



**1626 Atlantic University Circle
Jacksonville, Fl 32207**

**Field Operations
Medical Standard
Operating Guidelines**

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PREFACE

These standing orders and treatment protocols are not intended to be used as a manual for the treatment of all emergencies or to be followed verbatim. They are written guidelines from our service Medical Director pertaining to the treatment of the most common conditions encountered in the field by Paramedics and Emergency Medical Technicians. Since no set of protocols can cover every conceivable situation, the senior medical technician treating the patient is encouraged to use his/her best judgment and obtain on-line medical control for problems outside the scope of his/her experience or this document. In situations where medical control either cannot be obtained or in the judgment of the EMT or Paramedic is impractical, the care giver must use his/her best judgment, bearing in mind the caution from Hippocrates "**Primum non nocere**", "**first, do no harm**". The protocols contained herein also include instruction for certain conditions and where special care must be utilized. This protocol contains both BLS and ALS treatment for specific conditions. Each procedure is clearly marked as ALS or BLS. In the Cardiac and Cardiac Arrest sections, photocopies of the ACLS algorithms have been used for simplicity. These may contain medications or procedures which are not part of this protocol as such. Appendix III contains a table which lists specifically which medical and procedures are utilized by Liberty Ambulance Service in patient care.

This protocol contains certain procedures and medications set aside for the use by the CCEMTP Only. Those Paramedics who are not CCEMTP's may not utilize these medications or procedures.

Authority

The authority for these protocols is contained in Chapter 64J-1.004(4),(a) Florida Administrative Code.

It is the responsibility of each medic to be familiar with the laws, rules and regulations and policies and adhere to them. Even an order by a physician does not justify procedures not in accordance with laws and rules and regulations.

Section 200.050 Legal Considerations

The practice of the EMT and Paramedic in Florida is controlled by FS 401 and 64J-1. 64J-1 gives direct control and responsibility for overseeing the performance of EMT's and Paramedics over to the Medical Director of the particular service. They have the final say over what EMT's or Paramedics may do within the system, keeping in mind the requirements of FS401 and 64J-1.

Consent

Patient consent must be obtained before a patient can be treated. Types of consent are:

1. Actual Consent: Any adult with the ability to consent may do so verbally or in writing.
2. Implied Consent: Any patient who is unconscious or in an altered state of consciousness may be treated as if they consented to care.
3. Minor Consent: Any minor may be given care under implied consent, but a parent or guardian should be contacted for consent as soon as practical.
4. Involuntary Admissions: Must be initiated by either a police officer or a physician.
Remember: No patient who may be suffering from a potentially life threatening or permanently disabling injury/illness may be denied medical care.
5. Medical Orders: Routinely, on-line medical control is not required except in certain circumstances. These are addressed within the SOG. If on-line medical control is needed or desired, after contacting the destination hospital ER, ask for a Physician for orders. Make sure you get the name of the ordering Physician and either secure orders over the radio, or use a recorded line. This will protect you in case there are questions regarding orders at a later date.
6. Refusal of Care or Problems with Consent: Generally, any adult who has not been declared incompetent can refuse medical care is what ever degree he or she desires. This means that a patient may refuse all or part of medical care at any stage. If a mentally competent adult refuses assessment of treatment, and in your opinion has the mental capacity to do so, document as much as you can on the patient care report, and try to collect a name, address, phone number, and social security number. If you can't, at least get a name (that way we can identify the person or persons refusing treatment) and have them sign the refusal form on the back of the patient care report. Handle minors as noted above in Section 200.050(3) or if you have any problems with consent at the scene, contact medical control for instructions. In the absence of available medical control or practicality, a patient you feel is suffering from a mental or physical condition which has rendered them incapable of giving informed consent, may be transported, against their will, using **reasonable** restraint. See the section on restraint for specific guidelines. This should not be taken lightly and your reasons for such action must be WELL documented on the patient care report. (FS401.445)

7. Other Physician on Scene: In the event that a physician is on scene who desires to direct the care of the patient; If the physician identifies him/herself as a Florida licensed physician (MD or DO) AND what the physician is suggesting outside your protocol, advise the physician tactfully that he/she must assume complete responsibility for the patient, including signing the patient care report and riding in the ambulance to the hospital with the patient. If the physician is unwilling to do this, then get his/her name and contact the dispatcher as soon as practical so our medical director can be contacted. You will be advised what final course of action to take. The dispatcher should notify 105 or A1 and one of us will contact OUR medical director who will advise you what to do.

8. No CRT/Pre-hospital DNR Orders:

Pursuant to the latitude the EMS Bureau has given Medical Directors, Liberty Ambulance Personnel may honor Do Not Resuscitate (DNR) orders presented to them IF it meets the requirements of 64E-2.031, however, the original or copy may be reproduced on any color paper. A copy shall be as valid as the original. Patient/Spouse or POA may revoke a pre-hospital DNR at any time.

9. Restraint

There will come during the course of treating certain patients, challenges to care because the patient is violent, unruly or confused from mental or physical disease. In this case the use of physical or chemical restraint may become necessary. Physical restraint should be accomplished with the use of the nylon wrist and ankle restraints supplied on the ambulance. The straps and shoulder harnesses should then be applied in a manner that reinforces the wrist and ankle restraints. The use of force in applying these restraints should be such as is necessary to protect the patient and staff but not cause harm to the patient. The use of chemical restraint should only be use if the physical restraint is not achieving the desired result. See the medical section for medications and dosage information.

10. Refusal of Care:

One of the most litigious situations in pre-hospital care is involving refusal of care. Although a patient has the right to refuse care at any level, the patient must have the capacity to refuse treatment. This means that the patient must not be just oriented to person, place and time, but possess the ability to discern and determine what is in their best interest. It is not a matter of competency but capacity. Only a judge can determine competency. If presented with a situation where a patient is refusing, be very careful to make sure that patient actually does have the capacity to understand fully the consequences of his/her decisions and explain fully to them all the potential consequences, including death, that might result from their refusal of care/transport. Be especially careful of patients who have sustained head trauma, have a history of dementia or other potentially mentally incapacitating condition or complaint. In all cases, thoroughly document all the circumstances of the patient encounter and try to get them to sign the refusal form. If the patient cannot read, read it to them and ask if they understand. Explain whatever needs to be explained. If they do not speak English, contact dispatch.

11. Patient/Patient Encounter

A patient is an individual who has been involved in an incident to which we have either been called to respond to or have come upon in the course of our workday and is visibly ill or injured or there exists the mechanism for an injury to have occurred. In every possible case an initial exam should be performed and documented on a PCR form. This includes vital signs and any pertinent physical findings. A 10-99 should be obtained even if the patient refuses further care or transport.

Section 200.055 Transportation of Patients

1. All patients we respond to will normally be transported. Those who are not usually fit into one of the following categories:
 - a. No reason exists to transport the patient to the hospital.
 - b. The patient refuses transportation.
 - c. Transporting the patient to the hospital would compromise the safety of the crew members.
 - d. The patient and family have no insurance or ability to pay and no true emergency exists.
2. In all cases where a true emergency exists, the patient will be transported regardless of His/Her ability to pay. Payment arrangements can be made, if necessary, after the patient arrives at the hospital.
3. In all cases, the dispatcher or a supervisor must be notified if a decision not to transport has been made.
4. Patients will be transported to a facility of their choice, unless they meet the criteria for transportation to a trauma center, or the patient's condition warrants transportation to a closer facility.
5. Inter-facility transports will be transported to the facility where admission has been arranged, unless the patient's condition changes en route and transportation to a closer facility is necessary. Notify the dispatcher of what is going on so he/she can notify the intended receiving facility.
6. When a male Sr. Med. Tech. is transporting a female patient, it is advisable to have a female family member ride with you.
7. All patients transported must be transported on a stretcher and belted in for safety, including the shoulder harness. This includes psych and Baker Act patients. If the patient refuses, call dispatch immediately. Do not transport the patient off the stretcher without specific instructions from management to do so.
8. Parents are encouraged to ride with children to alleviate fears, unless this would compromise patient care.
9. Family members are encouraged to ride with Hospice patients.

Section 200.055 Transportation of Patients, cont'd

10. Any request by a family member to ride in the back with the patient should be honored, if this does not compromise patient care. If you deny this request, use the utmost courtesy in expressing why.
11. Notify dispatch any time you use emergency warning equipment.
12. All pediatric patients less than 40 lbs will be transported in a suitable car seat secured to the stretcher or captain's chair, or by the Ferno pediatric restraint system.

Second only to patient care, the documentation of the patient transport or response is one of the most critical tasks we perform. The patient care report is a legal record of the assessment, care and treatment we provided for the patient and an accurate, legible and complete patient care report is essential for continuity of care, legal defense, and reimbursement purposes.

Vital Signs

A minimum of two sets of Vital Signs must be taken on each patient. Unstable patients, critical care transports and any patient on a hemodynamically altering medication must have vital signs taken and documented every 5 minutes. The use of the NIBP (Automatic BP Cuff) is relegated to monitoring only. The initial BP and any BP you use to initiate treatment must be a manually taken BP.

Narrative

The narrative is a critical portion of the patient care report because it creates a complete, concise picture of the patient's condition and treatment. Because of this we are requiring that everyone use a standardized format in writing the narrative. The format must be followed whether you use the SOAP, block or freeform style of writing your narrative. It must contain the following information in this specific order:

First Section or Paragraph

This contains the chief complaint, history of the present illness and S.A.M.P.L.E. history. Every effort must be made to include as much information as possible on what is wrong with the patient, including all pertinent positive and negatives, and utilizing the O.P.Q.R.S.T. method to elaborate of the chief complaint.

Second section or Paragraph

This contains the results of the *focused* physical assessment you performed on the patient. It should include a description of the general condition of the patient, whether or not the patient is stable or unstable (not "NAD"), and a thorough exam concerning the chief complaint. Heart rate, including quality and regularity; regularity, depth and effort of respirations; skin temperature, color, moisture and turgor; chest sounds; abdominal findings; presence and description of skin lesions, injuries, etc; other findings such as edema, cough, active vomiting, etc. This section should paint a clear picture of a patient which needs ambulance transportation. In non- emergency patients, use this area to also give mental status and physical descriptions which would support ambulance transportation.

Third Section or Paragraph

In this section, in the emergency patient, clearly identify the suspected problem(s) with the patient, and how you intend to treat the patient. In the non-emergency patient, discharge patient, etc., specify what makes this patient require ambulance transportation, identifying any adjunctive equipment needed such as oxygen, A-Frame pillow, restraints, etc.

Fourth Section or Paragraph

This section should be used to reevaluate the care you gave your emergency patient, assessing the effectiveness of any interventions or comment on the transport of the non-emergency patient, including any unexpected problems encountered.

By following this format, there should be no problems with patient care report data falling outside parameters required by Medicare or Medicaid or other third party payers, and will sufficiently document your assessment and care in case of future legal problems.

- All paperwork must be filled out completely, even on routine transports. This includes ambulance and wheelchair patient care reports which must be filled out leaving **NO BLANKS. We must have SS# and DOB on ALL patients.** (Wheelchair and ambulance)
- When a patient is discharged from a hospital to a nursing home, the transfer sheet, (pink, blue or white) ORIGINAL must accompany patient to the nursing home.
- You **MUST** get mileage on every transport. Write down odometer reading.
- All runs, whether an emergency or not, must contain somewhere on the patient care report, a **VALID** reason **WHY** this patient needed an ambulance. In the case of emergency runs, this will usually take care of itself. In the case of non-emergency runs, this must be fully explained in the narrative section of the patient care report, in simple layman's terms. Examples would be: Bedridden due to contractures, in a chronic vegetative state, required restraint, was given oxygen for treatment of any emergency condition etc. Be thorough!! Include any information you think justifies the need for an ambulance. Remember though, that a bedridden patient still needs a reason to go where they are going and bedridden in and of itself may not justify ambulance transportation.
- Private insurance and Medicare supplements must have an address to mail the form to; get a copy of both sides of the card, if possible.

Section 200.060 Documentation and Medical Records

- We must have a patient or responsible party signature on EVERY patient care report. Try to get both if possible. If the patient cannot sign and there is no family, have a representative at the facility sign the patient cannot sign form.
- Inter-hospital transfers must have listed in the narrative that the transfer was for unavailable facilities (if it was), specifically what was not available and that the patient was admitted to the receiving hospital.
- All PCR's and run information is confidential and all policies and procedures within the HIPAA Policy and Procedure Manual must be adhered to. Be sure to protect the confidentiality of all information for HIPAA as well as risk of identify theft.

Section 200.060 Documentation and Medical Records:

Patient Confidentiality and HIPAA

The patient care reports (PCR's) are legal medical documents and are confidential under Chapter 401.30(4), F.S. In addition, on April 14, 2003, the privacy provisions of the Health Insurance Portability and Accountability Act go into effect. Patient records and information may only be released or information disclosed by crew members in the following situations:

1. to other medical professionals or personnel caring for the patient
2. to the Department of Health for oversight
3. to the service medical director for operations activities such as QA and training
4. to administration for billing purposes
5. to verifiable family members unless patient requests other wise

Discussion of ambulance calls outside of official training or QA activities should be done with the utmost of care. Do not discuss the patient name or other personally identifying information if you are discussing a call with other crew members. Do not hold conversations about calls in public places. The incidental disclosure of PHI is a serious situation. If you feel you may have unnecessarily disclosed a patient's PHI, or disclosed in inadvertently to a person who should not have had access to the PHI, report this to the Privacy Officer as soon as possible. File an incident report and turn it in to the Privacy Officer. The careless discussion and disclosure of information due to carelessness, or failure to report inadvertent or improper disclosure will result in disciplinary action.

Do not give patient names when giving radio report to the hospital ED.

Do not give patient HIV status over the radio. When talking to dispatch, use Signal 13 for all IC problems

Section 200.060 Documentation and Medical Records:

Privacy and Security of PCR's

Patient Care Records (PCR's) for completed runs are to be kept on the unit until they are turned in.

All partially completed PCR's will be brought back to administration to be shredded by dispatch. All other scrap paper containing PHI or potentially containing PHI will be brought back to dispatch to be shredded prior to disposal.

All paperwork being transported with the patient must be given to the proper individual. The lead crew member will record the name of the individual the paperwork was released to and obtain a signature if possible.

PCR copies given to ED staff must have the name of the staff member receiving the copy on the original form.

The individual receiving the patient will also sign for the patient and belongings.

Section 200.061 HIPAA Compliance

All patients will be given a copy of the Notice of Privacy Practices and will sign the release/authorization form on the back of the original PCR. If the patient absolutely cannot sign, leave a copy of the Notice on the patient chart or by the bedside and have a family member or a *nurse* sign the acknowledgement.

See the HIPAA section of the Administrative SOG for full policies and procedures concerning compliance with HIPAA.

Section 200.075 Medical Emergencies

A. Apnea

BLS

1. Assess ABC's and Initiate BLS
2. Ventilate with Bag-valve-mask using oxygen at 15 LPM (100% FiO₂) for 1 minute.
3. Obtain O₂ Sat as soon as practical.
4. Insert King Airway

ALS

5. Intubate or insert King Airway
6. Initiate ETCO₂ monitoring
7. Initiate IV with NSS KVO
8. Communicate with ED

B. Obstructed Airway

BLS

1. Assess ABC's Initiate BLS using current American Heart Association Guidelines for FBAO.
2. Suction if necessary

ALS

3. If foreign body cannot be cleared using BLS techniques visualize under direct laryngoscopy and remove with Magill Forceps, or suction.
 4. If obstruction persists, attempt to intubate and push the foreign body into the right mainstem bronchus.
 5. If necessary, perform needle cricothyrotomy (refer to the appendix section for technique).
5. Contact the ED as soon as practical.

C. Pediatric Considerations

BLS

1. Most newborn infants will respond well to manual stimulation such as stimulating the bottoms of the feet, rubbing the axillae, or B.V.M. ventilation.
2. Infants and children can usually be adequately ventilated using B.V.M. devices (occlude pop-off valves as pressures required may exceed pop-off pressures).

ALS

3. If intubation is required, Age+ 16/3 or use the size of the little finger as a guide to tube size, or refer to the information the Broselow Pediatric Resuscitation Tape.

C. Respiratory Emergencies

BLS

Assess ABC's and;

1. Administer Oxygen to all patients complaining of shortness of breath for any reason, or signs of respiratory distress. Obtain an O₂ Sat via the pulse-oximeter if your unit is so equipped. Administer Oxygen to keep the Sat >90% .
2. Use a nasal cannula at 4-6 liters per minute on any patient with signs or symptoms of Mild Respiratory Distress
3. Use a Non-Rebreather Mask at 15 liters per minute for: Acute MI/STEMI, Acute Pulmonary Edema, Gross Hypotension, Severe Multiple Trauma, and Severe Burns
4. Use Positive Pressure with a B.V.M.: Apnea, Fulminate Pulmonary Edema, any resp rate <12 or >30.

ALS

5. Consider CPAP or intubation in Near Drowning, Severe Hypoxia (sustained O₂ Sat below 90% in spite of O₂ supplemented at 100%) or ETCO₂ >60 (in acute distress). Consider intubation if GCS <8 or O₂sat <80 and pt does not appear to have sufficient inspiratory rate or volume.
6. RSI/Facilitated Intubation: Should there be a need for facilitated intubation (RSI), make sure you have all needed supplies at hand, including suction and a BVM. Pre-oxygenate the patient for 2 minutes with the BVM, administer Etomidate 0.3mg/kg over 1 minute. Action should be almost immediate. This will be effective for about 5 minutes. Intubate the patient using the AIRTRAC®. This must be followed by administration of 0.05mg/kg of Versed (Midazolam). Consider Fentanyl 3-5 mcg/kg for analgesia for a trauma patient. Watch the BP carefully!
7. **For CCEMTP Only:** If needed, neuro-blockade with Succinylcholine 1.5mg/kg may be used, the patient **MUST** be sedated prior to neuro-blockade. A maintenance drip of Propofol (Diprivan) may be used. It is supplied as 100ml premix and run at 1.5 - 4.5 mg/kg/min to keep patient unconscious. When using Diprivan continuously monitor BP as this may cause an up to 30% drop in BP, so use with caution in closed head trauma.

Follow the RSI/Facilitated Intubation Form and attach to PCR when performing either skill.

B. COPD

BLS

1. Use nasal cannula at 1-2 liters per minute or
2. Use Venturi-Mask; start at 24% and increase the FIO₂ until O₂ sat >90%¹. Be prepared to support the patient's respirations with B.V.M.

ALS

3. Initiate IV or INT
4. Initiate ETCO₂ Monitoring
5. Apply cardiac monitor
6. Give nebulizer with: Albuterol and/or Atrovent @6LPM O₂
7. Give Solumedrol 125 mg IV slow push
8. Consider intubation if in acute distress and O₂ sat persists below 90²%
9. Monitor VS, respiratory rate and effort and ETCO₂ carefully. Oxygen at the delivery rate prescribed for nebulization of meds may cause respiratory depression in COPD pts. Be prepared to support ventilations or intubate if ETCO₂ >60.

C. Asthma

BLS

Assess ABC's;

1. Oxygen at 4-6 LPM via nasal cannula
2. Cardiac Monitor

ALS

3. Obtain ETCO₂ reading
4. IV NSS or INT for adult or for child >10. If <10 prefer INT or KVO w/Minidrip only if you anticipate need for IV drugs
5. 4. Nebulizer w/Atrovent and/or Albuterol @6LPM O₂
6. If bronchospasm does not improve after 2-3 doses:
7. Epinephrine 0.3 mg SQ in adults <45 and no Hx of CAD, CHF, COPD or MI may repeat in 15 minutes if no improvement and transport time allows. Do not delay transport!

D. CHF/Acute Pulmonary Edema/ Respiratory Distress with Wet Lungs

BLS

1. Assess ABC's
2. Obtain O₂ sat ASAP
3. O₂ at 100% by NRBM
4. Apply EKG monitor, if part of an ALS crew

ALS

5. Measure ETCO₂
6. IV NSS TKO or INT (preferred)
7. Obtain a 12 lead ECG and transmit to the ED
8. NTG 0.4 mg SL if BP >100 systolic
9. Consider CPAP
10. Morphine 2-10 mg IVSP
11. Consider Lasix 40 mg IVSPB or twice (2X) pt usual dose if taking oral Lasix, if transport time >15 minutes, must give NTG First!
12. Consider Intubation if O₂ Sat <90 after inhaled O₂ to 100% or ETCO₂ >60 or CPAP failure

Remember: all that wheezes is not asthma!

Nebulized medications may be given without an IV if an attempt was made and no IV could be established.

III. Cardiac Emergencies

In all cases where a patient is being monitored, evaluate the patient for level of consciousness, pulse rate, and respiratory rate, then evaluate the rhythm on the monitor. The policy of this medical protocol is that telemetry of EKG data for rhythm determination is unnecessary. It is necessary, however, to have a hard copy available for review by the ED, Quality Assurance Officer, and Medical Director.

A. Cardiac Arrest Management

1. General Guidelines

BLS

- a. Initiate BLS immediately; push hard, push fast, 100/min allow full chest recoil and do not interrupt compressions for more than 10 seconds. If a witnessed arrest, provide two minutes of uninterrupted compressions before ventilating the patient.
- b. Provide an airway with a King airway_ initially on all patients requiring an advanced airway.
- c. apply the AED, if so equipped and pulse oximeter

ALS

- d. First line advanced airway will be the King Airway. If this is not possible, intubate with appropriate size ET tube, apply ETCO₂ to confirm placement and to monitor
 - e. verify placement by at least two methods and document on the PCR
 - f. apply ECG monitor and treat rhythm per current AHA ACLS guidelines using medications on the approved list.
 - g. Provide initial vascular access via IO using the appropriate BIG device.
 - h. *Team leader, assign roles at the beginning of the resuscitation, rotate compressors every two minutes and make sure someone is recording.*
2. Medication Guidelines
Due to practicality issues, we cannot carry all the drugs listed in the ACLS algorithms. See appendix 1 for a list of medical director approved medications.
 3. Refer to the ACLS Algorithms located in the appendix for specific treatment options
 4. If the patient experiences ROSC (return of spontaneous circulation) then obtain a 12 lead as soon as possible.

Section 200.100

III. Cardiac Emergencies

D. Post Arrest Management

1. Bradycardia: rate <60, associated with hypotension, or symptoms of hypoperfusion:

BLS

- a. Re-evaluate Airway/Vent/Pulse Ox

ALS

- b. obtain a 12 lead ECG and assess
- c. sedate with Versed 0.05 mg/kg IV and begin transdermal pacing or
- d. Atropine 0.5mg IV q 5 minutes X 4 doses (Total 0.04mg/kg or HR>60 or BP>90 systolic)
- e. If patient remains hypotensive, consider hypovolemia-, (Fluid Challenge) or Dopamine 400 mcg/ml premix start at 5mg/kg/min and titrate to BP >90 Torr Systolic

2. Sinus Tachycardia, Treat underlying cause:

- a. Hypovolemia
- b. Hypoxia
- c. Psychogenic Causes
- d. Fever

4. Paroxysmal Supraventricular Tachycardia =

BLS

- a. assess ABC's
- b. Assess vital Signs, (PSVT is sudden onset with HR>160/min)
- c. If BLS, Transport immediately, call for ALS intercept if transport time allows

ALS

- a. Obtain a 12 lead ECG and assess
- b. Adenocard 6 mg. IVPB over 1-2 seconds; if no response, then repeat with Adenocard 12 mg. IVPB over 1-2 seconds. Monitor BP and HR carefully. Expect any arrhythmia.
- c. Cardioversion 20 –100 joules (synchronized) consider sedation with Versed 0.05 mg/kg IV prior to Cardioversion

This should be used only if patient is symptomatic and hemodynamically compromised.

- d. Transport as soon as possible

5. Ventricular Arrhythmia

BLS

- a. Evaluate the rhythm and vital signs, obtain a 12 lead ecg
- b. Evaluate O2 delivery and ventilatory status

ALS

- c. Follow specific protocols for dysrhythmias

Section 200.100 Medical Emergencies

III. Cardiac Emergencies

6. Chest Pain

BLS

- A. Assess patient's vital signs and Pulse Oximeter reading
- B. Administer Oxygen by NRB mask @ 10-15 LPM or By Nasal Cannula @ 6 LPM.

ALS

C. Place Patient on Cardiac Monitor, perform a 12 lead. Call a "STEMI Alert" and transport to the nearest hospital capable of performing emergency PCI if it meets the following criteria:

- Ongoing chest pain symptoms or other symptoms suggestive of cardiac ischemia
- ECG has computer interpretation of ***ACUTE MI***
- Paramedic read of ECG confirms a quality tracing with ST-elevation greater than or equal to 1 millimeter in at least two anatomically contiguous leads
- Pre-Hospital ECG without evidence of LBBB or paced rhythm
- No obvious evidence of acute Stroke
- No obvious evidence of acute GI bleed
- Age range: >35 and <80
- Is patient alert and able to give a history?
- Without acute trauma (eg. MVA)

D. Start IV of NSS @ keep vein open rate or INT, at least 18 gauge or better.

E. Administer Nitroglycerine 0.4mg SL if BP>100 mmHg Systolic

F. Administer Aspirin 325mg by mouth, have the patient chew and swallow. May follow by a small sip of water if available. Do not give aspirin if the patient has a history of actual allergy to ASA, GI bleed or hemorrhagic stroke.

G. If pain persists after a total of Three (3) NTG tablets over 10 Minutes, then give:

- 1" NTG Paste to chest. Pick an area away from the standard defib or CPR locations. **Omit if suggestive of a right sided AMI (true inferior MI or positive right sided 12 lead)**
- Morphine 2-10 mg IVSPB
- Observe BP, Heart Rate and Ventilatory status carefully after administration of Morphine.
- Cardioversion (consider sedation if conscious with Versed 0.05 mg/kg IV)

7. New onset Atrial Fibrillation

- Stable: transport with careful monitoring
- Unstable: Cardioversion, start at 50 joules if onset less than 48 hours, sedate with Versed 0.05 mg/kg IV.
- Unstable, onset more than 48 hours, transport immediately to the ED.

8. Ventricular Tachycardia

- Stable; sedate with Versed 0.05 mg/kg IV, Premedicate with Lidocaine 1mg/kg IV if not allergic, apply stat-padz and cardiovert starting at 25-50 joules, following conversion, start a Lidocaine Infusion at 2 mg/min.
- Unstable, apply stat-padz and defibrillate immediately, then follow with Lidocaine 1 mg/kg and follow with a 2 mg/min Lidocaine infusion

9. Hypertension/Crisis

Hypertension is a serious problem in the general population. It is a serious risk factor in both heart attack (AMI) and brain attack (Stroke). Acute hypertension is difficult to diagnose. Without a detailed history and serial recordings of the patient's blood pressures over several weeks, it is impossible to determine whether or not an exceptionally high reading in the field environment is an acute or chronic event. **With the potentially serious brain complications of suddenly lowering the systemic blood pressure, it is NOT advisable to do so.**

BLS

- A. Assess ABC's and vital signs
- B. Place patient on low flow O₂ (2-4 LPM by nasal cannula)
- C.. Transport to nearest Hospital ED

ALS

- D. Place on monitor and perform a 12 lead ECG
- E. Establish an IV with INT or NS TKO
- F. Obtain pulse oximeter reading prior to O₂
- G. Obtain as complete a history as time permits
- H. Perform and record a complete assessment and record, especially neural findings
- I. Do not treat isolated hypertension.

IV. Altered Mental Status

BLS

1. Control Airway as soon as possible, initially using the least invasive adjust possible
2. Obtain Blood Glucose
 - If less than 70 and pt is conscious, give one tube of oral glucose
 - Recheck BG in 5 minutes

ALS

3. If BG <70, Obtain Venous access, try IV first but if unsuccessful, perform IO access
4. Establish venous access and administer 12.5 GM D50 W IV or IO if <70 but>50; 25 GM if <50.
5. Administer Thiamine 100 mg IV slow push, retest BG in 5 minutes
6. If no response from D50 and BG>50, Administer Naloxone 2mg IV Push.
7. Monitor O2 saturation and ETCO2
8. Attach Monitor and perform a 12 lead
9. Initiate pertinent physical exam to include neurological exam, vital signs, and auscultation of lung sounds
10. Obtain as much of PMH as possible to include previous similar episodes.

Pediatric Considerations

1. Dosage: D25W 0.5-1.0 gm/kg
2. Narcan: Per Medical Control or 0.1 mg/kg up to adult dose of 2 mg.
3. **Do not give thiamine to Pediatric patient w/o Medical Direction.**

Section 200/100 Medical Emergencies
V. Stroke/TIA Management

Stroke is defined as a neurological emergency with any of the following symptoms of sudden onset:

- numbness, weakness, or paralysis of face, arm or hand, esp. on one side of the body.
- blurred vision or loss of vision in one eye.
- difficulty speaking or obeying simple commands.
- decline in consciousness or mental confusion.
- severe headache, neck stiffness.
- loss of control of all four extremities.
- loss of sensation over one half of body.
- acute vertigo with vomiting and headache.
- loss of balance or coordination when combined with another sign.
- temporary LOC with another sign.

Pre-hospital Care:

BLS

1. Assess ABC's and check BG, give oral glucose if conscious and <50
2. Assess using the approved Stroke Scale, and call Stroke Alert if appropriate
3. Gather witness information; establish last contact time without stroke symptoms
4. Obtain witness phone number
5. Rapid transport to Hospital ED capable of stroke care and r-TPA
6. Monitor BP and record every 5 minutes

ALS

7. Attach monitor and perform a 12 lead ECG
8. IV access: 2 sites, one in each arm in as few sticks as possible.
9. check BG
10. Perform a Cincinnati Stroke Assessment and Record the information on the Stroke Alert Form
11. Radio the information to the hospital: Call "**Stroke Alert**"
12. Hypotension? Treat with NSS at 50ml/hr *NO VASOPRESSORS*
13. Hypertension? **DO NOT TREAT!!** Hospital will initiate treatment on arrival.
14. Hypoglycemia? <50 give 1 amp D50W; <70 give 1/2 amp D50W ; Thiamine 100 mg.
15. Comatose? Narcan 2 mg.
16. **DO NOT GIVE ASA OR OTHER ANTIPLATELET MEDICATIONS** without medical control.

Section 200.100 Medical Emergencies

VI. Poisoning and Drug Overdose

A. General Care

BLS

1. Control Airway (Respiratory Protocol)
2. Administer High-Flow Oxygen by NRB or BVM @ 10-15 LPM
3. Try to ascertain type and quantity of Poison or drug and time of ingestion.
Remember: Bring all containers and first portion of emesis to ER with pt if possible.
4. Check for:
 - Slurred speech
 - LOC
 - Gag reflex

ALS

5. Start IV NSS KVO or INT
6. Monitor ETCO₂, this can clue for hypoventilation
7. Drug Therapy:
8. If known overdose, give Narcan 2 mg, if known or strongly suspected benzodiazepine OD, give Romazicon 1mg IV/IO. *Watch closely for seizures.*
9. give Thiamine 100 mg IV slow push and D50W 25 Gms IV push.
10. Prevent aspiration, monitor VS and for symptoms of Acute Pulmonary Edema, watch for seizures.
11. Contact ED physician

B. Toxic Gases

BLS

1. Remove patient from contamination if you can without endangering your safety. Do not enter toxic area w/o proper equipment and clearance from the Hazmat Team.
2. Once out of danger, Provide 100% O₂ by NRB or positive Pressure
3. Appropriately manage airway
4. Decontaminate/ Flush with water for 15 minutes while removing clothing.

ALS

5. Monitor ECG and ETCO₂
6. IV NSS KVO
7. Observe for Pulmonary Edema
8. Contact ED for further for orders.

C. Caustic Substances and Hydro-Carbons

BLS

1. Assess ABC's and Vital Signs
2. Contact Poison Control
3. Do not induce vomiting!!!
4. BLA contraindicated for caustics!
5. Administer High-flow O₂
6. Decontaminate!!

ALS

7. Establish a large bore IV
8. Monitor ECG, BP, pulse ox and ETCO₂
9. Monitor airway status carefully and be prepared to intubate or perform a cricothyrotomy
10. Transport immediately and contact ED with the product name if known

VI. Poisoning and Drug Overdose

D. Organophosphates

1. Decontaminate!
2. Signs:
 - S Salivation
 - L Lacrimation (crying tears)
 - U Urination
 - D Defecation
 - G Gastrointestinal Bleeding
 - E Emesis

BLS

3. Assess Vital Signs and ABC's
4. Contact Poison Control
5. Contact Dispatcher to notify JFD for Hazmat Team, if needed
6. High Flow O₂
7. Cardiac Monitor perform a 12 lead and transmit to ED

ALS

8. IV D5W KVO
 9. Anticipate order for Atropine: 2 mg then 1 mg q 5 minutes until salivation slows
- Pediatric Consideration: Use the Broselow Tape for dosages.

E. Specific Agents

1. Opiates: Narcan 2mg IV, repeat q 5 minutes or until respiration or mental status improves.
2. Tricyclic Antidepressants
 - Widening QRS complex or Tachyarrhythmia:
 - NaHCO₃ (Bicarb) 1 amp, repeat x 1 only if QRS > .20 or HR >100
 - IV NSS large bore catheter wide open
3. Dextromethorphan:
 - Narcan 2mg IV, be aware that Narcan reversal of this drug is inconsistent.
4. Benzodiazepines
 - Romazicon 1 mg IV/IO, be very cognizant of the possibility of precipitating seizures and use with caution.

F. Poisonous Animals

A. Snakebite: (any venomous snake)

BLS

1. Assess ABC's and Maintain airway
2. High Flow O₂
3. Keep pt quiet and still
4. Cardiac Monitor
5. Contact ED and notify to check for available antivenin

ALS

5. IV NS KVO, large bore catheter
5. watch for signs of circulatory or respiratory collapse.
6. contact ED ASAP to check for available antivenin
7. if possible, bring **DEAD**, snake to ED for identification

B. Spider Bites:

1. Follow above protocol, and
2. Contact ED Physician

G. NBC Emergencies

General Guidelines

- Don Level C Protection, including Respirator if unknown agent
- Gross decontaminate as soon as possible, if you can do so without contaminating yourself.
- **Do not enter the "Hot Zone" under any circumstances!**
- Call for assistance from the JFRD Hazmat Team
- For details of specific signs/symptoms and treatment , see appendix

Section 200.100 Medical Emergencies

VII. Hypotension

BLS

Definition: Systolic BP <100 Torr with clinical signs of shock.

1. Unknown Etiology

- a. maintain airway and assess ABC's and vital signs
- b. position supine & monitor for dyspnea
- c. elevate legs, if practical
- d. apply cardiac monitor

ALS

- d. Initiate IV NS 1000ml Maxi-drip or trauma tubing via largest bore catheter possible, preferred would be a 16/14 gauge. Bolus with 250-500 ml fluid. Recheck BP and repeat as necessary to maintain BP >100 Torr
- e. High flow O2 by NRB @ 10-15 LPM or BVM @ 10-15 LPM
- f. Try Dopamine 200mg in 250 D5W, titrate 2-20 ug/min to maintain systolic Bp >90 Torr.
- g. contact ED physician

2. Septic Shock/Neurogenic Shock (Vasodilatory effect)

BLS

- a. Assess ABC's and Vital Signs
- b. high flow O2
- c. Monitor EKG

ALS

- d. Establish IV NSS via large bore catheter
- e. Dopamine 200mg in 250 ml D5W @ 2-20 ug/min BP(<90 Torr)
- f. contact ED physician

3. Anaphylaxis

BLS

- a. Assess ABC's and vital signs
- b. high flow O2
- c. Monitor EKG

ALS

- d. IV NSS or INT
- e. Epinephrine 0.3 - 0.5 mg sq (1:1000) or IV (1:10,000)
- f. Diphenhydramine 25-50 mg IV or IM
- g. Solumedrol 125 mg IV
- h. Contact ED Physician.

Pediatric dose, refer to Broselow Pediatric Tape.

Section 200.100

VIII. Abdominal Problems

BLS

1. Assess ABC's and vital signs
2. Gently palpate abdomen to determine the region of the abdomen involved and to check for rigidity or guarding. Do not check for rebound. Do not deeply palpate, especially if you feel a pulsatile mass.
3. Contact the ED and give report
4. Afford the patient a smooth ride to the ED to prevent additional pain and nausea

ALS

5. Initiate IV either an INT or N.S. KVO.
6. Consider Fentanyl 1-2 mcg/kg IV for pain over 1 minute, watch BP!
7. If the patient actively vomits, you may give:
 - a. Zofran 4mg IV slowly over 1-2 minutes
8. The patient should receive a smooth ride to the E.D. to prevent nausea and/or increase in pain.

Section 200.100 Medical Emergencies

IX. Sustained Seizures

BLS

1. Protect airway and patient from further injury.
2. Administer O2 high flow and be prepared assist ventilations if there are periods of apnea or hypoventilation.
3. Place patient on cardiac monitor.

ALS

4. Establish an IV with NSS 1000 ml
5. On suspected diabetics or alcohol poisoning give:
 - a. D50W 25 Gms IV
 - b. Thiamine 100 mg IM or IV
6. On known alcohol poisoning:
Then give Diazepam 2-10 mg IV until seizure subsides. Repeat up to 10 mg if seizures remain but be prepared to support ventilations during the postictal phase.
8. Monitor VS carefully.
9. Contact medical control.
10. Pediatric patient:
 - a. Airway control
 - b. Cardiac Monitor
 - c. IV: NS Mini-drip
 - d. Diazepam 0.2-0.3 mg/kg not >2mg in infant (<1 year) or >5mg (1-6 Years) or max 10 mg.
You may give 0.5mg/kg rectally and repeat 1/2 initial dose

Section 200.125 Environmental Emergencies

X. Near Drowning

BLS

1. Assess ABC's and Vital Signs
2. Immobilize C-spine
3. O2 by positive pressure
4. Place patient on cardiac monitor

ALS

5. Initiate IV NSS KVO
6. Appropriate cardiac/respiratory arrest management Consider CPAP for respiratory issues.
7. contact ED

Section 200.125 Environmental Emergencies

XI. Hyperthermia (Heat Exhaustion and Heat Stroke)

A. General Orders

BLS

1. Assess ABC's and Vital Signs
2. Attempt to cool patient. Remove clothes, sprinkle with water.
3. Attach ECG monitor

ALS

4. Start IV /c Normal Saline, KVO
5. Contact ED physician for further orders

B. Heat Exhaustion

BLS

1. Remove patient to a cooler place
2. Assess ABC's and vital signs
3. Remove patient's clothing and sprinkle with water. Do not induce shivering.
4. Encourage PO Fluid intake
5. Transport as required

ALS

6. If needed, IV NSS at 150-200 ml/hr
7. Monitor ECG, BP , ETCO₂ and Pulse Oximeter

C. Heat Stroke

BLS

1. Remove patient to a cooler place sprinkle with water
2. Remove patient's clothing and Do not induce shivering.
3. Assess ABC's and vital Signs
4. Keep NPO as patient may vomit
5. Monitor EKG

ALS

6. Initiate IV NSS at 250ml/hr via large bore catheter
7. All heat stroke patients MUST be transported

Section 200.125 Environmental Emergencies

XII. Hypothermia Remember: These people may be either complacent or combative.

BLS

Assess ABC's, vital signs and

1. Rewarming Procedures
 - a. Begin passive rewarming immediately.
 - b. cover with blanket
 - c. Move patient to warm room or unit.
2. Apply Cardiac monitor

ALS

3. Follow dysrhythmia protocol.

Remember with hypothermia, many dysrhythmias are refractory until temperature is close to normal.

4. Initiate IV with warmed N.S. kvo

5. Transport rapidly to a major medical facility

6. All hypothermia patients should be very aggressively resuscitated, even if the patient has been "down" for a prolonged period. Successful resuscitations have been reported after 45 minutes of cardiac arrest in hypothermia.

Section 200.150. Complications of Pregnancy and Labor

A. Vaginal Hemorrhage

BLS

Suspected spontaneous abortion, threatened abortion, placenta previa or abruption placenta.

- a. Assess ABC's and closely monitor vital signs
- b. gather patient history
 1. Assess blood loss (number of pads)
150cc=1 saturated sanitary napkin
15cc=1 saturated tampon
 2. Pain-Where? How much? How long?

ALS

- c. Initiate IV with NS or Ringers with standard administration set.
- d. Check for orthostatic hypotension
- e. Contact ED physician for further orders
- f. Transport patient on left side.

B. Prolapsed Cord

BLS

1. Place patient in knee chest position
2. Hold baby's head upward(cephalad) from cord during transport with sterile gloved hand
3. Contact ED physician
4. Transport Immediately

C. Toxemia Hypertension, Edema, Seizures, Hyperreflexia

BLS

1. Assess ABC's and Vital Signs

ALS

2. Initiate IV N.S. kvo
3. If seizing, Administer Valium in 2mg increments until seizure subsides or,
4. Magnesium Sulfate 2-4 gm IVPB
5. Contact ED physician
6. Transport on left side

Section 200.150 Obstetrical Emergencies

II. Childbirth

Any woman 20 weeks or later gestation must have fetal heart tones monitored using the Doppler and recorded.

BLS and ALS

A. Establish a pertinent history

1. Expected date of delivery
2. Parity (Number of Previous births)
3. Gravid History (Number of Pregnancies)
4. Any complications with previous pregnancies
5. Mothers PMH and prenatal care
6. Membranes Intact?
7. Durations and spacing of contractions
8. FHT using the fetal Doppler monitor

B. Visual Exam

1. Determine if the baby is crowning
2. Determine if there is any hemorrhage or prolapsed cord

C. Delivery

1. Turn mother on her side and have someone hold up the upper leg (On back if side not practical)
2. As the baby's head appears in the vagina, keep a gentle steady pressure on the head so you prevent the head from exploding out of the vagina. As it delivers, direct the head frontally and suction mouth and nose.
3. Check at this time for a nuchal cord (cord around the neck) and slip over head or clamp cord in two places and cut between the ties as needed.
4. Guide the baby's head as it turns to face one of the mother's thighs
5. Gently but firmly exert pressure on the head posteriorly (toward the mother's buttocks), this should release the upper shoulder from the symphysis pubis.
6. Gently, but firmly pull the baby toward the symphysis pubis; this should release the other shoulder.
7. As the rest of the baby is delivered, support the baby's head, back and keep the baby head down and on its side.
8. Suction the baby's mouth and nose again.
9. Clamp the cord at least 6" from the baby (in two places) and cut between the clamps.
10. Do not place the baby above the level of the uterus until the cord is clamped.
11. Dry the baby off. Wrap the baby for warmth. Try to improvise a head covering.
12. Record time of delivery and APGAR score.

Section 200.150 Obstetrical Emergencies

APGAR Scoring System

Assess at 1 minute and five minutes

A=APPEARANCE

0=PALE OR BLUE

1=PINK BODY, BLUE EXTREMITIES

2 = COMPLETELY PINK

P=PULSE

0 = ABSENT

1 = <100/MINUTE

2 = >100/MINUTE

G=GRIMACE (Response to bulb suction of nostril)

0 = NO RESPONSE

1 = SOME MOTION, CRY

2 = VIGOROUS CRY

A=ACTIVITY

0 = FLACCID

1 = SOME FLEXION

2 = ACTIVE MOTION

R=RESPIRATORY EFFORT

0 = ABSENT

1 = SLOW, IRREGULAR

2 = GOOD, CRYING

Repeat if score <7(in 10 minutes). Administer blow by O2.

Section 200.200 Major Trauma

I. Introduction

This protocol is to facilitate the rapid and effective field management of patients with significant trauma. The emphasis is placed on short scene times (<10 minutes), and rapid transport to the Level 1 trauma center.

II. Evaluation Procedure

Each patient will be given a primary survey with emphasis on determining the transport status early on. The EMT/Paramedic on scene will evaluate each patient with regards to: Blood Pressure Respiratory Rate Glasgow Coma Scale Anatomy/Mechanism of injury based on the State Trauma Scorecard See Section 200.250(II)(A)

III. Trauma Transport Destination Criteria

See Section 200.250(II)(E) Immediately follows this section.

IV. General Orders

A. Primary Survey

To detect immediately life-threatening problems

To determine Trauma transport destination

B. Secondary Survey

Head to Toe Exam to determine potentially life or limb threatening injuries if not treated

C. Treatment Modalities

BLS

1. Assess ABC's and vital signs

2. O2 at 15 LPM by NRB or BVM

3. Immobilization

a. maintain c-spine in neutral in line position

b. apply a hard cervical collar

c. use a short board or KED to extricate from a vehicle

d. fully package on long spine board and CID using the BTLIS standard three strap technique

4. Apply Cardiac Monitor

ALS

5. IV NS x 2 Large Bore 16/14ga: 20ml/kg bolus

e. The PHTLS® rapid extrication technique is indicated if the patient is exsanguinating in the vehicle rather than using a KED or Short Board.

f. All patients who suffer a major trauma incident should have the following adjunctive protocol initiated:

1. Appropriate airway Control

2. Two large bore (16ga minimum) IV accesses with NS via Maxi-drip

3. Monitor EKG and Pulse Ox

4. High Flow O2 by NRB mask

5. Fully package using LBB, straps, CID and hard cervical collar as appropriate

6. Control of Hemorrhage

- Direct Pressure/Dressings
- Pressure Points

7. Modified trendelenberg only not full

D. Amputations

Treat for major trauma and save the limb if possible;

Rinse limb in saline and cover with multitrauma dressing soaked with saline; Wrap in dry material and place in ice (not touching amputated part) and transport with patient to hospital.

Any bleeding not controlled with direct pressure, use a tourniquet.

E. Burns

A. Assess Using the ABC's of Burns

1. Airway
2. Breathing
3. Circulation
4. Disability
5. Exposure and Environmental Control
6. Fluid Resuscitation : **ALS**

B. Stop the Burning Process

1. Roll the victim or douse with water to put out the flames
2. Remove smoldering Clothing
3. Flush Chemicals Away with Water (gallons)
4. Remove contaminated Clothing
5. Remove from electrical source

C. Airway

- Secure an airway, when in doubt, or GCS<8 = intubate (**ALS**)
- Consider RSI with Etomidate, Versed (Succinylcholine and Propofol according to RSI guidelines CCEMTP Only)
- Consider Fentanyl 3-5mcg/kg IV/IO up to 10mcg/kg (watch for hypotension!)

D. Breathing

1. All patient get oxygen
2. carefully assess breathing rate and effort
3. Pulse Ox and ETCO2 on all patients
4. Frequently reassess

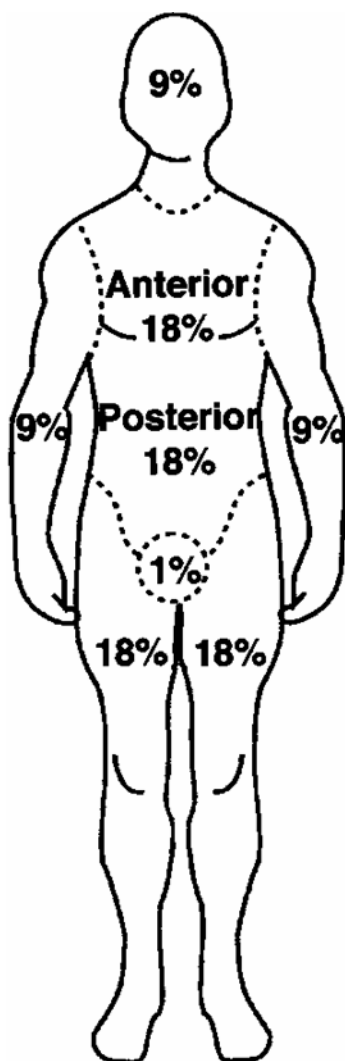
E. Circulation

1. 2 large bore IV catheters **ALS**
 - i. try intact, non-burned skin first
 - ii. then use burned area if necessary
2. may delay if
 - i. short transport time or
 - ii. small burns

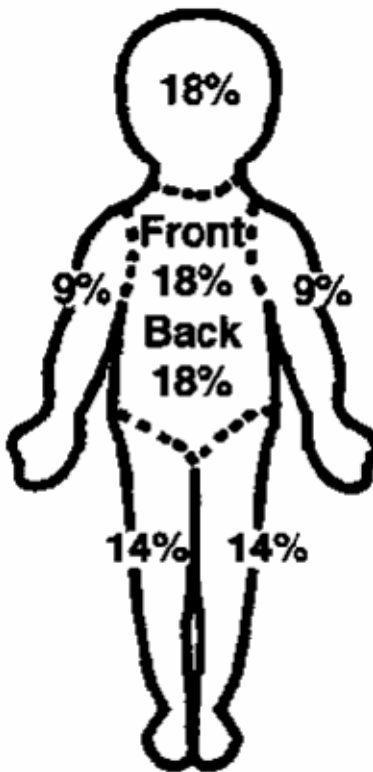
Burns, Cont'd

3. Initiate IV fluid therapy
 - i. Use Parkland Formula: $4\text{ml} \times \text{pt weight in kg} \times \% \text{burns}$ give $\frac{1}{2}$ in first 8 hours
 - ii. Lactated Ringers solution preferred
 - iii. Normal saline may be only fluid available
 - iv. Large volume resuscitation with NS causes metabolic acidosis
 - v. **Keep patient warm! Hypothermia=DEATH**
- F. Disability
 1. Alteration in mental status is not normal in the early post-burn period
 - i. Brain injury
 - ii. Carbon monoxide or other toxic inhalation
 2. Focal deficit
 - i. Brain injury
 - ii. Spinal injury
 - iii. Orthopedic injury
- G. Exposure and Environmental
 1. Universal precautions
 2. Remove clothing, jewelry
 3. Keep warm
 - i. Insulated blankets
 - ii. Warm I.V. Fluids
 - iii. Heating lamps
 - iv. Increase ambient temperature
 4. Avoid cooling, do not "cool the burn"
 5. Do not place patient in wet linens
- H. Fluid Resuscitation
 1. If transport time to definitive care will exceed 2 hours, calculate fluid resuscitation based on extent of burn and pre burn weight
 - i. Second and third degree burn only
 - ii. "Rule of nines"
 - iii. One hand = one percent
 - iv. Weight: pre-burn weight in kg
 - v. Overestimation of burn size is common

2. Adult Rule of Nines



3. Pediatric Rule of Nines



4. Parkland Formula

- Based on patient weight and extent of burn
 - Weight measured in kilograms
 - Total % of 2nd and 3rd degree burn used in calculation
- 4 ml/kg/% burn
- One half of estimated volume in first eight (8) hours

Example:

- 70 kg patient
- 3rd degree burns to both lower extremities, 2nd burns to anterior torso and right arm
- By rule of 9's
 - Right leg 18%
 - Left leg 18%
 - Torso 18%
 - Right arm 9%
- Total burn 63%
- 4ml/kg/%TBSA burn (70kg, 63% burn)
 - $4 \times 70\text{kg} \times 63\% \text{ TBSA} = 17,640 \text{ ml}$
- $\frac{1}{2}$ infused over 1st 8 hours post-burn
 - $17,640/2 = 8,820 \text{ ml over 8 hours}$
 - $8,820 \text{ ml}/8 \text{ hours} = 1,102.5 \text{ ml/hr}$
- Thus, the initial IV rate would be 1,102 ml/hr

5. Fluid Resuscitation in Infants and Children
 - Parkland Formula initially
 - Add maintenance fluid containing 5% dextrose for infants (<30kg)
 - D5 1/2 normal saline or D5 LR (add D50 to NSS/LR)
 - Maintenance fluid requirements
 - 1st 10kg of body wt: 4ml/kg/hr or 100ml/kg/24 hours
 - 2nd 10kg of body wt: 2ml/kg/hr or 50 ml/kg/24 hours
 - For each kg over 20kg: 1ml/kg/hr or 20 ml/kg/24 hours
 - Double for dehydration
6. Avoid “Bolus” Intravenous Fluid Therapy
 - a. Hypovolemia is gradual onset
 - b. Plasma deficit is obligatory
 - c. “Boluses” are rapidly lost into the interstitial space exacerbating edema formation
 - d. Exceptions
 - i. Profound hypotension
 - ii. Delayed resuscitation
 - iii. Pre-existing dehydration
 - iv. Concomitant mechanical trauma
7. Monitor The Patient
 - a. Scene to hospital
 - i. Vital signs
 - ii. Continuous ECG
 - iii. Pulse Oximetry
 - iv. Capnography
 - v. O2 sat may be falsely elevated with CO exposure
 - vi. Accurate record of fluid intake and output
8. Wound Care
 - a. Stop the burning process
 - b. Remove gross debris
 - c. Cover with clean, dry, sheet and blankets
 - d. Maintain body temperature
 - e. Do not apply wet dressings to large burns
 - f. Do not apply wet dressings if the BSA is greater than 5%
 - g. Gel blankets unnecessary
9. Pain Management
 - a. Fentanyl 1-2 mcg/kg IV/IO, may be repeated to a total of 3mcg/kg unless the patient has critical burns and has been intubated using RSI, then up to 10 mcg/kg may be used. Be careful of hypotension.
 - b. Do not give IM for burns
 - c. Monitor Respiratory Status and BP carefully

Burn Center Referral Criteria
American Burn Association
American College of Surgeons Committee on Trauma

- Burn > 10% TBSA
- Burns involving face, hands, feet, genitalia, perineum, major joints
- Third degree burns
- Electrical burns, including lightning injury
- Chemical burns
- Smoke inhalation injury
- Burn injury in patients with preexisting medical disorders
- Burn injury and concomitant trauma
- Burns in children if adequate hospital resources unavailable
- Special social, emotional or rehabilitation needs

F. Fractures

BLS

- splint extremity fractures as indicated.
- Monitor distal circulation
- Provide High Flow O2 for 2 or more long bone fractures
- Monitor and treat for shock

ALS

- Consider NSS for long bone fractures
- Consider pain control with Fentanyl 1-2mcg/kg up to 10mcg/kg total in major trauma monitor BP
- Monitor and treat for shock

G. Head Trauma

- Patients with signs and symptoms of closed head trauma should be treated as follows:
 - **BLS**
 - Assess ABC's and initiate appropriate airway control
 - Full c-spine immobilization including LBB, straps and CID
 - High Flow O2 by NRB mask
 - Monitor BP and O2 saturation
 - **ALS**
 - Consider RSI/Facilitated Intubation as per protocol
 - Consider pre-medication with 1mg/kg Lidocaine
 - 2- IV's with NS (via large bore) catheter
 - Monitor ECG, BP and O2 saturation
 - Support BP, keep MAP >70 [(systolic + 2Xdiastolic)/3=MAP]

Section 200.200 Major Trauma

Trauma Equipment

Spinal immobilization of certain pediatric patients presents special problems. The best alternative is to use a KED® as the main immobilization device and use an appropriately sized Stiffneck®, Stiffneck Select®, or Vertabrace® collar. This will properly immobilize the cervical and entire spine for newborns, infants and toddlers. For larger children, immobilization using the large vacuum splint or on a long backboard, using rolled blankets or sheets to provide additional lateral stability if required. If a long spine board is used the Sticky Blocks® should be used for additional cervical spine immobilization. Appropriately sized hard cervical collars will be used to immobilize the cervical spine.

For Adults, the Multigrip® head immobilizer should be used in conjunction with the Stiffneck® or Vertabrace® hard cervical collars which are supplied on the units. All patients which for which cervical immobilization is appropriate must also be immobilized on a long backboard and straps.

Section 200.225 High School Football Protocol

Upon arrival at any high school football game, park and turn off unit:

1. Report to the Athletic Trainers, Physician and officials and introduce yourself.
2. Stage where you are instructed to by the team representatives.
3. Be out of the truck and visible to the coaches, ATC's and officials.
4. Have your jump bag, stretcher and spinal immobilization equipment ready to move onto the field at any time.
5. Stay at the sideline until called for by the ATC or physician.
6. Cooperate with the Trainers and physicians on scene, do not argue with them. They are supposed to be aware of the NATA protocol. If you have a problem, begin treating the patient as appropriate and call for supervision as soon as practical, **DO NOT DELAY PATIENT CARE**. Follow the protocol as it pertains to other physicians on scene.
7. Take restroom and food breaks before the game and at halftime.
8. Be professional. Represent Liberty Ambulance service well.
9. Check with coaches and/or ATC's on both teams after the game is over before you leave.

Injuries at football games should be closely assessed for mechanism of injury. Helmets should not be removed at any time there is a mechanism for c-spine injury. Should the airway become compromised, cut the facemask loops off with PVC shears and appropriately manage the airway keeping the head in the neutral position. The head should be immobilized with Multigrip head immobilizer and 2" cloth or adhesive tape. If the facemask cannot be removed, use a King Airway to secure the airway and transport immediately.

All transports should be done by the original unit and transports for urgent injuries or emergencies should not be delayed for an arriving unit. Any player needing transport should be stabilized and transported without delay. The coaches will determine if the game will proceed without coverage until the replacement unit arrives.

Section 200.230 EMT Expanded Skills

I. Pulse Oximetry EMT's may use pulse Oximetry on a BLS unit provided the EMT has completed a Medical Director approved training course.

II. After approved training, EMT's may start IV's on an ALS unit in the presence of a Paramedic pursuant to the requirements of Chapter 64E2 FAC.

III. After completion of approved training, EMT's may perform BG checks using glucometers.

IV. EMT's may attend BLS patients on an ALS unit under the following conditions:

1. The patient does not need, or is not likely to need, ALS intervention. If the patient refuses ALS procedures, this still should be attended by the Paramedic, since this is actually an ALS level call. The same holds true if, for example, if you attempt an IV unsuccessfully.
2. The patient is being discharged back to residence or place of residence and is not an ALS discharge. With today's healthcare changes some patients are being discharged home or to skilled nursing homes with ALS equipment. BLS discharges may be attended by EMT's.
3. The patient is going in for an outpatient type procedure such as a Foley replacement or gastric or peg tube replacement.
4. If an ALS assessment was performed by the Paramedic and it has been determined that BLS is appropriate and documented on the patient care report. The Paramedic must sign the section documenting that ALS is not needed.

In any case where there is a question, the paramedic should ride with the patient.

Section 200.240 Response to Hazardous Materials Incidents

I. Purpose

To provide an efficient response and handling of hazardous material incidents in such a manner as to benefit the public welfare and ensure the safety of the public and responders.

II. Scope of Response

Liberty Ambulance Service, not being the primary First Responder Agency in Duval County, will defer operational aspects of all Hazardous Materials Incidents to the Jacksonville Fire and Rescue Department. Upon encountering a hazardous materials incident, the following procedures will be followed:

1. Try to identify the potential hazard by noting the placard and looking the number up in the North American Emergency Response Guidebook located on your unit. Do not approach the vehicle.
2. Establish the recommended safety zone around the incident and remain OUTSIDE this area. We are not equipped with appropriate PPE for entry into a hazardous area. If immediate rescue is necessary:
 1. Call Dispatch and notify of the problem and what the hazardous material is
 2. The dispatcher contacts JFRD for the need for immediate rescue
 3. Stay outside the AHot@ zone. Creating 1-2 more victims is unnecessary. Understand that there may be victims you are not able to save.
3. IMMEDIATELY notify the dispatcher that you have a possible or known Hazardous Materials Incident. Notify the dispatcher of the number of known or suspected casualties and any needed support equipment.
4. Treat any non-contaminated victims. Located outside the “Hot” zone. If there are victims contaminated with harmful material, wait until the arrival of decontamination personnel from the fire department to arrive or give radio instructions to proceed with treatment.
5. Establish incident command until the arrival of the Jacksonville Fire Department. Upon their arrival, command of all hazardous materials incidents will be handed over to them. Medical Command will be handed over to the Rescue assigned to the JFRD Department HazMat Team or the first arriving JFRD Rescue Unit. All Liberty units will remain on-scene to assist with transport.

Section 200.240 Response to Hazardous Materials Incidents

6. Patients will be transported to the facility established by the Jacksonville Fire Rescue Department as the receiving facility for Haz-Mat victims unless otherwise instructed.
7. If you inadvertently become contaminated during the incident, report to JFRD on scene decontamination area for decontamination.

Appendix I

Alternate IV Access **CCEMTP Only**

Implanted central intravenous lines may be accessed by any Paramedic who has successfully completed the CCEMTP program and checked off by the training officer or his designee. These lines are to be accessed only in the event of Cardiac Red, Trauma Red, or other time the patient needs emergency intervention with medications or fluids. They should not be used in trauma if two large bore IV's or an IO can be established. They should not be accessed if you suspect thoracic trauma or trauma to the extremity the PICC line is in. They *should not* be accessed for routine (KVO) IV's. You may KVO an IV after you have administered medications.

- I. Port-a-Caths® and similar devices
 1. Identify the location of the port-a-cath in the anterior chest.
 2. Assemble all equipment needed:
 - A. #20 x 3/4" Huber needle and male adapter plug
 - B. Three (3) 5cc syringes
 - C. Two (2) 18 gauge needles
 - D. Lab tubes if drawing blood
 - E. Saline flush
 - F. Heparin Flush
 - G. Appropriate Cover for site; sterile 4x4 gauze or Op-Site⁷
 - H. Surgical mask for you and the patient
 - I. Sterile gloves
 - J. Alcohol and Betadine for skin prep
 3. Don mask and place mask on patient if possible
 4. Don sterile gloves
 5. Stabilize port-a-cath with one hand and prep skin for 2" around site with alcohol and then follow with Betadine or Tincture of Green Soap.
 6. Flush the Huber needle with saline and insert straight in to access site.
 7. Flush the catheter with at least 5cc of saline
 8. If drawing blood, draw 5cc of waste, discard, and then draw whatever blood is needed.
 9. Flush catheter with 5cc of saline again and then administer medication or attach IV tubing.
 10. If giving medication and not attaching a running IV, then flush again with 5cc NS and then with 3cc Heparin Flush.
 11. Cover with Sterile 4x4 gauze or Op-Site

II. PICC Lines and Hickman Catheters

1. Assemble equipment needed
 - A. 2(or more)- 5cc syringes with appropriate needles
 - B. Alcohol preps
 - C. NS and Heparin Flush
 - D. Masks for you and your patient
 - E. Lab tubes if needed for drawing blood
 - F. Sterile gloves (preferred)
2. Flush PICC Line with at least 5cc of NS
3. Draw up 5cc of waste and discard if drawing blood for labs
4. Draw labs if needed
5. Flush with 5cc NS
6. Administer medication or attach IV solution
7. If not using IV solution, flush again with 5cc saline and then with 3cc Heparin Flush

III. Groschen Catheters

These may be accessed as with PICC lines EXCEPT that you **DO NOT .USE HEPARIN**. The lines are designed to prevent backflow and therefore do not need to be heparinized.

IV. Use of Dialysis Access Devices or Shunts

The use of Quinton catheters or dialysis shunts or grafts should reserved for immediate life threatening situations where no other access can be obtained.

1. Quinton Catheters
 - a. Open the lock and flush with 10 ml NSS
 - b. Attach a bag of NS with a micro drip set.
 - c. Keep the IV at a KVO rate and give what medications are necessary
 - d. Do not access for just a KVO IV.
2. Graphs, Fistulas and Shunts
 - a. Access with a large bore butterfly or straight needle **ONLY**
 - b. **DO** not cannulize a shunt, graph or fistula, use IO if necessary
 - c. Use only if emergency medications are required and only as a last resort.

Appendix II

Approved Medications and Procedures

Table A Medications

Adenosine Injection
Albuterol Solution for inhalation
Atropine 1 mg Injection USP
ASA 81 mg chewable tablets
Dextrose 50% in Water Injection, USP
Diazepam 10mg Injection
Dopamine HCL 400 mg Injection
Diphenhydramine 50 mg Injection
Epinephrine HCL Injection 1:10, 000
Epinephrine HCL Injection 1:1000
Etomidate 2mg/ml 40 mg Vial
Fentanyl Citrate Injection
Furosemide Injection
Ipratropium Solution for inhalation
Lidocaine Injection 100mg
Lidocaine 1GM in 250ml D5W Premixed
Oral Glucose Gel
Promethazine 50mg Injection
Propofol Injection 10mg/ml 100 ML vial
Romazicon Injection
Sodium Bicarbonate 50 meq Injection USP
Solumedrol 125 mg Injection
Succinylcholine Injection
Magnesium Sulfate 5 GM Injection
Morphine Sulfate 10mg Injection
Midazolam Injection 2mg/2ml
Naloxone 2 mg Injection
Nitroglycerine Spray

Table B Procedures

BLS Procedures

Peripheral IV Cannulation: IV's may be started by EMT's as noted in Section 200.210 (XV).

Supraglottic Airway Insertion

Oxygen Saturation Monitoring

Administration of Oxygen

Oropharyngeal Suctioning

Administration of medications in pre-filled auto injectors

Blood Glucose Monitoring

ALS Procedures

Endotracheal Intubation

ETCO₂ Monitoring

External Jugular Cannulation

Needle or Surgical Cricothyrotomy

Needle Chest Decompression

Gastric Intubation (Nasogastric Tube Insertion)

Intraosseous Access

Defibrillation

Elective Cardioversion

Transcutaneous Pacing

Twelve Lead ECG Capture

Cardiac Monitoring

Blood Glucose Testing

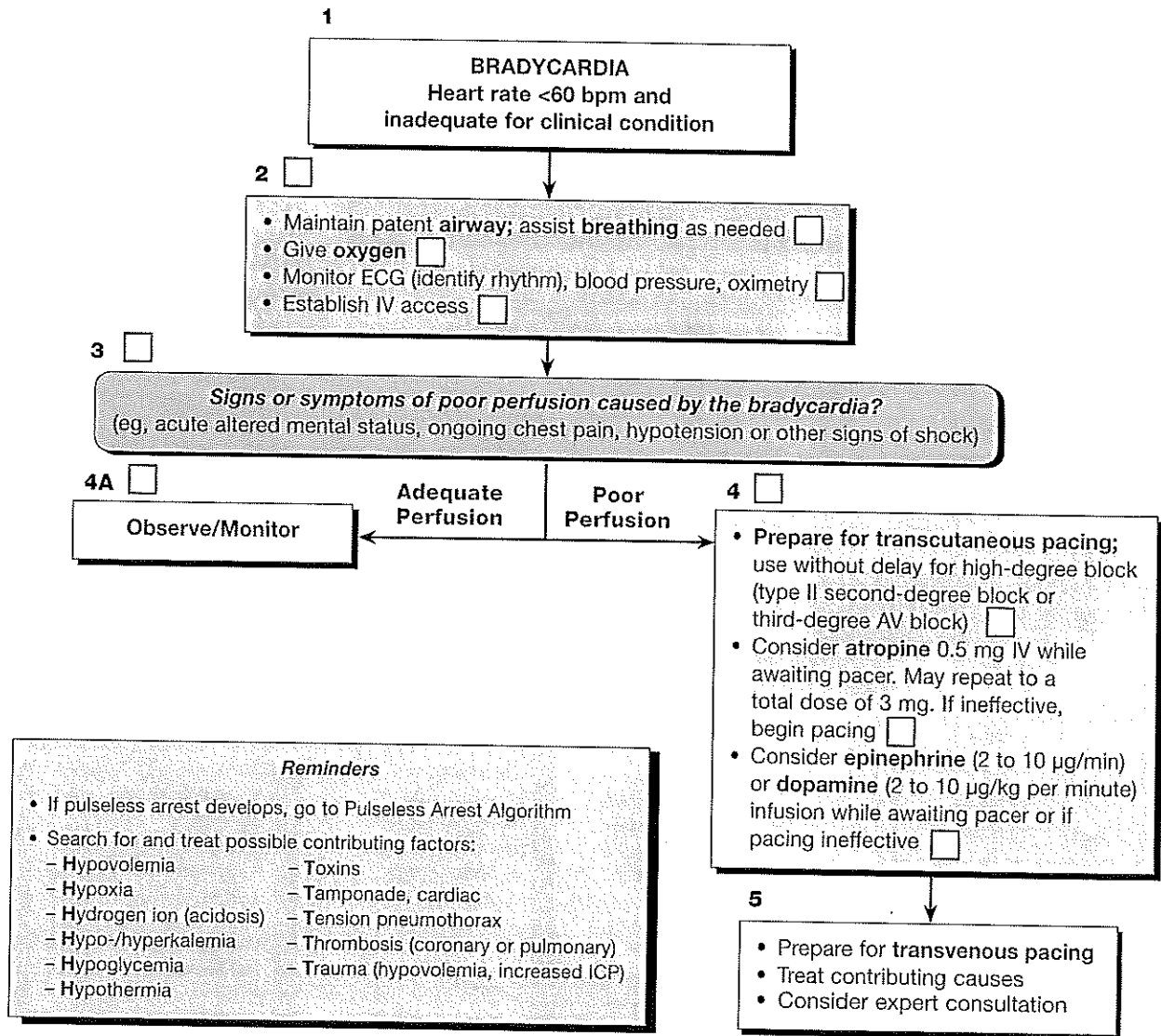
Obtaining Blood Samples

All medications, and all ALS procedures may only be performed by (Florida) certified Paramedics or Physicians employed by Liberty Ambulance Service.

Appendix III ACLS Algorithms

Used with Permission American Heart Association





Screened boxes 9, 10, 11, 13, and 14 are designed for in-hospital use with expert consultation available.

1 TACHYCARDIA With Pulses

- 2
- Assess and support ABCs as needed
 - Give oxygen
 - Monitor ECG (identify rhythm), blood pressure, oximetry
 - Identify and treat reversible causes

Symptoms Persist

3

Is patient stable?
Unstable signs include altered mental status, ongoing chest pain, hypotension or other signs of shock
Note: rate-related symptoms uncommon if heart rate <150/min

- 4
- Perform immediate synchronized cardioversion
- Establish IV access and give sedation if patient is conscious; do not delay cardioversion
 - Consider expert consultation
 - If pulseless arrest develops, see Pulseless Arrest Algorithm

- 5
- Establish IV access
 - Obtain 12-lead ECG (when available) or rhythm strip
- Is QRS narrow (<0.12 sec)?

Stable

Unstable

Wide (≥ 0.12 sec)

6 Narrow

NARROW QRS*:
Is Rhythm Regular?

12

WIDE QRS*:
Is Rhythm Regular?
Expert consultation advised

Regular

Irregular

Regular

Irregular

- 7
- Attempt vagal maneuvers
 - Give **adenosine** 6 mg rapid IV push. If no conversion, give 12 mg rapid IV push; may repeat 12 mg dose once

- 11
- Irregular Narrow-Complex Tachycardia
Probable atrial fibrillation or possible atrial flutter or MAT (multifocal atrial tachycardia)
- Consider expert consultation
 - Control rate (eg, diltiazem, β -blockers; use β -blockers with caution in pulmonary disease or CHF)

- 13
- If ventricular tachycardia or uncertain rhythm
- Amiodarone 150 mg IV over 10 min Repeat as needed to maximum dose of 2.2 g/24 hours
 - Prepare for elective synchronized cardioversion
- If SVT with aberrancy
- Give adenosine (go to Box 7)

- 14
- If atrial fibrillation with aberrancy
- See Irregular Narrow-Complex Tachycardia (Box 11)
- If pre-excited atrial fibrillation (AF + WPW)
- Expert consultation advised
 - Avoid AV nodal blocking agents (eg, adenosine, digoxin, diltiazem, verapamil)
 - Consider antiarrhythmics (eg, amiodarone 150 mg IV over 10 min)
- If recurrent polymorphic VT, seek expert consultation
- If torsades de pointes, give magnesium (load with 1-2 g over 5-60 min, then infusion)

8

Does rhythm convert?
Note: Consider expert consultation

Converts

Does Not Convert

- 9
- If rhythm converts, probable reentry SVT (reentry supraventricular tachycardia):
- Observe for recurrence
 - Treat recurrence with adenosine or longer-acting AV nodal blocking agents (eg, diltiazem, β -blockers)

- 10
- If rhythm does NOT convert, possible atrial flutter, ectopic atrial tachycardia, or junctional tachycardia:
- Control rate (eg, diltiazem, β -blockers; use β -blockers with caution in pulmonary disease or CHF)
 - Treat underlying cause
 - Consider expert consultation

*Note: If patient becomes unstable, go to Box 4.

- During Evaluation
- Secure, verify airway and vascular access when possible
 - Consider expert consultation
 - Prepare for cardioversion
- Treat possible contributing factors:
- Hypovolemia
 - Hypoxia
 - Hydrogen ion (acidosis)
 - Hypo-/hyperkalemia
 - Hypoglycemia
 - Hypothermia
 - Toxins
 - Tamponade, cardiac
 - Tension pneumothorax
 - Thrombosis (coronary or pulmonary)
 - Trauma (hypovolemia)

1 **PULSELESS ARREST**

- BLS Algorithm: Call for help, give CPR
- Give oxygen when available
- Attach monitor/defibrillator when available

2 Check rhythm
Shockable rhythm?

3 Shockable
VF/VT

4 Give 1 shock

- Manual biphasic: device specific (typically 120 to 200 J)
- Note: If unknown, use 200 J
- AED: device specific
- Monophasic: 360 J

Resume CPR immediately

5 Give 5 cycles of CPR*

Check rhythm
Shockable rhythm?

6 Shockable

Continue CPR while defibrillator is charging
Give 1 shock

- Manual biphasic: device specific (same as first shock or higher dose)
- Note: If unknown, use 200 J
- AED: device specific
- Monophasic: 360 J

Resume CPR immediately after the shock
When IV/IO available, give vasopressor during CPR (before or after the shock)

- Epinephrine 1 mg IV/IO
- Repeat every 3 to 5 min
- or
- May give 1 dose of vasopressin 40 U IV/IO to replace first or second dose of epinephrine

7 Give 5 cycles of CPR*

Check rhythm
Shockable rhythm?

8 Shockable

Continue CPR while defibrillator is charging
Give 1 shock

- Manual biphasic: device specific (same as first shock or higher dose)
- Note: If unknown, use 200 J
- AED: device specific
- Monophasic: 360 J

Resume CPR immediately after the shock
Consider antiarrhythmics; give during CPR (before or after the shock)

- amiodarone (300 mg IV/IO once, then consider additional 150 mg IV/IO once) or
- lidocaine (1 to 1.5 mg/kg first dose, then 0.5 to 0.75 mg/kg IV/IO, maximum 3 doses or 3 mg/kg)

Consider magnesium, loading dose 1 to 2 g IV/IO for torsades de pointes

After 5 cycles of CPR,* go to Box 5 above

9 Not Shockable
Asystole/PEA

10

Resume CPR immediately for 5 cycles

When IV/IO available, give vasopressor

- Epinephrine 1 mg IV/IO
- Repeat every 3 to 5 min
- or
- May give 1 dose of vasopressin 40 U IV/IO to replace first or second dose of epinephrine

Consider atropine 1 mg IV/IO for asystole or slow PEA rate
Repeat every 3 to 5 min (up to 3 doses)

11 Give 5 cycles of CPR*

Check rhythm
Shockable rhythm?

12

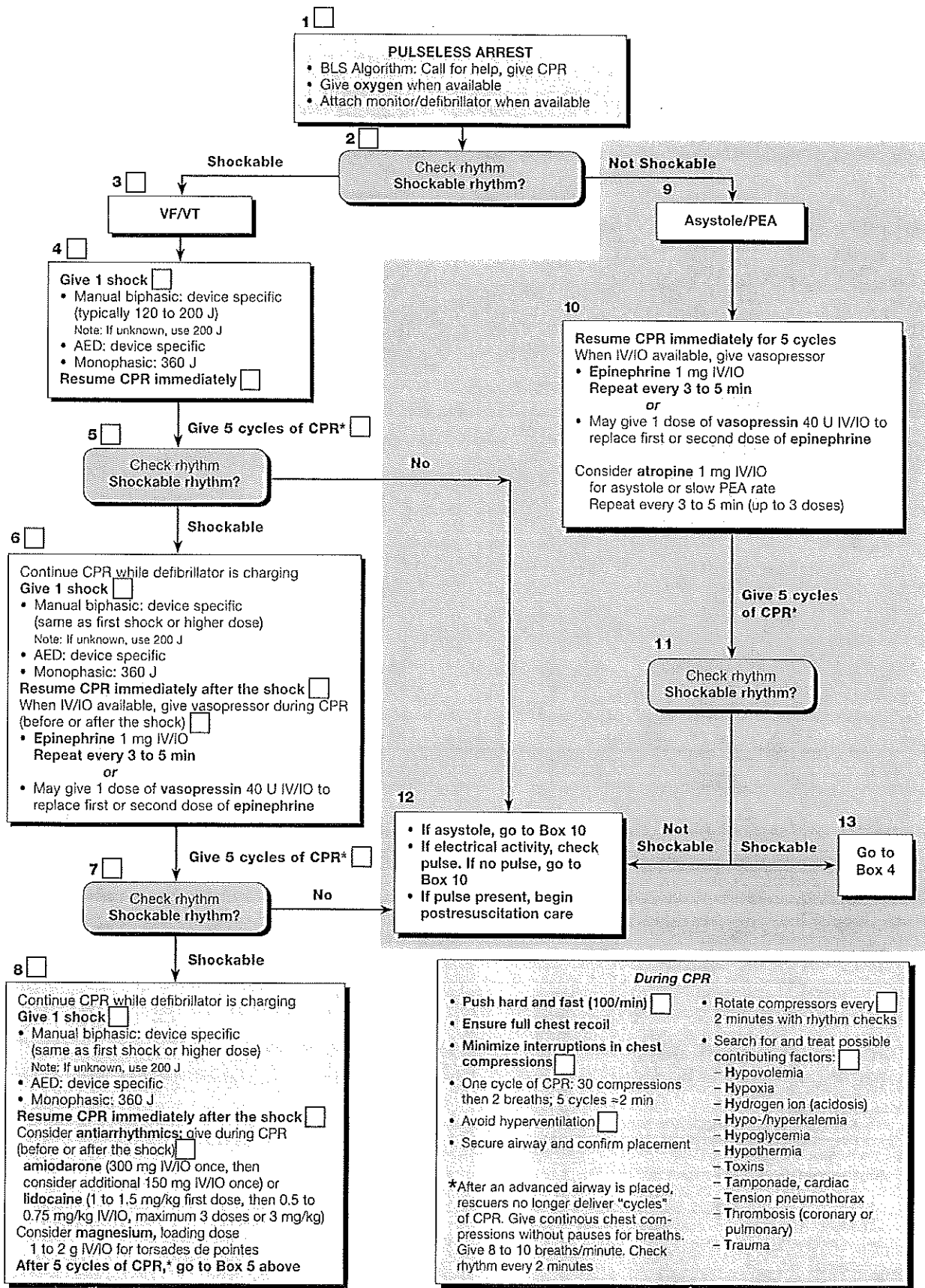
- If asystole, go to Box 10
- If electrical activity, check pulse. If no pulse, go to Box 10
- If pulse present, begin postresuscitation care

13 Go to Box 4

During CPR

- Push hard and fast (100/min)
- Ensure full chest recoil
- Minimize interruptions in chest compressions
- One cycle of CPR: 30 compressions then 2 breaths; 5 cycles = 2 min
- Avoid hyperventilation
- Secure airway and confirm placement
- Rotate compressors every 2 minutes with rhythm checks
- Search for and treat possible contributing factors:
- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-/hyperkalemia
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension pneumothorax
- Thrombosis (coronary or pulmonary)
- Trauma

*After an advanced airway is placed, rescuers no longer deliver "cycles" of CPR. Give continuous chest compressions without pauses for breaths. Give 8 to 10 breaths/minute. Check rhythm every 2 minutes



Appendix IV Abbreviations

ACS	Acute Coronary Syndrome
ALS	Advanced Life Support
AMI	Acute Myocardial Infarction
BLA	Bi-luminal Airway (Combitube)
BLS	Basic Life Support
BP	Blood Pressure
BVM	Bag Valve Mask
c	With
C/C	Chief Complaint
CHF	Congestive Heart Failure
COPD	Chronic Obstructive Pulmonary Disease
CRT	Cardiac Resuscitation Treatment
DNR	Do Not Resuscitate
ED	Emergency Department
EKG/ECG	Electrocardiogram
ET	Endotracheal Tube
Gm/GM	Gram
HIPAA	Health Insurance Portability and Accountability Act of 1993
HR	Heart Rate
IC	Infection Control
INT	Intermittent Infusion Device
IV	Intravenously
IVSPB	Intravenously Slow Push Bolus
Kg/KG	Kilogram
KVO/TKO	Keep Vein Open
LMA	Laryngeal Mask Airway
LPM	Liter Per Minute
Mg/MG	Milligram
NRBM	Non-Rebreathing Mask
NSS	Normal Saline Solution
NTG	Nitroglycerin Spray or Tabs
PCR	Patient Care Report
PHI	Protected Health Information
POA	Power of Attorney
PVC	Polyvinyl Chloride
q	Every
QA	Quality Assurance
s	Without
VS	Vital Signs
x	except

Appendix V ADULT PROTOCOL PRINCIPLES

AIRWAY MANAGEMENT

AIRWAY MANAGEMENT IN EMS HAS MIGRATED FROM ETT INSERTION AS THE GOLD STANDARD. AIRWAY MANAGEMENT AND CONTROL SHOULD BE ACCOMPLISHED UTILIZING THE LEAST INVASIVE ADJUNCT POSSIBLE.

For cardiac arrest, the King Airway should be used for initial airway management if the patient needs an advanced airway.

Patients should be intubated for respiratory failure **and** for airway protection (especially in patients with altered mental status and GCS <8; "GCS<8 intubate!"). Note that these indications are **independent** of respiratory rate or spontaneous effort and are also **independent** of pulse oximetry readings. CPAP should be utilized whenever possible to prevent unnecessary intubation

Bag-valve-mask (BVM) devices must be used prior to or in conjunction with endotracheal intubation. Ideally usage of a BVM is a two (2) or Three(3) person procedure absent intubation. Proper BVM usage should follow this mnemonic scheme:

- C**- C-spine control where indicated
 - O**- Oral Airway in place
 - P**- Proper head and neck positioning
 - E**- Elevate the Jaw
 - S**- Seal the mask (two hands)
-
- S**- Steady, slow squeeze, followed by a quick release on the bag
 - O**- Oxygen supply sufficient and working properly
 - S**- Sellick's maneuver (cricoid pressure)

Adjuncts should be used to aid intubation decisions and to aid in the confirmation of ET tube placement. The following adjuncts are approved for use in our system with appropriate training and a full understanding of their limitations.

1. **Pulse Oximetry** is a valuable tool to detect occult hypoxia; a normal reading DOES NOT rule out respiratory distress or the need for airway management. It has **no role** in confirming ET tube placement.
2. **End-Tidal CO2 capnography** is the gold standard for confirming ET tube placement and for ET tube surveillance, however, false negatives, (no CO2 detected) can occur in prolonged cardiac arrest, massive pulmonary embolus, poor chest compressions, etc. When monitoring ETCO2 you should ask yourself the following questions:
 - a. **Is the tube in the trachea (rise and fall of waveform)?**
 - b. **What is the CO2 value?**
 - c. **What is the shape of the waveform?**
3. **Esophageal Detector Devices (EDD)** useful to confirm ET tube placement

Endotracheal Tube Placement

In summary, no single technique or adjunct is sufficient alone to confirm proper ET tube placement. ET Placement should be assessed using the following scheme:

1. Visualize the tube passing through the cords for an oral intubation
2. Ensure no sounds are heard over the stomach when ventilating the patient through the ET tube.
3. Ensure good bilateral breath sounds when ventilating the patient through the ET Tube.
4. Observe the chest rising and falling with each ventilation
5. Confirm placement with EDD **and ETCO2 capnograph**
6. Document all placement confirmations on the PCR
7. Continuously monitor ETCO2 during the transport

Ventilating a Patient via ET tube

While positive pressure ventilation is necessary under many emergency medical situations, overzealous ventilation has ramifications in that it can impair coronary blood flow and cardiac output in certain patients, particularly those with Asthma, COPD or hypovolemia. This is especially true with the patient in cardiac arrest. **Current AHA guidelines recommend a respiratory rate no greater than 10-12 breaths per minute and a tidal volume of 10-15 ml/kg (500 ml avg)**

ET Tube Drug Administration

2006 ILCOR Guidelines discourage the administration of medications via the ETT route. Scientific evidence in studies so far have shown that administration of drugs via ETT has little or no benefit to the patient. Utilizing the IO route for drugs on ALL cardiac arrest patients should

offer the most expedient and advantageous benefit to the patient. If, for some reason IV or IO cannot be established dilute the drugs in 5-10 ml NSS and give down the tube.

N Narcan
A Atropine
V Vasopressin
E Epinephrine
L Lidocaine

Follow this procedure when using the ET tube for drug administration:

1. Inject 2-2 1/2 times the normal dose of medication
2. flush with 10 ml NSS
3. aggressively ventilate the patient 3-5X

IV Fluid Type

NSS should be the fluid of choice.

Venous Access

Ideally, IV access should be performed in a large vein. In critical patients, including those on cardiopulmonary arrest, IO offers the best method of securing venous access.

IV Rates

Generally, a patient needs venous access for medication or to provide volume replacement. Certain Hypovolemic patients may need boluses of from 250-1000 ml. A saline lock may be used in place of a KVO IV.

Cardiac Arrest Procedure

When encountering a cardiac arrest, follow AHA guidelines and:

1. “Call a Cardiac Red” as soon as possible, Communications should dispatch the nearest Autopulse equipped ALS backup, if practical, and if the on-scene unit does not have one. If a BLS unit is closer, it should be dispatched and transport should begin as soon as possible meeting an Autopulse equipped unit as practical. Do not delay transport waiting for the Autopulse. **Max in unit resusc time: 10 minutes**
2. Deploy the AED if so equipped or the Cardiac monitor/defibrillator and follow current AHA guidelines
3. Deploy and begin compressions using the Autopulse® as soon as it arrives
4. Rapidly move the patient to the ambulance after defibrillation and 2 minutes of CPR
5. Call “in Unit”
6. Continue with resuscitation attempts until a second unit arrives
7. 10 minutes of on scene resuscitation time (Unit time) should signal a need to transport

PEDIATRIC PROTOCOL PRINCIPLES

DEFINITION: Pediatric patients are those less than 13 years of age. In general, EMS protocols and standing orders apply to both adults and children. Some exceptions, comments and helpful tips follow.

PEDIATRIC ASSESSMENT

1. Normal vital signs vary with age. Note that the younger the child, the faster the normal heart rate and the lower the normal blood pressure. After about 12 years of age, normal vital signs approach adult levels. **Hypotension, especially with Bradycardia, signals impending arrest!**

AGE	APPROX. WEIGHT (KG)	HEART RATE (BPM)	RESP. RATE (RPM)	SYSTOLIC BP (mmHg)
Premature	<3	100-190	40-60	Difficult to measure
Neonate	3-4	90-190	30-60	50-70
6 months	5-7	80-180	25-40	60-110
1 year	10	80-150	20-40	70-110
3-4 years	15	80-140	20-30	80-115
5-6 years	20	70-120	20-25	85-120
7-8 years	25	70-110	20-25	85-120
11-12 years	35	60-110	15-20	95-135

Mean systolic BP can also be *estimated* by: $80 + (2 \times \text{Age})$ in years.

Lower limits of systolic BP can also be *estimated* by: $70 + (2 \times \text{Age})$ in years.

Weight can be approximated from the Broselow™ tape or: $(\text{Age (yr.)} \times 2) + 8 = \text{Wt. (kg.)}$

Pounds/kilogram conversion: $\text{Wt. (lb.)} \div 2.2 = \text{Wt. (kg.)}$

2. Pediatric respiratory distress may look just like respiratory distress in adults, but may also present as:

- slow respirations
- nasal flaring
- retractions
- bradycardia
- accessory muscle use
- tachypnea
- decreased breath sounds
- mottling
- grunting
- pale appearance
- stridor
- cyanosis

3. Signs of shock or other serious illness may mimic those in adults, but may also include:

- change in level of consciousness (LOC)—especially failure to recognize/respond to parents
- tachycardia/ bradycardia
- narrowing pulse pressure
- ♦ Warm skin (warm shock)
- pale/cool/mottled skin
- tachypnea
- capillary refill > 2 seconds
- relative flaccidity

Remember: hypotension is a late and ominous sign of shock, and means that cardiorespiratory arrest is imminent. A child may lose 25% of his/her circulating blood volume before becoming hypotensive. The signs and symptoms of shock listed above are much more sensitive than blood pressure.

PEDIATRIC CARDIAC ARREST

1. Cardiac arrests in pediatric patients are most commonly the result of respiratory failure. However, it is important to place all sick infants and children on the ECG monitor.

2. Hypotension and Bradycardia are both indicators of impending cardiac arrest.

3. Start CPR if the pediatric patient is unresponsive and:

- a. Less than 1 month of age and heart rate < 60 after 1 minute of ventilation (or 60-80 and not improving)
- b. Less than 1 year of age: if heart rate < 60/minute and with signs of hypoperfusion and after 30 - 60 seconds of ventilation with supplemental oxygen.
- c. 1 year - 12 years of age: if no spontaneous pulse.

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