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# District of Columbia
## Fire and EMS Protocols
### EMS Protocols, Policies, Formulary, and Procedures

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These protocols were developed under the direct auspices of the Medical Director for the District of Columbia Fire and Emergency Medical Services Department (DCFEMS). The clinical pathways are consistent with current medical practice and adhere to treatment regimens established by professional organizations such as the National Association of EMS Physicians. The sources of the manual represent the consolidation of medical procedures and emergency pre-hospital guidelines and publications that are nationally and regionally accepted as the standard of practice.

The District of Columbia Department of Health (DOH) and the United States Department of Transportation (USDOT) have established a standardized Scope of Practice for each level of EMS field provider. DCFEMS providers meet or exceed National Registry of EMT's and DOH standards. This Pre-Hospital Patient Care Manual establishes the standardized medical direction for patient care that should be provided by all Emergency Medical Services providers under the authority of the DCFEMS Medical Director.

The following policies, procedures, and pathways are to be used as directives for the delivery of emergency medical care. These medical directives are the established standards of authorized practice and care for the providers of this Department. If a provider has questions about any procedure or standard of care, they are instructed to consult with a Medical Control physician for orders.

Treatment protocols are orders that guide actions that an emergency medical service provider (EMS) is expected to take. Treatment protocols should be followed unless the protocol requires such contact with a Medical Control physician. It is imperative that providers establish contact with Medical Control for confirmation of medical care and further medical direction in situations that are not covered in treatment protocols.

Our commitment is to provide the best possible care and service to the citizens, public and private sector employees, and visitors of the Nation's Capital.
General Overview

The purpose of this protocol manual is to provide EMS providers with directives and guidelines in the pre-hospital treatment of the majority of patients. Providers are also expected to rely on knowledge gained from training, consultation with Medical Control, and experience when encountering situations not covered in these protocols. Providers should always do what is right for the patient as long as it is within your scope of practice.

This manual is divided into four main sections:

(1) Policies related to the delivery of EMS care;
(2) Medical Directives (protocols);
(3) Medical Procedures; and
(4) The Medication Formulary

Policies Related to the Delivery of EMS Care

The manual contains numerous DCFEMS policies that serve as Standard Operating Guidelines (SOGs) for the delivery of EMS by the Department's members. Providers are expected to familiarize themselves with these policies. If, while operating in the scene a provider becomes unsure of what action to take, then the member should make contact with a Battalion EMS Supervisor or have a supervisor dispatched to the scene. Failure to adhere to these policies or SOGs will be considered an operational variance and will be investigated.

Medical Directives (Protocol) Section

The treatment protocol section provides direction for the pre-hospital treatment of the majority of patients. Interventions are based upon certification levels and skill sets. The headings separating and designating interventions based on skill sets are illustrated below:

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<tr>
<td>MEDICAL CONTROL OPTIONS (On Line Medical Control order only)</td>
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The treatments and procedures are outlined in chronological order. Although every patient contact and situation is different, the order of the steps should be adhered to as close as possible. It is understood that several providers may be providing care to a patient and interventions may be implemented simultaneously or at near simultaneous times or reordered based on situational needs.
This is acceptable as long as the interventions are executed in timely manner and do not negate or skip over any of the primary assessment and essential treatment requirements.

**Medical Procedures Section**

The medical procedures section lists the indications and contraindications that are to be utilized by the medical provider. They also describe the procedure and any special notes for the majority of skills used by field providers. Skills within each subcategory include a heading that indicates the provider level that is allowed to utilize the skill. Procedures in this manual are consistent with established national standards. New, non-traditional procedures or off-label use of medications will be the subject of intensive training via programs directly supervised by the Medical Director or his/her designee.

Certain procedures and medications will be delegated practice for "Credentialed Providers" as designated by the Medical Director. Providers with this designation will be required to recertify and show competency in the skill set. This recertification will be on a basis as determined by the Medical Director. The medical Director may withdraw this endorsement and credential at his/her discretion.

**Medication Formulary**

The medication formulary lists indications, dosages, contraindications, side effects, and special notes for all medications that EMS providers are authorized to administer. Providers will use these medications as indicated in the formulary and the specific protocol. It is understood that EMS providers can administer a patient’s prescribed medication. Many of the contraindications listed for specific drugs are relative to the patient’s condition. Providers are directed to contact Medical Control if there are concerns regarding a listed contraindication.

Providers must contact Medical Control to administer other prescribed rescue medications not specifically mentioned in the District of Columbia Fire and EMS Medical Protocols or formulary (i.e. Diastat rectal diazepam or Solucortef). The rescue medication must be provided by the patient or caregiver and the label must have the patient’s name and the amount of medication to be given. The mechanism of delivery must be within the provider’s scope of practice.

In certain therapies multiple medications can be used to produce similar therapeutic effects. In those instances where the Medical Director has authorized the use of more than one medication, the following graphic will be used to designate when alternate medication choices are authorized.
## GUIDELINES FOR USE

**EMS Protocols, Policies, Formulary, and Procedures**

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<th><strong>Adult</strong></th>
<th><strong>Pediatric</strong></th>
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| Medication X  
# mg IV | Contact Medical Control |

**or**

<table>
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<tr>
<th><strong>Adult</strong></th>
<th><strong>Pediatric</strong></th>
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</table>
| Medication Y  
# mg IV | Contact Medical Control |

The order of the listing in the protocol does not dictate a favoring of one medication over the other. The provider should utilize whichever medication is immediately available from the DCFEMS medical supply services at property.

This measure has been instituted to introduce flexibility if supply chains are disrupted due to manufacturing shortages or an inability to procure one of the medications.

**Emergency Medical Services for Children (EMSC) Bear**

The EMC Bear symbolizes when Pediatric Care is warranted and Medical Control is required.
Medical communications is a vital component of pre-hospital care. Information reported should be concise and provide an accurate description of the patient's condition as well as treatment rendered. Therefore, a complete patient assessment and set of vital signs should be completed prior to contacting Medical Control or a receiving facility. Regardless of the destination, early and timely notification of Medical Control or the receiving hospital is essential for prompt care to be delivered by all involved.

1. Medical communications with Medical Control or a receiving facility should be conducted for every **Priority 1** patient.

2. Contact Medical Control as soon as feasible in accordance with protocols for medication or treatment modality orders. For seriously injured or critically ill patients notification to the receiving facility is required. It is preferred that this be accomplished by the transport unit, however, notification through the Office of Unified Communications is acceptable.

3. When communicating with Medical Control or a receiving facility, a verbal report should include these essential elements:
   - Identify unit, level of provider and name
   - Destination hospital and ETA
   - Patient's age, sex
   - Mental status
   - Patient's chief complaint
   - Brief pertinent history of the present illness
   - Baseline vital signs to include EKG, glucose, or other pertinent assessments
   - Pertinent findings of the physical exam
   - Past medical history, current meds and allergies
   - Treatment rendered in the field
   - Patient response to emergency care given
   - Orders requested, repeat granted orders back to physician
   - If Medical Control is obtained, document the physician's name

4. Advise receiving facility of change occurring in patient's condition en route to the medical facility.

5. When transmitting patient information, **DO NOT** include personal or sensitive information (e.g. name, social security number, address, race, etc.).
Responsibility for patient care in the pre-hospital setting may be transferred between pre-hospital personnel according to established procedures. These procedures are applicable for turnover responsibility to or from EMS providers or to hospital staff.

I. ALS Provider Transfer of Care to and equal or higher level provider

1. Non-transport ALS provider to transporting ALS provider
   - When first on-scene, the non-transporting ALS provider should transfer patient care authority upon arrival of the transporting ALS provider.
   - When the transferring ALS provider has initiated ALS care and the transfer of care might negatively affect patient care, the non-transporting ALS provider should maintain patient care authority during transport.
   - The transferring ALS provider should provide the transporting ALS provider a full patient report to include vital signs and physical assessment if applicable.

II. ALS Provider Transfer of Care to a BLS provider

1. Once a patient has received medications administered by any level of DCFEMS provider, the patient is categorically considered an ALS level patient. BLS providers are directed to transport the patient to the hospital if the estimated time of arrival of an ALS resource is greater than the transport time to the closest appropriate hospital. If an ALS resource arrives on the scene, the ALS provider shall assume patient care responsibilities and accompany the patient to the hospital.

2. No patient will be turned over to BLS care once ALS interventions (Medications, Airway) have been initiated. An exception to this rule can be made in a Mass Casualty or disaster scenario.

3. Patients must be stable with complaints that would be cared for at the BLS level. Prior to transferring care to the BLS provider, the examining paramedic will reasonably determine that there are no anticipated changes in the patient's present condition that would deem the patient unstable.

4. Transfer of care can take place if:
   - The patient has a patent airway, maintained without assistance or adjuncts.
   - The patient is hemodynamically stable. Vital signs should be steady and commensurate with the patient's condition.
The patient is at his or her baseline mental status and not impaired as a result of medications or drug ingestion.

No mechanism or injury warrants a trauma alert or activation.

No cardiac, respiratory, or neurological complaints that warrant ALS intervention exist.

The ALS provider provides the BLS provider with a full patient report to include vital signs and physical assessment.

The EMT who will be in attendance is comfortable with the patient's condition and will assume care.

III. Transfer of Care at the Medical Facility

1. Upon arriving at a receiving facility, EMS providers will not initiate new medical care once they cross the threshold of the facility. Examples include, spiking new IV bags, starting O₂, immobilization, and restraint application.

2. EMS providers will continue any and all pre-hospital care initiated during the transport until the patient has been triaged or until the time-limit detailed below is reached, whichever occurs first. Examples include pre-hospital O₂; maintaining IV's begun in the field until they run out, and maintaining of splints applied in the field.

3. Hospitals will designate personnel to assess patients brought by EMS transport units with **the goal of transferring care and releasing the unit within 10 minutes** of the patient's arrival to the Emergency Department (ED). Transfer of care includes movement of the patient to the hospital-owned equipment, i.e. bed, stretcher, waiting room etc.

4. Transfer of care will be documented on the patient care report (PCR). The triaging personnel will be expected to sign the time stamped receipt of delivery of the patient at the time transfer of care takes place.

5. In the event that transfer of care is delayed for longer than 20 minutes, the EMS provider will contact the EMS Liaison Officer (ELO), who will in-turn contact the authorized hospital point of contact and attempt to resolve the delay in patient transfer until release.

6. If the EMS provider is still unable to obtain a signature, this fact will be documented by the EMS provider in lieu of the signature itself, and the ELO will inform the authorized hospital personnel that the process outlined in paragraph 7 below will be followed.
7. Patients that have been assessed by hospital personnel and are placed in a stable category will be escorted to the waiting room intake by EMS personnel and presented to the hospital's ambulatory patient intake personnel. The EMS crew will then go back in service.
I. Purpose:

To establish guidelines for the management and documentation of situations where patients refuse treatment or transportation, or insist on transportation to a destination other than that recommended by the EMS provider.

The Definition of a Patient for purposes of this policy shall be:

- Obtaining a history or interview of a client
  AND/OR
- Physical exam, vital signs, assessment, or mental status examination that leads to clinical decision making actions such as treatment, transport, refusal or referral to another agency/service provider.

II. Guidelines:

1. Obtain Consent
   
   A. Informed Consent – when a competent patient or guardian is informed of the potential benefits and risks of a process or procedure, alternatives to that procedure, and the possible consequences related to each.
   
   B. Expressed Consent – written or verbal request to be evaluated and treated.
   
   C. Implied Consent – when a patient is unable to express consent because of altered mental status or severe distress.

2. Patient Assessment
   
   A. Providers should attempt to obtain a history and perform a physical assessment in as much detail as is permitted by the patient.
   
   B. Conduct Three Assessments: Providers should attempt to assess the following three major areas prior to permitting a patient to refuse care and/or transportation:
      
      ➢ Legal Capacity to Refuse Care
        
        o Ensure that the patient is at least 18 years of age in order to refuse care.
        
        o If the patient is a minor, he or she may refuse care if he or she is emancipated (over age 16) by declaration of the court, or is married.
Any minor of any age may consent or refuse care for health services for prevention, diagnosis or treatment of the following conditions:

1. Pregnancy or its lawful termination
2. Substance Abuse to include drug and alcohol abuse
3. Mental or Emotional Condition
4. Sexually transmitted disease

Patients subject to a court decree of incapacity are not legally competent to refuse care.

- Mental Capacity to Refuse Care
  - Ensure that patient is oriented to person, place, time and purpose.
  - Establish that patient is not a danger to himself or others.
  - Ensure that patient is capable of understanding the risks of refusing care or transportation and any proposed alternatives.

- Medical or situational capacity
  - Ensure that patient is suffering from no acute medical conditions that might impair his or her ability to make an informed decision to refuse care or transportation.
  - Check to be sure that patient is exhibiting no other signs or symptoms of potential mental incapacity, including drug or alcohol intoxication, unsteady gait, slurred speech, post ictal period after seizure, cognitive deficits after hypoglycemia or drug intoxication. etc.
  - If possible, rule out conditions such as hypovolemia, hypoxia, head trauma, metabolic emergencies (e.g., diabetic shock); hypothermia, hyperthermia, etc.
  - Attempt to determine if patient lost consciousness for any period of time.

III. Who May Refuse Care

1. The Patient:
   A. If patient has legal, mental, medical and situational capacity to understand the risks and alternatives to treatment and transportation, the patient has a right to refuse care. Obtain refusal signature.
   B. Implied consent -- if patient is unconscious lacks capacity and/or is seriously injured or in need of further medical attention, treat and transport patient despite patient's inability to consent or the unavailability of another party to provide consent.
2. Parent:
   A. A custodial parent (i.e., a parent with a legal right to custody of a minor child) may refuse care on behalf of a minor child. Obtain refusal signature from parent.
   
   B. A parent of a patient who is 18 years of age or older may not refuse care on behalf of his or her child (unless the parent also happens to be a legal guardian – see below).
   
   C. A minor (i.e., under 18 years of age) may refuse care for his or her child. Obtain refusal signature from the minor parent.

3. Guardian:
   A. A legal guardian is one who is appointed by a court to act as “guardian of the person” of an individual who has been found by a court to be incapacitated.
   
   B. Legal guardian may also be appointed in lieu of parents for a minor. If a person indicates they are a legal guardian to the patient, attempt to obtain documentation of this fact (court order, etc.). If no such documentation is available, you may obtain refusal signature from the guardian as long as you do so in good faith and do not have any evidence or knowledge that the person is misrepresenting himself as a legal guardian of the patient.

4. Health Care Agent ("Attorney-in-Fact"):
   A. A person appointed by the patient in a durable power of attorney document may refuse care on behalf of the patient if the power of attorney contains such authorization.
   
   B. Attempt to obtain a copy of the durable power of attorney document to attach to the patient care report (PCR). If no such documentation is available, you may obtain refusal signature from a health care agent ("attorney-in-fact") as long as you do so in good faith and do not have any evidence or knowledge that the person is misrepresenting himself as the health care agent or "attorney-in-fact" of the patient.

IV. Managing Incompetent Patients and Patients who lack Medical or Situational capacity:

1. Take all reasonable steps to secure treatment or transportation for a patient who is legally or mentally incompetent to refuse care, but do not put yourself or your crew in jeopardy.

2. The Metropolitan Police Department should be summoned to the scene to assist with patients that you believe may be mentally incompetent and
refusing services. A Battalion EMS Supervisor will also be requested to the scene to facilitate the FD 12 process with the responding law enforcement officer.

3. If a patient lacks medical or situational capacity, and no other authorized individual is available to provide a refusal signature, the patient may be treated and transported as long as you act in good faith and without knowledge that the patient or authorized individual would refuse care. Patients may be transported against their objections if they lack medical or situational capacity to refuse care.

V. Refusal Procedures:

1. If the patient does not speak English as a primary language and requests language translation services, the language line will be used for formal translation services.

2. If patient refuses care, or insists on being transported to a facility that is on closure or a facility other than the destination recommended by EMS personnel, have the patient or designee complete the refusal of treatment or transport section of the patient care report (PCR).
   A. Conduct a thorough patient assessment to include vital signs and blood glucose level.
   B. Inform the patient that units responded to the scene for the purpose of providing emergency medical care and with the expectation of terminal outcome that the patient would accept transport to the hospital for further evaluation and treatment.
   C. Review form with patient or designee. If required the body of the text shall be read aloud to the patient.
   D. Provide detailed explanation of possible risks and danger signs to patient or other designee.
   E. Inform the patient to call 911, call their doctor or go to an emergency department if symptoms persist or get worse or any of the danger signs you inform them of appear.
   F. Obtain the signature of the patient or designee. If the patient refuses to sign, document this fact on the patient care report (PCR).
   G. Have the patient or designee date the patient care report (PCR).
   H. Obtain signature of a witness; preferably the witness should be someone who witnessed your explanation of risks and benefits to the patient, and who watched the patient sign the form. Witnesses may include law enforcement personnel. All witnesses should be 18 years of age or older if possible.
I. Contact the EMS Liaison Officer or Battalion EMS Supervisor to provide an update via radio consultation confirming that all evaluation and inclusion criteria have been met. If a Battalion EMS Supervisor is on the scene, providers may dispense with the radio consult.
Air-Medical transport may be utilized when available if conditions are favorable to reduce transport time for critically ill or injured patients. It is important to consider the risk/benefit ratio when making this decision.

Basic considerations for air transport:
- Would the amount of time needed to transport a patient by ground transportation to an appropriate medical facility pose a threat to the patient's survival and/or recovery?
- Would weather, road conditions, or other factors affecting the use of ground transportation seriously delay the patient's access to tertiary medical care?
- Does the available ground ambulance have the clinical skills, equipment or extra personnel to care for the patient during transport from the scene?
- If the seriously injured patient is trapped, would the extrication time allow for the helicopter to arrive at the scene and speed delivery of the patient to a trauma receiving facility?

Indications for requesting Aeromedical evacuation of a patient include:
- Patient injury evaluation by the first-arriving Paramedic meets criteria for trauma center destination.
- The scene of injury is more than 30 minutes lights-and-siren driving time to the trauma center destination (distance, traffic, and weather conditions considered).
- Patient extrication, vital on-scene care, and ground transport time is estimated to be greater than the time span from requesting Aeromedical service to Aeromedical patient arrival at the trauma center.
- A Mass-Casualty Incident (MCI) in which awaiting sufficient numbers of ground transport units for critical patient(s) would result in a transport time delay that exceeds the time span from request of Aeromedical service to Aeromedical patient arrival at the designated trauma center. In this situation Aeromedical Unit should transport to a distant tertiary care center if all possible to allow local resources to be used by ground units.

Contraindications for requesting Aeromedical evacuation of a patient include:
- Patients in cardiac arrest
- Patients contaminated by hazardous materials
- Patients with violent or erratic behavior
Helicopter safety and landing zones:

➢ When a helicopter has been requested, indicate a safe landing zone by taking into account, crowds, trees and overhead hazards.

➢ Never approach a helicopter until instructed by the flight crew to do so.

➢ If the rotors are turning, never approach a helicopter from the rear or from above.
Medical Control may be contacted at any step in patient care, and if a patient’s condition is unusual and is not covered by a specific protocol. When a patient’s presentation is atypical and the protocol treatment may not be the best treatment for the patient or in any situation where the EMS provider is not sure about the best treatment for the patient contact Medical Control.

Each hospital will serve as its own Medical Control for patients being transported to them. *Children’s National Medical Center (H02)* will be the designated Medical Control for **ALL Pediatric patients**. When Medical Control is required, providers should ask to speak to the Emergency Physician. If genuinely unable to contact Medical Control, precede with standing orders only, **DO NOT** initiate Medical Control options. Providers should make every effort to utilize Hospitals 5, 8 or 13 as a back-up for adult patients. In the event of a communications failure, notify the receiving Emergency Department and the ELO upon arrival.

**Purpose of Medical Control contact:**

- EMS personnel will provide care within their scope of practice and will follow D.C. Fire and EMS orders when delivering EMS care.
- Medical Control must order any ALS or BLS treatment (medication or procedure) that EMS provides when that treatment is not included in or is a deviation from the approved protocols.
- In certain circumstances, as defined by the protocols, Medical Control shall be contacted by EMS (BLS or ALS) personnel.
- Protocols cannot adequately address every possible patient scenario. EMS personnel can contact Medical Control when confronted with a situation that is not addressed by the protocols or when the EMS personnel have any doubt about the appropriate care for a patient.

**Contact with Medical Control may be particularly helpful in the following situations:**

- Patients with time-dependent illnesses or injuries who may benefit from transport to a specific facility with special capabilities (e.g. acute stroke, acute ST-elevation MI).
- Patients with conditions that have not responded to the usual protocol treatments.
- Patients with unusual presentations that are not addressed in protocols.
- Patients with rare illnesses or injuries that are not frequently encountered by EMS personnel.
- Patients who may benefit from uncommon treatments (e.g. unusual overdoses with specific antidotes).
I. Initial Scene Survey and Size Up

1. Survey the scene for possible hazards and re-survey periodically.
2. Protect yourself first, then victims, from hazards. Do not become a victim.
3. Identify all potential patients. Refer to MCI Bulletin if greater than 9 patients.
4. In cases of a lightning strike a reverse triage process should be utilized and patients in cardiac arrest should be treated first.
5. Summon additional resources as necessary to manage the incident. Additional resources include, but are not limited to: fire, rescue, advanced life support, or law enforcement.
6. Assess mechanism of injury and/or nature of illness.
   ➢ Medical – determine nature of the illness from the patient, family or bystanders. Why EMS was activated?
   ➢ Trauma – determine the mechanism of injury from the patient, family or bystanders, and inspection of the scene.
7. If injury or illness is the result of exposure to a hazardous chemical, the patient should be completely decontaminated before treatment.
8. Patients that are identified to be unresponsive and do not have a witness to attest as to the mechanism of the change in mental status shall be treated as if they have a cervical spinal injury. Appropriate spinal immobilization precautions shall be employed while the assessment and care is being performed.

II. Primary Patient Assessment

1. Form a general impression of the patient (Critical, In Distress, or Non-Critical) with the understanding that management of scene time is critical when managing major trauma patients.
2. Assess mental status (AVPU)
   ➢ A-----Alert
   ➢ V-----Responsive to verbal stimulus
   ➢ P-----Responsive to painful stimulus
   ➢ U-----Unresponsive
4. Determine the chief complaint/apparent life threats.
Immediate Recognition and Action Plan

1. If the patient is unresponsive and presents with apnea or agonal respirations immediately assess for the presence of a pulse. If a pulse is absent, initiate CPR and proceed with resuscitation. If the patient is very cold due to hypothermia, assess the pulse for 45 seconds before determining that a pulse is absent. If the patient meets criteria for Presumed Dead on Arrival (PDOA) do not initiate resuscitation.

2. Identify active hemorrhage and control bleeding by applying a pressure dressing or tourniquet as needed.

3. Utilize an Impedance Threshold Device (ResQPod™) for patients eight (8) years of age or older in a non-traumatic cardiac arrest (If available). Remove the device immediately in the event of a Return of Spontaneous Circulation (ROSC).

4. CPR should be continued until an AED becomes available and is readied for use.

5. Defibrillate as applicable and refer to appropriate treatment protocol.

Airway

1. Assess airway status. **If cervical spinal trauma is suspected, manually stabilize the spine.** If the airway is blocked use a jaw thrust to relieve the obstruction.

2. Inspect the mouth for foreign objects, vomitus or blood. If present, remove it, or suction as needed. Utilize mechanical aids such as direct laryngoscopy (ALS), or any other approved method of obstruction relief.

3. When the airway is open, insert an oral or nasopharyngeal airway as tolerated. If the patient is pulseless and/or apneic, insert the King Airway as the primary airway of choice. BLS measures should be left in place as long as the device continues to be effective. ALS providers should immediately attempt to intubate using the Endotracheal Tube if BLS measures are deemed ineffective.

4. If none of these are successful, advanced life support providers should consider advanced airway alternatives such as needle cricothyroidotomy.

Breathing and Ventilation

1. Assess rate, rhythm, and quality of breathing. If the patient's respiratory rate is normal or near normal, administer oxygen as per the specific protocol.
2. If the patient’s respiratory rate is unusually rapid or slow for their age, the quality of respiration is insufficient, or if the patient is not breathing, ventilate with a bag-valve-mask (BVM) every 6 seconds or ten times a minute.

3. Seal sucking wounds with an occlusive dressing.

4. Splint flail segments with at taught heavy bulky dressing.

5. If tension pneumothorax is suspected, ALS providers should immediately perform a needle thoracostomy of the affected side. Perform bilateral needle thoracostomy for patients in cardiac arrest with chest trauma.

6. Frequently reassess the patient’s breathing and intervene as necessary.

7. Continuous Quantitative Waveform Capnography (ETCO2) shall be utilized for any patient with moderate-severe respiratory distress, any patient requiring ventilatory assistance via BVM, or any patient that has been intubated with a King Airway or Endotracheal Tube.

8. Any patient that has been intubated with a King Airway or Endotracheal Tube shall have a cervical collar applied (full spinal immobilization is not required) with the expressed intent of stabilizing the head and neck to assist in stabilizing the airway and maintaining the flow and stabilization of an IV line that may have been established in the external jugular vein.

Circulation

1. Identify active hemorrhage and control bleeding by applying a pressure dressing or tourniquet as needed.

2. Heart rate: compare to normal rate for age and situation.

3. Central/truncal pulses (radial, brachial, femoral, carotid): strong, weak or absent.

4. Distal/peripheral pulses: present/absent, thready, weak, or strong.

5. Check perfusion by evaluating skin color, temperature, and moisture.

6. Hydration status: anterior fontanel in infants, mucous membranes, skin turgor, crying tears, urine output history.

7. Identify the priority of the patient based on assessment findings.
Disability

1. Evaluate neurological status by noting:
   - Mental status and level of consciousness.
   - Presence or absence of movement in the extremities, either spontaneously or in response to stimuli.
   - Pupil size and reactivity.
   - General evidence of trauma to the head or neck.

2. Initiate spinal movement restrictions, if indicated.

Expose and Examine

1. Remove as much clothing as necessary to determine the presence or absence of an emergency condition or injury.

2. Perform a rapid full body scan and identify injuries. Treat life threatening conditions as they are recognized. Inspect and palpate each of the major body systems for the following:

   - D -- Deformities
   - C -- Contusions
   - A -- Abrasions
   - P -- Penetrations/punctures
   - B -- Burns
   - T -- Tenderness
   - L -- Lacerations
   - S -- Swelling/edema
   - I -- Instability
   - C -- Crepitus

Categorize Complaint and Determine Transport Priority


2. Establish if the patient's complaint is medical or traumatic in nature. Proceed to appropriate assessment pathway.
III. History Taking

1. Investigate the chief complaint and history of the present illness or event. You should use the mnemonic, "OPQRST-I" to evaluate any kind of pain.
   - Onset – When did the pain/discomfort begin?
   - Provocation/Palliative – What worsens or lessens the pain/discomfort?
   - Quality – What does the pain/discomfort feel like?
   - Region/Radiation/Referral – Where is the pain/discomfort? Does it move anywhere?
   - Severity – How severe is the pain/discomfort?
   - Timing – How long/often has this been occurring?
   - Interventions – Any intervention performed prior to EMS arrival and any effect they may have had?

2. Inquire about pertinent past medical history. You may use the acronym, "SAMPLE".
   - Signs/Symptoms
   - Allergies
   - Medication
   - Past medical history
   - Last oral intake
   - Events leading up to illness or injury

3. Inquire about pertinent negatives as they can frequently narrow the focus of treatment. Pertinent negatives should be recorded in the patient care report.

IV. Secondary Assessments

Medical Complaints

1. Assess Vital Signs and blood glucose level.

2. Use appropriate monitoring devices to monitor the patient such as EKG (4-lead and 12-lead), Temperature, Pulse oximetry with Carbon Monoxide probe, and/or Continuous Quantitative Waveform Capnography (ETCO₂).

3. Inquire about current health status.

5. Conduct a focused physical examination.

6. Based on the formulated impression refer to the appropriate treatment protocol.

**Trauma Complaints**

1. Perform primary assessment, initial stabilization and load into Transport unit and start transport for all Patients that satisfy criteria for Field Trauma Triage Algorithm.

2. Assess Vital Signs and blood glucose level.

3. Perform a detailed focused physical examination while en route to the hospital or at the landing zone (fly-out) only after lifesaving assessments and interventions have been completed.

4. Based on the formulated impression refer to the appropriate treatment protocol.

5. Do not delay transport to initiate IV therapy.

**Baseline Vital Signs and EKGs**

1. Reassess respiratory rate, depth, quality, and rhythm (pattern).

2. Reassess pulse rate, rhythm, and quality. **DO NOT** utilize the pulse oximeter or the EKG tracing as the sole means for determining pulse rate.

3. Skin color, temperature and moisture.

4. **PEDS** - Capillary refill status.

5. At a minimum limb lead EKG monitoring should be completed at an early phase of patient evaluation. EKG assessment is essential when managing patients reporting complaints such as:
   - Chest discomfort of any kind.
   - Respiratory distress/shortness of breath.
   - Upper back pain.
   - Neck or jaw pain.
   - Epigastric discomfort.
   - Syncope / Near Syncope.
   - Acute onset of general malaise or weakness.
6. A 12 lead EKG will be obtained on patients with any one of the complaints mentioned in line item # 5 and who is greater than 30 years of age and reports to have a history of any one of the following cardiac risk factors:

- Coronary Artery Disease
- Diabetes
- Hypertension
- Obesity
- Family History of Cardiac Issues
- Smoker
- Use of recreational drugs
- High Cholesterol
- Use of medications not prescribed to that individual
- Is a member of an at risk population

Patients with complaints consistent with suspected cardiac etiology or Acute Coronary Syndrome (ACS) who are 30 years of age or older and have risk factors noted above must be transported ALS unless Medical Control approves the downgrade of the patient to BLS. All patients in which EKG monitor is utilized or a 12 Lead EKG is obtained will have such data uploaded to the electronic medical record.

7. Obtain blood pressure. The initial blood pressure shall be obtained by auscultation on all patients. Subsequent blood pressures can be obtained manually or by electronic non-invasive blood pressure devices.

8. Obtain Blood Glucose reading unless procedure is declined by the patient.

9. Vital signs should be monitored at a minimum of every 5 minutes for all critical patients and every 15 minutes for all other patients.

10. In addition to obtaining vital signs, providers shall perform these additional skills to assist with patient assessment as needed:

- Pulse Oximetry.
- EKG: 4-lead and 12-lead.
- Continuous Quantitative Waveform Capnography (ETCO₂).
- Temperature, as needed.
- Carbon Monoxide (RAD 57 or Lifepak 15 with Rainbow probe).
Normal Vital Signs

<table>
<thead>
<tr>
<th></th>
<th>Respiration</th>
<th>Pulse</th>
<th>Systolic BP*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult</td>
<td>12 - 20</td>
<td>60 -100</td>
<td>90 - 140</td>
</tr>
<tr>
<td>Adolescent</td>
<td>12 - 24</td>
<td>60 -100</td>
<td>&gt;90</td>
</tr>
<tr>
<td>Children (1 to 10 years)</td>
<td>22 - 34</td>
<td>80 -140</td>
<td>&gt;75</td>
</tr>
<tr>
<td>Infants (1 month to 1 year)</td>
<td>24 - 40</td>
<td>90 -150</td>
<td>&gt;70</td>
</tr>
<tr>
<td>Neonate (0 to 28 days)</td>
<td>30 - 60</td>
<td>100 -160</td>
<td>&gt;60</td>
</tr>
</tbody>
</table>

- For children 1 to 10 years of age, you can determine the lower limit of an acceptable blood pressure using the following formula:
  
  Minimal systolic blood pressure = 70 + (2 × age in years).

V. Focused Physical Examination

1. Performed to detect non-life threatening conditions and to provide care for those conditions/injuries. Perform enroute to the medical facility if the patient is unstable.

Head
1. Inspect facial features for symmetry.
2. Note color of face.
3. Note presence of swelling or excessive perspiration.
4. Assess the pupils and observe their size, equality and reactivity.
5. Inspect ear canals for discharge or presence of fluids.
6. If evidence of head trauma, have suction ready and prepare for seizure activity.

Neck
1. Note the trachea’s position.
2. Inspect the neck of the upright patient for jugular venous distention.
3. Observe supra-sternal areas for retractions or use of accessory muscles.
Chest
1. Assess rate, depth, quality, and pattern of breathing.
2. Observe chest wall movement for symmetry, and auscultate breath sounds on both sides of the chest and anterior and posterior if the situation allows. Inspect the integrity of the chest wall.
3. Inspect and palpate for indwelling medical devices.

Abdomen and Pelvis
1. Assess the abdomen for pain, tenderness, swelling, guarding, or distention.
2. Palpate for the presence of rigidity, pulsations, masses, distention, rigidity and rebound tenderness.
3. Inspect and palpate for indwelling medical devices.
4. Using gentle pressure, evaluate the pelvis for crepitus and instability.

Extremities
1. Palpate distal pulses and evaluate skin presentation and temperature.
2. Inspect and palpate extremities for tenderness, gross deformity, swelling, lacerations and abrasions. Note motor, sensory, and vascular integrity in each extremity. Dress and splint extremity injuries as required and as time allows. When possible, elevate injured extremities.

Back
1. Examine the patient's back, if possible, for gross deformities or penetrating injuries.
2. Initiate spinal movement immobilization if indicated.

VI. Reassessment
1. To effectively maintain awareness of changes in the patient's condition, repeated assessments are essential and should be performed:
   - **Unstable patient:** at least every 5 minutes
   - **Stable patient:** at least every 15 minutes
2. Repeat the primary assessment.
3. Reassess circulation including pulses, hemorrhage control and skin perfusion.
4. Re-establish patient priority.

June 15, 2017
5. Reassess and record vital signs.
6. Repeat focused assessment regarding patient complaint or injuries.
7. Assess interventions.
8. Assess response to management.
9. Maintain or modify management plan.

VII. Transport Decision

Adult Patients

1. Major trauma patients should be transported to one of the designated adult trauma centers.
2. Burn patients are to be transported to the Burn Center at the Washington Hospital Center entering through MedStar (H04).
3. Burn patients with critical trauma other than the burns should be transported to the closest available burn center for the management of life threatening conditions.
4. Patients presenting with signs and symptoms that lead to a clinical impression of acute myocardial infarction (AMI) or STEMI should be transported to the closest STEMI referral center that is capable of emergent Percutaneous Coronary Angioplasty.
5. Patients presenting with signs and symptoms that lead to a clinical impression of a CVA or TIA should be transported to the closest appropriate stroke receiving center.

Pediatric Patients

1. Major trauma and burn patients less than 15 years of age should be transported to Children’s National Medical Center (H02).
2. Major trauma and burn patients 15 years of age or greater (adult sized) should be transported to a trauma or burn facility capable of handling adult patients.
3. Medical or minor trauma patients less than 18 years of age should be transported to a medical facility capable of handling pediatric patients.
4. Sexual assault patients less than 18 years of age should be transported to Children’s National Medical Center (H02).

Special Situations

1. Patients with isolated eye trauma should be transported to Howard University Hospital. If significant trauma is associated the patient should be transported to the closest major trauma facility.
2. Patients with an amputation should be transported to the closest trauma facility.

3. Adult sexual assault patients who have sustained major single or multiple system trauma should be transported to the closest trauma facility. Adult sexual assault patients with no trauma or minor trauma will be transported to Washington Hospital Center (H13).

4. Patients with left ventricular assist devices (LVAD) should be transported to an LVAD referral facility. Currently the only facility in the District of Columbia is Washington Hospital Center (H13)

VIII. Considerations

1. For the purposes of determining pediatric versus adult dosing for medication the following criteria is to be applied:
   - Pediatric doses apply to pediatric patients weighing less than 45 kg (100 lbs.).
   - For pediatric patients equal to or greater than 45 kg (100 lbs.), utilize adult dosing.
   - Where applicable and available, the Broselow Tape, pediatric dose cards and/or electronic application should be utilized.
This protocol establishes standard practices for airway management and oxygen therapies. Unless otherwise indicated in a specific protocol, the mechanisms and therapeutic modalities in this protocol will be universally applicable.

**ALL PROVIDER LEVELS**

1. Patients that are identified to be unresponsive and do not have a witness to attest as to the mechanism of the change in mental status shall be treated as if they have a cervical spine injury. Appropriate spinal immobilization precautions shall be employed while the airway is being assessed and managed.

2. If cervical spine trauma is indicated, cervical spine stabilization will be maintained and the modified jaw thrust will be used to open the airway.

3. If cervical spine injury is not indicated, either the head tilt-chin lift method or modified jaw thrust method may be utilized to open the airway.

4. If the airway is obstructed refer to the **Obstructed Airway protocol**.

5. Suction the airway as needed. The tongue-jaw lift maneuver should be utilized to facilitate suctioning.

<table>
<thead>
<tr>
<th>Suctioning Time Limits</th>
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<tr>
<td><strong>Adult</strong></td>
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<tr>
<td>15 seconds</td>
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</table>

**Placement of Airway Adjuncts**

1. An oropharyngeal airway (OPA) or King Airway should be sized and inserted if a gag reflex is absent.

2. If the patient has an intact gag reflex, a nasopharyngeal airway (NPA) should be sized, lubricated, and inserted. Use of the nasopharyngeal airway is contraindicated in patients with:
   - Head trauma with epistaxis
   - Potential basilar skull fracture
   - History of fractured nasal bone
   - Significant head or facial trauma or bleeding
Artificial Ventilation and Assisted Ventilation

1. If spontaneous respirations are insufficient or absent provide ventilatory assistance via BVM with supplied oxygen. Insufficient respiratory effort includes but is not limited to:
   - Less than
     - 8 respirations per minute in adults or;
     - Below the lower limits of normal limits for pediatric patients
   - Greater than:
     - 26 respirations per minute in adults or;
     - above of the higher limits of normal for pediatric patients
   - No visible chest rise with inspiratory effort
   - Pulse Oximetry reading of less than 90% SpO₂ after oxygen therapy without a corresponding rise in SpO₂.

2. Patients requiring artificial ventilation or assisted ventilations shall be ventilated with a bag valve mask (BVM) with 100% supplemental oxygen at the following rates:

<table>
<thead>
<tr>
<th></th>
<th>Ventilation Rate</th>
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<tbody>
<tr>
<td><strong>Adult</strong></td>
<td>1 breath every 6 – 8 seconds</td>
</tr>
<tr>
<td><strong>Child</strong></td>
<td>1 breath every 3 – 5 seconds</td>
</tr>
<tr>
<td><strong>Infant</strong></td>
<td>1 breath every 3 – 5 seconds</td>
</tr>
</tbody>
</table>

3. If a tracheostomy tube is present, attach the BVM to the 15 mm adapter of the tracheostomy tube. Close and seal the patient’s mouth and nose before providing ventilations if no tracheostomy cuff is present. If the patient has a stoma and no tracheostomy tube is present, use a pediatric mask to form a seal over the stoma and ventilate with the appropriate BVM. Close and seal the patient’s mouth and nose before ventilating. Release the seal of patient’s mouth and nose to allow for exhalation.

4. Ventilations should be delivered over 1-2 seconds in sufficient volume to produce visible chest rise.

5. Routine hyperventilation and hyperinflation must be avoided.

Supplemental Oxygen Therapy

1. Administer supplemental oxygen via an appropriate device and at a flow rate sufficient enough to maintain a SpO₂ >94%. Patients should not routinely be given oxygen if oxygen saturation is adequate with a SpO₂ >94%.
2. Nebulized medications shall be driven by a flow rate of 10 liters per minute (lpm) or as prescribed by the manufacturer’s recommendations.

3. Patients exhibiting signs of moderate to severe respiratory distress due to pulmonary edema or near drowning should be placed on the Continuous Positive Air Pressure (CPAP) system.
   - ALS providers should apply the nasal cannula ETCO2 device before placing the CPAP mask into position.
   - Where indicated, nebulizer systems shall be inserted as part of the in-line circuit of the CPAP system. The oxygen flow rate driving the nebulized medication shall remain at 10 lpm or as prescribed by the manufacturer’s recommendations.

4. If the patient has a stoma or tracheostomy, a tracheostomy mask may be used as the delivery device. If a tracheostomy mask is not available, a non-rebreather mask (NRB) should be placed over the opening.

ADVANCED LIFE SUPPORT PROVIDERS

1. Patients requiring advanced airway control due to the ineffectiveness of BLS measures should be intubated via either the oropharyngeal or nasopharyngeal route.

2. During early resuscitation phases of patients in cardiac arrest, the King Airway shall be used as the primary airway. If the King LT(S)-D airway is used and suction is available, the gastric contents can be suctioned via an 18 gauge French suction catheter inserted through the suction channel at first practicable opportunity.

3. If a tracheostomy is present and ventilatory support is required, insert a 6.0 or smaller Endotracheal Tube into the tracheostomy until the cuff is barely visible. Inflate the cuff until a seal if formed.

4. Intubation with a King Airway or ET Tube requires the attachment of continuous quantitative waveform capnography. ETCO₂ readings should be maintained at a level of 35-45 mmHg.

5. Needle Thoracostomy should be employed on patients with clinical indications of tension pneumothorax. Bilateral Needle Thoracostomies should be performed on any patient that is in cardiac arrest secondary to trauma and has associated chest injuries. Tension pneumothorax is a clinical diagnosis and should be managed when signs and symptoms are recognized. ALS providers should not delay management waiting for tracheal shift to manifest.

6. Refer to the Medication Facilitated Intubation protocol as required.
7. **Needle Cricothyroidotomy** should be implemented when indicated if upper airway is obstructed despite interventions.
After assessment of a patient, the ALS or BLS provider must assign a treatment priority. The following examples of priorities are not inclusive and sound judgment should be used when assessing patients.

I. Priority 1: Unstable Patients

1. Cardiac Arrest.
2. Post arrest with successful resuscitation.
3. Unconscious or GCS <13 and does not respond to therapy.
4. Moderate to severe respiratory distress with a respiratory rate >24, cyanosis, use of accessory muscles, or altered mental status.
5. Hypotensive (BP <90 systolic) with signs and symptoms of hypoperfusion.
6. Hypertensive (BP >220 systolic or >120 diastolic) with altered mental status or neurological deficit.
7. Cardiac related chest pain unrelieved by therapy with hypotension or cardiac dysrhythmia.
8. Suspected acute myocardial infarction.
9. Obstructed or uncontrolled airway.
10. Continuous vaginal hemorrhage with signs and symptoms of hypoperfusion.
11. Abnormal deliveries.
12. Evidence of prolapsed cord.
15. Status epilepticus.
16. Uncontrolled hemorrhage following trauma.
17. Multiple trauma patient(s).
18. Unstable chest injuries.
19. Penetrating wounds head, neck, chest, abdomen or pelvis.
20. Burn patients:
   - Respiratory burns.
   - 2nd degree burn with greater than 20% BSA any age.
   - Any 3rd degree burn larger than 1% BSA, or the size of the patient's hand.
   - Electrical burns.
Chemical burns.
2nd or 3rd degree burns hands, face, feet or perineum.
21. Acute neurological deficit less than four (4) hours.
22. Unstable fracture with neurovascular compromise.
23. Any patient that is deemed unstable by the senior provider.

II. Priority 2: Potentially Unstable Patients

1. Cardiac related chest pain.
2. Respiratory distress (mild to moderate).
3. Hypertensive (BP >220 systolic or >120 diastolic) without signs and symptoms.
4. Patients involved in trauma with a GCS of 15, without signs and symptoms of hypoperfusion and associated with one of the below:
   - MVC >40 mph
   - Hit by vehicles >20 mph
   - Patients thrown from moving vehicles
   - Rollover MVC
   - Falls ≥20 feet without altered mental status or hypoperfusion
5. Burn patients.
   - 2nd degree burns 10-20% BSA any age.
6. Any patient that is deemed potentially unstable by the senior provider.

III. Priority 3: Stable Patients

1. Uncomplicated fractures.
2. Minor burns.
3. Lacerations requiring suturing, with bleeding controlled.
4. Seizure patients with a return of a GCS 15.
5. Any patient that is deemed stable by the senior provider.
## Medical Facility

<table>
<thead>
<tr>
<th>Hospital Name</th>
<th>Hospital Number</th>
<th>Adult Major Trauma</th>
<th>Pediatric Trauma &gt;14 Yrs</th>
<th>Pediatric Trauma up to 18 yrs</th>
<th>Pediatric Burns</th>
<th>Stroke Center</th>
<th>Hyperbaric Medicine</th>
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This protocol applies to patients experiencing a non-traumatic cardiac arrest. For pediatric patients weighing >45 kg the adult resuscitation guidelines should be followed. If the patient meets the criteria for being presumed dead on arrival (PDOA), resuscitative efforts shall not be attempted and notification of law enforcement shall be made. If at any time the patient has a return of spontaneous circulation (ROSC), refer to the ROSC protocol.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care ensuring that the patient is pulseless and apneic or agonal.

2. Initiate immediate CPR (PIT CREW concept) and support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.

3. For non-traumatic patients eight (8) years of age or older, attach Impedance Threshold Device (ResQPOD™) and ventilate in conjunction with timing light. Remove immediately if Return of Spontaneous Circulation (ROSC) occurs.

4. Attach AED or Monitor/Defibrillator, analyze the rhythm, and defibrillate as indicated. If “no shock” is advised or indicated, immediately continue CPR. Repeat rhythm assessments every 2 minutes.

5. Establish an IV of Normal Saline KVO. EMTs who have completed the IV training module and Advanced EMTs may initiate IV access
   - If peripheral IV access in the antecubital space or external jugulars capable of supporting a large gauge IV catheter is not immediately accessible then ALS providers and Advanced EMTs should immediately obtain IO access.
   - IO at the Humerus (preferred) or Tibial site can be the first access procedure especially if insertion of an IV would disrupt CPR.

6. As soon as a mechanical external compression device (i.e. Lucas 2) becomes available the device can be employed as the primary means of providing chest compressions.

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Monitor/Defibrillator operations should be conducted in the manual mode with CPR Metronome activated.
2. If a King Airway is not in place, insert a King Airway and monitor with on Continuous Quantitative Waveform Capnography (ETCO₂). Endotracheal Intubation should be attempted if BLS measures are determined to be ineffective or the airway cannot be secured via BLS interventions. **Do not interrupt CPR to intubate.**

3. Administer **Epinephrine** every 3-5 minutes for the duration of the arrest:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epinephrine 1:10,000 1 mg IV/IO or 1:1,000 2 mg ET diluted with 5 ml of Normal Saline</td>
<td>Epinephrine 1:10,000 0.01 mg/kg IV/IO or 1:1,000 0.1 mg/kg ET diluted with 1-5 ml of Normal Saline</td>
</tr>
</tbody>
</table>

4. Consider **Sodium Bicarbonate 1 mEq/kg IV/IO** if the patient is believed to have one of the following conditions:
   - Chronic Renal Failure
   - Hyperkalemia
   - Tricyclic Anti-Depressant Overdose
   - Suspected case of Excited Delirium
   
   ✷ **Sodium Bicarbonate should not be routinely used** in cases of extended down time.

<table>
<thead>
<tr>
<th>Causes</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypovolemia</td>
<td><strong>Normal Saline Boluses</strong></td>
</tr>
<tr>
<td>Hypoxia</td>
<td>Ventilate with 100% Oxygen</td>
</tr>
<tr>
<td>Hyperkalemia</td>
<td><strong>Calcium Chloride</strong> and <strong>Sodium Bicarbonate</strong></td>
</tr>
<tr>
<td></td>
<td>After administration of either medication ensure that the IV line is <strong>completely</strong> flushed</td>
</tr>
<tr>
<td>Hypoglycemia</td>
<td><strong>Dextrose</strong></td>
</tr>
<tr>
<td>Hypothermia</td>
<td>Remove clothing with gradual re-warming. Handle patient gently</td>
</tr>
<tr>
<td>Hydrogen Ion (acidosis)</td>
<td><strong>Normal Saline Boluses. Sodium Bicarbonate</strong></td>
</tr>
<tr>
<td>Tension Pneumothorax</td>
<td>Needle Thoracostomy</td>
</tr>
<tr>
<td>Cardiac Tamponade</td>
<td><strong>Normal Saline Boluses and rapid transport. In-hospital pericardiocentesis</strong></td>
</tr>
</tbody>
</table>
Thrombosis  In-hospital fibrinolysis
Trauma  Provide treatment per trauma protocols
Toxins  Refer to Overdose/Poisoning protocol and/or Cyanide Exposure protocol

5. Identify and treat the following contributing factors (6 H and 5 T's)
6. For patients in PEA, consider Dopamine infusion 5-20 mcg/kg/min after numerous doses of Epinephrine have been administered.

7. Etomidate 0.3 mg/kg IV/IO, maximum of 30 mg may be needed for sedation if patient regains consciousness or shows signs of pain during mechanical CPR.

MEDICAL CONTROL OPTIONS

1. Consider termination of resuscitation efforts per Termination of Resuscitation protocol if patient remains in Asystole
This protocol applies to patients that are pulseless and exhibiting a wide complex tachycardia or ventricular fibrillation. For pediatric patients weighing > 45 kg adult resuscitation guidelines should be followed. If at any time the patient has a return of spontaneous circulation (ROSC), refer to the ROSC protocol. **Patients that are successfully resuscitated from a VF / VT pre-hospital arrest MUST be transported to a STEMI receiving facility.**

### ALL PROVIDER LEVELS

1. Initiate Universal Patient Initiate General Assessment and Universal Patient Care ensuring that the patient is pulseless and apneic or agonal.

2. Initiate immediate **CPR (PIT CREW concept)** and support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.

3. For non-traumatic patients eight (8) years of age or older, attach Impedance Threshold Device (ResQPod™) and ventilate in conjunction with timing light. Remove immediately if Return of Spontaneous Circulation (ROSC) occurs.

4. Attach the **AED or Monitor/Defibrillator** as soon as the device is available and analyze the rhythm. If “no shock” is advised or indicated, immediately continue CPR. Repeat rhythm assessments every 2 minutes.

5. If a shock is required, Re-start CPR and charge device. **Defibrillate via the AED or Monitor/Defibrillator** and continue with rhythm assessments every 2 minutes. BLS providers are to continue with “shock” and CPR therapy for the remainder of the arrest, until the rhythm is no longer “shockable” or until patient care is taken over by ALS providers.

6. Establish an **IV of Normal Saline KVO**. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**
   - If peripheral IV access in the antecubital space or external jugulars capable of supporting a large gauge IV catheter is not immediately accessible then ALS providers and Advanced EMTs should immediately obtain IO access.
   - IO at the Humerus (preferred) or Tibial site can be the first access procedure especially if insertion of an IV would disrupt CPR

7. As soon as a mechanical external compression device (i.e. Lucas 2) becomes available the device can be employed as the primary means of providing chest compressions.

8. **Etotomide 0.3 mg/kg IV/IO, maximum of 30 mg** may be needed for sedation if patient regains consciousness or shows signs of pain during mechanical CPR.
ADVANCED LIFE SUPPORT PROVIDERS

1. If a King Airway is not in place, insert a King Airway and monitor with continuous quantitative waveform capnography (ETCO₂). Endotracheal Intubation should be attempted if BLS measures are determined to be ineffective. **Do not interrupt CPR to intubate.**

2. Monitor/Defibrillator operations should be conducted in the manual mode. **Defibrillate** as appropriate:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>360 J</td>
<td>2 J/kg (manual) or AED</td>
</tr>
</tbody>
</table>

3. Administer **Epinephrine** every 3-5 minutes for the duration of the arrest:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epinephrine 1:10,000 1 mg IV/IO or 1:1,000 2 mg ET diluted with 5 ml of Normal Saline</td>
<td>Epinephrine 1:10,000 0.01 mg/kg IV/IO or 1:1,000 0.1 mg/kg ET diluted with 1-5 ml of Normal Saline</td>
</tr>
</tbody>
</table>

4. Repeat **defibrillation** for recurrent VF/VT after every 2 minute cycle of quality CPR and after each drug administration is circulated for at least 60 seconds:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
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</thead>
<tbody>
<tr>
<td>360 J</td>
<td>4 J/kg</td>
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5. Administer **Amiodarone** (primary) or **Lidocaine** repeat medication in 5 minutes:

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<th>Pediatric</th>
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</thead>
<tbody>
<tr>
<td>Amiodarone</td>
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<tr>
<td>Initial dose: 300 mg IV/IO</td>
<td>Amiodarone</td>
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<tr>
<td>Second dose: 150 mg IV/IO in 5 minutes</td>
<td>Initial dose: 5 mg/kg IV/IO up to the adult dose.</td>
</tr>
<tr>
<td>Third dose: 150 mg IV/IO in 5 minutes</td>
<td>Additional doses: 5 mg/kg IV/IO to a maximum total dose 15 mg/kg</td>
</tr>
</tbody>
</table>

   **Or** if Amiodarone not available
6. Consider **Magnesium Sulfate** for suspected polymorphic V-tach (Torsades de Pointes) or hypomagnesaemia:

- **Adult**
  - Lidocaine
    - Initial dose: 1 mg/kg IV/IO
    - Additional doses: 1 mg/kg IV/IO to a maximum total dose 3 mg/kg

- **Pediatric**
  - Lidocaine
    - Initial dose: 1 mg/kg IV/IO
    - Additional doses: 1 mg/kg IV/IO to a maximum total dose 3 mg/kg

7. Consider **Sodium Bicarbonate 1 mEq/kg IV/IO** if the patient is believed to have one of the following conditions:
   - Chronic Renal Failure
   - Hyperkalemia
   - Tricyclic Anti-Depressant Overdose
   - Suspected case of Excited Delirium

   - **Sodium Bicarbonate should not be routinely used** in cases of extended down time.

8. Adult patients remaining in refractory VFib/VTach after a total of four (4) defibrillation attempts shall have **Double Sequential Defibrillation** performed at **360 joules** when a second defibrillator or an AED becomes available.

**MEDICAL CONTROL OPTIONS**

1. Contact Medical Control for further orders when necessary.
This protocol applies to patients who have a return of spontaneous circulation (ROSC) after cardiac arrest. Patients that are successfully resuscitated from ANY pre-hospital arrest, regardless of initial rhythm, MUST be transported to a STEMI receiving facility.

### ALL PROVIDER LEVELS

1. Remove the Impedance Threshold Device (ITD) if previously utilized.
2. Initiate General Assessment and Universal Patient Care.
3. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
4. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
   - ALS providers should utilize advanced airway management with ET intubation and monitor with continuous quantitative waveform capnography (ETCO₂), maintaining a level of 35-45 mmHg.
5. Establish an IV of Normal Saline if not previously performed. EMTs who have completed the IV training module and Advanced EMTs may initiate IV access. Provide Normal Saline Boluses if hypoperfusion is present:

<table>
<thead>
<tr>
<th>Adult</th>
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<tbody>
<tr>
<td>250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
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</tbody>
</table>

### ADVANCED LIFE SUPPORT PROVIDERS

1. Provide continuous EKG monitoring.
2. Obtain a 12 lead EKG if time and patient condition permits. If a STEMI is indicated the, the EKG should be transmitted if practicable and the receiving facility must be notified.
3. If the patient was resuscitated following an episode of VF/VT and is without profound bradycardia or high-grade heart block (2\textsuperscript{nd} degree Type II or 3\textsuperscript{rd} degree or Idioventricular rhythm) administer Amiodarone Infusion or Lidocaine bolus. Note: Continue using the anti-arrhythmic medication that was administered during resuscitation.
RETURN OF SPONTANEOUS CIRCULATION (ROSC)

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<tbody>
<tr>
<td>Amiodarone 150 mg slow infusion. Mix 150 mg in 100 ml of Normal Saline. Utilize a 10 gtt/s set and infuse at 100 gtt/s/minute over 10 minutes</td>
<td>Amiodarone 5 mg/kg slow infusion. Mix dose in 100 ml of Normal Saline. Utilize a 10 gtt/s set and infuse at 100 gtt/s/minute over 10 minutes</td>
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Or

if Amiodarone not available

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<tbody>
<tr>
<td>Lidocaine 0.5 mg/kg IV/IO repeated every 5 minutes, up to a maximum total dose 3 mg/kg</td>
<td>Lidocaine 0.5 mg/kg IV/IO repeated every 5 minutes, up to a maximum total dose 3 mg/kg</td>
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</table>

4. If bradycardia persists refer to the Bradycardia Protocol.

5. Administer a Dopamine infusion 5-20 mcg/kg/min for persistent hypoperfusion.

6. Administer an Epinephrine infusion for heart transplant recipients or persistent hypoperfusion:

<table>
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<tbody>
<tr>
<td>Epinephrine infusion 2-10 mcg/min</td>
<td>Epinephrine infusion 0.1-1 mcg/kg/min</td>
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</table>

9. Consider Pain Management with Fentanyl / Morphine or sedation with Etomidate 0.3 mg/kg IV/IO, maximum of 30 mg if patient regains consciousness or shows signs of pain during mechanical CPR.

MEDICAL CONTROL OPTIONS

1. Contact Medical Control for further orders when necessary.
This protocol applies to patients with a pulse, experiencing a wide complex tachycardia with or without hemodynamic compromise.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. Place the patient in a position of comfort.
4. Establish an IV of Normal Saline KVO or Saline Lock. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Provide continuous EKG monitoring.
2. Obtain 12 lead EKG pre-treatment and post-treatment if time and patient condition permit.

**Management of the unstable patient**

3. Proceed immediately to synchronized cardioversion if the patient:
   - has a GCS ≤14
   - appears hemodynamically unstable
   - reports active chest pain
   - exhibits significant shortness of breath
   - If time and patient condition permit, the patient should be sedated prior to the application of electrical therapy.

4. Sedate with Midazolam (Versed):

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<tbody>
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<td>Midazolam (Versed)</td>
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<tr>
<td>2-5 mg IV/IN, up to</td>
<td>0.1 mg/kg IV/IN, up to a maximum</td>
</tr>
<tr>
<td>a maximum dose of 10</td>
<td>single dose of 5 mg</td>
</tr>
<tr>
<td>mg</td>
<td></td>
</tr>
</tbody>
</table>
5. Perform **Synchronized Cardioversion** for patients that are unstable:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 J, 300 J and 360 J</td>
<td>0.5 J/kg, 1 J/kg, and 2 J/kg</td>
</tr>
</tbody>
</table>

6. If the rhythm converts to a non-lethal, narrow complex rhythm **without** the presence of a high degree heart block then administer **Amiodarone** or **Lidocaine**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amiodarone</td>
<td>Contact Medical Control</td>
</tr>
<tr>
<td>150 mg slow infusion. Mix 150 mg in 100 ml of Normal Saline. Utilize a 10 gtt's set and infuse at 100 gtt's/minute over 10 minutes</td>
<td></td>
</tr>
<tr>
<td>May repeat once in 10 minutes</td>
<td></td>
</tr>
</tbody>
</table>

Or, if Amiodarone not available:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lidocaine</td>
<td>Contact Medical Control</td>
</tr>
<tr>
<td>1 mg/kg IV/IO followed by 0.5 mg/kg every 5 minutes, up to a maximum total dose 3 mg/kg</td>
<td>1 mg/kg IV/IO every 5 minutes, up to a maximum total dose 3 mg/kg</td>
</tr>
</tbody>
</table>

7. Obtain a 12 lead EKG and monitor the patient's EKG and vital signs.

**Management of the stable patient**

1. If the rhythm is **regular with monomorphic** appearance administer **Adenosine**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenosine</td>
<td>Contact Medical Control</td>
</tr>
<tr>
<td>First dose: 6 mg rapid IV followed by a rapid 20 ml Normal Saline bolus</td>
<td></td>
</tr>
<tr>
<td>Second dose: 12 mg rapid IV after 2 minutes if the rhythm fails to convert after the initial dose</td>
<td></td>
</tr>
</tbody>
</table>
2. If the rhythm appears irregular or the Adenosine fails to convert the tachycardia administer Amiodarone. May repeat one time in 10 minutes:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amiodarone</strong> 150 mg slow infusion. Mix 150 mg in 100 ml of Normal Saline. Utilize a 10 gtt's set and infuse at 100 gtt's/minute over 10 minutes</td>
<td><strong>Not Indicated</strong></td>
</tr>
</tbody>
</table>

Or

if Amiodarone not available

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lidocaine</strong> 1 mg/kg IV/IO followed by 0.5 mg/kg every 5 minutes, up to a maximum total dose 3 mg/kg</td>
<td><strong>Lidocaine</strong> 1 mg/kg IV/IO every 5 minutes, up to a maximum total dose 3 mg/kg</td>
</tr>
</tbody>
</table>

3. If the rhythm is polymorphic V-tach, (Torsades de Pointes) or hypomagnesaemia is suspected administer Magnesium Sulfate:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Magnesium Sulfate</strong> 2 gm slow IV/IO Infusion. Mix 2 gm in 100 ml of Normal Saline. Utilize a 10 gtt's set and infuse at 100 gtt's/min over 10 minutes</td>
<td><strong>Contact Medical Control</strong></td>
</tr>
</tbody>
</table>

4. If at any time during the administration of a medication infusion or re-evaluation, the patient begins to deteriorate or exhibit signs of tachycardia related cardiovascular compromise, revert to immediate Synchronized Cardioversion.
1. Additional sedation with Midazolam (Versed) IV/IN.

2. **Pediatric Patient:** Adenosine initial dose: 0.1 mg/kg rapid IV/IO if required second dose: 0.2 mg/kg rapid IV/IO.

3. **Pediatric Patients:** For the management of Torsades de Pointes Magnesium Sulfate 25-50 mg/kg IV over 20 minutes, up to a maximum single dose of 2 gm.
This protocol applies to patients exhibiting a narrow complex supraventricular tachycardia with significantly elevated heart rates with or without hemodynamic compromise. The following heart rates will serve as triggers for management:

- Adults greater than 150 BPM
- Adolescents and Children (ages 1-15) greater than 180 BPM
- Infants (12 months or younger) greater than 220 BPM

### ALL PROVIDER LEVELS

1. Initiate Universal Patient Care. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. Place the patient in a position of comfort.
4. Establish an IV of Normal Saline KVO or Saline Lock. *EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.*

### ADVANCED LIFE SUPPORT PROVIDERS

1. Provide **continuous EKG monitoring.**
2. Obtain **12 lead EKGs** pre-treatment and post-treatment if time and patient condition permit.

**Management of unstable patients**

3. Proceed immediately to **synchronized cardioversion** if the patient:
   - has a GCS ≤14
   - appears hemodynamically unstable
   - reports active chest pain
   - exhibits significant shortness of breath
   - If time and patient condition permit, the patient should be sedated prior to the application of electrical therapy.
4. Sedate with Midazolam (Versed):

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midazolam</td>
<td>Midazolam</td>
</tr>
<tr>
<td>2-5 mg IV/IN,</td>
<td>0.1 mg/kg IV/IN, up</td>
</tr>
<tr>
<td>up to a maximum</td>
<td>to a maximum</td>
</tr>
<tr>
<td>dose of 10 mg</td>
<td>single dose of 5 mg</td>
</tr>
</tbody>
</table>

5. Perform Synchronized Cardioversion for patients that are unstable:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 J, 300 J and 360 J</td>
<td>0.5 J/kg, 1 J/kg and 2 J/kg</td>
</tr>
</tbody>
</table>

6. If the rhythm converts to a non-lethal rhythm, monitor the patient’s EKG and vital signs.

**Management of the stable patient**

If the patient is in a narrow complex tachycardia without evidence of A-Fib / A-Flutter and is hemodynamically stable without critical signs and symptoms attempt vagal maneuvers first.

7. Administer Adenosine IV in the absence of atrial fibrillation, atrial flutter or multifocal atrial tachycardia (MAT).

- Withhold Adenosine if the patient has a history of Wolff Parkinson White Syndrome (WPW) or if delta waves are present

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenosine</td>
<td></td>
</tr>
<tr>
<td>First dose: 6 mg rapid IV followed by a rapid 10-20 ml Normal Saline flush</td>
<td></td>
</tr>
<tr>
<td>Second dose: 12 mg rapid IV after 2 minutes if the rhythm fails to convert after the initial dose</td>
<td></td>
</tr>
<tr>
<td>Contact Medical Control</td>
<td></td>
</tr>
</tbody>
</table>
8. If the Adenosine fails to slow the rate administer Diltiazem IV:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diltiazem</td>
<td></td>
</tr>
<tr>
<td>Initial dose: 0.25 mg/kg IV over 2 minutes</td>
<td>Not Indicated</td>
</tr>
<tr>
<td>15 minutes after first dose</td>
<td></td>
</tr>
<tr>
<td>Second dose: 0.35 mg/kg IV over 2 minutes</td>
<td></td>
</tr>
</tbody>
</table>

**A-FIB, A-Flutter, and Multifocal Atrial Tachycardia (MAT)**

9. Administer Diltiazem IV for the management of symptomatic:
   - atrial fibrillation
   - atrial flutter
   - multifocal atrial tachycardia (MAT)

10. If at any time during medication administration or re-evaluation the patient begins to deteriorate or exhibit signs of rate related cardiovascular compromise, revert to immediate Synchronized Cardioversion per steps # 4 and # 5 in management of the unstable patient presenting with narrow tachycardia.

11. If at any time after the administration of Diltiazem (Cardizem) the patient becomes profoundly hypotensive (SBP ≤80), administer Calcium Chloride 1 gram slow IVP.

**MEDICAL CONTROL OPTIONS**

1. **Pediatric Patient**: Adenosine initial dose: 0.1 mg/kg rapid IV/IO if required second dose: 0.2 mg/kg rapid IV/IO.
This protocol applies to patients experiencing bradycardia for their specific age group with signs and symptoms of hypoperfusion and/or hypoventilation.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. For patients <12 months of age with signs and symptoms of hypoperfusion and a heart rate of <60 beats per minute:
   - Initiate 2 minutes of aggressive oxygenation / ventilation.
   - If no increase in heart rate immediately begin chest compressions.
4. Establish an IV of Normal Saline KVO or Saline Lock. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**
5. If the patient presents with signs and symptoms of hypoperfusion administer **Normal Saline Boluses:**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml as needed to maintain or restore perfusion. Maximum total of 1000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Provide continuous EKG monitoring.
2. Obtain 12 lead EKG's pre-treatment and post-treatment if time and patient condition permit.

**Symptomatic with presence of high degree heart block**

3. Proceed immediately to **Transcutaneous Pacing (TCP)** if the patient is symptomatic with a high-degree heart block (2nd degree Type II or 3rd degree).

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate 80, 20 mA. Increase at 5 mA increments until capture is obtained with a corresponding palpable pulse</td>
<td>Rate 100, 5 mA. Increase at 5 mA increments until capture is obtained with a corresponding palpable pulse</td>
</tr>
</tbody>
</table>
4. Sedate with Midazolam (Versed) at first practicable opportunity:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midazolam 2-5 mg IV/IN, up to a maximum dose of 10 mg</td>
<td>Midazolam 0.1 mg/kg IV/IN, up to a maximum single dose of 5 mg</td>
</tr>
</tbody>
</table>

**Symptomatic in absence of high degree heart block**

5. If the patient is symptomatic without high-degree heart block (2\textsuperscript{nd} degree Type II or 3\textsuperscript{rd} degree) administer Atropine IV or Epinephrine IV:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atropine 0.5 mg IV. Repeat in 5 minutes if the patient remains symptomatic</td>
<td>First line: Epinephrine 1:10,000 0.01 mg/kg IV/IO</td>
</tr>
<tr>
<td>If bradycardia is due to increased vagal tone or primary AV block administer Atropine 0.02 mg/kg IV/IO</td>
<td></td>
</tr>
<tr>
<td>Minimum dose: 0.1 mg</td>
<td></td>
</tr>
<tr>
<td>Maximum dose: 0.5 mg</td>
<td></td>
</tr>
</tbody>
</table>

6. If the patient remains symptomatic, consider a sedation option if time and patient condition permit.

➢ Sedate with Midazolam (Versed):

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midazolam 2-5 mg IV/IN, up to a maximum dose of 10 mg</td>
<td>Midazolam 0.1 mg/kg IV/IN, up to a maximum single dose of 5 mg</td>
</tr>
</tbody>
</table>

➢ Initiate Transcutaneous Pacing (TCP):

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate 80, 20 mA. Increase at 5 mA increments until mechanical capture is obtained</td>
<td>Rate 100, 5 mA. Increase at 5 mA increments until mechanical capture is obtained</td>
</tr>
</tbody>
</table>
7. **Epinephrine infusion** for persistent hypoperfusion and/or Bradycardia:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epinephrine infusion</td>
<td>Epinephrine infusion</td>
</tr>
<tr>
<td>2-10 mcg/min</td>
<td>0.1-1 mcg/kg/min</td>
</tr>
</tbody>
</table>

- For pediatric patients: If <10 kg mix 0.4 mg 1:1,000 in a 100 ml NS for a concentration of 4 mcg/ml. Infuse with a 60 gtts set for the desired dose. If >10 kg mix 0.8 mg 1:1,000 in a 100 ml NS for a concentration of 8 mcg/ml. Infuse with a 60 gtts set for the desired dose.

**MEDICAL CONTROL OPTIONS**

1. Contact Medical Control for additional doses of **Midazolam (Versed)**.
This protocol applies to adult patients with non-traumatic chest pain that is suspected cardiac in etiology. The overall goal is to provide therapy in an effort to reduce ischemia, provide pain relief and rapidly identify and treat a patient suffering from a suspected cardiac event.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen if Oxygen Saturation by pulse oximetry is less than 94%.
3. Place the patient in a position of comfort.
4. Administer Aspirin 324 mg PO (chewed and swallowed) if not taken during the previous 24 hours or has no known allergy. (Contact Medical Control for pediatric patients).
5. BLS providers should assist patients in taking their own previously prescribed Nitroglycerin SL 0.4 mg or may use EMS stock medications if the patient’s prescribed Nitroglycerin is not available. BLS providers can only assist the patient with one dose of 0.4 mg Nitroglycerin SL.
   
   **Caution:** Withhold Nitroglycerin and consult Medical Control if:
   
   - The patient meets pediatric criteria.
   - The patient has a systolic blood pressure ≤110 mmHg or HR<60.
   - The patient has taken erectile dysfunction medications within the past 24 hours (i.e. Viagra, Cialis, or Levitra)
6. Establish an IV of Normal Saline KVO or Saline Lock. EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Provide continuous EKG monitoring. Treat life threatening dysrhythmias as indicated.
2. Obtain a 12 lead EKG pre-treatment and post-treatment. If myocardial injury is suspected because of ST elevation which is evident in two or more contiguous leads, the patient shall be transported to the nearest cardiac interventional facility (STEMI Facility). The EKG indicating a STEMI should be transmitted to the receiving facility and the hospital should be notified as soon as practicable. Note: A 12-lead EKG must be done prior to administering nitroglycerin in order to rule out right-sided or posterior AMls.
3. If the EKG shows S-T elevation in leads II, III, and AVF and is suggestive of an acute inferior MI or lead V4R indicates a right sided MI or posterior MI withhold Nitroglycerin and provide a fluid bolus of 1 liter of Normal Saline. In cases of suspected right sided or posterior MI, narcotic analgesia may only be used with Medical Control orders.

4. Continuously assess lung sounds and monitor vital signs before and after administration. Administer additional Normal Saline Boluses of 250 ml as needed to maintain or restore perfusion in cases of hypoperfusion with or without right ventricular involvement (RVI). Maximum total of 2000 ml.

5. Administer Nitroglycerin 0.4 mg SL every 3-5 minutes as long as the patients symptoms persist and the systolic blood pressure is ≥110 mmHg.

6. Apply Nitroglycerin paste 1” for persistent symptoms after two (2) SL doses of Nitroglycerin have been previously administered. Ensure that the systolic blood pressure is ≥110 mmHg prior to application.

7. Administer Fentanyl or Morphine Sulfate for chest pain that is not relieved by Nitroglycerin. Titrate for relief of discomfort with repeat dosing as needed every 5-10 minutes as long as SBP ≥110 mmHg.

- If the EKG shows Inferior, RVI, or Posterior MI or if the patient exhibits signs / symptoms of hypoperfusion Contact Medical Control for Fentanyl / Morphine Sulfate.
- Withhold from patients suffering from suspected or actual cocaine induced chest pain with agitation.
- In patients 65 years old and greater consider an initial dose of half your normal adult dose when administering opiates (Fentanyl / Morphine).

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fentanyl 25-50 mcg IV per dose every 5 minutes to a maximum of 200 mcg. Use 25 mcg for the elderly or a weight under 70 kg</td>
<td>Contact Medical Control</td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine Sulfate 2 mg IV titrated to cessation of pain. Maximum total dose of 10 mg</td>
<td>Contact Medical Control</td>
</tr>
</tbody>
</table>
8. For nausea / vomiting consider Ondansetron (Zofran) or Prochlorperazine (Compazine). May repeat once in 10 minutes if nausea/vomiting is not relieved:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric (ALS Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ondansetron (Zofran) 4 mg IV over 30 seconds</td>
<td>Ondansetron (Zofran) 0.15 mg/kg IV over 30 seconds.</td>
</tr>
<tr>
<td></td>
<td>Maximum single dose 4 mg</td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphenhydramine 25 mg IV/IM</td>
<td>Not Indicated</td>
</tr>
<tr>
<td>followed by</td>
<td></td>
</tr>
<tr>
<td>Prochlorperazine (Compazine) 10 mg IV/IM</td>
<td></td>
</tr>
</tbody>
</table>

**MEDICAL CONTROL OPTIONS**

1. Midazolam (Versed) 2-5 mg IV/IN, up to a maximum 10 mg or **Pediatric Patients**: 0.1 mg/kg, up to a maximum single dose of 5 mg in lieu of Morphine Sulfate or Fentanyl, if chest pain is suspected due to CNS stimulants (i.e. cocaine, methamphetamine, etc.)

2. Additional doses of Fentanyl or Morphine Sulfate

3. Dopamine infusion 5-20 mcg/kg/min for persistent hypoperfusion.

4. **Pediatric Patients**: Morphine Sulfate 0.1 mg/kg slow IVP

5. **Pediatric Patients**: Fentanyl 1 mcg/kg IVP
<table>
<thead>
<tr>
<th>Wall affected</th>
<th>Leads</th>
<th>Artery(s) involved</th>
<th>Reciprocal changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior</td>
<td>$V_2 - V_4$</td>
<td>Left coronary artery, Left anterior descending (LAD)</td>
<td>II, III, AVF</td>
</tr>
<tr>
<td>Anterolateral</td>
<td>I, AVL, $V_3 - V_6$</td>
<td>Left anterior descending (LAD) and diagonal branches, circumflex and marginal branches</td>
<td>II, III, AVF</td>
</tr>
<tr>
<td>Anteroseptal</td>
<td>$V_1 - V_4$</td>
<td>Left anterior descending (LAD)</td>
<td></td>
</tr>
<tr>
<td>Inferior</td>
<td>II, III, AVF</td>
<td>Right coronary artery (RCA)</td>
<td>I, AVL</td>
</tr>
<tr>
<td>Lateral</td>
<td>I, AVL, $V_5, V_6$</td>
<td>Circumflex branch or left coronary artery</td>
<td>II, III, AVF</td>
</tr>
<tr>
<td>Posterior</td>
<td>$V_8, V_9$</td>
<td>Right coronary artery (RCA) or circumflex artery</td>
<td>$V_1 - V_4$ ST segment depression (R &gt; S in $V_1$ and $V_2$)</td>
</tr>
<tr>
<td>Right ventricular</td>
<td>$V_4R$</td>
<td>Right coronary artery (RCA)</td>
<td>----</td>
</tr>
</tbody>
</table>
This protocol applies to patients experiencing pulmonary edema secondary to congestive heart failure (CHF). The goal is to ultimately reduce the preload and afterload pressures of the myocardium. In pediatric patients, congenital heart defects are generally the culprit of CHF. Contact medical control before any medication therapy is rendered to pediatric patients.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. If the patient is conscious and in moderate to severe respiratory distress with adequate respiratory effort, apply **Continuous Positive Airway Pressure Device (CPAP)** and titrate to a pressure of:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 cmH₂O</td>
<td>Not Indicated</td>
</tr>
</tbody>
</table>

   ➢ Before applying the CPAP face piece place the nasal cannula ETCO₂ device on the patient. This will allow for the introduction of additional Oxygen and eventual monitoring via continuous quantitative waveform capnography (ETCO₂) without having to remove the face piece.
4. Place the patient in a position of comfort.
5. Establish an IV of Normal Saline KVO or Saline Lock. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Administer **Nitroglycerin**. ALS providers may administer 1ˢᵗ dose even before IV access is established.

   **Caution - Withhold Nitroglycerin or consult Medical Control if:**
   ✓ The patient has a systolic blood pressure ≤110 mm/Hg.
   ✓ The patient has taken erectile dysfunction medications within the past 24 hours (i.e. Viagra, Cialis, or Levitra).
2. Provide continuous EKG and quantitative waveform capnography monitoring (ETCO₂) via nasal cannula device.

3. Apply Nitroglycerin paste:

4. Administer Enalaprilat IV if SBP ≥110 mmHg and no known sensitivity to ACE inhibitors (i.e. Lisinopril, Captopril, and Monopril):

5. In instances where bronchospasm is present with wheezing, Albuterol 2.5 mg via nebulizer in line circuit with CPAP.

6. Obtain a 12 lead EKG if time and patient condition permits. If myocardial injury is suspected because of ST elevation which is evident in two or more contiguous leads or chest pain is present, administer Aspirin 324 mg PO and transport to the nearest cardiac interventional facility (STEMI Facility).

MEDICAL CONTROL OPTIONS

1. Consider Lasix 20-40 mg IV if signs of fluid overload present.

2. Consider Lasix for Pediatric Patients: 0.5 mg/kg IV.

3. Consider Midazolam (Versed) 2-5 mg IV/IN, up to a maximum of 10 mg or Pediatric Patients: 0.1 mg/kg IV up to a maximum single dose of 5 mg for severe anxiety titrated to anxiety reduction with a noted decrease in anxiety related tachycardia.
This protocol applies to patients with a suspected or actual foreign body airway obstruction or airway obstructions due to trauma, burns, or severe anaphylactic reactions. Do not delay transport for patients that are unconscious with a complete airway obstruction. Perform BLS and/or ALS skills en route to the medical facility.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.
2. If the patient is experiencing an incomplete / partial airway obstruction, encourage the patient to cough in an attempt to relieve the obstruction.
3. If the patient is conscious and the airway is completely obstructed due to a foreign body, perform **BLS obstructed airway techniques** until the obstruction is relieved or the patient goes unconscious.
4. If the patient is unconscious, perform BLS obstructed airway techniques Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
5. Provide immediate transportation to the nearest appropriate medical facility if the foreign body obstruction is not relieved or closed due to trauma or severe anaphylaxis. Monitor the patient for cardiac arrest.

**ADVANCED LIFE SUPPORT PROVIDERS**

1. If the patients airway is still obstructed due to a foreign body and is unconscious, perform the following advanced airway techniques in order:
   - Perform **Direct Laryngoscopy** and remove any foreign body obstruction seen with Magill forceps if possible.
   - Perform an emergent **Needle Cricothyroidotomy. This is the last resort when a foreign body airway obstruction is present.**
2. If the patients airway is completely obstructed due to trauma, burns, or severe anaphylaxis:
   - Perform an emergent **Needle Cricothyroidotomy.**

**MEDICAL CONTROL OPTION**

1. Contact Medical Control for further orders when necessary.
This protocol applies to patients experiencing respiratory distress associated with Asthma or COPD.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
   - For patients with a history of COPD, administer the patients prescribed dose of Oxygen. If severe distress is present, administer 100% supplemental Oxygen and monitor respiratory effort and rate.
3. Place the patient in a position of comfort.
4. If the patient presents with respiratory distress with suspected bronchospasm/wheezing, administer **Albuterol**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuterol 2.5 mg via nebulizer</td>
<td>Albuterol 2.5 mg via nebulizer</td>
</tr>
</tbody>
</table>

5. If the patient continues to exhibit or report respiratory distress with bronchospasm/wheezing administer a combination of **Albuterol** and **Ipratropium Bromide (Atrovent)** via nebulizer one time only for pre-hospital care.

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuterol 2.5 mg nebulized and Atrovent 500 mcg nebulized</td>
<td>Albuterol 2.5 mg nebulized and Atrovent 500 mcg nebulized</td>
</tr>
</tbody>
</table>

   - If the patient is in extremis or does not clear after the first nebulized Albuterol treatment ALS care shall be immediately initiated.
   - BLS providers should contact medial control for orders for additional Albuterol 2.5 mg via nebulizer if the patient’s symptoms persist and ALS care is not immediately available.
6. For COPD patients experiencing significant respiratory distress, consider **Continuous Positive Airway Pressure Device (CPAP)** and start at a pressure of 5 cmH₂O with an in-line nebulizer.

- Before applying the CPAP face piece place the nasal cannula ETCO₂ device on the patient. This will allow for the introduction of additional Oxygen and eventual monitoring via continuous quantitative waveform capnography (ETCO₂) without having to remove the face piece.
- **Some COPD patients have lung problems that may be worsened by CPAP. If the patient worsens on CPAP, remove the device immediately.**

7. If the patient still presents with respiratory distress and is in extremis, administer **Epinephrine IM** in the lateral aspect of the patient’s thigh:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epinephrine 1:1,000</td>
<td>Epinephrine 1:1,000</td>
</tr>
<tr>
<td><strong>BLS or ALS:</strong> 0.3 mg via Auvi-Q</td>
<td><strong>BLS or ALS:</strong> ≤3 y.o. 0.15 mg IM via Auvi-Q</td>
</tr>
<tr>
<td><strong>ALS:</strong> 0.3-0.5 mg IM (ALS)</td>
<td><strong>ALS:</strong> 0.01 mg/kg IM up to a maximum single dose 0.5 mg</td>
</tr>
</tbody>
</table>

8. Establish an **IV of Normal Saline KVO or Saline Lock** for patients that are experiencing significant respiratory distress and those with a significant cardiac history. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**

### ADVANCED LIFE SUPPORT PROVIDERS

1. Provide **continuous EKG and continuous quantitative waveform capnography (ETCO₂).**

2. For patients who appear dehydrated and are without signs of pulmonary edema consider a single **Normal Saline Bolus:**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml</td>
<td>20 ml/kg</td>
</tr>
</tbody>
</table>
Patients should be treated based on the level of distress exhibited and their response to therapies. Providers should immediately proceed with treatments as indicated by the categories:

For patients experiencing **MILD DISTRESS**:

1. Providers may repeat **Albuterol 2.5 mg via nebulizer** to a total of 3 doses or 7.5 mg.
2. Administer **Prednisone PO**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prednisone 60 mg PO</td>
<td>Contact Medical Control</td>
</tr>
</tbody>
</table>

For patients experiencing **SEVERE DISTRESS**:

1. Administer nebulized **Racemic Epinephrine**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Racemic Epinephrine 0.5 ml unit dose mixed in 3 ml of Normal Saline</td>
<td>Racemic Epinephrine Less than 5 kg: 0.25 ml mixed in 3 ml Normal Saline 5 kg or greater: 0.5 ml Unit dose mixed in 3 ml of Normal Saline</td>
</tr>
</tbody>
</table>

2. Administer **Methylprednisolone (Solu-Medrol)**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solu-Medrol 125 mg IV/IM</td>
<td>Solu-Medrol 2 mg/kg IV/IM, up to a maximum single dose of 125 mg</td>
</tr>
</tbody>
</table>

3. If IV access is not available or patient can tolerate PO delivery then administer **Prednisone PO**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prednisone 60 mg PO</td>
<td>Contact Medical Control</td>
</tr>
</tbody>
</table>
4. If no or minimal improvement with other therapies consider administering Magnesium Sulfate:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesium Sulfate 2 gm slow IV Infusion. Mix 2 gm in 100 ml of Normal Saline. Utilize a 10 gtts set and infuse at 50 gtts/min over 20 minutes.</td>
<td>Contact Medical Control</td>
</tr>
</tbody>
</table>

5. Once air movement has improved, continue with Albuterol 2.5 mg via nebulizer as needed.

For patients with **IMPENDING RESPIRATORY FAILURE**

1. For adult patients, mix Racemic Epinephrine (0.5 ml), Albuterol (2.5 mg) and Ipratropium Bromide (500 mcg if not previously administered) in a “super neb” and deliver via an in-line nebulizer device. Consider use of CPAP for COPD patients in extremis with inline nebulizer system.

2. Continue to deliver nebulized treatments (Albuterol) via the CPAP circuit until the patient improves or need for ventilatory support and intubation arises.

3. If after previous therapies the SpO₂ cannot be maintained above 90% with ventilatory assistance or CPAP then refer to the Medication Facilitated Intubation protocol as applicable.

**MEDICAL CONTROL OPTIONS**

1. Consider additional doses of Epinephrine 1:1,000 IM.

2. **Pediatric Patients:** Magnesium Sulfate 25-50 mg/kg IV over 20 minutes, up to a maximum single dose of 2 gm.
This protocol applies to patients that present with a loud cough that mimics the "bark of a seal", respiratory distress, grunting, wheezing or stridor on inspiration. The major concern of this illness is the possibility of airway obstruction.

### ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. Move the patient to a cool environment.
4. If the patient presents with respiratory distress with clinical evidence of croup, administer **Normal Saline 3 ml** via Nebulizer. Repeat 2 additional times as necessary if the patient improves with the initial administration.
5. Consider establishing an **IV** of Normal Saline KVO or Saline Lock. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**

### ADVANCED LIFE SUPPORT PROVIDERS

1. Provide **continuous EKG and continuous quantitative waveform capnography (ETCO₂).**
2. If **stridor** is present administer nebulated **Racemic Epinephrine:**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Racemic Epinephrine</td>
<td>Racemic Epinephrine</td>
</tr>
<tr>
<td>0.5 ml unit dose mixed in 3 ml of Normal Saline</td>
<td>Less than 5 kg: 0.25 ml mixed in 3 ml Normal Saline</td>
</tr>
<tr>
<td></td>
<td>5 kg or greater: 0.5 ml unit dose mixed in 3 ml of Normal Saline</td>
</tr>
</tbody>
</table>

### MEDICAL CONTROL OPTIONS

1. Contact Medical Control for further orders when necessary.
This protocol applies to patients who exhibit signs and symptoms of respiratory failure with impending or actual respiratory arrest.

### ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. If a narcotic (opiate) overdose is suspected, administer Naloxone (Narcan):
   - Respiratory arrest or insufficient ventilation
   - Pinpoint Pupils
   - GCS less than 13

(If a definitive airway (King or ET Tube) is already in place and ventilation is adequate DO NOT administer Narcan)

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naloxone (Narcan):</td>
<td>Naloxone (Narcan):</td>
</tr>
<tr>
<td><strong>BLS</strong>: 2 mg IN only, may repeat twice at the same dose</td>
<td><strong>ALS only</strong>: 0.1 mg/kg IV/IN or IM, up to a maximum single dose of 2 mg</td>
</tr>
<tr>
<td><strong>AEMT or ALS</strong>: 2 mg IV/IN or IM. If no response from the initial dose within 5 minutes, repeat 4 mg IV/IN and titrate to effect thereafter if indicated</td>
<td></td>
</tr>
</tbody>
</table>

- Patients receiving Narcan should receive care at the ALS level and should be transported to the hospital for further evaluation and treatment.

4. Establish an IV of Normal Saline KVO or Saline Lock. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**

### ADVANCED LIFE SUPPORT PROVIDERS

1. Provide continuous EKG and continuous quantitative waveform capnography (ETCO₂).
2. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
   - If the patient is intubated via ET intubation, withhold further treatments of Narcan and transport the patient with supported ventilations.
3. If the patient has an intact gag reflex and muscle tone that will inhibit oral intubation immediately refer to the Medication Facilitated Intubation Protocol.

MEDICAL CONTROL OPTIONS

1. Contact Medical Control for further orders when necessary.
This protocol applies to patients who are experiencing abdominal pain. There are many causes of abdominal pain and vomiting, some of which are life threatening. See Abdominal Pain Differential sheet. Obtain thorough history to identify the cause:

- GI or urinary tract (kidney stone)
- GI bleeding
- Referred Cardiac pain
- Aortic aneurysm or rupture
- Possible Pregnancy / Ectopic
- Recent trauma / surgery
- Pain associated with passing blood, syncope, and diaphoresis

### ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. Place the patient in a position of comfort.
4. Establish an IV of Normal Saline KVO or Saline Lock. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**
5. If the patient presents with signs and symptoms of hypoperfusion administer **Normal Saline Boluses:**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>
1. For nausea / vomiting consider **Ondansetron (Zofran)** or **Prochlorperazine (Compazine)**. Repeat one time in 10 minutes if nausea or vomiting is not relieved:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric (ALS Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ondansetron (Zofran)</strong>&lt;br&gt;4 mg IV over 30 seconds</td>
<td><strong>Ondansetron (Zofran)</strong>&lt;br&gt;0.15 mg/kg IV over 30 seconds.&lt;br&gt;Maximum single dose 4 mg</td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diphenhydramine (Benadryl)</strong>&lt;br&gt;25 mg IV followed by&lt;br&gt;<strong>Prochlorperazine (Compazine)</strong>&lt;br&gt;10 mg IV</td>
<td><strong>Not Indicated</strong></td>
</tr>
</tbody>
</table>

### MEDICAL CONTROL OPTIONS

1. Contact Medical Control for pain management as needed.
This protocol applies to patients that present with altered mental status, syncope or unconsciousness that is non-traumatic.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care and rule out trauma as a suspected etiology. If stroke is suspected, proceed to Brain Attack / CVA Protocol.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. Place the patient in a position of comfort if possible.
4. Ensure that a blood glucose reading is obtained.
5. If the patient:
   - Is greater than 8 years of age with a blood glucose level of <70 mg/dl.
   - Displays signs and symptoms of hypoglycemia
   - Is conscious enough to swallow and can maintain their own airway.
   - Administer Oral Glucose 24-50 gm SL or one single dose tube. Advanced-EMTs and ALS providers may proceed directly to intravenous interventions.
6. If a narcotic (opiate) overdose is suspected, administer Naloxone (Narcan):
   - Respiratory arrest or insufficient ventilation
   - Pinpoint Pupils
   - GCS less than 13

*(If a definitive airway (King or ET Tube) is already in place and ventilation is adequate DO NOT administer Narcan)*

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naloxone (Narcan):</td>
<td>Naloxone (Narcan):</td>
</tr>
<tr>
<td>BLS: 2 mg IN only, may repeat twice at the same dose</td>
<td>ALS only: 0.1 mg/kg IV/IN or IM, up to a maximum single dose of 2 mg</td>
</tr>
<tr>
<td>AEMT or ALS: 2 mg IV/IN or IM. If no response from the initial dose within 5 minutes, repeat 4 mg IV/IN and titrate to effect thereafter if indicated</td>
<td></td>
</tr>
</tbody>
</table>

➢ Patients receiving Narcan should receive care at the ALS level and should be transported to the hospital for further evaluation and treatment.
7. Establish an IV of Normal Saline KVO or Saline Lock. *EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.*

8. If the patient presents with signs and symptoms of hypoperfusion administer **Normal Saline Boluses:**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

9. After successful treatment of a hypoglycemic diabetic emergency, the patient may refuse further treatment or transport if all of the following criteria are met:

- Patient must be on injectable therapy not oral therapy for refusal.
- Patient is at least 18 years of age with a GCS 15.
- After a repeated physical assessment, the patient's blood sugar is within an acceptable range (>70 mg/dl).
- Have no other signs and symptoms of illness (i.e. chest pain).
- Patient must be observed to eat without vomiting and can be supervised by a responsible adult.
- Patient must not be driving a vehicle or operating machinery.

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Provide **continuous EKG monitoring.** Treat life threatening dysrhythmias as indicated.

2. If the event is suspected cardiac related, obtain **12 lead EKG’s** pre-treatment and post-treatment if possible.

3. Identify and treat the following contributing factors.

<table>
<thead>
<tr>
<th>Causes</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol, Acidosis</td>
<td><strong>Normal Saline Boluses</strong> and oxygen</td>
</tr>
<tr>
<td>Epilepsy, Encephalitis</td>
<td>refer to the <strong>Seizure protocol</strong></td>
</tr>
<tr>
<td>Insulin</td>
<td><strong>Normal Saline Boluses</strong> and <strong>Dextrose</strong> as indicated</td>
</tr>
</tbody>
</table>

Effective Date: April 15, 2015
Revision Date: March 31, 2015
Overdose refer to Overdose and Poisoning protocol or Cyanide Exposure protocol
Uremia refer to the Non-traumatic Hypoperfusion protocol
Trauma refer to trauma protocols
Infection refer to the Non-traumatic Hypoperfusion protocol and/or Hyperthermia protocol
Psychiatric refer to the Behavioral and Psychological Emergencies protocol and/or Overdose and Poisoning protocol
Seizures refer to the Seizure protocol

4. If the patient's blood glucose level is <70 mg/dl administer Dextrose:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric (ALS Only)</th>
<th>Neonate (ALS Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(&gt;12 yrs) &lt;70 mg/dl</td>
<td>(1 mo.-12 yrs)&lt;60 mg/dl</td>
<td>(&lt;1 mo.)&lt;45 mg/dl</td>
</tr>
<tr>
<td>50% 25 gm IV/IO</td>
<td>25% 2 ml/kg IV/IO</td>
<td>10% 5 ml/kg IV/IO</td>
</tr>
</tbody>
</table>

**Dextrose Dilution Procedures**

D$_{25}$W - Waste 25 ml D$_{25}$W. Use pre-filled syringe (with remaining 25 ml) to withdraw 25 mL of NS from IV bag. Gently agitate syringe to mix solution.

D$_{10}$W - Waste 40 ml D$_{10}$W. Use pre-filled syringe (with remaining 10 ml) to withdraw 40 mL of NS from IV bag. Gently agitate syringe to mix solution.

5. If IV access is unobtainable, administer Glucagon:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric (ALS Only)</th>
<th>Neonate (ALS Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(≥25 kg)</td>
<td>(&lt;25 kg)</td>
</tr>
<tr>
<td>1 mg IN/IM</td>
<td>1 mg IN/IM</td>
<td>0.5 mg IM</td>
</tr>
</tbody>
</table>

6. If the patient is hyperglycemic infuse Normal Saline:

<table>
<thead>
<tr>
<th>Known Diabetic History</th>
<th>No Known Diabetic History</th>
</tr>
</thead>
<tbody>
<tr>
<td>if BGL ≥400 mg/dl</td>
<td>if BGL ≥300 mg/dl</td>
</tr>
</tbody>
</table>

Administer a Normal Saline 500 ml bolus followed by a drip of 100 ml/hour. **Pediatric Patients:** Administer 10 ml/kg bolus and contact Medical Control
1. Contact Medical Control for further orders as necessary.
The protocol applies to patients suffering from anaphylaxis as a result of an allergic reaction to a known or unknown allergen. It is imperative that when looking for signs and symptoms, to be cognizant that 10-20% of all anaphylaxis cases will not present with hives or other skin manifestations. Signs and symptoms of anaphylaxis / allergic reaction may include oral manifestations such as; itching of the lips, tongue and palate; edema of the lips and tongue or a metallic taste in the mouth. Skin related manifestations may include flushing, itching, hives, swelling or rash. Respiratory manifestations may include difficulty speaking, wheezing, stridor, or dyspnea. GI/GU manifestations include nausea and vomiting, diarrhea and abdominal cramping or pain.

### ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care and determine a suspected cause of the reaction.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. Removed rings and any constrictive jewelry.
4. Place the patient in a position of comfort. If signs of hypoperfusion exist, place the patient in the shock position if possible.
5. Administer **Epinephrine IM** in the lateral thigh area if patient presents with any two of the following signs or symptoms:
   - Hives or itching
   - Stridor
   - Hypotension
   - Abdominal Pain
   - Diarrhea
   - Sensation of swelling in mouth, tongue, or throat

   **BLS providers shall use the Epinephrine Auto-injector:**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epinephrine 1:1,000</td>
<td>Epinephrine 1:1,000</td>
</tr>
<tr>
<td>BLS or ALS: 0.3 mg via Auví-Q</td>
<td>BLS or ALS: ≤3 y.o. 0.15 mg IM via Auví-Q</td>
</tr>
<tr>
<td>ALS: 0.3-0.5 mg IM (ALS)</td>
<td>ALS: 0.01 mg/kg IM up to a maximum single dose 0.5 mg</td>
</tr>
</tbody>
</table>

Effective Date: April 15, 2015
Revision Date: March 31, 2015
6. Establish an IV of Normal Saline KVO. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**

7. If the patient presents with signs and symptoms of hypoperfusion administer **Normal Saline Boluses:**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

8. If the patient presents with respiratory distress with suspected bronchospasm (wheezing), administer a combination of **Albuterol** and **Ipratropium Bromide** (**Atrovent**) via nebulizer one time only for pre-hospital care:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuterol 2.5 mg nebulized and Atrovent 500 mcg nebulized</td>
<td>Albuterol 2.5 mg nebulized and Atrovent 500 mcg nebulized</td>
</tr>
</tbody>
</table>

- BLS providers can administer one additional **Albuterol 2.5 mg** via nebulizer if bronchospasm is still present.
- ALS providers may repeat **Albuterol 2.5 mg via nebulizer** as required.

9. **Advanced EMTs and ALS providers** administer **Diphenhydramine (Benadryl):**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric (ALS Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphenhydramine (Benadryl) Mild to Moderate Reaction: 50 mg IV/IM</td>
<td>Diphenhydramine(Benadryl) 1 mg/kg IV/IM, up to a maximum single dose of 50 mg</td>
</tr>
<tr>
<td>Moderate to Severe Reaction: 75 mg IV/IM</td>
<td></td>
</tr>
</tbody>
</table>
1. Provide **continuous EKG monitoring**. If the patient receives multiple doses of Epinephrine institute **12 lead EKG monitoring**.

2. Provide **continuous nebulized Albuterol** treatments until bronchospasms are resolved.

For patients experiencing **MODERATE to SEVERE REACTION**

3. Administer **Methylprednisolone (Solu-Medrol)**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylprednisolone (Solu-Medrol) 125 mg IV/IM</td>
<td>Methylprednisolone (Solu-Medrol) 2 mg/kg IV/IM, up to a maximum single dose of 125 mg</td>
</tr>
</tbody>
</table>

4. **Epinephrine IM** may be repeated once in 5 minutes following the initial dose if no or little improvement is noted:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epinephrine 1:1,000</td>
<td>Epinephrine 1:1,000</td>
</tr>
<tr>
<td><strong>BLS or ALS</strong>: 0.3 mg via Auvi-Q</td>
<td><strong>BLS or ALS</strong>: ≤3 y.o. 0.15 mg IM via Auvi-Q</td>
</tr>
<tr>
<td><strong>ALS</strong>: 0.3-0.5 mg IM (ALS)</td>
<td><strong>ALS</strong>: 0.01 mg/kg IM up to a maximum single dose 0.5 mg</td>
</tr>
</tbody>
</table>

5. If the patient is taking Beta blockers or does not respond to the Epinephrine therapy administer **Glucagon**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucagon 2 mg IV/IO/IN/IM</td>
<td>Contact Medical Control</td>
</tr>
</tbody>
</table>

**MEDICAL CONTROL OPTIONS**

1. **Epinephrine infusion 2-10 mcg/min** for persistent symptoms or hypoperfusion.
This protocol is specific to patients who have ingested antipsychotic medications. Side effects of these medications may include extrapyramidal symptoms, orthostatic hypotension, and sedation. Extrapyramidal symptoms may include involuntary muscle movements, tremors, rigidity, and muscle contractions. These symptoms are side effects of medications commonly used in therapy for managing psychotic and schizophrenic mental health conditions. A history of psychotic mental health issues and any combination of these side effects should be indicators for treatment under this protocol.

Common Antipsychotics include: Prolixin, Thorazine, Mellaril, Haldol, Risperidol, Geodon, Seroquel, and Zyrexa

### ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care and determine a suspected cause of the reaction.

2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.

3. **Advanced EMTs and ALS providers** administer Diphenhydramine (Benadryl) to relieve the patient’s discomfort:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphenhydramine (Benadryl)</td>
<td>Contact Medical Control</td>
</tr>
<tr>
<td>50 mg IV/IM</td>
<td></td>
</tr>
</tbody>
</table>

4. Establish an IV of Normal Saline KVO. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**

5. If the patient presents with signs and symptoms of hypoperfusion administer **Normal Saline Boluses:**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>
1. Provide continuous EKG monitoring.

1. Contact Medical Control for further orders when necessary.
This protocol applies to adult patients exhibiting signs and symptoms of a cerebral vascular accident. Treatment for strokes is time dependent, and should be started at a stroke center. In many cases, it will be up to the hospital providers to verify precisely when the patient had first onset of new symptoms. Fire and EMS providers should provide and document any information they have regarding time last known well.

ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care to FAST Assessment tool:

   Pre-hospital Stroke Screen (FAST)
   Obtain history from the patient, family members, or other persons who are present on the scene.
   - Patient has one or more of the following new abnormalities.
     - Facial weakness or droop on left or right side
     - Arm and/or Leg weakness (drifts or falls)
     - Speech-slurred or impaired
     - Time at baseline or symptom-free and awake
   - Record contact information for witness of last known well time. (Cell Phone) if not accompanying patient during transport.

2. Support airway and provide supplemental Oxygen only if the measured Pulse Oximetry is less than 94%.

3. Baseline and follow up neurological assessments should be completed utilizing the Cincinnati Stroke Scale. Establish time of onset of the symptoms.

4. Ensure that a blood glucose reading is obtained.

5. If the patient:
   - Blood glucose level of <70 mg/dl.
   - Displays signs and symptoms of hypoglycemia
   - Can maintain their own airway and swallow secretions.

   Administer Oral Glucose 24-50 gm SL or one single dose tube in the buccal space (space in the cheek). Advanced-EMTs and ALS providers should proceed directly to intravenous interventions.
6. Place the patient in a position of comfort. Patient should be supine head at level of trunk or place head of bed elevated to 30 degrees. If speech impaired or concern for aspiration Keep NPO (Nothing by Mouth)

7. Establish an IV of Normal Saline KVO or Saline Lock. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**

8. If the patient’s SBP is less than 90 mm/Hg administer **Normal Saline Boluses:**

<table>
<thead>
<tr>
<th><strong>Adult</strong></th>
<th><strong>Pediatric</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml as needed to maintain a SBP 100-120 mm/Hg. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

9. Pre-notify the medical facility and be sure to include vital signs and suspected time of onset of symptoms to allow activation of the stroke team.

10. Transport immediately to a primary stroke receiving center.

---

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Provide **continuous EKG and continuous quantitative waveform capnography (ETCO₂) monitoring.** If Cushing’s Triad is noted ventilate to maintain a SPCO₂ of 30-35 mmHg. Signs include the following:
   - High Systolic BP with decreasing Diastolic pressure (elevated pulse pressure)
   - Bradycardia
   - Onset of irregular breathing pattern

2. If Patient needs to be intubated consider use of Medication Facilitated Intubation Protocol.

3. If the blood glucose level is <70 mg/dl, administer **Dextrose:**

<table>
<thead>
<tr>
<th><strong>Adult</strong> (&gt;12 yrs) &lt;70 mg/dl</th>
<th><strong>Pediatric (ALS Only)</strong> (1 mo.-12 yrs)&lt;60 mg/dl</th>
<th><strong>Neonate (ALS Only)</strong> (&lt;1 mo.)&lt;45 mg/dl</th>
</tr>
</thead>
<tbody>
<tr>
<td>50% 25 gm IV/IO</td>
<td>25% 2 ml/kg IV/IO</td>
<td>10% 5 ml/kg IV/IO</td>
</tr>
</tbody>
</table>
Dextrose Dilution Procedures

D$_{25}$W - Waste 25 ml D$_{50}$W. Use pre-filled syringe (with remaining 25 ml) to withdraw 25 ml of NS from IV bag. Gently agitate syringe to mix solution.

D$_{10}$W - Waste 40 ml D$_{50}$W. Use pre-filled syringe (with remaining 10 ml) to withdraw 40 ml of NS from IV bag. Gently agitate syringe to mix solution.

4. If IV access is unobtainable, administer Glucagon:

<table>
<thead>
<tr>
<th></th>
<th>Adult</th>
<th>Pediatric (ALS Only) (≥25 kg)</th>
<th>Pediatric (ALS Only) (&lt;25 kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucagon</td>
<td>1 mg IN/IM</td>
<td>1 mg IN/IM</td>
<td>0.5 mg IM</td>
</tr>
</tbody>
</table>

5. If seizure activity is witnessed refer to Seizure protocol.

6. If SBP is greater than 220 mmHg or DBP is greater than 120 mmHg contact Medical Control for orders before administering Labetalol 10 mg IV.

7. For nausea / vomiting consider Ondansetron (Zofran) or Prochlorperazine (Compazine). Repeat one time in 10 minutes if nausea or vomiting is not relieved:

<table>
<thead>
<tr>
<th></th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ondansetron (Zofran)</td>
<td>4 mg IV over 30 seconds</td>
<td>Ondansetron (Zofran) 0.15 mg/kg IV over 30 seconds. Maximum single dose 4 mg</td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th></th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphenhydramine (Benadryl) 25 mg IV followed by Prochlorperazine (Compazine) 10 mg IV</td>
<td>Not Indicated</td>
<td></td>
</tr>
</tbody>
</table>

MEDICAL CONTROL OPTIONS

1. If SBP is greater than 220 mmHg or DBP is greater than 120 mmHg consider an initial dose of Labetalol 10 mg IV which may be repeated one time in 10 minutes as needed.
This protocol applies to adult patients experiencing an isolated hypertension emergency without signs and symptoms of CVA (Stroke). Patients exhibiting signs / symptoms of an acute hypertensive emergency generally present with headache or blurred vision. If the patient’s blood pressure is ≥220 systolic and/or ≥120 diastolic consider therapy.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.
2. If signs / symptoms of CVA are present, refer to the Brain Attack / CVA protocol.
3. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
4. Place the patient in a position of comfort.
5. Establish an IV of Normal Saline KVO or Saline Lock. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Provide continuous EKG monitoring.
2. Administer **Labetalol IV** if the patient exhibits signs and symptoms of hypertensive crisis with a blood pressure of ≥220 systolic and/or ≥120 diastolic after two consecutive readings (second blood pressure reading should be taken manually). Patients with signs and symptoms of Brain Attack/CVA **must have Medical Control approval prior to administration:**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labetalol 10-20 mg slow IVP over 1-2 minutes. May repeat dosage two additional times in 5 minute intervals as long the SBP remains &gt;180 mmHg</td>
<td>Contact Medical Control</td>
</tr>
</tbody>
</table>

**MEDICAL CONTROL OPTIONS**

1. Consider **Nitroglycerin 0.4 mg SL.**
2. Consider **Nitroglycerin Paste 1”** for persistent symptoms.
This protocol applies to patients exhibiting signs and symptoms of hypoperfusion that is non-traumatic in nature.

ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. Place the patient in the shock position unless respiratory distress is present; then the preferred method shall be the position of comfort. If the patient is pregnant place the patient in the left lateral position.
4. Establish an IV of Normal Saline KVO. *EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.*
5. If the patient presents with signs and symptoms of hypoperfusion aggressively administer **Normal Saline Boluses:**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

ADVANCED LIFE SUPPORT PROVIDERS

1. Provide **continuous EKG and continuous quantitative waveform capnography** (ETCO₂).
2. Obtain a **12 lead EKG** if time and patient condition permits. If an acute coronary syndrome is confirmed, revert to the Acute Coronary Syndrome (ACS) protocol.
3. Consider IO access if the patient exhibits altered mental status or is profoundly hypotensive and IV access has not been obtained.
4. **Dopamine infusion 5-20 mcg/kg/min** for persistent hypoperfusion after sufficient volume replacement.

MEDICAL CONTROL OPTIONS

1. Consider **Epinephrine Infusion** for persistent hypoperfusion.
This protocol applies to patients experiencing an acute onset of severe pain. Patients with head injuries, diminished level of consciousness, respiratory depression, abdominal pain, multi-system trauma and hypotension are excluded from this protocol. Providers must use sound judgment when determining if a patient is indeed a candidate for pain management. Patients that will likely require pain management will often include those experiencing a sickle cell crisis, kidney stones, burns and isolated musculoskeletal injuries.

### ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care.

2. Evaluations of the pain scale will be conducted before and after the introduction of therapies.

![Wong/Baker FACES Pain Rating Scale (Ages 3 and up)](image)

![Infant and Toddler Pain Rating Scale](image)

3. For sickle cell patients administer 100% via NRB. Support the airway per Supplemental Oxygen protocol.

4. Place the patient in a position of comfort.
5. Establish an IV of Normal Saline KVO or Saline Lock. *EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.*

6. Sickle cell patients experiencing severe pain, administer a Normal Saline Bolus:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 ml</td>
<td>20 ml/kg</td>
</tr>
</tbody>
</table>

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Continuous quantitative waveform capnography (ETCO₂) should be instituted on patients treated under this protocol.

2. Any patient receiving analgesia under this protocol must be transported to the hospital.

3. For pain management consider Fentanyl or Morphine Sulfate.

   ➢ *If the patient exhibits signs / symptoms of hypoperfusion Contact Medical Control for Fentanyl / Morphine Sulfate:*

   **Adult**
   - Fentanyl 25-50 mcg IV per dose every 5 minutes to a maximum of 200 mcg.
     - Use 25 mcg for the elderly or a weight under 70 kg

   **Pediatric**
   - Fentanyl 1 mcg/kg IV/IO/IN up to a maximum single dose of 50 mcg
     - Contact Medical Control for additional doses

   **Adult**
   - Morphine 2 mg IV. Repeat as needed until pain is relieved or a maximum of 10 mg is reached
     - An additional dose of 2 mg up to a maximum single dose of 10 mg may be repeated one time after 10 minutes

   **Pediatric**
   - Morphine 0.1 mg/kg IV until pain is relieved or a maximum single dose of 10 mg is reached
In patients 65 years old and greater consider an initial dose of half your normal adult dose when administering opiates (Fentanyl / Morphine).

4. Consider administration of Ketamine for pain if Fentanyl or Morphine is unavailable:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ketamine 0.2 mg/kg IV/IO/IM administered over 1 minute. May repeat once in 5 minutes as needed</td>
<td>Contact Medical Control for orders and anticipate 0.1-0.2 mg/kg IV/IM/IO</td>
</tr>
</tbody>
</table>

5. For nausea / vomiting consider Ondansetron (Zofran) IV or Prochlorperazine (Compazine). Repeat one time in 10 minutes if nausea or vomiting is not relieved:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ondansetron (Zofran) 4 mg IV over 30 seconds</td>
<td>Ondansetron (Zofran) 0.15 mg/kg IV over 30 seconds. Maximum single dose 4 mg</td>
</tr>
</tbody>
</table>

MEDICAL CONTROL OPTIONS

1. If the patient has sustained multisystem trauma and is maintaining a SBP >100 mmHg analgesia may be considered.
This protocol is specific to patients that have a known medical history of adrenal insufficiency. Providers should pay particular attention to Medic Alert® bracelets and necklaces if the patient is found unresponsive. Adrenal insufficiency results when the body does not produce the essential life sustaining hormones cortisol and aldosterone, which are vital to maintaining blood pressure, cardiac contractility, and water and salt balance.

Adrenal insufficiency can be caused by a number of medical conditions:
- Congenital or acquired disorders of the adrenal gland
- Congenital or acquired disorders of the pituitary gland
- Long term use of steroids (COPD, asthma, rheumatoid arthritis, and transplant recipients)

Acute adrenal insufficiency can result in refractory shock or death in patients on a maintenance dose of hydrocortisone sodium succinate (Solu-Cortef®) or prednisone that experience illness or trauma and are not given supplemental doses hydrocortisone.

A booster dose of hydrocortisone should be given to patients with known adrenal insufficiency that has the following illnesses or injuries:
- Shock/hypoperfusion (any cause)
- Multi-system trauma
- Hyperthermia or hypothermia
- Partial or Full thickness burns >5% BSA
- Vomiting/Diarrhea with S/Sx of dehydration
- Medication Facilitated Intubation (Etomidate may precipitate an adrenal crisis)

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. Identify and treat the underlying condition per the appropriate protocol.
4. Ensure that a blood glucose reading is obtained.
5. If the patient:
   - Is greater than 8 years of age with a blood glucose level of <70 mg/dl.
   - Displays signs and symptoms of hypoglycemia
   - Is conscious enough to swallow and can maintain their own airway.
     - Administer Oral Glucose 24-50 gm SL or one single dose tube.
       Advanced-EMTs and ALS providers may proceed directly to intravenous interventions.

6. Establish an IV of Normal Saline KVO. EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.

7. If the patient presents with signs and symptoms of hypoperfusion administer Normal Saline Boluses:

```
<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>
```

### ADVANCED LIFE SUPPORT PROVIDERS

1. Provide continuous EKG and continuous quantitative waveform capnography (ETCO₂).

2. Consider IO access if the patient exhibits altered mental status or is profoundly hypotensive and IV access has not been obtained.

3. Obtain a 12 lead EKG if time and patient condition permit.

4. Administer Hydrocortisone Sodium Succinate (Solu-Cortef®):

```
<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocortisone Sodium Succinate (Solu-Cortef) 100 mg IV/IO or IM</td>
<td>Hydrocortisone Sodium Succinate (Solu-Cortef) 2 mg/kg IV/IO or IM Maximum dose of 100 mg</td>
</tr>
</tbody>
</table>
```

- ALS and Advanced-EMT providers are directed to administer the patient’s personal Hydrocortisone Sodium Succinate (Solu-Cortef®) emergency kit if the medication is not readily available from DCFEMS medical supply services.
5. If blood glucose level is <70 mg/dl administer **Dextrose**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric (ALS Only)</th>
<th>Neonate (ALS Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(&gt;12 yrs) &lt;70 mg/dl</td>
<td>(1 mo.-12 yrs)&lt;60 mg/dl</td>
<td>(&lt;1 mo.)&lt;45 mg/dl</td>
</tr>
<tr>
<td>50% 25 gm IV/IO</td>
<td>25% 2 ml/kg IV/IO</td>
<td>10% 5 ml/kg IV/IO</td>
</tr>
</tbody>
</table>

**Dextrose Dilution Procedures**

**D_{25}W** - Waste 25 ml D_{30}W. Use pre-filled syringe (with remaining 25 ml) to withdraw 25 ml of NS from IV bag. Gently agitate syringe to mix solution.

**D_{10}W** - Waste 40 ml D_{30}W. Use pre-filled syringe (with remaining 10 ml) to withdraw 40 ml of NS from IV bag. Gently agitate syringe to mix solution.

---

**MEDICAL CONTROL OPTIONS**

1. Contact Medical Control for further orders when necessary
This protocol applies to patients with unusually prolonged altered mental status after seizure activity, and patients experiencing multiple or continuous seizure activity.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care and protect the patient from injury.
2. Consider manual stabilization and spinal immobilization if the possibility of suspected head or c-spine injury exists.
3. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
4. Ensure that a blood glucose reading is obtained.
5. If the patient:
   - Is greater than 8 years of age with a blood glucose level of <70 mg/dl.
   - Displays signs and symptoms of hypoglycemia
   - Is conscious enough to swallow and can maintain their own airway.
   - Administer Oral Glucose 24-50 gm SL or one single dose tube. Advanced-EMTs and ALS providers may proceed directly to intravenous interventions.
6. Establish an IV of Normal Saline KVO or Saline Lock. *EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.*

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Provide *continuous EKG and continuous quantitative waveform capnography (ETCO₂).*
2. If the patient’s blood glucose level is <70 mg/dl, administer Dextrose:

<table>
<thead>
<tr>
<th></th>
<th>Adult  (&gt;12 yrs) &lt;70 mg/dl</th>
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<th>Neonate (ALS Only) (&lt;1 mo.)&lt;45 mg/dl</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50% 25 gm IV</td>
<td>25% 2 ml/kg IV</td>
<td>10% 5 ml/kg IV</td>
</tr>
</tbody>
</table>

Effective Date: April 15, 2015
Revision Date: March 31, 2015
SEIZURES

Dextrose Dilution Procedures

D2W - Waste 25 ml D50W. Use pre-filled syringe (with remaining 25 ml) to withdraw 25 ml of NS from IV bag. Gently agitate syringe to mix solution.

D10W - Waste 40 ml D50W. Use pre-filled syringe (with remaining 10 ml) to withdraw 40 ml of NS from IV bag. Gently agitate syringe to mix solution.

3. If IV access is unobtainable, administer Glucagon:

<table>
<thead>
<tr>
<th></th>
<th>Adult</th>
<th>Pediatric (ALS Only) (≥25 kg)</th>
<th>Pediatric (ALS Only) (&lt;25 kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose</td>
<td>1 mg IN/IM</td>
<td>1 mg IN/IM</td>
<td>0.5 mg IM</td>
</tr>
</tbody>
</table>

4. If the patient is experiencing active seizure activity or presents with status epilepticus, administer Midazolam (Versed):

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intranasal dose: (10 mg IN 5 mg each nostril). Contact Medical Control for additional doses OR Intramuscular: 5 or 10 mg IM OR Intravenous dose: 2-5 mg IV/IO every 2 minutes to a maximum of 10 mg until cessation of visible seizure activity</td>
<td>Intranasal dose: 0.2 mg/kg IN to a maximum dose of 5 mg. Repeat once in 5 minutes until cessation of visible seizure activity Contact Medical Control for additional doses OR Intravenous dose: 0.1 mg/kg IV/IO, up to a maximum single dose of 2 mg. Repeat once in 5 minutes until cessation of visible seizure activity Contact Medical Control for additional doses</td>
</tr>
</tbody>
</table>
5. If eclampsia is suspected, administer a **Magnesium Sulfate infusion**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesium Sulfate 4 gm infusion. Mix 4 gm in 100 ml of Normal Saline. Utilize a 10 gtts set and infuse at 50 gtts/min. May be repeated one time and infused until cessation of visible seizure activity.</td>
<td>Not indicated</td>
</tr>
</tbody>
</table>

### MEDICAL CONTROL OPTIONS

1. Contact Medical Control for further orders when necessary.
This protocol applies to patients suffering from a suspected heat related emergency. Hyperthermic reactions generally relate to heat cramps, heat exhaustion or in severe cases, heat stroke.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.
2. If heat exhaustion or cramps are suspected, move the patient to a cool environment and obtain a temperature.
3. Place the patient in a position of comfort. If signs of hypoperfusion exist, place the patient in the shock position if possible.
4. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
5. If heat stroke is suspected, initiate immediate aggressive cooling techniques such as removing as much clothing as possible, cold packs at the groin, under the axilla and around the neck; covering the patient with a cool wet sheet and set windows and ventilation system in the EMS unit to provide mechanical cooling.
6. Establish an IV of Normal Saline KVO. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**
7. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Provide **continuous EKG monitoring**. Treat life threatening dysrhythmias as indicated.
2. Administer **Ondansetron (Zofran)** or **Prochlorperazine (Compazine)** for nausea/vomiting. Repeat one time in 10 minutes if nausea or vomiting is not relieved:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ondansetron (Zofran) 4 mg IV over 30 seconds</td>
<td>Ondansetron (Zofran) 0.15 mg/kg IV over 30 seconds. Maximum single dose 4 mg</td>
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</table>

or

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphenhydramine (Benadryl) 25 mg IV followed by Prochlorperazine (Compazine) 10 mg</td>
<td>Not Indicated</td>
</tr>
</tbody>
</table>

3. If seizure activity is witnessed refer to the **Seizure protocol**.

**MEDICAL CONTROL OPTIONS**

1. Contact Medical Control for further orders when necessary.
This protocol applies to patients suffering from cold-related emergencies such as mild frostbite to severe hypothermia. Hypothermia is defined as a core temperature below 95°F. Moderate to severe hypothermia often presents with altered mental status and occasionally a decreased pulse, respiratory rate and blood pressure. Patients in cardiac arrest with suspected severe hypothermia shall not be considered dead until re-warming has been completed at a medical facility.

### ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care and handle the patient gently.

2. Remove any wet clothing and cover the patient in blankets to prevent heat loss.

3. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.

4. If the patient is in cardiac arrest, attach AED/Monitor Defibrillator and analyze the rhythm. If the AED advises “shock advised” ensure that all providers are clear of the patient and depress the shock button. If no response from the first defibrillation, defer from further attempts until the patient’s core temperature is increased.

   - ALS providers should utilize their manual cardiac monitor / defibrillator and defibrillate if the patient is in a “shockable” rhythm. Immediately continue CPR post defibrillation:

     | Adult      | Pediatric      |
     |------------|----------------|
     | 360 J      | AED or 2 J/kg (manual) |

5. If the patient:

   - Is greater than 8 years of age with a blood glucose level of <70 mg/dl.
   - Displays signs and symptoms of hypoglycemia
   - Is conscious enough to swallow and can maintain their own airway.

   - Administer Oral Glucose 24-50 gm SL or one single dose tube. Advanced-EMTs and ALS providers may proceed directly to intravenous interventions.

5. Establish an IV of Normal Saline KVO and infuse warm IV fluids if possible. *EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.*
6. If the patient presents with signs and symptoms of hypoperfusion, administer Normal Saline Boluses:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

**ADVANCED LIFE SUPPORT PROVIDERS**

1. If the patient’s blood glucose level is <70 mg/dl, administer Dextrose:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric (ALS Only)</th>
<th>Neonate (ALS Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(&gt;12 yrs) &lt;70 mg/dl</td>
<td>(1 mo.-12 yrs) &lt;60 mg/dl</td>
<td>(&lt;1 mo.) &lt;45 mg/dl</td>
</tr>
<tr>
<td>50% 25 gm IV</td>
<td>25% 2 ml/kg IV</td>
<td>10% 5 ml/kg IV</td>
</tr>
</tbody>
</table>

**Dextrose Dilution Procedures**

- **D$_{25}$W** - Waste 25 ml D$_{50}$W. Use pre-filled syringe (with remaining 25 ml) to withdraw 25 ml of NS from IV bag. Gently agitate syringe to mix solution.
- **D$_{10}$W** - Waste 40 ml D$_{50}$W. Use pre-filled syringe (with remaining 10 ml to withdraw 40 mL of NS from IV bag. Gently agitate syringe to mix solution.

2. Provide continuous EKG monitoring.

3. If the patient is suffering from severe hypothermia (at the hospital, this patient will likely be found to have a temperature of <86°F or 30°C) and in cardiac arrest, withhold medication delivery until the patient is re-warmed in the medical facility.

**MEDICAL CONTROL OPTIONS**

1. Contact Medical Control for further orders when necessary.
This protocol applies to patients suffering from an accidental or intentional submersion in any liquid. Pre-hospital management of these patients shall be directed toward correcting the hypoxia associated with drowning. All patients suffering from a drowning or near drowning episode should be transported to a medical facility. In the event of cold water drowning, the patient shall not be considered deceased until re-warming has been completed at a medical facility.

### ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care.
2. Consider manual stabilization and spinal immobilization if the possibility of suspected head or c-spine injury exists.
3. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
4. If the patient is conscious and presents with rales and adequate respiratory effort, apply **Continuous Positive Airway Pressure Device (CPAP)** and titrate to a pressure of:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 cmH₂O</td>
<td>Medical Control required</td>
</tr>
</tbody>
</table>

5. If hypothermia is suspected, refer to the **Hypothermia** protocol.
6. If the patient is in cardiac arrest, follow the appropriate **Cardiac Arrest** protocol.
6. Establish an IV of Normal Saline KVO. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**
7. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

**Effective Date:** April 15, 2015  
**Revision Date:** March 31, 2015  
**Version:** 2.1  
**Page:** 95
ADVANCED LIFE SUPPORT PROVIDERS

1. Provide continuous EKG monitoring.
2. If the patient is experiencing severe respiratory distress or presents with impending respiratory failure refer to the Medication Facilitated Intubation protocol.

MEDICAL CONTROL OPTIONS

1. Additional dose of Etomidate up to 10 mg IV.
2. Additional dose of Midazolam (Versed) for sedation.
This protocol applies to patients that have been exposed to a poison, overdosed on a medication or exhibits signs and symptoms related to the effects of drug abuse. This protocol establishes therapeutic pathways for patients with suspected overdose of medicinal agents. If possible, transport any medication bottles or pills, tablets, or capsules with the patient.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care and attempt to identify any medications or products taken or exposed to. Save samples and/or bottles if possible.

2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.

3. Ensure that a blood glucose reading is obtained.

4. Contact Poison Control on channel H-11 or call 1-800-222-1222 for assistance in managing specific overdoses. Any medication interventions recommended by Poison Control must first be approved by Medical Control.

5. Administer **Naloxone (Narcan)** if a narcotic (opiate) overdose is suspected and the patient has any two of the following:
   - Pinpoint pupils
   - GCS <13
   - Respiratory depression

*(If a definitive airway (King or ET Tube) is already in place and ventilation is adequate DONOT administer Narcan)*

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naloxone (Narcan):</td>
<td>Naloxone (Narcan):</td>
</tr>
<tr>
<td><strong>BLS:</strong> 2 mg IN only, may repeat twice at</td>
<td><strong>ALS only:</strong> 0.1 mg/kg IV/IN or IM, up to a</td>
</tr>
<tr>
<td>the same dose</td>
<td>maximum single dose of 2 mg</td>
</tr>
<tr>
<td><strong>AEMT or ALS:</strong> 2 mg IV/IN or IM. If no</td>
<td></td>
</tr>
<tr>
<td>response from the initial dose within 5</td>
<td></td>
</tr>
<tr>
<td>minutes, repeat 4 mg IV/IN and titrate to</td>
<td></td>
</tr>
<tr>
<td>effect thereafter if indicated</td>
<td></td>
</tr>
</tbody>
</table>

> Patients receiving Narcan should receive care at the ALS level and should be transported to the hospital for further evaluation and treatment.
6. Establish an IV of Normal Saline KVO or Saline Lock. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**

7. If the patient presents with signs and symptoms of hypoperfusion administer Normal Saline Boluses:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Provide continuous EKG monitoring and continuous quantitative waveform capnography (ETCO₂).

2. If organophosphate poisoning is suspected refer to the **Organophosphate/Carbamate/Nerve Agent poisoning protocol.**

3. If seizure activity is witnessed refer to the **Seizure protocol.**

4. Consider specific toxicology antidotes when the patient displays critical signs and symptoms:

   - **Sodium Bicarbonate** for tricyclic antidepressant (TCA) overdose:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Bicarbonate 1 mEq/kg IV</td>
<td>Sodium Bicarbonate 1 mEq/kg IV</td>
</tr>
</tbody>
</table>

   - **Calcium Chloride** for calcium channel blocker overdose:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium Chloride 1 gram slow IV</td>
<td>Calcium Chloride 20 mg/kg slow IV</td>
</tr>
</tbody>
</table>

   - **Glucagon IV** for Beta blocker overdose:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucagon 1 mg IV every 5 minutes up to a maximum total dose of 3 mg</td>
<td>Glucagon 1 mg IV every 5 minutes maximum total dose of 3 mg</td>
</tr>
</tbody>
</table>

5. If bradycardia is present, immediately refer to the **Bradycardia protocol.**

---

Effective Date: April 15, 2015
Revision Date: March 31, 2015
1. If the patient is hypotensive and does not respond to fluid resuscitation, consider a **Dopamine infusion** in the range of **5-20 mcg/kg/min**.
Patients presenting with Excited Delirium often present with mental status changes, severe agitation, and violent bizarre behavior with symptoms of extreme sympathetic nervous system activation. This is a potentially fatal condition with rapid onset. In most Excited Delirium cases there is an abnormality with the regulation of the dopamine neurotransmitter in the brain. The failure to up-regulate the dopamine transporter with chronic cocaine/drug abuse or psychosis treatment leads to a hyper-dopaminergic state and this in turn, leads to the psychotic symptoms and malignant hyperthermia. This protocol is meant to aggressively treat those patients who are extremely hard to manage due to extreme sympathetic nervous system activation and hyperthermia and not patients with mild to moderate behavioral issues due to intoxication or psychosis.

Common causes of excited delirium include:

- Stimulant Drug Abuse (Cocaine, PCP, Methamphetamine)
- Underlying psychiatric disease
- Non-compliance with medications to control psychosis or bipolar disorder
- Alcohol withdrawal

1. Assist law enforcement officials with rapid capture and physical restraint as required.
2. Restrain per Physical Restraint Protocol. These patients are to remain supine on the backboard at all times unless the airway needs to be cleared. **Patients that are restrained should never be placed in the prone or face down position nor have external pressure on the Chest that may impede respiration.**
3. Administer supplemental **Oxygen** via NRB mask at 15 lpm.
4. Initiate rapid cooling if Hyperthermic by:
   - Removing clothing
   - Douse skin with water
   - Apply Ice Packs to neck groin, axilla, and core trunk area.
   - Move the patient to a cool climate controlled environment
5. Ensure that Blood Glucose Level is obtained.
6. Establish an IV of Normal Saline and run Wide Open. *EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.*

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

7. Initiate rapid transport. Do not delay transport waiting on the arrival of an ALS resource.

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Administer Midazolam (Versed) for sedation. May be administered immediately after restraint:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midazolam</td>
<td>Midazolam</td>
</tr>
<tr>
<td><strong>Intranasal dose:</strong> 10 mg IN (5 mg each nostril). Contact Medical Control for additional doses</td>
<td><strong>Intranasal dose:</strong> 0.2 mg/kg IN to a maximum dose of 5 mg. Repeat once in 5 minutes until cessation of visible seizure activity Contact Medical Control for additional doses</td>
</tr>
<tr>
<td>OR</td>
<td>OR</td>
</tr>
<tr>
<td>Intramuscular: 5 or 10 mg IM</td>
<td>Intravenous dose: 0.1 mg/kg IV/IO, up to a maximum single dose of 2 mg. Repeat once in 5 minutes until cessation of visible seizure activity Contact Medical Control for additional doses</td>
</tr>
<tr>
<td>OR</td>
<td>OR</td>
</tr>
<tr>
<td>Intravenous dose: 2-5 mg IV/IO every 2 minutes to a maximum of 10 mg until cessation of visible seizure activity</td>
<td></td>
</tr>
</tbody>
</table>

2. Provide continuous EKG monitoring, pulse oximetry, and ETCO₂ monitoring.
3. Administer **Sodium Bicarbonate**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Bicarbonate</td>
<td>Sodium Bicarbonate</td>
</tr>
<tr>
<td>50 mEq IV/IO, slow push</td>
<td>1 mEq/kg IV/IO, slow push</td>
</tr>
</tbody>
</table>

Medical Control Required

4. If EKG anomalies such as a widening QRS, tall peaked T-Waves, or sudden cardiac death are noted, immediately administer the medications listed below before instituting the appropriate cardiac treatment algorithm.

- Repeat **Sodium Bicarbonate 50 mEq IV/IO**.
- **Calcium Chloride 1 Gram IV/IO**.
- Additional Fluid Bolus.

**MEDICAL CONTROL OPTIONS**

1. Additional doses of **Midazolam (Versed) 2-5 mg IV/IO** or **Versed 5 mg IN**.
This protocol applies to patients experiencing venomous or non-venomous, bites or stings from animals, snakes, or spiders.

All Provider Levels

1. Initiate General Assessment and Universal Patient Care.
2. Attempt to identify the insect, reptile or animal that caused the injury, if safe to do so. **DO NOT** transport a living snake/animal/spider to the hospital. Determine if the patient has access to anti-venom that can be transported to the hospital with them.
3. If an anaphylactic reaction occurs as a result of a bite or sting, refer to the Allergic reaction / Anaphylaxis protocol.
4. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
5. Remove any rings, bracelets, jewelry and constricting clothing from the affected extremity.
6. Have the patient remain calm and immobilize the effected extremity.
7. Do not apply tourniquets, cold packs, or make incisions around the affected area.
8. Contact Poison Control on channel H-11 or call 1-800-222-1222 for assistance in managing specific envenomations. Any medication recommendations from Poison Control must first be approved by Medical Control.
9. Provide rapid transport to the appropriate medical facility if the patient is symptomatic. Notification to the receiving facility is required.
10. Establish an IV of Normal Saline KVO. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**
11. If the patient presents with signs and symptoms of hypoperfusion, administer Normal Saline Boluses:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

Effective Date: April 15, 2015
Revision Date: March 31, 2015
ADVANCED LIFE SUPPORT PROVIDERS

1. Provide continuous EKG monitoring.
2. Administer Midazolam (Versed) for patients experiencing severe muscle spasms:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midazolam 2-5 mg IV/IN, up to a maximum dose of 10 mg</td>
<td>Contact Medical Control</td>
</tr>
</tbody>
</table>

MEDICAL CONTROL OPTIONS

1. Contact Medical Control for further orders when necessary.
2. To reduce localized pain, the following materials may be used to soothe the stings from Exotic Pets and Fish:

   - Dragon Fish: Soak in hot water
   - Jellyfish: Douse area with vinegar
   - Portuguese Man o’ War: Douse with salt water (from the aquarium tank), then soak in hot water

➢ These animals are commonly found in many private salt-water aquariums. Contact Poison Control on channel H-11 or call 1-800-222-1222 for assistance in managing specific envenomations. Any medication interventions recommended by Poison Control must first be approved by Medical Control.
I. General Indicators of Carbon Monoxide Exposure:
   - Victims who have been rescued from or had a prolonged exposure to smoke at a fire ground.
   - Victims who have been exposed to carbon monoxide due to other sources of incomplete combustion.
   - Exposure or overdose to Methylene Chloride (commercial paint remover)

II. Clinical Indicators of Carbon Monoxide Exposure:
   1. After a patient has been exposed to carbon monoxide, his/her symptoms may range from minimal to life threatening and may include:
      - Headaches
      - Errors in judgment
      - Confusion
      - Loss of coordination
      - Loss of consciousness
      - Chest pain
      - Cyanosis
      - Seizures
      - Irritability
      - Vomiting

III. Treatment and Transport Decision
   1. The following percentages refer to the saturation percentage of CO (SpCO) in the hemoglobin. If the SpCO reading indicated a weak signal, the probe should be adjusted and readings should be confirmed on multiple separate fingers with the probe properly shielded.

<table>
<thead>
<tr>
<th>SpCo Level</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3%</td>
<td>No treatment required</td>
</tr>
<tr>
<td>&lt;6%</td>
<td>No treatment required</td>
</tr>
<tr>
<td>4 - 12%</td>
<td>without s/sx and no history of exposure</td>
</tr>
<tr>
<td>12 - 25%</td>
<td>with s/sx or history of exposure</td>
</tr>
<tr>
<td>25% or greater</td>
<td>regardless of s/sx</td>
</tr>
</tbody>
</table>

2. If the patient meets any of the following criteria after a CO exposure consider transport to a hyperbaric facility as referenced in the hospital capability list regardless of measured CO level on the meter:
   - History of unconsciousness.
   - Objective neurologic deficit or altered mental status.
   - Chest pain or ischemic EKG changes.
   - Pregnant patient with CO level of >15% regardless of symptoms.
   - Pediatric patient with CO level of >15% regardless of symptoms.
   - Any patient with CO level of >25% regardless of symptoms.
ALL PROVIDER LEVELS

1. Remove the patient from the contaminated environment if safe to do so.
2. Initiate General Assessment and Universal Patient Care.
3. Monitor SpCO with a RAD-57 or other device. Provide frequent SpCO monitoring. Readings should be confirmed on two separate fingers with the probe properly shielded. If fingers are cold it may help to warm the hand prior to taking the reading.

   Note: Pulse oximetry monitors may give false SpO₂ readings in patients exposed to cyanide and/or carbon monoxide.

4. Administer supplemental Oxygen via NRB face mask with flow rate at 15 lpm or greater. Support airway per Airway Maintenance and Supplemental Oxygen protocol.
5. Establish an IV of Normal Saline KVO or Saline Lock. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**
6. If the patient is unresponsive, the patient shall be transported to the closest hospital for their respective age category.
7. **Pediatric Patients:** Contact Medical Control to determine appropriate destination.

ADVANCED LIFE SUPPORT PROVIDERS

1. Provide **continuous EKG, SpCO, and continuous quantitative waveform capnography (ETCO₂).**
2. If the elevated SpCO reading is the result of smoke exposure refer to the **Smoke Inhalation/Cyanide Exposure protocol.**
3. Should the need for advanced airway management or ventilatory assistance maintain an **ETCO₂ level of 30-35 mmHg.**
4. Refer to the **Medication Facilitated Intubation protocol** as required.

MEDICAL CONTROL OPTIONS

1. Contact Medical Control for further orders when necessary.
Cyanide is a cellular toxin; it halts respiration at the cellular level. Cyanide may also be found in university laboratory facilities. This may be a common method of suicide attempt in those who have access to the substance, such as laboratory workers and chemists. Cyanide also has a significant role in causing death and incapacitation in fires. The speed of onset is related to the severity of exposure (inhaled or ingestion) and may have dramatic, immediate effects causing early hypertension with subsequent hypotension, sudden cardiovascular collapse or seizure/coma.

I. Non-specific and early signs of cyanide exposure:

1. The following are early signs and symptoms of cyanide exposure: anxiety, vertigo, weakness, headache, tachypnea, nausea, dyspnea, vomiting, and tachycardia.

II. Signs of Exposure to Higher Levels of Cyanide:

1. Any of the following signs and symptoms may indicate exposure to higher levels of cyanide:
   - Markedly altered level of consciousness.
   - Seizures.
   - Respiratory depression or respiratory arrest.
   - Hypotension.
   - Cardiac dysrhythmia (other than sinus tachycardia).
   - History of recent smoke inhalation.

III. Known Exposure to Cyanide:

1. If patient has reported oral cyanide ingestion or has a history of known exposure immediately progress to the administration of Hydroxocobalamin (Cyanokit) without delay. Do not wait for signs or symptoms to manifest or worsen.

**ALL PROVIDER LEVELS**

1. Remove the patient from the contaminated environment if safe to do so.
2. Initiate General Assessment and Universal Patient Care.
3. Administer supplemental Oxygen via NRB face mask with flow rate at 15 lpm or greater. Support airway per Airway Maintenance and Supplemental Oxygen protocol.
4. Monitor SpO₂ and SpCO when a RAD-57 or other device becomes available. Pulse oximetry monitors may give false SpO₂ readings in patients exposed to carbon monoxide (CO). If the patient’s fingers are cold then the hand should be warmed prior to taking the reading.

5. Establish an IV of Normal Saline KVO or Saline Lock. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**

6. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses:**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Provide **continuous EKG, SpCO, and continuous quantitative waveform capnography (ETCO₂).**

2. Administer **Hydroxocobalamin (Cyanokit)** if the patient:
   - Has a known exposure to cyanide
   - Suffered smoke inhalation with mental status changes
   - Suffered smoke inhalation with signs and symptoms of cyanide exposure
   - Requires intubation or artificial ventilation as a result of smoke inhalation
   - Is a burn patient that has mental status changes or requires artificial ventilation

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hydroxocobalamin</strong>&lt;br&gt;Initial dose is 5 gm IV over 15 minutes. Each 2.5 gm vial of Hydroxocobalamin is to be reconstituted with 100 ml of NS and administered at 12-14 ml/minute&lt;br&gt;Administer first dose over 7-8 minutes and repeat the second dose</td>
<td><strong>Hydroxocobalamin</strong>&lt;br&gt;70 mg/kg IV, up to a maximum of 5 gm. Each 2.5 gm vial of Hydroxocobalamin is to be reconstituted with 100 ml of NS and administered at 12-14 ml/minute&lt;br&gt;Administer partial or full dose as needed over 7-8 minutes. Repeat the second full or partial dose as needed</td>
</tr>
</tbody>
</table>
3. Refer to the **Medication Facilitated Intubation protocol** as required.

4. Should the need for advanced airway management or ventilatory assistance arise maintain an **ETCO₂** level of 30-35 mmHg.

5. Refer to the **Burn Management protocol** as required.

### MEDICAL CONTROL OPTIONS

1. Dopamine infusion 5-20 mcg/kg/min for persistent hypoperfusion.
This protocol applies to female patients that are in labor, with delivery of a newborn being imminent. The most important decision to make with a patient in labor is whether to attempt delivery in the field or transport the patient to the hospital. Factors that effect that decision include; number of previous deliveries, frequent contractions that are less than 2 minutes apart and lasting 30-45 seconds, crowning or bulging, or mother has the urge to push or move her bowels (Do not allow the patient to utilize the toilet).

ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care.
2. Administer supplemental **Oxygen** per Airway Management and Oxygen Therapy protocol.
3. Place the patient supine with knees widely separated. Elevated the patient’s buttocks if needed.
4. Carefully assist expulsion of the newborn from the birth canal in its natural progression. Do not push or pull the newborn.
5. As the head emerges, encourage the mother not to push so that the delivery process can continue slowly and with minimal trauma to the perineal area.
6. Once the head emerges, suction the newborns mouth then nose to clear secretions.
   > If the cord is wrapped around the newborns neck, attempt to unwrap it from the neck. If unable to remove the cord, attach the 2 umbilical clamps and cut the cord between the clamps.
7. Gently guide the head downward until the upper shoulder delivers.
8. Gently guide the head upwards until the lower shoulder delivers.
9. Once delivery is accomplished, clamp the cord at 6" and 8" from the navel and cut between the clamps.
10. Dry and wrap the newborn in a blanket to preserve body temperature.
11. Record the delivery time and gender of the newborn.
12. Proceed immediately to **Newborn Resuscitation Protocol** if resuscitation is necessary.
13. Record **APGAR score** at 1 minute and at 5 minutes.
14. Ensure that the placenta is transported to the hospital with the mother and newborn if delivered prior to arrival at the hospital.
Generalized edema is usually the presenting sign and can be often noted in the patients' face, hands, sacral area, lower extremities, and abdominal wall. Patient may also complain of a frontal lobe headache, blurred vision or any other visual disturbances, nausea, vomiting, irritability, difficulty breathing and hypertension.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.
3. Place the patient in the left lateral recumbent position if possible.
4. During transport, dim the lights in the transport unit because bright lighting and loud noises can produce seizures in the pre-eclamptic patient.
5. Provide immediate transport to the closest appropriate facility.
6. Establish an IV of Normal Saline KVO or Saline Lock. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**

**ADVANCED LIFE SUPPORT PROVIDERS**

1. If the patient is experiencing active seizure activity, administer Midazolam (Versed):

   **Adult**
   - **Midazolam**
     - Intranasal dose: 10 mg IN (5 mg each nostril). Contact Medical Control for additional doses
     - OR
     - Intramuscular: 5 or 10 mg IM
     - OR
     - Intravenous dose: 2-5 mg IV/O, every 2 minutes to a maximum of 10 mg until cessation of visible seizure activity

   **Pediatric**
   - **Midazolam**
     - Intranasal dose: 0.2 mg/kg IN to a maximum dose of 5 mg. Repeat once in 5 minutes until cessation of visible seizure activity Contact Medical Control for additional doses
     - OR
     - Intravenous dose: 0.1 mg/kg IV/O, up to a maximum single dose of 2 mg. Repeat once in 5 minutes until cessation of visible seizure activity Contact Medical Control for additional doses

Effective Date: April 15, 2015
Revision Date: March 31, 2015
2. If eclampsia is suspected, administer **Magnesium Sulfate Infusion**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Magnesium Sulfate</strong></td>
<td><strong>Not indicated</strong></td>
</tr>
<tr>
<td>4 gm infusion. Mix 4 gm in 100 ml</td>
<td></td>
</tr>
<tr>
<td>of Normal Saline. Utilize a 10 gtts set</td>
<td></td>
</tr>
<tr>
<td>and infuse at 50 gtts/min</td>
<td></td>
</tr>
<tr>
<td>May be repeated one time and infused until</td>
<td></td>
</tr>
<tr>
<td>cessation of visible seizure activity</td>
<td></td>
</tr>
</tbody>
</table>

3. If equipment is available, obtain and document fetal heart tones.

**MEDICAL CONTROL OPTIONS**

1. Contact Medical Control for further orders when necessary.
A prolapsed cord occurs when the umbilical cord presents itself outside of the uterus while the fetus is still inside. It can happen when the water breaks – with the gush of water the cord comes along. Usually, thereafter the fetus will engage and squash the cord, cutting off oxygen supplies and leading to brain damage of the fetus.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. Place the patient in the knee-chest position.
4. **Do not attempt to push the cord back into the vagina.** Wrap the cord in a saline soaked dressing.
5. Palpate the cord for a pulse. If no pulse is obtained, push the newborn’s head or presenting part back into mother only far enough to regain a pulse in the umbilical cord.
6. Provide immediate transport to the closest appropriate facility while maintaining pressure on the newborn.
7. Establish an IV of Normal Saline KVO or Saline Lock. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**

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When faced with a newborn's limb as the presenting part, **DO NOT** attempt delivery and transport the patient immediately to the closest appropriate facility.

### ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. Place the patient supine with hips elevated.
4. Do not attempt to deliver the newborn in the pre-hospital setting.
5. Keep the patient calm and encourage her not to push during contractions.
6. Provide immediate transport to the closest appropriate facility.
When faced with a newborn patient buttock as the presenting part, let the delivery occur naturally and make certain that an open airway is accomplished until delivery is completed.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. Place the patient supine with knees widely separated. Elevated the patient's buttocks if needed.
4. Allow the delivery to proceed normally while supporting the newborn with the palm or your hand and arm.
5. If the head is not delivered within 3 minutes, place a gloved hand in the vagina, with your palm toward the newborn's face utilizing a "V" technique with your fingers. Push the vaginal wall away from the newborns face to create a space until delivery of the head.
6. Check the cord to ensure that it is not wrapped around the newborns neck.
7. Provide immediate transport to the closest appropriate facility if there is a delay in delivery of the head.
Uterine inversion is a condition when the uterus protrudes through the vagina with the placenta still attached. This condition can produce severe hemorrhage and hypoperfusion.

ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. Place the patient supine.
4. If the placenta is still attached, do not remove it.
5. Cover any protruding tissue lightly with moist sterile dressings.
6. Establish an IV of Normal Saline KVO. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**
7. Administer **Normal Saline Boluses at 250 ml** as needed to maintain or restore perfusion. Maximum total of **2000 ml.**
This protocol applies to female patients with unusually heavy vaginal bleeding as a result of pregnancy (abrupto placenta, placenta previa and uterine rupture), miscarriage or post-partum hemorrhage.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.
2. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
3. Place the patient in the left lateral recumbent position if the patient is in the third trimester of pregnancy. If the patient is not in the third trimester and is exhibiting signs / symptoms of hypoperfusion, place the patient in the shock position.
4. In the event of active post-partum hemorrhage from the vagina, apply a firm uterine massage starting from the pubis toward the umbilicus clockwise.
5. In the event that the patient has experienced a miscarriage and the fetus is ≤20 weeks in gestation:
   - Ensure that the fetus is pulseless and apneic. If so, do not attempt resuscitative measures.
   - If there is any question as to the approximate gestation of the fetus, provide resuscitative measures.
   - If the fetus presents with spontaneous respirations and/or pulses, provide newborn resuscitative measures and transport to the closest appropriate hospital. If there is a question as to whether the fetus is viable or not; contact Medical Control for direction.
6. In the event that the patient has experienced a miscarriage and the fetus is > 20 weeks in gestation:
   - Provide newborn resuscitative measures and transport to the closest appropriate hospital.
7. Establish an IV of Normal Saline KVO. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**
8. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses at 250 ml** as needed to maintain or restore perfusion. Maximum total of **2000 ml.**
This protocol applies to newborn patients who do not respond to initial stimulation and resuscitative efforts. Prompt initiation of resuscitative steps is critical to the successful outcome of a neonatal resuscitation.

**ALL PROVIDER LEVELS**

1. Position the newborn on his/her back, with the neck in a neutral position.
2. Ensure a patent airway by gentle suctioning of the mouth then the nose utilizing a bulb syringe. If Meconium stained fluid is present, suction the patient's hypopharynx.
   - ALS providers should utilize a **Meconium Aspirator** attached to an endotracheal tube. With the assistance of a laryngoscope and blade, insert the endotracheal tube into the trachea and suction while removing the tube. **Do not perform procedure in a newborn with a vigorous cry.**
3. Dry the infant, place on a dry blanket, cover the head and keep the infant warm.
4. Provide tactile stimulation if the newborn is not responding to drying.
5. If the infant is ventilating adequately, administer free flow (blow-by) 100% oxygen at a minimum of 6 liters per minute close to the face. If ventilations are inadequate or if the chest fails to rise, reposition the head and neck, suction, and initiate bag-valve-mask ventilations with high flow oxygen at 40-60 breaths per minute.
6. If heart rate 60-80 and rapidly rising:
   - Continue manual ventilation and supplemental oxygen.
7. If heart rate less than 60, or 60-80 and not rapidly rising:
   - Initiate CPR with bag-valve-mask ventilations with high flow oxygen.
8. Determine the 1-minute **APGAR score**. Repeat at the 5 minute interval.

<table>
<thead>
<tr>
<th>Test</th>
<th>0 Points</th>
<th>1 Point</th>
<th>2 Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity (Muscle Tone)</td>
<td>Absent</td>
<td>Arms &amp; legs extended</td>
<td>Active movement with flexed arms &amp; legs</td>
</tr>
<tr>
<td>Pulse (Heart Rate)</td>
<td>Absent</td>
<td>Below 100 bpm</td>
<td>Above 100 bpm</td>
</tr>
<tr>
<td>Grimace (Response Stimulation or Reflex Irritability)</td>
<td>No Response</td>
<td>Facial grimace</td>
<td>Sneeze, cough, pulls away</td>
</tr>
<tr>
<td>Appearance (Skin Color)</td>
<td>Blue-gray, pale all over</td>
<td>Pink body and blue extremities</td>
<td>Normal over entire body – Completely pink</td>
</tr>
<tr>
<td>Respiration (Breathing)</td>
<td>Absent</td>
<td>Slow, irregular</td>
<td>Good, crying</td>
</tr>
</tbody>
</table>

Effective Date: April 15, 2015
Revision Date: March 31, 2015
1. Establish an IV/IO of Normal Saline and administer 10 ml/kg if ventilation and heart rate are not improving after 3 minutes.

2. Provide continuous EKG monitoring and treat life threatening dysrhythmias as indicated.

3. Perform ET intubation if the patient does not respond to assisted ventilations and/or CPR after 3 minutes.

4. Administer Epinephrine 1:10,000 0.01 mg/kg IV/IO, if the heart rate remains <80 beats per minute after assisted ventilations and/or CPR for 3 minutes.

5. For suspected narcotic (opiate) overdose, administer Narcan 0.1 mg/kg IV/IO/ET.

1. Medical Control may request that providers obtain a blood sugar. If the result is low, and transport time is still lengthy, Medical Control may request that Dextrose 10% be administered to the newborn.
This protocol applies to patients with near or complete amputations.

ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care.
2. Control bleeding with:
   - Apply direct pressure and utilize a tourniquet early to decrease severe bleeding.
3. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
4. Provide extremity splinting as required.
5. Care or the amputated part if recovered shall include:
   - Removing gross contaminations with saline.
   - Wrap the part in moist sterile dressings and place the part in a plastic bag or container.
   - If possible, place that bag or container into a separate bag or container with ice packs to keep the part cool. **Do not allow the part to freeze.**
6. Transport to the closest appropriate facility with trauma capabilities if the patient has abnormal vital signs, multi-system trauma or amputations of the toe or fingertip at the distal end.
7. Consider transportation to a specialty trauma facility for stable patients that present with the following:
   - Complete or incomplete amputation, de-gloving, crushing or de-vascularization injuries.
   - Specific injuries might include, complete or incomplete hand amputation, partial or complete proximal finger or thumb amputation at the joint that meets the hand, de-gloving, crushing or de-vascularization injuries of hand, clean cut amputation at the ankle.
   - **Ensure that the specialty trauma facility is notified.**
8. Establish an IV of Normal Saline KVO or Saline Lock. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**
9. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 ml as needed to maintain</td>
<td>20 ml/kg as needed to</td>
</tr>
<tr>
<td>or restore perfusion.</td>
<td>maintain or</td>
</tr>
<tr>
<td>Maximum total of 2000 ml</td>
<td>restore perfusion.</td>
</tr>
<tr>
<td></td>
<td>Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

**ADVANCED LIFE SUPPORT PROVIDERS**

1. For pain management consider **Fentanyl** or **Morphine Sulfate**.
   - If the patient exhibits signs / symptoms of hypoperfusion **Contact Medical Control for Fentanyl / Morphine Sulfate**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fentanyl 25-50 mcg IV per dose every 5</td>
<td>Fentanyl 1 mcg/kg IV/IO/IN up to</td>
</tr>
<tr>
<td>minutes to a maximum of 200 mcg</td>
<td>a maximum single dose of 50 mcg</td>
</tr>
<tr>
<td>Use 25 mcg for the elderly or a</td>
<td><strong>Contact Medical Control</strong> for</td>
</tr>
<tr>
<td>weight under 70 kg</td>
<td>additional doses</td>
</tr>
</tbody>
</table>

   or

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine 2 mg IV. Repeat as needed until</td>
<td>Morphine 0.1 mg/kg IV until pain</td>
</tr>
<tr>
<td>pain is relieved or a maximum of 10 mg is</td>
<td>is relieved or a maximum single dose of 10 mg</td>
</tr>
<tr>
<td>reached</td>
<td>is reached</td>
</tr>
<tr>
<td>An additional dose of 2 mg up to a</td>
<td></td>
</tr>
<tr>
<td>maximum single dose of 10 mg may be</td>
<td></td>
</tr>
<tr>
<td>repeated one time after 10 minutes</td>
<td></td>
</tr>
</tbody>
</table>

- In patients 65 years old and greater consider an initial dose of half your normal adult dose when administering opiates (Morphine / Fentanyl).
2. Consider administration of **Ketamine** for pain if **Fentanyl** or **Morphine** is unavailable:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ketamine</td>
<td>Contact Medical Control for orders and anticipate 0.1-0.2 mg/kg IV/IM/IO</td>
</tr>
<tr>
<td>0.2 mg/kg IV/IO/IM administered over 1 minute. May repeat once in 5 minutes as needed</td>
<td></td>
</tr>
</tbody>
</table>

3. For nausea / vomiting consider **Ondansetron (Zofran) IV** or **Prochlorperazine (Compazine)**. Repeat one time in 10 minutes if nausea or vomiting is not relieved.

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric (ALS Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ondansetron (Zofran)</td>
<td>Ondansetron (Zofran)</td>
</tr>
<tr>
<td>4 mg IV over 30 seconds</td>
<td>0.15 mg/kg IV over 30 seconds. Maximum single dose 4 mg</td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphenhydramine (Benadryl)</td>
<td>Not Indicated</td>
</tr>
<tr>
<td>25 mg IV followed by Prochlorperazine (Compazine)</td>
<td></td>
</tr>
<tr>
<td>10 mg IV</td>
<td></td>
</tr>
</tbody>
</table>

**MEDICAL CONTROL OPTION**

1. Contact Medical Control for further orders when necessary.
This protocol applies to patients sustaining burns as a result of thermal chemical or electrical components. Indications for referral to a burn center applies to patients with 2nd degree burns >10%, 3rd degree burns >1% in any patient, electrical injury (greater than 200 volts), suspected inhalation injury, or significant burns to the face/head, hands, feet major flexion joints or perineum. In the event that there is associated trauma to the burned patient, transport to the closest burn center for immediate care if unstable.

ALL PROVIDER LEVELS

1. Remove the patient from the source of injury. Decontaminate if the injury occurred as a result of a hazardous material or chemical if safe to do so.
2. Initiate General Assessment and Universal Patient Care.
3. Support airway and provide supplemental Oxygen per Airway Maintenance and Supplemental Oxygen protocol.
4. If smoke inhalation is suspected, provide humidified Oxygen.
5. Remove items that may constrict swelling tissue.
6. Determine the degree and body surface area percentage burned.
7. If the burns are \( \leq 10\% \) body surface area, cover with Waterjel Emergency Burn Dressing or if not available sterile dressings soaked in a saline solution.
8. If the burns are >10\% body surface area, cover with Waterjel Emergency Burn Dressing or if not available sterile dry dressings. Ensure that the patient is kept covered and warm to prevent the loss of body heat with mylar blanket.
9. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
   - ALS providers should utilize advanced airway management with ET intubation and attach continuous quantitative waveform capnography (ETCO\(_2\)), maintaining a level of 35-45 mmHg. If ET intubation cannot be accomplished due to a completely obstructed airway, perform an emergent Needle Cricothyroidotomy.
   - Patients with Evidence of upper Airway Burn, changes in Voice, or stridor should be intubated early. Consider medication Facilitated intubation protocol.
10. Establish an IV of Normal Saline KVO. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**
11. If the patient presents with signs and symptoms of hypoperfusion, administer Normal Saline Boluses:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

### ADVANCED LIFE SUPPORT PROVIDERS

1. Consider continuous EKG monitoring and quantitative waveform capnography (ETCO₂).

2. Waterjel emergency burn dressings provide pain relief by efficient and effective cooling of the burn injury.

3. For further pain management consider Fentanyl or Morphine Sulfate.

   ➢ If the patient exhibits signs / symptoms of hypoperfusion Contact Medical Control for Fentanyl / Morphine Sulfate:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fentanyl 50-100 mcg IV per dose every 5 minutes to a maximum of 200 mcg Use 25 mcg for the elderly or a weight under 70 kg</td>
<td>Fentanyl 1 mcg/kg IV/IO/IN up to a maximum single dose of 50 mcg Contact Medical Control for additional doses</td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine 2 mg IV. Repeat as needed until pain is relieved or a maximum of 10 mg is reached An additional dose of 2 mg up to a maximum single dose of 10 mg may be repeated one time after 10 minutes</td>
<td>Morphine 0.1 mg/kg IV until pain is relieved or a maximum single dose of 10 mg is reached</td>
</tr>
</tbody>
</table>

➢ In patients 65 years old and greater consider an initial dose of half your normal adult dose when administering opiates (Fentanyl / Morphine).
4. Consider administration of Ketamine for pain if Fentanyl or Morphine is unavailable:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ketamine 0.2 mg/kg IV/IO/IM administered over 1 minute. May repeat once in 5 minutes as needed</td>
<td>Contact Medical Control for orders and anticipate 0.1-0.2 mg/kg IV/IM/IO</td>
</tr>
</tbody>
</table>

5. For nausea / vomiting consider Ondansetron (Zofran) IV or Prochlorperazine (Compazine):

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ondansetron (Zofran) 4 mg IV over 30 seconds. May repeat in 10 minutes</td>
<td>Ondansetron (Zofran) 0.15 mg/kg IV over 30 seconds. Maximum single dose 4 mg</td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphenhydramine (Benadryl) 25 mg IV followed by Prochlorperazine (Compazine) 10 mg IV</td>
<td>Not Indicated</td>
</tr>
</tbody>
</table>

6. If the injury is associated with smoke inhalation and a decreased level of consciousness refer to the Smoke Inhalation/Cyanide Exposure protocol.
1. Contact Medical Control for further orders when necessary.
This protocol applies to patients sustaining injury as a result of high voltage electricity (>200 volts) or lightning strikes. In addition to burns, these patients have a high probability of cardiac rhythm disturbances and penetrating trauma as a result of the electrical injury.

**ALL PROVIDER LEVELS**

1. Remove the patient from the source of injury, if safe to do so.
2. Initiate General Assessment and Universal Patient Care.
3. Consider spinal immobilization if the mechanism of injury exists.
4. If the patient is in respiratory arrest, initiate **ventilatory support** per the Airway Maintenance and Oxygen Therapy protocol.
5. If the patient is in cardiac arrest, initiate **CPR** and attached an **AED** as appropriate. Refer to the **appropriate Cardiac Arrest protocol**.
6. Administer supplemental **Oxygen** per the Airway Management and Oxygen Therapy protocol.
7. Establish an **IV** of Normal Saline KVO. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**
8. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses:***

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

9. **All** electrical injuries or burns should be transported to a specialty burn center.

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Provide **continuous EKG** and **continuous quantitative waveform capnography (ETCO₂)**.
2. Apply **appropriate Cardiac Arrest protocol** as applicable.
3. If the patient is hemodynamically stable refer to the **Pain Management protocol**.

**MEDICAL CONTROL OPTIONS**

1. Contact Medical Control for further orders when necessary.
Compartment Syndrome (CS) is a limb- and life-threatening condition seen when perfusion pressure falls below tissue pressure in a closed anatomical space. This can lead to tissue necrosis, permanent impairment, and eventually renal failure and death. All providers should maintain a high index of suspicion when dealing with complaints of severe extremity pain. Providers should be cognizant of pain, paresthesia, pallor, paralysis, pulselessness or poikilothermia (cold extremity) at or below the injury site. **All treatment should be initiated prior to extrication. This protocol should be initiated when 30% of the patient’s body mass is entrapped for greater than 15 minutes.**

Consider activation of the “Go Team” for a patient involved in an unusual extrication, prolonged crush injury, or possible field amputation. This team will bring the necessary equipment needed for unusual field care.

Common mechanisms of injury leading to Compartment Syndrome are:
- Long bone fractures
- High energy trauma
- Penetrating injuries / GSW’s / stab wounds
- Venous injury
- Crush injuries

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.
2. Administer supplemental **Oxygen** per the Airway Maintenance and Oxygen Therapy protocol.
3. Remove constrictive clothing and jewelry.
4. If appropriate, consider activation of the “Go Team” from George Washington University Hospital (H08).
5. Establish at least one large bore IV/IO point of access. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.**
6. Administer **Normal Saline Boluses**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administer 40 ml/kg fluid bolus prior to extrication. 20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

7. Consider use of tourniquet above injury site prior to removal of crushed limb if it is deemed to be unsalvageable or rapid amount of blood loss is suspected.

8. Once extricated, **do not delay transport** to the closest available trauma facility.

---

**ADVANCED LIFE SUPPORT PROVIDERS**

1. Provide **continuous EKG monitoring** and treat life threatening dysrhythmias as indicated. Hyperkalemia will manifest on the EKG tracing with peaked "T" waves and a widened "QRS" complex.

2. If the patient is hemodynamically stable, refer to the **Pain Management protocol**:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fentanyl 25-50 mcg IV per dose every 5 minutes to a maximum of 200 mcg. Use 25 mcg for the elderly or a weight under 70 kg</td>
<td>Fentanyl 1 mcg/kg IV/IO/IN up to a maximum single dose of 50 mcg. Contact Medical Control for additional doses</td>
</tr>
</tbody>
</table>

**or**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine 2 mg IV. Repeat as needed until pain is relieved or a maximum of 10 mg is reached. An additional dose of 2 mg up to a maximum single dose of 10 mg may be repeated one time after 10 minutes</td>
<td>Morphine 0.1 mg/kg IV until pain is relieved or a maximum single dose of 10 mg is reached</td>
</tr>
</tbody>
</table>

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Effective Date: April 15, 2015
Revision Date: March 31, 2015
3. Consider **Ketamine** for pain management and sedation prior to extrication:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ketamine</strong></td>
<td><strong>Contact Medical Control for orders</strong></td>
</tr>
<tr>
<td>0.2 mg/kg IV/IO/IM administered</td>
<td>and anticipate 0.1-0.2 mg/kg IV/IM/IO. May</td>
</tr>
<tr>
<td>over 1 minute. May repeat every 5</td>
<td>only repeat with Medical Control Authorization</td>
</tr>
<tr>
<td>minutes for a total of three (3) doses to ensure provider safety during extrication.</td>
<td></td>
</tr>
</tbody>
</table>

4. For nausea / vomiting consider **Ondansetron (Zofran)** IV or **Prochlorperazine (Compazine)**. Repeat one time in 10 minutes if nausea or vomiting is not relieved:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ondansetron (Zofran)</strong></td>
<td><strong>Ondansetron (Zofran)</strong></td>
</tr>
<tr>
<td>4 mg IV over 30 seconds</td>
<td>0.15 mg/kg IV over 30 seconds. Maximum single dose 4 mg</td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diphenhydramine (Benadryl)</strong></td>
<td><strong>Not Indicated</strong></td>
</tr>
<tr>
<td>25 mg IV followed by</td>
<td></td>
</tr>
<tr>
<td>Prochlorperazine (Compazine)</td>
<td></td>
</tr>
<tr>
<td>10 mg IV</td>
<td></td>
</tr>
</tbody>
</table>

5. Consider **Albuterol 2.5 mg via nebulizer** to a total of 3 doses or 7.5 mg for suspected hyperkalemia.

6. Consider **Sodium Bicarbonate** if the time prior to extrication is greater than 30 minutes:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sodium Bicarbonate</strong></td>
<td><strong>Sodium Bicarbonate</strong></td>
</tr>
<tr>
<td>1 mEq/kg IV</td>
<td>1 mEq/kg IV</td>
</tr>
<tr>
<td>May be repeated at 0.5 mEq/kg</td>
<td>Contact Medical Control for orders to repeat dose</td>
</tr>
<tr>
<td>after 10 minutes</td>
<td></td>
</tr>
</tbody>
</table>
7. Consider **Calcium Chloride** after extrication if the patient presents with ventricular ectopy:

<table>
<thead>
<tr>
<th></th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium Chloride</td>
<td>1 gram slow IV</td>
<td>Calcium Chloride</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 mg/kg slow IV</td>
</tr>
</tbody>
</table>

**MEDICAL CONTROL OPTIONS**

1. Contact Medical Control for further orders when necessary.
This protocol applies to patients with eye injuries as a result of trauma or burns (including pepper spray).

**ALL PROVIDER LEVELS**

**Management of Exposure to Chemical Agents**
1. All providers shall utilize proper PPE at all times.
2. Remove patient from exposure source if safe to do so.
3. Remove contact lenses if possible, keep the lenses moist with Normal Saline, and transport them with the patient.
4. Determine the chemical involved. If MSDS is available transport the MSDS with patient.
5. For significant eye pain, administer **2 drops of Tetracaine HCL** in the affected eye(s).
6. Irrigate the eye(s) immediately with Normal Saline for a minimum of 20 minutes utilizing a Morgan Lens, IV tubing or a nasal cannula.

**Management of Non-penetrating Foreign Object**
1. Irrigate the affected eye(s) with Normal Saline using IV tubing or a nasal cannula until the object is cleared.
2. For significant eye pain, administer **2 drops of Tetracaine HCL** in the affected eye(s).
3. The patient may report continued irritation even after the object is no longer present on the surface of the eye. This may be due to small abrasions on the surface of the eye. Transport these patients to an Emergency Department for further evaluation.

**Management of Trauma Related Eye Injury**
1. Do not irrigate or use Tetracaine HCL for penetrating eye trauma.
2. Stabilize any penetrating object(s) by best possible means.
3. Cover the injured eye. Do not use a pressure or absorbent dressing on any eye that may have ruptured, or have penetrating trauma.
4. Cover both eyes to limit movement.
5. Transport the patient with head elevated at least 30°
This protocol applies to patients injured as a result of trauma with a GCS of ≤15, penetrating injuries to the head, neck, chest, and abdomen, extremities proximal to the elbow or knee. Patients with 2 or more proximal long bone fractures flail chest, pelvic fractures, amputation or crush injuries proximal to the wrist or ankle and limb paralysis. Automobile crashes > 40 mph with major deformity to the vehicle >20 inches, intrusion into passenger compartment >12 inches, vehicle rollover and ejection from a vehicle. When in doubt, transport the patient to the closest open trauma center for evaluation and treatment. **Patients less than 15 years of age should be transported to Children’s National Medical Center (CNMC).**

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.


3. Administer supplemental **Oxygen** per Airway Management and Oxygen Therapy protocol.

4. Treat all life threatening injuries as soon as possible such as decompression of a tension pneumothorax (**ALS**), sealing of a sucking chest wound, stabilization of a flail chest, and stabilization of a protruding object from a head, neck, eye, chest or abdomen. Consider “load and go” option.

5. Establish 1 or 2 **IV’s** of Normal Saline. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access. Do not delay transport to secure IV access. Perform venipuncture enroute to the trauma center.**

6. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses:**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 ml as needed to maintain a blood pressure of at least 90 mmHg. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>

Effective Date: April 15, 2015
Revision Date: March 31, 2015
ADVANCED LIFE SUPPORT PROVIDERS

1. If a tension pneumothorax is suspected, perform a needle decompression of the pleural space at the 4th intercostal space on the anterior axillary on the affected side utilizing a 14 gauge angiocath or commercial device.

2. Administer Tranexamic Acid for Adults (Age 15 or greater) in the setting of hemorrhagic shock from trauma with a suspected need for massive blood transfusion due to marked internal or external blood loss. The following criteria must be met prior to administration:
   - Must have obvious bleeding external wounds neck to mid-thigh or suspected severe internal injuries from blunt or penetrating trauma.
   - Trauma occurred within last 3 hours.
   - Must have sustained tachycardia 110 beats per minute and/or sustained hypotension with systolic blood pressure 90 mmHg or less.

<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td>Tranexamic Acid</td>
<td>Not Indicated</td>
</tr>
<tr>
<td>1 gm infusion. Mix 1 gm in 100 ml of Normal Saline. Utilize a 10 gtts set and infuse at 100 gtts/min over 10 minutes</td>
<td></td>
</tr>
</tbody>
</table>

3. Consider analgesia per the Pain Management protocol.
   - If the patient exhibits signs / symptoms of hypoperfusion Contact Medical Control for Fentanyl / Morphine Sulfate.

4. Provide continuous EKG monitoring if time or conditions permit.

MEDICAL CONTROL OPTIONS

1. Contact Medical Control for further orders when necessary.
This protocol applies to patients in cardiac arrest as a result of penetrating or blunt trauma. Rapid assessment, airway management, critical interventional skills (needle decompression, etc.) and immediate transport to a trauma center is essential to improve the patient’s outcome. **Patients less than 15 years of age should be transported to Children’s National Medical Center (CNMC).**

### ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care.
2. Provide ventilatory support per the Airway Management and Oxygen Therapy protocol.
3. Initiate immediate high quality CPR. This will be 5 cycles of CPR:

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>30:2</td>
<td>15:2</td>
</tr>
</tbody>
</table>

   ➢ When performing compressions, providers are to “push hard and fast” allowing the chest to fully recoil.

5. If the arrest is believed to be medical in nature, attach AED and analyze the rhythm. If “no shock” is advised immediately continue CPR.
   ➢ ALS providers should utilize their manual cardiac monitor / defibrillator for all patients.
6. **Immediately transport to the closest open trauma center.**
7. Establish 1 or 2 IV/IO’s of Normal Saline. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access. Do not delay transport to secure IV access. Perform venipuncture enroute to the trauma center.**
8. Administer **Normal Saline Boluses** to treat hypovolemia:

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>500 ml as needed to restore or maintain perfusion. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to restore or maintain perfusion. Maximum of 3 boluses</td>
</tr>
</tbody>
</table>
1. If the cardiac arrest is secondary to central core trauma, perform bilateral needle thoracostomies in the pleural space at the 4th intercostal space on the anterior axillary line on the affected side utilizing a 14 gauge angiocath or commercial device.

2. Interpret EKG and treat dysrhythmias according to the appropriate protocol.

1. Contact Medical Control for further orders when necessary.
This protocol applies to pregnant patients that are 20 weeks or greater in gestation. In the event of cardiac arrest secondary to trauma, these patients do not apply to the presumed dead on arrival (PDOA) protocol, except in instances where there is apparent dependent lividity and rigor mortis. These patients must be resuscitated and transported to the nearest trauma facility in an effort to save the unborn child.

ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care.
3. Administer supplemental Oxygen per the Airway Management and Oxygen Therapy protocol.
4. Treat all life threatening injuries as soon as possible such as decompression of a tension pneumothorax (ALS), sealing of a sucking chest wound, stabilization of a flail chest, and stabilization of a protruding object from a head, neck, eye, chest or abdomen. Consider “load and go” option.
5. Patients should be transported on their left side, either left lateral recumbent or tilted left on a long spine board to displace the uterus off the vena cava thus enhancing venous return (Supine Hypotensive Syndrome or Vena Cava Syndrome). In cases of cardiac arrest or when airway maintenance requires the patient to be supine, tilting shall be omitted.
6. Establish 1 or 2 IV/IO’s of Normal Saline. EMTs who have completed the IV training module and Advanced EMTs may initiate IV access. Do not delay transport to secure IV access. Perform venipuncture enroute to the trauma center.
7. If the patient presents with signs and symptoms of hypoperfusion, administer Normal Saline Boluses at 500 ml intervals as required to maintain a blood pressure of at least 90 mmHg. Maximum total of 2000 ml. Reassess before and after every administration.

ADVANCED LIFE SUPPORT PROVIDERS

1. If a tension pneumothorax is suspected, perform a needle decompression of the pleural space at the 4th intercostal space at the anterior axillary on the affected side utilizing a 14 gauge angiocath or commercial device.
2. Perform bilateral needle decompressions for patients in cardiac arrest with trauma to the central core.
1. Contact Medical Control for further orders when necessary.
This protocol applies to patients with a suspected brain injury due to blunt or penetrating trauma. **Transport patients less than 15 years of age to Children’s National Medical Center (CNMC).**

### ALL PROVIDER LEVELS

1. Initiate General Assessment and Universal Patient Care.
2. Ensure that spinal immobilization is performed. If isolated TBI is suspected, attempt to keep the head of the backboard elevated to reduce intracranial swelling.
3. Administer 100% **Oxygen** per Airway Management and Oxygen Therapy protocol. If respiratory effort is inadequate provide ventilatory assistance at 12 breaths per minute.
4. If the head injured patient has a Glasgow Coma Score of ≤8 and one or more of the following signs of brain hemiation is present, ventilate the patient at a rate of:

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<tr>
<td>20 breaths per min.</td>
<td>25 breaths per min.</td>
</tr>
</tbody>
</table>

- Seizure activity.
- Pupils that are fixed or asymmetric (unequal).
- Abnormal flexion or extension (posturing).
- Hypertension and bradycardia (Cushing’s syndrome).
- Intermittent apnea (periodic breathing).
5. **Immediately transport to the closest open trauma center.**
6. Establish **IV** of Normal Saline. **EMTs who have completed the IV training module and Advanced EMTs may initiate IV access.** Do not delay transport to secure IV access. Perform venipuncture enroute to the trauma center.
7. Administer **Normal Saline Boluses:**

<table>
<thead>
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<tr>
<td>250 ml as needed to maintain a blood pressure of at least 90 mmHg. Maximum total of 2000 ml</td>
<td>20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses</td>
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</table>