

# ***Louisville Metro EMS***



## **Standard BLS Treatment Protocols** Revised December 2007

# TABLE OF CONTENTS

<b>GENERAL GUIDELINES.....</b>	<b>1</b>
INITIAL MEDICAL CARE.....	2
LOAD AND GO SITUATIONS.....	3
MANAGEMENT OF THE POSSIBLE CRIME SCENE.....	4
CARDIAC ARREST.....	5
CHEST PAIN.....	6
DIABETIC EMERGENCIES.....	7
DIFFICULTY BREATHING.....	8
NEBULIZED ALBUTEROL ADMINISTRATION.....	10
KING AIRWAY.....	12
HYPERTHERMIA.....	13
HYPOTHERMIA.....	14
NEAR DROWNING.....	15
OB / GYN EMERGENCIES.....	16
OVERDOSE / POISONING.....	18
SEIZURE.....	19
SHOCK.....	20
STROKE.....	21
ABDOMINAL TRAUMA.....	22
AMPUTATED BODY PART CARE.....	23
BURNS.....	24
CHEST TRAUMA.....	25
ENVENOMATIONS AND ANAPHYLAXIS.....	27
EXTREMITY INJURY.....	29
EYE EMERGENCIES.....	30
HEAD / NECK INJURY.....	32
TRAUMA.....	34
UNCONSCIOUS.....	35
<b>GENERAL PEDIATRIC CARE.....</b>	<b>36</b>
BURNS.....	37
FOREIGN BODY AIRWAY OBSTRUCTION.....	38
ABUSE AND SEXUAL ASSAULT.....	39
NON-TRAUMATIC CARDIAC ARREST.....	40
DIFFICULTY BREATHING.....	41
HYPOGLYCEMIA.....	42
NEWBORN RESUSCITATION.....	43
OVERDOSE / POISONING.....	44
SEIZURE.....	45
SHOCK.....	46
TRAUMA.....	47
UNCONSCIOUS.....	48
ROOM 9 CRITERIA.....	49
BURN CENTER REFERRAL.....	50
CHILDREN TRAUMA CODE INDICATIONS.....	51

# **GENERAL GUIDELINES**

## INITIAL MEDICAL CARE

When the medical responder determines the need to provide medical care, the following shall serve as a general guideline for the initial medical assessment and management.

### Actions:

1. Assess the scene for safety and call for appropriate support, if needed.
2. Gain control of both the scene and the patient, eliminating as many risks as possible.
3. Determine if the patient is conscious.
4. Ensure that the patient has an open and maintainable airway, correcting any deficits as necessary.
5. Ensure that the patient is breathing adequately. Assess the rate, depth and effort of breathing. Correct any deficits as necessary. Administer oxygen as indicated by the specific protocol.
6. Ensure that the patient has a pulse. If absent, and unless otherwise indicated by protocol, begin CPR and apply the **AED**. If the patient has a carotid pulse, assess for distal pulses and compare the quality of these.
7. Establish the patient's level of consciousness utilizing the "A-V-P-U" scale:
  - A: Patient is awake
  - V: Patient responds to verbal stimuli
  - P: Patient responds to painful stimuli
  - U: Patient is unresponsive
8. If not contraindicated by protocol, place the patient in a position in which the patient feels most comfortable. Loosen tight clothing and reassure the patient.
9. Using teamwork, concurrently complete the following actions:
  - Determine the patient's chief complaint.
  - Identify and record vital signs.
  - Determine pertinent current and past medical history.
  - Have the family gather the patient's medication so that they may be handed over to EMS.
  - Determine and note known allergies.
  - Conduct an appropriate physical examination.
10. Provide appropriate medical treatment based upon the patient's clinical presentation. Use the appropriate protocol. Be able to adjust your treatment to the specific needs of each individual patient.
11. Reassess vital signs and document them on the required forms. Potentially unstable patients should have vital signs reassessed at least every 5 minutes.
12. Prepare patient for transport.

## LOAD AND GO SITUATIONS

The following are indications that the patient should be prepared for **LOAD AND GO** transport as soon as the ambulance arrives on the scene.

Indications:

1. Airway obstruction that cannot be quickly relieved by mechanical means.
2. Head injury associated with a decreased level of consciousness (LOC), a **Glasgow Coma Score** (GCS) < 13, or unilateral pupil dilation.
3. Clinical suspicion of hemo/pneumothorax.
4. Obstetrical emergencies that include:
  - A. Abruptio placenta.
  - B. Active seizure.
  - C. Breech presentation that does not spontaneously deliver.
  - D. Limb presentation.
  - E. Placenta previa.
5. Clinical suspicion of pericardial tamponade.
6. Penetrating head, neck, thigh or trunk trauma.
7. Shock.
8. Tension pneumothorax.
9. Traumatic cardiorespiratory arrest.
10. Unstable abdominal pain.

## MANAGEMENT OF THE POSSIBLE CRIME SCENE

At times you will need to handle a patient at a crime scene. To avoid disturbing crucial evidence and to keep your treatment priorities intact, use the following guidelines:

1. Protect yourself. If the perpetrator is on the scene, notify LMPD and await their arrival before entering the scene.
2. If staffing is adequate, secure the scene from bystanders.
3. Take extreme care not to disturb evidence that is not directly on the patient's body.
4. Never touch or move weapons unless it is absolutely necessary for treating the patient. If you must touch a weapon, pick it up by the edge of the grip or the very edge of the blade. Note the original location of the weapon.
5. Cut around bullet and knife holes in the patient's clothing. Never cut through the actual hole made by the weapon.
6. Concentrate on the medical problems. If the patient is conscious and the injuries do not appear life threatening, do not ask the patient(s) specific questions about the crime.
7. Extensively document your findings and actions well on the LMEMS *PCR*.

## CARDIAC ARREST

CPR /AED application shall be initiated on any patient who has no respirations or pulse, unless directed otherwise by this protocol.

For unresponsive patients with no respiration or pulse:

1. Begin CPR.
2. Apply AED as per AHA Guidelines or manufacturer's recommendations.

### WHEN NOT TO BEGIN RESUSCITATION

The legal guidelines for determining death in Louisville Metro have been established by the Coroner, in consultation with the County Attorney. These situations for BLS personnel are:

1. No pulse - carotid or femoral, and...
2. No respirations, and...
3. No detectable blood pressure, and ...
4. No pupillary reflex, and ...

### ASSOCIATED WITH...

Obvious Mortal Wounds: These include decapitation, incineration, a severed body, and injuries that are so extensive the CPR cannot be effectively performed (e.g., severe crush injuries to the head, neck and chest).

Rigor Mortis: This is the stiffening of the body and its limbs that occurs after death, usually within 4 to 10 hours. The exception to this is a person who may be exposed to the cold.

Obvious Decomposition of the Body: The body will be putrefied; decayed.

Lividity /Venous Pooling: a red or purple skin discoloration that occurs when gravity causes the blood to sink to the lowest parts of the body and collect there. Lividity/Venous Pooling usually indicates that the patient has been dead for more than 15 minutes unless the patient is exposed to a cold environment.

If a person is dead at the scene, the responding unit shall convey this information to the LMEMS Communication Center.

The area surrounding a corpse shall not be disturbed in any manner unless it is absolutely necessary to do so in order to treat another sick or injured person. When this is the case, the scene will be disturbed as little as possible.

The body will not be searched for identification.

Personal effects of the corpse will not be searched or handled in any manner.

**The EMS unit will remain on the scene until LMEMS ALS unit arrives to confirm EKG.**

**EMS will notify LMPD and the Coroner's Office through LMEMS Dispatch.**

## CHEST PAIN

### HISTORY:

1. Pain: nature, onset, duration, location, radiation, quality, precipitating factors, and relieving factors.
2. Associated symptoms: shortness of breath, nausea, vomiting, diaphoresis, cough, and fever.
3. Medical history: cardiac or pulmonary history, medications, allergies, and illicit drug use.
4. Any history of trauma or volume depletion/dehydration.
5. Anginal Equivalents:
  - a. SOA with chest discomfort
  - b. Weakness/dizziness in elderly
  - c. Unilateral chest pain

### EXAM:

1. ABCs.
2. Vital signs.
3. Skin: diaphoresis, pale, cyanosis, or clammy.
4. Respiratory status: lung sounds.
5. General appearance: restless, apprehension, "feeling of impending doom."
6. Chest: rule out trauma.

### TREATMENT:

1. Provide **Initial Medical Care**.
2. Administer oxygen at **15 L/min. by NRB**.
3. Assist with ASA 325 mg (or 4x81 mg chewed) PO, unless known allergy.
4. If the patient is awake, alert, and has SL Nitroglycerin medication that has been prescribed by the patient's physician, assist the patient to take up to (3) SL Nitroglycerin at 5 min intervals if chest pain is present and B/P > 100 Systolic (**Required Medical Control Order**).

Stop points for NTG Administration include:

- a. B/P drops below 100 Systolic, stop NTG Treatment Protocol
- b. NTG not to exceed 3 doses within one (1) hour
- c. Chest pain is relieved
- d. Avoid NTG for patients who have taken Sildenafil (Viagra), Cialis (tadalafil) or Levitra (vardenafil) in past 48 hours.

## DIABETIC EMERGENCIES

### HISTORY:

1. Medical history: illnesses (esp. diabetes), medications, allergies.
2. Ask if the patient has eaten or taken insulin today.
3. Causes (Hyperglycemia): undiagnosed diabetic, excessive food intake by known diabetic, and/or failure to take medications or insulin properly.

### EXAM:

1. ABCs.
2. Vital signs.
3. Skin (**Hypoglycemia**): cool, clammy, or pale.
4. **Hyperglycemia:**
  - A. Respiratory status: deep rapid respirations (Kussmaul's).
  - B. Acetone or fruity odor to the breath.
  - C. Incoordination of voluntary muscle actions (ataxia).
  - D. Nausea, vomiting.
  - E. Abdominal pain.
  - F. Excessive thirst (polydipsia), excessive eating (polyphagia), or excessive urine (polyuria).

### TREATMENT:

1. Provide **Initial Medical Care**.
2. Administer oxygen:
3. **Hyperglycemia:** high flow at **12-15 L/min by NRB**
4. **Hypoglycemia:** at **12-15 L/min by NRB**.
5. If the patient is awake and alert, but is a confused and medication-dependent diabetic, assist in the administration of 15 Grams of **Oral Glucose substance by mouth (Buccal Administration)**.  
**(Required Medical Control Order)**
6. If the patient is not awake, lethargic or not a medication-dependent diabetic, treat as an unconscious patient. **DO NOT GIVE ANYTHING BY MOUTH.**

## **DIFFICULTY BREATHING** **(Asthma/COPD/Pulmonary Edema)**

### **HISTORY:**

#### **Asthma/COPD:**

1. Onset, duration, response to home therapy, and any recent illnesses.
2. Past history of asthma or COPD (Chronic Obstructive Pulmonary Disease), medications, home oxygen, associated symptoms, allergies, and cardiac problems.

#### **Pulmonary Edema:**

1. Medical history: previous episodes of similar events, medications, compliance with dosage, and allergies.
2. Associated symptoms: chest pain, productive cough.
3. Onset: sudden or slow deterioration.
4. Causes: left heart failure from myocardial infarction, severe hypertension, lung injuries from exposure to toxic gases, aspirations, certain overdoses, high altitude sickness, near drowning, or after shock.

### **EXAM:**

1. ABCs.
2. Vital signs, quality of pulses, and perfusion status.
3. Respiratory status:  
**Asthma / COPD** - decreased breath sounds, wheezing, use of accessory muscles, pursed lips.  
**Pulmonary Edema** - lung sounds (rales, possible wheezing), frothy sputum, productive cough.
4. Skin: color, temperature, moisture, cyanosis, signs of inadequate perfusion or hypoxia.
5. Level of consciousness.
6. **Pulmonary Edema** - jugular vein distention, peripheral edema.

**DIFFICULTY BREATHING**  
**(Asthma / COPD / Pulmonary Edema) continued**

**GENERAL TREATMENT:**

1. Provide ***Initial Medical Care***.
2. If practical, allow the patient to assume a position of comfort. **Pulmonary edema** patients will want to sit up with their legs down over the side of the bed or chair.
3. If difficulty breathing and history of asthma, then see nebulized albuterol protocol. Otherwise, for all other patients, administer high flow oxygen at 12-15 L/min by NRB.

## NEBULIZED ALBUTEROL ADMINISTRATION

EMTs may administer Nebulized Albuterol via a handheld nebulizer (HHN) to patients experiencing respiratory difficulty in such situations as:

- a. Asthma

### History:

- a. Onset, duration, response to home therapies, and recent illness.
- b. Past history of asthma or COPD, medication use for respiratory conditions, home oxygen use, other associated respiratory symptoms, allergies or cardiac problems.

### Examination:

- a. Assess level of consciousness
- b. Assess ABCs
- c. Assess vital signs and perfusion status
- d. Assess for decreased breath sounds, wheezing, use of accessory muscles, or pursed lips.
- e. Assess skin for color and presence of diaphoresis.

### Treatment:

- a. Provide initial medical care
  - i. Determine level of consciousness
  - ii. Determine the presence of a patent airway and adequate respirations
  - iii. Obtain O<sub>2</sub> sats. If less than 90% take immediate corrective action.
  - iv. Determine the presence, rate and quality of pulse. If not, initiate CPR.
  - v. Perform a rapid mental assessment including:
    - a. Pupillary reaction
    - b. Distal motor function and sensation
    - c. AVPU or GCS
  - vi. Place the patient in a position of comfort unless precluded by other conditions or injuries
  - vii. Concurrently complete, utilizing teamwork, the following:
    - a. Determination of the chief complaint
    - b. Vital signs
    - c. Pertinent current and past medical history
    - d. Medication use, including compliance and known allergies
    - e. Appropriate physical examination
    - f. Assess blood glucose levels, if allowed by protocols.
- b. Determine severity by measuring the Peak Expiratory Flow Rate (PEFR)
- c. Assess need for ALS back-up
- d. Treat according to severity
- e. Treatment may be initiated at the scene but must not delay transport

### Mild Severity Treatment:

These patients appear to be short of breath and have auscultatory wheezing. Respiratory rate can be normal to slightly elevated. The PEFR is over 300.

- a. Administer oxygen at 1-2 LPM via nasal cannula initially, increasing gradually to meet the patient's oxygen demands
- b. Assess O<sub>2</sub> saturation
- c. Administer nebulized albuterol 0.5% 2.5 mg.

### Moderate Severity Treatment:

These patients present with an increased respiratory effort and rate. There are auscultatory wheezes, diminished air movement and/or use of accessory muscles. The PEFR is less than 300 but over 100.

- a. Summon ALS assistance if available
- b. Administer oxygen at 1-2 LPM via nasal cannula initially, increasing gradually to meet the patient's oxygen demands

- c. Assess O2 saturation
- d. Administer nebulized albuterol 0.5% 2.5 mg.
- e. If the patient's condition does not improve or deteriorates, contact Medical Control for possible repeat administration of albuterol.

**Severe Severity Treatment:**

These patients will present with significantly diminished minute volume. Auscultation of wheezes will be dependent upon the patient's tidal volume. The patient appears to be in or near respiratory failure with significant use of respiratory muscles. The PEFr is 100 or less.

- a. Summon ALS assistance if available
- b. Administer oxygen at 15 LPM via non-rebreather mask
- c. Assess O2 saturation
- d. Administer nebulized albuterol 0.5% 2.5 mg.
- e. Contact Medical Control to request immediate repeat administration of albuterol
- f. Be prepared for possible respiratory arrest

## **KING AIRWAY**

Placement must be confirmed by auscultation, observation of chest rise, and detection of end-tidal CO<sub>2</sub> if available. All confirmation methods must be documented. Failure to positively confirm effective ventilation shall result in immediate removal.

### **Indications for insertion:**

1. Cardiac arrest in patients more than 4 feet in height

### **Contraindications for insertion:**

1. Patients with known esophageal disease
2. Patients who have ingested caustic substance(s)

### **Indications for removal:**

1. Inability to ventilate
2. Return of spontaneous circulation with gag reflex

## HYPERTHERMIA

### HEAT STROKE:

#### TREATMENT:

1. Provide **Initial Medical Care**.
2. Administer high flow oxygen at **12-15 L/min. by NRB**. Be prepared to assist ventilations if there is respiratory depression or decreased level of consciousness.
3. Begin cooling ASAP using sheets or towels dipped in ice water and covered with ice chips, if available. Place patient under running water at low pressure.
4. Strip clothing or wet with ice water. It is preferable to place ice packs or cold water over the patient's neck, armpits, and groin for maximum heat exchange.
5. Transport

### HEAT EXHAUSTION:

#### TREATMENT:

1. Provide **Initial Medical Care**.
2. Administer high flow oxygen at **12-15 L/min. NRB**. Be prepared to resuscitate.
3. Begin external cooling if body temperature is elevated.
4. Have the patient rest in a cool environment.
5. Transport

### HEAT CRAMPS:

#### TREATMENT:

1. Provide **Initial Medical Care**.
2. Have the patient rest in a cool environment.
3. Assess the patient for other causes of the same symptoms.
4. Administer oxygen at **12-15 L/min. by NRB**.
5. If available, administer cold fluids by mouth.

## HYPOTHERMIA

### HISTORY:

1. Length of exposure.
2. Air temperature, water temperature, and wind exposure. Is the patient wet?
3. Drugs: alcohol, tranquilizers, etc.
4. Medical history: illnesses and medications.
5. With local injury: history of thawing/refreezing.

### EXAM:

1. ABCs.
2. Vital signs.
3. Level of consciousness.
4. Body temperature (also note the current temperature of the environment).
5. Evidence of local injury (blanching or blistering).

### GENERAL TREATMENT (For known or suspected hypothermia):

1. Decrease the on-going heat loss ASAP by moving the patient to a warm area, then drying and insulating the patient. This may be done during CPR.
2. Handle the patient gently, allowing no patient exertion (rough handling of severely hypothermic patients may cause V-Fib).
3. Remove all wet clothing (CUT OFF to decrease patient movement). Apply "passive external rewarming" with blankets, sleeping bags, and the warm ambulance.
4. Provide **Initial Medical Care**.
5. Administer oxygen at **15 L/min. by NRB**.
6. Conscious patients should avoid smoking or the use of alcohol, stimulants, or heated oral fluids.
7. Transport Code one (1) for a perfusing patient

### SEVERE HYPOTHERMIA

1. Assess respirations and pulse carefully (up to 1 minute) as both may be very slow but still adequate for the patient's slow metabolism.
2. If apneic, ventilate with **100% oxygen. DO NOT HYPERVENTILATE.**
3. If pulseless, initiate CPR. Check for CPR generated pulses.
4. **HANDLE AND TRANSPORT PATIENT GENTLY** so as not to cause VF.
5. If no pulse, apply AED. If shock recommended, defibrillate as follows:
  - a. If monophasic defibrillator, apply one round of stacked shocks at 200J, 300J and 360J.
  - b. If biphasic defibrillator, apply one shock at 200J. If no pulse, continue CPR and transport.
6. Transport Code one (1) for a perfusing patient.

## NEAR DROWNING

### HISTORY:

1. Duration of patient submersion.
2. Mechanism of Injury.
3. Pre-existing medical conditions.

### EXAM:

1. ABCs.
2. Vital signs.
3. Level of consciousness.
4. Respiratory status and lung sounds.
5. Body temperature (approximation).
6. Water/air temperature (approximation).

### TREATMENT:

1. Provide **Initial Medical Care**.
2. Administer high flow oxygen at **12-15 L/min. by NRB**. Be prepared to assist ventilations if there is respiratory depression or decreased level of consciousness.
3. Immobilize the cervical spine in accordance with the **Head / Neck Injury Protocol** per Current DOT Standards if indicated by the mechanism of injury.
4. If patient is hypothermic, follow the **Hypothermia** Protocol.
5. Transport

## OB/GYN EMERGENCIES

### Emergency Delivery:

1. Provide **Initial Medical Care** to the mother.
2. If delivery appears imminent (i.e. crowning is noted), proceed with delivery at the scene while concurrently preparing for transport.
3. If the umbilical cord is wrapped around the newborn's neck, pull gently to loosen or slip the cord over the head. If you are unable to loosen the cord, double clamp the cord and cut it.
4. Deliver the newborn's shoulders and remainder of the body. Attempt to suction the newborn's mouth and then the nose at this time.
5. Clamp the umbilical cord 6 inches and 8 inches from the newborn's body. Cut the umbilical cord between the clamps.
6. Assess the newborn's **APGAR Score** at 1 minute and 5 minutes after delivery.
7. Provide care to the newborn:
  - A. Suction the mouth and nose again, avoiding entry too deeply into the mouth.
  - B. Dry the face and body.
  - C. Maintain body heat with blankets.
  - D. Position the newborn with its head down.
  - E. If the newborn is in distress, follow the **Newborn Resuscitation** protocol.
8. After the placenta delivers, massage the fundus until firm.
9. Examine the perineum for tears and, if necessary, apply pressure with a perineal pad to any bleeding tears. Do not pack the vagina.
10. Ensure that the newborn is identified in a manner that includes the name of the mother and the facility to which the mother was transported.

### Prolapsed Cord:

1. Administer high flow oxygen at **12-15 L/min. by NRB.**
2. Elevate the mother's hips with several sheets or blankets.
3. Insert a gloved hand into the vagina and gently lift the head off the cord. Continue this procedure until patient care is transferred to the hospital staff.
4. Transport

## OB/GYN EMERGENCIES (cont'd)

### Breech Delivery:

1. If a breech presentation is found and spontaneously delivering, attempt to deliver the infant while concurrently preparing for transport. Do not delay transport.
  - A. Allow the mother to push the baby out. Do not pull.
  - B. Support the newborn around the chest and gently guide the arms out of the birth canal. If possible, turn the newborn so that its back is toward you. (In this position, the newborn's chin will be less likely to get caught on the mother's symphysis pubis.)
  - C. If the head does not deliver within (2 to 3 min), place a gloved hand in the vagina and form a "V" with your fingers around the mouth and nose in case the newborn begins to breathe.
2. Administer high flow oxygen at **12-15 L/min. by NRB.**
3. **Transport**

### Limb Presentation:

1. Administer high flow oxygen at **12-15 L/min. by NRB.**
2. Position the mother with her left side down and hips elevated on a pillow.
3. If both legs and trunk deliver spontaneously, handle as a **Breech Delivery.**
4. **Transport**

### Abruptio Placenta or Placenta Previa:

1. Provide **Initial Medical Care.**
2. Administer high flow oxygen at **12-15 L/min. by NRB.**
3. **Transport**

### Pre-Eclampsia / Eclampsia:

1. Provide **Initial Medical Care.**
2. Administer high flow oxygen at **12-15 L/min. by NRB.**
3. Transport Code one (1) smooth quiet transport with reduced lighting in patient compartment

## OVERDOSE/POISONING BASIC MANAGEMENT

### HISTORY:

1. Time of ingestion, amount, and type of ingestion.
2. Collect all containers and bring them to the hospital with the patient.

### EXAM:

1. ABCs.
2. Vital signs.
3. Respiratory status.
4. Level of consciousness.
5. Pupils.
6. Check for needle tracks.

### TREATMENT:

1. Provide **Initial Medical Care**.
2. Administer oxygen at **12-15 L/min. by NRB**. Be prepared to assist ventilations if there is respiratory depression or decreased level of consciousness.
3. **DO NOT INDUCE VOMITING**. If a conscious patient has ingested an acidic or alkaline substance, rinse patient's mouth with water.
4. Position unconscious or semi-conscious patient on their side.
5. Transport

### NOTE:

DO NOT INDUCE VOMITING!

## SEIZURE

### HISTORY:

1. Onset, duration, recent illness, description of the seizure.
2. Past medical history of seizures, diseases, and medications.
3. History of recent injury.

### EXAM:

1. ABCs.
2. Vital signs.
3. Level of consciousness: postictal.
4. **Do Not Assess Pupils in Postictal State.**
5. Any signs of trauma.

### POSTICTAL TREATMENT:

1. Provide **Initial Medical Care.**
2. Immobilize the spine if injury is suspected.
3. Administer oxygen at 12-15 L/min. by NRB.
4. Speak calmly and reassuringly. It may take several minutes before the patient becomes fully alert and oriented.
5. Transport

### ACTIVE SEIZURE TREATMENT:

1. Provide **Initial Medical Care.**
2. Administer high flow oxygen at **12-15 L/min. by NRB. DO NOT** place anything in the patient's mouth.
3. Protect the patient from further injury. Immobilize the spine if injury is suspected. If no injury is suspected, attempt to place the patient on their side.
4. Transport

# SHOCK

## Definition:

Shock is a complex syndrome in which there is an insufficient delivery of oxygen and nutrients and removal of waste from the body's cells.

## Physical Diagnosis (may have some or all):

1. Hypotension (usually) with a systolic BP under 90 mm Hg.
2. Skin cool and moist with an ashen pallor.
3. Collapse of the superficial veins in the extremities.
4. Rapid and weak pulse.
5. Rapid respiratory rate.
6. Thirst.
7. Mental status changes (may have anxiety, confusion, combativeness, or unconsciousness).

## Treatment:

1. Provide **Initial Medical Care**.
2. Administer high flow oxygen at **12-15 L/min. by NRB**. Be prepared to assist ventilations if there is respiratory depression or decreased level of consciousness.
3. Hypovolemic Shock, place patient in Shock Position.
4. Hypovolemia Shock, Control External Bleeding.
5. Cardiogenic Shock, position of comfort.
6. Transport

## STROKE

### [Cerebral Vascular Accident (CVA)/Transient Ischemic Attack (TIA)]

#### HISTORY:

1. Past or present illnesses and medications: hypertension, diabetes, cardiac, or use of birth control pills.
2. Onset of symptoms: sudden or gradual.

#### EXAM:

1. ABCs
2. Vital signs.
3. Level of consciousness (***Glasgow Coma Score***).
4. Pupils.
5. Cincinnati Stroke Scale Assessment
  - Facial Droop
  - Arm Drift
  - Speech

#### TREATMENT:

1. Provide ***Initial Medical Care***.
2. Administer oxygen at 12-15 L/min. by NRB.
3. **Position of comfort**
4. **Transport**

## ABDOMINAL TRAUMA

### HISTORY:

1. Mechanism of injury:
  - A. Blunt: amount and direction of force.
  - B. Penetrating: weapon, size of object or bullet caliber.
  - C. MVA: Mechanism of injury.

### EXAM:

1. ABCs.
2. Vital signs.
3. Level of consciousness.
4. Skin: bruising, entrance and exit wounds.
5. Abdomen: tenderness, distention, guarding, pelvic instability to lateral and suprapubic compression.
6. Remove all clothing. Patient may be injured elsewhere.

### TREATMENT:

1. Provide ***Initial Medical Care***.
2. Administer oxygen at **12-15 L/min. by NRB**.
3. Immobilize other injuries and control bleeding.
4. Stabilize impaled objects. Cover eviscerations with saline-moistened gauze.
5. Transport

## AMPUTATED BODY PART CARE

### HISTORY:

1. Time and mechanism of injury.
2. Care for the severed part prior to the arrival of EMS.
3. Past history: illnesses, medications, and bleeding tendencies.

### EXAM:

1. ABCs.
2. Vital signs.
3. Secondary survey (other injuries).
4. Volume of blood loss at the scene.

### TREATMENT:

1. Provide ***Initial Medical Care***.
2. Control bleeding with direct pressure and elevation if possible.
3. Cover the stump with a saline-soaked sterile dressing, then wrap it with a dry dressing.
4. Recover and wrap the severed part in a saline-moistened sterile dressing and place in a watertight plastic bag. Place the bag in a cooler with ice if possible. **DO NOT FREEZE. DO NOT MACERATE (soak in water).**
5. Place avulsed tooth in a container of milk (if available).
6. Make sure the body part is transported to the same facility that received the patient.
7. Transport

### NOTE:

Partial amputations should be dressed and splinted in alignment with the extremity to ensure maximum blood flow. Avoid tourniquets and NEVER clamp bleeding vessels.

## BURNS

### HISTORY:

1. Mechanism of injury: thermal, chemical, electrical, grease, explosion, or toxic fumes. Was the patient in an enclosed space with steam or smoke?
2. Treatment prior to the arrival of EMS.
3. Past illnesses and medications.

### EXAM AND GENERAL ACTIONS:

1. Remove the patient from the source and extinguish the patient if necessary (and if it is safe to do so). Remove clothing that is not stuck to the patient.
2. If the burn is electrical in nature, or occurred in a traumatic or unknown way, consider full spinal immobilization. The level of initial spinal immobilization is dependent upon scene safety and the patient's overall condition.
3. Examine and document signs of airway burns and smoke or chemical inhalation. Administer high flow oxygen at **12-15 L/min. by NRB**. Be prepared to resuscitate.
4. Provide **Initial Medical Care**.
5. Prioritize treatment based upon associated trauma and overall patient condition.
6. If a chemical burn, attempt to identify the involved chemical while concurrently:
  - A. Utilize appropriate Personal Protective Equipment (PPE) and remove clothing and jewelry from the involved body area(s).
  - B. If the chemical is in granule or powder form, brush gross contamination clear of the body prior to flushing.
  - C. Vigorously flush / immerse the contaminated body area with water, being cautious not to unnecessarily contaminate other body areas.
  - D. Provide continuous irrigation to chemical burns to the eye(s).
7. Do not apply ice or ointments.
8. Treat for shock.
9. Estimate percentage of burn.

## BURNS (cont'd)

### MINOR BURN:

Minor burns are classified as:

- 2° degree involving less than 20% BSA or
- 3° involving 5% or less BSA.

1. Cover burn area with sterile dressing and apply cool water or saline.

### MAJOR BURN:

Major burns are classified as:

- 2° involving greater than 20% BSA,
- 3° involving greater than 5% BSA, or
- 2° or 3° involving the face, hands, feet, perineum, joints or circumferential burns of a limb.

1. Dress burn area with a dry sterile dressing.

## CHEST TRAUMA

### HISTORY:

1. Mechanism of injury:
  - A. Blunt: amount and direction of forces.
  - B. Penetrating: weapon, size of object or bullet caliber.
  - C. MVA: condition of auto interior and steering wheel, and patient restraint devices.
  - D. Past or recent illnesses.

### EXAM:

1. ABCs.
2. Vital signs.
3. Respiratory status: rate, effort, effectiveness of ventilation, and breath sounds.
4. Level of consciousness.
5. Skin: bruising, entrance and exit wounds, and diaphoresis.
6. Chest: tenderness, deformity, crepitus, flail, or open wounds.
7. Remove all clothing. Patient may be injured elsewhere.

### TREATMENT:

1. Ensure airway while protecting the cervical spine.
2. Provide **Initial Medical Care**.
3. Administer high flow oxygen at **12-15 L/min. by NRB**. Be prepared to assist ventilations if there is respiratory depression or decreased level of consciousness.
4. Stabilize flail segments.
5. Seal open chest wounds on three sides, control bleeding and stabilize impaled object
6. Provide initial spinal immobilization to the degree indicated by the patient's overall condition.
7. If the patient has suffered penetrating chest injuries, or is displaying signs or symptoms of real or potential hemodynamic instability, prepare to **LOAD AND GO**.
8. **Transport**

## **ENVENOMATIONS AND ANAPHYLAXIS (Bites, Stings, Food, Drugs, or Other Substances)**

### **HISTORY:**

#### **Envenomation:**

1. Attempt to determine the time and location of the bite or sting.
2. If the animal (bee, wasp, snake, dog, rat) is not present, collect information related to color, pattern, size, and type of animal involved.
3. Allergies and past envenomations.

#### **Anaphylaxis:**

1. Known allergies: recent insect stings.
2. Recent ingestion of food, drugs, or other substance.
3. Past medical history and medications.

### **EXAM:**

1. ABCs.
2. Vital signs and perfusion status.
3. Skin: flushed, rash, itching, pallor, cyanosis, or hives.
4. Respiratory status: tightness in chest, wheezing, stridor, edema of the tongue or pharyngeal structures.
5. Difficulty swallowing.
6. Level of consciousness.

### **GENERAL TREATMENT:**

1. Provide **Initial Medical Care**.
2. Administer oxygen at **12-15 L/min. by NRB**. If the patient presents with major respiratory compromise and/or signs/symptoms of hypoperfusion, be prepared to assist ventilations with **100% oxygen by BVM**.
3. Administer nothing by mouth (NPO).
4. Assist with Epinephrine administration:
  - For an **adult**: Adult auto-injector: 0.3mg. of a 1:1000 solution SQ
  - For a **child** (age 1-8): pediatric auto-injector: 0.15 mg of a 1:1000 solution SQ
5. **Transport**

## **ENVENOMATIONS AND ANAPHYLAXIS (Bites, Stings, Food, Drugs, or Other Substances)**

### **If an animal bite or sting:**

1. DO NOT ENDANGER YOURSELF! If needed, contact LMEMS Communications Center and have the appropriate agency (snakes - Louisville Zoo Snake Retrieval Team; dog, cat, rat, etc. - Health Dept.) sent to the scene.
2. Remove all jewelry and immobilize the affected limb at or below the level of the heart.
3. **DO NOT APPLY CONSTRICTING BANDS OR ICE.**
4. If a stinger is still in the wound site, carefully brush the stinger away at the skin surface. Do not pinch the stinger and pull it out.
5. If a bite, do not disturb the wound site.
6. If possible, make 3 circumference measurements of the limb (at the wound site, 4 inches proximal to the wound site, and 8 inches proximal to the wound site).
7. Provide ***Initial Medical Care***.
8. Administer oxygen
9. Transport

## EXTREMITY INJURY

### HISTORY:

1. Mechanism of injury and direction of forces.
2. Area of pain or limited movement.
3. Treatment prior to the arrival of EMS: reduction of open or closed fractures and movement of the patient.
4. Past medical history, medications, and illnesses.

### EXAM:

1. ABCs.
2. Vital signs.
3. Observe for localized swelling, discoloration, deformities, lacerations, exposed bone fragments, loss of function, and color of the extremity.
4. Palpate for tenderness, crepitus, distal pulses, sensation, and temperature of the extremity.
5. Note estimated blood loss at the scene.
6. Remove clothing. Look for injuries elsewhere.

### TREATMENT:

1. Provide ***Initial Medical Care***.
2. Administer oxygen at **12-15 L/min. by NRB**.
3. Immobilize the cervical spine as indicated.
4. Control bleeding. Do not put pressure on broken bone ends.
5. Splint according to injury (i.e. traction splint for femur fracture). Splint in a neutral position.
6. Apply sterile dressings to open fractures. Do not push exposed bone "back in".
7. Do not attempt to reduce dislocations in the field.
8. Elevate the extremity if the injury and packaging will allow.
9. Apply cold packs.
10. If in doubt... splint it.
11. Transport

## EYE EMERGENCIES

### EXAM AND TREATMENT FOR...

#### Blunt Rupture Of Globe:

1. Look for bleeding or leakage of the iris material (or clear fluid).
2. Do not palpate the globe. If there is any question about globe injury, shield the injured eye (patch the non-injured eye, but do not press or patch traumatized eyes).
3. Impaled foreign objects should be stabilized in place with a paper cup or smaller device. Patch the non-injured eye to reduce eye movement.
4. Tell the patient not to cough, sneeze, or move unnecessarily.
5. Elevate the patient's head if possible.
6. Provide **Initial Medical Care**.
7. Administer oxygen

#### Ultraviolet Light Burns ("Arc Welder's" or sun lamp burn):

1. Usually occurs 3-10 hours after exposure.
2. Place cool compresses lightly over both lids.

#### Treatment

1. Provide **Initial Medical Care**.
2. Administer oxygen
- 3. Transport**

#### Central Retinal Artery Occlusion (non-traumatic):

1. Presents as sudden, painless loss of vision in one eye. (There may be a history of CVA or other embolic event.)
2. The pupil only reacts to light in the other eye (consensual).

#### Treatment

1. Provide **Initial Medical Care**.
2. Administer oxygen
- 3. Transport**

#### Retinal Detachment:

1. Symptoms include flashing lights, spots, or "shades" in one eye.
2. Position the patient supine.

#### Treatment

1. Provide **Initial Medical Care**.
2. Administer oxygen
- 3. Transport**

## EYE EMERGENCIES (cont'd.)

### Hyphema:

#### Treatment

1. Provide **Initial Medical Care.**
2. Administer oxygen
3. Blood between the iris and cornea, usually after trauma, layering out.
4. Shield the eye and position the patient sitting up.
5. Transport

### Chemical Burns:

#### Treatment

1. Irrigate affected eye(s) with at least 1-2 liters of Normal Saline.
2. Provide **Initial Medical Care.**
3. Administer oxygen
4. **Transport**

## HEAD/NECK INJURY

### HISTORY:

1. Mechanism of injury, patient trajectory, and an estimate of the force involved. With motorcycle or bicycle: was helmet worn?
2. Loss of consciousness.
3. Was patient moved prior to the arrival of EMS?
4. Medical history and medications.

### EXAM:

1. ABCs.
2. Vital signs.
3. Level of consciousness.
4. Pupils: unequal, dilated, or pinpoint.
5. Neurological assessment: numbness, tingling, paralysis, seizure activity, or posturing (decorticate or decerebrate).
6. External signs of trauma: contusions, abrasions, lacerations, bleeding or clear fluid from the ears or nose.
7. Glasgow Coma Score.
8. Pain or discomfort: location, radiation, or significant absence of pain.

### TREATMENT:

Conscious Patient:

1. Provide **Initial Medical Care**.
2. Manually immobilize the cervical spine in a neutral position and ensure an adequate airway and ventilation. The following guidelines should be used for determining the extent of spinal immobilization provided to the patient.
  - A. Provide complete spinal immobilization (as indicated in the National DOT EMT Training Curriculum) if the patient:
    - 1) Is conscious and complaining of neck pain or has signs or symptoms indicative of a spinal injury; or
    - 2) Is conscious, appears intoxicated, and received a direct, penetrating, or deceleration injury at or above the level of the clavicles (even if the patient denies neck pain or discomfort).
    - 3) Is conscious has sustained a significant mechanism of injury and has distracting injuries.
  - B. Provide manual spinal immobilization in conjunction with a long backboard or other equipment (excluding a KED or short backboard) if the patient:
    - 1) Is unconscious or their level of consciousness is so diminished that airway compromise is an immediate concern.
    - 2) Presents with any trauma (a LOAD AND GO situation as noted in this protocol).
    - 3) You are physically unable to utilize the KED due to patient location and / or scene safety.
3. Administer oxygen at **12-15 L/min. by NRB**.
4. Dress and bandage wounds as appropriate for the patient's condition. However, do not stop the flow of blood from the ears and nose.
5. Transport

## HEAD/NECK INJURY (cont'd.)

### Poorly Responsive or Unconscious Patient:

1. Provide **Initial Medical Care**.
2. Manually immobilize the cervical spine in a neutral position and ensure an adequate airway and ventilation.
3. Administer high flow oxygen at **12-15 L/min. by NRB**. Be prepared to resuscitate if there is respiratory depression or decreased level of consciousness. Utilize strict cervical spine precautions throughout this procedure.
5. Apply the appropriate level of spinal immobilization as indicated by this protocol (see "**Conscious Patient**" item 2 above) using a cervical collar, long backboard, tape, straps, and bulk.
6. LOAD AND GO. Transport to a level 1 Trauma Center.
7. Dress soft tissue injuries as indicated.
8. Transport

## TRAUMA

### General Overview

Patients with the following indications should be quickly treated and prepared for transport to a Trauma Center:

1. Glasgow Coma Score is under 13 (unless the abnormal GCS is felt to be pre-existing and unrelated to the acute traumatic event).
2. Systolic BP is under 90 mm Hg (unless the systolic BP under 90 mm Hg is felt to be pre-existing and unrelated to the acute traumatic event).
3. Respiratory rate under 10 or over 29.
4. Patients with the following Anatomy Factors:
  - A. Penetrating injury to the trunk, head, neck, thigh, or groin.
  - B. Two or more proximal long bone fractures.
  - C. Combination of 2° or 3° burns involving more than 15% BSA, the face, or the airway.
  - D. Flail chest.
  - E. Open fracture of a long bone.
  - F. Extremity injury associated with absent distal pulse.
  - G. Unstable pelvis.
5. Patients with the following Mechanism of Injury Factors:
  - A. Falls over 20 feet.
  - B. MVA with a velocity/impact difference of over 20 mph.
  - C. 30 inch deformity of the involved vehicle.
  - D. Passenger compartment intrusion of 18 inches on the patient side or 24 inches on the opposite side of the vehicle.
  - E. Ejection from the vehicle.
  - F. Vehicle rollover.
  - G. Death of an occupant in the same vehicle.
  - H. Pedestrian struck at impact speed over 20 mph.

## UNCONSCIOUS

### HISTORY:

1. History of medical condition, recent illness, and medications.
2. Recent trauma or head injury.
3. Possible substance abuse or overdose.

### EXAM:

1. ABCs and vital signs.
2. Pupils: unequal, dilated or pinpoint.
3. Level of consciousness.
4. Skin: color, temperature, moisture.
5. Indications of trauma.

### TREATMENT:

1. Provide **Initial Medical Care**.
2. Secure airway and ventilate with 100% oxygen by BVM. Be prepared to resuscitate.
3. If indicated by history, physical exam or environmental findings, provide spinal immobilization in an appropriate manner (see **Head / Neck Injury**).
4. Transport

## GENERAL PEDIATRIC CARE

This protocol provides general guidelines for patient management. Refer to additional protocols as appropriate for treatment of specific conditions. A length-based resuscitation tape is recommended to help EMS personnel quickly determine appropriate equipment size, normal vital signs, and correct drug dosages.

1. Perform a scene survey to assess environmental conditions and mechanism of illness or injury. If hazardous conditions are present, contact an appropriate agency before approaching the patient. Wait for the designated specialist to secure the scene and patient as necessary.
2. Form a general impression of the patient's condition.
3. Observe standard precautions.
4. Establish patient responsiveness. If cervical spine trauma is suspected, manually stabilize the spine.
5. Assess the patient's airway for patency, protective reflexes and the possible need for advanced airway management. Look for signs of airway obstruction.
6. Open the airway using head tilt / chin lift if no spinal trauma is suspected, or modified jaw thrust if spinal trauma is suspected.
7. Suction as necessary.
8. Consider placing an oropharyngeal or nasopharyngeal airway adjunct if the airway cannot be maintained with positioning and the patient is unconscious. Nasopharyngeal airway is contraindicated in the presence of facial trauma.
9. Assess the patient's breathing, including rate, auscultation, inspection, effort, and adequacy of ventilation as indicated by chest rise. Obtain pulse oximeter reading.
10. If chest rise indicates inadequate ventilation, reposition airway and reassess.
11. If inadequate chest rise is noted after repositioning airway, suspect a foreign body obstruction of the airway. Refer to the appropriate protocol for treatment options.
12. Assess for signs of respiratory distress, failure, or arrest. If present, refer to the appropriate protocol for treatment options.
13. If the child is not breathing or breathing is inadequate, initiate assisted ventilation
14. Control hemorrhage using direct pressure or a pressure dressing.
15. Assess circulation and perfusion by measuring heart rate and observing skin color and temperature, capillary refill time, and the quality of central and peripheral pulses. Blood pressure should be measured only in children older than three years.
16. For children with absent pulses, initiate cardiopulmonary resuscitation and apply AED.
17. Evaluate mental status, including papillary reaction, distal function and sensation, and AVPU assessment.
18. If spinal trauma is suspected, continue manual stabilization until patient's spine is secure in a manner appropriate for patient's age, size, and condition.
19. Expose the child only as necessary to perform further assessments. Maintain the child's body temperature throughout the examination.
20. If the child's condition is critical or unstable, initiate transport. Perform focused history and detailed physical examination en route to the hospital if patient status and management of resources permit.
21. If the child's condition is stable, perform focused history and detailed physical examination on the scene, then initiate transport.
22. Reassess the patient frequently.
23. Contact medical control for additional instructions.
24. Transport

## **PEDIATRIC BURNS**

1. See General Patient Care
2. Stop the burning process. If a dry chemical is involved, brush it off, then flush with copious amounts of water. If a caustic liquid is involved, flush with copious amounts of water. Remove all of the patient's clothing prior to irrigation. Be prepared to treat hypothermia, which may arise secondary to these interventions. For chemical burns with eye involvement, immediately begin flushing the eye with normal saline. Continue flushing throughout assessment and transport.
3. Remove the patient's clothing and jewelry in any affected area. Use a nonrebreather mask for potential inhalation injury or any serious thermal burn.
4. Apply a burn sheet or dry sterile dressings to burned areas. To prevent hypothermia, avoid moist or cool dressings and do not leave wounds or skin exposed.
5. Refer to the appropriate protocol for treatment options.
6. Transport

## PEDIATRIC FOREIGN BODY AIRWAY OBSTRUCTION

The following protocol applies to an unconscious child or infant with a foreign body obstruction of the airway.

1. See General Patient Care
2. Special Consideration.
3. Confirm that the patient is unresponsive.
4. Open the airway using the head tilt / chin lift.
5. Attempt assisted ventilation using a bag-valve-mask device with high-flow 100% concentration oxygen. If unsuccessful, reposition airway and attempt bag-valve-mask ventilation again.
6. Use age-appropriate techniques to dislodge the obstruction (for infants younger than one year, apply back blows with chest thrusts; for children one year and older, use abdominal thrusts).
7. If the patient becomes unresponsive, administer CPR following visualization of the airway and removal of any visualized foreign body. **Note: Do not perform blind finger sweeps.**
8. Transport.

## PEDIATRIC ABUSE AND SEXUAL ASSAULT

When caring for children injured at home, be alert to the following findings suggestive of child abuse:

1. Explanation of circumstances or mechanisms of injury conflicting with the actual injuries of the child.
2. Suspicious wounds (such as cigarette burns, belt marks, multiple bruises, or abrasions in various stages of healing).
3. Procrastination of parents in seeking help.
4. Child with a history of repeated injuries.
5. Blame for injuries placed on other people.

Suspected sexual assault may accompany physical abuse, may be present with obvious signs of genital trauma, or may be unaccompanied by any signs of physical injury. All of the above findings suggestive of child abuse may also relate to sexual assault.

### General Instructions:

1. Provide any necessary treatment for trauma and shock (if present).
2. History and environment inspection: document as carefully as possible the caretaker's description of what happened, including:
  - A. The environment, including any features which might relate to abuse or neglect.
  - B. The behavior of all adults present.
  - C. Any removed clothing should remain at the scene
3. What to say:
  - Be non-judgmental. Support the family in their concern for the child.
  - Give reassurance to the child. The child may fear all adults and may not readily allow the EMT to treat them.
  - Record any statements made by the patient in his/her own words.
  - Persuade the caretaker of the need for the child to be taken to the hospital (based upon the need for medical diagnosis and treatment). If the caretaker will not allow the child to be transported, notify the police, your supervisor, and Child Protective Services.

## PEDIATRIC NON-TRAUMATIC CARDIAC ARREST

### HISTORY:

1. Suspicion of airway obstruction (mechanical or medical) or recent trauma.
2. Past medical history and allergies.
3. How long has the child been down?
4. Was CPR initiated prior to the arrival of EMS?

### EXAM AND GENERAL TREATMENT:

1. Initiate CPR and apply AED.

CPR /AED application shall be initiated on any patient who has no respirations or pulse, unless directed otherwise by this protocol.

For unresponsive patients with no respiration or pulse:

- a) Begin CPR.
  - b) Apply AED as per AHA Guidelines or manufacturer's recommendations.
    - Ages 1-8: apply pediatric AED pads; otherwise Adult AED pads are to be applied to all patients greater than Age 8.
    - Ages 9 and above: apply adult AED pads.
2. Transport
  3. The criteria for not initiating CPR are the same as in the **Adult Cardiac Arrest** protocol.

## PEDIATRIC DIFFICULTY BREATHING (Asthma/Croup/Epiglottitis)

### HISTORY:

#### Asthma:

1. Onset, duration, and recent illness.
2. Past history of asthma, medications, and associated symptoms.

#### Croup:

1. Usually of a slow onset and duration (1 - 3 days) and associated with a history of viral infection, runny nose, and low-grade fever.
2. Symptoms are often worse at night.

#### Epiglottitis:

1. Onset and duration. There is usually a history of an upper respiratory tract infection.
2. There is often a history of a sudden onset of very high fever.
3. Difficulty swallowing liquids or eating solid foods.
4. Usually affects 2 - 6 year olds, BUT MAY OCCUR AT ANY AGE.

### EXAM:

1. ABCs.
2. Vital signs (including temperature for **Epiglottitis**).
3. Respiratory status:  
**Asthma:** breath sounds, wheezing, nasal flaring, and use of accessory muscles.  
**Croup:** barking cough and hoarseness. There may be a high-pitched stridor. (This has been referred to as a "barking seal" sound.)  
**Epiglottitis:** hoarseness, sore throat, inability to speak, drooling, and stridor.
4. Skin: color, temperature, moisture.
5. Level of consciousness.
6. Positioning of **Epiglottitis** patient: the patient is usually found in a "tripod" position with neck extended forward and mouth ajar.

### TREATMENT:

1. Provide Initial Medical Care.
2. If the patient is awake, do nothing to irritate the child. If possible, allow the parent to hold/comfort the child in an upright position. If the patient is in respiratory arrest, lay the patient down and begin resuscitation.
3. Administer oxygen as follows:
  - A. **Asthma:** See nebulized albuterol protocol.
  - B. **Croup:** High flow oxygen at **12-15 L/min. by NRB/Blow-BY.**
  - C. **Epiglottitis:** High flow oxygen at **12-15 L/min. by NRB/Blow-BY** (preferably having the caretaker holding the NRB). If an airway obstruction occurs, **ventilate by BVM with 100% oxygen.** Use just enough pressure to get air beyond the epiglottis and watch for gastric distention.
4. Remove all tight clothing.
5. Be prepared to resuscitate your patient if their condition deteriorates.
6. Determine the **Croup Score** so the receiving hospital can be notified.
7. Transport

## PEDIATRIC HYPOGLYCEMIA

### HISTORY:

1. Medical history: illnesses (especially diabetes), medications, and allergies.
2. Ask if the patient has eaten or taken insulin today.

### EXAM:

1. ABCs.
2. Vital signs.
3. Skin: cool, clammy, or pale.

### TREATMENT:

1. Provide **Initial Medical Care**.
2. Administer oxygen at **15 L/min. by NRB**.
3. If the patient is awake and alert, but is a confused and medication-dependent diabetic, assist in the administration of 12.5 Grams of **Oral Glucose substance by mouth (Bucal Administration)**.  
**(Required Direct Medical Control Order)**
4. If patient is not awake, treat as an unconscious patient. **DO NOT GIVE ANYTHING BY MOUTH.**
5. **Transport**

## **NEWBORN RESUSCITATION EXAM AND TREATMENT NEWBORN RESUSCITATION**

This protocol describes procedures for the resuscitation of a newly delivered infant.

1. See General Patient Care .
2. Suction the infant's airway using a bulb syringe as soon as the infant's head is delivered and before delivery of the body. Suction the mouth first, then the nasopharynx.
3. Once the body is fully delivered, dry the baby, replace wet towels with dry ones, and wrap the baby in a thermal blanket or dry towel. Cover the infant's scalp to preserve warmth.
4. Open and position the airway. Suction the infant's airway again using a bulb syringe. Suction the mouth first, then the naso-pharynx.
5. If thick meconium is present, suction the airway using an appropriate suction catheter before the first breath if possible. Repeat this procedure until the meconium is cleared from the airway. If the infant's heart rate slows, discontinue suctioning immediately and provide ventilation until the infant recovers. Note: If the infant is already breathing or crying, this step may be omitted.
6. Assess breathing and adequacy of ventilation.
7. If ventilation is inadequate, stimulate the infant by gently rubbing the back and flicking the soles of the feet.
8. If ventilation is still inadequate after brief stimulation, begin assisted ventilation at 40 to 60 breaths per minute using a bag-valve-mask with high-flow, 100% concentration oxygen.
9. If ventilation is adequate and the infant displays central cyanosis, administer high-flow, 100% concentration oxygen via blow-by. Hold the tubing 1 to 1-1/2 inches from the infant's mouth and nose and cup a hand around the end of the tubing to help direct the oxygen flow toward the infant's face.
10. Assess heart rate by auscultation or palpation of the umbilical cord stump.
11. If the heart rate is lower than 60 beats per minute after 30 seconds of assisted ventilation with high-flow, 100% concentration oxygen, initiate the following actions:
  - Continue assisted ventilation.
  - Begin chest compressions at a combined rate of 120/minute (three compressions to each ventilation).
12. Initiate transport.
13. Reassess the patient frequently.
14. Contact medical control for additional instructions.
15. Transport

NOTE: Apgar scores must be recorded at one minute and five minutes after birth. Do not delay resuscitation to measure Apgar score.

## PEDIATRIC OVERDOSE/POISONING BASIC MANAGEMENT

### HISTORY:

1. Time of ingestion, amount, and type of ingestion.
2. Collect all containers and bring them to the hospital with the patient.

### EXAM:

1. ABCs.
2. Vital signs.
3. Respiratory status.
4. Level of consciousness.
5. Pupils: pinpoint, dilated.
6. Respiratory status.

### TREATMENT:

1. Provide **Initial Medical Care**.
2. Administer oxygen at **12-15 L/min. NRB/BLOW-BY**. Be prepared to assist ventilations if there is respiratory depression or decreased level of consciousness.
3. **DO NOT INDUCE VOMITING**. If a conscious patient has ingested an acidic or alkaline substance, rinse their mouth with water.
4. Position unconscious or semi-conscious patient on their side.
5. Transport

## PEDIATRIC SEIZURE

### HISTORY:

1. Onset, duration, fever, recent illness, and description of the seizure.
2. Past medical history of seizures, medications, diseases, and recent injury.

### EXAM:

1. ABCs. Do not insert an oral airway or bite block into the mouth.
2. Vital signs.
3. Level of consciousness (postictal).
4. Temperature (if possible).
5. Capillary refill.
6. Pupils.
7. Any signs of trauma.

### TREATMENT:

#### Febrile:

1. Provide **Initial Medical Care**.
2. Suction PRN.
3. Begin cooling the child:
  - A. Remove clothing.
  - B. Move the patient to a cool area.
  - C. If the child is hot, apply tepid, wet towels.
  - D. Attempt to avoid shivering.
4. Transport

#### Non-Febrile and Non-Trauma:

1. Provide **Initial Medical Care**.
2. Administer high flow oxygen at **12-15 L/min. by NRB/BLOW-BY**. Suction PRN. Be prepared to resuscitate.
3. Transport

#### Trauma:

1. Follow the **Pediatric Trauma** Protocol.

## PEDIATRIC SHOCK

### HISTORY:

1. Illness or recent fever.
2. Appetite and behavior changes.
3. Suppressed immune system.

### EXAM:

1. ABCs (utilize appropriate barrier protection).
2. Assume sepsis or meningitis when fever presents in an infant under age 2 months. Fever may not be present in sepsis (the patient may be hypothermic).
3. Monitor vital signs, capillary refill, cyanosis, skin (which may be cool or cold and clammy), the presence of tachycardia, and the comparison and quality of central versus distal pulses.
4. Petechiae (small, purplish, hemorrhagic spots on the skin) may be present.

### TREATMENT:

1. Provide ***Initial Medical Care***.
2. Administer high flow oxygen at **12-15 L/min. by NRB/BLOW-BY**. Ventilate if there is respiratory depression or decreased level of consciousness.
3. If the patient becomes bradycardic (heart rate less than 100), prepare for cardiac arrest.
4. Transport

## PEDIATRIC TRAUMA

### TREATMENT

1. Provide **Initial Medical Care**.
2. Manually immobilize the cervical spine in the neutral position and ensure an adequate airway and ventilation. Utilize the appropriate spinal immobilization equipment as indicated by the patient's size and the **Head / Neck Injury** protocol.
3. Control life-threatening bleeding. Seal open chest wounds on three sides.
4. Administer high flow oxygen at **12-15 L/min. by NRB**. Ventilate if apneic or suggestive of respiratory compromise. Be prepared to resuscitate.
5. Keep the patient warm.
6. Transport

## PEDIATRIC UNCONSCIOUS

### HISTORY:

1. Recent trauma or head injury.
2. History of medical conditions, recent illness, and medications.

### EXAM:

1. ABCs.
2. Vital signs.
3. Pupils.
4. Level of consciousness.
5. Skin.
6. Obvious signs of trauma.

### TREATMENT:

1. Provide ***Initial Medical Care***.
2. Ensure an airway.
3. Immobilize the cervical spine if trauma is known or suspected.
4. Administer high flow oxygen at **12-15 L/min. by NRB**. Assist respirations PRN.
5. Transport

## **ROOM 9 CRITERIA**

The ambulance should contact University of Louisville Hospital's Emergency Department by radio to determine if the following patient types should be evaluated in "Room 9":

- Unconscious patient.
- All gunshot wounds.
- Any stab wound to the head, neck, trunk, or thighs.
- Any open fracture of a long bone.
- Any fracture/dislocation other than digits.
- Any patient suffering an active seizure or status seizure.
- Immediate obstetrical delivery.
- Moderate/severe respiratory distress.
- Marked or uncontrollable hemorrhage.
- Patient in shock or otherwise unstable.
- Any patient requiring immediate care.

The decision of the physician at University of Louisville Hospital will be final.

## **BURN CENTER REFERRAL**

The American Burn Association has identified the following types of burn injuries that usually require referral to a burn center:

1. Partial-thickness and 3° burns involving more than 10% of the total body surface area in patients under 10 years or over 50 years of age.
2. Partial-thickness and 3° burns exceeding 20% of the body surface area in other age groups.
3. Partial-thickness and 3° burns involving the face, eyes, hands, feet, genitalia, perineum, and major joints.
4. 3° burns greater than 5% of the body surface area in any age group.
5. Electrical burns, including lightning injury. (Significant volumes of tissues beneath the surface may be injured and result in acute renal failure and other complications.)
6. Chemical burns.
7. Burns associated with significant fractures or other major injury in which the burn injury poses the greatest risk of morbidity or mortality.
8. Burn injury with inhalation injury.
9. Lesser burns in patients with significant pre-existing disease.

## CHILDREN TRAUMA CODE INDICATIONS

If the following criteria are met, request a **Trauma Stat** and state the reason why. Final decision will be made by the ED Attending.

### • ANATOMIC

1. Penetrating wounds to neck/chest/abdomen/pelvis/groin
1. Facial/tracheal injuries with possible airway compromise
2. Spinal cord injury with paralysis
3. Inhalation airway burn
4. Burns > 30% TBSA (second degree and third degree)
5. Major amputation (proximal to wrist/ankle)
6. Severe pelvic injuries
7. Severe chest injuries
8. Severe head injuries (GCS < 8)

### ▪ PHYSIOLOGIC

1. Shock
1. Respiratory arrest or intubated
2. Cardiac or respiratory arrest

If the following criteria are met, request a **Trauma Alert** and state the reason why. Final decision will be made by the ED Attending.

### ▪ ANATOMIC / PHYSIOLOGIC

1. Moderate Chest injuries
2. Blunt abdominal trauma with significant abdominal tenderness
3. Moderate pelvic injuries
4. Penetrating wound to extremity (except BB or pellet)
5. Open extremity fracture
6. Two or more proximal long bone fractures
7. Burn 15-30% TBSA (second degree and third degree)
8. Smoke inhalation (awake and alert)
9. GCS less than 12
10. Actively seizing
11. Major electrical injury

### • Mechanism

1. Pedestrian MVA > 20MPH or thrown a large distance
2. Unrestrained MVA passenger > 20 MPH
3. Restrained MVA passenger > 40 MPH
4. MVA passenger ejected from vehicle
5. Prolonged extrication time greater than 20 minutes
6. Death of another occupant in MVA
7. Pulled from or dragged underneath a car or run over by a vehicle's wheels.
8. Child thrown from a vehicle (or thrown into the air from a distance greater than 5 feet).
9. Any helicopter transport from the scene.

## **CHILDREN TRAUMA CODE INDICATIONS (cont'd)**

### **▪ LOCATION OF INJURY:**

1. Any injury involving shock or decreased Level of Consciousness.
2. Any injury invoking respiratory distress.
3. High suspicion of cervical spine injury.
4. Any injury involving a significant hemorrhage.
5. Open fracture.
6. Severe maxofacial injuries.
7. Unstable chest injuries.
9. Blunt abdominal trauma with decreased BP or significant abdominal tenderness.
10. Any penetrating wound to the head, neck, chest, abdomen, pelvis, or groin.
11. Any significant neurological injury with focal findings.
12. Two or more proximal long bone fractures.
13. Tracheal or laryngeal injuries.
14. A burn:
  - 20% or more BSA in a patient less than 2 years old.
  - 25% or more BSA in a patient 2-4 years of age.
  - 40% or more BSA in a patient older than 5 years of age.
  - Any burn or smoke inhalation that is suspected.

### **• PHYSIOLOGICAL DISTRESS:**

1. A patient with a trauma score of less than or equal to 9.
2. A patient with a Glasgow Trauma Score less than or equal to 12.
3. A patient with a history of respiratory or cardiac arrest following injury.