2014 EMS Protocol Development Team

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Acknowledgments:

It is the goal of the Fauquier County EMS Committee to provide treatment protocols that reflect progressive emergency medical treatment while providing the quality patient care our community deserves. We would like to thank each and every person who put forth time and effort to develop these protocols.

Special thanks to Dr. Michael Jenks, Operational Medical Director, for his contributions and dedication to the Fauquier County EMS system. Thanks to everyone that assisted in this project!

Introduction:

The following protocols have been approved by the Fauquier County Operational Medical Director as the Pre-Hospital Patient Care Protocol for agencies within his region. These treatments were developed through the input and guidance from ALS and BLS providers within the region, as well as various medical directors. The protocols are designed to provide information on procedures providers at different levels are permitted to perform and denote standing orders for certain conditions. The medical director may chose to modify certain treatment recommendations for specific conditions and may limit performance authorization for any provider at any level. These modifications should be supported by written documentation and may be maintained in a fire at the regional council or at the individual agency.

The treatment protocols are designed to give reminders and guidance for various conditions but are NOT a replacement for sound clinical judgment. As clinical guides, they are not intended to be educational documents and training should be completed PRIOR to their use. They also outline care for typical presentation and may not fix exactly with the patient who has combined symptoms from multiple conditions. If additional treatment is not necessary you are not obligated to complete the entire protocol.

The provider may always contact on-line medical control for guidance and assistance. Many of the protocols are designed to allow providers to initiate appropriate care promptly without requiring contact with medical control first. With that acknowledgment, comes the medical director’s expectation that providers perform complete assessments, recognize proper signs and symptoms, and provide condition-related therapy by utilizing ardent clinical assessment skills and keen critical thinking and clinical judgment. The physician providing on-line medical control has the authority to suspend or deviate from the protocol and may provide additional or changed orders which are not specified in the regional protocol. Any order received from medical control must be put in writing and documented on the patient care report.

Protocols are dated by month and year. They will be reviewed annually by the Fauquier County EMS Committee and the Protocol Sub-Committee. Any provider may submit input for changes to the protocols by submitting written requests and ideas to the EMS Committee through the “Protocol Updates/Suggestions Survey”. A link for the survey can be found on the Fauquier County EMS Committee page on the Fauquier County website. All suggestions will be routed through the Protocol Sub-Committee and discussed during their annual protocol review; they will then make recommendations to the Operational Medical Director.
### Protocols

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Protocols

Reminder:

This document provides protocols for common situations faced by EMS. It is not intended to provide complete instructions for all patients in all situations.

Many patients may require the use of more than one protocol, or may require care not addressed at all in these pages.

Remember that any provider may contact on-line Medical Control for advice, and to obtain orders for medications, dosages, and procedures not authorized here under standing orders. The color coded legend above is designed to be a progressive treatment plan. Advanced level providers should perform all skills up to their level as necessary.

All medications given, and procedures performed must be in compliance with the Scope of Practice Formulary and Procedures, published by the Virginia Office of EMS. No provider may ever perform skills or administer medications outside of the scope of practice for his/her level of certification.
Scene Safe?  
Yes: Bring all necessary equipment to patient. Demonstrate professionalism and courtesy. Mass assembly consider WMD. Utilize appropriate PPE. Consider Airborne or Droplet if indicated. Initial Assessment: BLS Maneuvers. Initiate Oxygen if indicated.

No: Call for help and additional resources. Stage until scene is safe.

Trauma Patient: Evaluate Mechanism of Injury (MOI). Consider Spinal Immobilization if indicated.


Medical Patient: Mental Status Exam.


Transfer patient hand off includes patient information, personal property and summary of care and response to care.
**PEARLS**

* Your safety is the main priority.
* Restraints (both physical and chemical) should be considered as a “last resort”. The least restrictive means to maintain provider and patient safety should be used.
* Consider Haloperidol (Haldol) for patients with history of psychosis or a benzodiazepine for patients with presumed substance abuse.
* All patients who receive chemical restraint must be continuously observed by ALS personnel.
* Be sure to consider all possible medical/trauma causes for behavior (hypoglycemia, overdose, substance abuse, hypoxia, head injury, etc.).
* Do not irritate the patient with a prolonged exam.
* Do not overlook the possibility of associated domestic violence or child abuse.
* If patient is suspected of agitated delirium and suffers cardiac arrest, consider a fluid bolus and sodium bicarbonate (early).
* Do not position or transport any restrained patient in such a way that could impair the patient’s respiratory or circulatory status.
**General – Cardiac Arrest (Adult)**

**Continuous Compression CPR (CC-CPR)**

**INDICATED FOR SUDDEN CARDIAC ARREST ONLY**

**Contraindications:**
- Children < 8
- Known/suspected overdose
- Respiratory cause of arrest
- Hypothermia
- Near Drowning
- Traumatic Arrest

**Begin standard CPR and/or go to appropriate protocol**

**PEARLS**
- Consider early IO placement if available and difficult IV anticipated.
- **DO NOT HYPERVENTILATE:** If advanced airway in place, ventilate 8-10 breaths per minute.
- Use a Team Focused Approach, assigning responders to predetermined tasks.
- Defibrillation energy should be at manufacturer’s recommendation, maximum energy if unknown.

**TERMINATION** – If after 25 minutes of quality resuscitation effort and no Return of Spontaneous Circulation (ROSC) occurs, the team leader should inform the family of the situation and consider termination of resuscitation on the scene.

**As Early as Possible:**
- Endotracheal Intubation/King Airway
- IV/IO Procedure
  - Epinephrine 1 mg IV/IO
  - Repeat every 3-5 minutes until ROSC or termination

1. Defibrillate at highest energy setting or the manufacturer’s recommendation for energy level.
2. Chest compressions at least 100/min. and 2” deep with complete recoil.
3. If potentially perfusing rhythm returns, or signs of circulation, continue with one more round of 200 compressions before pulse check.
4. Upon return of circulation, go to Post Resuscitation Care (Adult) (Protocol 15).

**Do NOT attempt ventilation/intubation until after fourth set of 200 compressions**

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**General Protocols**

**General – Cardiac Arrest (Adult) Protocol 3**

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[Diagram with flowchart]
General – Cardiac Arrest (Pediatric)

Criteria for Death
OR
DNR

Newly born - 31 days or less

Yes

Exit to Newborn/ Neonatal Resuscitation (Protocol 42)

No

1 month old to 8 years

Yes

Exit to Cardiac Arrest (Adult) (Protocol 3)

No

Consider bilateral Chest Decompression in traumatic arrests

AT ANY TIME
Return of Spontaneous Circulation
Go to Post Resuscitation Care (Pediatric Protocol 16)

Begin CPR Compressions
5 cycles / 2 minutes
Change compressors every 2 minutes (change in less than 10 seconds)

Defibrillation
If available

Available ALS

Yes

Shockable Rhythm

No

Continue CPR
5 cycles / 2 minutes
Repeat and reassess
Airway (Protocol 11) as indicated

Defibrillation Automated

Continue CPR
5 cycles / 2 minutes
Repeat and reassess
Airway (Protocol 11) as indicated

Exit to Asystole/PEA (Pediatric) (Protocol 14) and/or Airway (Protocol 11)

No

Yes

Exit to VF/VT (Pediatric) (Protocol 18) and/or Airway (Protocol 11)

Notify receiving facility and/or contact Medical Control if possible

Consider bilateral Chest Decompression in traumatic arrests

I

General Protocols

Do NOT begin resuscitation
Follow Deceased Subjects Policy

Yes

Exit to Cardiac Arrest (Adult) (Protocol 3)
In contrast to adults, cardiac arrest in infants and children DOES NOT usually result from a primary cardiac event. Typically cardiac arrest is the end result of a progressive process precipitated by respiratory distress or asphyxiation leading to hypoxemia, acidosis and hypotension resulting finally in cardiac arrest.

**Compressions:**
Compressions should be started immediately with interposed ventilations or ventilations performed by second rescuer when available. High quality, uninterrupted compressions are key to the resuscitative effort. At least 100 compressions per minute should be performed in a 15:2 ratio of compressions:ventilations until and advanced airway is in place then ventilations should be at 8 – 10 breaths per minute. Depth of compressions should be 1.5 inches in the infant and 2 inches in children with complete chest recoil.

**Ventilations:**
Ventilations are more important in the pediatric patient due to the nature of most cardiac arrests. However DO NOT hyperventilate with volume or by rate of ventilations. Hyperventilation and hyper-oxygenation carry the same dangers in pediatrics as adults. King Airway or BVM is the preferred method of oxygen delivery and ventilation.

**Immediately resume compressions / CPR after each defibrillation and check pulses every 2 minutes.**

**Defibrillation Energy:**
First shock is 2 joules / kg with all subsequent shocks at 4 joules / kg.

**Scene / Family Members / Public Areas:**
In general high quality compressions cannot be effected during transport. This also represents a hazard to the crew. Cardiac arrests should have resuscitation effort performed where the victim is found unless a hazard exists, physical space does not allow access to patient or until return of spontaneous circulation. In the pediatric patient, after 30 minutes of effort with no response, then transport should be undertaken safely.

Studies show family members who desire to be present during a resuscitation demonstrate better understanding of the event and improved closure. This can be of enormous benefit to the family during the grieving process. The Team Leader should update the family and assign a rescuer to the family to answer questions and be of support during the event. Family members should be allowed access to the resuscitation effort unless they demonstrate a disruption to the effort.

**PEARLS**
* Monophasic and Biphasic waveform defibrillators should use the same energy levels of 2 joules/kg and increase to 4 joules/kg on subsequent shocks.
* In order to be successful in pediatric arrest, a cause must be identified and corrected.
* Airway is more important intervention in pediatric arrest. This should be accomplished quickly with BVM or supraglottic device. Patient survival is often dependent on proper ventilation and oxygenation airway interventions.
* Effective CPR is critical
  1. Push hard and fast at appropriate rate
  2. Ensure full chest recoil
  3. Minimize interruptions in CPR. Pause CPR < 10 seconds to verify rhythm
**General – Epistaxis (Nose Bleed)**

**Significant or Multi System Trauma**
- Yes → **Direct Pressure** → Exit to Appropriate Injury Protocol
- No → **Active Bleeding**
  - Yes → **Compress nostrils with direct pressure Head tilt forward Position of Comfort**
  - No → **Head tilt forward Position of Comfort**

**Active Bleeding**
- Yes → **Have patient blow nose Suction active bleeding Oxymetazoline (Afrin) 2-4 sprays to bleeding nostril, followed by direct pressure**
- No → **Bleeding Controlled**
  - Yes → **Head tilt forward Position of comfort**
  - No → **Hypotensive SBP < 90 Age specific hypotension**

**Hypotensive SBP < 90 Age specific hypotension**
- Yes → **Exit to Appropriate Hypotension/Shock Protocols 38/39**
- No → **Notify Receiving Facility and/or contact Medical Control if possible**

**PEARLS**
- Avoid Afrin in patients who have a blood pressure of greater than 110 mmHg diastolic or known coronary artery disease.
- It is very difficult to quantify the amount of blood loss with epistaxis.
- Bleeding may also be occurring posteriorly. Evaluate for posterior blood loss by examining the posterior pharynx.
- Anti-coagulants may impede clotting. These include aspirin, coumadin, non-steroidal anti-inflammatory medications, and many over the counter headache relief powders.
General – Fever

**PEARLS**
- Febrile seizures are more likely in children with a history of febrile seizures and with a rapid elevation in temperature.
- Patient with a history of Liver Failure should not receive acetaminophen.
- **Droplet Precautions** include standard PPE plus a standard surgical mask for providers who accompany patients in the back of the ambulance and a surgical mask or NRB O2 mask for the patient. This level of precaution should be utilized when influenza, meningitis, mumps, streptococcal pharyngitis, and other illnesses spread via large particle droplets are suspected. A patient with a potentially infectious rash should be treated with droplet precautions.
- **Airborne Precautions** include standard PPE plus utilization of a gown, change of gloves after every patient contact, and strict hand washing precautions. This level of precaution is utilized when multi-drug resistant organisms (e.g. MRSA), scabies, or zoster (shingles), or other illnesses spread by contact are suspected.
- Rehydration with fluids increases the patient’s ability to sweat and improves heat loss.
- All patients should have drug allergies documented prior to administering pain medication.
- Allergies to NSAIDS (non-steroidal anti-inflammatory medications) are a contraindication to ibuprofen.
- NSAID’s should not be used in the setting of environmental heat emergencies.
**General – Pain Control**

**PEARLS**
* Pain severity (0-10) is a vital sign to be recorded before and after PO, IV, IO, IM or IN medication delivery and at patient hand off.
* Both arms of the treatment may be used in concert. For patients in moderate pain, for instance, you may use the combination of an oral medication and parenteral if no contraindication are present.
* Do NOT administer any PO medication for patients who may need surgical intervention for injury/illness such as open fractures or fracture deformities, headaches or abdominal pain.
* Ibuprofen should not be used in patients with known renal disease or renal transplant, in patients who have known drug allergies to NSAID’s, with active bleeding, headaches, abdominal pain, stomach ulcers or in patients who may need surgical intervention such as open fractures or fracture deformities.
* Do NOT administer Acetaminophen to patients with a history of liver disease.

**Protocol based on Specific Complaint**

**Assess Pain Severity**
Use combination of Pain Scale, Circumstances, MOI, Injury or Illness Severity

**Mild**
If Available (Adults Only):
- Ibuprofen 400 mg PO
  OR
- Acetaminophen 650 mg PO
  OR
- Aspirin 650 mg PO

**If available (Pediatrics):**
- Peds: > 6 months
  Ibuprofen 10 mg/kg PO
  OR
- Peds: Acetaminophen 15 mg/kg PO

**Consider IV Procedure**
Continuous Monitoring and Reassessment

**Notify Receiving Facility and/or Contact Medical Control if possible**

**IV Procedure**
- Fentanyl 1-1.5 mcg/kg IV/IO/IM/IN
- May repeat 0.5 mcg/kg as needed every 5 minutes
  (Max dose 2mcg/kg adult & peds)

**AND**
- Ketamine 0.1 – 0.5 mg/kg IV/IO/IN/IM

**If Needed**

**Peds: Ketamine 0.1 - 0.2 mg/kg**

**Peds: Morphine 0.1 mg/kg IV/IO/IM**
- Repeat every 10 minutes with maximum of 10 mg

**Peds: Morphine 0.1 mg/kg IV/IO/IM**
- with maximum dose of 10 mg

Continuous Monitoring and Reassessment
**General – Pepper Spray/Taser® Removal**

**General – Pepper Spray/Taser® Removal Protocol 8**

**General – Pepper Spray/Taser® Removal**

Evidence of Traumatic Injury or Medical Illness

- Pepper Spray
  - Irrigate face and eyes and remove contaminated clothing

- **Yes**
  - Exit to Appropriate Protocol

- **No**
  - Use of Pepper Spray or Taser®?
    - **Yes**
      - Significant Injury from entry point of Taser®
        - **Yes**
          - **Exit to Appropriate Protocol**
        - **No**
          - **Wound Care – Taser® Probe Removal Procedure**
    - **No**
      - **Cardiac History**
        - **Yes**
          - **Chest Pain/Palpitations**
            - **Exit to Chest Pain Protocol (Protocol 34)**
        - **No**
          - **Delirium Syndrome**
            - **Yes**
              - **Exit to Behavioral Protocol (Protocol 2)**
            - **No**
              - **Exit to Appropriate Protocol**

- **No**
  - **Dyspnea/Wheezing**
    - **Yes**
      - **Exit to Respiratory Distress (Protocols 46/47)**
    - **No**
      - **Asthma COPD History**
        - **Yes**
          - **Observe 20 minutes Follow Appropriate Protocol If Appropriate**
        - **No**
          - **Exit to Appropriate Protocol**

- **Notify receiving destination and/or contact Medical Control if possible**

**PEARLS**

* Patient does not have to be in police custody or under arrest to employ this protocol.
* Local EMS agencies should formulate a policy with local law enforcement agencies concerning patients requiring EMS and Law Enforcement simultaneously. Agencies should work together to formulate a disposition in the best interest of the patient.
* Patients restrained by law enforcement devices must be transported accompanied by law enforcement officer in the patient compartment, who is capable of removing the devices. However, if the patient has been sufficiently restrained by EMS, the law enforcement agent may follow behind the ambulance during transport.
* The responsibility for patient care rests with the highest authorized medical provider on the scene.
* All patients in police custody retain the right to participate in decision making regarding their care and may request care from EMS.
**General – Rehabilitation (Responder)**

**Exposure**
Remove all PPE if possible
e.g. bunker pants pushed down on boots

**Rehab**
Rest, active/passive cooling, oral rehydration

Consider Carbon Monoxide/Smoke Inhalation (Protocol 23)

**Evaluate Pulse:**
Minimum 10 minutes from last exertion
>85% maximum for age?

**Assess Vitals:**
SBP > 200 or DBP > 110
Or
Pulse > 110
Or
Respirations <8 or > 30
Or
Temp > 101°F
Or
Pulse Oximetry < 91%

Any VS outside limits?

**Observe for symptoms**
Have stand for 2 minutes
Orthostatic Vitals
† Pulse > 20 bpm
Or
↓ SBP >20mm?

Yes

**Return to Full Duty**

No

**Return to Scene Activities**

A

- IV Procedure
- Re-hydration:
  - Infuse up to 2 liters NS
  - Until HR ≤ 100 & SBP ≥ 110

- If HR & SBP do not normalize
  - Transport to ED

**Event Rehabilitation:**
- Refers to fire scenes, hazmat, rescue, extrication, training or other events as determined by the Incident Commander (IC).
- Firefighter (FF) Rehab usually initiated after two 30 min SCBA bottles or one 45-60 min bottle. Earlier if determined by IC or FF.
- Length of work period prior to Rehab adjusted by IC based on exertion level, temperature, humidity, length of event and resources available.

**Automatic Transport Criteria (ATC):**
- Chest Pain, Cardiac Arrhythmia
- Syncope, altered mental status, confusion, disorientation
- Shortness of breath unresolved by 10 minutes of high flow oxygen
- Vital signs that have not returned to normal after 30 minutes of rest
- Any episode vomiting or inability to hold fluids down
- Any request for transport

**Cooling Techniques:**
- Remove full gear
- When available use forearm immersion in rehab chairs (most effective)
- Cooling fans, ambient evaporative cooling
- Cold wet towels to head and neck (FF consider risk of steam burns if later exposed to high temperatures)
- Oral re-hydration with water or balanced electrolyte and sugar sport drinks.

**NFPA Age-Predicted 85% Max. HR**

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**General – Spinal Immobilization/Clearance**

**PEARLS**
* Significant mechanism includes high-energy events such as ejection, high falls, and abrupt deceleration crashes that may indicate the need for spinal immobilization in the absence of symptoms.
* Consider immobilization in any patient with arthritis, cancer, dialysis or other underlying spinal or bone disease.
* The decision to NOT implement spinal immobilization in a patient is the responsibility of the patient attendant solely.
* In the very young and the very old, a normal exam may not be sufficient to rule out spinal injury.
* The acronym “NSAIDS” should be used to remember the steps in this protocol:
  N – Neurologic exam. Look for focal deficits such as tingling, reduced strength, or numbness in an extremity.
  S – Significant mechanism or extremes of age.
  A – Alertness. Is patient oriented to person, place, time and event? Any change of alertness with incident?
  I – Intoxication. Is there any indication that the person is intoxicated, impaired decision making ability?
  D – Distracting Injury. Is there any other injury producing significant pain in the patient? Any injury which the patient seems to focus on and rate 6 or greater on the pain scale is likely distracting.
  S – Spinal exam. Look for point tenderness in any spinal process or spinal process tenderness with range of motion. Each of the 7 cervical spinal processes must be palpated during the exam.

**Default is ALWAYS Immobilize**
If any doubt – Immobilize!

**Entry from appropriate protocol**
Circumstances warrant spinal immobilization consideration

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**Flowchart:**
- **Neuro Exam:** Any focal deficit?
  - No
  - **Age 65 or greater OR age 5 or less**
    - Significant mechanism of injury
      - No
      - **Alertness:** Alteration in mental status?
        - No
        - **Intoxication:** Any evidence?
          - No
          - **Distracting Injury:** Any Painful injury that might distract the patient from C-spine injury?
            - No
            - **Spinal Exam:** Point tenderness over the spinal process or pain to ROM?
              - No
              - **Spinal Immobilization NOT REQUIRED**
                - Exit to Appropriate Protocol
            - Yes
            - **Spinal Immobilization Indicated**
          - Yes
        - Yes
      - Yes
    - Yes
  - Yes
  - Yes
  - Yes
  - Yes

---
Ventilatory rates should be:
- Neonates – 30
- Toddlers - 25
- School Age - 20
- Adolescents and older (adult) - 12

Maintain an EtCO2 between 35-45 and avoid hyperventilation.

Assess Respiratory Rate, Effort, Oxygenation
Is Airway/Breathing adequate?
Yes
- Supplemental O2
  Goal oxygen saturation greater than or equal to 94%
  Exit to appropriate Protocol
No

Basic Maneuvers First
Open Airway chin lift/jaw thrust
Nasal or Oral Airway
Bag Valve Mask (BVM)

Spinal Immobilization Procedure
If indicated
Consider Altered Mental Status (Protocol 31)

Airway Foreign Body Obstruction Procedure
Direct Laryngoscopy

Airway Patent
No

Complete Obstruction Unable to Clear
Yes
Airway Cricothyrotomy Procedure

Breathing/Oxygenation Support Needed
No

Monitor/Reassess Supplemental Oxygen
If indicated
Exit to appropriate Protocol
Yes

Supplemental oxygen BVM if indicated

Adult >12 Nasotracheal Intubation

Tension Pneumothorax
Yes

Needle Chest Decompression
No

BVM/Oxygen Effective
Yes

Supplemental oxygen BVM if indicated

Post Intubation Sedation if needed
- Fentanyl
  100-150mcg
- Ketamine 2.0 mg/kg IV/IO
  Peds: Ketamine 0.1 – 1.5 mg/kg IV/IO

Notify Receiving Facility and/or Contact Medical Control if possible

If 2 unsuccessful attempts,
Exit to Airway, Failed (Protocol 12)

Intubation Procedure
Adult Oral Tracheal ONLY

Intubation Procedure

Notify Receiving Facility and/or Contact Medical Control if possible
Two (2) failed intubation attempts by most proficient technician on scene or anatomy inconsistent with intubation attempts. Each attempt should include change in approach or equipment.

NO MORE than three (3) attempts TOTAL

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**Failed Airway**

- **BVM Airway Adjunct**
  - Maintains SpO₂ > 94%
  - Yes → Continue BVM Supplemental O₂
  - Exit to appropriate Protocol
  - No

- **Significant Facial Trauma/Swelling/Distortion**
  - Time *does not* allow BIAD
  - Yes → Airway Cricothyrotomy Procedure
  - No → BIAD Procedure

- **BIAD Successful?**
  - Yes → Continue Ventilation / Oxygenation
  - Notify Receiving Facility and/or Contact Medical Control if possible
  - No → BIAD Successful?

---

**Airway Cricothyrotomy Procedure**

**Call for additional resources if available**

**Consider IMMEDIATE transport**
PEARLS:
* Secondary confirmation devices will be used with all methods of intubation with documentation of device used and results.
* If an effective airway is being maintained by BVM with continuous pulse oximetry values >94%, it is acceptable to continue basic airway measures.
* Ventilatory rate should be age appropriate to maintain an EtCO2 of 35-45. Avoid hyperventilation.
* Hyperventilation in deteriorating head trauma should only be done to maintain an EtCO2 of 30-35.
* Do not assume hyperventilation is psychogenic.
* Maintain C-spine immobilization for patients with suspected spinal injury.
* Gastric tube placement should be considered in all intubated patients if available or time allows.
* It is important to secure the endotracheal tube well. Consider head blocks in the absence of trauma, to better maintain ETT placement.
Cardiac Arrest – Asystole/PEA (Adult)

**Criteria for Death**
- OR
- DNR

**Return of spontaneous circulation**
Go to Post Resuscitation Care (Adult) (Protocol 15)

Do NOT begin resuscitation

**Do NOT begin resuscitation**

**Consider bilateral Chest Decompression in traumatic arrests**

**Criteria for Death**

**Begin Continuous CPR Compressions**
- 5 Cycles / 2 Minutes
- Change Compressors every 2 minutes (change in less than 10 seconds)
- Utilize AED if no ALS available

**Follow Rhythm**
- Appropriate Protocol

**ECG Assess Rhythm**

**Shockable Rhythm**

**Consider Beta Blocker OD AND/OR Calcium Channel Blocker OD** (Protocol 43)

**Consider Dialysis / Renal Failure** (Protocol 35)

**IV Procedure**
- Consider Normal Saline Bolus (500 mL)
- Epinephrine 1 mg, IV / IO
  - Repeat every 3-5 minutes
- Consider Naloxone 2 mg IV / IO
- Consider Dextrose 50%, 25 grams IV / IO
- Consider Dopamine 5-20 mcg/kg/min IV / IO
- Consider Needle Chest Decompression

**Criteria For Discontinuation**

**Notify Receiving Facility and/or Contact Medical Control if possible**

**PEARLS**
* Consider each possible cause listed in the differential: Survival is based on identifying and correcting the cause!
* Discussion with Medical Control can be a valuable tool in developing a differential diagnosis and identifying possible treatment options.
**Cardiac Arrest – Asystole/PEA (Pediatric)**

**Cardiac Arrest, Pediatric Protocol**

**IV Procedure**

- Epinephrine 1:10,000
  - 0.01 mg/kg IV/IO (max 1 mg)
- Consider NS Bolus 10mL/kg IV/IO
- Consider Naloxone, 0.1 mg/kg IV/IO

<table>
<thead>
<tr>
<th>Newborn to 30 days old:</th>
<th>D10 2.5 mL/kg IV/IO</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Repeat as needed</td>
</tr>
<tr>
<td>31 days to 2 yrs old:</td>
<td>D25 4 mL/kg IV/IO</td>
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<tr>
<td></td>
<td>Repeat as needed</td>
</tr>
<tr>
<td>&gt; 2 yrs old:</td>
<td>D50 2 mL/kg IV/IO</td>
</tr>
<tr>
<td></td>
<td>Maximum 25 grams per dose</td>
</tr>
<tr>
<td></td>
<td>Repeat as needed</td>
</tr>
</tbody>
</table>

- Consider Dopamine
  - 5-20 mcg/kg/min IV/IO

- Needle Chest Decompression Procedure
  - If indicated

**Discontinue Resuscitation and follow Deceased Subjects Policy**

**Criteria for Discontinuation**

- Yes
- No

**Notify receiving facility and/or contact Medical Control if possible**

**PEARLS**

- In order to be successful in pediatric arrests, a cause must be identified and corrected.
- Respiratory arrest is a common cause of cardiac arrest. Unlike adults, early airway intervention is critical.
- In most cases, pediatric airways can be managed by basic interventions.
Cardiac Arrest – Post Resuscitation Care (Adult)

Return of Spontaneous Circulation (ROSC)

- BIAD or other Advanced Airway (as trained) with EtCO2 > 20 mmHg

Perform Neurological Assessment

BP < 90mmHg?

No

- Monitor Closely
- Continue Supportive Care
- Maintain SpO2 ≥94%
- Target EtCO2 of 35-40 mmHg
- Refer to Cardiac Chest Pain (Protocol 34) If indicated

Yes

- IV NS Bolus, 30 mL/kg IV/IO Maximum of 2 liters
- Dopamine 5-20 mcg/kg/min IV/IO To obtain/maintain SBP 90 mmHg

Notify receiving facility and/or contact Medical Control as soon as possible
**Cardiac Arrest – Post Resuscitation Care (Pediatric)**

**Arrhythmias are common and usually self limiting after ROSC**

If Arrhythmia persists, follow Rhythm Appropriate Protocol

---

**Do not hyperventilate**

<table>
<thead>
<tr>
<th>Hypotension Age based</th>
<th>Blood Glucose Less than 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

**Dopamine**

5-10 mcg/kg/min IV/IO

**Normal Saline Bolus**

10 mL/kg IV/IO

May repeat to 60 mL/kg if lungs clear

---

Dopamine

5-10 mcg/kg/min IV/IO

---

**Post Intubation Sedation if Needed**

Ketamine 0.1 – 1.5 mg/kg

---

**Notify receiving facility and/or contact Medical Control if possible**

---

**Hyperventilation is a significant cause of hypotension / recurrence of cardiac arrest in post resuscitation phase and MUST be avoided**

---

**Repeat Primary Assessment**

**Optimize Ventilation and Oxygenation**

- Maintain SpO2 at 94% or greater
- Advanced Airway if indicated
- EtCO2 ideally 35-45 mmHg
- Respiratory rate 8-10

---

**Post Intubation Sedation if Needed**

Ketamine 0.1 – 1.5 mg/kg
Cardiac Arrest – Ventricular Fibrillation/ Ventricular Tachycardia (Adult)

Pearls

* Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated.
* Do NOT hyperventilate: If no advanced airway, compressions to ventilations are 30:2. If advanced airway in place, ventilate 8-10 breaths per minute.
* Do NOT interrupt compressions to place endotracheal tube. Consider BIAD first to limit interruptions.
* Reassess and document endotracheal tube placement and ETCO2 frequently, after every move, and at transfer of care.
* Do NOT stop CPR to check for placement of ET tube or to give medications.
* Defibrillation energy should be at manufacturer’s recommendation; maximum energy if unknown.
* Effective CPR and prompt defibrillation are the keys to successful resuscitation.
* If BVM is ventilating the patient successfully, intubation should be deferred until rhythm has changed or 4 or 5 defibrillation sequences have been completed.
Defibrillate 2 joules/kg or use pediatric AED Pads

If suspected hyperkalemia, diabetic ketoacidosis, or OD of tricyclic antidepressants, aspirin, cocaine, or diphenhydramine

Sodium Bicarbonate 1 mEq/kg IV/IO

Consider Airway (Protocol 11)

IV Procedure

Epinephrine (1:10,000) 0.01 mg/kg IV/IO
Maximum 1 mg each dose
Repeat every 3-5 minutes
Defibrillate at 4 joules/kg or AED

Amiodarone 5 mg/kg IV/IO
Maximum 300 mg
May repeat 5 mg/kg every 5 minutes
Maximum subsequent dose of 150 mg
Maximum Total Dose 15 mg/kg
Defibrillate 4 joules/kg or AED

Begin Continuous CPR Compressions
5 Cycles / 2 minutes
Change Compressors every 2 minutes
(change in less than 10 seconds)

Return of Spontaneous Circulation

Yes

Exit to Post Resuscitation Care (Pediatric) (Protocol 16)

Consider Discontinuation of Resuscitation

No

Consider bilateral Chest Decompression in traumatic arrests

Magnesium Sulfate 50 mg/kg IV/IO
May repeat every 5 minutes to maximum of 2 grams

PEARLS
* In order to be successful in pediatric arrests, a cause must be identified and corrected.
* Respiratory arrest is a common cause of cardiac arrest; unlike adults, early ventilation intervention is critical.
* In most cases, pediatric airways can be managed by basic interventions.
* Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated. Consider early IO placement if available and difficult IV anticipated.
* DO NOT HYPERVENTILATE.
* If no advanced airway (BIAD, ETT), compressions to ventilations are 15:2 with 2 persons and 30:2 with one person.
* If advanced airway in place, ventilate patient every 6-8 seconds.
Environmental Protocols

**Environmental – Cold Exposure**

**Localized Cold Injury**

- Yes
  - Remove wet clothing
  - Dry / Warm Patient
  - Monitor and reassess
  - General Wound Care
  - Do NOT rub skin to warm
  - Do NOT allow refreezing

- No
  - Exit to appropriate protocol

**Systemic**

- Yes
  - Exit to appropriate protocol

- No
  - Pulse
    - Yes
      - Consider Hypoglycemia / Diabetic Emergency (Protocol 37) If indicated
    - No
      - Notify receiving facility and/or contact Medical Control if possible

**Hypothermia / Frostbite**

- Exit to appropriate protocol

**PEARLS**

* NO PATIENT IS DEAD UNTIL WARM AND DEAD.
* Hypothermia is defined as core temperature < 35 C (95 F). Extremes of age are more susceptible (young, old).
* If the temperature is unable to be measured, treat the patient based on the suspected temperature.
* Hypothermia may produce severe bradycardia, so take at least 45 seconds to palpate a pulse.
* Hot packs can be activated and placed in the armpit and groin area if available. Care should be taken not to place the packs directly against the patient’s skin.
* Consider withholding CPR if patient has organized rhythm or has other signs of life. Discuss with Medical Control.
* Intubation can cause ventricular fibrillation, so it should be done gently by the most experienced provider.
* Do not hyperventilate the patient as this can cause ventricular fibrillation.
* If the patient is below 30 C or 86 F, then only defibrillate 1 time if defibrillation is required. Normal defibrillation procedure may resume after patient reaches 30 C or 86 F.
* Below 30 C (86 F), antiarrhythmics may not work and if given should be given at reduced intervals. Contact Medical Control before any are administered. Below 30 C (86 F), pacing should NOT be done.

**Refer to:**

- Airway (Protocol 11)
- Respiratory Distress (Protocols 46/47)
### Environmental – Heat Exposure/Heat Stroke

**Heat Cramps**
- Muscle twitching, painful spasms, nausea, vomiting, weakness, and diaphoresis.
- Remove from heat source to cool environment
- Active and passive cooling measures; avoid chilling
- Remove tight clothing
- PO fluids as tolerated

**Heat Exhaustion**
- Pallor, profuse sweating, orthostatic hypotension, headache, weakness, fatigue, and thirst
- Remove from heat source to cool environment
- Active and passive cooling measures; avoid chilling
- Remove tight clothing
- IV Procedure:
  - Normal Saline Bolus
  - 500 mL IV
  - As needed to obtain/maintain SBP of 90 mmHg
  - Maximum of 2 liters

**Heat Stroke**
- Altered mental status, increased body temperature, minimal or no sweating, collapse, shock, shortness of breath
- Remove from heat source to cool environment
- Active and passive cooling measures; avoid chilling
- Remove tight clothing
- IV Procedure:
  - Normal Saline Bolus
  - 500 mL IV
  - As needed to obtain/maintain SBP of 90 mmHg
  - Maximum of 2 liters
- ECG

**PEARLS**
- Extremes of age are more prone to heat emergencies (young, old). Obtain and document patient temperature if able.
- Predisposed by use of: tricyclic anti-depressants, phenothiazines, anticholinergic medications and alcohol.
- Cocaine, amphetamines, and salicylates may elevate body temperature.
- Sweating generally disappears as body temperature rises above 104 F (40 C).
- Intense shivering may occur as patient is cooled.
- Heat Cramps consists of benign muscle cramping, secondary to dehydration and is not associated with an elevated temperature.
- Heat Exhaustion consists of dehydration, salt depletion, dizziness, fever, mental status changes, headache, cramping nausea and vomiting. Vital signs usually consist of tachycardia, hypotension and elevated temperature.
- Heat Stroke consists of dehydration, tachycardia, hypotension, temperature > 104 F (40 C) and an altered mental status.

Notify receiving facility and/or contact Medical Control if possible.
Injury Protocols

Injury – Bites and Envenomation-Land

Be prepared to go to
Allergic Reaction/Anaphylaxis
(Protocols 29 & 30-30A)

Type of Bite

Snake Bite

Immobilize injury
Remove any constricting clothing or bands
Do NOT apply ice
Remove all jewelry from affected extremity
Mark margin of swelling, redness and time

Immobilize injury
Apply ice packs
Remove any constricting clothing/band/or jewelry

Spider Bite
Bee/Wasp Sting

Immobilize injury

Dog/Cat
Human Bite

Immobilize injury

Transport

No

Yes

Animal bites: Contact and Document contact with Animal Control

Exit to Injury – Extremity (Protocol 25)
If indicated

Notify receiving facility and/or contact Medical Control if possible

PEARLS
* Human bites have higher infection rates than animal bites due to normal mouth bacteria.
* Carnivore bites are much more likely to become infected and all have risk of Rabies exposure.
* Cat bites may progress to infection rapidly due to a specific bacteria (Pasteurella multicauda).
* Poisonous snakes in this area are generally of the pit viper family: rattlesnake and copperhead.
~ Coral snake bites are rare; very little pain but very toxic. “Red on yellow will kill a fellow; red on black, venom lack.”
~ Amount of envenomation is variable, generally worse with smaller (young) snakes.
~ If no pain or swelling, envenomation is unlikely. About 25% of snake bites are “dry” bites.
* Black Widow spider bites tend to be minimally painful, but over a few hours, muscular pain and severe abdominal pain may develop (spider is black with red hourglass on belly).
* Brown Recluse spider bites are minimally painful to painless. Little reaction is noted initially, but tissue necrosis at the site of the bite develops over the next few days (small, brown spider with fiddle shape on back).
* Evidence of infection: swelling, redness, drainage, fever, red streaks proximal to the wound.
* Immunocompromised patients are at an increased risk for infection: diabetics, chemotherapy, transplant patients.
* Consider contacting the Poison Control Center for guidance.

Injury – Bites and Envenomation-Land
Protocol 21

2014

Page 27
Injury Protocols

Injury – Burns

Assess Burn / Concomitant Injury Severity

- **Minor Burn**
  - < 5% TBSA 2nd/3rd Degree Burn
  - No inhalation injury; not intubated
  - Normotensive
  - GCS 14 or greater
  - Remove rings, bracelets, constrictive items
  - Cool burn with Normal Saline
  - Refer to Airway (Protocol 11) If indicated
  - IV Procedure If indicated
  - Normal Saline 0.25 mL/kg (x % TBSA) per hour for up to the first 8 hours
  - Pain Control (Protocol 7) If indicated

- **Serious Burn**
  - 5-15% TBSA 2nd/3rd Degree Burn
  - Suspected inhalation injury or requiring intubation for airway stabilization
  - Hypotension or GCS 13 or less
  - (when reasonably accessible, transport to a Burn Center)
  - Remove rings, bracelets, constrictive items
  - IV Procedure
  - If indicated
  - Normal Saline 0.25 mL/kg (x % TBSA) per hour for up to the first 8 hours
  - Pain Control (Protocol 7) If indicated

- **Critical Burn**
  - > 15% TBSA 2nd/3rd Degree Burn
  - Burns with multiple trauma
  - Burns with definitive airway compromise
  - (when reasonably accessible, transport to a Burn Center)
  - Remove rings, bracelets, constrictive items
  - IV Procedure
  - Consider 2 IV sites if greater than 15% TBSA
  - 0.25 mL/kg (x % TBSA) per hour for up to the first 8 hours
  - If signs of smoke inhalation are present and patient is experiencing difficulty breathing, consider
    - Epinephrine 1:1,000
    - Nebulized
    - 2mL in 3mL of NS
  - Pain Control (Protocol 7) If indicated
  - Notify receiving destination and/or contact Medical Control if possible
PEARLS

* 5 – 15% TBSA 2<sup>rd</sup> or 3<sup>rd</sup> degree burns, OR 3<sup>rd</sup> degree burns > 5% TBSA for any age group, or circumferential burns of extremities, or electrical or lightning injuries, or suspicion of abuse or neglect, or inhalation injury or chemical burns, or burns of the face, hands, perineum, or feet, or any burn requiring hospitalization – REQUIRE direct transport to a burn center OR transfer once seen at a local facility where the patient can be stabilized with interventions such as airway management or pain relief if this is not available in the field or the distance to a Burn Center is significant.
* Burn patients are Trauma Patients; evaluate for multisystem trauma.
* Assist whatever has caused the burn is no longer contacting the injury. (STOP the burning process)
* Early intubation is required when the patient experiences significant inhalation injuries.
* Circumferential burns to extremities are dangerous due to potential vascular compromise, secondary to soft tissue swelling.
* Burn patients are prone to hypothermia – never apply ice or cool the burn; must maintain normal body temperature.
* Evaluate the possibility of child abuse with children and burn injuries.
* NEVER administer IM pain injections to a burn patient.
* Do NOT contact the patient until you are sure the source of electric shock has been discontinued.
* Attempt to locate contact points: (entry wound – where AC source contacted patient – exit wound at ground point). Both sites will generally be full thickness.
* Cardiac monitor. Anticipate Ventricular Fibrillation – atrial rhythms.
* Attempt to identify the chemical and brush off any dry chemical prior to flushing with water or appropriate agent.
* Consider any chemical exposure a Hazardous Material until proven otherwise.
* Assure proper decontamination of all patients, providers and equipment AND contact receiving facility as soon as possible.

**BURN CENTER VERIFICATION**

Verification of burn centers is a joint program of the American Burn Association (ABA) and the American College of Surgeons (ACS). It is a rigorous review program designed to verify a burn center’s resources that are required for the provision of optimal care to burn patients from the time of injury through rehabilitation. Elements of this voluntary program include an application, pre-review questionnaire, an in-depth on-site review by members of the ABA Verification Committee, as well as senior members of the ABA. A written report of the site visit team is reviewed by the ABA Verification Committee and by the Committee on Trauma of the ACS.

Burn Center verification provides a true mark of distinction for a burn center. It is an indicator to government, third-party payers, patients and their families, and accreditation organizations that the center provides high quality patient care and meets the demanding standards for organizational structure, personnel qualifications, facilities resources and medical care services set out in the ABA chapter on Guidelines for the Operation of Burn Centers in the ACS publication on Resources For Optimal Care Of The Injured Patient 2006.

**Verified Burn Centers in Virginia and Surrounding States**

<table>
<thead>
<tr>
<th>Burn Center:</th>
<th>Location:</th>
<th>Verification dates:</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCU Evans Haynes Burn Center (Adult &amp; Peds)</td>
<td>Richmond, VA</td>
<td>04/11/14 to 04/11/17</td>
</tr>
<tr>
<td>North Carolina Jaycee Medical Center (Adult &amp; Peds)</td>
<td>Chapel Hill, NC</td>
<td>07/14/12 to 07/14/15</td>
</tr>
<tr>
<td>Wake Forest University Baptist Medical Center (Adult &amp; Peds)</td>
<td>Winston-Salem, NC</td>
<td>05/20/12 to 05/20/15</td>
</tr>
<tr>
<td>Johns Hopkins Regional Burn Center (Adult)</td>
<td>Baltimore, MD</td>
<td>12/15/09 to 12/15/15</td>
</tr>
<tr>
<td>Washington Hospital Center (Adult)</td>
<td>Washington, DC</td>
<td>03/18/10 to 03/18/15</td>
</tr>
</tbody>
</table>

*As of 21, May 2014. For the most current information, please refer to http://www.ameriburn.org/verification_verifiedcenters.php
Rule of Nines
Seldom do you find a complete portion of the body that is injured in isolation to ease the use of the rule of nines application in estimating the size of the burn.

More likely it will be portions of one area; portions of another and an approximation will be needed.

For the purpose of determining the extent of serious injury differentiate the area with minimal or 1st degree burn from those of partial (2nd) or full (3rd) thickness burns.

For the purpose of determining Total Body Surface Area (TBSA) of burn, include only Partial and Full Thickness burns. Report the observation of other superficial (1st degree) burns but do not include those burns in your TBSA estimate.

Some texts will refer to 4th, 5th and 6th degree burns. There is significant debate regarding the actual value of identifying a burn injury beyond that of the superficial, partial and full thickness burn at least at the level of emergent and primary care. For our work, all are included in Full Thickness burns.

Other burn classifications in general include:
4th: Referring to a burn that destroys the dermis and involves muscle tissue.
5th: Referring to a burn that destroys dermis, penetrates muscle tissue, and involves tissue around the bone.
6th: Referring to a burn that destroys dermis, destroys muscle tissue and penetrates or destroys bone tissue.

Estimate spotty areas of burn by using the size of the patient’s palm as 1%
Atmospheric Monitoring
If available
Patient Carbon Monoxide Monitoring
If available

Adequate Oxygenation / Ventilation
Yes
Continue Care
Continue High Flow Oxygen
Monitor and reassess

No
Refer to Airway
(Protocol 11)

High Suspicion of Cyanide
Yes
Hydroxocobalamin 70 mg/kg IV/IO
Maximum 5 grams
If available

No
SBP < 90
Poor Perfusion / Shock
Yes
Normal Saline Bolus 500 mL
As needed to obtain/maintain SBP 90
Maximum 2 liters
Dopamine 5-20 mcg/kg/min IV/IO
To obtain/maintain SBP 90

No
Continue Care
Continue High Flow Oxygen
Monitor and reassess

Notify receiving facility and/or contact Medical Control if possible

PEARLS
* Consider CO and Cyanide with any product of combustion.
* Normal environmental CO level does not exclude CO poisoning.
* Symptoms present with lower CO levels in pregnancy, children and the elderly.
* Continue high flow oxygen regardless of pulse ox readings.
Injury Protocols

**Injury – Crush Syndrome**

**Protocol 24**

**Abnormal ECG Hemodynamically Unstable**

- Peaked T waves
- QRS 0.12 or greater
- Loss of P wave

**Notify receiving facility and/or contact Medical Control if possible**

**PEARLS**

- For patients who have prolonged entrapment, contact Medical Control if possible, for additional treatment options.
- Scene safety is of paramount importance as typical scenes pose hazards to rescuers. Call for appropriate resources.
- Crush injury is very painful. Contact Medical Control if additional pain medication is needed.
- ECG changes with hyperkalemia include those in this protocol, but may also be a “bizarre”, wide complex.
- Patients may become hypothermic, even in warm environments.
Injury – Extremity

Injury threat to life or limb

Yes

Hypotension/Shock (Protocols 38/39)

If indicated

No

Wound Care
Control hemorrhage with pressure
Splinting as required

Bleeding controlled by direct pressure / dressing

Yes

Monitor and reassess

Consider Pain Control (Protocol 7)
If indicated

No

Wound Care
Tourniquet Procedure

Consider Pain Control (Protocol 7)
If indicated

Amputation

Yes

If amputation, clean amputated part; wrapped in moist, sterile dressing, and placed in an air tight bag and then into iced water/saline

No

Notify receiving facility and/or contact Medical Control if possible

PEARLS

* Peripheral neurovascular status is important
* In amputations, time is critical. Transport and notify medical control immediately, so that the appropriate destination can be determined.
* Hip dislocations and knee and elbow fracture / dislocations have a high incidence of vascular compromise.
* Time critical transport is necessary with any injury that has vascular compromise.
* Blood loss may be concealed or not apparent with extremity injuries.
* Lacerations must be evaluated for repair within 6 hours from the time of injury.
Injury Protocols

Injury – Head

Do NOT hyperventilate

Ventilate:
Adult: 8-10/min
PED: 12-20/min
Infant: 20-25/min

EtCO2 35-45 mmHg

Brain herniation
Unilateral or Bilateral
dilation of pupils / posturing

Increase ventilation
Adult: 14-16
PED: 20-25
Infant: 25-30

EtCO2 30-35 mmHg

Spinal Immobilization/Clearance (Protocol 10)
If indicated

Injury – Multisystem (Protocol 27)
If indicated

Altered Mental Status (Protocol 31)
If indicated

Seizure (Protocol 48)
If indicated

Assess Mental Status and record GCS

GCS 8 or less

Yes

Able to Cough / Speak

Yes

BVM / Basic Airway
maneuvers
Maintain SpO2 of at least 94%

No

Exit to Airway
(Protocol 11)

No

Monitor and Reassess

Monitor and reassess

Notify receiving facility and/or contact Medical Control if possible

PEARLS

* In the absence of capnography, increase ventilation rate (adult 20, child 30, infant 35), ONLY if ongoing evidence of brain herniation (blown pupil, decorticate or decerebrate posturing or bradycardia).
* Increased ICP may cause hypertension and bradycardia (Cushing’s Response).
* Hypotension usually indicates injury or shock unrelated to the head injury and should be aggressively treated.
* The most important item to monitor and document is a change in the level of consciousness.
* Limit IV fluids unless patient is hypotensive.
* Concussions are periods of confusion or LOC associated with trauma which may have resolved by the time EMS arrives. Any prolonged confusion or mental status abnormality which does not return to normal within 15 minutes, or, any documented loss of consciousness should be evaluated by a physician ASAP.
Injury Protocols

Injury – Multisystem

Spinal Immobilization/Clearance
(Protocol 10)
If appropriate

Vital Signs / Perfusion
GCS

Normal

Abnormal

Rapid Transport to appropriate
destination using
Triage Plan
Limit Scene time to 10 minutes and
provide early notification

Normal Saline Bolus 500 mL IV/IO
Repeat to maintain/obtain peripheral
pulses

Peds: 20 mL/kg IV/IO to maintain
age appropriate BP

Splint suspected fractures
Control external hemorrhage

Needle Chest Decompression
Procedure
If indicated

Refer to Injury – Head (Protocol 26)
If indicated

Notify receiving destination and/or contact Medical Control if possible

Splint suspected fractures
Control external hemorrhage

Monitor and reassess

Transport to appropriate destination
using Triage Plan

Refer to Hypotension / Shock
(Protocols 38/39)

Pearls
* Geriatric patients should be evaluated with a high index of suspicion. Often, occult injuries are more difficult to recognize and patients can decompensate unexpectedly, with little warning.
* Mechanism is the most reliable predictor of serious injury.
* In prolonged extractions or serious trauma, consider air transportation for transport times and the ability to give blood.
* Do not overlook the possibility of associated domestic violence or abuse.
* Scene times should not be delayed for procedures. These should be performed en-route when possible. Rapid transport of the unstable trauma patient is the goal.
* Bag valve mask is an acceptable method of managing the airway if pulse oximetry can be maintained above 94%.
Medical – Abdominal Pain Protocol 28

Serious Signs/Symptoms
Hypotension, poor perfusion, Shock

Pain Control (Protocol 7)
If indicated

No

Nausea/Vomiting

No

Yes

Serious Signs/Symptoms
Hypotension, poor perfusion, Shock

IV Procedure
Normal Saline Bolus 500 mL
Repeat as needed up to 2 liters to Obtain/Maintain systolic BP of 90

PEDS: Normal Saline Bolus 20 mL/kg to obtain/maintain age specific BP

No

Nausea/Vomiting

Yes

Ondansetron (Zofran) 4 mg IV/IO
May repeat x 1

Peds >6 months:
Ondansetron (Zofran) 0.15 mg/kg IV/IO
May repeat x 1

A

I

Notify Receiving Facility and/or Contact Medical Control if possible

Improving

Yes

No

Exit to Hypotension/Shock
(Protocols 38/39)

PEARLS

* Document mental status and vital signs prior to administration of anti-emetics.
* Abdominal pain in women of childbearing age should be treated as pregnancy related until proven otherwise.
* Antacids should be avoided in patients with renal disease.
* The diagnosis of abdominal aneurysm should be considered with abdominal pain in patients over 50.
* Repeat vitals after each bolus.
* Consider cardiac etiology in patients > 50, diabetics, and/or women, especially with upper abdominal complaints.
**Medical Protocols**

**Medical – Allergic Reaction/Anaphylaxis (Adult)**

**PEARLS**
- Allergic reactions occur when a patient is exposed to an allergen (pollen, insect, medication, food, etc.) causing the body to respond by releasing specific immunoglobulins such as histamine which causes hives, itching and capillary leaking leading to edema. Most allergic reactions are mild and involve only the skin such as erythema, hives and/or itching and are usually resolved with an antihistamine like diphenhydramine.
- Anaphylaxis is a severe form of an allergic reaction and recent studies show it is under-recognized and under-treated.

**Epinephrine 1:100,000:**
In the patient with severe anaphylaxis who is not responding to Epinephrine IM and fluid resuscitation, IV Epinephrine should be administered. Take your Epinephrine 1:10,000 and draw out 1 mL which equals 0.1 mg of epinephrine. Dilute this 1 mL with 10 mL of Normal Saline in a separate syringe to yield a concentration of 1:100,000 (0.1 mg in 10 mL of Normal Saline.) Administer 1 mL each minute over 10 minutes or until symptoms resolve.
Symptom Severity

Mild
- Hives, flushing, itching
  WITH
  NORMAL blood pressure

Moderate
- Hives, flushing, itching, angioedema
  WITH
  Dyspnea, wheezing, hypoxia
  OR
  Nausea, vomiting, abdominal pain
  WITH
  Normal Blood Pressure

Severe
- Hives, flushing, itching
  WITH
  Dyspnea, wheezing, hypoxia
  OR
  Angioedema
  OR
  Nausea, vomiting, abdominal pain
  WITH
  Hypotension / Poor perfusion

Diphenhydramine (Benadryl)
1 mg/kg IV/deep IM

Monitor and Reassess for worsening signs / symptoms

Improve

No

Notify receiving facility and/or contact Medical Control if possible

Epinephrine 1:1,000
- 0.01 mg/kg IM
- Maximum 0.3 mg
- Repeat in 5 minutes if no change

Albuterol Nebulizer 2.5 mL in 3mL of NS
- Repeat as needed x 3

Methyprednisolone (Solumedrol)
- 2 mg/kg IV/IO
- Maximum 125 mg

Epinephrine 1:100,000
- (mix 0.01 mg/kg of 1:10,000 in 10 mL of Normal Saline)
- Administer 1 mL every minute over 10 IV/IO

Consider Airway (Protocol 11) If indicated

Epinephrine 1:1,000
- 0.01 mg/kg IM
- Maximum 0.3 mg
- Repeat in 5 minutes if no change

Normal Saline Bolus
- 20 mL/kg IV/IO
- Repeat as needed to a maximum of 60 mL/kg

Notify receiving facility and/or contact Medical Control if possible
PEARLS
* Patients with moderate and severe reactions should receive a 12 Lead ECG and should be continually monitored.
* Any patient with respiratory symptoms or extensive skin reaction should receive IV or IM diphenhydramine.
* The shorter the onset from exposure to symptoms, the more severe the reaction.
* Fluids and medication titrated to maintain a SBP > 70 + age (in years) x 2 mmHg.
* IV / IO Epinephrine 1:10,000 (0.01 mg/kg) IVP (maximum 1 mg) in the presence of shock.
* Tachycardia and chest tightness are a side effect of epinephrine administration.
Medical – Altered Mental Status

**Behavioral Emergency**
- Yes → Exit to Behavioral/Patient Restraint (Protocol 2)
- No

**Blood Glucose <70 or >500**
- Yes → Exit to Hypoglycemia/ Diabetic Emergency (Protocol 37)
- No

**Signs of Shock Poor Perfusion**
- Yes → Exit to Hypotension/Shock (Protocols 38-39)
- No

**Signs of OD Toxicology Related**
- Yes → Exit to Overdose/Poisoning/Toxic Ingestion (Protocols 43-44)
- No

**Signs of CVA Or Seizure**
- Yes → Exit to Stroke/TIA (Protocol 48) Or Seizure (Protocol 48)
  - As indicated
- No

**Signs of Hypo/Hyper Thermia**
- No

**Arrhythmia STEMI**
- Yes → Exit to appropriate Cardiac Protocol
- No

**Notify Receiving Facility and/or Contact Medical Control if possible**

**PEARLS**
- The patient with AMS poses one of the most significant challenges to you as a provider. A careful assessment of the patient, scene and circumstances should be undertaken. Assume the patient has a life threatening cause of their AMS until proven otherwise.
- Substance Abuse: Patients ingesting substances also pose a great challenge. DO NOT assume recreational drug use and/or alcohol are the sole reason for AMS as more serious underlying medical and/or trauma conditions may be present.
- Behavioral Health Patient: The behavioral health patient also presents a great challenge. DO NOT assume AMS is the result solely of an underlying psychiatric etiology. Often an underlying medical/trauma condition precipitates a deterioration of a patient’s underlying psychiatric disease.
- Spinal Immobilization Trauma: As noted, only employ spinal immobilization if the situation warrants. The patient with AMS may worsen in some instances when immobilized; so, only use when necessary.
Medical – Bradycardia (Adult)

Suspected Beta-Blocker or Calcium Channel Blocker
Refer to OD/Poisoning/Toxic Ingestion (Adult) (Protocol 43)

Heart Rate < 60/minute and Symptomatic:
Chest pain, difficulty breathing, Altered LOC, or signs of hypoperfusion

No

12 Lead ECG Procedure
I
ECG Assess Rhythm
A
IV Procedure
Monitor and reassess
I
Consider placing External Pacing Pads

Yes

12 Lead ECG Procedure
I
ECG Assess Rhythm
A
IV Procedure
I
Consider Atropine 0.5 mg IV/IO
Repeat every 3-5 minutes (maximum of 3mg)
A
Fluid Bolus 500 mL of NS (unless CHF)
I
Transcutaneous Pacing
Early in 2nd and 3rd AVB
I
Consider Dopamine 5-20mcg/kg/min if no clinical response

Consider Midazolam (Versed) 2-4 mg IV/IO

Notify Receiving Facility and/or Contact Medical Control if possible

PEARLS
* Bradycardia causing symptoms is typically < 60/minute. Rhythm should be interpreted in the context of symptoms and pharmacological treatment given only when symptomatic, otherwise monitor and reassess.
* Atropine: Caution in setting of acute MI. The use of Atropine for PVCs in the presence of an MI may worsen heart damage. Should not delay Transcutaneous Pacing with poor perfusion. Ineffective in cardiac transplantation. Likely ineffective in 2nd and 3rd degree blocks.
* The use of Lidocaine, Beta Blockers, and Calcium Channel Blockers in heart block can worsen bradycardia and lead to asystole and death.
* For wide complex, slow rhythm, consider hyperkalemia.
* Consider treatable causes for bradycardia (e.g. Beta Blocker OD, Calcium Channel Blocker OD, etc.).
**Medical – Bradycardia (Pediatric)**

**Bradycardia**

Causing hypotension/AMS/Poor Perfusion/ Shock

- **Yes**
  - Airway Patent
  - Oxygenation/Ventilation Adequate
    - **Yes**
      - Exit to Airway (Protocol 11)
    - **No**
      - Identify underlying cause
        - Blood Glucose Analysis Procedure
        - Refer to Altered Mental Status (Protocol 31) If indicated
        - IV Procedure
        - ECG Assess Rhythm
  - Exit to AMS (Protocol 31) As indicated

- **No**
  - Identify underlying cause
    - Blood Glucose Analysis Procedure
    - Refer to Altered Mental Status (Protocol 31)
    - IV Procedure
    - ECG Assess Rhythm
  - Exit to Cardiac Arrest (Pediatric) (Protocol 4)
  - Notify Receiving Facility and/or contact Medical Control if possible

**Suspected Beta-Blocker or Calcium Channel Blocker**

- **Refer to OD/Poisoning/Toxic Ingestion (Pediatric) (Protocol 44)**

**PEASES**

* Use Length Based Measuring Tape for drug dosages.
* Infant ≤ 1 year old
* The majority of pediatric arrests are due to airway problems.
* Most maternal medication pass through breast milk to infant.
* Hypoglycemia, severe dehydration and narcotic effects may produce bradycardia.
* Pediatric patients requiring external pacing also require the use of pads appropriate for pediatric patients per manufacturer’s guidelines.
* **ATROPINE – ONLY give Atropine to pediatric patients IF there is an increase in vagal tone. Increased vagal tone is marked by respiratory sinus arrhythmia. Inhalation temporarily suppresses vagal activity (increasing heart rate) and exhalation immediately decreases heart rate as vagal activity resumes.**

**Normal Saline Bolus**

- 20 mL/kg IV/IO
- Repeat as needed x 3

**Epinephrine**

- 1:10,000
- 0.01 mg/kg IV/IO
- Repeat every 3-5 minutes

**If increased vagal tone:**

- Atropine 0.02 mg/kg IV/IO
- Minimum of 0.1 mg
- Repeat in 5 minutes x 1

**Consider External Cardiac Pacing**
Medical – Cardiac Chest Pain

Chest Pain
Circumstances consistent with cardiac etiology?

12 Lead ECG Procedure
ECG print out reads “ACUTE”, “ACUTE MI”, or “STEMI”

ECG Assess Rhythm

As soon as STEMI is identified:
If possible, begin urgent transport to a destination able to provide PCI.
Do not delay care on the scene for interventions.
If possible transmit the ECG to the receiving facility.

Acute MI / STEMI
(STEMI = 1mm ST Segment Elevation in 2 contiguous leads)?

No

Yes

Aspirin 81mg x 4 PO (chewed)

IV Procedure

Systolic BP greater than 90mmHg?

Yes

No

Nitroglycerin 0.4mg tablet or spray SL
Repeat every 5 minutes x 3 as needed

Nitroglycerin 0.4mg tablet or spray SL
Repeat every 5 minutes x 3 as needed
After spray/tablet max dose:
Nitroglycerin Paste
SBP > 90
1 inch

Morphine 2.5 mg IV/IO
May repeat as needed every 5 minutes (maximum 10 mg)
OR
Fentanyl 1mcg/kg IV/IO/IM/IN
Repeat every 5 minutes for Maximum of 2 mcg/kg

Normal Saline Bolus 250 mL
Repeat as needed to 1 liter

Consider Dopamine 5-20 mcg/kg/min IV/IO

Notify Receiving Facility and/or Contact Medical Control if possible

Exit to Pulmonary Edema/CHF (Protocol 45)

Lung Exam: CHF / Pulmonary Edema?

Yes

No
PEARLS

* Do NOT administer Nitroglycerin in any patient who has used Viagra or Levitra in the past 24 hours or Cialis in the past 36 hours due to potential severe hypotension. If 12-lead indicates right-sided infarct, NTG is not recommended and crystalloid fluid may be necessary to support BP.

* Monitor for hypotension after administration of nitroglycerin and narcotics.

* Diabetics and geriatric patients often have atypical pain, or only generalized complaints.
If any present:
Hemodialysis in past 4 hours
Serious signs/symptoms
Systolic BP > 89
Blood Sugar 69-249

Yes

Exit to Appropriate Protocol

No

Peaked T waves; QRS 0.12 or greater

Yes

Calcium Chloride 1 gram IV/IO over 3 minutes
Sodium Bicarbonate 1 mEq/kg IV/IO

No

Notify receiving facility and/or contact Medical Control if possible

PEARLS

* Renal dialysis patients have numerous medical problems. Hypertension and cardiac disease are prevalent.
* Do NOT take blood pressure or start IV in extremity which has an active, working shunt or fistula in place (if possible).
* Always consider Hyperkalemia in all dialysis or renal failure patients.
Hypertension is not uncommon, especially in an emergency setting. Hypertension is usually transient and in response to stress and/or pain. A hypertensive emergency is based on blood pressure along with symptoms which suggest an organ is suffering damage, such as an MI, CVA or renal failure. This is very difficult to determine in the prehospital setting in most cases. Aggressive treatment of hypertension can result in harm. Most patients, even with significant elevation in blood pressure, need only supportive care. Specific complaints such as chest pain, dyspnea, pulmonary edema or altered mental status, should be treated based on specific protocols and consultation with Medical Control.

**PEARLS**
* Elevated blood pressure is based on 2 to 3 sets of vital signs.
* All symptomatic patients with hypertension should be transported with their head elevated at 30 degrees.
* No BP should be taken in extremity with working dialysis shunts and fistulas OR history of mastectomy.
Hypoglycemia (Symptomatic)

Awake with intact gag reflex

Yes

E Consider Oral Glucose Solution

No

IV Procedure
Venous Blood Draw if Possible

A Dextrose 50%, up to 25 grams IV/IO
Repeat every 5 minutes As needed

I Peds: Newborn to 30 days old
Dextrose 10% 2.5 mL/kg IV/IO
Repeat as needed

I Peds: 31 days to 2 yrs old
Dextrose 25% 4 mL/kg IV/IO
Repeat as needed

I Peds: > 2 yrs old
Dextrose 50% 2 mL/kg IV/IO
Repeat as needed
Maximum 25 grams per dose

I If no IV/IO/IN:
Glucagon 1mg IM

I Peds: > 3 yrs old:
Glucagon 0.1mg/kg IM

Improving

No

Yes

Notify receiving facility and/or contact Medical Control if possible

Hyperglycemia (Symptomatic)

IV Procedure
Venous Blood Draw if Possible

A IV/IO Bolus of 500 mL repeat to a maximum of 2 Liters
Reassess lung sounds before each 500 mL bolus

I Peds: 20mL/kg; reassessing lung sounds before each fluid bolus (may repeat x 3)

PEARLS
* Patients with prolonged hypoglycemia may not respond to glucagon.
* Do NOT administer oral glucose to patients who are not able to swallow or protect their airway.
* Quality control checks should be maintained per manufacturers recommendations for ALL glucometers.
* Normal blood sugar ranges are typically 70-110; treatment is usually only required if < 60 or > 300.
Medical – Hypotension/Shock (Adult) Protocol 38

PEARLS
* Hypotension can be defined as a systolic blood pressure of less than 90 mmHg and/or loss of peripheral pulses.
* Consider all possible causes of shock and treat per appropriate protocol.
* For non-cardiac, non-trauma hypotension, Dopamine should only be started after 2 liters of NS have been given.
* Monitor lung sounds before all fluid boluses.

Medical Protocols

Exit to Hypoglycemia/ Diabetic Emergency (Protocol 37) If Indicated

If Indicated

History, exam, and circumstances suggest a type of shock

Hypovolemic

Cardiogenic

Neurogenic

Septic

Airway Protocol if indicated

12 Lead ECG Procedure

ECG Assess Rhythm

IV Procedure

Blood Glucose Analysis Procedure

Cardiac / Arrhythmia Protocol If Indicated

Notify Receiving Facility and/or Contact Medical Control if possible

Normal Saline Bolus 500 mL IV/IO Repeat to effect SBP ≥ 90 mmHg 2 Liters max

Normal Saline TKO

Dopamine 5-20 mcg/kg/min IV/IO To obtain/maintain SBP of 90 mmHg

Spinal Immobilization Procedure If indicated

Normal Saline Bolus 500 mL IV/IO Repeat to effect SBP ≥ 90 mmHg 2 Liters max

Dopamine 5-20 mcg/kg/min IV/IO To obtain/maintain SBP of 90 mmHg (if needed after bolus)

Normal Saline Bolus 500 mL IV/IO Repeat to effect SBP ≥ 90 mmHg 2 Liters max

Dopamine 5-20 mcg/kg/min IV/IO To obtain/maintain SBP of 90 mmHg (if needed after bolus)

Notify Receiving Facility and/or Contact Medical Control if possible

If Indicated

Exit to Injury – Multisystem (Protocol 27)

Trauma No

Yes

Exit to Hypoglycemia/ Diabetic Emergency (Protocol 37) If Indicated

If Indicated

History, exam, and circumstances suggest a type of shock

Hypovolemic

Cardiogenic

Neurogenic

Septic

Airway Protocol if indicated

12 Lead ECG Procedure

ECG Assess Rhythm

IV Procedure

Blood Glucose Analysis Procedure

Cardiac / Arrhythmia Protocol If Indicated

Notify Receiving Facility and/or Contact Medical Control if possible

If Indicated

Normal Saline Bolus 500 mL IV/IO Repeat to effect SBP ≥ 90 mmHg 2 Liters max

Normal Saline TKO

Dopamine 5-20 mcg/kg/min IV/IO To obtain/maintain SBP of 90 mmHg

Spinal Immobilization Procedure If indicated

Normal Saline Bolus 500 mL IV/IO Repeat to effect SBP ≥ 90 mmHg 2 Liters max

Dopamine 5-20 mcg/kg/min IV/IO To obtain/maintain SBP of 90 mmHg (if needed after bolus)

Notify Receiving Facility and/or Contact Medical Control if possible

If Indicated

Normal Saline Bolus 500 mL IV/IO Repeat to effect SBP ≥ 90 mmHg 2 Liters max

Normal Saline TKO

Dopamine 5-20 mcg/kg/min IV/IO To obtain/maintain SBP of 90 mmHg

Spinal Immobilization Procedure If indicated

Normal Saline Bolus 500 mL IV/IO Repeat to effect SBP ≥ 90 mmHg 2 Liters max

Dopamine 5-20 mcg/kg/min IV/IO To obtain/maintain SBP of 90 mmHg (if needed after bolus)

Notify Receiving Facility and/or Contact Medical Control if possible

If Indicated

Normal Saline Bolus 500 mL IV/IO Repeat to effect SBP ≥ 90 mmHg 2 Liters max

Normal Saline TKO

Dopamine 5-20 mcg/kg/min IV/IO To obtain/maintain SBP of 90 mmHg

Spinal Immobilization Procedure If indicated

Normal Saline Bolus 500 mL IV/IO Repeat to effect SBP ≥ 90 mmHg 2 Liters max

Dopamine 5-20 mcg/kg/min IV/IO To obtain/maintain SBP of 90 mmHg (if needed after bolus)

Notify Receiving Facility and/or Contact Medical Control if possible
**Medical – Hypotension/Shock (Pediatric)**

**PEARLS**
- Lowest blood pressure by age:
  - < 31 days; > 60 mmHg
  - 31 day – 1 year; > 70 mmHg
  - 1 year and older; > 70 + (2 x age) in years
- Consider all possible causes of shock and treat per appropriate protocol. Majority of decompensating in pediatrics is airway related.
- Consider possible allergic reaction or early anaphylaxis.
- If patient has a history of cardiac disease, (prematurity), chronic lung disease or renal disease limit Normal Saline Bolus to 10 mL/kg.

**Pediatric Arrhythmia Protocol**
- As indicated

**Medical Protocols**
- Peds: Newborn – 30 days old
  - Dextrose 10% 2.5 mL/kg IV/IO
  - Repeat as needed
- Peds: 31 days – 2 yrs old
  - Dextrose 25% 4 mL/kg IV/IO
  - Repeat as needed
- Peds: > 2 yrs old
  - Dextrose 50% 2 mL/kg IV/IO
  - Repeat as needed
  - Maximum 25 grams
- Normal Saline Bolus
  - 20 mL/kg
  - Repeat as needed x 3 to effect SBP of > 70 + (2 x age)

**IV Procedure**
- 12 Lead ECG Procedure
- ECG Reassess Rhythm
- Blood Glucose Analysis Procedure

**Blood Glucose > 60**
- Consider Oral Glucose Solution
  - If no IV access
  - Glucagon 0.1 mg/kg IM
  - Maximum of 1 mg single dose

**Exit to Airway (Protocol 11)**

**Exit to Injury - Multisystem (Protocol 27)**

**Notify receiving facility and/or contact Medical Control if possible**

**Normal Saline Bolus**
- 20 mL/kg
  - Repeat as needed x 3 to effect SBP of > 70 + (2 x age)

**Consider Dopamine 5-20 mcg/kg/min IV/IO**
  - to effect SBP > 70 + (2 x age)**
Medical – Nausea/Vomiting Protocol 40

Medical Protocols

Serious Signs / Symptoms
Hypotension, poor perfusion, shock

No

Ondansetron (Zofran)
4 mg IV/IO/IM
May repeat x 1

Peds > 6 months:
Ondansetron (Zofran)
0.15 mg/kg IV/IO
May repeat x 1

Abdominal Pain

Yes

Exit to Pain Control
(Protocol 7)

If indicated

No

Normal Saline IV TKO

Improving

Yes

Improving

Normal Saline Bolus 500 mL,
then 150 mL/hr

Peds: 20 mL/kg to obtain/maintain
 BP to age specific

No

Notify receiving facility and/or contact Medical Control if possible

Yes

IV Procedure
Consider 2 Large Bore Sites

Normal Saline Bolus, 500 mL
Repeat as needed to 2 liters
To obtain/maintain BP or 90mmHg

Peds: 20 mL/kg to obtain/maintain
BP to age specific

Ondansetron (Zofran) 4 mg IV/IO/IM
May repeat x 1

Peds > 6 months:
Ondansetron (Zofran)
0.15 mg/kg IV/IO
May repeat x 1

Improving

Exit to
Hypotension/Shock
(Protocols 48-49)

Yes

No

PEARLS

* Beware of vomiting in the absence of nausea in children. Pyloric stenosis, bowel obstruction and CMS processes (bleeding, tumors, or increased CSF pressures) all often present with vomiting.
**Medical Protocols**

**Medical – Newborn/Neonatal Resuscitation Protocol 41**

**PEARLS**
- CPR in infants is 120 compressions/minute with a 3:1 compression to ventilation ratio.
- It is extremely important to keep infant warm.
- Document 1 and 5 minute APGAR (see procedures).
- Use Mother/Baby ID bands where available.

**Airway Suctioning**
- Clear amniotic fluid: Suction only when obstruction is present and/or if BVM is needed.
- Meconium present: Non-vigorous newborns may undergo: Direct Endotracheal Suctioning

**Supplemental oxygen**
- Maintain 
  - 
  - 
  - 
- Monitor and reassess

**Care of mother**
- Appropriate Protocol

**Term Gestation**
- Breathing or Crying
- Good Muscle Tone
  - Yes
  - Provide warmth / dry infant
    - Clear airway if necessary
    - Monitor and reassess

**Warm, Dry and Stimulate**
- Clear airway if necessary
  - Yes
  - BVM Ventilations
    - Pulse Oximetry
      - ECG Assess Rhythm
  - No
  - Heart rate < 100
    - No
    - Agonal breathing or apnea
      - Yes
      - BVM Ventilations
        - Pulse Oximetry
          - ECG Assess Rhythm
        - No
        - Heart rate < 100
          - No
          - Labored breathing Persistent Cyanosis
            - Yes
            - BVM Ventilations
              - Pulse Oximetry
                - ECG Assess Rhythm
              - E I
                - ECG Assess Rhythm
                - Normal Saline Bolus 10 mL/kg IV/IO
              - E I
                - ECG Assess Rhythm
                - Normal Saline Bolus 10 mL/kg IV/IO
          - No
          - Heart rate < 60
            - Yes
            - BVM Ventilations
              - Chest Compressions
                - IV Procedure
                - Pediatric Airway Protocols
              - No
            - No
            - BVM Ventilations
              - Pulse Oximetry
                - ECG Assess Rhythm
              - E I
                - ECG Assess Rhythm
                - Normal Saline Bolus 10 mL/kg IV/IO
            - No
            - Heart rate < 60
              - Yes
              - Epinephrine 1:10,000
                - 0.01 mg IV/IO
                - Every 3-5 minutes as needed
              - No
              - Notify receiving facility and/or contact Medical Control if possible

Most newborns requiring resuscitation will respond to ventilation / BVM, compressions and/or epinephrine.
- If not responding, consider hypovolemia, pneumothorax and/or hypoglycemia (<40).
Medical – Overdose/Poisoning/Toxic Ingestion (Adult)

Adequate Respirations Oxygenation/Ventilation

- Naloxone up to 2 mg IV/IO/IM/IN
  - Naloxone is titrated to effect of adequate oxygenation
  - NOT given to restore consciousness

Exit to Altered Mental Status (Protocol 31)

- Systolic BP < 90 mmHg

Exit to Hypotension/Shock (Protocol 38)

Potential Cause Serious Signs and Symptoms

- Beta Blocker OD
- Calcium Channel Blocker OD
- Tricyclic Antidepressant OD
- Organophosphate
- Cyanide / Carbon Monoxide OD

Nerve Agent Antidote Kit - Duodote If Available

- Sodium Bicarbonate 50 mEq IV / IO
  - May repeat in 5 minutes if QRS remains wide
- Atropine 2 mg IV / IO or IM
  - Repeat every 5 minutes until symptoms improve
- Pralidoxime (2 PAM) 1800 mg IV / IO / IM

Notify Receiving Facility and/or contact Medical Control if possible

Poison Control 1-800-222-1222 or CHEMTREC at 1-800-424-9300

Click here for PEARLS (Protocol 43)
Medical – Overdose/Poisoning/Toxic Ingestion (Pediatric)

Adequate Respirations
Oxygenation/Ventilation

No

Naloxone 0.1 mg/kg IN/IM
Naloxone is titrated to effect of adequate oxygenation
NOT given to restore consciousness

I

Naloxone 0.1 mg/kg IV/IN/IM/IO

Yes

Exit to Altered Mental Status (Protocol 31)

Altered Mental Status

No

Exit to Airway (Protocol 11) If Indicated

Low Systolic BP
(age specific hypotension)

Yes

Exit to Hypotension/Shock (Pediatric Protocol 39) If Indicated

No

Potential Cause
Serious Signs and Symptoms

Beta Blocker OD
Calcium Channel Blocker OD
Tricyclic Antidepressant OD
Organophosphate
Cyanide / Carbon Monoxide OD

Consider Cardiac External Pacing Procedure for Severe Cases

Glucagon 0.5 mg IV/IO
Maximum of 2 mg (if available)

Calcium Chloride
60 mg/kg IV/IO over 3 minutes

Dopamine 5-20 mcg/kg/min IV/IO
If no response

No

Beta Blocker OD

Calcium Channel Blocker OD

Tricyclic Antidepressant OD

Organophosphate

Cyanide / Carbon Monoxide OD

Yes

QRS > 0.10

Sodium Bicarbonate
1 mEq/kg IV/IO
May repeat in 5 minutes if QRS remains wide
Maximum 50 mEq

Notify Receiving Facility and/or contact Medical Control if possible
Poison Control 1-800-222-1222 or CHEMTREC at 1-800-424-9300

Exit to Altered Mental Status (Protocol 31)

Yes

Exit to Carbon Monoxide/Smoke Inhalation (Protocol)
## PEARLS

* Do not rely on patient history of exposure, especially in suicide attempts. Make sure patient is still not carrying other medications or has any weapons.
* Bring bottles, contents, emesis to ED.
* **Tricyclic**: 4 major areas of toxicity: seizures, dysrhythmias, hypotension, decreased mental status or coma; rapid progression from alert mental status to death.
* **Acetaminophen**: initially normal or nausea/vomiting. If not detected and treated, causes irreversible liver failure.
* **Aspirin**: Early signs consist of abdominal pain and vomiting. Tachypnea and altered mental status may occur later. Renal dysfunction, liver failure, and/or cerebral edema among other things can take place later.
* **Depressants**: decreased HR, decreased BP, decreased temperature, decreased respirations, non-specific pupils.
* **Stimulants**: increased HR, increased BP, increased temperature, dilated pupils, seizures.
* **Anticholinergic**: increased HR, increased temperature, dilated pupils, mental status changes.
* **Cardiac Medications**: dysrhythmias and mental status changes.
* **Solvents**: nausea, coughing, vomiting and mental status changes.
* **Insecticides**: increased or decreased HR, increased secretions, nausea, vomiting, diarrhea, pin-point pupils.
* **Nerve Agent Antidote kit** contains 2 mg of Atropine and 600 mg of pralidoxime in an auto-injector for self administration or patient care if needed.
**Symptom/Severity**

**Mild**
- Normal HR
- Elevated/Normal BP
- Nitroglycerin 0.4 mg SL
  - Repeat every 5 minutes x 3
- Nitroglycerin Paste
  - SBP > 90, 1 inch

**Moderate/Severe**
- Elevated HR
- Elevated BP
- Airway CPAP Procedure
  - Nitroglycerin 0.4 mg SL
    - Repeat every 5 minutes x 3
  - After spray/tablet max dose:
    - Nitroglycerin Paste
      - SBP > 90
    - 1 inch
  - Furosemide (Lasix) 0.5 mg/kg
    - IV if patient is not prescribed
      - Lasix
    - 1.0 mg/kg IV if patient is prescribed Lasix.

**Cardiogenic Shock**
- Bradycardiac
- Hypotensive
- Remove CPAP if in place
- Refer to Airway (Protocol) If Indicated
  - Dopamine
    - 5-20 mcg/kg/min IV / IO
    - Titrate to a SBP of 90

**Respiratory Distress?**

Yes

**Improving**

No

**No**

Exit to appropriate protocol(s)

**Yes**

Remove CPAP if hypotensive

Refer to Airway (Protocol 11) if indicated

Notify Receiving Facility and/or contact Medical Control if possible

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**PEARLS**

* Do **NOT** give Nitroglycerin to any patient who has used Viagra or Levitra in the past 24 hours or Cialis in the past 36 hours due to potential, severe hypotension.
* Consider MI in all of these patients. Diabetics and geriatric patients often have atypical pain, or only generalized complaints.
* Allow the patient to be in the position of comfort to maximize breathing effort.
* Document time of CPAP application.
* Do not administer Lasix during pregnancy, or if hyperkalemia is suspected.
Medical – Respiratory Distress (Adult)

Airway Patent
Ventilations Adequate
Oxygenation Adequate

No
Exit to Airway
(Protocol 11)

Yes

12 Lead ECG Procedure

ECG Assess Rhythm

IV Procedure

Wheezing

Physical Exam

Stridor

Improving

Yes

E Airway CPAP Procedure

If indicated

No

E Airway CPAP Procedure

If indicated

E Nebulized Epinephrine

2 mg 1:1,000 in 2 mL of NS

E Methylprednisolone

(Solumedrol) 125 mg IV/IO/deep IM

E Magnesium Sulfate 2 grams IV/IO over 5 minutes

E Airway CPAP Procedure

If indicated

Notify Receiving Facility and/or Contact Medical Control if possible

PEARLS

* Pulse Oximetry and EtCO2 should be monitored continuously if initial saturation is ≤ 94%, or there is a decline in patient’s status.
* Contact Medical Control prior to administration of epinephrine in patients who are >50 years of age, have a history of cardiac disease, or if the patient’s heart rate is > 150. Epinephrine may precipitate ischemia. A 12 Lead should be performed on these patients.
* A silent chest in respiratory distress is a pre-respiratory arrest sign.
**Medical – Respiratory Distress (Pediatric)**

- **Wheeze**
  - Age 1 year or greater
    - Yes
      - **First Wheezing Episode**
        - Yes
          - Albuterol Nebulizer 2.5 mg in 3mL NS X 1
          - **Epinephrine 1:1,000 Nebulized** 2 mL in 3 mL of Normal Saline
          - Improving
            - Yes
              - **Epinephrine 1:1,000 Nebulized** 2 mL in 3 mL of Normal Saline
              - Improving
                - Yes
                  - > 30 kg Adult Epi Pen IM
                  - < 30 kg Epi Pen Jr IM
                  - Refer to Airway (Protocol 11) If indicated
                - No
                  - Magnesium Sulfate 50 mg/kg IV Over 20 minutes
                  - Refer to Airway (Protocol 11) If indicated
        - No
          - Epinephrine 1:1,000 Nebulized 2 mL in 3 mL of Normal Saline
          - Improving
            - Yes
              - > 30 kg Adult Epi Pen IM
              - < 30 kg Epi Pen Jr IM
              - Refer to Airway (Protocol 11) If indicated
            - No
              - Magnesium Sulfate 50 mg/kg IV Over 20 minutes
              - Refer to Airway (Protocol 11) If indicated
    - No
      - Albuterol Nebulizer 2.5 mg in 3 mL NS Repeat as needed X 3
      - Methylprednisolone (Solumedrol) 2 mg/kg IV Maximum of 125 mg
      - Refer to Airway (Protocol 11) If indicated
      - Notify receiving facility and/or contact Medical Control if possible
  - No
    - No
      - Albuterol Nebulizer 2.5 mg in 3mL NS Repeat as needed X 3
      - Methylprednisolone (Solumedrol) 2 mg/kg IV Maximum of 125 mg
      - Refer to Airway (Protocol 11) If indicated
      - Notify receiving facility and/or contact Medical Control if possible

**Medical Protocols**

**Medical – Respiratory Distress (Pediatric)**

**Protocol 46**

2014
PEARLS
* Pulse oximetry and ETCO2 should be monitored continuously on the patient with respiratory distress.
* EMT – B can administer Epinephrine Auto Injector, where IM Epinephrine is indicated: Weight < 30 kg, use Epi Jr. pen.
* Consider IV procedures when pulse oximetry remains < 94% or less after first beta agonist treatment.
* Do not force a child into a position; allow them to assume position of comfort. They will protect their airway by their body position.
* The most important component of respiratory distress is airway control.
* Bronchiolitis is a viral infection, typically affecting infants, which result in wheezing; it may not respond to beta agonist. Consider Epinephrine if patient is < 18 months and not responding to initial beta agonist treatment.
* Croup typically affects children < 2 years of age. It is viral, with possible fever, gradual onset, NO drooling is noted.
* Epiglottitis typically affects children > 2 years of age. It is bacterial, with fever, rapid onset, possible stridor, patient wants to sit up to keep airway open, drooling is common. **Airway manipulation may worsen the condition.**
* Use caution when attempting to start an IV in children with relatively “stable” epiglottitis (as this may worsen the child's condition).
**Medical – Seizure**

**PEARLS**
- Status epilepticus is defined as two or more successive seizures without a period of consciousness or recovery. This is a true emergency, requiring rapid airway control, treatment and transport.
- Grand mal seizures (generalized) are associated with loss of consciousness, incontinence and tongue trauma.
- Focal seizures (petit mal) effect only a part of the body and are not usually associated with a loss of consciousness.
- Be prepared for airway problems and continued seizures.
- Assess possibility of acute trauma and substance abuse.
- Be prepared to assist ventilations especially if diazepam or midazolam is used.
- For any seizure in a pregnant patient, follow the OB Emergencies Protocols.
- Midazolam (Versed) is well absorbed when administered IM.

---

**Active Seizure Activity**

- **No**
  - Postictal
  - Monitor and Reassess
    - E BLOOD GLUCOSE ANALYSIS PROCEDURE

- **Yes**
  - Airway (Protocol 11) If indicated
    - Midazolam (Versed) 5 mg IV/IO/IM/IN
      - Every 3 to 5 minutes
      - As needed (up to 10 mg)
    - Peds: Midazolam (Versed) 0.1 mg/kg IV/IO/IM/IN
      - Maximum 5 mg each dose
      - May repeat every 3-5 minutes as needed (up to 10 mg)
  - Magnesium Sulfate 4-6 grams IV/IO
    - Over 5 minutes
  - Exit to Hypoglycemia/Diabetic Emergency (Protocol 37) If indicated
  - Notify Receiving Facility and/or contact Medical Control if possible

---

**Active Seizure in KNOWN or suspected pregnancy > 20 weeks**
- Magnesium Sulfate 4-6 grams IV/IO
  - Over 5 minutes

---

**Blood Glucose Analysis Procedure**

- E
  - Notify Receiving Facility and/or contact Medical Control if possible
Suspected Stroke

Blood Glucose Analysis

Cincinnati Stroke Scale

Positive

Negative

Exit to Hypoglycemia/ Diabetic Emergency (Protocol 37)

If indicated

When possible, discuss with Medical Control as a potential acute stroke for assistance in destination determination and mode

Refer to Appropriate Protocol

Onset of 3 hours or less

No

Yes

Initiate transport to a designated Stroke Center when possible, with immediate notification

12 Lead ECG Procedure

ECG Assess Rhythm

IV Procedure

Notify receiving facility and/or contact Medical Control if possible

PEARLS
* The provider must make the effort to bring a witness or individual able to legally provide consent for treatment to hospital, or at a minimum, a phone number for the witness/consenting individual.
* If onset time is unknown, providers should identify the last time the patient was seen in normal condition.
* Cincinnati Stroke Scale:
  F – facial droop
  A – arm drift
  S – slurred or difficult speech
  T – time (onset of signs and symptoms or last known “normal” < 3 hours)
* Aeromedical transport should be considered for extended transport times.
Unstable / Serious Signs and Symptoms
HR typically > 150

Wide QRS > 0.12 seconds

No

Yes

Midazolam (Versed)
2 mg IV/IO/IN
May repeat to a maximum of 10 mg
Synchronized Cardioversion Procedure
(Click for dosages)
Consider Adenosine 6 mg IV/IO
If regular and monomorphic
May repeat at 12 mg if needed

Attempt Vagal Maneuvers
Adenosine 6 mg IV/IO
If regular and monomorphic
May repeat at 12 mg if needed
Irregular rhythm or Adenosine does not convert:
Metoprolol 5 mg slow IV push, may repeat every 5 minutes to max. of 15 mg.

Adenosine 6 mg IV/IO
If regular and monomorphic
May repeat at 12 mg if needed

Amiodarone 150 mg
IV/IO
Over 10 minutes
May repeat x 1 if needed
Magnesium Sulfate
2 grams IV/IO
Over 5 minutes for Torsades de Points

Amiodarone 1 mg/min IV/IO drip
If rhythm converts

12 Lead ECG Procedure after rhythm conversion

Notify Receiving Facility and/or contact Medical Control if possible

Pearls
* When giving Adenosine, push rapidly, followed by a 10 mL flush.
* Adenosine may *not* be effective in identifiable atrial flutter/fibrillation, yet is not harmful.
* Monitor for respiratory depression and hypotension associated with Versed.
* Continuous pulse oximetry is required for all SVT patients.
* Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
Medical – Tachycardia (Pediatric)

If Tachycardic with adequate perfusion, provide supportive care and transport.

Hemodynamically Stable

Yes

No

(< 0.09 sec)

QRS Duration

(> 0.09 sec)

Narrow

Wide

Evaluate with 12 Lead ECG if possible

Evaluate with 12 Lead ECG if possible

Probable Sinus Tachycardia

Probable Supraventricular Tachycardia

Probable Ventricular Tachycardia

*Compatible history consistent with known cause

*P waves present and normal

*Variable R to R and constant PR Interval

*Infants, rate usually <220/minute

*Children, rate usually <180/minute

*Compatible history (vague, non specific); history of abrupt rate changes

*P waves absent/abnormal

*HR not variable

*Infants, rate usually >220/minute

*Children, rate usually >180/minute

Identify and treat underlying cause

Vagal Maneuvers

Adenosine 0.1mg/kg IV/IO
Maximum 6 mg
May repeat at 0.2 mg/kg IV/IO
Maximum 12 mg

Notify receiving facility and/or contact Medical Control if possible

Synchronized Cardioversion

0.5 – 1.0 joule/kg
May repeat at 2 joule/kg

Consider Adenosine

0.1 mg/kg IV/IO
Maximum of 6 mg while preparing for synchronized Cardioversion

Consider Midazolam (Versed)

0.02 mg/kg IV/IO/IN
Maximum 2 mg

Amiodarone 5 mg/kg IV/IO
Over 20 minutes
Maximum dose 150 mg
May repeat x 1

2014

Medical – Tachycardia (Pediatric) Protocol 50

Medical Protocols

FAUQUIER COUNTY FIRE RESCUE
PEARLS
* Carefully evaluate the rhythm to distinguish Sinus Tachycardia, Supraventricular Tachycardia and Ventricular Tachycardia.
* Separating the child from the caregiver may worsen the child’s clinical condition.
* Pediatric pads/paddles should be used on children < 10 kg or per Length Based Measuring Tape (Purple) if available.
* Monitor for respiratory depression and associated hypotension if Versed is used.
* Continuous pulse oximetry is required for all SVT patients if available.
* Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
* Generally, the maximum sinus tachycardic rate is 220 minus the patient’s age in years.
Medical – Ventricular Assist Device (VAD)

Universal Patient Care Protocol

VAD Functioning?

Auscultate: left sternal border to upper abdominal quadrant

Continuous Humming = pump working

Attention: Usually, when pump IS working
- No palpable pulse
- No measurable blood pressure
- No pulse oximeter reading

Must rely on clinical assessment of perfusion: skin color and temp, cap refill, mental status, respiratory distress, orthostatic vital signs

Yes

Stable?

No

Other general medical problem

Volume Depletion

EKG Abnormal: Cardiac Arrhythmias

Controller Alarming

Treat per appropriate protocol

IV Procedure

A

Rapid NS fluid bolus

Treat per appropriate protocol

While WITHOLDING Chest Compressions

Treat for cardiogenic shock

Change Controller if instructed

Urgent Transport to VAD Capable ED

Notify receiving facility and/or contact Medical Control if possible

Obvious Death

Withhold Resuscitation

Yes

No

Pump connected to Controller?

Controller connected to Power?

Always:
- Contact VAD implant center
- Allow patient's trained companion to stay
- Transport all of the VAD equipment with patient

VAD Capable EDs:
- INOVA Fairfax Hospital - 3200 Gallows Road, Falls Church (703) 776-4001
- MedStar Washington Hospital Center - 110 Irving St, NW, Washington DC (202) 877-7000
- University of Virginia Medical Center - 1515 Lee Street, Charlottesville (434) 924-3627
- University of Maryland Medical Center - 22 S. Green Street, Baltimore (410) 328-3822

Pearls:
- VAD pumps run continuously, there is no pulse pressure. You will unlikely feel a pulse and automatic BP machines will not register a blood pressure, nor will a pulse oximeter register a reliable oxygen saturation. Using a doppler you may obtain a single average blood pressure in the range of 60-100 mm Hg.
- Clinical assessment is your primary tool: Mental Status, Skin Color and Temperature, Capillary Refill Time, Orthostatic Vital signs.
- Defibrillation, Cardioversion and External pacing are allowed if indicated. Patients with VADS can actually come home in Vfib, the pump still perfuses the patient adequately. However, new arrhythmias can reduce cardiac output and require treatment.
- VADS are very volume dependent. Even minor fluid loss can initial poor perfusion. IV fluid therapy is the first step in any unstable VAD patient.

VAD Capable EDs:
- INOVA Fairfax Hospital - 3200 Gallows Road, Falls Church (703) 776-4001
- MedStar Washington Hospital Center - 110 Irving St, NW, Washington DC (202) 877-7000
- University of Virginia Medical Center - 1515 Lee Street, Charlottesville (434) 924-3627
- University of Maryland Medical Center - 22 S. Green Street, Baltimore (410) 328-3822

Medical Protocols

Medical – Ventricular Assist Device (VAD)

Protocol 51

2014
A Ventricular Assist Device, is an implanted mechanical heart, usually connected surgically to the left ventricle (LVAD). This mechanical device boosts cardiac output and is dependent upon some right ventricular function and adequate blood volume to provide forward flow. It pumps blood continuously, so that is why you will not usually feel a pulse nor be able to get a blood pressure. The typical automatic blood pressure device and pulse oximetry monitor will not result in reliable data. If a doppler device were available you should be able to determine a mean arterial pressure (MAP) which is usually between 60-90mmHg. Therefore you will need to assess the patient perfusion using basic skills: mental status, skin color and temperature, capillary refill, and perhaps orthostatic changes. The pump is connected through drive connections which exit the body and are attached to a System Controller which has an internal computer that controls the pump system. This is an electrical device. There is also a home monitor device, spare System Controller, batteries and charger. The patient will be anticoagulated. There is usually an Emergency Bag which will contain contact numbers of the LVAD team and Emergency Guidelines. There will be a "VAD competent" person, a family member who has been trained by the VAD team. Keep this person with you and allow them to help troubleshoot any system problems. Also, you can contact the VAD team and they can assist you in management and troubleshooting. There are two basic reasons for a patient to have a VAD. First as a bridge to transplant, to provide cardiac output pending a heart transplant. Secondly, as a destination therapy, in someone who has critical heart failure and a transplant is not an option.

Basic Approach to VAD patients:
1. Use basic assessment skills to determine patient status.
2. VAD Failure:
   A. See if power supplied, check for green light on Controller.
   B. Make sure pump connected to Controller.
3. VAD working, EKG abnormal, poor perfusion, low VAD flow:
   A. Patient symptomatic, initiate appropriate therapy to stabilize patient.
   B. If indicated defibrillation, cardioversion or external pacing. Leave pump connected and running.
   C. If VAD monitor shows low output (usually less than 3 liters per minute) aggressive IVF therapy.
4. VAD working, EKG normal, poor perfusion, low VAD flow:
   A. Suspect internal bleeding if clinical signs and symptoms are consistent.
   B. Initiate IV/IO fluid therapy.
   C. May require inotrope (dopamine) therapy to maximize right heart function.
5. Follow Cardiac Protocols, VAD presence does not alter them. However, if possible, withhold chest compressions with CPR. Compressions may dislodge the titanium pump and the connections resulting in catastrophic bleeding around the heart. If the VAD is functioning, and there is adequate blood volume, then compressions will not be helpful.
6. For complications, it would be best to transport the patient to the VAD Center/medical facility that placed the device. However, if this is not an option then transfer to the closest VAD capable hospital.
7. Transport all of the VAD equipment with the patient.
Abnormal Vaginal Bleeding
Hypertension / Hypotension

Yes

Inspect Perineum
(No digital vaginal exam)

Position left lateral recumbent

No

Crowning
> 36 Weeks Gestation

Yes

Monitor and Reasses
Document frequency and duration of contractions

No

Prolapsed Cord
Shoulder Dystocia

Breech Birth

Normal Presentation

Priority Symptoms:
Crowning at less than 36 weeks gestation
Abnormal Presentation
Severe vaginal Bleeding
Multiple gestation
Expedite Transport

Unable to deliver?
Create air passage by supporting present part of infant. Place 2 fingers along side nose and push away from face. Transport in Knee to Chest Position

Hips Elevated
Knees to Chest

Insert fingers into vagina to relieve pressure on the cord

Saline dressing over cord

Notify Receiving Facility and/or contact Medical Control if possible

PEARLS
* Document all times (delivery, contraction frequency and length).
* If maternal seizures occur, refer to the Obstetrical Emergencies Protocol.
* After delivery, massaging the uterus (lower abdomen), will promote uterine contraction to assist in controlling post–partum bleeding.
* Some perineal bleeding is normal with any childbirth. Large quantities of blood or free bleeding are abnormal.
* Record APGAR at 1 minute and 5 minutes after birth (see procedures).
Knee to chest position for prolapsed cord or shoulder distocia

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<th>Description</th>
<th>Score of 0</th>
<th>Score of 1</th>
<th>Score of 2</th>
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<tbody>
<tr>
<td>Appearance</td>
<td>Skin color/Complexion</td>
<td>Skin color is pale blue</td>
<td>Body is pink and extremities are blue</td>
</tr>
<tr>
<td>Pulse</td>
<td>Pulse rate is evaluated by stethoscope</td>
<td>Absent</td>
<td>Less than 100 beats per minute</td>
</tr>
<tr>
<td>Grimace</td>
<td>Reflex irritability is a response to stimulation such as a mild pinch</td>
<td>No reaction</td>
<td>Grimace/feeble cry when stimulated</td>
</tr>
<tr>
<td>Activity</td>
<td>Muscle tone</td>
<td>Muscle loose and floppy</td>
<td>Some muscle tone</td>
</tr>
<tr>
<td>Respiration</td>
<td>Breathing effort</td>
<td>Not breathing</td>
<td>Respiration slow or irregular, weak, gasping</td>
</tr>
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APGAR Score at 1 and 5 minutes
Known or suspected pregnancy / missed period

Yes

Left Lateral position

NO

Exit to Abdominal Pain (Protocol 28)
Or Appropriate Protocol

Known or suspected pregnancy / missed period

Yes

Left Lateral position

A

IV Procedure

Seizures

Hypertension

Hypotension

Labor

Consult Medical Direction

Magnesium 4-6 grams IV/IO
Over 5 minutes

Midazolam (Versed) 5 mg IV/IM/IO
Repeat every 2-5 minutes as needed maximum 10 mg

Blood Glucose Analysis Procedure

Refer to Hypoglycemia/Diabetic Emergency (Protocol 37) If indicated

ECG Assess Rhythm

Normal Saline Bolus
500 mL IV/IO
Repeat to effect SBP 90mmHg
2 Liters maximum

Notify receiving facility and/or contact Medical Control if possible

No

Improving

Exit to Hypotension/Shock (Protocol 38)

PEARLS
* Severe headache, vision changes or RUQ pain may indicate pre-eclampsia.
* In the setting of pregnancy, hypertension is defined as a BP greater than 140 systolic and 90 diastolic.
* Maintain patient in a left lateral position to prevent supine hypotensive syndrome.
* Ask patient to quantify bleeding – number of pads used per hour.
* Any pregnant patient involved in an MVC should be seen immediately by a physician for evaluation. Greater than 20 weeks, generally required 4-6 hours of fetal monitoring.
* Magnesium may cause hypotension and decreased respiratory drive. Use with caution.
* If Abruptio Placenta or Placenta Previa suspected, monitor closely for signs and symptoms of shock and refer to the Hypotension/Shock Protocol.
WMD – CHEM PACK
This protocol is designed for WMD ONLY. Providers are only to perform skills on which they have been trained.

**PEARLS**
- In the face of a bona fide attack, begin with 1 Nerve Agent Kit for patients less than 7 years of age; 2 Nerve Agent Kits for children 8-14 years of age, and 3 Nerve Agent Kits for patients 15 years of age and over.
- Follow local HAZMAT guidelines for decontamination and transportation of patient; use of personal protective equipment.
- For patients with major symptoms, there is no limit for Atropine dosing.
- Carefully evaluate patients to ensure they are not symptomatic from exposure to another agent (e.g., narcotics, vesicants, etc.).
- Each Nerve Agent Kit contains 600mg of Pralidoxime (2 PAM) and 2 mg of Atropine.
- The main symptom that the atropine addresses is excessive secretions, so Atropine should be given until salivation improves.

**Scene Safe**
- Appropriate PPE
  - Yes
    - Obtain history of exposure
      - Observe for specific toxidromes
      - Initiate triage and/or decontamination as indicated
  - No
    - Call for help / additional resources
      - Stage until scene is safe

**Symptom Severity**
- Asymptomatic
  - Monitor and reassess every 15 minutes
    - Initiate appropriate treatment
  - Notify receiving facility and/or contact Medical Control if possible
- Minor Symptoms:
  - Respiratory Distress + SLUDGEM
  - IV Procedure
    - Duodote Kit if available OR
      - Nerve Agent Kit IM
        - 2 doses rapidly
        - If available
      - Atropine 2 mg IV/IO/IM
        - Every 5 minutes
        - Peds: 0.05 – 0.1 mg/kg
        - Until symptoms resolve
      - Pralidoxime (2 PAM)
        - 600 mg IV/IO/IM
        - Peds: 25-50 mg/kg
  - IV Procedure
    - Duodote Kit if available OR
      - Nerve Agent Kit IM
        - 3 doses rapidly
        - If available
      - Atropine 6 mg IV/IO/IM
        - Every 5 minutes
        - Peds: 0.05 – 0.1 mg/kg,
        - Until symptoms resolve
    - Pralidoxime (2 PAM)
      - 1800 mg IV/IO/IM
      - Peds: 25-50 mg/kg
- Major Symptoms:
  - Altered Mental Status, Seizures, Respiratory Distress, Respiratory Arrest
  - Seizure Activity?
    - Exit to Seizure (Protocol 47)

**S: Salivation**
**L: Lacrimation**
**U: Urination (increase)**
**D: Defecation/Diarrhea**
**G: GI Upset/ABD pain**
**E: Emesis**
**M: Muscle twitching**
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Procedures may only be performed as trained, authorized by an OMD, and in accordance with the Virginia Scope of Practice Maximums.

The procedures listed here contain general instructions and protocols for their implementation.

If using equipment not listed here, or in the event of conflicting instructions, follow the manufacturer’s suggested settings and/or procedures.
12 Lead ECG

Clinical Indications:
- Suspected cardiac patient
- Suspected tricyclic overdose
- Electrical injuries
- Syncope

Procedure:
1. Assess patient and monitor cardiac status.
2. Administer oxygen as patient condition warrants.
3. If patient is unstable, definitive treatment is the priority. If patient is stable or stabilized after treatment, perform a 12 Lead ECG.
4. Prepare ECG monitor and connect patient cable with electrodes. Skin will need to be cleared of all hair, dirt, sweat, etc…
5. Enter the required patient information (patient name, etc.) into the 12 lead ECG device.
6. Expose chest and prep as necessary. Modesty of the patient should be respected.
7. Apply chest leads and extremity leads according to diagram.
8. Instruct patient to remain still.
9. Press the appropriate button to acquire the 12 Lead ECG.
10. If the monitor detects signal noise (such as patient motion or a disconnected electrode), the 12 Lead acquisition will be interrupted until the noise is removed.
11. Once acquired, transmit the ECG data to the appropriate hospital if possible. Contact the receiving hospital to confirm that a 12 Lead ECG has been received.
12. Monitor the patient while continuing with the treatment protocol.
13. Document the procedure, time, and results on/with the patient care report (PCR).

Note that while 12 Lead ECG acquisition may be performed by BLS providers, only Intermediates and Paramedics may interpret the 12 lead. Other levels may acquire and transmit to the ED, and may communicate the machine’s interpretation to the hospital, but under no circumstances should they attempt to interpret the 12 lead ECG.

- 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 & V4
- V4- 5th intercostal space at midclavicular line
- V5- Level with V4 at left anterior axillary line
- V6- Level with V5 at left midaxillary line
Clinical Indications:
A standard 12-lead ECG can be very telling for patients with chest pain or shortness of breath. A right ventricular (RV) and posterior wall infarct, however, can present very subtly. You can obtain right-sided (V1R-V6R) and posterior leads (V7-V9), if you are concerned.

- Right- Sided ECG: Should be considered when indications of an inferior AMI are present
- Posterior ECG: Should be considered when indications of an inferior or lateral wall AMI (STD in VI-V3).
- Right-sided ECG and Posterior ECG combined constitutes a 15-Lead ECG

15-Lead ECG Lead Placement:
- V4R (formerly V4)- 5th intercostal space at midclavicular line on the patient’s right side
- V8 (formerly V5)- 6th intercostal space left posterior at midscapular line
- V9 (formerly V6)- 6th intercostal space left at the perispinal line
- Label second 12-Lead ECG to reflect new leads: V4 as V4R, V5 as V8, and V6 as V9

Right sided EKG leads (V1R-V6R) are positioned in a mirror image from the standard 12-lead precordial leads.

Posterior EKG leads (V7-V9) are applied by moving V4-V6 in the posterior positions.
Airway - Basic

Oropharyngeal Airway (OPA)

1. Take BSI precautions.
2. Position patient and open their mouth.
3. Select proper size oral airway (Measure from corner of the mouth to the lower angle of the jaw).
4. Insert the airway with the tip pointing to the roof of the his/her mouth.
   Pediatrics: Use a tongue blade to hold the tongue while inserting the OPA right side up.
5. Insert the airway and slide it along the roof of the mouth, past the uvula, or until resistance is met against the soft palate.
   - If the patient begins to gag at any stage of this procedure, immediately stop the advancement, and remove the airway. If you are aggressive during the insertion process, you can cause trauma, spasmng, and swelling to the upper airways. Remember to gently insert the airway. This is very important in the suspected head trauma patient who could have fractures in the soft palate.
6. Gently rotate the airway 180 degrees. Continue to advance the oral airway until it lies flat on the top of the tongue.
7. Stop advancing when the flange of the airway rests against the patient’s mouth.
8. Place the mask you will use for ventilation over the airway adjunct you have inserted.
9. Assess the patient’s breathing. Apply supplemental oxygen or begin ventilations as necessary.
   - If the patient begins to gag, immediately remove the airway.
10. Document insertion of oral airway, and any changes in the patient’s condition.

Nasopharyngeal Airway (NPA)

1. Take BSI precautions.
2. If possible place patient in a supine position.
3. Assess the level of responsiveness.
4. Select proper size nasal airway (Measure from the nare to the lower angle of the jaw).
5. Apply a water-soluble lubricant to the NPA before inserting.
6. Gently pushing the tip of the nose upward, insert the airway with the bevel pointing towards the base of the nostril or toward the septum.
7. Slowly insert the airway into the nostril. By slightly rotating the airway from side to side you may make insertion easier.
   - At NO time should the airway be forced into the nostril. If you meet resistance consider re-lubrication of the airway and insertion in the other nostril. If the patient begins to gag at any stage of this procedure, immediately stop the advancement, and remove the airway.
8. Stop advancing the airway when the proximal ring has come in contact with the end of the nostril.
9. Assess the patient’s breathing. Apply supplemental oxygen or begin ventilations as necessary.
10. Document insertion of nasal airway, and any changes in the patient’s condition.
Clinical Indications for King Airway Device Use:
- Apneic or unresponsive patient without a gag reflex.
- When tracheal intubation is indicated but unsuccessful or unavailable.
- Access to the patient is limited.
- Difficult or emergent airways in which other options may not be feasible.

Contraindications:
- Presence of a gag reflex
- Caustic ingestion
- Obstructed airway
- Esophageal trauma or disease

Procedure:
1. Preoxygenate the patient.
2. Select the appropriate tube size for the patient.
3. Lubricate the tube.
4. Grasp the patient’s tongue and jaw with a gloved hand and pull forward.
5. Gently insert the tube rotated laterally 45-90 degrees so that the blue orientation line is touching the corner of the mouth. Once the tip is at the base of the tongue, rotate the tube back to midline. Insert the airway until the base of the connector is in line with the teeth and gums.
6. Inflate the pilot balloon with 45-90mL of air depending on the device used.
7. Ventilate the patient while gently withdrawing the airway until the patient is easily ventilated.
8. Auscultate for breath sounds and sounds over the epigastrium and look for chest ride and fall.
9. The large pharyngeal balloon secures the device.
10. Confirm tube placement with end tidal CO2 detector or capnography.
11. Monitor airway continuously through capnography and pulse oximetry.
### Airway – BIAD (King)

#### KING LT(S)–D™ PRODUCT INFORMATION

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*KING LT(S)–D is not available in size 2 and 2.5*

KLTD: Maximum Size Fiberoptic Bronchoscope: 7.0 mm O.D. (size 3, 4, 5) and 4.7 (size 2, 2.5); Maximum Size Tube Exchange Catheter: 19 Fr (size 3, 4, 5) and 14 Fr (size 2, 2.5); Minimum Mouth Opening: 16 mm (size 3, 4, 5) and 12 mm (size 2, 2.5)

KLTD: *Ventilation Lumen is not round, but is equivalent to a 10 mm I.D. tube; Maximum Size Tube Exchange Catheter: 19 Fr; Maximum Size Fiberoptic Bronchoscope: 6 mm O.D. Minimum Mouth Opening: 20 mm

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### KING LAD™ PRODUCT INFORMATION

<table>
<thead>
<tr>
<th>Size</th>
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**KING SYSTEMS**

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317-776-6823 I 800-642-KING (5466) I Fax 317-776-6827
kingsystems@kingsystems.com I www.kingsystems.com

CAUTION: *Federal law restricts this device to sale by or on the order of a physician.

KING LT™ is a registered trademark and KING LAD™, KING LT(S)–D™, and KING LAD™ are trademarks of King Systems. U.S. Patent: 5,819,731 © 2009 King Systems
Clinical Indications for Continuous Positive Airway Pressure (CPAP) Use:

- Patients for whom inadequate ventilation is suspected. This could be a result of pulmonary edema, pneumonia, COPD, drowning, etc…
- Impending respiratory or ventilatory failure resulting from pulmonary edema or COPD when intubation may be emergently required.
- Patient is alert, responsive, and still able to handle secretions and protect their airway.

Contraindications:

- Respiratory/cardiac arrest
- Patient unable to follow commands
- Patient unable to maintain airway independently
- Major trauma
- Suspicion of a pneumothorax
- Vomiting or active GI Bleed

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 through the device at this point.
5. Secure the mask with the provided straps starting with the lower straps until minimal air leak occurs.
6. If the Positive End Expiratory Pressure (PEEP) is adjustable on the CPAP device adjust the PEEP beginning at 0 cmH20 of pressure and slowly titrate to achieve a positive pressure of 5-10 cm H2O.
7. Evaluate the response of the patient assessing breath sounds, oxygen saturation, and general appearance.
8. Titrate oxygen levels to the patient’s response. Many patients respond to low FIO2 (30-50%).
9. Encourage the patient to allow forced ventilation to occur. Observe closely for signs of complications. The patient must be breathing for optimal use of the CPAP device.
I. INTRODUCTION
A cricothyrotomy is an invasive surgical procedure aimed at obtaining a patent airway in a specific patient population. It should only be performed in the situations outlined below. In these situations, speed is of the essence. However, do not allow the urgency of the situation to take precedence over reasonable judgment or action. The indications and technique must be clearly documented whenever it is utilized.

II. INDICATIONS
A. Acute upper airway obstruction which cannot be relieved by other BLS and ALS maneuvers, including any available supra-glottic advanced airway technique (laryngeal mask airway -- LMA, Combitube, King Airway, etc.)
B. Patient in respiratory arrest with neck injury or head injury who cannot be ventilated adequately with bag-valve-mask and in whom orotracheal and nasotracheal intubation cannot be accomplished. After intubation attempts have failed, or is clearly not possible, attempt to ventilate the patient with BVM technique. If this also fails to result in adequate ventilation, then proceed with surgical cricothyrotomy.
C. Patient who is in respiratory arrest with facial injuries which preclude endotracheal and nasotracheal intubation, and who cannot be adequately ventilated with BVM technique.
D. Patient with neck injury in which tracheal intubation either cannot be accomplished or has failed to ventilate the patient due to damage to the airway, and who cannot be adequately ventilated with BVM technique.
E. Other patients who are apneic and in whom all other BLS and ALS airway techniques have failed and, the time to the receiving hospital is prolonged.

III. PRECAUTIONS
A. If bleeding occurs, use suction and proceed. Insertion and inflation of endotracheal tube through cricothyrotomy will protect patient from the hazard of blood in the airway. Direct pressure can then be used on the area.
B. Advance an endotracheal tube only 1 to 1.5 inches to avoid a right main stem intubation.

IV. SUGGESTED PROCEDURE - SURGICAL CRICOTHYROTOMY
A. Establish the presence of an indication for a surgical cricothyrotomy to maintain a patent airway. NOTE: Intubation attempts have failed or are impossible and the patient cannot be adequately ventilated with BVM technique.
B. Assemble necessary equipment:
   • betadine prep swabs
   • scalpel (11 blade, preferred)
   • large curved hemostat or extra scalpel handle
   • endotracheal tube
   • tape
   • small set of retractors or other instruments/kits
C. Expose the neck
D. Identify the thyroid cartilage, palpate the prominent cricothyroid notch. The space between the cricoid and thyroid cartilages is the cricothyroid space. This is the location of the cricothyroid membrane. Finding these landmarks properly is a crucial step.

E. Prep area

F. Stabilize the trachea by holding the thyroid cartilage between thumb and fingers

G. Make a vertical incision, approximately 1/2 inch, through the skin and cricothyroid membrane. Incise as close to the cricoid cartilage as possible, taking care to avoid vessels close to each side of the trachea. Use of a vertical incision minimizes risk to side vessels, and makes it easier to extend the size of the incision if the cut is made a bit too high or too low. Finding the proper landmarks before the incision is a crucial step.

H. Insert hemostat to dilate incision or use other instrument to grasp tracheal ring until opening sufficient to allow passage of small endotracheal tube (6.0 - 7.0 mm).

I. Pass endotracheal tube about 1 to 1.5 inches into trachea

J. Inflate cuff, if cuffed tube, and ventilate patient with high flow O2

K. Check for breath sounds bilaterally and secure with tape

L. Monitor patient condition and reassess frequently

M. Control bleeding and dress wound

N. Document the indications and procedure

V. SUGGESTED PROCEDURE - NEEDLE CRICOPTHYROTOMY

A. Establish the presence of an indication for a needle cricothyrotomy to maintain a patent airway.

B. Assemble necessary equipment:
   • betadine prep swabs
   • angiocath (14 gauge or larger)
   • syringe (5 or 10 cc)
   • 3.0 mm pediatric ETT adapter, or modified IV extension set with porthole to allow for transtracheal jet insufflation

C. Expose the neck

D. Identify the thyroid cartilage; palpate the prominent cricothyroid notch at the inferior margin of the thyroid cartilage. Palpate the cricoid cartilage. The space between the cricoid and thyroid cartilages is the cricothyroid space. This is the location of the cricothyroid membrane.

E. Prep area

F. Stabilize the trachea by holding the thyroid cartilage between thumb and fingers

G. Attach needle to syringe. Insert through skin and cricothyroid membrane into trachea at a 45 degree angle, caudally (toward the feet).

H. A "pop" can be felt as the needle enters the trachea. Aspirate with syringe. If air is aspirated easily, you are in the trachea. If it is difficult to aspirate, or blood is aspirated, re-evaluate needle placement.

I. Withdraw needle and advance catheter into position, hub should be resting against the skin. Secure with tape.

J. Attach ETT adapter and ventilate with BVM or attach modified IV extension tubing and begin jet ventilation using at least 50 psi O2 supply at a ratio of 1 on 4 off.
**Clinical Indications:**
- Sudden onset of respiratory distress often with coughing, wheezing, gagging, or stridor due to a foreign-body obstruction of the upper airway.

**Procedure:**
1. Assess the degree of foreign body obstruction:
   - Do not interfere with a mild obstruction allowing the patient to clear their airway by coughing.
   - In severe foreign-body obstructions, the patient may not be able to make a sound. The victim may clutch his/her neck in the universal choking sign.
2. **For an infant**, deliver 5 back blows (slaps) followed by 5 chest thrusts repeatedly until the object is expelled or the victim becomes unresponsive.
3. **For a child**, perform a subdiaphragmatic abdominal thrust (Heimlich Maneuver) until the object is expelled or the victim becomes unresponsive.
4. **For adults**, a combination of maneuvers may be required.
   - First, subdiaphragmatic abdominal thrusts (Heimlich Maneuver) should be used in rapid sequence until the obstruction is relieved.
   - If abdominal thrusts are ineffective, chest thrusts should be used. Chest thrusts should be used primarily in morbidly obese patients and those patients who are in late stages of pregnancy.
5. If the victim becomes unresponsive, begin CPR immediately but look in the mouth before administering any ventilations. If a foreign-body is visible, remove it.
6. Do not perform blind finger sweeps in the mouth and posterior pharynx. This may push the object farther into the airway.
7. In unresponsive patients, EMT-Intermediate and EMT-Paramedic level professionals should visualize the posterior pharynx with a laryngoscope to potentially identify and remove the foreign-body using Magil forceps.
8. Document the methods used and result of these procedures in the patient care report (PCR).
Clinical Indications:
- A spontaneously breathing patient in need of intubation (inadequate respiratory effort, evidence of hypoxia or carbon dioxide retention, or need for airway protection).
- Rigidity or clenched teeth prohibiting other airway procedures.
- Patient must be 12 years of age or older.

Procedure:
1. Premedicate the patient with oxymetazoline (Afrin) nasal spray.
2. Select the largest and least obstructed nostril and insert a nasal airway lubricated with lidocaine jelly to help dilate the nasal passage.
3. Preoxygenate the patient. Lubricate the tube.
4. Remove the nasal airway and gently insert the tube keeping the bevel of the tube toward the septum.
5. Continue to pass the tube listening for air movement and looking for vapor condensation in the tube. As the tube approaches the larynx, the air movement gets louder.
6. Gently and evenly advance the tube through the glottic opening on the inspiration. This facilitates passage of the tube and reduces the incidence of trauma to the vocal cords.
7. Upon entering the trachea, the tube may cause the patient to cough, buck, strain, or gag. Do not remove the tube! This is normal, but be prepared to control the cervical spine and the patient, and be alert for vomiting.
8. Auscultate for bilaterally equal breath sounds and absence of sounds of the epigastrium. Observe for symmetrical chest expansion. The 15mm adapter usually rests close to the nostril with proper positioning.
9. Inflate the cuff with 5-10 mL of air.
10. Confirm tube placement using an end-tidal CO2 monitoring and/or Capnography.
11. Secure the tube.
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.
13. Document the procedure, time, and result (success/failure) on/with the patient care report (PCR).
14. It is strongly recommended that the airway (if equipment is available) be monitored continuously through Capnography and Pulse Oximetry.
Airway – Intubation (Orotracheal)

Clinical Indications:

- Inability to adequately ventilate a patient with a Bag Valve Mask or longer EMS transport distances require a more advanced airway.
- An unconscious patient without a gag reflex who is apneic or is demonstrating inadequate respiratory effort.

Procedure:

1. Prepare, position and oxygenate the patient with 100% Oxygen.
2. Select proper ET tube, have suction ready.
3. Using laryngoscope, visualize vocal cords. (Use Sellick maneuver to assist you).
4. Limit each intubation attempt to 30 seconds (unless SpO2 remains >94%) with BVM between attempts.
5. Visualize tube passing through vocal cords.
7. Inflate the cuff; 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, ventilate patient with bag-valve mask.
9. Consider using a Blind Insertion Airway Device if intubation efforts are unsuccessful.
10. If available, apply end tidal carbon dioxide monitor (Capnography) and record readings on scene, en route to the hospital, and at the hospital.
11. Document ET tube size, time, result (success/failure), and placement location by the centimeter marks either at the patient’s teeth or lips on/with the patient care report (PCR). Document all devices used to confirm initial tube placement. Also document positive or negative breath sounds before and after each movement of the patient.
12. Consider placing an NG or OG tube to clear stomach contents after the airway is secured with an ET tube.
13. It is strongly recommended that the airway (if equipment is available) be monitored continuously through Capnography and Pulse Oximetry.
Clinical Indications:
- Patients experiencing bronchospasm.

Procedure:
1. Gather the necessary equipment.
2. Assemble the nebulizer kit.
3. Instill the drug (such as albuterol, epinephrine or other approved drug) into the reservoir well of the nebulizer with 3 mL normal saline (if indicated).
4. Connect the nebulizer device to oxygen at an adequate flow to produce a steady, visible mist (usually 8-10 lpm).
5. Instruct the patient to inhale through his/her mouth.
6. The treatment should last until the solution is depleted. Tapping the reservoir well near the end of the treatment will assist in utilizing all of the solution.
7. Monitor the patient for medication effects. This should include the patient’s assessment of his/her response to the treatment and reassessment of vital signs, ECG, and breath sounds.
8. Document the treatment, dose, and route on/with the patient care report (PCR).
Airway - Suctioning

Basic

Clinical Indications:
- Obstruction of the airway (secondary to secretions, blood, or any other substance) in a patient who cannot maintain or keep the airway clear.

Procedure:
1. Ensure suction device is in proper working order with suction tip in place.
2. Preoxygenate the patient.
3. Explain the procedure to the patient if they are coherent.
4. Examine the oropharynx and remove any potential foreign bodies or material which may occlude the airway if dislodged by the suction device.
5. If applicable, remove ventilation devices from the airway.
6. Use the suction device to remove any secretions, blood, or other substance.
7. The alert patient may assist with this procedure.
8. Reattach ventilation device (e.g., bag-valve mask) and ventilate or assist the patient.
9. Record the time and result of the suctioning in the patient care report (PCR).

Advanced

Clinical Indications:
- Obstruction of the airway (secondary to secretions, blood, or any other substance) in a patient currently being assisted by an airway adjunct such as a naso-tracheal tube, endotracheal tube, King Airway, tracheostomy tube, or a cricothyrotomy tube.

Procedure:
1. Ensure suction device is in proper working order.
2. Preoxygenate the patient.
3. Attach suction catheter to suction device, keeping sterile plastic covering over catheter.
4. Using the suprasternal notch and the end of the airway into which the catheter will be placed as guides, measure the depth desired for the catheter. Judgment must be used regarding the depth of suctioning with cricothyrotomy and tracheostomy tubes (consider sizing against packaging).
5. If applicable, remove ventilation devices from the airway.
6. With the thumb port of the catheter uncovered, insert the catheter through the airway device.
7. Once the desired depth (measured in #4 above) has been reached, occlude the thumb port and remove the suction catheter slowly.
8. A small amount of Normal Saline may be used if needed to loosen secretions for suctioning.
9. Reattach ventilation device (e.g., bag-valve mask) and ventilate the patient.
10. Document time and result in the patient care report (PCR).
Clinical Indications:

- Meconium stained amniotic fluid occurs in approximately 10-15% of deliveries, mostly in pre-term or in small-for-gestational-age newborns. Fetal distress and hypoxia can cause the passage of meconium into the amniotic fluid. Endotracheal intubation immediately following birth and suctioning as the endotracheal tube is withdrawn in the infant that is vigorous offers no benefit. A vigorous infant is defined as one who has strong respiratory efforts, good muscle tone, and a heart rate greater than 100 beats per minute. However, endotracheal suctioning for infants who are not vigorous should be performed immediately after birth.

Procedure:

1. Before stimulating the infant to breathe, perform endotracheal intubation with an appropriate sized endotracheal tube.
2. Connect the endotracheal tube to a meconium aspirator and to suction.
3. Apply suction at less than or equal to 100 mm Hg.
4. Withdraw the endotracheal tube while applying suction.
5. If the endotracheal tube is filled with meconium, repeat intubation with a new tube and suction again until clear, usually not more than two times.
6. Once the airway is clear and the newborn is able to breathe on its own, ventilate with 100% oxygen.
Clinical Indications:
- Patients with altered mental status and/or suspected hypoglycemia (diabetic emergencies, change in mental status, bizarre behavior, etc.)

Procedure:
1. Gather and prepare equipment.
2. Blood samples for performing glucose analysis can be obtained through a finger-stick or when possible simultaneously with intravenous access.
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.
Clinical Indications:
Capnography shall be used when available for the following
- Invasive airway procedures. It can be used to confirm, maintain, and assist with invasive airway placement.
- When CPAP has been initiated
- Significant trauma
- Cardiac arrest
- Respiratory emergencies
- Altered mental status
- Mass casualty triage

Procedure:
1. Attach capnography sensor to the BIAD, endotracheal tube, or oxygen delivery device.
2. Note CO2 level and waveform changes.
3. The capnography sensor shall remain in place and be monitored throughout the prehospital care and transport.
4. Any loss of CO2 detection or waveform indicates an airway problem and should be documented.
5. The capnogram should be monitored as procedures are performed to verify or correct the airway problem.
Capnography

### Decreased CO2
- Hyperventilation
- Anxiety
- Bronchospasm
- Pulmonary embolus
- Cardiac arrest
- Decreased cardiac output
- Hypotension
- Hypothermia
- Sever pulmonary edema

### Increased CO2
- Hypoventilation
- Altered mental state (Overdose, sedation, intoxication, postictal states, head trauma, stroke)
- Increased cardiac output
- Fever
- Sepsis
- Pain
- Severe difficulty breathing
- Respiratory depression
- Chronic hypercapnia

### Additional Uses & Considerations
- Confirming, maintaining, and assisting advanced airway placement
- Measuring cardiac output during CPR
- Monitor for return of spontaneous circulation (ROSC)
- Monitor for loss of spontaneous circulation
- Monitor perfusion warning signs
Cardioversion

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

Procedure:
1. Ensure the patient is attached properly (with leads and multi-function pads) to a monitor/defibrillator capable of synchronized cardioversion.
2. Have all equipment prepared for unsynchronized cardioversion/defibrillation if the synchronized cardioversion fails and the patient’s 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. Note patient response and perform immediate unsynchronized cardioversion/defibrillation if the patient’s rhythm has deteriorated into pulseless ventricular tachycardia/ventricular fibrillation, follow the procedure for Defibrillation-Manual.
9. If the patient’s condition is unchanged, repeat steps 2 to 8 above, using escalating energy settings.
10. Repeat until maximum setting or until efforts succeed. Consider discussion with medical control if cardioversion is unsuccessful after 2 attempts.

Bi-phasic Starting Dosages for Cardioversion

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<tr>
<td>Atrial Flutter</td>
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<tr>
<td>Ventricular Tachycardia (w/pulse)</td>
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</tr>
<tr>
<td>Supra-Ventricular Tachycardia</td>
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Chest Decompression

Clinical Indications:
- Patients with hypotension (SBP <90), clinical signs of shock, and at least one of the following signs:
  - Jugular vein distention.
  - Tracheal deviation away from the side of the injury (often a late sign).
  - Absent or decreased breath sounds on the affected side.
  - Hyper-resonance to percussion on the affected side.
  - Increased resistance when ventilating a patient.
- Patients in traumatic arrest with chest or abdominal trauma 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:
   - Locate the second intercostal space at the mid-clavicular line on the same side as the pneumothorax.
   - If unable to place anteriorly, lateral placement may be used at the fourth ICS mid-axillary line.
   - Prepare the site with an antiseptic solution.
4. Insert the catheter (at least 14 gauge and 3.25 inches in length if available for adults) into the skin over the top of the rib (superior border) into the intercostal space.
5. Advance the catheter through the parietal pleura until a “pop” is felt and air or blood exits under pressure through the catheter, then advance the catheter only to the chest wall.
6. Remove the needle, leaving the plastic catheter in place.
7. Secure the catheter hub to the chest wall with dressings and tape.
Defibrillation - Automated

Clinical Indications:
- Patients in cardiac arrest (pulseless, non-breathing).
- Age < 8 years, use Pediatric Pads if available.

Contraindication:
- Pediatric patients who are so small that the pads cannot be placed without touching one another even if placed anterior-posterior.

Procedure:
1. If multiple rescuers available, one rescuer should provide uninterrupted chest compressions while the AED is being prepared for use.
2. Remove any medication patches on the chest and wipe off any residue.
3. If possible apply defibrillator pads per manufacturer recommendations. Use alternate placement when implanted devices (pacemakers, AICDs) occupy preferred pad positions.
4. When prompted, Stop CPR and clear the patient for rhythm analysis. Keep interruptions in CPR as brief as possible.
5. Assertively state “CLEAR” and visualize that no one, including yourself, is in contact with the patient prior to defibrillation. Defibrillate if appropriate by depressing the “shock” button.
6. Begin CPR (chest compressions and ventilations) immediately after the delivery of the defibrillation.
7. Continue CPR until prompted to analyze rhythm and defibrillate if indicated.
8. If “no shock advised” appears, perform CPR until prompted to reanalyze.
9. Transport and continue treatment as indicated.
10. Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.
11. If pulse returns refer to the appropriate Return of Spontaneous Circulation Protocol 15.
Clinical Indications:
- Cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia

Procedure:
1. Ensure that Chest Compressions are adequate and interrupted only when absolutely necessary.
2. Clinically confirm the diagnosis of cardiac arrest and identify the need for defibrillation.
3. Apply defibrillation hands free pads.
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. Depress the shock button.
8. Immediately resume chest compressions and ventilations for 2 minutes. After 2 minutes of CPR, analyze rhythm and check for pulse only if a potentially perfusable rhythm is found.
9. Repeat the procedure every two minutes as indicated by patient response and ECG rhythm.
10. Keep interruptions of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.
Clinical Indications:
Patients with symptomatic bradycardia (less than 60 per minute) with signs and symptoms of inadequate cerebral or cardiac perfusion such as:
- Chest Pain
- Hypotension
- Pulmonary Edema
- Altered Mental Status, Confusion, etc.
- Ventricular Ectopy

Procedure:
1. Consider the use of sedation or analgesia.
2. Attach standard ECG monitor.
3. Apply defibrillation/pacing pads per manufacturer’s recommendation.
4. Set monitor to pacing option.
5. Adjust rate to an age-appropriate value (such as 70 BPM for an adult and 100 BPM for a child).
6. Note pacer spikes on ECG screen.
7. Slowly increase output until capture of electrical rhythm on the monitor.
8. If unable to capture while at maximum current output, stop pacing immediately.
9. If capture observed on monitor, check for corresponding pulse and assess vital signs. Continue to increase output until mechanical capture is obtained or maximum output setting is reached.
10. Document the dysrhythmia and the response to external pacing with ECG strips in the PCR.
Clinical Indications:
- Adult patients (>16 years old) in cardiac arrest (pulseless, non-breathing).

Contraindication:
- Patients <16 yrs. old.
- Patients not in Cardiac Arrest
- Too small patient: If you cannot enter the PAUSE mode or ACTIVE mode when the pressure pad touches the patient’s chest and LUCAS alarms with 3 fast signals.
- Too large patient: If you cannot lock the Upper Part of LUCAS to the Back Plate without compressing the patient’s chest.

Procedure:
1. Arrival at the patient
   - Confirm cardiac arrest
   - Immediately start manual compressions
   - Minimize interruptions
2. Unpack LUCAS
   - Position the bag with its top to you
   - Put your left hand on the black strap on the left side and pull the red handle so that the bag unfolds
   - Push ON/OFF on the User Control Panel for 1 second to power up LUCAS in the bag and start the self-test
   - The green LED adjacent to the ADJUST key illuminates when LUCAS is ready for use.
3. Assembly
   - Remove the LUCAS back plate from the carrying bag.
   - Stop manual CPR.
   - Make sure that you support the patient’s head.
   - Carefully put the LUCAS back plate under the patient, immediately below the arm pits.
   - Start manual CPR again.
   - Hold the handles on the support legs to remove the LUCAS upper part from the bag. Pull the release rings once to make sure that the claw locks are open.
   - Let go of the release rings.
   - Attach the support leg (that is nearest to you) to the back plate.
   - Attach the other support leg to the Back Plate, so that the two support legs lock against the Back Plate. Listen for the click.
   - Pull up once to make sure that the parts are correctly attached.
**Procedure Continued:**

4. Adjustment and operation
   - The compression point should be the same spot as for manual CPR and according to American Heart Association (AHA) guidelines.
   - When the pressure pad in the suction cup is in the correct position, the lower edge of the suction cup is immediately above the end of the sternum.
   - Use your finger to make sure that the lower edge of the suction cup is immediately above the end of the sternum (xyphoid process).
   - If necessary, move the device by pulling the support legs to adjust the position.
   - Adjust the height of the suction cup to set the correct position.
   - Make sure that LUCAS is in the **ADJUST** mode.
   - Push the suction cup down with two fingers until the pressure pad touches the patient’s chest without compressing the chest.
   - Push PAUSE to lock the start position – then remove your fingers from the suction cup.
   - Check for proper position. If not, push **ADJUST**, pull up the suction cup to readjust the central and/or height position for a new start position. Push **PAUSE**.
   - Push **ACTIVE (continuous)** or **ACTIVE (30:2)** to start compressions.

5. Stabilization Strap Application
   - Delay the application of the LUCAS stabilization strap if this prevents or delays any medical treatment of the patient.
     - Remove the cushion strap, which is part of the stabilization strap, from the carrying bag (the support legs strap should already be attached to the support legs).
     - Extend the cushion strap fully at the buckles.
     - Carefully lift the patient’s head and put the cushion behind the patient’s neck. Position the cushion as near the patient’s shoulders as possible.
     - Connect the buckles on the support leg straps with the buckles on the cushion strap. Make sure that the straps are not twisted.
     - Hold the LUCAS support legs stable and tighten the cushion strap tightly.
     - Make sure that the position of the suction cup is correct on the patient’s chest. If it is not, adjust the position.

6. Secure the patient’s arms
   - When moving the patient, secure the patient’s arms with patient straps on the LUCAS. This makes it easier to move the patient.
Procedure Continued:

7. Lifting the patient
   - Push **PAUSE** to temporarily stop the compressions.
   - Lift and move the patient to the stretcher or other transportation device (i.e. backboard, cot, etc.).
   - Make sure that the suction cup is in the correct position on the patient’s chest.
   - Push **ACTIVE (continuous)** or **ACTIVE (30:2)** to start the compressions again.

8. Moving the patient – LUCAS can be active while you move the patient if:
   - LUCAS and the patient are safely positioned on the transportation device.
   - LUCAS stays in the correct position and angle on the patient’s chest.
   - If the position of the suction cup changes during operation or during defibrillation, immediately push **ADJUST** and adjust the position. Always use the LUCAS stabilization strap to help secure the correct position.
**Indications:**
- The intranasal route may be used for administering medications as an alternate route for naloxone (Narcan), midazolam (Versed), ketamine, glucagon, and fentanyl.
- May be preferred administration method for children and seizure patients

**Contraindications:**
- Epistaxis
- Facial trauma
- Nasal congestion or discharge
- Any recognized nasal mucosal abnormality

**Equipment:**
- 3 mL syringe with MAD (Mucosal Atomization Device)
- Appropriate medication

**Procedure:**
1. Determine correct medication
2. Disconnect MAD (Mucosal Atomization Device) from included syringe.
3. Fill syringe with desired volume of medication and eliminate remaining air.
4. Connect the MAD to the syringe.
5. Place the MAD tip in the nostril.
6. Compress the syringe plunger to spray ½ of the atomized solution in each nostril.
7. The MAD may be reused on the same patient as needed.
8. Do not administer more than 1 mL per nostril.
Clinical Indications:
- Medication manufacturer recommendation or as an alternative route in selected medications.

Procedure:
1. Receive and confirm medication order or perform according to standing orders.
2. Prepare equipment and medication expelling air from the syringe.
3. Explain the procedure to the patient and reconfirm patient allergies.
4. The possible injection sites for intramuscular injections include the arm, buttock and thigh.
   - Injection volume should not exceed 1 mL for the arm
   - Injection volume should not exceed 2 mL in the thigh or buttock.
5. The thigh should be used for injections in pediatric patients and injection volume should not exceed 1 mL.
6. Expose the selected area and cleanse the injection site with alcohol.
7. Insert the needle into the skin with a smooth, steady motion and at a 90-degree angle, skin flattened.
8. Aspirate for blood.
9. Inject the medication.
10. Withdraw the needle quickly and dispose of properly without recapping.
11. Apply pressure to the site.
12. Monitor the patient for the desired therapeutic effects as well as any possible side effects.
13. Document the medication, dose, route, and time on/with the patient care report (PCR).
PET OXYGEN MASKS INSTRUCTIONS

The LARGE mask fits large dogs
O2 Flow Rate: 5 – 7 Liters

The MEDIUM mask fits medium dogs
O2 Flow Rate: 3 – 5 Liters

The SMALL mask fits small dogs, cats, ferrets, birds.
O2 Flow Rate: 1 – 3 Liters

The Dual vents and a rubber mounted 22 mm oxygen adapter enable unrestricted inhalation and exhalation of air.

IF ANIMAL IS RESPONSIVE & BREATHING AFTER BEING RESCUED:
1. Connect O2 source to top stopper of mask using the tubing provided.
2. Apply mask to patient’s nose and mouth, creating a seal.
3. Set appropriate O2 flow rate for the pet. Pet can now breathe on its own.
   - A. Small Mask: 1-3 liters O2 (cats, small dogs and other animals with short snout)
   - B. Medium Mask: 3-5 liters O2 (dogs 20-55 pounds)
   - C. Large Mask: 5-7 liters O2 (dogs 50-150 pounds and over)

*Note: Certain regulators do not allow 7 liters, jumping from 6 liters to 8 liters. Do NOT exceed 6 liters on these models.
   For long term insufflations, oxygen should flow through a bubble type humidifier to prevent mucosal drying.

IF ANIMAL IS NOT BREATHING ON ITS OWN AFTER BEING RESCUED:
Remove the 22mm adapter (where the oxygen tube attaches to the mask) and apply a resuscitation bag.
Place your finger on the vents to prevent air from escaping through the open vents. Wag’N recommends you use:
- A Standard Pediatric or Child Ambu Bag when using the SMALL mask
- A Child Ambu Bag when using the MEDIUM mask
- An Adult Ambu Bag when using the LARGE mask

*Warning: Using an adult AMBU bag on a small animal may over-inflate the lungs furthering injury.

During an emergency, it is crucial that YOU remain CALM.
Your body language and anxiety can be felt by the animal and will have a negative impact on its reaction towards you AND its chances of recovery.

CLEANING INSTRUCTIONS
The masks are NOT dishwasher proof and can melt under such high temperature. The masks and tubing should be cleaned after each use with dilute chlorhexidine solution OR mild soap and water. For best cleaning results, remove the diaphragm and 22mm adapter from the mask.
Dry parts and reinstall diaphragm and adapter for the next use.

FOR HANDS ON RESCUE BREATHING & ANIMAL C.P.R. TECHNIQUE
SEE REVERSE FOR INSTRUCTIONS
Pet Oxygen Mask

Procedure 22

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Cincinnati Pre-hospital Stroke Scale (FAST):

All patients suspected of having an acute stroke should undergo a formal screening algorithm such as the FAST. Use of stroke algorithms has been shown to improve identification of acute strokes by EMS providers up to as much as 30 percent. The results of the FAST should be noted on the pre-hospital medical record. ANY abnormal (positive) finding which is suspected or known to be acute in onset is considered an indicator of potential acute stroke.

F-(Face) FACIAL DROOP: Have patient smile or show teeth. (Look for asymmetry)
- Normal: Both sides of the face move equally or not at all.
- Abnormal: One side of the patient's face droops.

A-(Arm) MOTOR WEAKNESS: Arm drift (close eyes, extend arms, palms up for 10 seconds; in only one leg is involved, have patient hold leg off floor for 5 seconds)
- Normal: Remain extended equally, drifts equally, or does not move at all.
- Abnormal: One arm drifts down when compared with the other.

S-(Speech) Have the patient repeat, “You can't teach an old dog new tricks”
- Normal: Phrase is repeated clearly and correctly.
- Abnormal: Words are slurred (dysarthria) or abnormal (dysphasia) or none (aphasia).

T-(Time) Time of FIRST SYMPTOM ONSET
- When was the patient last known to be normal?
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 as per peripheral IV site.
4. Align the catheter with the vein and aim toward the same side shoulder.
5. “Tourniqueting” the vein lightly with one finger above the clavicle, puncture the vein midway between the angle of the jaw and the clavicle and cannulate the vein in the usual method.
6. Attach the IV and secure the catheter avoiding circumferential dressing or taping.
7. Document the procedure, time, and result (success) on/with the patient care report (PCR).

Note: Venous access should be obtained preferentially via peripheral IV sites, Intraosseous, and external jugular. If the patient has a portacath, central, or PICC line, and the provider is properly trained and equipped to access them via sterile technique, they may be accessed only in hemodynamically unstable patients after failing to obtain access through other means.
Clinical Indications:
- Any patient where intravenous access is indicated (significant trauma or mechanism, emergent or potentially emergent medical condition).

Procedure:
1. Saline locks may be used as an alternative to an IV tubing and IV fluid in every protocol at the discretion of the ALS professional.
2. Intraosseous access may be used in place of IV access where threat to life exists as provided for in the Venous Access – Intraosseous procedure.
3. Use the largest catheter bore necessary based upon the patient’s condition and size of veins.
4. Fluid and setup choice is preferably:
   - Normal Saline with a macro drip (i.e., 10-15 gtt/mL) for medical conditions, and
   - Normal Saline with a micro drip (60 gtt/mL) for medication infusions.
5. Inspect the IV solution for expiration date, cloudiness, discoloration, leaks, or the presence of particles.
6. Connect IV tubing to the solution in a sterile manner. Fill the drip chamber half full and then flush the tubing bleeding all air bubbles from the line.
7. Place a tourniquet around the patient’s extremity to restrict venous flow only.
8. Select a vein and an appropriate gauge catheter for the vein and the patient’s condition.
9. Prep the skin with an antiseptic solution.
10. Insert the needle with the bevel up into the skin in a steady, deliberate motion until the bloody flashback is visualized in the catheter.
11. Advance the catheter into the vein. Never reinsert the needle through the catheter. Dispose of the needle into the proper container without recapping.
12. Draw blood samples when appropriate.
13. Remove the tourniquet and connect the IV tubing or saline lock.
14. Open the IV to assure free flow of the fluid and then adjust the flow rate as per protocol or as clinically indicated.
   **Rates are preferably:**
   - Adult: KVO: 60 mL/hr (1 gtt/ 6 sec for a macro drip set)
   - Pediatric: KVO: 30 mL/hr (1 gtt/ 12 sec for a macro drip set)
   **If shock is present:**
   - Adult: 500 mL fluid boluses repeated as long as lungs are dry and BP < 90. Consider a second IV line.
   - Pediatric: 20 mL/kg boluses repeated PRN for poor perfusion.
15. Cover the site with a sterile dressing and secure the IV and tubing.
16. Document the procedure, time and result (success) on/with the patient care report (PCR).

Note: Venous access should be obtained preferentially via peripheral IV sites, Intraosseous, and external jugular. If the patient has a portacath, central, or PICC line, and the provider is properly trained and equipped to access them via sterile technique, they may be accessed only in hemodynamically unstable patients after failing to obtain access through other means.
Clinical Indications:
- For adults and pediatrics anytime in which vascular access is difficult to obtain in emergent, urgent, or medically necessary cases.
- EZ-IO 25mm (40kg and over), EX-IO 15mm (3-39kg), EZ-IO 45mm (40kg and over)

Contraindications:
- Fracture of the selected bone
- Excessive tissue at the insertion site with absence of anatomical landmarks
- Previous significant orthopedic procedures
- Infection at the site

Considerations:
- You may administer 20-40mg 2% preservative free Lidocaine in all conscious patients (only Intermediate and Paramedic level providers may establish IO access on conscious patients).
- If the driver battery fails during the insertion procedure, the provider should manually finish the insertion by grasping the needle and rotating while pushing the needle into the intraosseous space.

Placement Sites

ANTEROMEDIAL ASPECT OF THE PROXIMAL TIBIA

ANTEROMEDIAL ASPECT OF THE DISTAL TIBIA

PROXIMAL HUMERAL HEAD

PROPER NEEDLE DEPTH
**Procedure:**

1. Don appropriate PPE.
2. Cleanse site with aseptic agent.
3. Connect appropriate needle set to driver.
4. Select and stabilize site.
   - Anteromedial aspect of the proximal tibia
   - Proximal humeral head
   - Patient >12 years old anteromedial aspect of the distal tibia
5. Remove needle cap.
6. Insert EZ-IO needle to the selected site.
7. Position driver at the insertion site with the needle set at a 90-degree angle to the bone surface.
8. Gently pierce the skin with the needle set until the tip touches bone.
9. Ensure visualization of at least one black line on the needle set.
10. Penetrate the bone cortex by squeezing the driver’s trigger and applying gentle, consistent, steady, downward pressure (let the driver do the work).
11. Remove EZ-IO power driver from needle set while stabilizing the catheter.
12. Remove stylet from catheter by turning counterclockwise and dispose of the stylet in a sharps container.
13. Secure site with EZ-IO stabilizer or appropriate available dressings.
14. Connect primed EZ-Connect to exposed hub.
15. Confirm placement.
16. Flush catheter with 10ml normal saline flush
   - Administer 20-40 mg 2% preservative free Lidocaine if the patient is conscious.
17. Assess for complications.
18. Disconnect 10ml syringe.
19. Connect primed IV tubing.
20. Begin infusion with pressure delivery system (B/P if pressure infuser not available).
21. Place EZ-IO armband on patient, document date and time.
Clinical Indications:
- Protection and care for open wounds prior to and during transport.

Procedure:
1. Don appropriate PPE.
2. If active bleeding, elevate the affected area if possible and hold direct pressure. Do not rely on “compression” bandage to control bleeding. Direct pressure is much more effective.
3. Once bleeding is controlled, irrigate contaminated wounds with saline as appropriate (this may have to be avoided if bleeding was difficult to control). Consider analgesia per protocol prior to irrigation.
4. Cover wounds with sterile gauze/dressings. Check distal pulses, sensation, and motor function to ensure the bandage is not too tight.
5. Monitor wounds and/or dressings throughout transport for bleeding.
Clinical Indications:
- Patient with uncomplicated conducted electrical weapon (Taser®) probes embedded subcutaneously in non-sensitive areas of skin.
- Taser probes are barbed metal projectiles that may embed themselves up to 13 mm into the skin.

Contraindications:
- Patients with conducted electrical weapon (Taser®) probe penetration in vulnerable areas of body as mentioned below should be transported for further evaluation and probe removal.
- Probes embedded in skin above level of clavicles, female breasts, or genitalia.
- Suspicion that probe might be embedded in bone, blood vessel, or other sensitive structure.

Procedure:
1. Ensure wires are disconnected from weapon.
2. Stabilize skin around probe using non-dominant hand.
4. Remove probe in single quick motion.
5. Wipe wound with antiseptic wipe and apply dressing.
Clinical Indications:
- Life threatening extremity hemorrhage that cannot be controlled by other means.
- Serious or life threatening extremity hemorrhage and tactical considerations prevent the use of standard hemorrhage control techniques.
- Amputated or near-total amputation of:
  - Hand or arm proximal to the wrist
  - Foot or leg proximal to the ankle

Contraindications:
- Non-extremity hemorrhage
- Proximal extremity location where tourniquet application is not practical

Procedure:
1. Fully expose the wound as the operational situation allows
2. Place tourniquet 2-3 inches proximal to wound
   - Do not place a tourniquet over any joint or open fracture site.
3. Tighten tourniquet until hemorrhage stops and there is no palpable distal pulse
   - If bleeding continues to be uncontrolled and if available, apply a second tourniquet next to the first and fully tighten down. This will widen the base of the pressure on the underlying artery or vein.
4. Secure tourniquet per manufacturer instructions.
5. Note time of tourniquet application and communicate this to receiving care providers.
6. Dress wounds per standard wound care protocol.
   - If delayed, or prolonged, transport and tourniquet application time > 45 minutes: consider reattemping standard hemorrhage control techniques and removing the tourniquet.

Downgrading a Tourniquet:
1. While tourniquet is in place, dress the wound with gauze and a pressure dressing.
2. Slowly release tourniquet and observe site for bleeding.
3. Completely re-engage tourniquet if bleeding is not controlled with pressure dressing.
4. If bleeding is controlled with pressure dressing, leave tourniquet loosely in place so it is readily available if the bleeding restarts.
Wound Care - Tourniquet

Instructions For Use

Easy One-Handed Operation Occludes Blood Flow In 5 Quick Steps

1. Insert the Wounded Extremity
   Through the loop of the Self-Adhering Band

2. Pull the Self-Adhering Band Tight
   And securely fasten the band back on itself

3. Adhere the Band Around the Arm
   Do not adhere the band past the Windlass Clip™

4. Twist the Windlass Rod™
   Until bright red bleeding has stopped

5. Lock the Rod With the Windlass Clip™
   Bleeding is controlled

For added security and always before moving a patient, secure the Windlass Rod™ with the Windlass Strap™. For small extremities, also secure the Self-Adhering Band under the Windlass Strap™.

6. Adhere the Band Over the Rod
   For small extremities, continue adhering the band around the extremity and over the Windlass Rod™

7. Secure the Rod and Band With the Strap
   Adhering it to the opposite hook on the Windlass Clip™
   The C-A-T™ is ready for transport

Storing in the One-Handed Configuration

1. Pass 6” of the Self-Adhering Band
   through the inside slit in the buckle, fold it back and adhere the band to itself

2. Flatten the Loop of the C-A-T™
   Formed by the Self-Adhering Band. Placing the buckle in the middle

3. Fold the C-A-T™ in Half
   Placing the buckle at one end
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Abuse & Neglect

Policy:

Domestic violence is physical, sexual, or psychological abuse and/or intimidation, which attempts to control another person in a current or former family, dating, or household relationship. The recognition, appropriate reporting, and referral of abuse is a critical step to improving patient safety, providing quality health care, and preventing further abuse.

Abuse is the physical and/or mental injury, sexual abuse, negligent treatment, or maltreatment of a child, senior citizen, or incapacitated adult by another person. Abuse may be at the hand of a parent, caregiver, spouse, neighbor, or adult child of the patient. The recognition of abuse and the proper reporting is a critical step to improve the health and wellbeing of these at-risk populations.

Purpose:

- Ensure compliance with “Mandatory Reporter” status under the Code of Virginia.
- Assessment of an abuse case based upon the following principles:
  
  Protect the patient from harm, as well as protecting the EMS team from harm and liability.
  
  Suspect that the patient may be a victim of abuse, especially if the injury/illness is not consistent with the reported history.
  
  Respect the privacy of the patient and family.
  
  Collect as much information and evidence as possible and preserve physical evidence.

Procedure:

1. Assess the/all patient(s) for any psychological characteristics of abuse, including excessive passivity, compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, behavioral disorders, substance abuse, medical non-compliance, or repeated EMS requests. This is typically best done in private with the patient.
2. Assess the patient for any physical signs of abuse, especially any injuries that are inconsistent with the reported mechanism of injury. Defensive injuries (e.g. to forearms), and injuries during pregnancy are also suggestive of abuse. Injuries in different stages of healing may indicate repeated episodes of violence.
3. Assess all patients for signs and symptoms of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentive caregiver(s), or physical signs of malnutrition.
4. Immediately report any suspicious findings to both the receiving hospital (if transported) and social services:
   
   - If child abuse or neglect is suspected, contact Child Protective Services at (800) 552-7096.
   - If elder abuse or neglect (including incapacitated adults), contact Adult Protective Services at (888) 832-3858.
5. EMS personnel should attempt, in private, to provide the patient with the phone number of the local domestic violence program, or the National Hotline, 1-800-799-SAFE.
Policy:

Air Medical Services (AMS) are a valuable resource. The following criteria are consistent with national AMS utilization criteria. It is important that review of appropriate helicopter utilization be a part of EMS training, as well as a component of agency, and regional level retrospective quality improvement process.

Purpose:

- The helicopter is an air ambulance and an essential part of the EMS system. It may be considered in situations where:
  - The use of the helicopter would speed a patient's arrival to a hospital capable of providing definitive care and that is felt to be significant to the patient's condition, or;
  - If specialty services offered by the air medical service would benefit the patient prior to arrival at the hospital.
- To ensure that EMS personnel utilize consistent and appropriate criteria when requesting air medical service for assistance with patient care and transport.

Procedure:

A. The following criteria should be used when considering use of an air medical service:
   1. The patient's condition is a "life or limb" threatening situation demanding intensive, multidisciplinary treatment and care. This may include, but is not limited to:
      - Critically ill or injured Patients who would benefit from critical care and/or rapid transport that is not available from the ground providers.
      - Critical burn patients, pediatric trauma, or other specialty cases where appropriate definitive care is not available locally and the patient requires transport outside the region.
      - Critically ill medical patients requiring care at a specialized center to include, but not be limited to, acute stroke or ST elevation MI as defined by protocol Patients in cardiac arrest who are not hypothermic are generally excluded as candidates for air transport
      - Dispatch, Police, Fire, or EMS should evaluate the situation/condition and, if necessary, place the helicopter on standby.
B. The helicopter may be requested to respond to the scene:
   1. If ALS personnel request the helicopter;
   2. If BLS personnel request the helicopter when ALS is delayed or unavailable;
   3. In the absence of an EMS agency, when any emergency service requests it, if it is felt to be medically necessary;
   4. When EMS arrives, they should assess the situation. If the most highly trained EMS personnel on scene determines that the helicopter is not needed, it should be cancelled as soon as possible.

C. Air medical services may be considered in situations where the patient is inaccessible by other means, or if utilization of existing ground transport service threatens to overwhelm the local EMS system. In this case a specialty unit with rescue capabilities (e.g. hoisting equipment or FLIR) may be the most appropriate resource.

D. An EMS service should not wait on the scene, or delay transport to wait for the arrival of a helicopter. If the patient is packaged and ready for transport, the EMS service should initiate transport to the hospital and reassign the landing zone. The helicopter may intercept an ambulance during transport at an alternate landing site.

E. THIS IS A GUIDELINE AND IS NOT INTENDED TO SPECIFICALLY DEFINE EVERY CONDITION IN WHICH AIR MEDICAL SERVICES SHOULD BE REQUESTED. GOOD CLINICAL JUDGEMENT SHOULD BE USED AT ALL TIMES. Guidelines for Helicopter Utilization for Scene Response:
   1. Generally, air transport should be considered when there is a loss of the patient’s airway and/or prolonged ground transport time due to a significant distance to the appropriate receiving facility (such as a burn center or pediatric trauma center).
   2. Adult Major Trauma
      - GCS less than or equal to 8;
      - Systolic blood pressure is less than 90 mmHg and/or unstable vital signs;
      - Penetrating injuries to head, neck, torso or proximal extremities;
      - Two or more suspected proximal long bone fractures;
      - Suspected flail chest;
      - Suspected spinal cord injury or limb paralysis;
      - Amputation (except digits);
      - Suspected pelvic fracture;
      - Open or depressed skull fracture.
3. Pediatric Major Trauma
   - Respiratory failure (central cyanosis, bradypnea, capillary refill > two seconds);
   - GCS less than 13;
   - Penetrating injuries of the trunk, head, neck, chest, abdomen, or groin;
   - Two or more proximal long bone fractures;
   - Flail chest;
   - Combined system trauma that involves two or more body systems, injuries, or major blunt trauma to the chest or abdomen;
   - Spinal cord injury or limb paralysis;
   - Amputation (except digits).

4. Critical Burns **
   - Greater than 20% Body Surface Area of partial and full thickness burns;
   - Evidence of airway/facial burns;
   - Circumferential extremity burns.
   **For patients with burns and coexisting trauma, the traumatic injury should be considered the first priority, and the patient should be triaged to the closest appropriate trauma center for initial stabilization.

5. Critical Medical Conditions
   - Suspected Acute Stroke
     - Positive Cincinnati Pre-Hospital Stroke Scale;
     - Total pre-hospital time (time from when the patient’s symptoms and/or signs first began to when the patient is expected to arrive at the Stroke Center) is less than three (3) hours. Consider air transport if ground transport to stroke center exceeds 30 minutes.
   - Suspected Acute Myocardial Infarction
     - ECG findings indicative of an AMI with/without chest pain, shortness of breath, or other signs and symptoms typical of a cardiac event.
F. Transfer of Patient Care, Documentation, and Quality Improvement:
   1. As with other instances where care of a patient is transferred, all patient related information, assessment findings, and treatment will be communicated to flight crew.
   2. At the completion of the EMS call, all of the details of the response, including, but not limited to, all patient related information, assessment findings, and treatment, must be documented on a PPCR.
   3. With helicopter utilization, as with all EMS responses, the treatment and transportation of patients will be reviewed as a part of a Quality Improvement process and providers should complete a shared-concern QI form to advise the REMS Council of the event.
Ambulance Patient Destination

Policy:

This policy pertains to all licensed EMS agencies providing basic, advanced, and specialized ambulance transportation.

Purpose:

To provide for a defined, consistent policy for the destination of ambulance patients consistent with quality patient care and regional medical protocol.

Procedure:

- All ambulance patients (resulting from requests for emergency assistance that result in transport) will normally be transported to the closest appropriate hospital emergency department unless redirected by the Medical Control Physician. The closest appropriate hospital is defined as the hospital closest to the location of the patient that can provide the level of care needed by the patient. The Medical Control Physician is defined as the attending emergency department physician at the hospital contacted by radio, cellular phone, or other means by the pre-hospital provider attending to the patient to be transported.

- Stable patients may be transported to the patient’s destination of choice if allowed by local EMS agency policies and available resources.

- Patients that meet certain criteria such as severe trauma patients, as defined in the Field Trauma Triage Plan (found on page 167 of these protocols), will normally be transported directly to a Level I or Level II Trauma Center unless redirected by the Medical Control Physician as defined in the trauma triage plan.

- Individual EMS agencies are responsible for determining operational policies related to the most effective ambulance deployment and utilization patterns. This may include policies allowing transport of stable patients to hospitals of a patient’s choice.

- In mass casualty incident (MCI) situations, transport patterns and destinations may be altered, as directed in the MCI plan(s) that are in place governing the incident.
Criteria for Death

Policy:

CPR and other EMS interventions are to be withheld only if the patient is obviously dead or a valid Virginia Durable Do Not Resuscitate Order is present.

Purpose:

The purpose of this policy is to:
- Honor those who have obviously expired prior to EMS arrival.

Procedure:

1. If a patient is in complete cardiopulmonary arrest (clinically dead) and meets one or more of the criteria below, CPR and other EMS interventions need not be initiated:
   - Body decomposition;
   - Rigor mortis;
   - Dependent lividity;
   - Injury not compatible with life (i.e., decapitation, burned beyond recognition, massive open or penetrating trauma to the head or chest with obvious organ destruction);
   - Extended downtime with asystole on the ECG.
2. If a bystander or first responder has initiated CPR or automated defibrillation prior to EMS arrival, and any of the above criteria (signs of obvious death) are present, EMS may discontinue CPR and other interventions.
3. If doubt exists, start resuscitation immediately. Once resuscitation is initiated, continue resuscitation efforts until either:
   a) Resuscitation efforts meet the criteria for implementing the Discontinuation of Prehospital Resuscitation Policy (found on page 122 of these protocols);
   b) Patient care responsibilities are transferred to the destination hospital staff.
Deceased Subjects

Policy:

EMS will handle the disposition of deceased subjects in a uniform, professional, and timely manner.

Purpose:

The purpose of this policy is to:
- Organize and provide for a timely disposition of any deceased subject;
- Maintain respect for the deceased and family;
- Allow EMS to return to service in a timely manner.

Procedure:

1. Do not remove lines or tubes from unsuccessful cardiac arrests/codes unless directed by law enforcement or medical examiner.
2. Notify the law enforcement agency with jurisdiction if applicable.
3. If subject was found deceased by EMS, the scene is turned over to law enforcement.
4. If EMS has attempted to resuscitate the patient and then terminated the resuscitative efforts, the EMS personnel should provide law enforcement and/or medical examiner with information about the resuscitative efforts.
5. Transport arrangements should be made in concert with law enforcement and the family’s wishes.
6. EMS should make every effort to assist law enforcement with transport of deceased subjects located within public view. If EMS transports a deceased subject they shall transport to the emergency department and transfer the person to emergency department staff to maintain chain of custody.
7. Document the situation, name of Physician or Medical Examiner contacted, the agency providing transport of the deceased subject, and the destination on the patient care report form (PCR).
Policy:

Ambulance crews involved in transporting direct admission patients to hospitals should be able to return to service as quickly as possible. All 911 calls, or calls handled by state/municipal/volunteer services, shall only take patients to the ED. Private ambulance services serve to fill the direct admission gap. It also is important that direct admission patients be properly treated and spared unnecessary costs.

Purpose:

- Guide EMS providers of procedures in handling direct admission transports.

Procedure:

A. When responding to a direct admission call, ambulance crews should notify the receiving hospital’s ED as early as possible to allow the ED staff to follow-up with hospital admissions. Upon arrival at the hospital, the AIC should speak directly with the ED charge nurse or appropriate hospital contact. The charge nurse and AIC will determine the following:
   1. Is the direct admission patient’s room ready?
   2. Is the ambulance crew needed to take the patient to the room?
   3. Is the crew available to take the patient to the room?
   If the answer to any of the above questions is “no”, the AIC will turn over care of the patient to the ED staff. The crew will then return to service as quickly as possible. If the answer to all of the above questions is “yes”, the crew may assist as necessary.

B. Any complaint or problem involving a direct admission will be resolved at a later time through direct discussion between the ED nurse manager, or appropriate hospital contact, and the Chief Operating Officer of the pre-hospital agency, or persons designated by those individuals.
Discontinuation of Prehospital Resuscitation

Policy:

Unsuccessful cardiopulmonary resuscitation (CPR) and other life support interventions may be discontinued prior to transport or arrival at the hospital when this policy is followed.

Purpose:

The purpose of this policy is to:
- Allow the discontinuation of prehospital resuscitation after the delivery of adequate and appropriate therapy.

Procedure:

1. Discontinuation of CPR and EMS interventions may be implemented if **ALL** of the following criteria have been met:
   - A. Patient must be 18 years of age or older (or family of a minor is agreeable after consultation with Medical Control).
   - B. Adequate CPR has been administered.
   - C. Successful management of the airway with verification of device placement. Acceptable management techniques include intubation, and supraglottic airway devices, e.g. King.
   - D. Arrest not witnessed by EMS.
   - E. No return of pulse at any time during resuscitation.
   - F. No shock delivered during resuscitation.
   - G. Minimum of 25 minutes of resuscitation.
   - H. All EMS personnel involved in the patient’s care agree that discontinuation of the resuscitation is appropriate.

2. If all the above criteria are not met and discontinuation of prehospital resuscitation is desired, contact Medical Control.

3. Follow Deceased Subjects Policy.
   - Any medical equipment attached or inserted into a patient MUST remain in place once a discontinuation order has been received. The provider is not to remove anything from the body unless specifically directed to do so by Medical Control or the Medical Examiner on scene. Any such actions must be fully documented within the PPCR.

NOTE: Patients who are hypothermic or are victims of cold water drowning should receive FULL resuscitative efforts. Patients with electrical injuries, including those struck by lightning that may initially be pulseless and apneic, should receive FULL resuscitative efforts as well.
Policy:

Under existing Virginia law, all licensed EMS agencies are required to “Participate in the pre-hospital patient care reporting procedures by making available...the minimum data set on forms.” Licensed EMS agencies, pre-hospital providers, and the Commonwealth of Virginia are required to keep patient information confidential.

Purpose:

- Each EMS agency should, in consultation with the agency’s legal counsel, develop a procedure dealing with how and when patient information will be released to the patient, the patient’s family, law enforcement officials, the news media, and/or any other parties requesting the information.
- The procedure MUST include development of a release form, which will be signed by a responsible person for that patient’s information.

Procedure:

A. Documentation of patient care should, at a minimum, meet the following requirements:

1. A patient care report will be written for each patient who is seen, treated and/or transported by an ambulance or personnel thereof. This report should be completed on the current written/electronic Pre-hospital Patient Care Report (PPCR) in use by the REMSC region. For medical-legal purposes, if the provider initiates the patient-provider relationship, a PPCR should be completed.

2. In addition to information required by the Commonwealth of Virginia, documentation should include the following:
   a. The patient’s chief complaint;
   b. Vital signs with times;
   c. Treatment provided and times;
   d. Electrocardiogram (ECG) interpretation;
   e. Changes in the patient’s condition;
   f. Contact with Medical Control;
   g. Any deviation from protocol.

3. If a patient refuses treatment and/or transport, documentation should include the following:
   a. The patient’s full name;
   b. The reason for response;
   c. Reason for the patient’s refusal;
   d. Vital signs and times (when possible);
   e. Any physical signs or symptoms that are present;
   f. Perceived competency of the patient;
   g. Patient’s level of consciousness;
   h. Names and signatures of witnesses;
   i. Signature of the patient.

4. When a patient is transported, a copy of the report should be left at the receiving hospital.
5. Medications may be administered by a pre-hospital provider upon an oral order or written standing order of an authorized medical practitioner in accordance with §54.1-3408 of the Code of Virginia. Oral orders shall be reduced to writing by the pre-hospital provider and shall be signed by a medical practitioner. The Regional OMD, with the agency OMD, shall approve all written standing orders. The pre-hospital provider shall make a record of all medications administered to a patient. The medical practitioner who assumes responsibility for the patient at the hospital shall sign this administration record. If the patient is not transported to the hospital, or if the attending medical practitioner at the hospital refuses to sign the record, a copy of this record shall be signed by the pre-hospital provider. The provider will then have 7 days to get their OMD’s signature and get the paperwork to the pharmacy in accordance with current Board of Pharmacy regulations.

6. When narcotics are administered, the following documentation should be included, with the used narcotics box during exchange:
   a. Incident number;
   b. Provider name and signature;
   c. Amount of narcotics administered;
   d. Amount of narcotics wasted;
   e. Amount of narcotics left in box;
   f. Signature of physician assuming patient care;
   g. Signature of EMS provider, nurse, pharmacist, or physician who witnessed drugs being wasted.

7. EMS agencies are urged to develop, in consultation with legal counsel, an incident report form for quality assurance purposes, and to document any additional information relevant to the treatment and transport of patients.

8. Agencies should have a minimum set of security guidelines for narcotics boxes. Suggestions may include the following:
   a. Video cameras of areas where locked med boxes are stored.
   b. Keep a current list of providers who have keys for drug boxes.
   c. Keypad entry or other such security system for storage bags.
   d. Designated areas where drug boxes are to be located, both in the ambulance and in the squad bay.
   e. Written policy for reprimanding offenders.
Extraordinary Care Not Covered by These Protocols

Policy:

There may be rare cases in which a physician providing on-line medical control may feel it is absolutely necessary to direct a pre-hospital provider to provide care, which is not explicitly listed within protocol, in order to maintain the life of a patient.

Purpose:

- To provide policy addressing extraordinary circumstances which may be out of the providers scope of practice.

Procedure:

A. During consultation, both the consulting physician and the EMS provider must acknowledge and agree that the order is absolutely necessary to maintain the life of the patient.

B. The EMS provider must feel capable, based on the instructions given by the consulting physician or previous training, of correctly performing the care directed by the consulting physician.

C. If the EMS provider receives an order for care not covered in this protocol, and is not comfortable with performing that order, or does not agree that the order is absolutely necessary to maintain the life of the patient, the provider should proceed with the directions contained in protocol.

D. Anytime this authority is exercised by a REMS EMS provider a QI review will automatically occur and the provider should complete a shared-concern inquiry form to notify the REMS Council of the event.
Policy:

To contact appropriate medical control and provide hospital personnel appropriate reporting information.

Purpose:

- Provide personnel with proper hospital reporting procedure.

Procedure:

A. Unit’s call for on-line Medical Control should be destination specific and on-line Medical Control will occur with the facility that is receiving the patient.

B. Hospital Report- The regions hospitals are frequently inundated with patient transports and other related patient care issues. Therefore, all effort should be made to provide as much notice as possible to the receiving facility.

- Efforts should be made to keep the hospital radio report limited to one-minute. Reports should highlight important areas that will impact the receiving facility. DO NOT RAMBLE ON.

- Medical patient report should contain the following:
  1. Unit/Care level;
  2. Age and Chief Complaint;
  3. Symptoms and PERTINENT physical exam findings;
  4. Significant interventions;
  5. Vital signs;
  6. ETA.

- Trauma patient report should contain:
  1. Unit/Care level;
  2. BRIEF mechanism of injury;
  3. GCS and complete Vital Signs (include RTS if available);
  4. Physical Exam findings that are PERTINENT:
     a. Head/Neck
     b. Chest
     c. Abdomen
     d. Pelvis
     e. Extremities
  5. ETA.
Impaired Field Providers

Policy:

Field providers will NOT appear for duty, be on duty, or respond via privately-owned vehicle (POV) while under the influence of any prescribed, or over-the-counter, medications that could impair their ability to drive or otherwise provide quality patient care.

Purpose:

- To provide policy in the event of an impaired provider operating under any capacity in the field.

Procedure:

- Field providers will not appear for duty, be on duty, or respond POV while under the influence of intoxicants or illegal substances, to any degree whatsoever, or with an odor of intoxicants on their breath.

- In the event that it can be reasonably thought that a provider is under the influence or has an odor of intoxicants on their breath during an emergency call, the provider shall be removed from the scene of the call, and, after an investigation where they are found to be in violation, the provider will be subject to disciplinary action by the OMD.

- The provider may be asked by his/her agency, the REMSC, and/or OMD, to take a drug or alcohol test. If the drug/alcohol test is positive, confirmatory testing may be indicated and paid for by the individual. The provider may, at his or her own expense, have a test performed using the same sample. The above expenses may be taken care of by the individual agencies per policies.
Policy:

Occasionally, a situation may arise in which a physician’s order cannot be carried out, the ALS provider is unable to administer an ordered medication, a medication is not available, contact is not possible with on-line Medical Control, it is out of the provider’s scope of practice, or a physician’s order is inappropriate.

Purpose:

- To outline procedure in the event that a provider cannot fulfill a physician’s order.

Procedure:

1. If a provider is unable to carry out the physician order, the provider must notify the consulting physician immediately that the order could not be carried out and give the reason why it could not be carried out.

2. The provider must then indicate on the PPCR what was ordered, and the time and the reason the order could not be carried out.

3. In situations where the pre-hospital care provider is unable to establish communications with a medical command facility after at least two attempts each, on two different means of communications, the provider may:
   - Provide care within their scope of practice;
   - Follow the appropriate protocol as standing order as indicated by your level of certification.
   - Document the issue and route it through the QI process.
Policy:

The Code of Virginia identifies the potential for a parent to surrender their child to a hospital or EMS agency under certain circumstances.

§ 18.2-371:
If the prosecution under this section is based solely on the accused parent having left the child at a hospital or rescue squad, it shall be an affirmative defense to prosecution of a parent under this section that such parent safely delivered the child to a hospital that provides 24-hour emergency services or to an attended rescue squad that employs emergency medical technicians, within the first 14 days of the child's life. In order for the affirmative defense to apply, the child shall be delivered in a manner reasonably calculated to ensure the child's safety.

§ 8.01-226.5:2:
Any personnel of a hospital or rescue squad receiving a child under the circumstances described in subsection B of § 18.2-371, subdivision B 2 of § 18.2-371.1 or subsection B of § 40.1-103 shall be immune from civil liability or criminal prosecution for injury or other damage to the child unless such injury or other damage is the result of gross negligence or willful misconduct by such personnel.

Purpose:

To provide:
- Protection to infants that are left in the custody of EMS under this law.
- Protection to EMS systems and personnel when confronted with this issue.

Procedure:

1. Initiate the Pediatric Assessment.
2. Initiate Newly Born Protocol as appropriate.
3. Initiate other treatment protocols as appropriate.
4. Keep infant warm.
5. Notify law enforcement as soon as possible.
6. The hospital will contact Department of Social Services.
7. Transport infant to an appropriate medical facility.
8. Assure infant is secured in appropriate child restraint device for transport.
9. Document protocols, procedures, and agency notifications in the PCR.
Policy:

In the event that an EMS provider is exposed to blood, bodily fluids, or other potentially infectious material (OPIM) in a manner that could potentially result in infecting the provider the following procedure should be followed.

Purpose:

- This policy outlines the responsibilities of the following entities in the event of a provider exposure:
  - The provider
  - The Agency
  - The receiving hospital

Procedure:

A. Provider responsibilities:

- As soon as possible after exposure to blood and/or body fluids:
  1. Eyes: Irrigate with clean water, saline, or sterile water.
  2. Mouth and Nose: Flush with water.
  3. Skin: Wash with soap and water.
  4. Clothing: Change contaminated clothing promptly and inspect the skin for signs of openings and contamination.
  5. Needle-sticks: May be squeezed, or “milked”, and wash with soap and water.

- Upon arrival at the hospital ED, or as soon as possible thereafter, notify a hospital official/representative (ED physician, ED nurse manager, charge nurse) of any possible exposure (or follow your department’s exposure control plan). Notify the agency’s designated Infection Control Officer (ICO) as soon as possible of any possible exposure, and of emergency, non-emergency, and follow-up care.

- Obtain and complete, before leaving the hospital, a REMSC infectious disease exposure report, which is available in the emergency department, or agency form (follow your department’s exposure control plan). Use one exposure report form for each provider. Distribute copies as indicated on the report.
B. Hospital Responsibilities:

- Notify the EMS agency’s designated ICO when a patient transported by its providers is determined to have an airborne, or blood borne, infectious disease, and an exposure has occurred. Furnish the pre-hospital providers with a REMSC infectious disease exposure report(s). Providers may use their agency’s form, or their designated ICO may complete this, and all other, required forms.

- After receiving the completed exposure report, perform the appropriate testing on the source patient and render appropriate initial treatment to the exposed provider as determined by the ED physician (or follow your department’s exposure control plan for treatment of the provider). Providers have the right to refuse treatment after informed consent.

- Furnish test results to the exposed providers, and agency designated ICO, as soon as possible, or within 48 hours after the exposure (as outlined in the Ryan White Law (Public Law 101-381)).

- Notify the EMS agency’s designated ICO, in writing, of the exposure, ensuring that providers get any emergency treatment indicated, and that all appropriate hospital reports are completed. Providers must contact their agency’s designated ICO to report the exposure for emergency, non-emergency, or follow-up care.

- All treatment for exposure management will follow the published recommendations set forth by the U.S. Public Health Department (the Centers for Disease Control and/or the Advisory Committee on Immunization Practices).

C. EMS Agency Responsibilities:

- Appoint and educate, by the first of July each year, one individual to serve as the agency’s designated ICO. This individual will be familiar with the agency’s infectious disease control plan, the REMSC infectious disease exposure report, and this protocol. The individual will also be familiar with airborne and blood borne pathogens, other infectious diseases, the OSHA blood borne pathogen standard 1910.1030, and the recommendations of the CDC. The individual’s name, and that of the agency’s OMD, will be furnished each year to the REMSC.

- Ensure that decontamination procedures, according to the agency’s exposure control plan, are completed immediately, or as soon as possible, after the incident.

- Notify the pre-hospital agency’s designated ICO of the exposure, or possible exposure, and the actions that have been taken. Notify the designated ICO from any other agency who may have had personnel exposed during the incident.

- Respond to the receiving hospital’s infection control liaison immediately after receipt of written notification of an exposure. Work with the agency OMD, or other designated physician, and the receiving hospital to ensure that the provider has received appropriate follow-up care, all appropriate reports have been completed and filed, and that the incident has been brought to closure.
Policy:

A physician requests an inter-facility transport of a patient for whom procedures and/or medications have been initiated that are beyond the normal scope of the EMS agency's protocol or practices. These transfers would generally not be initiated through 9-1-1 dispatch, but rather through a private service (ground or air.).

Purpose:

- In the event of a physician requesting EMS for an inter-facility transport; EMS will attempt to accommodate within the scope of the following guidelines.

Procedure:

- The inter-facility transport should be performed by an ALS-equipped and ALS-staffed ambulance and should take place only after the receiving physician has conferred with the sending physician. Prior to dispatch, the sending physician/institution will provide the EMS agency with a patient report that includes the patient's condition and any special treatment the patient is receiving.

- If the treatment is outside of the provider's normal scope of practice, the agency's Operational Medical Director (OMD) MUST be contacted for transport approval and to determine if other appropriate personnel should accompany the patient.

- It is not acceptable to get orders and/or extend the scope of practice from a physician at the receiving hospital. During transport, questions regarding patient care should be directed to the transferring physician or the agency OMD rather than the receiving hospital.

- The Attendant-in-Charge (AIC) should request a patient report from the health care personnel on scene and should obtain the pertinent paperwork to go with the patient, including the face sheet, transport sheet, lab work, x-rays etc. If the patient is a “No Code” or has a valid “Do Not Resuscitate” order, a written order, including a pre-hospital DNR order, must accompany the patient. Assessment by the AIC should not delay transport.

- Once the ambulance crew arrives at the transferring or receiving hospital, and the patient's condition has deteriorated to a life-threatening situation where immediate intervention is necessary, the AIC will consult with the attending physician if he/she is available. If the attending physician is not immediately available, the AIC should contact the agency OMD or on-line medical control for additional instructions.

- An ALS provider may monitor and administer standard medications as ordered by the patient's transferring physician with on-line Medical Control as needed during transfer. The administration of any medication not covered by protocol will be recorded on the Pre-hospital Patient Care Report, noting the name of the transferring physician, Medical Control contacted, dosage of the medication, and the route administered. Only approved medical control providers, OMDs, and on-line medical control may give permission to deviate from protocol, unless a valid physician wishes to ride along during transport.
Policy:

Medical Emergency Custody Orders (ECOs) may be issued by the courts to permit the treatment of medical conditions in persons not capable of making informed decisions. EMS should initiate this process any time a patient requires medical care, refuses said care, but is not capable of making an informed decision.

Purpose:

To provide:
- Appropriate care and transportation is provided to persons incapable of making informed decisions.

Procedure:

After a comprehensive assessment of an adult patient and the patient is refusing further care and the provider feels that patient is NOT capable of making an informed decision due to their illness or injury and that further test and/or treatment are needed to prevent irreversible harm, the provider shall take the following measures:

1. Confirm that there is no legally authorized person available to give consent
2. Contact Medical Control and speak directly to a physician. You should immediately indicate to the physician you are considering a Medical ECO.
3. Attempt to have the patient speak directly with the physician to give the physician an opportunity to encourage consent.
4. Upon confirming that the physician will be seeking a Medical ECO, contact law enforcement for on scene assistance.
5. With the assistance of law enforcement, which shall have the custody order, transport the patient to the emergency department of which the physician consultation was with rendering appropriate care for such protocol(s) of which the patient presents themselves.
6. At any time, if the patient appears to become capable of making an informed decision, the custody order becomes void and the patient’s wishes must be followed.
7. Thoroughly document the incident.
### Policy:

It is required by the Virginia State Office of Emergency Medical Services that the OMD sign-off on all active released field providers. This sign-off will take place before OEMS Agency Inspections, and whenever a new provider is released to operate as an AIC in the field.

### Purpose:

The purpose of this protocol is to outline the requirements of what is considered an active provider in Fauquier County. The standards have been set forth by the OMD and will be reviewed annually for necessary changes.

### Procedure:

To be considered an Active Provider for the purpose of this sign-off, the following requirements must be met:

- **A.** An active provider shall run a minimum of ten (10) calls each year and attend at least one skills drill annually.
- **B.** Only calls that involve patient care and transport, including transferring care to a higher level, will count towards the minimum. A patient care report must be completed for each call and available for review at the OMDs request.
- **C.** A provider that works or volunteers in another jurisdiction may count calls run at that location towards their minimum calls run requirement. A letter from a supervisor or the local OMD certifying that the member has run a minimum of ten (10) calls will be required.
- **D.** The provider’s department will be responsible for tracking the member’s activity and providing a list of active providers to the OMD annually, or as changes are required. The active provider list must be changed as new providers are added or removed, per Virginia OEMS Regulations.
- **E.** Providers will be removed from the active roster after a period of six-month of inactivity. He or she may be moved back to active status only after reorientation with an approved preceptor and at the preceptor’s approval. After an inactive period of one year or more, providers are required to repeat the precepting process for the level at which they wish to practice.
Quality Improvement

Policy:

The REMS Quality Improvement (QI) Committee is responsible for implementing a risk management program, including ongoing evaluation of EMS systems and compliance by EMS providers to the standards of care. Each agency is also responsible for implementing a quality improvement program. Quarterly Quality Management Reports are to be submitted to the REMS Council office per your agency’s OMD. Noncompliance with this policy may reflect negatively on your agency for grant consideration.

Procedure:

- The REMS Regional QI Committee will provide a positive feedback system through provider input, hospital input, informal methods, and recognition events. Further, the QI Committee will make recommendations to the OMD, hospital, and the Training and Guidelines Committee on training needs and policy. Squads in the REMSC region should follow approved QI policies and be involved with their OMD in both commendations and disciplinary actions.
Refusal of Treatment/Transport

Policy:

Any competent adult may refuse medical care and/or transportation for any reason as long as he/she is in fact mentally competent and has been fully informed of the circumstances surrounding their illness or injury. A mentally competent patient is considered to be alert and oriented to person, place, time, and event or situation. Suicidal patients should not be considered as being mentally competent.

Procedure:

1. Perform as thorough an assessment as possible and allowed by the patient. Completely inform the patient of their medical condition. Indicate what treatments are necessary and possible problems or complications that may occur from refusing care within the scope of your training. Document assessment findings and indications that the patient understands and is competent to refuse care. The statement "Risk of death and/or permanent disability" must be verbalized.

2. Encourage the patient to grant consent for treatment and transportation to the hospital.

3. Do not force assistance on a mentally competent patient.

4. Always have at least one witness present. Obtain written release. It is preferable to have a neutral party witness the signing of the release.

5. Any pregnant patient regardless of age is considered to be an adult for the sole purpose of giving consent for herself and her child to surgical and medical treatment relating to the delivery of her child.

6. Any patient displaying documents from a recognized court system that indicates the patient is an emancipated minor is considered to be an adult; should be accompanied by photo identification.

7. Any patient who is age 14 or older is considered to be an adult unless they are in the care and company of a parent or legal guardian who are competent (i.e., school official, law enforcement, etc.).

8. If there is any doubt in regards to a patient’s mental capacity or the patient is a minor, perform the following:
   a. If an emergency medical condition exists, initiate treatment under implied consent when informed consent cannot be quickly obtained from another appropriate party.
   b. A reasonable form of restraint may be used ONLY if necessary and when there is implied consent. Restraint should only be used when the patient is a threat to themselves or others. Restraint should not exceed that reasonably necessary. If the patient is combative reasonable care should be used. Whenever possible, law enforcement personnel should be utilized to assist. Document what indications lead to your determination of incompetence.
   c. If a parent refuses medical care for a child, follow the same steps outlined above for competent adults. If you believe that the child has a life threatening condition, local law enforcement or social services officials should be contacted immediately. Consultation between the EMS provider, Medical Control and the appropriate authorities may allow the authorities to take the child into protective custody.

9. Document verbatim what you told the patient relative to specific risks and potential complications that could result from refusing care and transportation. Include measurement indicators used to assess the patient’s mental competency and ability to understand.

10. In certain situations where the provider is in doubt or concerned regarding the patient’s condition or assistance is needed in making a rational medical decision the provider should always err on the side of the patient. The provider should contact on-line Medical Direction for guidance. While the physician is not there they may be able to assist in the decision making process by your assessment findings and description of the current conditions and/or situation.
Transport

Policy:

All individuals served by the EMS system will be evaluated, treated, and furnished transportation (if indicated) in the most timely and appropriate manner for each individual situation.

Purpose:

To provide:

- Rapid emergency EMS transport when needed.
- Appropriate medical stabilization and treatment at the scene when necessary
- Protection of patients, EMS personnel, and citizens from undue risk when possible.

Procedure:

1. All trauma patients with significant mechanism or history for multiple system trauma will be transported as soon as possible. The scene time should be 10 minutes or less.
2. All acute Stroke and acute ST-Elevation Myocardial Infarction patients will be transported as soon as possible. The scene time should be 10 minutes or less for acute Stroke patients and 15 minutes or less (with 12 Lead ECG) for STEMI patients.
3. Other medical patients will be transported in the most efficient manner possible considering the medical condition. Advanced life support therapy should be provided at the scene if it would positively impact patient care. Justification for scene times greater than 20 minutes should be documented.
4. Under normal circumstances, no patients will be transported in initial response non-transport vehicles.
5. In unusual circumstances, transport in other vehicles may be appropriate when directed by EMS administration.
6. Patients who can safely tolerate a direct trip to a more distant facility (typically a tertiary care center, or a preferred destination) should not be classified as emergency patients. Ambulances may bypass a closer emergency facility during a disaster, mass casualty or similar incident (to adequately distribute low priority patients to other area hospitals so as not to inundate the main area hospital, this decision will usually be made by the EMS officer at the incident in consultation with the regional hospital coordination center (RHCC)), when the closest emergency facility is temporarily shut down (for an emergency situation such as a fire in the hospital or other event), or when the closest emergency facility informs the EMS provider to bypass their facility due to other emergency conditions.
7. When there is a choice of hospitals that are equal distance and equal capabilities appropriate to the patient’s condition, the patients should be given a choice of which facility they would like to go. A patient could then be transported to the appropriate facility based on the patient’s decision.
Treatment of Minors

Policy:

Pre-hospital providers are called to treat persons under the age of 18 (except those that have an Order of Emancipation from a Juvenile and Domestics Relations District Court) who are in need of medical or surgical treatment, including such person who report being sick or injured; who have obvious injury; and/or have a significant mechanism of injury which suggests the need for medical evaluation.

Purpose:

- Define what constitutes a minor patient.
- Provide direction for EMS providers called to treat a minor patient.

Procedure:

A. Authority of Parents, Guardians or Others: Parents have the authority to direct or refuse to allow treatment of their children. A court appointed guardian, and any adult person standing in loco parentis, also has the same authority. “In loco parentis” is defined as “[I]n the place of a parent; instead of a parent; charged, fictitiously, with a parent’s rights, duties, and responsibilities.” Black’s Law Dictionary, 708 (5th ed. 1979). 1987-88 Va. Op. Atty. Gen. 617. Code of Virginia §54-325.2(6) allows any person standing “in loco parentis” to consent to medical treatment for a minor child. “This signifies, in my judgment, an intent to allow any responsible adult person, who acts in the place of a parent, to consent to the treatment of a minor child, particularly in emergency situations.” 1983-84 VA. Op Atty. Gen 219. Such a person may be a relative, schoolteacher or principle, school bus driver, babysitter, neighbor or other adult person in whose care of the child has been entrusted.

B. Persons Subject to Policy with Altered Mental Status: A person meeting the criteria of paragraph one that is unconscious, has an altered mental status, signs of alcohol or substance abuse or head injury shall be treated under implied consent and transported, unless a parent or guardian advises otherwise. Medical Control must be consulted if a parent or guardian refuses to allow treatment or transport.

C. Persons Subject to Policy Under Age 14: A person meeting the criteria or paragraph one that is under the age of 14 shall be treated and transported unless a parent or guardian or person in loco parentis advises otherwise. Do not delay treatment or transport for extended periods simply trying to contact a parent or guardian. If you believe that treatment is necessary, but the parent or guardian or person in loco parentis refuses to allow treatment, Medical Control should be consulted.
Verification of On-Scene Medical Personnel

Policy:

The medical direction of pre-hospital care at the scene of an emergency is the responsibility of those most appropriately trained in providing such care.

Purpose:

- To identify a chain of command to allow field personnel to adequately care for the patient.
- To assure the patient receives the maximum benefit from pre-hospital care.
- To minimize the liability of the EMS system as well as an on-scene physician.

Procedure:

1. When a non medical-control physician offers assistance to EMS or the patient is being attended by a physician with whom they do not have an ongoing patient relationship; credentials must be verified and the physician must be approved by on-line Medical Control. Any deviation from local EMS protocols requires the physician accompany the patient to the hospital.
2. When the patient is being attended by a physician with whom they have an ongoing patient relationship, EMS personnel may follow orders given by the physician if the orders conform to current EMS protocols, and if the physician signs the PCR. Notify Medical Control at the earliest opportunity. Any deviation from local EMS protocols requires the physician to accompany the patient to the hospital.
3. EMS personnel may accept orders from the patient’s physician over the phone with the approval of Medical Control. EMS personnel should obtain the specific order and the physician’s phone number for relay to Medical Control so that Medical Control can discuss any concerns with the physician directly.
4. If there is a conflict about patient care or treatment protocol, the pre-hospital provider will contact on-line Medical Control, for instructions. Under no circumstances should this conflict interfere with prudent patient care.
Policy:

Validity of a DNR order is determined by the DNR meeting the requirements of “Durable Do Not Resuscitate” guidelines as described by the OEMS pursuant to 12VAC5-66 which was effective July 20, 2011. Additional information and the current DNR form are available at http://www.vdh.virginia.gov/oems/ddnr/.

Purpose:

• To honor the wishes of the terminal patient.
• To prevent the initiation of unwanted resuscitation.

Procedure:

A. The responding pre-hospital providers should confirm appropriate DNR status immediately upon arrival. If status cannot be confirmed, the responding pre-hospital providers should perform routine patient assessment and resuscitation or intervention efforts. The following procedures should be followed:

1. Determine that a valid DNR is present and in effect. It is NOT necessary that the original EMS-DNR order be present and legible copies may be accepted.
2. If the patient does not have an EMS DNR authorized “Alternate DDNR Jewelry” can be honored at any time, but it must contain equivalent information to the state form.
3. A verbal order from a physician can be honored by a certified EMS provider. The verbal order may be by a physician who is physically present and willing to assume responsibility or it may be from on-line Medical Control.
4. “Other” DNR orders include a physician’s written DNR order that is in a format other than the state form is also acceptable. “Other” DNR orders should be honored by EMS providers when the patient is within a licensed healthcare facility or being transported between healthcare facilities.
5. Resuscitative efforts, once begun, can only be stopped with the guidance of Medical Control.
6. All providers are strongly encouraged to review the Virginia DNR, as there are some limitations, such as intubation and no CPR.

B. Comforting interventions that are encouraged include the following:

1. Open airway (no intubation or BVM) and administer oxygen;
2. Suction;
3. General patient comfort;
4. Control of any bleeding;
5. Pain medication by ALS providers, as ordered by Medical Control;
6. Support for the patient and family members;
7. Depending on the extent of the DNR wording, IV fluids may be considered.

C. Resuscitative measures the provider should avoid include the following:

1. CPR;
2. Intubation (ET tube, BIAD or other advanced airway);
3. Defibrillation;
4. Cardiac resuscitative medications;
5. Artificial ventilation.

D. If questions or problems arise about DNR, the provider should contact on-line Medical Control. Providers should use the standard PPCR for full documentation of the DNR case, including the format and authorization for DNR and/or the order number on the form and/or bracelet in the case of an EMS-DNR.
<table>
<thead>
<tr>
<th>Medication Reference</th>
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<tbody>
<tr>
<td>Acetaminophen (Tylenol)</td>
</tr>
<tr>
<td>Adenosine (Adenocard)</td>
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<tr>
<td>Albuterol Sulfate (Proventil)</td>
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<tr>
<td>Amiodarone (Cordarone)</td>
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<tr>
<td>Aspirin (Acetylsalicylic Acid)</td>
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<tr>
<td>Atropine Sulfate (Atropine)</td>
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<tr>
<td>Calcium Chloride</td>
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<tr>
<td>Dextrose 10% &amp; 25%</td>
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<tr>
<td>Dextrose 50%</td>
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<tr>
<td>Diphenhydramine (Benadryl)</td>
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<tr>
<td>Dopamine (Intropin)</td>
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<tr>
<td>DuoDote (Atropine &amp; Parlidoxime)</td>
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<tr>
<td>Epinephrine</td>
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<td>Fentanyl (Sublimaze)</td>
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<td>Furosemide (Lasix)</td>
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<td>Glucagon (GlucGen)</td>
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<td>Glucose, Oral (Insta-Glucose Gel)</td>
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<td>Haloperidol (Haldol)</td>
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<td>Hydroxocobalamin</td>
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<td>Ibuprofen (Motrin)</td>
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<tr>
<td>Ketamine (Ketanest)</td>
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<td>Lidocaine (Xylocaine)</td>
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<td>Magnesium Sulfate</td>
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<td>Methylprednisone (Solu-Medrol)</td>
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<td>Metoprolol (Lopressor)</td>
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<tr>
<td>Midazolam (Versed)</td>
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<tr>
<td>Morphine Sulfate</td>
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<td>Naloxone (Narcan)</td>
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<td>Nitroglycerine (Nitrostat)</td>
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<td>Ondansetron (Zofran)</td>
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<td>Oxymetazoline (Afrin)</td>
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<tr>
<td>Pralidoxime (2-Pam)</td>
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<tr>
<td>Sodium Bicarbonate</td>
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<tr>
<td>Pediatric Color Coded Medication Reference</td>
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<tr>
<td>EMS Resources</td>
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<tr>
<td>Area Hospitals</td>
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<tr>
<td>dopamine Drip Rates</td>
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<td>IV Drip Rates</td>
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<tr>
<td>D 10% &amp; D 25% Administration</td>
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<tr>
<td>Glasgow Scores</td>
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<td>APGAR</td>
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<td>Trauma Scores</td>
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<tr>
<td>Field Trauma Triage</td>
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<tr>
<td>Stroke Triage</td>
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<tr>
<td>Rule of Nines</td>
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<tr>
<td>START/JUMPSTART Triage</td>
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<tr>
<td>Medication</td>
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</tr>
<tr>
<td>acetaminophen -(Tylenol)</td>
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<td>adenosine -(Adenocard)</td>
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<tr>
<td>albuterol sulfate-(Proventil)</td>
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<tr>
<td>Medication</td>
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<tr>
<td><strong>amiodarone-(Cordarone)</strong></td>
</tr>
<tr>
<td>CLASS: Antiarrhythmic</td>
</tr>
<tr>
<td>ACTION: Prolongs the action potential duration in all cardiac tissues</td>
</tr>
<tr>
<td>CONTRAINDICATIONS:</td>
</tr>
<tr>
<td>Cardiogenic shock, severe sinus node dysfunction resulting in marked sinus bradycardia, second/third degree AV block, symptomatic bradycardia, known hypersensitivity</td>
</tr>
<tr>
<td>PRECAUTION: Heart failure</td>
</tr>
<tr>
<td>SIDE EFFECTS: Hypotension, bradycardia, increased ventricular beats, prolonged PR interval, QRS complex, and QT interval, dyspnea, cough</td>
</tr>
<tr>
<td>Protocols:</td>
</tr>
<tr>
<td>* 17-VF/VT (Adult)</td>
</tr>
<tr>
<td>* 18-VF/VT (Pediatric)</td>
</tr>
<tr>
<td>* 49-Tachycardia (Adult)</td>
</tr>
<tr>
<td>* 50-Tachycardia (Pediatric)</td>
</tr>
<tr>
<td><strong>aspirin-(Acetylsalicylic Acid)</strong></td>
</tr>
<tr>
<td>CLASS: Platelet aggregator inhibitor and anti-inflammatory agent</td>
</tr>
<tr>
<td>ACTION: Blocks formation of thromboxane A2, which causes platelets to aggregate and arteries to constrict</td>
</tr>
<tr>
<td>CONTRAINDICATIONS:</td>
</tr>
<tr>
<td>Known hypersensitivity, active ulcer disease and asthma are relative contraindications</td>
</tr>
<tr>
<td>PRECAUTIONS: Gastric irritation and bleeding, allergies to nonsteroidal anti-inflammatory (NSAI)D</td>
</tr>
<tr>
<td>SIDE EFFECTS: Heartburn, GI bleeding, nausea/vomiting, wheezing, prolonged bleeding</td>
</tr>
<tr>
<td>Protocols:</td>
</tr>
<tr>
<td>* 7-Pain Control</td>
</tr>
<tr>
<td>* 34- Cardiac Chest Pain</td>
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<tr>
<td></td>
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<tr>
<td><strong>atropine sulfate-(Atropine)</strong></td>
</tr>
<tr>
<td>CLASS: Parasympatholytic (anticholinergic)</td>
</tr>
<tr>
<td>ACTIONS: Blocks acetylcholine receptors, inhibiting parasympathetic stimulation, positive chronotropic effects with little or no inotropic effects, antedote in organophosphate poisonings, decreases salivary and GI secretions</td>
</tr>
<tr>
<td>CONTRAINDICATION: None in emergency setting</td>
</tr>
<tr>
<td>PRECAUTIONS: 2nd Degree Mobitz II and 3rd Degree AV blocks, do not exceed 0.04 mg/kg except in organophosphate poisoning, glaucoma</td>
</tr>
<tr>
<td>SIDE EFFECTS: Palpitations/tachycardia, headache/dry mouth, anxiety/confusion/dizziness, blurred vision/dilated pupils</td>
</tr>
<tr>
<td>Protocols:</td>
</tr>
<tr>
<td>* 32-Bradycardia (Adult)</td>
</tr>
<tr>
<td>* 33-Bradycardia (Pediatric)</td>
</tr>
<tr>
<td>* 42-OD/ Poison/Toxics (Adult)</td>
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<tr>
<td>* 43-OD/ Poison/Toxics (Pediatric)</td>
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### Medication Reference

<table>
<thead>
<tr>
<th>Medication</th>
<th>Adult Dosage</th>
<th>Pediatric Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>calcium chloride</strong></td>
<td><strong>Renal Failure</strong>&lt;br&gt;• 1 g IV/IO over 3 minutes</td>
<td>• See Color Coded List</td>
</tr>
<tr>
<td>CLASS: Electrolyte replacement – Calcium product</td>
<td><strong>Beta or Calcium Channel Blocker Overdoses:</strong>&lt;br&gt;• 1-2 g IV/IO over 3 minutes</td>
<td><strong>Crush Syndrome Trauma:</strong>&lt;br&gt;• 1 g IV/IO over 3 minutes</td>
</tr>
<tr>
<td>ACTION: Cation needed for maintenance of nervous, muscular, skeletal, enzyme reactions, normal cardiac contractility, and coagulation of blood, affects secretory activity of endocrine and exocrine glands</td>
<td><strong>CONTRAINDICATIONS:</strong> Digitalis toxicity, Hypercalcemia</td>
<td></td>
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<tr>
<td>PRECAUTIONS: Flush IV line between Calcium and Sodium Bicarbonate, extravasation may cause tissue necrosis</td>
<td>SIDE EFFECTS: Heart block, hypotension, bradycardia, local tissue necrosis with IV infiltrate, muscle weakness</td>
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<tr>
<td>Protocols:</td>
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<tr>
<td></td>
<td>* 24-Crush Syndrome</td>
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<tr>
<td></td>
<td>* 35-Dialysis/Renal Failure</td>
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<tr>
<td></td>
<td>* 42-OD/Poison/Toxics (Adult)</td>
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<tr>
<td></td>
<td>* 43-OD/Poison/Toxics (Pediatric)</td>
<td></td>
</tr>
<tr>
<td><strong>dextrose 25% &amp; dextrose 10%</strong></td>
<td><strong>CLASS:</strong> Carbohydrate</td>
<td>• See Color Coded List</td>
</tr>
<tr>
<td>ACTION: Elevates blood glucose rapidly. provides calories</td>
<td><strong>CONTRAINDICATIONS:</strong> None in emergency setting</td>
<td></td>
</tr>
<tr>
<td>PRECAUTIONS: Use with caution with increased ICP, infiltration may result in tissue necrosis, known allergy to corn, obtain blood sample first if possible</td>
<td><strong>SIDE EFFECTS:</strong> Tissue necrosis, phlebitis</td>
<td></td>
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<tr>
<td>Protocols:</td>
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<td></td>
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<tr>
<td></td>
<td>* 14-Asystole/PEA (Pediatric)</td>
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<td></td>
<td>* 37-Hypoglycemia/Diabetic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* 39-Hypotension/Shock (Pediatric)</td>
<td></td>
</tr>
<tr>
<td><strong>dextrose 50%</strong></td>
<td><strong>CLASS:</strong> Carbohydrate</td>
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<td>ACTION: Elevates blood glucose rapidly. provides calories</td>
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<td></td>
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<tr>
<td>Protocols:</td>
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<tr>
<td></td>
<td>* 13-Asystole/PEA (Adult)</td>
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<td></td>
<td>* 14-Asystole/PEA (Pediatric)</td>
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<td></td>
<td>* 37-Hypoglycemia/Diabetic</td>
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<td></td>
<td>* 39-Hypotension/Shock (Pediatric)</td>
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</tbody>
</table>

**Note:** All dosages are expressed as g (grams) unless otherwise specified.

*See Color Coded List*
### Diphenhydramine-(Benadryl)

**CLASS:** Antihistamine  
**ACTION:** Blocks histamine receptors, but does not prevent histamine release, has some sedative effects  
**CONTRAINDICATIONS:** Acute asthma attack, nursing mothers  
**PRECAUTION:** Hypotension  
**SIDE EFFECTS:** Sedation, dries bronchial secretions, blurred vision, headache, palpitations  

**Protocols:**  
- 29-Allergies/Anaphylaxis (Adult)  
- 30-Allergies/Anaphylaxis (Pediatric)

<table>
<thead>
<tr>
<th>Medication</th>
<th>Adult Dosage</th>
<th>Pediatric Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphenhydramine-(Benadryl)</td>
<td>25-50 mg IV/IO/Deep IM</td>
<td>See Color Coded List</td>
</tr>
</tbody>
</table>

### Dopamine-(Intropin)

**CLASS:** Sympathomimetic  
**ACTION:** Dose dependent:  
- 5-10 mcg/kg/min  
  - Beta 1 stimulant  
  - Increases chronotropic and inotropic effects  
- 10-20 mcg/kg/min  
  - Alpha  
  - Peripheral vasoconstriction  
- > 20 mcg/kg/min  
  - All Alpha  
  - Reversal of renal effects  

**CONTRAINDICATIONS:** Hypovolemic shock prior to completing fluid resuscitation, pheochromocytoma, tachydysrhythmias, V-Fib, hypersensitivity  
**PRECAUTIONS:** Pregnancy, lactation, peripheral vascular disease, MAOI inhibitors will increase alpha effects  
**SIDE EFFECTS:** Ventricular tachyarrhythmias/ palpitations, hypertension, renal shutdown, nausea/ vomiting, headache, angina  

**Protocols:**  
- 13-Asystole/PEA (Adult)  
- 14-Asystole/PEA (Pediatric)  
- 15-Post Resuscitation Care (Adult)  
- 16-Post Resuscitation Care (Pediatric)  
- 17-V-Fib/V-Tach (Adult)  
- 18-V-Fib/V-Tach (Pediatric)  
- 23-CO/Smoke Inhalation  
- 32-Bradycardia (Adult)  
- 33-Bradycardia (Pediatric)  
- 34-Cardiac Chest Pain  
- 38-Hypotension/Shock (Adult)  
- 39-Hypotension/Shock (Pediatric)  
- 42-OD/Poison/Toxics (Adult)  
- 43-OD/Poison/Toxics (Pediatric)  
- 44-Pulmonary Edema/CHF  

- 5-20 mcg/kg/min IV/IO  
- Titrate to obtain/maintain SBP ≥90 mmHg  
- See Color Coded List  
- 5-20 mcg/kg/min IV/IO  
- Titrate to obtain/maintain SBP ≥70 + (2 x age in yrs)
**DuoDote (atropine & pralidoxime)**

**DESCRIPTION:** The DuoDote Auto-Injector provides a single intramuscular dose of atropine and pralidoxime chloride. It is to be used as a self-administered therapy for symptomatic exposure to anticholinergic nerve agents and organophosphorus pesticides.

**PHARMACOLOGY:** Atropine competitively blocks the effects of acetylcholine at muscarinic cholinergic receptors on smooth muscle, cardiac muscle, secretory gland cells and in peripheral autonomic ganglia and the central nervous system. Pralidoxime reactivates acetylcholinesterase which has been inactivated by phosphorylation due to some organophosphorous nerve agents or pesticides. Pralidoxime does not reactivate phosphorylated acetylcholinesterase that has undergone the aging process.

**INDICATIONS:** DuoDote is indicated for the treatment of poisoning by organophosphorous nerve agents and pesticides.

**ONSET/DURATION:** Onset of action for both drugs is rapid (peak effect achieved in ≤ 5 minutes). Both drugs last for approximately an hour.

**CONTRAINDICATIONS:** None in the presence of life-threatening organophosphorous poisoning.

**WARNINGS:** Pralidoxime is secreted in the urine – impaired renal function may result in higher blood levels.

**DRUG INTERACTIONS:** When administered together, pralidoxime may potentiate the effects of atropine. This could result in signs of atropinization (flushing, mydriasis, tachycardia, dryness of mouth and nose) occurring earlier than when atropine is given alone.

**ADVERSE REACTIONS:** Temporary hypertension caused by pralidoxime. Signs of atropinization may occur earlier when both drugs are given together.

**Protocols:**

- *[42-OD/Poison/Toxics (Adult)]*
- *[43-OD/Poison/Toxics (Pediatric)]*
- *[54-WMD-CHEM PACK]*

<table>
<thead>
<tr>
<th>Medication</th>
<th>Adult Dosage</th>
<th>Pediatric Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Each autoinjector contains: *&lt;br&gt;  - atropine 2.1 mg/0.7 mL  - pralidoxime 600 mg/2 mL</td>
<td>* Only for use &gt;1 year of age *&lt;br&gt;  - &lt;1 year, use weight-based doses</td>
<td>&lt;br&gt;  - <strong>Minor Symptoms:</strong>&lt;br&gt;  - 1-2 Autoinjectors IM</td>
</tr>
</tbody>
</table>
Medication Reference

<table>
<thead>
<tr>
<th>Medication</th>
<th>Adult Dosage</th>
<th>Pediatric Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>epinephrine-(EpiPen)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*1:1,000 –</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLASS: Sympathomimetic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTION: Bronchodilation,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>blocks release of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>histamine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INDICATIONS: Bronchial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>asthma, exacerbation of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COPD, anaphylaxis/allerg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>reactions, pediatric</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cardiac arrest (after</td>
<td></td>
<td></td>
</tr>
<tr>
<td>initial Epinephrine dose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and in nebulized form</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTRAINDICATIONS:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underlying cardiac</td>
<td></td>
<td></td>
</tr>
<tr>
<td>disease, hypertension,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pregnancy, tachyarrhythmias</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRECAUTIONS: Should be</td>
<td></td>
<td></td>
</tr>
<tr>
<td>protected from light,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BP, pulse, ECG constantly monitored</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIDE EFFECTS: Palpitations/tachycardia, anxiousness, headache, tremors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*1:10,000 –</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLASS: Sympathomimetic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTION: Positive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>chronotropic effects,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>positive dromotropic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>effects, positive</td>
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<td></td>
</tr>
<tr>
<td>isotropic effects,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>increased myocardial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>electrical activity,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>increased systemic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vascular resistance,</td>
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<td></td>
</tr>
<tr>
<td>increased BP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INDICATIONS: Cardiac</td>
<td></td>
<td></td>
</tr>
<tr>
<td>arrest, anaphylactic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>shock, severe reactive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>airway disease, pediatric bradycardia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTRAINDICATIONS:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None in arrest/emergency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRECAUTIONS: Protected</td>
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<td></td>
</tr>
<tr>
<td>from light, caution with</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MI, HTN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIDE EFFECTS: Palpitations, anxiety, tremors, nausea/vomiting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*1:100,000 –</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used in anaphylaxis in place of an epi drip; Dilute 1 mL of epi 1:10,000 in 10 mL NS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protocols:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*3- Cardiac Arrest (Adult)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*4- Cardiac Arrest (Pediatric)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*13-Asystole/PEA (Adult)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*14-Asystole/PEA (Pediatric)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*17-V-Fib/V-Tach (Adult)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*18-V-Fib/V-Tach (Pediatric)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*22-Bums</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*29-Allergies/Anaphylaxis (Adult)</td>
<td></td>
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</tr>
<tr>
<td>*30-Allergies/Anaphylaxis (Pediatric)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*33-Bradycardia (Pediatric)</td>
<td></td>
<td></td>
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<tr>
<td>*41-Newborn/Neonatal Resuscitation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*45-Respiratory Distress (Adult)</td>
<td></td>
<td></td>
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<tr>
<td>*46-Respiratory Distress (Pediatric)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Anaphylaxis (1:1,000)</strong></td>
<td>0.3-0.5 mg IM</td>
<td>Repeat in 5 minutes if no improvement</td>
</tr>
<tr>
<td><strong>Anaphylaxis (1:100,000)</strong></td>
<td>1 ml (0.1 mg) IV/IO every minute for 10 minutes</td>
<td></td>
</tr>
<tr>
<td><strong>Cardiac Arrest (1:10,000)</strong></td>
<td>Repeat every 3-5 minutes until ROSC or termination of efforts</td>
<td></td>
</tr>
<tr>
<td><strong>Nebulized (1:1,000)</strong></td>
<td>2 mg in 2 mL NS nebulized</td>
<td></td>
</tr>
<tr>
<td><strong>Anaphylaxis (1:1,000)</strong></td>
<td>0.01 mg/kg IM</td>
<td>Repeat in 5 minutes if no improvement</td>
</tr>
<tr>
<td><strong>Anaphylaxis (1:100,000)</strong></td>
<td>0.01 mg/kg IV/IO every minute for 10 minutes</td>
<td></td>
</tr>
<tr>
<td><strong>Cardiac Arrest (1:10,000)</strong></td>
<td>0.01 mg/kg IV/IO</td>
<td>Repeat every 3-5 minutes as needed</td>
</tr>
<tr>
<td><strong>Bradycardia (1:10,000)</strong></td>
<td>0.01 mg/kg IV/IO</td>
<td>Repeat every 3-5 minutes as needed</td>
</tr>
<tr>
<td><strong>Nebulized (1:1,000)</strong></td>
<td>2 mg in 3 mL NS nebulized</td>
<td></td>
</tr>
</tbody>
</table>

* See Color Coded List

- Anaphylaxis (1:1,000)
  - 0.01 mg/kg IM
  - Repeat every 3-5 minutes after initial Epinephrine dose

- Anaphylaxis (1:100,000)
  - 0.001 mg/kg IV/IO every minute for 10 minutes

- Cardiac Arrest (1:10,000)
  - 0.01 mg/kg IV/IO
  - Repeat every 3-5 minutes after initial Epinephrine dose

- Bradycardia (1:10,000)
  - 0.01 mg/kg IV/IO
  - Repeat every 3-5 minutes after initial Epinephrine dose

- Nebulized (1:1,000)
  - 2 mg in 3 mL NS nebulized
## Medication Reference

<table>
<thead>
<tr>
<th>Medication</th>
<th>Adult Dosage</th>
<th>Pediatric Dosage</th>
</tr>
</thead>
</table>
| **Fentanyl**-(Sublimaze) | • 1 mcg/kg IV/IO/IM/IN  
• May repeat 0.5 mcg/kg every 5 minutes as needed  
• MAX 2 mcg/kg | • See Color Coded List  
• 1 mcg/kg IV/IO/IM/IN  
• May repeat 0.5 mcg/kg every 5 minutes as needed  
• MAX 2 mcg/kg |
| CLASS: Potent Narcotic Analgesic and Sedative  
ACTION: Dose of 100 micrograms = 10 mg of morphine; differs from morphine by its short duration of analgesic activity, lack of emetic activity, and minimal hypotensive activity  
CONTRAINDICATIONS: Known hypersensitivity to medication; bronchial asthma; patients who may have a head injury or brain tumor; concurrent patient use of MAO inhibitors, SBP <110  
PRECAUTIONS: Pregnant patients, alcoholic beverages may increased depressant effects, administer slowly  
SIDE EFFECTS: Analgesia, euphoria, miosis, bradycardia, respiratory depression, apnea, muscle rigidity and suppression of cough reflexes; hypertension; anaphylaxis, bronchospasm, pruritis, urticaria and asystole.  
Protocols:  
* 7-Pain Control  
* 11-Airway  
* 15-Post Resuscitation Care (Adult)  
* 24-Crush Syndrome  
* 34-Cardiac Chest Pain | |
| **Furosemide**-(Lasix) | • 0.5- 1.0 mg/kg IV or double the last dose | Ø |
| CLASS: Loop of Henle diuretic  
ACTION: Inhibits reabsorption of both Na and Cl in kidneys and promotes excretion of Na, K, and Cl; vasodilation causing a reduction in preload, thus decreasing cardiac work; diuretic  
CONTRAINDICATIONS: Dehydration, hypotension, hypovolemia, pregnancy, anuria  
PRECAUTIONS: Protect from light, severe renal disease  
SIDE EFFECTS: Hypotension, tinnitus (if administered too fast), volume depletion, arrhythmias, hyperglycemia, hypokalemia, nausea/vomiting  
Protocols:  
* 44-Pulmonary Edema/CHF | |
<table>
<thead>
<tr>
<th>Medication</th>
<th>Adult Dosage</th>
<th>Pediatric Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>glucagon-(GlucaGen)</strong></td>
<td><strong>Hypoglycemia</strong></td>
<td><strong>See Color Coded List</strong></td>
</tr>
<tr>
<td>CLASS: Hormone and antihypoglycemic</td>
<td>* 1 mg IM/IN</td>
<td><strong>Hypoglycemia &gt;3 years:</strong></td>
</tr>
<tr>
<td>ACTION: Causes breakdown of glycogen and glucose, inhibits glycogen synthesis, increases blood glucose level, increases cardiac contractile force, increases heart rate</td>
<td><strong>Beta or Calcium Channel Blocker Overdoses:</strong></td>
<td>* 0.1 mg/kg IM</td>
</tr>
<tr>
<td>CONTRAINDICATION: Hypersensitivity</td>
<td><strong>Beta or Calcium Channel Blocker Overdoses:</strong></td>
<td><strong>Beta or Calcium Channel Blocker Overdoses:</strong></td>
</tr>
<tr>
<td>PRECAUTIONS: Only effective if there are sufficient stores of glycogen in liver, caution with patients with cardiovascular or renal disease, follow with carbohydrates such as a prompt meal or D50 after IV is established, mix only with sterile water</td>
<td>* 3 mg IV/IO</td>
<td>* 0.5 mg IV/IO (MAX 2 mg)</td>
</tr>
<tr>
<td>SIDE EFFECTS: Few in emergency setting</td>
<td>Protocols:</td>
<td></td>
</tr>
<tr>
<td>Protocols:</td>
<td>* 37-Hypoglycemia/Diabetic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* 39-Hypotension/Shock (Pediatric)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* 42-OD/Poison/Toxics (Adult)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* 43-OD/Poison/Toxics (Pediatric)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>See Color Coded List</strong></td>
<td></td>
</tr>
<tr>
<td><strong>glucose, oral-(Insta-Glucose Gel)</strong></td>
<td>1-2 Tubes (15-30 g) Buccally</td>
<td><strong>See Color Coded List</strong></td>
</tr>
<tr>
<td>CLASS: Caloric</td>
<td><strong>See Color Coded List</strong></td>
<td></td>
</tr>
<tr>
<td>ACTION: Needed for adequate utilization of amino acids, decrease protein and nitrogen loss, prevents ketosis</td>
<td><strong>Hypoglycemia &gt;3 years:</strong></td>
<td></td>
</tr>
<tr>
<td>CONTRAINDICATIONS: Hyperglycemia, hemorrhage, CHF, inability to swallow, compromised gag-reflex</td>
<td><strong>Beta or Calcium Channel Blocker Overdoses:</strong></td>
<td></td>
</tr>
<tr>
<td>PRECAUTIONS: Renal, liver, cardiac disease</td>
<td><strong>Beta or Calcium Channel Blocker Overdoses:</strong></td>
<td></td>
</tr>
<tr>
<td>SIDE EFFECTS: Hyperglycemia, rebound hypoglycemia, confusion, dizziness</td>
<td>* 0.5-1 Tube (7.5-15 g) Buccally</td>
<td></td>
</tr>
<tr>
<td>Protocols:</td>
<td>* 37-Hypoglycemia/Diabetic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* 39-Hypotension/Shock (Pediatric)</td>
<td></td>
</tr>
<tr>
<td><strong>haloperidol-(Haldol)</strong></td>
<td><strong>Chemical Restraint</strong></td>
<td>Ø</td>
</tr>
<tr>
<td>CLASS: Antipsychotic and neuroleptic</td>
<td><strong>&lt;65 years: 5 mg IM</strong></td>
<td></td>
</tr>
<tr>
<td>ACTION: Blocks dopamine receptors in brain responsible for mood and behavior, antiemetic properties</td>
<td><strong>&gt;65 years: 2.5 mg IM</strong></td>
<td></td>
</tr>
<tr>
<td>CONTRAINDICATIONS: Not used in presence of other sedatives, talwin overdose, Parkinson’s disease</td>
<td>Ø</td>
<td></td>
</tr>
<tr>
<td>PRECAUTION: Orthostatic hypotension</td>
<td><strong>See Color Coded List</strong></td>
<td></td>
</tr>
<tr>
<td>SIDE EFFECTS: Dystonic reactions, respiratory depression, seizures, insomnia, hypotension</td>
<td><strong>Hypoglycemia &gt;3 years:</strong></td>
<td></td>
</tr>
<tr>
<td>Protocols:</td>
<td>* 2-Behavioral/Pt. Restraint</td>
<td></td>
</tr>
</tbody>
</table>
### Medication Reference

<table>
<thead>
<tr>
<th>Medication</th>
<th>Adult Dosage</th>
<th>Pediatric Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>hydroxocobalamin</strong></td>
<td><strong>Cyanide Exposure</strong></td>
<td><strong>See Color Coded List</strong></td>
</tr>
<tr>
<td>CLASS: Cyanide Antidote</td>
<td>70 mg/kg IV/IO (MAX 5 g)</td>
<td>70 mg/kg IV/IO (MAX 5 g)</td>
</tr>
</tbody>
</table>
| ACTIONS: Hydroxocobalamin binds cyanide, forming cyanocobalamin for urinary excretion. CONTRAINDICATIONS: None in the setting of suspected cyanide toxicity. SIDE EFFECTS: Redness of skin and mucous membranes may be prominently noted. Additional side effects include headache, dizziness, restlessness, eye irritation, throat irritation, dyspnea, pulmonary edema, chest tightness, hypertension, tachycardia, palpitations, nausea, vomiting, diarrhea, abdominal pain, dysphagia, red urine, and hives Protocols: | 400 mg PO | *
| * 23-CO/Smoke Inhalation |
| **ibuprofen-(Motrin)** | **Pain Management:** | **See Color Coded List** |
| CLASS: Nonsteroidal anti-inflammatory, antipyretic ACTION: Analgesic, anti-inflammatory, antipyretic CONTRAINDICATIONS: hypersensitivity, asthma, severe renal or hepatic disease PRECAUTIONS: GI/bleeding disorders, pregnancy, avoid in patients taking anticoagulants, i.e. Coumadin SIDE EFFECTS: Anaphylaxis, rash, GI bleeding, nausea, tinnitus, headache Protocols: | 0.1-0.5 mg/kg IV/IO administered over 1 minute repeated in 15 minutes as needed. **Post Sedation:** | *
| * 6-Fever | * 2 mg/kg | 0.1-1.5 mg/kg IV/IO | * Follow dosing indicated within protocol if administering with additional medication.* |
| * 7-Pain Control | * Follow dosing indicated within protocol if administering with additional medication.* |
| **ketamine-(Ketanest)** | **Pain Management:** | **See Color Coded List** |
| CLASS: General Anesthetic ACTIONS: N-Methyl d-aspartate (NMDA) receptor antagonist CONTRAINDICATIONS: Hypertension, hypersensitivity PRECAUTIONS: May have additive and/or synergistic effects when other sedatives are present. SIDE EFFECTS: Hypertension, flushing, Palpitations, dry mouth, nausea/vomiting, Protocols: | 0.1-0.5 mg/kg IV/IO administered over 1 minute repeated in 15 minutes as needed. **Post Sedation:** | *
| * 7-Pain Control | **Post Sedation:** | *
| * 11-Airway | * 0.1-1.5 mg/kg IV/IO | * Follow dosing indicated within protocol if administering with additional medication.* |
| * 15-Post Resuscitation Care (Adult) | * 24-Crush Syndrome | When packaged 500mg/10mL, use formula: Dose in kg/50 = Dose in mL |
| * 16-Post Resuscitation Care (Pediatric) | | **See Color Coded List** |

### Medication Reference

<table>
<thead>
<tr>
<th>Adult Dosage</th>
<th>Pediatric Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cyanide Exposure</strong></td>
<td><strong>Pain Management:</strong></td>
</tr>
</tbody>
</table>
| 70 mg/kg IV/IO (MAX 5 g) | 0.1-0.5 mg/kg IV/IO administered over 1 minute repeated in 15 minutes as needed. **Post Sedation:** | *
| | * 2 mg/kg | 0.1-1.5 mg/kg IV/IO | * Follow dosing indicated within protocol if administering with additional medication.* |
| | * Follow dosing indicated within protocol if administering with additional medication.* |

When packaged 500mg/10mL, use formula: Dose in kg/50 = Dose in mL
<table>
<thead>
<tr>
<th>Medication</th>
<th>Adult Dosage</th>
<th>Pediatric Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lidocaine (Xylocaine)</strong></td>
<td><strong>Lidocaine 2% Preservative Free</strong></td>
<td><strong>See Color Coded List</strong></td>
</tr>
<tr>
<td>CLASS: Antidysrhythmic; anesthetic, local</td>
<td>For Pain During IO Access:</td>
<td><strong>Lidocaine 2%</strong></td>
</tr>
<tr>
<td>ACTION: Lidocaine stabilizes the neuronal membrane by inhibiting the ionic fluxes required for the initiation and conduction or nerve impulses, thereby effecting local anesthetic action.</td>
<td>✷ 20-40 mg IO</td>
<td>For Pain During IO Access:</td>
</tr>
<tr>
<td><strong>INDICATIONS:</strong> Used as local anesthetic following insertion of IO devices in conscious patients. Used to lubricate NPA prior to nasotracheal intubation.</td>
<td><strong>Lidocaine Jelly</strong></td>
<td>✷ 0.5 mg/kg IO</td>
</tr>
<tr>
<td><strong>CONTRAINDICATIONS:</strong> Sensitivity to Lidocaine or other “caine” medications, Stokes-Adams syndrome, Wolff-Parkinson-White syndrome; severe degree heart block in the absence of an artificial pacemaker</td>
<td>Nasotracheal Intubation:</td>
<td><strong>Lidocaine Jelly</strong></td>
</tr>
<tr>
<td><strong>PRECAUTIONS:</strong> Severe liver or kidney disease, hypovolemia, sever CHF, shock</td>
<td>✷ Lubricate NPA with jelly for use prior to ETT placement</td>
<td><strong>NOT USED:</strong> Nasotracheal intubation not authorized in peds</td>
</tr>
<tr>
<td><strong>SIDE EFFECTS:</strong> Hypotension, confusion, bradycardia, tremors, nausea/vomiting</td>
<td><strong>Procedures:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Procedures:</strong> Airway – Intubation, Nasotracheal</td>
<td>✷ venous Access: Intraosseous</td>
<td></td>
</tr>
<tr>
<td>Magnesium Sulfate</td>
<td><strong>Eclampsia</strong></td>
<td><strong>See Color Coded List</strong></td>
</tr>
<tr>
<td>CLASS: Antiarrhythmic</td>
<td>✷ 4-6 g over 5 minutes</td>
<td><strong>Respiratory Distress</strong></td>
</tr>
<tr>
<td>ACTION: Physiological calcium channel blocker and blocks neuromuscular transmission; decreases incidence of ventricular arrhythmias; reduces SA node impulses and prolongs conduction through heart</td>
<td><strong>Respiratory Distress</strong></td>
<td>✷ 50 mg/kg IV over 20 minutes</td>
</tr>
<tr>
<td><strong>CONTRAINDICATIONS:</strong> Shock, 3rd degree AV block, severe hypotension, dialysis, hypocalcaemia</td>
<td><strong>Torsades de Pointes</strong></td>
<td><strong>Torsades de Pointes</strong></td>
</tr>
<tr>
<td><strong>PRECAUTIONS:</strong> Administered slowly to minimize side effects; may cause HTN and bradycardia if given rapidly, renal insufficiency, hypotension</td>
<td>✷ 2 g IV/IO Bolus</td>
<td>✷ 50 mg/kg IV/O</td>
</tr>
<tr>
<td><strong>SIDE EFFECTS:</strong> Hypotension, arrhythmias, flushing/diaphoresis, itching</td>
<td><strong>Protocols:</strong></td>
<td>Repeat every 5 minutes to MAX 2 g</td>
</tr>
<tr>
<td><strong>Protocols:</strong> 17-VF/VT (Adult)</td>
<td>✷ 18-VF/VT (Pediatric)</td>
<td></td>
</tr>
<tr>
<td>✷ 45-Respiratory Distress (Adult)</td>
<td>✷ 46-Respiratory Distress (Pediatric)</td>
<td></td>
</tr>
<tr>
<td>✷ 47-Seizure</td>
<td>✷ 53-Pregnancy Related Emerg.</td>
<td></td>
</tr>
<tr>
<td>✷ 53-Pregnancy Related Emerg.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Eclampsia**

- 4-6 g over 5 minutes
- Respiratory Distress
- 2 g IV/IO over 5 minutes
- Torsades de Pointes
- 2 g IV/IO Bolus

**Protocols:**

- 17-VF/VT (Adult)
- 18-VF/VT (Pediatric)
- 45-Respiratory Distress (Adult)
- 46-Respiratory Distress (Pediatric)
- 47-Seizure
- 53-Pregnancy Related Emerg.
<table>
<thead>
<tr>
<th>Medication</th>
<th>Adult Dosage</th>
<th>Pediatric Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>methylprednisolone-(Solu-Medrol)</td>
<td>• 125 mg IV/IO</td>
<td>• See Color Coded List</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2 mg/kg IV/IO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MAX 125 mg</td>
</tr>
<tr>
<td>metoprolol-(Lopressor)</td>
<td>* 5 mg slow IVP (2 minutes) *May repeat every 5 minutes as needed to max dose of 15 mg</td>
<td>Ø</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication</td>
<td>Adult Dosage</td>
<td>Pediatric Dosage</td>
</tr>
<tr>
<td>----------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td><strong>midazolam</strong> (Versed)</td>
<td><strong>Chemical Restraint</strong></td>
<td><a href="#">See Color Coded List</a></td>
</tr>
<tr>
<td>CLASS: Benzodiazepine</td>
<td>* 2 -5mg IV/IO/IM, repeated every 3-5 minutes as needed</td>
<td><strong>Sedation</strong></td>
</tr>
<tr>
<td>ACTION: Short acting used</td>
<td>* Sedation</td>
<td></td>
</tr>
<tr>
<td>as sedative and hypnotic,</td>
<td>* 2-5 mg IV/IO repeated every 3-5 minutes as needed</td>
<td></td>
</tr>
<tr>
<td>amnestic properties, no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>effect on pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTRAINDICATIONS: Narrow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>angle glaucoma (relative),</td>
<td></td>
<td></td>
</tr>
<tr>
<td>shock, decreased vital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>signs, alcoholic coma,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hypersensitivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRECAUTIONS: Monitor vital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>signs carefully, COPD,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHF, renal disease, elderly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIDE EFFECTS: Laryngospasm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bronchospasm, respiratory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>arrest, amnesia, altered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>level of consciousness,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bradycardia/tachycardia, PVCs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protocols:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* 2-Behavioral/Pt. Restraint</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* 24-Crush Syndrome</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* 32-Bradycardia (Adult)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* 46-Seizure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* 49-Tachycardia (Adult)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* 50-Tachycardia (Pediatric)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* 53-Pregnancy Related Emerg.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>morphine sulfate</strong></td>
<td>2 -4 mg IV/IO/IM</td>
<td><a href="#">See Color Coded List</a></td>
</tr>
<tr>
<td>CLASS: Narcotic analgesic</td>
<td>* May repeat every 10 minutes as needed (MAX 10 mg)</td>
<td><strong>Sedation</strong></td>
</tr>
<tr>
<td>(Schedule II)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTION: CNS depressant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>that acts on opiate receptors in brain providing analgesia and sedation, decreases fear and anxiety, increases peripheral venous capacitance (venous pooling) and vasodilates arterioles, decreasing afterload which decreases BP, decreases venous return, decreases myocardial O2 demand, decreases GI motility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTRAINDICATIONS: Severe hypotension, undiagnosed abdominal pain, head injury/increased ICP, hypersensitivity, severe respiratory depression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRECAUTIONS: Liver and renal disease, have Narcan available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIDE EFFECTS: Respiratory depression/arrest, decreased level of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>consciousness, orthostatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hypotension, seizures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protocols:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* 7-Pain Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* 34-Cardiac Chest Pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication</td>
<td>Adult Dosage</td>
<td>Pediatric Dosage</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| **naloxone-(Narcan)** | • Up to 2 mg IV/IO/IM/IN
- Titrate to respirations/oxygenation, NOT consciousness | • See Color Coded List
- 0.1 mg/kg IV/IO/IM/IN
- Titrate to respirations/oxygenation, NOT consciousness |
| **CLASS:** Narcotic antagonist | • ACTION: Competes for opiate receptors in the brain, displaces narcotic molecules from opiate receptors, reverses respiratory depression secondary to depressant drugs | **PRECAUTIONS:** Caution to patients dependent on narcotics due to causing withdrawal type effects |
| **CONTRAINDICATION:** Hypersensitivity | **SIDE EFFECTS:** Rare, hypotension/HTN, ventricular arrhythmias, narcotic withdrawal symptoms (Tremors, combative, projectile vomiting, tachycardia, hypotension, diaphoresis) | **SIDE EFFECTS:** Hypotension, headache, dizziness, orthostasis |
| **Protocols:** | • 13-Asystole/PEA (Adult)
• 14-Asystole/PEA (Pediatric)
• 42-OD/Toxics (Adult)
• 43-OD/Toxics (Pediatric) | **Protocols:**
• 34-Cardiac Chest Pain
• 44-Pulmonary Edema/CHF |
| **nitroglycerin-(Nitrostat)** | **CLASS:** Vasodilator
**ACTION:** Rapid smooth muscle relaxant that decreases cardiac work, dilates coronary arteries which results in increased coronary blood flow and improved perfusion of ischemic myocardium, vasodilation which decreases preload which leads to decreased cardiac work **CONTRAINDICATIONS:** Hypotension, increased ICP, shock, severe hepatic or renal disease, use of Viagra or Levitra within 24 hours **PRECAUTIONS:** Protect from light, syncope can occur, monitor vial signs **SIDE EFFECTS:** Hypotension, headache, dizziness, orthostasis | **Sublingual Tablets/Spray**
• 0.4 mg SL (1 tablet or 1 spray)
- Repeat every 5 minutes as needed to MAX of 3 tablets or 3 sprays
**Paste**
- Apply 1 inch topically |
| **Protocols:** | • 34-Cardiac Chest Pain
• 44-Pulmonary Edema/CHF | **Protocols:**
• 34-Cardiac Chest Pain
• 44-Pulmonary Edema/CHF |
| **ondansetron-(Zofran)** | • 4 mg IV/IO
- May repeat once as needed | • See Color Coded List
**ONLY if >6 months:**
• 0.15 mg/kg IV/IO
- May repeat once as needed |
| **CLASS:** Antiemetic | • **ACTION:** Selective 5-HT3 agonist which is an effective anti-nausea and antiemetic **CONTRAINDICATIONS:** Hypersensitivity to the drug **PRECAUTIONS:** QT interval prolongation **SIDE EFFECTS:** Drowsiness, dizziness, hypotension, flushing, musculoskeletal pain, cardiovascular disturbances, headache | **Protocols:**
• 28-Abdominal Pain
• 40-Nausea/Vomiting |
### oxymetazoline-(Afrin)

**CLASS:** Vasodialator  
**ACTION:** Control or prevent nasal bleeding  
**CONTRAINDICATIONS:** Significant hypertension  
**SIDE EFFECTS:** None in this setting

**Protocols:**
- 5-Epistaxis  

### pralidoxime-(2-PAM)

**CLASS:** Cholinesterase reactivator  
**ACTION:** Reactivates cholinesterase in case of organophosphate poisoning, deactivates certain organophosphates by direct chemical reaction  
**INDICATIONS:** Organophosphate poisoning, nerve agent exposure  
**CONTRAINDICATIONS:** Poisonings due to inorganic phosphates, poisonings other than organophosphates  
**PRECAUTION:** Ensure safety of rescue personnel, should only follow atropine  
**SIDE EFFECTS:** Excitement, manic behavior, tachycardia, dizziness, nausea, laryngospasm

**Protocols:**
- 4-OD/Poison/Toxics (Adult)  
- 43-OD/Poison/Toxics (Pediatric)

### sodium bicarbonate

**CLASS:** Alkalining agent  
**ACTION:** Increases pH and reverses acidosis, accepts H+ ion  
**CONTRAINDICATIONS:** Respiratory or metabolic alkalosis  
**PRECAUTIONS:** Precipitates with calcium, deactivate catecholamines, CHF, cirrhosis, renal disease, most vasopressors, such as dopamine, can be deactivated by the alkaline environment  
**SIDE EFFECTS:** Alkalosis, pulmonary edema, hypematremia, hypokalemia  
**INCOMPATIBILITIES:** Do not give with calcium salts in the same IV, do not give with IV sympathomimetic drugs

**Protocols:**
- 17-VF/Pulseless VT, Adult  
- 18-VF/Pulseless VT, Pediatric  
- 24-Crush Syndrome  
- 35-Dialysis/Renal Failure  
- 42-OD/Poison/Toxics (Adult)  
- 43-OD/Poison/Toxics (Pediatric)

### Renal Failure:
- 1 mEq/kg IV/IO

### Tricyclic Antidepressant OD:
- 50 mEq IV/IO
  - Repeat once in 5 minutes if QRS remains wide

### Cardiac Arrest:
- 1 mEq/kg IV/IO

### Crush Syndrome Trauma:
- 50 mEq IV/IO

---

**Medication Reference**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Adult Dosage</th>
<th>Pediatric Dosage</th>
</tr>
</thead>
</table>
| oxymetazoline-(Afrin) | • 4 sprays to bleeding nostril  
  • Follow with direct pressure | • See Color Coded List  
  • 1-2 sprays to bleeding nostril  
  • Follow with direct pressure |

<table>
<thead>
<tr>
<th>pralidoxime-(2-PAM)</th>
<th>Organophosphate Poisoning</th>
<th>Organophosphate Poisoning</th>
</tr>
</thead>
</table>
|                      | • Major Sxs: 1800 mg IV/IO/IM | • 25-50 mg/kg IV/IO/IM  
  • Minor Sxs: 600 mg IV/IO/IM | • Give with atropine |
|                      | • Give with atropine | |

| sodium bicarbonate   | Renal Failure:  
  1 mEq/kg IV/IO | Tricyclic Antidepressant OD:  
  50 mEq IV/IO |
|----------------------|-----------------|--------------------------|
|                      | • See Color Coded List  
  • Repeat once in 5 minutes if QRS remains wide  
  MAX 50 mEq/kg |  
  • MAX 50 mEq/kg |

<table>
<thead>
<tr>
<th>Cardiac Arrest:</th>
<th>1 mEq/kg IV/IO</th>
</tr>
</thead>
</table>
|                      | • See Color Coded List  
  • MAX 50 mEq/kg |

<table>
<thead>
<tr>
<th>Crush Syndrome Trauma:</th>
<th>50 mEq IV/IO</th>
</tr>
</thead>
</table>
# Color Coded Medication Reference

**Weight 3-5 Kg (Avg 4 Kg)**

<table>
<thead>
<tr>
<th>Vital Signs</th>
<th>Drug</th>
<th>Dose (mg/mL)</th>
<th>Rate (mcg/kg/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Rate 120-150</td>
<td>Acetaminophen</td>
<td>60 mg</td>
<td>1.9 mg/hr</td>
</tr>
<tr>
<td>BP Systolic 70 (+/-25)</td>
<td>Epinephrine</td>
<td>1:10,000</td>
<td>0.04 mg/hr</td>
</tr>
<tr>
<td>Defibrillation 8 J, 15 J</td>
<td>Adenosine</td>
<td>0.8 mg</td>
<td>0.8 mg/hr</td>
</tr>
<tr>
<td>Defibrillation 2 J, 2 J</td>
<td>Glucagon</td>
<td>20 mg</td>
<td>0.8 mg/hr</td>
</tr>
<tr>
<td>Defibrillation 8 J, 15 J</td>
<td>Calcium Chloride</td>
<td>80 mg</td>
<td>0.8 mg/hr</td>
</tr>
<tr>
<td>Defibrillation 2 J, 2 J</td>
<td>Dopamine (800 mg in 500 cc)</td>
<td>0.2 mg</td>
<td>0.2 mg/hr</td>
</tr>
<tr>
<td>Normal Saline 60 ml</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Weight 6-7 Kg (Avg 6.5 Kg)**

<table>
<thead>
<tr>
<th>Vital Signs</th>
<th>Drug</th>
<th>Dose (mg/mL)</th>
<th>Rate (mcg/kg/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Rate 120-125</td>
<td>Acetaminophen</td>
<td>98 mg</td>
<td>3.1 ml/hr</td>
</tr>
<tr>
<td>BP Systolic 85 (+/-25)</td>
<td>Epinephrine</td>
<td>1:10,000</td>
<td>0.07 mg/hr</td>
</tr>
<tr>
<td>Equipment ET Tube 3.5</td>
<td>Albuterol</td>
<td>2.5 mg</td>
<td>2.5 mg/hr</td>
</tr>
<tr>
<td>Equipment Blad Ste 1</td>
<td>Amiodarone</td>
<td>33 mg</td>
<td>3.3 mg/hr</td>
</tr>
<tr>
<td>Defibrillation 10 J, 20 J</td>
<td>Aspirin</td>
<td>HOLD</td>
<td>10 mg/hr</td>
</tr>
<tr>
<td>Defibrillation 2 J, 2 J</td>
<td>Calcium Chloride</td>
<td>130 mg</td>
<td>130 mg/hr</td>
</tr>
<tr>
<td>Defibrillation 10 J, 20 J</td>
<td>Dopamine (800 mg in 500 cc)</td>
<td>0.3 mg</td>
<td>0.3 mg/hr</td>
</tr>
<tr>
<td>Normal Saline 130 ml</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Weight 8-9 Kg (Avg 8.5 Kg)**

<table>
<thead>
<tr>
<th>Vital Signs</th>
<th>Drug</th>
<th>Dose (mg/mL)</th>
<th>Rate (mcg/kg/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Rate 120</td>
<td>Acetaminophen</td>
<td>128 mg</td>
<td>4.0 ml/hr</td>
</tr>
<tr>
<td>BP Systolic 92 (+/-30)</td>
<td>Epinephrine</td>
<td>1:10,000</td>
<td>0.09 mg/hr</td>
</tr>
<tr>
<td>Equipment ET Tube 3.5</td>
<td>Albuterol</td>
<td>2.5 mg</td>
<td>2.5 mg/hr</td>
</tr>
<tr>
<td>Equipment Blad Size 1</td>
<td>Amiodarone</td>
<td>43 mg</td>
<td>43 mg/hr</td>
</tr>
<tr>
<td>Defibrillation 20 J, 40 J</td>
<td>Aspirin</td>
<td>HOLD</td>
<td>10 mg/hr</td>
</tr>
<tr>
<td>Defibrillation 5 J, 3 J</td>
<td>Calcium Chloride</td>
<td>170 mg</td>
<td>170 mg/hr</td>
</tr>
<tr>
<td>Defibrillation 20 J, 40 J</td>
<td>Dopamine (800 mg in 500 cc)</td>
<td>0.4 mg</td>
<td>0.4 mg/hr</td>
</tr>
<tr>
<td>Normal Saline 170 ml</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Gray (0-3 months)**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose (mg/mL)</th>
<th>Rate (mcg/kg/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylprednisolone</td>
<td>0.4 mg</td>
<td>0.4 mg/hr</td>
</tr>
<tr>
<td>Midazolam</td>
<td>0.4 mg</td>
<td>0.4 mg/hr</td>
</tr>
<tr>
<td>Albuterol</td>
<td>2.5 mg</td>
<td>2.5 mg/hr</td>
</tr>
<tr>
<td>Amiodarone</td>
<td>43 mg</td>
<td>43 mg/hr</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>80 mg</td>
<td>80 mg/hr</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>130 mg</td>
<td>130 mg/hr</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>170 mg</td>
<td>170 mg/hr</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>170 mg</td>
<td>170 mg/hr</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>170 mg</td>
<td>170 mg/hr</td>
</tr>
</tbody>
</table>

**Pink (3-6 months)**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose (mg/mL)</th>
<th>Rate (mcg/kg/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylprednisolone</td>
<td>13 mg</td>
<td>13 mg/hr</td>
</tr>
<tr>
<td>Midazolam</td>
<td>7 mg</td>
<td>7 mg/hr</td>
</tr>
<tr>
<td>Albuterol</td>
<td>2.5 mg</td>
<td>2.5 mg/hr</td>
</tr>
<tr>
<td>Amiodarone</td>
<td>43 mg</td>
<td>43 mg/hr</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>80 mg</td>
<td>80 mg/hr</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>130 mg</td>
<td>130 mg/hr</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>170 mg</td>
<td>170 mg/hr</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>170 mg</td>
<td>170 mg/hr</td>
</tr>
</tbody>
</table>

**Red (7-10 months)**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose (mg/mL)</th>
<th>Rate (mcg/kg/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylprednisolone</td>
<td>13 mg</td>
<td>13 mg/hr</td>
</tr>
<tr>
<td>Midazolam</td>
<td>7 mg</td>
<td>7 mg/hr</td>
</tr>
<tr>
<td>Albuterol</td>
<td>2.5 mg</td>
<td>2.5 mg/hr</td>
</tr>
<tr>
<td>Amiodarone</td>
<td>43 mg</td>
<td>43 mg/hr</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>80 mg</td>
<td>80 mg/hr</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>130 mg</td>
<td>130 mg/hr</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>170 mg</td>
<td>170 mg/hr</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>170 mg</td>
<td>170 mg/hr</td>
</tr>
<tr>
<td>Weight 10-11 Kg (Avg 10.5 Kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vital Signs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart Rate 115-120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiration 22-30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BP Systolic 95 (+/-30)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Equipment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET Tube 4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Defibrillation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defibrillation 20 J, 40 J</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardioversion 5 J, 10 J</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Normal Saline</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>210 ml</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Medications</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen 158 mg, 4.3 mL</td>
</tr>
<tr>
<td>Epinephrine 11.000 mg, 0.1 mg</td>
</tr>
<tr>
<td>Adenosine 1st Dose 1 mg</td>
</tr>
<tr>
<td>Repeat Dose 2 mg</td>
</tr>
<tr>
<td>Albuterol 2.5 mg</td>
</tr>
<tr>
<td>Amiodarone 53 mg</td>
</tr>
<tr>
<td>Aspirin HOLD</td>
</tr>
<tr>
<td>Atropine (antidote) 0.5 mg</td>
</tr>
<tr>
<td>Atropine (cardiac) 0.2 mg</td>
</tr>
<tr>
<td>Calcium Chloride 210 mg</td>
</tr>
<tr>
<td>Dextrose 25% 42 ml</td>
</tr>
<tr>
<td>Dextrose 50% HOLD</td>
</tr>
<tr>
<td>Dihydropyramide 11 mg</td>
</tr>
<tr>
<td>Dopamine (800 mg in 500 cc)</td>
</tr>
<tr>
<td>Methylprednisolone 21 mg</td>
</tr>
<tr>
<td>2 mcg/kg/min 0.8 mcg/hr</td>
</tr>
<tr>
<td>5 mcg/kg/min 2 ml/hr</td>
</tr>
<tr>
<td>10 mcg/kg/min 4 ml/hr</td>
</tr>
<tr>
<td>20 mcg/kg/min 8 ml/hr</td>
</tr>
<tr>
<td>DuoDose 1-3</td>
</tr>
<tr>
<td>Autoinjectors</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weight 12-14 Kg (Avg 13 Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vital Signs</strong></td>
</tr>
<tr>
<td>Heart Rate 110-115</td>
</tr>
<tr>
<td>Respiration 20-28</td>
</tr>
<tr>
<td>BP Systolic 100 (+/-30)</td>
</tr>
<tr>
<td><strong>Equipment</strong></td>
</tr>
<tr>
<td>ET Tube 4.5</td>
</tr>
<tr>
<td><strong>Defibrillation</strong></td>
</tr>
<tr>
<td>Defibrillation 30 J, 50 J</td>
</tr>
<tr>
<td>Cardioversion 6 J, 15 J</td>
</tr>
<tr>
<td><strong>Normal Saline</strong></td>
</tr>
<tr>
<td>260 ml</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Medications</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen 195 mg, 6.1 mL</td>
</tr>
<tr>
<td>Epinephrine 11.000 mg, 0.1 mg</td>
</tr>
<tr>
<td>Adenosine 1st Dose 1.3 mg</td>
</tr>
<tr>
<td>Repeat Dose 2.6 mg</td>
</tr>
<tr>
<td>Albuterol 2.5 mg</td>
</tr>
<tr>
<td>Amiodarone 65 mg</td>
</tr>
<tr>
<td>Aspirin HOLD</td>
</tr>
<tr>
<td>Atropine (antidote) 0.7 mg</td>
</tr>
<tr>
<td>Atropine (cardiac) 0.3 mg</td>
</tr>
<tr>
<td>Calcium Chloride 260 mg</td>
</tr>
<tr>
<td>Dextrose 25% 52 ml</td>
</tr>
<tr>
<td>Dextrose 50% HOLD</td>
</tr>
<tr>
<td>Dihydropyramide 13 mg</td>
</tr>
<tr>
<td>Dopamine (800 mg in 500 cc)</td>
</tr>
<tr>
<td>Methylprednisolone 26 mg</td>
</tr>
<tr>
<td>2 mcg/kg/min 1 ml/hr</td>
</tr>
<tr>
<td>5 mcg/kg/min 2.5 ml/hr</td>
</tr>
<tr>
<td>10 mcg/kg/min 5 ml/hr</td>
</tr>
<tr>
<td>20 mcg/kg/min 10 ml/hr</td>
</tr>
<tr>
<td>DuoDose 1-3</td>
</tr>
<tr>
<td>Autoinjectors</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weight 15-18 Kg (Avg 16.5 Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vital Signs</strong></td>
</tr>
<tr>
<td>Heart Rate 100-115</td>
</tr>
<tr>
<td>Respiration 20-26</td>
</tr>
<tr>
<td>BP Systolic 100 (+/-20)</td>
</tr>
<tr>
<td><strong>Equipment</strong></td>
</tr>
<tr>
<td>ET Tube 5.0</td>
</tr>
<tr>
<td><strong>Defibrillation</strong></td>
</tr>
<tr>
<td>Defibrillation 30 J, 70 J</td>
</tr>
<tr>
<td>Cardioversion 8 J, 15 J</td>
</tr>
<tr>
<td><strong>Normal Saline</strong></td>
</tr>
<tr>
<td>330 ml</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Medications</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen 248 mg, 7.8 mL</td>
</tr>
<tr>
<td>Epinephrine 11.000 mg, 0.17 mg</td>
</tr>
<tr>
<td>Adenosine 1st Dose 1.7 mg</td>
</tr>
<tr>
<td>Repeat Dose 3.3 mg</td>
</tr>
<tr>
<td>Albuterol 2.5 mg</td>
</tr>
<tr>
<td>Amiodarone 83 mg</td>
</tr>
<tr>
<td>Aspirin HOLD</td>
</tr>
<tr>
<td>Atropine (antidote) 0.8 mg</td>
</tr>
<tr>
<td>Atropine (cardiac) 0.3 mg</td>
</tr>
<tr>
<td>Calcium Chloride 330 mg</td>
</tr>
<tr>
<td>Dextrose 25% HOLD</td>
</tr>
<tr>
<td>Dextrose 50% 33 ml</td>
</tr>
<tr>
<td>Dihydropyramide 7 mg</td>
</tr>
<tr>
<td>Dopamine (800 mg in 500 cc)</td>
</tr>
<tr>
<td>Methylprednisolone 33 mg</td>
</tr>
<tr>
<td>2 mcg/kg/min 1.2 ml/hr</td>
</tr>
<tr>
<td>5 mcg/kg/min 3 ml/hr</td>
</tr>
<tr>
<td>10 mcg/kg/min 6 ml/hr</td>
</tr>
<tr>
<td>20 mcg/kg/min 12 ml/hr</td>
</tr>
<tr>
<td>DuoDose 1-3</td>
</tr>
<tr>
<td>Autoinjectors</td>
</tr>
</tbody>
</table>

| Color Coded Medication Reference – 2 of 3 | 2014 |

---

**Color Coded Medication Reference**

**Length 74.84.5 cm**

**Purple (11-18 months)**

**Yellow (19-35 months)**

**White (3-4 years)**

---

Color Coded Medication Reference – Page 157
### Weight 19-22 Kg (Avg 20.75 Kg)

<table>
<thead>
<tr>
<th>Vital Signs</th>
<th><strong>Heart Rate</strong></th>
<th><strong>Respirations</strong></th>
<th><strong>BP Systolic</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acetaminophen</strong></td>
<td>100</td>
<td>20-24</td>
<td>100 (+/-15)</td>
</tr>
<tr>
<td><strong>Adenosine 1st Dose</strong></td>
<td>2 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Repeat Dose</strong></td>
<td>4 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Albuterol</strong></td>
<td>2.5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Amiodarone</strong></td>
<td>10 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aspirin</strong></td>
<td>HOLD Glucose oral HOLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Atropine (antidote)</strong></td>
<td>1 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Atropine (cardiac)</strong></td>
<td>0.4 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Calcium Chloride</strong></td>
<td>0.415 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dextrose 25%</strong></td>
<td>HOLD Glucose oral HOLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dextrose 50%</strong></td>
<td>42 mL</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Diphenhydramine</strong></td>
<td>5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dopamine (800 mg in 500 cc)</strong></td>
<td>Methylprednisolone 42 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DuoDose</strong></td>
<td>1-3 Autoinjectors</td>
<td></td>
<td></td>
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</tbody>
</table>

### Weight 24-30 Kg (Avg 27 Kg)

<table>
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<th>Vital Signs</th>
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<th><strong>Respirations</strong></th>
<th><strong>BP Systolic</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acetaminophen</strong></td>
<td>205 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Adenosine 1st Dose</strong></td>
<td>2.7 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Repeat Dose</strong></td>
<td>5.4 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Albuterol</strong></td>
<td>2.5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Amiodarone</strong></td>
<td>135 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aspirin</strong></td>
<td>HOLD Glucose oral HOLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Atropine (antidote)</strong></td>
<td>1.35 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Atropine (cardiac)</strong></td>
<td>0.5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Calcium Chloride</strong></td>
<td>540 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dextrose 25%</strong></td>
<td>HOLD Glucose oral HOLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dextrose 50%</strong></td>
<td>54 mL</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Diphenhydramine</strong></td>
<td>27 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dopamine (800 mg in 500 cc)</strong></td>
<td>Methylprednisolone 54 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DuoDose</strong></td>
<td>1-3 Autoinjectors</td>
<td></td>
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</table>

### Weight 32-40 Kg (Avg 36 Kg)

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<tr>
<th>Vital Signs</th>
<th><strong>Heart Rate</strong></th>
<th><strong>Respirations</strong></th>
<th><strong>BP Systolic</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acetaminophen</strong></td>
<td>540 mg</td>
<td></td>
<td></td>
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<tr>
<td><strong>Adenosine 1st Dose</strong></td>
<td>3.6 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Repeat Dose</strong></td>
<td>7.2 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Albuterol</strong></td>
<td>2.5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Amiodarone</strong></td>
<td>180 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aspirin</strong></td>
<td>HOLD Glucose oral HOLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Atropine (antidote)</strong></td>
<td>1.8 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Atropine (cardiac)</strong></td>
<td>0.5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Calcium Chloride</strong></td>
<td>720 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dextrose 25%</strong></td>
<td>HOLD Glucose oral HOLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dextrose 50%</strong></td>
<td>72 mL</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Diphenhydramine</strong></td>
<td>36 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dopamine (800 mg in 500 cc)</strong></td>
<td>Methylprednisolone 72 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DuoDose</strong></td>
<td>1-3 Autoinjectors</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Rappahanock EMS Council, Inc.
Main Office:

REMS Council
435 Hunter Street
Fredericksburg, VA 22401
Telephone: 540 373 0249
E-mail: rems@vaems.org

Regional Critical Incident Stress Management Team
To Activate Our CISM Teams Call 540-752-5883. Teams are available 24/7.

Virginia Office of Emergency Medical Services

1041 Technology Park Dr.
Glen Allen, VA 23059
Toll Free:(800) 523-6019
Main Office:(804) 888-9100
Training Office:(804) 888-9120
Fax:(804) 371-3108

Adult Protective Services
(888) 832-3858
Fauquier County APS: (540) 422-8400

Child Protective Services
(800) 552-7096
Fauquier County CPS: (540) 422-8400

CHEMTREC
(800) 424-9300

Medical Examiner
(800) 862-8312

Poison Control
(800) 222-1222
### Area Hospitals

**Virginia Designated Trauma Centers**

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Services</th>
<th>Address</th>
<th>Phone Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carillion Roanoke Memorial Hospital</td>
<td>Burn Center/Stroke Center/PCI</td>
<td>1906 Belleview Ave SE, Roanoke, VA 24014</td>
<td>Main Phone: (540) 981-7000; ED Phone: (540) 981-7000</td>
</tr>
<tr>
<td>Sentara Norfolk General Hospital</td>
<td>Stroke Center</td>
<td>600 Gresham Drive, Norfolk, VA 23507</td>
<td>Main Phone: (757) 388-3000; ED Phone: (757) 388-3000</td>
</tr>
<tr>
<td>Virginia Commonwealth University Medical Center</td>
<td>Stoke/Burn Center/VAD Capable ED/PCI</td>
<td>401 North 12th Street, Richmond, VA 23298</td>
<td>Main Phone: (804) 828-9000; ED Phone: (804) 828-4686</td>
</tr>
<tr>
<td>INOVA Fairfax Hospital</td>
<td>Burn Center/Stroke Center/VAD Capable ED/PCI</td>
<td>3300 Gallows Road, Falls Church, VA</td>
<td>Main Phone: (540) 862-6011; ED Phone: (540) 862-6293</td>
</tr>
<tr>
<td>University of Virginia Medical Center</td>
<td>Burn Center/Stroke Center/VAD Capable ED/PCI</td>
<td>1215 Lee Street, Charlottesville, VA 22908</td>
<td>Main Phone: (434) 924-0211; ED Phone: (434) 924-0211</td>
</tr>
<tr>
<td>Lewis Gale Hospital Pulaski</td>
<td>PCI</td>
<td>2400 Lee Highway, Pulaski, VA 24301</td>
<td>Main Phone: (540) 994-8100; ED Phone: (540) 994-8400</td>
</tr>
</tbody>
</table>

**Level I Trauma Centers:**

Level I trauma centers have an organized trauma response and are required to provide total care for every aspect of injury, from prevention through rehabilitation. These facilities must have adequate depth of resources and personnel with the capability of providing leadership, education, research, and system planning.

---

**References**

2014
# Area Hospitals

## Level II Trauma Centers:
Level II trauma centers have an organized trauma response and are also expected to provide initial definitive care, regardless of the severity of injury. The specialty requirements may be fulfilled by on call staff that is promptly available to the patient. Due to limited resources, Level II centers may have to transfer more complex injuries to a Level I center. Level II center should also take on responsibility for education and system leadership within their region.

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Address</th>
<th>Main Phone</th>
<th>ED Phone</th>
<th>ED Entrance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lynchburg General Hospital Stroke Center</td>
<td>1901 Tate Springs Rd.</td>
<td>(434) 200-3000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lynchburg, VA 24501</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Main Phone: (434) 200-3000</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>ED Phone:</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>ED Entrance:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Mary Washington Hospital Stroke Center/PCI</td>
<td>1001 Sam Perry Blvd.</td>
<td>(540) 373-0348</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fredericksburg, VA 22401</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Main Phone: (540) 373-0348</td>
<td></td>
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<tr>
<td></td>
<td>ED Phone:</td>
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<tr>
<td></td>
<td>ED Entrance:</td>
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</tr>
<tr>
<td>Riverside Regional Medical Center Stroke Center/PCI</td>
<td>500 J. Cyde Morris Blvd.</td>
<td>(757) 594-2000</td>
<td>(757) 594-2050</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Newport News, VA 23601</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Main Phone: (757) 594-2000</td>
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<tr>
<td></td>
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<td>ED Entrance:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Winchester Medical Center Stroke Center/PCI</td>
<td>1840 Amherst Street</td>
<td>(540) 667-0609</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Winchester, VA 22601</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Main Phone: (540) 667-0609</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ED Phone:</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>ED Entrance:</td>
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<td></td>
</tr>
</tbody>
</table>

## Level III Trauma Centers:
Level II trauma centers, through an organized trauma response, can provide prompt assessment, resuscitation, stabilization, emergency operations and also arrange for the transfer of the patient to a facility that can provide definitive trauma care. Level III centers should also take on responsibility for education and system leadership within their region.

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Address</th>
<th>Main Phone</th>
<th>ED Phone</th>
<th>ED Entrance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carilion New River Valley Medical Center</td>
<td>2900 Lamb Circle</td>
<td>(540) 731-2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Christiansburg, VA 24073</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Main Phone: (540) 731-2000</td>
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<td>ED Entrance:</td>
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<tr>
<td>CJW Medical Center Stroke Center</td>
<td>7101 Jahnke Road</td>
<td>(804) 320-3911</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Richmond, VA 23225</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Main Phone: (804) 320-3911</td>
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<td></td>
<td>ED Phone:</td>
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</tr>
<tr>
<td></td>
<td>ED Entrance:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montgomery Regional Hospital PCI</td>
<td>3700 South Main Street</td>
<td>(540) 951-1111</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Blacksburg, VA 24060</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Main Phone: (540) 951-1111</td>
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<td></td>
<td>ED Phone:</td>
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<tr>
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<td>ED Entrance:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sentara Virginia Beach General Hospital Stroke Center</td>
<td>1060 First Colonial Rd</td>
<td>(757) 395-8000</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Virginia Beach, VA 23454</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Main Phone: (757) 395-8000</td>
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## Area Hospitals

### Other Area Hospitals:

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# Dopamine Drip Rates

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## Desired Dose (mcg/kg/min)

Drops per minute (60 gtt/mL Drip Set)

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**References**

Dopamine Drip Rates

2014

Page 163
IV Drip Rates & Dextrose Administration

IV Drip Rates:

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Mixing D 25% & D 10%:

- **MIXING DEXTROSE 25%**
  - Start with 1 amp (25G) Dextrose 50%
  - Discard 25 mL (half)
  - Draw 25 mL Normal Saline into syringe
  - Agitate and administer 4 mL/kg

- **MIXING DEXTROSE 10%**
  - Start with 1 amp (25G) Dextrose 50%
  - Discard 40 mL
  - Draw 40 mL Normal Saline into syringe
  - Agitate and administer 2.5 mL/kg

D 10% Dosages in mL:

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### Glasgow Coma Scales & APGAR Score

#### Adult Glasgow Coma Scale:

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<tr>
<th>Verbal Response</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
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<tbody>
<tr>
<td>Oriented</td>
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<tr>
<td>Confused</td>
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<td>Inappropriate words</td>
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<tr>
<td>Incomprehensible words</td>
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<tr>
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<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
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</thead>
<tbody>
<tr>
<td>Obeys commands</td>
<td></td>
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<tr>
<td>Localizes pain</td>
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</tr>
<tr>
<td>Withdraws to pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexion to pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extension to pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>None</td>
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#### Pediatric Glasgow Coma Scale:

<table>
<thead>
<tr>
<th>Eye Opening</th>
<th>4</th>
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<tbody>
<tr>
<td>Spontaneous</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Voice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Pain</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>None</td>
<td></td>
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<table>
<thead>
<tr>
<th>Verbal Response</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coos, babbles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irritable crying, consolable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cries to pain, weak cry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moans to pain</td>
<td></td>
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<tr>
<td>None</td>
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</table>

<table>
<thead>
<tr>
<th>Motor Response</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous movement</td>
<td></td>
<td></td>
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<tr>
<td>Withdraws to touch</td>
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</tr>
<tr>
<td>Withdraws to pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abnormal flexion</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Abnormal extension</td>
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<td>None</td>
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</tr>
</tbody>
</table>

#### APGAR Score:

<table>
<thead>
<tr>
<th>Appearance and Color</th>
<th>2 – Completely Pink</th>
<th>1 – Pink, hands/feet blue</th>
<th>0 – Blue, pale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 MIN.</td>
<td>5 MIN.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pulse / Heart Rate</th>
<th>2 – Over 100</th>
<th>1 – Less than 100</th>
<th>0 - Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 MIN.</td>
<td>5 MIN.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grimace / Stimulation</th>
<th>2 – Cough or sneeze</th>
<th>1 – Grimace</th>
<th>0 – No response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 MIN.</td>
<td>5 MIN.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity / Muscle Tone</th>
<th>2 – Well flexed and active</th>
<th>1 – Flexion of extremities</th>
<th>0 – Limp</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 MIN.</td>
<td>5 MIN.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Respiratory Effort</th>
<th>2 – Strong cry</th>
<th>1 – Weak/hypoventilation</th>
<th>0 - Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 MIN.</td>
<td>5 MIN.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

References

Glasgow Coma Scales & APGAR Score

2014
# Trauma Scores

## Revised Trauma Score:

<table>
<thead>
<tr>
<th>GCS Score</th>
<th>13-15</th>
<th>4</th>
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<tbody>
<tr>
<td></td>
<td>9-12</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>6-8</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>4-5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Systolic Blood Pressure</td>
<td>&gt; 89</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>76-89</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>50-75</td>
<td>2</td>
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<tr>
<td></td>
<td>1-49</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Respiratory Rate</td>
<td>10-29 per minute</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>&gt; 29 per minute</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>6-9 per minute</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1-5 per minute</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0</td>
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</tbody>
</table>

## Pediatric Trauma Score:

<table>
<thead>
<tr>
<th></th>
<th>+2</th>
<th>+1</th>
<th>-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>&gt; 20 kg (44 lbs)</td>
<td>10-20 kg (22-44 lbs)</td>
<td>&lt; 10 kg (22 lbs)</td>
</tr>
<tr>
<td>Airway</td>
<td>Normal</td>
<td>Assisted: 02 Mask, Cannula</td>
<td>Intubated: ETT, Cricothyroidotomy</td>
</tr>
<tr>
<td>Consciousness</td>
<td>Awake</td>
<td>Obtunded, Lost Consciousness</td>
<td>Coma, unresponsive</td>
</tr>
<tr>
<td>Systolic BP</td>
<td>&gt;90 mmHg, Good peripheral pulses, perfusion</td>
<td>51-90 mmHg, Carotid, Femoral pulses palpable</td>
<td>&lt;50 mmHg, Weak or absent pulses</td>
</tr>
<tr>
<td>Fractures</td>
<td>None seen or suspected</td>
<td>Single closed fracture anywhere</td>
<td>Open or multiple fractures</td>
</tr>
<tr>
<td>Cutaneous</td>
<td>No Visible Injury</td>
<td>Contusion, abrasion, laceration &lt;7 cm not through fascia</td>
<td>Tissue loss, any gun shot wound or stab through fascia</td>
</tr>
</tbody>
</table>

*References Trauma Scores 2014*

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To transport to a trauma center, Steps 1 & 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to the highest level of care within the defined trauma system. Transport to a trauma center, which, depending upon the defined trauma system, need not be the highest level trauma center. Transport to a trauma center or hospital capable of timely and thorough evaluation and initial management of potentially serious injuries. Consider consultation with Medical Control.
911 Dispatcher Suspects Acute Stroke

AIC Suspects Acute Stroke (based on history & physical exam)

Assess Blood Glucose: >60? NO

Correct Hypoglycemia

YES

Evaluate Cincinnati Stroke Scale for Acute Onset of ONE or more positive findings on exam

<3 Hours since Onset of Sxs

Uncertain Time of Onset, or >3 Hours

Discuss Case with Med Control as a potential acute stroke for assistance in destination determination and mode*

Non-Stroke Center

Interfacility Triage and Transfer

Initiate Transport to a Designated Stroke Center

The provider must make the effort to bring a witness or individual able to legally provide consent for treatment to hospital, or at a minimum, a phone number for the witness/consenting individual.

Early notification to Medical Control and/or the Designated Stroke Center of patient with an Acute Stroke

During transport, consider: Oxygen, Initiating IV, Cardiac monitoring, Thrombolytic checklist

*If time from symptom onset is more than 3 hours, discuss case with Medical Control as a potential acute stroke for destination determination. Patients with specific acute stroke types may benefit from intervention up to 24 hours, although the sooner an acute stroke is treated, the better the potential outcome. Based on patient time of onset and discussion with Medical Control, consider whether use of HEMS will offer potential benefit to the patient, either in time to Designated Stroke Center, or for critical care management expertise. EMS does not determine whether a patient is excluded from any or all therapeutic options. Final decisions regarding patient eligibility for any given intervention will be determined by the receiving physician(s).
Rule of Nines

Seldom do you find a complete portion of the body that is injured in isolation to ease the use of the rule of nines application in estimating the size of the burn.

More likely it will be portions of one area; portions of another and an approximation will be needed.

For the purpose of determining the extent of serious injury differentiate the area with minimal or 1st degree burn from those of partial (2nd) or full (3rd) thickness burns.

For the purpose of determining Total Body Surface Area (TBSA) of burn, include only Partial and Full Thickness burns. Report the observation of other superficial (1st degree) burns but do not include those burns in your TBSA estimate.

Some texts will refer to 4th, 5th and 6th degree burns. There is significant debate regarding the actual value of identifying a burn injury beyond that of the superficial, partial and full thickness burn at least at the level of emergent and primary care. For our work, all are included in Full Thickness burns.

Other burn classifications in general Include:
4th: Referring to a burn that destroys the dermis and involves muscle tissue.
5th: Referring to a burn that destroys dermis, penetrates muscle tissue, and involves tissue around the bone.
6th: Referring to a burn that destroys dermis, destroys muscle tissue and penetrates or destroys bone tissue.

Estimate spotty areas of burn by using the size of the patient’s palm as 1%
All Walking Wounded

MINOR

Breathing?

Yes

Respiratory Rate

< 15 or > 45

IMMEDIATE

15 - 45

No

Position Upper Airway

Breathing

Apneic

Palpable Pulse?

Yes

IMMEDIATE

No

5 Rescue Breaths

Apneic

Breathing

DECEASED

“P” (Inappropriate), Posturing, or “U” (Appropriate)

IMMEDIATE

“A”, “V”, or “P” (Appropriate)

DELAYED

References

JUMPSTART Triage

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