Houston Fire Department
Patient Care Guidelines and Standing Orders
For BLS and ALS Units

GEOGRAPHICAL AREA / DUTY STATUS / NON-EMS CERTIFIED LICENSED MEDICAL PERSONNEL

GEOGRAPHICAL AREA
The guidelines shall only be utilized under my medical direction within the Houston city limits, mutual aid areas, when operating in regional deployments and when transferring patients.

DUTY STATUS
Houston Fire Department EMS personnel are authorized to utilize these protocols under my medical direction only when acting in their official capacity (i.e. on-duty) when representing the Houston Fire Department as defined in the BLS and ALS Guidelines, Patient Care Guidelines and Standing Orders, HFD Rules and Regulations and other written directives and guidelines.

NON EMS-CERTIFIED LICENSED MEDICAL PERSONNEL
Includes RN’s and other allied healthcare personnel (other than licensed physicians authorized to function within the City of Houston EMS system). Currently, the Houston Fire Department Physician Director does not recognize nor utilize persons in this category. All personnel performing direct patient care within the City of Houston EMS system possess valid TDSHS EMS certification and function under the appropriate protocols as EMT’s or paramedics.

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1.00 PURPOSE

1.01 To effectively manage, in a uniform manner, the patient care rendered in the field by the members of the Houston Fire Department (HFD).

1.02 To provide excellent service to residents of and visitors to the City of Houston.

1.03 To offer emergency medical care and transportation, with limited exceptions, for all persons for whom EMS is requested.

2.00 OBJECTIVES

2.01 To provide an effective and structured means of delivering patient care to the citizens and visitors of Houston via Basic Life Support (BLS) and Advanced Life Support (ALS) personnel.

2.02 To maintain continuity and consistency of patient care given by all members of the HFD.

2.03 To provide the HFD Basic Life Support and Advanced Life Support Providers with a reference for review of all BLS and ALS skills, medications and treatments.

2.04 To provide guidelines and standing orders to guide HFD personnel as they assist patients in making a decision regarding ambulance transportation.

2.05 To provide procedures for situations when it appears to be necessary to transport patients to a medical facility, but patients are unable to decide for themselves.

2.06 To transport patients to the most accessible medical facility, which is staffed, equipped, and prepared to administer emergency care appropriate to the needs of the patient.

2.07 To provide procedures to accommodate a hospital’s request to divert patients from their emergency departments that are temporarily not able to care for additional patients.

2.08 To ensure that ambulances are not unreasonably removed from their area of primary response when transporting a patient to a medical facility.
3.00 DEFINITIONS

3.01 **Acute**: Having a rapid and recent onset and a short course.

3.02 **Acute emergency medical problem**: An injury or symptom of a medical problem (pain, difficulty breathing, rash, etc.), which is recent or has never been evaluated/treated by a medical professional.

3.03 **Adolescent**: Patient aged 8 up to 16 years of age.

3.04 **Adult**: Patient age 16 or older. For medical consent/legal issues, patient must be 18 unless emancipated.

3.05 **Advanced Life Support (ALS) Unit**: A medic or squad unit staffed with at least one credentialed paramedic and one credentialed EMT which provides advanced levels of patient care such as invasive techniques in addition to the basic measures provided by BLS personnel. For the purposes of these guidelines, ALS unit shall also refer to EMS Supervisors or EMS Physicians.

3.06 **Appropriate Facility**: A hospital facility with staffing, equipment and services to care for the patient (e.g. pediatric patients with severe respiratory distress should be transported to a facility with a pediatric department and pediatric intensive care unit).

3.07 **Base Station**: The Paramedic staffed office which coordinates on-line medical direction and emergency ambulance routing between field EMT’s, Paramedics and physicians. This office is staffed 24 hours a day and can relay current hospital requests for ambulance diversion status.

3.08 **Base Station Physician**: Physician designated by the HFD Physician Director to be responsible for directing patient care in individual cases.

3.09 **Baseline Assessment**: Scene safety, rapid assessment of emergency scene and determination of need for more resources, Airway (with C-Spine protection, if indicated), Breathing, Circulation, and Disability (Neurological Status), identification of chief complaint and initial vital signs.

3.10 **Basic Life Support (BLS) Unit**: An apparatus capable of providing patient transport and basic life support such as airway, oxygen, CPR, bandaging, spinal precautions, etc. in which the staffing standard, in all cases possible, will be two credentialed EMT’s. For BLS Ambulances, Texas State EMS Rules require two credentialed EMT’s as staffing.

3.11 **Capacity to Refuse Care**: A patient (at least 18 years of age) who is capable of making an informed decision will be considered to have capacity to refuse care only if they demonstrate they are oriented to person, place and time; AND can recite back the nature of their medical condition, the risks and benefits of the proposed care/transportation AND the risks of refusing the proposed care/transportation AND is making a reasoned health care decision.

3.12 **Child**: Patient 1 year of age up to age 8 years (the general onset of puberty).

3.13 **Chronic medical problem**: A medical condition of any duration, for which the patient is receiving care from a medical professional or is appropriately self-treating.
3.14 **Controlled Substance**: a DEA scheduled medication which has been declared by federal or state law to be used or distributed only under a physician’s order. The basis for control and regulation is the danger of addiction, abuse, physical and mental harm (including death), the trafficking by illegal means, and the dangers from actions of those who have used the substances. Controlled substances are subject to daily accountability regulations.

3.15 **Credentialed**: A Houston Firefighter certified or licensed by the State of Texas as an EMT or EMT-Paramedic who is also specifically authorized by the City of Houston EMS Physician Director to provide their respective level of care in accordance with the delegated practice of medicine authority of the Texas Medical Practice Act and these guidelines.

3.16 **Emancipated Minor**: A legal term for a person age 16 through 17 who is married, a member of the armed services, or living apart from their parents and who is entitled to make their own medical care decisions.

3.17 **EMS Apparatus**: An apparatus, not utilized for patient transport, in which the staffing standard, in all cases possible, will be two credentialed EMT’s (e.g. engine, ladder). An EMS apparatus is considered a Basic Life Support unit even if staffed with a credentialed paramedic.

3.18 **EMS Apparatus Paramedic**: A credentialed paramedic assigned to an EMS Apparatus company as part of the paramedic rotation program or the paramedic officer program. An EMS Apparatus paramedic shall function as a credentialed paramedic within the limits of the equipment available.

3.19 **EMS Witnessed Arrest**: A patient who goes into cardiac arrest while in the presence of HFD personnel.

3.20 **Hospital Administration**: Senior hospital administrative personnel, not assigned to patient care duties in the emergency department, who are responsible for hospital operations at the time of the diversion request.

3.21 **Infant**: Age one hour up to one year.

3.22 **Level I/II Trauma Center**: Comprehensive trauma facility capable of providing the most advanced level of care to the victim of major trauma.

3.23 **Level III Trauma Center**: General trauma facility that has the resources and capabilities to provide resuscitation, stabilization, and assessment of trauma patients and can either provide treatment or arrange for appropriate transfer to a Level I/II trauma facility.

3.24 **Medical Decision Making Capacity**: A state of being in which a person is oriented to person, place, time, circumstance and is able to demonstrate/verbalize an understanding of their medical problem, and potential consequences of refusing or receiving treatment.

3.25 **Minor**: A legal term. A person less than 18 years of age, unless emancipated.

3.26 **Neonate**: “Newly born”, up to one hour of age.

3.27 **OEC**: Office of Emergency Communications.
3.28 **Patient:** Any person who is convinced they have an acute emergency medical problem or an exacerbation of a chronic medical problem; or whom a competent EMT would identify as having a medical problem in need of treatment or evaluation.

3.29 **Patient Care Record:** The electronic or paper means used to document all information relating to a patient encounter. This includes demographic information, patient complaint information, treatment and therapy information, patient refusals and any other information relevant to the particular patient encounter.

3.30 **Pediatric:** Encompasses patients less than 16 years of age or less than 40 kg/88 lbs. Subcategories of ‘pediatric’ include neonate, infant, child and adolescent.

3.31 **Persistent Ventricular Fibrillation/Tachycardia:** Cases of VF/VT that do not resolve with therapy or are characterized by persistent refibrillation (each refibrillation occurs within two to three minutes after the last conversion).

3.32 **Protocols:** Guidelines for practices that are used by EMS personnel in a variety of situations within the EMS system.

3.33 **Return of Spontaneous Circulation (ROSC):** A return of a palpable pulse (including a transient return) at any point during the resuscitative efforts.

3.34 **Restraints:** Any mechanism used to physically confine a patient including soft composite dressing, tape, leathers or hand cuffs which are wrapped and secured at the wrist(s) and/or ankle(s) and/or chest and/or lower extremities.

3.35 **Resuscitation:** Any effort, including basic and advanced life support procedures, used to restore cardiopulmonary functions.

3.36 **Standing Orders:** Strictly defined written orders for actions, techniques, or drug administration that may be implemented before communication has been established with the physician providing on-line medical direction.

3.37 **Unwitnessed Arrest:** A patient who was found without a pulse or breathing, and whose collapse was neither seen nor heard.

3.38 **Witnessed Arrest:** A patient who was seen or heard by bystanders (non-HFD personnel) to collapse or become unconscious and was found to be without a pulse or breathing.
4.00 SCOPE

4.01 These guidelines apply to all members of the Houston Fire Department. Each member shall perform to his/her level of authorization and training within the HFD system.

4.02 HFD members possessing a Texas Department of State Health Services (TDSHS) Paramedic certification or licensure, credentialed by the EMS Physician Director, and assigned for the purpose of practicing as a paramedic on an ambulance, squad, engine, ladder are authorized to provide ALS care for patients under these guidelines through the off-line Delegated Practice of Medicine of the Physician Director of EMS only while on-duty with the HFD. Paramedics are authorized to provide ALS care beyond these guidelines only through the On-line Delegated Practice of Medicine of the authorized on-line physician.

4.03 HFD members possessing a Texas Department of State Health Services EMT, EMT-I or Paramedic certification or licensure and are assigned for the purpose of practicing as an EMT are to provide care as described in these guidelines at the EMT level only.

4.04 HFD members not possessing Texas Department of State Health Services EMS certification or licensure, but trained by the department as First Responders, are to provide care as described in these guidelines at the BLS level.

5.00 RESPONSIBILITIES

5.01 Patient Care Protocols and Standing Orders
   A. Specific for medical and injury patients as well as cardiac arrest patients. Each describes the care to be provided by HFD personnel at the BLS and ALS levels. HFD personnel are to review and be familiar with these guidelines.
   B. BLS unit personnel are to provide care within their scope of practice and under authorization by the Medical Director.

5.02 Members are expected to provide care and transportation in keeping with departmental policies, procedures, patient care guidelines and the local standard of care.

5.03 Station Captains are responsible for ensuring that all members under their command are familiar with the contents of this guideline.

5.04 Station Captains shall ensure that a copy of this guideline, signed by the Physician Director, is carried on all EMS Apparatus and EMS vehicles under their command in compliance with the EMS Act of the State of Texas.

5.05 All personnel and/or representatives of the Houston Fire Department will be responsible for adhering to the guidelines outlined in this document.

5.06 All personnel are to operate and conduct themselves in the best interest of the public.

5.07 The highest ranking member on each apparatus is to ensure the completion and electronic posting of the patient care record in the PCR software for their apparatus. In addition, members shall fully document all aspects of patient care and patient care decisions as per 6.06 Documentation.
6.00 GUIDELINES

6.01 #1 Rule: Holder Rule (as promoted by former Assistant Fire Chief Dennis Holder, HFD 1957-1995)
A. “Treat patients and their families as if they are a member of your own family.”
   1. Consider that if this was your brother, mother, daughter, grandfather; what care you would want for them if you were not present.
   2. Provide compassion, caring, friendly demeanor and reassuring tone/words.
   3. If tensions exist, strive to defuse them or find others (e.g. a supervisor) who can help.
   4. Treat on-lookers and even interveners with respect.
   5. Keep in mind that, as a firefighter, you provide a public service. Often, the greatest asset provided to the citizens you serve is your reassurance and caring.

6.02 Ambulance Diversion
A. Ambulance Diversion Request Categories:
   1. Emergency Department Saturation: Hospital emergency department resources (bed, equipment, and/or appropriately trained personnel) are fully committed and have no other resources for additional incoming critical or seriously ill patients and acceptance of any additional patients requiring advanced life support would seriously jeopardize the care of other patients in the emergency department.
   2. ICU Saturation: Hospital intensive care resources are fully committed and have no other resources available for additional patients requiring intensive care. The emergency department can handle minor illnesses not likely to require ICU admission. Avoid bringing chest pain, difficulty breathing, elderly patients with abdominal pain, etc., to the hospitals on ICU saturation. ICU saturation refers to the hospital’s ability to care for seriously and critically ill medical patients. Trauma Center Hospitals on ICU saturation generally can still handle trauma patients.
   3. Psychiatric Patient Saturation: When the hospital emergency and/or inpatient psychiatric resources are fully committed and the facility cannot accept any further acute psychiatric patients. Patients who have intentionally overdosed are considered to need psychiatric evaluation.
   4. Trauma Saturation (trauma centers only): Trauma resources are committed and the facility can not accept seriously injured patients because the trauma team is encumbered with trauma patients in the Operating Room, ED or CT scanner. When a Trauma Center hospital is requesting diversion, seriously injured patients should be taken to an alternative hospital. When all Trauma Centers of a specific level (e.g. Level I/II) are on diversion, choose hospital destination based on Base Station’s recommendation.
   5. Internal Disaster: Hospitals cannot receive patients due to a physical plant breakdown (e.g. fire, bomb threat, power outage, etc.). For situations in which a hospital has advance knowledge that it will need to divert due to an Internal Disaster, hospitals have been asked to notify the Base Station, as well as EMS Command in advance.
B. CPR Cases: In situations of CPR (non-trauma) in progress, patients will be transported to the closest facility regardless of diversion request with two exceptions:
   1. The closest hospital is on diversion due to an internal disaster (i.e., power failure, bomb scare, etc.).
   2. A second hospital (open) is nearly as close (i.e., the major medical center hospitals example: CPR in progress – 3 of 4 equally close hospitals are all open. One is closed due to ICU saturation – take the patient to one of the completely open hospitals).
C. During the process of contacting the Base Station for patient transport destination, the Base Station
will notify the unit if the intended hospital is on diversion. Members will then discuss the hospital’s request for diversion with the patient. The Base Station shall be updated on the final destination decision.

• Example of an unacceptable situation: The emergency transport of a sick patient to the patient’s hospital of choice. Upon arrival at hospital X, the ED staff asks “Didn’t you know we were on diversion?” and the EMS answer is “No, we did not know.” Not knowing is not a defendable answer. Conversely, after reporting the emergency destination to Base Station and learning that the patient’s hospital is on diversion and explaining the consequences to the patient and the patient chooses to proceed, then it is appropriate to take them to a hospital on diversion.

D. The diversion status of each hospital is available on the EMSSystems website at the Base Station. Hospitals are responsible for updating their individual diversion status.

E. In the event the intended hospital destination has requested diversion (and that diversion request applies to the patient/condition) the member will advise the patient and agree on an “open” hospital, or provide the Base Station with a reason the patient will be transported to the original hospital destination requesting diversion.

F. HFD apparatus will honor diversion requests provided that:
   1. The apparatus estimates that it can reach an “open” and appropriate medical facility within 15 minutes transport from the incident location. If there are no “open” facilities within this time frame, the apparatus will be directed to the most appropriate facility, regardless of its diversion status (exception: internal disaster).
   2. The patient does not exhibit an uncontrolled problem in the field such as an unmanageable airway, or cardiopulmonary arrest with CPR in progress. Patients with these types of problems will be transported to the closest appropriate facility.
   3. The patient is not suffering from an acute exacerbation of a chronic illness which is evaluated and managed by that particular hospital/hospital system which is on diversion.

6.03 Communication
   A. Contact the Base Station (channel alpha-charlie 3) for all patient transports as part of emergency ambulance routing.
   B. Inform the Base Station of the transport code for the patient.
      1. **Priority 1**: Emergent transport, immediate life-threatening situation or CPR in progress. Base Station will contact hospital to give a verbal report.
      2. **Priority 2**: Emergent transport, no CPR. Base Station will contact hospital to give a verbal report. If the patient or hospital would benefit from advance notification, advise Base Station.
      3. **Priority 3**: Non-emergent transport. Base Station will not give verbal report to receiving hospital. If the patient would benefit from an advanced hospital notification, specifically request the Base Station personnel to inform the hospital.
   C. All units who have contacted the Base Station and initiated a Form 1106 shall contact the Base Station and close out their Form 1106 before returning to service.
   D. Any unit having problems or conflicts with communications shall contact an EMS Supervisor.
   E. When communication with the Base Station fails or is not possible, firefighters are expected to provide care to the patient according to the patient’s needs in accordance with fire department policies, training, and scope of practice as recognized by HFD.
   F. Each occurrence of communication failure will be considered a breakdown in system operations and will be reviewed to determine if the occurrence was due to equipment failure or member non-compliance with department policy, procedure or guidelines.

6.04 Confidential Patient Information
   A. It is the responsibility of all HFD personnel, particularly those members who have direct contact
with patient information, to ensure that patient information is kept confidential. Texas law prohibits the disclosure of any patient information to unauthorized individuals or entities.

B. Texas Health and Safety Code, Chapter 773, Emergency Medical Services, Subchapter D. Confidential Communications (773.091): Records of the identity, evaluation, or treatment of a patient by EMS personnel or by a physician providing medical supervision that are created by EMS personnel or physician or maintained by an EMS provider are confidential and privileged and may not be disclosed with the following exceptions:

1. Medical or law enforcement personnel, EMS personnel, the physician providing medical supervision, or EMS provider determines that there is a probability of imminent physical danger to any person or if there is a probability of immediate or emotional injury to the patient;
2. Governmental agencies if the disclosure is required or authorized by law;
3. Qualified persons to the extent necessary for management audits, financial audits, program evaluations, system improvements, or research, except that any report of the research, audit, or evaluation may not directly or indirectly identify a patient;
4. Any person who bears a written consent of the patient or other persons authorized to act on the patient’s behalf for the release of confidential information as provided by Section 773.093;
5. The department for data collection or complaint investigation;
6. Other EMS personnel, other physicians, and other personnel under the direction of a physician who are participating in the diagnosis, evaluation, or treatment of the patient;
7. Individuals, corporations and/or governmental agencies involved in the payment or collection of fees for emergency medical services rendered by EMS personnel.

C. Any other request for patient information shall be directed to the HFD Records Section. They are the official custodians of records for HFD.

6.05 Controlled Substances Accountability
A. In order to carry and administer controlled substances (i.e. narcotics), it is required to comply with the Federal Government’s daily accountability regulations for Schedule II drugs.
B. At the beginning of each shift, the Controlled Substances Accountability Form shall be completed according to the current Controlled Substances Accountability Guideline.
C. When there is a change in the in-charge paramedic, the Controlled Substances Accountability Form shall be completed according to the current Controlled Substances Accountability Guideline.

6.06 Documentation
A. Documentation provides a record of what you did or did not do while additionally serving as a Medical Record and a Legal Document.
B. Each unit involved in direct patient care shall complete the appropriate record. For quality assurance and other purposes, other EMS professionals, physicians, nurses, insurance companies, Medicare/Medicaid personnel and the legal community frequently examine these records. They are also used in court cases, grand rounds at the hospitals and reviewed by the Texas Department of State Health Services and the local media.
C. When EMS responds to a request for service and finds individuals not meeting the definition of a patient (Ref. Def. 3.28), the record should be appropriately coded.
D. S.O.A.P.: Subjective data, Objective data, Assessment, Plan
E. Subjective Data: What you were told by . . .
   1. Patient, family, bystanders, witnesses, police officers, other HFD members. Start with the patient’s Chief Complaint(s) (CC).
   2. The patient’s history:
      a. History of the Present Illness (HPI). Each Chief Complaint has a HPI to be pursued. For each CC the HPI will consist of determining:
Onset of the symptom
Frequency of the symptom
Intensity of the symptom
Duration of the symptom
Character of the symptom
Associated symptoms and Aggravating / Alleviating factors

b. The past medical history of the patient (SAMPLE)
- Signs / Symptoms
- Allergies
- Medications
- Past illnesses
- Last meal, Last Menstrual Cycle
- Events leading up to this event

F. Objective Data: What you saw . . . What you found (Mechanism of Injury)...
1. On your approach, at the scene, where the patient was found, the patient’s position.
2. Your PHYSICAL findings from the primary survey, the secondary survey, vital signs and diagnostics (glucose levels, ECG tracings, \( \text{SaO}_2 \) levels and end-tidal \( \text{CO}_2 \)).
3. Physical Exam (CHAMPION)
   - Cardiac (Heart Sounds, Pulses)
   - HEENT
   - Abdomen
   - Mental Status
   - Pulmonary (Breath Sounds, Work of Breathing)
   - Integumentary (Skin)
   - Other (Vital Signs, Diagnostics)
   - Neuro (Strength, Sensation)

G. Assessment: Based on the data collected, document the assessment of the patient’s problem and which plan/protocol you are going to follow.

H. Plan: All interventions performed: C-collar / spinal immobilization, AED, CPR, intubation, I.V. therapy, medications, evaluation of the therapies performed and on-going monitoring noting changes in the patient’s status including notations on the patient’s condition on arrival at the ED.

I. Responsibility (according to Texas Department of State Health Services)
1. When members hold similar EMS certifications, members are equally responsible for complete and accurate documentation of the record.
2. In situations where one member is utilized by the department in a higher EMS certification level, that member is responsible for the complete and accurate documentation of the record.

J. In ALL cases, a copy of the patient care record will be provided to the hospital prior to the unit leaving the hospital property. Patient care records are still to be completed and given to the hospital during periods of resource management.

K. For all dispatched EMS incidents (FE dispatch code), and all Fire incidents (FF dispatch code) in which an Ambulance, Medic, Squad or EMS Supervisor is dispatched, an EMS patient care record shall be completed.
1. All units shall utilize the laptop electronic patient care record (ePCR), ensuring that it contains:
   a. Dispatch information including accurate location address.
   b. Correct shift, apparatus and all personnel with appropriate crew level and role.
   c. Identifying patient information including insurance information on transports.
   d. A chief complaint, a physical exam and a working assessment.
   e. A narrative detailing the specifics of the patient’s presentation, care, decision making processes, and proper documentation of patient refusals if applicable.
   f. Documentation of vital signs, medications and procedures in the ‘Activities’ section. It is not acceptable for vitals, medications and interventions to be listed only in the narrative.
section.
g. The appropriate Response Disposition for the incident.
h. The signatures from all required HFD personnel and, as indicated, the patient, witness, law
   enforcement or hospital representative.
i. The Telemetry Number from Base Station and the Hospital Medical Record number when
   appropriate.
j. The name of the receiving hospital for all patient transports.

2. Any unit without a laptop computer to complete the ePCR shall utilize the ePCR software on a
   station computer to complete the record according to the requirements stated (6.06 K. 1.)

L. All members are to fully document and describe the events of their dispatched incident, even when
   a patient (Ref. 3.28) was not found. An explanation for why an individual for whom EMS was
   requested is not ‘a patient’ is required.

6.07 Emergency Transfers (One Emergency Dept. to Another)
A. In all cases when dispatched to a hospital Emergency Department, HFD members should contact
   their immediate EMS Supervisor to apprise him/her of the situation.
B. The EMS Supervisor is to review the case to ensure the use of public safety resources is
   appropriate. If there is any question or doubt, contact the on-line physician via the base station.
C. Given approval from the EMS Supervisor, paramedics should be able to transfer patients as long as
   the patient care is within their scope of practice. If the patient is in need of a medication that is not
   currently on the approved drug list or is on a mechanical device that is not used by the Houston
   Fire Department, then a nurse or physician familiar with such medications/devices needs to
   accompany the patient during the transfer.

6.08 Equipment on Each Run
A. Bring all basic equipment (see “D.R.O.P.S.” below) in close proximity to the patient.
B. Basic equipment (“D.R.O.P.S.”) includes: Defibrillator (LifePak, A.E.D., etc.), Radio, Oxygen
   and airway equipment, Primary Medical Kit and Suction.
C. The defibrillator and/or the suction may be left in the ambulance at a motor vehicle incident scene,
   only if it remains in close proximity and there is no prior evidence or communication of possible
   need for these devices.
D. Consider special circumstances in which additional equipment should be immediately carried
   (such as stretcher/backboard into a high-rise or a C-collar and other packaging devices in an
   entrapment case).
E. ALS units must take all appropriate ALS equipment onto the transporting BLS unit.

6.09 Family-Centered Care [From Emergency Medical Services for Children, www.emsc.org]
A. Family-centered care is a systematic approach to building collaborative relationships between
   health care professionals and families that uses those relationships to assist in providing
   quality EMS care and promoting overall community health and safety.
B. It acknowledges and uses the family’s knowledge of their family member’s condition and their
   skills in communicating with and caring for their family member. It emphasizes the importance of
   keeping family members informed about their loved one’s condition, prognosis, and treatment.
C. Prehospital family-centered care encourages family presence during procedures and embraces
   family-centered care principles during on-scene treatment, transport, and transition of care to
   in-hospital health care providers.
D. The goal of family-centered care is to achieve the best possible outcome for children, and all other
   patients, through mutually beneficial collaboration of health care professionals and family
   members. Families desire to be kept informed, to have their questions answered and to participate
in their loved one’s care. They generally object to processes that make them feel helpless, uninformed or uninvolved. Patients generally want to feel assured that they are receiving the care and treatment they need and desire to be comforted and supported by their families during care. Meeting the family’s needs can help reduce patient and family anxiety.

E. Protocol

1. Identify a team member to interact with family members on each call. Let the family know who that person is, and when that person changes. Make eye contact when speaking. Identify yourself by name, and ask patients and family members how they would like to be addressed. Use courtesy titles (Mr. Mrs. etc.) and avoid slang terms.

2. Communication should be consistent and constant throughout the incident. Explain equipment and procedures in clear, factual terms (what you’re doing and why you are doing it), avoiding jargon and technical terms. Be aware of individual differences in ability to understand, but do not assume that family members cannot understand explanations. Watch for verbal and non-verbal cues from families about the amount of information they want and whether they understand what you are telling them. Know that it is acceptable to say “I don’t know”, but follow that answer with “we will do everything we can to reach the best possible outcome for your child.”

3. Acknowledge feelings, offer support (how can I help you?) and express empathy when appropriate. Allay guilt by calling attention to something the family has done right. Maintain a calm professional demeanor; avoid matching emotional responses from family members. Avoid confrontations with other health care providers in the presence of patients or family members.

4. Provide family members with options whenever possible. Helping families to restore a sense of control can decrease patient and family member anxiety and combativeness.

5. Allow a family member to accompany the patient in the ambulance when possible. Allow a family member to remain with the patient during transport (seat-belted securely) if possible.

6. Use the family as a source of assistance to patient care by providing information (pertinent history, normal level of consciousness, special developmental concerns, dominant hand, best known IV site, etc.) and comfort (hold the patient’s hand, reassuring the patient, singing a favorite song, comforting the patient during procedures, etc.).

F. Family Presence and Participation During Transfer of Care

1. Be diligent in meeting the family’s information needs. Introduce the patient and the family to the health care professional receiving the patient and identify a transition team member to the family. Give the family the option to listen to your prehospital care report. Talk to the family before you leave and explain the outcome of your care with clear, honest dialogue. Say goodbye to the family.

G. Be aware of cultural differences that can affect delivery of care.

1. Cultural competency can positively affect patient care. Prehospital providers may come in contact with multi-cultural families with diverse health beliefs, customs and practices. Many of these practices include alternative remedies and treatment methods that may seem foreign. Recognizing and appropriately responding to these practices may impact care. Acknowledge unusual practices without judgment, discuss them with families at the scene, or during transport and report them on the patient report.

2. Develop procedures to overcome language barriers and effectively communicate with culturally diverse segments of your community. Avoid using children as interpreters when possible; this is considered inappropriate in some cultures.

6.10 Physical Restraints

A. Physical restraints prevent a confused, disoriented, intoxicated, violent, psychotic or suicidal patient from self injury or injury to others. It also provides a means of control in dealing with
combative or destructive behavior.

B. Inform the patient of the reason for restraint. Remember your own personal safety first.

C. Restrain patients in a manner that does not impair circulation, cause choking or aspiration. **Do not restrain patients in the prone position (face down).** Prone restraints may impair the patient’s ability to breathe adequately. Patients have died as a result of being restrained and transported in the prone position. Obtain assistance from the police and other HFD personnel as needed to assist in patient restraint.

D. As soon as possible, attempt to remove any potentially dangerous items (belts, sharp objects, etc.).

E. Assess the patient’s circulation (checking pulses in the feet and wrists) every 2 minutes, or as frequently as time permits, while the patient is restrained. If circulation is impaired, adjust or loosen restraints as needed. Document the presence of pulses in each extremity and the patient’s ability to breathe after restraint is accomplished.

F. Inform hospital personnel who assume responsibility for the patient’s care of the reason for restraining the patient.

G. Be prepared for unexpected regurgitation or vomiting. Have enough personnel to log roll or turn the restrained patient on their side. Additionally, have suction equipment ready for use in case the patient does vomit.

H. If it is necessary to restrain a patient to protect the patient from injury, document the events leading to restraint in the HFD patient record. Patient care comes first, then document on the patient care record the method of restraint, the position of the restraints and the reason for restraining the patient.

6.11 Helicopter Utilization

The decision to request a medical helicopter is often complicated. Use the following guidelines to assist in that decision process:

A. Helicopter transportation should be considered only when EMS personnel feel that the advantages of its use outweigh the disadvantages for a particular situation.

B. Consider patients for air transport who are severely ill or injured such that the duration of transport time to the hospital is a major factor in the patient’s outcome. Patients with severe trauma generally can only receive definitive treatment for their injuries at a Level I/II Trauma Center. Use the method of transportation that offers the least delay in delivering the patient to a Level I/II Trauma Center.

*Not all patients meeting Level I/II Trauma Center criteria need helicopter transport.

*Not all patients in need of helicopter transport meet Level I/II Trauma Center criteria.

C. If:

1. The transport time for a HFD ambulance to a Level I/II Trauma Center is estimated to exceed the time for a helicopter to be requested, respond, land, load and return to Memorial Hermann Hospital and,
2. The patient’s medical condition necessitates rapid transport;

   Contact OEC and request LifeFlight and an ETA. Continue to care for the patient and manage the situation as if HFD will transport the patient until it is confirmed that LifeFlight is available, responding and has provided an ETA. Estimate times (intervals) from request until patient delivery at Memorial Hermann Hospital for several area locations are listed in Table 6-1.

D. Consider prolonged extrication time, remote scene and poor ground access, traffic or weather conditions that prohibit ground transport and multiple casualty situations when deciding the transportation method. Sometimes helicopter transport is not available due to call volume or weather conditions. Continue to care for the patient and manage the scene with the expectation that HFD will provide transportation until it is confirmed that Life-Flight is responding.

E. **Notify an EMS Supervisor whenever LifeFlight is requested.**
### Table 6-1: Estimated LifeFlight Time (in Minutes) from Request to Arrival At Hermann Hospital

<table>
<thead>
<tr>
<th>SCENE</th>
<th>North Base</th>
<th>West Base</th>
<th>South Base</th>
<th>East Base</th>
<th>Hermann TMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>KingWood Med. Ctr.</td>
<td>33</td>
<td>43</td>
<td>41</td>
<td>35</td>
<td>36</td>
</tr>
<tr>
<td>West Houston Med. Ctr.</td>
<td>31</td>
<td>27</td>
<td>32</td>
<td>33</td>
<td>26</td>
</tr>
<tr>
<td>Methodist Sugarland</td>
<td>38</td>
<td>30</td>
<td>37</td>
<td>43</td>
<td>36</td>
</tr>
<tr>
<td>Clear Lake Reg. Med. Ctr.</td>
<td>44</td>
<td>40</td>
<td>27</td>
<td>32</td>
<td>34</td>
</tr>
<tr>
<td>East Houston Reg. Med. Ctr.</td>
<td>41</td>
<td>43</td>
<td>35</td>
<td>33</td>
<td>34</td>
</tr>
</tbody>
</table>

Incorporated in the times listed is a maximum lift-off time of seven minutes and an average ground time of eight minutes.

6.12 Hospital Destination Decisions - Emergency Ambulance Routing

**A. Background**

1. The choice of a hospital destination depends upon an understanding of the patient’s chief complaint, the urgency of care needed, the specific care needed, hospital diversion status, EMS Resource status, and the patient’s routine hospital of choice.

**B. Emergency Ambulance Routing - Reference Table 6-2**

1. Prior to the patient’s transport, the EMT or Paramedic in-charge of patient care shall contact the Base Station to determine the most appropriate transport decision.

2. A preferred destination will be determined in consultation with Base Station personnel taking into account issues such as the patient’s condition and acuity, exacerbation of a pre-existing condition, time to appropriate care and the hospital’s recent patient load.

3. Emergency Ambulance Routing does not alter the current transport guidelines for trauma, cardiac arrest, stroke, acute MI or serious pediatric patients. These patients will be transported to facilities that are capable of handling the specialty care issues involved.

4. Patients who have an exacerbation of an existing medical problem should be transported to the hospital that regularly treats them for their condition. This will facilitate the treatment of their condition as their treating physician and medical records will be accessible to the ED staff.

5. Patients with clearly non-emergent medical problems will be preferentially routed to a nearby facility capable of handling the patient’s condition and which has sufficient patient capacity.

6. If the patient refuses transportation to the preferred facility, an alternate facility should be identified and offered to the patient. If the patient continues to refuse, the EMT or paramedic in-charge, acting as the patient’s advocate for appropriate care, will be responsible for determining the patient’s final resolution. This resolution may be:
   a. transporting the patient to the hospital initially requested by the patient,
   b. contacting an EMS Supervisor or on-call Medical Director for assistance,
   c. or if no other solution is practical, accepting the patient’s refusal of transport, providing complete documentation of the events leading to this refusal and that alternate hospital destinations were offered.

7. Once the destination hospital is confirmed, the EMS unit shall contact the Base Station so that a transport record can be created, hospital notification will occur and all required information can be documented by the Base Station.

8. The Base Station will issue a Telemetry Number which shall be included in your patient care record.

**C. Non-Trauma Patients:**

Patients benefit from being transported to the medical facility which has previously evaluated the patient for their medical complaint. In cases of acute exacerbations of chronic illnesses, attempt to take the patient to their usual hospital (or hospital system) since their physician and patient records
are maintained there. There are exceptions to this concept however:

1. Patients may not be transported to a hospital which is not designated as an ‘Approved’ hospital (Ref. 9.05) unless prior approval has been granted from an EMS Supervisor.

2. Any transport with a travel time that will exceed twenty (20) minutes travel time from the incident location to the hospital shall be discussed with an EMS Supervisor to gain approval prior to transport during periods of EMS Resource Management. EMS Supervisors will consider the patient’s chief complaint, current condition, and reason for requesting a specific hospital before authorizing the transport.

3. Transport emergent patients (life threatening condition) to the nearest medical facility capable of handling the patient’s problem. Take patients with non-trauma related CPR in progress, an inability to obtain an advanced airway in patients who require one, or any life threatening condition to the nearest approved medical facility. Pediatric patients with moderate or serious illness (not meeting above criteria) should be transported to hospitals with Pediatric ICU facilities (Ref. 9.05).

4. When the hospital which routinely cares for a patient’s chronic illness is on “drive-by,” inform the patient of the hospital’s status and confirm the destination decision with the patient. The patient may choose another hospital not on diversion or may choose to be transported to their regular hospital.

5. Try to avoid transporting emergent patients to hospitals on emergency department or ICU saturation drive-by. If another appropriate facility has a nearly equal estimated transport time, go to the second closest facility. Do not exceed 10 minutes longer transport time to the second facility if the patient is critically ill. Transport patients with CPR in progress, an uncontrollable airway, or any immediate life threatening condition, to the nearest appropriate medical facility (Ref. 6.02 Ambulance Diversion).

6. If a hospital is on drive-by due to “Internal Disaster,” do not transport any patient to that facility (Ref. 6.02 Ambulance Diversion).

D. Trauma Patients: Reference Table 6-3

1. Trauma Centers and the entire trauma care system are designed to provide the best possible care to victims of trauma. To facilitate attaining this goal, trauma center transport guidelines were established. Transport patients with any of the ‘physiologic parameters and/or unstable vital signs’ or ‘anatomical injuries’ listed in Table 6-3 to a Level I/II Trauma Center, provided that transport time is less than 45 minutes.

2. Level III Trauma Centers are willing to accept injury patients who meet ‘mechanism of injury’ criteria or ‘high-risk’ criteria. Trauma patients requiring Level I/II care by ‘physiologic parameters’ or ‘anatomical injuries’, but are greater than a 45 minute transport time from a Level I/II Trauma Center, may be taken to a Level III Trauma Center.

3. Take patients with major burns (Ref. 8.04 D. Burns), particularly those with accompanying smoke inhalation (or even pure smoke inhalation) to a Burn Center (Ref. 9.05). These hospitals have the capability of caring for severely burned patients and should be utilized in cases of severe burn patients.

4. In situations involving multiple critical patients or saturation of Trauma Centers with critical trauma patients, the on-line EMS Physician may direct EMS Supervisors to triage emergent trauma patients to the less crowded trauma centers as indicated. The Base Station will monitor critical patient volumes at all trauma center hospitals to guide supervisors in terms of balancing patient transports in periods of high volume/multiple casualty incidents.

5. Trauma patients with CPR in progress or an unmanageable airway shall be taken to the nearest Trauma Center, Level I/II or Level III.
Table 6-2 : Hospital Destination Decision

1. Trauma?  
   - Yes → Follow "Criteria for Trauma Center Transport" (Table 6-3)
   - No

2. Pulseless?  
   - Yes → Nearest Appropriate Hospital or Field Termination if appropriate
   - No

3. Inability to obtain advanced airway in patient requiring one?
   - Yes → Nearest Appropriate Hospital
   - No

4. 24 Hour Cardiac Catheterization Hospital
   - Yes → Acute MI?
   - No

5. Acute MI?
   - Yes → Stroke?*b  
     - Yes → Stroke Center
     - No
   - No

6. Pediatric  
   - Yes → Possible ICU Admit?*c
   - No

7. Possible ICU Admit?*c  
   - Yes → Acute Exacerbation of Chronic Illness?
   - No

8. Acute Exacerbation of Chronic Illness?
   - Yes → Nearest Appropriate Hospital *a
   - No

9. Adult  
   - Yes → Acute Exacerbation of Chronic Illness?
   - No

10. Patient's Regular Hospital *d

*a - Nearest general care hospital not on diversion which is capable of taking care of the patient’s problem. If transport time is greater than 20 minutes, contact Base Station for recommendation.

*b - Patient must meet the “Stroke Screening Criteria” in the protocols (Ref. 8.03 GG. Stroke (Acute)).

*c - i.e. serious illness, pulses post-cardiac arrest, etc.

*d - A patient suffering from an acute exacerbation of a chronic illness may go to the hospital or hospital system which regularly evaluates and treats their illness despite that hospital being on diversion.
Table 6-3: Criteria for Trauma Center Transport

Does the patient have...?

- Uncontrollable Airway?
  - YES
  - NO

EMS Witnessed BLUNT Traumatic Arrest
  - YES
  - NO

EMS Witnessed PENETRATING Traumatic Arrest
  - YES
  - NO

Physiologic Parameters?
  - YES
  - NO

- Hemodynamic compromise (Hypotension (for age) or Absent Peripheral Pulses)
- Respiratory compromise (RR < 10 or > 30)
- Altered Mental Status (GCS < 13, AVPU = P or U)

Anatomical Injuries?
  - YES
  - NO

- Penetrating injury to head, neck, torso or groin
- Burns > 20% TBSA or in combinations with burns involving the face, airway, hands, feet or genitalia
- Extremity injuries - Any of the Following: 1) Total or Partial Amputation above the digits, 2) Use of Tourniquet or 3) Absence of Distal Pulses
- Paralysis or suspected spinal injury
- Two or more long bone fractures
- Open or suspected depressed skull fracture
- Unstable pelvis or suspected pelvic fracture

Mechanism of Injury?
  - YES
  - NO

- High Risk Motor Vehicle Incident - Any of the Following: 1) Partial or Complete Ejection, 2) Death in Same Passenger Compartment or 3) Extended Extrication Time due to Vehicle Damage
- Auto-pedestrian injury with significant impact (> 5 MPH)
- Motorcycle crash > 20 MPH or with separation of rider from motorcycle
- Fall from 20 feet or higher (1 story is 10 feet)

High Risk Trauma Patient?
  - YES
  - NO

- Age < 5 or > 55 years
- Anticoagulation and Bleeding Disorders
- Pregnancy > 20 weeks

Any appropriate General Care Hospital

Transport to the Nearest Trauma Center (Level I/II or III)

If Level I/II not possible in 20 minutes, Transport to Closest Trauma Center (e.g. Level III)

Transport to Level I/II Trauma Center If ≤ 20 Minute Transport Time

Transport to Level III Trauma Center

If Level I/II not possible within 45 minutes, transport to Level III Trauma Center

Transport to the Nearest Trauma Center (Level I/II or III)

EMS Witnessed BLUNT Traumatic Arrest

EMS Witnessed PENETRATING Traumatic Arrest

Physiologic Parameters?

Anatomical Injuries?

Mechanism of Injury?

High Risk Trauma Patient?
6.13 Identification Badges
A. TDSHS requires that all personnel on an in-service vehicle or when on-scene be identified by their name, certification/license and provider name. **All members shall wear their identification badges as outlined in Rules and Regulations. All members shall also carry on their person their TDSHS certification card.**

6.14 Infection Control Precautions
A. Use standard universal precautions during all patient interactions. Personal Protective Equipment (PPE) is supplied and available to all personnel.
B. Wear gloves during all patient interactions. Contact with blood or body fluids may be unpredictable. Gloves reduce the likelihood of disease transmission during contact with blood or body fluids, non-intact skin or mucous membranes.
C. In addition, wear masks, gowns and eyewear during patient interactions that are likely to produce spray, splash or any uncontrolled distribution of blood or body secretions. PPE’s such as mask and eyewear shall be worn for procedures which may include, but are not limited to, ventilating, suctioning or intubating a patient. If large amounts of blood or body fluids are likely during procedures such as childbirth or trauma, gowns shall be worn to protect members.

6.15 Multiple Casualty Management
A. Refer to Multiple Casualty Management and Triage Guidelines, Volume No. III Reference No. III-09.
B. The Physician Director of EMS may authorize deviations to the Patient Care Guidelines and Standing Orders for BLS, and ALS Units when this guideline is in effect.

6.16 Non-Transports
**Members of the Houston Fire Department are not to refuse ambulance transport.**
A. General
   1. Decide if the patient is in need of care and/or transport only after a complete history and physical exam.
   2. Evaluate each patient and his/her circumstances and then make a determination, as would any other conscientious EMT or paramedic in a similar situation.
   3. Ask the patient if he/she thinks they need care and/or transportation.
   4. If there is to be a patient refusal, in order to reduce the unnecessary response of an EMS transport unit and enable a EMS apparatus to return to service, the EMS apparatus shall complete the ePCR on the laptop. The ePCR shall be completed by the EMT designated by the officer in charge.
   5. In multiple patient situations where HFD personnel are caring for and intending to transport seriously ill or injured patients, patient care is a higher priority than on-scene documentation. Other EMT’s arriving on EMS apparatus on scene will document refusals and non-transports by agreement in order to **not delay the treatment/transport of seriously ill/injured patients**
The following table demonstrates the four possible dispositions and indicates which procedure to follow.

<table>
<thead>
<tr>
<th>EMT/PM thinks</th>
<th>Patient thinks he/she needs Transport / Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

B. Adult with Medical Decision Making Capacity: Refusing Care Against Medical Advice (AMA)

1. The patient must meet the definition of having the ‘capacity to refuse medical care’ as defined in the definitions (Ref. 3.11 and 3.24). Importantly, the patient must recite back the nature of his/her medical condition, the risks and benefits of the proposed care and the risks of refusing the proposed care.

2. Discuss the benefits of medical care/transportation with each patient. Offer medical care/transportation to an appropriate hospital. If the patient refuses medical care and/or transportation, inform the patient of the possible medical consequences of refusing treatment/transportation. Again, offer medical care/transportation to a qualified hospital. If patient continues to refuse care/transportation, enlist help from available family members, friends, coworkers, and/or police officers. If the patient continues to refuse medical care and/or transportation, BLS units shall contact an EMS Supervisor.
   a. Accurately and completely describe the patient’s medical circumstances and reasons for refusing medical care/transportation to the supervisor.
   b. The EMS Supervisor will review the description of the patient for decision making capacity and advise the members how to best handle the situation based on the information they are provided.
   c. EMS physicians are also available through the Base Station to speak with patients to help convince them to allow care/transport.

3. After attempting the foregoing steps, obtain signatures for “Refusal of Transport” in all cases. On the HFD laptop, on the “Signatures” tab, select the “Refusal of Transport / Against Medical Advice” panel and have the patient accept and sign under the ‘Patient Refusal of Service.’ Signatures must be obtained from the patient and a third party witness. If the patient refuses to sign, document this, and have a third party witness the refusal-to-sign. If no third party is present, a member must document that the patient refused medical care and/or transport and that there was no third party present.

4. If a patient consents to transportation and/or a portion of the treatment and refuses another recommended therapy (e.g., does not want to be placed on a backboard, refuses an IV, etc.), he/she must provide their signature on the “Refusal of Transport / Against Medical Advice” panel in all cases. Document the specific items refused in the “Activities” panel. Under the “Refusal of Transport / Against Medical Advice” panel, select “Refuse specific care”, select “Get Items Refused” and have the patient accept and sign the “Patient Refusal of Service.” Signatures must be obtained from the patient and a third party witness. If the patient refuses to sign, document this, and have a third party witness the refusal-to-sign. If no third party is present, a member must document that the patient refused medical care and/or transport and that there was no third party present.

5. Document the following thoroughly:
   - History
• Physical exam including pertinent negatives
• Any treatment provided
• Reason(s) patient insisted on non-transport
• Potential consequences of non-transport as explained to patient
• Efforts made to persuade patient to go to a hospital
• Any treatments or care that the patient refused
• Person whose care patient was left in, if appropriate
• Advice/precautions given to patient; and
• EMS Supervisor’s payroll number if applicable.

C. Adult Without Decision Making Capacity: Refusing Care (AMA)

Procedures for an adult without decision making capacity in need of care/transportation or refusing care Against Medical Advice.

1. Attempt steps under 6.16 B. of the above, Adult with Medical Decision Making Capacity: Refusing Care Against Medical Advice (AMA).

2. If the patient continues to refuse service, the highest EMS trained member directly involved in the patient’s care shall contact an EMS Supervisor. The EMS Supervisor will oversee the efforts of HFD members to ensure that every reasonable effort has been made in the best interest of the patient.

3. If the patient continues to refuse care/transportation and has what reasonably appears to be a life-or-limb-threatening medical problem, the patient may need to be forcefully transported to the hospital against his/her will. Consult with the EMS Supervisor and a peace officer (Ref. 6.10 Physical Restraints).

4. If in the EMS Supervisor’s opinion the patient does not have the capacity for medical decision making and is suffering from what reasonably appears to be a life-or-limb-threatening injury or illness, the supervisor may direct the members to transport the patient.

5. When the patient is considered a danger to himself/herself or others, contact the appropriate law enforcement agency. EMS personnel will inform the peace officer why the patient is a danger to himself/herself or to others. If the patient is placed in custody, then the means of transport will be determined by the law enforcement agency. Document the peace officer’s name, badge number/unit number in the patient care record. The facility choice should be in accordance with standard HFD guidelines.

6. If the patient is in custody, violent, and/or in need of ambulance transport, a peace officer(s) should accompany the EMS personnel to the hospital. If the EMS personnel are satisfied with the security of the patient, then the peace officer(s) may follow or meet the ambulance at the hospital.

7. In all cases, document events thoroughly (Ref. 6.16 B.5. Adult with Medical Decision Making Capacity: Refusing Care Against Medical Advice (AMA)).

D. Procedure for Non-Transport by Agreement

1. Render care to patient as necessary and obtain a complete history and physical exam. The most current set of vital signs must be within normal limits before the non-transport option can be considered.

2. Based on history and physical exam, if the patient is not requesting emergency transportation to the hospital AND the EMT or paramedic feels emergency transportation is not required:
   a. Discuss the benefits of care/transportation and offer care/transportation to a qualified hospital emergency department.
   b. BLS units shall contact an EMS Supervisor. The EMS Supervisor will review the description of the patient’s signs/symptoms to determine appropriateness for non-transport by agreement.
   c. If the patient declines care and/or transportation, have the patient sign the “Refusal of
Service Statement.” If possible, have a witness sign as indicated. HFD personnel should not be used as a witness except as a last resort.

d. Offer appropriate medical advice and/or suggest precautions. Reassure patient and advise family members to call 9-1-1 if conditions change. If appropriate, suggest patient contact his/her own physician for additional advice.

e. Document thoroughly as outlined in 6.16 B.5. Adult with Medical Decision Making Capacity : Refusing Care Against Medical Advice (AMA).

E. EMS Initiated Non-Transport
Ambulance personnel shall not refuse to transport patients to a hospital. It is therefore a violation of this policy:

1. For any EMT or Paramedic to refuse to carry or transport any sick or injured person from the place of an emergency or the place of a direct call to which he has responded. The circumstances that such person is or appears to be indigent and unable to pay the cost of such service shall not serve as an excuse from this requirement.

F. Non-Transport Guidelines for Minors
All pediatric patients shall be considered for transport to an appropriate medical facility regardless of their appearance or situation unless an EMS Supervisor authorizes non-transport. For pediatric patients who may be non-transports in cases as defined in 6.16 B. Adult with Medical Decision Making Capacity : Refusing Care Against Medical Advice (AMA) and 6.16 C. Adult Without Decision Making Capacity : Refusing Care (AMA), an EMS Supervisor shall be contacted by the EMS Apparatus, BLS unit or ALS unit prior to the non-transport occurrence. Observe the following specific guidelines with pediatric patients:

1. Patients who are minors with apparently minor injury or illness can be cared for at any full service emergency department. Pediatric patients with apparently serious illness should be transported to a hospital with pediatric intensive care facilities (Ref. 9.05 Approved Hospitals and Hospitals with Specialized Facilities). If the parents request a different facility, contact the Base Station to provide an accurate patient report to that facility and determine if that facility can adequately care for the child. Communicate with the pediatric patient’s parents as each decision is made when possible.

2. Contact the EMS Supervisor prior to any non-transport of a pediatric patient.

3. If recommended EMS services are refused, make every effort to transport the patient. This includes contacting the EMS Supervisor or on-line medical control to help convince the family or guardians to allow EMS personnel to transport the patient. The Base Station paramedic will record the appropriate information relating to the nature of the situation.

4. Document the nature of the situation, including the number of requests/attempt made to transport the patient, the possible medical consequences that were explained to those refusing/declining services, in whose adult care the patient was left, and whether or not the parties involved acknowledged this “informed refusal.” Obtain the name, phone number, and address of at least one adult witness and record it in the patient record. Record the corresponding Base Station record number in the patient care record.

5. In cases where child abuse and/or neglect is suspected, request the Houston Police Department (HPD) to immediately investigate. If indicated, HPD may take the child into protective custody to enable HFD to provide the necessary care and transportation to a medical facility.

6. All units shall notify the Base Station for any non-transport of a pediatric patient. The Base Station will maintain a record of all pediatric non-transport.

7. Pediatric patients will either be transported to the appropriate hospital or will be documented appropriately as Refusals of Care. Section 6.16 D. Procedure for Non-Transport by Agreement does not apply to pediatric patients.

8. Refusals can only be made by legally designated guardians, not by EMS personnel.
6.17 Out-of-Hospital DNR Orders

A. Health and Safety Code Chapter 166 defines the Out-of-Hospital Do-Not-Resuscitate (DNR) law for the State of Texas. A DNR order may exist as a written order or as an identification device such as a bracelet or necklace. HFD EMS personnel shall honor an Out-of-Hospital DNR form provided:

1. They can establish the identity of the patient as the person who executed the DNR order or for whom the DNR order was executed, and;
2. It is a valid Out-of-Hospital DNR order; and
3. It is an original or copy of the Texas Department of State Health Services form.

B. An Out-of-Hospital DNR order is considered to be valid if it includes:

1. Written responses in the places designated on the form for the names, signatures and other information required of persons executing or witnessing the execution of the order.
2. A date in the place designated on the form for the date the order was executed.
3. The signature of the declarant or persons executing the order and the attending physician’s signature in the appropriate places.
4. Once the original order has been properly executed and signed in the appropriate places, a photocopy or other complete facsimile of the completed form may be used for any purpose for which the original written order may be used. Reference Example 6-1 for DNR example.
5. The DNR Form was revised in 2010. The older TDH Standard OOH DNR form (revised May 17, 2000) is still a valid form and shall be honored.

C. If these conditions (A,B) are not met, do not honor the Out-of-Hospital DNR order. Begin or continue resuscitation procedures.

D. The DNR order (Written form or identification device), when available, must accompany the person during transport.

E. Honor Out-of-Hospital DNR forms that appear to be valid unless the person or persons found at the scene:

1. Identify themselves as the declarant or as the attending physician, legal guardian, parent, spouse or adult child of the person or agent of the person having a durable power of attorney for health care who executed the Out-of-Hospital DNR order on behalf of the person; and
2. Request that CPR or certain life sustaining procedures be initiated or continued.

F. An Out-of-Hospital DNR order is effective until it is revoked. There is no expiration.

G. Honor DNR orders if:

1. The patient presents with no pulse; or
2. The patient presents with a pulse but no respirations; and
3. There is a valid DNR order as described above.

H. DNR orders will not be honored if:

1. The order is not considered to be valid; or
2. There is suspicion of homicide, suicide or other non-natural cause of death; or
3. The patient is pregnant.

I. In the event the patient expires prior to EMS arrival or during on-scene assessment and the DNR order is valid and uncontested, notify the tactical dispatcher of a fatality in order that HPD and the Medical Examiner’s office is notified.

J. If a patient expires during transport and the DNR is valid and uncontested:

1. Notify the Base Station. The Base Station will contact the receiving facility and advise them of the patient’s expiration.
2. Proceed to the receiving facility non-emergency.

K. In all cases where a patient is encountered for whom a DNR order is presented, notify Base Station to comply with reporting requirements of TDSHS.
L. **When unsure of the correct action, contact an EMS Supervisor.**

M. Out-of-State DNR Forms will be honored. DNR Orders in charts at Nursing Homes, etc. will be honored.

N. State of Texas DNR bracelets will be honored and regarded as properly executed DNR forms.

O. Advance Directives may be honored as DNR’s provided it is apparent to the member that the patient suffers from an irreversible and terminal medical condition.

P. A verbal declaration from a patient’s physician (either in person or over the phone if identified as the patient’s physician by the healthcare facility) with regard to DNR status or the wish to terminate resuscitative efforts should be treated as a DNR and should be appropriately documented on the run record.

Q. A correctly completed DNR form will consist of completion of either:
   1. Any one of Sections A, B, C, D, or E, in addition to the “Two Witnesses” section, the “Physician’s Statement” section and completed signatures at the bottom of the page, OR;
   2. Section F in addition to the completed signatures at the bottom of the page.
OUT-OF-HOSPITAL DO-NOT-RESUSCITATE (OOH-DNR) ORDER

TEXAS DEPARTMENT OF STATE HEALTH SERVICES

This document becomes effective immediately on the date of execution for health care professionals acting in out-of-hospital settings. It remains in effect until the person is pronounced dead by authorized medical or legal authority or the document is revoked. Comfort care will be given as needed.

A. Declaration of the adult person: I am competent and at least 18 years of age. I direct that none of the following resuscitation measures be initiated or continued for me: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Person’s signature

B. Declaration by legal guardian, agent or proxy on behalf of the adult person who is incompetent or otherwise incapable of communication:

I am the: ☐ legal guardian; ☐ agent in a Medical Power of Attorney; ☐ nearest living relative, and I am qualified to make this treatment decision under Health and Safety Code §166.088.

Based upon the known desires of the person or a determination of the best interests of the person, I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Signature

C. Declaration by a qualified relative of the adult person who is incompetent or otherwise incapable of communication: I am the above-noted person’s: ☐ spouse, ☐ adult child, ☐ parent, OR ☐ nearest living relative, and I am qualified to make this treatment decision under Health and Safety Code §166.088.

To my knowledge the adult person is incompetent or otherwise mentally or physically incapable of communication and is without a legal guardian, agent or proxy. Based upon the known desires of the person or a determination of the best interests of the person, I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Signature

D. Declaration by physician based on directive to physicians by a person now incompetent or nonwritten communication to the physician by a competent person: I am the above-noted person’s attending physician and have: ☐ seen evidence of his/her previously issued directive to physicians by the adult, now incompetent; OR ☐ obtained his/her issuance before two witnesses of an OOH-DNR in a nonwritten manner.

I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Attending physician’s signature

PHYSICIAN’S STATEMENT: I am the attending physician of the above-noted person and have noted the existence of this order in the person’s medical records. I direct health care professionals acting in out-of-hospital settings, including a hospital emergency department, not to initiate or continue for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Physician’s signature

E. Declaration on behalf of the minor person: I am the minor’s: ☐ parent; ☐ legal guardian; ☐ managing conservator.

A physician has diagnosed the minor as suffering from a terminal or irreversible condition. I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Signature

TWO WITNESSES: (See qualifications on backside.) We have witnessed the above-noted competent adult person or authorized declarant making his/her signature above and, if applicable, the above-noted adult person making an OOH-DNR by nonwritten communication to the attending physician.

Witness 1 signature

Witness 2 signature

Notary in the State of Texas and County of ___________________________. The above noted person personally appeared before me and signed the above noted declaration on this date: ____________.

Signature & seal ____________________________ Notary's printed name: ____________________________

[ Note: Notary cannot acknowledge the witnessing of the person making an OOH-DNR order in a nonwritten manner ]

PHYSICIAN’S STATEMENT: I am the attending physician of the above-noted person and have noted the existence of this order in the person’s medical records. I direct health care professionals acting in out-of-hospital settings, including a hospital emergency department, not to initiate or continue for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Physician’s signature

F. Directive by two physicians on behalf of the adult, who is incompetent or unable to communicate and without guardian, agent, proxy or relative: The person’s specific wishes are unknown, but resuscitation measures are, in reasonable medical judgment, considered ineffective or are otherwise not in the best interests of the person. I direct health care professionals acting in out-of-hospital settings, including a hospital emergency department, not to initiate or continue for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Attending physician’s signature

Signature of second physician

Physician’s electronic or digital signature must meet criteria listed in Health and Safety Code §166.082(c).

All persons who have signed above must sign below, acknowledging that this document has been properly completed.

Person’s signature

Attending physician’s signature

Second physician’s signature

Witness 1 signature

Witness 2 signature

This document or a copy thereof must accompany the person during his/her medical transport.
6.18 Patient Belongings
A. As we assume the responsibility for caring for the patient and their belongings, it is imperative that all HFD members make sure to return identification items and their belongings to the patient.
B. Any items that are left with the patient, friends, police or given to the receiving nurse at the hospital must be documented in the patient care report with a description of the items and the name of the individual receiving the items.
C. It shall be the responsibility of the ranking member on scene to secure any patient belongings not being transported with the patient (i.e. motorized wheelchair, bike, etc.).
D. If an item is discovered in an HFD apparatus, it is to be reported to the Station Captain who shall forward it immediately to EMS Headquarters, Attn: Lost and Found.
   1. Utilize the blue pre-marked envelopes distributed to each station. Include with the item any incident or patient information so it can be returned to its owner.

6.19 Physician Intervener at the Scene
A. Physicians may provide assistance to EMS personnel. Treat them with professional courtesy. Physicians should identify themselves and be prepared to provide identification indicating they are a physician. All physicians licensed in the state of Texas are provided with a wallet-sized identification card with their name, address and medical license number indicated.
B. A physician may merely offer assistance or may assume responsibility for patient care. If a physician desires to assume responsibility for patient care, that individual must provide physician identification. Inform the physician that once they assume medical responsibility for the care of the patient they are expected to accompany the patient until care is transferred to another physician.
C. When a patient’s private physician is present and provides proof of identity, EMS personnel should comply with his/her medical direction.
D. Follow medical direction given by the on-scene physician who assumes responsibility for patient care provided it is similar to HFD protocols and standing orders. Report any conflicts immediately to an EMS Supervisor and on-line EMS physician.

6.20 Requesting Assistance
A. ALS Unit Requesting BLS Units for Transports:
   1. BLS units will respond in an emergency fashion during all initial incident dispatches unless directed otherwise by OEC. ALS units may request a BLS unit for minor emergency transportation or for assistance at a scene for purposes other than routine BLS transport (such as for a multiple victim motor vehicle incident). The ALS unit should advise OEC of the type of BLS unit requested (ambulance vs. EMS apparatus) and to have the BLS unit(s) respond “emergency” or “non-emergency” as appropriate.
   2. Other special situations, which may require the use of emergency lights and sirens by the BLS units while responding are heavy traffic and periods of high call volume. OEC or an EMS Supervisor may advise the BLS unit to “respond emergency” during a period when a substantial number of units are unavailable in the service area. They shall notify OEC of their intentions to do so. EMS Supervisors shall monitor the EMS units under their supervision for inappropriate use of this provision.
B. BLS Unit Requesting Additional BLS Assistance:
   1. A BLS unit responding alone to an initial emergency incident may request an additional BLS unit to respond when they anticipate a response time of greater than 15 minutes. During extended response times, the BLS unit will advise OEC of their ETA to the location. With the information available from the caller, OEC will determine if the dispatch of an additional BLS unit is advisable.
2. On location, a BLS unit may request additional assistance as needed and will notify the dispatcher and state the specific nature of the request (i.e. “help with lifting”, “to wash fuel”, “assistance with multiple patients”, etc.).

C. BLS Unit Requesting Additional BLS Assistance:
If a BLS unit arrives at an incident which necessitates additional BLS support, they shall request assistance through OEC with the nature of the request for assistance. The BLS unit should advise OEC to have the BLS unit(s) respond “emergency” or “non-emergency.”

D. BLS Unit Requesting ALS Assistance:
If no ALS unit has been dispatched to the incident and the BLS unit determines the need for ALS evaluation or care, they shall request ALS or EMS Supervisory assistance. BLS units shall provide OEC with the nature of the request for assistance and shall also contact the Base Station for interim instructions and advice.

E. BLS Unit Disregarding of ALS Units:
1. When a BLS unit is responding with an ALS unit, the BLS unit may advise the ALS unit to “disregard” prior to the ALS arrival. These circumstances include the following:
   a. When no patient is found at the location.
   b. When only minor traumatic injuries are involved.
   c. When patients can be assessed, managed and transported appropriately by the BLS unit.
   d. When the patient refuses treatment.
   e. Other non-transport incidents as outlined in protocols. (Ref. 6.16 Non-Transports).

2. A BLS unit shall not disregard an ALS unit AND an ALS assessment is required (if ALS was dispatched) if the patient currently has, or recently had, the following complaints discovered during BLS assessment:
   a. Decreased level of consciousness / Unconsciousness
   b. Chest Pain / Discomfort
   c. Difficulty Breathing
   d. Syncope

3. When BLS personnel are unsure of a patient’s need for ALS care, they shall allow the ALS unit to proceed to the location while providing the ALS unit with updated information on a designated tach channel.

4. If BLS transport time to the hospital is shorter than ALS arrival time, contact the ALS unit on the designated tach channel to arrange a rendezvous enroute or to approve BLS-only transport. If a BLS-only transport occurs in this situation, the reasons shall be clearly documented in the patient care record.

F. BLS Unit Transport of Critically Injured Patients
1. When a BLS unit is first on the scene with a “critically injured” trauma patient, BLS personnel shall quickly immobilize (if required), provide BLS support, and rapidly transport the patient directly to a Trauma Center (Ref. 6.12 D. Hospital Destination Decisions for Trauma Patients and 9.05 Approved Hospitals and Hospitals With Specialized Facilities).

2. The patient’s chances for survival following a serious traumatic injury are directly related to the amount of time required to get the patient to the appropriate trauma center. A BLS unit is dispatched to a serious traumatic incident to rapidly transport the patient to a Trauma Center.

3. BLS units are NOT to delay transport awaiting the arrival of a paramedic. Immediate BLS transport to a Trauma Center is appropriate and provides the patient the greatest chance of survival. For example, in a situation where the patient has suffered an airway injury, paramedics may be able to provide an advanced airway intervention. Unless an appropriate rendezvous point can be established between the BLS and ALS, provide direct, immediate, and rapid transport of the patient to a Trauma Center. If the BLS unit transports the
patient, that unit must continue to provide all of the following, as indicated:
  a. Basic airway management.
  b. Basic respiratory support with supplemental oxygen.
  c. Spinal immobilization (including C-spine precautions) as indicated.
  d. Basic circulatory support, including hemorrhage control and CPR as needed.
4. If at any time there is a question as to whether a patient is a candidate for rapid BLS transport, notify the responding ALS unit to report the patient’s condition and request transport instructions. If no ALS unit has been dispatched, proceed with rapid transport to the closest appropriate trauma center. OEC may be contacted to arrange a rendezvous with an ALS unit provided that such action does not delay a patient’s arrival to the trauma center.

6.21 Riding in Charge

A. BLS Unit Crew Responsibilities:
   1. BLS Ambulance
      a. In HFD, the Fire Fighter EMT (FFE) will be considered to have the primary duty of delivering patient care on the emergency scene.
      b. The Engineer/Operator EMT (EOE), either acting or assigned, is in charge of the BLS unit and carries the over-all responsibility for delivery of appropriate care to the patient. The EOE will assist the FFE in providing patient care as needed throughout the incident.
      c. Should circumstances dictate, the EOE will assume full responsibility for patient care and will remain with the patient at the scene and during transport in order to ensure the continuity of patient care. The EOE must notify the EMS Supervisor as soon as possible of the situation.
      d. In the event the FFE believes the EOE is inappropriately directing patient care, the FFE must notify the EMS Supervisor as soon as possible of the situation.
      e. The FFE is responsible for the complete and accurate documentation of EMS records including the patient care record and documentation of patient refusals. The EOE shall review the patient care record.
      f. Both the EOE and the FFE will be held equally responsible for patient management and record documentation as outlined by the Texas Department of State Health Services.
   2. BLS EMS Apparatus
      a. Any time a member of an EMS apparatus company holds a higher EMS credentialing level than the officer in charge, that member will be in charge of patient care and the documentation of the EMS record.
      b. The officer in charge of the EMS apparatus still bears the ultimate responsibility to ensure the EMS record is completed in a timely manner.
B. ALS Unit Crew Responsibilities:
   1. In HFD, the Fire Fighter paramedic (FFP) will be considered to have the primary duty of delivering patient care on the emergency scene.
   2. The Engineer/Operator paramedic (EOP), either acting or assigned, is in charge of the ALS unit and carries the over-all responsibility for delivery of appropriate care to the patient. The EOP will assist the FFP in providing patient care as needed throughout the incident.
   3. Should circumstances dictate, the EOP will assume full responsibility for patient care and will remain with the patient at the scene and during transport in order to ensure the continuity of patient care. In these cases, the EOP must notify the EMS Supervisor as soon as possible of the situation.
   4. In the event the FFP believes the EOP is inappropriately directing patient care, the FFP must notify the EMS Supervisor as soon as possible of the situation.
   5. The FFP is responsible for the complete and accurate documentation of EMS records including
the patient care record and documentation of patient refusals. The EOP shall review the patient care record.

6. Both the EOP and the FFP will be held equally responsible for patient management and record documentation as outlined by the Texas Department of State Health Services.

7. Generally speaking, the first arriving paramedic will be in charge of patient care until such time as a higher ranking paramedic assumes patient care or until transfer of care for the purposes of patient transport is appropriate.

8. The EMS Apparatus Paramedic is responsible for immediate patient care until the arrival of the Medic or Squad Paramedic. The EMS Apparatus Paramedic will assist the Medic or Squad Paramedic in providing patient care as needed throughout the incident.

9. Should circumstances dictate, the EMS Apparatus Paramedic will assume full responsibility for patient care and will remain with the patient at the scene and during transport in order to ensure the continuity of patient care. In these cases, the EMS Apparatus Paramedic must notify the EMS Supervisor as soon as possible of the situation.

6.22 Termination of Resuscitation

A. Background

1. Termination of ALS efforts in the out-of-hospital setting will apply to patients who experience a non-traumatic cardiac arrest and meet the specific criteria indicating futility for further resuscitative efforts.

2. This policy is intended to be applied to situations involving patients who may have had poor quality of life factors or whose death was anticipated. The policy may, under appropriate circumstances, also be applied to situations involving patients whose death was unexpected.

B. Inclusion Criteria:

The decision is based on the following criteria:

1. Patient must have had a presumed primary medical arrest.

2. Patient must be successfully intubated or successfully ventilated with an alternative airway device, have IV or IO access and have standard advanced life support (ALS) measures applied throughout the resuscitation effort.

3. On-scene advanced resuscitation efforts by paramedics will be sustained for at least 20 minutes regardless of previous CPR time and the arrest interval. In other words, patients should receive 20 minutes of ALS intervention/medication not counting the time for basic CPR/defibrillation provided by BLS prior to paramedic arrival.

4. Persistent asystole or agonal rhythm (PEA < 20) is present and no reversible causes are identified during the resuscitation effort.

5. The policy may be applied to nursing home residents with approval of nursing home staff. Contact the patient’s physician if available.

C. Exclusion Criteria:

Resuscitation efforts will not be terminated in patients found in open public places or who meet the following exclusion criteria:

1. The patient whose medical arrest may be associated with hypothermia or cold water submersion injury.

2. The patient who has persistent ventricular fibrillation (VF) or ventricular tachycardia (VT) or normal appearing, well organized complexes without pulses (QRS rate > 60/min.).

3. The patient who demonstrates any neurological signs (i.e., spontaneous opening of the eyes or spontaneous movements).

4. The patient who has a cardiac arrest after being in the care of HFD personnel.

D. Operating Procedure:

1. If a patient remains unresponsive to ALS resuscitation measures and meets all of the inclusion
criteria and none of the exclusion criteria, field termination shall be pursued.

2. In all cases, the paramedic in charge of the resuscitation will notify an EMS Supervisor of every opportunity to terminate resuscitative efforts. EMS Supervisors will make every effort to respond to the scene of a potential on-scene termination of resuscitative efforts.

3. The EMS Supervisor or paramedic in-charge of the case shall discuss the situation in its entirety with the Base Station physician. The Base Station physician may then give permission to terminate the resuscitation.

4. During resuscitation, EMS personnel (and preferably an EMS Supervisor) will apprise the family of the progress of resuscitative efforts. The EMS Supervisor will advise them of the online medical direction and the directives to terminate efforts.

5. The family, or relevant bystanders, shall be approached and notified that all resuscitative efforts have failed to restore a pulse and that transport of the patient to the hospital is not going to change the patient’s ultimate outcome. Because of this, HFD will stop resuscitative efforts and HFD will turn scene management over to HPD.

6. HFD shall not transport patients who meet criteria for Termination of Resuscitation unless a) the resuscitation takes place in a public setting or b)HFD member’s personal safety may be endangered by non-transport of the patient or c) the family strenuously objects.

7. EMS personnel shall actively engage the family and answer their questions as appropriate.

8. Upon approval to terminate the resuscitation effort, tie off and knot any established intravenous lines (close to the IV/IO site) and remove the IV fluid bag and remaining tubing. The IV/IO catheters and the endotracheal tube (or alternative airway) will remain in place.

9. Contact the dispatcher for notification of the Medical Examiner and HPD.

10. At all times, HFD members will be attentive to the social and psychological support needs of the “survivors” (i.e., family, friends, witnesses) and provide support as needed (Ref. 6.01 #1 Rule : Holder Rule and 6.09 Family Centered Care).

11. If there is no suspicion of any criminal activity, the body may be moved by HFD personnel only to place the body in a bed (to minimize family members’ discomfort with the event).

E. Documentation:
1. Information surrounding the events of the resuscitative efforts and the time of death will be properly recorded on the Patient Care record in the comments section in addition to a detailed description of the resuscitation attempt.

F. If at any time during a respiratory or cardiac arrest resuscitation a valid DNR form, advanced directive, or verbal order from the patient’s physician is produced (Ref. 6.17 Out-of-Hospital DNR Orders), all resuscitative efforts should be stopped and termination of resuscitative efforts should be documented.

6.23 Voluntary Self Reporting of Medical Errors

A. Purpose
1. To establish and maintain a system in which certain types of medical errors are viewed as sentinel events to be taken advantage of in order to improve the overall quality of patient care, while at the same time ensuring the safety of the public.

B. Definitions
1. Error – an act that deviates from what is correct. For the purposes of this policy, correct action is defined by HFD policy and procedures referenced III-01 7.00 through and including 9.06.
2. Neglect – to fail to care or give proper attention to; to fail to do as through oversight or carelessness.

C. Procedure
1. Self Reported Errors
   a. When a member recognizes they have committed a medical error, that member has twenty-four on-duty hours to report the error to an EMS Supervisor.
   b. The officer to whom the medical error has been reported will document the report on a Medical Error Reporting Form found in the HFD Forms list.
   c. The officer will perform and complete an investigation to include interviewing of other members, witnesses or examination of equipment, or any other such investigation as necessary to determine the nature, severity and circumstances of the reported error.
   d. The officer will also document action taken by the officer in response to the report. The officer may choose from the following options:
      1) Document analysis of the perceived error and provide positive reinforcement to the member for bringing the opportunity for improvement to the supervisor’s attention.
      2) Provide immediate counseling and document such counseling on a Medical Error Reporting Form.
      3) Provide immediate counseling as above and recommend further remediation through the Medical Director’s Office.
      4) Remove the member from patient care duties pending review by the Medical Director’s Office.
   e. Members who self-report medical errors will not be subjected to formal investigation by the Medical Director’s Office.
2. Unacceptable Errors
   a. Most reported medical errors will be considered to be opportunities for system improvement by the Office of the Medical Director.
   b. Certain errors will be considered unquestionably unacceptable behavior on the part of the member and remediation will not be offered. While many of these errors are also addressed in other areas of fire department policy, the following offenses will be considered grounds for immediate revocation of paramedic and/or EMT patient care privileges:
      1) Willfully inflicting harm of any kind on a patient.
      2) Willful neglect of a patient.
      3) Willful disregard for patient care policies and procedures.
      4) Untruthfulness with the Medical Director, his or her designee, or an officer of the department with regard to patient care, documentation, or error reporting.
      5) Failure to remediate or repeatedly committing the same or similar errors in spite of remediation and/or re-education.
3. Errors Reported by Others
   a. Medical errors alleged by the public, patients, patient’s family members, medical professionals (including HFD firefighters) or any other persons not previously addressed by this policy will be immediately forwarded to the Medical Director’s Office for processing.
4. Supervisors Completing the Medical Error Reporting Form
   a. Supervisors receiving reports of medical errors are to complete the Medical Error Reporting Form (found in HFD Forms list) in its entirety upon completion of their investigation.
   b. Supervisors are to forward the completed Medical Error Reporting Form to the Office of the Medical Director in a sealed envelope marked CONFIDENTIAL, within 24 on-duty hours of being made aware of the error.
5. Confidentiality
   a. All medical error investigations and resolutions shall be considered privileged quality improvement committee activities and are protected under Texas Statues Title 9 Health and Safety Code Chapter 773.
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7.01 Patient Assessment [BLS/ALS]

A. Assess the Situation – Upon approach to an incident consider these questions:

1. Is the scene safe?
   Consider the potential dangers to self and other rescuers (e.g., live loose power lines, HAZ-MAT, violent individuals, etc.) If danger exists, make a decision and action plan that will adequately protect as many people as possible.

2. How many patients are there?
   A rapid triage of patients is necessary to evaluate the needs of the situation. Complete this scene triage process prior to the initiation of patient care.

3. What help do I need?
   After answering the above questions, make an initial assessment of the situation and determine what other resources are needed. Make contact through OEC to request additional resources.

B. Primary Survey

Basic Life Support Sequence C-A-B: Evaluate the Circulation, Airway and Breathing, then neurologic Disability and Physical Exam. Priorities of management are established on a life threat basis. NOTE: In children < 8 years old, the priority is Airway-Breathing-Circulation.

1. Circulation: Assess the circulation / perfusion
   • Assess rate and quality of pulses – peripheral and central pulses.
   • No spontaneous pulses – begin chest compressions at an appropriate rate and depth.
   • Assess skin color, temperature, and capillary refill.
   • A patient who is unresponsive and has either no breathing or no normal breathing (only gasping) is presumed to be pulseless and CPR should be started immediately without a pulse check being performed.

2. Airway and C-Spine: Provide appropriate head/neck position, jaw thrust, oral airway, oxygen and bag-valve-mask as needed. Protect c-spine, if there is a potential for c-spine injury use the modified jaw thrust. If the airway is:
   • Patent – no intervention needed
   • Partially obstructed – if patient is conscious, allow the patient to cough forcefully to expel foreign body; if the patient is unconscious, see Airway Foreign Body Removal (Ref. 7.02 G. Adult / 7.02 H. Pediatric).
   • Obstructed – If the airway is completely obstructed attempt to clear airway (Ref. 7.02 G. Adult / 7.02 H. Pediatric). Paramedics should perform direct laryngoscopy and use Magill forceps to remove foreign bodies as soon as is practical.

3. Breathing: Assess respirations (rate, depth, and work of breathing, quality of breath sounds). Provide oxygen. If the respirations are:
   • Spontaneous – observe the chest rise and fall, auscultate breath sounds posteriorly first (beginning at the bases, moving superiorly), then anteriorly.
   • Laboried – observe for signs of distress – use of secondary muscles, cyanosis, or tachypnea. Never withhold oxygen from a patient in distress.
     – Administer 100% oxygen via non-rebreather for all patients in respiratory distress.
     – Nasal cannula @ 2-4 L/min., titrating to an \( O_2 \) saturation of \( \geq 94\% \) for patients who will not tolerate a mask or as dictated by protocol (Chest Pain, Stroke).
     – Agonal breathing – BVM with 100% oxygen and advanced airway as indicated.
   • Absent – insert an oral airway, ventilate with an appropriately sized bag-valve-mask and provide 100% oxygenation. Whenever possible, two persons should operate a bag-valve-mask; one to ensure a good mask-to-face seal and the other to perform proper ventilation.
technique.

a. Equipment needed:
   • Oxygen sources – always check the supply and have a spare bottle.
   • Oral airways (40, 60, 80, 90, 100 mm).
   • Bag-valve-mask (BVM) with attached reservoir bag (adult/adolescent, infant/child, neonatal). Make sure the reservoir bag fills with oxygen and use a flow rate of 15 LPM.

b. Bag-valve-mask use without endotracheal intubation (see Table 7-1)
   • Each ventilation should be a one second ventilation which produces visible chest rise. This ensures against under-inflation and lack of oxygenation.
   • Avoid rapid or forceful breaths in order to minimize or eliminate insufflation of air into the stomach with possible vomiting and aspiration as the result.
   • Try to coordinate and synchronize the ventilation with CPR.

<table>
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<th>Table 7-1 : Bag-Valve-Mask Ventilation</th>
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<tbody>
<tr>
<td>Consider Potential C-Spine Injury (e.g., pool incident/accompanying fall/motor vehicle collision) and position accordingly (see “P” below)</td>
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<tr>
<td>Oral Airway (properly sized to push the tongue up and out of the way)</td>
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<tr>
<td>Position the Head (neutral position if there is a risk of c-spine injury; sniffing position if no suspicion of c-spine risk; do not hyperextend children’s necks)</td>
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<tr>
<td>Elevate the jaw (usually with the tips of the fourth and fifth fingers, bilaterally, placed at the angle of the jaw, lifting it directly upward and perpendicularly to the ground)</td>
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<tr>
<td>Seal the Mask with Two Hands (forming two opposed “C-shaped clamps”, by placing the thumbs on the bridge of the nose, and the index fingers over the chin)</td>
</tr>
<tr>
<td>Squeeze (each ventilation delivered in 1 second with enough volume to produce visible chest rise)</td>
</tr>
<tr>
<td>Oxygen (delivered at a rate to maintain reservoir bag inflation)</td>
</tr>
</tbody>
</table>

c. Bag-valve use with endotracheal intubation:
   • In an adult patient, the 19-22 cm mark on the endotracheal (E.T.) tube should generally be at the front teeth.
   • In a pediatric patient, depth size varies. Consult the Broselow Tape for recommended depth.
   • If the E.T. tube is moved, tell the paramedic immediately.
   • The paramedic should note the right depth when he/she intubates.

d. Tell the paramedic immediately if:
   • Air is blowing out of the patient’s mouth; it probably means there is a “leak” or deflated E.T. tube cuff. It may also mean the tube is not in the trachea.
   • The patient’s chest is not rising equally (right and left side).
   • The resuscitation bag becomes hard to squeeze.
   • Any problems are noticed during bagging with either a BVM or with the E.T. tube in place.

e. Ventilation Rate:
   • During Pediatric / Adolescent / Adult CPR, when the patient is pulseless, give synchronized ventilations along with chest compressions with enough volume to produce visible chest rise.
   • Once pulses are restored, ventilate according to guidelines below.
     – Neonate : 40 to 60 breaths per minute
– Infant: 12 to 20 breaths per minute
– Children: 12 to 20 breaths per minute
– Adolescents/Adults: 8 to 10 breaths per minute

4. Disability: Assess the neurological status. Immobilize the spinal column as indicated. Assess the patient’s level of consciousness using the AVPU Method (See Table 7-2).

<table>
<thead>
<tr>
<th>Table 7-2 : AVPU Mental Status Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Alert : Alert and oriented to person, place, time</td>
</tr>
<tr>
<td>V Verbal : Responds to verbal stimulation, not oriented</td>
</tr>
<tr>
<td>P Pain : Responds to painful stimulus only</td>
</tr>
<tr>
<td>U Unresponsive : Does not respond to verbal or painful stimulus</td>
</tr>
</tbody>
</table>

5. Exam:
• Perform a rapid head to toe survey.
• Exsanguinating hemorrhage should be treated immediately.
• When assessing medical patients, quickly evaluate skin signs, central and peripheral pulses for rate and quality to identify immediate life threats.

*Only interrupt a primary assessment for life threatening emergencies, cases of airway obstruction, a need for CPR or controlling exsanguinating hemorrhage.*

C. Secondary Survey
1. Chief Complaint: The secondary survey begins with the patient’s chief complaint (CC). The CC is what the patient states or believes is the primary problem. It is reported in the context of the patient’s age, sex, CC, and its duration.
2. History of Present Illness (HPI)
The HPI is a concise but complete description of the medical sequence of events, that led to the patient’s request for help, i.e.:
• “OPQRST” questions (see Table 7-3)
• What was the patient doing when the symptoms began?
• When did the symptoms start?
• What has the patient done to relieve his or her symptoms?
• Have any of these efforts made the patient feel better?
• What other symptoms does the patient have?

<table>
<thead>
<tr>
<th>Table 7-3 : OPQRST Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>O Onset</td>
</tr>
<tr>
<td>P Provocation</td>
</tr>
<tr>
<td>Q Quality</td>
</tr>
<tr>
<td>R Region / Radiation</td>
</tr>
<tr>
<td>S Severity</td>
</tr>
<tr>
<td>T Timing</td>
</tr>
</tbody>
</table>
3. Past History: Obtain an “AMPLE” history (see Table 7-4).

<table>
<thead>
<tr>
<th>Table 7-4 : AMPLE History</th>
</tr>
</thead>
<tbody>
<tr>
<td>A  Allergies</td>
</tr>
<tr>
<td>M  Medications</td>
</tr>
<tr>
<td>P  Past Medical History</td>
</tr>
<tr>
<td>L  Last Oral Intake</td>
</tr>
<tr>
<td>E  Events Preceding the Incident</td>
</tr>
</tbody>
</table>

4. Physical Exam: “head to toe” survey
    a. For trauma patients employ the techniques of the BTLS secondary survey (see Table 7-5).

<table>
<thead>
<tr>
<th>Table 7-5 : BTLS Secondary Survey (Head to Toe Exam)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head - Look for contusions, lacerations, raccoon eyes, Battle’s sign, drainage of blood or fluid from the ears or nose. Reassess the airway again.</td>
</tr>
<tr>
<td>Neck - Look for lacerations, contusions, tenderness, distended neck veins, or deviated trachea.</td>
</tr>
<tr>
<td>Chest - Reassess breath sounds bilaterally, checking for symmetry.</td>
</tr>
<tr>
<td>Abdomen - Look for signs of blunt or penetrating trauma. Feel for tenderness.</td>
</tr>
<tr>
<td>Pelvis - Palpate for tenderness or instability.</td>
</tr>
<tr>
<td>Extremities - Look and palpate for signs of trauma, check distal pulses, sensory and motor function. Repeat and record for any splint applications.</td>
</tr>
</tbody>
</table>

    b. For all other patients, perform a detailed head-to-toe physical exam (see Table 7-6).

<table>
<thead>
<tr>
<th>Table 7-6 : CHAMPION Physical Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>C  Cardiac (Heart Sounds, Pulses)</td>
</tr>
<tr>
<td>H  HEENT</td>
</tr>
<tr>
<td>A  Abdomen</td>
</tr>
<tr>
<td>M  Mental Status</td>
</tr>
<tr>
<td>P  Pulmonary (Breath Sounds, Work of Breathing)</td>
</tr>
<tr>
<td>I  Integumentary (Skin)</td>
</tr>
<tr>
<td>O  Other Tests (Vital Signs, Diagnostics)</td>
</tr>
<tr>
<td>N  Neuro (Strength, Sensation)</td>
</tr>
</tbody>
</table>

    c. Neurological Survey
       1) Assess the level of consciousness using the Glasgow Coma Scale (see Table 7-7).
Table 7-7: Glasgow Coma Scale: Adult and Pediatric

<table>
<thead>
<tr>
<th>ADULT GLASGOW</th>
<th>PEDIATRIC GLASGOW</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye Opening (4)</strong></td>
<td><strong>Eye Opening (4)</strong></td>
</tr>
<tr>
<td>Spontaneous</td>
<td>4</td>
</tr>
<tr>
<td>To Speech</td>
<td>3</td>
</tr>
<tr>
<td>To Pain</td>
<td>2</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Best Motor Response (6)</strong></td>
<td><strong>Best Motor Response (6)</strong></td>
</tr>
<tr>
<td>Obeys Commands</td>
<td>6</td>
</tr>
<tr>
<td>Localizes Pain</td>
<td>5</td>
</tr>
<tr>
<td>Withdraws From Pain</td>
<td>4</td>
</tr>
<tr>
<td>Abnormal Flexion</td>
<td>3</td>
</tr>
<tr>
<td>Abnormal Extension</td>
<td>2</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Verbal Response (5)</strong></td>
<td><strong>Verbal Response (5)</strong></td>
</tr>
<tr>
<td>Oriented</td>
<td>5</td>
</tr>
<tr>
<td>Confused</td>
<td>4</td>
</tr>
<tr>
<td>Inappropriate</td>
<td>3</td>
</tr>
<tr>
<td>Incomprehensible</td>
<td>2</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

2) Assess the level of orientation by asking the patient:
   • Person – Does the patient know their own name? The correct name of a friend or family member present? Does the patient recognize police officers, firefighters and/or paramedics?
   • Place – Does the person know where they are now?
   • Time – Can the person correctly state the month, day, year and the season of the year?
   • Circumstance – Does the person know how it is that they came to be speaking to an EMT/paramedic? Do they fully understand their situation in terms of the current incident and their health status? (Ref. 6.16 Non-Transports)

3) Assess bilateral pupil reaction to light.

4) Evaluate motor function by evaluating for facial droop, testing grip strength and arm strength/pronator drift.

d. Vital signs will be measured on all patients to include blood pressure, pulse rate and respiratory rate.

e. Exposure: A thorough exam cannot be accomplished through clothing. Keep modesty in mind for all patients. Ask for the patient’s permission to raise his/her shirt so that you may examine the back and auscultate the lungs. The patient must be kept warm during the
process. Passive warming (multiple sheets or blankets) techniques are frequently necessary to preserve body temperature.

f. Continually Monitor: Monitor the patient for changes in condition and document vital signs every 5 minutes or as often as practical. Assess and record a minimum of two sets of vital signs for each patient transported.

g. Event Sequence: Application of the above sequence of events in the evaluation of a patient will vary depending on the patient’s condition. EMT’s and paramedics are to use their best judgment when initially evaluating a patient. Necessary treatment takes precedence over completing a history and physical.

7.02 Airway Management

Pulse Oximetry shall be assessed and maintained on all pulsatile patients requiring ventilation assistance.

A. Two Person Bag-Valve-Mask Ventilation [BLS/ALS]
   1. Insert appropriately sized oropharyngeal airway and/or nasal trumpet.
   2. Whenever possible, two-persons should operate a bag-valve-mask device.
   3. Rescuer #1 uses both hands to form a tight mask-to-face seal. Use pads of thumbs to press mask to face, wrap fingers beneath jawbone to raise jawbone toward mask.
   4. Rescuer #2, after ensuring 100% oxygen is being delivered to reservoir bag, delivers one second ventilations which produce visible chest rise.

B. One Person Bag-Valve-Mask Ventilation [BLS/ALS]
   1. Insert appropriately sized oropharyngeal airway and/or nasal trumpet.
   2. Use non-dominant hand to form a C-clamp (thumb over mask at bridge or patient’s nose, index finger over mask over the patient’s chin, remaining fingers wrapped beneath patient’s jaw) forming a tight seal between the mask and the patient’s face.
   3. Dominant hand is then used to squeeze the bag, delivering one second ventilations which produce visible chest rise.

Note: Overaggressive squeezing of the bag will generate high airway pressures and force air into the esophagus and stomach.

C. Orotracheal Intubation [ALS]
   1. Pre-oxygenate the patient with Bag-Valve-Mask Ventilation.
   2. Verify laryngoscope light works.
   3. Select appropriate sized endotracheal tube and verify integrity of cuff and pilot balloon. Utilize the Broselow tape to estimate the size of the required ET tube in pediatric patients.
   4. Position head. Hyperextend the head, flex the neck; “sniffing position” for non-trauma patients. Trauma patients with suspected spinal injury are to be intubated with the head immobilized in the neutral in-line position.
   5. Insert laryngoscope blade into right side of patient’s mouth and gently advance blade to correct depth while sweeping blade and tongue to the left and observing landmarks.
      • Visualize vocal cords.
      • Advance endotracheal tube between vocal cords and beyond to solid black circumferential depth marking on tube. Visualize tube between cords.
      • In all patients, the correct tube depth can be estimated by the formula
        \[ \text{ET Depth (cm)} = 3 \times \text{ET Tube Size} \]
In an adult patient, a 7.0 tube should generally be placed around the 21 cm mark at the teeth/gumline.
In a pediatric patient, a 3.0 tube should generally be placed around the 9 cm mark at the teeth/gumline.
• Remove laryngoscope without moving endotracheal tube.
• Remove stylet without moving endotracheal tube.
• Inflate cuff.
• Auscultate over epigastric area. If no sounds are heard over epigastric area, auscultate for breath sounds over lateral chest walls. If sounds are heard over epigastric area, visually reconfirm placement of tube between vocal cords or reattempt intubation after re-oxygenating the patient. When in doubt – TAKE IT OUT.
• Attach end-tidal CO$_2$ detector. Observe for waveform on CO$_2$ monitor screen.
• Reconfirm endotracheal tube placement with absence of ventilatory sounds over epigastric area and auscultation of equal breath sounds at lateral chest wall locations, as well as continued presence of an end tidal CO$_2$ waveform.
• Reconfirm placement with each movement of the patient (floor to backboard, into ambulance, etc.).
• Reconfirm correct placement of endotracheal tube upon arrival at hospital, just prior to exiting ambulance. Document ETCO$_2$ in record or by printing rhythm strip on the LifePak 15.

6. End Tidal CO$_2$ monitoring shall be used on each and every intubated patient for confirmation of tube placement and continuous monitoring.

7. No more than three intubation attempts shall occur on each individual patient.

D. Nasotracheal Intubation [ALS]
1. Eligibility of patient confirmed:
   • Patient is NOT apneic (patient is breathing).
   • Patient does NOT have injury to bones of the face.
   • Patient does NOT have evidence of basilar skull fracture (ecchymosis beneath eyes or behind ears).
2. Pre-oxygenate patient with high flow O$_2$ by non-breather mask or Bag-Valve-Mask as appropriate.
3. Examine nostrils and select correct size endotracheal tube.
4. Lubricate distal end of endotracheal tube.
5. Advance the tube into nostril, guiding it in an anterior-to-posterior direction.
6. As the tube is advanced, LISTEN closely for breath sounds coming from the end of the tube.
7. When the breath sounds are loudest, and the misting is greatest within the tube during exhalation, have the patient take a deep breath and advance the tube during the INHALATION (if the patient is not conscious, try to time advancing the tube with one of the patent’s inhalations).
8. Check that misting continues to occur during exhalation that can be felt exiting the end of the tube.
   • The patient should not be able to speak, if conscious, as the tube should be positioned between the vocal cords; if the patient can speak – the tube is not properly placed.
   • Confirm proper tube placement by auscultating the epigastric area for breath sounds; if none heard, auscultate lateral chest walls for equal breath sounds indicating good tube placement.
   • Attach end tidal CO$_2$ detector. Observe for the characteristic waveform on CO$_2$ monitor screen.
   • Secure the endotracheal tube in place.
   • Reconfirm correct tube placement frequently and with each movement of the patient.
9. End Tidal CO$_2$ monitoring shall be used on each and every intubated patient for confirmation of tube placement and continuous monitoring.

E. Supraglottic Airway [BLS/ALS]
1. Members shall be responsible for knowing which supraglottic airway is available and what sizes are distributed.
2. Indications for Use
   - Supraglottic airways are to be used as the initial advanced airway in adult and pediatric cardiac arrest resuscitations (Ref. 8.02 A.1. Cardiac Arrest Emergencies Philosophy/Practices).
   - In adult respiratory arrest with pulses, a supraglottic airway should be instituted after two failed attempts at endotracheal intubation.
   - In pediatric respiratory arrest with pulses, a supraglottic airway should be used if BVM ventilation has been ineffective at maintaining oxygenation and ventilation.
3. Contraindications for the use of supraglottic airways are:
   -Responsive patient with an intact gag reflex
   -Patient with known esophageal disease or history of ingestion of caustic substances
   -Severe maxillofacial trauma
   -Patient height and/or weight for which a supraglottic airway device of the appropriate size is not available
4. Patient Position
   -Patient should be placed supine with the airway and head in the sniffing position. For patients who need cervical spine immobilization, the head may be kept in a neutral position.
5. Insertion
   -Choose the correct size supraglottic airway based on training materials for the specific airway.
   -Ensure the device is lubricated with water-based lubricant to allow placement.
   -Hold the supraglottic device at the connector with the dominant hand. With non-dominant hand, hold open mouth and apply chin lift unless contraindicated by c-spine precautions.
   -Advance the supraglottic device into the oropharyngeal cavity, consistent with training for that specific device. Generally, this entails gentle advancement of the device along the hard palate until it 'seats' in the appropriate position.
   -Never utilize excessive force when advancing the device. If there is resistance, the device should be removed and the re-lubricated and the patient’s airway repositioned.
   -If the device requires inflation of a bulb, inflate consistent with device requirements.
6. Ventilation
   -With a BVM bag, ventilate the patient and ensure equal and adequate chest rise.
   -Ensure appropriate volume of each ventilation. Too much volume can divert air into the stomach.
7. Ongoing Use
   -End-tidal CO$_2$ detector shall be attached and used with every supraglottic airway device insertion.
   -Secure the device with tape, endotracheal tube holder or supplied securing straps.
   -If gastric lumen present, insert lubricated nasogastric tube through the gastric lumen and connect to suction to evacuate air and contents from the stomach.
   -Any patient who meets field termination requirements (other than intubation with an endotracheal tube) who can be successfully ventilated with a supraglottic airway device can be considered for field termination.

F. One-Person Bag-Valve-Endotracheal Tube (or Alternative Airway) Ventilation [BLS/ALS]
1. Attach valve of bag-valve device to end-tidal CO$_2$ sensor adapter.
2. Verify position of endotracheal tube by noting depth of incisor teeth according to centimeter (cm.) markings on tube.
3. Tube should be secured in place.
4. Ventilate the patient by using a one second ventilation which produces visible chest rise.
5. Adjust the rate of ventilations as per in-charge paramedic.
6. Constantly monitor depth of endotracheal tube, and oxygen supply. Replace oxygen supply when ¼ or less of tank is available.
7. Immediately notify paramedic of any changes in airway (e.g., bag becoming difficult to squeeze, blood/fluid visible in the tube, etc.).

G. Airway Foreign Body Removal (Adult/Adolescent) [BLS/ALS]
1. Partial Airway Obstruction in Responsive Patient
   • If the patient can cough, speak or breathe – allow the patient to attempt to clear the obstruction by forceful coughing.
   • If the patient demonstrates a weak, ineffective cough, high pitch noise while inhaling, extreme respiratory difficulty, and/or cyanosis, treat the patient as having a complete airway obstruction.
2. Complete Airway Obstruction in Responsive Patient
   • Use abdominal thrust maneuver with standing patient. If the patient is in late stages of pregnancy or the rescuer is unable to encircle the abdomen with arms, utilize chest thrusts.
   • Stand behind the victim with your arms wrapped around the patient’s waist.
   • Place the thumb side of your fist against the patient’s abdomen, in the midline slightly above the navel and well below the xiphoid process.
   • Grasp the fist with the other hand and press the fist into the patient’s abdomen with a quick inward and upward thrust.
   • Repeat the thrusts until the object is expelled or the patient becomes unresponsive.
3. Complete Airway Obstruction in an Adult Patient Who Becomes Unresponsive
   • Carefully support the patient to the ground.
   • Without a pulse check, immediately begin chest compressions followed by ventilations at a 30:2 ratio.
   • Each time the airway is opened in CPR, look for an object in the patient’s mouth and remove it if seen.
   • Position the airway and attempt to ventilate; if unable to ventilate, continue chest compressions.
   • Repeat cycles of chest compressions and ventilations at 30:2 ratio until either ventilation is successful or advanced life support measures become available.
4. Airway Obstruction if Adult Patient Found Unresponsive
   • If an adult patient is found unresponsive and with no breathing or no normal breathing (only gasping), then CPR shall be started immediately.
   • If the patient is unable to be ventilated with the BVM or supraglottic airway, then airway obstruction should be considered.
   • Chest compressions should be continued, and each time the airway is opened in CPR, look for an object in the patient’s mouth and remove it if seen.
   • Position the airway and attempt to ventilate; if unable to ventilate, continue chest compressions.
   • Repeat cycles of chest compressions and ventilations at 30:2 ratio until either ventilation is successful or advanced life support measures become available.
5. Airway Obstruction in Unresponsive Adult Patient by Advanced Life Support
   • Perform a progressive laryngoscopy until foreign body is visualized.
H. Airway Foreign Body Removal (Child/Infant) [BLS/ALS]

1. Partial Airway Obstruction
   - If the patient can cough, speak or breathe – allow the patient to attempt to clear the obstruction by forceful coughing.
   - If the patient demonstrates a weak, ineffective cough, high pitch noise while inhaling, extreme respiratory difficulty, and/or cyanosis; treat the patient as having a complete airway obstruction.

2. Complete Airway Obstruction
   - Child: Use abdominal thrust maneuver with standing child patient.
     - Stand behind the victim with your arms wrapped around the patient’s waist.
     - Place the thumb side of your fist against the patient’s abdomen, in the midline slightly above the navel and well below the xiphoid process.
     - Grasp the fist with the other hand and press the fist into the patient’s abdomen with a quick inward and upward thrust.
     - Repeat the thrusts until the object is expelled or the patient becomes unresponsive.
   - Infant / Neonate: Use a combination of back blows and chest thrusts in an infant or neonatal patient.
     - Deliver five back blows between the infant’s shoulder blades with the heel of the hand while the infant is supported in the prone position straddling the rescuer’s forearm, with the head lower than the trunk.
     - After delivering the back blows, place your free hand on the infant’s back, holding the infant’s head. Turn the infant over while the head and neck are carefully supported, and hold the infant in the supine position draped on the thigh. The infant’s head should remain lower than the trunk.
     - Give five quick downward chest thrusts in the same manner and location as chest compressions.

3. Complete Airway Obstruction in a Pediatric Patient Who Becomes Unresponsive
   - Carefully support the patient to the ground.
   - Without a pulse check, immediately begin chest compressions followed by ventilations at a 15:2 ratio.
   - Each time the airway is opened in CPR, look for an object in the patient’s mouth and remove it if seen.
   - Position the airway and attempt to ventilate; if unable to ventilate, continue chest compressions.
   - Repeat cycles of chest compressions and ventilations at 15:2 ratio until either ventilation is successful or advanced life support measures become available.

4. Airway Obstruction if Pediatric Patient Found Unresponsive
   - If an pediatric patient is found unresponsive and with no breathing or no normal breathing (only gasping), then CPR shall be started immediately.
   - If the patient is unable to be ventilated with the BVM or supraglottic airway, then airway obstruction should be considered.
   - Chest compressions should be continued, and each time the airway is opened in CPR, look for an object in the patient’s mouth and remove it if seen.
   - Position the airway and attempt to ventilate; if unable to ventilate, continue chest compressions.
   - Repeat cycles of chest compressions and ventilations at 15:2 ratio until either ventilation is successful or advanced life support measures become available.
5. Airway Obstruction in Unresponsive Pediatric Patient by Advanced Life Support
   • Perform a progressive laryngoscopy until foreign body is visualized. Insert closed Magill forceps into oral cavity, open forceps, grasp foreign body and remove.
   • It is generally advisable to intubate the patient if possible at this time.

I. CPAP - Continuous Positive Airway Pressure [ALS]
CPAP is a method of patient ventilation which provides a noninvasive continuous positive-pressure ventilation to prevent alveolar collapse. It decreases the work of breathing, enhances oxygen and carbon dioxide exchange and increases cardiac output.

1. Indications
   Mask CPAP ventilation is indicated for the treatment of impending ventilatory failure in an attempt to avoid intubation and standard mechanical ventilation. This non-invasive pressure support system seems best applied to patients whose respiratory failure is expected to quickly respond to medical therapy, as continuous mask CPAP or ventilation requires close attention. The patient shall meet all of the following criteria:
   a. Dyspnea with pulmonary edema or wheezes, or near drowning or submersion with possible aspiration
   b. An awake patient, adult or pediatric, who is able to follow commands
   c. The ability to maintain an open and protected airway and handle secretions
   d. Two or more of the following signs:
      • Respiratory rate > 24 / min.
      • Pulse Oximetry of < 94% at any time
      • Use of accessory respiratory muscles

2. Contraindications
   a. Decreased level of consciousness / Unconsciousness
   b. Unable to maintain a patent airway
   c. Pneumothorax (unilateral absence of breath sounds)
   d. Hypotension (SBP < 90 mmHg)
   e. Recent surgery to face or mouth, epistaxis, or other impediment to proper mask placement or fitting
   f. Pediatric patient who is too small for the CPAP mask to fit appropriately

3. Usage
   a. Assure patent airway.
   b. Perform appropriate patient assessment, including obtaining vital signs, pulse oximeter (SpO₂) reading and cardiac rhythm.
   c. Prior to initiation of the mask CPAP treatment, the patient must be informed of the purpose of the mask and cooperation ensured.
   d. The Mask CPAP System components are assembled (CPAP mask, tubing, pressure relief valve) and connected to the oxygen cylinder.
   e. Connect the pressure tubing and pressure relief valve to the connection port.
   f. Turn on gas supply.
   g. Verify controls are set (FiO₂).
   h. Hold the mask in place as the patient adjusts to the ventilatory support. With the mask in place, modify the CPAP System settings to optimize the patient’s ventilatory status. Titrate to effect, generally a range of 5 - 10 cm H₂O of PEEP in adults and 3 - 5 cm H₂O of PEEP in pediatric patients.
   i. Encourage the patient to breathe deeply.
   j. Adjust the mask for comfort and to minimize air leak especially about the eyes.
   k. Periodic evaluation of the patient’s status should be coupled with ongoing vital sign and
pulse oximetry measurements. Consider usage of ETCO$_2$ monitoring.

l. If patient’s anxiety level prevents patient from tolerating the device, consider contacting online medical control for sedation.

m. Monitor and document the patient’s respiratory response to the treatment.

n. Continue to coach patient to keep mask in place and readjust as needed.

o. For patients requiring nebulized medication, utilize the T-Piece to administer nebulized medicine concurrently with CPAP.

J. Needle Thoracostomy [ALS]

1. Indication
   a. Emergent treatment of a clinically unstable patient with a tension pneumothorax.
   b. A tension pneumothorax is the progressive collection of air in the pleural space with subsequent increasing pleural pressures and respiratory compromise.
   c. Treatment of a tension pneumothorax should begin as soon as it is clinically recognized.

2. Contraindications
   a. Absolute: insertion of needles through an area of infection. Select alternative insertion site.
   b. Relative: In patients being manually ventilated, use extreme caution. If the presumption of tension pneumothorax is incorrect, insertion of the needle may create a pneumothorax which, with positive pressure ventilation, can convert into a tension pneumothorax.

3. Insertion Site
   a. Primary site: Anterior approach, patient in a supine position with the head of the stretcher elevated 30°. Insertion site is the second intercostal space in the midclavicular line.
   b. Alternative site (if primary site obstructed, infected or excess musculature or obesity): Lateral approach, patient in a supine position with the head of the stretcher elevated 30°. Insertion site is the fourth/fifth intercostal space in the midaxillary line.

4. Technique
   a. Prepare needle insertion site with antiseptic solution or alcohol.
   b. Attach 10 cc syringe filled with 5 ml saline to a 14 gauge intravascular catheter.
   c. Create a flutter valve by utilizing the cut-off finger from a glove by inserting the needle through the fingertip portion prior to insertion into the chest.
   d. Palpate the third rib at the mid-clavicular line (or alternatively the sixth rib in the midaxillary line for the lateral approach. This is generally at the nipple line.).
   e. Insert the needle perpendicularly just over the upper edge (towards the head) of the rib. Ensure the needle passes over the upper edge of the rib as opposed to lower edge where the intercostal vessels lie.
   f. Gently aspirate the syringe as you advance the needle. A ‘pop’ may be felt as the pleural space is entered and air is encountered.
   g. Advance the catheter into the chest and then withdraw the needle and syringe.
   h. Secure the catheter in place with tape, being sure not to block or kink the catheter.
   i. Continue to reassess patient. If no improvement, consider persistent tension pneumothorax requiring no more than one additional catheter placement.
K. Waveform Capnography - End Tidal CO₂ Monitoring [ALS]

1. Capnography is a noninvasive method for monitoring the level of carbon dioxide in exhaled breath, to assess a patient’s ventilatory status. Capnography is also an indirect measure of circulatory status/cardiac output of the patient. End Tidal CO₂ Monitoring on the LifePak 15 provides both a numeric ETCO₂ value and a waveform. Normal ETCO₂ is 35 - 45. End Tidal CO₂ monitoring can be performed with either the nasal cannula or ET Tube connector devices.

2. There is a good concordance with the partial pressure of CO₂ in the blood and the ETCO₂. This can help provide a quicker detection of acute respiratory events than pulse oximetry would otherwise indicate.

3. Indications : Optional
   a. Respiratory assessment - By physical exam alone, it is not always clear if a patient is having an exacerbation of asthma/COPD, CHF or a cardiac presentation. In obstructive respiratory diseases (asthma/COPD), the ETCO₂ waveform will have a sloping upward plateau similar to a shark’s fin appearance. In cardiac disease (“cardiac wheezing”), there will be a normal plateau along with a likely increased ETCO₂ value.

   ![Image of ETCO₂ waveforms](image)

   b. CPAP adjustment - ETCO₂ can assist in determining the most effective level of PEEP for a patient requiring CPAP. As PEEP increases, oxygenation increases and the ETCO₂ value will decrease. Too much PEEP can be detrimental however, worsening oxygenation. As this point is reached, the ETCO₂ value will increase and the pulse oximetry will decrease.

   c. To measure quality of chest compressions - ETCO₂ is reflective of the cardiac output achieved while a patient is receiving chest compressions. While no specific value can be obtained in any specific patient, a decrease in ETCO₂ over a period of chest compressions should draw concern to proper chest compression technique, specifically rate and depth.

4. Indications : Mandatory
   a. Airway Maintenance Confirmation - All patients having their airway and breathing maintained by ALS with either a BVM, Supraglottic airway, or Endotracheal Intubation shall have ETCO₂ monitored to ensure successful airway control, both initially and throughout the duration of care of that patient.

   b. Assessment of Sedation - In patients sedated by drugs or alcohol, or those sedated by HFD narcotic or benzodiazepine therapy, ETCO₂ monitoring provides a gauge of their ventilatory status. With an ETCO₂ within normal values, the patient is in less respiratory compromise than the patient whose ETCO₂ is elevated or becoming progressively elevated indicating hypoventilation. This information can be used as a guide to therapy of a patient with regard to both nalaxone administration as well as potential repeat dosages of narcotics or benzodiaepines.

L. Neonatal / “Newly Born” [BLS/ALS]

1. Bulb suctioning is indicated immediately following birth for those neonates who have obvious obstruction to spontaneous breathing or who require BVM ventilations.
2. Deep suctioning of the airway with an endotracheal tube is no longer recommended. Standard bulb suctioning alone is recommended to remove any secretions present.
3. Because the neonate is an obligate nose breather, it is advisable to suction once through each nostril to ensure patency of the upper airway.

7.03 Medication Administration
A. Airway Administration – Direct [ALS]
1. Administration of medication via the airway (other than nebulized medicine) should be the method of last resort. Proceed with this method only if intravenous access and intraosseous access is unobtainable. No medication shall be administered via a supraglottic airway.
2. Epinephrine, Lidocaine, Atropine and Narcan can be administered directly into the airway via an endotracheal tube.
3. Epinephrine 2 mg (1:1000) will be diluted with 3 ml normal saline, sprayed quickly down the endotracheal tube, followed immediately with at least two quick inflations. For pediatric patients use 0.1 mg/kg (1:1000) epinephrine, not to exceed 2 mg. Produce a minimum volume of 2 ml, so dilute with normal saline as needed.
4. Lidocaine 3 mg/kg will be sprayed quickly down the endotracheal tube, followed immediately with at least two quick inflations. For pediatric patients, use 2 mg/kg.
5. Atropine (multi-dose vial) 1 mg will be sprayed quickly down the endotracheal tube, followed immediately with at least two quick inflations. For pediatric patients, use 0.04 mg/kg, not to exceed 2 mg. Dilute with 2 ml normal saline. It is not to be given to neonates unless ordered by on-line physician.
6. The Narcan endotracheal dosage is the same as its IV/IO dosage.

B. Airway Administration – Aerosol [BLS/ALS]
1. Pour medication from storage bottle into medication cup portion of nebulizer and reattach lid.
2. Turn on oxygen and adjust flow rate to generate a mist coming out of the nebulizer.
3. Place the nebulizer mask over the patient’s mouth and instruct the patient to breathe as deeply as possible.
4. For intubated patients, remove the facemask from a nebulizer chamber. Cut a small hole in the oxygen reservoir bag on the BVM and hold the misting port of the nebulizer into the small hole. Secure the misting port with tape. Continue to squeeze the BVM to ventilate the patient.
5. For patients with CPAP therapy, utilize the T-Piece to administer nebulized medications.
6. EMT’s shall administer Albuterol only to patients who routinely use Albuterol for treatment of their asthma or COPD exacerbations.
7. Albuterol and Ipratropium Bromide can be mixed together in the medication cup portion of the nebulizer if both medications are to be administered.

C. Intraosseous – EZ-IO® [ALS]
1. Indications
   a. Inability to obtain an IV after two attempts.
   b. Patient is unconscious, seizing or suffering from cardiac or respiratory arrest.
   c. Patient has no contraindications to IO placement.
   d. Only with approval of online medical control, an EZ-IO® may be placed in a conscious or semi-conscious patient who requires emergent medical therapy. Contact medical control early for these situations.
2. Contraindications
   a. Fracture of the humerus, tibia or fibula. Consider the opposite side if not fractured.
   b. Previous orthopedic procedures (i.e. knee replacement) at site.
c. Any infection over the insertion site.
d. An extremity that is compromised by a pre-existing medical condition such as tumor or peripheral vascular disease.
e. Inability to locate anatomical landmarks.
f. Excessive tissue over the insertion site. This can be determined by powering the needle set through the skin and up to but not into the bone. At this point, the 5 mm mark (black line closest to the hub) on the EZ-IO catheter should be visible. If this mark is not visible, then there is excessive tissue over the site.

3. Insertion Site Identification – Humeral Head (Preferred for adults)
   a. Patient should be in the supine position.
   b. Expose shoulder and adduct humerus (place patient’s arm against patient’s body) leaving elbow resting on the stretcher or ground. (With the patient in this position you may note the humeral head on the anterior-superior aspect of the upper arm or lateral shoulder).
   c. Identify the acromion or “bump” on the patient’s shoulder. Identification of the anterior aspect of the acromion can be accomplished by placing one hand on the lateral superior aspect of the patient’s shoulder and palpating for the protrusion. Identifying the acromion can also be accomplished by “walking” your index and middle finger along the clavicle to the shoulder’s lateral end.
   d. Identify the greater tubercle insertion site two finger widths inferior to the anterior aspect of the acromion. One can envision the location of this site by creating an inverted triangle. – The base of this triangle should be running between two points on the lateral shoulder or “scapular hood” (the coracoid process & the acromion) and one point inferior by two finger widths.
   e. Confirm identification and level of the greater tubercle insertion site. Leave one finger on the insertion site as defined in step d. above. Use your free hand to grasp and then flex the patient’s forearm 90 degrees – leaving the adducted elbow resting on the stretcher or ground. Rotate the forearm laterally then medially using the elbow as the axis point. This process will allow you to positively identify the intertubercular sulcus or groove (a key confirmation point), which is located between the greater and lesser tubercle. The insertion site is one finger width lateral to the intertubercular groove.
   f. Place the patient’s forearm on their abdomen (leaving the elbow on the ground or stretcher). Following this final medial rotation your finger will once again be resting on the greater tubercle insertion site – Two finger widths inferior to the acromion and one finger width lateral to the intertubercular groove.
   g. Important: Superior to the greater tubercle insertion site is the bursa (tissue surrounding the humeral joint). Located within the intertubercular groove are tendons. Medial to the lesser tubercle (and a safe distance from the insertion site) are vessel and nerves. For this reason it is important that you do not attempt insertion of any IO device without positive, confirmed identification of the greater tubercle and the intertubercular groove.
   h. Do not attempt insertion medial to the greater tubercle at any time.

4. Insertion Site Identification – Proximal Tibia (Preferred for pediatrics, Backup for adults)
   a. Locate the patella on the front surface of the leg just below the femur.
   b. Locate the tibial tuberosity, 2 finger widths below the patella.
   c. The proper insertion site is the flat part of the tibia, approximately 2 cm medial to the tibial tuberosity.

5. Insertion
   a. Locate the insertion site as described above.
   b. Clean the insertion site with an alcohol swab.
   c. Open the EZ-IQ® case and remove the driver and one EZ-IQ® cartridge. Ensure usage of
the Pink Pediatric cartridge for pediatric patients or the Blue Adult cartridge or the Extra Large needle for adult patients. Open the cartridge and attach the needle set to the driver. Remove the needle set from the cartridge and remove the safety cap from the needle.

d. Holding the EZ-IO® in one hand, stabilize the patient near the insertion site. Position the driver at the insertion site with the needle at a 90 degree angle to the surface of the bone.

e. Insert the needle set into the skin at the insertion site until you feel the needle set tip encounter the bone itself. Verify the 5 mm mark is visible on the needle.

f. Apply firm and steady pressure on the driver and power through the cortex of the bone, ensuring the driver is maintained at a 90 degree angle at all times.

g. Stop with the needle flange touches the skin or a sudden decrease in resistance is felt. This indicates entry into the bone marrow cavity.

h. While supporting the needle set in one hand, gently pull straight up on the driver and lift away to remove the driver. Return the driver to its case.

i. While grasping the hub firmly with one hand, rotate the stylet counter-clockwise, pulling the stylet out of the catheter and place it into the empty cartridge. Discard it into a biohazard sharps container.

j. Proper placement of the IO catheter tip can be confirmed through the following:
   •The IO catheter stands straight up at a 90 degree angle and is firmly seated in the bone.
   •Blood at the tip of the stylet.
   •Aspiration of a small amount of bone marrow with a syringe.
   •A free flow of drugs or fluid without difficulty and with no evidence of extravasation underneath the skin.

k. If the insertion fails confirmation or cannot be flushed, remove and dispose of the needle set. Repeat the procedure in the opposite arm or leg.

l. Attach the primed EZ-Connect extension set to the EZ-IO® hub.

m. For unconscious patients, flush with 5-10 ml Normal Saline.

n. For conscious or semi-conscious patients, administer IO Lidocaine [40 mg in adults, 0.5 mg/kg (max of 40mg) in pediatric patients] into the intraosseous space, over 60 seconds, to provide pain relief. After lidocaine, flush with 5-10 ml Normal Saline.

o. Administer the infusion or medication as per protocol or online medical direction. A pressure infuser (or BP cuff) can be used to maintain adequate flow rates.

p. Apply the wristband to the patient and secure the EZ-IO® as an impaled object.

6. Removal
   a. Attach a sterile syringe to the catheter hub.
   b. Support the patient’s arm or leg while rotating the catheter clockwise and gently pull out the catheter while maintaining a 90 degree angle.
   c. Place removed catheter in a biohazard sharps container.
   d. Dress the insertion site with an appropriate dressing.

7. Cleaning and Disinfecting
   a. Wipe clean with moistened cloth. Remove large contaminants.
   b. Spray with antimicrobial solution, following the solution instructions.
   c. Momentarily depress trigger several times during cleaning.
   d. Clean around drive shaft with cotton applicator as needed and wipe driver dry.
   e. Inspect driver and return to case.
   f. Never submerge the EZ-IO® driver in any liquid at any time.

D. Intranasal (IN) - Mucosal Atomization Device

1. Intranasal administration of medication is performed by the atomization of medication to 30 micron particle size which adheres to the nasal mucosa over a larger surface area allowing for
effective absorption.
2. Half the medication volume should be administered in each nostril with no more than 1.0 ml administered per nostril.
3. Airborne PPE should be worn when administering medication via this route due to a sneeze reflex in conscious patients.

7.04 Cardiac Electrical Therapy
A. Automated External Defibrillator [BLS/ALS]
1. Apply the AED to all pulseless patients suspected of cardiac arrest.
2. Contraindications:
   a. Patient with a pulse
   b. Patient meets obviously dead criteria (Ref. 8.02 A.2.c.)
3. Use with these types of trauma patients:
   a. Trauma secondary to cardiac arrest (i.e., MVI with minor vehicle damage and patient in cardiac arrest).
   b. Traumatic arrests being resuscitated according to Cardiac Arrest Protocols (Ref. 8.04 A.1.f.).
4. To attach defibrillator:
   b. Bare the patient’s chest. Shave the chest of any excessive chest hair.
   c. For patients less than 8 years of age, use the ‘Infant/Child’ AED pads. For all others, use the standard adult AED pads.
   d. Place the pads in accordance with the pictures on the AED pad packaging.
      • For adults, place the ‘anterior’ pad on the patient’s upper right torso, lateral to the sternum and below the clavicle. Place the ‘lateral’ pad lateral to the patient’s left nipple with the center of the electrode in the midaxillary line.
      • For pediatric patients, place the pads in an anterior and posterior fashion.

   ADULT PATIENTS   PEDIATRIC PATIENTS

   e. If the AED pads contain a CPR sensor, ensure it is placed over the sternum consistent with package labeling.
   f. Connect the electrodes to the AED.
5. There are three possible messages after the AED has performed an analysis:
   a. If the AED detects a shockable rhythm, it will emit the charging tone and state “Stand Clear. Push Shock Button.” Immediately clear from the patient and depress the shock button. Chest compressions shall resume immediately after the defibrillation without a pulse check.
   b. If the AED detects a non-shockable rhythm, it will state “No Shock Advised. Start CPR.”
   c. After three minutes, the defibrillator will prompt, “Stand Clear. Analyzing Now. Stand Clear.” and the analysis will begin automatically.
   d. If at any time motion interferes with the analysis, the AED will state “Motion Detected. Stop Motion.” Make certain no one is touching the patient, wires or device. The device will automatically analyze when the motion stops.
6. If the patient loses pulses at any time (an EMS witnessed arrest), immediately initiate an AED analysis by pressing the right soft-key.

7. Documentation of AED use
   a. Record comments about the incident regarding AED use, bystander CPR and other therapies in the patient care record.
   b. AED information shall be downloaded as soon as possible (Ref. 9.04 Procedure for Downloading AED and LifePak 15 Data).

B. Synchronized Cardioversion [ALS]
   1. Select the protocol-determined energy setting on the defibrillator unit.
   2. Push the synchronizer button and verify that the device is sensing QRS complexes.
   3. Place the pads in accordance with the pictures on the electrode pad packaging (Ref. 7.04 A.4.d.).
   4. If ‘Adult’ AED pads have been attached, they shall be connected directly to the LP15 (via an AED pad adaptor if necessary). If ALS arrives and ‘Infant/Child’ AED pads have been attached, they must be removed and replaced with the salmon label ‘Pediatric’ LP15 electrode pads.
   5. Clear the area around the patient by loudly stating, “Clear! I’m clear, you’re clear, everybody’s clear” while visually verifying that you and all other persons are clear of the patient.
   6. Push and hold the “shock” button on the defibrillator unit until the cardioversion has occurred.

C. Defibrillation [ALS]
   1. Select the protocol-determined energy setting on the defibrillator unit.
   2. Place the pads in accordance with the pictures on the electrode pad packaging (Ref. 7.04 A.4.d.).
   3. If ‘Adult’ AED pads have been attached, they shall be connected directly to the LP15 (via an AED pad adaptor if necessary). If ALS arrives and ‘Infant/Child’ AED pads have been attached, they must be removed and replaced with the salmon label ‘Pediatric’ LP15 electrode pads.
   4. Clear the area around the patient by loudly stating, “Clear! I’m clear, you’re clear, everybody’s clear” while visually verifying that you and all other persons are clear of the patient.
   5. Push the “shock” button on the defibrillator unit.

D. Cardiac Pacing – Transthoracic [ALS]
   1. Place the pads in accordance with the pictures on the electrode pad packaging (Ref. 7.04 A.4.d.).
   2. If ‘Adult’ AED pads have been attached, they shall be connected directly to the LP15 (via an AED pad adaptor if necessary). If ALS arrives and ‘Infant/Child’ AED pads have been attached, they must be removed and replaced with the salmon label ‘Pediatric’ LP15 electrode pads.
   3. Connect the cardiac monitor limb leads to the patient.
   4. Turn on the pacemaker function and observe the ECG monitor screen to verify that the device is properly sensing the QRS complexes.
   5. Set the initial pacing rate at 60 beats per minute and set the electrical current at the minimal setting.
   6. Activate the pacemaker by pushing the appropriate button.
   7. Adjust the electrical current upward in 3 second increments until mechanical capture has been obtained. Then, increase it by approximately 10% to maintain a threshold.
   8. Remember, it is safe to touch the patient during pacing.
   9. To determine capture, feel for carotid or femoral pulse. This may be difficult to assess with the
muscle contractions caused by pacing. Additionally, return of pulses should increase the end-tidal CO$_2$, so it may be used as a guide towards return of circulation.

10. If there is no mechanical capture (production of pulses) within 20 to 30 seconds of attempted pacing, discontinue the attempt at pacing.

7.05 Cardiopulmonary Resuscitation [BLS/ALS]

### Table 7-8: CPR Parameters, All Ages

<table>
<thead>
<tr>
<th>Category</th>
<th>Age Range</th>
<th>Ventilation Rate</th>
<th>CPR Ratio</th>
<th>Chest Compression Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neonate</td>
<td>&lt; 1 hr of age</td>
<td>40 - 60 / min</td>
<td>3 : 1</td>
<td>120 / min</td>
</tr>
<tr>
<td>Infant</td>
<td>1 hr to &lt; 1 year</td>
<td>12 - 20 / min</td>
<td>15 : 2</td>
<td>100 / min</td>
</tr>
<tr>
<td>Child</td>
<td>1 year to &lt; 8 years</td>
<td>12 - 20 / min</td>
<td>15 : 2</td>
<td>100 / min</td>
</tr>
<tr>
<td>Adolescent</td>
<td>8 years to &lt; 16 years</td>
<td>8 - 10 / min</td>
<td>30 : 2</td>
<td>100 / min</td>
</tr>
<tr>
<td>Adult</td>
<td>≥ 16 years</td>
<td>8 - 10 / min</td>
<td>30 : 2</td>
<td>100 / min</td>
</tr>
</tbody>
</table>

A. Neonatal / “Newly Born” CPR (Less than 1 hour of age)

1. Upon birth, follow 8.03 P. Childbirth - Emergency (Neonate/"Newly Born"). Upon the indication for chest compressions, position the neonate face-up on a flat, firm surface. Place a folded towel under the shoulders to prevent further flexion of the neck and resultant obstruction of the airway.

2. Place the neonate’s head in a neutral position. Do not hyperextend the neonate’s head and neck as this may collapse the airway. If trauma is suspected, use the jaw thrust maneuver.

   a. Compress the chest with two hands encircling the chest and compressing the chest with two thumbs on the lower third of the sternum just below the nipple line.
   b. Compress the sternum at least 1/3rd the depth of the chest.
   c. Provide 3 chest compressions (at a rate of 120 per minute) to 1 ventilation.
   d. “Push hard, push fast.” Allow complete recoil of the chest wall between compressions and minimize interruptions of chest compressions.

6. To ventilate, maintain a patent airway and deliver 1 breath with an infant BVM. Maintain a seal using the appropriate sized facemask around the patient’s nose and mouth. Deliver each rescue breath over 1 second and give a sufficient volume to just produce visible chest rise.

7. Any and all umbilical pulse checks should take no more than 10 seconds, and if a pulse is not definitely felt within 10 seconds, chest compressions should be restarted.

8. If there is an umbilical pulse > 60 / min., continue with rescue breaths at a rate of 40-60 per minute with frequent checks to ensure pulse remains.

B. Infant CPR (1 hour to < 1 year of age)

1. Assess unresponsiveness – shout loudly and attempt to stimulate patient. If unresponsive, make certain the appropriate resources are responding.

2. Position the infant face-up on a flat, firm surface. Place a folded towel under the shoulders to prevent further flexion of the neck and resultant obstruction of the airway. Open the airway using a gentle head tilt-chin lift maneuver. Do not hyperextend the infant’s head and neck as this may collapse the airway. If trauma is suspected use the jaw thrust maneuver.

3. Assess breathing - is there no breathing visible or no normal breathing (only gasping)?

4. If the patient is unresponsive with no breathing or no normal breathing (only gasping),
immediately begin CPR with chest compressions first.

5. Begin chest compressions.
   a. Compress the chest with two hands encircling the chest and compressing the chest with two thumbs on the lower third of the sternum just below the nipple line.
   b. Compress the sternum at least 1/3rd the depth of the chest or 1.5 inches.
   c. Provide 15 chest compressions (at a rate of 100 per minute) to 2 ventilations.
   d. “Push hard, push fast.” Allow complete recoil of the chest wall between compressions and minimize interruptions of chest compressions.

6. To ventilate, maintain a patent airway and deliver 2 breaths with an infant BVM. Maintain a seal using the appropriate sized facemask around the patient’s nose and mouth. Deliver each rescue breath over 1 second and give a sufficient volume to just produce visible chest rise.

7. Any and all pulse checks should take no more than 10 seconds, and if a pulse is not definitely felt within 10 seconds, chest compressions should be restarted.

8. If there is a pulse, continue with rescue breaths at a rate of 12-20 per minute with frequent checks to ensure pulse remains.

9. If an advanced airway is placed (ET Tube), convert to continuous chest compressions at a rate of 100/minute without pauses for ventilations. Ventilations should be provided at a rate of 8-10 per minute (every 6-8 seconds) on the upstroke of a chest compression.

C. Child CPR (1 year to < 8 years of age)

1. Assess unresponsiveness – shout loudly and attempt to stimulate patient. If unresponsive, make certain the appropriate resources are responding.

2. Position the patient face-up on a flat, firm surface and open the airway using a gentle head tilt-chin maneuver. If trauma is suspected, use the jaw thrust maneuver.

3. Assess breathing - is there no breathing visible or no normal breathing (only gasping)?

4. If the patient is unresponsive with no breathing or no normal breathing (only gasping), immediately begin CPR with chest compressions first.

5. Begin chest compressions.
   a. Compress the chest with the heel of one or both hands over the lower third of the sternum at the nipple line.
   b. Compress the sternum at least 1/3rd the depth of the chest or 2 inches.
   c. Provide 15 chest compressions (at a rate of 100 per minute) to 2 ventilations.
   d. “Push hard, push fast.” Allow complete recoil of the chest wall between compressions and minimize interruptions of chest compressions.

6. To ventilate, maintain a patent airway and deliver 2 breaths with a child BVM. Maintain a seal using the appropriate sized facemask around the patient’s nose and mouth. Deliver each rescue breath over 1 second and give a sufficient volume to just produce visible chest rise.

7. Any and all pulse checks should take no more than 10 seconds, and if a pulse is not definitely felt within 10 seconds, chest compressions should be restarted.

8. If there is a pulse, continue with rescue breaths at a rate of 12-20 per minute with frequent checks to ensure pulse remains.

9. If an advanced airway is placed (ET Tube or Supraglottic Airway), convert to continuous chest compressions at a rate of 100/minute without pauses for ventilations. Ventilations should be provided at a rate of 8-10 per minute (every 6-8 seconds) on the upstroke of a chest compression.
D. Adolescent (8 years of age to <16 years) / Adult CPR (16 years of age or greater)
1. Assess unresponsiveness – shout loudly and attempt to stimulate patient. If unresponsive, make certain the appropriate resources are responding.
2. Position the patient face-up on a flat, firm surface and open the airway using a gentle head tilt-chin maneuver. If trauma is suspected, use the jaw thrust maneuver.
3. Assess breathing - is there no breathing visible or no normal breathing (only gasping)?
4. If the patient is unresponsive with no breathing or no normal breathing (only gasping), immediately begin CPR with chest compressions first.
5. Begin chest compressions.
   a. Compress in the center of the chest midline at the nipple line with the heel of one hand and the other hand on top.
   b. Compress the sternum at least 2 inches deep for each compression.
   c. Provide 30 chest compressions (at a rate of 100 per minute) to 2 ventilations.
   d. “Push hard, push fast.” Allow complete recoil of the chest wall between compressions and minimize interruptions of chest compressions.
6. To ventilate, maintain a patent airway and deliver 2 breaths with an adult BVM. Maintain a seal using the appropriate sized facemask around the patient’s nose and mouth. Deliver each rescue breath over 1 second and give a sufficient volume to just produce visible chest rise.
7. Any and all pulse checks should take no more than 10 seconds, and if a pulse is not definitely felt within 10 seconds, chest compressions should be restarted.
8. If there is a pulse, continue with rescue breaths at a rate of 8-10 per minute with frequent checks to ensure the pulse remains.
9. If an advanced airway is placed (ET Tube or Supraglottic Airway), convert to continuous chest compressions at a rate of 100/minute without pauses for ventilations. Ventilations should be provided at a rate of 8-10 per minute (every 6-8 seconds) on the upstroke of a chest compression.

7.06 Hemorrhage Control [BLS/ALS]
A. Direct Wound Care
   1. Use proper body substance isolation precautions.
   2. Remove any sharp, loose fragment of glass or other foreign substance which, if pressed upon, could result in further injury to the patient or rescuer.
   3. Impaled objects should not be removed, but should be stabilized in place to prevent further movement or deeper insertion.
   4. Cover the bleeding site with several gauze dressings so that their edges extend at least slightly beyond the edges of the wound.
   5. While firmly holding the limb/body with one hand so that it will not move, apply firm pressure directly over the wound with the palm of the other hand. To be most effective, pressure should be directed so that the injured vessels lie between where the pressure is applied and an underlying bone.
   6. Elevate the limb such that the wound is above the level of the heart.

B. Tourniquet Use
   1. Use of a tourniquet should only be considered in the setting of life threatening exsanguination from an extremity when direct pressure and elevation have failed to control the bleeding.
   2. Use either a commercially produced tourniquet or a blood pressure cuff as the tourniquet. The tourniquet should be placed proximal to the wound, leaving at least two inches of uninjured skin between the tourniquet and the wound. Do not place over the knee or elbow.
3. If using a blood pressure cuff, inflate the cuff sufficiently to stop the hemorrhage. Wrap 2 strips of one-inch tape all the way around the cuff to secure the cuff.

4. If one tourniquet does not stop the bleeding sufficiently, place a second tourniquet proximal to the first tourniquet.

5. Mark the time the tourniquet was applied on a piece of tape, placed on the patient’s forehead. Use ‘TK’ to indicate the significance of the time. Example: TK 1330 hrs.

7.07 Extremity Splinting Skills [BLS/ALS]

A. Repositioning Injured Extremities

1. Injured extremities with apparent fractures should be repositioned only if there is loss of signs of circulation, loss of sensation distal to the deformity, or if it is necessary in order to otherwise care for and transport the patient.

2. Firmly grasp the joint immediately proximal and immediately distal to the injured section and apply opposing manual traction – pulling both joints until the injured section is aligned into an approximately straight line.

3. When repositioning an injured JOINT, traction is generally not required. The distal bone is simply returned to a normal appearing neutral position.

4. After an injury has been repositioned, confirm presence of pulses and sensation in the distal portion.

5. After an injury has been repositioned, the joint above and below, as well as the injured section, should be immobilized.

B. Use of Splints

1. The primary objective of field care for suspected fractures is to provide a rigid external support along the entire length of the injured bone.

2. Splints will be used of sufficient length or design, to allow the member to secure and immobilize the adjacent proximal joint, the injured bone, and the adjacent distal joint.

3. After an injury has been immobilized, confirm the presence of distal pulses or capillary refill less than 2 seconds, and normal sensation.

C. Use of Traction Splints

1. Traction splints are used primarily for treatment of suspected closed, mid-shaft femur fractures. The largest muscle mass in the human body surrounds the length of the femur. Application of traction reduces the muscle spasm associated with a fractured femur and eliminates much of the pain. It causes alignment of the bone fragments, reduces/controls bleeding and shock, and prevents further nerve, vascular and tissue damage.

2. The Sager® splint is designed for use on adult and pediatric patients. It also can be used on single and bilateral femur fractures.

3. Position splint shaft between the patient’s legs, resting the cushion against the ischial tuberosity and apply the thigh strap.

4. Note the absence or presence of distal pulses. Check for sensation.

5. Remove shoe(s), if possible, and apply the ankle harness. Shorten the ankle sling length, as needed.

6. Apply gentle traction to the injured extremity by extending the splint shaft. The recommended pressure should be 10% of the patient’s body weight per fractured femur up to 15 pounds.

7. At the hollow of the knees, gently slide the elastic leg cravats through the space, slide to the appropriate position, and secure. Recommended areas to secure are the mid-shaft, the lower legs, and the ankles.

8. After immobilization, confirm the presence of distal pulse/capillary refill of less than 2
seconds, and normal sensation.

9. Contraindications of a traction splint associated with a femur fracture:
   • Pelvic fracture.
   • Bone fragments sticking through the skin.
   • Supracondylar fractures of the distal end of the femur.
   • Fractures of the ankle and foot.
   The above fractures should be splinted as found.

7.08 Eye Irrigation [BLS/ALS]
   A. Indication
      1. Treatment of chemical injury to the eye. Serious chemical injury requires irrigation at the site
         of the injury, before the patient is brought to the emergency department.
      2. Indicated for all acute chemical injuries to the eyes.
   B. Contraindication
      1. None, but care should be given in cases of possible perforating injury to the eye. Do not apply
         pressure to the eye in this circumstance.
   C. Technique
      1. Attach a one liter normal saline bag to IV tubing.
      2. During irrigation, the eyelids must be open. Utilization of 4x4 gauze to open eyelids may be
         helpful.
      3. Open the IV tubing, allowing saline to flow. Direct the gentle stream onto the sclera (white
         part) of the eye, letting the entire eye be rinsed. Avoiding pointing the saline flow directly at the
         iris/pupil.
      4. It is recommended to irrigate acid injuries to the eye for a minimum of 5 minutes and to
         irrigate alkali injuries to the eye a minimum of 15 minutes.

7.09 Radio Report [BLS/ALS]
   A. Give a full verbal report when contacting the Base Station. A full report consists of the following
      information, in this order:
      • Unit number.
      • Hospital destination with ETA.
      • Age and sex of patient.
      • Chief complaint.
      • History of present illness or method of injury.
      • Past medical history (include medication/allergies).
      • Vital Signs.
      • Level of consciousness (AVPU method).
      • Glasgow Coma Score.
      • Physical Exam with Neurological Findings.
      • Diagnostics (i.e., Pulse Ox, Glucose level, 12 lead ECG).
      • All interventions performed or medications given prior to contact and patient response. Give a
        similar report to the medical personnel at the receiving facility.
8.01 through 8.04 are for both Adult and Pediatric Patients. If not specified “ADULT ONLY” or “PEDIATRIC ONLY”, each protocol is applicable to both Adult and Pediatric patients.

Adult Protocols for patients ≥ 16 years of age or any age weighing ≥ 40 kg. Pediatric Protocols for patients < 16 years of age and who are < 40 kg.

Table 8-1: Patient Age Distributions

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neonate</td>
<td>“Newly Born” ≤ 1 hour old</td>
</tr>
<tr>
<td>Infant</td>
<td>≥ 1 hour old and &lt; 1 year old</td>
</tr>
<tr>
<td>Child</td>
<td>≥ 1 year old and &lt; 8 years old</td>
</tr>
<tr>
<td>Adolescent</td>
<td>≥ 8 years old and &lt; 16 years old</td>
</tr>
<tr>
<td>Adult</td>
<td>≥ 16 years old</td>
</tr>
</tbody>
</table>

Table 8-2: Normal Vital Signs by Age Group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Respiratory Rate / Min.</th>
<th>Pulse / Min.</th>
<th>Systolic BP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neonate</td>
<td>30-60</td>
<td>120-160</td>
<td>≥ 70</td>
</tr>
<tr>
<td>Infant</td>
<td>25-40</td>
<td>120-160</td>
<td>≥ 70</td>
</tr>
<tr>
<td>Child</td>
<td>20-30</td>
<td>80-120</td>
<td>70 + (age in yrs. x 2)</td>
</tr>
<tr>
<td>Adolescent</td>
<td>15-20</td>
<td>60-110</td>
<td>90-120</td>
</tr>
<tr>
<td>Adult</td>
<td>8-12</td>
<td>60-100</td>
<td>90-140</td>
</tr>
</tbody>
</table>

Table 8-3: Signs of Poor Perfusion: Pediatric

- Weak Pulses
- Capillary Refill > 3 Seconds
- Mottled or Cool Skin
- Altered Mental Status
- Hypoxia

For the Treatment Flowcharts, Medication Therapies Are Indicated as Shown:

**NOTE**

Any patient ≥ 40 Kg receives the adult dose.

No pediatric medication dose shall exceed the standard adult dose.
8.01 General Principles for Protocols / Standing Orders  
(Appplies to ALL Protocol/Standing Orders; Adult/Pediatric, Trauma/Medical)

A. BLS / ALS Level  
1. The BLS portion of the following flowchart guidelines apply to all members assigned to emergency operations and special operations while on duty for the Houston Fire Department.  
2. The ALS portion of the following guidelines apply only to those members credentialed to function as paramedics by the Physician Director of EMS for the City of Houston, while they are assigned to EMS duties and intended to function as a paramedic.  
3. Upon arrival to scene, evaluate for personal safety (goggles, gloves, mask, etc.).  
4. Perform Baseline Assessment (Ref. definition 3.09 and Ref. 7.01 “Patient Assessment”)  
5. “First Do No Harm” (is the indication for what you are about to do still there?).  
6. Never underestimate the importance of basics (ABC’s). Whenever a patient deteriorates without apparent reason, re-evaluate per C-A-B or A-B-C if age < 8 years old.  
7. When in doubt, shout (Contact EMS Supervisor, Base Station, on-call physician).  
8. All patients shall be moved and/or transported in a safe manner in accordance with the “Standard of Care for Patient Movement” guideline.

B. ALS Level  
1. The standing orders allow paramedics to change between treatment protocols. Paramedics are permitted to change the treatment plan from one standing order to another once prior to consulting with an on-line physician. Appropriate treatment of a patient may require the use of more than one protocol simultaneously. All members should employ their best clinical skills with complex medical patients and are encouraged to contact on-line medical control for further guidance.  
2. Within each treatment protocol, ALS providers are responsible for any indicated treatments or evaluations which are listed under both the BLS and ALS sections of the flowchart.  
3. If at any time a pulsing patient should unexpectedly deteriorate into cardiac arrest, HFD personnel are to immediately begin resuscitative measures in accordance with these protocols and may continue to do so while making contact with the on-line physician.  
4. Administration of medications via the IV route is often preferred over any other route (See B.6.). As an alternative to IV, intraosseous access (IO) can be initiated if available. As a last resort, endotracheal (ET) administration of medication should be performed. Medications should only be administered via ET when an IV or IO cannot be established. Drugs shall not be administered via a supraglottic airway device.  
5. Throughout the protocols, medications specified as intravenously given may be given via the intraosseous route at the same dosage as the intravenous route.  
6. Intranasal administration (IN) of medications is preferred if indicated for that specific medication. In cases of potential needle-stick hazards, IN administration may be preferred.  
7. It is the responsibility of the paramedic to contact the Base Station in ample time so there is no delay in patient care waiting for an on-line physician. In other words, contact the Base Station prior to the last allowed steps of the standing orders.  
8. The LifePak 15 and AED downloads are considered part of the quality improvement process and shall be down-loaded from each LifePak 15 and AED to HFD EMS headquarters for each case requiring CPR, electroshock therapy, 12 lead ECG, or intubation (Ref 9.04 Procedure for Downloading AED and LifePak 15 Data).
8.02 Cardiac Arrest Emergencies

A. General Principles for Cardiac Arrest Emergencies ..................................................III-4
B. Unresponsive Patient ..................................................................................................III-6
C. Pulseless Patient - BLS First on Scene .................................................................III-8
D. Pulseless Patient - ALS First on Scene .................................................................III-10
E. Cardiac Arrest Resuscitation..................................................................................III-12
8.02 A. General Principles for Cardiac Arrest Emergencies

1. Cardiac Arrest Emergencies Philosophy/Practices
   a. Cardiac arrest resuscitations are a team effort by the members of the Houston Fire Department. Each and every level of care is essential to the success of resuscitation. Properly performed and managed BLS skills will resuscitate some cardiac arrest patients and provide the necessary groundwork for the ALS resuscitation of the others. HFD members involved in a cardiac arrest resuscitation shall know their tasks beforehand and work in sync with other HFD members.
   b. **Chest compressions are believed to be the most vital task in a cardiac arrest resuscitation.** Any interruption in chest compressions shall be minimal and members on scene should verbalize to all present when chest compressions have been discontinued for more than 10 seconds.
   c. Airway management remains an important part of cardiac arrest management. There is a decreased demand in the amount of ventilation and oxygenation a pulseless patient requires. Additionally, studies have shown that hyperventilation is detrimental to the successful resuscitation of a cardiac arrest patient because the increased intrathoracic pressure produced by hyperventilation decreases perfusion to the heart. Therefore, be extremely mindful of ventilation rates and volumes.
   d. **Airway Management**
      • **Adults**: Initial airway management will be performed with Bag Valve Mask ventilation. A supraglottic airway will be inserted (if the appropriate size is available) as soon as possible during the initial stages of resuscitation. If these methods fail, proceed with endotracheal intubation ensuring no interruption in chest compressions. Assuming successful ventilations with the supraglottic airway, securing of the airway via an endotracheal tube shall be performed at an appropriate point later in the resuscitation effort that will allow the individual performing the intubation to do so in a controlled, focused fashion. It is unacceptable to interrupt chest compressions more than momentarily while performing endotracheal intubation. Appropriate periods to endotracheally intubate include: 1) patient acquires return of spontaneous circulation, 2) prolonged unsuccessful resuscitative efforts prior to a transport or 3) when directed to intubate by the EMS Supervisor or on-line EMS Physician. Bilateral breath sounds shall be confirmed and EtCO$_2$ detector, when available, shall be connected to confirm ventilation.
      - In cases of sole respiratory arrest (pulses present) in ADULTS only, the endotracheal tube may be placed as the initial airway device. Its placement must be confirmed via EtCO$_2$, pulse oximetry and auscultation of bilateral breath sounds. Be extremely mindful of increased vagal tone produced by intubation which can lead to bradycardia and full cardiac arrest.
      • **Pediatrics**: Initial airway management will be performed with Bag Valve Mask ventilation. A supraglottic airway will be inserted (if the appropriate size is available) as soon as possible during the initial stages of resuscitation. Endotracheal intubation shall be performed ONLY if ventilation is unsuccessful with the BVM or supraglottic airway, ensuring no interruption in chest compressions during intubation.
   e. The protocols are arranged as follows:
      1) “Unresponsive Person”: This is where each patient encounter should begin.
      2) “Pulseless Patient: BLS First on Scene” and “Pulseless Patient: ALS First on Scene”: These protocols describe the steps which should be taken in the initial stages of a cardiac arrest prior to the arrival of a full complement of responders. Given a limited number of personnel, priority is given to chest compressions, rhythm analysis (with defibrillation as required) and airway maintenance/ventilation.
      3) “Cardiac Arrest Resuscitation”: This protocol contains the guidelines for cardiac arrest resuscitation once ALS is on scene along with sufficient additional resources. In order to provide for maximal chest compressions, more than two persons are required to perform the actions detailed in this protocol.
2. **BLS / ALS Level**
   a. The electronic information captured by the AED or ALS monitor is considered part of the quality improvement process and **shall** be downloaded from each ALS monitor and AED to HFD EMS headquarters for each case requiring CPR, electroshock therapy, 12 lead ECG, or intubation *(Ref 9.04 Procedure for Downloading AED, LifePak15 Data).*
   
   b. In performing the baseline assessment, be sure to ascertain the patient’s code status. Does the patient have a State of Texas Pre-Hospital (Out-of-Hospital) DNR papers? If so, where is the paperwork and is it valid? *(Ref. 6.17 Out-of-Hospital DNR Orders)*
   
   c. Resuscitation efforts may be withheld from individuals who meet obviously dead criteria:
      1. **Dead-on-Scene (DOS):**
         - Decapitation
         - Decomposition
         - Rigor Mortis
         - Incineration
         - Dependent Lividity
         - Obvious Mortal Wounds
      2. Absence of any signs of life (pulse, respirations, or any spontaneous movement) on EMS arrival associated with a penetrating head injury (GSW, stab, etc.), or penetrating extremity injury with obvious exsanguination.
      3. Absence of any signs of life (pulse, respirations or any spontaneous movement) for greater than five minutes associated with a penetrating injury to the chest or abdomen and a greater than 10 minute transport time to a Trauma Center.
      4. Absence of any signs of life (pulse, respirations or any spontaneous movement) associated with blunt trauma.

3. **ALS Level**
   a. Patients should be afforded substantial resuscitative efforts on scene prior to transport; medical CPR, in both adult and pediatric patients, is not a “load and go” situation.
   
   b. **When in doubt, take it out** (ET tube). Correct endotracheal tube placement is of paramount importance *(Ref. 7.02 C.).* No more than 3 attempts at intubation shall occur per patient.
   
   c. When in doubt, pump it out (if unsure about rhythm; asystole versus VF, assume asystole and treat accordingly, be sure to check for proper gain).
   
   d. In cardiac arrest, the preferred access route for medication shall be:
      - **Adolescents/Adults:** 1) peripheral IV (including external jugular), 2) humeral IO, 3) dialysis access catheter if present, and lastly, 4) tibial IO.
      - **Neonate/Infant/Children:** 1) tibial IO, 2) peripheral IV (no external jugular).
   
   e. Renal Dialysis and Cardiac Arrest
      1. In non-arrest, do not take blood pressures or attempt IV’s in the same area of the dialysis access or catheter.
      2. If accessing a Vas Cath, Tettso or Quinton catheter (Central Line used for temporary dialysis with red and blue ports), remove at least 3-5 ml of the catheter fluid (heparin solution) from either port. Then flush the port with 10 ml of Normal Saline, prior to attaching IV tubing and infusing fluids or medications.
   
   f. Transcutaneous Pacing is generally most successful in patients with symptomatic bradycardia. Pacing pulseless patients shall only be performed under the direction of online medical control.
   
   g. If the underlying etiology of the cardiac arrest is identified by patient history or clinical signs or values, HFD personnel shall reference the appropriate protocol and treat this cause as indicated concomitant with the appropriate cardiac arrest protocol.
   
   h. If the AED is being utilized upon ALS arrival, ALS personnel shall allow the AED to complete the upcoming analysis including a shock if required. Immediately after this, the patient shall be switched over to the ALS monitor. For adolescents/adults, detach the AED pads from the AED and connect to the ALS monitor. For neonates/infants/children, remove the AED Infant/Child pads and attach the Pediatric pads to the ALS monitor and the patient.
**Unresponsive Patient**

**BLS / ALS**

Determine Unresponsiveness
Stimulate, "Are you OK?"

- **If unresponsive**, position patient appropriately*\(^a\)

Supportive Care
Go to Appropriate Protocol

**Adult**

Open Airway, Assess
for Respirations

- **Check Pulse.** DEFINITE PULSE within 10 seconds?

  - **Yes**
    - Proceed to "Pulseless Patient - BLS First on Scene"
    - OR "Pulseless Patient - ALS First on Scene" Protocol

  - **No**
    - Absent Breathing or Not Normal Breathing (Only Gasping)?
      - **Yes**
        - BVM Ventilations*\(^b\)
      - **No**
        - BVM Ventilations*\(^b\)

- **BVM Ventilations*\(^b\). Recheck Pulse every 2 minutes.**

  - For Pediatric Patients, If pulse < 60/min, being chest compressions and proceed to 8.03 I. Bradycardia

**Pediatric**

Open Airway, Assess
for Respirations

- **Check Pulse.** DEFINITE PULSE within 10 seconds?

  - **Yes**
    - BVM Ventilations*\(^b\)
  - **No**
    - Absent Breathing or Not Normal Breathing (Only Gasping)?
      - **Yes**
        - BVM Ventilations*\(^b\)
      - **No**
        - Supportive Care
          Go to Appropriate Protocol

*\(^a\) Patient should be placed on a hard surface (floor/backboard) in a supine position. There should be enough room around the patient to allow adequate access to the patient for CPR and advanced medical therapies. It may be advisable to briefly move a patient prior to resuscitation to allow for maximal chest compressions and patient access.

*\(^b\) See Table 7-8 : CPR Parameters for proper chest compression and ventilation rates.
8.02 B. Unresponsive Patient : Notes

A. This is the initial protocol to follow when presented with an unconscious patient.

B. If CPR has been started, proceed to the appropriate protocol by determining the level of care provided by the unit on scene (i.e. Squad on scene, proceed to 8.02 D. “Pulseless Patient - ALS” protocol; BLS Engine only on scene, proceed to 8.02 C. “Pulseless Patient - BLS” protocol.)

C. If a EMS Apparatus Paramedic is on scene with an AED, proceed to the 8.02 C. “Pulseless Patient - BLS” protocol. If the EMS Apparatus Paramedic is utilizing a LifePak 15, proceed to 8.02 D. “Pulseless Patient - ALS” protocol.

D. When proceeding to either of the Pulseless Patient protocols, notify OEC (and responding units) via the assigned tach channel of an adult or pediatric patient with “CPR in progress.”
Pulseless Patient - BLS First on Scene

**BLS**

Patient Unresponsive with Absent or Not Normal Breathing

- Immediately Turns On AED
- Bares Chest
  - Cuts Center of Clothing (Neck to Waist) AND Along Right Arm (Sleeve through to Neckline)
- Attach AED Pads to patient in Appropriate Location
- Goes to Patient's Head to Perform BVM Ventilations

Uninterrupted Chest Compressions until "A" able to BVM

Immediately Turns On AED

- "A Person"
- "B Person"


Check Femoral Pulse

Repeat Cycle Until ALS Arrives

If no pulse, Begin CPR

If pulse present, Go to Appropriate Protocol.

AED Recognizes Shockable Rhythm

- AED : "No Shock Advised. Start CPR."
- 3 minute cycle of CPR

Immediately Post-Shock, 3 minute cycle of CPR

AED Recognizes Non-Shockable Rhythm

- If no pulse, Begin CPR
- If pulse present, Go to Appropriate Protocol.


Immediately CLEAR FROM PATIENT

- When EVERYONE IS CLEAR, Press Shock Button on AED
- Immediately Post-Shock, 3 minute cycle of CPR

AED : "No Shock Advised. Start CPR.”

If no pulse, Begin CPR

If pulse present, Go to Appropriate Protocol.

3 minute cycle of CPR
8.02 C. Pulseless Patient - BLS First on Scene: Notes

*a* Refer to 7.04 A.4.d.

*b* The femoral pulse check during analysis should be performed so as not to interfere with the analysis. If a pulse is felt, resume rescue breathing and obtain a blood pressure. Reconfirm the pulse every minute until ALS arrival.

*c* Refer to 7.05 Cardiopulmonary Resuscitation for proper CPR protocol.

**Once an advanced airway is placed (Supraglottic Airway or ET Tube), begin continuous chest compressions with a ventilation rate appropriate for the patient’s age (Ref. Table 8-2). Ventilate on the up-stroke of the chest compression.**

If at any point, EMS witnesses an arrest (or loss of pulses after ROSC), proceed to immediate AED rhythm analysis by pressing the right softkey on the AED.

A. It is important to turn on the AED once cardiac resuscitation is initiated. The AED’s clock will prompt when to pause CPR for rhythm analysis and when to restart CPR. Ensure the proper AED pads are used: For patients < 8 years of age, use the “Infant/Child” Pads.

B. To remove the patients upper clothing, the “A Person” cuts the shirt midline from the neck to the waist and then along the patient’s right sleeve up through the neckline.

C. During the second (or subsequent) three minute cycle of CPR, alternate individuals responsible for chest compressions if possible.

D. Airway Management: Reference 8.02 A.1.d.

- Adults: BVM then supraglottic airway (if available). ET Tube if unable to ventilate OR when directed.
- Pediatrics: BVM then supraglottic airway (if available). ET Tube ONLY if unable to ventilate.

E. If a unit arrives with more than 2 personnel, the following shall apply:

1. Ambulance with student: The student shall assist “A Person” by cutting the patient’s clothing along the right arm then proceed to switch in and out with the “B Person” for chest compressions.

2. Engine/Ladder: The Captain shall serve as the “Incident Commander.” The Captain shall ensure HFD members are following the guidelines. Additionally, the Captain shall document pertinent data of the cardiac arrest (i.e. Witnessed? Bystander CPR? Approximate downtime? Past medical history?). The 4th member shall assist “A Person” by cutting the patient’s clothing along the right arm then proceed to switch in and out with the “B Person” for chest compressions.

F. EMS Apparatus Paramedic Engine or Ladder

1. The Paramedic Officer shall delegate his duties as described in F.2. to another member of his Engine/Ladder in order to provide patient care.

2. The Paramedic shall obtain IV/IO access and, for pulseless patients, shall administer vasopressors every three minutes as detailed in 8.02 D. or E. Cardiac Arrest Resuscitation Notes: Medication Delivery.
Pulseless Patient - ALS First On Scene

Patient Unresponsive with Absent or Not Normal Breathing

Immediately Turns On Monitor

Bares Chest
Cuts Center of Clothing (Neck to Waist) AND Along Right Arm (Sleeve through to Neckline)

Attach Electrode Pads to patient in Appropriate Location *a

Goes to Patient's Head to Perform BVM Ventilations

Perform a Rhythm/Pulse Check as soon as Pads Connected. Check Femoral Pulse.

Repeat Cycle Until Arrival of Additional Personnel

Rhythm?

Organized Rhythm

Pulse? No

Asystole

Begin CPR *c

VFib/VTach

Charge Defibrillator *b
Resume Chest Compressions

When Charge Complete, Announce "CLEAR PATIENT!"
Immediately CLEAR FROM PATIENT

Defibrillate Patient

Immediately Post-Shock,
Resume CPR *c

Yes

Resume Rescue Breathing,
Advanced Airway as needed.
Obtain a Blood Pressure.
Reconfirm Pulse every 1 min.
Await Arrival of Additional Personnel.
Go to Appropriate Protocol.

3 Minutes of Chest Compressions / BVM

3 Minutes of Chest Compressions / BVM
8.02 D. Pulseless Patient - ALS First On Scene : Notes

*a* Refer to 7.04 A.4.d.

*b* Defibrillation Joule Settings
- Adult : 360 Joules each defibrillation
- Pediatric : 2 Joules/kg initial defibrillation
  4 Joules/kg subsequent defibrillations

*c* Refer to 7.05 Cardiopulmonary Resuscitation for proper CPR protocol.

**Once an advanced airway is placed (Supraglottic Airway or ET Tube), begin continuous chest compressions with a ventilation rate appropriate for the patient’s age (Ref. Table 8-2). Ventilate on the up-stroke of the chest compression.

A. To remove the patients upper clothing, the “A Person” cuts the shirt midline from the neck to the waist and then along the patient’s right sleeve up through the neckline.

![Diagram of cutting shirt midline and sleeve up](image)

B. During the second (or subsequent) three minute cycle of CPR, alternate individuals responsible for chest compressions if possible.

C. Airway Management : Reference 8.02 A.1.d.
   - Adults : BVM then supraglottic airway (if available). ET Tube if unable to ventilate OR when directed.
   - Pediatrics : BVM then supraglottic airway (if available). ET Tube ONLY if unable to ventilate.

D. If a unit arrives with more than 2 personnel, the following shall apply:
   1. Medic/Squad with student : The student shall assist “A Person” by cutting the patient’s clothing along the right arm then proceed to switch in and out with the “B Person” for chest compressions.
   2. The student shall then work to establish an IV or IO or be ready to assist with chest compressions.
**Cardiac Arrest Resuscitation**

**BLS / ALS**

**Pulseless Arrest**
Begin Here after Initial Rhythm Assessment / ALS On Scene with Sufficient Additional Personnel

Continue Cycles of CPR\(^a\) and Rhythm Assessment (With Possible Defibrillations) until IV/IO Access Obtained and Airway Placed

Assess Rhythm

Rhythm / Pulse?

**VFib/VTach**

Charge Defibrillator\(^b\) while resuming Chest Compressions

When Charge Complete, Announce "CLEAR PATIENT!"
Immediately CLEAR FROM PATIENT

Defibrillate Patient

Immediately Post-Shock,
Resume CPR\(^a\) for 1 minute

**Organized Rhythm**

Pulse?

No

CPR\(^a\) for 3 minutes

Yes

Go to Appropriate Protocol

**Asystole**

CPR\(^a\) for 2 minutes

Yes

Go to Appropriate Protocol

**VFib/VTach**

CPR\(^a\) for 2 minutes

**Organized Rhythm**

Pulse?

No

CPR\(^a\) for 2 minutes

Yes

Go to Appropriate Protocol

**Asystole**

ASAP during compressions,
Vasopressor IV/IO

ASAP during compressions,
Vasopressor IV/IO

ASAP during compressions,
Vasopressor IV/IO

ASAP during compressions,
Vasopressor IV/IO

ASAP during compressions,
Vasopressor IV/IO

ASAP during compressions,
Vasopressor IV/IO

**-- ADULT --**

**-- PEDIATRIC --**

\(^a\) Refer to 7.05 Cardiopulmonary Resuscitation for proper CPR protocol.

\(^b\) Defibrillation Joule Settings
- Adult : 360 Joules each defibrillation
- Pediatric : 2 Joules/kg initial defibrillation, 4 Joules/kg subsequent defibrillations
8.02 E. Cardiac Arrest Resuscitation : Notes

A. This protocol contains the guidelines for all cardiac arrest resuscitations regardless of the rhythm. This protocol should only be begun once ALS is on scene with sufficient additional unit(s) to provide enough individuals for uninterrupted chest compressions and to allow paramedics to establish IV/IO access. Medication, when indicated, shall be given at the soonest possible rhythm check.

B. If the AED is being utilized upon ALS arrival, ALS personnel shall allow the AED to complete the upcoming analysis including a shock if required. Immediately after this, the patient shall be switched over to the ALS monitor. For adolescents/adults, detach the AED pads from the AED and connect to the ALS monitor. For neonates/infants/children, remove the AED Infant/Child pads and attach the Pediatric pads to the ALS monitor and the patient.

C. IV/IO Access : Please see 8.03 A.3.d. for the preferred method of medication delivery. After 2 failed attempts (or 2 minutes) for a peripheral IV, proceed to IO placement with the EZ-IO® device as described in 7.03 C.

D. ADULT Medication Delivery : As detailed in the protocols, there are two classes of medications; Vasopressors and Anti-Arrhythmics. Medications, when indicated, shall be given after the earliest possible rhythm/pulse check. As you progress through the protocol, the specific medication and order shall be:

<table>
<thead>
<tr>
<th>Vasopressors</th>
<th>Anti-Arrhythmics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st: <strong>Epinephrine</strong> (1:10,000) 1 mg IVP</td>
<td>1st: <strong>Amiodarone</strong> 300 mg IVP</td>
</tr>
<tr>
<td>2nd and subsequent dosing: <strong>Epinephrine</strong> (1:1000) 1 mg IVP</td>
<td>2nd: <strong>Amiodarone</strong> 150 mg IVP</td>
</tr>
</tbody>
</table>

Consult on-line medical control for further orders

Pre-Approved Medications for Specific Indications
- If at any point in the arrest (the earlier the better), there is a known or suspected condition which would indicate one these following medications, administer the medication as soon as possible. Medical Control must be contacted for repeat dosing.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium Chloride</td>
<td>Incomplete or Missed Dialysis, Presumed Hyperkalemia, Ca+ Channel Blocker OD</td>
</tr>
<tr>
<td>Magnesium Sulfate</td>
<td>Torsade De Pointes</td>
</tr>
<tr>
<td>Sodium Bicarbonate</td>
<td>Incomplete or Missed Dialysis, Presumed Hyperkalemia, Tricyclic Overdose, Cocaine Associated Arrest</td>
</tr>
</tbody>
</table>

E. PEDIATRIC Medication Delivery : As detailed in the protocols, there are two classes of medications; Vasopressors and Anti-Arrhythmics. Medications, when indicated, shall be given after the earliest possible rhythm/pulse check. As you progress through the protocol, the specific medication and order shall be:

<table>
<thead>
<tr>
<th>Vasopressors</th>
<th>Anti-Arrhythmics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st and subsequent dosing: <strong>Epinephrine</strong> (1:10,000) 0.01 mg/kg IVP (0.1 ml/kg)</td>
<td>1st: <strong>Amiodarone</strong> 5 mg/kg IVP</td>
</tr>
</tbody>
</table>

Consult on-line medical control for further dosing

F. All pulse checks shall be less than 10 seconds. If there is not a definitive pulse, resume chest compressions.
8.02 E. Cardiac Arrest Resuscitation: Notes Continued

G. For organized electrical activity without a pulse (PEA), consider the causes (5 H’s & 5 T’s)
   - Hypovolemia
   - Hypoxia
   - Hyperkalemia/Hypokalemia
   - Hydrogen Ions (Acidosis)
   - Hypothermia
   - Tension Pneumothorax
   - Tamponade (Cardiac)
   - Thrombosis (Acute Coronary)
   - Thrombosis (Pulmonary)
   - Toxins / Tablets

H. Airway Management: Reference 8.02 A.1.d.
   • Adults: BVM then supraglottic airway (if available). ET Tube if unable to ventilate OR when directed.
   • Pediatrics: BVM then supraglottic airway (if available). ET Tube ONLY if unable to ventilate.

I. Place patient on pulse oximetry during the resuscitation and monitor pulse oximetry post-arrest, especially during intubation.

J. Upon regaining pulses, quickly assess relative blood pressure by noting presence or absence of carotid, femoral and radial pulses.

K. Proper documentation of cardiac arrest incidents shall include:
   • What, if anything, did the patient complain of prior to requiring CPR?
   • Was the arrest unwitnessed or witnessed? If witnessed, by whom?
   • Was bystander CPR administered? Only chest compressions or ventilations as well?
   • Was an AED used, what AED, who operated it and how many times did it defibrillate?
8.03 Medical Emergencies

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8.03 A. General Principles for Medical Emergencies

1. BLS / ALS Level
   a. When in doubt, shout. Contact the Base Station.

2. ALS Level - ADULT Patients
   a. Unstable patients
      1) If a patient becomes unstable at any time, move to ‘unstable’ arm of algorithm.
      2) An unstable patient shows symptoms of poor perfusion such as:
         • Altered mental status
         • Chest Pain
         • Dyspnea
         • Hypotension *(See Table 8-2)*
         • Pulmonary edema
   b. “Serious Signs / Symptoms”
      Throughout the guidelines, “serious signs / symptoms” may be manifested by:
      • agitation
      • tachypnea, or
      • difficulty breathing
   c. If at any time during these treatment plans the patient deteriorates to a pulseless state, immediately proceed to the appropriate cardiac arrest protocol *(Ref. 8.02)*.
   d. For patients requiring cardioversion, after consultation with the on-line physician, sedation may be achieved with Midazolam 1 to 2 mg slow IVP over 2-3 minutes. If the patient is unstable and the paramedic believes he/she cannot afford to wait 2-3 minutes for sedation to occur, attempt synchronized cardioversion without sedation. Midazolam is generally not recommended for patients with a systolic blood pressure less than 100 mmHg.
   e. When giving a Normal Saline bolus for hypotension, frequently reassess your patient for signs of fluid overload, especially breath sounds. You are not mandated to give an entire 1000 ml.

3. ALS Level - PEDIATRIC Patients
   a. Use of the Broselow Tape is the standard of care to establish the patient’s approximate weight and correct ET tube size. Be aware that some drug dosages on the Broselow tape may differ from those included herein. In these cases, the dosages as outlined in these protocols are to be followed.
   b. Notify the Base Station of pediatric arrest situations as early as possible to ensure the availability of a physician to provide on-line medical control.
   c. Use End Tidal CO₂ for confirmation of tube placement and continuous monitoring.
**8.03 B. Abdominal Pain / Acute Abdomen**

**BLS**

Baseline Assessment

100% O₂ NRB,
Vital Signs, Blood Glucose

**ALS**

IV NS TKO (large bore if suspected hypovolemia),

--- **ADULT** ---

If hypotensive* and acutely altered mental status,
NS 1000 ml bolus and reassess

If hypotensive for age and signs of poor perfusion*,
NS 20 ml/kg Bolus and reassess

--- **PEDiatric** ---

If age > 30 or history/risk factors/physical findings suggest AMI, 12 lead ECG

ECG Shows Acute MI?

Yes → Ref. 8.03 N. "Chest Pain" protocol

No → Further orders as per on-line physician

--- **Baseline Assessment Considerations** ---

- Rule-out trauma.
- Past history/illnesses.
- Consider pregnancy (ectopic/intrauterine) in women of child bearing age.
- Elderly patients may have abdominal pain due to symptoms of a serious disease such as ischemic bowel or aortic dissection/rupture.
- Inferior wall MI’s frequently present with abdominal pain.
- Abdominal Aortic Aneurysm.

Life threatening causes of abdominal pain most often require surgical intervention and should be treated in the field by rapid assessment and transport to the most appropriate facility.
Airway Obstruction (Foreign Body)

**BLS**

- Baseline Assessment
  - Conscious Patient?
    - Yes
    - Position airway, Look, Listen and Feel
      - Breathing? Yes
      - Supportive Care
      - Encourage forceful coughing. Do Not interfere with spontaneous coughing and breathing efforts. Observe for Severe Obstruction and treat as indicated if needed.
    - No
      - Begin Immediate Chest Compressions *(No Pulse Check)*
      - After Chest Compressions, Open the Airway and Visualize the Oral Cavity. Remove any foreign bodies if seen.
      - Attempt to ventilate with BVM, 100% O₂
      - If not successful, reposition airway and attempt ventilations again.
      - Continue Cycles of Chest Compressions and Ventilations Until Object Expelled

- Signs of Severe Airway Obstruction?*
  - Yes
  - Continuous abdominal thrusts until foreign body is expelled or patient becomes unconscious *(Ref. 7.02 G.)*
  - Child: continuous abdominal thrusts
  - Infant: back blows/chest thrusts until foreign body is expelled or patient becomes unconscious *(Ref. 7.02 H.)*

- No
  - If unable to ventilate
    - Directly visualize with laryngoscope
      - Remove foreign bodies with Magill forceps if seen
    - Intubate (with EtCO₂) as necessary, and/or ventilate with BVM 100% O₂
      - If no foreign body seen but unable to ventilate after intubation,
        - Advance ET Tube completely until the ET Tube Hub is at teeth level and then Withdraw to Normal Depth (Pushing Foreign Body to Right Main Stem)
        - If ventilation is now possible, Provide Small Tidal Volume Ventilations
      - IV NS TKO / Blood Glucose / Cardiac Monitor
      - If unable to establish patent airway (unable to intubate or ventilate via BVM), Transport without delay to nearest appropriate hospital

**ALS**

- If unable to ventilate, Directly visualize with laryngoscope
  - Remove foreign bodies with Magill forceps if seen
  - Intubate (with EtCO₂) as necessary, and/or ventilate with BVM 100% O₂

- Further orders as per on-line physician

---

*a* Signs of Severe Airway Obstruction: cough becomes silent, respiratory difficulty increases or is accompanied by stridor.

*b* Use Chest Thrusts if unable to encircle patient's abdomen or if patient is in late stages of pregnancy.

*c* Adult/Adolescent: 30:2 CPR Ratio
  - Child/Infant: 15:2 CPR Ratio

Reference 7.02 G. and H. for more detailed Foreign Body Removal Instructions
### Baseline Assessment

- **Anoxia**
  - 100% O₂ NRB / Vital Signs
- Assist ventilations with BVM as needed

#### Hypotensive or Poor Perfusion

- **< 25 kg**
  - **EpiPen Jr. IM**
- **≥ 25 kg**
  - **EpiPen IM**

**ALS**

- IV NS TKO, Cardiac Monitor, Pulse Oximetry

- **No**
  - Hypotensive or Poor Perfusion

- **Yes**
  - **Treat as per 8.03 CC**
  - **Non-Traumatic Shock**

- **If Wheezing**
  - **Albuterol** 2.5mg/3ml NS via Nebulizer
  - Repeat as needed.

### Epinephrine

- **Epinephrine** (1:1000) 0.5 mg IM [0.5 ml]
  - **Continue with Protocol & Contact On-Line Physician**

- **Epinephrine** (1:1000) 0.01 mg/kg IM [max 0.3 mg]
  - **Continue with Protocol & Contact On-Line Physician**

### Allergic Reaction / Anaphylaxis

#### Known Exposure

- **Anaphylaxis if ONE Clinical Criteria Below is Present**
  - **Cardiac Dysfunction**
    - Hypotension (age specific)
    - Syncope - Altered Mental Status
  - **Respiratory Compromise**
    - Dyspnea - Wheeze / Stridor
    - Cyanosis - Bronchospasm
    - Hypoxemia - Change in Voice
    - Feeling of Throat Swelling

#### Probable Exposure

- **Anaphylaxis if ≥ 2 Clinical Criteria Below are Present**
  - **Cardiac Dysfunction**
    - Hypotension (age specific)
    - Syncope - Altered Mental Status
  - **Respiratory Compromise**
    - Dyspnea - Wheeze / Stridor
    - Cyanosis - Bronchospasm
    - Hypoxemia - Change in Voice
    - Feeling of Throat Swelling
  - **Skin / Mucosal Involvement**
    - Hives - Angioedema/Swelling
    - Pruritis - Flushing
  - **Persistent GI Symptoms**
    - Vomiting - Diarrhea
    - Crampy Abdominal Pain

#### Unknown Exposure

- **Anaphylaxis if Skin / Mucosal Involvement**
  - Cardiac Dysfunction
    - Hypotension (age specific)
    - Syncope - Altered Mental Status
  - **Respiratory Compromise**
    - Dyspnea - Wheeze / Stridor
    - Cyanosis - Bronchospasm
    - Hypoxemia - Change in Voice
    - Feeling of Throat Swelling

- **ADULT**
  - Epinephrine (1:1000) 0.5 mg IM [0.5 ml]
  - Continue with Protocol & Contact On-Line Physician

- **PEDIATRIC**
  - Epinephrine (1:1000) 0.01 mg/kg IM [max 0.3 mg]
  - Continue with Protocol & Contact On-Line Physician

**Further orders as per on-line physician**

---

**a** Repeat Epi or EpiPen/EpiPen Jr. every 5-10 min. if continued Anaphylaxis symptoms.

**b** The dose of Diphenhydramine should not exceed 50 mg.

**c** Ref. Table 8-2 and Table 8-3.
8.03 E. Altered Mental Status (AMS)

BLS

Baseline Assessment

100% O₂ NRB

Vital Signs

Spinal Immobilization if indicated/suspected

Blood Glucose
If < 60 mg/dl, Ref. 8.03 Y. "Hypoglycemia" protocol

ALS

IV NS TKO / Cardiac Monitor / Pulse Oximetry / BVM or Advanced Airway as indicated

BG < 60 mg/dl?

Yes → Ref. 8.03 Y. "Hypoglycemia" protocol

No

Hypotension or Poor Perfusion? a

Yes → Pulmonary edema?

No

Hypoventilation? b

Yes → Dopamine gtt, titrate to SBP ≥ 100 mmHg

Call on-line Physician

Further orders as per on-line physician

No

-- ADULT --

NS 1000 ml IV Bolus

-- PEDIATRIC --

NS 20 ml/kg IV Bolus

--- ADULT ---

If suspected narcotic OD, Naloxone 0.4 mg IV/IN

If suspected narcotic OD, Naloxone 0.1 mg/kg IV/IN

--- PEDIATRIC ---

Naloxone 0.4 - 2 mg IV/IN

Tritate to Respiratory Rate

--- PEDIATRIC ---

Naloxone 0.1 mg/kg IV/IN

Tritate to Respiratory Rate

--- ADULT ---

a Hypotension: Ref. Table 8-2 & Table 8-3

A. Baseline assessment considerations:

1. Altered mental status is a symptom and not a diagnosis. AMS can have many causes that are both medical and trauma. Common causes include:
   - diabetic problems (hypo/hyperglycemia),
   - alcohol/drug intoxication,
   - metabolic changes,
   - seizures/postictal,
   - toxic exposures,
   - hypoxia,
   - infection, sepsis, meningitis
   - stroke, or
   - head trauma

(Multiple patients with AMS are suggestive of a toxic exposure (e.g., CO) or drug ingestion (e.g., GHB).)

2. Evidence of trauma? What was the behavior like prior to incident? Medical history? Pinpoint pupils?

3. Consider patient restraint for narcotic overdose reversal for patient and provider safety (Ref 6.10).

b Signs of hypoventilation can include RR < 10, ETCO₂ > 45, Low O₂ saturation, Diminished ventilatory effort

Slowly administer Narcan® (Naloxone) over at least a two minute period, titrating to respirations. If intubation performed or planned, do not try to awaken the patient in the field or in the EMS transport vehicle with Narcan.
8.03 F.  Aortic Aneurysm / Dissection, Suspected - ADULT ONLY

**Baseline Assessment Considerations**

1. **Risk Factors of Aortic Aneurysm / Dissection**
   - Hypertension
   - Coronary Artery Disease
   - Turner’s and Marfan’s Syndrom
   - Male gender, Older Age

2. **Symptoms/Signs of Aortic Aneurysm / Dissection**
   - Painful, tearing sensation in back
   - Hypotension
   - Decreased femoral and pedal pulses
   - Palpable mass in abdomen (possible)

3. For hypotension, elevate lower extremities and assess lung sounds frequently for signs of pulmonary edema. Suspected Aortic Aneurysm patients are not cured by treatment in the field with IV fluids or vasopressors.

4. Move patient as quickly and gently as possible.

**BLS**

- Baseline Assessment
- 100% O₂ NRB, Blood Glucose

**Vital Signs**

For Hypotension*, elevate lower extremities

- Transport rapidly without delay to closest appropriate facility

**ALS**

- 2 large bore IV’s NS TKO
- Cardiac Monitor / Pulse Oximetry

* Hypotension: See Table 8-2
8.03 G.  Bites and Stings

**Limb Positioning / Care for Snake Bites**

**Pit Vipers/Crotalids: Rattlesnake, Cottonmouth, Copperhead**
- Elevate the affected extremity above the heart.

**Elapid: Coral Snake**
- Position the affected extremity below the heart.
- Apply pressure immobilization to the limb
  - Wrap the limb with a broad pressure bandage, starting at the wound site and extending as high up as possible. Wrap to occlude lymphatic flow (like a sprained ankle) such that a finger can be slipped underneath. Immobilize limb with a splint.

**BLS**

Scene Safety, Baseline Assessment

100% O₂ NRB

Vital Signs

**ALS**

IV NS TKO

**Snake Bites**

Minimize patient movement

Loosen Clothing and Remove Jewelry From Affected Extremity

Mark the edge of the swelling and note time

**Stings**

Remove jewelry from affected extremity

Wash site with soap and water

Cool compresses, no direct ice

**Go to "Allergic Reaction / Anaphylaxis" protocol Ref. 8.03 D.**

**Signs of allergic reaction?**

Yes

Notify receiving hospital ASAP so that antivenin can be secured if required

Further orders as per on-line physician

No

• All potential poisonous snakebites are treated and transported; taking into consideration that 30-50% may be dry bites.

• Treatment for hypovolemia or neurogenic shock is appropriate since these are the same types of physiology actions that occur with snake's venom.

• If it is safe to do so, bring the dead animal (snake, scorpion, etc.) to the hospital for identification. Transport animal in a sealed container in an outside compartment of the ambulance.

• Firefighters are not expected to endanger themselves or others to obtain the specimen for identification. Non-venomous animals such as dogs, etc. do not need to be brought to the hospital.

• To remove the stinger or venom sac, the traditional advice is to scrape the site with a blade or a card. Recent research indicates how you remove the stinger or venom sac is far less important than doing so quickly.
This sequence was developed to assist the treatment of a broad range of patients with symptomatic bradycardia (20-60 beats/min). Some patients may require care not specified herein. Base Station physician must be consulted in such circumstances.

Call On-Line Medical Control for second dose of Calcium Chloride if patient shows some improvement but HR < 60 AND for further treatment of hyperkalemia with Sodium Bicarbonate and/or continuous Albuterol nebulizers.

Reminder!!!

When using a LifePak 15 to monitor a patient who has an internal pacemaker firing, be aware that pacer spikes may not be visible on the monitor screen.

To determine if a patient’s implanted pacemaker is operating, members shall print out a 3-lead strip or a 12-lead and look for the pacemaker detection arrows (hollow arrows) along the bottom of the rhythm strip or 12-lead. They should be at a regular interval with the presence of a QRS complex located above each arrow. These detection arrows are not visible on the monitor screen.

Solid arrows continue to indicate active LifePak 15 pacing.

* Hypotension:
See Table 8-2

If Hypotensive*, Dopamine gtt, titrate to SBP = 100 mmHg

Further orders as per on-line physician

Hypotension
See Table 8-2

If Suspected Hyperkalemia (History of Ca²⁺ Channel Blocker Overdose, Renal Disease, Missed Dialysis, Peaked T Waves),

Calcium Chloride 1 gm IVP *a

Type II Second Degree AV Block or Third Degree Heart Block?

Yes

Transthoracic Pacing
Ref. 7.04 D.

No

Atropine 0.5 mg IVP

After 1 min., is HR > 60 BPM?

Yes

Further orders as per on-line physician

No

Atropine 0.5 mg IVP

After 1 min., is HR > 60 BPM?

Yes

No
8.03 I. **Bradycardia (Symptomatic) - PEDIATRIC ONLY**

**BLS**

Baseline Assessment / Vital Signs

Basic airway management, 100% O₂ BVM or NRB

If HR < 60 and patient with serious signs and symptoms *,
Begin chest compressions

**ALS**

Airway management with 100% O₂

Cardiac Monitor / Pulse Oximetry

HR < 60? No

Yes

12 Lead ECG

Serious signs / symptoms?*

No

Further orders as per on-line physician

Yes

Continue CPR / Intubate / EtCO₂

IV/IO Normal Saline TKO

Epinephrine (1:10,000) 0.01 mg/kg IV/IO or,
Epinephrine (1:1000) 0.1 mg/kg ETT

If no response after 1 minute,
Atropine 0.02 mg/kg IV/IO*

Resume CPR

Yes

Three minutes after Epinephrine dose,
pause compressions to check for pulse rate.
Contact on-line physician.

No

 HR < 60?

Further orders as per on-line physician

*a* Serious Signs / Symptoms include:
• Altered Mental Status
• Hypotension
• Poor perfusion (capillary refill > 3 sec.)
• Respiratory Distress

*b* Atropine is not to be given to neonates without a physician order.
• Maximum cumulative Atropine dose is 0.04 mg/kg IV.
• Maximum single Atropine dose is 1 mg IV.
8.03 J. Breathing Difficulty: Rales / Rhonchi (Pulmonary Edema) - ADULT ONLY

**BLS**

Baseline Assessment

100% O₂ NRB / Vital Signs

**ALS**

IV NS TKO

Cardiac Monitor / 12 Lead / Pulse Oximetry

Severe Respiratory distress with bilateral rales or rhonchi and any of the following?
- apprehension, agitation
- diaphoresis
- external jugular vein distention
- tachycardia

If SBP > 100 mmHg,
Nitroglycerin 0.4 mg SL

**CPAP** *
Titrated to effect

Every 3 minutes, repeat vital signs.
If SBP > 100 mmHg,
Nitroglycerin 0.4 mg SL

Further orders as per on-line physician

* Reference 7.02 I. CPAP

Consider use of ETCO₂, Nasal Cannula for evaluation of patient.

A. Use a nasal cannula at a flow rate of 4-6 liters per minute for supplemental oxygen for those patients who are in mild distress or have a history of severe COPD. If the respiratory distress does not resolve with Oxygen by nasal cannula, change to a non-rebreather oxygen mask.

B. Patients with difficulty breathing must be examined properly. Auscultation of breath sounds begins at the posterior bases and continues in six steps towards the apices.

C. All patients (male or female) who receive nitroglycerin must be questioned about taking Sildenafil Citrate (Viagra®) or other similar medications (i.e. Levitra® or Cialis®). Any patient that has taken these medications within the last 24 hours should not receive any form of nitroglycerin as irreversible hypotension may occur. It is imperative that the patient be questioned (in a confidential manner) about using these medications. The fact that the patient was questioned as well as their answer must be recorded in the patient care record. Contact on-line physician for further orders in this case.

D. In cases of suspected pneumonia (i.e. gradual onset, fever, productive cough), do not give NTG.

E. If severe respiratory distress, contact online medical control ASAP!
8.03 K. Breathing Difficulty: Wheezes (Asthma/COPD) - ADULT ONLY

**BLS / ALS**

- Baseline Assessment
  - 100% O₂ NRB, Vital Signs, Pulse Oximetry
  - **Albuterol 2.5 mg / 3 ml Nebulizer** *a*

**ALS**

- IV NS TKO, Cardiac Monitor, 12 LEAD ECG

- Level of Distress?
  - If condition worsens or shows no improvement, consider addition of "severe" level medications or CPAP

**Mild to Moderate**

- **Ipratropium Bromide**
  - 0.02% 2.5 ml unit dose
  - (mixed with 2nd Albuterol neb)

- Continuous **Albuterol 2.5 mg / 3 ml Nebulizer**

- **Ipratropium Bromide**
  - 0.02% 2.5 ml unit dose
  - (mix one per Albuterol neb. for three nebs.)

**Severe**

- **CPAP**

- **Epinephrine** (1:1000) 0.3 ml IM

- **Magnesium Sulfate** 2 Gm (in 50 ml NS)
  - IV gtt over 10 minutes

- **Methylprednisolone** 125 mg IV/IM

---

*a EMT’s shall administer Albuterol only to patients who routinely use Albuterol for treatment of their asthma or COPD exacerbations.

*b Magnesium Sulfate should not be given to patients who are known to have COPD only.

Severe exacerbations show signs of: pt. in tripod position, diaphoresis, altered mental status or acting erratically due to hypoxia, RR ≥ 45/min, tachycardia, SpO₂ ≤ 90%. Patient may not show all of these signs but if several are present, patient should be treated accordingly.

Use a nasal cannula at a flow rate of 4-6 liters per minute for supplemental oxygen for those patients who are in mild distress or have a history of severe COPD. If the respiratory distress does not resolve with oxygen by nasal cannula, change to a non-rebreather oxygen mask. Never withhold oxygen from any patient in severe distress. Consider use of ETCO₂ Nasal Cannula for evaluation of patient. Rising ETCO₂ may indicate treatment failure and the provider should initiate ‘severe’ arm treatments.
**BLS**

Baseline Assessment, Vital Signs

- 100% O₂ NRB, Assist ventilations with BVM as needed
- Suction (bulb or mechanical) if excessive secretions are present

**ALS**

### Bronchiolitis

- < 2 years of age

**Cardiac Monitor / Pulse Oximetry**

**Epinephrine 1:1000**

- 3 ml in Nebulizer

**Respiratory Failure?**

- Yes
  - Resuscitate
    - Normal Saline 20 ml/kg bolus IV/IO
    - BVM Ventilation
    - Epinephrine 1:1000 3 ml in Nebulizer
      - May repeat if improvement noted

**Continuous**

- Albuterol nebulizer throughout transport

**Epinephrine 1:1000**

- 3 ml in Nebulizer
  - May repeat if improvement noted

**Respiratory Failure?**

- Yes
  - Resuscitate
    - Normal Saline 20 ml/kg bolus IV/IO
    - BVM Ventilation
    - Epinephrine 1:1000 3 ml in Nebulizer
      - May repeat if improvement noted

**Continuous**

- Albuterol nebulizer throughout transport

### Asthma

- ≥ 2 years of age OR history of asthma

**Cardiac Monitor / Pulse Oximetry**

**Albuterol 2.5mg/3ml NS nebulizer**

**If tolerating PO**

- Dexamethasone 0.6 mg/kg PO *a*

**If not tolerating PO**

- Methylprednisolone 2 mg/kg IV/IM *a*

### Impending Respiratory Failure?

- Yes
  - Magnesium Sulfate 40 mg/kg (in 50 ml NS) IV gtt over 10 min. (Max 2 grams)
  - Epinephrine 1:1000 IM 0.01 mg/kg (Max 0.3 mg)
  - Continuous CPAP (3 - 5 cm H₂O PEEP) if Appropriate Size Mask Available

### Ongoing Respiratory Distress?

- Yes
  - Reassess continuously during transport
  - Further orders as per on-line physician

### Ongoing Respiratory Distress?

- Yes
  - Reassess continuously during transport
  - Further orders as per on-line physician

### Ongoing Respiratory Distress?

- No
  - Reassess continuously during transport
  - Further orders as per on-line physician

### Ongoing Respiratory Distress?

- No
  - Reassess continuously during transport
  - Further orders as per on-line physician

### Ongoing Respiratory Distress?

- No
  - Reassess continuously during transport
  - Further orders as per on-line physician

### Ongoing Respiratory Distress?

- No
  - Reassess continuously during transport
  - Further orders as per on-line physician

### Ongoing Respiratory Distress?

- No
  - Reassess continuously during transport
  - Further orders as per on-line physician

**Maximum Dosage**

- Dexamethasone = 10 mg
- Methylprednisolone = 125 mg

---

*Remember that the absence of breath sounds may indicate severe reactive airway disease (RAD)!*

---

(subject: patient care guidelines and standing orders for BLS and ALS units)

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*reference no. III-01 publication: 7/10/16*
Carbon Monoxide (CO) Poisoning

BLS / ALS
Alert EMS Supervisor if suspicious for CO poisoning

High Flow O₂, 100% / Vital Signs /
Blood Glucose

EMS Supervisor

No further evaluation for CO Poisoning

≤ 3%

4% - 12%

13% - 24%

≥ 25%

≥ 4% AND

Vulnerable* c

Any Symptoms* a ?

Yes

High-Flow O₂

12-lead EKG

In Order
1. Continue High-Flow O₂
2. IV
3. Transport to Nearest Appropriate Facility

No

Severe Symptoms* b or ST elevation / depression or Cardiac Dysrhythmia?

In Order
1. High-Flow O₂
2. 12-lead EKG
3. IV
4. Treat any Cardiac Dysrhythmia
5. Consider CPAP
6. Transport to Hyperbaric Txt Center

No

Yes

* a Symptoms include:
- Headache
- Shortness of Breath
- Chest Pain
- Nausea / Vomiting
- Dizziness / Fatigue
- Altered LOC
- Syncope
- Tachycardia, Cardiac Arrhythmias, ST changes
- Seizures, Shock, Coma

* b Severe symptoms include:
- Altered Mental Status
- Loss of Consciousness
- Syncope
- Severe Headache
- Vomiting
- Tachycardia, Cardiac Arrhythmias, ST changes
- Apnea
- Respiratory Arrest

* c Vulnerable Populations:
- Pregnant
- Unable to give history or describe symptoms (small children or elderly)
- Suspected chronic CO exposure (> several hours) with flu-like symptoms

“Cherry-Red” skin is not a reliable indicator of CO poisoning, and, if present, is a late sign.
### Chest Pain - ADULT ONLY

**Chest Pain Notes**

**A. NTG Inclusion Criteria Questions:**
- The patient must be at least 18 years of age.
- The patient must have a systolic blood pressure >100 mmHg.
- The patient must currently be experiencing the discomfort, with a duration of greater than 20 minutes.
- The chest pain is consistent with myocardial ischemia (be aware of atypical symptoms in certain patients (females, elderly, diabetics, etc.).)

**B. All patients (male or female) who receive nitroglycerin must be questioned about taking Sildenafil Citrate (Viagra®) or other similar drugs (Levitra® or Cialis®). Any patient that has taken these medications within the last 24 hours should not receive any form of nitroglycerin as irreversible hypotension may occur. It is imperative that the patient be questioned (in a confidential manner) about the use of these medications. The fact that the patient was questioned as well as their answer must be recorded in the patient care record. Contact on-line physician for further orders in this case.**

**C. The patient must maintain a SBP > 100 mmHg before subsequent doses of nitroglycerin may be administered.**

**D. All 12-Lead ECG’s in patients being transported to the hospital for chest pain (or concern of cardiac disease) shall be transmitted to the Base Station as detailed in 9.04.**

*a Right Ventricular Infarction is diagnosed by a 1 mm ST Elevation in lead V_{\text{4R}}. Nitroglycerin is relatively contraindicated in Right Ventricular Infarctions. It should only be administered at the order of On-Line Medical Control.

*b Hypotension: See Table 8-2

---

**BLS**

- **Baseline Assessment**
- **High Flow O₂ 100% / Vital Signs / Blood Glucose**

**ALS**

- **Oxygen**
  - 2-4 LPM NC for SpO₂ ≥ 94%
  - 100% NRB for SpO₂ < 93%

---

**Aspirin** 324 mg PO
(chew 4 baby ASA)

12 lead ECG

Right Sided ECG if ST flat in leads II/III/AVF on 12 lead ECG

**IV NS TKO**

---

If Hypotensive *\(^{a,b}\):
Normal Saline
1000 ml Bolus

Proceed to 8.03 AA.
"Myocardial Infarction Protocol"

Nitroglycerin 0.4 mg SL
May repeat every 3 min. if SBP > 100 mmHg

Acute Myocardial Infarction Pattern on 12 lead ECG?

Yes

Nitroglycerin 0.4 mg SL
May repeat every 3 min. if SBP > 100 mmHg

Further orders as per on-line physician

---

Contact on-line physician for further orders in this case.
8.03 O.  
Childbirth - Emergency (Mother)
Childbirth procedure as per "Childbirth - Emergency (Mother)" protocol

Assist delivery, checking for nuchal cord. If nuchal cord, remove the cord from around the neck.

Once completely delivered, Stimulate Child / Dry Child / Keep Child Warm

Clamp / Cut umbilical cord
This should be delayed one minute in the neonate that does not require resuscitation

Term
Gestation?
Breathing or Crying?
Good Muscle Tone?
Pink?

YES to ALL

NO to ANY

Reposition Airway.
Assess Respiration, Heart Rate and Color.
Suction Airway as Required *a

HR ≤ 100 OR
Apnea, Gasping, Cyanosis or Labored Breathing

Positive Pressure Ventilation
BVM (Room Air) for 30 sec.

Pulse Rate?

< 60 BPM

Chest Compressions
3:1
100% O₂ BVM
(for 30 sec. initially, then for 3 min. after each subsequent rate evaluation)

60-100 BPM

100% O₂ BVM
for 30 sec.

> 100 BPM

Post-Delivery Care
- Baby can Stay With Mother
- Provide Warmth
- Reassess Frequently
- Place Monitor
- Notify ALS
- Further Orders per Online Physician

Post-Resuscitative Care
- Provide Warmth
- Reassess Frequently
- Place Monitor
- Notify ALS
- Further Orders per Online Physician

ALS Care Continued on Next Page

ALS

Check pulses via umbilical cord.
See Notes on next page

A Nuchal Cord is an umbilical cord which is wrapped around the neonate’s neck. Remove it by gently slipping it over the neonate’s head.

* Suction as directed in 7.02 L. Airway Management, Neonatal
8.03 P. Childbirth - Emergency (Newborn) NOTES

**A. Emergency Childbirth Procedure**

1. Assist delivery, checking for umbilical cord wrapped around the neck. If the cord is wrapped around the neck, remove the cord.
2. When the child’s head is delivered, clear the airway. Suction the child immediately, prior to the child taking a breath. Reference 7.02 L. Neonatal / “Newborn” Airway Management.
3. Once completely delivered, stimulate the child by vigorously drying child with a towel.
4. Wrap the child in a thermal blanket or dry towel. Place on his/her back and keep the child warm.
5. After the child is completely delivered, clamp and cut the cord 2-3 inches from infant’s abdomen.

**B. Notify the Base Station of a neonatal arrest situation as early as possible in order to ensure the availability of a physician to provide on-line medical control.**

**C. If after 2 minutes or two failed IV attempts, initiate intraosseous access.**

---

**Table 8-4 : APGAR Score**

<table>
<thead>
<tr>
<th>Sign</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>Score @ 1 Min.</th>
<th>Score @ 5 Min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance (Skin Color)</td>
<td>Blue, Pale</td>
<td>Body Pink, Extremities Blue</td>
<td>Completely Pink</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulse Rate (Heart Rate)</td>
<td>Absent</td>
<td>Below 100</td>
<td>Above 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grimace (Irritability)</td>
<td>No Response</td>
<td>Grimaces</td>
<td>Cries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity (Muscle Tone)</td>
<td>Limp</td>
<td>Some Flexion of Extremities</td>
<td>Active Motion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory (Effort)</td>
<td>Absent</td>
<td>Slow and Irregular</td>
<td>Strong Cry</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Score :
Croup / Inspiratory Stridor - PEDIATRIC ONLY

Croup usually affects children under the age of 3 and is associated with a low-grade fever and cold symptoms. Watch for signs or symptoms of foreign body aspiration.

**Serious signs / symptoms**
- Significant inspiratory stridor at rest
- Decreased responsiveness
- Poor perfusion
- Apnea or cyanosis

* Maximum dose of Dexamethasone is 10 mg PO / IM / IV

---

**BLS**

Baseline Assessment

100% O₂ NRB
Blow-by O₂ if NRB not tolerated
Suction (bulb or mechanical) if excessive secretions are present

Attempt to keep child calm while properly securing the child

Vital Signs

**ALS**

Cardiac Monitor / Pulse Oximetry

**Stridor at Rest?**

Yes → Epinephrine 1:1000
3 ml in Nebulizer

No → Continue to Monitor

**Respiratory Failure?**

Yes → IV

Normal Saline
20 ml/kg bolus IV/IO

BVM Ventilation

If Unable to Ventilate / Oxygenate Adequately with BVM,
Supraglottic Airway if Appropriate Size Available

If Unable to Ventilate / Oxygenate Adequately with Supraglottic Airway,
Endotracheal Intubation

Dexamethasone 0.6 mg/kg IV*

---

If tolerating PO,
Dexamethasone 0.6 mg/kg PO*

If not tolerating PO or spits it out,
Dexamethasone 0.6 mg/kg IM*

Rapidly transport, Continue to Monitor

Further orders as per on-line physician
**Baseline Assessment**
*If in arrest, follow appropriate arrest protocol simultaneously*

- Remove patient from toxic environment.
- Decontamination if appropriate

**Vital Signs**

**Cardiac Monitor / Pulse Oximetry / IV Access**

**Cyanokits**
- **(Hydroxocobalamin)**
  - **Adult**
    - 5 grams IV/IO over 15 minutes
      (Single Vial OR Two 2.5 gm Vials)
  - **Pediatric**
    - 100 mg/kg IV/IO over 15 minutes

**Assessment Considerations**

In the setting of smoke inhalation and altered mental status, you should assume cyanide poisoning.

- Toxic cyanide compounds include hydrogen cyanide (gas), sodium cyanide and potassium cyanide (water-soluble salts).
- Four common routes of exposure:
  1. Occupational poisoning: industry and chemical labs (production of plastics, solvents, enamels, papers, glues, jewelry, pesticides, fertilizers, etc.)
  2. Inadvertent, suicidal or homicidal ingestions
  3. Ingestion of plant products containing naturally occurring cyanogenic glycosides
  4. Inhalation of smoke from burning substances in closed space fire such as wool, silk, polyurethane or vinyls.
- Cyanide blocks the ability of the cellular mitochondria to use oxygen thus producing a state of severe hypoxia despite the presence of oxygen (will have normal O₂ saturation). Anaerobic metabolism predominates, producing a lactic metabolic acidosis.
- The time course and severity of the clinical effects of poisoning depend on the nature of the compound and the length and method of exposure. Mild to moderate symptoms include restlessness, anxiety, palpitations, dyspnea and headache. Severe symptoms include loss of consciousness, seizures, cardiac dysrhythmias, coma and death.
- Patients with inhalational exposures often recover following rescue from toxic exposure. They do not require antidotal treatment if significant recovery occurs prior to receiving medical attention.
- The odor of bitter almond oil on the breath is highly suggestive of cyanide poisoning, but its absence does not rule out the possibility.

* a Ensure your environment is safe. Protect yourself from decontamination runoff.
* b Hypotension - Ref. Table 8-2 and 8-3.

Cyanokits are carried by EMS Supervisors and District Chiefs

**Pediatric Dosing Considerations**

Reconstituted hydroxocobalamin concentration is 25 mg/ml.

Reference Table 9-2: Hydroxocobalamin Pediatric Dosing
**Eclampsia (Pregnancy Induced Seizures)**

**BLS**
- Baseline Assessment
  - 100% O₂ NRB
  - Be prepared to assist with ventilations and suctioning
  - Vital Signs
  - Blood Glucose
    - If BG < 60 mg/dl, Ref. 8.03 Y. "Hypoglycemia" protocol
  - Place in comfortable position, elevate right side as needed

**ALS**
- Assist with ventilations, intubate as needed
  - IV NS TKO
  - Cardiac Monitor / Pulse Oximetry
  - If signs of pre-eclampsia, call on-line physician for consideration of **Magnesium Sulfate**
  - Transport quickly to hospital
  - Further orders as per on-line physician

---

**Important Historical Pregnancy facts**
- Gestational Diabetes
- Hypertension
- Edema
- Visual changes
- History of Eclampsia / Pre-Eclampsia

**Signs/Symptoms of Pre-Eclampsia**
- Hypertension
- Abnormal weight gain
- Edema
- Headaches
- Epigastric pain
- Visual changes

- Eclampsia is characterized by grand mal seizure activity in addition to the above.
- Eclampsia can be distinguished from epilepsy by the history and physical of the patient.
- Patients with eclampsia are usually edematous and have marked elevated blood pressure, while seizure patients are usually known for prior history of seizures and take medications.
- Eclampsia can present up to 6 weeks post-partum.
- Transport the patient in the left lateral decubitus position.

- **Hypertension Meeting Criteria for Pre-Eclampsia is a SBP > 140 or a DBP > 90.**

---

**Ensure Airway Protection**

- **Magnesium Sulfate** 4 Gm (in 50 ml NS) IV/IO gtt over 10 minutes
  - If seizures continuing 5 min after beginning Mag,
    - **Midazolam** 2 mg IV/IO/IN/IM
  - If seizures continuing when first dose Mag completed,
    - **Magnesium Sulfate** 2 Gm (in 50 ml NS) IV/IO gtt over 10 minutes **AND**
    - **Midazolam** 2 mg IV/IO/IN/IM
**Baseline Assessment Considerations**

- Assessment of a patient with agitation should consider a wide differential diagnosis. Common causes of agitation include:
  - head trauma
  - hypoxia
  - hypoglycemia
  - electrolyte imbalance
  - infections
  - drug or alcohol intoxication or withdrawal
  - psychiatric disorders

- Any patient showing agitation needs to be closely examined for correctable causes of agitation.

- Management of acute agitation should begin with reassuring verbal techniques. If this is unsuccessful, physical restraints may be used. Only progress to physical restraints when there is imminent danger to either the patient, EMS personnel or others.

- If a patient is not immediately calm with physical restraints, medication should be utilized to decrease the patient's agitation.

- Midazolam can cause hypotension and decreased respiratory drive. Treatment with Midazolam should be in small increments of 1-2 mg at a time, not exceeding 4 mg unless directed by on-line physician.

- If the patient imposes no threat to himself or others and has the capacity to make reasonable decisions, then he cannot be restrained without his permission.

- Medical record documentation should clearly describe the types of restraint applied, the indications for such restraint, and the repeated assessment of the patient's condition while restrained.

- Do not restrain the patient in a prone position (Ref. 6.10).
**BLS**

Baseline Assessment

100% O₂ NRB

Lay patient supine if tolerated

**ALS**

2 large bore IV NS TKO

**ADULT**

*If hypotensive*,
1000 ml NS bolus and reassess

*If hypotensive or poor perfusion for age*,
20 ml/kg NS bolus and reassess

**PEDIATRIC**

Cardiac Monitor / Pulse Oximetry

Notify receiving facility early

Further orders as per on-line physician

*Hypotension: See Table 8-2 and Table 8-3*
**Baseline Assessment**

- **100% O₂ NRB / Vital Signs**
  - **Blood Glucose**

**ALS**

- **IV NS TKO**
  - **Further orders as per on-line physician**

**-- ADULT --**

* If BG > 400 or “High”*, 1000 ml NS bolus and reassess

* If BG > 400 or “High”*, 10 ml/kg NS bolus and reassess

**-- PEDIATRIC --**

**Differential Diagnosis of Hyperglycemia**

**Diabetic Ketoacidosis (DKA):** this is due to the inability of the cells to take up and use glucose when insulin is not present. This subsequently results in the release of counter-regulatory hormones (epinephrine, cortisol, glucagon, growth hormone) ultimately resulting in hyperglycemia, ketosis, and acidosis. Patients will often present with hyperventilation with or without altered mental status due to the acidosis.

**Hyperglycemic Hyperosmolar Non-Ketotic Syndrome (HHNK):** This typically occurs in elderly diabetic patients resulting from an osmotic diuresis (water loss due to glucose impairing the kidneys ability to concentrate the urine). This is a very lethal disease with mortality rates ranging from 12-46% if untreated. Patients often present with a very elevated blood sugar and altered mental status.

**Hyperglycemia:** this represents an elevated blood sugar without subsequent complications associated with DKA or HHNK. Patients often complain of Polyuria (excessive urination), Polydypsia (excessive thirst), weight loss, fatigue and weakness, nausea and vomiting, and nonspecific abdominal pain.

Patients with significant hyperglycemia are often dehydrated secondary to the excessive urination (loss of water) associated with the elevated blood sugar. For this reason we will be providing 1 Liter of NS to patients with blood sugars > 400.

**Pediatric Concerns:** Children are more susceptible than adults to experience cerebral edema (swelling of the brain) while receiving fluids to correct DKA. Therefore, pediatric patients will only receive a total of 10 ml/kg NS bolus when a blood sugar greater than 400 is encountered.

* “High” on the Glucometer is a glucose ≥ 600.
BLS

Baseline Assessment

100% O₂ NRB

Vital Signs

Blood Glucose
If BG < 60 mg/dl, Ref. 8.03 Y.
"Hypoglycemia" protocol

ALS

IV NS TKO

Cardiac Monitor / Pulse Oximetry

12 lead ECG

If meets inclusionary criteria*, Contact Medical Control for:
Labetalol 10 - 20 mg slow IVP

Further orders as per on-line physician

Assessment Considerations

1. Is there a history of hypertension or CVA? Headache? Dizziness? Syncope? Numbness or tingling in any part of the body?

2. Is there any weakness or paralysis on one side of the body? Is there any facial drooping? Aphasia or decreased level of consciousness? If so, consider use of “Stroke (Acute)” protocol (Ref. 8.03 GG.)

Hypertension is not a disease, but an end result of multiple disease processes. It is important to recognize that an isolated hypertensive reading does not reflect the overall blood pressure status of the patient. While reduction in blood pressure to a “normal” range is important for all patients, acute lowering of the B/P may actually cause further harm to the patient by underperfusing end-organs. Asymptomatic HTN does not require treatment.

The trend in medicine currently is to avoid aggressive lowering of elevated B/P’s unless required by evidence of immediate end-organ damage (hemorrhagic stroke, etc.)

* Inclusionary Criteria for Labetalol

Patient Must Meet Each Criteria:

- Age > 18 years old
- SBP > 220 and/or DBP > 120
- HR > 60
- A symptom of Hypertensive Emergency such as Headache, Altered Mental Status, Syncope, Chest Pain (See Note below) or Focal Neurological Deficit

Patient Must Not Have:

- Greater than a 1st degree Heart Block
- Signs or symptoms of Congestive Heart Failure such as Pulmonary Edema or Rales
- Known Cocaine Use
- Asthma or history of obstructive airway disease.

Note: For patients additionally complaining of chest or anginal type pain, treat according to the chest pain protocol initially. For patients whose BP does not decrease with NTG, contact on-line physician for Labetalol consideration.
Hyperthermia (Environmental / Heat Stroke)

**BLS**
- Baseline Assessment
- Remove from hot environment as soon as practical
- 100% O₂ NRB
- Vital Signs / Temperature (Core Temp if possible)
- Provide rapid non-invasive cooling measures*

**ALS**
- IV NS TKO
- Cardiac Monitor / Pulse Oximetry
- Continue Cooling Measures*

**Environmental Hyperthermia**

Hyperthermia is a condition related to the body’s inability to cool itself adequately. Hormones, certain drugs or toxins can cause failure of thermoregulatory mechanisms with or without elevated environmental temperatures. Hyperthermia is more commonly associated with exposure to high-heat, high-humidity situations where individuals are unable to cool themselves adequately. This may be exacerbated by inadequate physical fitness, hydration status, co-morbid illness or extremes of age.

Historically, environmental heat-related illness has been divided into multiple conditions such as prickly heat, heat cramps, heat exhaustion, and heat stroke. This division has been artificial and has occasionally resulted in inadequate treatments since the symptoms associated with each illness are variable and have a great deal of overlap. The discussion regarding environmental heat-related illness is better understood as a continuum with heat stroke as the most severe form, identified as altered mental status from an elevated body temperature.

* The preferred rapid cooling measure is to strip the patient down to undergarments, sponge or pour room temperature water on the skin while providing gently moving air (fanning). Do not cause the patient to develop “goose bumps” or shivering by over cooling the patient.

* Ice packs may be placed in the groin and axilla.

* Aggressive cooling should be stopped once the patient’s core temp reaches ≤ 102° to avoid overshoot hypothermia.

Hold all P.O. fluids until patient is alert and oriented, and has no complaints of nausea / vomiting.

---

If Core Temp ≥ 104° and Altered Mental Status,
1000 ml chilled NS bolus and reassess

If Core Temp ≥ 104° and Altered Mental Status,
20 ml/kg chilled NS bolus and reassess

---

Blood Glucose, if not done
If BG < 60 mg/dl, Ref. 8.03 Y. "Hypoglycemia" protocol

Observe for seizures
Treat as per 8.03 FF. "Seizure Activity" protocol

Further orders as per on-line physician

---

---

---
**Hypoglycemia**

**BLS**

- Baseline Assessment
- High Flow O₂, 100% / Vital Signs
- Blood Glucose

---

**-- ADULT --**

If BG < 60 mg/dl, patient symptomatic and able to swallow without airway compromise,

Dextrose (Glucose) 15 grams orally (1 tube)

**-- PEDIATRIC --**

After 5 minutes, reassess Blood Glucose.
In Adult patients, if BG still < 60, may repeat oral dose above once.

---

**ALS**

- IV NS TKO / Cardiac Monitor / Pulse Oximetry

---

**-- ADULT --**

BG < 40 mg/dl,

Dextrose 50% 50 ml IVP
BG 40 - 60 mg/dl,

Dextrose 50% 25 ml IVP

BG ≤ 60 mg/dl,

Dextrose 25% 2 ml/kg IVP

---

**-- PEDIATRIC --**

Further orders as per on-line physician

---

Glucose Administration Considerations

If a patient presents with signs/symptoms of malnutrition or alcohol abuse, **DO NOT** give dextrose. Transport the patient without delay to the hospital.

- If hypotensive (See Table 8-2), administer Normal Saline Bolus (1000 cc’s in adults, 20 cc/kg in pediatrics)
- Recheck vital signs immediately after fluid bolus is completed.
- Use extreme caution with patients that can not tolerate sudden volumes of fluids, i.e.: renal failure, dialysis, CHF, the elderly

If unable to obtain IV access after two attempts by two separate paramedics, establish an IO in those patients who are unconscious, unresponsive and severely hypoglycemic (< 40 mg/dl).

Administer appropriate Dextrose dosage IO and continue to attempt IV access.

---

8.03 Y.
8.03 Z. Hypothermia (Environmental)

A. It is difficult to determine pulselessness in hypothermic patients. When in doubt take 30 - 60 seconds to examine the patient for pulses. If the patient is pulseless, begin CPR.

B. Passive warming methods include:
   • removing all wet clothing
   • covering patient with dry sheet
   • placing in warm environment

C. Contact the Base Station immediately for hypothermic cardiac arrest patients. Do not defibrillate the patient until directed to do so by the on-line EMS physician. Proper management of hypothermic cardiac arrest is very complicated.
**8.03 AA. Myocardial Infarction - ADULT ONLY**

**BLS**
- Baseline Assessment
- **100% O₂ NRB, Vital Signs**

**ALS**
- Acute MI on 12 lead ECG?
  - **No** → Further orders as per on-line physician
  - **Yes**
    - Send 12-lead ECG to Base Station (Ref. 9.04) for Forwarding to 24-Hour Cardiac Catheterization Hospital Destination
    - If Chest Pain Present After 3 Nitroglycerin and SBP > 100 mmHg*, Fentanyl 50 - 100 mcg IV/IN/IO
    - Transport Patient to 24-Hour Cardiac Catheterization Hospital
    - Further orders as per on-line physician

---

**Assessment Considerations**

8.03 N. “Chest Pain” Protocol Shall be completed prior to institution of this protocol.

* For patients with a contraindication to NTG administration / Right Ventricular MI, Fentanyl may be administered with continuing Chest Pain and a SBP > 100 mmHg.
**BLS**

- Baseline Assessment
- 100% O₂ NRB
- Have suction and convenience bag ready
- Vital Signs
- Blood Glucose
  - If BG < 60 mg/dl, Ref. 8.03 Y. "Hypoglycemia" protocol

**ALS**

- IV NS TKO (large bore if suspected hypovolemia)

**Adult**
- **If hypotensive***,
  - 1000 ml NS bolus and reassess
- **If hypotensive for age or poor perfusion***,
  - 20 ml/kg NS bolus and reassess

**Pediatric**

**Adult**
- **If continued vomiting**,
  - Ondansetron 8 mg IV over 2-5 min.

**Pediatric**
- **Further orders as per on-line physician**

*Hypotension: See Table 8-2 and Table 8-3.*
8.03 CC. Non-Traumatic Shock (not Suspected Aortic Aneurysm)

**ADULT**
- **Baseline Assessment**
  - History of GI bleeding?
  - Stroke?
  - Good access to food/water?
  - Nausea/vomiting, diarrhea?
  - Frequent or no urination?
  - Drug use or overdose?

**ADULT Baseline Assessment Considerations**
- History of GI bleeding?
- Stroke?
- Cardiac problems?
- Elderly?
- Pregnant?
- Heat related?
- Syncopal episode?
- Allergic Reaction?

**Blood Glucose**
- If BG < 60 mg/dl, Ref. 8.03 Y. "Hypoglycemia" protocol

**ALS**
- **IV NS TKO**
- Cardiac Monitor / 12 lead ECG / Pulse Oximetry

**PEDIATRIC**
- **Baseline Assessment**
  - Sickle Cell or other Asplenia?
  - Indwelling Line / Catheter?
  - Severe Developmental Delay?
  - Immune Deficiency / Compromise / Suppression?
  - Cancer?

*** Pediatric Patients with Fever, Tachycardia and One of the Above Conditions Should be Treated as a Shock Patient ***

**Congenital Adrenal Hyperplasia (CAH)**
These patients do not produce enough endogenous steroids. Usually, the patient or their parents are well informed about their medical condition. Emergency treatment for CAH consists of SoluCortef IV/IM. ALS personnel SHALL assist trained individuals (parents) on the administration of SoluCortef to a patient who the care-giver believes needs the medication. If the SoluCortef is not available, administer Solumedrol 2 mg/kg up to 125 mg IV/IM.

---

**Use this position with caution in patients with history of COPD, CHF, or extreme obesity since this may cause respiratory distress or arrest.**

**Ref. Table 8-2 and Table 8-3.**

---

**Pulmonary Edema?**
- **No**
  - If hypotensive, 1000 ml NS bolus and reassess
  - If hypotensive for age or poor perfusion, 20 ml/kg NS bolus and reassess

---

**PEDIATRIC ONLY**
- **10 ml/kg NS bolus and reassess**
  - If no improvement, repeat up to TWO more additional NS bolus at 10 ml/kg each bolus and reassess after each.

---

**PEDIATRIC ONLY**
- **Dopamine gtt**
  - Titrate to SBP = 100 mmHg

**PEDIATRIC**
- **Dopamine gtt**
  - Titrate to age appropriate

---

If treating for Shock, Ensure Advanced Notification to Receiving Hospital of Shock Patient

---

Further orders as per on-line physician

---

SUBJECT: PATIENT CARE GUIDELINES AND STANDING ORDERS FOR BLS AND ALS UNITS
REFERENCE NO. III-01
PUBLICATION: 7/10/16
III-45
8.03 DD. 

**Organophosphate Exposure**

- **BLS**
  - Alert EMS Supervisor if Suspicious for Organophosphate exposure
  - Scene Safety / Baseline Assessment
  - Remove all clothing and decontaminate patient
  - 100% O₂ NRB
  - Vital Signs

- **ALS**
  - IV NS TKO
  - Cardiac Monitor / Pulse Oximetry

  - HR < 60 BPM and Hypotensive or Poor Perfusion for Age?*
    - Yes
      - **Atropine** 2 mg IVP
      - Atropine 0.05 mg/kg IVP (max of 2 mg)
    - No
      - Further orders as per on-line physician

---

*A Hypotension: See Table 8-2 and Table 8-3.

---

A. Scene safety: Before taking any action to treat the patient, ensure that the scene is safe and evaluate for more than one patient. This standing order is used to treat organophosphate exposures.

B. Baseline assessment considerations:

  Presentation of organophosphate ingestion will have the “SLUDGEM” signs/symptoms.
  - S = Salivation
  - L = Lacrimation (eye tearing)
  - U = Urination
  - D = Diarrhea
  - G = Gastrointestinal distress
  - E = Emesis
  - M = Miosis (constricted pupils)

Patients can also have constricted pupils.

C. Do not contaminate yourself while treating the patient. Utilize appropriate precautions.

Consider activating the Haz-Mat Team.
1. Equipment
   • DuoDote Auto-injector antidote contains:
     a. Atropine (2.1 mg)
     b. Pralidoxime Chloride (2-PAM) (600 mg)

2. Guidelines
   • The DuoDote antidote is for rapid use before an IV line is established. The DuoDote antidotes are for use on HFD personnel who have been exposed to a chemical agent and are showing signs or symptoms of exposure.
   • DuoDote antidotes are carried on each District Chief and EMS Supervisor vehicle. DuoDote antidotes are distributed on the order of an HFD Medical Director or EMS Supervisor.
   • The first step to take when someone displays symptoms of nerve agent exposure is to remove that person from the hazardous environment. Then, begin treatment. For mild symptoms in exposed patients, administer one auto-injector kit. Unconscious patients, patients who are seizing, and patients showing more severe signs or nerve agent exposure should receive three antidotes and one CANA kit (10 mg Valium).

3. Procedure
   • Injection Site Selection
     a. Injection site is normally in the outer thigh muscle. It is important that the injections be given into a large muscle area.
     b. If the individual is thinly built, then administer the injections into the upper outer quadrant of the buttocks.
     c. DuoDote Auto-injector can be administered through clothing, including bunker gear. Make sure pockets at the injections site are empty.
   • Arming the Auto-injector
     a. Tear open the plastic pouch at any of the notches. Remove the DuoDote auto-injector from the pouch.
     b. Place the DuoDote auto-injector in your dominant hand. Firmly grasp the center of the DuoDote auto-injector with the green tip (needle end) pointing down.
     c. With your other hand, pull off the gray safety release. The DuoDote auto-injector is now ready to be administered.
   • Administering the antidote to yourself
     a. Swing and firmly push the green tip straight down (a 90° angle) against the mid-outer thigh.
b. Continue to push firmly until you feel the DuoDote auto-injector trigger.
c. After the auto-injector triggers, hold the DuoDote auto-injector firmly in place against the injection site for approximately 10 seconds.
d. Remove the DuoDote auto-injector from the thigh and look at the green tip. If the needle is visible, the drug has been administered. If the needle is not visible check to be sure the gray safety release has been removed, and then repeat the above steps, pushing harder against the thigh.
e. After the drug has been administered, push the needle against a hard surface to bend the needle back against the DuoDote auto-injector.
f. Put the used DuoDote auto-injector back into the plastic pouch, if available. Leave the used DuoDote auto-injector(s) with the patient to allow other medical personnel to see the number of DuoDote auto-injector(s) administered.
g. Immediately move yourself and the patient away from the contaminated area and seek definitive medical care for the patient.
**Psychiatric Emergencies**

**BLS**

Scene Safety / Baseline Assessment

Establish rapport with the patient if possible

If danger to self or others, request HPD
Critical Intervention Team Members

Use physical restraints as needed for patient and rescuer safety

**Blood Glucose**

If BG < 60 mg/dl, Ref. 8.03 Y. "Hypoglycemia" protocol

**ALS**

IV NS TKO

Cardiac Monitor / Pulse Oximetry if indicated

Transport to hospital with psychiatric facilities

Further orders as per on-line physician

---

A. *If the patient is suicidal, do NOT leave patient by themselves.*

B. *Clearly document the need for physical restraints as per 6.10 Physical Restraints.*

C. *Ref. 9.05 Approved Hospitals and Hospitals with Specialized Facilities.*
### Seizure Activity

#### BLS

**Scene Safety / Baseline Assessment**

- **100% O₂ NRB**
  - Be prepared to assist with ventilations

#### ALS

**Cardiac Monitor / Pulse Oximetry**

- If BG < 60 mg/dl, Ref. 8.03 Y. "Hypoglycemia" protocol

#### Blood Glucose

- If BG < 60 mg/dl, Ref. 8.03 Y. "Hypoglycemia" protocol

#### Midazolam

- **Adult**
  - Midazolam 2 mg to 4 mg IN/IM
  - MIDAZOLAM 0.2 mg/kg IN/IM

- **Pediatric**
  - IV NS TKO
  - EtCO₂ Monitoring

- If seizure continues > 5 min. after initial dose, **Adult**
  - Midazolam 2 mg to 4 mg IN/IM/IV/IO

- If seizure continues > 5 min. after initial dose, **Pediatric**
  - Midazolam 0.1 mg/kg IV/IO

### Baseline assessment considerations:

- How many seizures has the patient had?
- Is there a history of seizures or diabetes?
- On medications for seizures?
- What did the seizure activity look like?
- Urinary/fecal incontinence?
- Did patient awaken after the seizure?
- Was the seizure preceded by any trauma?

### In Adult patients, if hypotensive (See Table 8-2), administer a Normal Saline fluid bolus of 1000 ml. Recheck the patient’s vital signs immediately after the bolus is completed.

### Always apply Cardiac monitor, pulse ox and EtCO₂ when giving a respiratory depressant.

### If patient is known / suspected pregnancy, treat as Eclampsia: Ref. 8.03 S.

### Midazolam should be given IN or IM prior to an IV attempt in order to expedite treatment. Midazolam shall only be given initially IV or IO if the patient has a pre-existing IV or IO immediately available.
Houston Paramedic Stroke Scale (HOPSS)
Treat for Stroke AND Activate Stoke Team if the patient has:
1) Signs / Symptoms < 24 hours AND
2) Blood Glucose ≥ 60 AND
3) One or more of the following physical exam findings:
   - Unilateral facial drooping
   - Slurred speech / aphasia
   - Unilateral decreased or absent grip strength
   - Unilateral arm weakness, drifts down or falls rapidly

Comprehensive Stroke Center Triage Criteria
A- Patient Has One or More of the Following:
   1) GCS < 9
   2) Asymmetric Pupils
   3) Sudden Severe Headache With No Known Cause
   4) Sudden Severe One-Sided Weakness

B- Diversion to Comprehensive Stroke Center Would
NOT Extend Transport Time By More Than 15 Minutes

If YES to A&B, Transport to
Comprehensive Stroke Ctr.

BLS / ALS

Scene Safety / Baseline Assessment

100% O₂ NRB / Vital Signs

Unstable Airway or EMS Unable to Maintain Airway?

Yes → Rapid Transport to Closest Emergency Dept.

Blood Glucose < 60 mg/dl?

Yes → Treat as per 8.03 Y. "Hypoglycemia" protocol

No → Rapid Transport to Closest Designated Stroke Center

Does Patient Meet Comprehensive Stoke Center Triage Criteria?*a

Yes → Rapid Transport to Closest COMPREHENSIVE Stroke Center

   - Contact Base Station and Activate Stroke Team “CODE STROKE”
   - Do Not Delay Transport to Perform Interventions

No → ALS

ALS Care on Next Page
1. **Important Signs / Symptoms to Document**
   - Sudden, unilateral facial drooping / weakness
   - Sudden, unilateral arm weakness
   - Sudden, unilateral decreased grip strength
   - Sudden, difficult speech / aphasia

2. **Important History to Document**
   - Time last known well
   - Any sign of seizure activity
   - Any trauma before onset of symptoms
   - Any recent illness, surgery or trauma
   - List of all current meds, especially anticoagulants

2. **Family members should accompany the stroke patient in the transport apparatus in order to verify the time of symptom onset and to provide consent for interventional therapy. If this is not possible, obtain a phone number for the next of kin for these purposes.**

---

- Contact Base Station and Activate Stroke Team “CODE STROKE”
- Do Not Delay Transport to Perform Interventions

**ALS**

Further orders as per on-line physician

If Systolic BP < 120 mmHg, place head of the stretcher flat

If Systolic BP > 220 mmHg, treat according to 8.03 W. Hypertensive Emergency

**Oxygen**

Supplemental Oxygen (NC / NRB) to Keep O₂ Saturation > 94%

**IV NS TKO**

Cardiac Monitoring

- Contact Base Station and Activate Stroke Team “CODE STROKE”
- Do Not Delay Transport to Perform Interventions
**BLS**

Baseline Assessment

100% O₂ NRB

Vital Signs

Spinal Immobilization if indicated/suspected *a

Blood Glucose
If < 60 mg/dl, Ref. 8.03 Y. "Hypoglycemia" protocol

**ALS**

IV NS TKO / Cardiac Monitor / Pulse Oximetry

12 lead ECG

*If arrhythmia, go to appropriate protocol*

BG < 60 mg/dl?

Yes ➔ Ref. 8.03 Y. "Hypoglycemia" protocol

No ➔ Further orders as per on-line physician

---

* Notes

* Reference 8.04 J. “Spinal Immobilization: Blunt Trauma” Protocol

Assessment Considerations

- Excessive vagal tone
- GI Bleed
- Pulmonary Embolus
- Ectopic Pregnancy
- Cardiac Dysrhythmia
- Stroke

---

* Syncope
BLS

Baseline Assessment

High Flow $O_2$, 100% / Vital Signs

Blood Glucose
If BG < 60 mg/dl, Ref. 8.03 Y.
"Hypoglycemia" protocol

ALS

IV NS TKO in Antecubital Vein

Pulse ≥ 150 BPM?
No

Consider other etiologies

Yes

Stable patient *a ?
No

12 lead ECG

Yes

Altered Mental Status secondary to cerebral hypoperfusion?

No

Further orders as per on-line physician

Yes

Further orders as per on-line physician

Contact Medical Control for:

Diltiazem 10 - 20 mg slow IVP or
Amiodarone 150 mg IV gtt over 5-10 min.

12 lead ECG

Atrial Fibrillation / Flutter

Rhythm?

All other rhythms

SVT / PSVT

Further orders as per on-line physician

Adenosine *c
6 mg rapid IVP followed by rapid 20 ml NS flush

12 lead ECG

If HR ≥ 150 BPM after 2 minutes,
Adenosine *c
12 mg rapid IVP followed by rapid 20 ml NS flush

12 lead ECG

Further orders as per on-line physician

Notes

*a See criteria for unstable patients (Ref. 8.03 A.2.a.2).
*b Do not attempt a Valsalva maneuver or carotid sinus massage on patients greater than 50 years of age.
*c - Adenosine is contraindicated in Asthma patients.
- In patients taking dipyridamole (Persantine) or carbamazepine (Tegretol), or with heart transplants, give half of the normal dose : 3 mg initial dose followed by 6 mg IVP.

Notes

A. Consider sedation with Midazolam for cardioversion if possible.
B. Record a Lead II ECG strip before, during and after conversion attempt (for hospital staff).
**8.03 JJ. Tachycardia: Wide Complex (Symptomatic) - ADULT ONLY**

**BLS**
- Baseline Assessment
- High Flow $O_2$, 100% / Vital Signs
- Blood Glucose
  - If BG < 60 mg/dl, Ref. 8.03 Y. "Hypoglycemia" protocol

**ALS**
- IV NS TKO in Antecubital Vein
- Pulse $\geq 150$ BPM?
  - No → Consider other etiologies
  - Yes → Stable patient?\(^a\)
    - No → 12 lead ECG
    - Yes → Altered Mental Status secondary to cerebral hypoperfusion?
      - No → Further orders as per on-line physician
      - Yes → Synchronized Cardioversion @ 100 Joules

  - Successful
    - Further orders as per on-line physician
  - Unsuccessful
  - Synchronized Cardioversion @ 200 Joules
    - Successful
    - Further orders as per on-line physician
    - Unsuccessful
    - Synchronized Cardioversion @ 300 Joules
      - Successful
      - Further orders as per on-line physician
      - Unsuccessful
      - Synchronized Cardioversion @ 360 Joules
        - Successful
        - 12 lead ECG
        - Further orders as per on-line physician

*Note*
In some cases, polymorphic wide-complex rhythms will not be able to be synchronize cardioverted. In these unstable patients with AMS, if the synchronized cardioversion energy fails to be delivered, it is acceptable to perform an unsynchronized defibrillation at 360 Joules to restore a perfusing rhythm.

**This sequence was developed to assist the treatment of a broad range of patients with sustained Wide Complex Tachycardia (non-cardiac arrest patients). Some patients may require care not specified herein. Consult Medical Control in such circumstances. The flow of the algorithm presumes that Wide Complex Tachycardia is continuing.**

**NOTE:** This protocol is intended for symptomatic patients with heart rates $>150$ bpm. Consider other etiologies for patients with heart rates $<150$ bpm. Not all cases of Wide Complex Tachycardia are Ventricular Tachycardia.

Consider sedation with **Midazolam** for cardioversion if possible.

\(^a\) See criteria for unstable patients (Ref. 8.03 A.2.a.2).
BLS

Baseline Assessment

Airway management, 100% O₂ BVM or NRB

Vital Signs

ALS

Airway Management with 100% O₂

Cardiac Monitor / Pulse Oximetry

IV/IO NS TKO

Rhythm

Sinus Tachycardia (Rate < 220)

Serious signs and symptoms?*

Normal Saline
20 ml/kg IV/IO bolus. May repeat bolus x1 if no improvement.

SVT (Rate ≥ 220)

Further orders as per on-line physician

Wide Complex Tachycardia

* Serious Signs / Symptoms include:
  • Unresponsiveness
  • Hypotension
  • Poor perfusion (capillary refill > 3 sec.)
  • Respiratory Distress
BLS

Baseline Assessment

100% O₂ NRB
Be prepared to assist with ventilations

Vital Signs

Blood Glucose
If BG < 60 mg/dl, Ref. 8.03 Y. "Hypoglycemia" protocol

ALS

IV NS TKO

Cardiac Monitor / Pulse Oximetry

Further orders as per on-line physician

EMT's and Paramedics should utilize this protocol in the best interest for the patient and when no other protocol is more applicable.
Questions for Baseline Assessment

* Reference 8.04 J. “Spinal Immobilization: Blunt Trauma” Protocol

- Has patient recently been diving (last 24-48 hours)?
- Any sudden depressurization?
- Police dive team member?
- Recent rescue or training?
- Recent return from diving vacation?
- During dive: How long underwater and how deep?

Presenting signs/symptoms with a diving illness are usually sudden, dramatic and very often life-threatening. The following may occur:
- coronary occlusion
- cardiac arrest
- stroke
- focal paralysis
- sensory disturbances
- blindness
- severe joint pain
- deafness
- vertigo
- dyspnea
- seizures
- aphasia

Memorial Hermann Hospital is the only facility currently available with a 24 hour emergency Hyperbaric Oxygen Capability.

The incidence of cervical spine injury in drowning victims is low (0.009%). Unnecessary cervical spine immobilization can impede adequate opening of the airway. Only immobilize if circumstances suggest a spinal injury (dive into shallow water, etc.).
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8.04 A. General Principles for Trauma Emergencies

1. BLS / ALS Level
   a. DO NOT delay transport waiting for an ALS unit to arrive. Unless there is an unavoidable delay at the scene, meet the ALS unit en route to the hospital.
   b. DO NOT delay transport for treatment. Unless there is an unavoidable delay at the scene, perform therapeutic interventions en route to the Trauma Center. Beyond controlling life threatening hemorrhage, establishing an airway (with basic or advanced techniques) and potential spinal immobilization, the priority in caring for the trauma patient is rapid evacuation of the patient with further care performed en route to the hospital.
   c. DO inform the base station as early as possible when transporting a seriously injured patient for hospital notification.
   d. Maximize the use of Level III Trauma centers as long as transport decision is consistent with Table 8-7, Criteria for Trauma Center Transport.
   e. Resuscitation efforts may be withheld from individuals who meet obviously dead criteria:
      1) Dead-on-Scene (DOS):
         • Decapitation
         • Decomposition
         • Dependent lividity
         • Rigor Mortis
         • Incineration
         • Obvious mortal wounds
      2) Absence of any signs of life (pulse, respirations, or any spontaneous movement) on EMS arrival associated with a penetrating head injury (GSW, stab, etc.), or penetrating extremity injury with obvious exsanguination.
      3) Absence of any signs of life (pulse, respirations or any spontaneous movement) for greater than five minutes associated with a penetrating injury to the chest or abdomen and a greater than 10 minute transport time to a Trauma Center.
      4) Absence of any signs of life (pulse, respirations or any spontaneous movement) associated with blunt trauma.
   f. In cases of trauma where the vascular system is expected to be intact, resuscitate the patient according to ‘medical’ arrest protocols. The AED is to be applied as in medical protocols. This applies to patients with arrest due to:
      1) Drowning
      2) Hanging
      3) Overdose
      4) Inhalational Injury (Smoke)
      5) Electrocution
2. ALS Level
   a. Paramedic may delegate notification of the Base Station in order to facilitate early activation of the trauma team.
   b. Use End Tidal CO\textsubscript{2} for confirmation of tube placement and continuous monitoring.
   c. All IV’s placed should be large bore (14 or 16 gauge) if possible. Two large bore IV’s should be placed in patients suffering from major trauma. Do not delay transportation to initiate IV access.
**General Guidelines for All Trauma Patients**

**8.04 B.**

**BLS / ALS**

- Baseline Assessment
- Control Bleeding - *Ref. 8.04 C. Bleeding Control*
- Basic Airway Management as needed
- **100% O₂ NRB**
  - Be prepared to assist with ventilations, suctioning
- **Spinal Immobilization if indicated** *a*
- Vital Signs
  - Consider meeting ALS en route (Load and Go)
  - **NEVER** Delay transport for ALS
- **Quickly transport to an appropriate facility** *b*
- **Notify Base Station en route**
- **Further orders as per on-line physician**

---

**Assessment Considerations**

The secondary assessment on major trauma patients should be done en route to the hospital. Do not delay transport of an obvious major trauma patient to conduct a secondary survey.


* Ref. Table 8-7 “Criteria for Trauma Center Transport”

---

If at any time a tension pneumothorax is suspected, quickly perform a unilateral needle thoracostomy on the affected side (Ref. 7.02 J. Needle Thoracostomy)

Patients with suspected tension pneumothorax must have one of the following in addition to ‘unilateral absence of breath sounds’ in order to be eligible for possible needle thoracostomy:

1. systolic BP < 100 mmHg
2. grunting respirations
3. agitation
4. subcutaneous air / emphysema
5. deviated trachea
8.04 C. **Bleeding Control**

**BLS**

- Baseline Assessment, Spinal Immobilization if Indicated
- **100% O₂ NRB**
  - Be prepared to assist with ventilations, suctioning
- Direct Patient, if possible, to Control Bleeding with Direct Pressure and Elevation
- Prepare Supplies and Assist with Direct Pressure and Elevation
- Assess Results of Direct Pressure

**If Bleeding is from Extremity and is uncontrolled,**
- Apply Tourniquet or place BP Cuff 4 Inches Proximal to Bleeding Site. Inflated BP Cuff to pressure greater than systolic BP and secure cuff with circumferential tape.

**If bleeding still uncontrolled,**
- Apply a second Tourniquet 2 inches proximal to first Tourniquet
- Elevate Extremity Above Level of Heart
  - Administer High Concentration O₂
  - Prevent Heat Loss
  - Properly Position the Patient

**ALS**

- **IV NS TKO**
- Cardiac Monitor / Pulse Oximetry
- Proceed to 8.04 G. "Fluid Resuscitation in Trauma (Blunt and Penetrating)" protocol
8.04 D.

**Burns**

**BLS**

- Remove from environment and Baseline Assessment
- 100% O₂ NRB
- Be prepared to assist with ventilations, suctioning
- Spinal Immobilization if indicated *
- Vital Signs

**ALS**

- Basic / Advanced airway management as needed
- IV NS x 2 TKO

**-- ADULT --**

- If hypotensive*b, 1000 ml NS bolus and reassess
- If hypotensive or poor perfusion for age*b, 20 ml/kg NS bolus and reassess

**-- PEDIATRIC --**

- Cardiac Monitor / Pulse Oximetry
- Treat dysrhythmias with appropriate protocols

For Pain Control, Ref. 8.04 I. "Pain Management" protocol

Further orders as per on-line physician

* Reference 8.04 J. “Spinal Immobilization: Blunt Trauma” Protocol
* See Table 8-2 and Table 8-3. Immediately recheck the patient’s vital signs after the fluid bolus.

Thermal
- Remove clothing and jewelry
- Cover burns with a dry sterile dressing

Chemical
- Remove clothing and jewelry
- If chemical is dry, brush off as much as possible
- Flush with copious amounts of water. Eye Irrigation as necessary (Ref. 7.08)

Electrical
- Remove clothing and jewelry

Type of Burn?

* Reference 8.04 J. “Spinal Immobilization: Blunt Trauma” Protocol
8.04 D. Burns Notes

A. Assessment and Treatment Considerations:

1. Consider early intubation if airway compromise develops from inhalation of superheated gases or smoke. Have a high index of suspicion in cases of facial burns, sooty sputum, singed facial hair and/or hoarse voice.

2. Percent (%) of Body Surface Area (BSA) burned.
   a) Rule of Nines
      The rule of nines is a method for rapidly estimating the percent of total body surface area affected by a burn.

   Table 8-5: Rule of Nines

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front 18%</td>
<td>Front 18%</td>
</tr>
<tr>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>Back 18%</td>
<td>Back 18%</td>
</tr>
<tr>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>18%</td>
<td>18%</td>
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<tr>
<td>18%</td>
<td>13%</td>
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<tr>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>13%</td>
<td>13%</td>
</tr>
</tbody>
</table>

   b) In burn victims, the percent of total body surface area affected is a strong predictor of patient’s prognosis. The rule of nines derives its name from the fact that an adult body may be conveniently divided into anatomic regions that have surface area percentages that are all multiples of nine percent.
3. Types of Burns
   a) 1st Degree (Superficial Burn): Involves only the epidermis. Skin will appear pink to red and there will not be blisters (e.g., sunburn, minor scald injury).
   b) 2nd Degree (Partial Thickness Burn): Involves the epidermis and portions of the dermis. Skin may appear white to cherry red, moist, and mottled and blisters will be present (e.g., thermal flame burns, severe scaldings).
   c) 3rd Degree (Full Thickness Burn): Involves all layers of skin and can extend beyond the subcutaneous layer into muscle, bone or organs. The skin will become dry, hard, tough or leathery and may appear white and waxy to black and charred (e.g., trapped in confined space with flames or high heat source or chemical contact).

4. Major Burns:
   Electrical, chemical and thermal burns which involve:
   - inhalation injuries,
   - burns along with other traumatic injuries,
   - 2nd or 3rd degree burns involving the face, hands, feet, genitalia or perineum
   - 2nd or 3rd degree burns with > 20% BSA (Body Surface Area)

   These patients should be transported to a burn center (Ref. 9.05 Approved Hospitals and Hospitals with Specialized Facilities).

5. Look for traumatic injuries associated with electrical burns.
6. Avoid IV access in the extremity with a burn injury if at all possible.
7. Avoid hypothermia by keeping the patient warm and covered with a dry, sterile burn sheet if needed.
Child Abuse (Suspected) - PEDIATRIC ONLY

BLS / ALS

Baseline Assessment

Basic airway management, 100% O₂ BVM or NRB/blow-by, if needed

Follow appropriate protocol for signs/symptoms observed

Preserve any evidence for the police department, as practical

Vital Signs

If stable, transport the child to LBJ, Ben Taub General Hospital, Memorial Hermann Hospital or Texas Children's Hospital TMC for evaluation and evidence collection

If unstable, follow appropriate protocol and transport to an appropriate facility

Report any possible child abuse to receiving hospital staff and document

Further orders as per on-line physician
**BLS**

1. Baseline Assessment
2. Control Bleeding
3. 100% O₂ NRB

**Poor Distal Neurological Status?**
- **Yes**: Using gentle traction, attempt to realign the extremity to a normal position. Re-evaluate neurovascular status.
- **No**: Immobilize injured extremity

4. Check neurovascular status
5. Vital Signs

**ALS**

- IV NS TKO

For Pain Control, Ref. 8.04 I. "Pain Management" protocol

Proceed to 8.04 G. "Fluid Resuscitation in Trauma (Blunt and Penetrating)" protocol

---

**Closed mid-shaft femur fractures**
Splint with a traction device (Ref. 7.07 C.)

**All Others**
Immobilize joints above and below the injury on two sides of the extremity.
8.04 G.  Fluid Resuscitation in Trauma (Blunt and Penetrating)

**BLS**

Baseline Assessment

High Flow $O_2$, 100%,
Vital Signs, Blood Glucose

**ALS**

Head, Truncal or Inguinal Trauma or Uncontrolled Bleeding

Isolated Extremity Trauma with Bleeding Controlled

---

**In Head, Truncal, Inguinal Trauma OR UNCONTROLLED Bleeding**

IVF’s if Abnormal Mental Status

AND

No Peripheral Pulse

---

**In Isolated Extremity Trauma with CONTROLLED Bleeding**

IVF’s if Abnormal Mental Status

OR

No Peripheral Pulse

---

**No IV Fluid**

Yes

Normal Mental Status?

No

Further orders as per on-line physician

---

**Peripheral Pulse?** *

---

Yes

Further orders as per on-line physician

---

No

---

**Normal Mental Status?**

---

Yes

---

**Further orders as per on-line physician**

---

No

---

**--- ADULT ---**

1000 ml NS bolus and reassess

---

20 ml/kg NS bolus and reassess

---

**--- PEDIATRIC ---**

---

**Peripheral Pulse?** *

---

Yes

Further orders as per on-line physician

---

No

---

**Further orders as per on-line physician**

---

---

**--- ADULT ---**

1000 ml NS bolus and reassess

---

20 ml/kg NS bolus and reassess

---

**--- PEDIATRIC ---**

---

**--- ADULT ---**

1000 ml NS bolus and reassess

---

20 ml/kg NS bolus and reassess

---

**--- PEDIATRIC ---**

---

*** Peripheral Pulses**

Adult / Adolescent / Child: Radial

Infant / Neonate: Brachial

---

Even though IV Fluid bolus may not be advised, attempt large-bore peripheral IV line(s) while en route to hospital.
8.04 H.  Head Trauma (Isolated)

**BLS**

Baseline Assessment

100% O₂ NRB
Be prepared to assist with ventilations, suctioning

Spinal Immobilization if indicated *a

Vital Signs

**ALS**

Basic / Advanced airway management as needed *b

IV NS TKO

Cardiac Monitor / Pulse Oximetry

Proceed to 8.04 G. "Fluid Resuscitation in Trauma (Blunt and Penetrating)" protocol

**Notes**


*b If intubation is needed, administer Lidocaine to blunt the increase in intracranial pressure resulting from intubation.

Adult dose: Lidocaine 100 mg IVP
Pediatric dose: Lidocaine 1 mg/kg IVP
This protocol is intended for use only for pain control in patients, adult and pediatric, who have traumatic injuries.

**DO NOT** delay transport of a traumatically injured patient in order to institute this protocol.

If Fentanyl administered, ALS or EMS Supervisor must accompany the patient to the hospital.

*a* • Elderly patients, head injuries or intoxicated patients may have more severe respiratory depression from Fentanyl. Consider starting at the lower dose of Fentanyl administration.

*b* • Most common side effect is respiratory depression. The patient must be on oxygen, cardiac monitor and pulse oximetry prior to administration of fentanyl.

• Maintain close observation of the patient’s respiratory status and intervene with stimulation or BVM as necessary. Use ETCO₂ to monitor patient.

• If respiratory status does not improve with stimulation or BVM, administer Narcan IV titrated as needed and notify online medical control.

  Adult dose: Narcan 0.4 - 2 mg IV
  Pediatric dose: Narcan 0.1 mg/kg IV

• Be sure to document appropriate Pain Scale both **BEFORE** and **AFTER** treatment for pain.

**Table 8-6: Pain Scales**

<table>
<thead>
<tr>
<th>Adult Pain</th>
<th>Moderate Pain</th>
<th>Worst Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>7</td>
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<tr>
<td>6</td>
<td>7</td>
<td>8</td>
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<tr>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

---

**BLS**

Baseline Assessment
If in arrest, follow appropriate protocol

100% O₂, NRB
Vital Signs

**ALS**

Cardiac Monitor / Pulse Oximetry / IV Access / Suction

---

Fentanyl 50 mcg - 100 mcg
IV/IN/IO *a

Fentanyl 1 mcg/kg
IV/IN/IO *a

EtCO₂
Continue to closely monitor for signs of respiratory depression *b

---

If pain continues and patient alert and controlling airway, may repeat

Fentanyl 50 - 100 mcg IV/IN/IO *a

If pain continues and patient alert and controlling airway, may repeat

Fentanyl 0.5 mcg/kg IV/IN/IO *a

---

Further orders as per on-line physician

---

**Faces Pain Scale – Revised (FPS-R)**

In the following instructions, say “hurt” or “pain,” whichever seems right for a particular child.

“These faces show how much something can hurt. This face [point to left-most face] shows no pain.

The faces show more and more pain [point to each from left to right] up to this one [point to right-most face] - it shows very much pain.

Point to the face that shows how much you hurt [right now]."

Score the chosen face 0, 2, 4, 6, 8, or 10, counting left to right, so ‘0’ = ‘no pain’ and ‘10’ = ‘very much pain.’ Do not use words like ‘happy’ and ‘sad.’ This scale is intended to measure how children feel inside, not how their face looks.

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Copyright of the FPS-R is held by the International Association for the Study of Pain (IASP) ©2001. This material may be photocopied for non-commercial clinical, educational, and research use. For reproduction of the FPS-R in a journal, book, or web page, or for any commercial use of the scale, request permission from IASP online at www.iasp-pain.org/FPS-R.

**Sources.**


*fold along dotted line*

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**Pain Management (Traumatic Pain)**

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SUBJECT: PATIENT CARE GUIDELINES AND STANDING ORDERS FOR BLS AND ALS UNITS

REFERENCE NO. III-01

PUBLICATION: 7/10/16

III-71
**Spinal Immobilization: Blunt Trauma**

-This protocol is for patients > 3 years old who have suffered an injury and c-spine control is considered.

-Infants or toddlers who are found strapped in their car seat should be transported in their car seat attached to the stretcher, as long as this does not interfere with necessary care or monitoring en route to the hospital. Utilize towel rolls around the head and neck to minimize movement.

**BLS / ALS**

Is the Patient Alert/Responsive and Able to Give a Reliable Exam\(^a\)?

- Decreased Level of Alertness? (Not A&Ox3, GCS<15, Difficulty with recall, Delayed Response to Verbal Stimuli)
  - No
  - Yes

- Evidence of Intoxication (ETOH/Drugs)?
  - No
  - Yes

- Painful or Distracting Injury or Illness? (Fractures in any location, Significant injury to torso, Significant SOB or CP)
  - No
  - Yes

  Are there Clinical Signs of Spine or Spinal Cord Injury?

- Focal Neurological Deficits (Motor or Sensory?) (Numbness, Paralysis, Non-symmetrical grip strengths, Loss of feeling in any extremity)
  - Yes
  - No

- Midline Cervical Tenderness on Palpation? (From base of skull to thoracic vertebrae)
  - Yes
  - No

- Pain with Flexion / Extension / Rotation of Neck?
  - Yes
  - No

+ C-Spine Collar + Backboard

\(a\) There can not be a reliable exam in the presence of developmental disabilities, language barriers, hearing disabilities, dysphagia or in patients distracted by environmental factors. In these cases, cervical spine collar application is advised.

\(b\) If the patient requires assistance in moving, assistance can be provided with lifting, with a device (ManSack), or a backboard. A patient should be transported on the backboard only if there is no other means capable of assisting in patient movement. Prolonged backboard use contributes to ventilation difficulty, pain and the development of tissue breakdown.

When this protocol is to be utilized, ALL 6 aspects of the patient exam MUST be documented in the patient care record.

-Extremes of age and certain medical conditions (i.e. osteoporosis) can predispose an individual to c-spine injury as a result of an apparently minor mechanism of injury. In these cases, cervical spine collar application is advised.

+ C-Spine Collar + Backboard

-Infants or toddlers who are found strapped in their car seat should be transported in their car seat attached to the stretcher, as long as this does not interfere with necessary care or monitoring en route to the hospital. Utilize towel rolls around the head and neck to minimize movement.
8.04 K.  Spinal Immobilization: Penetrating Trauma

If the patient requires assistance in moving, assistance can be provided with lifting, with a device (ManSack), or a backboard. A patient should be transported on the backboard only if there is no other means capable of assisting in patient movement. Prolonged backboard use contributes to ventilation difficulty, pain and the development of tissue breakdown.

The most important treatment action for decompensating patients with penetrating trauma is rapid transport to the closest appropriate Trauma Center. Do not delay transport with a C-Collar or taping to a backboard if they are not indicated above.
**Taser Injury**

**A. TASER Device**

1. A conducted electrical weapon deemed “less than lethal” on the use of force continuum.
2. Although the TASER device uses high voltage (50,000 volts), it uses very low current and energy (0.0021 amps or 0.026 joules to 0.0036 amps or .176 joules). For comparison, HFD’s Life Pack 15 defibrillators deliver up to 360 joules of energy. Once the TASER stops generating an electrical current, the individual immediately regains control of skeletal muscle function and the electrical pulse is immediately dissipated.

**B. Injuries / Evaluation**

1. The most commonly reported injuries are secondary in nature, meaning the TASER did not cause them. The secondary injuries are usually contusions, sprains, fractures and abrasions caused when the individual falls to the ground during muscle “lock up”. The TASER devices electrical current should not affect individuals with pacemakers.
2. Simply because an individual received a TASER discharge is not reason enough to warrant hospital transport for evaluation. However, it is important to note that the individual shall receive a medical evaluation from HFD personnel, regardless of TASER use. Keep in mind the TASER device is generally not deployed on cooperative individuals. It is very important to determine why the individual is having that type of behavior. Often, it is because of a medical reason (such as illicit substance abuse, hypoglycemia, mental health issues, excited delirium associated with an overdose, etc.). First and foremost, evaluate the individual for a life-threatening emergency.
3. One of the greatest life threats surrounding deployment of a TASER device is when an individual experiences a toxic overdose or the condition know as “Excited Delirium”. It is important to assess the individual for any signs or symptoms of a toxidrome or excited delirium. Signs and symptoms and findings of excited delirium include, but are not limited to: fever, vital sign abnormality, uncontrolled and unexpected agitation, diaphoresis, altered mental status, cardiac arrhythmia, acidosis and rhabdomyolysis. Failure to control their agitation will worsen their acidosis and lead to potential death. Any patient who exhibits any signs or symptoms of a medical or traumatic emergency should be transported to the hospital.

**C. Removal**

1. Individuals with darts embedded in anatomically sensitive locations such as the face, neck, groin, breast and possibly the hand should be transported to a hospital for removal. Removal of darts located in non-sensitive areas is performed simply by grabbing the probe and giving it a quick tug/yank in a direction perpendicular to the plane of the skin. In the rare circumstance a dart embedded in a non-sensitive area cannot be removed by tugging on it, these individuals should be transported to the hospital for dart removal as well. Also, keep in mind that a large number of darts will not penetrate through an individual’s clothing and, therefore dart removal is a moot point. Once the dart is removed, inspect it to ensure it is whole. If it is not whole, the retained foreign body needs to be removed at the hospital.
2. The Houston Police Department protocols allow their officers to remove the TASER darts as long as they are not in the above-mentioned sensitive locations(face, neck, groin or breast). Any patient with darts in these areas should be transported to the hospital for dart removal by a physician. HFD should not be routinely called for dart removal in non-sensitive locations. An HPD supervisor should be contacted if this is a repeated occurrence.
3. Caution should be used when handling darts that have been removed because they now represent a sharp biohazard and should be handled and discarded as such. Keep in mind that HPD may want the removed dart to be saved as evidence and you should inquire this before discarding it.
**BLS**

Baseline Assessment, Consider Spinal Immobilization *\(^a\)

100% O\(_2\) NRB

Be prepared to assist with ventilations, suctioning

CPR on backboard

**ALS**

Basic / Advanced airway management with 100% O\(_2\)

IV NS x 2 TKO

Cardiac Monitor / EtCO\(_2\) / Pulse Oximetry

**ADULT**

1000 ml NS bolus and reassess

20 ml/kg NS bolus and reassess

**PEDIATRIC**

Further orders as per on-line physician

Withhold traumatic arrest resuscitation on those who meet traumatic dead on scene criteria (Ref. 8.04 i.e.).

* In settings of minor or low-speed trauma, be aware of a medical arrest precipitating the trauma. If this is likely the case, resuscitate the patient as a ‘medical’ arrest (Ref. 8.02)

* In cases of trauma where the vascular system is expected to be intact, resuscitate the patient according to ‘medical’ arrest protocols (Ref 8.02) 
This would include cases of:
- Drowning
- Hanging
- Overdose
- Inhalational Injury (Smoke)
- Electrocution

Traumatic Arrests that are being resuscitated should be transported immediately to the nearest Level I/II or III Trauma Center. ALS can be met en route but do not let this delay transport more than minimally.

If at any time a tension pneumothorax is suspected, quickly perform a unilateral needle thoracostomy on the affected side.
- Ref. 7.02 J. Needle Thoracostomy

* * Reference 8.04 J. “Spinal Immobilization: Blunt Trauma” Protocol or 8.04 K. “Spinal Immobilization: Penetrating Trauma” Protocol

If at any time the patient is in Ventricular Fibrillation, deliver one 360 Joule shock. If the patient does not convert, continue CPR and transporting, attempting defibrillation every 3 minutes at 360 J.
**BLS**

Baseline Assessment

- Control any life threatening bleeding
- 100% O₂ NRB
- Spinal Immobilization as indicated *a*, tilt backboard 30° to the left side
- Vital Signs

**ALS**

Basic / Advanced airway management as needed

- IV NS x 2 TKO
- Proceed to 8.04 G. "Fluid Resuscitation in Trauma (Blunt and Penetrating)" protocol

---


During late term of pregnancy (6-9 months), it may be necessary to manually lift the patient’s uterus off of the inferior vena cava by maintaining a tilt to the patient’s left side. This will help with blood flow to and from the heart.
Table 8-7: Criteria for Trauma Center Transport

**Does the patient have...?**

**Uncontrollable Airway?**
- Yes → Transport to the Nearest Trauma Center (Level I/II or III)
- No → EMS Witnessed BLUNT Traumatic Arrest

**EMS Witnessed BLUNT Traumatic Arrest**
- Yes → Transport to Level I/II Trauma Center If ≤ 20 Minute Transport Time
- No → EMS Witnessed PENETRATING Traumatic Arrest

**EMS Witnessed PENETRATING Traumatic Arrest**
- Yes → Transport to Level I/II Trauma Center
- No → If Level I/II not possible in 20 minutes, transport to Closest Trauma Center (e.g. Level III)

**Physiologic Parameters?**
- Yes → Transport to Level I/II Trauma Center
- No → Anatomical Injuries?

**Anatomical Injuries?**
- Yes → Transport to Level I/II Trauma Center
- No → Mechanism of Injury?

**Mechanism of Injury?**
- Yes → Transport to Level I/II Trauma Center
- No → High Risk Trauma Patient?

**High Risk Trauma Patient?**
- Yes → Transport to Level III Trauma Center
- No → Any appropriate General Care Hospital
Table 8-8: Glasgow Coma Scale: Adult and Pediatric

<table>
<thead>
<tr>
<th></th>
<th>ADULT GLASGOW</th>
<th>PEDIATRIC GLASGOW</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye Opening (4)</strong></td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Spontaneous</td>
<td>4</td>
<td>Spontaneous</td>
</tr>
<tr>
<td>To Speech</td>
<td>3</td>
<td>To Speech</td>
</tr>
<tr>
<td>To Pain</td>
<td>2</td>
<td>To Pain</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td>None</td>
</tr>
</tbody>
</table>

| **Best Motor Response (6)** | 6 | 6 |
| Obeys Commands  | 6 | Spontaneous Movement  |
| Localizes Pain  | 5 | Withdraws to Touch  |
| Withdraws From Pain | 4 | Withdraws from Pain  |
| Abnormal Flexion | 3 | Abnormal Flexion  |
| Abnormal Extension | 2 | Abnormal Extension  |
| None             | 1 | None  |

| **Verbal Response (5)** | 5 | 5 |
| Oriented            | 5 | Coos, Babbles |
| Confused            | 4 | Irritable Cry |
| Inappropriate       | 3 | Cries to Pain |
| Incomprehensible    | 2 | Moans to Pain |
| None                | 1 | None  |

<table>
<thead>
<tr>
<th>Total</th>
<th>Total</th>
</tr>
</thead>
</table>

|
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9.01 Pharmacology Guide

Drug Guide Terminology

1. **Generic Name**: The pharmacological name given to a drug when originally developed.

2. **Trade/Brand Name**: The drug name used by the manufacturer for marketing purposes. A drug may be marketed by several different manufacturers and may have multiple trade/brand names.

3. **Classification**: The therapeutic category to which a drug belongs as determined by the drug’s actions.

4. **Action**: The effect which the drug is intended to produce specific to out-of-hospital care.

5. **Indication**: The specific condition for which the drug is recommended for out-of-hospital use.

6. **Contraindication**: Circumstances when the drug should not be administered unless the benefits outweigh the risks. Hypersensitivity is always a contraindication for any drug.

7. **Adverse Effect**: The predictable, but undesirable effect of the drug. This may be related to the dose and rate of administration. Italic effects indicate the most common effects. Bolded effects indicate possible injurious or life-threatening effects.

8. **Administration**: Drugs may be administered in a variety of ways. Included are the dose, route(s), and rate of initial administration. This is followed by the repeat dose, the time it can be repeated, and the maximum amount that can be administered.

9. **Onset**: The period of time required for the drug to begin its physiologic effect.

10. **Duration**: The period of time that the drug is expected to maintain its physiologic effect.

11. **Precaution**: Measures to be considered in order to avoid complications related to the administration of a specific drug.

12. **Note**: Relevant information specific to the use of a particular drug.
9.01 A. **Adenosine (Adenocard®)**

I. **Classification**
   - Antidysrhythmic agent

II. **Actions**
   - Depresses automaticity in the sinus node
   - Suppresses AV conduction

III. **Indications**
   - Perfusing PSVT unresponsive to Valsalva
   - Poorly perfusing PSVT in a conscious patient

IV. **Contraindications**
   A. History of Sick Sinus Syndrome
   B. Second degree type II or third degree heart block
   C. Asthma patients

V. **Adverse Effects**
   A. Cardiovascular
      - **Bradycardia/asystole**
      - **Second/third degree blocks**
      - **Chest pain/pressure**
      - **Hypotension**
      - **PACs/PVCs**
   B. Neurological
      - **Seizures**
      - Headache
      - Blurred vision
      - Tingling/numbness
      - Light-headedness
      - Dizziness
   C. Respiratory
      - Dyspnea/shortness of breath
      - **Bronchoconstriction in asthmatic patients**
   D. Gastrointestinal
      - **Nausea**
      - Metallic taste
   E. General
      - Flushed skin
      - Throat tightness

VI. **Administration**
   A. Adult:
      6 or 12 mg **rapid IVP**, within 1-3 seconds, followed by rapid flush of 10-20 ml NS.
      - Patients known to be taking Persantine® (dipyridamole) or Tegretol® (carbamazepine) receive half of the normal dose (3 or 6 mg).
B. Pediatric [by online MD order only]:
  0.1 mg/kg **rapid IVP** within 1-3 seconds, followed by rapid flush of 10 ml NS. May repeat 0.2 mg/kg IVP in 1-2 minutes one time.

VII. Onset
   • Immediate

VIII. Duration
   • Less than 10 seconds

IX. Precautions
Adenosine is metabolized in less than 10 seconds. In order to ensure rapid administration into central circulation:
A. Cannulate a large vein (antecubital fossa) using an 18g-20g catheter.
B. Use the IV port closest to patient and immediately flush with 10-20 ml NS to ensure drug is administered as rapidly as possible.

X. Notes
A. It is important to evaluate patient response and document rhythms for follow up care. Monitor patient and run a continuous strip before, during and after administration of adenosine to document the effect of the drug.
B. Patients often have a 10 second period of escape beats or asystole before the sinus node starts up again.
C. Adverse effects of chest pain, hypotension or shortness of breath will resolve spontaneously within 1-2 minutes.
D. Adenosine will not convert sinus tachycardia, atrial flutter or atrial fibrillation to a normal sinus rhythm, but may cause a transient slowing of the heart rate in atrial fibrillation with a rapid ventricular response.
E. Persantine and Tegretol potentiate the actions of adenosine, which may result in second/third degree blocks.
F. Theophylline and xanthine preparations as well as caffeine, may render adenosine ineffective.
G. Signs/symptoms of poor perfusion includes: chest pain, shortness of breath, altered level of consciousness, and hypotension.
H. Definition of **paroxysmal supraventricular tachycardia (PSVT)**: A supraventricular rhythm caused by rapid atrial depolarization, which overrides the SA node. Characterized by a sudden onset and abrupt termination, which is determined by the patient’s history. The rhythm is regular with narrow complexes and a rate > 150 beats/minute (pediatric patients >230 beats/minute) and may last from minutes to hours.
9.01 B. **Albuterol Sulfate (Proventil®, Ventolin®)**

I. **Classification**
   • Bronchodilator

II. **Actions**
   • Relaxes bronchial smooth muscles (beta 2)
   • Reduces airway resistance

III. **Indications**
   Bronchospasm caused by:
   • Acute asthma
   • Anaphylaxis
   • COPD
   • Bronchitis
   • Toxic gas inhalation
   • Near drowning
   • Drug overdose

IV. **Contraindications**
   • Not significant in above indications

V. **Adverse Effects**
   A. Cardiovascular
      • Tachycardia
      • Hypertension
   B. Respiratory
      • Cough
      • Wheezing
   C. Neurological
      • Tremors
      • Nervousness
      • Headache
      • Dizziness
   D. Gastrointestinal
      • Nausea

VI. **Administration**
   A. Adult
      2.5 mg/3 ml NS administered by nebulizer over 5-15 minutes. Repeat the breathing treatment as many times as needed.
   B. Pediatric
      Same as adult

VII. **Onset**
   • Within 5 minutes

VIII. **Duration**
   • 4-6 hours
IX. Precautions
   • Hypoxic patients may experience dysrhythmias. Monitor the patient’s rhythm and provide supplemental O₂ before and after the treatment to decrease hypoxemia.

X. Note
   • Do not use a facemask with retaining strap due to the decreased ability to monitor tidal volume and level of consciousness.
   • Use with caution in patients with a history of hypertension, heart disease and tachydysrhythmias.
9.01 C. **Amiodarone (Cordarone®)**

I. **Classification**
   - Antidysrhythmic

II. **Actions**
   - Sodium, potassium and calcium blockade
   - Prolongs intranodal conduction and refractoriness of the AV node

III. **Indications**
   - Pulseless, refractory VT and VF
   - Wide-Complex Tachycardia with pulse

IV. **Contraindications**
   - Second and Third Degree AV Block
   - Cardiogenic Shock
   - Marked Sinus Bradycardia

V. **Adverse Effects**
   A. Cardiovascular
      - Bradycardia
      - Congestive heart failure
      - Hypotension
      - VT
   B. Gastrointestinal
      - Liver function test abnormal
      - Nausea

VI. **Administration**
   A. Adult:
      150 mg or 300 mg IVP, flush with 10 to 20 ml NS before and after administration.
   B. Pediatric:
      5 mg/kg IV, slow push, flush with 5 to 10 ml NS.
   C. Drips (Adult):
      Mix 150 mg with 50 ml D₅W, and run over 5 to 10 minutes in a 10 drop/ml IV administration set.

VII. **Onset**
   - Within 1-5 minutes

VIII. **Duration**
   - Has 20-47 day half-life after return of spontaneous pulses and normal blood pressure.

IX. **Precautions**
   - Most common side affect is hypotension
   - Torsades de pointes occurs in less than 1% of patients

X. **Notes**
   A. Amiodarone precipitates with Sodium Bicarbonate. Flushing with 10-20 ml of normal saline
prior and after administration should avert this reaction.
B. The medication is very viscous and forms bubbles easily. Do Not Shake vial.
C. After return of spontaneous circulation (ROSC) and extremely long transport times (20
minutes or more), contact on-line physician for possible orders for re-bolus.
9.01 D. Aspirin

I. Classification
   • Salicylate
   • Nonsteroidal anti-inflammatory

II. Actions
   • Analgesic, anti-inflammatory effect by inhibition of prostaglandin synthesis, reducing inflammatory response and intensity of pain stimulus
   • Antipyresis produced by effects on the hypothalamus, producing vasodilation and decreasing elevated body temperature
   • Inhibits platelet aggregation

III. Indications
   • Chest pain

IV. Contraindications
   • Allergy
   • GI bleeding or ulcers
   • Pediatric Patients

V. Adverse Effects
   A. Cardiovascular
      • Tachycardia
   B. Neurological
      • Tinnitus (Ringing in ears)
      • Dizziness
      • Convulsions (Severe overdose)
   C. Respiratory
      • Hyperventilation
   D. Gastrointestinal
      • Dry mouth
      • Cramping
   E. General
      •Flushed, sweaty skin
      • Pruritis

VI. Administration
   A. Adult
      324 mg PO (Chew 4 baby aspirin)

VII. Onset
   • 5-10 minutes

VIII. Duration
   • 2-3 hours
9.01 E. **Atropine Sulfate**

I. **Classification**
   - Parasympathetic blocking agent
   - Antidysrhythmic agent

II. **Actions**
   - Inhibits parasympathetic stimulation by blocking acetylcholine receptors
   - Decreases vagal tone resulting in increased heart rate and AV conduction
   - Allows bronchial dilation and decreases respiratory tract secretions
   - Decreases gastrointestinal secretions

III. **Indications**
   - Symptomatic bradycardia
   - Organophosphate (pesticide poisoning)
   - Nerve agent poisoning (Sarin, Soman, Tabun, VX)

IV. **Contraindications**
   - Neonates

V. **Adverse Effects**
   A. Cardiovascular
      - Tachycardia
      - Increased myocardial O₂ demand
   B. Neurological
      - Seizures
      - Dizziness
      - Confusion
      - Dilated pupils
      - Blurred vision
   C. Respiratory
      - Mucus plugs
   D. Gastrointestinal
      - Difficulty swallowing
      - Dry mouth
   E. General
      - Hot, dry skin
      - Worsens glaucoma
      - Hyperthermia

VI. **Administration**
   A. Adult
      1. Bradycardia (with pulses)
         - 0.5 mg IV/IO or 1 mg ET. Maximum cumulative dosage is 3 mg IV/IO and 6 mg ET.
      2. Organophosphate Poisoning
         - 2 mg IVP or 4 mg ET. May repeat IVP/ET dose every 5 minutes until patient is asymptomatic.
B. Pediatric
   1. Bradycardia
      • Minimum single dose 0.1 mg - maximum single dose 1 mg
      • 0.02 mg/kg IVP or 0.04 mg/kg ET. (Maximum overall dose 0.04 mg/kg). One dose via ET only.
   2. Organophosphate Poisoning
      • Minimum single dose 0.1 mg - maximum single dose 2 mg
      • 0.05 mg/kg IVP, or 0.1 mg/kg ET.
   C. Use multi-dose vial of Atropine for all endotracheal administration.

VII. Onset
   • 2-5 minutes

VIII. Duration
   • 20 minutes

IX. Precautions
   The increased heart rate may increase myocardial oxygen demand and result in ischemia and dysrhythmias. Administer supplemental oxygen and monitor rhythm frequently.

X. Notes
   A. Atropine is not recommended in asymptomatic bradycardia. The increase in myocardial oxygen demand may cause or extend a myocardial infarction.
   B. May cause paradoxical slowing of heart rate if less than the therapeutic dose is given; 0.3 mg in adults and 0.1 mg in pediatric patients.
   C. Worsens glaucoma due to pupillary dilation.
   D. Pupil reaction may not be a reliable indicator for hypoxic brain damage after atropine administration.
   E. High doses of atropine may be required in organophosphate poisoning.
9.01 F. Calcium Chloride

I. Classification
   • Electrolyte

II. Actions
   • Actively competes with potassium at cardiac and neuromuscular receptor sites
   • Restores myocardial conduction in presence of hyperkalemia
   • Increases myocardial contractility (inotropy)

III. Indications
   • Cardiac arrest associated with hyperkalemia (elevated potassium)
   • Calcium channel blocker overdose
   • Bradycardia due to calcium channel blocker overdose or hyperkalemia (i.e. missed dialysis).

IV. Contraindications
   • Cardiac arrest not associated with above indications
   • Should be avoided in patients on digoxin.

V. Adverse Effects
   • Not significant in above indications

VI. Administration
   A. Adult
      1 gm (1000 mg) slow IVP over 60 seconds.
   B. Pediatric [by online MD order only]
      20 mg/kg slow IVP over 60 seconds (maximum single dose 1000 mg).

VII. Onset
   • Immediately

VIII. Duration
   • 30 minutes - 2 hours

IX. Precautions
   • Calcium precipitates with sodium bicarbonate forming calcium carbonate (chalk) and is incompatible with other drugs. Flush IV tubing before and after administration.
   • Causes tissue necrosis if infused into the interstitial space. Verify IV patency prior to administration.

X. Note
   • Hyperkalemia is common in dialysis patients due to potassium retention and can occur with an overdose of potassium supplements.
   • Common names of calcium channel blocking agents: Adalat® or Procardia® (nifedipine), Calan® or Isoptin® (verapamil) and Cardizem® (diltiazem).
9.01 G. **Dexamethasone (Decadron®)**

I. **Classification**
   • Corticosteroid

II. **Actions**
   • Potent synthetic member of the glucocorticoid class of steroid drugs that has anti-inflammatory and immunosuppressant effects. It is 25 times more potent than cortisol in its glucocorticoid effect, while having minimal mineralocorticoid effect.

III. **Indications**
   • Asthma
   • Croup

IV. **Contraindications**
   • Hypersensitivity

V. **Adverse effects (with systemic use and larger than protocol dosages)**
   A. Cardiovascular
      • Cardiac arrest, cardiac arrhythmias, hypotension or hypertension.
   B. Gastrointestinal
      • Peptic ulcer with possible perforation and hemorrhage, gastric hemorrhage, pancreatitis, esophagitis, perforation of the bowel, transient nausea, vomiting or dysgeusia (with rapid administration of large doses).
   C. Musculoskeletal
      • Steroid myopathy, muscle weakness, osteoporosis, pathologic fractures, vertebral compression fractures, aseptic necrosis of femoral and humeral heads, tendon rupture—particularly of the Achilles tendon.
   D. Fluid and Electrolyte Disturbances
      • Sodium retention, fluid retention, hypertension, potassium loss, hypokalemic alkalosis, diuresis, sodium excretion, congestive heart failure in susceptible patients.

VI. **Administration**
   • Pediatric
     0.6 mg/kg PO/IM/IV, Max dosage of 10 mg
9.01 H. Dextrose-Oral (Oral Glucose)

I. Classification
   • Hyperglycemic agent (carbohydrate)

II. Actions
   • Immediate source of glucose for cellular metabolism

III. Indications
   • Conscious patient who has signs/symptoms of hypoglycemia

IV. Contraindications
   • Patients with an altered level of consciousness
   • Patients complaining of nausea

V. Adverse Effects
   A. Gastrointestinal
      • Vomiting
   B. Respiratory
      • Aspiration

VI. Administration
   • Paste/Gel 15 Gram tube, liquid paste, PO

VII. Onset
   • Within minutes

VIII. Duration
   • Depends on the degree and cause of hypoglycemia

IX. Precautions
   • There is a risk of vomiting and aspiration if a decrease in consciousness occurs. Do not administer oral glucose if there is a potential for an altered level of consciousness. Administer glucose solution only if the patient is able to hold the bottle and drink without assistance.

X. Note
   • The entire amount does not need to be administered if the patient’s condition improves.
I. Classification
   • Hyperglycemic agent (carbohydrate)

II. Actions
   • Immediate source of glucose for cellular metabolism

III. Indications
   • Altered level of consciousness due to hypoglycemia

IV. Contraindications
   • Patients without documented hypoglycemia

V. Adverse Effects
   • None significant in above indications

VI. Administration
   A. Adult
      • 25 - 50 ml (12.5 - 25 g) IV, may repeat once
   B. Pediatric
      • 2 ml/kg of D$_{25}$W (0.5 g/kg) slow IV push at 10 ml/min, may repeat once.

VII. Onset
   • 30 - 60 seconds

VIII. Duration
   • Depends on the degree and cause of hypoglycemia

IX. Precautions
   A. D$_{50}$W may increase cerebral ischemia or infarction caused by intracranial hemorrhage or increase cerebral edema in patients with normal or elevated blood glucose levels. Verify hypoglycemia with a blood glucose test prior to the intravenous administration of D$_{50}$W.
   B. Patients may experience pain, warmth or burning at the IV site and can develop phlebitis, sclerosis or thrombosis of the vein. Establish the IV in the largest vein possible and run the IV wide open during the D$_{50}$W administration.
   C. Concentrated dextrose causes tissue necrosis if it is injected into the interstitial space. Ensure the IV is patent by aspirating blood prior to administration of D$_{50}$W.

X. Note
   A. The entire amount does not need to be administered if the patient’s condition improves.
   B. Dilution of D$_{50}$W to D$_{25}$W
      • Discard 25 ml of D$_{50}$W from the preloaded syringe.
      • Withdraw 25 ml of Normal Saline from an IV bag and inject into the preloaded syringe.
      • Gently shake the syringe to mix the solution.
9.01 J. Diltiazem (Cardizem®)

I. Classification
   • Anti-arrythmic

II. Actions
   • Inhibits the influx of calcium ions during membrane depolarization of cardiac and vascular smooth muscle.
   • Decreases total peripheral resistance resulting in a decrease in both systolic and diastolic blood pressure.

III. Indications
   • Atrial Fibrillation/Flutter with rapid ventricular response

IV. Contraindications
   • Should not be used in patients with Atrial Fibrillation/Flutter associated with an accessory bypass tract such as in Wolff-Parkinson-White (WPW) syndrome.

V. Adverse effects
   A. Cardiovascular
      • Hypotension
      • Vasodilation
      • Arrhythmia
   B. Neurological
      • Dizziness
      • Parasthesias
   C. Gastrointestinal
      • Dry mouth
      • Nausea/vomiting

VI. Administration
   A. Adult
      10 - 20 mg slow IVP over 2 minutes

VII. Onset
    • IV - 3 minutes

VIII. Duration
     • IV - 1-3 hours

IX. Note
    A. The use of Diltiazem for control of ventricular response in patients with atrial fibrillation or atrial flutter should be undertaken with caution when the patient is compromised hemodynamically or is taking other drugs that decrease any or all of the following: peripheral resistance, myocardial filling, myocardial contractility, or electrical impulse propagation in the myocardium.
    B. When administering Diltiazem, continuous monitoring of the ECG and frequent measurement of blood pressure shall be maintained.
    C. Diltiazem and IV beta-blockers should not be administered together or in close proximity (within a few hours).
D. Wolff-Parkinson-White (WPW) Syndrome

• Electrically active muscle fibers bridge the atria and ventricles - and cause pre-excitation of the ventricles. This accessory pathway is able to conduct faster than the AV node.
• WPW is a reentry mechanism with an accessory pathway.

• PR interval is shorter (less than 3 small squares (120 ms))
• Upstroke of the QRS wave is slurred; this is known as a delta wave.
• 12 lead ECG is essential as delta wave may not show up in all leads.
9.01 K. Diphenhydramine (Benadryl®)

I. Classification
  • Antihistamine

II. Actions
  • Competes with histamines at receptor sites
  • Reverses dystonic reactions

III. Indications
  • Allergic reactions
  • Adjunct to epinephrine in treating anaphylaxis
  • Dystonic reactions (ref. IX. Notes D.)

IV. Contraindications
  • Glaucoma
  • Acute Asthma

V. Adverse effects
  A. Cardiovascular
  • Hypotension
  • Palpitations
  • Tachycardia
  B. Respiratory
  • Wheezing
  • Mucus plugs
  C. Gastrointestinal
  • Dry mouth
  • Nausea/vomiting
  D. Neurological
  • Drowsiness
  • Confusion
  • Dizziness
  • Headache
  • Dilated Pupils
  • Seizures

VI. Administration
  A. Adult
  50 mg slow IVP at 25 mg/minute or deep IM.
  B. Pediatric
  1 mg/kg slow IVP over several minutes, or deep IM (not to exceed 50 mg).

VII. Onset
  • IV - 5-10 minutes
  • IM - 10-15 minutes

VIII. Duration
  • 3-4 hours

IX. Note
  A. May precipitate acute asthma due to drying effect on bronchial mucosa.
  B. May increase ocular pressure in glaucoma due to its atropine-like effect.
  C. Histamines produce the allergic symptoms of hives, laryngeal edema, bronchospasm and vasodilation.
  D. Dystonic reactions are caused by phenothiazine use and are characterized by distorted, twisting movements of the body, face, mouth and tongue.
  E. IM route not recommended for pediatric patients due to limited muscle mass.
Dopamine

I. Classification
   • Sympathomimetic agent (endogenous catecholamine)

II. Actions
   Increases blood pressure, cardiac output and improves blood flow to the kidneys. The therapeutic action depends on the receptors that are stimulated.
   A. Low dose (1-5 mcg/kg/minute) “Renal Dose”
      • Dilates renal, mesenteric, coronary and intracerebral vascular beds (dopaminergic receptors)
      • Improves organ perfusion and increases urine output
   B. Moderate dose (5-10 mcg/kg/minute) “Cardiac Dose”
      • Increases inotropy, chronotropy and increases cardiac output ($\beta_1$ receptors)
      • Indicated for treatment of cardiogenic shock
   C. High dose (over 10 mcg/kg/minute) “Vasopressor Dose”
      • Increases peripheral resistance, pulmonary wedge pressure and decreases blood flow to the kidney ($\alpha$ receptor)
      • Causes vasoconstriction and cardiac stimulation

III. Indications
   • Cardiogenic shock
   • Distributive shock

IV. Contraindications
   • Hypovolemia
   • Tachydysrhythmias

V. Adverse Effects
   A. Cardiovascular
      • Tachycardia
      • Ventricular Irritability
      • Hypertension
      • Hypotension
      • Chest Pain
      • Vasoconstriction
   B. Neurological
      • Headache
   C. Respiratory
      • Dyspnea
   D. Gastrointestinal
      • Nausea/vomiting

VI. Administration
   A. Adult
      • 200 mg/250 ml NS: Start the drip at 60 drops/minute*. Titrate to a systolic B/P of 100 mmHg and signs of adequate perfusion or maximum of 120 drops/minute*.
      • 400 mg/250 ml NS: Start the drip at 30 drops/minute*. Titrate to a systolic B/P of 100 mmHg and signs of adequate perfusion or maximum of 60 drops/minute*.
B. Pediatric
   • 200 mg/250 ml NS: Start the drip at 10 drops/minute*. Titrate to signs of adequate perfusion or maximum of 20 drops/minute*.
   • 400 mg/250 ml NS. Start the drip at 5 drops/minute*. Titrate to signs of adequate perfusion or maximum of 10 drops/minute*.

*All flow rates are based on a 60-drop per ml drip chamber.

VII. Onset
   • 5 minutes

VIII. Duration
   • 5-10 minutes

IX. Precautions
   A. Dopamine causes tissue necrosis if infused into the interstitial space. Use large veins and verify IV patency prior to administration.
   B. Do not interrupt the infusion of dopamine. To ensure a consistent therapeutic blood level, establish an additional venous access site for the administration of fluids or additional medications.
   C. Dopamine is inactivated by sodium bicarbonate. Do not administer sodium bicarbonate in same IV line with dopamine.

X. Note
   A. The flow rates are based upon a concentration equivalent to 200 mg/250 ml and a 60 drop per ml drip chamber.
   B. The flow rates determine which receptor sites are stimulated resulting in a graded response.
   C. In a high dose range, alpha-receptors override dopamine receptors resulting in decreased renal and mesenteric perfusion.
9.01 M. **Epinephrine Hydrochloride (Adrenalin®)**

I. Classification
   • Sympathomimetic agent (catecholamine)

II. Actions
   A. Increases cardiac output due to increased inotropy, chronotropy and AV conduction (beta 1)
   B. Increases systolic blood pressure due to increased cardiac output and vasoconstriction (beta 1, alpha)
   C. Alleviates wheezing and dyspnea by relaxing smooth muscles of the respiratory tract (beta 2)
   D. Increases coronary perfusion during CPR due to increased aortic diastolic pressure (alpha)
   E. Prevents hypotension and loss of intravascular fluid in anaphylactic reactions by counteracting vasodilation and decreasing vascular permeability

III. Indications
   A. Cardiopulmonary arrest
      • Ventricular fibrillation / Pulseless ventricular tachycardia
      • Pulseless electrical activity (PEA) • Asystole
   B. Acute asthma
   C. Allergic reaction/Anaphylaxis
   D. Pediatric Bradycardia

IV. Contraindications
   • Hypovolemia • Hypertension

V. Adverse Effects
   A. Cardiovascular
      • Tachycardia • Chest Pain • Hypertension • Ventricular fibrillation
   B. Neurological
      • Seizures • Dizziness • Headache • Anxiety • Tremors
   C. Gastrointestinal
      • Nausea/vomiting

VI. Adult Administration
   A. Cardiac arrest
      • 1 mg (1:10,000) IV/IO or 2 mg (1:1000) diluted with 3 ml NS ET initial dose. Repeat IV/IO/ET dose every 3 minutes.
      • The second and subsequent doses for patients in VF, pulseless VT, PEA or Asystole is 1 mg (1:1000) IV/IO diluted with 4 ml NS.
   B. Allergic reaction/Anaphylaxis
      • 0.5 mg (0.5 ml) (1:1000) IM.
   C. Breathing Difficulty : Wheezes (Asthma/COPD)
      • 0.3 mg (0.3 ml) (1:1000) IM.
   D. EpiPen Auto-Injector - 0.3 mg Epi 1:1000 [BLS]
      • For adults, but also for any patient with a weight ≥ 25 kg.
      • Inject into anterolateral aspect of thigh, not into the patient’s buttocks.
      • 1.7 ml of solution will remain in the Auto-Injector after use, however the patient has received the correct dosage.

IV-22
VII. Pediatric Administration

A. Bradycardia / Cardiac Arrest
   1. Neonate/Infant/Child/Adolescent
      0.01 mg/kg (1:10,000) IV/IO, or
      0.1 mg/kg (1:1000) with 2 ml NS ET. Repeat IV/IO/ET dose every 3-5 minutes.

B. Asthma/Anaphylaxis without shock
   • 0.01 mg/kg (1:1000) IM (maximum single dose 0.3 mg).

C. Croup / Inspiratory Stridor / Bronchiolitis
   • 3 ml solution (1:1000) in nebulizer.

D. EpiPen Jr. Auto-Injector - 0.15 mg Epi 1:1000 [BLS]
   • For patients under < 25 kg. For weights ≥ 25 kg, use an EpiPen instead of EpiPen Jr.
   • Inject into anterolateral aspect of thigh, not into the patient’s buttocks.
   • 1.7 ml of solution will remain in the Auto-Injector after use, however the patient has received the correct dosage.

VIII. Onset

   • IVP - 1-2 minutes
   • IM - 5-10 minutes

IX. Duration

   • IVP - 3-5 minutes
   • IM - 20 minutes

X. Precautions

A. Epinephrine is inactivated by sodium bicarbonate. Flush the IV tubing before and after administration of sodium bicarbonate or establish a second venous access site.

B. There is a high incidence of cardiovascular side effects with epinephrine use. Monitor blood pressure, pulse and ECG rhythm frequently after administration.

XI. Note

A. The concentration of epinephrine (1:1000 or 1:10,000) to be used varies depending on patient age, route and indication. (Table 9-1)

B. If using 1:1000 concentration for IVP or ET administration, it must be diluted with NS to produce a minimum volume of 5 ml for adults and 2 ml for pediatric patients.

Table 9-1 : Epinephrine Concentration Chart

<table>
<thead>
<tr>
<th>Age/Route</th>
<th>Concentration</th>
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</thead>
<tbody>
<tr>
<td>Adult IV/IO 1st Dose</td>
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<tr>
<td>Pediatric IV/IO</td>
<td>1:10,000</td>
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<tr>
<td>Adult IV/IO after 1st Dose / Adult ET</td>
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<tr>
<td>Adult/Ped. IM (anaphylaxis)</td>
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<tr>
<td>Neonatal / Pediatric ET</td>
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<tr>
<td>Pediatric Nebulizer (Croup/Bronchiolitis)</td>
<td>1:1000</td>
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</tbody>
</table>
Fentanyl

I. Classification
   • Analgesic, opioid agonist. Controlled Substance, Schedule II

II. Actions
   • Binds to opiate receptors as an agonist to alter the patient’s perception of painful stimuli

III. Indications
   • Pain secondary to traumatic injury or burn
   • Cardiac Angina in STEMI unresponsive to Nitroglycerin

IV. Contraindications/Cautions
   • Contraindicated in patients allergic to the drug.
   • Use with caution in elderly or debilitated patients and in those with head injuries, increased CSF pressure, COPD, decreased respiratory reserve, compromised respirations, arrhythmias, or hepatic, renal or cardiac disease.

V. Adverse Effects
   A. CNS
      • Sedation, clouded sensorium, headache, confusion, hallucinations
   B. Cardiovascular
      • Hypotension, hypertension, arrhythmias, chest pain
   C. Respiratory
      • Respiratory depression, apnea, hypoventilation
   D. Gastrointestinal
      • Nausea, vomiting
   E. Other
      • Physical dependence

VI. Administration
   A. Adult
      • 50-100 micrograms (mcg) slow IV/IO push or 50-100 micrograms IN.
   B. Pediatrics
      • 0.5 - 1 mcg/kg slow IV/IO push or 0.5 -1 mcg/kg IN. Do not give to children under 1 years of age without obtaining online medical control approval first.

VII. Onset/Duration
   • Onset 1-2 minutes, peak effects 3-5 minutes.
   • Duration of 30-60 minutes

VIII. Notes
   A. Contraindicated during pregnancy unless benefits outweigh risk to fetus. Fentanyl is secreted in breast milk, so avoid administration in breast-feeding women.
   B. You must pay extremely close attention to your patient’s respiratory status and be ready to assist respirations as needed.
9.01 O. Hydroxocobalamin (Cyanokit®)

I. Classification
• Cyanide antidote

II. Actions
• Binds cyanide ions with more affinity than hemoglobin molecule
• Cyanide ion and hydroxocobalamin form cyanocobalamin (Vitamin B12) which is then excreted in the urine.

III. Indications
• Known or suspected cyanide poisoning - patients at high risk (industrial accidents, fire victims with smoke inhalation, known overdose, etc) with one more more of the following symptoms:
  - Altered mental status, confusion, seizures, coma
  - Headache
  - Chest pain or tightness
  - Shortness of breath, bradypnea, tachypnea
  - Hypertension (early), hypotension (late), cardiovascular collapse
  - Nausea, vomiting
  - Cardiac arrest
  - Mydriasis (dilated pupils)

IV. Contraindications
• Known allergic reaction to hydroxocobalamin or cyanocobalamin

V. Adverse effects
A. Cardiovascular
• Ventricular extrasystoles
• Tachycardia
• Transient hypertension
B. Neurological
• Memory impairment
• Dizziness
• Restlessness
C. Respiratory
• Dyspnea
• Dry Throat
• Throat tightness
D. Gastrointestinal
• Abdominal discomfort
• Dysphagia
• Vomiting, diarrhea
• Hematochezia
E. General
• Allergic reaction, pruritis, anaphylaxis
• Hot flush
VI. Administration
A. Do not administer hydroxocobalamin through the same IV site/set as the following medications: dopamine, fentanyl, dobutamine, diazepam, nitroglycerin, pentobarbital, propofol, thiopental, sodium thiosulfate, sodium nitrite and ascorbic acid. You must start a second IV to administer hydroxocobalamin in patient’s receiving these medications.
B. Adult:
- 5 grams over 15 minutes (Stocked as single 5gm bottle, or two 2.5 gm bottles)
  - Single 5 gm Bottle
  - Reconstituted with 200 ml Normal Saline.
  - Two 2.5 gm Bottles, give over 7.5 minutes each.
  - Each vial reconstituted with 100 ml Normal Saline.
C. Pediatric
- 100 mg/kg of hydroxocobalamin (reconstituted with Normal Saline the same as adults) over 15 minutes.
- Reconstituted hydroxocobalamin is at a concentration of 25 mg/ml.
D. May repeat a full dosage once after 15 minutes if patient is still severely symptomatic.

Table 9-2: Hydroxocobalamin (Cyanokit®) Pediatric Dosing
(2500 mg in 100 ml)

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9.01 P. **Ipratropium Bromide (Atrovent®)**

I. Classification
   • Anticholinergic Agent

II. Actions
   • A derivative of atropine, ipratropium bromide has bronchodilatory properties.

III. Indications
   • Bronchodilator for the therapy of acute exacerbations of chronic obstructive pulmonary disease and asthma.

IV. Contraindications/Cautions
   • Contraindicated in patients allergic to the drug.

V. Adverse Effects
   A. CNS
      • Headache, blurred vision, dizziness
   B. Cardiovascular
      • Palpitations
   C. Gastrointestinal
      • Dry mouth / bad taste
   D. Other
      • Hypersensitivity reaction (urticaria, angioedema, rash, bronchospasm and oropharyngeal edema)

VI. Administration
   A. Adult
      • 1 unit dose (0.02% in 2.5ml) combined with Albuterol
   B. Pediatric
      • 1 unit dose (0.02% in 2.5ml) combined with Albuterol

VII. Onset/Duration
   • Onset 5 - 15 minutes, peak effects in 1 - 2 hours.
   • Duration of 2 hours.

VIII. Notes
   A. Ipratropium should not be used alone for the abatement of an acute asthmatic attack since the drug has a slower onset of effect than that of an adrenergic beta-2 agonist.
   B. Care should be taken to ensure that the nebulizer mask fits the patient’s face properly and that nebulized solution does not escape into the eyes. In patients with glaucoma or narrow anterior chambers, the administration by nebulizer of a combined ipratropium / beta-2 agonist solution should be avoided unless measures (e.g., use of swimming goggles or use of a nebulizer with a mouth piece) are taken to ensure that nebulized solution does not reach the eye. There have been isolated reports of ocular complications (i.e., mydriasis, increased intraocular pressure, angle closure glaucoma) when nebulized ipratropium either alone or in combination with an adrenergic beta 2 agonist solution has escaped into the eyes.
I. Classification
   • Antihypertensive Agent

II. Actions
   • Adrenergic receptor blocking agent possessing both alpha and beta-receptor blocking activity. Its action on beta-receptors is 4 times stronger than that on alpha-receptors. It antagonizes beta 1- and beta 2-receptors equally.
   • The mechanism of the antihypertensive action of labetalol has not been fully established. It is considered that labetalol lowers blood pressure by partially blocking the alpha-adrenoceptors in the peripheral arterioles, thus causing vasodilation and a resulting reduction of peripheral resistance. At the same time, blockade of the beta-adrenoceptors in the myocardium prevents reflex tachycardia and subsequent elevation of cardiac output.

III. Indications
   • For the emergency treatment of hypertensive emergencies.

IV. Contraindications/Cautions
   • Uncontrolled congestive heart failure
   • Asthma or a history of obstructive airway disease
   • Greater than first degree AV block
   • Cardiogenic shock and states of hypoperfusion
   • Sinus bradycardia
   • Known sensitivity to labetalol

V. Adverse Effects
   A. CNS
      • Signs of cerebral hypoperfusion may occur if blood pressure is reduced too rapidly. Signs include confusion, somnolence, light headedness, dizziness, nausea, vomiting, pallor, sweating, blurred vision, headache, hallucinations and loss of consciousness
      • Fatigue, malaise
   B. Cardiovascular
      • Bradycardia, Severe postural hypotension, Angina pectoris
   C. Respiratory
      • Bronchospasm, dyspnea
   D. Other
      • Jaundice, Nausea / Vomiting
      • Drug rash, paresthesia (especially “scalp tingling”), pruritus and angioedema

VI. Administration
   A. Adult
      • 10 - 20 mg slow IVP over 2 minutes

VII. Onset/Duration
   • Onset 5 - 10 minutes
9.01 R.  

Lidocaine Hydrochloride (Xylocaine®)

I. Classification  
• Antidysrhythmic agent

II. Actions  
• Suppresses ventricular dysrhythmias by stabilizing the myocardial cell membrane

III. Indications  
A. Ventricular dysrhythmias  
• Symptomatic PVCs  
• Ventricular tachycardia
B. Cardiac arrest  
• Ventricular fibrillation  
• Pulseless ventricular tachycardia
C. Post cardioversion/defibrillation of ventricular rhythms
D. Intubation prophylaxis in head trauma

IV. Contraindications  
• Second degree heart block (Mobitz II)
• Third degree heart block  
• Junctional rhythms  
• Idioventricular rhythm  
• Ventricular ectopy associated with bradycardia

V. Adverse Effects  
A. Cardiovascular  
• Bradycardia  
• Hypotension  
• Cardiac arrest
B. Neurological  
• Light-headedness  
• Drowsiness  
• Paresthesias  
• Restlessness  
• Confusion  
• Slurred speech  
• Seizures  
• Blurred vision  
• Tinnitus  
• Muscle twitching
C. Respiratory  
• Dyspnea  
• Respiratory depression  
• Respiratory arrest
D. Gastrointestinal  
• Nausea/vomiting
VI. Adult Administration
   A. Ventricular dysrhythmias, Post cardioversion/defibrillation of ventricular rhythm [by online MD order only]
      • 1.5 mg/kg slow IVP at 50 mg/minute or 3 mg/kg ET (Maximum dose is 3 mg/kg).
   B. Cardiac arrest
      • 1.5 mg/kg slow IVP over 1 minute or 3 mg/kg ET. Repeat 1.5 mg/kg IVP once if indicated, do not repeat ET (Maximum 3 mg/kg).
   C. Intubation prophylaxis in head trauma
      • 100 mg IVP.
   D. Drips
      • Mix 200 mg in a 50 ml bag of NS (remove 10 cc of NS prior to addition of lidocaine) and run at a rate of 2 - 4 mg/minute (30 to 60 drops/minute).

VII. Pediatric Administration
   For:
   A. Ventricular dysrhythmias, Cardiac arrest, Post cardioversion/defibrillation of ventricular rhythm [by online MD order only]
      • 1 mg/kg slow IVP over 1 minute or 2 mg/kg ET. If no conversion, repeat 1 mg/kg IVP two times or 1 mg/kg ET one time in 3-5 minutes. (Maximum 3 mg/kg).
   B. Intubation prophylaxis in head trauma
      • 1 mg/kg IVP

VIII. Onset
   • 30-90 seconds

IX. Duration
   • 10 - 20 minutes

X. Note
   • Lidocaine is metabolized in the liver and excreted in the kidneys. A reduced dosage should be considered for patients with suspected liver or kidney disease, cardiogenic shock, congestive heart failure, and in the elderly. The initial dose does not need to be reduced, however, repeat boluses (maintenance dose) should be decreased to 0.25 mg/kg.
9.01 S. Magnesium Sulfate

I. Classification
   • Electrolyte

II. Actions
   • Depresses the central nervous system and relaxes smooth muscle, skeletal muscle and cardiac muscle

III. Indications
   • Torsade De Pointes
   • Obstetrical Emergencies - Eclampsia
   • Asthma

IV. Contraindications
   • Heart Block
   • Myocardial damage

V. Adverse effects
   A. Cardiovascular
      • Flushing
      • Hypotension
   B. Respiratory
      • Depression
      • Failure

VI. Administration
   A. Adult
      • Asthma: 2 Gm (in 50 ml NS) IV gtt over 10 minutes (10 gtt set)
      • Eclampsia: 4 - 6 Gm (in 50 ml NS) IV gtt over 10 minutes (10 gtt set)
      • Torsade De Pointes: 2 Gm slow IVP. In 10 cc syringe, combine 2 Gm (4 cc) with 6 cc Normal saline for proper dilution of magnesium.
   B. Pediatric
      • Asthma: 40 mg/kg (in 50 ml NS) IV gtt over 10 minutes (10 gtt set)

VII. Onset
   • Immediate

VIII. Duration
   • Variable

IX. Precautions
   • Patients that may require high doses of magnesium, can develop signs/symptoms of toxicity. These signs/symptoms include lethargy, decreased respiratory effort, and decreased reflexes.
9.01 T.  
Methylprednisolone (Solumedrol®)

I.  Classification
• Corticosteroid

II.  Actions
• Methylprednisolone is a potent anti-inflammatory steroid. It has a greater anti-inflammatory potency than prednisolone and has less tendency than prednisolone to induce sodium and water retention.

III.  Indications
• Moderate to severe allergic reaction, Anaphylaxis
• Asthma, COPD, Reactive Airway Disease

IV.  Contraindications
• Hypersensitivity to methylprednisolone.

V.  Adverse effects (with systemic use and larger than protocol dosages)
A. Cardiovascular
• Cardiac arrest, cardiac arrhythmias, hypotension or hypertension.

B. Gastrointestinal
• Peptic ulcer with possible perforation and hemorrhage, gastric hemorrhage, pancreatitis, esophagitis, perforation of the bowel, transient nausea, vomiting or dysgeusia (with rapid administration of large doses).

C. Musculoskeletal
• Steroid myopathy, muscle weakness, osteoporosis, pathologic fractures, vertebral compression fractures, aseptic necrosis of femoral and humeral heads, tendon rupture—particularly of the Achilles tendon.

D. Fluid and Electrolyte Disturbances
• Sodium retention, fluid retention, hypertension, potassium loss, hypokalemic alkalosis, diuresis, sodium excretion, congestive heart failure in susceptible patients.

VI.  Administration
A. Adult
• 125 mg IM / IVP over 2 minutes

B. Pediatric
• 2 mg/kg IM / IVP over 2 minutes
Table 9-3: Methylprednisolone (Solumedrol®) Pediatric Dosing
(125 mg in 2 ml)

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<th>KG</th>
<th>MG</th>
<th>ML</th>
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<td>39</td>
<td>78</td>
<td>1.25</td>
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</tbody>
</table>
9.01 U.  

Midazolam (Versed®)

I. Classification
   • Benzodiazepine (3-4 times as potent as diazepam per mg.)

II. Actions
   • Depresses the central nervous system
   • Relaxes skeletal muscles
   • Decreases patient recall (amnesic effect)

III. Indications
   • Seizure activity
   • Sedation prior to cardioversion
   • Agitated delirium

IV. Contraindications
   • Shock/hypotension
   • Acute alcohol intoxication
   • Respiratory distress

V. Adverse Effects
   A. Cardiovascular
      • Tachycardia, Bradycardia, Hypotension
   B. Neurological
      • Agitation, combativeness
   C. Respiratory
      • Depression, Apnea

VI. Administration
   A. Adult
      • 2 to 4 mg IV/IO/IM/IN. Careful titration for repeat dosages, generally not exceeding 2 mg per individual repeat dose.
      • Decreased initial doses should be administered in patients over 60 years old and debilitated or chronically ill patients.
   B. Pediatric
      • 0.1 mg/kg IV/IO and 0.2 mg/kg IN/IM.
      • Careful titration for repeat dosages, not exceeding 2 mg per dose. Maximum cumulative dose of 4 mg.

VII. Warning
   A. IV midazolam is associated with respiratory depression and arrest when used for sedation. Extremely vigilant monitoring must be maintained when a patient has received midazolam.
   B. The respiratory and sedative effect is accentuated if the patient is on narcotics, barbiturates, alcohol or other central nervous system depressants. Be extremely careful.

VIII. Pregnancy
   A. Pregnancy class D (There is positive evidence of human fetal risk). Patients should be apprised of the potential hazard to the fetus.
   B. Is excreted in breast milk of nursing mothers. Caution should be exercised.
9.01 V. Naloxone Hydrochloride (Narcan®)

I. Classification
   • Narcotic antagonist

II. Actions
   • Reverses respiratory depression and CNS sedation by competing with narcotics at opiate receptor sites

III. Indications
   • Suspected narcotic overdose with a respiratory rate < 10 or decreased tidal volume.

IV. Contraindications
   • Not significant in above indications.

V. Adverse effects
   A. Cardiovascular
      • Tachycardia
      • Hypertension
      • Dysrhythmias
   B. Gastrointestinal
      • Nausea/vomiting
   C. Neurological
      • Tremors
      • Seizures

VI. Administration
   A. Adult
      • 0.4 - 2 mg IVP, IN, IM.
      • Titrate the IV dose to an adequate respiratory rate and tidal volume.
   B. Pediatric
      • 0.1 mg/kg IVP, IN, IM (maximum 2 mg per dose).
      • Titrate the IV dose to an adequate respiratory rate and tidal volume.

VII. Onset
   • IVP - Immediate - 2 minutes
   • IN - 2-5 minutes
   • IM - 5 - 10 minutes

VIII. Duration
   • 20-30 minutes

IX. Precautions
   A. Naloxone will not reverse narcotic induced hypotension. Monitor the pulse quality and blood pressure. If the patient is hypotensive, place the patient in a shock position and consider a fluid challenge.
   B. Rapid reversal of narcotic overdose may lead to violent or combative behavior or precipitate signs of acute narcotic withdrawal. Prepare to appropriately protect the patient and EMS personnel.
C. Naloxone reverses respiratory depression/arrest in narcotic overdose. Administer naloxone prior to considering endotracheal intubation if an opiate overdose is suspected.
D. Narcotics have a longer duration of action than naloxone. Continue to monitor respirations and level of consciousness. Repeated doses may be necessary.
9.01 W. Nitroglycerin

I. Classification
   • Vasodilator

II. Actions
   • Causes venous pooling by dilating arteries and veins
   • Increases myocardial perfusion by dilating coronary arteries and relieving coronary vasospasm
   • Decreases the workload of the heart and myocardial oxygen demand by reducing preload and after load

III. Indications
   • Chest pain of suspected myocardial origin
   • Cardiogenic pulmonary edema

IV. Contraindications
   • Poor systemic perfusion
   • Signs/symptoms of cerebral hemorrhage or increased intracranial pressure

V. Adverse effects
   A. Cardiovascular
      • Hypotension
      • Bradycardia
      • Reflex tachycardia
      • Rebound hypertension
   B. Gastrointestinal
      • Nausea/vomiting
      • Dry mouth
   C. Neurological
      • Throbbing headache
      • Dizziness/faintness
      • Confusion
      • Blurred vision
   D. General
      • Flushed skin
      • Sublingual burning

VI. Administration
   A. Adult
      • Lingual Spray: 1 spray (0.4 mg) SL. May repeat every 3 minutes if SBP ≥ 100 mmHg.
      • Tablet: 1 tablet (0.4 mg) SL. May repeat every 3 minutes if SBP ≥ 100 mmHg.
   B. Pediatric
      • Not recommended for prehospital use.

VII. Onset
   • 1 - 3 minutes
VIII. Duration
• 30 - 60 minutes

IX. Precautions
A. Nitroglycerin may cause hypotension due to vasodilation or produce a synergistic hypotensive effect with alcohol, beta and calcium channel blockers and phenothiazines. If hypotension does not resolve, place the patient in a shock position and consider a fluid challenge if the breath sounds are clear.

B. All patients (male or female) who receive nitroglycerin must be questioned about taking Viagra® (sildenafil citrate) or similar drugs (ie. Levitra®, Cialis®). Any patient that has taken these medications within the last 24 hours should not receive any form of nitroglycerin as irreversible hypotension may occur. It is imperative that the patient be questioned (in a confidential manner) about the use of these medications. The fact that the patient was questioned as well as their answer must be recorded in the patient care record. Contact on-line physician for further orders in this case.

C. Do not administer nitroglycerin if the blood pressure is below 100 systolic. Always take a blood pressure before and 5 minutes after administrations of nitroglycerin.

D. If unable to establish an IV, obtain online medical control approval before administration of nitroglycerin.

E. One spray delivers 0.4 mg of nitroglycerin. If the container is shaken, it will alter the dose delivered. Do not shake the container.

F. Inhaling the spray affects the absorption rate. Instruct the patient not to inhale spray.

G. Nitroglycerin can precipitously drop the blood pressure in Right Ventricular Infarctions. It is to be given only with On-Line Medical Direction order.
9.01 X. Ondansetron (Zofran®)

I. Classification
   • A selective serotonin 5-HT$_3$ receptor antagonist.

II. Actions
   • Mechanism of action not fully characterized.

III. Indications
   • Prevention and treatment of nausea and vomiting.

IV. Contraindications
   • Patients known to have hypersensitivity to the drug.

V. Adverse Effects
   • Diarrhea, headache, fever, dizziness

VI. Administration
   A. Adults
      • 8 mg IV initial dose over 2 - 5 minutes, followed by additional doses of 2 - 4 mg as needed.
   B. Pediatric
      • 0.2 mg/kg IV initial dose over 2 - 5 minutes.

VII. Precautions
   A. Rarely, transient EKG changes including QT interval prolongation have been reported.

VIII. Note
   • Pregnancy Class B Medication (Presumed safety based on animal studies)
   • Unknown excretion in breast milk, exercise caution when administering to nursing women.
9.01 Y. Oxygen

I. Classification
   • Gaseous element (21% of room air)

II. Actions
   • Essential element for normal metabolic function (aerobic metabolism)
   • Facilitates the breakdown of glucose into a usable energy form

III. Indications
   • Hypoxemia
   • Increased oxygen demand
   • Chest pain of myocardial origin
   • Respiratory insufficiency
   • Cardiopulmonary arrest

IV. Contraindications
   • Not significant in above indications

V. Adverse Effects
   • Not significant in above indications

VI. Administration
   • Oxygen percentage may vary slightly depending on technique and equipment

VII. Pediatric
   • Same as adult

VIII. Onset
   • 1-2 minutes

IX. Duration
   • Up to 30 minutes

X. Precautions
   A. In some COPD (CO₂ retaining) patients, oxygen administration may decrease respiratory drive. Observe patient closely for changes in respiratory and mental status. Be prepared to assist ventilations if necessary.
   B. Oxygen is not humidified and may dry out or irritate mucus membranes. Do not administer more than 6 L/min via nasal cannula.

XI. Note
   • Never withhold oxygen from a patient in respiratory distress
### Table 9-4: Oxygen Administration

<table>
<thead>
<tr>
<th>Delivery Device</th>
<th>Flow Rate</th>
<th>O₂ % Delivered</th>
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</thead>
<tbody>
<tr>
<td>Nasal Cannula</td>
<td>2-6 lpm</td>
<td>23-44%</td>
</tr>
<tr>
<td>Face Mask</td>
<td>8-15 lpm</td>
<td>40-60%</td>
</tr>
<tr>
<td>Reservoir Face Mask</td>
<td>10-15 lpm</td>
<td>60-95%</td>
</tr>
<tr>
<td>BVM with Reservoir</td>
<td>10-15 lpm</td>
<td>40-90%</td>
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<tr>
<td>BV with ET Tube</td>
<td>10-15 lpm</td>
<td>100%</td>
</tr>
</tbody>
</table>

Note: Adult and pediatric delivery is the same.
9.01 Z.  Sodium Bicarbonate

I. Classification
   • Alkalinizing agent (hydrogen ion buffer)

II. Actions
   • Combines with hydrogen ions to form carbonic acid
   • Increases blood pH

III. Indication
   A. Cardiopulmonary arrest
      • Unsuccessful drug therapy and defibrillation
      • Suspected hyperkalemia (dialysis patients)
      • Suspected tricyclic overdose (ex: amitriptyline (Elavil®), desipramine (Norpramin®), imipramine (Tofranil®), nortriptyline (Pamelor®), and protriptyline (Vivactil®))
      • Cocaine induced wide complex tachycardias

IV. Contraindications
   • Not significant in above indications

V. Adverse Effects
   A. Metabolic
      • Alkalosis
      • Hypokalemia
      • Hypocalcemia
      • Increased tissue acidosis
   B. Neurological
      • Headache
      • Confusion
      • Tetany
      • Seizures
      • Confusion
   C. Respiratory
      • Pulmonary edema

VI. Administration
   A. Adult
      1 mEq/kg IVP
   B. Pediatric
      1 mEq/kg slow IVP at 10 ml/minute

VII. Onset
    • Immediate

VIII. Duration
    • Variable

IX. Precautions
    A. Precipitates with calcium chloride and Amiodarone, and inactivates catecholamines. Flush IV
tubing before and after administration of sodium bicarbonate.

B. Causes tissue necrosis if infused into the interstitial space. Verify IV patency prior to administration.

C. Bicarbonate produces CO$_2$ which diffuses across the cell membrane more rapidly than bicarbonate and increases intracellular acidosis. Perform effective CPR and adequate ventilation with 100% O$_2$ to reverse anaerobic metabolism.

X. Note

• Only use sodium bicarbonate after more appropriate treatment has failed, such as: defibrillation, endotracheal intubation, hyperventilation with 100% O$_2$ and administration of at least two rounds of resuscitation drugs.

The value of sodium bicarbonate is questionable during cardiac arrest, and is not recommended for the routine arrest sequence. Consideration of its use in a dose of 1 mEq/kg is appropriate after prolonged, unsuccessful resuscitation efforts. Make the decision to use sodium bicarbonate only after consultation with the on-line physician. Sodium Bicarbonate is contraindicated if the patient is not maximally ventilated.
9.01 AA. Sodium Chloride (0.9%) (Normal Saline)

I. Classification
   • Isotonic Crystalloid Agent

II. Actions
   • Expands vascular volume.

III. Indication
   • Dehydration

IV. Contraindications
   • Acute Pulmonary Edema / Congestive Heart Failure

V. Adverse Effects
A. Pulmonary
   • Pulmonary Edema

VI. Administration
A. Adult
   • Bolus Therapy: 250-1000 ml IV. Titrate to effect.
   • Hypothermia: 2 liters chilled saline, wide open.
B. Pediatric
   • Bolus Therapy: 10 - 20 ml/kg as per protocol, titrate to effect.

VII. Onset
     • Immediate
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tr>
<td>AA Ox3</td>
<td>awake, alert &amp; oriented</td>
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<tr>
<td>AB</td>
<td>abortion</td>
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<tr>
<td>ABD</td>
<td>abdomen or abdominal</td>
</tr>
<tr>
<td>ADM</td>
<td>administered</td>
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<tr>
<td>ALS</td>
<td>advanced life support</td>
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<tr>
<td>A.M.</td>
<td>morning</td>
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<tr>
<td>AMA</td>
<td>against medical advice</td>
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<td>AMS</td>
<td>alerted mental status</td>
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<td>discontinue</td>
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<td>diabetes mellitus</td>
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<tr>
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<tr>
<td>DOB</td>
<td>date of birth</td>
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<tr>
<td>DOS</td>
<td>dead on scene</td>
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<td>diagnosis</td>
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<tr>
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<td>firefighter EMT</td>
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<td>fracture</td>
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<td>Glasgow coma scale</td>
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<td>history of present illness</td>
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</table>
P Hx  past history  
PID  pelvic inflammatory disease  
PMH  past medical history  
PMS  pulse, mobility, sensation  
POST  posterior  
PPE  personal protective equipment  
Pt  patient  
PTA  prior to arrival  
q  every  
QD  every day  
QH  every hour  
QID  4 times a day  
QOD  every other day  
RLQ  right lower quadrant  
RUQ  right upper quadrant  
RT  right  
Rx  prescription  
s  without  
SOB  shortness of breath  
S/P  status post  
S & S  signs/symptoms  
SWD  skin warm & dry  
Sx  symptoms  
SZ  seizure  
TDSHS  Texas Department of State Health Services  
TID  3 times a day  
TPR  temp, pulse, resp  
TXD  transported  
VAG  vaginal  
VS  vital signs  
WNL  within normal limits  
w/  with  
w/o  without  
+  positive  
Ø  none, no or negative  
-  negative  
<  less than  
>  greater than
9.03 Equipment Requirements

A. Minimum BLS Ambulance Equipment

911 Key (1)
“D” Oxygen Cylinder (2)
“D” Regulator (1)
“H” Oxygen Cylinder w/Regulator (1)
Air Conditioner/Heater
Albuterol Sulfate 2.5 mg/3 ml NS (3)
Alcohol Preps (10)
Automatic External Defibrillator (1)
Automatic External Defibrillator Pads Adult (1)
Automatic External Defibrillator Pads Infant/Child (1)
Automatic External Defibrillator Spare Battery (1)
B/P Cuff, Adult (1)
B/P Cuff, Child (1)
B/P Cuff, Infant (1)
Backboard (long) w/ 3 Straps (1)
Bag-Valve-Mask, with Tubing and Adult Mask, Adult (1)
Bag-Valve-Mask, with Tubing and Child Mask, Child (1)
Bag-Valve-Mask, with Tubing and Infant and Neonatal Masks, Infant (1)
Bandage, Roller Gauze (12)
Bandage, Triangular (12)
Bio-Hazard Bag (2)
Bite Sticks (2)
Blanket (2)
Blood Glucometer Kit (1)
Broselow Tape (1)
Car Seat or Equivalent (1)
Cervical Collar, Adult (2)
Cervical Collar, Pediatric (2)
Chembio Kit (1)
City of Houston Permit (1)
Cold Pack (2)
Current TDSHS License
Current Vehicle Inspection Sticker
Disaster Tags (10)
Disinfectant/Detergent (1)
Disposable Bed Pan (1)
Dressing, 4x4, Sterile (60)
Dressing, Burn, Sterile (4)
Dressing, Occlusive (6)
Dressing, Trauma, Sterile (2)
Emergency Response Guide Book, 2008 (1)
EpiPen, Adult (1)
EpiPen Jr., Pediatric (1)
Extrication Device (KED) (1)
Eyewash (1)
Eyewear, Protective (2)
Fire Extinguisher Mounted and Tagged (1)
Emergency Reflective Triangle (3)
Flashlight (1)
Gloves (1 box) each XL, Lg, Med, Sm
Glucose, Oral (1)
Gown, Protective (2)
Halligan Tool (1)
Head Immobilizer (2)
Hydrogen Peroxide (1)
Infant Insulating Device (1)
Masks, Protective (2)
Medical Kit, Primary (1)
Medical Treatment Protocols signed by MD (1)
Multi-Level Stretcher (1)
Nasal Cannula, Adult (2)
Nasal Cannula, Pediatric (2)
Nasopharyngeal Airways, Adult (16f-34f) (2)
Nasopharyngeal Airways, Child (16f-34f) (2)
Nebulizer, Adult (2)
Nebulizer, Pediatrics (2)
No-Smoking Signs (1 Cab & 1 Patient Area)
O.B. Kit, Sterile (1)
Oropharyngeal Airways, Adult (2)
Oropharyngeal Airways, Child (2)
Oropharyngeal Airways, Infant (2)
Oxygen Flowmeter, Wall Mount (1)
Oxygen Mask, Adult (3)
Oxygen Mask, Child (3)
Oxygen Mask, Non-Rebreathing, Adult (3)
Oxygen Mask, Non-Rebreathing, Child (3)
Patient Care Record (10) or Laptop (1)
Penlight (1)
Pillows and Case (1)
Portable Radio (2)
Ring Cutter (1)
Scoop Stretcher (1)
Sharps Container (1)
Shoe Covers (2 pair)
Sodium Chloride, IV Bag (2)
Splint Pack or 2 Short, 2 Medium, & 2 Long Padded Board Splint
Stair Chair (1)
Sterile Saline or Water Bottle (1)
Stethoscope (1)
Stretcher Sheet (2)
Suction Catheter, Adult (3)
Suction Catheter, Pediatric (3)
Suction, Portable with Tubing (1)
Suction, Spare Canister (1)
Suction, Wall Mount, with Tubing (1)
Supraglottic Airway Device (2)
Tape, Adhesive (4)
Thermometer (1)
Thermometer Probes, Disposable (2)
Traction Splint, Adult, Child (1)
Trauma Shears (2)
Triage Pouch with Colored Ribbon (1)
Tubing, Regular (Max) Drip (2)

From time to time the drugs on the equipment/supply/medication list may be supplied in concentrations or amounts other than those indicated. Regardless of the particular manner in which drugs are supplied, equivalent total amounts must be present, and it is the member-in-charge’s responsibility to be certain that correct dosages are administered to patients.
B. Minimum ALS Equipment

All BLS Equipment listed in 9.03 A (Minimum BLS Equipment) excluding AED & its supplies, plus:

14 G. x 1 1/4” IV Catheter (2)
14, 16, or 18 G. 2” IV Catheter (1)
16 G. x 1 1/4” IV Catheter (2)
18 G. x 1 1/4” IV Catheter (2)
20 G. x 1 1/4” IV Catheter (2)
22 G. x 1” IV Catheter (2)
24 G. x 1” IV Catheter (2)
Adenosine 12 mg (2)
Adenosine 6 mg (4)
Amiodarone 150 mg (3)
Aspirin, Chewable 81 mg (24)
Atropine 1 mg (2)
Bacteriostatic Water and Sodium Chloride for Injection
Calcium Chloride 1 Gm/10ml (2)
CPAP (1)
D₅W 50ml (2)
Dexamethasone 10 mg (2)
Dextrose 50% 25g/50ml (2)
Diltiazem 20 mg (2)
Diphenhydramine 50 mg (2)
Dopamine 200 mg or 400 mg (2)
ECG Electrode (10)
ECG Pads (1) Adult
ECG Pads (1) Pedi
ECG Monitor/Defibrillator (1)
ECG Monitor Spare Battery (2)
ECG Paper (1)
Endotracheal Tube Holder, Adult (1)
Endotracheal Tube Holder, Child (1)
End-Tidal CO₂ Filterline (1)
End-Tidal CO₂ Nasal Cannula (1)
Epinephrine 1:10,000 1 mg (2)
Epinephrine 1:1000 30ml (1)
ET Tube, Cuffed 6.0 - 9.0 w/ stylet (3)
ET Tube, Uncuffed 2.5 - 5.5 w/ stylet (3)
EZ-IO (1)
EZ-IO XL Adult Needle (1)
EZ-IO Adult Needle (1)
Fentanyl 100 micrograms (4)
Hypodermic Needle (2)
Hydroxocobalamin (1 kit)
Intraosseous Needle (1)
Ipratropium Bromide 2.5 cc dose vial(3)
Labetalol 100 mg (2)
Large Bore Needle, 12g x 3.25” (2)
Laryngoscope Blade, Adult (1)
Laryngoscope Blade, Infant (1)
Laryngoscope Blade, Pediatric (1)
Laryngoscope Handle (2)
Laryngoscope Handle Spare Battery (2)
Lidocaine 100 mg (2)
Lubricant, Sterile (1)
Magill Forceps, Adult (1)
Magill Forceps, Pediatric (1)
Magnesium Sulfate 5 gm (1)
Methylprednisolone 125 mg (2)
Midazolam 2 mg (5)
Narcan 2 mg (2)
Nitroglycerin 0.4 mg (1)
Ondansetron 4 mg (2)
Pulse Oximetry Sensors, Pediatric (3)
Sodium Bicarbonate 50 ml (2)
Sodium Chloride, Intravenous Bag (4)
Syringe (2)
Tourniquet (2)
Tubing, Mini Drip (2)
Tubing, Regular (Maxi) Drip (2)
Vasopressin 20 units (2)

From time to time the drugs on the equipment/supply/medication list may be supplied in concentrations or amounts other than those indicated. Regardless of the particular manner in which drugs are supplied, equivalent total amounts must be present, and it is the member-in-charge’s responsibility to be certain that correct dosages are administered to patients.

Effective date: November 1, 2014
Expiration date: September 30, 2016

David Persse, MD
EMS Physician Director
9.04 Procedure for Downloading AED and LifePak 15 Data

AED (Instructions are also on HFD Desktop)
1. Connect the infrared dongle to USB port on computer and ensure power light is on.
2. Line up AED infrared port (on left side of unit) with infrared dongle. AED is turned off.
3. Open DT Express program on station computer.
4. Click “Next” for Quick-Step transfer process.
5. Ensure the LifePak 1000 AED is selected on the device screen and select “Next”.
6. Turn on the AED and connection should be made and data transmitted.
7. Enter the incident number (mandatory) and other patient information on the data entry screen.
8. Click ‘Next’ and then “Finish” to complete the transmission.

Transmitting 12-Lead to Receiving Hospital : Acute Myocardial Infarction / Hospital
The EKG’s will be transmitted to HFD Base Station in addition to the HFD Database. Transmission of 12 Leads that are acute in nature, require physician intervention, are requested by the EMS Physician or shall be transmitted to the receiving hospital shall be sent via this method. Note : If the EKG is to be forwarded to a receiving hospital, the HFD Unit must contact Base Station ASAP to inform them of the transport destination decision.
1. Press TRANSMIT
2. Select DATA
3. Select Report. It will automatically default to All. Use All for any transmission.
4. Select SITE. The choices include :
   • CRITICAL 12LD : When utilizing the pre-connected wireless modem.

5. Select SEND
Procedure for Transmitting Cardiac Arrest Download (Plan A) and 12-Lead For Data Storage Only (HFD Database)

All 12-Leads acquired during any patient assessment or treatment shall be transmitted to the HFD Database. This includes all 12-Lead report(s) acquired from a patient whether they are transported or not. In addition, all cardiac arrest data (Plan A) will be transmitted to the HFD Database via one of the sites below:
NOTE: DO NOT SEND CODE SUMMARY

1. Press ON
2. Press Options
3. Select Archives…
4. Select Yes
5. Select Send Data…
6. Select Patient*** It will automatically default to All Patients
7. Select patient ID#
8. Select Report*** It will automatically default to All. You MUST choose between these reports:
   • All for Plan A’s or
   • 12-Lead for each individual 12-lead that needs to be transmitted
9. Select SITE. It will automatically default to CRITICAL 12LD. However, you MUST NOT choose this site for downloading data. Instead, you MUST choose between the following site:
   • HFD DATABASE: When utilizing the pre-connected wireless modem.
10. Select SEND
*** If you do not select a patient, the LifePak 15 will transmit EVERY patient that is in its data bank.

Notes:
• All 12 Leads sent via CRITICAL 12LD method are automatically sent to the HFD Database as well. If a 12 Lead was transmitted via CRITICAL 12LD, a member does not need to resent it via HFD DATABASE.
• TEST is for testing transmission capability using the modem.
• DIRECT CONNECT and New Site are to be used by the manufacturer.
• The HFD Base Station computer will receive ONLY the 12-lead graphs and not the additional information (i.e., rhythm interpretation, EtCO₂ levels, pulse oximetry, medication annotations, shocks delivered, etc.). It is designed to re-transmit the 12-lead to the hospital or Physician Director.
• The HFD Database computer will receive the 12-lead graphs and additional information when All is selected under Reports. It is designed to be the data depository for all LifePak 15’s or AED’s.

Any members with questions or who encounter problems with transmitting are to contact EMS Administration at 832-394-6800.
### Approved Hospitals and Hospitals With Specialized Facilities

All patients transported by HFD are presumed to have apparent or suspected medical emergencies that require the services offered only at full service emergency departments within hospitals capable of providing a wide range of consultation services. For that reason, HFD patients will only be transported to a hospital whose emergency department facilities have been approved to receive patients by the City of Houston EMS Physician Director.

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9.06  Revisions to Protocol

10-1-15
• 7.03 C. EZ-IO Lidocaine correction
• 9.01 M. Epinephrine dosing correction
• 9.05 Hospitals with Specialized Facilities additions

7-10-16
• Revisions to 8.02 Cardiac Arrest Emergencies
• Revisions related to introduction of LifePak15 and LifePak 1000