

**EMT BLS  
TREATMENT PROTOCOL**

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**Approved By:  
Dr. Jason Kruger**

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**Changes highlighted in Yellow**

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## Part I. General Operations

### A. Introduction

1. The purpose of protocols in the Lincoln Fire & Rescue Emergency Medical Services is to establish guidelines between EMS administration, the EMS provider and medical direction for the management, treatment and transport of specific medical emergencies.
2. The protocols set forth are neither designed nor intended to limit the EMS provider in the exercise of good judgment or initiative in taking reasonable action in extraordinary circumstances. These protocols are intended to assist in achieving excellent, consistent pre-hospital care for patients. The following protocols are not intended to provide a solution to every problem which may arise.
3. Pre-hospital care is a shared responsibility between the physician and the EMS provider. The services which EMS providers are authorized to perform pursuant to the Nebraska Emergency Medical Services Rules and Regulations shall be performed by the EMS provider only pursuant to the written or verbal authorization of the operational medical director or medical control. The National Education Standards and the National EMS Scope of Practice Model shall be the reference for standard of care. In the Lincoln Fire & Rescue Emergency Medical Services, in all cases where written protocols, directives and policies do not address patient care or disposition, the National Education Standards and the National EMS Scope of Practice Model shall be the standard.
4. The following treatment guidelines are for use by field personnel and the Medical Control physician. They have been developed to help assure standardized, quality medical care. The protocols contained in this document are detailed for Basic Life Support (BLS) treatment modalities and are intended for use by all BLS providers operating within the Lincoln Fire & Rescue EMS System.
5. Without actual On-Line Medical Direction, the field provider should not deviate from these guidelines relating to treatment. If extenuating circumstances necessitate deviation from these guidelines, they must be explicitly detailed in the patient care report. Under no circumstances should providers deviate beyond their Medical Director approved scope of practice.
6. Although these guidelines attempt to cover most situations the field provider will encounter, it is impossible to delineate all possible situations the field provider will face. When faced with occurrences that are not specifically addressed in these guidelines, the provider shall seek the input of On-Line Medical Direction for advice and direction. It must be emphasized when presented with a situation which is not covered by these guidelines; the most appropriate decision is the one which best serves the interests of the patient and the patient's family.

## B. Definitions

### 1. The Lincoln Emergency Medical Services System:

- a. The Lincoln Fire & Rescue Emergency Medical Services System is comprised of those agencies and personnel who facilitate the delivery of pre-hospital health services to the citizens of Lincoln, Nebraska and selected surrounding communities. From the access of emergency medical services, through the actual field treatment and/or transportation, to the evaluation and continuous improvement of medical providers and functions, the System is a chain, with each link dependent upon the others to provide emergency medical care to the victims of illness or injury. Specifically, the System includes: the public, the 911 Emergency Dispatch Center, Lincoln Fire and Rescue, and the Lincoln Police Department.

### 2. Medical Control:

- a. Conceptually, Medical Control is the authority granted to field providers enabling them to perform out-of-facility assessments and treatments. Actual Medical Control is comprised of the System Physician Medical Director, the Quality Improvement staff and the licensed physicians and physician extenders designated and authorized to provide Medical Direction.

### 3. Medical Direction:

- a. Medical Direction is the actual medical advice and guidance afforded field providers for various types of medical or traumatic emergencies. Medical Direction can be provided either "off-line" or "on-line". Off-line Medical Direction is the written standards of care prescribed by Medical Control. These standards take the form of medical guidelines to be followed when presented with field interventions. These guidelines establish interventions which may be initiated without the actual consultation with a physician. On-Line Medical Direction is the actual verbal authority and advice given to a field provider for certain treatment modalities. For the purposes of uniformity, the written guidelines may include treatment options available only after consultation with On-Line Medical Direction.

### 4. Basic Life Support (BLS):

- a. Basic Life Support is defined as care and treatment modalities which can be performed without the use of invasive therapies. Examples include: patient and scene assessment, cervical spine stabilization, oxygen administration, splinting and bleeding control, and blood sugar assessment. An EMT may function within their scope of practice pursuant to Nebraska Health and Human Services 172 NAC 11 section 11-009.02

Emergency Medical Technician Practices and Procedures in accordance to the medical treatment protocols with the following exceptions invoked by the physician medical director for the Lincoln EMS System;

- i. Oral glucose must be self-administered by the patient
  - ii. Starting IV's is not approved for the EMT
  - iii. Utilizing advanced airway management devices is not approved for the EMT
  - iv. The administration of activated charcoal, albuterol and nitroglycerin are not approved for the EMT.
- b. It is the responsibility of each individual provider to assure they function within their scope of practice, in accordance to State regulations, and in accordance to the medical treatment protocols. Any deviation from scope of practice, State regulations or the medical treatment protocols must be reported to the on duty EMS Supervisor, Division Chief of EMS, and EMSOA.

### C. **Physician on Scene**

1. When a physician is present on the scene and desires to direct patient care, EMS personnel should:
  - a. Inform the physician that if the physician directs patient care, the physician must accompany the patient to the hospital.
  - b. Inform the physician at the onset of the incident that EMS personnel have strict legal guidelines and established protocols and they may not exceed those guidelines or protocols.
  - c. Inform the physician that any procedure outside of these legal guidelines must be carried out by the physician.
2. EMS personnel have the right and obligation at any time there is gross deviation from the accepted protocol to contact the receiving hospital for further instruction. The physician on the scene should be informed if contact with the hospital is being made.
3. If possible, it may be advisable to contact the receiving hospital via landline or cellular phone and have the receiving hospital physician speak directly to the physician at the scene.

### D. **“Do Not Resuscitate” (DNR) Orders and Identification of CPR Only**

1. A DNR is a written order by a physician that a patient should not be resuscitated or have CPR performed. A DNR **must** be signed by a physician, dated and have the patient's name on it. An EMT can honor a DNR. The EMS provider must be identified in the patient care report.

2. EMT's will not initiate or continue cardiopulmonary resuscitation on a patient in cardiac arrest once a valid DNR order is confirmed. In the event of uncertainty, resuscitative measures should be initiated.
3. DNR does not mean that emergency medical care for any other medical condition will be changed or limited. Patients should receive emergency medical treatment up until the point of cardiac arrest.
4. A written DNR order must contain the patient's name and be signed by the physician or by the RN who received the order from the physician. Verbal confirmation of a DNR by a family member or friend without verification of a written DNR is not sufficient.
5. Once CPR has been initiated, resuscitative measures may be discontinued when any one of the following occurs:
  - a. A DNR or no code order is confirmed
  - b. A physician physically present at the scene or medical control for the service, based on information from the out-of-hospital providers on scene, determines that CPR is futile or should be discontinued
  - c. The EMT is following termination of CPR protocols that have been authorized by the Physician Medical Director
  - d. Any time the scene becomes unsafe for rescuers

#### **E. Discontinue or No Initiation of CPR**

1. Situations may occur where CPR has been initiated on an obviously deceased patient prior to the arrival of EMS. If the patient meets the following criteria, the EMS provider may discontinue CPR or may choose not to initiate CPR.
  - a. No pulse AND
  - b. No spontaneous respirations AND
  - c. Pupils fixed and dilated AND
  - d. One or more of the following:
    - i. Patient with obvious lethal injury – trauma cardiac arrest with injuries incompatible with life (i.e. massive blood loss, displacement of brain tissue, decapitation)
    - ii. Wrinkled cornea
    - iii. Rigor mortis
    - iv. Postmortem lividity
    - v. Decomposition
    - vi. Valid DNR form
  - e. Physician authorization

**NOTE: Care should be taken to rule out hypothermia, acute alcoholic intoxication and drug overdose.**

**F. Refusal of Care****1. Adults**

- a. An adult is an individual 19 years old or older or who is or has been married (NEB REV STAT §43-2101). A competent adult can refuse medical services and/or transportation to a health care facility.
- b. A legal guardian can consent to or refuse medical services and/or transportation to a health care facility for an incompetent adult.
- c. A person appointed as a Health Care Power of Attorney can consent or refuse consent for medical services and/or transportation to a health care facility for the incompetent adult named in the power of attorney.

**2. Minors**

- a. A minor is an individual under 19 years of age that has never been married. In the absence of suspected abuse and/or neglect, a parent or legal guardian can consent or refuse consent on behalf of a minor, for medical services and/or transportation to a health care facility.

**3. Documentation**

- a. All consents or refusals of consents for medical treatment and/or transportation must be documented on the "Informed Decision - Making" Form and in the patient care report. When possible, the "Informed Decision – Making" form should be signed and dated by the patient or other individual authorized to give or refuse consent. All refusals to sign a consent or refusal of consent must be documented in the patient care report or other appropriate record(s).



## Part II. Patient Assessment

### A. General

1. The AED and the suction device will be brought to the patient's side of every medical emergency where it is safe to do so.
2. The patient examination should focus on rapid assessment and interventions. On-scene management of high priority patients should be limited to stabilization of life-threatening problems. Other procedures should always be performed while in route to the hospital.
3. Scene time should not exceed 10 minutes for high priority trauma patients and 20 minutes for medical patients. Shorter scene times are desirable for trauma patients. Rescue efforts for patients that are entrapped or have access/egress problems should be coordinated to minimize scene time.
4. The receiving hospital should be notified as soon as possible to prepare for the patient.
5. At any time a provider is uncertain of how to best manage a patient, on-line medical direction must be contacted for instruction.
6. Rarely are emergent transports (red lights and sirens) required once the patient has been evaluated and treated. It is important that the provider in charge carefully evaluate the risks and benefits of an emergency transport to the hospital.

### B. Scene Size-Up

1. Body Substance Isolation
  - a. Standard practice in EMS is to use body substance isolation when caring for ALL patients. Gloves and eye protection are required on every patient contact.
  - b. The use of masks, aprons or gowns shall be used during procedures likely to generate splashes of blood, droplets of blood or body fluid.
  - c. Hands shall be washed after each patient care incident, even if gloves were worn or waterless soap was used.
  - d. This policy also applies to immediate disposal of needles and sharps in disposable impervious containers.
  - e. The practice of not recapping needles is highly encouraged.
  - f. All personnel should don HEPA masks when in contact with patients whom an airborne communicable disease is suspected or confirmed by history (e.g. tuberculosis, or influenza).

2. Assess scene safety
  - a. Ensure personal protection on all scenes, especially those that involve motor vehicle collisions, toxic substances, potential for violence and unstable surfaces (e.g. slope, ice, water).
  - b. Protect the patient and bystanders (e.g. environmental considerations)
3. Assess mechanism of injury and/or nature of illness.
  - a. Medical – determine nature of the illness from the patient, family or bystanders. Why EMS was activated?
  - b. Trauma – determine the mechanism of injury from the patient, family or bystanders, and inspection of the scene.
  - c. Determine total number of patients. Initiate a mass casualty plan if necessary and initiate triage.
  - d. Summon additional resources as necessary to manage the incident.

### C. Primary Assessment

1. Form a general impression of the patient.
  - a. If a life-threatening condition is found, treat immediately.
2. Assess patient's mental status (maintain spinal immobilization if needed).
  - a. **A**lert
  - b. Responds to **V**erbal stimuli
  - c. Responds to **P**ainful stimuli
  - d. **U**nresponsive to verbal and painful stimuli (no gag or cough)
3. Assess the patient's airway status.
  - a. Use head-tilt, chin lift or jaw thrust (suspected trauma) to open airway.  
Note: Do not hyperextend the neck in infants and small children.
  - b. Suction the airway with a rigid suction catheter as necessary.
  - c. Consider maintenance of the airway with an oropharyngeal or nasopharyngeal airway as indicated.
4. Assess the patient's breathing.
  - a. If respirations are absent or agonal (inadequate) and;
    - i. Chest compressions are being performed
      1. Adult - Follow Adult General Guidelines
      2. Infant or child - deliver 1 ventilation every 10<sup>th</sup> compression, no pauses.
    - ii. Chest compressions are not being performed
      1. Adult – deliver 10-12 ventilations/min.
        - a. Infant or child – deliver 12-20 ventilations/min.
  - b. If respirations are present;
    - i. Consider oxygen at
      1. 12-15 L/min. via non-rebreather mask

2. 2 to 6 L/min. via nasal cannula
  - c. Evaluate SpCO if indicated
  - d. Monitor SpO2.
1. Assess the patient's circulation
    - a. Check pulse for more than 5 seconds but less than 10 seconds.
      - i. Adult/child – carotid
      - ii. Infant – brachial/femoral
        1. If no pulse present, initiate CPR. Consult Adult Cardiac Arrest Guidelines
        2. In infants and children, if despite oxygenation and ventilation the pulse is less than 60bpm and there are signs of poor perfusion, begin chest compressions.
    - b. Check for and control major bleeding.
    - c. Check perfusion by evaluating skin color, temperature, moisture, and capillary refill.
  2. Determine patient disposition. Expedite transport for high priority patients.

#### D. **History Taking**

1. Conduct neurological assessment including Glasgow Coma Scale.
2. Obtain vital signs, including, at minimum;
  - a. Respirations
  - b. Pulse
  - c. Blood pressure
  - d. Skin color, temperature, and moisture
  - e. SpCO, SpO2
3. Obtain history of present illness by obtaining a SAMPLE history and OPQRST.
4. Identify pertinent negatives.

#### E. **Secondary Assessment**

1. Systematically assess the patient using a full-body scan or focused assessment.

**F. Reassessment**

1. Repeat the primary assessment.
  - a. For a stable patient, repeat and record every 10 minutes.
  - b. For an unstable patient, repeat and record at a minimum every 5 minutes.
2. Re-establish patient priority.
3. Reassess and record vital signs.
4. Repeat focused assessment regarding patient complaint or injuries.
5. Assess interventions.
6. Assess response to management.
7. Maintain or modify management plan.

**G. Documentation**

1. General Guidelines
  - a. Any time a patient is transported by ambulance to a receiving medical facility, the EMS provider must provide the receiving facility with a digital patient care report (PCR). The EMS provider is required to give a complete verbal report and any available documentation such as EKG strips, medications, transfer papers, etc., to the hospital provider who is assuming patient care before leaving the facility. All PCR's should be completed as soon as possible and must be completed by the end of the EMS providers working shift.
  - b. Medical Control realizes that there will be times when a deviation from the established medical treatment guidelines is necessary and perhaps even in the best interest of patient care. In these circumstances, the PCR should clearly reflect the reasons for the guideline deviation and the name of the authorizing physician. The EMS quality assurance observation form is also required to be completed and forwarded. Accurate documentation of field medical care is essential to ensure the consistency of continued medical care in the hospital setting. The minimum documentation standards for all PCR's shall include all the information required by State regulation 172 NAC 12-12-004.09C1 and any additional information required by the Lincoln EMS medical director.
  - c. As required by State regulation 12-004.09C1- The following information, as a minimum, will be recorded for each patient transported:
    - i. The name, age, and sex of the patient(s);
    - ii. The address or location from which the patient(s) is taken;
    - iii. The date of the call
    - iv. The time of dispatch, the time the ambulance is in route to the call;

- v. The time of arrival at the scene;
  - vi. A record of the chief complaint of the patient and/or the signs and symptoms of the patient;
  - vii. A record of the patient(s) vital signs and the times at which these were noted;
  - viii. A brief patient history;
  - ix. A description of the treatment provided and equipment used;
  - x. A record of the time, dosage, and route of the medications administered;
  - xi. A record of the time, rate, type, and delivery location of intravenous fluids administered;
  - xii. A record of the time of each electro therapy attempt and results of each administration;
  - xiii. The name of the receiving facility or location;
  - xiv. The name or code number of the individual providing the primary care for the patient;
  - xv. A record of any care provided to the patient prior to arrival of the out of hospital personnel;
  - xvi. Location type;
  - xvii. Time unit left the scene;
  - xviii. Time arrival at destination;
  - xix. Time back in service;
  - xx. Race/ethnicity of the patient;
  - xxi. Destination determination;
  - xxii. No patient treatment/no patient transportation;
  - xxiii. Factors affecting EMS delivery;
  - xxiv. Time CPR discontinued in the field;
  - xxv. Adult/pediatric Glasgow coma scale; and Trauma score
  - xxvi. Reading and unit for each use of the glucose monitoring device.
- d. In addition to the State requirements, the following is required by the Lincoln EMS medical director:
- i. Comprehensive vital signs should be taken every 5-10 minutes and at least 2 minutes prior and as appropriate after medication administration. Every patient should have at least 2 sets of vital signs recorded.
  - ii. SpCO assessment findings must be clearly documented.
  - iii. A detailed response to all treatment shall be documented
  - iv. Document the time when the transfer of care to another pre-hospital provider occurred.
  - v. Condition upon arrival at destination.
  - vi. Mode of travel in route to the hospital. Code 3- lights and sirens, Code 1- standard transport.
  - vii. The time(s) medical direction was contacted.
  - viii. The name or ID of the nurse or physician who assumes care at the receiving facility.

## Part III. General Treatment Principles

### A. Airway and Oxygen

1. An intact airway and adequate oxygenation and ventilation are essential for all patients with medical or traumatic conditions. Throughout this protocol it is assumed that the EMT will maintain a patent airway and provide appropriate supplemental oxygenation.
2. Maintain patent airway with head-tilt/chin-lift or modified jaw thrust maneuver and consider oral or nasal airway adjunct.
3. If ventilating adequately, consider applying a nasal cannula at 2-6 L/min or non-rebreather mask at 12-15 L/min.
4. High flow oxygen shall be avoided in medical patients unless signs of severe hypoxia are present. High flow oxygen remains the standard of care in trauma patients.
5. If patient NOT ventilating adequately, assist ventilations with BVM and 100% oxygen.
6. Anytime a patient is manually ventilated, including the use of BVM only, ETCO<sub>2</sub> shall be monitored.
7. Consider assisting ventilations in those patients whose respiratory status does not improve after receiving oxygen by non-rebreather mask.
8. Supplemental oxygen should be withheld for people with oxygen saturations of 94% and higher. When utilizing supplemental oxygen for medical patients the goal should be 94% to 99% saturation.
9. When pulse oximetry is used, adjust oxygen delivery devices to achieve an oxygen saturation of 94% or above in medical patients and 100% in trauma patients.
10. Position the patient in a way that will support ABC's. I.e. in a respiratory distress patient, transport in a sitting position.

### B. Cardiac Monitor

1. An EMT may apply the cardiac monitor prior to ALS arrival. This shall be done after the completion of patient assessment, obtaining vitals, and BLS interventions.

### C. Restraints

1. Physical restraints are a last resort. All possible means of verbal persuasion should be attempted first.
2. Indications:
  - a. A patient who needs to be transported for medical care, who is refusing transport of care, and who is incompetent to refuse.
  - b. A person, who appears to be confused and who as a result of such confusion, appears to be an imminent danger to others or to himself.
3. Precautions / Considerations:
  - a. Any attempt at restraint involves risk to the patient and to the out-of-hospital provider. The rescuer's safety must come before patient considerations. Do not attempt to restrain the patient without adequate assistance.
  - b. Any restrained patient may vomit, be prepared to suction and reposition as needed. Once restrained, the patient is never to be left alone. Aspiration can occur if the patient is restrained on his/her back and cannot protect their airway.
  - c. Check restraints as soon as applied and every 10 minutes thereafter to ensure no injury to extremities.
  - d. Do not restrain a patient in the prone position.
  - e. Do not restrain a patient sandwiched between backboards, scoop stretchers or other immobilization devices.
  - f. Do not "hog tie" patients (hands restrained behind back, feet restrained together and the two restrained attached together)
  - g. Remove restraints only with sufficient personnel available to control the patient, generally only in the hospital setting.
  - h. Other than primary psychiatric disorders, medical causes of combativeness include hypoglycemia, hypoxia, head injury and drug ingestion.
  - i. Written and verbal reports must completely document the necessity for the use of physical restraints. Record the condition of limbs before applying restraints, during transport and upon arrival at the hospital.
  - j. If law enforcement has applied handcuffs, an officer is required to ride in the patient compartment of the ambulance to the hospital.

### D. Physician Orders

1. This protocol, in its entirety, is considered a standing order. Radio communications are not required prior to performing any protocol action. However, EMS providers may call in for further direction or confirmation of orders whenever the patient's condition or the situation warrants.

## Part IV. Medical Management

### A. Altered Mental Status

1. Determine glucose level by glucometer.
  - a. If glucose less than 60 mg/dL or clinical signs and symptoms indicate hypoglycemia:
  - b. If the patient can protect airway, give oral glucose 15 grams. The patient must be able to self-administer without assistance. Repeat in 15 minutes if necessary.

### B. General Adult Cardiac Arrest Guidelines (Anyone showing signs of puberty)

1. If patient is in cardiac arrest, initiate High Performance-CPR (HP-CPR) and begin chest compressions immediately.
2. Attach cardiac monitor and analyze the rhythm.
3. Initiate continuous chest compressions, insert an I-gel airway, and begin active ventilations on all patients.
4. If the patient presents in a shockable rhythm (ventricular fibrillation or pulseless ventricular tachycardia), perform 30 compressions while the AED is charging, and deliver a defibrillation at 360 J. Resume continuous chest compressions.
5. LP 15 Metronome must be used on every cardiac arrest patient.

### C. All patients found in cardiac arrest:

1. Perform continuous chest compressions at a rate of 100-120 compressions per minute while ventilating at a rate of 10 ventilations per minute. (One ventilation every six seconds). Do not stop compressions to ventilate.
2. If the patient presents in a shockable rhythm (ventricular fibrillation or pulseless ventricular tachycardia), perform 30 compressions while the AED is charging, deliver a defibrillation at 360 J. Resume continuous chest compressions.
3. Rotate person-performing compressions every 2 minutes.
4. Insert an I-gel airway. Do not delay initiation of chest compressions and defibrillation to insert the I-gel.



5. If the patient regains a pulse, acquire and transmit a 12 lead EKG. Transport to a hospital with PCI capabilities. **(ALS Procedure)**
6. If patient is hypothermic from exposure, follow *Hypothermia Protocol* for cardiac arrest guidelines.

**D. High Quality Chest compressions:**

1. Provide adequate rate: 100-120 compressions per minute.
2. Provide adequate depth: at least 2 inches.
3. Allow full chest recoil between compressions.
4. Provide uninterrupted or minimal interruptions in chest compressions (< 10 seconds).
5. Ensure correct hand placement on the chest.
6. Chest compressions are centered around two (2) minute cycles of 200 compressions.
7. The person providing chest compressions should be rotated every 2 minutes.

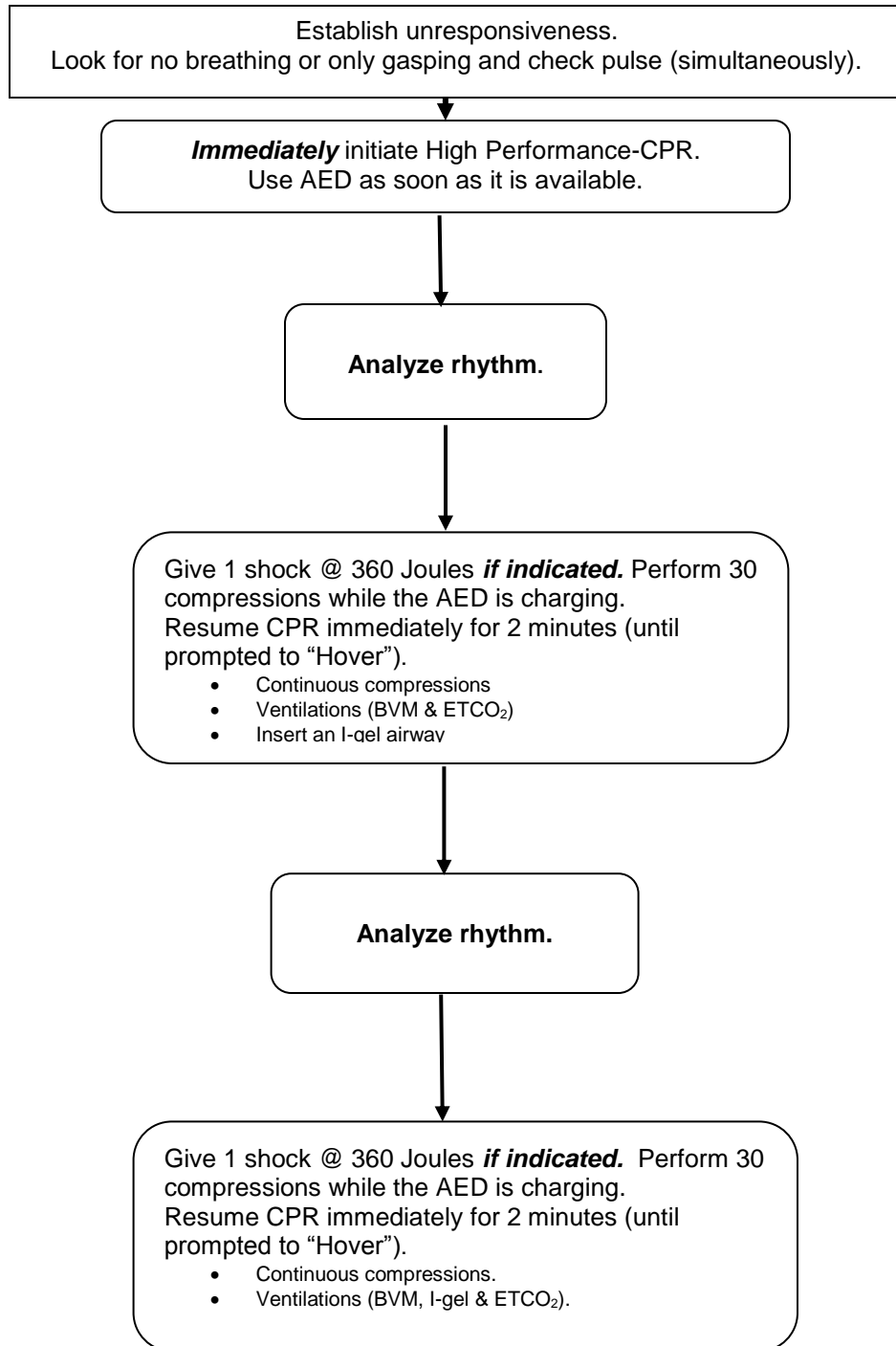
**E. Analyze rhythm and pulse checks:**

1. Utilize the AED to analyze the cardiac rhythm. **Perform 30 compressions while the AED is charging if a shock is indicated.**
2. Only perform pulse checks during rhythm checks if signs of life are present, which indicates a potentially perfusing rhythm.

**F. Airway and ventilations:**

1. Evaluate the airway for complete or partial airway obstruction and treat accordingly.
2. Provide jaw thrust and suction as necessary.
3. Active ventilations are defined as:
  - a. Positive pressure ventilations utilizing a BVM

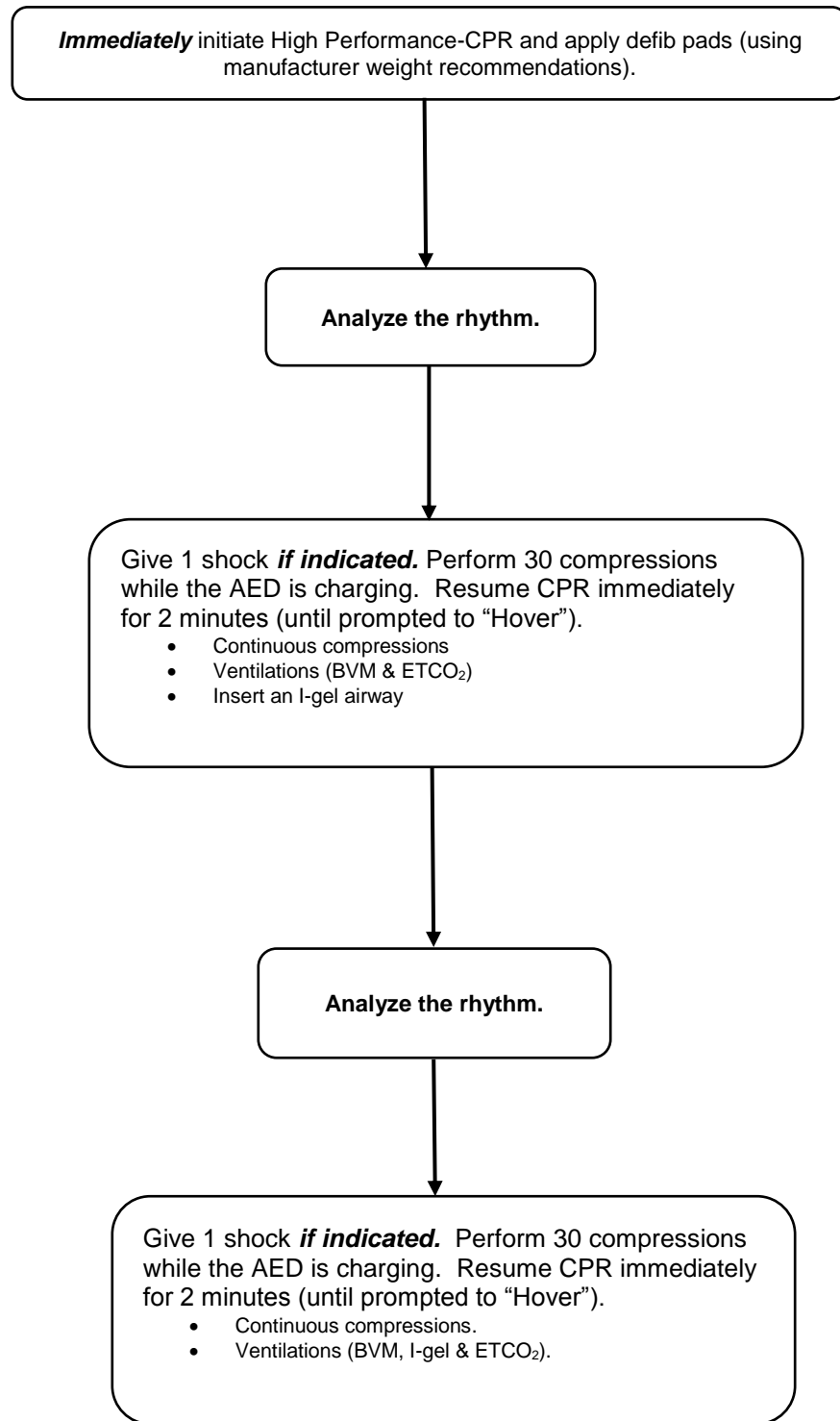
G. **Adult Cardiac Arrest Algorithm (Puberty and older)**



**H. Cardiac Arrest (AED) – Pediatric/Infant**

1. Assess the victim for a response and look for normal or abnormal breathing.
2. Check pulse if no respirations or abnormal respirations present.
3. If pulse present:
  - a. Give 1 breath every 3 seconds, consider insertion of an I-gel airway.
  - b. Recheck pulse every 2 minutes.
4. If pulse absent, initiate High Performance-CPR (HP-CPR). Provide continuous compressions, insert an I-gel airway, ventilate with a BVM, 10 times per minute.
5. Apply AED as soon as it is available.
  - a. Analyze rhythm.
  - b. If shock advised:
    - i. Administer 1 shock. Perform 30 compressions while the AED is charging.
    - ii. Resume CPR immediately for 2 minutes.
  - c. If no shock advised:
    - i. Resume CPR immediately for 2 minutes.
    - ii. Analyze rhythm every 2 minutes.
6. LP 15 Metronome shall be used on every cardiac arrest patient.
7. If patient is hypothermic from exposure, follow Hypothermia Protocol for cardiac arrest guidelines.
8. Key points:
  - a. When a rhythm check advises to shock, perform 30 compressions while the monitor is charging. Give the shock as quickly as possible. Immediately after shock delivery, resume CPR without delay and continue for 5 cycles (or about 2 minutes) and then check the rhythm.

**I. Pediatric Cardiac Arrest Algorithm (Infant - Puberty)**



**J. Chest Pain (Non-Traumatic)**

1. Administer aspirin 324 mg PO and have the patient chew them (four (4) 81 mg baby aspirin).
2. Hyper-oxygenation of chest pain patients should be avoided. Use pulse oximetry and only apply oxygen to patients who have oxygen saturations below 94% or those who are exhibiting signs of hypoxia.

**K. Allergic Reaction or Anaphylaxis**

1. Apply an ice pack to sting or injection site if applicable.
2. Consider applying venous constricting band proximal to the sting or injection site, if applicable.
3. For a severe reaction (severe respiratory distress or shock):
  - a. Administer Epinephrine via an EPI Auto Injector.

**L. Asthma or Toxic Exposure**

1. Assist patient with prescribed metered dose inhaler (MDI).
2. For a severe reaction (severe respiratory distress or shock):
  - a. Administer Epinephrine via an EPI Auto Injector.

**M. Emphysema or Chronic Bronchitis**

1. Assist patient with prescribed metered dose inhaler (MDI).

**N. Croup**

1. Do not attempt to visualize the airway or place anything in the patient's mouth.
2. Keep the child as calm and comfortable as possible.

**O. FBAO – Conscious Patient Greater Than 1 Year of Age**

1. If the patient has a mild obstruction and is coughing forcefully, do not interfere with the patient's spontaneous coughing and breathing efforts.
2. If the FBAO is severe, administer abdominal thrusts (Heimlich maneuver) in rapid sequence until the obstruction is relieved.
  - a. If the choking patient is obese and the rescuer cannot encircle the patient's abdomen, use chest thrusts instead of abdominal thrusts.

- b. If the choking patient is in the late stages of pregnancy, use chest thrusts instead of abdominal thrusts.
3. If the patient becomes unresponsive, carefully support the patient to the ground and follow the FBAO – UNCONSCIOUS PATIENT greater than 1 YEAR OF AGE guideline.

**P. FBAO – Conscious Patient Less Than 1 Year of Age**

1. If FBAO is mild, do not interfere. Allow the victim to clear the airway by coughing while you observe for signs of severe FBAO.
2. If the FBAO is severe (i.e., the victim is unable to make a sound), deliver 5 back blows (slaps) followed by 5 chest thrusts.

**Q. FBAO – Unconscious Patient Greater Than 1 Year of Age**

1. If the patient was previously conscious with an airway obstruction, carefully support the patient to the ground.
2. Use head-tilt, chin lift or jaw thrust (suspected trauma) to open airway. Look for an object in the patient's mouth. Use a finger sweep only when you can see solid material obstructing the airway.
3. Assess the patient's breathing:
  - a. If respirations are absent, deliver 2 breaths. If chest rise is not detected, reposition the airway, make a better mask seal and try again.
  - b. If unable to deliver rescue breaths, start CPR.
  - c. Each time the airway is opened during CPR, look for an object and remove it if found with a finger sweep.

**R. FBAO - Unconscious Patient Less Than 1 Year of Age**

1. If the patient was previously conscious with an airway obstruction, carefully support the patient to the ground.
2. Use head-tilt, chin lift or jaw thrust (suspected trauma) to open airway. Look for an object in the patient's mouth. Use a finger sweep only when you can see solid material obstructing the airway.
3. Assess the patient's breathing:
  - a. If respirations are absent, deliver 2 breaths. If chest rise is not detected, reposition the airway, make a better mask seal and try again.
  - b. If unable to deliver rescue breaths, start CPR.
  - c. Each time the airway is opened during CPR, look for an object and remove it if found with a finger sweep.

**S. Environmental Hyperthermia**

1. Remove the patient from the hot environment to a cool environment.
2. Heat Cramps: Signs and symptoms include muscle twitching, followed by painful spasms, especially in the lower extremities and abdomen, nausea and vomiting, weakness, and diaphoresis.
  - a. Consider sips of salted water (1 teaspoon of salt to 1 quart of water). May give Gatorade™, All-Sport™, or similar electrolyte drink. If nausea develops, discontinue oral administrations.
  - b. Consider applying steady and slow manual pressure to extend contracted and cramped muscle.
2. Heat Exhaustion: Signs and symptoms include pallor, profuse sweating, orthostatic hypotension, headache, weakness, fatigue, and thirst.
  - a. If patient is alert and can maintain open airway, give salt-containing or rehydration solution as for heat cramps.
3. Heat Stroke: Signs and symptoms include altered mental status, increased body temperature, minimal or no sweating, collapse, shock, shortness of breath, nausea and vomiting.
  - a. Remove the patient's clothing.
  - b. Do not give anything by mouth.
  - c. Spray the patient's skin with cool mist and fan the patient. Consider ice packs at the neck, axillae, and ankles. Continue misting and fanning during transport.
  - d. Wrap the patient with wet sheets.
  - e. Avoid cooling to the point of shivering as shivering will increase core temperature.
  - f. If the patient is hypotensive, place patient supine and elevate the legs (if not contraindicated).

**T. Environmental Hypothermia**

1. Hypothermia with a perfusing rhythm (pulse).
  - a. Prevent additional evaporative heat loss by removing garments and insulating the victim from further environmental exposures.
  - b. Initiate passive warming with warmed blankets and a warm environment.
  - c. Perform procedures gently; these patients are prone to develop ventricular fibrillation.
2. Hypothermia without a perfusing rhythm (pulse).
  - a. Initiate re-warming procedures as noted in step #1 above.
  - b. Assess the pulse for a period of 30-45 seconds.

- c. If pulseless with no detectable signs of circulation, start chest compressions immediately. If there is any doubt about whether a pulse is present, begin compressions.
- d. Ventilate the patient at normal rates, avoid hyperventilation (potentiates V-fib).
- e. Attach AED and analyze the rhythm.
  - i. Shock at 360 J if indicated.
  - ii. If the patient does not respond to 1 shock at 360 J, further defibrillation attempts should be deferred.

#### U. Hypotension

Shock is present when pulse greater than 120 and systolic BP less than 100 mmHg in a previously normotensive patient or systolic drops 40-50 mmHg in a previously hypertensive patient, especially if accompanied by pale, clammy skin and decreased level of consciousness.

1. Control any external bleeding.
2. Position the patient supine with legs elevated (unless contraindicated by trauma).
3. Prevent loss of body heat by keeping the patient covered.

#### V. Obstetrics – Normal Delivery

1. Don gloves, mask, gown, eye protection for infection control precautions.
2. Have mother lie with knees drawn up and spread apart. Elevate buttocks with blankets or pillows.
3. Create sterile field around vaginal opening.
4. Monitor fetal heart rate (using stethoscope).
5. Coach the mother in breathing techniques. Panting through each contraction helps prevent bearing down and tearing of the perineum by the baby's head. Deep breathing between contractions promotes rest.
6. Encourage mother to push with contractions.
7. When the head appears during crowning, place fingers on bony part of skull (not fontanel or face) and exert very gentle pressure to prevent explosive delivery.
8. If the amniotic sac has not broken, tear the sac and push it away from the head and mouth as they appear.



9. As the head is being delivered, determine if the umbilical cord is around the neck; slip over the head or shoulder. If this is not possible, clamp the cord in 2 places and cut between the clamps. Avoid excessive tension on the cord.
10. After the head is delivered, support the head; suction the mouth two or three times, then the nostrils using a bulb syringe (squeezing the bulb prior to inserting it in the mouth and nose). Use caution to avoid contact with the back of the mouth.
11. Provide support as the head rotates and the shoulders deliver. Gently guide the head downward to help the upper shoulder deliver. Gently guide the head upward to help the lower shoulder deliver.
12. As the torso and full body are delivered, support the newborn with both hands. As the feet are delivered, grasp the feet.
13. Wipe blood and mucus from mouth and nose with sterile gauze, suction mouth and nose again.
14. Wrap newborn in a warm blanket and place on its side, head slightly lower than trunk.
15. Do not lower the baby to the level of the vagina.
16. Assign partner to monitor newborn and complete initial care of the newborn.
17. Record the time of birth.
18. Clamp and cut umbilical cord (between the clamps) as pulsations cease. Apply the first clamp approximately 4 inches from newborn and the second clamp approximately 6 inches from the newborn.
19. Observe for delivery of placenta while preparing mother and newborn for transport. Do not delay transport waiting for the placenta to deliver.
20. When delivered, wrap placenta in towel and put in plastic bag; transport placenta to hospital with mother.
21. Place sterile pad over vaginal opening, lower mother's legs, help her hold them together. If excessive bleeding is present, start fundal massage of the uterus to stimulate contraction.
22. Manage perineal tears with direct pressure, if applicable.
23. Transport the mother, newborn and placenta to hospital.

**W. Obstetrics – Care of the Newborn**

1. If the newborn does not cry, rub the back and begin drying.
2. Ensure preservation of newborn warmth.
3. Give oxygen by blow-by if the newborn not centrally pink and vigorous.
4. If newborn does not cry, has central cyanosis or heart rate less than 100, see obstetrics – newborn/neonatal resuscitation.
5. Complete drying of the newborn, wrap in a dry towel and apply head cover. Keep the newborn warm.
6. Record the newborn’s APGAR scores at 1 and 5 minutes after delivery.
7. Check the umbilical cord for bleeding. If necessary, place an additional clamp.

**X. APGAR Scoring System**

	Clinical Sign	0 points	1 point	2 points
A	Appearance	Blue, pale	Body pink, Extremities blue	Completely pink
P	Pulse	Absent	Below 100	Over 100
G	Grimace	No response	Grimaces	Cries
A	Activity	Limp	Some flexion of extremities	Active motion
R	Respiratory Effort	Absent	Slow, irregular	Good, strong cry

**Y. Obstetrics – Newborn/Neonatal Resuscitation**

1. Gently suction the newborn’s mouth, then nostrils, with a bulb syringe for 3 to 5 seconds.
2. If meconium staining is present, do not stimulate the newborn.
3. If the newborn is vigorous (strong respiratory effort, good muscle tone, and a heart rate greater than 100 bpm), follow standard suctioning practices.
4. If meconium staining is not present, rub the newborns back vigorously. Simultaneously begin drying and warming measures. **KEEP THE NEWBORN WARM AND DRY.**
5. Evaluate respirations, heart rate (apical pulse or pulse at the base of the umbilical cord), and skin color.

6. **If respirations are inadequate, HR greater than 100 bpm, but newborn is centrally cyanotic:**
  - a. Properly position newborn; do not hyperextend the neck. Quickly provide blow-by oxygen near the newborn's mouth and nose.
  - b. If there is no response in 30 seconds, initiate positive-pressure ventilation with a BVM attached to oxygen. Deliver 40 to 60 breaths per minute. Use only enough volume to make the newborn's chest rise.
  - c. Continue positive-pressure ventilation until the newborn is centrally pink.
7. **If respirations are inadequate or HR less than 100 bpm:**
  - a. Initiate positive-pressure ventilation with a BVM.
  - b. Continue positive-pressure ventilation until HR greater than 100 bpm.
8. **If HR less than 60 bpm after 30 seconds of positive-pressure ventilation:**
  - a. Initiate chest compressions at a rate of 120/min and a compression to ventilation ratio of 3:1.
  - b. Continue chest compressions until HR greater than 60 bpm.

## Z. Obstetrics – Childbirth Complications

1. Breech Presentation
  - a. Never attempt to deliver the newborn by pulling on the legs.
  - b. Position the mother with hips elevated, either in head and torso down position (on hands and knees with knees to chest) or the Trendelenburg position.
  - c. Allow the buttocks and the trunk of the body to deliver spontaneously, supporting gently. As the newborn's body is delivered, support it and prevent an explosive delivery. Dry the torso and wrap it in a towel if the delivery is incomplete. Avoid pressure on the cord.
  - d. With traction of the torso, rotate the body right or left to deliver the shoulders.
  - e. If the newborn completely delivers, follow care of the newborn.
  - f. If the newborn head does not deliver, establish an airway for the baby to prevent suffocation by inserting a gloved hand into the vagina with palm toward baby's face form a "V" with your fingers on either side of baby's nose and push vaginal wall away from baby's face.
  - g. Do not allow an explosive delivery or attempt to pull the baby out.
  - h. Begin immediate transport, positioning the mother with hips elevated, either in head and torso down position (on hands and knees with knees to chest) or the Trendelenburg position.
2. Prolapsed Umbilical Cord
  - a. Position the mother with hips elevated, either in head and torso down position (on hands and knees with knees to chest) or the Trendelenburg position.

- b. Elevate the newborn off the cord by inserting a gloved hand in the vagina and pushing up on the newborn's head.
  - c. Cover the exposed cord with a warm, moist gauze or cloth pad.
  - d. Monitor for pulsations in the cord. A pulsating cord indicates a viable newborn.
  - e. Ask the mother to pant during contractions and to NOT bear down.
  - f. Do not push the umbilical cord back in under any circumstance.
  - g. Transport rapidly, but carefully, with continual pressure on the baby's head. Notify the receiving hospital as early as possible.
3. Limb or Compound Presentation
  - a. Position the mother with hips elevated, either in head and torso down position (on hands and knees with knees to chest) or the Trendelenburg position.
  - b. Initiate rapid transport upon recognition of a limb presentation.
4. Shoulder Dystocia
  - a. Contact base physician for treatment options [Medical Direction].
5. Multiple Births
  - a. Clamp the cord of the first baby to prevent hemorrhaging from the second baby via the umbilical cord.
  - b. Care for the delivery of the second baby and placenta(s) as per care of the newborn protocol.
6. Postpartum Hemorrhage
  - a. Place sterile pad over vaginal opening, lower mother's legs, help her hold them together. If excessive bleeding is present, start fundal massage of the uterus to stimulate contraction.

#### **AA. Obstetrics – Pregnancy Complications**

1. Eclampsia - Characterized by hypertension, peripheral edema, and seizures
  - a. Move the patient quietly and gently. Transport patient on left side without lights and sirens.

#### **BB. Seizures**

1. Do not restrain the patient. Let the seizure take its course. Place a pillow, rolled blanket or other padding material beneath the patient's head to prevent injury.
2. Determine glucose level by glucometer. If glucose less than 60 mg/dL or clinical signs and symptoms indicate hypoglycemia:
  - a. If the patient can protect airway, give oral glucose 15 grams. The patient must be able to self administer without assistance. Repeat in 15 minutes if necessary.

**CC. Stroke/CVA/TIA**

1. Determine glucose level by glucometer.
  - a. If glucose less than 60 mg/dL or clinical signs and symptoms indicate hypoglycemia, refer to the HYPOGLYCEMIA guideline.
2. Perform Cincinnati pre-hospital stroke scale evaluation.
  - a. If any stroke scale test finding is abnormal and the onset of symptoms (time last seen normal, time patient last felt normal, etc.) is < 5 hours, immediately declare a "Stroke Alert" to the receiving hospital.
3. The radio or phone report to the hospital must include;
  - a. Standard report information.
  - b. Exact time of day the patient was last seen or "felt" normal.
  - c. Stroke scale results.
  - d. Glucose determination value.
  - e. The patient's stated weight. (Do not estimate)
  - f. Positive or negative history of CVA/TIA, seizures and/or migraine headaches.
  - g. ETA to emergency department.
4. Transport rapidly, but carefully. Notify the receiving hospital as early as possible. Scene time should be less than 10 minutes.
5. Hyper-oxygenation of stroke patients should be avoided. Use pulse oximetry and only apply oxygen to patients who have oxygen saturations below 94% or those who are exhibiting signs of hypoxia.

## Part V. Trauma Management

### A. Scene Assessment

1. Determine scene safety and position apparatus accordingly.
2. The first unit on location must give a brief approach report of their observations at the scene and indicate the number of potential patients.
3. Assess the scene and triage patients using the SALT triage method. Initiate Multiple Casualty Incident (MCI) Plan if incident casualty numbers require deviation from the normal course of EMS operations.
4. Establish the Incident Command Structure (ICS).
5. Conduct a medical size-up and report the following information to the dispatch center on the assigned tac:
  - a. Extent (number of casualties).
  - b. Nature (mechanism of injuries).
  - c. Severity (by color – RED, YELLOW, GREEN, BLACK/WHITE, BLACK).
  - d. Size / Extent (geographic area covered).
6. Determine MCI level (if applicable).
  - a. Level 1 – More than 20 patients requiring more than 10 ambulances.
    - i. Activates the entire MCI plan, including possible recall of off-duty personnel.
  - b. Level 2 – 7-20 patients, requiring no more than 10 ambulances.
  - c. Level 3 – 4-6 patients requiring 4-6 ambulances, due to environmental adversity, or the risk of additional patients.

Note: If the number of casualties exceeds the threshold but few, if any, appear to be seriously injured, consideration should be given to NOT declare the incident an MCI.

7. Categorize patients into one of the following:
  - a. RED: First Priority (Immediate transport) – These patients have life-threatening injuries who need immediate care and transport. Treat these patients first and transport as soon as possible.
  - b. YELLOW: Second Priority (Delayed transport) – These patients whose injuries do not pose an immediate life threat, allowing treatment and transportation to be temporarily delayed (30-45 min).
  - c. GREEN: Third Priority (Walking wounded) – patients who do not require treatment or whose treatment and transportation can be delayed until last.
  - d. BLACK/WHITE: Fourth Priority (Expectant) – These patients have a very poor prognosis / survivability even with maximal care. These patients shall receive treatment/transport only when resources permit.

- e. **BLACK: Fifth Priority (DOA)** – Patients who are already dead upon EMS arrival. If resources are limited, treat salvageable patients before attempting treatment on these patients.

## **B. Patient Assessment & Care**

1. Assess patient for “load-and-go” criteria;
  - a. Airway compromise and/or severe respiratory distress.
  - b. Uncontrolled bleeding.
  - c. Unresponsiveness.
  - d. Trauma center candidates.
2. Alert responding ambulance if patient is a “load-and-go”.
3. Control the cervical spine. Assume cervical spine injury is present in any patient with:
  - a. Evidence of high impact with a distracting injury
  - b. Any head or neck injury
  - c. Neck pain following trauma
  - d. Altered mental status
  - e. Presence of any neurological deficit

**REMINDER:** Loss of sensation or motor activity **MAY NOT** be present initially with cervical spine fractures

4. Provide airway management while maintaining inline cervical spine immobilization.
5. Refer to “EMS spinal precautions and the use of the long backboard” paper located in the appendix for use of the long backboard with trauma patients.
6. Assess the patient for chest wounds.
  - a. Apply occlusive dressing to open or sucking chest wounds.
7. If severe bleeding is present, control via the use of;
  - a. Direct pressure.
  - b. Pressure dressing.
  - c. A BP cuff can be utilized proximal to an extremity wound by inflating it to a pressure between the systolic and diastolic pressure.
  - d. CAT Tourniquet (See appendix for application)
8. Hypovolemic shock (assume shock is present when the pulse is greater than 120 and/or systolic BP less than 100 mmHg in a previously normotensive patient; or systolic drops 40-50 mmHg in a previously hypertensive patient, especially if accompanied by pale clammy skin and decreased level of consciousness).

- a. Place patient in shock position with feet elevated 6"-12" with head and torso in horizontal position. Avoid Trendelenburg position.
9. Impaled objects should be stabilized in place.
- a. Remove impaled object if;
    - i. The impaled object compromises the airway and/or airway management.
    - ii. The impaled object would risk greater injury resulting from chest compressions during CPR.

**C. TRAUMA Category Alerts**

**1. Category I Trauma Center Alert is indicated for any injured patient with:**

- GCS < 9 with trauma
- Gunshot wounds to neck, chest, or abdomen or extremities proximal to the elbow/knee
- Quadriplegia (following injury)
- Systolic BP<90 (Pediatric age specific)
- Transfer from outside hospital with unstable vital signs
- Any intubated patient with trauma
- Respiratory rate < 10 or > 29 with trauma
- Hypothermia (< 31° C or 87.7° F)
- Unstable multiple pelvic fractures
- Major crush injury to the torso
- Penetrating injury or impaled object to the head, neck, torso and extremities proximal to the elbow or knee
- Crushed, mangled, degloved or pulseless extremities
- Two or more proximal long bone fractures (femur, humerus)
- Amputation proximal to the elbow or knee
- Open or depressed skull fracture
- Hanging
- Drowning
- Electrocution with unstable vital signs

**2. Category II Trauma Center Alert is indicated for any injured patient with:**

- GCS 10-13 with trauma
- Spinal column fractures with neurologic deficit
- Fall > 20 feet (Adult) or > 10 feet (Pediatric)
- Isolated femur or stable pelvic fracture due to crash or fall
- MVC with intrusion > 12 inches occupant side, or > 18 inches any side
- MVC partial or complete ejection
- MVC with death in same vehicle
- MVC with rollover
- MVC with extrication > 20 minutes



- Motorcycle crash > 20 mph
  - Auto versus pedestrian/bicycle thrown, run-over or with significant (>20 mph) impact
  - Stable transfers from outside facilities with EMS Transport
3. Comorbid Factors (Consider activation on any injured patient with:
- Age < 5 or > 55
  - Patient with predisposing medical conditions such as:
    - i. Anticoagulation
    - ii. Bleeding disorders
    - iii. ESRD requiring dialysis
    - iv. Pregnancy > 20 weeks
    - v. Cardiac or respiratory disease
    - vi. Cirrhosis
    - vii. Morbid obesity
  - EMS Provider Judgement
4. All Category I and Category II trauma alerts made from the field must be clearly documented on the patient care report.
5. Immediate transport to the nearest facility is indicated when trauma related patients meet the following criteria:
- Patients with obstructed airway
  - Uncontrolled respiratory distress or
  - Life threatening, uncontrolled hemorrhage
6. The Trauma Center is the only hospital to contact if the above criteria are met. Trauma patients that do not meet these guidelines, and are stable, may be taken to any hospital.
7. **ANY HOSPITAL OR EMS PROVIDER HAS THE OPTION TO BYPASS TO THE TRAUMA CENTER IF IT IS FELT IT IS IN THE BEST INTEREST OF THE PATIENT.**

#### D. Abdominal Injuries

1. Dress any penetrating wound with a dry sterile dressing.
2. For evisceration: DO NOT REPLACE eviscerated tissue. Cover with a moist sterile dressing. Place a dry sterile dressing over moist dressing to maintain warmth.

**E. Burns**

1. Stop the burning process.
  - a. Thermal burns: Lavage the burned area with tepid water (sterile, if possible) to cool the skin. Do not attempt to wipe off semi-solids (grease, tar, wax, etc.) Do not apply ice. Dry the body when the burn area is > 10% BSA to prevent hypothermia.
  - b. Dry chemical burns: Brush off dry powder, then lavage with copious amounts of tepid water (sterile, if possible) for 20 minutes. Continue en route to the hospital.
  - c. Liquid chemical burns: Lavage the burned area with copious amounts of tepid water (sterile, if possible) for 20 minutes. Continue en route to the hospital.
  - d. Electrical burns: Apply clean, dry dressings to entrance and exit wounds
2. Remove clothing around the burned area, but do not remove/peel off skin or tissue. Remove and secure all jewelry and tight fitting clothing.
3. Assess the extent of the burn using the Rule of Nines and the degree of burn severity.
4. Cover the burned area with a clean, dry dressing/linen.

**F. Chest Injuries**

1. Cover sucking chest wounds with occlusive dressing; remove if patient's condition deteriorates.

**G. Extremity Injuries**

1. Assess CMS prior to and after splinting. Reassess CMS every 10 minutes after splinting.
2. Cover any open wound with a sterile dressing.
3. If transport time is greater than 30 minutes, cover with a moist, sterile dressing.
4. For amputated parts, keep them cool and cover any exposed end with a moist, sterile dressing.
5. Angulated fracture.
  - a. If distal circulation is compromised, attempt to reduce the fracture to restore circulation.
  - b. In general, fractures with angulations that are overriding in the mid-shaft may be straightened. This can be done for fractures in the lower extremities with the traction splint if not contraindicated.

6. Open fracture.
  - a. Remove gross contamination from the wound, control hemorrhage, and apply appropriate splints if necessary. If distal circulation is compromised, attempt to reduce the fracture to restore circulation.
7. Joint injury.
  - a. If distal pulses are present, immobilize the joint in its present position.
  - b. If no distal pulse is present, carefully straighten the joint to regain the distal pulse before immobilizing.
8. For suspected femur fracture (open or closed), consider traction splint.
9. For suspected unstable pelvic fractures, tie a sheet snugly around pelvis, or secure an upside down KED around pelvis.
10. For life threatening uncontrolled extremity hemorrhage that cannot be controlled by other means consider application of tourniquet. (See appendix for application)

## H. Eye Injuries

1. Assess visual acuity by have the patient count fingers from 1-2 arm lengths.
2. If vision is altered or absent, test for perception with a flashlight.
3. Chemical burns.
  - a. Flush eyes continuously with sterile H<sub>2</sub>O or Normal Saline Solution until arrival at hospital.
4. Ultraviolet & welder's flash burns.
  - a. Cover both eyes with dark patches.
5. Simple foreign object.
  - a. If tears do not wash the object away, use sterile H<sub>2</sub>O or normal saline solution to wash the eye letting the fluid drain down and away from the eye. Inversion of the eyelid may be necessary to extract the object.
6. Lacerations and contusions.
  - a. Assess the globe for injuries. If the globe appears lacerated, DO NOT APPLY PRESSURE-even to stop profuse bleeding.
  - b. Cover bleeding lids with loose sterile dressings.
  - c. Attempt to recover any torn eyelids, and transport wrapped in a sterile moist dressing.
7. Avulsion.
  - a. Eyelid tissues should not be immersed in saline; avulsed eyelid tissues should be stored in a cold moist environment.

## I. **Head Injuries**

1. For adult patients receiving assisted ventilations, hyperventilation (a ventilation rate of 20 breaths per minute) should only be utilized if neurological signs of impending brain stem herniation are recognized (i.e. bilateral fixed and dilated pupils, asymmetrical pupils, decerebrate posturing, or total body flaccidity).
2. Apply gentle pressure to bleeding wounds if possibility of skull fracture exists.
3. Any patient experiencing loss of consciousness should be transported to a medical facility.
4. Impaled objects.
  - a. Remove an impaled object only if it impedes the ability to administer CPR or sustain a patent airway for the patient.
  - b. Control any associated hemorrhage.
  - c. Secure the object in place with dressings and bandages or other appropriate material.
  - d. If the size or shape of the impaled object prevents the patient from being loaded into the ambulance, contact the base physician for direction [Medical Direction].
5. Dislodged teeth.
  - a. Place the permanent tooth or teeth into a bag with milk or normal saline solution. Make sure to transport the tooth or teeth with the patient

## Part VI. Appendix

### A. NAEMSP Position Statement

# POSITION STATEMENT

EMS SPINAL PRECAUTIONS AND THE USE OF THE LONG BACKBOARD  
National Association of EMS Physicians and American College  
of Surgeons Committee on Trauma

#### ABSTRACT

This is the official position of the National Association of EMS Physicians and the American College of Surgeons Committee on Trauma regarding emergency medical services spinal precautions and the use of the long backboard. Key words: spine; backboard; EMS; position statement; NAEMSP; ACS-COT.

PREHOSPITAL EMERGENCY CARE 2013; Early Online:1–2

The National Association of EMS Physicians and the American College of Surgeons Committee on Trauma believe that:

Long backboards are commonly used to attempt to provide rigid spinal immobilization among emergency medical services (EMS) trauma patients. However, the benefit of long backboards is largely unproven.

The long backboard can induce pain, patient agitation, and respiratory compromise. Further, the backboard can decrease tissue perfusion at pressure points, leading to the development of pressure ulcers.

Utilization of backboards for spinal immobilization during transport should be judicious, so that the potential benefits outweigh the risks.

Appropriate patients to be immobilized with a backboard may include those with:

Blunt trauma and altered level of consciousness

Spinal pain or tenderness

Neurologic complaint (e.g., numbness or motor weakness)

Anatomic deformity of the spine

High-energy mechanism of injury and any of the following:

Drug or alcohol intoxication

Inability to communicate

Distracting injury

Patients for whom immobilization on a backboard is not necessary include those with all of the following:

Normal level of consciousness (Glasgow Coma Score [GCS] 15)

No spine tenderness or anatomic abnormality

No neurologic findings or complaints

No distracting injury

No intoxication

Patients with penetrating trauma to the head, neck, or torso and no evidence of spinal injury should not be immobilized on a backboard.

Spinal precautions can be maintained by application of a rigid cervical collar and securing the patient firmly to the EMS stretcher, and may be most appropriate for:

Patients who are found to be ambulatory at the scene

Patients who must be transported for a protracted time, particularly prior to interfacility transfer

Patients for whom a backboard is not otherwise indicated

Whether or not a backboard is used, attention to spinal precautions among at-risk patients is paramount. These include application of a cervical collar, adequate security to a stretcher, minimal movement/transfers, and maintenance of in-line stabilization during any necessary movement/ transfers.

Education of field EMS personnel should include evaluation of the risk of spinal injury in the context of options to provide spinal precautions. Protocols or plans to promote judicious use of long backboards during prehospital care should engage as many stakeholders in the trauma/EMS system as possible.

Patients should be removed from backboards as soon as practical in an emergency department.

Approved by the National Association of EMS Physicians Board of Directors December 17, 2012.

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**B. Wound Care Tourniquet**

1. Clinical Indications:
  - a. A Life threatening extremity hemorrhage that cannot be controlled by other means.
  - b. Serious or life threatening extremity hemorrhage and tactical considerations prevent the use of standard hemorrhage control techniques.
2. Contraindications:
  - a. Non-extremity hemorrhage
  - b. Proximal extremity location where tourniquet application is not practical
3. Procedure:
  - a. Place tourniquet proximal to wound
  - b. Tighten per manufacturer instructions until hemorrhage stops and/or distal pulses in affected extremity disappear.
  - c. Secure tourniquet per manufacturer instructions
  - d. Note time of tourniquet application and communicate this to receiving care providers
  - e. Dress wounds per standard wound care protocol
  - f. If delayed or prolonged transport and tourniquet application time > 45 minutes: consider reattempting standard hemorrhage control techniques and removing tourniquet
  - g. If one tourniquet is not sufficient or not functional to control hemorrhage, consider the application of a second tourniquet more proximal to the first.

## C. LUCAS™ Device

### 1. INDICATIONS

The LUCAS™ may be used in patients 12 years of age and older who have suffered cardiac arrest, where manual CPR would otherwise be used.

### 2. CONTRAINDICATIONS

- a. Patients < 12 years of age.
- b. Patients who do not fit within the device.
  - i. If the unit snaps onto the backboard and the suction cup does not compress the patient's chest while in the start position, it will operate as intended.
  - ii. Patients who are too small that you cannot pull the pressure pad down to touch the sternum.

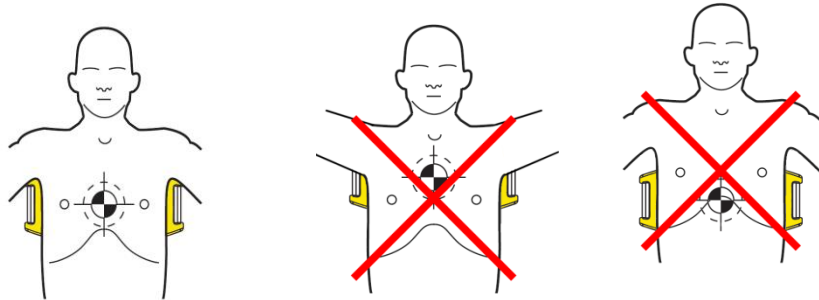
### 3. PROTOCOL FOR PLACEMENT

- a. All therapies related to the management of cardiopulmonary arrest should be continued as currently defined in protocol with an **ultimate goal of obtaining a return of spontaneous circulation (ROSC) before brain damage occurs.**
- b. Initiate resuscitative measures following current LF&R protocols.
  - i. Immediately begin performing high quality manual compressions while applying the defibrillation pads. Do not delay manual CPR for the LUCAS 2™.
  - ii. Rhythm analysis with early defibrillation should be provided if necessary based on clinical presentation.
  - iii. Obtain vascular access.
  - iv. Administer the appropriate medications.
  - v. Place an advanced airway.
  - vi. Turn the LUCAS™ device "on" when removing from the carrying case. This will allow the device to perform a "self-test".
  - vii. Apply the LUCAS™ device to the patient after the third cycle of manual compressions if needed. Continue manual CPR until the device can be placed. Limit interruptions in chest compressions to 10 seconds or less.
  - viii. Prepare **the patient for transportation if appropriate.**
  - ix. **Consider using the scoop stretcher for movement of the patient.**
- c. When resuscitative measures are initiated, the LUCAS™ device should be removed from its carrying device and placed on the patient in the following manner.



d. **Back Plate Placement**

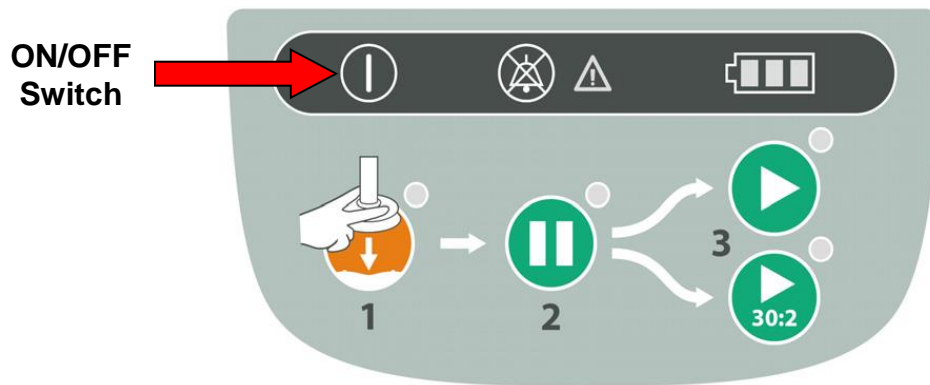
- i. The back plate should be centered on the nipple line and the top of the back plate should be located just below the patient's armpits.



- ii. In cases for which the patient is already on the stretcher, place the back plate underneath the thorax. This can be accomplished by log-rolling the patient or raising the torso (Placement should occur after two minutes of uninterrupted compressions]).

e. **Position the Compressor**

- i. Turn the LUCAS™ Device on (the device will perform a 3 second self test.)

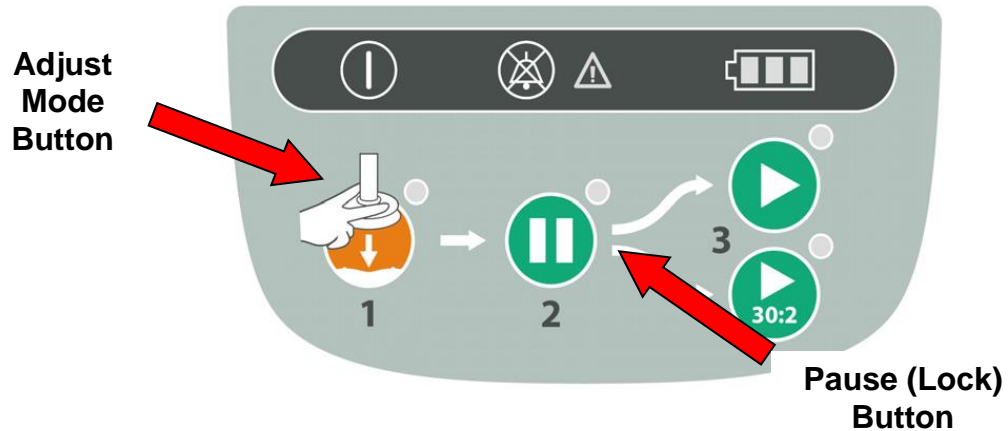


- ii. Remove the LUCAS™ device from its carrying case using the handles.
- iii. With the index finger of each hand, pull the trigger to ensure the device is set to engage the back plate. Once this is completed remove your index finger from the trigger loop.
- iv. Approach the patient from the side opposite the person performing manual chest compressions.
- v. Attach the claw hook to the back plate on the side opposite of the person providing compressions.
- vi. Place the LUCAS 2™ device across the patient, between the staff member's arms who is performing manual CPR.

- vii. At this point the staff member performing manual CPR stops and assists attaching the claw hook to the back plate on their side.
- viii. Pull up once to make sure that the parts are securely attached.

f. **Adjust the Height of the Compression Arm**

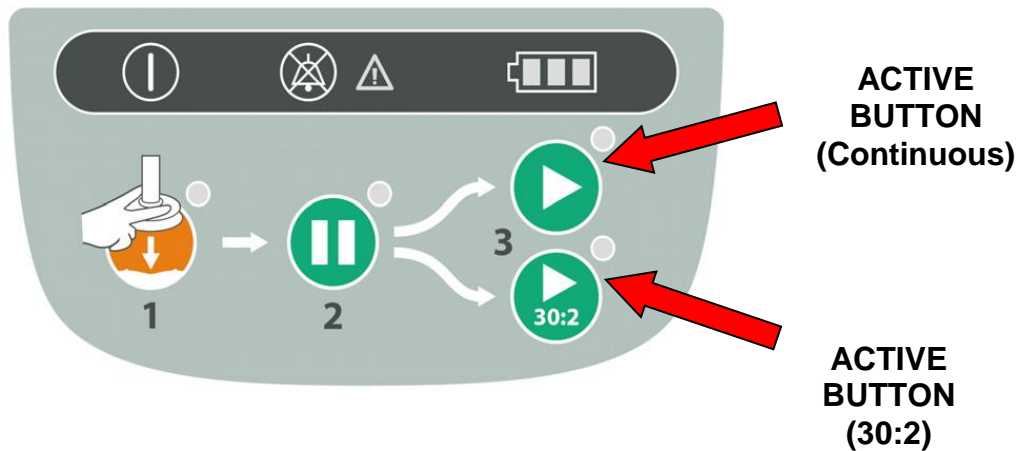
- i. Use two fingers (V pattern) to make sure that the lower edge of the Suction Cup is immediately above the end of the sternum. If necessary, move the device by pulling the support legs to adjust the position.



- ii. Press the Adjust Mode Button on the control pad labeled #1 (This will allow you to easily adjust the height of the compression arm).
- iii. To adjust the start position of the compression arm, manually push down the SUCTION CUP with two fingers onto the chest (without compressing the patient's chest).
- iv. Once the position of the compression arm is satisfactory, push the green PAUSE button labeled #2 (This will lock the arm in this position), then remove your fingers from the SUCTION CUP).
- v. If the position is incorrect, press the ADJUST MODE BUTTON and repeat the steps.

**g. Start Compressions**

- i. Begin delivering mechanical compressions by pushing the ACTIVE (continuous) button.



**h. Using Patient Adjuncts**

- i. Place the neck roll behind the patient's head and attach the straps to the LUCAS™ device.
  - 1) This will prevent the LUCAS™ from migrating toward the patient's feet.
- ii. Place the patients arms in the straps provided.

**4. USING THE LUCAS™ DURING THE RESUSCITATION**

**a. Defibrillation**

- i. Defibrillation can and should be performed with the LUCAS™ device in place and in operation.
- ii. Defibrillation electrodes should be applied before the LUCAS 2™ device has been put in position.
  - 1) The defibrillation pads and wires should not be underneath the suction cup.
  - 2) If the electrodes are already in an incorrect position when the LUCAS™ is placed, you must apply new electrodes.
- iii. Defibrillation should be performed according to the LF&R protocols and following the instructions of the defibrillator manufacturer.
- iv. Rhythm analysis cannot be assessed during compressions. The device should be stopped for analysis by pushing the PAUSE BUTTON (The duration of interruption of compressions should be kept as short as possible and should not be > 10 seconds. There is no need to interrupt chest compressions other than to analyze the rhythm).
- v. Once the rhythm is determined to require defibrillation, the appropriate ACTIVE BUTTON should be pushed to resume

compressions while the defibrillator is charging and then the defibrillator should be discharged.

- b. **Pulse Checks/Return of Spontaneous Circulation (ROSC)**
  - i. Pulse checks should occur intermittently while compressions are occurring.
  - ii. If the patient moves or is obviously responsive, the LUCAS 2™ Device should be paused and the patient evaluated.
  - iii. If there is a change in rhythm, but no obvious indication of responsiveness or ROSC, a pulse check while compressions are occurring should be undertaken. If the palpated pulse is asynchronous, consider pushing the pause button on the LUCAS™ Device. If the pulse is palpable, reassess the patient. If the pulse is impalpable, immediately restart the LUCAS™ Device.
- c. **Malfunction or Disruption of LUCAS™ Device**
  - i. **If malfunction or disruption of the LUCAS™ device occurs, immediately begin manual chest compressions.**

## 5. **Device Management**

- a. **Power Supply**
  - i. **Battery Operation**
    - 1) When fully charged, the Lithium Polymer battery should allow 45 minutes of uninterrupted operation.
    - 2) Only leave the LUCAS™ device plugged in long enough to charge the battery. Once the battery is fully charged, unplug the LUCAS™ and store in the cabinet.
    - 3) Make sure that the cord is always with the LUCAS™ device.
    - 4) During use when the orange Battery LED shows an intermittent light, the battery should be replaced or the device should be connected to a wall outlet.
  - ii. The LUCAS™ Device can be connected to wall power in all operational modes (The battery must be installed in order for the LUCAS™ Device to remain operational).



**Power Supply  
Cord Slot (for  
charging and  
AC operation)**

**6. Care of the LUCAS™ Device  
after use**

- a. Remove the Suction cup and the Stabilization Strap (if used, remove the Patient Straps).
  - i. Clean all surfaces and straps with a cloth and warm water with an appropriate cleaning agent.
  - ii. Let the device and parts dry.
  - iii. Replace the used battery with a fully-charged battery.
  - iv. Remount (or replace) the Suction Cup and straps.
  - v. Repack the device into the carrying bag.
  - vi. Recharge the battery after every use.

**7. Wednesday checks of the LUCAS™**

- a. The LUCAS™ device should be removed from the storage case and inspected for damage.
- b. Working with the crew the LUCAS™ device should be placed on the provided CPR mannequin and allow to run for ten (10) minutes.
- c. Recharge the battery after every use.
- d. Place the device back in the storage case.

## D. Infectious Disease

The risk of contracting Ebola in the United States is very minimal. The CDC and Health Department have limited the access of persons from West Africa, specifically Liberia, Sierra Leone and Guinea, to the US and are actively screening them at the airports. If the person is symptomatic they are quarantined at the airport and monitored. If they are asymptomatic they are given instructions on how to monitor themselves for Ebola. Their destination's State and Local Health Departments are notified they are in route their city and empowered to continue monitoring them until they have passed the incubation period of 21 days.

The following are the suggested steps for providing care to a person suspected of having Ebola or any other extremely infectious disease.

1. Screen the patient for Ebola by asking the appropriate questions if: <sup>1 2</sup>
  - a. Do they have flu like symptoms, fever greater than 101.4° F, fatigue, headache, weakness, muscle pain, vomiting, diarrhea, abdominal pain or unexplained hemorrhage, and
  - b. The patient has lived in or traveled to a country with widespread Ebola Virus transmission or had contact with an individual with confirmed Ebola Virus Disease within the previous 21 days.
2. If the patient meets the above criteria, EVERYONE should retreat from the environment and: <sup>3</sup>
  - a. Someone from the original crew should don contents of the LF&R Infectious disease kit and return to the patient's side. This will more than likely be someone from the Engine or Truck Company since they will probably arrive on location before the medic unit. Provide patient comfort care only.
    - i. Consider placing a mask on the patient or asking them to don a mask.
  - b. Contact 911 dispatch and request the Infectious Disease transport ambulance,
    - i. Station 14 will be responsible for getting the vehicle to the scene.
  - c. Request that dispatch send the closest HazMat apparatus,
    - i. The closest HazMat apparatus will determine if they have enough people on their crew trained to deal with donning and doffing and request additional support if needed.
  - d. Request the OIC and EMS-1 to the scene,

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<sup>1</sup> <http://emergency.cdc.gov/han/han00371.asp>

<sup>2</sup> <http://www.cdc.gov/vhf/ebola/pdf/ambulatory-care-evaluation-of-patients-with-possible-ebola.pdf>

<sup>3</sup> <http://www.cdc.gov/vhf/ebola/hcp/ed-management-patients-possible-ebola.html>

- i. EMS-1 will be responsible for immediately contacting the LLCHD and the Division Chief of EMS.
      - e. The receiving hospital should be notified as soon as possible that we are transporting a patient potentially infected with Ebola.
3. Once the Infectious Disease transport ambulance arrives on scene, two members from the HazMat apparatus should don the appropriate sized brown Tyvek suits, SCBA's, gowns from the Infectious disease kit, and double glove,
  - a. The PPE equipment will be carried on the Infectious Disease Transport ambulance in the outside compartments;
  - b. The required SCBA's can be removed from the medic unit on location.
4. A trained observer should be designated and should ensure that PPE is donned properly. <sup>4</sup>
5. The two providers wearing the Tyvek suits and SCBA's should make contact with the patient and place them on the ambulance cot. Cot should be covered by the appropriate absorbent drapes before the patient is placed on the cot;
  - a. The absorbent cot drape should be used to "cocoon" the patient and the "cocoon" should be secured with tape,
  - b. Only BLS care will be provided to the patient
6. Once the providers have properly donned their PPE the other members of the HazMat station apparatus should immediately proceed to the hospital and prepare for decontamination of the two providers in the Tyvek suits.
7. Members from the originally dispatched engine crew shall provide a driver for the Infectious Disease ambulance and accompany the ambulance to the hospital. Drivers should don the contents of the Infectious disease kit, being especially conscious of wearing clean gloves, eye protection and a face mask;
  - a. The patient compartment HVAC system will not operate due to the plastic lining in the back of the ambulance.
8. The two members of the transport team wearing Tyvek suits and SCBA's shall accompany the patient in the back of the ambulance to the hospital where they will move them to the designated areas as specified by hospital providers;
  - a. Someone will be assigned to drive the ambulance and should don the contents of the Infectious Disease kit.
9. The members of the transport team will be de-contaminated using the best judgment of the HazMat captain in conjunction with EMS-1. All personnel that provided patient care will doff their PPE under the auspices of a "trained

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<sup>4</sup> <http://www.cdc.gov/vhf/ebola/hcp/ppe-training/index.html>

- observer". (EMS-1 can be used as a reference source but will not be donning PPE);
- a. Providers should shower at the hospital and don hospital scrubs until they can return to their station. Clothing should be double bagged and can be laundered using hot water and regular laundry soap,
  - b. Contact the emergency room Charge Nurse for directions to the showers and surgical scrubs.
10. The providers will return to work and will be screened using the CDC recommendations for someone who has potentially been exposed to Ebola. The LLCHD will be involved in this screening process to ensure the safety of the providers;<sup>5</sup>
- a. Providers are not considered infectious until they develop symptoms 2-21 days later. Since they are considered asymptomatic, these individuals are in the low (but not zero) risk category.<sup>6</sup>
11. The Infectious disease response vehicle will be parked until a determination has been made if the patient actually does have Ebola. This will usually take between four (4) and six (6) hours;
- a. All PPE, SCBA's, and the cot should be placed in the back of the infectious disease response vehicle.
12. If the patient is found to have Ebola or another extremely infectious disease a private contractor suggested by LLCHD will be hired to decontaminate the interior of the ambulance.<sup>7</sup>
13. If the patient does not have Ebola or another extremely infectious disease the ambulance will be cleaned following MP 303.04.
- a. The vehicle should be returned to Logistics so another layer of plastic can be installed inside the patient compartment.
14. The vehicle can then be placed back into service and stored at the TRIDENT until needed again.
15. Decontamination of the Infectious Disease transport ambulance can be accomplished by following MP 303.04 unless it is determined the patient has tested positive for Ebola. IF the patient has tested positive for Ebola or other extremely infectious disease the department will work with LLCHD to have the ambulance professionally decontaminated.

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<sup>5</sup> <http://www.cdc.gov/hai/settings/outpatient/outpatient-care-guidelines.html>

<sup>6</sup> <http://www.cdc.gov/vhf/ebola/exposure/monitoring-and-movement-of-persons-with-exposure.html>

<sup>7</sup> <http://www.cdc.gov/vhf/ebola/hcp/medical-waste-management.html>



**E. I-gel Insertion Protocol**

Non-visualized supraglottic airway placement to establish control of the patient's airway may be performed by a Lincoln system certified paramedic, paramedic intern under the direct supervision of a Lincoln system certified paramedic and all BLS providers.

**1. Indications:**

- a. Any patient in cardiac arrest.
- b. Apneic patient when endotracheal intubation is not possible or not available.
- c. Patient must be **unconscious, without a gag reflex**
- d. Failed airway

**2. Contraindications - Precautions:**

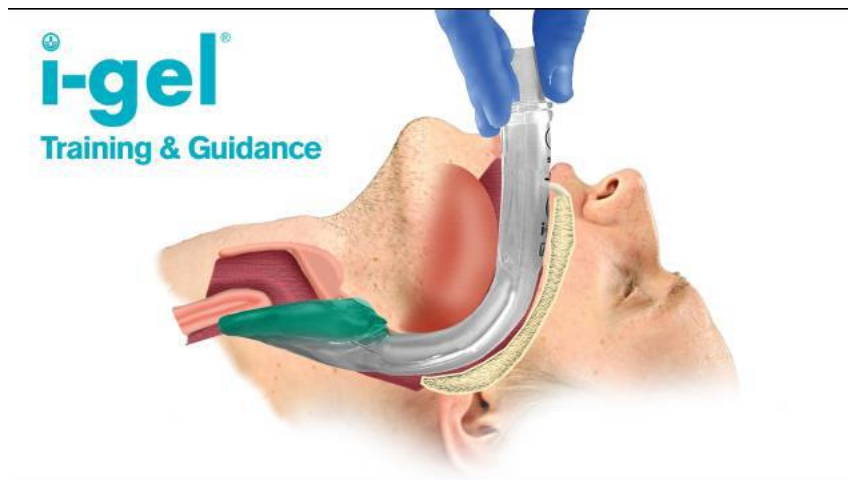
- a. History of esophageal foreign body, disease or caustic ingestion
- b. Obstructive lesions below the glottis
- c. Trismus, limited mouth opening, pharyngo-perilaryngeal abscess, trauma or mass
- d. Stoma
- e. Conscious or semi-conscious patients with an intact gag reflex
- f. Do not use excessive force to insert the device.
- g. As with all supraglottic airway devices, particular care should be taken with patients who have fragile and vulnerable dental work, in accordance with recognized airway management.
- h. Use care to avoid the introduction of lubricant in or near the ventilatory openings

Patient Size	I-gel Size	Patient Weight	Patient Height	Suction Cath Size
Neonate	1	2-5 kg	N/A	N/A
Infant	1.5	5-12 kg	N/A	12 Fr.
Small Pediatric	2	10-25 kg	N/A	12 Fr.
Large Pediatric	2.5	25-35 kg	N/A	12 Fr.
Small Adult	3	30-60 kg	4-5'	12 Fr.
Medium Adult	4	50-90 kg	5-6'	12 Fr.
Large Adult	5	90+ kg	>6'	12 Fr.

**3. Procedure:**

- a. Take and maintain appropriate body substance isolation precautions including eye protection.
- b. Determine and select appropriate airway for size of patient.
- c. Lubricate per the manufacturers recommendations

- d. Grasp the lubricated I-gel firmly along the integral bite block (tube portion of the device). Position the device so that the I-gel cuff outlet is facing toward the chin of the patient.
  - i. NOTE: be sure that there is only a thin layer of lubricant on the end of the I-gel to avoid blowing it into the lungs with bagging
  - ii. Suction the upper airway PRIOR to insertion as needed
- e. The patient should be in the “sniffing” position, with head extended and neck slightly flexed forward. **If cervical injury is suspected, use modified “jaw thrust” instead of any flexion at the neck.** The chin should be gently pressed down/inferior before proceeding to insert the I-gel.
- f. Introduce the leading soft tip into the mouth of the patient in a direction toward the hard palate.
- g. Glide the device downwards and backwards along the hard palate with a continuous, but gentle push until a definitive resistance is felt.
- h. **WARNING:** Do not apply excessive force to the device during insertion. It is not necessary to insert your fingers or thumbs into the oral cavity of the patient during insertion of this device. If there is resistance during insertion, a ‘jaw thrust’ and slight rotation of the device is recommended.
- i. At this point, the tip of the device 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.



#### 4. Post Placement:

- a. Auscultate breath sounds, check for chest rise and confirm placement with ETCO<sub>2</sub> monitoring and SpO<sub>2</sub> monitoring as allowed by protocol.
  - i. Attach pulse oximeter probe and ETCO<sub>2</sub> circuit
  - ii. ETCO<sub>2</sub> monitoring.
    1. Head injuries: 30-35 mmHg

2. All other patients should be between 35-40 mmHg
- b. Secure the tube per manufacturer's instructions
- c. Place suction catheter in side port and advance to appropriate position, apply suction to decompress the stomach.
- d. Continue to monitor, sedate per protocol as necessary (**ALS Procedure**)
- e. Consider definitive airway placement, if possible and necessary. (**ALS Procedure**)
  - i. Endotracheal tube placement
  - ii. You can intubate through the I-gel tub with a Bougie introducer.

#### 5. Indications for I-gel removal:

- a. Patient regains consciousness. (Consider sedation and/or paralytics {**ALS Procedure**} if authorized)
- b. Protective gag reflex returns. (Consider sedation and/or paralytics {**ALS Procedure**} if authorized)
- c. Ventilation is inadequate.
- d. Improperly placed I-gel airway.

#### 6. Removal:

- a. Ensure suctioning equipment is ready, roll patient onto left side
- b. Carefully remove I-gel airway with gentle, but firm traction. Suction as needed.
- c. Insert an oropharyngeal or nasopharyngeal adjunct, as needed.
- d. Continue ventilations with a BVM at 10-15 LPM flow, as needed or place on non-rebreather mask at 15 LPM
- e. Document time of removal and ongoing vitals

#### 7. Key Points

- a. This is NOT a definitive airway and aspiration can occur with this device.
- b. Preload the OG port with a 12 French suction catheter to prevent any fluid leakage from this hole during insertion.
- c. Apply a small amount of lubricating gel to the tip of the I-gel to aid in insertion, but do not over lubricate!
- d. Do not leave in place for >4 hours



Approved by:

\_\_\_\_\_ Medical Director (Print)

\_\_\_\_\_ Medical Director Signature

\_\_\_\_\_ Date

(A signed copy is available at the Training Division)

**Edited 02/13/2019**