1. Do not perform Nasotracheal Intubation in pediatric patients or patients with maxial-facial trauma or evidence of a basilar skull injury.

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

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

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

   **Pediatric**
   - 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

**MEDICAL CONTROL OPTIONS**

1. Contact Medical Control for further orders when necessary.
EMS providers shall immobilize the entire cervical and thoracic spine with a backboard, head rolls and c-collar on the following patients:

- Patient suffering from blunt trauma with an altered level of consciousness
- Patient has spinal pain or tenderness to palpation of the spine.
- Patient has neurological complaints (e.g.: numbness or motor weakness)
- Patient has anatomic deformity of the spine
- High energy mechanism of injury and any of the following:
  - Drug or alcohol intoxication
  - Inability to communicate
  - Significant Distracting Injury.

Patients with penetrating trauma to the head, neck or torso and NO EVIDENCE of neurological compromise SHOULD NOT be immobilized on a backboard. Such procedures delay rapid transport and have no proven benefits.

Patients not meeting any of the above criteria shall be evaluated against the selective spinal immobilization algorithm. Spinal precautions can be maintained by application of a rigid cervical collar and securing the patient firmly to the EMS stretcher*, and may be most appropriate for:

- Patients who are found to be ambulatory at the scene
- Patients who must be transported for a protracted period of time, particularly prior to Interfacility transfer.
- Patients for whom a backboard is not otherwise indicated.

EMS providers may withhold spinal immobilization under the following application of the selective spinal immobilization algorithm and the end-point is “Consider no immobilization”; and the patient meets all of the following criteria.

- Normal level of consciousness (GCS = 15)
- No spine tenderness to palpation
- No neurologic findings or complaints
- No significant distracting injury
- No intoxication (Drugs or alcohol)
- Ability to actively provide history and participate in exam
- No complaint of neck pain on movement

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

* Proper securing to the stretcher includes the use of 5-point restraints and head blocks with tape.

** Algorithm may be applied to patients 2 years of age or older.
High mechanism of injury suggestive of spinal injury includes, but is not limited to:

- Violent impact to the head, neck, torso, or pelvis.
- Unresponsive with any history of a fall.
- Shallow-water diving incident.
- Moderate to high speed motor vehicle incident.
- Fall from 2 times height of the patient.
- Pedestrian struck by a vehicle.
- Axial load or injury resulting from diving into water.
- Explosion.
- Penetrating trauma in or near the spine.
- Ejection from a vehicle.
- Sports injury to the head or neck with spinal pain or neurological deficit.

**Low risk mechanism of injury?**

**NO** → **IMMOBILIZE**

**Reliable patient history/examination?**

- Alert and oriented.
- Not intoxicated.
- No active psychological/psychiatric problems.
- No significant loss of consciousness.
- No significant distracting injuries.
- Able to communicate adequately.

**NO** → **SPINAL PRECAUTIONS**

**YES**

**Normal sensory/motor examination?**

- Symmetrical movement of all extremities.
- No deficits of light touch.

**NO** → **SPINAL PRECAUTIONS**

**YES**

**Spinal pain or tenderness?**

- Palpate entire axial spine.
- May need to log roll patient.
- Neck pain upon axial compression (push gently on top of the head).

**YES** → **SPINAL PRECAUTIONS**

**NO**

**Consider NO immobilization**
District of Columbia Fire and EMS Protocols 
Trauma Emergencies 

**FIELD TRAUMA TRIAGE ALGORITHM** 

1. Measure vital signs and level of consciousness 
   - Glasgow Coma Scale \( \leq 13 \) 
   - Systolic Blood Pressure \(< 90 \text{ mmHg}\) 
   - Respiratory rate \(<10 \text{ or } \geq 29 \text{ breaths per minute adult } <20 \text{ in infant } <1 \text{ year or need ventilator support}\) 
   - **Yes** 
   - Transport to a Level 1 or Level 2 Trauma Center 
   - **No** 
   - Assess anatomy of injury 
     - All penetrating injuries to head, neck, torso and extremities proximal to the elbow or knee 
     - Chest wall instability or deformity (e.g., flail chest) 
     - Two or more proximal long bone fractures 
     - Crushed, degloved, mangled, or pulseless extremity 
     - Amputation proximal to wrist or ankle 
     - Pelvic fractures 
     - Open or depressed skull fracture 
     - Paralysis 
   - **Yes** 
   - Transport to a Level 1 or Level 2 Trauma Center 
   - **No** 
   - Assess mechanism of injury and evidence of high-energy impact 
     - All penetrating injuries to head, neck, torso and extremities proximal to the elbow or knee 
     - Falls 
       - Adults: \( \geq 20 \text{ feet (one story is equal to } 10 \text{ feet)}\) 
       - Children: \( \geq 10 \text{ feet or two or three times the height of the child}\) 
     - High-risk auto crash 
       - Intrusion, including roof: \( >12 \text{ inches occupant site; } >18 \text{ inches any site}\) 
       - Ejection (partial or complete) from automobile 
       - Death in same passenger compartment 
       - Vehicle telemetry data consistent with a high risk of injury 
     - Auto vs. pedestrian/bicyclist thrown, run over, or with significant (\( >20 \text{ mph}\)) impact 
     - Motorcycle crash \( >20 \text{ mph}\) 
   - **Yes** 
   - Transport to a Level 1 or Level 2 Trauma Center 
   - **No** 
   - Assess special patient or system considerations 
     - Older adults 
       - Risk of injury/death increases after age 55 years 
       - SBP \(<110\) might be represent shock after age 65 years 
       - Low impact mechanisms (e.g. ground level falls) might result in severe injury 
     - Pediatric Patients \(<15\) years (14 yrs age or younger) 
       - Should be triaged preferentially to pediatric capable trauma centers 
     - Anticoagulants and bleeding disorders 
       - Patients with head injury are at high risk for rapid deterioration 
     - Burns 
       - Without other trauma mechanism: triage to a burn facility 
       - With trauma mechanism: triage to trauma center 
     - Pregnancy \( >20 \text{ weeks}\) 
     - EMS provider judgment 
   - **Yes** 
   - Transport to a Level 1 or Level 2 Trauma Center 
   - **No** 
   - Transport according to protocol 

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Revision Date: March 31, 2015 
Version: 2.1 
Page 144 

Adopted from CDC Guidelines for Field Triage of Injured Persons, 2011
This protocol applies to patients exhibiting behavior that presents a danger to self and others. Careful assessment is required to determine the cause of the mental disturbance. In all cases, substance induced disorders (alcohol intoxication or drugs) organic causes (cerebral lesions), endocrine emergencies (hypoglycemia or hyperglycemia), hypoxia or trauma must be ruled out to determine if the condition is truly psychological. Excited Delirium is a condition in which a person is in a psychotic state or extremely agitated. The person's inability to process rational thought precludes normal de-escalation procedures alone. High body temperatures and instant tranquility (this is when a previously combative patient becomes quiet and docile) in these patients are key findings in predicting a high risk of sudden death in excited delirium. Ensure that law enforcement is summoned to all responses involving potentially combative patients.

**ALL PROVIDER LEVELS**

1. Initiate General Assessment and Universal Patient Care.
2. Attempt to de-escalate verbally aggressive behavior with a calm and reassuring approach and manner. Utilize family members or friends known to the patient if is safe to do so.
3. Do not leave the patient alone unless there is a risk or harm to pre-hospital personnel or others.
4. Support airway and provide supplemental oxygen per the Airway Maintenance and Supplemental Oxygen protocol.
5. Place the patient in a position of comfort unless combative.
6. If patient restraint is necessary to prevent harm to the patient and others, provide soft four-point restraints or handcuffs (law enforcement) and transport the patient in a supine position. **Do not transport the patient in a prone position or restrict the patient in taking full tidal volume breaths.** Circulation and motor sensory function shall be checked every 5 minutes while in physical restraints.
7. Ensure that a blood glucose reading is obtained.
8. Consider use of Comprehensive Psychiatric Emergency Program (CPEP) if:
   - Age 18 or greater and less than age 65.
   - Vital signs and blood glucose level within normal ranges.
   - There is an isolated behavioral problem.
   - Transport should be completed by law enforcement.
   - No medical problems or injuries that need to be evaluated at the hospital.
ADVANCED LIFE SUPPORT PROVIDERS

1. If the patient continues to present a danger to self or others on scene due to combativeness, consider chemical sedation:

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Midazolam</strong></td>
<td><strong>Contact Medical Control</strong></td>
</tr>
<tr>
<td>Intranasal dose: 10 mg IN (5 mg each nostril). Contact Medical Control for additional doses</td>
<td></td>
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<td>OR</td>
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<td></td>
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</tbody>
</table>

**or**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Haloperidol (Haldol)</strong></td>
<td><strong>Haloperidol (Haldol)</strong> Medical Control Required</td>
</tr>
<tr>
<td>5 mg IM</td>
<td>Greater than 12 y.o.: 5 mg IM</td>
</tr>
<tr>
<td>Patients over the age of 65 years</td>
<td>Ages 6 – 12 years: 2 mg IM</td>
</tr>
<tr>
<td>2.5 mg</td>
<td></td>
</tr>
</tbody>
</table>

2. Provide **continuous EKG monitoring** and **pulse oximetry**.

3. Any patients receiving medications for sedation shall be transported to the hospital by ALS resources for further medical evaluation.

MEDICAL CONTROL OPTIONS

1. Contact Medical Control for further orders when necessary.
Resuscitation should be initiated unless:

(1) The patient meets PDOA criteria.

   OR

(2) A valid out of hospital Do Not Resuscitate (DNR) order is present.

This protocol addresses when field resuscitation may be discontinued after it has been started. It also provides for remote pronouncement of death by a medical control physician.

**Exclusions:** If any of the following conditions are met initiate CPR, transport the patient, and continue resuscitation efforts until transfer of care at the hospital:

1. Scene is unsafe for providers to remain at.
2. Patient is < 18 years of age.
3. Patient is known or suspected to be >= 20 weeks pregnant. If there is doubt about gestational age, transport the patient.
4. Hypothermia is thought to be the cause of the patient’s arrest.

If the above conditions are not met, initiate high quality CPR and attempt to stay on scene for at least 20 minutes before requesting termination of resuscitation. (See below for traumatic arrest patients.)

A Medical Control physician must grant permission before resuscitation is terminated.

All of the following conditions must be met to consider “Termination of Resuscitation”:

1. Pulseless and apneic prior to EMS arrival, the arrest was not witnessed by EMS.
2. >20 minutes of high quality CPR, with minimal interruptions in chest compressions, and ACLS care was performed. Time starts when ALS provider care is initiated.
3. Successful placement of an endotracheal tube or supraglottic airway (i.e. King Airway device) confirmed by approved methods (preferably continuous ETCO₂).
5. Patient was not in a perfusing rhythm and did not experience return of spontaneous circulation (ROSC) at any time.
6. Patient displays no signs of neurological function.
If ALL of the above conditions are met, contact Medical Control for permission to terminate resuscitation.

If this is a traumatic arrest patient, contact a Medical Control Physician immediately at a level one trauma center (the Traumatic Cardiac Arrest Protocol directs that traumatic cardiac arrest patients be transported to trauma centers).

If Termination IS NOT GRANTED:

1. Unless Medical Control advises immediate transport, remain on scene to continue high quality CPR and ACLS care on the non-perfusing rhythm for 10 more minutes and clearly inform Medical Control that you are doing so.

2. If the conditions for termination of resuscitation are still met, re-contact Medical control to request termination.

3. If Medical Control refuses termination a second time, transport patient to the closest ED while continuing resuscitation efforts.

4. Document all conversations with Medical Control.

If Termination IS GRANTED:

1. Stop resuscitation and confirm death.

2. PRONOUNCEMENT OF DEATH: Confirm the facility and name of the Medical Control Physician issuing the order to terminate resuscitation efforts. Inform the Medical Control Physician that the patient will be pronounced dead. Confirm the correct spelling of the physician’s first and last name and hospital facility. Wording in the following format must be entered into the EPCR: “The patient was pronounced dead on date at time by physician first and last name from hospital name.”

3. Do not remove any personal property (e.g. jewelry) or medical devices from the body for any reason. This includes any devices from procedures you have performed, e.g. endotracheal tube, IV/IO.

4. If Termination of Resuscitation occurs at a licensed Health Care Facility (i.e. Nursing Home) the facility staff shall handle the death notification and law enforcement should not be contacted by EMS unless the death is traumatic or the result of a possible crime. If Termination of Resuscitation occurs outside of a licensed Health Care Facility, immediately notify law enforcement and remain on the scene until they arrive to take custody of the body. Document badge number of the reporting law enforcement officer. If this occurs in a transport unit, remain in place and wait for law enforcement as above.
Dealing with family and loved ones:

1. Briefly describe the circumstances leading to the death. Avoid euphemisms such as “passed on” or “no longer with us.” Instead use the terms “death,” “dying” or “dead.”

2. Allow time for questions/discussion and for the shock to be absorbed. Make eye contact and consider sharing your feelings. Use phrases such as “you have our sincere sympathy.”

3. Allow the family to see the patient if they wish. Explain that medical equipment is still attached to the patient prior to the viewing.
This protocol addresses when field resuscitation should not be initiated. Utilize sound judgment and assessment skills in determining if patients meet the criteria to be pronounced dead on arrival (PDOA). If a patient meets PDOA criteria, law enforcement officials (MPD, USPP, etc.) shall be requested to the scene to investigate and assume responsibility for the deceased person. Complete all necessary documentation and obtain the Law Enforcement Officer's name and badge number on scene.

ALL PROVIDER LEVELS

1. Criteria for determining a patient should be pronounced dead on arrival (PDOA) shall include ALL of the following Primary Criteria and AT LEAST ONE of the following Secondary Criteria:

2. Primary Criteria (ALL must be met)
   - pulseless
   - apneic
   - no signs of life (such as spontaneous movement or pupillary response)

3. Secondary Criteria (AT LEAST ONE must be met)
   - Rigor Mortis.
   - Dependent Lividity.
   - Decomposition.
   - Incineration.
   - Submersion ≥24 hours.
   - Valid out-of-hospital DNR order is present.
   - A valid licensed physician, on scene orders that resuscitation not be attempted.

   - Traumatic injuries incompatible with life, such as decapitation or hemicoarpectomy (the body below the lumbar spine is transected).

4. Patients in whom all Primary Criteria is met and the only Secondary Criteria met is "traumatic injuries incompatible with life:" Rapid evaluation of the trauma patient and a decision about resuscitative measures is important. If the injury is decapitation or the body is transected in half, resuscitation can be withheld in all patients (including pediatric patients < 18 years old and pregnant patients suspected to be greater than or equal to 20 weeks gestation) without any further interventions and the patient can be PDOA. Traumatic Arrests without trauma that is incompatible with life (described above) can survive. Follow the guidelines below:
(a) **Sufficient system resources:** If the injury is not decapitation or the body is transected in half, the injured patient should be placed on a cardiac monitor if immediately available. If the patient meets all primary criteria AND has no organized electrocardiographic activity (to meet this criteria patients cannot be in Ventricular Fibrillation, Ventricular Tachycardia, Pulseless Electrical Activity), resuscitation can be withheld and the patient can be PDOA. If monitor not immediately available do not delay resuscitation and consider immediate transport. For pediatric patients 18 years < years old and pregnant patients suspected to be greater than or equal to 20 weeks gestation, do not delay resuscitation and immediately transport even if there is no organized electrical activity. Follow “Trauma in Pregnancy” protocol.

(b) **Insufficient system resources:** If this is a mass casualty incident with multiple victims and insufficient medical resources in the EMS system preclude initiating resuscitative measures, resuscitation can be withheld and mass casualty protocols should be followed.

5. When the patient meets PDOA criteria as defined above, EMS personnel are not required to continue resuscitation efforts initiated by others. This includes bystander or health care facility CPR.

**PRONOUNCEMENT OF DEATH FOR PDOA PATIENT:**

Online Medical Control Physicians should NOT be used as the pronouncing physician for PDOA patients.

The current DC Fire and EMS Medical Director must be listed on the EPCR as the pronouncing physician. The time the EMS provider confirmed that the patient was dead should be listed as the time of death. Wording in the following format must be entered into the EPCR: “The patient was pronounced dead on date at time by first and last name of DC Fire and EMS Medical Director by standing order.”
Any provider who is unwilling or unable to comply with a comfort care order for religious or moral reasons shall immediately notify their EMS employer in writing. Providers shall not be found to have committed an unprofessional act or to have violated any provision of the Emergency Medical Services Non-Resuscitation Procedures Law of 2001 (D.C. Law 13-224 and DC Code 7-651.01-15) because the provider resuscitates a patient.

I. Comfort Care Order

1. The Comfort Care Form is a distinctive form, sequentially numbered and printed on security paper.
2. The Comfort Care bracelet or necklace shall be made of metal.
   a. A plastic temporary bracelet and necklace may be used until the metal bracelet or necklace is received.
3. The Comfort Care Order shall include:
   a. A statement describing the specific medical or terminal condition of the patient, and the circumstances under which the patient shall not be resuscitated.
   b. The name of the patient and an ID number.
   c. The patient’s signature (if not incapacitated).
   d. Signed and dated by the attending physician of the patient.
   e. Attending physician’s license number and phone number.
   f. Name, signature and social security number of any authorized decision maker or surrogate.
   g. An engraving of the Comfort Care Order Number.

II. Revocation of the Comfort Care Order

1. The Comfort Care Order may be revoked at any time by the patient or authorized decision maker/surrogate by:
   a. Removing, cutting, destroying, defacing or discarding the Comfort Care bracelet or necklace.
   b. Directing another person to remove, cut, destroy, deface, or discard the Comfort Care bracelet or necklace in the presence of the patient or authorized decision maker/surrogate.
   c. Communicating directly to EMS providers the patient’s or authorized decision maker/surrogate’s intent to revoke the Comfort Care Order.
III. Decision to Withhold Resuscitation

1. Inspect the Comfort Care Order bracelet or necklace to see if it is intact or has been defaced. If the Order is intact, cease and withhold all resuscitation efforts.

2. If resuscitation has been initiated, order all efforts to cease after validating the CCO.

3. If resuscitation is withheld, document the presence of a DNR and the DNR bracelet tracking number on the PCR. If possible secure a copy of the DNR order.

4. Ensure the current emergency is related to the underlying terminal condition. If it is not, disregard the DNR-CCO and provide resuscitative efforts.
   a. Ex: Patient has a DNR-CCO for cancer, but is choking on food. In this case the DNR-CCO does not apply.

IV. Decision to Resuscitate

1. Resuscitate the patient if:
   a. The DNR-CCO is intact and not defaced, but the patient or authorized decision maker/surrogate orally requests that the patient be resuscitated.
   b. The DNR-CCO is not intact or has been defaced.
   c. If there is any doubt as to whether or not the DNR-CCO is intact or has been defaced.
   d. If the patient has attempted suicide, or is the victim of a homicide.

2. Notify the EMS Supervisor after the incident of any problems encountered.

V. Comfort Care Measures

1. The following interventions may be provided to a patient who is wearing a DNR-CCO that is intact and has not been defaced to provide comfort of care or alleviate pain:
   a. Clear the Airway
      i. Exclude artificial ventilation or airway adjuncts
   b. Suction as needed
   c. Provide oxygen
d. Administer pain medication (may start an IV for analgesia)

e. Control bleeding

f. Make comfort adjustments

VI. Reciprocity

1. All providers shall recognize a Comfort Care bracelet, necklace, or similar identifier issued by Maryland and Virginia as if issued in accordance with the Emergency Medical Services Non-Resuscitation Procedures Law of 2001 (D.C. Law 13-224 and DC Code 7-651.01-15) and shall act on the identifier in accordance with this act.

VII. Liability

1. No licensed health care professional, EMS personnel, health care facility, government entity, or government employee shall be subject to criminal or civil liability, or be found to have committed an unprofessional act because the person, in good faith, resuscitates, withholds or withdraws resuscitation, or participates in resuscitating or withholding or withdrawing resuscitation in accordance with the Emergency Medical Services Non-Resuscitation Procedures Law of 2001 (D.C. Law 13-224 and DC Code 7-651.01-15).

2. Any person who falsifies or forges a Comfort Care Order, willfully conceals or withholds personal knowledge of the revocation of a Comfort Care Order contrary to the wishes of a person who has executed a Comfort Care Order, or places a Comfort Care bracelet or necklace on a person for whom a Comfort Care Order has not been executed in accordance with the Emergency Medical Services Non-Resuscitation Procedures Law of 2001 (D.C. Law 13-224 and DC Code 7-651.01-15), and who, because of the forgery, concealment, withholding, or placement, directly causes resuscitation to be withheld or withdrawn from a person and the death of the person to be hastened shall be subject to prosecution for unlawful homicide pursuant to DCCode§22-2201.
Children with special health care needs refers to children who have or are suspected of having a serious or chronic condition of: physical, developmental, behavioral, or emotional health that requires health-related services of a type or amount beyond that generally required by children. Technology-assisted children refer to those children who depend on medical devices to support bodily function. In all cases utilize the caregiver to assist or perform necessary troubleshooting measures because they are often trained in performing those functions.

**Emergencies in Children with Ventilators**

### ALL PROVIDER LEVELS

1. Children on mechanical ventilation may exhibit sudden or gradual deterioration, cardiac arrest, increased oxygen demand, increased respiratory rate, retractions, and change in mental status.

2. Examine the child quickly for possible causes of distress which may be easily correctable (e.g. detached oxygen source) the caretakers will often have done this but double check.

3. Medications the child is presently taking may be the cause of deterioration.

4. Try to establish the child’s baseline; the child may not look age appropriate.

5. If on a ventilator, remove the child from the ventilator and manually ventilate the child with a secure oxygen source; if the child improves there may be a problem with the ventilator or oxygen source.

6. Suction the child as accumulation of debris is a common cause of obstruction; if the tracheostomy tube has a cannula, remove it; if it is the cause of obstruction, there should be immediate improvement.

7. If still no improvement provide immediate transport to the closest appropriate facility.

8. Initiate appropriate resuscitation as needed.

### ADVANCED LIFE SUPPORT PROVIDERS

1. If there is no improvement the tube should be removed; attempt bag-valve mask ventilation; if another tube is available insert into the stoma and resume ventilation (a standard endotracheal tube may be used or the used tracheostomy tube after being cleaned).

2. If there is no improvement, immediately transport to the nearest appropriate medical facility and initiate appropriate resuscitation as needed.
Emergencies in Children with In-Dwelling Catheters

ALL PROVIDER LEVELS

1. Children may have central lines in several locations and some complications are due to location; some central lines are located under the skin and can be felt but not seen.

2. The most common emergencies with central lines include blockage of the line, complete or partial accidental removal, or complete or partial laceration of the line.

3. Always evaluate a child for cardiovascular stability, as some complications may be life threatening.

4. Children may be experiencing complications from their underlying medical condition; ask caretakers about the child’s condition.

5. If the line is blocked, do not attempt to force the catheter open. Transport to a facility capable of managing central lines.

6. For complete removal, do not attempt to reinsert; transport to the nearest emergency department.

7. Infections are a common complication; don’t try to push a line back in, even if it is only slightly out.

8. For complete removal, maintain pressure on site until bleeding has stopped; transport child and catheter to nearest emergency department (part of the catheter may have broken off).

9. Always bring the line with you to the hospital.

10. For partial or complete laceration of the line, clamp proximally to laceration and transport child and catheter to the closest appropriate facility.

11. For children with sudden deterioration begin resuscitation and transport to the closest appropriate facility (child may have pneumothorax or internal bleeding).
Emergencies in Children with Gastrostomy Tubes

ALL PROVIDER LEVELS

1. Children with gastrostomy tubes may have complications of obstruction or dislodgment; obstruction is usually not an emergency but the child may require transport; dislodgment is not life threatening but the tube should be replaced as soon as possible. Both conditions are easily recognized.

2. The child should be examined for any other possible problems.

3. Children who have problems with their tubes may have problems with regurgitation or aspiration.

4. Be aware of and address any other possible problems from their underlying medical condition.

5. Transport the child and the tube to the nearest facility capable of replacing the tube; this is not an emergency transport.
   - Do not attempt to replace the tube; it is not as easy as it seems and there may be other complications.
All Fire/EMS personnel are required to report cases of suspected child / elder abuse or neglect to the Police agency responsible for the area in which the call occurred or the DC Child and family Services Agency (24 hour hotline at 202-671-7233). Do not initiate the report in front of the patient, parent, or caregiver. **DO NOT CONFRONT OR BECOME HOSTILE TO THE PARENT OR CAREGIVER.**

### ALL PROVIDER LEVELS

#### Physical Assessment Suggestive of Abuse:

1. Fractures in children under 2 years of age.
2. Repeated fractures not explained well.
3. Injuries in various stages of healing.
4. Frequent injuries.
5. Bruises or burns in patterns (e.g. iron or cigarette burns, cord marks, bite or pinch marks, and bruised to head, neck, back or buttocks).
6. Widespread injuries over the body.
7. Obvious physical neglect (malnutrition, lack of cleanliness).
8. Inappropriate dress (e.g. very little clothes in winter).

#### History Suggestive of Abuse:

1. The history does not match with the nature or severity of injury.
2. The parents’ and/or caregivers’ account is vague or changes.
3. The “accident” is beyond the capabilities of the patient (e.g. a 12 month old that burns self by turning on the hot water in the bath tub).
4. There is a delay in seeking help.
5. The parent and/or caregiver may be inappropriately unconcerned about the patient’s injury.

#### Characteristics of the Abused:

1. If less than 5 years old, is likely to be passive.
2. If over 5 years of age, is likely to be aggressive.
3. Does not look to the abuser for support, comfort, or reassurance.
4. May cry without any expectation of receiving help.
5. May be quiet and withdrawn.
6. May be fearful of the abuser.
Characteristics of the Abuser:
1. Crosses all religious, ethnic, occupational, educational, and socioeconomic boundaries.
2. May resent or reject the child.
3. May have feelings of worthlessness about self or about the child.
4. May have unrealistic expectations of what the child is capable of doing.
5. May be very critical of the child.
6. Oftentimes the abuser is repeating what was learned as a child (the abuser was more than likely abused as a child).
7. May be overly defensive rather than concerned.

Presentation:
The patient may present with patterned burns or injuries suggesting intentional infliction, such as, injuries in varying stages of healing, injuries scattered over multiple areas of the body, fractures or injuries inconsistent with stated cause of injury. The patient, parent, or caregiver may respond inappropriately to the situation. Malnutrition or extreme lack of cleanliness of the patient or environment may indicate neglect. Signs of increased intracranial pressure (bulging fontanel and altered mental status in an infant may suggest Shaken Baby Syndrome) may also be seen.

Patient Management:
1. Treat and stabilize injuries according to the appropriate Patient Care Protocol(s).
2. If sexual abuse is suspected, document the reasons for concern.
3. Document the following information on the Patient Care Report (PCR):
   - All verbatim statements made by the patient, the parent or caregiver(s) shall be placed in quotation marks, including statements about how the injury may have occurred.
   - Any abnormal behavior of the patient, parent(s), or caregiver(s) must be documented.
   - Document the condition of the environment and other residents that are present.
   - Document the time law enforcement was notified and the name and badge number of the officer completing the report.
   - Document the name of the hospital personnel that received the patient and any statements made.
   - Document the level / type of interaction between the patient and the caregiver(s).
Type and Use of Personal Protective Equipment

➤ Gloves - For any patient contact, and when cleaning/disinfecting contaminated equipment. Puncture resistant gloves will be worn in situations where sharp or rough edges are likely to be encountered, i.e., auto extrication.

➤ Face Mask & Eye Protection - Facial protection will be used in any situation where splash contact with the face is possible. This protection may be afforded by using both a face mask and eye protection, or by using a full-face shield. When treating a patient with a suspected or known airborne transmissible disease, N95 Respirators should be used. For respiratory illnesses (TB, SARS) it is beneficial to mask the patient with a surgical mask.

➤ Coverall/liquid resistant gowns - Designed to protect clothing from splashes, gowns may interfere with, or present a hazard to, the member in some circumstances. Structural firefighting gear also protects clothing from splashes and is preferable in fire, rescue, or vehicle extrication activities.

➤ Shoe/Head Coverings - Fluid barrier protection will be used if suspected contamination is possible.

General Precautions against disease

➤ If it's wet, it's infectious - use gloves.

➤ If it could splash onto your face, use eye shields and mask or full face shield.

➤ If it's airborne, mask yourself with N95 Respirator and the patient with surgical mask.

➤ If it can splash on your clothes, use a gown or structural firefighting gear.

➤ If it could splash on your head or feet, use appropriate barrier protection.

Post Exposure Management

➤ Provide first aid.

➤ Secure area to prevent further contamination. (Stop bleeding with direct pressure).

➤ Remove contaminated clothing and flush.

➤ Wash the contaminated area well with soap and water, or waterless hand cleanser, and apply and antiseptic.

➤ If the eyes, nose, or mouth are involved, flush them well with large amounts of water.
➢ Notification and relief of duty. The worker's supervisor should be immediately notified if a worker experiences an exposure involving potentially infectious source material. The supervisor should determine if the worker needs to be relieved of duty.

➢ Report the Exposure. The worker or immediate supervisor should promptly complete an Exposure Report appropriate for the agency, and submit it to the designated Infection Control Officer.

➢ Seek Medical Attention, Counseling, Consent and Testing per established policies and procedures.
Local law enforcement agencies have implemented the use of an Electrical Control Device (ECD) into their response to control a violent, potentially violent, or actively resisting patient. The Electrical Control Device uses a compressed nitrogen gas canister to discharge from a distance two electrode-tipped barbs. This protocol addresses under which conditions DC FEMS providers should remove these ECD darts. FEMS providers should not ask police to remove these darts.

All Provider Levels

4. Consider scene safety and measures to protect oneself and other rescuers from a potentially violent patient in situations in which an ECD has been used.

5. The patient will continue to be in police custody during your assessment and this procedure. If indicated, ask the police to restrain or secure the patient.

6. Medically assess and treat the patient for any emergent condition (e.g., excited delirium) during this time.

7. Wear PPE with gloves and eye protection - consider mask and gown if obvious blood is present.

8. Have police remove TASER cartridge from gun before removing the dart. Do not cut the wires.

9. Grasp the dart itself firmly with one hand and pull to remove one dart at a time. Place the other hand on the patient’s skin at least four inches away from the puncture. Do not scrape yourself with the dart’s barb upon removal. Do not remove by pulling on the wire. Carefully observe the end of the dart to confirm that the barb is present. If barb is not visible, the dart has not been fully removed. (See below.) Return the dart, wires, etc., to the police.

10. DO NOT REMOVE darts and instead transport to the hospital for removal if any of the following apply:
   o Patient is not under control.
   o Head, eye, face, neck, breast, hands, feet, genitalia or groin is involved.

NOTE: Darts are a sharp hazard potentially contaminated with blood-borne pathogens. Treat darts as a contaminated needle and place in the ECD cartridge and return to the police.

11. Reassess the patient. Consider underlying causes of the patient’s agitated behavior, e.g., drug or alcohol intoxication, trauma, psychiatric disease, or excited delirium.

13. Fully document the care rendered even when the patient is not transported by FEMS. Note the location on the body of each dart removed in the EPCR.

**Patient Disposition:**

1. Transport to a hospital with law enforcement support if:
   
   a. Patient requests hospital transport.
   
   b. Dart was not fully removed.
   
   c. Further medical care or evaluation is indicated including but not limited to the following situations:
      
      - Head, eye, face, neck, breast, hands, feet, genitalia, or groin were the site of dart puncture,
      - Uncontrolled bleeding,
      - Further wound care needed,
      - Diminished level of consciousness,
      - Patient is pregnant, and
      - Patient complains of palpitations or has an irregular heart rhythm.

2. If patient does not need transport to the hospital:
   
   a. Advise the patient and law enforcement to follow-up on updating tetanus vaccination as needed.
   
   b. Release the patient to law enforcement.
Purpose:
To provide structure to the triage and treatment of persons involved in a multiple or mass casualty incident or a multiple patient scene. This guideline works in conjunction with EMS Operations Bulletin 1, Mass Casualty Incidents, which defines the other processes at an MCI outside patient treatment and triage. Consider contacting the DC Hospital Coalition Notification Center early in the incident for MCI’s at (877) 323-4262 or via TAC Channel 0H-3 NOTIFY.

Responsibility:
All personnel are responsible for the information set forth in the following procedures. During an MCI primary care givers will be overwhelmed and all additional personnel will be expected to assist in the triage and treatment of patients.

Definitions:
A multiple or mass casualty incident is an emergency scene that creates a number of patients sufficient to significantly overwhelm available resources.

Multiple Casualty Incident: <9 patients (does not need to be declared)
Mass Casualty Incident: 9 or more patients (needs to be declared)

Triage: The process of sorting and categorizing patients based on the severity of their symptoms. Patients will be categorized into the five following groups. Each group has a color designation to assist in the rapid sorting of triaged patients.

Procedure:

<table>
<thead>
<tr>
<th>DCFEMS Immediate Lifesaving Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>➤ Control of major hemorrhage</td>
</tr>
<tr>
<td>➤ Opening the airway (for pediatric patient provide two rescue breaths)</td>
</tr>
<tr>
<td>➤ Application of occlusive dressings (i.e., chest seals)</td>
</tr>
<tr>
<td>➤ Chest decompression</td>
</tr>
<tr>
<td>➤ Auto-injector antidotes</td>
</tr>
</tbody>
</table>
1. Patients will be categorized into one of the five categories.

<table>
<thead>
<tr>
<th>RED</th>
<th>Critically injured patients who must be transported as soon as resources allow.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Immediate)</td>
<td></td>
</tr>
<tr>
<td>YELLOW</td>
<td>Injured patients who must be evaluated and treated quickly due to the risk of deterioration but may not need immediate transport.</td>
</tr>
<tr>
<td>(Delayed)</td>
<td></td>
</tr>
<tr>
<td>GREEN</td>
<td>Those patients with minor injuries who do not need immediate treatment or transport. “Walking wounded” should be encouraged to congregate in a designated location/ casualty collection point.</td>
</tr>
<tr>
<td>(Minor)</td>
<td></td>
</tr>
<tr>
<td>GRAY</td>
<td>Patients who not deceased but are unlikely to survive given the available resources. Reevaluated/re-categorized as resources become available.</td>
</tr>
<tr>
<td>(Expectant)</td>
<td></td>
</tr>
<tr>
<td>BLACK</td>
<td>Patients who are not breathing. Life-saving interventions can be considered, e.g., patients with no respiratory effort should be triaged in the black (deceased) category following an attempt to open the airway. Patients who are categorized as black shall be left in place as found.</td>
</tr>
<tr>
<td>(Deceased)</td>
<td></td>
</tr>
</tbody>
</table>

2. After initial triage and lifesaving interventions, attach a colored ribbon (if available) that correlates to the appropriate triage category of the patient.

3. Reevaluation of the patient and further interventions will take place after all patients have been triaged or more resources become available. The process of reevaluation and re-categorization will be on-going.

4. The application of Disaster Tags to patients can be attempted but is secondary to the above actions.
SALT Mass Casualty Triage Algorithm (Sort, Assess, Lifesaving Interventions, and Treatment/Transport)

**SALT Mass Casualty Triage**

**Step 1 – Sort: Global Sorting**
- Walk
  - Assess 3rd
- Wave / Purposeful Movement
  - Assess 2nd
- Still / Obvious Life Threat
  - Assess 1st

**Step 2 – Assess: Individual Assessment**

**LSI:**
- Control major hemorrhage
- Open airway (if child consider 2 rescue breaths)
- Chest decompression
- Auto injector antidotes

**Breathing:**
- Yes
  - Obeys commands or makes purposeful movements?
    - Yes: Minor Injuries only?
      - Yes: Minimal
      - No: Delayed
    - No: Likely to survive given current resources
      - Yes: Immediate
      - No: Expectant
- No: Dead

**Effective Date:** April 5, 2019  
**Revision Date:** April 1, 2019
Organophosphate, Pesticide and Nerve Agent Poisoning

Organophosphate and Carbamate Poisoning: Organophosphates and carbamates are widely used commercially and by consumers as insecticides for pets, homes, and businesses. These chemicals are among the most toxic currently used in pesticides. Both classes of compounds have similar pharmacological actions, in that they both inhibit the effects of acetylcholinesterase, which is an enzyme that degrades acetylcholine at nerve terminals. When acetylcholinesterase is inhibited, acetylcholine accumulates at the synapses, resulting in the characteristic S/S of organophosphate and carbamate poisoning.

Examples of Organophosphates and Carbamates:


The antidote kits are to be used in incidents of exposure to a nerve agent or organophosphate material. Auto-injectors contain Atropine Sulfate and Pralidoxime Chloride. Specific criteria will trigger this medical protocol.

➢ The decision to utilize the antidote should be based on clinical evaluation.

➢ Use of the antidote kit is to be based on signs and symptoms of the patient. Suspicion or the simple presence of a nerve agent is not sufficient reason to administer these medications.

➢ Use of antidotes will not protect responders from anticipated exposures.

Symptoms of a Nerve Agent, Organophosphate, and Carbamate Poisoning:

When a nerve agent is present, it interferes with the normal instructions of chemical transmitters that direct the muscle or gland to return to an unstimulated, relaxed state. The action of toxic nerve agents is to overstimulate the nerve endings and central nervous system. Overstimulation of the nervous system causes muscles and certain glands to overreact and cause predictable symptoms. The symptoms of the poisoned patient have been characterized by an acronym:

<table>
<thead>
<tr>
<th>M</th>
<th>S</th>
<th>L</th>
<th>U</th>
<th>D</th>
<th>G</th>
<th>E</th>
<th>M</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>miosis (pinpoint pupils)</td>
<td>salivation (excessive drooling)</td>
<td>lacrimation (tearing)</td>
<td>urination (lose control of urine)</td>
<td>defecation / diarrhea</td>
<td>GI upset (cramps)</td>
<td>emesis (vomiting)</td>
<td>muscle (twitching, spasm, &quot;bag of worms&quot;)</td>
<td>convulsion</td>
</tr>
</tbody>
</table>

Mild: M → S → L
Severe: U → D → G → E → M → C

Effective Date: April 15, 2015
Revision Date: March 31, 2015
RESPIRATION - difficulty breathing / distress (short of breath, wheezing).

AGITATION + CNS SIGNS - confusion, agitation, seizures, coma.

**ALL PROVIDER LEVELS**

1. Evacuation and decontamination procedures should be undertaken as soon as possible. Providers should be keenly aware of the possibility of cross-contamination and appropriate PPE should be employed.

2. Support the airway and provide supplemental Oxygen per the Airway Maintenance and Supplemental Oxygen protocol.
   - Providers should be prepared for the need to suction copious volumes of secretions.
   - If indicated, the King Airway may be utilized in the HAZ MAT "Hot Zone" for this particular clinical pathway and type of event.

3. Administer pre-packaged Nerve Agent Antidote Kits (NAAK) every 10-15 minutes, to a maximum of a total of three doses of auto-injectors. Repeat dosages will be administered until signs and symptoms show signs of improvement. Current products available for use include:
   a. **DouDote™ Auto-injector via IM:** the DouDote™ Auto-injector contains 2 mg of Atropine and 600 mg of Pralidoxime Chloride (2-PAM Chloride) combined in one auto-injector

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>One (1) DouDote™ Auto-injector IM</td>
<td>Patients weighing 12 kg or greater:</td>
</tr>
<tr>
<td></td>
<td>Administer one (1) DouDote™ Auto-Injector IM every 20 minutes.</td>
</tr>
<tr>
<td></td>
<td>See Special Pediatric Instructions noted below</td>
</tr>
</tbody>
</table>

   b. **Mark 1 NAAK consisting of two components:**
      i. Atropine 2 mg auto-injectors IM
      ii. 2-PAM Chloride 600 mg I
c. **CHEMPACK stores:**
   
   I. Atropine 0.5 mg auto-injectors IM
   II. Atropine 1 mg auto-injectors IM
   III. Multidose vials of 2-PAM Chloride 1 gram Injectable
   IV. Multidose vials of Atropine Injectable

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
</table>
| **Atropine** | **Atropine**  
| (every 20 minutes) | (every 20 minutes) |
| **Ages less than 3 y.o.** | **Ages less than 3 y.o.** |
| Administer one (1) Atropine 0.5 mg IM via AtroPen Auto-injector | Administer one (1) Atropine 0.5 mg IM via AtroPen Auto-injector |
| **Ages 3-7 y.o.** | **Ages 3-7 y.o.** |
| Administer one (1) Atropine 1 mg IM via AtroPen Auto-injector | Administer one (1) Atropine 1 mg IM via AtroPen Auto-injector |
| **Ages 8 y.o. or greater** | **Ages 8 y.o. or greater** |
| Administer one (1) Atropine 2 mg IM via Auto-injector | Administer one (1) Atropine 2 mg IM via Auto-injector |

**See Special Pediatric Instructions noted below**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2-PAM Chloride 600 mg IM via Auto-injector</strong></td>
<td><strong>2-PAM Chloride 600 mg IM via Auto-injector</strong></td>
</tr>
<tr>
<td><strong>Ages 3 y.o. or greater</strong></td>
<td><strong>Ages 3 y.o. or greater</strong></td>
</tr>
<tr>
<td>Administer one (1) dose every 10 minutes</td>
<td>Administer one (1) dose every 20 minutes</td>
</tr>
<tr>
<td><strong>See Special Pediatric Instructions noted below</strong></td>
<td><strong>See Special Pediatric Instructions noted below</strong></td>
</tr>
</tbody>
</table>

**Special Pediatric Instructions:**

If a WDM MCI event occurs and pediatric AtroPen auto-injectors are not readily available from the CHEMPACK cache then providers shall administer either one (1) **DouDote™ auto-injector** or one (1) **complete Mark 1 kit** to any pediatric patient who is displaying moderate/severe signs of nerve agent or organophosphate poisoning. Repeat dose every 20 minutes.
4. Seizure and fall precautions should be utilized.

### ADVANCED LIFE SUPPORT PROVIDERS

1. Administer **Diazepam** or **Midazolam (Versed)** if the patient presents with any of the following:
   - seizure activity
   - unconsciousness
   - any form of visible muscle fasciculation
   - Any patient that has had a total of three DouDotes or Mark 1NAAKs administered.

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diazepam</strong></td>
<td><strong>Diazepam</strong></td>
</tr>
<tr>
<td>10 mg IM via Auto-injector</td>
<td>0.3 mg/kg IV/IO or IM over 2-3 minutes</td>
</tr>
<tr>
<td></td>
<td>Maximum single dose of 10 mg</td>
</tr>
</tbody>
</table>

**or**

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Midazolam</strong></td>
<td><strong>Midazolam</strong></td>
</tr>
<tr>
<td><strong>Intranasal</strong> dose: 10 mg IN (5 mg each nostril). Contact Medical Control for additional doses</td>
<td><strong>Intranasal</strong> 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</td>
</tr>
<tr>
<td>OR</td>
<td>OR</td>
</tr>
<tr>
<td>Intramuscular: 5 or 10 mg IM</td>
<td>Intravenous: 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>

**Special: Mass Casualty Incident Exception**

When working under the direct supervision of an ALS provider, BLS providers may administer **Diazepam 10 mg IM via auto-injector**.

2. Establish an IV of Normal Saline KVO or Saline Lock.
3. If auto-injectors are not utilized or all three auto-injector doses have been used, administer **Atropine 1-2 mg IV/IO every 10 minutes** as needed for the management of excessive secretions, pulmonary edema, hypotension, bradycardia, and ineffective ventilations.

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atropine 1-2 mg IV/IO or IM if using an Atropine auto-injector</td>
<td>Atropine 0.05 mg/kg IV/IO every 20 minutes</td>
</tr>
</tbody>
</table>

4. **Ondansetron (Zofran)** may be used for the relief of nausea and 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>
</tr>
</tbody>
</table>

**MEDICAL CONTROL OPTIONS**

1. Additional doses of **DouDote™ Auto-injectors** or the **2-Pam Auto-injectors** from the Mark 1 kit. (Use of additional Atropine is a standing order).

2. Additional administration of **Diazepam IM** or **Midazolam (Versed)** IN/IO/IM/IN.
### Mild Exposure:

<table>
<thead>
<tr>
<th>Signs/Symptoms</th>
<th>Mark 1 Kit (Atropine/2-Pam)</th>
<th>DuoDote</th>
<th>Diazepam or Midazolam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blurred vision</td>
<td>One (1) Auto-Injector set:</td>
<td>1 DuoDote™ injection into the mid-outer thigh if the patient experiences two or more MILD symptoms of nerve gas or insecticide exposure</td>
<td>Not indicated with mild s/sx.</td>
</tr>
<tr>
<td>Miosis</td>
<td>o Atropine 2mg IM</td>
<td>Wait 10 to 15 minutes for DuoDote™ to take effect. If, after 10 to 15 minutes, the patient does not develop any SEVERE symptoms, no additional DuoDote™ injections are recommended.</td>
<td></td>
</tr>
<tr>
<td>Teary eyed</td>
<td>o 2-Pam Chloride 600 mg IM</td>
<td>Monitor for signs/symptoms every 5 minutes. Repeat dose at 10 minute intervals if no noted improvement or s/sx worsen.</td>
<td></td>
</tr>
<tr>
<td>Chest tightness</td>
<td>Monitor for signs/symptoms every 5 minutes. Repeat dose at 10 minute intervals if no noted improvement or s/sx worsen.</td>
<td>Atropine, as needed every 10-15 minutes.</td>
<td></td>
</tr>
<tr>
<td>Unexplained Wheezing</td>
<td></td>
<td>Atropine, as needed every 10-15 minutes.</td>
<td></td>
</tr>
<tr>
<td>Tremors</td>
<td></td>
<td>Atropine, as needed every 10-15 minutes.</td>
<td></td>
</tr>
<tr>
<td>Acute onset of stomach cramps</td>
<td></td>
<td>Atropine, as needed every 10-15 minutes.</td>
<td></td>
</tr>
<tr>
<td>Nausea</td>
<td></td>
<td>Atropine, as needed every 10-15 minutes.</td>
<td></td>
</tr>
<tr>
<td>Tachycardia</td>
<td></td>
<td>Atropine, as needed every 10-15 minutes.</td>
<td></td>
</tr>
<tr>
<td>Bradycardia</td>
<td></td>
<td>Atropine, as needed every 10-15 minutes.</td>
<td></td>
</tr>
</tbody>
</table>

### Moderate/Severe Exposure:

<table>
<thead>
<tr>
<th>Signs/Symptoms</th>
<th>Mark 1 Kit (Atropine/2-Pam)</th>
<th>DuoDote</th>
<th>Diazepam or Midazolam</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLUDGEM</td>
<td>3 Auto-Injectors Atropine (6 mg)/3 Auto-Injectors 2-Pam (1.8 Grams)</td>
<td>Three (3) DuoDote injections into the patient's mid-outer thigh in rapid succession.</td>
<td>One (1) Auto injector, Diazepam 10 mg IM or Midazolam 10 mg IM/IN or 2-5 mg IV/IO, max 10 mg to treat convulsions if suspected in the unconscious individual.</td>
</tr>
<tr>
<td>Severe respiratory distress</td>
<td>Monitor every 5 minutes.</td>
<td>No more than 3 doses of DuoDote should be administered.</td>
<td>The effects of nerve agents and some insecticides can mask the motor signs of a seizure.</td>
</tr>
<tr>
<td>AMS</td>
<td>Atropine IM every 3 - 5 minutes, as needed,</td>
<td>Atropine 1 - 2 mg IV/IO for management of continued s/sx.</td>
<td></td>
</tr>
<tr>
<td>Respiratory arrest</td>
<td></td>
<td>Medical Control may order additional doses of NAAKS.</td>
<td></td>
</tr>
<tr>
<td>Seizures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copious airway secretions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Nerve Agent Specific Triage:

<table>
<thead>
<tr>
<th>Level</th>
<th>Effects</th>
<th>Clinical Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate (1)</td>
<td>Unconscious, talking but not walking, moderate to severe effects in two or systems more systems (e.g., respiratory, GI, cardiac arrest, muscular, CNS)</td>
<td>Seizing or postictal, severe respiratory distress, recent cardiac arrest</td>
</tr>
<tr>
<td>Delayed (2)</td>
<td>Recovering from agent exposure or antidote</td>
<td>Diminished secretions, improving respiration.</td>
</tr>
<tr>
<td>Minor (3)</td>
<td>Walking and talking</td>
<td>Pinpoint pupils, runny nose, and mild to moderate difficulty breathing.</td>
</tr>
<tr>
<td>Non-Salvageable (4)</td>
<td>Unconscious</td>
<td>Cardiac/respiratory arrest of long duration.</td>
</tr>
</tbody>
</table>
Anthrax Poisoning

Anthrax is an acute infectious disease caused by the spore-forming bacterium Bacillus Anthracis. The serious forms of human anthrax are inhalation, cutaneous, and intestinal. Direct person-to-person spread of anthrax is extremely unlikely, if it occurs at all. There is no need to immunize or treat contacts of persons ill with anthrax.

- No treatment for household contacts
- No treatment for friends
- No treatment for coworkers, unless they also were exposed to the same source of infection

Provide supportive patient care and decontamination as needed.

Ricin Poisoning

Ricin is a very potent protein toxin made from mash left over after processing castor beans for oil. Ricin is considered a threat as a biological weapon primarily because it is widely available; it is a category B agent/disease with a high fatality. It is water-soluble, odorless, tasteless and not inactivated by heat. Ricin inhibits protein synthesis. It is very toxic to cells. The toxin may be inhaled, ingested, or in some instances directly introduced into the body by injection. It is not transmissible by person to person. Ricin should be particularly suspected when severe pulmonary distress occurs in previously healthy individuals. Signs, symptoms and pathology manifestations of ricin toxicity vary with dose and route of exposure. Symptoms may mimic pneumonia or food poisoning depending on the route of transmission:

- Fever
- Cough/congestion
- Wheezing/shortness of breath
- Nausea/vomiting/diarrhea
- Hypotension (severe cases)
- Pulmonary Edema/Failure (severe cases)

Provide supportive patient care and decontamination as needed.

Acute Radiation Syndrome

During victim prioritization, first responders can use available radiation detection equipment to determine the presence of significant amounts of contamination on an individual. The monitoring equipment may also be used to qualitatively compare the amount of contamination on one victim to the contamination on other victims. This may aid in prioritizing victims for decontamination.
At the post-decontamination monitoring point, first responders may use detection equipment to grossly assess the progress made in decontaminating victims. If operationally feasible, individuals who remain significantly contaminated following decontamination procedures should be subjected to additional decontamination. This will typically involve the victim returning to the contaminant removal/shower station for additional washing. Decontamination efforts should be reevaluated or suspended if contamination levels are not being significantly reduced.

The Environmental Protection Agency (EPA) recommends that no more than two additional decontamination attempts be performed for individuals with significant contamination remaining following the first decontamination attempt. An inability to reduce the measured radiation levels to near-background levels may suggest that the remaining contamination is internal.

Although lukewarm soapy water solution is considered ideal for most radiological decontamination scenarios, its use may not be practical or even recommended in certain cases. Unless soapy water is readily available or easy to make, it may not be practical to use it as a decontaminant. The incident commander should consider using alternative decontaminants or techniques in light of operational constraints.

Following decontamination, if practical, check each victim for remaining contamination, using appropriate meter. If considerable contamination remains on a victim, the victim should return to the shower station for additional washing; however, decontamination efforts for that individual should be reevaluated or suspended if contamination levels are not being significantly reduced. Multiple decontamination attempts are not generally recommended, since they are usually neither practical nor warranted. After decontamination, victims can be released to the clean area for drying with clean towels, redressing with clean replacement clothing or blankets, and medical evaluation. If possible, privacy and modesty should be preserved throughout the decontamination process – from undressing to redressing.

Provide supportive patient care as needed.
District of Columbia
Fire and EMS Protocols
Major Incident Operations

PANDEMIC
INFLUENZA

Pandemic Influenza

There is a continuous stream of information regarding the approaches to an outbreak of severe viral respiratory diseases, especially Pandemic Influenza. This disease outbreak would require significant operational changes in Fire and EMS operations, in conjunction with Public Health programs. There would be a variety of programs that would allow Fire and EMS providers to receive appropriate vaccination, prophylaxis, or treatment as the threat of the disease evolves. Discussion of this topic is beyond the scope of this handbook, and would be accomplished at the time of the event in conjunction with the District’s public health leaders, the Department’s leadership and medical control, and local infectious disease experts.
Clinical Indications:

- Continuous Quantitative Waveform Capnography (ETCO₂) should be used when available with all endotracheal and nasotracheal airways and those with respiratory distress or seizures.
- Continuous Quantitative Waveform Capnography (ETCO₂) should be considered for use on patients treated with CPAP, Epinephrine, Morphine and Midazolam.

Procedure:

1. Attach capnography sensor to a patient or endotracheal tube.
2. Note ETCO₂ level and waveform changes. These should be documented on each respiratory failure, cardiac arrest, or respiratory distress patient.
3. The capnometer should remain in place with the airway and be monitored throughout the pre-hospital care and transport.
4. Any loss of ETCO₂ detection or waveform indicates a potential airway problem and should be corrected.
5. The capnogram should be monitored as procedures are performed to verify or correct the airway problem.
6. In a perfusing patient, end-tidal ETCO₂ levels of 35-45 mmHg are considered normal.
7. The numerical value can aid in assessing hypoventilation (increased ETCO₂), or hyperventilation (decreased ETCO₂) in perfusing patients.
8. Hyperventilation shall be avoided in patients in cardiac arrest or those with head injuries without signs / symptoms of herniation.

Normal Capnogram:
<table>
<thead>
<tr>
<th>END-TIDAL CO₂ WAVEFORM / CHANGES</th>
<th>Normal ETCO₂</th>
<th>Loss of previous waveform with ETCO₂ near zero</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal perfusion</td>
<td>Endotracheal tube disconnected, dislodged, kinked or obstructed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Loss of circulatory function</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Return of spontaneous circulation</td>
</tr>
<tr>
<td></td>
<td>Sudden increase in ETCO₂</td>
<td>Return of spontaneous circulation</td>
</tr>
<tr>
<td></td>
<td>Slow rate with increased ETCO₂</td>
<td>Hypoventilation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If elevated above normal levels, need for increased ventilation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Partial airway obstruction</td>
</tr>
<tr>
<td></td>
<td>Rapid rate with decreased ETCO₂</td>
<td>Effects of hyperventilation</td>
</tr>
<tr>
<td></td>
<td>Cardiac arrest</td>
<td>Attempt to maintain minimum of 10 mmHg</td>
</tr>
<tr>
<td></td>
<td>Asthma</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COPD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Decreasing ETCO2 with loss of plateau.</td>
<td>ET tube cuff leak or deflated cuff</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ET tube in the hypopharynx</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Partial obstruction</td>
</tr>
</tbody>
</table>
Utilization of Carbon Monoxide Oximeter:

- This is a noninvasive instrument used for the detection of capillary carbon monoxyhemoglobin in a patient with a pulse.

Clinical Indications:

- Carbon Monoxide Oximeter should be used on patients with smoke inhalation or inhalation of other hydrocarbon exhaust. Consider use for firefighters during incident rehabilitation.

Procedure:

- Apply finger probe to patient’s finger (preferably the non-dominant ring finger, or another finger with a large clean nail).
- A reading of >12% indicates mild carbon monoxide inhalation.
- A reading of >25% indicates severe carbon monoxide inhalation.

Special Considerations:

- Pediatrics: Not intended for use on patients weighing less than 30 kg.
- Pregnancy: Fetal SpCO may be 10-15% higher than the maternal reading.
- Smokers: Heavy smokers may have a baseline SpCO level up to 10%.
- A misapplied or dislodged sensor will cause inaccurate readings.
- Never use tape to secure the sensor.
- Do not place the sensor on the thumb.
Clinical Indications:
- The CPAP device should be applied to patients when inadequate ventilation is suspected due to pulmonary edema (CHF), COPD, pneumonia or near drowning.
- Patient is ≥15 years of age.

Contraindications:
- Asthma.
- Respiratory Arrest / Apnea.
- Patient has a tracheotomy.
- Active vomiting or upper GI bleeding.
- Patient has a suspected pneumothorax or chest trauma.

Procedure:
1. Ensure adequate oxygen supply to ventilation device.
2. Explain the procedure to the patient.
3. Consider placement of a nasopharyngeal airway.
4. Place the delivery mask over the mouth and nose. Oxygen should be flowing at this point.
5. Secure the mask with provided straps starting with the lower straps until minimal air leak occurs.
6. Titrate device up to 10 cm H₂O in patient’s ≥15 years of age (Consider lower settings for COPD patients at 5 cm H₂O).
8. Encourage the patient to allow forced ventilation to occur. Observe closely for signs of complication. The patient must be breathing for optimal use of the CPAP device.
9. Administer appropriate medications as required (nebulized albuterol for COPD or nitroglycerin for CHF).
10. If the patient begins to deteriorate due to respiratory failure, remove the CPAP device, provide BVM ventilations and assess the need for advanced airway management.
Clinical Indications:

- Adult (4.0 mm) QuickTrach: Any patient >100 pounds (45 kg).
- Pediatric (2.0mm) QuickTrach: Any patient <100 pounds (45 kg) and >2 years (24 months) in age.
- Acute upper airway obstruction, which cannot be relieved using basic airway maneuvers, finger sweep, or endotracheal visualization and Magill forceps removal.
- Respiratory arrest with facial or neck injury, or abnormal anatomy, which make endotracheal intubation impossible.
- Inability to ventilate patient with a bag valve mask.

Procedure:

1. Expose the neck.
2. Identify the cricoid membrane/ligament located between the cricoid cartilage and the thyroid cartilage.
3. Prep the skin.
4. Puncture the cricothyroid membrane at a 90-degree angle with the catheter/syringe assembly.
5. Aspirate for air upon introducing the catheter/syringe.
6. Upon aspiration of air, redirect the catheter/syringe in a 45-degree angle (toward feet), and advance until the stopper meets the skin.
7. Remove the stopper.
8. Advance the catheter (not the needle) until the flange rests on the skin.
9. Remove the needle-syringe assembly.
10. Apply the strap.
11. Attach the connecting tube to the 15 mm adaptor.
12. Attach a bag valve mask (BVM) to the other end of the connecting tube.
13. Ventilate the patient using the BVM.
15. Document the procedure and results on the patient care report (PCR).
Clinical Indications:
- Apnea.
- Inability to maintain a patent airway by other means.
- Need to prevent aspiration.
- Impending compromise of airway.
- Closed head injury (GCS <9) requiring assisted ventilation.
- SPO$_2$ cannot be maintained above 90% with ventilatory assistance via BVM and supplemental oxygen.
- Inability to maintain adequate oxygenation by other means.
- Patient ≥15 years of age.

Contraindications:
- Patient is maintaining their own airway.
- High risk airways:
  - Extremely anterior, large neck
  - Limited neck extension or mobility
- Pediatric patients less than 15 years of age.

Procedure:
1. Determine the need for Medication Facilitated Intubation.
2. Pre-Oxygenate with 100% supplemental oxygen.
   - Nasal Cannula with high flow oxygen (passive oxygenation)
   - NRB – For patients with adequate respiratory rate/effort.
   - BVM – For patients requiring ventilatory support.
3. Monitor EKG, pulse oximetry, and vital signs.
4. BVM with capnography circuit in place, suitable size mask, oral/nasal airways, and appropriate size King Airway shall be immediately available.
5. Obtain IV access.
6. Administer Medications:
   - Pre medicate with Lidocaine 1.5 mg/kg IV/IO.
Administer **Etomidate 0.3 mg/kg IV/IO, maximum of 30 mg**. May repeat dose once if Trismus (reduced opening of the jaw caused by spasm) is present or further sedation is required. (Use with Hypertensive, stroke or TBI patients)

If after the maximum amount of **Etomidate** is administered and the patient requires additional sedation, administer:

- **Midazolam (Versed) 2-5 mg IV/IO, up to a maximum of 10 mg**.

7. Perform orotracheal intubation with passive oxygenation with nasal cannula and high flow oxygen in nares or mouth

8. Confirm tube placement with Continuous Quantitative Waveform Capnography (ETCO₂) (or with ETCO₂ detector if not available) and presence of lung sounds and symmetric chest rise.

9. Secure the endotracheal tube.

10. In the event this pathway is undertaken and the provider is unable to secure the airway with ET intubation, the default Rescue Airway will be the King Airway.

11. Administer additional sedatives as needed per protocol and/or Medical Control.

Clinical Indications:

- Following unsuccessful endotracheal intubation:
  - Endotracheal intubation provides a definitive airway. Every attempt should be made to secure an airway with an endotracheal tube. Following two (2) unsuccessful attempts to place an endotracheal tube, or if it appears additional endotracheal intubation attempts would be unsuccessful, use of the King Airway should be considered.

- The King Airway may be considered the initial airway of choice in the cardiac arrest patient.

Contraindications:

- Patients who are conscious or who have an intact gag reflex.
- Patients under three (3) feet in height.
- Patients with known esophageal disease (varices, alcoholism, cirrhosis etc.) or ingestion of caustic substances.

Size Chart:

<table>
<thead>
<tr>
<th>Product</th>
<th>Patient Height</th>
<th>Size</th>
<th>Color</th>
<th>Cuff Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>LT-D</td>
<td>35 to 45 inches</td>
<td>2</td>
<td>Green</td>
<td>25-35 ml</td>
</tr>
<tr>
<td>LT-D</td>
<td>41-51 inches</td>
<td>2.5</td>
<td>Orange</td>
<td>30-40 ml</td>
</tr>
<tr>
<td>LT-D</td>
<td>4 to 5 feet</td>
<td>3</td>
<td>Yellow</td>
<td>45-60 ml</td>
</tr>
<tr>
<td>LT-D</td>
<td>5 to 6 feet</td>
<td>4</td>
<td>Red</td>
<td>60-80 ml</td>
</tr>
<tr>
<td>LT-D</td>
<td>Over 6 feet</td>
<td>5</td>
<td>Purple</td>
<td>70-90 ml</td>
</tr>
</tbody>
</table>

Procedure:

1. Body Substance Isolation (BSI).
2. Attach pulse oximeter and/or EtCO₂ to monitor oxygen saturation and/or CO₂ readings.
3. Choose the correct KING LT-D size, based on patient height.
4. Test cuff inflation system by injecting the maximum volume of air into the cuffs. Remove all air from both cuffs prior to insertion.
5. Apply a water-based lubricant to the beveled distal tip and posterior aspect of the tube, taking care to avoid introduction of lubricant in or near the ventilatory openings.
6. Pre-oxygenate patient with 100% oxygen for at least 1 minute.

7. Position the head. The ideal head position for insertion of the KING LT-D is the "sniffing position". However, the angle and shortness of the tube also allows it to be inserted with the head in a neutral position.

8. Hold the KING LT-D at the connector with dominant hand. With non-dominant hand, hold mouth open and apply chin lift.

9. With the KING LT-D rotated laterally 45-90° such that the blue orientation line is touching the corner of the mouth, introduce tip into mouth and advance behind base of tongue. Never force the tube into position.

10. As tube tip passes under tongue, rotate tube back to midline (blue orientation line faces chin).

11. Without exerting excessive force, advance KING LT-D until proximal opening of gastric access lumen is aligned with teeth or gums.

12. With a syringe inflate the KING LT-D; inflate cuffs with the minimum volume necessary to seal the airway at the peak ventilatory pressure employed (just seal volume).

13. Attach the BVM to the 15 mm connector of the KING LT-D. While gently bagging the patient to assess ventilation, simultaneously withdraw the airway until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).

14. Depth markings are provided at the proximal end of the KING LT-D which refers to the distance from the distal ventilatory openings. When properly placed with the distal tip and cuff in the upper esophagus and the ventilatory openings aligned with the opening to the larynx, the depth markings give an indication of the distance, in cm, from the vocal cords to the upper teeth.

15. Attach EtCO₂ monitoring device to adaptor and follow guidelines for its use.

16. Confirm proper position by auscultation, chest movement and verification of Continuous Quantitative Waveform Capnography (ETCO₂). **Note: Do not let go of the King Airway until secured.**

17. Secure the KING LT-D to patient using tape or an approved commercial device.

Clinical Indications:

- Non-vigorous Neonatal patients with thick meconium stained amniotic fluid.

**NOTE:** If the newborn is vigorous, suction with a bulb syringe, do not intubate. If thick meconium stained amniotic fluid is present, do not stimulate the infant to breathe. Use appropriate aspiration adapter.

Procedure:

1. Intubate immediately with appropriate size endotracheal tube.
2. Connect endotracheal tube to meconium aspiration adapter to suction.
3. Withdraw endotracheal tube while suctioning.
4. If the endotracheal tube is filled with meconium, re-intubate with a new endotracheal tube and suction again until clear.
5. Resume Neonatal Resuscitation protocol.
6. If intubating and suctioning takes longer than 90 seconds or heart rate <80, initiate BVM with oxygen therapy.
Clinical Indications:

- CNS trauma.
- Rigidity or hypoxia from seizures (e.g. "clenched teeth").
- Poisonings.
- Metabolic disturbance.
- Patients with severe respiratory distress.

Contraindications:

- Non-breathing or near apneic patient.
- Known or likely fracture/instability of mid-face secondary to trauma.
- Suspected basilar skull fracture.
- Children <15 years of age.
- Relative contraindications:
  - Blood clotting abnormalities.
  - Nasal Polyps.
  - Upper neck hematomas or infections.

Procedure:

1. Prepare, position and oxygenate the patient with 100% Oxygen.
2. Choose proper ET tube about 1 mm less than for oral intubation.
3. For patients with suspected intracranial pressure, administer Lidocaine 1.5 mg/kg IV/IO.
4. Lubricate ET tube generously with water-soluble lubricant such as Lidocaine Jelly.
5. Pass the tube in the largest nostril with the beveled edge against the nasal septum and perpendicular to the facial plate.
6. Use forward and lateral back and forth rotational motion to advance the tube, Never force the tube.
7. Continue to advance the tube noting air movement through it; use the BAAM whistle to assist you.
8. Apply firm, gentle cricoid pressure and advance the tube quickly past the vocal cords during inspiration.
9. Inflate the cuff with 5-10 ml of air and secure the tube to the patient’s face.
10. Auscultate for bilaterally equal breath sounds and absence of sounds over the epigastrum. If you are unsure of placement, remove tube and ventilate patient with bag valve mask.

11. Check placement by EtCO₂ monitor and record readings at the scene, enroute to the hospital, and at the hospital.

12. Reassess airway and breath sounds after transfer to the stretcher and during transport. These tubes are easily dislodged and require close monitoring and frequent reassessment.

Clinical Indications:

➢ Patients in whom tension pneumothorax is suspected with respiratory distress or respiratory arrest, and at least one or more of the following signs:
  o Jugular vein distention.
  o Absent or decreased breath sounds on the affected side (bilateral pneumothorax may cause decreased breath sounds on both sides).
  o Hyper-resonance to percussion on the affected side.
  o Increased resistance when ventilating a patient.
  o Hypotension or other clinical signs of shock.
  o Tracheal deviation away from the side of the injury (often a late sign and difficult to see).

➢ Patients in traumatic arrest for whom resuscitation is indicated. These patients may require bilateral chest decompression even in the absence of the signs above.

Procedure:

1. Don personal protective equipment (gloves, eye protection, etc.).
2. Administer high flow oxygen.
3. Identify and prep the site on the same side as the pneumothorax:
   a. the 2nd intercostal space (between ribs 2 and 3), at the mid clavicular line
   OR
   b. the 4th intercostal space (between ribs 4 and 5), at the anterior axillary line
4. Prepare the site by cleansing with alcohol or betadine solution.
5. Insert the catheter with needle (use a commercial needle decompression device or a 14 gauge at least 3.25 inches in length angio-catheter) into the skin between two ribs (the intercostal space) and just over the top of the inferior rib into the pleural space.
6. Advance the catheter with needle through the parietal pleura until a “pop” is felt and air or blood exits under pressure through the catheter, then advance catheter only (do not advance the needle anymore) to chest wall.
7. Remove the needle, leaving the plastic catheter in place.
8. Consider securing catheter hub to the chest wall with dressings and tape.

9. Occlusion of the catheter and re-expansion of the tension pneumothorax may occur. Providers must then reassess the need to perform needle decompression again. Leave the previous catheter(s) in place.
Clinical Indications:
- Cardiac arrest.
- Respiratory arrest.
- Hypoxic or obtunded patients.
- Patients with possible increasing ICP.

Contraindications:
- Presence of gag reflex.
- Clinched teeth.

Procedure:
1. Prepare, position and oxygenate the patient with 100% Oxygen.
2. Place nasal cannula with high flow oxygen on patient and such is to remain in-place during intubation attempts for passive oxygenation.
3. Select proper endotracheal tube (and stylette, if used), have suction ready.
   - Pediatric - Refer to Broselow™ tape.
4. Using laryngoscope, visualize vocal cords. (Use Sellick maneuver to assist you).
5. Limit each intubation attempt to 30 seconds with BVM between attempts.
6. Visualize tube passing through vocal cords.
7. Inflate the cuff with 5-10 ml of air and secure the tube to the patient’s face.
8. Auscultate for bilaterally equal breath sounds and absence of sounds over the epigastrium. If you are unsure of placement, remove tube and ventilate patient with bag valve mask.
9. Consider using an alternate airway device if endotracheal intubation efforts are unsuccessful.
10. Apply EtCO₂ monitor and record readings on scene, enroute to the hospital, and at the hospital.
11. Document endotracheal tube size, time, results, and placement location by the centimeter marks either at the patient’s teeth or lips on the patient care report (PCR). Document all devices used to confirm initial tube placement.
12. Consider placing an orogastric tube to clear stomach contents after the airway is secured with an ET tube.
Clinical Indications:

- Difficult intubation with a restricted view of the glottic opening. This may occur due to:
  - Short, thick (bull) neck.
  - Pregnancy.
  - Laryngeal edema (anaphylaxis, burns).
  - Normal anatomical variation.
  - Supra-glottic neoplasms (tumors above the glottic opening).
  - Inability to position patient appropriately (e.g. entrapment, confined space).

Contraindications:

- Pediatric patients under the age of 14.

Procedure:

- Hyperventilate the patient with 100% oxygen for at least one minute prior to each intubation attempt. Note, however, that this step should be omitted when ventilation (demonstrated by rise and fall of the chest) proves impossible.
- Prepare the ET tube and other intubation equipment (minimum 6.0 mm ET tube).
- Curve the bougie and ensure the distal tip is formed into a “J” shape;
- Perform a laryngoscopy, obtaining the best possible view of the glottic opening.
- Advance the bougie, continually observing its distal tip, with the concavity facing anteriorly;
- Visualize the tip of the bougie passing the vocal cords.
- Once the tip of the bougie has passed the epiglottis, continue to advance it in the mid-line so that it passes behind the epiglottis but in an anterior direction.
As the tip of the bougie enters the glottic opening you will either feel 'clicks' as it passes over the tracheal rings or the tip will arrest against the wall of the airways ('hold-up'). This suggests correct insertion, although cannot be relied upon to indicate correct positioning with 100% accuracy. HOWEVER, FAILURE TO ELICIT CLICKS OR HOLD-UP IS INDICATIVE OF ESOPHAGEAL PLACEMENT. If hold-up is felt, the bougie should then be withdrawn approximately 5 cm to avoid the ET tube impacting against the carina.

Hold the bougie firmly in place and MAINTAIN LARYNGOSCOPY.
- Instruct your colleague to pass the endotracheal tube over the proximal end of the bougie.
- As the proximal tip of the bougie is re-exposed, the assistant should carefully grasp it, assuming control of the bougie and passing control of the ET tube to the intubator.
- The ET tube should then be carefully advanced ('rail-roaded') along the bougie and hence through the glottic opening, taking care to avoid movement of the bougie.

SUCCESSFUL INTUBATION MAY BE CONSIDERABLY ENHANCED BY ROTATING THE ET TUBE 90°, SO THAT THE BEVEL FACES POSTERIORLY. In so doing the bougie may also rotate along the same plane but should not be allowed to move up or down the trachea.

Once the ET tube is fully in place hold it securely as your colleague withdraws the bougie.

Withdraw the laryngoscope.

Inflate the cuff. Then verify correct positioning of the ET tube using auscultation of the lung fields and epigastrium and observing for chest wall movement.

Secure the ET tube. The tip of the ET tube can move up to 6.0 cm once placed and this is certainly sufficient to dislodge it from the trachea.

Document the procedure and results on the patient care report (PCR).
Background:

Pulse Oximeters are noninvasive instruments used for the detection of arterial oxyhemoglobin. Each hemoglobin (Hgb) molecule can carry up to 4 oxygen molecules. Hgb molecules carrying 4 oxygen molecules is considered “fully saturated” and Hgb molecules carrying less than 4 oxygen molecules is considered “unsaturated”. Pulse oximetry measures the concentration of bound Hgb. It does not measure oxygen concentration.

Clinical Indications:

- Include SpO2 as a vital sign.
- All patients who require oxygen.
- All patients requiring EKG monitoring.
- All patients with respiratory, cardiovascular or neurological complaints.
- All patients with abnormal vital signs.
- All patients who receive respiratory depressants (Morphine, Diazepam, Midazolam).
- Critical trauma patients.

Procedure:

1. Apply probe to index finger or thumb.
2. A normal SpO2 on room air is 96-100%.
3. Moderate hypoxemia is characterized by values <90%.
4. Severe hypoxemia is characterized by values <80%.
5. Document the results on the patient care report (PCR).

Special Considerations:

The following circumstances may result in low/absent SpO2 readings:

- Motion at the sensor site.
- Hypoperfusion
- Cold temperature.
- Edema.
- Anemia.
- Carbon monoxide poisoning.
- Methemoglobinemia.
Background:
Tracheostomy patients with an In-Dwelling Tube or Stoma.

➤ Most patients with a permanent tracheostomy (with tube or stoma) can adequately breathe through the opening.

➤ Some of these patients have complete surgical reconstruction of the airway and breathe only through the tube or stoma, while other patients may have the opening to the mouth and can breathe through the tracheostomy tube, stoma, nose, or mouth.

➤ If air escaping is felt or heard at the nose or mouth when ventilating a partial neck breather, the nose and mouth must be sealed (pinching the nose closed and closing the mouth using a jaw lift) prior to ventilating the patient.

➤ Tracheostomy patients requiring ventilatory assistance require specialized techniques be employed in order to be properly ventilated.
  o EMS personnel must identify the tracheostomy site and tube (if present).
  o Check the tracheostomy tube or stoma for any blockage.
  o Look, listen, and feel for breathing at the tube or stoma site.
  o Assess for breathing and adequacy of respirations.

Clinical Indications:
➤ Respiratory arrest.
➤ Cardiac arrest.
➤ Hypoventilation.
➤ Severe respiratory distress due to an obstructed tracheostomy tube.

Procedures:
If a tracheostomy tube has the standard 15 mm adapter and the patient can be ventilated through the tube:
1. Attach a BVM to the adapter.
2. Ventilate with a bag-valve mask and 100% oxygen.
3. Assess for adequacy of ventilations and check for leaks.
4. If the tube is cuffed, inflate the cuff until there is no air leak.
If the patient cannot be ventilated through the tube:
1. Visually inspect the tube and tracheostomy for any obstructing material and remove if possible.
2. Attempt to ventilate with 2 breaths.
3. If successful, continue to ventilate as required.

If there is no obvious obstructing material and the patient cannot be ventilated:
1. Suction the airway and attempt to ventilate with 2 breaths.
2. If successful, continue to ventilate as required.

If the patient still cannot be ventilated:
**BLS Providers should:**
1. Remove the tube carefully.
2. Suction the stoma.
3. Place a pediatric sized mask over the stoma site.
4. Ventilate with a bag-valve mask and 100% oxygen.
5. Load and go should be initiated as soon as possible.
6. On scene times should be kept to a minimum.
7. Treat other life-threatening conditions en route.
8. Transport the patient to the nearest appropriate health care facility.
9. Notify the receiving health care facility of the patient's status as soon as possible.
10. Monitor and treat the patient en route.

**ALS Providers should:**
1. Remove the tube carefully.
2. Place a pediatric mask over the stoma site.
3. Ventilate with a bag-valve mask and 100% oxygen.
4. Choose the appropriate sized endotracheal tube.
5. Insert the tube into the stoma until the cuff is just inside the stoma (cuffed tubes only).
6. Inflate the cuff and check for air leaks.
7. Ventilate the patient checking for chest rise and fall.
8. Auscultate lung sounds for equal bilateral breath sounds and no sounds over the epigastrium.

If a tracheostomy tube is not present (i.e. a stoma):
1. Place a pediatric mask over the stoma site.
2. Ventilate with an appropriately sized bag-valve mask and 100% oxygen.
3. Suctioning can be done through the tracheostomy tube or stoma.
4. Care must be taken to insert the suction catheter no more than 5 cm (2 inches) beyond the lower edge of the opening.
Clinical Indications:

➢ Patients in cardiac arrest (pulseless, apneic).
➢ Age 1 to 8 years, use reduced energy Pediatric Pads.

Contraindications:

➢ Traumatic cardiac arrest.
➢ Patients with a fully obstructed airway.
➢ Hazardous environments.

Procedure:

1. If multiple rescuers available, one rescuer should provide uninterrupted chest compressions while the AED is being prepared for use.

2. Apply defibrillator pads per manufacturer recommendations. Use alternate placement when implanted devices (pacemakers, AICDs) occupy preferred pad positions.

3. Remove any medication patches on the chest and wipe off any residue.

4. Activate AED for analysis of rhythm.

5. Stop CPR and clear the patient for rhythm analysis. Keep interruption in CPR as brief as possible.

6. Defibrillate if appropriate by depressing the “shock” button. Assertively state “CLEAR” and visualize that no one, including yourself, is in contact with the patient prior to defibrillation. The sequence of defibrillation charges is preprogrammed for monophasic defibrillators. Biphasic defibrillators will determine the correct joules accordingly.

7. Begin CPR (chest compressions and ventilations) immediately after the delivery of the defibrillation.

8. After 2 minutes of CPR, analyze rhythm and defibrillate if indicated. Repeat this step every 2 minutes.

9. If “no shock advised” appears, perform CPR for 2 minutes and then re-analyze. Continue CPR during the charging process.

10. Transport and continue treatment as indicated.

11. Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation. If a spontaneous pulse returns: See return of spontaneous circulation protocol (ROSC).

Clinical Indications:

➢ Cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia.

Procedure:

1. Ensure chest compressions are adequate and interrupted only when necessary.

2. Clinically confirm the diagnosis of cardiac arrest and identify the need for defibrillation.

3. Apply hands free pads to the patient’s chest in the proper position (Anterior-Lateral or Anterior-Posterior position).

4. Set the appropriate energy level.

5. Charge the defibrillator to the selected energy level. Continue chest compressions while the defibrillator is charging.

6. Hold compressions, assertively state, “CLEAR” and visualize that no one, including yourself, is in contact with the patient.

7. Deliver the desired energy by depressing the shock button for hands free operation.

8. Immediately resume chest compressions and ventilations for 2 minutes. After 2 minutes of CPR, analyze rhythm and check for pulse only if appropriate for rhythm.

9. Repeat the procedure every two minutes as indicated by patient response and EKG rhythm.

10. Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.

Clinical Indications:

- Cardiac arrest with persistent ventricular fibrillation or pulseless ventricular tachycardia refractory to multiple defibrillations. (four)

Procedure:

1. Ensure chest compressions are adequate and interrupted only when necessary.
2. Clinically confirm the diagnosis of cardiac arrest with persistent ventricular fibrillation or pulseless ventricular tachycardia. Obtain a second defibrillator or an automatic AED.
3. Apply hands free pads to the patient's chest in the proper positions (Anterior – Lateral AND Anterior-Posterior position).
4. Set the energy level to 360 joules on each manual defibrillator or if using an AED as well as a defibrillator stop CPR and activate the AED for analysis of the rhythm.
5. Simultaneously charge the defibrillator(s) to 360 joules.
6. Hold compressions, assertively state, “CLEAR” and visualize that no one, including yourself, is in contact with the patient.
7. Defibrillate the patient with the desired energy by depressing the shock button on either both manual defibrillators or the manual defibrillator and the AED. The energy from both devices should be delivered nearly simultaneously allowing for ideal sequential administration of the electricity.
8. Immediately resume chest compressions and ventilations for 2 minutes. After 2 minutes of CPR, analyze the rhythm and check for a pulse only if appropriate for the rhythm.
9. Repeat the procedure every two minutes as indicated by patient response and EKG rhythm.
10. Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.
Clinical Indications:
- Cardiac or trauma related arrest.

Contraindications:
- Patients less than 12 years of age.
- Patient is too small. *The suction cup is not being completely compressed when lowered.*
- Patient is too large. *The support legs of the device cannot be locked into place without compressing the patient.*

Assembly and Application of the LUCAS 2 CPR Device:
1. Activate the device
   - Push ON/OFF for 1 second to start self-test and power Lucas device.
2. Back Plate
   - Pause manual CPR and carefully place back plate under the patient, below armpits and resume manual CPR.
3. Compressor
   - Pull release rings once to unlock the claw locks. Attach the back plate and listen for the “click”. Pull up on the device once to ensure attachment.
4. Position the Suction Cup
   - Center the suction cup over the chest. The lower edge of the suction cup should be immediately above the end of the sternum.
5. Push down on the Suction Cup
   - Push the adjust button and push the suction cup down with two fingers. The pressure pad should touch the patient’s chest. If the pad does not touch or fit properly, continue manual compressions. Push the pause button to lock in the start position.
6. Start compressions
   - Check for proper position and adjust if necessary. Push the active (30:2) or active (continuous) button to start the device.
7. Lucas Stabilization Strap
   - Attach the Lucas stabilization strap under the patient’s neck and around the shoulders. Ensure that the straps are snug. Continue to assess for proper placement through the use of the device.
Integrating the LUCAS 2 Device into Patient Care:

1. Perform your initial assessment as per protocol. Perform manual CPR until the LUCAS 2 device is attached.

2. After the first rhythm interpretation and/or defibrillation, your next priority if BLS airway interventions are successful, is to apply the LUCAS 2 device.

3. After applying the LUCAS 2 device, ensure that the device is in Active (30:2) mode until an advanced airway is placed. After an advanced airway is placed, switch the device to Active (Continuous) mode so the device can give continuous uninterrupted compressions.

4. After resuscitation, assess the patient for resuscitation-related injuries.

5. **Consider the Use of Etomidate for sedation if patient regains consciousness or exhibits signs of pain while using Lucas Device for CPR**

When Transporting the Patient:

1. Secure the patient’s arms with the straps on the support legs. Be sure not to apply the straps so tightly to occlude any IV(s).

2. Pause compressions any time you move the patient to the backboard/stretchert. Re-verify device placement before resuming compressions.

3. Do not perform compressions while the patient’s chest is not horizontal (e.g. going up or down stairs).

4. Assure that the patient is adequately restrained in the EMS transport unit.

**Care after Use:** *Do not immerse the LUCAS 2 in liquid. The device can be damaged if liquid enters the hood.*

1. Clean all outer surfaces of the device with a soft cloth and warm water with a mild cleaning or disinfecting agent.

2. Allow the device to dry before re-packing.
Clinical Indications:

- Suspected cardiac event.
- Suspected tricyclic overdose.
- Electrical injuries.
- Syncope.
- CHF.

Procedure:

1. Assess patient and monitor cardiac status.
2. If patient is unstable, definitive treatment is the priority. If patient is stable or stabilized after treatment, perform a 12 Lead EKG.
3. Prepare EKG monitor and connect patient cable with electrodes.
4. Expose chest and prep as necessary. Modesty of the patient should be respected.
5. Apply chest leads and extremity leads using the following landmarks:
   - RA -Right arm.
   - LA -Left arm.
   - RL -Right leg.
   - LL -Left leg.
   - V1 -4th intercostal space at right sternal border.
   - V2 -4th intercostal space at left sternal border.
   - V3 -Directly between V2 and V4.
   - V4 -5th intercostal space at left mid-clavicular line.
   - V5 -Level with V4 at left anterior axillary line.
   - V6 -Level with V5 at left mid-axillary line.
6. When performing a right sided EKG in patients with a suspected inferior wall MI with possible right ventricular involvement (RVI):
   - V4R - 5th intercostal space at right mid-clavicular line.
7. Instruct patient to remain still.
8. Press the appropriate button to acquire the 12 Lead EKG.
9. ALS Providers shall interpret the EKG and if STEMI is suspected, transmit the EKG to an interventional cardiology facility if possible.
When making a radio report to a STEMI center, providers will report their own interpretation of the 12-lead, then read the machine interpretation verbatim to the hospital staff.


<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>$V_3$, $V_9$</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 $V_9$).</td>
</tr>
<tr>
<td>Right ventricular</td>
<td>$V_4R$</td>
<td>Right coronary artery (RCA)</td>
<td>-----</td>
</tr>
</tbody>
</table>
Clinical Indications:

- Unstable patient with a tachydysrhythmia (rapid atrial fibrillation, supraventricular tachycardia or ventricular tachycardia).
- Patient is not pulseless (the pulseless patient requires unsynchronized cardioversion, i.e. defibrillation).

Procedure:

1. Ensure the patient is attached properly to a monitor/defibrillator capable of synchronized cardioversion.
2. Have all equipment prepared for unsynchronized cardioversion/defibrillation if the patient fails synchronized cardioversion and the condition worsens.
3. Consider the use of pain or sedating medications.
4. Set energy selection to the appropriate setting.
5. Set monitor/defibrillator to synchronized cardioversion mode.
6. Make certain all personnel are clear of patient.
7. Press and hold the shock button to cardiovert. Stay clear of the patient until you are certain the energy has been delivered. **NOTE:** It may take the monitor/defibrillator several cardiac cycles to "synchronize", so there may be a delay between activating the cardioversion and the actual delivery of energy.
8. Perform immediate unsynchronized defibrillation if the patient’s rhythm has deteriorated into pulseless ventricular tachycardia/ventricular fibrillation.
9. If the patient’s condition is unchanged, repeat steps 4 to 8 above, using escalating energy settings.
Clinical Indications:

- Monitored heart rate less than 60 per minute with signs and symptoms of inadequate cerebral or cardiac perfusion such as:
  - Chest pain.
  - Hypotension.
  - Pulmonary edema.
  - AMS, disorientation, confusion, etc.
  - Ventricular ectopy.
- Witnessed Asystole, pacing must be done early to be effective.

Procedure:

1. Attach standard four-lead monitor.
2. Apply defibrillation/pacing pads:
   - Anterior / Posterior: Anterior electrode on left precordium below the left nipple. Avoid placing on the nipple. Posterior electrode below left scapula, lateral to spine at heart level.
   - Anterior / Lateral: Lateral (apex) electrode lateral to left nipple with the center of the electrode on the midaxillary line. Anterior electrode below the right clavicle lateral to sternum.
3. Press pacer button and observe for sensor markers on each QRS complex.
4. Press rate or slowly rotate selector knob and adjust rate to 80 BPM for the adult patient and 100 BPM for the pediatric patient.
5. Press current or slowly rotate selector knob until capture is obtained.
6. Slowly increase output until capture of electrical rhythm on the monitor.
7. If unable to capture while at maximum current output, stop pacing immediately.
8. If capture observed on monitor, check for corresponding pulses and assess vital signs, skin color and capillary refill for improved perfusion.
9. Consider the use of sedation or analgesia if patient is uncomfortable.
10. Document the dysrhythmia and the response to external pacing with EKG strips on the patient care report (PCR).
Clinical Indications:

- Patient in cardiac arrest.

Precautions:

- Emphasize the need for:
  - Minimally interrupted compressions.
  - Appropriate depth and quality of compressions.
  - Compressor fatigue and change compressors as needed.
  - Team approach.

- Infants and small children may require modification of the procedure due to size.

Procedure (Based on a crew of four or more):

1. Established prior to arriving at the patients side, and includes the following:

- **Position 1** (Patients left side)
  - Assesses responsiveness and checks pulses.
  - Initiates chest compressions immediately.
  - Alternates chest compressions with Position 2.

- **Position 2** (Patients right side)
  - Removes clothing at chest.
  - Applies defibrillator pads immediately.
  - Attaches AED or Lifepak monitor/defibrillator.
  - Alternates chest compressions with Position 1.
  - Applies Lucas 2 if the device is available (If in use Position 1 or 2 monitors the units operation and placement. Pauses the unit at the discretion of the ALS provider in charge of patient care).

- **Position 3** (Patients head)
  - Assembles and appropriately applies BLS airway measures.
    - Opens and clears the airway.
    - Inserts appropriately sized King Airway (per protocol) and continues ventilations
    - Provides BVM ventilations at appropriate rate and depth.
Position 4 (Paramedic)
  o Makes all patient treatment decisions.
  o Initiates IV/IO access (If IO, right humeral head is the preferred site).
  o Administers medications and provides additional treatment as needed.

Position 5 or more (Extra)
  o Assist in different positions when needed.
  o Family Advocate
  o Documents incident activity:
    • Time CPR started.
    • Times of medication administration.
    • Times of additional advanced procedures performed.
    • Obtains patient information from family and/or bystanders.
PIT CREW CPR DIAGRAM

Position 1 (Patient Left)
1. Assesses responsiveness and checks pulses
2. Initiates chest compressions immediately
3. Alternates chest compressions with Position 2

Position 2 (Patient Right)
1. Removes clothing at chest
2. Attaches defibrillator pads
3. Attaches AED or ECG Monitor/defibrillator
4. Alternates chest compressions with Position 1
5. Applies Lucas 2 if available

Position 3 (Patient Head)
1. Opens and clears airway
2. Insert King Airway per protocol
3. BVM ventilations at appropriate rate and depth

Position 4 (Paramedic)
1. Makes all patient treatment decisions
2. Initiates IV/IO access (if IO, right humeral head is the preferred site)
3. Administers medications and provides additional treatment as needed

Position 5 or more (Extra)
1. Assist in different positions when needed
2. Document incident activity
3. Family Advocate

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Version: 2.1
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Clinical Indications:

➢ Patient in cardiac arrest 8 years and older.

Contraindications:

➢ Patients under the age of 8.
➢ Cardiac Arrest secondary to trauma.
➢ Remove device immediately with Return of Spontaneous Circulation (ROSC).

Precautions:

➢ Always place ETCO₂ detector between the ResQPOD and BVM.
➢ Do not interrupt CPR unless absolutely necessary.
➢ If a spontaneous return of circulation occurs, discontinue CPR and the ResQPOD. If the patient rearrests, resume CPR and reattach the ResQPOD.
➢ Do not delay compressions if the ResQPOD is not readily available.

Procedure:

Using the ResQPOD on a Facemask (preferred)

1. Connect the ResQPOD to the facemask.
2. Open the airway. Establish and maintain a tight face seal with the mask throughout chest compressions.
3. Connect the BVM source to the ResQPOD.
4. Perform High Quality CPR at the recommended compression-to-ventilation ratio.

Using the ResQPOD on an Endotracheal Tube (ET) (Preferred) or King Airway

1. Confirm ET tube or King Airway placement and secure with a commercial tube restraint.
2. Connect the ResQPOD to the ET tube or King Airway.
3. Place ETCO₂ detector (If available) between the ResQPOD and the BVM.
4. Perform High Quality CPR at the recommended compression-to-ventilation ratio.
5. Remove the clear tab and turn on the timing assist lights. Ventilate asynchronously at the rate of the timing light.
Clinical Indications:

- Patients with suspected hypoglycemia (diabetic emergencies, change in mental status, bizarre behavior, etc.).

Procedure:

1. Gather and prepare equipment.
2. Blood samples for performing glucose analysis should be obtained simultaneously with intravenous access when possible.
3. Place correct amount of blood on reagent strip or site on glucometer per the manufacturer's instructions.
4. Time the analysis as instructed by the manufacturer.
5. Document the glucometer reading and treat the patient as indicated by the analysis and protocol.
6. Repeat glucose analysis as indicated for reassessment after treatment and as per protocol.
7. If after dextrose administration the glucose level is substantially low per a reading in a cool digit, utilize a more centrally located alternate site for testing.
Clinical Indications:
- Access of an existing venous catheter for medication or fluid administration in critical patient's only

Providers MAY Access:
- Peripherally Inserted Central Catheters (PICC lines)
- Tunneling catheters such as Broviac, Hickman, and Groshong
- Non-tunneled, dual lumen catheters used for temporary dialysis access, i.e., Quinton catheters.

Providers MAY NOT Access:
- Dialysis catheters: Arteriovenous shunts (synthetic bridges between the arterial and venous circulation located under the skin in the forearm).
- Subcutaneous internal access devices that require access through the skin, for example, Port-a-Cat, Medi-Port

Procedure:
1. Clean the port of the catheter with an alcohol wipe.
2. Remove the cap to the port and attach the empty 10 ml syringe to the catheter port.
3. Unlock the clamp on the access line, if applicable, and aspirate blood from the port. Blood should aspirate freely. If it does not, replace the cap and DO NOT use the access port.
4. Lock the clamp, if applicable, and remove the syringe with the aspirated blood. Dispose of the syringe in a biohazard container.
5. Connect a syringe containing 10 ml of normal saline to the port, unlock the clamp, and flush the device. The line should flush easily. Re-clamp the line.
6. Remove the syringe and connect the primed IV to the port. Unclamp the line and adjust flow rate as needed.
7. Begin administration of medications or IV fluids slowly and observe for any signs of infiltration. If difficulties are encountered, stop the infusion and reassess.
8. Record procedure, any complications, and fluids / medications administered on the patient care report (PCR).
Clinical Indications:

- External jugular vein cannulation is indicated in a critically ill patient >8 years of age who requires intravenous access for fluid or medication administration and in whom an extremity vein is not obtainable.
- External jugular cannulation can be attempted initially in life threatening events where no obvious peripheral site is noted.

Procedure:

1. Place the patient in a supine head down position. This helps distend the vein and prevents air embolism.
2. Turn the patient’s head toward the opposite side if no risk of cervical injury exists.
3. Prep the site with alcohol.
4. Apply pressure to the vein lightly with one finger above the clavicle to allow the vein to engorge.
5. Align the catheter with the vein and aim toward the same side shoulder.
6. Puncture the vein midway between the angle of the jaw and the clavicle and consolate the vein in the usual method.
7. Attach the IV tubing or saline lock and secure the catheter with taping and/or dressing.
8. Document the procedure, time, and result (success) on the patient care report (PCR).
Clinical Indications:

➢ Patients where peripheral IV access is unobtainable with any of the following:
  o Cardiac arrest. The right proximal humeral head is the preferred site.
  o Single or Multi-system trauma with severe hypovolemia.
  o Any unconscious or seriously ill patient requiring immediate medication therapy or fluid replenishment.

Contraindications:

➢ Fracture proximal to proposed intraosseous site.
➢ History of Osteogenesis Imperfecta.
➢ Current or prior infection at proposed intraosseous site.
➢ Previous intraosseous insertion or joint replacement at the selected site.

Procedure:

1. Locate landmarks.

➢ Adult ≥40 kg (AD or LD Needle)
  o Proximal Tibia - The insertion point is two finger widths below the patella, 1-2 cm medial of the tibial tuberosity.
  o Distal Tibia - Identify the major structures of the lower leg, the distal tibia (anterior or most forward lower leg bone) and the medial malleolus (medial ankle bone or protrusion). The insertion point is two finger widths proximal to the medial malleolus and midline on the tibia.
  o Proximal Humeral - Palpate and identify the mid-shaft humerus and continue palpating toward the proximal aspect or humeral head. As you near the shoulder you will note a protrusion. This is the base of the greater tubercle insertion site.

➢ Pediatric 3-39 kg (PD Needle)
  o Proximal Tibia - 1 cm distal to tibial tuberosity and then medial along the flat aspect. Gently guide the driver, do not push. If NO tuberosity is present, the insertion is located two finger widths below the patella and then medial along the flat aspect of the tibia. Carefully feel for the “give” indicating penetration into the medullary space.
VENOUS ACCESS

EZ-IOTM

- Distal Tibia - Identify the major structures of the lower leg, the distal
tibia (anterior or most forward lower leg bone) and the medial
malleolus (medial ankle bone or protrusion). The insertion point is one
finger width proximal to the medial malleolus for patients less than 12
kg. As the patient reaches the 39 kg mark, the insertions point is two
finger widths from the medial malleolus.

- Proximal Humeral - Palpate and identify the mid-shaft humerus and
continue palpating toward the proximal aspect or humeral head. As
you near the shoulder you will note a protrusion. This is the base of
the greater tubercle insertion site. The greater tubercle may be difficult to
palpate on patients weighing less than 25 kgs.

2. Prepare the skin with alcohol.
3. Load the needle onto the driver.
4. Firmly stabilize the leg near (not under) the insertion site
5. Firmly press the needle against the site and operate the driver. Use firm,
gentle pressure.
6. As the needle reaches the bone, stop and be sure that the 5 mm marking on
the needle is visible; if it is, continue to operate the driver.
7. When a sudden decrease in resistance is felt and the flange of the needle
rests against the skin, remove the driver and the stylette from the catheter.
For adult humerus site drive the needle so hub touches skin surface.
8. Confirm placement by aspiration of bone marrow.
9. Place EZ-IOTM immobilization device over hub.
10. Attach primed extension set.
11. Flush the EZ-IOTM needle rapidly with 10 ml of saline. Infuse 4 ml of 1%
Cardiac Lidocaine for conscious patients and allow dwell time of 2-4 minutes.
12. If no infiltration is seen, attach the IV line and infuse fluids and/or medications
as normal.
13. Secure the needle by securing tape on immobilization device.
14. IV bag may need to be under pressure for infusion.
15. Document the procedure, time, and results on the patient care report (PCR).
Clinical Indications:

- Life threatening illness or injury in a child <8 years of age or <40 kg in weight.

Procedure:

1. Expose the lower leg.
2. Identify the tibial tuberosity (bony prominence below the knee cap) on the proximal tibia. The insertion location will be 1-2 cm (2 finger widths) below this and medially.
3. Prep the site with alcohol.
4. Hold the intraosseous needle perpendicular to the skin, twist the needle with a rotating grinding motion applying controlled downward force until a "pop" or "give" is felt indicating loss of resistance. Do not advance the needle any further.
5. Remove the stylette and attach a 10 ml syringe filled with 5 ml of Normal Saline.
6. Attempt to extract marrow into the syringe; then inject the saline while observing for infiltration.
7. Stabilize and secure the needle.
8. Document the procedure, time, and result (success) on the patient care report (PCR).
Background:
The Broselow™ Pediatric Emergency Tape is designed to be used as a quick reference to drug dosing and equipment sizing on pediatric patients. The Broselow™ tape is calibrated in different colors according to different lengths. The color that corresponds to the patient’s length is used. If the Broselow™ bag is also used, the color on the tape can be matched with the color on the pouch that contains the appropriately sized equipment and drugs.

Procedure:
1. Place the patient in a supine position.
2. Remove tape from package and unfold.
3. Place tape next to patient, ensuring that the multicolored side is facing up.
4. Place red end of tape even with the top of the patient’s head.
5. Place the edge on one hand on the red end of the tape.
6. Starting from the head, run the edge of your free hand down the tape.
7. Stop hand even with the heel of the patient’s foot (if patient is larger than tape, stop here and use appropriate adult technique).
8. Verbalize the color block (on edge of tape) and weight range where your free hand has stopped. If patient falls on the line, go to the next higher section.
9. Use color block (on edge of tape) to identify the weight range of the patient.
10. Use weight range to determine appropriate sized of equipment and approximate dosages for medications.
Background:
The purpose of spinal immobilization is to effectively splint the entire body to minimize movement of the spine for patients with suspected spinal cord injuries.

Indications for Immobilization:
- Altered mental status.
- Serious multi-system trauma.
- Neck pain secondary to significant MOI (i.e., spider-webbed windshield, dash deformity, rollover, passenger space intrusion greater than 12 inches, etc.).
- Any mechanism that produced a violent impact to the head, neck, chest, torso or pelvis (i.e., assault, entrapment in structural collapse, etc.).
- Incidents producing sudden acceleration, deceleration or lateral bending forces to the head, neck or torso (i.e., high speed MVC, pedestrian struck, involvement in explosion).
- Ejection or fall from any motorized or human powered transportation device (i.e., scooters, skateboards, motor vehicles, motorcycles or recreational vehicles).
- Major injury that may distract patient’s awareness to neck/back pain (i.e., pelvic fracture, femur fracture, extensive burns, extensive soft tissue injury, acute abdomen, significant chest injury, degloving or crush injury, etc.).
- Pain upon palpation to any part of cervical spine.
- Neck pain to patient’s range of motion.
- Inability to communicate (speech or hearing impaired, foreign language, small children).
- Any fall that is 3 times the patient’s height.
- Victim of shallow water diving incident.
- **When in doubt – Immobilize!!**
- See Selective Spinal Immobilization protocol.
Background:
The helmet removal procedure is a guideline designed in two parts. Part I is for those patients wearing a motorcycle, bicycle, or other non-football type head protective device. Part II is designed for those patients wearing a football helmet.

Non-Football Helmets
1. Perform a Primary Survey if possible. Also, if the situation permits, ascertain if the victim has the ability to move their extremities. If unable to perform a primary survey, go to step 2.

2. The in-charge rescuer should designate a trained rescuer (Rescuer II) to manually control the cervical spine. The in-charge rescuer should kneel beside the patient and remove the chin strap device. A third rescuer should prepare padding for use to keep the spine in a neutral position.

3. The in-charge rescuer should then take control of the cervical spine from a side position to the patient. Rescuer II should then relinquish control of the cervical spine to the in-charge rescuer.

4. Rescuer II should remove the helmet by spreading the sides of the helmet and removing the helmet using caution not to manipulate the cervical spine. The in-charge rescuer should be prepared to hold the head, as when the helmet is removed there will be an increase in weight.

5. A pad may need to be inserted under the patient's head to maintain position of the c-spine. Cervical spine control should then be maintained by rescuer II.

6. The in-charge rescuer should then resume the primary survey, further assessment and interventions.

Football Helmets
1. Perform a Primary Survey. Also, if the situation permits, ascertain if the victim has the ability to move all extremities.

2. If the football helmet fits and the airway is maintainable with the helmet in place, do not remove the helmet. Immobilize manually and complete the primary survey. If transportation is necessary, the cervical spine should be immobilized with the helmet and shoulder pads in place. A C1D, towels, or blanket rolls may be used to immobilize the head on a back board. The face mask may be removed.

3. If the football helmet does not fit correctly or the airway is not maintainable with the helmet in place, then the helmet needs to be removed.
4. The in-charge rescuer should designate a trained rescuer (rescuer II) to manually control the cervical spine. The in-charge rescuer should kneel beside the patient and remove the chin strap, ear pads, and remove the face mask retainers. (If not already done) A third rescuer should prepare padding for use to keep the spine in a neutral position.

5. The in-charge rescuer should then take control of the cervical spine from a side position to the patient. Rescuer II should then relinquish control of the cervical spine to the in-charge rescuer.

6. Rescuer II should remove the helmet by spreading the sides of the helmet and removing it from the head without moving the cervical spine. The in-charge rescuer should be prepared to hold the head, as when the helmet is removed there will be an increase in weight. Padding may need to be inserted under the patient's head to maintain neutral position. Cervical spine control should then be maintained by rescuer II.

7. If shoulder pads need to be removed, the helmet should be removed prior to the shoulder pads. When removing shoulder pads remove the straps and lift on side of the pads prior to log-rolling. Then after rolling the patient on their side, finish removing the shoulder pads. A cervical immobilization device (CID) pad or a 1" pad may be sufficient to maintain neutral alignment of the cervical spine.

8. Immobilize on a long backboard using a cervical collar, straps, and a cervical immobilization device. Continue the assessment.
Combative Patient Restraint - Adult & Pediatric:

There are many reasons why a patient may be combative – mental illness, drug/alcohol ingestion, post-ictal state, hypoxia, traumatic head injuries or from an unknown etiology. The priority when caring for medical patients who present with combative behavior is to identify and treat the underlying cause.

Note: Prior to restraining a patient, the EMS provider must assess the patient’s mental status and determine whether the patient presents a potential or definite life threat to themselves or others.

Patient Management:

If patient has an altered mental status:

- Ensure adequate assistance is available to restrain the patient.
- All personnel should be instructed as to how the patient will be restrained. This will ensure the safety of the patient as well as emergency personnel.
- Restrain the patient.
- Document.
- Assess the patient continuously to prevent complications until turned over to ED personnel.

Restraint procedure:

1. Soft medical restraints only are secured to each extremity.
2. Place patient supine on a long backboard (LBB).
3. Both lower extremities are secured to the LBB.
4. Left arm is secured to the LBB beside the patient’s body.
5. Right arm is flexed above the patient’s head and secured to the LBB by the wrist.
6. Patient’s body is secured to the LBB using straps.
7. Perform a complete assessment on the patient and reassess every 5 minutes.
8. Notify the receiving facility of transport.
9. Consider the use of chemical restraint (See Behavioral / Psychological Emergencies Protocol).
10. The use of medication mandates continuous observation by the paramedic, to prevent respiratory arrest, insufficiency, or aspiration.
Suicidal patient who is alert and oriented as normal and refusing transport:

1. Attempt to convince the patient to allow transport, use family and/or friends to assist. However, family/friends may agitate the patient and need to be distanced.
2. Request the assistance of the Metropolitan Police Department (MPD).
3. All personnel should be instructed as to how the patient will be restrained. This will ensure the safety of the patient as well as emergency personnel.
4. Restrain the patient.
5. Perform a complete assessment on the patient and reassess every 5 minutes.
6. Notify the receiving facility of transport and ask for security personnel to be available upon arrival, if needed.

**Documenting a Restraint Procedure:**

1. Reason(s) why restraint was necessary.
2. Any assessment findings obtained through observation (injuries, behavior, mental status, etc.) prior to restraining.
3. Describe the position in which the patient was restrained.
4. Time the patient was restrained.
5. Assessment findings after the patient was restrained and during transport.
6. Once the patient is restrained, one EMS provider must remain with the patient at all times.

*Note: Do not place or allow any restraint to impair circulation or respirations. The dignity of the patient must be considered during and after the restraining process.*
Clinical Indications:
> Serious hemorrhage. Consider use especially in areas in which mechanical tourniquets cannot be physically applied (e.g. groin, axilla, torso, neck, or head)
> Used in concert with other hemorrhage control procedures (e.g. direct pressure, compression bandage, tourniquets), especially when one procedure alone is not effective.

Contraindications:
> Wounds involving open thoracic cavity (penetrating past the pleura), eyeball, exposed brain tissue/meninges.
> Minor hemorrhage
> Hemorrhage controlled by direct pressure and/or the application of a tourniquet

Precautions:
> EMS providers must ensure wound is packed tightly with hemostatic gauze and packed fully, with all space in the wound cavity occupied by hemostatic gauze and/or non-hemostatic rolled gauze.
> Hemostatic gauze does not replace direct pressure. It must be used in conjunction with direct pressure.

Procedure:
1. Pack the interior of the wound cavity with the hemostatic gauze. Then pack with non-hemostatic rolled gauze, until packing material is building a small mound out of the wound opening.
2. The goal is to have the hemostatic agent in contact with the disrupted vasculature inside the wound cavity prior to packing and compressing the wound.
3. In the absence of hemostatic gauze providers are to utilize non-hemostatic rolled gauze alone for wound packing. This can still be effective at promoting clotting.
4. After wound packing, apply direct pressure for up to 3 minutes followed by a compression/pressure dressing. Consider using a pressure bandage such as the commercial Israeli bandage or H bandage if available or an ace wrap.
5. **Notify the receiving facility of the use of hemostatic agent.** Whenever possible, on arrival and in your EPCR, report the number of hemostatic gauze packets and non-hemostatic gauze rolls placed in wound.

6. Attach hemostatic agent packaging to patient for identification of agent at hospital (tape to torso, affix beneath bandage/wrap, etc.).
Clinical Indications:

- A tourniquet may be used to control hemorrhage in extremities that is severe, potentially life or limb threatening, and unable to be controlled by direct pressure.
- For any traumatic total or partial amputation, a tourniquet should be applied as proximal – high on the limb – as possible above the amputation, regardless of current hemorrhage.

Contraindications:

- Non-extremity sites of hemorrhage such as the head, neck, or torso.

Precautions:

- A tourniquet applied incorrectly can increase blood loss and be generally ineffective.
- Tourniquets currently approved for use are meant for use on extremities but are not effective on axillary or groin vascular injuries. In axillary or groin vascular injuries move to direct pressure, wound packing, hemostatic agent, and compression bandage use.
- A commercially made tourniquet is the preferred tourniquet. If none is available, a blood pressure cuff inflated to a pressure sufficient to stop bleeding can be tried only until a commercially made tourniquet is available. If utilizing this type of improvised tourniquet, the EMS provider must ensure the effectiveness of the improvised device. Blood pressure cuffs will gradually lose pressure and need re-inflation or the Velcro closure may come loose.
- Severe pain may occur with tourniquet application. Analgesics are usually needed.

Procedure:

- Use of our own department issued tourniquets is preferred if immediately available.
➤ Attempt to control hemorrhage via direct pressure (at the site of the bleeding as well as pulse points) while preparing tourniquet. Kneel on extremity at pulse points such as the brachial artery or femoral artery.

➤ Apply tourniquet according to manufacturer specifications and using the steps below:
- If able to fully expose and evaluate wound, apply tourniquet directly over the skin and not over clothing. Always apply tourniquets as proximal – high on the limb as possible.
- The following circumstances may create time or resource limitations that require applying the tourniquet over clothing:
  1. Hemorrhage is severe enough that loss of life or limb is imminent.
  2. An active threat environment restricts provider actions.
  3. Patient volume and acuity exceeds available resources.
- **Do not apply a tourniquet over a joint.**
- Tighten tourniquet until bleeding stops and pulses distal to tourniquet are no longer palpable.
- Mark the time of each tourniquet application.
- Ensure tourniquet is not obscured by dressings or clothing.
- Reassess tourniquet efficacy after moving patient, and at least every 15 minutes thereafter. If it is noted at any time that a tourniquet has become ineffective as evidenced by continued bleeding or palpable distal pulses, identify cause of failure (e.g. tourniquet over clothing, improper application, faulty device, blood pressure cuff has lost pressure). Consider tightening tourniquet. **DO NOT remove tourniquet.**
- If tourniquet is still ineffective, locate a suitable site for application of a second tourniquet, preferably proximal to the first tourniquet.
- Keep tourniquet on throughout all care phases – a correctly applied tourniquet should only be removed by the receiving hospital.
- Provide pain management as per our protocols.
Clinical Indications:

- Continuous lavage to the cornea, conjunctiva, and cul-de-sac due to injuries secondary to solvents, gasoline, detergents, alkali burns, non-embedded foreign bodies, foreign body sensation without visible debris, and severe infection

Contraindications:

- Penetrating eye injuries
- Suspected or actual rupture of the globe
- To place known allergens into ocular space

Insertion Procedure:

- Instill topical ocular anesthetic (e.g. 2 drops of Tetracaine.)
- Attach Morgan Lens to sterile IV tubing and prime with solution (saline bag.)
- Have patient look down, retract upper lid and, insert Morgan Lens under lid.
- Have patient look up, retract lower lid and gently place lens.
- Release lower lid over lens and ensure steady, copious flow.
- Secure tubing to prevent accidental lens removal. Absorb outflow with extra towels and sheets.
- Irrigate with at least 1 Liter of fluid and DO NOT RUN DRY.

Removal Procedure:

- Ensure flow of solution is continuing.
- Have patient look up and retract lower lid and upper lid if necessary.
- Gently slide Morgan Lens out.
- Stop flow of solution only after removing lens completely from eye.

Document procedure completely, including solution and volume used to irrigate.
Clinical Indications:

- Cardiac arrest when an endotracheal tube has been placed and venous or IO access is unobtainable. IV/IN/IO are the preferred routes of administration of life saving medication.

Medications that can be administered by endotracheal route:

- Narcan
- Atropine
- Epinephrine
- Lidocaine
- Midazolam (Versed)

Procedure:

1. Ensure that the correct medication, patient, dosage, time is identified.
2. Hyperventilate the patient with 4-5 breaths and remove BVM.
3. If the BVM has a supplied medication port, administer medication through the medication port and ventilate the patient.
4. If the BVM does not have a supplied medication port:
   - Hyperventilate the patient.
   - Disconnect the BVM.
   - Administer medication via the endotracheal tube.
   - Re-attach the BVM and ventilate the patient to allow the medication to reach the bronchial tree so it can be absorbed into the bloodstream.
5. Medications administered via endotracheal route, should be administered at twice the IV dose and should be diluted with sterile normal saline to a volume of at least 10 ml for adults and 1-5 ml for pediatric patients.
Clinical Indications:

- Patient without IV access requiring urgent medication administration (e.g., active seizure, respiratory arrest secondary to opiate overdose, hypoglycemia or pain management).

Medications that can be administered by intranasal route:

- Narcan
- Glucagon
- Midazolam (Versed)
- Fentanyl

Procedure:

1. Determine appropriate medication dose per applicable protocol.

2. Draw medication into syringe and carefully dispose of sharps if the medication is drawn from a vial. If medication is needle-less, attach mucosal atomizer device directly to syringe.

3. Gently insert the atomizer into the nare and stop once resistance is met.

4. Rapidly administer the medication.

5. If the medication is ≥1 ml, administer half of the medication in one nare and the other half in the other nare.

Clinical Indications:

- Patient’s condition warrants medication to improve or stabilize condition.

Precautions:

- Observe universal precautions and ensure body substance isolation (BSI).
- Be certain that the route you choose to use is appropriate for the drug; see specific protocols or medication formulary.
- Be certain the drug you want to administer is the one you use.
- Check expiration dates, dosages and routes before administration.
- Use sterile technique for drawing up medications and filling syringes.
- Rapid administration of drugs can cause untoward effects, avoid them by administering the drugs according to protocol.
- Always check for extravasation, especially when administering dextrose and dopamine.

Procedures:

**IV Administration (ALS - AEMT)**

1. Use appropriate needless cannula or luer lock syringe for solution.
2. Cleanse injection port with alcohol.
3. Insert needless cannula or syringe onto injection port.
4. Clamp Pinch IV tubing between port and IV bag; inject medication slow or rapid as required.
5. Release tubing and follow medication with a 10-20 ml fluid bolus.
6. Record medication given, concentration of dose, amount given and time.

**IO Administration (ALS - AEMT)**

1. Establish intraosseous line per protocol.
2. Prepare medication.
3. Cleanse injection port with alcohol, inject medication and flush with saline.
4. Record medication given, concentration of dose, amount given and time.

- **Note:** Any medication that can be administered via IV access may be administered via IO access in the same manner and at the same dose as indicated by the protocol for IV administration.
IM Administration (ALS - AEMT)
1. Use 1.0 to 1.5 inch, 21-23 gauge needle.
2. Select site, usually deltoid or gluteal muscles.
3. Cleanse site with alcohol.
4. Eject air from syringe.
5. Insert needle at 90 degree angle.
6. Aspirate, if no blood return, inject medication.
7. Apply pressure to site, cover with sterile dressing.
8. Record medication given, concentration of dose, amount given and time.

SQ Administration (ALS - AEMT)
1. Use ¾ inch to 1 inch, 23-25 gauge needle.
2. Select site, usually lateral mid 1/3 arm.
3. Cleanse site with alcohol.
4. Eject air from syringe.
5. Insert needle at 45 degree angle, bevel up.
6. Aspirate, if no blood return, inject medication.
7. Cover with sterile dressing.
8. Record medication given, concentration of dose, amount given and time.

Nebulized Administration (ALS - BLS)
1. Medication is measured and introduced into nebulizer.
2. Attach oxygen tubing to the nebulizer and adjust flow rate to 10 lpm or as prescribed by the manufacturer’s recommendations.
3. Patient is instructed to breathe deeply and to hold a deep inspiration every 4-5 breaths.
4. Patient is monitored throughout procedure per protocol.
5. Treatment is continued until all medication is administer or is discontinued due to complication in patient condition.
6. Record medication given, concentration of dose, amount given and time.
The following medications have been approved by the Medical Director and the District of Columbia Department of Health (DOH) to be utilized by EMS providers within the District of Columbia Fire and EMS Department:

<table>
<thead>
<tr>
<th>Medication</th>
<th>Approved By</th>
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<tbody>
<tr>
<td>Acetylsalicylic Acid (Aspirin)</td>
<td>ALS - BLS</td>
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<tr>
<td>Adenosine (Adenocard)</td>
<td>ALS</td>
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<tr>
<td>Albuterol Sulfate (Proventil)</td>
<td>ALS - BLS</td>
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<tr>
<td>Amiodarone (Cardorone)</td>
<td>ALS</td>
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<tr>
<td>Atropine Sulfate</td>
<td>ALS</td>
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<tr>
<td>Calcium Chloride 10%</td>
<td>ALS</td>
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<tr>
<td>Dextrose 50%, 25%, 10%</td>
<td>ALS - AEMT</td>
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<tr>
<td>Diazepam (Valium) (ChemPack)</td>
<td>ALS</td>
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<tr>
<td>Diltiazem (Cardizem)</td>
<td>ALS</td>
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<tr>
<td>Diphenhydramine HCL (Benadryl)</td>
<td>ALS - AEMT</td>
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<tr>
<td>Dopamine (Intropin)</td>
<td>ALS</td>
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<tr>
<td>Enalapril (Vasotec)</td>
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<tr>
<td>Epinephrine HCL 1:1.000 / 1:10,000 (Adrenalin)</td>
<td>ALS - BLS</td>
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<tr>
<td>Etomidate (Amidate)</td>
<td>ALS</td>
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<tr>
<td>Fentanyl (Sublimaze) (Controlled Medication)</td>
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<td>Furosemide (Lasix)</td>
<td>ALS</td>
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<tr>
<td>Glucagon HCL</td>
<td>ALS - AEMT</td>
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<td>Glucose (Oral)</td>
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<td>Haloperidol (Haldol)</td>
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<tr>
<td>Hydrocortisone (Solu-cortef)</td>
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<td>Hydroxocobalamin (Cyanokit)</td>
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<td>Ipratropium Bromide (Atrovent)</td>
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<tr>
<td>Ketamine (Ketalar) (Controlled Medication)</td>
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<tr>
<td>Labetalol (Normodyne)</td>
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<tr>
<td>Lidocaine HCL (Xylocaine)</td>
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<tr>
<td>Magnesium Sulfate</td>
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<tr>
<td>Methylprednisolone Sodium Succinate (Solu-Medrol)</td>
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<tr>
<td>Midazolam HCL (Versed) (Controlled Medication)</td>
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<tr>
<td>Morphine Sulfate (Controlled Medication)</td>
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<tr>
<td>Naloxone HCL (Narcan)</td>
<td>ALS - BLS</td>
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<tr>
<td>Nitroglycerin (Nitrostat)</td>
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<tr>
<td>Ondansetron (Zofran)</td>
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<td>Oxygen</td>
<td>ALS - BLS</td>
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<tr>
<td>Prednisone</td>
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<tr>
<td>Pralidoxime Chloride / 2-pam CL (WMD)</td>
<td>ALS - BLS</td>
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<tr>
<td>Prochlorperazine (Compazine)</td>
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<tr>
<td>Racemic Epinephrine</td>
<td>ALS</td>
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<tr>
<td>Sodium Bicarbonate</td>
<td>ALS</td>
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<tr>
<td>Sodium Chloride 0.9%</td>
<td>ALS - BLS</td>
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<tr>
<td>Tetracaine Hydrochloride</td>
<td>ALS - BLS</td>
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<tr>
<td>Tranexamic Acid (TXA, Cyklokapron)</td>
<td>ALS</td>
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</tbody>
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Class:
➤ Analgesic, anti-inflammatory, antipyretic, anti-platelet aggregator.

Actions:
➤ Irreversibly inactivates cyclooxygenase and blocks platelet aggregation, thus reducing propagation of clot in coronary vessels during MI. Blocks pain impulses in the CNS as a NSAID.

Indications:
➤ Chest pain or discomfort suggestive of MI or cardiac ischemia.

Contraindications:
➤ Hypersensitivity.
➤ Sign or symptoms of acute CVA (may be a intracerebral bleed)

Precautions:
➤ Any significant active bleeding.

Adverse Reactions:
➤ Gastritis, nausea and vomiting.

Adult Dosage / Route:
➤ 324 mg / 4-81 mg baby aspirin PO if not taken during the previous 24 hours.

Pediatric Dosage / Route:
➤ Not indicated.
Class:
  ➢ Antiarrhythmic.

Actions:
  ➢ Adenosine is a naturally occurring substance present in all cells that slows conduction through the AV node of the heart. Because of its rapid onset of action and short half-life, the administration of Adenosine is sometimes referred to as "chemical cardioversion".

Indications:
  ➢ Paroxysmal Supraventricular Tachycardia (PSVT) refractory to common vagal maneuvers.
  ➢ Stable Monomorphic Wide Complex Tachycardia.

Contraindications:
  ➢ 2nd and 3rd degree heart blocks.
  ➢ Sick sinus syndrome.
  ➢ Hypersensitivity.
  ➢ History of WPW or in the presence of “Delta waves”.

Precautions:
  ➢ May cause transient dysrhythmias.
  ➢ Effects antagonized by theophylline.
  ➢ May cause bronchospasm in asthma patients.

Adverse Reactions:
  ➢ Dyspnea.
  ➢ Nausea.
  ➢ Headache.
  ➢ Dizziness.

Adult Dosage / Route:
  ➢ 6 mg rapid IV followed by a rapid 10-20 ml flush.
  ➢ If no response after initial dose in 2 minutes, administer 12 mg rapid IV push followed by a rapid 10-20 ml flush.

Pediatric Dosage / Route:
  ➢ Initial dose: 0.1 mg/kg rapid IV/IO. If required second dose: 0.2 mg/kg rapid IV/IO. Medical Control Required.
Class:
- Sympathetic agonist.

Actions:
- A synthetic sympathomimetic that causes bronchodilation with reduced Beta 1 cardiac effects. Beta 2 adrenergic.

Indications:
- Bronchial asthma.
- Bronchospasm associated with chronic bronchitis, emphysema, allergic reaction, toxic inhalation, pulmonary edema and congestive heart failure.
- Crush injuries with prolonged extrication.

Contraindications:
- Hypersensitivity.
- Uncontrolled cardiac dysrhythmias.

Precautions:
- Caution should be exercised in patients with a cardiac history.

Adverse Reactions:
- Palpitations.
- Anxiety.
- Dizziness.
- Headache.
- Nervousness.
- Arrhythmias.
- Nausea / vomiting.

Adult Dosage / Route:
- 2.5 mg administered by nebulizer.
- BLS Providers may administer 5.0 mg without medical control.
- ALS Providers may administer 7.5 mg without medical control.
- ALS Providers may administer continuous Albuterol without medical control if patient is in moderate to severe distress or respiratory failure is impending (Asthma / COPD).
Pediatric Dosage / Route:

- 2.5 mg administered by nebulizer.
- BLS Providers may administer 5 mg without order.
- ALS Providers may administer 7.5 mg without order.
Class:
- Class III Antiarrhythmic.

Actions:
- Prolongs phase 3 of the action potential, duration, and refractory period in myocardial cells; acts as noncompetitive inhibitor of alpha- and beta-adrenergic receptors. It also has sodium and potassium channel blocker actions.

Indications:
- Ventricular Tachycardia with a Pulse.
- Pulseless Ventricular Tachycardia.
- Ventricular Fibrillation.

Contraindications:
- Known hypersensitivity to the drug.
- Marked sinus bradycardia.
- Second- and third-degree AV block.
- Cardiogenic shock.
- Hypokalemia, Hypomagnesemia (need to be corrected prior to Amiodarone use).

Precautions:
- May cause burning at site of administration.

Adverse Reactions:
- Cardiac: Hypotension, bradycardia, AV block, arrhythmias.
- Respiratory: Interstitial pneumonitis, ARDS.
- CNS: Malaise, muscle fatigue, ataxia, dizziness, and paresthesias.

Adult Dosage / Route:
Ventricular Tachycardia with a Pulse
- 150 mg mixed in 100 ml Normal Saline infused over 10 minutes. May be repeated one time in 10 minutes.

Pulseless Ventricular Tachycardia and Ventricular Fibrillation
- Initial dose: 300 mg IV/IO.
- Second dose: 150 mg IV/IO.
- Third dose: 150 mg IV/IO.
Return of Spontaneous Circulation (ROSC)
  ➢ 150 mg mixed in 100 ml Normal Saline and infused over 10 minutes.

Pediatric Dosage / Route:
Ventricular Tachycardia with a Pulse
  ➢ Contact Medical Control.

Pulseless Ventricular Tachycardia and Ventricular Fibrillation
  ➢ Initial dose: 5 mg/kg IV/IO.
  ➢ Repeat doses: 5 mg/kg IV/IO.
  ➢ Maximum total dose: 15 mg/kg IV/IO.

Return of Spontaneous Circulation (ROSC)
  ➢ 5 mg/kg slow infusion. Mix dose in 100 ml NS. Utilize a 10 gtts set and infuse at 100 gtts/minute over 10 minutes.
ATROPINE SULFATE

Class:
➢ Anticholinergic / Parasympatholytic agent.

Actions:
➢ Blocks acetylcholine receptors in organophosphate poisonings.
➢ Reverses suspected vagal tone in bradycardia, asystole, and PEA.

Indications:
➢ Symptomatic bradycardia
➢ Organophosphate poisoning.
➢ WMD Nerve Agent poisoning.

Contraindications:
➢ Use with caution in high degree blocks (2nd degree Type II and 3rd degree).

Precautions:
➢ If given too slowly, can cause transient bradycardias.
➢ Use caution when administering to patients with glaucoma.

Adverse Reactions:
➢ Palpitations.
➢ Tachycardia.
➢ Dilated pupils.
➢ Dry mouth.
➢ Blurred vision.

Adult Dosage / Route:
Bradycardia (ALS Only)
➢ 0.5 mg IV. Repeat once in 5 minutes if the patient remains symptomatic.

Organophosphate Poisoning / WMD (ALL PROVIDER LEVELS)
Auto-Injectors: DuoDote™
➢ 2 mg IM via DuoDote™ auto-injector every 10-15 minutes to a maximum total dose of three DuoDote™ auto-injectors.

Auto-Injectors: Mark 1 NAAK
➢ 2 mg via auto-injector every 10 minutes.
Otherwise

- 1-2 mg IV/IO after exhausting auto-injector series repeat every 10 minutes as needed.

Pediatric Dosage / Route:

Bradycardia (ALS Only)

- 0.02 mg/kg IV/IO, minimum dose of 0.1 mg and a maximum of 0.5 mg.

Organophosphate Poisoning / WMD – ALL PROVIDER LEVELS

Auto-Injectors DuoDote™

- Patients weighing 12 kg or greater administer 2 mg atropine via DuoDote™ auto-injector every 20 minutes to a maximum total dose of three DuoDote™ auto-injectors.

Auto-Injectors Mark 1 NAAK

- Ages 8 or greater: 2 mg IM via AtroPen, repeat every 20 minutes as needed.

Auto-Injectors AtroPen (CHEMPACK)

- Ages 3 or less: 0.5 mg IM via AtroPen, repeat every 20 minutes as needed.
- Ages 3-7: 1 mg IM via AtroPen, repeat every 20 minutes as needed.

Otherwise

- 0.05 mg/kg IV/IO after exhausting auto-injector series (maximum single dose of 2 mg), repeat every 20 minutes as needed.

Special Pediatric Instructions

If a WDM MCI event occurs and pediatric AtroPen auto-injectors are not readily available from the CHEMPACK cache then providers shall administer either one (1) DuoDote™ auto-injector or one (1) complete Mark 1 kit to any pediatric patient who is displaying moderate/severe signs of nerve agent or organophosphate poisoning. Repeat dose every 20 minutes.
Class:
- Electrolyte, calcium supplement.

Actions:
- Increases myocardial contractile force and ventricular automaticity.
- Balances hyperkalemia.
- Aids in the re-entry of calcium into muscle when given for calcium channel blocker or magnesium sulfate toxicity.

Indications:
- Known or suspected hyperkalemic cardiac arrest (renal patient).
- Magnesium sulfate toxicity.
- Calcium channel blocker toxicity (toxicity may be caused by overdose of calcium channel blocker medications such as Nifedipine, Verapamil, etc.

Contraindications:
- Digitalis toxicity (Calcium chloride worsens arrhythmias secondary to digitalis toxicity).

Precautions:
- Sodium bicarbonate precipitates with Calcium chloride. Therefore, flush the IV line with 10 ml of Normal Saline between administrations of these two medications.

Adverse Reactions:
- Tissue necrosis if the IV infiltrates.
- Bradycardia, hypotension or asystole can occur with rapid injection.

Adult Dosage / Route:
- 1 gm IV. Slow administration for patients with a palpable pulse when treating crush syndrome or patients with profound hypotension after the administration of diltiazem.
- 1 gm IVP when treating patients in cardiac arrest.

 Pediatric Dosage / Route:
- 20 mg/kg IV. Slow administration for patients with a palpable pulse.
Class:
- Carbohydrate.

Actions:
- Increases blood glucose levels.

Indications:
- Hypoglycemia.

Contraindications:
- Suspected intracranial hemorrhage.
- Known or suspected CVA in the absence of hypoglycemia.

Precautions:
- Blood glucose measurement is preferred prior to the administration of glucose.

Adverse Reactions:
- Dextrose can cause local venous irritation and tissue necrosis if infiltration occurs.

Adult Dosage / Route (AEMT - ALS):
- >12 years, administer 25 gm slow IV. May repeat once if BGL remains <70 mg/dl.

Pediatric Dosage / Route (ALS Only):
- 1 month to 12 years, dilute 1:1 and administer 2 ml/kg of D25.
- Newborn to 1 month, dilute 1:4 and administer 5 ml/kg of D10.
Class:
  ➢ Benzodiazepine.

Actions:
  ➢ Increases the inhibitory processes in the cerebral cortex.

Indications:
  ➢ Sustained or recurrent seizure activity following nerve agent or organophosphate exposure.

Contraindications:
  ➢ Known hypersensitivity to the drug.

Precautions:
  ➢ Should be used with caution in patients with AMS, hypotension, or acute angle glaucoma.
  ➢ May cause respiratory depression.
  ➢ May cause CNS depression in patients that have consumed alcohol or other sedatives.

Adverse Reactions:
  ➢ Neuro: Motor impairment, ataxia, confusion, slurred speech, and lightheadedness.
  ➢ Cardio: Hypotension

Adult Dosage / Route:
  ➢ Auto-Injector: 10 mg IM repeated every 10 minutes until cessation of seizure activity.
  ➢ IV: 2-10 mg IV max 20 mg without medical Control (Secondary replacement medication for Midazolam).

Pediatric Dosage / Route:
  ➢ Auto-Injector: If greater than 33 kg (72 pounds): 10 mg IM.
  ➢ From medication vial: If less than 33 kg: 0.3 mg/kg IV/IO/IM over 2-3 minutes to a maximum single dose of 10 mg.
Class:
- Calcium ion influx inhibitor (Slow Calcium Channel Blocker).
- Antiarrhythmic.

Actions:
- Inhibits the influx of calcium (Ca2+) ions during membrane depolarization of cardiac and vascular smooth muscle. The therapeutic benefits of diltiazem in supraventricular tachycardias are related to its ability to slow AV nodal conduction time and prolong AV nodal refractoriness.
- Decreases sinoatrial and atrioventricular conduction and has a negative inotropic effect.

Indications:
- Symptomatic Atrial Fibrillation or Atrial Flutter with Rapid Ventricular Response.
- Symptomatic Paroxysmal Supraventricular Tachycardia (PSVT).

Contraindications:
- Known hypersensitivity to the drug.
- Hypotension with systolic pressure less than 90 mmHg.
- Congestive Heart Failure.
- Acute MI.
- Sick sinus syndrome.
- Second- or third-degree AV block, except with functioning pacemaker.
- Presence of Wolfe Parkinson White (WPW).

Precautions:
- Interactions: additive effects if used with βeta Blockers.
- The elimination half-life of midazolam increases during co-administration with diltiazem. This can result in prolonged sedation when co-administered with midazolam.

Adverse Reactions:
- Cardiac: Hypotension, bradycardia, AV block.

Adult Dosage / Route:
- Initial Dose: 0.25 mg/kg slow IV over 2 minutes.
- Second Dose administered 15 minutes after initial dose: 0.35 mg/kg slow IV over 2 minutes.
Pediatric Dosage / Route:

➢ Not Indicated.
Class:
- Potent antihistamine.

Actions:
- Block histamine receptor sites in allergic reactions.
- Reverses side effects of dystonic reactions caused by phenothiazines.

Indications:
- Anaphylaxis.
- Allergic reactions.
- Dystonic reactions.
- Nausea when administered in combination with Prochlorperazine

Contraindication:
- Hypersensitivity.

Precautions:
- Use with caution in patients that are pregnant, history of asthma, or experiencing severe intoxication.

Adverse Reactions:
- Hypotension.
- Headache.
- Palpitations.
- Tachycardia.
- Sedation.
- Drowsiness.

Adult Dosage / Route (AEMT - ALS):
- 25-75 mg, slow IV/IM.

Pediatric Dosage / Route (ALS Only):
- 1 mg/kg, slow IV/IM up to a maximum dose 50 mg.
Class:
  ➢ Sympathomimetic.

Actions:
  ➢ At low doses (2-5 mcg/kg/min), increases perfusion to kidneys and abdominal organs.
  ➢ At moderate doses (5-10 mcg/kg/min), increases force and rate of ventricular contractions (Beta 1 effects).
  ➢ At high doses (10-20 mcg/kg/min), peripheral vasoconstrictor (Alpha 1 effects).

Indications:
  ➢ Hypovolemic shock with sufficient fluid resuscitation.
  ➢ Cardiogenic shock.
  ➢ Septic shock.
  ➢ Anaphylactic shock.

Contraindications:
  ➢ Should not be used in the management of hypovolemia until sufficient volume replacement is achieved.
  ➢ Pre-existing tachydysrhythmias.

Precautions:
  ➢ Do not mix with Sodium Bicarbonate.
  ➢ Continue to monitor EKG, blood pressure and heart rate.

Adverse Reactions:
  ➢ Nervousness.
  ➢ Headache.
  ➢ Dysrhythmias.
  ➢ Hypertension.
  ➢ Nausea / vomiting.

Adult Dosage / Route:
  ➢ 5-20 mcg/kg/min via infusion.

Pediatric Dosage / Route:
  ➢ 5-20 mcg/kg/min via infusion.
Class:
- Angiotensin Converting Enzyme (ACE) Inhibitor

Actions:
- Inhibits conversion of angiotensin I to angiotensin II. Resulting in decrease afterload and decreased aldosterone secretion.

Indications:
- CHF
- Hypertension with pulmonary edema

Contraindications:
- Hypotension (SBP 110 mmHg).
- Pregnancy.
- Known sensitivity to ACE inhibitors.

Precautions:
- Interactions: additive effects if used with beta Blockers.
- The elimination half-life of midazolam increases during co-administration with Diltiazem. This can result in prolonged sedation when co-administered with midazolam.

Adverse Reactions:
- Cardiac: Hypotension, Dizziness due to orthostatic hypotension.

Adult Dosage / Route:
- 1.25 mg IV.

Pediatric Dosage / Route:
- Medical Control Required.
Class:
  ➢ Sympathomimetic.

Actions:
  ➢ A potent alpha and beta stimulant that increases heart rate, cardiac contractile force, myocardial electrical activity, systemic vascular resistance, blood pressure and automaticity. Increases myocardial oxygen demand.

Indications:
  ➢ Cardiac arrest.
  ➢ Severe anaphylaxis.
  ➢ Bronchial asthma.

Contraindications:
  ➢ Hypertension.
  ➢ Pre-existing tachydysrhythmias with a pulse.

Precautions:
  ➢ Use with caution in patients with a history of coronary artery disease because Epinephrine may precipitate acute MI.
  ➢ Use with caution in pregnant patients.
  ➢ Do not mix with Sodium Bicarbonate.

Adverse Reactions:
  ➢ Palpitations.
  ➢ Anxiety.
  ➢ Tremors.
  ➢ Headache.
  ➢ Dizziness.
  ➢ Nausea / vomiting.

Adult Dosage / Route:

Cardiac Arrest
  ➢ 1:10,000 1 mg IV/IO every 3-5 minutes for the duration of the arrest.
  ➢ 1:1,000 2 mg ET diluted in 5 ml saline every 3-5 minutes.

Severe Anaphylaxis
  ➢ 1:1,000 0.3-0.5 mg IM, repeat as necessary (ALS).
  ➢ 0.3 mg IM via Auvi-Q (BLS or ALS).
Severe Asthma

- 1:1,000 0.3 mg IM (ALS).
- 0.3 mg IM via Auvi-Q (BLS or ALS).

Pediatric Dosage / Route:

Cardiac Arrest

- 1:10,000 0.01 mg/kg IV/IO every 3-5 minutes for the duration of the arrest.
- 1:1,000 0.1 mg/kg ET diluted in 1-5 cc saline every 3-5 minutes.

Bradycardia

- 1:10,000 0.01 mg/kg IV/IO.
- 1:1,000 0.1 mg/kg ET.
- 0.1-1 mcg/kg/min infusion. 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.

Severe Anaphylaxis

- 1:1,000 0.01 mg/kg IM, up to a maximum single dose of 0.5 mg. May repeat once in 5 minutes (ALS).
- Auvi-Q 0.15 mg IM for patient’s ≤3 years of age. May repeat once in 5 minutes (BLS or ALS).
- 0.1-1 mcg/kg/min infusion. 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.
Class:

➢ Hypnotic medication without analgesic activity.

Actions:

➢ Believed to have GABA like effects. The exact mechanism is unknown.

Indications:

➢ Respiratory Failure/Respiratory Arrest.
➢ Medication Facilitated Intubation.
➢ Sedation during CPR

Contraindications:

➢ Hypotension.
➢ Adrenal insufficiency.
➢ Laryngospasm.
➢ Active labor.
➢ Known hypersensitivity to Etomidate.

Precautions:

➢ Rapid onset when used as anesthetic.

Adverse Reactions:

➢ Respiratory: Apnea.
➢ Musc.-Skeletal: Transient skeletal muscle movements.
➢ GI: Nausea.

Adult Dosage / Route:

➢ 0.3 mg/kg IV/IO over 1 minute, maximum of 30 mg. May repeat dose once if Trismus (reduced opening of the jaw caused by spasm) is present or further sedation is required.

Pediatric Dosage / Route:

➢ Less than 10 years of age: Not indicated.
➢ Patients that are age 10 years or greater. Medical Control Required.
Class:
  ➢ Synthetic Narcotic Analgesic.

Actions:
  ➢ Binds to opioid receptors.

Indications:
  ➢ Acute Coronary Syndrome/Chest Pain.
  ➢ Pain Management.
  ➢ Burns Thermal/Chemical.

Contraindications:
  ➢ Hypotension.
  ➢ Respiratory depression.
  ➢ Traumatic brain injury.

Precautions:
  ➢ May cause respiratory depression.
  ➢ Onset is almost immediate when administered via IV.

Adult Dosage / Route:
  ➢ If the patient exhibits signs / symptoms of hypoperfusion Contact Medical Control for Fentanyl
  ➢ In patients 65 years old and greater consider an initial dose of half your normal adult dose when administering opiates (Morphine / Fentanyl).

Pain Management
  ➢ 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.

Burn Management
  ➢ 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.

Pediatric Dosage / Route:
  ➢ 1 mcg/kg IV/IO/IN up to a maximum single dose of 50 mcg. Medical Control Required for additional doses.
Class:
  ➢ Loop diuretic.

Actions:
  ➢ A potent diuretic that inhibits sodium re-absorption by the kidneys.
  ➢ Vasodilatation of the pulmonary veins.

Indications:
  ➢ Acute pulmonary edema.
  ➢ Congestive heart failure.
  ➢ Hypertension.

Contraindications:
  ➢ Hypersensitivity.
  ➢ Known allergy to sulfonamides.
  ➢ Dehydrated patients.
  ➢ Pregnancy.
  ➢ Hypotension.

Precautions:
  ➢ Severe dehydration and electrolyte depletion may occur from excess doses of Furosemide.

Adverse Reactions:
  ➢ Dehydration.
  ➢ Decreased circulatory blood volume.
  ➢ Decreased cardiac output.
  ➢ Loss of electrolytes.

Adult Dosage / Route:
  ➢ 20-40 mg slow IV. Medical Control Required

Pediatric Dosage / Route:
  ➢ 0.5 mg/kg IV. Medical Control Required
GLUCAGON HCL

Class:
- Pancreatic hormone.
- Anti-hypoglycemic.

Actions:
- Converts stored glycogen to glucose, increasing blood glucose levels.
- Improves cardiac contractility and increases heart rate.

Indications:
- Hypoglycemia when IV access is unobtainable (should not be a first line treatment for hypoglycemia when IV access is available).
- Beta blocker and calcium channel blocker overdose with bradycardia.
- Allergic Reaction / Anaphylaxis.

Contraindications:
- Hypersensitivity to proteins.

Precautions:
- Administer cautiously to patients with kidney and liver dysfunctions.
- Effective only if sufficient stores of glycogen in the liver.

Adverse Reactions:
- Nausea and vomiting.
- Tachycardia.

Adult Dosage / Route:

Hypoglycemia (AEMT - ALS)
- 1 mg IN/IM.

Calcium Channel / Beta Blocker Overdose (ALS Only)
- 1 mg IV every 5 minutes, up to a maximum of 3 mg.

Allergic Reaction / Anaphylaxis not responding to Epinephrine on Beta Blockers (ALS Only)
- 2 mg IVP.
Pediatric Dosage / Route (ALS Only):

Hypoglycemia
- 1 mg IN/IM $\geq$25 kg. 0.5 mg <25kg.

Calcium Channel / Beta Blocker Overdose
- 1 mg IV every 5 minutes, up to maximum of 3 mg.

Allergic Reaction / Anaphylaxis
- Medical Control Required.
**Class:**
- Carbohydrate.

**Actions:**
- Increases blood glucose level.

**Indications:**
- Altered mental status secondary to hypoglycemia.
- Beta Blocker overdose

**Contraindications:**
- Patients unable to protect their own airway.
- Patients unable to swallow.

**Precautions:**
- Assure that the patient has a gag reflex.

**Adverse Reactions:**
- Aspiration.
- Nausea and vomiting.

**Adult Dosage / Route:**
- 25-50 gm PO or one single dose tube. May repeat once.

**Pediatric Dosage / Route:**
- 0.5 gm/kg PO if the child is < 8 years of age (ALS).
Class:
- Tranquilizer.
- Anti-psychotic.

Actions:
- Strong anti-emetic effect and impairs central thermoregulation. Produces weak central anticholinergic effects and transient orthostatic hypotension due to blockade of dopamine activity.

Indications:
- Management of manifestations of psychotic disorders and for treatment of agitated states in acute and chronic psychoses.

Contraindications:
- Patients with known hypersensitivity.
- Coma.
- Parkinson’s disease.
- Alcoholism.
- CNS depression.
- Cocaine overdose.

Precautions:
- Severe cardiovascular disorders (may cause transient hypotension or precipitate angina pectoris).
- Receiving anticonvulsant medication (may lower convulsive threshold).

Adverse Reactions:
- Extra-pyramidal Syndrome (EPS).
- Headache.
- Lethargy.
- Headache.
- Tachycardia.
- Hypotension.

Adult Dosage / Route:
- 5 mg IM. Patients over the age of 65 years, 2.5 mg IM.

Pediatric Dosage / Route:
- Children >12 years of age: 5 mg IM. Medical Control Required
- Children 6-12 years of age: 2 mg IM. Medical Control Required.
Class:
- Glucocorticoid steroid.

Actions:
- Acts as an anti-inflammatory glucocorticoid. The exact mechanism is undetermined.

Indications:
- Numerous emergencies in patients with adrenal insufficiency.

Contraindications:
- None in the patients with adrenal insufficiency.

Precautions:
- None.

Adverse Reactions:
- Cardiac: Transient hypertension.

Adult Dosage / Route (AEMT - ALS):
- 100 mg IV/IO/IM.

Pediatric Dosage / Route:
- 2 mg/kg IV/IO/IM to a maximum of 100 mg.
HYDROXOCOBALAMIN
Cyanokit

Class:
- Antidote.
- Precursor of vitamin B12.

Actions:
- Binds with cyanide ions to form cyanocobalamin, which is excreted in the urine.

Indications:
- Treatment of cyanide poisoning with altered mental status or symptoms of circulatory compromise.

Contraindications:
- Patients with known anaphylactic reactions to hydroxocobalamin or cyanocobalamin.

Precautions:
- Administer slowly over 15 minutes.
- Transient hypertension.

Adverse Reactions:
- Hypertension.
- Headache.
- Red-colored urine.
- Headache.
- Nausea.

Adult Dosage / Route:
- Initial dose is 5 grams infused over 15 minutes slow IV. (Each 2.5 g vial of hydroxocobalamin for injection is to be reconstituted with 100 ml of Normal Saline and administered at 10-15 ml/minute.) An additional 5 gram dose may be administered with Medical Control order.

Pediatric Dosage / Route:
- 70 mg/kg (reconstitute concentration is 25 mg/ml). Each 2.5 g vial of hydroxocobalamin for injection is to be reconstituted with 100 ml of Normal Saline and infused at 10-15 ml/minute. Maximum single dose 5 grams.
Class:
- Anticholinergic.
- Bronchodilator.

Actions:
- Bronchodilatation.
- Dries respiratory tract secretions.
- Most effective in combination with a beta-adrenergic bronchodilator.

Indications:
- Bronchospasm related to asthma, chronic bronchitis, and emphysema.

Contraindications:
- Sensitivity to Atropine.
- Tachydysrhythmias.
- ****The aerosol solution and all new inhalers DO NOT contain Soy Lecithin and as such CAN be used with patients with sensitivity to soybeans or peanuts.****

Precautions:
- Administer cautiously to patients with narrow-angle glaucoma.

Adverse Reactions:
- Tachycardia.
- Palpitations.
- Dizziness.
- Headache.
- Dry mouth.

Adult Dosage / Route:
- 2.5 ml (500 mcg) mixed with 2.5 mg Albuterol via nebulizer.

Pediatric Dosage / Route:
- 2.5 ml (500 mcg) mixed with 2.5 mg Albuterol via nebulizer.
Class:
    ➢ General Anesthetic.

Actions:
    ➢ N-Methyl d-aspartate (NMDA) receptor antagonist.

Indications:
    ➢ Crush injuries with prolonged extrication and potential compartment syndrome for pain and sedation.
    ➢ Analgesia if Narcotic pain medication not available.

Contraindications:
    ➢ AMI.
    ➢ Uncontrolled severe Hypertension.

Precautions:
    ➢ May have additive and/or synergistic effects when other sedatives are present.

Adverse Reactions:
    ➢ Cardiac: Hypertension, Flushing, Palpitations.
    ➢ GI: Increased oral secretions, Nausea & Vomiting.
    ➢ Respiratory: Increased secretions, bronchorrhea

Adult Dosage / Route:

Pain Management
    ➢ 0.2 mg/kg IV/IO/IM administered over 1 minute. May repeat once in 5 minutes as needed.

Crush Injuries
    ➢ 0.2 mg/kg IV/IO/IM administered over 1 minute. May repeat every 5 minutes for a total of three (3) doses to ensure provider safety during extrication.

Pediatric Dosage / Route:
    ➢ Contact Medical Control. Anticipate orders for 0.1-0.2 mg/kg IV/IM/IO.
Class:
- Alpha and βeta Blocker.

Actions:
- Direct acting alpha antagonist and non-selective beta antagonist.

Indications:
- Hypertensive crisis.
- CVA / Brain attack.

Contraindications:
- Asthma.
- Hypotension.
- Brady Dysrhythmias.
- CHF.
- Cardiogenic shock.
- Heart blocks of any degree.

Precautions:
- Interactions: additive effects if used with βeta Blockers.
- Must obtain Medical Control order to administer with signs and symptoms of CVA from receiving Stroke Center.

Adverse Reactions:
- Cardiac: Hypotension.
- GI: Nausea and vomiting.
- Resp.: Bronchospasm.

Adult Dosage / Route:
- 10-20 mg slow IV over 1-2 minutes repeated in 5 minutes to a total of three doses as long as SBP is greater >180 mm/Hg.

Pediatric Dosage / Route:
- Medical Control Required
Class:
- Antiarrhythmic.
- Local anesthetic.

Actions:
- Suppresses ventricular ectopy.
- Blocks conduction of pain impulses.

Indications:
- Ventricular fibrillation.
- Ventricular tachycardia.
- Multifocal or frequent PVC’s (>6 per minute).
- Medication Facilitated Intubation with suspected head injury.
- ROSC following the use of Lidocaine as the primary antiarrhythmic medication.
- Intraosseous line anesthesia.

Contraindications:
- Ventricular escape rhythms with bradycardia.
- 2° type II and 3° heart blocks.
- Bradycardia.

Precautions:
- Use caution in patients over the age 65.
- History of liver disease or dysfunction.

Adverse Reactions:
- Muscle twitching.
- Slurred speech.
- Coma.
- Hypotension.
- Altered mental status.

Adult Dosage / Route:
**Ventricular Fibrillation / Pulseless Ventricular Tachycardia**
- 1 mg/kg IV/IO may be repeated every 5 minutes up to a maximum of 3 mg/kg.
Ventricular Tachycardia with a pulse
- 1 mg/kg IV/IO may be followed by 0.5 mg/kg every 5 minutes, up to a maximum of 3 mg/kg.

Return of Spontaneous Circulation (ROSC)
- 0.5 mg/kg IV/IO repeated every 5 minutes to a maximum dose of 3 mg/kg.

Medication Facilitated Intubation
- 1.5 mg/kg IV/IO.

Intraosseous Line Anesthesia
- 20-40 mg IO (2-4 ml 1% Cardiac Lidocaine) and allow 1-2 minute settle time.

Pediatric Dosage / Route:
Ventricular Fibrillation / Pulseless Ventricular Tachycardia
- 1 mg/kg IV/IO may be repeated every 5 minutes up to a maximum of 3 mg/kg.

Ventricular Tachycardia with a pulse
- 1 mg/kg IV/IO may be followed by 0.5 mg/kg every 5 minutes, up to a maximum of 3 mg/kg.

Return of Spontaneous Circulation (ROSC)
- 0.5 mg/kg IV/IO repeated every 5 minutes.
Class:
- Electrolyte.
- Anticonvulsant.

Actions:
- Reverses magnesium deficiency.
- Calcium channel blocker.
- Increases intracellular potassium.
- Relaxes smooth muscle.

Indications:
- Torsades de pointes.
- Seizures due to eclampsia.
- Bronchospasm in asthma or COPD that does not respond to other therapy.

Contraindications:
- Hypotension.
- Heart block.
- Chronic kidney disease/dialysis.

Precautions:
- Continuously monitor blood pressure, respiratory effort, level of consciousness, and muscle strength before and after medication administration.

Adverse Reactions:
- Hypotension.
- Respiratory depression.
- Circulatory collapse.
- Muscle weakness/paralysis.
- Bradycardia.
- CNS depression.

Adult Dosage / Route:

Torsades de pointes (Pulseless)
- 2 gm slow IV/IO. Mix 2 gm in 10 ml of Normal Saline and administer over 2 minutes.
Torsades de pointes (With a pulse)
- 2 gm slow infusion. Mix 2 gm in 100 ml of Normal Saline. Utilize a 10 gtts set and infuse at 50 gtts/min.

Eclampsia
- 4 gm slow 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 until cessation of visible seizure activity.

Asthma
- 2 gm slow infusion. Mix 2 gm in 100 ml of Normal Saline. Utilize a 10 gtts set and infuse at 50 gtts/min.

Pediatric Dosage / Route:

Torsades de pointes (Pulseless)
- 25-50 mg/kg slow IV/IO. Mix required dosage in 10 ml Normal Saline and administer over 2 minutes. Maximum dose of 2 gm.

Torsades de pointes (With a pulse)
- 25-50 mg/kg IV over 20 minutes, up to a maximum single dose of 2 gm.

Asthma
- 25-50 mg/kg IV over 20 minutes, up to a maximum single dose of 2 gm.
Class:

- Anti-inflammatory.
- Steroid.

Actions:

- A synthetic steroid that is effective as an anti-inflammatory. Also controls severe or incapacitating allergic reactions.

Indications:

- Asthma (When unable to take oral Prednisone).
- Severe anaphylaxis.
- Exacerbation of COPD (When unable to take oral Prednisone).

Contraindications:

- Known hypersensitivity.

Precautions:

- Cardiac arrhythmias or circulatory collapse can occur with large rapidly administer dosages.

Adverse Reactions:

- Cardiac arrhythmias.
- Hypertension.
- Vertigo.
- Headache.

Adult Dosage / Route:

- 125 mg IV/IM.

Pediatric Dosage / Route:

- 2 mg/kg IV/IM, up to a maximum single dose of 125 mg.
Class:
  ➢ Benzodiazepine.

Actions:
  ➢ A short acting central nervous system depressant that causes amnesia, sedation, and muscle relaxation.

Indications:
  ➢ Active seizures / status epilepticus.
  ➢ Sedation prior to cardioversion or transcutaneous pacing in conscious patients.
  ➢ Chest pain or tachycardia due to overdose on ingestion of cocaine, amphetamine, ecstasy, LSD, PCP or ketamine.
  ➢ Medication Facilitated Intubation
  ➢ Chemical sedation for combative patients with mental disturbances or overdose.
  ➢ Seizures secondary to Organophosphate and Carbamate Poisoning.
  ➢ Seizures secondary to WMD Nerve Agent poisoning.

Contraindications:
  ➢ Known hypersensitivity.
  ➢ Hypotension.

Precautions:
  ➢ Monitor respirations.
  ➢ Avoid mixing with other medications, flush IV line after administration.
  ➢ Titrate in small doses.

Adverse Reactions:
  ➢ Respiratory depression.
  ➢ Apnea.
  ➢ Hypotension.
  ➢ Amnesia.
  ➢ Nausea.
Adult Dosage / Route:
Seizures / Eclampsia / Excited Delirium / Nerve Agents, Organophosphate poisoning, or Carbamate Poisoning
- **Intranasal dose**: 10 mg IN, 5 mg each nostril. Repeat every 5 minutes with one 5 mg dose to a maximum dose of 10 mg. **Contact Medical Control** for additional doses.
- **Intramuscular**: 5 or 10 mg IM.
- **Intravenous dose**: 2-5 mg IV/IO every 2 minutes to a maximum of 10 mg until cessation of visible seizure activity.

Cardioversion / Pacing / Envenomations / Bites and Stings / Medication Facilitated Intubation Additional Sedation
- 2-5 mg IV/IO/IN, up to a maximum dose of 10 mg.

Stimulant Induced Chest Pain / Acute Pulmonary Edema (CHF)
- 2-5 mg IV/IN, up to a maximum dose of 10 mg. **Medical Control Required**

Pediatric Dosage / Route:
Seizures
- **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. **Medical Control Required** for additional doses.
- **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.

Cardioversion / Pacing
- 0.1 mg/kg IV/IN, up to a maximum single dose of 5 mg.

Stimulant Induced Chest Pain / CHF
- 0.1 mg/kg IV/IN, up to a maximum single dose of 5 mg. **Medical Control Required**

Nerve Agents, Organophosphate poisoning, or Carbamate Poisoning
- 0.2 mg/kg IV/IO/IM/IN, up to a maximum single dose of 5 mg.
Class:
- Narcotic.
- Analgesic.

Actions:
- Potent analgesic.
- Decreases peripheral vascular resistance causing vasodilatation.
- Decreases cardiac workload and oxygen demand on the heart.

Indications:
- Chest pain not relieved by nitroglycerin (second line agent for Fentanyl).
- Pain management. (Second line agent for Fentanyl).

Contraindications:
- Known hypersensitivity.
- Head injury.
- Hypotension.
- Respiratory depression.

Precautions:
- Monitor respiratory status and blood pressure. Have Naloxone readily available.

Adverse Reactions:
- Hypotension.
- Respiratory depression.
- Syncope.
- Bronchospasm.

Adult Dosage / Route:
- If the patient exhibits signs / symptoms of hypoperfusion Contact Medical Control for Morphine
- In patients 65 years old and greater consider an initial dose of half your normal adult dose when administering opiates (Morphine / Fentanyl).
Pain Management / Burns

- 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.

Cardiac Chest Pain

- 2 mg IV, up to a maximum of 10 mg.

Pediatric Dosage / Route:

Pain Management

- 0.1 mg/kg IV until pain is relieved or a maximum single dose of 10 mg is reached. An additional dose of 0.5 mg/kg up to a maximum single dose of 10 mg may be repeated one time after 10 minutes.
Class:
- Narcotic Antagonist.

Actions:
- Reverses narcotic effects.

Indications:
- Suspected narcotic / opiate overdose.
- Altered Mental Status of unknown origin.

Contraindications:
- Known hypersensitivity.

Precautions:
- Half-life is shorter than most narcotics and may allow the patient to re-develop a decreased level of consciousness and/or respiratory depression.
- May induce opiate withdrawal in patients that have a physical dependency to narcotics / opiates.

Adverse Reactions:
- Nausea / vomiting.
- Headache.
- Tachycardia.
- Acute withdrawal syndrome (violent behavior).

Adult Dosage / Route (BLS Only):
- 2 mg IN. May repeat twice at the same dose.

Adult Dosage / Route (AEMT- 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.

Pediatric Dosage / Route (ALS Only):
- 0.1 mg/kg IV/IM/IN, up to a maximum single dose of 2 mg.
Class:
- Nitrate.
- Vasodilator.

Actions:
- Coronary and systemic vasodilator that decrease peripheral vascular resistance and preload.
- Decreases cardiac workload and oxygen demand on the heart.

Indications:
- Chest pain of cardiac origin.
- Pulmonary edema associated with congestive heart failure.
- Hypertension.

Contraindications:
- Hypotension.
- Suspected intracranial pressure.
- Taken Viagra or similar medications (Sildenafil, Cialis, Tadalafil, Levitra, Vardenafil) in the previous 24 hours.

Precautions:
- Use extreme caution when right ventricular involvement (RVI) is suspected. Contact Medical Control prior to administration.
- Ensure that an IV is established prior to nitroglycerin in patients with a suspected inferior wall MI.

Adverse Reactions:
- Hypotension.
- Headache.
- Reflex tachycardia.
- Nausea / vomiting.

Adult Dosage / Route:

Cardiac Chest Pain
- 0.4 mg SL every 5 minutes, up to a maximum of 3 doses. Nitro paste 1” after 2nd NTG dose.
- BLS providers may assist the patient with his/her own prescribed Nitroglycerin only after a thorough patient assessment.
Congestive Heart Failure

➢ 0.4 mg SL every 5 minutes, **no maximum dose**. Nitro paste 1".

Pediatric Dosage / Route:

➢ Not indicated.
Class:
  ➢ Anti-emetic.

Actions:
  ➢ Potent anti-emetic.

Indications:
  ➢ Persistent vomiting due to gastrointestinal problems.

Contraindications:
  ➢ History of allergic reaction.

Precautions:
  ➢ Avoid intra-arterial or subcutaneous administration.

Adverse Reactions:
  ➢ Allergic reaction.

Adult Dosage / Route:
  ➢ 4 mg IV over 30 seconds.

Pediatric Dosage / Route:
  ➢ 0.15 mg/kg IV over 30 seconds. Maximum single dose 4 mg.
Class:
➢ Gas.

Actions:
➢ Odorless, colorless, tasteless gas that is essential for life.

Indications:
➢ Cardiopulmonary arrest.
➢ Trauma.
➢ Dyspnea.
➢ Suspected hypoxemia.
➢ Cardiac related chest pain.

Contraindications:
➢ None.

Precautions:
➢ Utilize the prescribed dose of a COPD patient unless the patient is in severe respiratory distress then 100% is required.

Adverse Reactions:
➢ May induce respiratory drive in some COPD patients.

Adult Dosage / Route:
➢ ≥15 lpm for BVM, 12-15 lpm via NRB mask or 2-6 lpm via nasal cannula.
➢ Routine oxygen administration is \textbf{NOT REQUIRED} if pulse ox is greater than 94%.

Pediatric Dosage / Route:
➢ ≥15 lpm for BVM, 12-15 lpm via NRB mask or blow-by, 2-6 lpm via nasal cannula. Routine oxygen administration is \textbf{NOT REQUIRED} if pulse ox is greater than 94%.
Class:
- Cholinesterase reactivator.

Actions:
- Reactivates cholinesterase which has been deactivated by chemical nerve agents and organophosphate poisons.
- Relieves paralysis of the respiratory muscles following chemical nerve agent or organophosphate exposure.

Indications:
- Second drug given for the treatment of poisoning due to organophosphate pesticides and chemical nerve agents (First drug of choice is Atropine).
- Primary indication for Pralidoxime administration is muscle weakness or respiratory depression in these patients.

Contraindications:
- Known hypersensitivity.

Precautions:
- Not indicated for poisonings with carbonate pesticides.
- Effects during pregnancy are unknown.
- Safety and efficacy in children is unknown.
- Do not administer more than 3 auto-injectors due to its hypertensive effects.

Adverse Reactions:
- Tachycardia, laryngospasm, muscle rigidity if IV and infused too quickly.
- Mild to moderate pain at injection site.
- Blurred or double vision, dizziness, loss of coordination, headache drowsiness, hypertension, tachycardia.

Adult Dosage / Route:
- 600 mg IM, up to 1800 mg or 3 auto-injectors.

Pediatric Dosage / Route:
- Not indicated.
Class:
- Corticosteroids.

Actions:
- Reduces inflammation.

Indications:
- Bronchospasm with mild - moderate respiratory distress.
- Bronchospasm with moderate-severe respiratory distress if IV access is not available.

Contraindications:
- Known sensitivity.
- Liver disease.
- Pregnancy.

Precautions:
- None in the short term emergency setting.

Adult Dosage / Route:
- 60 mg P.O.

Pediatric Dosage / Route:
- 1-2 mg/kg, up to a maximum of 10 mg. Patient has to be >20 kg and able to swallow.
Class:
- Phenothiazine.

Actions:
- Common neuroleptic actions that result in a decrease in nerve stimulation.

Indications:
- Nausea and Vomiting. (second line agent for Ondansetron (Zofran).

Contraindications:
- CNS depression.
- Severe liver or cardiac disease.
- Narrow glaucoma, pediatric surgery.
- Bone marrow disorders.

Precautions:
- May cause hypotension when administered via IV.
- May cause dyskinesia or the extrapyramidal effects.
- May cause seizures and seizure-like activity.
- May cause anxiety.

Adult Dosage / Route:
- 10 mg by slow IV. Do not administer more than 5 mg per minute.
- 5-10 mg IM.

Pediatric Dosage / Route:
- Medical Control Required.
Class:

➢ Direct acting beta agonist and anti-inflammatory.

Actions:

➢ Stimulates both alpha and beta receptors reducing edema and producing bronchodilation.

Indications:

➢ Croup with audible stridor.
➢ Bronchospasm with moderate-severe respiratory distress.

Contraindications:

➢ Hypertension.
➢ Tachydysrhythmias.

Precautions:

➢ Concurrent use with other adrenergic agents will have additive adrenergic side effects.
➢ Use with MAO inhibitors may lead to hypertensive crisis.
➢ Beta blockers may negate therapeutic effect.

Adult Dosage / Route:

➢ 0.5 ml (11.25 mg) mixed with 3 ml of Normal Saline via nebulizer.

Pediatric Dosage / Route:

➢ <5 kg, 0.25 ml (5.62 mg) mixed with 3 ml of Normal Saline via nebulizer.
➢ ≥5 kg, 0.5 ml (11.25 mg) mixed with 3 ml of Normal Saline via nebulizer.
SODIUM BICARBONATE

Class:
- Electrolyte.
- Alkalizing agent.

Actions:
- Drives serum potassium back into the cell.
- Enhances urinary excretion of tricyclic antidepressants.
- Neutralizes acidosis.

Indications:
- Hyperkalemia.
- Metabolic acidosis.
- Tricyclic antidepressant (TCA) overdose or ingestion.

Contraindications:
- Pre-existing alkalosis.

Precautions:
- Inactivates simultaneously administered catecholamine's (epinephrine or dopamine).
- Flush IV line between medication administrations.

Adverse Reactions:
- Alkalosis.
- Hypokalemia.
- Seizures.
- Tissue sloughing at injection site.

Adult Dosage / Route:
- 1 mEq/kg IV/IO.

Pediatric Dosage / Route:
- 1 mEq/kg IV/IO.
SODIUM CHLORIDE .9% NS

Class:
➢ Isotonic Crystalloid Solution.

Actions:
➢ Fluid and sodium replacement.

Indications:
➢ Anytime IV access and/or medication administration is obtained.

Contraindications:
➢ High doses in the presence of congestive heart failure can cause circulatory overload.

Precautions:
➢ Electrolyte depletion can occur following large amounts of normal saline.

Adverse Reactions:
➢ Thirst.

Adult Dosage / Route:
➢ IV/IO or saline lock.

Pediatric Dosage / Route:
➢ IV/IO or saline lock.
Class:
  ➢ Local anesthetic for the eye.

Actions:
  ➢ Blocks the initiation and conduction of nerve impulses.

Indications:
  ➢ Topically applied local anesthetic for eye examination.

Contraindications:
  ➢ Hypersensitivity to ester anesthetics.
  ➢ Not to be applied in large amounts or to infants less than 1 year of age.
  ➢ Do not use in the presence of penetrating trauma.

Precautions:
  ➢ Advise patient that the drops may burn for a few seconds.

Adverse Reactions:
  ➢ Stinging in affected eye.

Adult Dosage / Route:
  ➢ 1-2 drops per eye.

Pediatric Dosage / Route:
  ➢ 1-2 drops per eye
Class:
➢ Anti-Fibrinolytic.

Actions:
➢ Inhibits both plasminogen activation and plasmin activity, thus preventing clot break-down rather than promoting new clot formation. With massive bleeding this may help stabilize clot formation and decrease extravascular bleeding. Onset of action within 4 hours after IV administration. Exact time of onset unclear and variable.

Indications:
Must meet all criteria below:
➢ Adults (Age 15 or greater) with hemorrhagic shock from trauma.
➢ 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.

Contraindications:
➢ Non-hemorrhagic shock.
➢ Non-traumatic hemorrhagic shock.
➢ Hemorrhagic shock stabilized with other hemostatic agents/measures.

Precautions:
➢ Delayed effects up to 48 hours consistent with anti-inflammatory actions.

Adverse Reactions:
➢ While a theoretical concern, TXA has not been shown to cause significant increase in deep venous thrombosis, pulmonary embolism, myocardial infarction, or stroke in published trials to date.

Adult Dosage / Route:
➢ 1 gram mixed in 100 ml Normal Saline infused over 10 minutes.

Pediatric Dosage / Route:
➢ Not Indicated.
There are many causes of abdominal pain of which some can be life threatening. When evaluating a patient experiencing abdominal pain attempt to determine the cause of the complaint utilizing the following differential.

<table>
<thead>
<tr>
<th>Upper GI Bleed</th>
<th>Lower GI Bleed</th>
<th>Gynecological</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hx of peptic ulcer disease; Can cause massive hemorrhage.</td>
<td>May be occult or bright red; A common cause of orthostatic hypotension and undetected anemia.</td>
<td>Think ectopic!! Pain plus vaginal bleeding and sometimes syncpe.</td>
</tr>
<tr>
<td>Esophageal varices (Hx of cirrhosis, hepatitis).</td>
<td>Diverticulitis</td>
<td>Ectopic Pregnancy</td>
</tr>
<tr>
<td>Peptic Ulcer Disease</td>
<td>Hemorrhoids</td>
<td>Pelvic Inflammatory Disease/STD's.</td>
</tr>
<tr>
<td>Aspirin, NSAID's</td>
<td>Cancer</td>
<td>Ovarian Cyst (No Bleeding)</td>
</tr>
<tr>
<td>Alcohol</td>
<td>Inflammatory Bowel Disease</td>
<td>Kidney / Urinary Tract Infection (Blood in Urine).</td>
</tr>
<tr>
<td>Ingestion of caustic substances.</td>
<td>Chronic Diarrhea, overuse of laxatives.</td>
<td>Endometriosis (Severe pain before and during menstrual cycles).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Colicky Pain</th>
<th>Peritoneal Pain</th>
<th>Vomiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spasmodic – usually results from smooth muscle contracting against obstruction of hollow organ.</td>
<td>Rigid board-like abdomen, resulting from infection or long standing rupture.</td>
<td>Non-specific symptom, caused by a wide variety of underlying problems some of which are serious.</td>
</tr>
<tr>
<td>Bowel Obstruction</td>
<td>Ruptured Appendix</td>
<td>Infection of GI Tract Ulcers</td>
</tr>
<tr>
<td>Renal Obstruction &quot;Kidney Stones&quot;.</td>
<td>Ruptured Ovarian Cyst</td>
<td>Toxic Ingestions</td>
</tr>
<tr>
<td>Gallbladder Obstruction</td>
<td>Pelvic Inflammatory Disease (PID).</td>
<td>Bowel Obstruction</td>
</tr>
<tr>
<td>Ulcerative Colitis</td>
<td>Perforated Ulcer</td>
<td>Stones of the Gallbladder or Kidney.</td>
</tr>
<tr>
<td>Crohn's Disease</td>
<td>Peritonitis Advanced</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Back Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every pain presenting with new onset back pain (&gt;60 yrs.) should have an abdominal exam R/O AAA.</td>
</tr>
<tr>
<td>Abdominal Aortic Aneurysm</td>
</tr>
<tr>
<td>Cholelithiasis</td>
</tr>
<tr>
<td>Pancreatitis</td>
</tr>
<tr>
<td>Perforated Ulcer</td>
</tr>
</tbody>
</table>

Effective Date: April 15, 2015
Revision Date: March 31, 2015
There are many presentations that represent an acute coronary syndrome, especially in females, the elderly, in patients with diabetes, and those with underlying histories of heart disease. Consider acute coronary syndromes in patients with pain or discomfort from the jaw to the lower abdomen.

<table>
<thead>
<tr>
<th></th>
<th>Myocardial Infarction</th>
<th>Angina Pectoris</th>
<th>Dissecting Aneurysm</th>
<th>Pericarditis</th>
<th>Peptic Ulcer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
<td>Substernal may vary</td>
<td>Substernal</td>
<td>Substernal</td>
<td>Substernal more left sided</td>
<td>Epigastric Substernal</td>
</tr>
<tr>
<td><strong>Onset</strong></td>
<td>Usually sudden</td>
<td>Exertional</td>
<td>Acute</td>
<td>Sub-acute</td>
<td>Acute or Sub-acute</td>
</tr>
<tr>
<td><strong>Provocation</strong></td>
<td>Usually none. See comments.</td>
<td>Exercise excitement stress, cold, meals</td>
<td>None</td>
<td>Worsened: lying down breathing, swallowing, coughing, twisting</td>
<td>Alcohol, lack of foods, acid foods</td>
</tr>
<tr>
<td><strong>Quality</strong></td>
<td>Crushing Heaviness, dull Pressure Band-like Constricting Squeezing</td>
<td>Discomfort Choking Pressure Squeezing, Strangling, Constricting</td>
<td>Deep tearing Shearing &quot;Knife-like&quot;</td>
<td>Sharp</td>
<td>Burning</td>
</tr>
<tr>
<td><strong>Radiation</strong></td>
<td>Across, mid-thorax anterior, arms shoulder, neck jaw, teeth, fingers</td>
<td>Same as MI</td>
<td>Back lumbar region</td>
<td>Usually none occasionally shoulder, neck, flank</td>
<td>Occasionally back</td>
</tr>
<tr>
<td><strong>Alleviation</strong></td>
<td>None</td>
<td>Rest, NTG</td>
<td>None</td>
<td>Tripod position shallow respirations</td>
<td>Antacids, food</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>Usually under 30 minutes. Can be longer.</td>
<td>5-15 min.</td>
<td>Hours</td>
<td>Hours</td>
<td>Hours</td>
</tr>
<tr>
<td><strong>Comments</strong></td>
<td>SOB, N&amp;V, pallor, diaphoresis impending doom</td>
<td>May be nocturnal</td>
<td>Sudden onset may subside spontaneously or be associated with paralysis</td>
<td>May be associated with URI, flu pronestyl hydralazine lupus; MAY BE FEBRILE</td>
<td>ASA, NSAID's e.g. Motrin Advil, may trigger.</td>
</tr>
<tr>
<td></td>
<td>Pancreatitis</td>
<td>Esophageal Rupture</td>
<td>Pulmonary Embolism</td>
<td>Esophageal Spasm</td>
<td>Anter./Chondritis</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------</td>
<td>--------------------</td>
<td>--------------------</td>
<td>------------------</td>
<td>------------------</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>Epigastric</td>
<td>Retrosternal</td>
<td>Multiple</td>
<td>Substernal, Epigastric</td>
<td>Anterior / Lateral</td>
</tr>
<tr>
<td><strong>Onset</strong></td>
<td>Acute / Sub-acute</td>
<td>Acute</td>
<td>Sudden or Gradual</td>
<td>Sub-acute</td>
<td>Sudden or Gradual</td>
</tr>
<tr>
<td><strong>Provocation</strong></td>
<td>Alcohol, trauma, gall bladder disease</td>
<td>Swallowing</td>
<td>Respirations, cough</td>
<td>Spontaneous, cold liquids, recumbency</td>
<td>Movement, palpation, cough, respiration</td>
</tr>
<tr>
<td><strong>Quality</strong></td>
<td>Severe or dull</td>
<td>Severe</td>
<td>Sharp or dull</td>
<td>Dull, pressure, colicky</td>
<td>Sharp superficial</td>
</tr>
<tr>
<td><strong>Radiation</strong></td>
<td>Back</td>
<td>Lateral</td>
<td>None</td>
<td>Jaw, either arm</td>
<td>None</td>
</tr>
<tr>
<td><strong>Alleviation</strong></td>
<td>Time</td>
<td>None</td>
<td>None</td>
<td>Antacids, occasionally NTG</td>
<td>Time, heat, analgesia</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>Hours</td>
<td>Hours</td>
<td>Variable</td>
<td>5-60 minutes</td>
<td>Variable</td>
</tr>
<tr>
<td><strong>Comments</strong></td>
<td>May be viral e.g. Mumps</td>
<td>Alcoholics with forceful vomiting; associated with pleural effusion, shock and hydro-pneumothorax</td>
<td>Sudden onset may subside spontaneously or be associated with paralysis</td>
<td>May be associated with URI, flu pronestyl hydralazine lupus; MAY BE FEBRILE</td>
<td>ASA, NSAID's e.g. Motrin Advil, may trigger</td>
</tr>
</tbody>
</table>
GLASGOW COMA SCORE

Eye Opening

Spontaneously 4
To Voice 3
To Pain 2
No Response 1

Motor Response

To Verbal Command - Obeys 6
To Painful Stimulus - Localizes Pain 5
Flexion - Withdraw 4
Flexion - Abnormal 3
Extension 2
No Response 1

Verbal Response

<table>
<thead>
<tr>
<th>Less than 2 years old</th>
<th>2-5 years old</th>
<th>Greater than 5 years old</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smiles/Coos/Cries</td>
<td>Appropriate Words</td>
<td>Oriented and Converses</td>
<td>5</td>
</tr>
<tr>
<td>Cries</td>
<td>Inappropriate Words</td>
<td>Disoriented and Converses</td>
<td>4</td>
</tr>
<tr>
<td>Inappropriate/Cries/Screams</td>
<td>Cries/Screams</td>
<td>Inappropriate Words</td>
<td>3</td>
</tr>
<tr>
<td>Grunts</td>
<td>Grunts</td>
<td>Incomprehensible Sounds</td>
<td>2</td>
</tr>
<tr>
<td>No Response</td>
<td>No Response</td>
<td>No Response</td>
<td>1</td>
</tr>
</tbody>
</table>

Glasgow Coma Score Total (3-15)
This reference applies to 400 mg of Dopamine in 250 ml solution (concentration of 1600 mcg/ml), infuse via 60 drop tubing at the following rates.

For patients <40 kg, refer to the Broselow™ tape for drip/min calculation.

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>5 mcg gtts/min</th>
<th>10 mcg gtts/min</th>
<th>15 mcg gtts/min</th>
<th>20 mcg gtts/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>50</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>60</td>
<td>12</td>
<td>24</td>
<td>34</td>
<td>45</td>
</tr>
<tr>
<td>70</td>
<td>14</td>
<td>26</td>
<td>40</td>
<td>54</td>
</tr>
<tr>
<td>80</td>
<td>15</td>
<td>30</td>
<td>45</td>
<td>60</td>
</tr>
<tr>
<td>90</td>
<td>18</td>
<td>34</td>
<td>52</td>
<td>68</td>
</tr>
<tr>
<td>100</td>
<td>20</td>
<td>40</td>
<td>56</td>
<td>75</td>
</tr>
<tr>
<td>110</td>
<td>22</td>
<td>42</td>
<td>62</td>
<td>84</td>
</tr>
<tr>
<td>120</td>
<td>24</td>
<td>45</td>
<td>68</td>
<td>90</td>
</tr>
<tr>
<td>130</td>
<td>24</td>
<td>50</td>
<td>74</td>
<td>98</td>
</tr>
<tr>
<td>140</td>
<td>26</td>
<td>53</td>
<td>80</td>
<td>105</td>
</tr>
<tr>
<td>150</td>
<td>28</td>
<td>56</td>
<td>85</td>
<td>112</td>
</tr>
<tr>
<td>160</td>
<td>30</td>
<td>60</td>
<td>90</td>
<td>120</td>
</tr>
<tr>
<td>170</td>
<td>32</td>
<td>64</td>
<td>96</td>
<td>128</td>
</tr>
<tr>
<td>180</td>
<td>34</td>
<td>68</td>
<td>102</td>
<td>135</td>
</tr>
<tr>
<td>190</td>
<td>36</td>
<td>72</td>
<td>106</td>
<td>142</td>
</tr>
<tr>
<td>200</td>
<td>38</td>
<td>75</td>
<td>112</td>
<td>150</td>
</tr>
</tbody>
</table>

**Quick Calculation**
Take patient’s weight in pounds, drop the last number and then subtract 2. This will give you the starting drip rate at 5 mcg/kg/min. For every change in micrograms, add or subtract 3 drops.
Example: Patient weighs 175 lb.
175 drop 5 = 17, 17 - 2 = 15
5 mcg/kg/min = 15 gtts/min, 6 mcg/kg/min = 15 + 3 = 18 gtts/min
(Note that this quick calculation is a very close approximate dose)
This reference applies to mixing 1 milligram of Epinephrine 1:1,000 in a 100 ml solution (concentration of 10 mcg/ml), infuse via 60 drop tubing at the following rates. Example: (2 mcg/min / (1000 mcg / 100 cc)) x 60 gtts/cc = 12 gtts/min.

For patients <40 kg, refer to the Broselow™ tape for drip/min calculation.

<table>
<thead>
<tr>
<th>1 mcg/min</th>
<th>2 mcg/min</th>
<th>3 mcg/min</th>
<th>4 mcg/min</th>
<th>5 mcg/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 gtts/min</td>
<td>12 gtts/min</td>
<td>18 gtts/min</td>
<td>24 gtts/min</td>
<td>30 gtts/min</td>
</tr>
<tr>
<td>6 mcg/min</td>
<td>7 mcg/min</td>
<td>8 mcg/min</td>
<td>9 mcg/min</td>
<td>10 mcg/min</td>
</tr>
<tr>
<td>36 gtts/min</td>
<td>42 gtts/min</td>
<td>48 gtts/min</td>
<td>54 gtts/min</td>
<td>60 gtts/min</td>
</tr>
</tbody>
</table>

This reference applies to mixing 1 milligram of Epinephrine 1:1,000 in a 250 ml solution (concentration of 4 mcg/ml), infuse via 60 drop tubing at the following rates. Example: (2 mcg/min / (1000 mcg / 250 cc)) x 60 gtts/cc = 30 gtts/min.

<table>
<thead>
<tr>
<th>1 mcg/min</th>
<th>2 mcg/min</th>
<th>3 mcg/min</th>
<th>4 mcg/min</th>
<th>5 mcg/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 gtts/min</td>
<td>30 gtts/min</td>
<td>45 gtts/min</td>
<td>60 gtts/min</td>
<td>75 gtts/min</td>
</tr>
<tr>
<td>6 mcg/min</td>
<td>7 mcg/min</td>
<td>8 mcg/min</td>
<td>9 mcg/min</td>
<td>10 mcg/min</td>
</tr>
<tr>
<td>90 gtts/min</td>
<td>105 gtts/min</td>
<td>120 gtts/min</td>
<td>135 gtts/min</td>
<td>150 gtts/min</td>
</tr>
</tbody>
</table>
### Normal Vital Signs

<table>
<thead>
<tr>
<th>Category</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)
Determine the **APGAR** score at the first minute postpartum. 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>Sneezing, 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>

**Score of 7-10** is usually associated with coughing and crying within seconds of delivery. Newborns with this score typically do not require and further resuscitation.

**Score of 4-6** the newborn is moderately depressed. Will typically appear pale or cyanotic and have respiratory complications and flaccid muscle tone. These newborns will require some type of resuscitative efforts.
The following chart shows the average ET, suction and orogastric tube size that is compatible to the age of the patient.

<table>
<thead>
<tr>
<th>Age</th>
<th>ET Size</th>
<th>Suction Catheter</th>
<th>Orogastric Tube</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-term</td>
<td>2.5 - 3.0 uncuffed</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Term</td>
<td>3.0 - 3.5 uncuffed</td>
<td>6 - 8</td>
<td>8</td>
</tr>
<tr>
<td>6 Months</td>
<td>3.5 uncuffed</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>12 - 18 Months</td>
<td>4.0 uncuffed</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>3 Years</td>
<td>4.5 uncuffed</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>5 Years</td>
<td>5.0 uncuffed</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>6 Years</td>
<td>5.5 uncuffed</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>8 Years</td>
<td>6.0 uncuffed</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>12 Years</td>
<td>6.5 cuffed</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>16 Years</td>
<td>7.0 - 8.0 cuffed</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Adult Female</td>
<td>7.5 - 8.0 cuffed</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>Adult Male</td>
<td>8.0 - 8.5 cuffed</td>
<td>14</td>
<td>18</td>
</tr>
</tbody>
</table>

1. This chart is meant as a guide only.
2. The size and weight of the child must be taken into consideration for sizing.
3. A quick formula to use when determining endotracheal tube size in pediatric patients is Size = (Age in Years) / 4 + 4.
4. The use of a Broselow™ tape or similar device is encouraged for pediatric patients.
Rule of Nines

- 9%
- 4.5%
- 1%
- 9% 9%
- 9% 9%
- Head and neck (18%)
- Each arm (9%)
- Abdomen (18%)
- Back (18%)
- Each leg (14%)
- Genital area (1%)

Detailed calculation reference for pediatrics > 1 year of age:
For every year over one, add 0.5% to each leg and subtract 1% for the head

<table>
<thead>
<tr>
<th>Age</th>
<th>Head</th>
<th>Each leg</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>17%</td>
<td>14.5%</td>
</tr>
<tr>
<td>3</td>
<td>16%</td>
<td>15%</td>
</tr>
<tr>
<td>4</td>
<td>15%</td>
<td>15.5%</td>
</tr>
<tr>
<td>5</td>
<td>14%</td>
<td>16%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Head</th>
<th>Each leg</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>13%</td>
<td>16.5%</td>
</tr>
<tr>
<td>7</td>
<td>12%</td>
<td>17%</td>
</tr>
<tr>
<td>8</td>
<td>11%</td>
<td>17.5%</td>
</tr>
<tr>
<td>9</td>
<td>10%</td>
<td>18%</td>
</tr>
</tbody>
</table>
### Infectious Diseases

**Tuberculosis (TB)**
- Droplets; Coughing, sneezing, intubation, suctioning
- Initial 2-step test, annual PPD. Wear HEPA masks.
- Source = PPD Employee = PPD, unless PPD tested within prior 12 weeks or previously PPD reactive
- PPD at week 12 post-exposure. If new positive; chest x-ray and Rx with isoniazid for 6 months.

**Meningitis (Bacterial / Viral)**
- Droplets; Coughing, sneezing, intubation, suctioning
- HEPA Mask
- Antibiotic; Cipro, Rocephin, Rifampin
- Seek medical care if symptoms of meningitis develop; fever, stiff neck, severe headache.

**Influenza (FLU)**
- Close contact droplets; coughing, sneezing, intubation, suctioning. Also direct contact with vesicle fluid.
- Flu shot (Vaccination)
- Treatments; analgesics, Rimantadine, Tamiflu, Relenza.
- As determined by medical professional.

**Varicella Zoster (Chicken Pox)**
- Close contact droplets; coughing, sneezing, intubation, suctioning. Also direct contact with vesicle fluid.
- Vaccine = 1 shot (Varivax). HEPA mask.
- Treatment; Varicella Zoster Immune Globulin (VZIG) within 96 hrs. of exposure.
- As determined by medical professional.

### Blood-Borne

<table>
<thead>
<tr>
<th>Disease</th>
<th>Transmission</th>
<th>Prevention</th>
<th>Post-Exposure</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV</td>
<td>Blood to blood, to non-intact skin and mucous membranes.</td>
<td>No Vaccine</td>
<td>See post-exposure control protocol.</td>
<td>Periodic screening; 6, 12, 26 weeks after exposure.</td>
</tr>
<tr>
<td>Syphilis</td>
<td>Blood and/or open sores / lesions</td>
<td>No Vaccine</td>
<td>Source = RPR Employee = RPR Penicillin.</td>
<td>Repeat test at 3 and 6 months. If positive refer to medical professional.</td>
</tr>
<tr>
<td>Hepatitis-B (HBV)</td>
<td>Blood to blood, to non-intact skin and mucous membranes.</td>
<td>Vaccine = 3 shot series. Titer and re-immunize if necessary.</td>
<td>Source = Acute Hep. Panel Employee = Acute Hep. Panel. If source positive, employee not immune; administer immune globulin and consider HAV vaccine series.</td>
<td>Periodic screening; 6, 12, 26 weeks after exposure.</td>
</tr>
<tr>
<td>Hepatitis-C (HCV)</td>
<td>Blood to blood, to non-intact skin and mucous membranes.</td>
<td>No Vaccine</td>
<td>Source = Acute Hep. Panel Employee = Acute Hep. Panel. If source positive, consider employee qualitative HCV RNA &amp; ALT testing 6 weeks after exposure.</td>
<td>Periodic screening; 6, 12, 26 weeks after exposure. If employee becomes HCV RNA positive, treat with Interferon / Ribavirin for 6 months.</td>
</tr>
<tr>
<td>Other</td>
<td>Transmission</td>
<td>Prevention</td>
<td>Post-Exposure</td>
<td>Follow-up</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------------</td>
<td>-----------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Hepatitis-A (HAV)</td>
<td>Fecal / oral</td>
<td>Vaccine = 2 shot series</td>
<td>Source = Acute Hep. Panel Employee = Acute Hep. Panel. If source positive, employee not immune; administer immune globulin and consider HAV vaccine series.</td>
<td>Periodic screening; 12 weeks after exposure or if symptoms occur.</td>
</tr>
<tr>
<td>Tetanus</td>
<td>Soiled object causing open wound.</td>
<td>Vaccine good for 10 years.</td>
<td>If no vaccine, administer at this time. If over 7 years from last vaccination and sustained open wound, booster dose.</td>
<td>Seek medical care if symptoms of tetanus develop; lockjaw, rigid muscles.</td>
</tr>
<tr>
<td>Lyme Disease</td>
<td>Tick-borne; tick attached 24 hours.</td>
<td>Avoid tick infested areas.</td>
<td>Antibiotics; Amoxicillin, Doxycycline.</td>
<td>As determine by medical professional.</td>
</tr>
<tr>
<td>Scabies</td>
<td>Direct contact; mite infested areas, bedding / clothing, nursing homes.</td>
<td>Avoid infested areas.</td>
<td>Lindane and Kwell applied to the entire body for 24 hours.</td>
<td>Close supervision of treatment including bathing.</td>
</tr>
<tr>
<td>Rabies</td>
<td>Virus-laden saliva of infected animal; animal bites.</td>
<td>Avoid animal bites.</td>
<td>Wash infected areas. Administer rabies anti-serum injection and first dose of rabies vaccine. Contact animal control, monitor for presence of infection.</td>
<td>If animal is positive, continue to treat employee with vaccine.</td>
</tr>
<tr>
<td><strong>ABBREVIATIONS</strong></td>
<td>Approved for use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st degree, primary</td>
<td>$1^\circ$ calcium chloride, CaCl</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd degree, secondary</td>
<td>$2^\circ$ carcinoma, cancer, Ca</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd degree</td>
<td>$3^\circ$ cardiopulmonary resuscitation, CPR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>about, approximately</td>
<td>$\approx$ centigrade, C$^\circ$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>after</td>
<td>$\sim$ cerebrospinal fluid, CSF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>before</td>
<td>$\tilde{a}$ cerebrovascular accident, CVA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>abdomen</td>
<td>abd. change, $\Delta$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>abortion</td>
<td>Ab chest pain, CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>acetaminophen/Tylenol</td>
<td>APAP chief complaint, CC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>acute coronary syndrome</td>
<td>ACS chronic obstructive pulmonary disease, COPD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>acute myocardial infarction</td>
<td>AMI circulation, motor, sensation, CMS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>advanced cardiac life support</td>
<td>ACLS clear to auscultation, CTA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>against medical advice</td>
<td>AMA complains of, c/o</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>airway, breathing, circulation</td>
<td>ABC congestive heart failure, CHF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>alcohol (ethanol)</td>
<td>ETOH coronary artery bypass graft, CABG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>alert and oriented</td>
<td>A$&amp;$O coronary artery disease, CAD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ambulate, ambulatory</td>
<td>Amb cubic centimeter, cc</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>antecubital</td>
<td>AC dead on arrival at hospital, DOA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>anterior</td>
<td>ant. dead on scene, DOS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arrived on scene to find</td>
<td>AOSTF decreased, depressed, ↓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>aspirin</td>
<td>ASA delirium tremens, DT's</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>atherosclerotic heart disease</td>
<td>ASHD dextrose 25%, D25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>atrial fibrillation</td>
<td>AFib dextrose 5% in water, D5W</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>atrial flutter</td>
<td>Aflutter dextrose 50%, D50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>automatic internal cardiac defibrillator</td>
<td>AICD diagnosis, Dx</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>automated external defibrillator</td>
<td>AED diastolic blood pressure, DBP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>awake, alert, oriented</td>
<td>AAO discontinue, D/C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bag-valve-mask</td>
<td>BVM drop, gtts.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>beats per minute</td>
<td>BPM drops, gtt.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bilateral breath sounds</td>
<td>BBS ear, nose, and throat, ENT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>blood glucose analysis</td>
<td>BGA electrocardiogram, ECG, EKG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>blood pressure</td>
<td>BP emergency department, ED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>blood sugar, breath sounds</td>
<td>BS Epinephrine, Epi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bowel movement</td>
<td>BM equals, $=$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Term</td>
<td>Abbreviation</td>
<td>Definition</td>
<td>Abbreviation</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>--------------</td>
<td>-------------------------------------------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td>erectile dysfunction medications</td>
<td>EDF</td>
<td>last menstrual period</td>
<td>LMP</td>
<td></td>
</tr>
<tr>
<td>estimated date of confinement</td>
<td>EDC</td>
<td>left, liter</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td>endotracheal tube</td>
<td>ETT</td>
<td>left</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td>every</td>
<td>q or Q</td>
<td>left lower quadrant of abdomen</td>
<td>LLQ</td>
<td></td>
</tr>
<tr>
<td>external jugular</td>
<td>EJ</td>
<td>left upper quadrant of abdomen</td>
<td>LUQ</td>
<td></td>
</tr>
<tr>
<td>Fahrenheit</td>
<td>F°</td>
<td>less than</td>
<td>&lt;</td>
<td></td>
</tr>
<tr>
<td>female</td>
<td>f. or φ</td>
<td>less than or equal to</td>
<td>≤</td>
<td></td>
</tr>
<tr>
<td>format for capnography measurements</td>
<td>ETCO2=XX</td>
<td>level of consciousness</td>
<td>LOC</td>
<td></td>
</tr>
<tr>
<td>gastrointestinal</td>
<td>GI</td>
<td>loss of consciousness</td>
<td>LOC</td>
<td></td>
</tr>
<tr>
<td>gauge</td>
<td>ga.</td>
<td>liters per minute</td>
<td>LPM</td>
<td></td>
</tr>
<tr>
<td>Glasgow Coma Scale</td>
<td>GCS</td>
<td>male</td>
<td>m. or f</td>
<td></td>
</tr>
<tr>
<td>gram or grams</td>
<td>g or gm</td>
<td>medical intensive care unit (hospital)</td>
<td>MICU</td>
<td></td>
</tr>
<tr>
<td>Gravida</td>
<td>G</td>
<td>milliequivalent</td>
<td>mEq.</td>
<td></td>
</tr>
<tr>
<td>greater than</td>
<td>&gt;</td>
<td>microgram</td>
<td>mcg</td>
<td></td>
</tr>
<tr>
<td>greater than or equal to</td>
<td>≥</td>
<td>milligram</td>
<td>mg</td>
<td></td>
</tr>
<tr>
<td>ground level fall</td>
<td>GLF</td>
<td>milligrams per deciliter</td>
<td>mg/dL</td>
<td></td>
</tr>
<tr>
<td>gunshot wound</td>
<td>GSW</td>
<td>milliliter</td>
<td>mL or ml</td>
<td></td>
</tr>
<tr>
<td>headache</td>
<td>HA</td>
<td>millimeters of Mercury</td>
<td>mm Hg</td>
<td></td>
</tr>
<tr>
<td>head, eyes, ears, nose, throat</td>
<td>HEENT</td>
<td>minute</td>
<td>Min</td>
<td></td>
</tr>
<tr>
<td>heart rate</td>
<td>HR</td>
<td>mobile intensive care unit</td>
<td>MICU</td>
<td></td>
</tr>
<tr>
<td>history</td>
<td>Hx</td>
<td>motor vehicle collision</td>
<td>MVC</td>
<td></td>
</tr>
<tr>
<td>increased, elevated</td>
<td>↑</td>
<td>moves all extremities</td>
<td>MAE</td>
<td></td>
</tr>
<tr>
<td>inferior</td>
<td>inf.</td>
<td>moves all extremities well</td>
<td>MAEW</td>
<td></td>
</tr>
<tr>
<td>insulin dependent diabetes mellitus</td>
<td>IDDM</td>
<td>multiple sclerosis</td>
<td>MS</td>
<td></td>
</tr>
<tr>
<td>intensive care unit</td>
<td>ICU</td>
<td>myocardial infarction</td>
<td>MI</td>
<td></td>
</tr>
<tr>
<td>intramuscular</td>
<td>IM</td>
<td>nasal cannula</td>
<td>NC</td>
<td></td>
</tr>
<tr>
<td>intranasal</td>
<td>IN</td>
<td>nasogastric tube</td>
<td>NG tube</td>
<td></td>
</tr>
<tr>
<td>intraosseous</td>
<td>IO</td>
<td>nausea/vomiting/diarrhea</td>
<td>N/V/D</td>
<td></td>
</tr>
<tr>
<td>intravenous</td>
<td>IV</td>
<td>nebulized</td>
<td>Neb</td>
<td></td>
</tr>
<tr>
<td>jugular venous distention</td>
<td>JVD</td>
<td>negative</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>keep vein open</td>
<td>KVO</td>
<td>Nitroglycerin</td>
<td>NTG</td>
<td></td>
</tr>
<tr>
<td>kilogram</td>
<td>kg</td>
<td>no complaint</td>
<td>N/C</td>
<td></td>
</tr>
<tr>
<td>laceration</td>
<td>LAC</td>
<td>none</td>
<td>Ø</td>
<td></td>
</tr>
<tr>
<td>lactated Ringer's</td>
<td>LR</td>
<td>non-insulin dependent diabetes mellitus</td>
<td>NIDDM</td>
<td></td>
</tr>
</tbody>
</table>

Effective Date: April 15, 2015
Revision Date: March 31, 2015
Version: 2.1
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<table>
<thead>
<tr>
<th>Term</th>
<th>Abbreviation</th>
<th>Meaning</th>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>no known drug allergies</td>
<td>NKDA</td>
<td>sublingual</td>
<td>SL</td>
<td></td>
</tr>
<tr>
<td>Non-rebreather</td>
<td>NRB</td>
<td>supraventricular tachycardia</td>
<td>SVT</td>
<td></td>
</tr>
<tr>
<td>normal saline</td>
<td>NS</td>
<td>systolic blood pressure</td>
<td>SBP</td>
<td></td>
</tr>
<tr>
<td>normal sinus rhythm</td>
<td>NSR</td>
<td>times 2, or times 3, or times ...</td>
<td>x2</td>
<td></td>
</tr>
<tr>
<td>overdose</td>
<td>OD</td>
<td>to keep open</td>
<td>TKO</td>
<td></td>
</tr>
<tr>
<td>oxygen</td>
<td>O2 or O2</td>
<td>transcutaneous pacing</td>
<td>TCP</td>
<td></td>
</tr>
<tr>
<td>para</td>
<td>P</td>
<td>treatment</td>
<td>Rx or Tx</td>
<td></td>
</tr>
<tr>
<td>patient</td>
<td>pt.</td>
<td>ventricular fibrillation</td>
<td>VF</td>
<td></td>
</tr>
<tr>
<td>patient care report</td>
<td>PCR</td>
<td>ventricular tachycardia</td>
<td>VT</td>
<td></td>
</tr>
<tr>
<td>per</td>
<td>/</td>
<td>vital signs</td>
<td>V.S.</td>
<td></td>
</tr>
<tr>
<td>person, place, time, event</td>
<td>PPTE</td>
<td>wheelchair</td>
<td>w/c</td>
<td></td>
</tr>
<tr>
<td>physical exam</td>
<td>P.E.</td>
<td>weight</td>
<td>wt.</td>
<td></td>
</tr>
<tr>
<td>positive</td>
<td>+</td>
<td>with</td>
<td>c or w/</td>
<td></td>
</tr>
<tr>
<td>posterior</td>
<td>post.</td>
<td>without</td>
<td>s or w/out</td>
<td></td>
</tr>
<tr>
<td>privately owned vehicle</td>
<td>POV</td>
<td>year(s) old</td>
<td>y.o.</td>
<td></td>
</tr>
<tr>
<td>pulseless electrical activity</td>
<td>PEA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pulse, motor, sensation</td>
<td>PMS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pulse oximetry</td>
<td>SpO2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pupils equal and reactive to light</td>
<td>PERL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>range of motion</td>
<td>ROM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revised Trauma Score</td>
<td>RTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>right</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>right bundle branch block</td>
<td>RBBB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>right lower quadrant</td>
<td>RLQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>right upper quadrant</td>
<td>RUQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ringer's lactate</td>
<td>RL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>shortness of breath</td>
<td>S.O.B.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>signs/symptoms</td>
<td>S/S</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sodium bicarbonate</td>
<td>NaHCO3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sodium chloride</td>
<td>NaCl</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST elevation myocardial infarction</td>
<td>STEMI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>signs/symptoms, allergies, medications,</td>
<td>SAMPLE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>past history, last oral, events leading</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
## CYANOKIT—PEDIATRIC DOSING

**Dose:** 70 mg/kg (maximum dose is 5g)

**Drip Rate:** 10-15 mL/min (about 5 gtt/sec when using 20gtt set)

(Adjust IV tubing roller clamp wheel between midway and wide open—NOT wide open!!)

### INFUSION INSTRUCTIONS

(after reconstituting 1 vial with 200 mL saline)

<table>
<thead>
<tr>
<th>BROSLow COLOR/WEIGHT</th>
<th>INITIAL DOSE</th>
<th>VOLUME TO GIVE</th>
<th>INFUSION INSTRUCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GRAY</strong> 3-4.5 kg</td>
<td>280 mg</td>
<td>11 mL</td>
<td>Withdraw 11 mL from vial. Administer 11 mL via syringe SLOWLY over 1 minute.</td>
</tr>
<tr>
<td><strong>PINK</strong> 6-7 kg</td>
<td>420 mg</td>
<td>17 mL</td>
<td>Withdraw 17 mL from vial. Administer 17 mL via syringe SLOWLY over 1.5 minutes.</td>
</tr>
<tr>
<td><strong>RED</strong> 8-9 kg</td>
<td>560 mg</td>
<td>23 mL</td>
<td>Withdraw 23 mL from vial. Administer 23 mL via syringe SLOWLY over 2 minutes.</td>
</tr>
<tr>
<td><strong>PURPLE</strong> 10-11 kg</td>
<td>700 mg</td>
<td>28 mL</td>
<td>Withdraw 28 mL from vial. Administer 28 mL via syringe SLOWLY over 2 minutes.</td>
</tr>
<tr>
<td><strong>YELLOW</strong> 12-14 kg</td>
<td>910 mg</td>
<td>36 mL</td>
<td>Withdraw 36 mL from vial. Administer 36 mL via syringe SLOWLY over 2.5 minutes.</td>
</tr>
<tr>
<td><strong>WHITE</strong> 15-18 kg</td>
<td>1120 mg</td>
<td>45 mL</td>
<td>Withdraw 45 mL from vial. Administer 45 mL via syringe SLOWLY over 3 minutes.</td>
</tr>
<tr>
<td><strong>BLUE</strong> 19-23 kg</td>
<td>1470 mg</td>
<td>60 mL</td>
<td>Withdraw and waste 140 mL from vial. Infuse remainder (60 mL).</td>
</tr>
<tr>
<td><strong>ORANGE</strong> 24-29 kg</td>
<td>1890 mg</td>
<td>76 mL</td>
<td>Withdraw and waste 124 mL from vial. Infuse remainder (76 mL).</td>
</tr>
<tr>
<td><strong>GREEN</strong> 30-36 kg</td>
<td>2310 mg</td>
<td>92 mL</td>
<td>Withdraw and waste 108 mL from vial. Infuse remainder (92 mL).</td>
</tr>
<tr>
<td>40 kg / 88 lbs</td>
<td>2800 mg</td>
<td>112 mL</td>
<td>Withdraw and waste 88 mL from vial. Infuse remainder (112 mL).</td>
</tr>
<tr>
<td>45 kg / 99 lbs</td>
<td>3150 mg</td>
<td>126 mL</td>
<td>Withdraw and waste 74 mL from vial. Infuse remainder (126 mL).</td>
</tr>
<tr>
<td>50 kg / 110 lbs</td>
<td>3500 mg</td>
<td>140 mL</td>
<td>Withdraw and waste 60 mL from vial. Infuse remainder (140 mL).</td>
</tr>
<tr>
<td>55 kg / 121 lbs</td>
<td>3850 mg</td>
<td>154 mL</td>
<td>Withdraw and waste 46 mL from vial. Infuse remainder (154 mL).</td>
</tr>
<tr>
<td>60 kg / 132 lbs</td>
<td>4200 mg</td>
<td>168 mL</td>
<td>Withdraw and waste 32 mL from vial. Infuse remainder (168 mL).</td>
</tr>
<tr>
<td>65 kg / 143 lbs</td>
<td>4550 mg</td>
<td>182 mL</td>
<td>Withdraw and waste 18 mL from vial. Infuse remainder (182 mL).</td>
</tr>
<tr>
<td>70 kg / 154 lbs (and above)</td>
<td>4900 mg</td>
<td>200 mL</td>
<td>Infuse entire vial.</td>
</tr>
</tbody>
</table>

### BASED ON 1 VIAL PACKAGING

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