may identify by unit number and location if they believe they may be closer to an incident.

E. Dispatch assigns incident to the closest appropriate unit available.

F. If the initial call information suggests a multi-casualty incident, additional units and an MCEMS supervisor(s) will respond as resources allow. Request for additional resources may also be made by the first arriving emergency unit or at the discretion of MCEMS supervisor.

G. Based on information received from on-scene first response units, if one or more patients meet trauma alert criteria, a MCEMS supervisor may request ECC to dispatch helicoptor air transport.

TRAUMA TRANSPORT PROTOCOL

IV. PRE-HOSPITAL TRAUMA CARE PROCEDURES:

A. Upon arrival at the location of an incident, an EMT or Paramedic shall:

1. Assess the condition of each adult trauma patient using the TRAUMA SCORECARD METHODOLOGY as provided in section five. The EMT/Paramedic shall assess the condition, determine the vital signs, determine the Glasgow Coma Score and the anatomy or mechanism of injury to determine the transport destination as per Florida Administrative Code and page 4 and/or Appendix A of this document: or
2. Assess the condition of each pediatric trauma patient using the PEDIATRIC TRAUMA SCORECARD METHOLOLOGY as defined by Florida Administrative Code and page 5 and/or Appendix B of this document.

B. The Manatee County EMS Patient Care Report (PCR) shall be completed for all patients with traumatic injuries regardless of severity. The report shall indicate the time and date of the injury, the county where the injury occurred, the patient's county of residence, the cause of the injury, the site and type of injury, the criteria utilized to determine Trauma Alert status, and any protective devices utilized if the patient was involved in a motorized vehicle, bicycle or marine crash. A copy of the PCR shall be delivered with the patient to the transporting helicopter air transport crew or on arrival at the receiving facility. Completed PCRs will be transmitted electronically to the receiving facility as soon as possible within eight (8) hours. The completed PCR will be sent electronically to the MCEMS administrative offices and any additional documentation shall be sent by courier. Required data shall be filed electronically to the State EMS OFFICE.

C. The on-scene Paramedic will notify the Emergency Communications Center (ECC) by 800 MHZ radio on the assigned radio group of a **trauma alert** utilizing the words "**Trauma Alert,**" followed by the criteria used to determine the patient as an alert.

D. If the condition of the patient or patients exceed(s) the resources and capabilities of the unit or units on scene, (more patients than the on-scene units or personnel can handle), then a request for additional resources shall be made through the Emergency Communications Center.

E. If the number of patients exceeds the available resources of Manatee County Emergency Medical Services, mutual aid will be requested by the on-scene or responding EMS supervisor. The supervisor will contact ECC via 800 MHz radio who will then contact the appropriate mutual aid agency (i.e. Sarasota County Fire Rescue, Longboat Key Fire Rescue, Hillsborough, Hardee, Pinellas, Polk, or Desoto County) via telephone.

F. Authorization for cancellation of the Trauma Alert may only be issued by the MCEMS Medical Director or the receiving SATC or SAPTC physician.

V. ADULT TRAUMA SCORECARD METHODOLOGY:

A. The EMT or paramedic shall assess all adult trauma patients using the following criteria in accordance with Florida Administrative Code and if any **one** of the following conditions is identified, the patient shall be considered a Trauma Alert patient:

1. **AIRWAY:** The patient is receiving active airway assistance beyond the administration of oxygen.
2. **CIRCULATION:** The patient lacks a radial pulse with a sustained heart rate greater than 120 beats per minute, or; the patient's blood pressure is less than 90 mmHg.
3. **BEST MOTOR RESPONSE (BMR):** The patient exhibits a score of 4 or less on the motor assessment component of the Glascow Coma Scale (GCS) or; exhibits the presence of paralysis or; there is suspicion of a spinal cord injury or; there is a loss of sensation.
4. **CUTANEOUS:** The patient has sustained 2nd or 3rd degree burns to an area equal to or greater than 15% of total body surface area (BSA) or; has sustained a penetrating injury to the head, neck, torso, excluding superficial injuries where the depth can be easily determined.
5. **LONG BONE FRACTURE:** The patient exhibits signs and symptoms of 2 or more long bone fracture sites (humerus, radius/ulna, femur or tibia/fibula.)

B. If the trauma patient meets any **TWO** of the following criteria, the trauma patient will be considered a **Trauma Alert:**

1. **AIRWAY**: The patient has a respiratory rate of 30 or greater.
2. **CIRCULATION:** The patient has a sustained heart rate of 120 or greater
3. **BMR:** The patient has a BMR of 5 on the motor component of the GCS.
4. **CUTANEOUS:** The patient has a soft tissue loss from either a major degloving injury, or: A major flap avulsion greater than 5 inches, or; has sustained a gunshot wound (GSW) to one or more of the extremities of the body.
5. **LONG BONE FRACTURE:** The patient reveals signs or symptoms of a single long bone fracture resulting from a MVC or fall from an elevation of 10 feet or greater.
6. **AGE:** The patient is 55 years of age or older.
7. **MECHANISM OF INJURY:** The patient has been ejected from a motorized vehicle (excluding any motorcycle, moped, all terrain vehicle, bicycle or the open body of a pick-up truck), or; the driver of a motorized vehicle has impacted the steering wheel with sufficient force to cause steering wheel deformity.

C. If the trauma patient is not identified as a **trauma alert,** utilizing the criteria in V. A. or B., the trauma patient will be evaluated utilizing all elements of the Glascow Coma Scale (GCS.) If the trauma patient's GCS is equal to 12 or less, the patient is considered a **trauma alert.** If determined by medical history the patient's baseline GCS is 12 or less, the patient is excluded from meeting **trauma alert** criteria.

D. In the event that none of the above criteria are met, the paramedic or EMT may call a **"Trauma Alert"** if, in his or her best judgment, the patient's condition warrants such action. When EMT or Paramedic judgment is used as the basis for calling a trauma alert, it shall be documented in the patient care report in accordance with 64J-1.014 and 64J-2.002(5), F.A.C.

VI. PEDIATRIC TRAUMA SCORECARD METHODOLOGY:

A. The pediatric patient is a patient with the anatomical and physiological characteristics of a person fifteen (15) years of age or younger.

B. The EMT or paramedic shall assess all pediatric trauma patients using the following criteria in accordance with Florida Administrative Code and if any **one** of the following conditions is identified, the patient shall be considered a **Trauma Alert** patient:

1. **Airway:** In order to maintain optimal ventilation, the patient is intubated, or: The patient's breathing is maintained through such measures as manual jaw thrust, continuous suctioning, or through the use of other adjuncts to assist ventilator efforts**.**
2. **Consciousness:** The patient exhibits an altered mental status that includes: drowsiness, lethargy, the inability to follow commands, unresponsiveness to voice, totally unresponsive, or is in a coma or there is a presence of paralysis or: there is a suspicion of a spinal cord injury, or; loss of sensation.
3. **Circulation:** The patient has a faint or non-palpable carotid or femoral pulse, or; the patient has a systolic blood pressure of less than 50 mmHg.
4. **Fracture:** There is evidence of an open long bone fracture (humerus, radius/ulna, femur, or tibia/fibula,) or; there are multiple dislocations (except for isolated wrist or ankle fractures or dislocations.**)**
5. **Cutaneous:** The patient has a major soft issue disruption, including major degloving injury or major flap avulsions, or; 2nd or 3rd degree burns to more than 10% of the total body surface area, or; amputation proximal to the wrist or ankle, or; any penetrating injury to the head, neck or torso (excluding superficial wounds where the depth of the wound can be easily determined.)

C. Pediatric patients meeting a combination of any **two** (2) of the following criteria are to be considered a Trauma Alert patient;

1. **Consciousness:** The patient exhibits symptoms of amnesia, or; there is a loss of consciousness.
2. **Circulation:** The carotid or femoral pulse is palpable, but the radial or pedal pulses are not palpable, or; the systolic blood pressure is less than 90 mmHg.
3. **Fracture:** The patient reveals signs or symptoms of a single closed long bone fracture. Long bone fractures do not include isolated wrist or ankle fractures.
4. **Size:** Pediatric trauma patients weighing 11 kilograms or less, or; the body length is equivalent to this weight on the length based measuring tape (the equivalent of 33 inches in measurement or less.)

D. In the event that none of the above criteria are met, the paramedic or EMT may call a "**Trauma Alert"** if, in his or her judgment the patient's condition warrants such action. When EMT or Paramedic judgment is used as the basis for calling a trauma alert, it shall be documented in the patient care report in accordance with 64J-1.014 and 64J-2.002(5), F.A.C.

E. The on-scene paramedic will notify ECC by 800 MHZ radio of the pediatric **"Trauma Alert,"** and the request for a helicopter shall be made.

VI. TRANSPORT DESTINATION CRITERIA:

A. Trauma alert patients shall be transported to the closest SATC or SAPTC in terms of transport time.

B. After the Emergency Communication Center is notified of a **trauma alert** by an on-scene Paramedic, ECC shall contact the closest appropriate SATC or SAPTC to confirm availability.

C. If the patient or patients meet trauma alert criteria and transport to the closest SATC or SAPTC can be accomplished within 30 minutes via ground, the on-scene MCEMS paramedic or supervisor shall contact ECC for notification to the receiving facility; and transport the patient via ground. Note: on-scene times should be limited to less than 10 minutes.

D. The Sarasota Memorial Hospital catchment area is defined geographically by having a northern border of Whitfield Avenue (63rd Avenue), a southern border of University Parkway, an eastern border of Interstate 75, and a western border of U.S. 41. All adult patients within the above defined catchment area, meeting **trauma alert** criteria, shall be transported by ground to Sarasota Memorial Hospital.

E. If the patient or patients meet trauma alert criteria and transport to the closest SATC or SAPTC **cannot** be accomplished within 30 minutes via ground, the on-scene MCEMS paramedic or supervisor shall contact ECC to request helicopter air ambulance response. ECC will contact Aeromed dispatch by phone or other communication device, and request estimated response time. Aeromed will dispatch the closest available helicopter by time regardless of operating agency.

F. In the best interest of our adult and pediatric trauma alert patients, paramedics must exercise sound judgment and consider the time of injury, patient contact time, extrication time and estimated transport time.

1. If the estimated response time by the helicopter air transport to the scene or closest landing zone exceeds 30 minutes, or is not available due to weather, the patient shall be transported by ground ambulance to the closest appropriate SATC or SAPTC.

2. If the extremely rare condition exists that prohibits a safe and timely transport by ground to the closest Trauma Center, the patient or patients will be transported to the closest appropriate receiving facility.

3. Trauma Alert Patients in cardiac arrest should be transported to the closest appropriate receiving facility.

4. During Mass Casualty Incidents, Trauma Alert patients may be transported to the closest appropriate receiving facility at the discretion of the Transport Officer (After communicating with the SATC or SAPTC).

G. Pediatric patients who have been designated as meeting **trauma alert** criteria, regardless of the incident location, shall be transported by helicopter air ambulance to the closest appropriate SAPTC.

H. Adult Patients who meet **trauma alert** criteria due to significant burn injury, regardless of the incident location, shall be transported by ground or helicopter air ambulance to the closest appropriate **SATC/burn center** using the criteria set in Section VII, C, E, and F.

TRAUMA TRANSPORT PROTOCOL
TRAUMA TRANSPORT PROTOCOL

VII. TRANSPORT DESTINATION CRITERIA continued:

A. Designated **S**tate **A**pproved **T**rauma **C**enters (**SATC**):

1.	Tampa General Hospital	-	Level I
2.	Bayfront Medical Center	-	Level II
3.	Blake Medical Center	-	Level II
4.	Sarasota Memorial Hospital	-	Level II
5.	St. Joseph's Hospital	-	Level II
6.	Lakeland Regional Medical Center	-	Level II

B. Designated **St**ate **A**pproved **P**ediatric **T**rauma **C**enters (**SAPTC**) are as follows:

1.	Tampa General Hospital	-	Level I
2.	All Children's Hospital	-	Level II
3.	St. Joseph's Hospital	-	Level II

C. Designated Trauma and Burn Centers:

1. Blake Medical Center (**SATC**)
2. Tampa General Hospital (**SATC, SAPTC**)

D. Designated as closest appropriate receiving facilities:

1. Manatee Memorial Hospital
2. Lakewood Ranch Medical Center
3. Doctor's Hospital Free Standing Emergency Department

VIII. EMERGENCY TRAUMA INTER-HOSPITAL TRANSFER PROCEDURES:

If an inter-hospital transfer of an established Trauma Alert patient is required within Manatee County, and the contracted provider of the facility requesting the transfer is unavailable or has an extended ETA that would be detrimental to the patient, Manatee County EMS will make contact with the contracted provider and upon verification of the delay or unavailability, respond as if it were a standard 911 emergency call as per 64J-1.001(25) F.A.C..

IX. DEVIATION STATEMENT:

Any deviation from these protocols will be documented and justified on the Manatee County EMS Patient Care Report or PCR Addendum Form.

TRAUMA TRANSPORT PROTOCOL

MEDICAL DIRECTOR ATTESTATION

"As the medical director of the Manatee County Public Safety Division of Emergency Medical Services, I developed and/or directed the development of the trauma transport protocols presented in this document."

Signature on File
David C. Nonell, M.D., FACEP

Approval Date

ME 37261
State of Florida Medical License Number

TRAUMA TRANSPORT PROTOCOL

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

TRAUMA TRANSPORT PROTOCOL

Adult Trauma Triage and Methodology

The EMT or Paramedic will 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 three (3) criteria to determine Trauma Alert Status. The criteria shall be applied in the order listed.

CRITERIA:

1. **Meets color coded triage system - 1 RED or 2 BLUE criteria = Trauma Alert (See Below)**
2. **GCS < 12** (Patient must be evaluated via GCS if not identified as a trauma alert after Criterion 1.
3. Patient does not meet any of the trauma criteria listed above but, in the **judgement of the Paramedic**, should be transported as a trauma alert (document appropriately)

COMPONENT	RED	BLUE
Airway	• **Active Airway Assistance** *(Beyond the administration of Oxygen)*	• **Sustained RR ≥ 30**
Circulation	• **Lack of Radial Pulse with sustained HR > 120** • **B/P < 90**	• **Sustained HR > 120**
Best Motor Response (BMR)	• **BMR ≤ 4** • **Paralysis** • **Suspected Spinal Cord Injury**	• **BMR = 5**
Cutaneous	• **Amputation** *(Proximal to wrist or ankle)* • **2nd or 3rd degree burns ≥ 15% TBSA** • **Penetrating Injury to head, neck, or torso** *(Except superficial wounds where the depth can be easily determined)*	• **Tissue Loss** *(Major degloving injuries, major flap avulsions > 5 inches)*
Long Bone Fracture	• **Fractures of two or more long bones** *(Exluding the wrist and ankle)*	• **Single Fracture due to MVA or fall > 10 feet**
Age		• **> 55 years old**
Mechanism of Injury		• **Ejection from Vehicle** *(Excludes motorcycles, moped, ATV, bicycle or open bed of pickup truck)* • **Deformed Steering Wheel** *(Only applies to driver)*

TTP: ADULT SCORECARD

TTP: ADULT SCORECARD

TTP: ADULT SCORECARD

OFFICE OF THE
MEDICAL DIRECTOR
MANATEE COUNTY, FL

TRAUMA TRANSPORT PROTOCOL

TTP: PEDIATRIC SCORECARD

Pediatric Trauma Triage and Methodology

The EMT or Paramedic will assess the condition of those injured persons with anatomical and physiological characteristics of a person **fifteen (15)** years of age or younger for the presence of at least one of the following two (2) criteria to determine Trauma Alert Status. The criteria shall be applied in the order listed.

CRITERIA:

1. **Meets color coded triage system - 1 RED or 2 BLUE criteria = Trauma Alert** (See Below)
2. Patient does not meet any of the trauma criteria listed above but, in the **judgement of the Paramedic**, should be transported as a trauma alert (document appropriately)

COMPONENT	RED	BLUE
Size		• **Weight ≤ 11 kg or** • **Length ≤ 33 inches**
Airway	• **Assisted or Intubated** *(Includes manual jaw thrust, continous suctioning, or use of airway adjuncts to assist ventilations)*	
Consciousness	• **Altered Mental Status** *(Drowsiness, lethargy, inability to follow commands, or unresponsive to voice)* • **Paralysis** • **Suspected spinal cord injury or loss of sensation**	• **Amnesia** • **Loss of consciousness**
Circulation	• **Weak or non-palpable carotid or femoral pulse** • **SBP < 50**	• **No distal pulses but carotid or femoral pulses present** • **SBP < 90**
Fracture	• **Open long bone fracture** • **Multiple fracture sites** • **Multiple dislocations**	• **Single closed long bone fracture**
Cutaneous	• **Major tissue disruption** *(Major degloving injuries, major flap avulsions)* • **2nd or 3rd degree burns ≥ 10% TBSA** • **Penetrating Injury to head, neck, or torso** *(Except superficial wounds where the depth can be easily determined)*	

TTP: PEDIATRIC SCORECARD

TTP: PEDIATRIC SCORECARD

TRAUMA TRANSPORT PROTOCOL

Doctors Hospital of Sarasota and Doctors Hospital of Sarasota ER in Lakewood Ranch

I, Robert Meade, certify to the MANATEE COUNTY DEPARTMENT OF PUBLIC SAFETY, EMS DIVISION that DOCTORS HOSPITAL OF SARASOTA and DOCTORS HOSPITAL OF SARASOTA ER IN LAKEWOOD RANCH meet the following prehospital Trauma Alert Transport requirements as specified in Chapter 64J-2.002, Florida Administrative Code:

1. Is staffed 24 hours a day with a physician and other personnel who are qualified in emergency:
    a. Airway management.
    b. Ventilatory support.
    c. Control of life-threatening circulatory problems which include:
        (1) Endotracheal tubes.
        (2) Establishment of central intravenous lines.
        (3) Insertion of chest tubes.

2. Has equipment and staff in hospital and available to conduct chest and cervical spine x-rays.

3. Has laboratory facilities, equipment, and staff in hospital and available to analyze and report laboratory results.

4. Has equipment and staff on call and available to initiate definitive care required by a “Trauma Alert” patient within 30 minutes of the patient's arrival at the hospital, or can initiate procedures within 30 minutes of the patient's arrival to transfer the “Trauma Alert” patient to State-Approved Trauma Center (SATC) or a State-Approved Pediatric Trauma Referral Center (SAPTRC).

5. Has a written transfer agreement with at least one SATC or SAPTRC. The transfer agreement shall provide specific procedures to ensure a timely transfer of “Trauma Alert” patients to SATC or SAPTRC.

This is to acknowledge that our facility has received copy of the revised 2019-2021 Manatee County E.M.S. Trauma Transport Protocols.

1. DOCTORS HOSPITAL OF SARASOTA
2. DOCTORS HOSPITAL OF SARASOTA ER IN LAKEWOOD RANCH

_____Signature on File_____
Signature Date

Robert Meade_____
Printed Name

Chief Executive Officer_____
Title

TRAUMA TRANSPORT PROTOCOL

Lakewood Ranch Medical Center

I, Andy Guz, certify to the MANATEE COUNTY DEPARTMENT OF PUBLIC SAFETY, EMS DIVISION that LAKEWOOD RANCH MEDICAL CENTER meets the following prehospital Trauma Alert Transport requirements as specified in Chapter 64J-2.002, Florida Administrative Code:

1. Is staffed 24 hours a day with a physician and other personnel who are qualified in emergency:
    a. Airway management.
    b. Ventilatory support.
    c. Control of life-threatening circulatory problems which include:
        (1) Endotracheal tubes.
        (2) Establishment of central intravenous lines.
        (3) Insertion of chest tubes.

2. Has equipment and staff in hospital and available to conduct chest and cervical spine x-rays.

3. Has laboratory facilities, equipment, and staff in hospital and available to analyze and report laboratory results.

4. Has equipment and staff on call and available to initiate definitive care required by a “Trauma Alert” patient within 30 minutes of the patient's arrival at the hospital, or can initiate procedures within 30 minutes of the patient's arrival to transfer the “Trauma Alert” patient to State-Approved Trauma Center (SATC) or a State-Approved Pediatric Trauma Referral Center (SAPTRC).

5. Has a written transfer agreement with at least one SATC or SAPTRC. The transfer agreement shall provide specific procedures to ensure a timely transfer of “Trauma Alert” patients to SATC or SAPTRC.

This is to acknowledge that our facility has received copy of the revised 2019-2021 Manatee County E.M.S. Trauma Transport Protocols.

LAKEWOOD RANCH MEDICAL CENTER

_Signature on File _____
Signature Date

Andy Guz_____
Printed Name

Chief Executive Officer_____
Title

TRAUMA TRANSPORT PROTOCOL

Manatee Memorial Hospital

I, Kevin DiLallo, certify to the MANATEE COUNTY DEPARTMENT OF PUBLIC SAFETY, EMS DIVISION that MANATEE MEMORIAL HOSPITAL meets the following prehospital Trauma Alert Transport requirements as specified in Chapter 64J-2.002, Florida Administrative Code:

1. Is staffed 24 hours a day with a physician and other personnel who are qualified in emergency:
    a. Airway management.
    b. Ventilatory support.
    c. Control of life-threatening circulatory problems which include:
        (1) Endotracheal tubes.
        (2) Establishment of central intravenous lines.
        (3) Insertion of chest tubes.

2. Has equipment and staff in hospital and available to conduct chest and cervical spine x-rays.

3. Has laboratory facilities, equipment, and staff in hospital and available to analyze and report laboratory results.

4. Has equipment and staff on call and available to initiate definitive care required by a “Trauma Alert” patient within 30 minutes of the patient's arrival at the hospital, or can initiate procedures within 30 minutes of the patient's arrival to transfer the “Trauma Alert” patient to State-Approved Trauma Center (SATC) or a State-Approved Pediatric Trauma Referral Center (SAPTRC).

5. Has a written transfer agreement with at least one SATC or SAPTRC. The transfer agreement shall provide specific procedures to ensure a timely transfer of “Trauma Alert” patients to SATC or SAPTRC.

This is to acknowledge that our facility has received copy of the revised 2019-2021 Manatee County E.M.S. Trauma Transport Protocols.

MANATEE MEMORIAL HOSPITAL

_Signature on File _____
Signature Date

Kevin DiLallo_____
Printed Name

Chief Executive Officer_____
Title

REFERENCE PHONE NUMBERS

EMS

District 11	941-749-3500 ext 1661 or 941-725-3044
District 12	941-749-3500 ext 3535 or 941-725-3042
District 13	941-749-3500 ext 1659 or 941-725-3043

HOSPITALS

Blake Medical Center	1-941-798-6303
Manatee Memorial	1-941-746-7564
Lakewood Ranch	1-941-782-2708
Doctors Free Standing ER	1-941-242-6532
Doctors Hospital	1-941-342-1100
Sarasota Memorial	1-941-917-9000
All Children's Hospital	1-727-767-7280
Bayfront Medical Center	1-727-893-6010
Bay Pines Veteran's Hospital	1-727-398-6661
Tampa General	1-813-844-7100
South Bay Hospital	1-813-634-3301
St. Joseph's South	1-813-605-4142
Lakeland Regional	1-863-687-1100

OTHER

ECC	1-941-747-7776
Bayflite	1-866-209-7617
AirLife	1-800-223-4494
Aeromed	1-800-727-1911
Poison Control	1-800-222-1222
Divers Alert Network	1-919-684-9111
Vidacare (EZ-IO)	1-800-680-4911
EMS Only Exposures	1-941-348-0123
PSC	1-941-749-3500

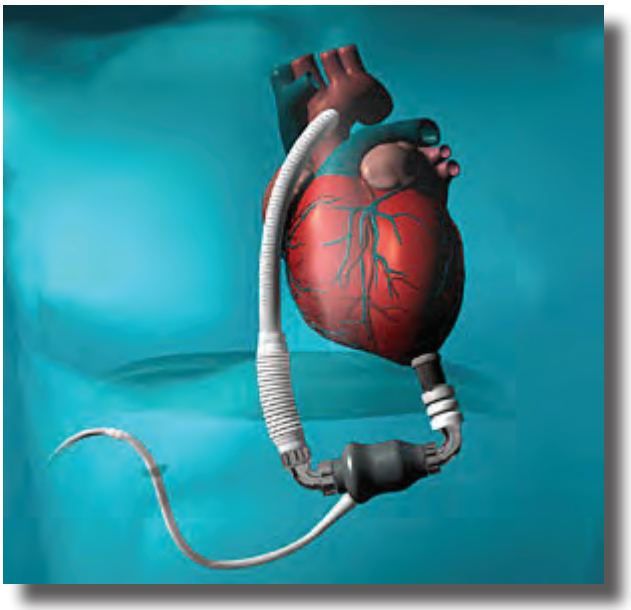
REFERENCE – PHONE NUMBERS

EMS Guide

Complete Document

This guide is produced by ICCAC – The International Consortium of Circulatory Assist Clinicians. The ICCAC is the professional society for MCS Clinicians throughout the world. It has been vetted by experts in MCS, Air Medical Transport, and Emergency Services. It should not replace the device operating manual as a primary source of information.

Questions and Answers
Ventricular Assist Device



What is a Ventricular Assist Device (VAD)?

A ventricular assist device (VAD) is a mechanical pump that's used to support heart function and blood flow in people who have weakened hearts.

How does a VAD work?

The device takes blood from a lower chamber of the heart and helps pump it to the body and vital organs, just as a healthy heart would.

What are the parts of a VAD?

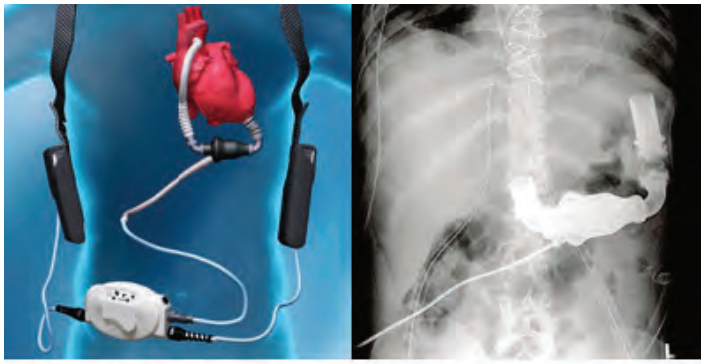
The basic parts of a VAD include: a small tube that carries blood out of your heart into a pump; another tube that carries blood from the pump to your blood vessels, which deliver the blood to your body; and a power source.

What is the power source?

The power source is either batteries or AC power. The power source is connected to a control unit that monitors the VAD's functions. The batteries are carried in a case usually located in a holster in a vest wrapped around the patients shoulders.

What does the control unit or controller do?

The control unit gives warnings, or alarms, if the power is low or if it senses that the device isn't working right. It is a computer.



The portability of the HeartMate II enables patients to resume many of their normal daily activities.

Color Coding System

MOST patients have a tag located on the controller around their waist that says what type of device it is, what institution put it in and a number to call. Most importantly is the color of the tag – it matches this EMS Field Guide and allows you to quickly locate the device you are caring for.

HEARTMATE III

HEARTMATE II

HEARTWARE

JARVIK 2000

FREEDOM DRIVER
Total Artificial Heart

Patient Management For VADs

1. Assess the patients airway and intervene per your protocol.

2. Auscultate Heart Sounds to determine if the device is functioning and what type of device it is. If it is continuous flow device, you should hear a “whirling sound”.

3. Assess the device for any alarms.

4. Look on controller usually found around the waist of the patient and to see what color tag and device it is.

5. Match the color on the device tag to the EMS Guide.

6. Intervene appropriately based on the type of alarm, tag (device) and EMS Guide.

7. Start Large Bore IV.

8. Assess vital signs – Use Mean BP with Doppler – with the first sound you hear is the Mean Arterial Pressure (MAP).

9. If no Doppler, use the Mean on the non invasive blood pressure machine.

10. Transport to closest VAD center. Call the number on the device to get advice.

11. Bring all of the patients equipment.

12. Bring the significant other if possible to act as a expert on the device in the absence of consciousness in the patient.

HeartMate III® with Pocket Controllers

1. **Can I do external CPR?**
   Only if absolutely necessary
2. **If not, is there a "hand pump" or external device to use?**
   No.
3. **If the device slows down (low flow state), what alarms will go off?**
   A red heart alarm light indicator and steady audio alarm will sound if less than 2.5 lpm. Can give a bolus of normal saline and transport to an LVAD center.
4. **How can I speed up the rate of the device?**
   No, it is a fixed speed.
5. **Do I need to heparinize the patient if it slows down?**
   Usually no, but you will need to check with implanting center.
6. **Can the patient be defibrillated while connected to the device?**
   Yes.
7. **If the patient can be defibrillated, is there anything I have to disconnect before defibrillating?**
   No.
8. **Does the patient have a pulse with this device?**
   Likely they will not because it is a continuous flow device, however some patients may have a pulse as this pump was designed with an "artificial pulse."
9. **What are acceptable vital sign parameters?**
   MAP 70 - 90 mm Hg with a narrow pulse pressure.
10. **Can this patient be externally paced?**
    Yes.

FAQs

- Pump has "artificial pulse" created by speeding up & slowing down of pump. This can be heard when auscultating the heart and differs from other continuous flow devices.
- May not be able to obtain cuff pressure (continuous flow pump).
- Pump connected to electric line exiting patient's abdominal area and is attached to computer which runs the pump.
- Pump does not affect EKG.
- All ACLS drugs may be given.
- A set of batteries last 14 – 16 hours
- Any emergency mode of transportation is ok. These patients are permitted to fly.
- Be sure to bring **ALL** of the patient's equipment with them.

Trouble Shooting HeartMate III® with Pocket Controllers

When the Pump Has Stopped

- Be sure to bring ALL of the patient's equipment with them.
- Fix any loose connection(s) to restart the pump.
- If the pump does not restart and the patient is connected to batteries replace the current batteries with a new, fully-charged pair. *(see Changing Batteries section on next page)*
- If pump does not restart, change controllers. *(see Changing Controllers section on next page)*

Alarms: Emergency Procedures

Yellow or Red Battery Alarm: Need to Change Batteries. See changing batteries section on next page.

Red Heart Flashing Alarm: This may indicate a Low Flow Hazard. Check patient--the flow may be too low. If patient is hypovolemic, give volume. If patient is in right heart failure-- treat per protocol. If the pump has stopped check connections, batteries and controllers as instructed in the section above.

January 2019

Trouble Shooting HeartMate III®

Changing Batteries

WARNING: At least one power lead must be connected to a power source AT ALL TIMES. Do not remove both batteries at the same time or the pump will stop.

- Obtain two charged batteries from patient's accessory bag or battery charger. The charge level of each gray battery can be assessed by pressing the battery button on the battery. (Figures 1 and 2)
- Remove only **ONE** battery from the clip by pressing the button on the grey clip to unlock the battery. (Figure 3)
- Controller will start beeping and flashing yellow signals and will read **POWER DISCONNECT** on the front screen. (Figure 4)
- Replace with new battery by lining up **RED** arrows on battery and clip. Gently tug on battery to ensure connection. If battery is properly secured, the beeping and yellow flashing will stop. (Figure 5)
- Slide a new, fully-charged battery (Figure 4) into the empty battery clip by aligning the **RED** arrows. The battery will click into the clip. Gently tug at battery to ensure connection. If battery is properly secured, the beeping and green flashing will stop.
- Repeat previous steps with the second battery and battery clip.

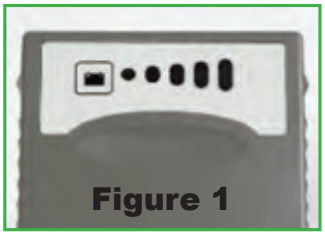


Figure 1

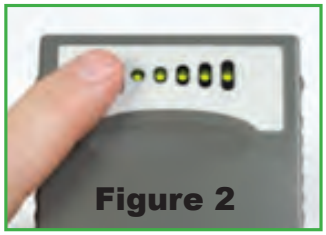


Figure 2

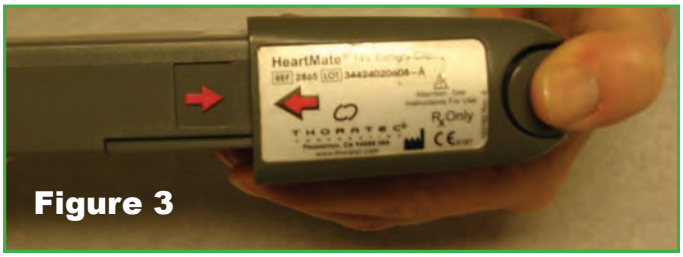


Figure 3

Figure 4


Figure 5

CAUTION—Investigational device. Limited by Federal (or United States) law to investigational use.

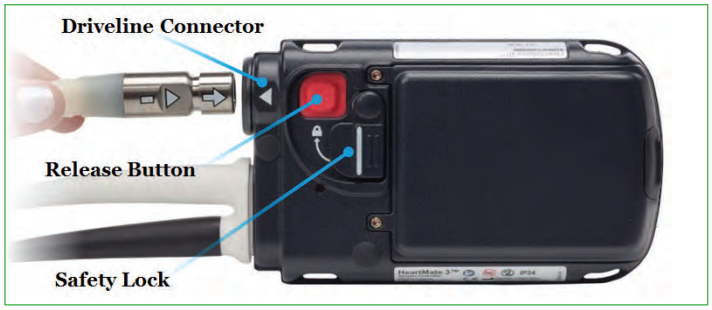
This guide does not supersede manufacturer instructions. Copy with permission only. **January 2019**

Trouble Shooting HeartMate III® with Pocket Controllers

Changing Controllers

- Place the replacement Controller within easy reach, along with the batteries/battery clips. The spare Controller is usually found in the patient's travel case.
- Make sure patient is sitting or lying down since the pump will momentarily stop during this procedure.
- Attach the battery clips to the spare controller by lining up the half moons and gently pushing together and attach the batteries to the spare controller by aligning the **RED** arrows.

- On the back of the replacement controller, rotate down the perc lock so the red tab is fully visible. Repeat this step on the original controller until the red tab is fully visible.




SAFETY LOCK UNLOCKED


SAFETY LOCK LOCKED

- Disconnect the drive-line from the original controller by pressing down on the red tab and gently pulling on the metal end. The pump will stop and an alarm will sound. **Note:** The alarm will continue until the original controller is put to sleep. You can silence the alarm by pressing the silence button.

Getting the replacement controller connected and pump restarted is the first priority.

- Connect the replacement Controller by aligning the **BLACK ARROWS** on the driveline and replacement Controller and gently pushing

the driveline into the replacement Controller. The pump should restart, if not complete the following steps:

Step 1. Firmly press the Silence Alarm or Test Select Button to restart the pump.

Step 2. Check the power source to assure that power is going to the controller.

Step 3. Assure the perc lead is fully inserted into the socket by gently tugging on the metal end. **DO NOT** pull the lead.

- After the pump restarts, rotate up the perc lock on the new controller so the red tab is fully covered. If unable to engage perc lock to a fully locked position, gently push the driveline into the controller to assure proper connection. Retry to engage perc lock.
- Disconnect power from the original Controller. The original Controller will stop alarming once power is removed.
- Hold down battery symbol for 5 full seconds for complete shutdown of old controller.

Adapted from Sweet, L. and Wolfe, Jr., A. Mechanical Circulatory Devices in Transport in ASTNA: Patient Transport Principles and Practice, 4th ed., Mosby, 2010 in press.

January 2019

Trouble Shooting HeartMate III® with Pocket Controllers

Modular Cable

The HeartMate 3 has a modular cable connection near the exit site of the driveline (Figure 1). This allows a damaged driveline to be quickly replaced (if damage is external).

- When disconnecting a driveline, **NEVER** use the modular cable connection.
- If this section of the driveline requires replacement, this must be performed at and by the implanting center. Patients are not given a back-up modular cable.
- If the connection is loose, there will be a yellow/green line at the connection showing (Figure 2). If the line is visible, it can be retightened by turning with the arrow in the locked direction. It will ratchet and stop turning once tight.

Figure 1

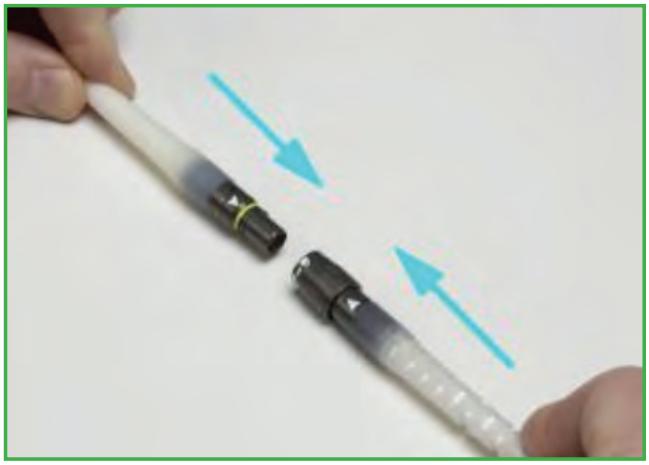
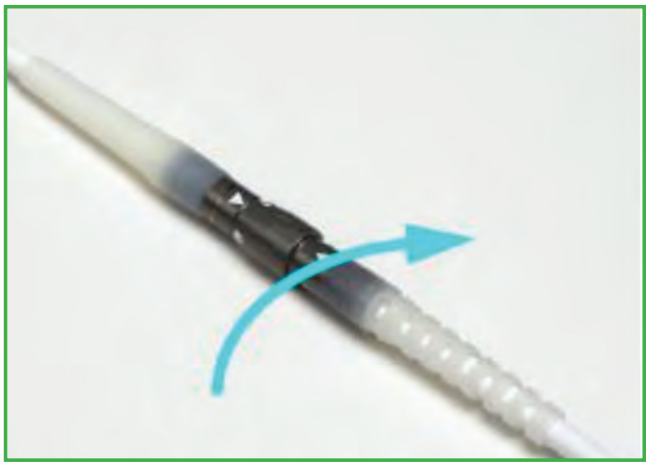


Figure 2



CAUTION—Investigational device. Limited by Federal (or United States) law to investigational use.

January 2019

HeartMate II®

1. **Can I do external CPR?**
   Only if absolutely necessary
2. **If not, is there a "hand pump" or external device to use?**
   No.
3. **If the device slows down (low flow state), what alarms will go off?**
   A red heart alarm light indicator and steady audio alarm will sound if less than 2.5 lmp. Can give a bolus of normal saline and transport to an LVAD center.
4. **How can I speed up the rate of the device?**
   No, it is a fixed speed.
5. **Do I need to heparinize the patient if it slows down?**
   Usually no, but you will need to check with implanting center.
6. **Can the patient be defibrillated while connected to the device?**
   Yes.
7. **If the patient can be defibrillated, is there anything I have to disconnect before defibrillating?**
   No.
8. **Does the patient have a pulse with this device?**
   May have weak pulse or lack of palpable pulse.
9. **What are acceptable vital sign parameters?**
   MAP 70 - 90 mm Hg with a narrow pulse pressure
10. **Can this patient be externally paced?**
    Yes.

FAQs

- May not be able to obtain cuff pressure (continuos flow pump).
- Pump connected to electric line exiting patient's abdominal area and is attached to computer which runs the pump.
- Pump does not affect EKG
- All ACLS drugs may be given.
- No hand pump is available.
- A set of black batteries last approximately 3 hours, gray batteries last 8-10 hours.
- Any emergency mode of transportation is ok. These patients are permitted to fly.
- Be sure to bring **ALL** of the patient's equipment with them.

Adapted from Sweet, L. and Wolfe, Jr., A. Mechanical Circulatory Devices in Transport in ASTNA: Patient Transport Principles and Practice, 4th ed., Mosby, 2010 in press.

Trouble Shooting HeartMate II®

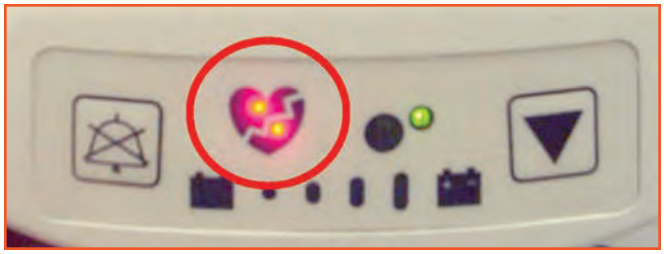
When the Pump Has Stopped

- Be sure to bring ALL of the patient's equipment with them.
- Fix any loose connection(s) to restart the pump.
- If the pump does not restart and the patient is connected to batteries replace the current batteries with a new, fully-charged pair. *(see changing batteries section on next page)*
- If pump does not restart, change controllers. *(see changing controllers section on next page)*

Alarms: Emergency Procedures

Yellow or Red Battery Alarm: Need to Change Batteries. See changing batteries section on next page.

Red Heart Flashing Alarm: This may indicate a Low Flow Hazard. Check patient--the flow may be too low. If patient is hypovolemic, give volume. If patient is in right heart failure-- treat per protocol. If the pump has stopped check connections, batteries and controllers as instructed in the section above.



January 2019

Trouble Shooting HeartMate II®

Changing Batteries

WARNING: At least one power lead must be connected to a power source AT ALL TIMES. Do not remove both batteries at the same time or the pump will stop.

- Obtain two charged batteries from patient's accessory bag or battery charger. The charge level of each gray battery can be assessed by pressing the battery button on the battery. (Figures 3 and 4)
- Remove only **ONE** battery from the clip by pressing the button on the grey clip to unlock the battery. (Figure 1)
- Controller will start beeping and flashing green signals.
- Replace with new battery by lining up **RED** arrows on battery and clip. (Figure 2)
- Slide a new, fully-charged battery (Figure 4) into the empty battery clip by aligning the **RED** arrows. The battery will click into the clip. Gently tug at battery to ensure connection. If battery is properly secured, the beeping and green flashing will stop.
- Repeat previous steps with the second battery and battery clip.


Figure 1


Figure 2

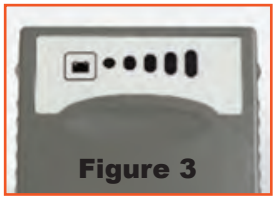


Figure 3


Figure 4

Changing Controllers

- Place the replacement Controller within easy reach, along with the batteries/battery clips. The spare Controller is usually found in the patient's travel case.
- Make sure patient is sitting or lying down since the pump will momentarily stop during this procedure.
- Attach the battery clips to the spare controller by lining up the half moons and gently pushing together and attach the batteries to the spare controller by aligning the **RED** arrows. **ALARMS WILL SOUND-THIS IS OK.**

- Depress the silence alarm button (upside-down bell with circle) until the alarm is silenced on the new, replacement Controller.
- Rotate the perc lock on the replacement controller in the direction of the "unlocked" icon until the perc lock clicks into the fully- unlocked position. Repeat this same step for the original Controller until the perc lock clicks into the unlocked position.

- Disconnect the perc lead/driveline from the original controller by pressing the metal release tab on the connector socket. The pump will stop and an alarm will sound.

Note: The alarm will continue until power is removed from the original Controller. ***Getting the replacement Controller connected and the pump restarted is the first priority.***

- Connect the replacement Controller by aligning the BLACK LINES on the driveline and replacement Controller and gently pushing the driveline into the replacement Controller. The pump should restart, if not complete the following steps:

Step 1. Firmly press the Silence Alarm or Test Select Button to restart the pump.

Step 2. Check the powersource to assure that power is going to the controller.

Step 3. Assure the perc lead is fully inserted into the socket by gently tugging on the metal end. **DO NOT** pull the lead.

- After the pump restarts, rotate the perc lock on the new controller in the direction of the "locked" icon until the perc lock clicks into the fully-locked position. If unable to engage perc lock to the locked position, gently push the driveline into the controller to assure a proper connection. Retry to engage perc lock.
- Disconnect power from the original Controller. The original Controller will stop alarming once power is removed.

January 2019

HeartMate II® Controller Comparison Guide

POCKET CONTROLLER™

3 Modes: Run, Charge, Sleep
Run: Driveline + Power source connected.
Charge: Only power source connected.
Sleep: No driveline or power source connected; ready to use.

Backup Battery
An emergency backup battery is built into Pocket Controller, powering the pump for 15 minutes in the absence of an external power source. The backup battery is supplied NONSTERILE.

Event Logger
Pocket Controller includes date/time records in event history. Pocket Controller can store 240 events.

Green Pump Running Symbol
Green "pump running" symbol signifies that the pump is on and running.

Controller Buttons
Display Button: Enables viewing of pump parameters and backup battery charge status.
Silence Alarm Button: Silences hazard alarms for 2 minutes and advisory alarms for 4 hours.
Display Button + Silence Alarm Button Together: Displays previous six alarms.
Battery Button: Displays the battery power gauge when pressed. Activates a self test when held for 5 seconds then released. Enters sleep mode when driveline and external power are disconnected and button is held for 5 seconds then released.

Self Test
Press and hold the Battery Button for 5 seconds.

Low Power
Yellow Diamond Symbol: Displayed when only 15 minutes of external power is remaining.
Red Battery Symbol: Displayed when only 5 minutes of external power is remaining.
Backup Battery Mode: Entered after external power is depleted. Provides 15 minutes of internal emergency backup battery power.
Power Saver Mode: Entered when pump has run on backup battery for 15 minutes. Pump Speed is reduced to the set Low Speed Limit.

Starting the Pump
>8000 RPM: Pump starts automatically.
<8000 RPM with Backup Battery: Start pump by pressing any button on Pocket Controller.
<8000 RPM with no Backup Battery: Pump can only be started via System Monitor.

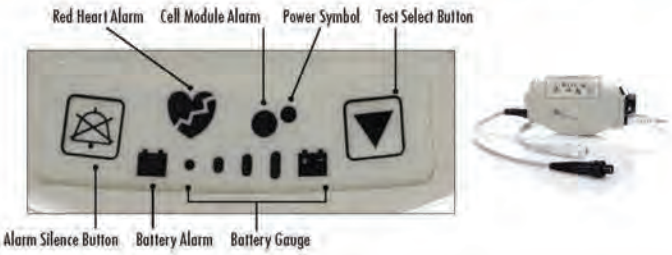
System Monitor Event History Screen

PI Event:	10/04/13 07:20	4.8	9590	5.6	5.4	PI Event
System Information:	10/04/13 01:30	4.8	6900	5.7	6.6	* System Information

Compatibility
System Monitors I and II, Power Module, Power Module Patient Cable (14 Volt), 14 Volt Lithium-Ion Batteries and Battery Clips.

Alarms
For a review of alarms and their meanings, reference HeartMate II Alarms for Clinicians, item 107526. Pocket Controller includes a yellow wrench icon to denote advisory alarms. Note that Pocket Controller includes drivelines fault detection.

EXTERNAL PERIPHERAL CONTROLLER (EPC)



2 Modes: On, Off
On: Driveline + Power source connected.
Off: No driveline or power source connected.

Cell Module Battery
No backup battery. The cell module battery powers an audible tone if EPC is removed from power while the driveline is connected. The cell module battery is supplied STERILE.

Event Logger
EPC does not include date/time records in event history. EPC can store 120 events.

Green Power Symbol
Green light only means that the controller is receiving power. Listen over the pump pocket for confirmation that the pump is running.

Controller Buttons
Alarm Silence Button: Displays the battery fuel gauge. Also silences hazard alarms for 2 minutes and advisory alarms for 4 hours.
Test Select Button: Activates a self test when held for 3 seconds.
Note: EPC does not include a display button or user interface screen. The Display Module is used to view pump parameters and alarm events.

Self Test
Press and hold the Test Select Button for 3 seconds.

Low Power
Yellow Battery Symbol: Displayed when only 15 minutes of external power is remaining.
Red Battery Symbol: Displayed when only 5 minutes of external power is remaining.
Power Saver Mode: Entered when the battery voltage falls to a critically low level. Pump Speed is reduced to 8000 RPM.

Starting the Pump
>8000 RPM: Pump starts automatically.
<8000 RPM: Start pump by pressing Alarm Silence Button or Test Select Button on EPC.

System Monitor Event History Screen

PI Event:	10/04/13 07:20	4.8	9590	5.6	5.4	
System Information:	10/04/13 01:30	4.8	6900	5.7	6.6	*

Compatibility
System Monitors I and II, Power Module, Power Base Unit (PBU), Power Module Patient Cable (12 Volt and 14 Volt), 14 Volt Lithium-Ion Batteries and Battery Clips, 12 Volt SLA and NiMH Batteries and Clips.

Alarms
For a review of alarms and their meanings, reference HeartMate II Alarms for Clinicians, item 103851. Note that EPC does not include driveline fault detection.

January 2019

HeartMate II Controller Comparison Guide

DRIVELINE CONNECTION

Pocket Controller:
A safety tab is located on the back of the controller.

Unlocked

Locked

External Peripheral Controller (EPC):
A percutaneous lock is located on the side of the controller.

Unlocked

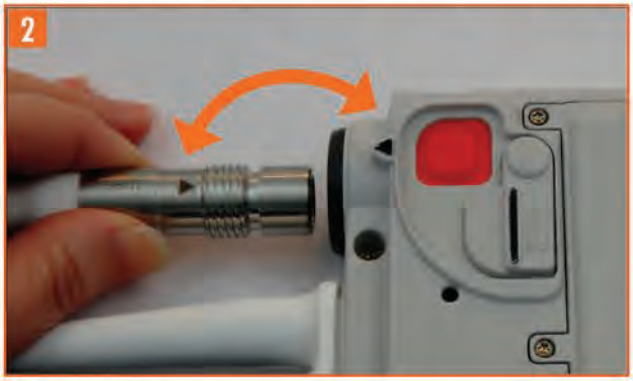
Locked

The Pocket Controller driveline connection and locking mechanism are different from the EPC. To insert and lock the driveline into Pocket Controller:

1

Slide the safety tab back to expose the red button.

2

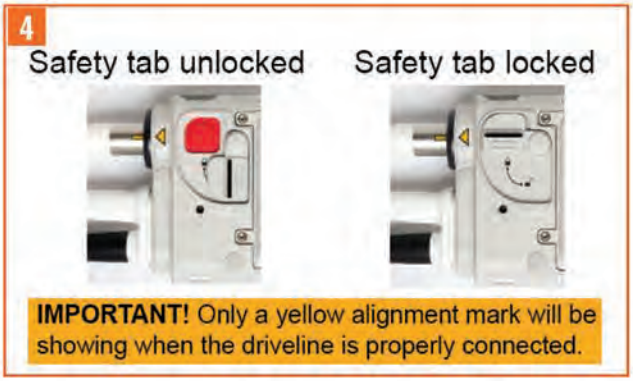


Align the arrow on the driveline to the arrow on the Pocket Controller. Firmly insert the driveline until it snaps into place.

3

Tug gently on the metal portion of the driveline to ensure that it is fully engaged.

4



Slide the safety tab over the red button. Ensure the safety tab completely covers the red button.

THORATEC CORPORATION for Life

January 2019

HeartWare® Ventricular Assist System

1. **Can I do external CPR?**

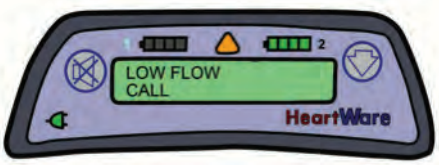
   Chest compressions may pose a risk of dislodgment – use clinical judgment. If chest compressions are administered, confirm function and positioning of the pump.

2. **If not, is there a "hand pump" or external device to use?**

   No.

3. **If the device slows down (low flow state), what alarms will go off?**

   The device runs at a fixed speed. If a low flow state occurs, an alarm will be heard, and the controller display will show a yellow triangle and "Low Flow – Call" message.



4. **How can I speed up the rate of the device?**

   It is not possible to adjust the pump speed in the prehospital setting. Okay to give IV fluids.

5. **Do I need to heparinize the patient if it slows down?**

   Call the accepting VAD facility for guidance.

6. **Can the patient be defibrillated while connected to the device?**

   Yes.

7. **If the patient can be defibrillated, is there anything I have to disconnect before defibrillating?**

   No, defibrillate per protocol.

8. **Does the patient have a pulse with this device?**

   The patient may not have a palpable pulse. Depending on the patient's own heart function, you may be able to feel a thready pulse.

9. **What are acceptable vital sign parameters?**

   Goal Mean Arterial Pressure (MAP) is <85 mmHg. Use a Doppler as the first option to assess blood pressure. If you are using a Doppler, place the blood pressure cuff on the patient arm. As you release the pressure in the blood pressure cuff, the first sound you hear with the Doppler is the MAP. If that is not available, use a non-invasive BP (NIBP).

10. **Can this patient be externally paced?**

    Yes

FAQs

- May not be able to obtain cuff pressure (continuous flow pump)
- Pump connected to electric line (driveline) exiting patient's abdominal area and is attached to computer (controller) which runs the pump.
- Pump does not affect EKG, but patient may or may not be symptomatic even iwth ventricular arrhythmias.
- All ACLS drugs may be given.
- No hand pump is available. This is a rotary (continuous flow) pump with typical speed ranges of 2400 – 3200 RPMs. The patient should have back-up equipment.
- The controller draws power from one battery at a time. A fully charged battery will provide 4-6 hours of power. Both the battery and controller have status lights to indicate the amount of power remaining.
- Transport by ground to implanting facility if possible.
- Be sure to bring **ALL** of the patient's equipment with them.

Adapted from Sweet, L. and Wolfe, Jr., A. Mechanical Circulatory Devices in Transport in ASTNA: Patient Transport Principles and Practice, 4th ed., Mosby, 2010 in press.

January 2019

HeartWare® Ventricular Assist System Emergency Operation

CONTROLLER

BATTERY

ALARM ADAPTER

- **Used to silence the internal NO POWER ALARM.**
- **Should only be used on a controller that is NOT connected to a patient's pump.**
- **Must be inserted into the blue connector of the original controller after a controller exchange BUT before the power sources are disconnected or the NO Power alarm will sound for up to two hours.**

DRIVELINE CONNECTION

To Connect to Controller:

- Align the two red marks and push together. An audible click will be heard confirming proper connection. (Figure A)
- The Driveline Cover must completely cover the Controller's silver driveline connector to protect against static discharge. (Figure B)
- NOTE: an audible click should be heard when connecting the Driveline or Driveline extension to the controller. Failure to use the Driveline Cover may cause an Electrical Fault Alarm.

Figure A

Figure B

CONNECTING POWER TO CONTROLLER

To Connect a Charged Battery:

- Grasp the cable of the charged battery at the back end of the connector (leaving front end of connector free to rotate)
- Line up the solid white arrow on the connector with the white dot on the Controller.
- Gently push (but DO NOT twist) the battery cable into the Controller until it naturally locks into place; you should hear an audible click.
- Confirm that the battery cable is properly locked on the controller by gently pulling the cable near the controller power connector.
- DO NOT force the battery cable into the controller connector without correct alignment as it may result in damaged connectors .

TO DISCONNECT A DEPLETED BATTERY

- Make sure there is a fully charged battery available to replace the depleted one.
- Disconnect the depleted battery by turning the connector sleeve counterclockwise until it stops.
- Pull the connector straight out from the controller.

January 2019

HeartWare® Ventricular Assist System Emergency Operation

STEPS TO EXCHANGE THE CONTROLLER

Step 1: Have the patient sit or lie down.

Step 2: Place the new controller within easy reach.

Step 3: Connect back-up power sources (batteries or AC Power) to the new controller.

- Confirm that the power cables are properly locked on the controller by gently pulling on the cable near the connector.
- A “Power Disconnect” alarm will activate if a second power source is not connected to the new controller within 20 seconds of controller power up
- A “VAD Stopped” alarm will activate if the pump driveline is not connected to the new controller within 10 seconds - this alarm will resolve once the pump driveline is connected

Step 4: Pull back the white driveline cover from the original controller’s silver connector.

Step 5: Disconnect the driveline from the original controller by pulling the silver connector away from the controller. Do not disconnect by pulling on the driveline cable. A “VAD Stopped” alarm may activate. Don’t panic. You can silence the alarm after restarting the pump, which is the priority.

Step 6: Connect the driveline to the new controller (align the two red marks and push together). If the “VAD Stopped” alarm was active on the new controller, it will now resolve.

Step 7: The pump should restart. Verify the pump is working (RPM, L/min, Watts).

Step 8: **IF THE PUMP DOES NOT RESTART, CALL FOR MEDICAL ASSISTANCE IMMEDIATELY.**

Step 9: Insert the Alarm Adapter into the blue connector on the original controller.

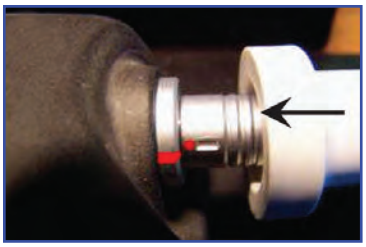
- Disconnect both power sources from the original controller.
- The controller will be turned off and all alarms silenced.

Step 10: Slide the white driveline cover up to cover new controller’s silver connector.

Step 11: Contact the VAD Center or Implanting hospital for a new backup controller.

Step 3

Step 4



Step 6

Step 9

Step 10

January 2019

HeartWare® Ventricular Assist System Troubleshooting

ALARM TYPE	ALARM DISPLAY (Line 1)	ACTION (Line 2)
High - Critical (FLASHING RED)	VAD STOPPED	CONNECT DRIVELINE
	VAD STOPPED	CHANGE CONTROLLER
	CRITICAL BATTERY 1	REPLACE BATTERY 1
	CRITICAL BATTERY 2	REPLACE BATTERY 2
	CONTROLLER FAILED	CHANGE CONTROLLER
MEDIUM (FLASHING YELLOW)	CONTROLLER FAULT	CALL ACCEPTING VAD HOSPITAL
	CONTROLLER FAULT	CALL: ALARMS OFF
	HIGH WATTS	CALL ACCEPTING VAD HOSPITAL
	ELECTRICAL FAULT	CALL ACCEPTING VAD HOSPITAL
	LOW FLOW	CALL ACCEPTING VAD HOSPITAL
	SUCTION	CALL ACCEPTING VAD HOSPITAL
LOW (SOLID YELLOW)	LOW BATTERY 1	REPLACE BATTERY 1
	LOW BATTERY 2	REPLACE BATTERY 2
	POWER DISCONNECT	RECONNECT POWER 1
	POWER DISCONNECT	RECONNECT POWER 2

January 2019

Jarvik 2000® VAS

1. **Can I do external CPR?**
   Yes, only as a last resort.

2. **If not, is there a "hand pump" or external device to use?**
   No.

3. **If the device slows down (low flow state), what alarms will go off?**
   No alarm for low flow. If pump is off, the red "Pump Stop" symbol will light with a continuous alarm.

4. **How can I speed up the rate of the device?**
   There is a speed dial on the side of the controller (see picture on next page). Turning the dial in the direction of the arrow increases the speed. Each increment is 1,000 RPM. It is recommended not to change the speed without consulting the implanting center.

5. **Do I need to heparinize the patient if it slows down?**
   Typically yes, if the pump is stopped (red "Pump Stop" alarm). Check with the implanting center.

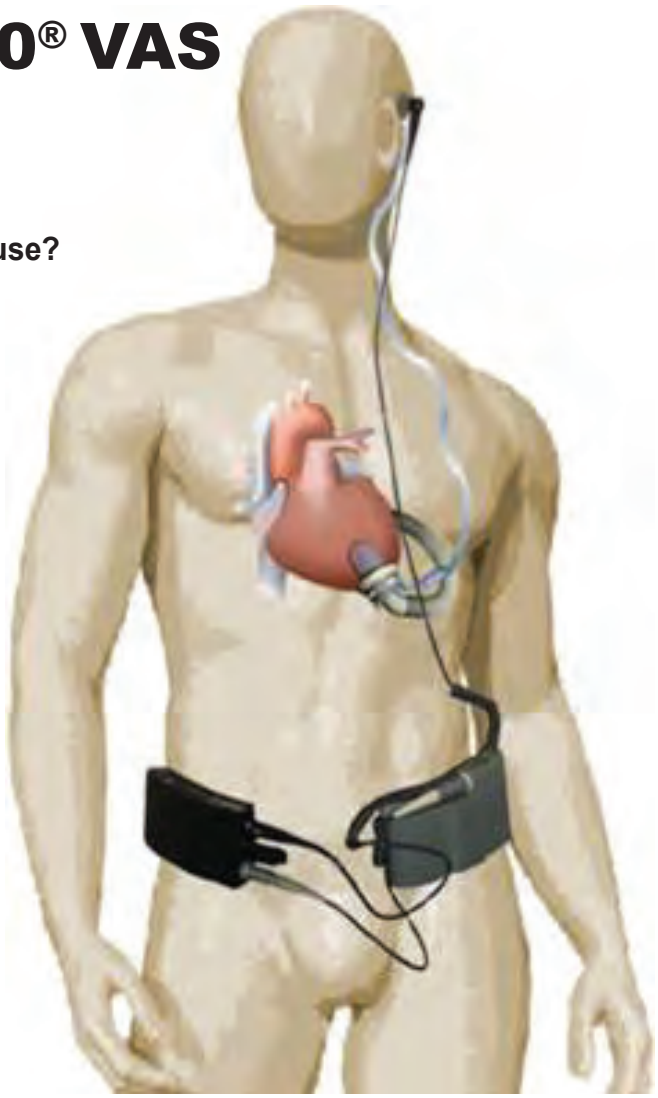
6. **Can the patient be defibrillated while connected to the device?**
   Yes.

7. **If the patient can be defibrillated, is there anything I have to disconnect before defibrillating?**
   No.

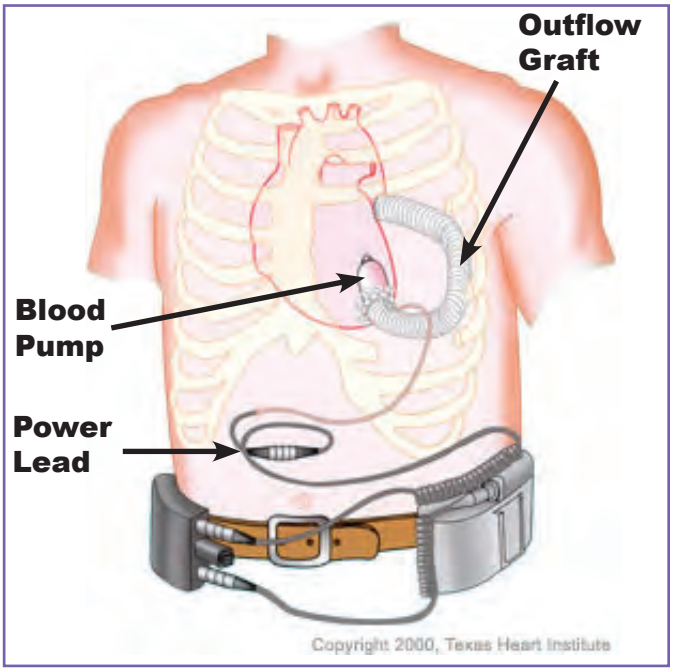
8. **Does the patient have a pulse with this device?**
   Most patients have a faint palpable pulse. If the controller is marked "ILS" (see below), the speed is automatically reduced every minute for 8 seconds & the patients pulse may increase during this time.

9. **What are acceptable vital sign parameters?**
   MAP 65 - 80mm Hg.

10. **Can this patient be externally paced?**
    Yes.



Jarvik 2000 with Post-Auricular exit site.

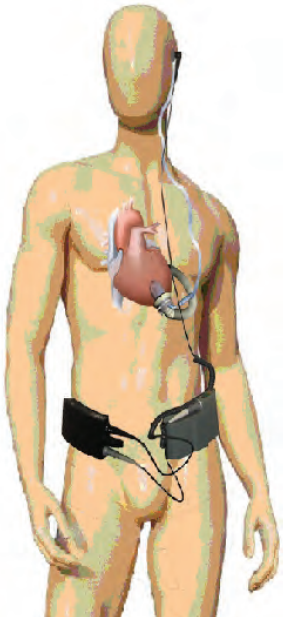


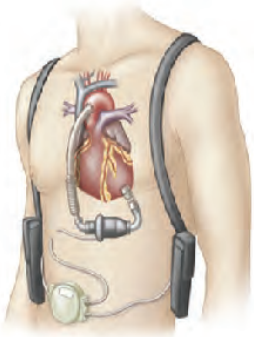
Jarvik 2000 with Abdominal exit site.

Adapted from Sweet, L. and Wolfe, Jr., A. Mechanical Circulatory Devices in Transport in ASTNA: Patient Transport Principles and Practice, 4th ed., Mosby, 2010 in press. This guide does not supersede manufacturer instructions. Copy with permission only. March 2019 Jarvik 2000®

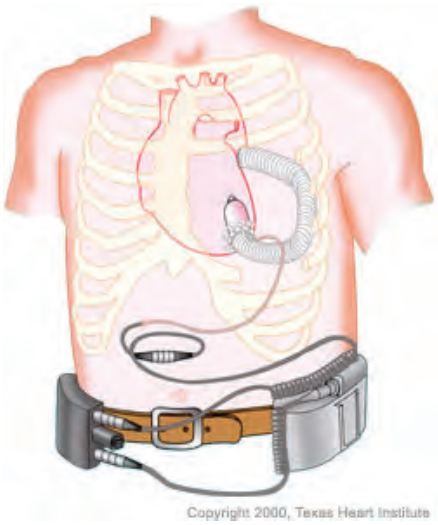
January 2019

Jarvik 2000® VAS



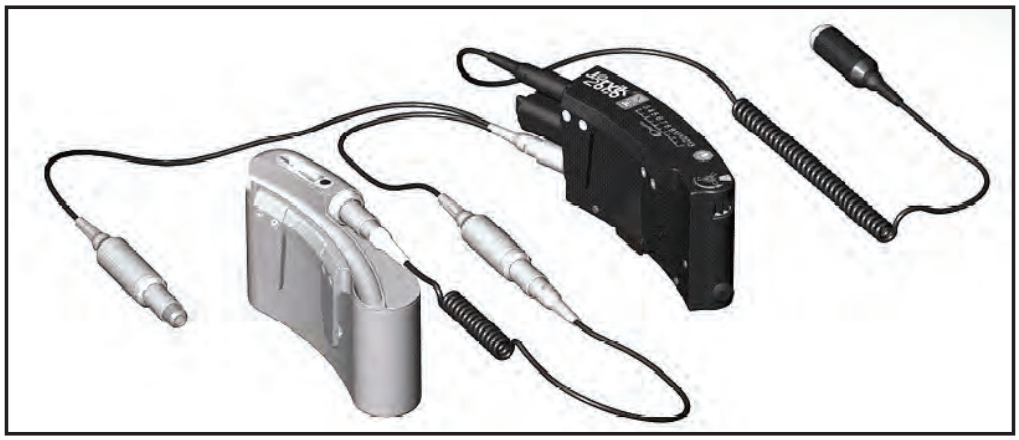


The Jarvik 2000® VAS is available in two models: the Jarvik 2000® VAS, Post-Auricular Cable (JHI-001) and the Jarvik 2000® VAS, Abdominal Cable (JHI-002). The main difference between the two models is the exit site of the drive cable. The drive cable of the Jarvik 2000® VAS, Abdominal Cable exits the abdomen and the drive cable of the Jarvik 2000® VAS, Post-Auricular Cable exits at a Pedestal surgically attached to the skull behind the ear.

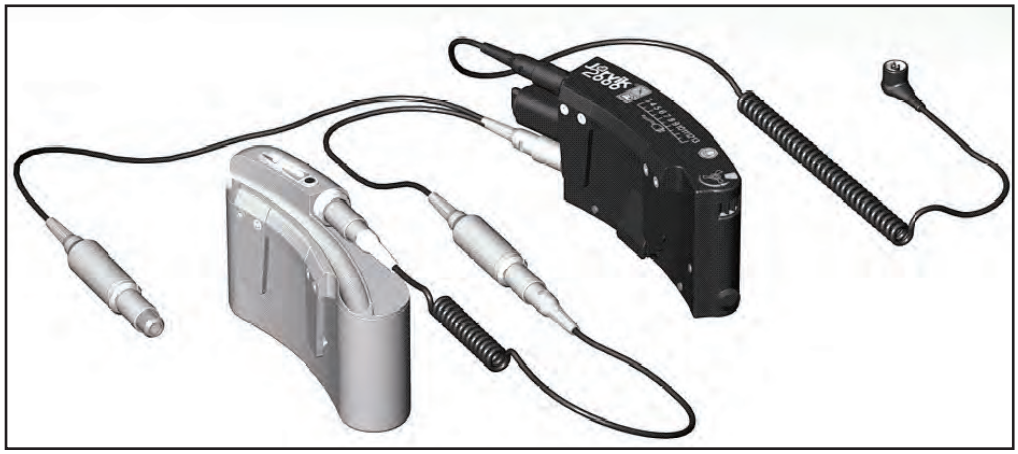


Jarvik 2000® VAS, Post-Auricular Cable.

Jarvik 2000® VAS, Abdominal Cable.



External Equipment for Jarvik 2000® VAS, Abdominal Cable.



External Equipment for Jarvik 2000® VAS, Post-Auricular Cable.

NOTE: This Field Guide is NOT intended to replace the Operator Manual and Patient Handbook.

January 2019

Jarvik 2000® VAS

Li-ion Battery.

Reserve Battery/Charger.

FlowMaker® Controller.

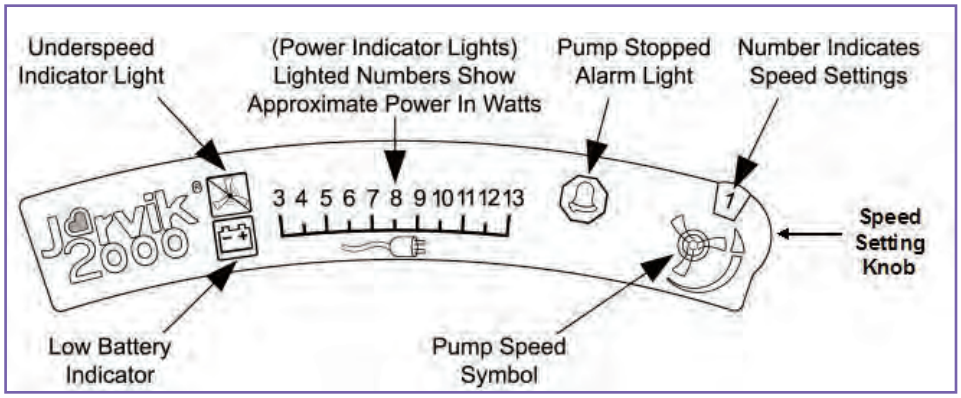


Diagram of FlowMaker® Controller Top Panel.

Dial Setting	Speed Rpm	Flow L/min	Power Watts
1	8,000	1-2	3-4
2	9,000	2-3	4-5
3	10,000	4-5	5-6-7
4	11,000	5-7	7-8-9
5	12,000	7-8.5	8-9-10

The FlowMaker Controller provides:
1. power to the implanted blood pump,
2. user settable speeds at which the pump runs, and
3. alarms and warnings.
The **FlowMaker®** Controller does not monitor the actual blood flow that the **Jarvik 2000® Ventricular Assist Device** (VAD) is pumping. In general, the higher the setting number the more blood the Jarvik 2000 VAD will pump. The tabulated flow estimates are based on research measurements in healthy animals. The actual blood flow may vary and will depend on several factors including blood pressure and the condition of the natural heart.

Jarvik HEART™

January 2019

Jarvik 2000® VAS

Speed Setting, Alarms, and Warnings

Only one control adjustment to the **Jarvik 2000® VAD** can be made. The **Jarvik 2000® VAD speed** can be selected by turning the knob on the side of the **FlowMaker® Controller**. The setting number appears in the window on the top panel. The arrow indicates the direction to turn the knob to increase the speed.

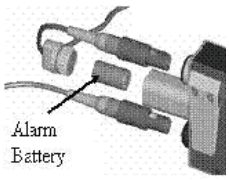
Power Indicator Lights The numbers indicate the electrical power (Watts) that the VAD is using. One, two, or three numbers may be lit at any moment, and the lights may change rhythmically with the heartbeat of the natural heart. A power measure of 13 watts or more indicates malfunction. The High Power Indicator, number 13, will light yellow. This condition should receive prompt medical attention.

When the battery powering the **Jarvik 2000® VAD** is low, the **Low Battery Alarm** on the **FlowMaker® Controller lights yellow** and the alarm sound beeps. Remaining running time with the portable Li-ion Battery is about 5-10 minutes; with the Reserve Battery/Charger for approximately 15 minutes

If the **Jarvik 2000® VAD** stops or if the VAD speed drops to below 5,000 RPM for any reason, a steady alarm sound is heard and the **Pump Stopped Alarm** on the **FlowMaker® Controller lights red**. **The Pump Stopped Alarm** will also sound if the intermittent low speed featured on the ILS FlowMaker® Controller fails to function for any reason. Immediate attention is required. **Follow the Pump Stopped Alarm procedure for the appropriate Jarvik 2000® VAS model (Post-Auricular Cable or Abdominal Cable) which is included in this Field Guide.**

The **Underspeed Indicator light will glow yellow** when the **Flowmaker® Controlle**r detects that the **Jarvik 2000 ® VAD** speed is slower than the dial setting selected. The most common reason is the battery voltage is too low.

In this case, corrective actions are to:
1 Select a lower speed setting on the **Flowmaker® Controller** and/or **2** Change the battery to a fully charged Li-ion Battery. If the underspeed indicator light is still lit, then the cause may be a fault in the system. Replace all external components; and if the underspeed light is still on after replacing all external components, treat the situation as an emergency and seek immediate medical attention. *See Patient Handbook and Operator Manual for more details.*



A non-rechargeable **Alarm Battery** is used to assure that the **FlowMaker Controlle**r has enough power for the alarms if the main battery fails, if the battery cable fails, or if the main battery becomes accidentally disconnected.

This **Alarm Battery** is located in a small housing on the end of the **FlowMaker® Controller** between the connectors for the cables. Be sure that the **Alarm Battery Cap** holding the Alarm Battery in place on the **FlowMaker® Controller** is screwed on finger tight whenever the **FlowMaker® Controlle**r is used. If the **Alarm Battery Cap** is not screwed finger tight in place, the backup power for the alarms will not function. Every time the **Alarm Battery Cap** is tightened, the Controller's back-up Alarm needs to be tested. With a caregiver present, briefly disconnect the main battery (Li-ion Battery or Reserve Battery/Charger) to be sure the Pump Stopped Alarm sounds. The disconnection should be brief and the main battery should be reconnected almost immediately. If the Pump Stopped Alarm does not sound, retighten the Alarm Battery Cap and repeat the test. Contact the implant center immediately if the alarm does not sound during this test.

Jarvik HEART™

January 2019

Jarvik 2000® VAS

Procedure to Resolve Pump Stopped Alarm
Jarvik 2000® VAS, Post-Auricular Cable

The most likely reason for the **Jarvik® 2000 VAD** (pump) to stop is a completely **discharged battery** or a **disconnected** or **damaged cable.** If the cause of a component failure is clearly identifiable (i.e. low battery, physical damage, etc.) replace that cable or component **first.**
If the cause is unknown, follow these step-by-step instructions with the assistance of a support person. The patient should sit down or lie down. This procedure should be completed quickly. Back-up equipment must be immediately available.

1. Be sure the alarm is not an intermittent beeping which only indicates a low battery. If the alarm is beeping, change the battery as usual.

2. If the Jarvik 2000® VAD is stopped (steady alarm sounding, red light on):

   a. **Disconnect the Pedestal Cable from the Pedestal at the skull, and set aside all the attached components.** Disconnect the Li-ion Battery Cable and also partially unscrew the Alarm Battery Cap on the FlowMaker® Controller to silence the alarm.

   b. Plug in a backup Pedestal Cable into the Pedestal and into a backup FlowMaker® Controller. Make sure the FlowMaker® Controller is set at speed setting 1. Make sure to tighten the Alarm Battery Cap on the backup FlowMaker® Controller to activate the alarm.

   c. Using the backup Li-ion Battery Cable, plug a fully charged Li-ion Battery into the FlowMaker® Controller.

   d. If the Jarvik 2000® VAD now runs, and the patient is feeling well, red tag the original components that were set aside in step 2a.

   e. Set the FlowMaker® Controller back at the speed the user was using prior to the alarm.

3. **If the Jarvik 2000 VAD (pump) is still stopped call the medical emergency number immediately.**

4. Red tag all components of the system that were set aside before changing to the backup components in step **2a.** This should be done with the assistance of a medical support person if possible.

5. It is possible that one of the connectors is not fully plugged in and is not making contact. Recheck all connectors.

6. If the Jarvik 2000® VAD still has not started, the patient should lie down and the support person should double check batteries and connectors. Try changing batteries again. It is possible that a discharged battery was removed and the same discharged battery was accidentally plugged back into the system. It is possible that neither battery is charged. If no lights illuminate on either battery, use a third battery. It is also possible that one of the connectors is not fully plugged in and is not making contact. Recheck all connectors.

7. If all of the above steps have been followed and all cables and components have been replaced without successfully restarting the Jarvik 2000® VAD, **disconnect the power to the Jarvik 2000® VAD by unplugging the battery.** Also partially unscrew the Alarm Battery Cap on the FlowMaker® Controller. **(The alarm should stop sounding).** If the Li-ion Battery or Reserve Battery/Charger is not disconnected, the FlowMaker® Controller will apply power to the Jarvik 2000® VAD which could be harmful. Disconnecting the battery reduces the chance of a clot forming inside the Jarvik 2000® VAD by allowing the rotor to spin as blood flows across it.

Note: Return any failed or suspect component(s) to your Clinical Center for evaluation by Jarvik Heart, Inc.

Jarvik HEART™

January 2019

Jarvik 2000® VAS

Procedure to Resolve Pump Stopped Alarm
Jarvik 2000® VAS, Abdominal Cable

The most likely reason for the **Jarvik 2000® VAD** (pump) to stop is a completely **discharged battery** or a **disconnected** or **damaged cable.** If the cause of a component failure is clearly identifiable (i.e. low battery, physical damage, etc.) replace that cable or component **first.**
If the cause is unknown, follow these step-by-step instructions with the assistance of a support person. The patient should sit down or lie down. This procedure should be completed quickly. Back-up equipment must be immediately available.

1. Be sure the alarm is not an intermittent beeping which only indicates a low battery. If the alarm is beeping, change the battery as usual.
2. If the Jarvik 2000® VAD is stopped (steady alarm sounding, red light on):

a. **Disconnect the Extension Cable from the drive cable at the abdomen, and set aside all the attached components.** Disconnect the Li-ion Battery Cable and also partially unscrew the Alarm Battery Cap on the FlowMaker® Controller to silence the alarm.

b. Plug the drive cable (the cable exiting the skin at the abdomen) directly into the backup FlowMaker® Controller (eliminating the Extension Cable). Make sure the FlowMaker® Controller is set at speed setting 1. Make sure to tighten the Alarm Battery Cap on the backup FlowMaker® Controller to activate the alarm.

c. Using the backup Li-ion Battery Cable, plug a fully charged Li-ion Battery into the FlowMaker® Controller.

d. If the Jarvik 2000® VAD now runs and the patient is feeling well, red tag the original components that were set aside in step 2a.

e. Set the FlowMaker® Controller back at the speed the user was using prior to the alarm.

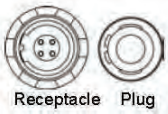
3. **If the Jarvik 2000® VAD (pump) is still stopped call your medical emergency number immediately.**
4. Red tag all components of the system that were set aside before changing to the backup components in step **2a.**
5. Be sure that all external cables and connectors have been changed and check to see if the connector at the end of the drive cable exiting the skin at the abdomen is broken. If it is broken and has come apart – try to put it back together where it is broken. If the Jarvik 2000® VAD does not run, take the connector apart again – rotate the parts 90° and put the connector back together again. Repeat three times. The Jarvik 2000 VAD may start. The connector may then be held together with tape while the patient is transported to the hospital for it to be repaired.
6. It is possible that one of the connectors is not fully plugged in and is not making contact. Recheck all connectors.
7. If the Jarvik 2000® VAD still has not started, the patient should lie down and the support person should double check batteries and connectors. Try changing batteries again. It is possible that a discharged battery was removed and the same discharged battery was accidentally plugged back into the system. It is possible that neither battery is charged. If no lights illuminate on either battery, use a third battery. It is also possible that one of the connectors is not fully plugged in and is not making contact. Recheck all connectors.
8. If all of the above steps have been followed and all cables and components have been replaced without successfully restarting the Jarvik 2000® VAD, **disconnect the power to the Jarvik 2000 VAD by unplugging the battery.** Also partially unscrew the Alarm Battery Cap on the FlowMaker® Controller. **(The alarm should stop sounding).** If the Li-ion Battery or Reserve Battery/Charger is not disconnected, the FlowMaker® Controller will apply power to the Jarvik 2000® VAD which could be harmful. Disconnecting the battery reduces the chance of a clot forming inside the Jarvik 2000® VAD by allowing the rotor to spin as blood flows across it.

Note: Return any failed or suspect component(s) to your Clinical Center for evaluation by Jarvik Heart, Inc.

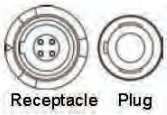
Jarvik HEART™

Jarvik® 2000

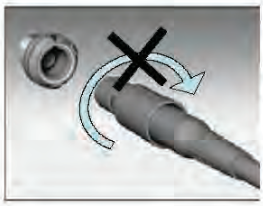
Jarvik 2000® Adult Ventricular Assist System—Quick Reference Guide



Connection from Jarvik 2000 VAD to FlowMaker Controller: The black receptacle on the FlowMaker Controller is located above the housing for the small back-up Alarm Battery. The receptacle has double key slots for a black plug. The Extension Cable and the Pedestal Cable (depending on the model of the device used) also have double key slots.



Connection from FlowMaker Controller to Y Cable or battery: The gray receptacle on the FlowMaker Controller is located below the housing for the small back-up Alarm Battery. This receptacle has a single key slot for the gray plug of the Y Cable, Li-ion Battery Cable, and Reserve Battery/Charger.



Note that the single and double keys on the plugs and receptacles are easily visible and must be placed in the proper rotational position, with the arrows on receptacle and plug lined up, for the connectors to go together. The connectors are attached and removed by a push-pull latch mechanism, not by a screw thread. Place the plug into the receptacle with slight pressure and gently rotate the plug until the key-way engages. Then push the connector together. The connector should click into place and should not come apart if the cable is tugged. To remove the plug, hold it close to the receptacle and pull.

- Never attempt to disconnect any connector by twisting.
- Do not attempt to pull the connector apart by the wire or by the strain relief.
- Never force a connector together. If the plug does not go into the receptacle easily, gently rotate it until it is aligned properly. When it is fully engaged, a soft click can be heard.
- If a connector is damaged or pins are bent, do not attempt to repair but replace the cable instead.

The **Y Cable** for the Jarvik 2000 VAS is used to allow battery changes without removing power from the Jarvik 2000 VAD. Before unplugging a discharged battery, a recharged battery should be plugged into the Y Cable. If the battery cable is unplugged prior to attaching a charged battery to the other end of the Y Cable, the Jarvik 2000 VAD stops, but the natural heart continues to beat. If this occurs, the beeping tone of the alarm will change to a steady tone, indicating that the Jarvik 2000 VAD is stopped. After the used battery is replaced with a fresh one, always remove the discharged battery from the Y Cable.

Cables & Connectors

The portable **Li-ion Battery** will run the Jarvik 2000 VAS for 7-12 hours under usual conditions. The Li-ion Battery has an indicator with 5 lights that indicates how much power is remaining. Depress the black button to turn on the indicator lights:

Indicator	Approximate Remaining Time
All 5 LEDS lit	8-12 hours
4 LEDs lit	6-10 hours
3 LEDs lit	5-8 hours
2 LEDs lit	3-5 hours
1 LED lit	5 minutes - 2 hours

Li-ion Battery Charger

When the Li-ion Battery Charger is first connected to wall power, the green light next to the vertical green bar will turn on. The second light will simultaneously turn on green for approximately 1-3 seconds, followed by the startup sequence below:

- Flashing yellow for approximately 18-24 seconds
- Solid green for approximately 1-3 seconds
- Off

The Li-ion Battery Charger is not required to go through the startup sequence each time it is connected to a Li-ion Battery. It will only occur when wall power is first applied to the Li-ion Battery Charger.

Never connect the Li-ion Battery to the Li-ion Battery Charger while the second light is green. If a connection is made during this brief period of time, the Li-ion Battery will not charge.

When disconnecting the Li-ion Battery Charger from a fully charged Li-ion Battery, always wait for the second light to turn off before connecting another Li-ion Battery.

The **Reserve Battery/Charger** has both a battery and a charger built into a single unit; however, they are not electrically connected to each other.

Reserve Battery Use:

1. Unplug the gray cable from the battery charger and plug it into the gray connector of the Y cable or the FlowMaker Controller.
2. Unplug the black power cord from the Reserve Battery/Charger and the wall plug.
3. If the Reserve Battery/Charger is used for under 12 hours and then recharged, it will last for more than 1000 recharge cycles. If it is not recharged until it is fully discharged (>24 hrs capacity) and the low battery alarm sounds, it will last for fewer than 200 recharge cycles.
4. Use the Reserve Battery/Charger for less than 12 hours each night and recharge it each morning after switching to the Li-ion Battery.

Reserve Battery Use

Charging the Reserve Battery

Charging the Reserve Battery:

Disconnect the gray plug from the Y Cable or FlowMaker Controller and plug it into the gray receptacle on the Reserve Battery/Charger.

A yellow light next to the Charge label on the Reserve Battery/Charger will turn on to indicate charging. When the Reserve Battery/Charger is near fully charged, the yellow light will turn off and automatically start to safely slow charge the battery. Continue charging the battery after the yellow light goes out and whenever the battery is not in use.

The green light next to the Power label on the Reserve Battery only indicates that wall power is connected to the charger section of the unit. The green light does not indicate the Reserve Battery/Charger is fully charged.

The Reserve Battery/Charger is near fully charged only when the Charge light turns off and the gray cable is plugged into the gray receptacle on the unit.

If the gray cable is not plugged into the receptacle on the Reserve Battery/Charger while the unit is also plugged into the wall, the Reserve Battery/Charger will not charge.

It is not possible to run the Jarvik 2000 VAS from wall power even if the Reserve Battery/Charger is plugged into wall power. It is also not possible to charge the Reserve Battery/Charger while the same Reserve Battery/Charger is being used to run the Jarvik 2000 VAD. At all times, the Jarvik 2000 VAD is run only from battery power.

Adapted from Sweet, L. and Wolfe, Jr., A. Mechanical Circulatory Devices in Transport in ASTNA: Patient Transport Principles and Practice, 4th ed., Mosby, 2010 in press. This guide does not supersede manufacturer instructions. Copy with permission only. March 2019 Jarvik 2000®

JANUARY 2019

Total Artificial Heart EMS Guide

January 2019

International Consortium of Circulatory Assist Clinicians

It is produced by VAD Coordinators from some of the largest and most successful VAD implantation hospitals in the US. It has been vetted by experts on VADS in Air Medical Transport and EMS. It should not replace the operator manual as the primary source of information.

Patient Management For TAHs

1. **Assess the patients airway and intervene per your protocol.**

2. **Auscultate heart sounds but you can usually hear them without a stetho scope. Since this is pulsatile you should hear two sounds if properly functioning.**

3. **Assess the device for any alarms.**

4. **Look on controller usually found around the waist of the patient and to see what color tag and device it is. The backpack or freedom driver should have a pink tag on it. It will have the type of device this is and contact information to the implantation center.**

5. **Match the color on the device tag to the EMS Guide. The tag on the backpack or freedom driver's colored tag should matches the ems guide. This will tell you how to manage any alarms.**

6. **Intervene appropriately based on the type of alarm, tag (device) and EMS Guide.**

7. **Start Large Bore IV.**

8. **Assess Vital Signs. REMEMBER THERE IS NO EKG. THE PATIENT IS ASYSTOLIC.**

9. **YOU SHOULD BE ABLE TO GET A SYSTOLIC AND DIASTOLIC BLOOD PRESSURE.**

10. **Transport to the closest center that can care for a TAH. Look on the PINK tag to find out this information.**

11. **Bring all of the patients equipment.**

12. **Bring the significant other if possible to act as a expert on the device in the absence of consciousness in the patient.**

Questions and Answers for Total Artificial Heart

What Is A Total Artificial Heart?

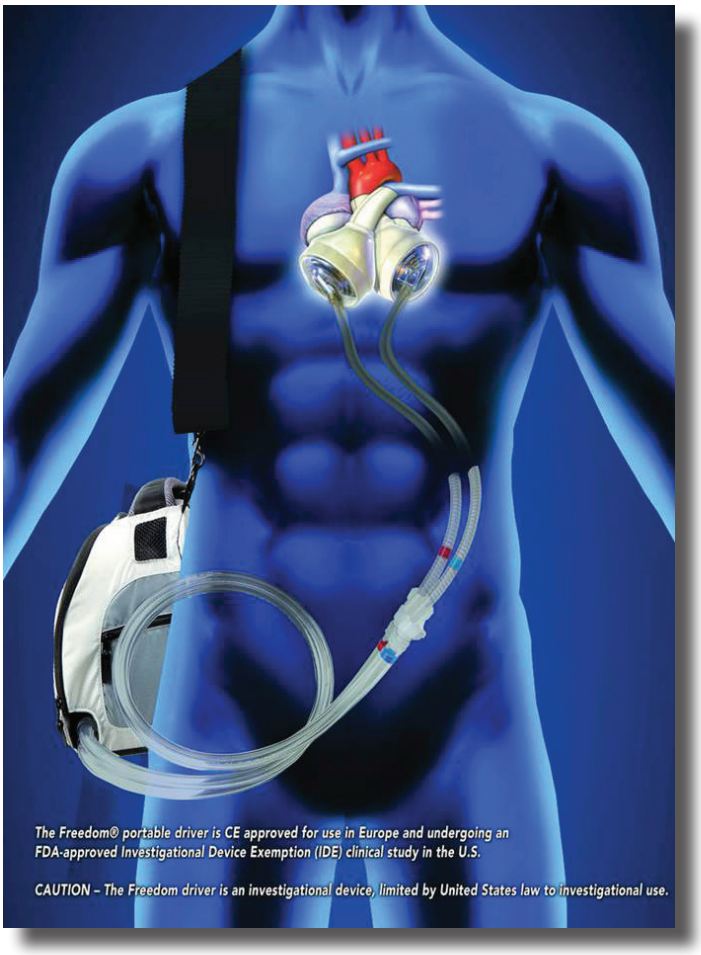
A total artificial heart (TAH) is a device that replaces the two lower chambers (ventricles) of the heart. You might benefit from a TAH if both of your ventricles don't work due to end-stage heart failure.

What are the parts of a TAH?

The SYNCARDIA has tubes that, through holes in the abdomen, run from inside the chest to an outside power source.

What is the power source?

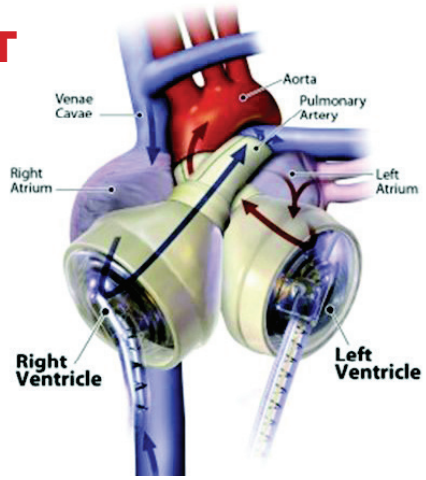
Shortly after the TAD is implanted, the patient is switched to the Freedom driver. This is a mobile "driver" for patients to who are ambulatory. The patient considered discharge from the hospital while awaiting a transplant but ultimately received a heart transplant while still an inpatient. Higher rates of survival to transplant have already been proved with the TAH. Potential benefits for the portable Freedom driver include increased mobility, decreased cost, and improved quality of life.



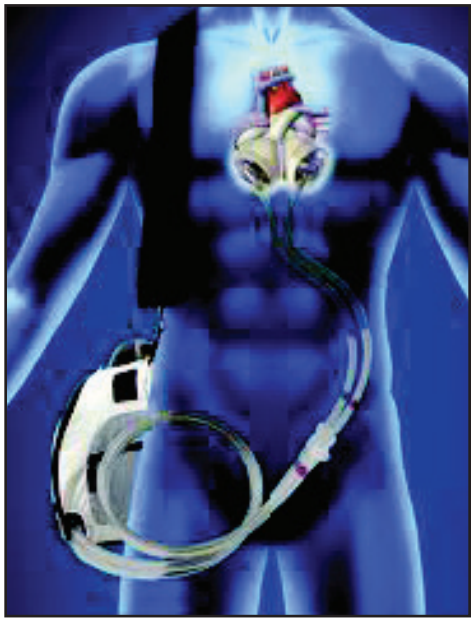
The portability of the Total Artificial Heart (TAH) enables patients to resume many of their normal daily activities.

Total Artificial Heart Freedom™ Driver System

This Patient is on an ARTIFICIAL HEART
(not a left ventricular assist device-LVAD)



1. **Can I do external CPR?**
   No. Will need to rapidly exchange to the backup driver.
2. **Is there a "hand pump" or external backup device to use?**
   No.
3. **Can I give vasopressive IV drugs like epinephrine, dopamine or dobutimine?**
   Never give vasopressive drugs, especially epinephrine. These patients primarily have sysmptomatic hypertension and rarely have symptoms of hypotension. Most IV vasopressive drugs can be fatal to a TAH (Total Artificial Heart) patient.
4. **Can I speed up the rate of the device?**
   No. The device has a fixed rate between 120-140-BPM.
5. **What is the primary emergency intervention for a TAH (Total Artificial Heart)?**
   Nitroglycerin sublingual for symptomatic hypertension.
6. **Can the patient be defibrillated or externally paced while connected to the device?**
   No. There is no heart.
7. **What if the patient is symptomatic and the Freedom Driver is alarming with a continuous alarm and the red light ?**
   If the pump has failed or a line is disconnected or kinked, the patient may pass out within 30 seconds. Even when alarming, the device should continue to pump. When in doubt, immediately change out he Freedom™ Driver immediately. Then quickly check for loose or kinked connections.
8. **Does the patient have a pulse with this device?**
   Yes. The device produces Pulsatile flow. The device is pneumatically driven and is normally loud.
9. **What are acceptable vital sign parameters?**
   The BP will vary. Normal range 100-130 systolic and 60-90 diastolic.
10. **What kind of Cardiac rhythm should be displayed?**
    Asystole.



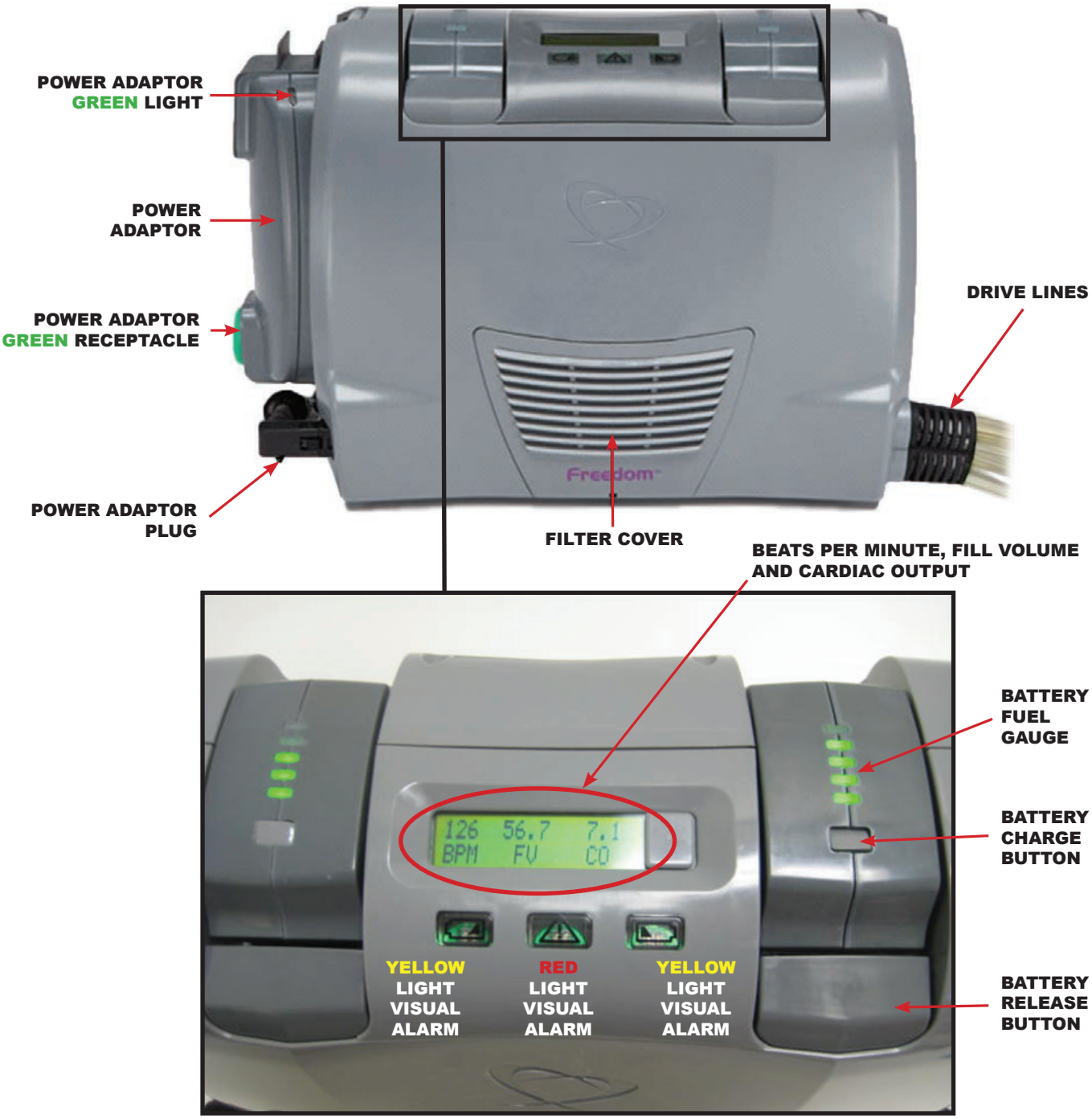
"Sweet, L. and Wolfe, Jr., A. Mechanical Circulatory Devices in Transport .ASTNA: Patient Transport Principles and Practice, 4th ed., Mosby, 2010"

JANUARY 2019

Trouble Shooting Freedom™ Driver System

This Patient is on an ARTIFICIAL HEART

(not a left ventricular assist device -LVAD)



Freedom™ Driver System

IN THE EVENT OF AN EMERGENCY

Immediately notify VAD coordinator listed on the medical alert bracelet or tag attached to the console - please identify the device as a total artificial heart.

"Sweet, L. and Wolfe, Jr., A. Mechanical Circulatory Devices in Transport .ASTNA: Patient Transport Principles and Practice, 4th ed., Mosby, 2010"

JANUARY 2019

HOW TO RESPOND TO FREEDOM™ DRIVER ALARMS

There is no way to mute an Alarm.

ALARM	HEAR	SEE	MEANING	WHAT YOU SHOULD DO
Battery Alarm	Loud Intermittent Tone	Yellow Battery LED Flashing	One or both of the Onboard Batteries have less than 35% remaining charge (only two green lights display on the Battery Fuel Gauge).	Replace each low Onboard Battery, one at a time, with a charged Onboard Battery or connect to external power (NOTE: Once the batteries are charged above 35% the Battery Alarm will stop) .
			Onboard Battery is incorrectly installed.	Reinsert Onboard Battery until locked in place. If Battery Alarm continues, insert a new Onboard Battery.
			One Onboard Battery missing.	Insert charged Onboard Battery into Freedom™ Driver until locked in place.
Temperature Alarm	Loud Intermittent Tone	Red Alarm LED Flashing	The temperature of the Driver is too hot or too cold.	Remove any objects that are blocking the Filter Cover and/or Fan and check the filter.
			The internal temperature of the Driver is too hot.	Move the Freedom Driver to a cooler or warmer area.
Fault Alarm	Loud Continuous Tone	Red Alarm LED Solid	Valsalva Maneuver: Strenuous coughing or laughing, vomiting, straining during a bowel movement, or lifting a heavy weight.	Relax/interrupt Valsalva Maneuver.
			Kinked or disconnected drive lines.	Straighten or connect drive lines.
			Driver is connected to External Power without at least one correctly inserted Onboard Battery.	Insert a charged Onboard Battery into the Freedom™ Driver until locked into place.
			One or both of the Onboard Batteries have less than 30% remaining charge.	Replace each low Onboard Battery, one at a time, with a charged Onboard Battery or connect to external power. (NOTE: the Fault Alarm will continue and will change into a Battery Alarm as the Onboard Batteries recharge. Once the Onboard Batteries are charged above 35%, the Battery Alarm will stop.)
			Malfunction of the Driver	If the steps above do not stop the Fault Alarm, switch to Backup Freedom Driver. Return to implant hospital.
Temperature Alarm	Loud Intermittent Tone	Red Alarm LED Flashing	The internal temperature of the Driver is too hot.	Remove any objects that are blocking the Filter Cover and / or Fan and check filter.
			The temperature of the Onboard Batteries is too hot or too cold.	Move the Freedom Driver to a cooler or warmer area.

You must immediately address the issue that caused the Alarm.

"Sweet, L. and Wolfe, Jr., A. Mechanical Circulatory Devices in Transport .ASTNA: Patient Transport Principles and Practice, 4th ed., Mosby, 2010"

JANUARY 2019

Switching from Primary to Backup Freedom™ Driver

CAUTION: It is recommended to have TWO people exchange the primary Freedom Driver for the backup Freedom Driver. Make sure all items and accessories are closely available before attempting to exchange Drivers.

Setting up the Backup Freedom™ Driver

1. Remove the drive line caps from the ends of the Drive lines.
2. Insert one charged Onboard Battery. The driver will immediately start pumping. (*Figure 1*)
3. Remove the Orange Dummy Battery. (*Figure 1*)
4. Insert the second charged Onboard Battery. (*Figure 2*)
5. If possible, connect the backup Driver into a wall power outlet.
6. Your Freedom™ Driver is now ready to connec to the patient.

FIGURE 1

FIGURE 2

BEATS PER MINUTE, FILL VOLUME AND CARDIAC OUTPUT

FIGURE 3

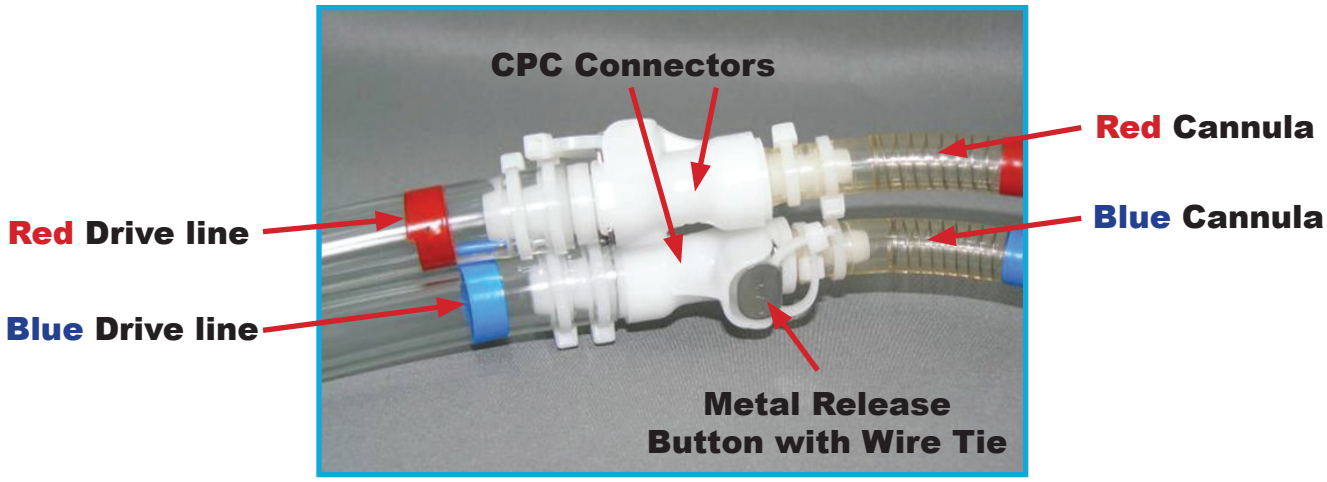
Continued on next page.

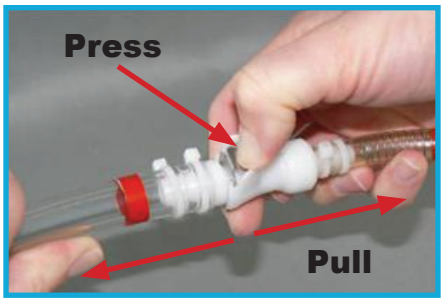
"Sweet, L. and Wolfe, Jr., A. Mechanical Circulatory Devices in Transport .ASTNA: Patient Transport Principles and Practice, 4th ed., Mosby, 2010"

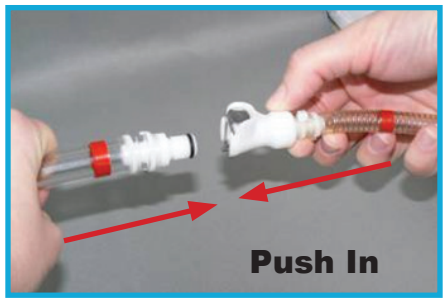
JANUARY 2019

Switching from Primary to Backup Freedom™ Driver

Continued on from previous page







1. With the Wire Cutter Tool, cut the Wire Tie under the metal release button of the CPC Connector that secures the RED TAH-t Cannula to the RED Freedom Drive line. Gently pull to remove the Wire Tie and discard. DO NOT DISCONNECT THE CANNULA FROM THE DRIVE LINE YET.
2. With the Wire Cutter Tool, cut the Wire Tie under the metal release button of the CPC Connector that secures the BLUE TAH-t Cannula to the BLUE Freedom Drive line. Gently pull to remove the Wire Tie and discard. DO NOT DISCONNECT THE CANNULA FROM THE DRIVE LINE YET.

CAUTION: Before disconnecting the Drive lines of the primary Freedom Driver, you must have the Drive lines of the backup Freedom Driver within reach. The backup Driver must be turned on. Perform steps 3 and 4 simultaneously.

3. Disconnect the RED Cannula from the RED Drive line of the primary Freedom Driver:
   - Press and hold down the metal release button. Pull the RED Cannula away from the RED Drive line.
   - Immediately insert the RED Cannula into the new RED Drive line from the backup Freedom Drive Insert until a click is heard and lightly tug on the connection to make sure that it is secure.
4. Simultaneously disconnect the BLUE Cannula from the BLUE Drive line of the primary Freedom Driver:
   - Press and hold down the metal release button. Pull the BLUE Cannula away from the BLUE Drive line.
   - Immediately insert the BLUE Cannula into the new BLUE Drive line from the backup Freedom Driver.
   - Insert until a click is heard and lightly tug on the connection to make sure that it is secure.
5. Slide a Wire Tie under the metal release button of each CPC connector. Create a loose loop in the tie, taking care not to depress and disconnect the connectors. Cut off the excess length of both Wire Ties.
6. Patient must notify Hospital Contact Person of the switch.
7. The Hospital should notify SynCardia Systems that the Driver has been switched and return the faulty Driver.

JANUARY 2019

EMS Guide
January 2015

MECHANICAL CIRCULATORY SUPPORT ORGANIZATION

Total Artificial Heart

This guide is produce by MCSO – The Mechanical Circulatory Support Organization. It is produced by VAD Coordinators from some of the largest and most successful VAD implantation hospitals in the US. It has been vetted by experts on VADS in Air Medical Transport and EMS. It should not replace the operator manual as the primary source of information.

Color Coding System

MOST patients have a tag located on the controller around their waist that says what type of device it is, what institution put it in and a number to call. Most importantly is the color of the tag – it matches this EMS Field Guide and allows you to quickly locate the device you are caring for.

FREEDOM DRIVER
Total Artificial Heart

Questions and Answers for Total Artificial Heart

What Is A Total Artificial Heart?

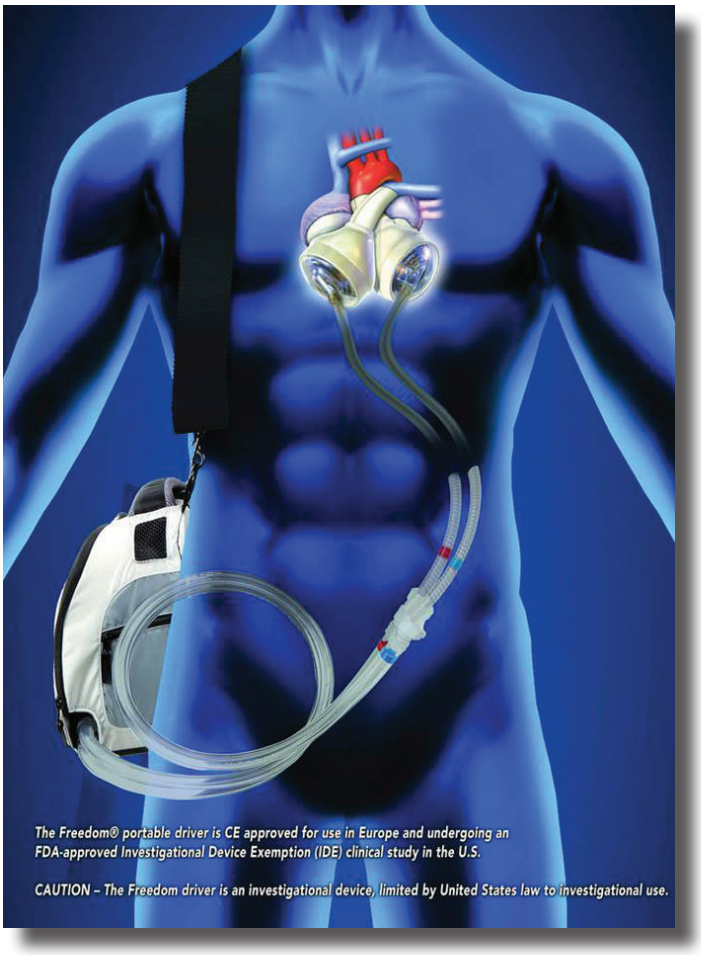
A total artificial heart (TAH) is a device that replaces the two lower chambers (ventricles) of the heart. You might benefit from a TAH if both of your ventricles don't work due to end-stage heart failure.

What are the parts of a TAH?

The SYNCARDIA has tubes that, through holes in the abdomen, run from inside the chest to an outside power source.

What is the power source?

Shortly after the TAD is implanted, the patient is switched to the Freedom driver. This is a mobile "driver" for patients to who are ambulatory. The patient considered discharge from the hospital while awaiting a transplant but ultimately received a heart transplant while still an inpatient. Higher rates of survival to transplant have already been proved with the TAH. Potential benefits for the portable Freedom driver include increased mobility, decreased cost, and improved quality of life.



The portability of the Total Artificial Heart (TAH) enables patients to resume many of their normal daily activities.

Patient Management For TAHs

1. Assess the patients airway and intervene per your protocol.

2. Auscultate heart sounds but you can usually hear them without a stetho scope. Since this is pulsatile you should hear two sounds if properly functioning.

3. Assess the device for any alarms.

4. Look on controller usually found around the waist of the patient and to see what color tag and device it is. The backpack or freedom driver should have a pink tag on it. It will have the type of device this is and contact information to the implantation center.

5. Match the color on the device tag to the EMS Guide. The tag on the backpack or freedom driver's colored tag should matches the ems guide. This will tell you how to manage any alarms.

6. Intervene appropriately based on the type of alarm, tag (device) and EMS Guide.

7. Start Large Bore IV.

8. Assess Vital Signs. REMEMBER THERE IS NO EKG. THE PATIENT IS ASYSTOLIC.

9. YOU SHOULD BE ABLE TO GET A SYSTOLIC AND DIASTOLIC BLOOD PRESSURE.

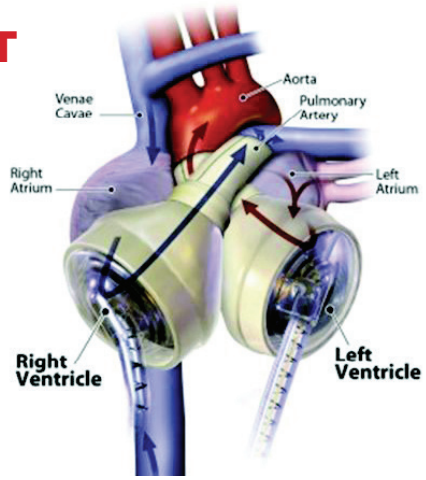
10. Transport to the closest center that can care for a TAH. Look on the PINK tag to find out this information.

11. Bring all of the patients equipment.

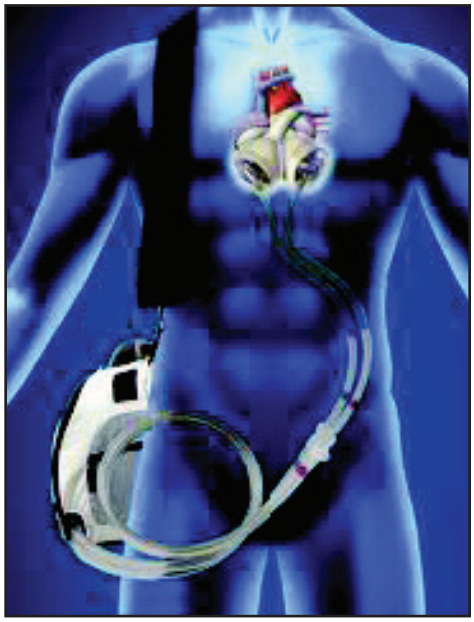
12. Bring the significant other if possible to act as a expert on the device in the absence of consciousness in the patient.

Total Artificial Heart Freedom™ Driver System

This Patient is on an ARTIFICIAL HEART
(not a left ventricular assist device-LVAD)



1. **Can I do external CPR?**
   No. Will need to rapidly exchange to the backup driver.
2. **Is there a "hand pump" or external backup device to use?**
   No.
3. **Can I give vasopressive IV drugs like epinephrine, dopamine or dobutimine?**
   Never give vasopressive drugs, especially epinephrine. These patients primarily have sysmptomatic hypertension and rarely have symptoms of hypotension. Most IV vasopressive drugs can be fatal to a TAH (Total Artificial Heart) patient.
4. **Can I speed up the rate of the device?**
   No. The device has a fixed rate between 120-140-BPM.
5. **What is the primary emergency intervention for a TAH (Total Artificial Heart)?**
   Nitroglycerin sublingual for symptomatic hypertension.
6. **Can the patient be defibrillated or externally paced while connected to the device?**
   No. There is no heart.
7. **What if the patient is symptomatic and the Freedom Driver is alarming with a continuous alarm and the red light ?**
   If the pump has failed or a line is disconnected or kinked, the patient may pass out within 30 seconds. Even when alarming, the device should continue to pump. When in doubt, immediately change out he Freedom™ Driver immediately. Then quickly check for loose or kinked connections.
8. **Does the patient have a pulse with this device?**
   Yes. The device produces Pulsatile flow. The device is pneumatically driven and is normally loud.
9. **What are acceptable vital sign parameters?**
   The BP will vary. Normal range 100-130 systolic and 60-90 diastolic.
10. **What kind of Cardiac rhythm should be displayed?**
    Asystole.



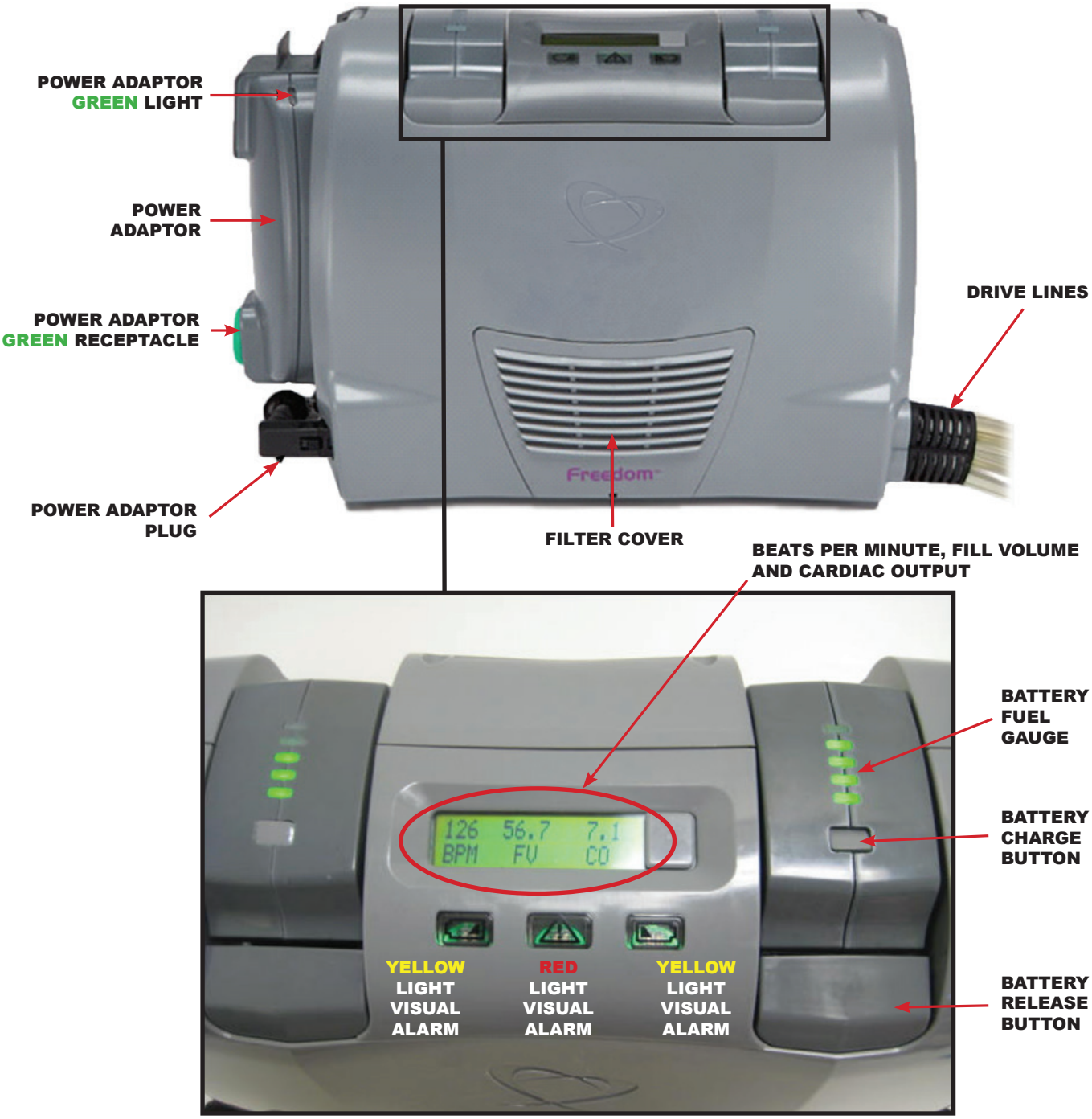
"Sweet, L. and Wolfe, Jr., A. Mechanical Circulatory Devices in Transport .ASTNA: Patient Transport Principles and Practice, 4th ed., Mosby, 2010"

JANUARY 2015

Trouble Shooting Freedom™ Driver System

This Patient is on an ARTIFICIAL HEART

(not a left ventricular assist device -LVAD)



Freedom™ Driver System

IN THE EVENT OF AN EMERGENCY

Immediately notify VAD coordinator listed on the medical alert bracelet or tag attached to the console - please identify the device as a total artificial heart.

"Sweet, L. and Wolfe, Jr., A. Mechanical Circulatory Devices in Transport .ASTNA: Patient Transport Principles and Practice, 4th ed., Mosby, 2010"

January 2015

HOW TO RESPOND TO FREEDOM™ DRIVER ALARMS

There is no way to mute an Alarm.

ALARM	HEAR	SEE	MEANING	WHAT YOU SHOULD DO
Battery Alarm	Loud Intermittent Tone	Yellow Battery LED Flashing	One or both of the Onboard Batteries have less than 35% remaining charge (only two green lights display on the Battery Fuel Gauge).	Replace each low Onboard Battery, one at a time, with a charged Onboard Battery or connect to external power (NOTE: Once the batteries are charged above 35% the Battery Alarm will stop) .
			Onboard Battery is incorrectly installed.	Reinsert Onboard Battery until locked in place. If Battery Alarm continues, insert a new Onboard Battery.
			One Onboard Battery missing.	Insert charged Onboard Battery into Freedom™ Driver until locked in place.
Temperature Alarm	Loud Intermittent Tone	Red Alarm LED Flashing	The temperature of the Driver is too hot or too cold.	Remove any objects that are blocking the Filter Cover and/or Fan and check the filter.
			The internal temperature of the Driver is too hot.	Move the Freedom Driver to a cooler or warmer area.
Fault Alarm	Loud Continuous Tone	Red Alarm LED Solid	Valsalva Maneuver: Strenuous coughing or laughing, vomiting, straining during a bowel movement, or lifting a heavy weight.	Relax/interrupt Valsalva Maneuver.
			Kinked or disconnected drive lines.	Straighten or connect drive lines.
			Driver is connected to External Power without at least one correctly inserted Onboard Battery.	Insert a charged Onboard Battery into the Freedom™ Driver until locked into place.
			One or both of the Onboard Batteries have less than 30% remaining charge.	Replace each low Onboard Battery, one at a time, with a charged Onboard Battery or connect to external power. (NOTE: the Fault Alarm will continue and will change into a Battery Alarm as the Onboard Batteries recharge. Once the Onboard Batteries are charged above 35%, the Battery Alarm will stop.)
			Malfunction of the Driver	If the steps above do not stop the Fault Alarm, switch to Backup Freedom Driver. Return to implant hospital.
Temperature Alarm	Loud Intermittent Tone	Red Alarm LED Flashing	The internal temperature of the Driver is too hot.	Remove any objects that are blocking the Filter Cover and / or Fan and check filter.
			The temperature of the Onboard Batteries is too hot or too cold.	Move the Freedom Driver to a cooler or warmer area.

You must immediately address the issue that caused the Alarm.

"Sweet, L. and Wolfe, Jr., A. Mechanical Circulatory Devices in Transport .ASTNA: Patient Transport Principles and Practice, 4th ed., Mosby, 2010"

January 2015

Switching from Primary to Backup Freedom™ Driver

CAUTION: It is recommended to have TWO people exchange the primary Freedom Driver for the backup Freedom Driver. Make sure all items and accessories are closely available before attempting to exchange Drivers.

Setting up the Backup Freedom™ Driver

1. Remove the drive line caps from the ends of the Drive lines.
2. Insert one charged Onboard Battery. The driver will immediately start pumping. (*Figure 1*)
3. Remove the Orange Dummy Battery. (*Figure 1*)
4. Insert the second charged Onboard Battery. (*Figure 2*)
5. If possible, connect the backup Driver into a wall power outlet.
6. Your Freedom™ Driver is now ready to connec to the patient.

FIGURE 1

FIGURE 2

BEATS PER MINUTE, FILL VOLUME AND CARDIAC OUTPUT

FIGURE 3

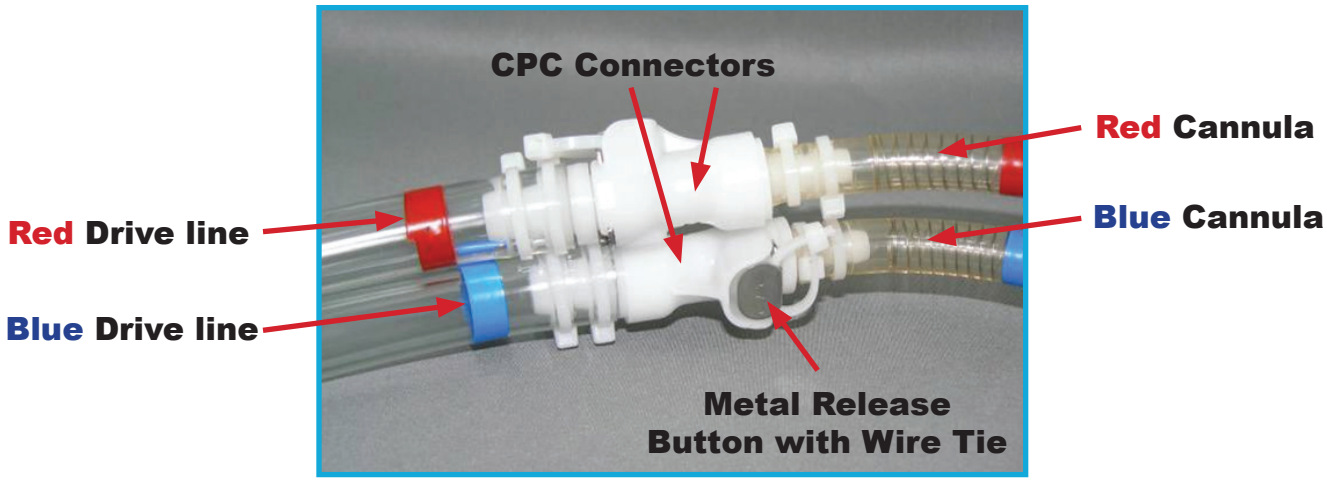
Continued on next page.

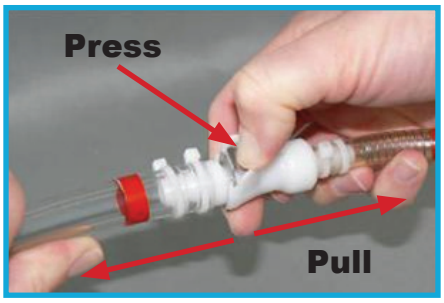
"Sweet, L. and Wolfe, Jr., A. Mechanical Circulatory Devices in Transport .ASTNA: Patient Transport Principles and Practice, 4th ed., Mosby, 2010"

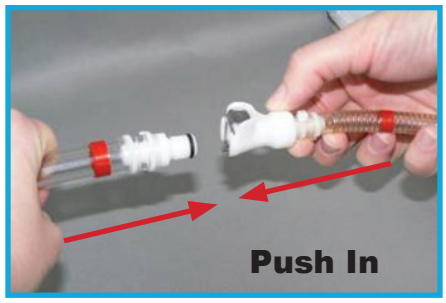
January 2015

Switching from Primary to Backup Freedom™ Driver

Continued on from previous page







1. With the Wire Cutter Tool, cut the Wire Tie under the metal release button of the CPC Connector that secures the RED TAH-t Cannula to the RED Freedom Drive line. Gently pull to remove the Wire Tie and discard. DO NOT DISCONNECT THE CANNULA FROM THE DRIVE LINE YET.
2. With the Wire Cutter Tool, cut the Wire Tie under the metal release button of the CPC Connector that secures the BLUE TAH-t Cannula to the BLUE Freedom Drive line. Gently pull to remove the Wire Tie and discard. DO NOT DISCONNECT THE CANNULA FROM THE DRIVE LINE YET.

CAUTION: Before disconnecting the Drive lines of the primary Freedom Driver, you must have the Drive lines of the backup Freedom Driver within reach. The backup Driver must be turned on. Perform steps 3 and 4 simultaneously.

3. Disconnect the RED Cannula from the RED Drive line of the primary Freedom Driver:
   - Press and hold down the metal release button. Pull the RED Cannula away from the RED Drive line.
   - Immediately insert the RED Cannula into the new RED Drive line from the backup Freedom Drive Insert until a click is heard and lightly tug on the connection to make sure that it is secure.
4. Simultaneously disconnect the BLUE Cannula from the BLUE Drive line of the primary Freedom Driver:
   - Press and hold down the metal release button. Pull the BLUE Cannula away from the BLUE Drive line.
   - Immediately insert the BLUE Cannula into the new BLUE Drive line from the backup Freedom Driver.
   - Insert until a click is heard and lightly tug on the connection to make sure that it is secure.
5. Slide a Wire Tie under the metal release button of each CPC connector. Create a loose loop in the tie, taking care not to depress and disconnect the connectors. Cut off the excess length of both Wire Ties.
6. Patient must notify Hospital Contact Person of the switch.
7. The Hospital should notify SynCardia Systems that the Driver has been switched and return the faulty Driver.

January 2015