Harris Health System EMS Protocols and Standing Delegation Orders

Richard N Bradley, The University of Texas Health Science Center at Houston
Protocols and Standing Delegation Orders

Harris Health System EMS – Richard N. Bradley, M.D., EMS Medical Director
EMS Medical Director's Statement of Delegation

As the EMS Medical Director for Harris Health System-EMS, I have approved these Protocols and Standing Delegation Orders to provide a treatment plan for the various types of injuries and illnesses that may commonly occur. These Protocols and Standing Delegation Orders are not intended to replace on-line Medical Control by a qualified physician, but rather to provide standing orders for specific interventions prior to the point that establishing control with a qualified physician becomes mandatory.

Authorized personnel are those basic and/or advanced life support trained HARRIS HEALTH SYSTEM-EMS personnel who have been approved in writing by the Medical Director in the application of these orders.

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Richard Neville Bradley, MD, LP, FACEP
EMS Medical Director
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Record of Changes

1.1 15 July 2014
- Removed ondansetron hydrochloride from the standing delegation order for abdominal pain.
- Consolidated the standing delegation orders for narrow-complex tachycardia and wide-complex tachycardia with pulse to Adult Tachycardia (With Pulse) and updated.
- Added dopamine hydrochloride to post-arrest management.
- Added standing delegation order for dissection of aorta.
- Added standing delegation order for nausea and vomiting.
- Removed glucagon from standing delegation order for overdose/poisioning.
- Added Treatment with Non-Invasive Ventilation by Paramedics.
- Added EZ-IO® Infusion System advanced skill.
- Added Clopidogrel bisulfate tablets to approved medications.
- Added diltiazem hydrochloride injection to approved medications.
- Removed glucagon from approved medications.
- Added labetalol hydrochloride to approved medications.
- Added hydroxocobalamin for injection and sodium thiosulfate.
- Added BiPAP device to ALS equipment list.
- Added EZ-IO to ALS equipment list.
- Added patient restraints (wrist and ankle) to ALS equipment list.
- Removed nasogastric tubes from ALS equipment list.
- Added one liter of Lactated Ringer’s Solution chilled on ice to ALS equipment list.
- Added EZ-IO® Power Driver and Needle Sets to ALS equipment list.
- Minor formatting improvements.

1.2 28 September 2014
- Changed King LT-D™ to Combitube™
- Exchanged equipment and medication checklists for medication list
- Added dextrose gel, 40%
- Added effective dates
- Minor formatting improvements.

1.3 4 January 2015
- Updated terminology on level of certification
- Clarified route and timing of administration of diazepam for seizures
- Updated level of certification requirements for critical care protocols and standing delegation orders.
1.4 12 January 2015

- Added pediatric dose of amiodarone for treatment of ventricular fibrillation.

1.5 23 January 2015

- Removed standing delegation orders for blood draw from multiple standing delegation orders.
- Added the Pedi-Mate® Pediatric Restraint System.
- Changed atropine dose for symptomatic bradycardia.
- Added Buretrol sets to minimum equipment lists.
- Added instruction to contact on-line medical control for intubated patients that are too alert or agitated.
- Added propofol and vecuronium for injection to MICU medication list.
- Removed EZ-IO.
General policies and procedures

PROTOCOL TEST
Before approval to operate under the medical permit of the EMS Medical Director, all Harris Health System EMS Personnel must pass a written Protocol and Standing Delegation Order test. The minimum passing score shall be 80%. A candidate may repeat the test after the first failure. After the second failure, mandatory retraining, as directed by Harris Health System EMS leadership, shall be required before the third attempt to pass the test. A third failure of the test shall be permanently disqualifying.

CRITERIA FOR SELECTION OF A PATIENT’S DESTINATION
HARRIS HEALTH SYSTEM EMS personnel shall select a patient’s destination using the following protocol:

1. Transport all patients with potential emergency medical conditions (such as those from a residence or clinic) to Ben Taub General Hospital (BTGH) or Lyndon B. Johnson General Hospital (LBJ), subject to the limitations of this protocol.
2. Attempt to honor hospital diversion requests.
   a. Do not transport a patient to a hospital on ‘Internal Disaster’ or ‘Closed’ status.
   b. Do not transport any patient to a hospital on ‘Emergency Department Saturation’ or an emergency patient to a hospital on ‘Critical Care Diversion’. If both BTGH and LBJ are on diversion, select the most appropriate Harris Health System hospital.
   c. Do not transport trauma patients to hospitals on ‘Trauma Diversion’ unless the next closest trauma center of the appropriate level is more than five minutes away for emergency patients or more than fifteen minutes away for other patients. If both BTGH and LBJ are on diversion, select the most appropriate Harris Health System hospital.
3. Transport the following patients to the closest Harris Health System acute care hospital:
   a. Patients with a pulse rate or respiratory rate that is less than 90% of the lower limit of normal or more than 110% of the upper limit of normal, or a systolic blood pressure that is less than 80% of normal, as described in ‘Reference # 4, Vital Signs’ in the Harris Health System EMS Protocols and Standing Delegation Orders. For example in adults, the normal pulse rate is 60 – 100. 90% of the lower limit of normal would be 54. 110% of the upper limit of normal would be 110.
   b. Patients with a Glasgow Coma Scale of 8 or less after treatment, unless the patient is at a baseline level of consciousness.
   c. Patients who are pale OR profusely diaphoretic.

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1 ‘Emergency’ is defined as a patient transported while the ambulance is using its emergency lights.
d. Patients in severe pain that is unrelieved by treatment.

4. Transport patients with acute chest pain AND an automated ECG interpretation of ‘acute myocardial infarction suspected’ to BTGH.

5. Transport patients with any one of the following signs to BTGH: (1) facial droop; (2) arm drift; (3) unequal grips; IF (a) the age is > 45 years, (b) there is no history of a seizure, (c) symptom duration is < 24 hours, (d) the patient is not wheelchair bound or bedridden at baseline, and (e) the blood glucose is between 60 and 400 mg/dL.

6. Transport trauma patients to LBJ or BTGH in accordance with the SETRAC Adult Pre-Hospital Trauma Transport Guidelines, available at www.setrac.org, then click on ‘Protocols/Guidelines/Forms’ on the ‘Documents’ drop-down, then click on Pre-Hospital Patient Triage and Facility Bypass Guidelines.

7. Patients transported from an acute care hospital to another acute care hospital (i.e. ‘Critical Care Transfers’) shall be transported to the destination ordered by the sending licensed independent practitioner. If the patient has a significant deterioration in condition during transport:
   a. and if there is a licensed independent practitioner in the ambulance directing care, that practitioner shall direct any changes in destination; or
   b. if there is not a licensed independent practitioner in the ambulance directing care, then contact the on-line medical director.

During an out-of-county disaster assignment, transport as directed by officials in the incident management system.
GENERAL PRINCIPLES

Following are the Protocols and Standing Delegation Orders of Harris Heath System-EMS. The content of this document and control over its application rests with the Medical Director. Medical Control (physician’s orders) from an on-line EMS Medical Director may contain different instructions than those in these Protocols, may order care to continue under these Protocols, or may not give any further orders. On-line Medical Control may also deny specific treatment even if it is allowed by these Protocols.

These Medical Protocols shall apply to personnel of Harris Health System-EMS. The personnel of Harris Health System-EMS are approved by the Medical Director to perform EMS treatment according to the Medical Protocols at the following levels:

**EMT** – All Basic skills, plus assisting in administration of a patient’s Metered Dose Inhaler, the administration of aspirin and albuterol via metered dose inhaler.

**EMT-I** – All EMT-B skills, plus intravenous therapy and endotracheal intubation. EMT-I may also administer dextrose, naloxone, and thiamine.

**EMT-Paramedic/CCEMT-P** - May perform all skills and administer all medications contained in this document. Individuals at this level may provide treatment of excited delirium, field c-spine clearance, and critical care transport only after completing all training requirements.
CONTROLLED SUBSTANCES

1. Unless otherwise specified, the terms in this section are defined in the Texas Controlled Substances Act (Texas Health and Safety Code, chapter 481).
2. Controlled substances shall be stored in a securely locked, substantially constructed cabinet. In ambulances, the cabinet must be so attached to the vehicle as to prevent removal for theft or diversion of the controlled substance. Positive control of keys shall be maintained at all times with a log of key accountability.
3. Controlled substances shall be managed following procedures established by the HARRIS HEALTH SYSTEM pharmacy. This includes procedures for documenting usage, wastage and audit.
4. HARRIS HEALTH SYSTEM EMS shall develop and maintain a controlled substances log for each MICU.
5. The inventory of morphine, diazepam and midazolam shall be checked at the start of each shift by the ALS provider.
6. HARRIS HEALTH SYSTEM EMS employees may administer controlled substance pursuant to lawful orders issued by the EMS medical director or an on-line medical director.
7. Notify the EMS medical director immediately in the event of any controlled substance discrepancies.
8. The following are the maximum amounts of controlled substances that may be carried on each MICU:
   a. diazepam, 20 mg;
   b. midazolam hydrochloride, 10 mg; and
   c. morphine sulfate, 20 mg.

Pediatric transport

Pediatric patients weight from 4.5 – 18 kg (10 – 40 lbs) shall only be transported in the Pedi-Mate® Pediatric Restraint System.
SECTION I - PROCEDURAL GUIDELINES

TRIAGE

START (Simple Triage and Rapid Treatment) is a method of triaging and treating patients. Triage is initiated by the first arriving crews and closely monitored and reevaluated throughout the extrication, treatment and transportation process. Triage is responsible for tagging all patients either within the extrication sector or at the entrance to the treatment sector.

Clear the area of any “walking wounded” by verbally telling them to walk to a designated location until each one has been assessed for injuries and treated.

Triage Tagging – if the patient is tagged “Critical/Immediate,” no further assessments are required.

First assessment evaluates ventilation. For inadequate respiratory effort, clear the airway of debris and/or reposition the head. Only correction of life-threatening problems should be undertaken before moving to the next patient.

No respiratory effort – patient tagged “Dead / Non-Salvageable.”

Respirations below 10 or above 30, or patients requiring immediate airway maintenance – “Critical / Immediate.”

Respirations between 10 and 30 proceed to next assessment.

Second assessment evaluates perfusion.

Capillary refill greater than 2 seconds or absence of radial pulse – tag “Critical / Immediate.”

Capillary refill less than 2 seconds or palpable radial pulse, proceed to next assessment.

Third assessment evaluates neurological status.

Unconscious – “Critical / Immediate”

Altered level of consciousness/mental process – “Critical / Immediate.”

Normal mental status – “Delayed”
PATIENT ASSESSMENT

Scene Assessment

Prior to beginning patient care, conduct a rapid assessment of the scene and environment to determine such things as scene safety, mechanism of injury, number of patients, and the need for extrication, or additional resources.

Initial Survey

Evaluate immediate life-threatening situations and institute corrective measures.

- Consider ALS backup or immediate ground transport
- Consider the following of prime importance:
  - Patency of airway
  - Rate and quality of breathing
  - Rate, regularity and quality of circulation
  - Level of consciousness
  - Any Medical Alert tags or jewelry
  - Exsanguinating bleeding
  - Skin color, temperature and condition

Focused Physical Exam

Evaluate the Mechanism of Injury

Investigate the immediate medical/trauma problem and associated complaint.

SAMPLE History

Major medical history, including allergies.

Current medications, including non-compliance

Vital Signs

Baseline

Reevaluate q 5 min for serious patients
Reevaluate q 15 min for stable patients

Vital signs must be recorded prior and after any interventions.
PATIENT ASSESSMENT

Ongoing Assessment
Repeat initial assessment
Repeat vital signs as above
Recheck interventions

Detailed Physical Exam

Hands-on, head-to-toe examination as necessary
Neurological assessment
INITIATION OF TREATMENT

Medical treatment may be initiated under the following circumstances:

The EMS provider must be certified by the State of Texas to perform the skills in question and approved by the Harris Health System EMS Medical Director to provide care commensurate with the level of care being delivered.

The EMS provider must be on-duty at the time the procedures are initiated.
WITHOLDING OR TERMINATING ATTEMPTED RESUSCITATION

Harris Health System EMS personnel may determine death has occurred and withhold resuscitation attempts in the following circumstances:

Decapitation or total separation of vital internal organs;

Rigor mortis;

Decomposition; or

As directed in the section DNR/Hospice Patients
DNR / HOSPICE PATIENTS

Do not attempt resuscitation in patients that are participating in the Texas Out of Hospital Do Not Resuscitate Program. Specifically, do not provide cardiopulmonary resuscitation (CPR), advanced airway management, defibrillation, artificial ventilations and transcutaneous cardiac pacing.

Harris Health System EMS Personnel shall comply with applicable Texas laws, including Chapter 166, Advanced Directives and Texas Administrative Code, Chapter 157.25.
REFUSAL OF CARE

Occasionally patients will refuse treatment and/or transport. Sometimes this is not a major issue; at other times the patient may truly need medical attention. The rules, however are absolute: We cannot treat or transport any person without appropriate consent.

This protocol is designed to provide certain procedural and documentary guidelines to protect the medic, the service and the Medical Director.

Conduct Initial Assessment

Determine mental status.
The patient must be alert and not confused in order to make an informed refusal.

Determine Patient Age and Custodial Status.
A patient under the age of eighteen may not refuse, unless they are an “emancipated minor.” Generally, only married persons or pregnant females under 18 are considered emancipated. Other minors must have a parent or guardian sign the refusal. Minors in law enforcement custody must have the custodial officer sign.

Conduct Secondary Assessment

Realize that the patient has the option to refuse any or all evaluation and management. A patient may consent to transport, for example, but refuse an IV.

Ensure Informed Refusal
Inform the patient or guardian of possible consequences of their refusal of treatment or transport. Inform the patient or guardian that the refusal is against medical advice, the refusal applies to this incident only, and that they may call again if they feel EMS is necessary or desired. Have the patient or guardian sign the refusal form in the presence of a witness (preferably not EMS personnel). The witness should also sign the form.

If the Patient Refuses to Sign the Form
Document the refusal to sign. Obtain two witness signatures, if possible. Use law enforcement assistance if necessary.
PATIENT RESTRAINT

Harris Health System personnel shall comply with the Harris Health System policy 7.02, Restraint and Seclusion. Follow procedures for non-violent/non-self-destructive restraint when the patient is confused or disoriented and

1) The patient is pulling at tubes, lines, or dressings;
2) The patient’s behavior is interfering with the provision of care; or
3) The patient is attempting to ambulate without assistance when assistance is required for safety.

Follow procedures for violent or self-destructive restraint for the following behaviors that put the patient and/or others at a risk for harm:

1) Aggressive;
2) Combative; or
3) Threatening (physical).

For the purposes of the Harris Health System policy, the EMS Medical Director is the ordering physician, when the above criteria are met. Face-to-face assessments are provided by the physician receiving the patient at the destination hospital.

Physical Restraint Procedure

a) Ensure sufficient manpower is present to control the patient while restraining.

b) Place patient supine.

c) Secure all extremities to the ambulance stretcher by placing restraints at the ankles and wrists without hindering circulation. Peripheral circulation should be confirmed distal to restraints prior to and after application, and every 15 minutes thereafter. At no time should respiratory effort be compromised.

d) Place padding under patient’s head and wherever else needed to prevent the patient from further harming him/herself.
ADVANCED AIRWAY MANAGEMENT

The procedures for maintaining the airway shall include, but are not limited to, the use of the Bag-Valve Mask with or without Oropharyngeal Airway, Combitube™ Airway, and oral endotracheal intubation. Prior to and following the administration of any medication that may alter the patient’s respiratory status; complete monitoring should be instituted to include pulse oximetry, breath sounds, heart rate, blood pressure and ECG. If indicated by a SpO2 < 90%, patients should be oxygenated and/or ventilated with 100% oxygen prior to attempts at intubation.

Cricoid pressure should not be used during intubation, although the paramedic may use reasonable external pressure on the trachea in an attempt to obtain a better view of the airway.

Continuous waveform capnography will be used in addition to auscultation and direct visualization to confirm placement of endotracheal tubes.
Circumstances Under Which a Patient Might Not Be Transported

HARRIS HEALTH SYSTEM EMS personnel are not required to transport any patient from a private residence when the EMS request is for routine care and the destination is any location other than an Emergency Department.

Supplemental oxygen

Administer supplemental oxygen if breathlessness, hypoxemia or signs of heart failure or shock are present. Paramedics should use pulse oximetry to provide the lowest dose of supplemental oxygen necessary to maintain oxygen saturation at 96% or above in patients without chronic obstructive lung disease, or between 91% and 94% in patients with chronic obstructive lung disease.
SECTION 2 -- MEDICAL EMERGENCIES

ABDOMINAL PAIN

CONDUCT INITIAL SURVEY. If patient is critical, transport immediately; assess and treat enroute.

CONSIDER ALS BACKUP.

CONDUCT SECONDARY ASSESSMENT

A. Palpate cautiously for:
   - Rigidity
   - Tenderness
   - Pulsating masses (no extensive palpation if mass is evident)
   - Deformity

Determine if any nausea, vomiting, diarrhea, bleeding, or fever, and the duration.

TREATMENT PROTOCOLS

BLS
- Administer oxygen if patient is hypoxic.
- Place patient in position of comfort.
- Transport.

ALS
- Establish IV, preferably no smaller than 18ga, of Lactated Ringers. If the patient is hypotensive, follow the protocol for the believed underlying cause.

ACLS
- Monitor EKG and treat any dysrhythmia per protocol.
- Morphine 4 mg as needed for severe pain. *(Pedi dose 0.06 mg/kg, maximum 4 mg).* Contact on-line medical control if additional analgesic treatment is required.

ACUTE HYPOTENSION

CONDUCT INITIAL SURVEY. If patient is critical, transport immediately; assess and treat enroute.

CONSIDER ALS BACKUP.
CONDUCT SECONDARY ASSESSMENT.

- Assess for hemorrhage / loss of body fluids.
- Assess for cardiac symptoms.

TREATMENT PROTOCOLS

**BLS**
- Control visible bleeding
- Administer oxygen if the patient is hypoxic. Monitor respirations closely, especially if a COPD patient.
- Monitor level of consciousness.
- Monitor vital signs and breath sounds.
- Transport

**ALS**
- Treat according to protocol for assessed cause.
- If cause is unknown or unsure:
  - Establish IV or IO of lactated Ringer’s solution, give 10 mL/Kg bolus then reassess.
- Titrate systolic BP to 100mm Hg if patient is responsive to fluid bolus. If systolic BP does not raise at least 10mm Hg after 500mL total bolus, give no additional boluses.

**ACLS**
- Monitor EKG and treat dysrhythmias.
- If hypovolemia not due to trauma, begin Dopamine HCl infusion at 5 mcg/kg/min and contact on-line medical control.

ALTERED MENTAL STATUS / UNCONSCIOUS UNKNOWN

CONDUCT INITIAL SURVEY. If patient is critical, transport immediately; assess and treat enroute.

CONSIDER ALS BACKUP

CONDUCT SECONDARY ASSESSMENT

- Obtain SAMPLE and onset of event
• Trauma (i.e., head injury, hypovolemia)
• Hypertension
• Hypotension
• Diabetes
• Cardiac
• Drug / Alcohol Use
• Respiratory distress / hypoxia
• Mental illness
• Heat / cold exposure
• Stroke
• Poisoning / Overdose

TREATMENT PROTOCOLS

BLS
• Administer oxygen if the patient is hypoxic, assist respirations if necessary.
• Obtain blood-glucose level. If below 80 mg/dL with signs and symptoms, treat per Diabetic Crisis Protocol.
• Control C-spine if trauma suspected.
• Monitor vital signs and LOC every 5 minutes
• Transport

ALS
• If patient is unconscious or unresponsive from unknown cause or from opioid toxicity:
  ▪ Establish IV or IO of lactated Ringer’s Solution.
  ▪ If blood-glucose level < 80 mg/dL, with signs and symptoms administer 100mg thiamine IVP, followed by 25g 50% dextrose injection via IV or IO.

(Do not administer thiamine to pediatric patients.)

(Pedi dose of dextrose injection, 50% is 0.5 g /kg. Use 25% solution. Maximum
**dose is 25 g**

- Administer 1mg naloxone IVP. Wait 3 minutes, if no improvement administer additional 1mg naloxone IVP.

*(Pedi dose of naloxone is 0.01 mg/kg first dose, 0.1mg/kg second dose)*

**ACLS**

- Monitor EKG and treat dysrhythmias.
- Always consider possible underlying cause and treat per appropriate protocol.

**ALLERGIC REACTION**

**CONDUCT INITIAL SURVEY.** If patient is critical, transport immediately; assess and treat enroute.

**CONSIDER ALS BACKUP.**

**CONDUCT SECONDARY ASSESSMENT**

- Determine if recent medicine or food intake
- Observe for edema, urticaria or dyspnea
- Examine for presence of stingers

**TREATMENT PROTOCOLS**

**BLS**

- Administer oxygen if the patient is hypoxic; assist respirations if necessary
- Remove any stingers by scraping with edge of card
- May administer patient’s own EpiPen autoinjector if available
- If the patient has difficulty breathing, administer one 2.5mg albuterol nebulizer treatment.

*(Pedi dosage, dilute 1:1 with Lactated Ringer’s solution)*

- Monitor vital signs every 5 minutes

**ALS**

- Establish IV of lactated Ringer’s solution, bolus 250 mL.

*(Pedi bolus 10mL/kg)*

**ACLS**
Monitor EKG and treat dysrhythmias.

If patient is in severe distress, administer 0.3mg Epinephrine 1:1000 SQ, and contact on-line medical control.

(Pedi dose is 0.15mg SQ, q 5 min prn, max of 3)

If patient is in mild distress, or after administering epinephrine, administer 50mg Diphenhydramine IV/IO/IM.

(Pedi dose of Diphenhydramine is 2mg / kg IV/IM.)

Administer 125mg SoluMedrol slow IV/IO/IM.

(Pedi dose is 1mg/kg slow IV/IO/IM)

CARDIAC / RESPIRATORY ARREST

RECOGNITION

Recognize cardiac arrest by noting that the patient is not breathing at all or not breathing normally (e.g. only gasping) and that no pulse is palpable within 10 seconds.

TREATMENT PROTOCOLS

BLS

In adults with presumed cardiac-cause arrest (most adults) start CPR with chest compressions first. In infants, children and adults with presumed respiratory-caused cardiac arrest (immersion, drug-related, etc.) start CPR with positioning the airway and rescue breaths first.

Perform chest compressions at a rate of at least 100/min.

Compression depth should be at least 2 inches in an adult. Compression depth should be 1/3 AP depth in children (about 2 inches) and infants (about 1 ½ inches).

Allow complete recoil between compressions.

Rotate compressors every 2 minutes.

Minimize interruptions in chest compressions. Attempt to limit interruptions to less than 10 seconds.

Open the airway with the head tilt-chin lift, unless trauma is suspected, in which case use the jaw thrust.

Provide 30 compressions to 2 ventilations except in children and infants with two rescuers, in
which case, provide 15 compressions to 2 rescue breaths.

- Deliver rescue breaths with a bag-mask device. Deliver each rescue breath over 1 second. Give a sufficient tidal volume to produce visible chest rise.

- If sufficient health care providers are available, one rescuer should open the airway and seal the bag-mask to the face with the other squeezes the bag.

- Attach and use AED or manual defibrillator as soon as available, but not before starting CPR, unless the cardiac arrest was witnessed by EMS. Minimize interruptions in chest compressions before and after shock, resume CPR beginning with compressions immediately after each shock.

**ALS**

- Combitube or endotracheal intubation.

When the victim has an advanced airway in place during CPR, rescuers no longer deliver cycles of 30 compressions to 2 breaths (do not interrupt compressions to deliver 2 breaths). Instead, continuous chest compressions are performed at a rate of at least 100 per minute without pauses for rescue breaths. Rescue breaths are delivered at a rate of 1 breath every 6 to 8 seconds (8 to 10 breaths per minute).

- Establish IV or IO of lactated Ringer’s solution with as large a catheter as possible, set TKO.

**ACLS**

- Refer to sub-protocol appropriate for presenting arrhythmia, on the following pages

**ASYSTOLE/PEA**

- Initiate CPR with 8 – 10 breaths per minute with continuous chest compressions

- Establish IV or IO access

- Administer Epinephrine 1:10,000 1.0mg IV or IO every 3 minutes *(Pedi initial dose is 0.01 mg/kg Epi 1:10000 IVP or 0.1 mg/kg 1:1000 ET; subsequent dosage is 0.1 mg/kg Epi 1:1000 IVP or 0.2 mg/kg 1:1000 ET)*

- If possible, without delaying compressions, place Combitube or entotracheal tube

**VENTRICULAR FIBRILLATION OR PULSELESS VENTRICULAR TACHYCARDIA**

- If the cardiac arrest was witnessed by EMS, defibrillate immediately. Otherwise, provide two minutes of continuous chest compressions before assessing rhythm.

- Defibrillate at 200j *(Pediatric initial setting 1j/kg; subsequent settings are 2j/kg)*
• Provide CPR for two minutes while obtaining peripheral IV or IO access.

• Assess cardiac rhythm. Defibrillate with the same energy setting as used on the first shock if rhythm is still shockable.

• Perform CPR for 2 minutes. During this interval, administer epinephrine 1:10,000 1.0mg IV or IO and continue every 3 – 5 minutes (2.0mg ET).

  \( \text{Pedi initial dose is 0.01 mg/kg Epi 1:10000 IVP, 0.1 mg/kg 1 :1000 ET. Subsequent dosage is 0.1 mg/kg Epi 1:1000 IVP, 0.2 mg/kg 1 :1000 ET} \)

• Place advanced airway

• After the 2 minutes of CPR, assess rhythm. If shockable, administer shock at same energy setting as originally delivered.

• Perform CPR for 2 minutes. During this interval, administer amiodarone 300 mg IV or IO. Repeat once at 150mg in 3-5 min.

  \( \text{Pediatric dose is 5 mg/kg of amiodarone bolus IV or IO. May repeat every 4 minutes while patient is in ventricular fibrillation or pulseless ventricular tachycardia. Maximum single dose of 300 mg.)}^2 \)

**CARDIAC SYMPTOMS / CHEST PAIN RECOGNITION.**

1) Consider possible acute coronary syndrome (ACS) in the following circumstances:

   a) Risks for ACS:
      
      i) History of prior ACS, MI, angina, coronary artery bypass angioplasty
      
      ii) Age 50 or older
      
      iii) Hypertension
      
      iv) Diabetes
      
      v) Tobacco use

   b) Symptoms:
      
      i) Chest discomfort
      
      ii) Shortness of breath
iii) Sweating
iv) Nausea
v) Lightheadedness
vi) Symptoms lasting at least 15 minutes

**TREATMENT PROTOCOLS**

**BLS**
- Administer 324 mg of aspirin, chew and swallow, if there is no history of aspirin allergy and no signs of active or recent gastrointestinal bleeding
- Determine time of onset of pain

**ALS**
- Establish advanced airway per protocol, if appropriate
- Establish IV saline lock.

**ACLS**
- Administer supplemental oxygen as needed to maintain oxygen saturation at 96% or above, unless the patient has a history of emphysema or chronic bronchitis.
- Obtain 12-Lead EKG.
- Nitroglycerine:
  - 0.4 mg sub-lingual. May repeat every 5 minutes to a total of 3 doses as need for pain.
  - Contraindications:
    - Systolic blood pressure <90 mm Hg,
    - ST-elevation in two or more of the following leads: II, III, aVF.
    - Patient use of phosphodiesterase-5 (PDE-5) inhibitor\(^2\) within 24 hours (48 hours for tadalafil).
- Morphine sulfate
  - 2 mg IV. May repeat every 5 minutes as needed to relieve symptoms and maintain

\(^2\) Common PDE-5 inhibitors: tadalafil (Cialis\(^\circledR\)); vardenafil (Levitra\(^\circledR\)); sildenafil (Viagra\(^\circledR\)).
patient comfort.

- Place patient supine during and after morphine sulfate administration, unless not possible due to patient’s dyspnea.
- Morphine sulfate may be administered after the first dose of nitroglycerine.

- Transport patients with acute chest pain AND an automated ECG interpretation of ‘acute myocardial infarction suspected’ to BTGH. Notify destination hospital as early as possible.
- Contact on-line medical control for possible administration of clopidogrel bisulfate.

**SYMPTOMATIC BRADYCARDIA**

**ACLS**

- Initiate airway management and oxygen therapy as appropriate for patient’s condition.
- 12- Lead EKG
- Ensure IV access.
- Any patient, whether symptomatic or not, presenting in 2nd Degree Type II AV Block or in 3rd Degree AV Block should have transcutaneous pacing on standby. Unstable patients presenting with these dysrhythmias will receive transcutaneous pacing prior to any medications.
- Administer Atropine Sulfate 10.5 mg IVP q 4 minutes, to a maximum of 3 mg if the heart rate is less than 50 unless patient appears to be bradycardic due to athletic conditioning.

(Pedi dose 0.02mg/kg)

**Adult Tachycardia (With Pulse)**

**Recognition**

Paramedics shall apply these standing delegation orders if appropriate for the patient’s clinical condition. Typically, this will involve a heart rate ≥ 150/min.

**Management**

Determine if the tachycardia is symptomatic. This exists if the patient has any of the following: hypotension; acutely altered mental status; signs of shock; ischemic chest discomfort; or acute heart failure.

**Unstable tachycardia**

1) If the patient is symptomatic, then determine if the rhythm is regular narrow complex.
a) **If** the rhythm is regular narrow complex, **then** administer adenosine, 6 mg rapid IV push, followed with NS flush. If no response, administer adenosine, 12 mg rapid IV push, followed with NS flush.

b) **If** the rhythm is not regular narrow complex, **or if** the patient remains symptomatic after both doses of adenosine, **then** provide synchronized cardioversion.
   
   i) Use the following initial doses:
      
      1. Narrow regular tachycardia: 50 J
      2. Narrow irregular tachycardia: 200 J
      3. Wide regular tachycardia: 100 J
      4. NOTE: for wide irregular tachycardia provide unsynchronized defibrillation at 200 J.
   
   ii) **If** the patient fails to convert and the initial dose was 50 or 100 J, **then** repeat once at 200 J.
   
   iii) **If** the initial dose was 200 J, **then** repeat once at 300 joules.
   
   iv) **If** the patient does not convert after two shocks, **then** contact on-line medical control.

**Stable tachycardia**

2) **If** the patient is not symptomatic, **then** determine if there is a wide QRS (≥0.12 second)

**Wide QRS**

a) **If** there is a wide QRS, **then**:

   i) Obtain or maintain IV access
   
   ii) Obtain a 12-lead ECG
   
   iii) Contact on-line medical control

**Narrow QRS**

b) **If** there is not a wide QRS, **then**:

   i) Obtain or maintain IV access
   
   ii) Obtain a 12-lead ECG

   iii) Have patient perform Valsalva maneuver; keep duration less than 10 seconds; may repeat once.

   iv) **If** the patient remains tachycardic after the Valsalva maneuvers, **then** administer adenosine, 6 mg rapid IV push, followed with NS flush. If no response, administer adenosine, 12 mg rapid IV push, followed with NS flush.

   v) **If** the patient remains tachycardic after adenosine, **then** contact on-line medical control for possible administration of diltiazem hydrochloride.

**Post Arrest Management**

**ACLS**

- Monitor end-tidal carbon dioxide. Adjust ventilation rate as needed to keep the end-tidal CO₂ between 35 and 45 mm Hg

- Administer cold lactated Ringer’s solution, 10 mL/kg IV or IO.
• If the patient has a systolic blood pressure of less than 110 mm Hg after the administration of the cold lactated Ringer’s solution, begin Dopamine HCl infusion at 5 mcg/kg/min and contact on-line medical control.

**PULMONARY EDEMA**

**EMT-Basic**
1. Administer oxygen at 6 liters per minute by nasal prongs. Increase dose and change to mask if patient appears to be in severe distress or cyanotic.
2. Allow patient to assume position of comfort. Patients in severe distress may dangle their legs off of the side of the stretcher, if necessary, while the stretcher is not being moved on its wheels.

**EMT-Paramedic**
1. Continuously monitor cardiac rhythm and pulse oxygenation. Adjust oxygen to keep saturation ≥ 95%
2. Establish intravenous line with lactated Ringer’s solution at a ‘keep vein open’ rate. Use an antecubital vein if possible.
3. Obtain 12-lead electrocardiogram.
4. If patient has severe dyspnea, follow the standing delegation order ‘Treatment With Non-Invasive Ventilation by Paramedics.’
5. Hypotension management -- If patient’s systolic blood pressure (SBP) is below 110 mm Hg, assess the neck veins.
   a. If the neck veins are not distended, administer 250 mL of lactated Ringer’s solution via the IV or IO route, at a ‘wide open’ rate. Reassess the patient when the infusion is complete. Repeat up to a total of 10 mL/kg as long as the SBP remains below 110 mm Hg and the neck veins are not distended.
   b. If the neck veins are distended or the blood pressure remains low after administering 10 cc/kg of lactated Ringer’s solution, administer dopamine via the intravenous route using a pump. Start the infusion at 5 mcg per kg per minute. Increase the dose by 5 mcg/kg and contact on-line medical control.
6. Morphine – if the patient is in significant distress,
   a. Do not use morphine if pulmonary edema is due to a chemical respiratory irritant
   b. If systolic blood pressure is greater than 110 mm Hg and respiratory rate greater than 12 breaths per minute, administer 3 mg of morphine via the intravenous route.
   c. If the patient remains in significant distress, repeat step 6.b. every five minutes to a total of 3 doses for patients under age 65 and without known liver or renal disease. Increase interval to
every ten minutes, up to 3 doses, for patients age 65 and older or with known liver or renal disease.

7. Furosemide – if the systolic blood pressure is greater than 110 mm Hg, contact on-line medical control for possible furosemide order.

8. Contact the on-line medical director for patients that continue to deteriorate.

CEREBRO-VASCULAR ACCIDENT / STROKE

CONDUCT INITIAL SURVEY.

I. Prompt recognition is critical. Ascertain when the patient was last seen in a normal state. If the patient is critical, transport immediately; assess and treat enroute.

II. CONSIDER ALS BACKUP

III. CONSIDER POSSIBLE CAUSES:

• Hemorrhage / Ischemia
• Trauma
• Meningitis / Encephalitis
• Intracranial Mass, such as a tumor or subdural hematoma.
• Seizure with persistent neurological deficit
• Migraine with persistent neurological deficit
• Blood-glucose derangement
• Post-cardiac arrest ischemia
• Overdose

IV. CONDUCT SECONDARY ASSESSMENT

Gather information:

Allergies
Medications
Past medical history, especially with similar symptoms
Last meal eaten
Determine time of onset of symptoms

Transient LOC, syncope

Confusion

Paralysis or hemiparesis

Giddiness or wooziness

Slurred speech or facial drooping

Perform neurological assessment:

Level of consciousness

Pupil size and reaction

Quality of speech

Motor response

Sensation

**TREATMENT PROTOCOLS**

**BLS**

- Administer oxygen if the patient is hypoxic.

- Assist respirations if needed. Do not hyperventilate.

- Monitor BP and pulse.

- Place patient in position of comfort with head elevated 45 degrees.

- Keep patient normothermic.

- Determine blood-glucose level

- Transport in accordance with protocol and standing delegation order criteria for selection of a patient’s destination.

**ALS**

- Establish saline lock.

**ACLS**

- 12- Lead EKG
• DO NOT ADMINISTER ASPIRIN OR ATTEMPT BP CONTROL.

• If blood-glucose level < 80 mg/dL, and patient does NOT show signs of increasing ICP, administer 100mg Thiamine IVP followed by 25g 50% dextrose injection IVP.

**DIABETIC COMPLICATIONS**

I. **CONDUCT INITIAL SURVEY.**

II. **CONSIDER ALS BACKUP**

III. **CONDUCT SECONDARY ASSESSMENT**
   - Observe patient behavior and LOC
   - Examine skin condition
   - Note any odors on breath
   - Inquire about medical history and possible ETOH consumption
   - Record patient’s normal daily insulin intake, if any. Amount and TYPE.

IV. **TREATMENT PROTOCOLS**

**BLS**
- Administer oxygen appropriate for patient’s condition.
- Determine glucose level
- If BGL < 80 mg/dL and patient is CONSCIOUS, administer 15g dextrose gel, 40%.
  
  *(Pedi dosage 7.5 g)*
- Monitor LOC and vital signs q 5 minutes
- Obtain follow up BGL after medication administration.
- Transport

**ALS**
- Establish IV or IO of lactated Ringer’s solution.
- If BGL < 80mg/dL, administer 100mg Thiamine IVP followed by 25g dextrose injection, 50% IV or IO.
  
  *(Pedi dose 0.5 g/kg, use D25 if patient < 1 yr old)*
• Obtain BGL after medication administration and note any improvement in LOC.

**ACLS**

• Obtain 12-Lead EKG

• If blood glucose is greater than 250 mg/dL, administer 20 mL/kg of lactated Ringer’s solution either IV or IO and contact on-line medical control for further orders.

**Dissection of aorta**

**Recognition**

Paramedics may apply this standing delegation order to adults in the following circumstances:

1. A patient has all of the following:
   a. Sudden onset of pain
   b. Pulsatile or tearing quality of pain
   c. Location in anterior thorax or back

2. The patient is being transferred from the care of a physician who has diagnosed dissection of the aorta.

**Management**

Paramedics shall apply the following standing delegation orders when dissection of aorta is suspected:

1. Establish or maintain a large-bore IV saline lock or IV line at a TKO rate.
2. If the patient has severe pain, and if no other narcotics have been administered in the past four hours, administer morphine sulfate, 10 mg, via slow IV push (over two minutes).
3. If the systolic blood pressure is greater than 150 mmHg, administer labetalol hydrochloride, 20 mg, via slow IV push (over two minutes).
   a. Re-evaluate the blood pressure every five minutes.
   b. If the systolic blood pressure is above 130 mmHg, repeat administration of labetalol hydrochloride, 40 mg, via slow IV push (over two minutes) every ten minutes.
4. Contact on-line medical control if additional analgesia or blood pressure management questions arise.

**Excited Delirium**

I. **Diagnosis.** Delirium may be present in patients with a disturbance of consciousness and a change in cognition.

a. **Disturbance of consciousness.** These patients will have a reduced clarity of awareness of the environment. The ability to focus, sustain, or shift
attention is impaired. Questions must be repeated because the individual’s attention wanders, or the individual may perseverate with an answer to a previous question rather than appropriately shift attention. The person is easily distracted by irrelevant stimuli. Because of these problems, it may be difficult (or impossible) to engage the person in conversation.

b. **Change in cognition** (which may include memory impairment, disorientation, or language disturbance) or development of a perceptual disturbance.

i. **Memory impairment** is most commonly evident in recent memory.

ii. **Disorientation** is usually manifested by the individual’s being disoriented to time (e.g., thinking it is morning in the middle of the night) or being disoriented to place (e.g., thinking he or she is home rather than in a hospital).

iii. **Speech or language disturbances** may be evident as the impaired ability to articulate, the impaired ability to name objects, or even aphasia. In some cases, speech is rambling and irrelevant, in others pressured and incoherent, with unpredictable switching from subject to subject.

iv. **Perceptual disturbances** may include misinterpretations, illusions, or hallucinations. For example, the banging of a door may be mistaken for a gunshot (misinterpretation); pieces of furniture may appear to be animate objects (illusion); or the person may "see" a group of people hovering over the bed when no one is actually there (hallucination). Although sensory misperceptions are
most commonly visual, they may occur in other sensory modalities as well, such as auditory, tactile, gustatory, and olfactory.

Misperceptions range from simple and uniform to highly complex. The individual may have a delusional conviction of the reality of the hallucinations and exhibit emotional and behavioral responses consistent with their content.

**ACLS**
When confronted with a patient with apparent delirium with acute psychomotor agitation:

a. Contact on-line medical control.

b. Expect orders for ketamine, 4 mg/kg IM, for patients 18 years of age and older.

**HYPERTENSIVE DISORDERS OF PREGNANCY**
Pregnancy-Induced Hypertension (PIH) is characterized by blood pressure of 140/90 or greater in the previously normotensive patient.

Pre-Eclampsia is characterized by hypertension in the pregnant patient along with abnormal weight gain, edema, headache, epigastric pain, hyperreflexia and occasional vision disturbances.

Eclampsia is a state of pre-eclampsia that has progressed to grand-mal seizure activity.

I. CONDUCT INITIAL SURVEY

II. CONSIDER ALS BACKUP

III. CONDUCT SECONDARY ASSESSMENT

- Obtain history including para/gravida, any previous complications, seizure history and any reported dysuria.

- Check for swelling of the face or hands

- Check for pulmonary edema, decreased breath sounds or rales
• Check for epigastric or RUQ pain

IV. TREATMENT PROTOCOLS

BLS
• Administer oxygen if the patient is hypoxic
• Position in left lateral recumbent position
• Monitor vital signs and pulse oximetry
• Protect the seizing patient from further trauma, do not restrain.
• Transport

ALS
• Establish IV of lactated Ringer’s solution TKO.
• Determine blood-glucose level
• Maintain airway

ACLS
• Perform 12-lead EKG
• In the pregnant patient who is seizing, administer Magnesium Sulfate 2.0g slow IVP.

Nausea and Vomiting

Recognition

Paramedics may apply this standing delegation order, in addition to any other, for patients one month of age and older with nausea or vomiting that is significant enough to cause the patient distress or interferes with patient management.

Management

Paramedics may treat patients with nausea and vomiting:

• For patients weighing more than 40 kg, administer ondansetron hydrochloride, 4 mg IV.
• For patients weighing 40 kg or less, 0.1 mg/kg.
• If administering ondansetron hydrochloride, continuously monitor the ECG rhythm.

NOTE: This is an EMS Medical Director-approved, off-label use of ondansetron hydrochloride.¹
NEONATAL RESUSCITATION

- Determine heart rate by auscultating apical pulse.
- Obtain approximate weight using Broselow Tape

Management

- Do not suction the oropharynx or nasopharynx, even if the amniotic fluid has meconium staining.

Birth

1) Determine the following:
   a) Is the newborn a product of a term gestation (>38 weeks)?
   b) Is the newborn breathing or crying?
   c) Does the newborn have good tone?

Routine care

2) If YES to all questions, provide routine care:
   a) Delay cord clamping for one minute after delivery.
   b) Provide warmth
   c) Assure open airway
   d) Dry
   e) Provide ongoing evaluation

3) If NO to any question:
   a) Warm
   b) Open airway
   c) Dry
   d) Stimulate

30 seconds of life

4) If the answer to any question from step 1 was NO, after thirty seconds of life, check to see if any of the following are present:
   a) HR below 100,
b) Gasping, or

c) Apnea.

5) If the answer to all questions from step 4 was NO, then determine if any of the following are present:

a) Labored breathing or

b) Persistent cyanosis.

6) If the answer to all questions from step 5 is NO, then go to step 2.

7) If the answer to any question from step 5 is yes, then clear any obstruction seen in the airway.

8) If the answer to any question from step 4 is YES, then:

a) Provide positive pressure ventilation with room air.

60 seconds of life

b) At 60 seconds of life or beyond, if heart rate is below 60, start chest compressions, with a 3:1 compression-to-ventilation ratio. Minimize interruptions of chest compressions. Use the 2 thumb-encircling hands method. Center compressions over the lower third of the sternum and compress the chest one third the anterior-posterior diameter.

Monitor oxygen saturation using a neonatal probe on the right wrist or hand. Apply the oximeter probe to the subject before connecting it to the instrument.

c) If heart rate at 60 seconds of life or beyond is less than 60, obtain Interosseous access, and administer epinephrine, 1:10,000 via the IO route, using the dose recommended on the Broselow tape.
OBSTETRICAL EMERGENCIES

I. CONDUCT INITIAL SURVEY

II. CONSIDER ALS BACKUP

III. CONDUCT SECONDARY ASSESSMENT

- Quickly obtain situational history (para/gravida, abortions, previous complications, etc), any prenatal care, and previous medical history
- Remember that the condition of the mother will directly affect the fetus, therefore focus must remain on the mother
- Monitor vital signs and LOC every 5 minutes
- If delivery is imminent, visualize perineum to ensure absence of abnormal presentation
- Medics are not to perform internal exams

IV. TREATMENT PROTOCOLS

IMMINENT UNCOMPLICATED DELIVERY

- Place patient in left lateral recumbent position
- Remain on scene and perform delivery of the newborn
- Clamp and cut umbilical cord one minute after delivery
- Establish IV saline lock
• Assess and document APGAR at 1 and 5 minutes
• Keep baby warm and dry, cover baby’s head
• Transport may be initiated prior to delivery of the placenta
• Apply a perennial pad, be alert for post-partum hemorrhage

IMMINENT COMPLICATED DELIVERY

LIMB PRESENTATION (Immediate transport with hospital notification)
• Place patient in left lateral recumbent position

BREECH PRESENTATION (Immediate transport with hospital notification)
• If delivery of the body alone occurs, support the presenting part; place a gloved hand in the vagina, form a “V” around the baby’s mouth and nose to maintain an airway.

PROLAPSED UMBILICAL CORD (Immediate transport with hospital notification)
• Elevate hips or place patient in knee-chest position
• Insert gloved hand into the vagina to alleviate pressure from the presenting part on the cord

POST-PARTUM HEMORRHAGE (Immediate transport with hospital notification)
• Continue to massage the uterine fundus

OVERDOSE / POISONING

I. CONDUCT INITIAL SURVEY

Obtain Law Enforcement backup if necessary

II. CONSIDER ALS BACKUP

III. CONDUCT SECONDARY ASSESSMENT

• Interview patient or bystanders for information regarding route of entry and time of
entry

- Attempt to identify product
- Quantity of product
- Occurrence of vomiting. If possible, obtain any vomitus for hospital staff
- Attempt to find out if overdose was intentional. Provide this information to hospital staff
- Obtain medical history of patient
- Obtain vital signs including pulse oximetry. Remember that pulse oximetry may be inaccurate, especially with Carbon Monoxide inhalation.
- Consider transport to Hermann Hospital for hyperbaric therapy.

TREATMENT PROTOCOLS

**BLS**
- Administer oxygen if the patient is hypoxic and assist respirations as necessary.
- Determine blood-glucose level. If patient is conscious and BGL < 80 mg/dL, administer 15g dextrose gel, 40%.
  (Pedi dose 7.5g)

**ALS**
- Intubate per protocol
- Establish saline lock
- Determine blood-glucose level. If patient is conscious and BGL < 80 mg/dL, administer 100mg Thiamine IVP followed by 25g dextrose injection, 50%
- If patient is unconscious, proceed with Altered Mental Status / Unconscious Unknown protocol.

**ACLS**
- In tricyclic overdose, contact on-line medical control for possible Sodium Bicarbonate administration.
- In organophosphate poisoning, administer Atropine Sulfate 2.0 mg IV or IO, and contact on-line medical control.
- Administer 100mg Thiamine IVP and 25g dextrose injection, 50% if BGL < 80 mg/dL.
• Unstable patients (cardiac arrest, hypotension or altered mental status) with known or suspected cyanide poisoning administer hydroxocobalamin, 5 g IV or IO at a rate of 15 mL/min, followed by sodium thiosulfate, 12.5 g IV or IO over 10 minutes.

**PEDIATRIC RESPIRATORY EMERGENCIES**

**Epiglottitis, Croup**

**CONDUCT INITIAL SURVEY**

**CONDUCT SECONDARY ASSESSMENT**

Examine for differential signs and symptoms of croup (normally presents with a barking cough)

• Examine for differential signs and symptoms of epiglottitis (normally presents with patient in a tripod position with noticeable drooling)

**OBTAIN PATIENT HISTORY**

• History of respiratory illness/infections

• Time of onset of current episode

**TREATMENT PROTOCOLS**

**BLS**

• Provide high flow HUMIDIFIED oxygen; assist ventilations as necessary

• Monitor vital signs including pulse oximetry

• Keep patient cool

• Epiglottitis can be a life-threatening emergency. Do not delay transport.

**ALS**

• Establish IV of lactated Ringers solution on Buretrol set, TKO, enroute.

• Do **NOT** attempt laryngoscopy or intubation.

**ACLS**

Monitor EKG and treat appropriate dysrhythmias

• Understand that oxygenation is the highest priority. This patient may require surgical intervention at the hospital. Do not remain on the scene attempting advanced procedures.
RESPIRATORY DISTRESS

I. CONDUCT INITIAL SURVEY

II. CONSIDER ALS BACKUP

III. CONDUCT SECONDARY ASSESSMENT

- Observe LOC
- Observe respiratory rate and quality
- Examine skin and mucous membranes for evidence of cyanosis
- Auscultate breath sounds
- Monitor vital signs including pulse oximetry every 5 minutes

TREATMENT PROTOCOLS

**BLS**

General use of oxygen – in addition to all other protocols, unless specifically ordered otherwise, if the patient is dyspneic, hypoxemic, or an oxyhemoglobin saturation of <94%, administer oxygen and titrate therapy to provide the lowest administered oxygen concentration that will maintain the oxyhemoglobin saturation ≥94%.

- If appropriate, assist patient with their inhaler
- If pulse < 140, administer 2.5mg Albuterol via nebulizer at 6 lpm (non-humidified oxygen). May repeat once prn.
  
  *(Pedi dose, dilute 1:1 with Lactated Ringer’s solution)*
- Reassess vital signs post-nebulizer, reauscultate breath sounds.
- Transport

**ALS**

- In confirmed asthma/COPD patients, establish IV access of Lactated Ringer’s solution. Administer 250mL – 500mL bolus. Do not administer bolus to CHF patients – set IV at TKO.

  *(Pedi bolus not to exceed 10mL/kg)*
- If the **confirmed COPD patient** has already had one or more albuterol treatments with no relief,
administer albuterol/ipratropium combination nebulizer treatment

(Mix one unit dose albuterol with one unit dose ipratropium in nebulizer, set oxygen at 10-12 lpm)

(Pedi dosage is one-half adult dosage)

**ACLS**
- Obtain EKG and treat dysrhythmias
- In asthma patients suffering severe bronchospasm, administer 0.3 mg Epinephrine 1:1000 SQ.  
  (Pedi dose is 0.01mg/kg SQ or 0.005 mg/kg IVP)
- For CHF patients, refer to CHF / Pulmonary Edema protocol

**SEIZURES**

I. **CONDUCT INITIAL SURVEY**

II. **CONSIDER ALS BACKUP**

III. **CONDUCT SECONDARY ASSESSMENT**
- Observe for signs of trauma
- Obtain vital signs when possible
- Determine medical history / seizure history

IV. **TREATMENT PROTOCOL**

**BLS**
- Administer oxygen if the patient is hypoxic with assisted ventilations if necessary
- Protect the patient from further injury
  - Obtain blood-glucose level. If patient is conscious with BGL < 80mg/dL, administer 15g dextrose gel, 40%. (Pedi dose 7.5g)
- Obtain rectal temperature in pediatric patients. Remove patients clothing and cool with tepid water as necessary.
ALS

- Establish IV of Lactated Ringer’s solution TKO.

- If BGL < 80 mg/dL, administer 100mg Thiamine IVP and 25g dextrose injection, 50% IVP. Do not administer dextrose injection, 50% if patient has any signs or symptoms of CVA or intracranial hemorrhage.

(Pedi dose is 0.5 g/kg. Use D25 in pts < 1 yr)

ACLS

- If patient actively seizing, administer 5.0 mg diazepam IV over one minute.

(Pedi dose is 0.25 mg/kg. Diazepam may be administered IO if IV cannot be established, 0.5 mg/kg)

SECTION 3 -- TRAUMA EMERGENCIES

Trauma patients in need of medical attention and ambulance transport to a medical facility fall into two categories based on the findings of the INITIAL SURVEY and the FOCUSED PHYSICAL EXAM. This difference determines the treatment strategy undertaken by the medic-in-charge.

IMMEDIATE LIFE THREATS

Patients whose INITIAL SURVEY reveals a systolic blood pressure < 80, respiratory impairment, a substantially reduced level of consciousness, uncontrolled bleeding, chest pain with blood pressure < 100 systolic, complicated childbirth, or signs of shock should be transported as quickly as possible. Transport decisions such as Life Flight should be considered at this point. Only measures necessary to immediately sustain life (airway and breathing management) should be performed at the scene. Rapid extrication techniques should be used in the case of respiratory or cardiac arrest or imminent threat from the environment. Life-threatening hemorrhage should be managed at the scene.

However, splinting (other than emergency spinal immobilization), the FOCUSED PHYSICAL EXAM, and minor bandaging should be done en route. IV’s should be started en route whenever possible. For the most part, EMS personnel should take the view that time spent at the scene reduces the ultimate survival chance of such patients.

NON-LIFE THREATENING INJURIES

Trauma patients whose injuries are not immediately life-threatening should receive a thorough FOCUSED PHYSICAL EXAM, careful extrication and complete and accurate treatment prior to transport. Measures should be undertaken constantly to determine the ongoing status of the patient, considering
the mechanism of injury, site(s) of injury, patient history and time involved in treatment. Serious patients may become critical patients very quickly; EMS treatment strategy must change to the rapid treatment/transport philosophy.

AIRWAY OBSTRUCTION

CONDUCT INITIAL SURVEY

Determine if airway completely or partially obstructed

I. CONSIDER ALS BACKUP

II. CONDUCT SECONDARY ASSESSMENT (IF PARTIAL OBSTRUCTION)

- Rapidly interview bystanders as to event
- Complete initial airway management first
- Survey the patient for additional injury
- Monitor vital signs and LOC

TREATMENT PROTOCOLS

BLS

- Open airway; ventilate if patient is not breathing. If ventilation unsuccessful, reposition head and try again.
- Attempt to remove total airway obstructions or those in which adequate respiration is compromised. Use back blows and chest thrusts as indicated by patient’s age and size.
- Attempt positive-pressure ventilation with BVM if airway remains totally blocked after repeated attempts at removal.
- If initial removal attempts are unsuccessful, TRANSPORT while continuing attempts to clear the airway. Do not wait for ALS.
- Ventilate partially obstructed patients with BVM as necessary and transport.

ALS

- In unconscious, adult patients, in whom assisted ventilations will not enter, visualize the airway through laryngoscopy and attempt removal of object with Magill forceps.

ACLS

- Obtain EKG and treat dysrhythmias.
AMPUTATIONS

I. CONDUCT INITIAL SURVEY

II. CONDUCT SECONDARY ASSESSMENT

- Establish mechanism of injury
- Obtain medical history, medications

TREATMENT PROTOCOLS

BLS

Cover stump with dry sterile dressing

Wrap severed portion in moist sterile dressing, place in dry plastic bag closable bag. Place this bag inside another bag with a mixture of ice and water and transport with patient.

Monitor patient for signs for shock and treat accordingly

Monitor vital signs every 5 minutes

Transport

ALS

- Establish IV of Lactated Ringers at keep open rate.

ACLS

- Obtain EKG and treat any dysrhythmias
- If injury is isolated and not part of other multi-system trauma, administer 4 mg morphine sulfate if needed for pain relief. *(Pedi dose 0.06mg/kg, not to exceed 4 mg)*. Contact on-line medical control if additional analgesic is needed.

BURNS

I. CONSIDER ALS BACKUP

II. CONDUCT SECONDARY ASSESSMENT

- Determine the burn source and extinguish if necessary

Determine the extent (Rule of Nines), severity and time of the burn
- Examine oral and nasal passages for evidence of airway burn
• Auscultate breath sounds

TREATMENT PROTOCOLS

**BLS**
• Stop the burning process
• Open and secure airway if necessary
• If chemical burn, brush away any dry chemical with sterile 4x4’s and flush with copious amounts of sterile water for 20 minutes
• Administer oxygen if the patient is hypoxic, humidified if indicated
• Remove jewelry and clothing from burn area immediately
• If burn area is less than 10% BSA – apply sterile dressing moistened with saline
• If burn area greater than 10% BSA – apply dry sterile dressings or burn sheets
• Transport to nearest appropriate facility. Major burns (which are defined as hands, face, etc.) should be transported to Memorial Hermann Hospital—Texas Medical Center.

**ALS**
• If the burn is more than superficial and covers 20% or more of the body surface area, initiate IV of Lactated Ringer’s solution and administer 10 mL/hr x % total body surface area (example: 10 mL/hr x 45% TBSA = 450 mL/hr). Do not over-hydrate. Contact on-line medical control in the event of hypotension.

**ACLS**
• Obtain EKG and treat dysrhythmias
• Administer 4 mg Morphine Sulfate if needed for pain relief. Contact on-line medical control if additional doses are needed. (Pedi dose 0.06 mg/kg, not to exceed 4 mg.)

**CHEST / THORACIC TRAUMA**

I. **CONDUCT INITIAL SURVEY**; transport critical patients immediately with treatment enroute

II. **CONSIDER ALS BACKUP**

III. **CONDUCT SECONDARY ASSESSMENT**
• Identify mechanism of injury
- Observe the patient's behavior/LOC
- Assess respiratory rate/quality
- Auscultate breath sounds

TREATMENT PROTOCOLS

**BLS**
- Administer oxygen if the patient is hypoxic; assist respirations if necessary
- Control bleeding
- Manage the injury, splinting and bandaging as necessary
- Monitor vital signs q 5 minutes
- Transport to appropriate facility

**ACLS**
- Monitor EKG and treat appropriate dysrhythmias
- Monitor breath sounds and perform chest decompression if indicated.

**EYE / OCULAR TRAUMA**

I. **CONDUCT INITIAL SURVEY**
II. **CONDUCT SECONDARY ASSESSMENT**

- Establish mechanism of injury
- Ascertain degree of vision deficit, if any

TREATMENT PROTOCOLS

**BLS**
- Administer oxygen if patient is hypoxic
- Control severe bleeding
- Encourage patient to limit movement of eyes
- For small foreign body in eye:
  - Flush slowly with 500 – 1000mL physiologic saline solution
- For Impaled Object:
- Do not remove object
- Dress injured eye and stabilize object
- Patch uninjured eye

- For chemical or other liquids in eye
  - Flush with 2000mL physiologic saline solution
  - Transport patient to appropriate Medical Facility

**FRACTURES / MUSCULOSKELETAL INJURY**

I. **CONDUCT INITIAL SURVEY**

II. **CONSIDER ALS BACKUP**

III. **CONDUCT SECONDARY ASSESSMENT**

- Identify mechanism of injury
- Examine injury site for signs of soft-tissue injury
- Check for PMS distal to injury site; mark location of palpable pulse

**TREATMENT PROTOCOLS**

**BLS**

- Administer oxygen if the patient is hypoxic for long-bone fractures or possible shock.
- Attempt to straighten angulated closed fractures, excluding fractures of the elbow or knee, one time only if there is no distal pulse. If unsuccessful, stabilize in position found and transport immediately.
- Splint in position of function.
- Control any external bleeding
- Monitor vital signs and distal pulse every 5 minutes
- Use of traction splint is permitted only for mid-shaft femur fractures.

**ACLS**

- For patients with isolated long-bone fractures without complication, administer 4 mg morphine sulfate if needed for pain. Contact on-line medical control if further treatment is needed. *(Pedi dose 0.06 mg/kg, not to exceed 4 mg.)*
HEAD INJURY

I. CONDUCT INITIAL SURVEY

II. CONSIDER ALS BACKUP

III. CONDUCT SECONDARY ASSESSMENT

- Identify mechanism of injury.
- Immobilize the patient prior to other survey or treatment measures unless life-threatening conditions exist.
- Check neurological function before and after immobilization
- Note Level of Consciousness

TREATMENT PROTOCOLS

BLS
- Check for posturing (decorticate / decerebrate)
- Obtain Glasgow Coma Score
- Monitor vital signs and GCS every 5 minutes
- Transport, ensuring spinal immobilization

ALS
- Initiate IV of Lactated Ringer’s solution TKO on 60gtt set

ACLS
- Do not attempt to control blood pressure as this may lead to insufficient end-organ perfusion.

HYPERTHERMIA

I. CONDUCT INITIAL SURVEY

II. CONSIDER ALS BACKUP

III. CONDUCT SECONDARY EXAM. Measure core body temperature.

TREATMENT PROTOCOLS

BLS
- Administer oxygen if the patient is hypoxic
- Remove excess clothing from patient
• Cool patient. Preferred methods are by setting the air conditioning on maximum cool, misting the patient’s skin with room temperature water, and directing air to blow on the patient.

• Monitor vital signs

• Transport

ALS
• Establish IV of Lactated Ringer’s solution. Bolus 500mL, then reassess.

ACLS
• Monitor EKG and treat dysrhythmias

HYPOTHERMIA

I. CONDUCT INITIAL SURVEY

II. CONSIDER ALS BACKUP

III. CONDUCT SECONDARY ASSESSMENT. Measure core body temperature

IV. TREATMENT PROTOCOLS

BLS
• Move the patient gently. Rough handling may precipitate ventricular fibrillation.

• Remove any wet clothing

• Provide passive rewarming using insulating materials.

• Monitor vital signs every 5 min

• Transport

ACLS
• Monitor EKG and treat dysrhythmias. Remember that most medications have a much slower onset of action in the hypothermic patient.

INHALATION INJURIES
REMOVE PATIENT FROM HAZARD IF IT CAN BE DONE SAFELY. NOTIFY FIRE DEPARTMENT FOR ASSISTANCE IF REQUIRED.

I. CONDUCT INITIAL SURVEY

II. CONSIDER ALS BACKUP
III. **CONDUCT SECONDARY ASSESSMENT.** Establish mechanism of injury, including identification of product. Obtain Material Safety Data Sheet or shipping papers if available.

IV. **TREATMENT PROTOCOLS**

**BLS**
- Administer oxygen if the patient is hypoxic; assist ventilations if necessary.
- If breath sounds present with wheezing, administer 2.5mg albuterol via mist nebulizer. (*For pediatric patients, dilute 1:1 with saline solution*)
- Monitor vital signs and LOC q 5 min.

**ALS**
- Be prepared to intubate if patient becomes unconscious.
- Establish IV access with Lactated Ringer’s solution TKO.

**ACLS**
- Monitor EKG and treat dysrhythmias.

**NEAR DROWNING**

DO NOT ENTER THE WATER UNLESS PERSONNEL ARE TRAINED AND PROFICIENT IN WATER RESCUE. NOTIFY FIRE DEPARTMENT FOR ASSISTANCE.

I. **CONDUCT INITIAL SURVEY**

II. **CONSIDER ALS BACKUP**

III. **CONDUCT SECONDARY ASSESSMENT**
- Gather information
- Downtime
- Total time in the water
- Salt or fresh water

IV. **TREATMENT PROTOCOLS**

**BLS**
- Secure patent airway, provide oxygen if hypoxic, assist ventilations as necessary. Have portable suction prepared.
- Remove all wet clothing.
• Provide in-line spinal stabilization if a fall or diving injury was possible.
• Transport. Patients that regain consciousness still need to be evaluated.

**ALS**
• Intubate if necessary.
• Establish saline lock.

**ACLS**
• Monitor EKG and treat dysrhythmias.

**PENETRATING TRAUMA**

I. **CONDUCT INITIAL SURVEY**

II. **CONSIDER ALS BACKUP**

III. **CONDUCT SECONDARY ASSESSMENT.** Determine the mechanism of injury.

IV. **TREATMENT PROTOCOLS**

**BLS**
• Administer oxygen if the patient is hypoxic
• Control any serious hemorrhage
• Occlude penetrating chest/abdominal wounds
• Stabilize any impaled objects without removal (except in the cheek which can be removed if the airway is compromised)
• Bandage wound if practical and time permits
• Monitor vital signs q 5 min
• Transport

**ALS**
• Do not delay transport
• Establish a saline lock.
• Be prepared to intubate if patient deteriorates

**ACLS**
• Monitor EKG and treat dysrhythmias.
SNake BITes
Do not attempt rescue if snake is in the immediate vicinity. Contact fire dept for assistance.

I. Conduct Initial Survey; if patient is critical, transport immediately. Assess and treat enroute.

II. Conduct Secondary Assessment
   - Neurological and respiratory survey.
   - Keep patient calm and discourage excessive movement.

III. Treatment Protocols

BLS
   - Administer oxygen if the patient is hypoxic. Assist respirations if necessary.
   - Immobilize affected extremity, if applicable.
   - Do not use tourniquet, hot or cold packs
   - Monitor LOC
   - Monitor vital signs q 5 min
   - If snake has been captured or killed, transport dead snake with patient to Emergency Facility, using caution as apparently dead snakes may still bite by reflex. If snake not available, get as complete a description as possible including coloration, markings and shape of head.

Critical Care Protocols and Standing Delegation Orders

All protocols and standing delegation orders in this section are restricted to EMT-Paramedic/CCEMTP personnel.

Sedation of Intubated Patients
EMT-Paramedic/CCEMTP personnel may continue sedation of intubated adults with the following medications running in an IV pump: midazolam or propofol.

Continuous Analgesia for Critical Patients
EMT-Paramedic/CCEMTP personnel may continue fentanyl or morphine patient controlled analgesia for adults, or may administer these medications by intermittent bolus.
Neuromuscular Blockade for Intubated Patients

EMT-Paramedic/CCEMTP personnel may continue vecuronium infusions running in an IV pump in intubated adults.

Medications effecting blood pressure

EMT-Paramedic/CCEMTP personnel may continue the following medications running in an IV pump:

1. norepinephrine
2. dopamine
3. Nitroglycerin (only for angina and acute myocardial infarction, not for lowering blood pressure due to hypertension)
4. Heparin
5. Insulin
Procedures for Critical Care Transport

1. All transports by Harris Health System EMS personnel are performed under direction by the Harris Health System off-line and on-line EMS Medical Director.

2. Before accepting a critical care transport, the Harris Health emergency medical dispatcher will cover the following items:
   a. Read the following to the caller: “Harris Health System EMS provides critical care paramedics in a mobile intensive care unit. We do not provide critical care nurses or respiratory therapists. Does the potential benefit of transport at this level of care outweigh the risks?”
   b. Exclusionary criteria – a ‘yes’ answer to any of these questions renders the patient ineligible for transport by Harris Health System EMS:
      i. “Does the patient require invasive pressure monitoring during transport?”
         1. Harris Health System EMS may transport patients with central venous or arterial lines, but the pressures will not be monitored during transport.
         2. Invasive pressure monitors include arterial blood pressure, central venous pressure, intracranial pressure, and bladder pressure.
      ii. “Does the patient have an external ventricular drain?”
      iii. “Does the patient require a vasodilator for treatment of a hypertensive emergency?” (Vasodilators used for angina or acute myocardial infarction are allowable.)
      iv. “Is the patient’s age less than 18 years?”

3. The physician requesting transport is responsible for determining that the risk of transport under a given level of care outweighs the risk of not transporting the patient.

4. The licensed independent practitioner requesting the transport may provide guidance on the initial therapy for the transport, which will generally be followed, if within specified ranges.

5. The licensed independent practitioner requesting the transport will complete the ‘Continuation of Critical Care Therapies by Emergency Medical Services’ form before care is accepted by Harris Health EMS. This form will become part of the permanent EMS record.

6. The EMT-Paramedic/critical care paramedic accepting the patient shall review the form. If any therapies are requested that are outside of the ranges listed in parenthesis, the paramedic must obtain approval from on-line medical control before accepting transport.

7. The critical care paramedic shall contact the on-line EMS medical director if any significant change in patient status occurs during transport.

8. All patients with endotracheal intubation and sedation shall have soft wrist restraints applied for safety during transport.

9. Contact on-line medical control if the patient is intubated but becomes too aroused or too agitated.
HARRIS HEALTH SYSTEM EMERGENCY MEDICAL SERVICES

Continuation of Critical Care Therapies by Emergency Medical Services

Harris Health System EMS is provided under off-line and on-line EMS Medical Direction.

EXCLUSIONARY CRITERIA FOR CRITICAL CARE TRANSPORT BY HARRIS HEALTH SYSTEM EMS, unless physician accompanies patient during transport

☐ Invasive pressure monitoring (arterial, venous, intra-cranial, or bladder) is required during transport.
☐ Extra-corporeal CSF drainage.
☐ Vasodilator infusion (except nitroglycerine used only for management of pain of AMI or angina, not for treatment of hypertensive emergencies).
☐ Patient age < 18 years.

INITIAL THERAPEUTICS. Harris Health System EMS may continue the following therapies, subject to changes by the on-line EMS medical director. If a dose or setting is outside of the range provided in parenthesis, on-line medical control approval is required prior to transport.

☐ MECHANICAL VENTILATION

MODE ☐ Assist Control ☐ SIMV ☐ CPAP ☐ Pressure Support

Rate __________ (5 – 25 breaths/minute)

Tidal Volume __________ (6 – 8 mL/kg)

I:E ratio __________ (1:2 – 1:5)

Flow Rate __________ (60 – 100 L/min)

Peak Pressure __________ (15 – 30 cmH₂O)

PEEP __________ (5 – 18 cmH₂O)

Pressure Support __________ (0 – 20 cmH₂O)

Oxygen __________ (40 – 100%)

☐ SEDATION AND NEUROMUSCULAR BLOCKADE – REQUIRES INTUBATION OR TRACHEOSTOMY

AND MECHANICAL VENTILATION
- Midazolam _________ mcg/kg/hr (20 – 100)
- Propofol _________ mcg/kg/min (5 – 50)
- Vecuronium _________ mcg/kg/min (≤ 1.2)

**ANALGESIA**
- Morphine via locked PCA
- Fentanyl via locked PCA

**VASODILATING AGENTS**
- Nitroglycerin _________ mcg/min (5 – 20; only for angina or AMI; not for lowering blood pressure in a hypertensive crisis)

**SYMPATHOMIMETIC AGENTS**
- Dopamine _________ mcg/kg/min (0.5 – 20)
- Norepinephrine _________ mcg/min (0.5 – 30)
- Heparin _________ units/hr (6 – 24)
- Insulin (regular human) _________ units/kg/hr (0.05 – 0.2)
SPECIFIC ADVANCED SKILLS

AUTOMATED EXTERNAL DEFIBRILLATOR (AED)

Standing Orders

For any patient without effective breathing and without a pulse age 1 year or older, when use of a manual defibrillator is not appropriate --

1) Turn on the AED.

2) Wipe the chest dry.

3) Attach the pads.
   a) Place one pad on the victim’s upper right chest.
   b) Place the other pad on the victim’s lower left side.
   c) **For a child,** use pediatric AED pads if available. Make sure the pads are not touching.
   d) If the pads risk touching each other on a child, place one pad on the child’s chest and the other on the child’s back.

4) Plug the connector into the AED, if necessary.

5) Make sure that nobody is touching the victim.
   a) Look to see that nobody is touching the victim.
   b) Tell everyone to “stand clear.”

6) Push the “analyze” button. Let the AED analyze the heart rhythm

7) If a shock is advised, push the “shock” button.
   a) Look to see that nobody is touching the victim.
   b) Tell everyone to “stand clear.”

8) After the shock or if no shock is indicated—
   a) Give 5 cycles (about 2 minutes) of CPR before analyzing the heart rhythm again.
b) If at any time you notice an obvious sign of life, stop CPR and monitor the ABCs.
**Combitube™ Airway**

Harris Health System EMS personnel at the EMT-B level or above, once approved for this procedure, may use the Combitube™ Airway for airway management in patients over 4 ft in height.

Harris Health System EMS personnel shall follow all of the guidance and instructions in the current Combitube™ Airway – EMS instructions for use. Should the manufacturer update the instructions, EMS personnel shall follow the most current manufacturer-issued instructions.
Treatment With Non-Invasive Ventilation by Paramedics

Indications:

1. Patients eighteen years of age or older.
2. Severe dyspnea.

Exclusionary criteria:

1. Bullous Lung Disease (suspect in patients with tuberculosis or chronic obstructive pulmonary disease).
2. Systolic blood pressure less than 90 mm hg.
3. Breath sounds absent on one side.
4. History of surgery to the head or moderate or severe head trauma.
5. Glasgow coma scale of eight or less.

Intervention

1. Administer Bi-Level positive airway pressure with inspiratory positive airway pressure of 10 cm of water and expiratory airway pressure of 5 cm of water.
2. Provide supplemental oxygen at the lowest flow rate achievable, as needed, to maintain oxygen saturation between 94% and 98%.

Notes:

1. All use of the non-invasive ventilation device must be by paramedics that have completed the HCHD EMS approved training module.
2. All use of the non-invasive ventilation device must be in compliance with all of the manufacturer’s instructions.
3. The HCHD EMS quality assurance personnel and the medical director will perform a 100% audit of all cases in which the non-invasive ventilation device is used.
C-SPINE CLEARANCE IN-FIELD

ALL OF THE FOLLOWING MUST BE CHECKED “NO” BEFORE C-SPINE IMMOBILIZATION MAY BE BYPASSED:

<table>
<thead>
<tr>
<th>Condition</th>
<th>YES</th>
<th>NO</th>
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</thead>
<tbody>
<tr>
<td>High-Speed Collision or Major Damage to Vehicle</td>
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<td></td>
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<tr>
<td>Altered Mental Status</td>
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<tr>
<td>Loss of Consciousness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suspicion of Head Injury, EtOH or Drugs</td>
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<tr>
<td>Cervical or Spinal Pain</td>
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<tr>
<td>Cervical Tenderness or Deformity</td>
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<tr>
<td>Neurological Deficit</td>
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<tr>
<td>Other Severe or Painful Injuries</td>
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<tr>
<td>Pain with Motion</td>
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<td></td>
</tr>
<tr>
<td>Impaired Range of Motion of C-Spine</td>
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<td></td>
</tr>
</tbody>
</table>

If patient answers “Yes” to ANY of the above, C-Spine immobilization is required.
EMS Medication and Equipment Checklists

Harris Health System
Medication and Equipment Checklist MICU and ALS

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<thead>
<tr>
<th>PARAMEDIC: ___________________________</th>
<th>UNIT: __________</th>
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<tbody>
<tr>
<td>EMT: _____________________________</td>
<td>DATE: __________</td>
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<table>
<thead>
<tr>
<th>QUANTITY APPROVED</th>
<th>SUPPLIES</th>
<th>YES NO</th>
<th>NEEDED</th>
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<tbody>
<tr>
<td>6ea</td>
<td>Adenosine 6mg pre-filled: Exp. date</td>
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<tr>
<td>4ea</td>
<td>Albuterol Sulfate 2.5mg: Exp. date</td>
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<td>3ea</td>
<td>Amiodarone 150mg, 50mg/ml: Exp. date</td>
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<td>1 bottle</td>
<td>Aspirin, 81mg chewable: Exp. date</td>
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<td>4ea</td>
<td>Atropine Sulfate 1mg pre-filled: Exp. date</td>
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<td>2 bottle</td>
<td>Clopidogrel Bisulfate 600mg Tablets: Exp. date</td>
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<td>2 tubes</td>
<td>Dextrose gel, 40%</td>
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<td>Dextrose injection, 50% 25gm pre-filled: Exp. date</td>
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<td>Diazepam 10mg Prefilled: Narc Box Exp. date</td>
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<td>Diltiazem Hydrochloride Injection: Exp. date</td>
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<td>Diphenhydramine 50mg: Exp. date</td>
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<td>Magnesium Sulfate 5 grams: Exp. date</td>
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<td>Methylprednisolone 125mg: Exp. date</td>
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<td>Midazolam 5mg: Narc Box Exp: date</td>
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<td>Sodium Bicarbonate 50 mEq pre-filled: Exp. date</td>
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</tr>
<tr>
<td>2ea</td>
<td>Sodium Thiosulfate, Intravenous Solution 12.5g: Exp. date</td>
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<tr>
<td>2ea</td>
<td>Thiamine 100mg dose vial: Exp. date</td>
<td></td>
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<tr>
<td>2ea</td>
<td>Sterile Water- Expiration date</td>
<td></td>
<td></td>
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<tr>
<td>4ea</td>
<td>Lactated Ringer’s IV Solution 1000ml: Exp. date</td>
<td></td>
<td></td>
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<tr>
<td>1ea</td>
<td>ECG Monitor /Defibrillator with pacer pads and electrodes</td>
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<tr>
<td>1ea</td>
<td>Biomed Cross Vent III with Adult/Pedi circuits</td>
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<tr>
<td>4ea</td>
<td>Assorted I.V. tubing, 10gtts, 60gtts sets</td>
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<tr>
<td>4ea</td>
<td>Assorted syringes, I.V., 3cc, 10cc, 10 Needle 2ea.</td>
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<tr>
<td>4ea</td>
<td>Assorted Hypodermic needles, 18g, 21g, 23g</td>
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<tr>
<td>6ea</td>
<td>Assorted I.V. catheters, 14g, 16g, 18g, 20g, 22g, 24g/</td>
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</tr>
<tr>
<td>1ea</td>
<td>Magill Forceps Adult and Pedi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1set</td>
<td>Laryngoscope with assorted blades, Miller and Macintosh</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1ea size</td>
<td>Assorted endotracheal tubes</td>
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<tr>
<td>1ea</td>
<td>Pulse Oximeter</td>
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<td>Item</td>
<td>Description</td>
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<tr>
<td>------------</td>
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<tr>
<td>1 ea</td>
<td>Glucometer with strips and lancets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 ea.</td>
<td>Patient Extremity Restraints</td>
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<tr>
<td>2 ea.</td>
<td>IV Pressure Infusion Bags</td>
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<tr>
<td>1 ea</td>
<td>Advanced Skill Protocols and Standing Orders</td>
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<td></td>
</tr>
<tr>
<td>2 ea.</td>
<td>Buretrol sets</td>
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<tr>
<td>200 mg</td>
<td>Propofol injectable emulsion for IV use, 10 mg/mL</td>
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</tr>
<tr>
<td>20 mg</td>
<td>Vecuronium bromide, for injection</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Digitally signed by Richard N Bradley
DN: postalCode=77030, o=UTHENHEALTH NON-ESROW,
street=7000 Fannin, st=Texas, l=Houston, c=US, cn=Richard
N Bradley, email=richard.n.bradley@uth.tmc.edu
Date: 2015.01.24 05:51:05 -05'00'
### EQUPMENT CHECKLIST

**EMS BLS**

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>SUPPLIES</th>
<th>YES</th>
<th>NO</th>
<th>NEEDED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td>GPS Navigation Device</td>
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<td><strong>2</strong></td>
<td>Multi-Level Stretcher</td>
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<tr>
<td><strong>2 ea.</strong></td>
<td>Clean Sheets/Emergency Blankets</td>
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<tr>
<td><strong>2 boxes</strong></td>
<td>Latex Disposable Gloves</td>
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<tr>
<td><strong>2</strong></td>
<td>Protective Gowns</td>
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<tr>
<td><strong>2</strong></td>
<td>Goggles</td>
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<tr>
<td><strong>2 Block</strong></td>
<td>Reflective Vests</td>
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<tr>
<td><strong>2 pair</strong></td>
<td>Protective Shoe Covers</td>
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<tr>
<td><strong>4</strong></td>
<td>Portable Oxygen Cylinders (PSI)</td>
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<td>)</td>
</tr>
<tr>
<td><strong>1</strong></td>
<td>Main Oxygen Cylinder (PSI)</td>
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<tr>
<td><strong>1 ea.</strong></td>
<td>Suction: Mounted/Portable</td>
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<tr>
<td><strong>3 ea.</strong></td>
<td>Nasal Cannulas: Adult/ Pediatric</td>
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<tr>
<td><strong>3 ea.</strong></td>
<td>Simple Face Mask (Adult/Pediatric)</td>
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</tr>
<tr>
<td><strong>3 ea.</strong></td>
<td>Non-Rebreather Masks: Adult/ Pediatric</td>
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<tr>
<td><strong>2</strong></td>
<td>Protective Respiratory Masks</td>
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<tr>
<td><strong>1</strong></td>
<td>Thermometer with covers</td>
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<tr>
<td><strong>4</strong></td>
<td>Cold Packs</td>
<td></td>
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</tr>
<tr>
<td><strong>1</strong></td>
<td>Glucometer with strips and lancets</td>
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<td></td>
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</tr>
<tr>
<td><strong>1 ea.</strong></td>
<td>Bag Valve Masks, Adult, Child, Infant</td>
<td></td>
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</tr>
<tr>
<td><strong>1 set ea.</strong></td>
<td>Oral and Nasal Pharyngeal Airways</td>
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</tr>
<tr>
<td><strong>2 ea.</strong></td>
<td>Bite Sticks Trauma Shears</td>
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<tr>
<td><strong>12</strong></td>
<td>Triangular Bandages</td>
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<tr>
<td><strong>2</strong></td>
<td>Disposable Vomit bags</td>
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<tr>
<td><strong>4</strong></td>
<td>Rolls of Tape</td>
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</tr>
<tr>
<td><strong>60</strong></td>
<td>Sterile 4x4's</td>
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</tr>
<tr>
<td><strong>12</strong></td>
<td>Roller Gauze (Kerlix)</td>
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<tr>
<td><strong>6</strong></td>
<td>Occlusive dressings</td>
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</tr>
<tr>
<td><strong>2 ea.</strong></td>
<td>Multi-Trauma Dressings/Sterile Burn Sheets</td>
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<tr>
<td><strong>1 ea.</strong></td>
<td>Sterile AID Kit / Infant Insulating Device</td>
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<tr>
<td><strong>1 ea.</strong></td>
<td>Broselow Pediatric Emergency Tape</td>
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<tr>
<td><strong>1 ea.</strong></td>
<td>Flashlight/Penlight</td>
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<td></td>
<td></td>
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<tr>
<td><strong>1</strong></td>
<td>LifePak 12 AED with pads and pulse oximetry</td>
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<tr>
<td><strong>4</strong></td>
<td>Albuterol Sulfate 2.5mg vials: Exp.date</td>
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<tr>
<td><strong>1</strong></td>
<td>Epi Pen AutoInjctor 0.3mg: Exp.date</td>
<td></td>
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<tr>
<td><strong>1</strong></td>
<td>Oral Glucose: Expiration date</td>
<td></td>
<td></td>
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<tr>
<td><strong>2</strong></td>
<td>Sterile Water: Expiration date</td>
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<tr>
<td><strong>1</strong></td>
<td>Hand Antiseptic</td>
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<td><strong>1</strong></td>
<td>Blood Pressure Kit (Adult, child, infant)</td>
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<tr>
<td><strong>1</strong></td>
<td>Stethoscope</td>
<td></td>
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<tr>
<td><strong>1 ea.</strong></td>
<td>Cervical Collars (Large, Medium, Small)</td>
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<tr>
<td><strong>1 ea.</strong></td>
<td>Adult and Pedi Traction Splints</td>
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<tr>
<td><strong>2 ea.</strong></td>
<td>Patient Extremity Restraints</td>
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<tr>
<td><strong>1</strong></td>
<td>Set of rigid splints (Short, Medium, Long)</td>
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<tr>
<td><strong>1</strong></td>
<td>Stryker Stair Chair</td>
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<tr>
<td><strong>1 ea.</strong></td>
<td>Long Spine Board/ KED</td>
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<tr>
<td><strong>2</strong></td>
<td>Head immobilizers</td>
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</tr>
<tr>
<td><strong>1</strong></td>
<td>Webbing</td>
<td></td>
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</tr>
<tr>
<td><strong>1 set</strong></td>
<td>Triage Tags</td>
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<tr>
<td><strong>1</strong></td>
<td>BLS Treatment Protocols and Standing Orders</td>
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<td><strong>1</strong></td>
<td>Sharps Container</td>
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<tr>
<td><strong>1</strong></td>
<td>Pedi-Mate® Pediatric Restraint System</td>
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<tr>
<td><strong>1</strong></td>
<td>Fire Extinguisher: Expiration date</td>
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<tr>
<td><strong>2</strong></td>
<td>Red Biohazard Waste and Trash Can Bags</td>
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</tbody>
</table>

---

**CREW:**

**EMS BLS**

**UNIT/DATE:**
### Medication and Equipment Checklist EMT-I

**Effective:** January 25, 2015  
**Expires:** September 30, 2016

#### Minimum Quantity

<table>
<thead>
<tr>
<th>Item</th>
<th>YES</th>
<th>NO</th>
<th>NEED</th>
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</thead>
<tbody>
<tr>
<td>Albuterol sulfate 2.5 mg. Exp date:</td>
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<td></td>
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</tr>
<tr>
<td>Dextrose Injection, 25%, 50 grams. Exp. Date:</td>
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<tr>
<td>Naloxone 2 mg. Exp. Date:</td>
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<tr>
<td>Sterile water for irrigation, 1000 mL Exp. Date:</td>
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<tr>
<td>Sterile water for irrigation, 250 ml Exp. Date:</td>
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<tr>
<td>Lactated Ringer’s IV Solution, 1,000 mL Exp. Date:</td>
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<tr>
<td>Aspirin, chewable, 81 mg. Exp. Date:</td>
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<tr>
<td>IV administration sets, 60 drops/mL</td>
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<tr>
<td>IV administration sets, 10 drops/mL</td>
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<td></td>
</tr>
<tr>
<td>1 cc syringe</td>
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<td></td>
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</tr>
<tr>
<td>3 cc syringe</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>10 cc syringe</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Needle 18 g</td>
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</tr>
<tr>
<td>Needle 20 g</td>
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<tr>
<td>IV catheter over needle, 14 gauge</td>
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</tr>
<tr>
<td>IV catheter over needle, 16 gauge</td>
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<tr>
<td>IV catheter over needle, 18 gauge</td>
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<td>IV catheter over needle, 20 gauge</td>
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<tr>
<td>IV catheter over needle, 22 gauge</td>
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<tr>
<td>IV catheter over needle, 24 gauge</td>
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<tr>
<td>Nitroglycerin, 0.4 mg tablets or spray Exp. Date:</td>
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<td></td>
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<tr>
<td>Magill forceps, adult</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Magill forceps, pediatric</td>
<td></td>
<td></td>
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<tr>
<td>Endotracheal tubes: 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laryngoscope with Macintosh and Miller blades sizes 0 - 4</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Cardiac monitor with pulse oximeter and end-tidal CO₂ detector</td>
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<td></td>
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<tr>
<td>Glucometer with 6 lancets, test strips and calibration supplies</td>
<td></td>
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<tr>
<td>Harris Health EMS Protocols and Standing Delegation Orders</td>
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<tr>
<td>Combitube</td>
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</tr>
<tr>
<td>Buretrol sets</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
# REFERENCES

## Vital Signs

Normal ranges of arterial blood pressures (mmHg), normal pulse rates (heart beats per minute), and normal respiratory rates (respirations per minute) for various ages can be found in the chart below.

<table>
<thead>
<tr>
<th>Ages</th>
<th>Systolic BP</th>
<th>Diastolic BP</th>
<th>Pulse Rate</th>
<th>Respiratory Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn</td>
<td>80</td>
<td>46</td>
<td>110-150</td>
<td>30-50</td>
</tr>
<tr>
<td>6-12 months</td>
<td>89</td>
<td>60</td>
<td>100-140</td>
<td>20-30</td>
</tr>
<tr>
<td>1 year</td>
<td>96</td>
<td>66</td>
<td>90-110</td>
<td></td>
</tr>
<tr>
<td>2 years</td>
<td>98</td>
<td>64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 years</td>
<td>100</td>
<td>68</td>
<td>80-120</td>
<td></td>
</tr>
<tr>
<td>4 years</td>
<td>98</td>
<td>66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-6 years</td>
<td>94</td>
<td>56</td>
<td>80-100</td>
<td></td>
</tr>
<tr>
<td>6-7 years</td>
<td>100</td>
<td>56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-9 years</td>
<td>106</td>
<td>58</td>
<td>70-110</td>
<td></td>
</tr>
<tr>
<td>9-10 years</td>
<td>108</td>
<td>58</td>
<td></td>
<td>14-22</td>
</tr>
<tr>
<td>10-11 years</td>
<td>112</td>
<td>58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-12 years</td>
<td>114</td>
<td>60</td>
<td>60-100</td>
<td></td>
</tr>
<tr>
<td>12-13 years</td>
<td>116</td>
<td>60</td>
<td></td>
<td>12-20</td>
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<tr>
<td>13-Adult</td>
<td>118</td>
<td>60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Systolic values given above may vary up or down significantly and still remain in a “normal” range as follows:

- Newborn: Plus/minus 16
- 6 months- 4 years: Plus/minus 25
- 4-10 years: Plus/minus 16
- 10 years-Adult: Plus/minus 18

2. Diastolic values given above may vary from plus/minus 9 mm Hg to plus/minus 24 mm Hg and still remain in the normal range.
TRIAGE AREA STAFFING

1. **Authorization to staff the triage areas.** HARRIS HEALTH SYSTEM EMS paramedics may staff the triage area at Quentin Mease Community Hospital (QMCH) and the LBJ clinical building.

2. **Evaluation of patients.** HARRIS HEALTH SYSTEM personnel shall evaluate every patient who comes to the triage areas with a possible emergency condition. This includes:
   a. A patient who presents to the triage area and requests care for a medical condition, or
   b. A patient that is anywhere within 250 yards of the main building of the hospital (but not in private property) and presents with an emergency medical condition.

3. **Evaluation components.** HARRIS HEALTH SYSTEM EMS personnel shall complete the following items for each patient evaluated in the QMCH triage area:
   a. Log entry with disposition
   b. Epic clinical documentation including history and physical examination
   c. Complete vital signs

4. **Patients with scheduled appointments.** HARRIS HEALTH SYSTEM EMS personnel shall not be required to evaluate patients who are at Quentin Mease Community Hospital for a previously scheduled appointment. If a patient with a previously scheduled appointment develops a medical emergency in a QMCH clinic, the qualified medical provider (QMP) in the clinic should manage the medical emergency. HARRIS HEALTH SYSTEM EMS personnel may assist in managing the patient under the direction of the QMP on scene, unless a ‘Code Blue’ is called.

5. **Inpatients.** HARRIS HEALTH SYSTEM EMS personnel shall not be required to evaluate patients who are at QMCH as an admitted inpatient. If an inpatient develops a medical emergency, the inpatient hospital staff should manage that emergency, unless a ‘Code Blue’ or ‘Rapid Response’ is called. HARRIS HEALTH SYSTEM EMS personnel may assist in managing the patient under the direction of the QMP on scene,

6. **Nonemergency services.** HARRIS HEALTH SYSTEM EMS personnel shall not be required to evaluate any individual if that individual states that the purpose of the visit is not of an emergency nature. Minimal screening for these patients shall be as follows:
   a. Ask the individual if he or she is seeking emergency care, and
   b. Question briefly to establish that there is no emergency condition.
7. **Medication refill requests.** HARRIS HEALTH SYSTEM personnel shall evaluate patients who request medication refills in accordance with this protocol and standing delegation order.

8. **Disposition decision.** All patients evaluated by HARRIS HEALTH SYSTEM EMS personnel at the QMCH triage area shall have one of the following disposition decisions:
   a. Transport to Ben Taub General Hospital (BTGH) or Lyndon B. Johnson General Hospital (LBJ) by ambulance, or
   b. Advised to go to a clinic as soon as possible during normal business hours.

9. **Ambulance transportation to BTGH or LBJ.** The following patients shall be transported by ambulance to BTGH or LBJ:
   a. A patient who has any condition that qualifies for treatment in these Protocols and Standing Delegation Guidelines,
   b. Any patient with abnormal vital signs,
   c. Any patient that has a Glasgow Coma Score of less than 15,
   d. Any patient appearing acutely ill,
   e. Any patient having severe pain,
   f. Any patient with skin that is pale, cyanotic, or cool and clammy,
   g. Any patient with diminished breath sounds,
   h. Any patient with significant abdominal tenderness,
   i. Any patient who is normally able to walk but has developed an inability to walk without assistance,
   j. Any patient that is pregnant and claims to be having contractions, or
   k. Any patient who expresses a desire to hurt himself or others.

10. **On-line medical control.** HARRIS HEALTH SYSTEM EMS personnel at the QMCH triage area shall contact on-line medical control at any time on-line medical assistance is needed in making the appropriate disposition decision.

11. **Log.** HARRIS HEALTH SYSTEM EMS personnel shall maintain a log containing the date, time and name of all patients evaluated at QMCH ER. This log shall include the patient’s disposition (ambulance or referred to a clinic.)

12. **Refusals.** HARRIS HEALTH SYSTEM personnel shall instruct patients who refuse ambulance transportation to go to a primary care clinic as soon as possible during normal business hours.

13. **Nondiscrimination.** HARRIS HEALTH SYSTEM EMS personnel shall screen individuals without discrimination, including payment status, race and national origin. HARRIS HEALTH SYSTEM EMS personnel shall not ask any patient about
medical insurance, ability to pay, or possession of a gold card until after making a
decision to transport or referral to a clinic is complete.

14. **Stabilization.** Patients that have any conditions that qualify for treatment in the
HARRIS HEALTH SYSTEM EMS Protocols and Standing Delegation Orders should
have those treatments applied as indicated.
CODE BLUE AND RAPID RESPONSE

1. **Authorization to Code Blue and Rapid Response calls.** Harris Health System EMS paramedics assigned to the triage area at Quentin Mease Community Hospital (QMCH) may respond to Code Blue and Rapid Response calls at QMCH.

2. **Protocols and Standing Delegation Orders.** Harris Health System EMS personnel shall utilize Harris Health System EMS Protocols and Standing Delegation Orders to while evaluating and managing patients after a Code Blue or Rapid Response call.

3. **Inpatients.** Harris Health System EMS personnel shall direct the QMCH nursing staff to contact the attending physician of an inpatient that is the subject of a Code Blue or Rapid Response call. If possible, given workload, Harris Health System EMS personnel may communicate directly with the attending physician. Disposition (transfer vs. remain at QMCH) shall be determined by the patient’s attending physician. If the attending physician is not available, Harris Health System EMS personnel shall make the disposition in collaboration with the senior nurse on the patient’s unit. Contact on-line medical control if nursing staff and Harris Health System EMS personnel disagree on the disposition.

4. **Other than inpatients.** Harris Health System EMS personnel shall provide stabilizing care pending the arrival of the Houston Fire Department.

5. **Medical authority during Code Blue and Rapid Response calls.**
   a. When a physician is with a patient when Harris Health System EMS personnel arrive, that physician maintains authority as long as that physician desires. Harris Health System personnel may support that physician within each person’s scope of EMS practice.
   b. If no physician is with the patient when Harris Health System EMS personnel arrive, the Harris Health System Medical Director assumes medical authority for the patient. The EMS Medical Director provides medical control by protocol and standing delegation orders or by on-line medical control.
   c. If a physician arrives after the Harris Health System EMS Medical Director has assumed medical authority, and if that physician wishes to manage the care of the patient, Harris Health System EMS personnel should establish direct telephone contact between that physician and the on-line EMS medical director to allow for a hand-off of patient responsibilities.
   d. If a patient is to be handed over to Houston Fire Department EMS after Harris Health System EMS, there must be telephone contact with the Harris Health System EMS on-line medical director and the HFD EMS online medical director to establish a transfer of care.
### GLOSSARY

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>NS</td>
<td>Normal saline; 0.9% sodium chloride for injection</td>
</tr>
<tr>
<td>TKO</td>
<td>To keep vein open</td>
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REFERENCES


