Preface

Requests for changes should be in writing using the Patient Care Protocol Request for Change form and directed to:

Medical Program Director  
Pierce County  
Emergency Medical Services  
Department of Emergency Management  
2501 South 35th Street, Suite ‘D’  
Tacoma WA  98409-7405  
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A sincere thank you to all those individuals who attended the monthly meetings to write, revise and review draft after draft of this document. Without the help and dedication of all involved, this monumental task could not have been accomplished.
# Table of Contents

<table>
<thead>
<tr>
<th>Section Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative Policy (White)</td>
<td>1</td>
</tr>
<tr>
<td>Communication Policy (White)</td>
<td>13</td>
</tr>
<tr>
<td>Transport Policy (White)</td>
<td>14</td>
</tr>
<tr>
<td>General Principles/Routine Care (Hot Pink)</td>
<td>22</td>
</tr>
<tr>
<td>Traumatic Emergencies (Red)</td>
<td>29</td>
</tr>
<tr>
<td>Cardiac Emergencies (Goldenrod)</td>
<td>39</td>
</tr>
<tr>
<td>Pain Management (Green)</td>
<td>42</td>
</tr>
<tr>
<td>Respiratory Emergencies (Blue)</td>
<td>44</td>
</tr>
<tr>
<td>Medical Emergencies (Lime Green)</td>
<td>48</td>
</tr>
<tr>
<td>Environmental Emergencies (Yellow)</td>
<td>55</td>
</tr>
<tr>
<td>Behavioral Emergencies (Orange)</td>
<td>59</td>
</tr>
<tr>
<td>OB/GYN Emergencies (Lt. Pink)</td>
<td>64</td>
</tr>
</tbody>
</table>

## Appendices (Gray)

- Standard Reporting Format ................................ A
- Pierce County Prehospital Trauma Triage Procedures .... B
- Pierce County Prehospital Cardiac Triage Procedures ... C
- Pierce County Prehospital Stroke Triage Procedures ... D
- EMS Sepsis Score Card ...................................... E
- ALS/BLS Transport Guidelines .............................. F
- Rapid Sequence Intubation (RSI) .......................... G
- Delayed Sequence Intubation (DSI) ......................... GG
- Glasgow Coma Scale (GCS) ................................ H
- Wong-Baker FACES Pain Rating Scale ....................... I
- APGAR Score ................................................ J
- Blood Alcohol Draw ........................................ K
- Hospital/Facility/Agency Telephone Numbers .............. L
- Sort, Assess, Lifesaving Interventions, Transport/Treatment Triage M
- Spinal Motion Restriction Algorithm ..................... N
- Medication/IV Guide ........................................ O
ADMINISTRATIVE POLICY

All ALS procedures are in *italics*. All treatments needing an order from a Base Station are asterisked (*), but there may also be verbiage within the protocol that states Base Station contact is required. Pediatric care that is specific to the pediatric population is **Bold**, otherwise all protocols pertain to pediatric patients as well. All references to “AHA Handbook” refer to the current AHA Handbook of Emergency Cardiovascular Care for Healthcare Providers.

I. Scope of Practice.

   A. Emergency Medical Responder (EMR). An EMR in Pierce County may perform the following:

   1. Assessment & Diagnostic Procedures.
      b. Blood glucose analysis (capillary puncture).

   2. Airway/Breathing management.
      a. Head Tilt/Chin Lift, Jaw Thrust.
      b. Mouth-to-barrier, mouth-to-mask, mouth-to-mouth, mouth-to-nose, mouth-to-stoma.
      c. Oropharynx or nasopharynx adjuncts.
      d. O₂ administration by Nasal cannula, Non-rebreather Mask.
      e. Ventilation by BVM.
      f. Pulse oximetry monitoring.
      g. Obstructed airway care (all ages).
      h. Suction upper airway.

   3. Circulation management.
      a. CPR (all ages).
      c. Bleeding/Hemorrhage control with wound care.
         i. Direct pressure.
         ii. Dressings/Bandages.
         iii. Hemostatic gauze/agent dressing.
         iv. Wound packing.
         v. Tourniquet.

   4. Medication administration.
      a. Routes: PO, IN, IM (auto-injector), Buccal, Mucosal, Sublingual, Lingual, Inhalation.
      b. May administer per medication list Appendix O:
         i. Aspirin (with MPD specialized training).
         ii. Bronchodilator/Beta Agonist (MDI) (with MPD specialized training).
         iii. Epinephrine (auto-injector).
         iv. Oral Glucose (with MPD specialized training).
v. Oxygen.
vi. Naloxone (Narcan) IN or IM via auto-injector.
vii. Nerve Agent Antidote Kit (e.g. DuoDote or Mark I) (self/peer) IM.

5. Splinting.
   a. Traction (with MPD specialized training).
   b. Extremity immobilization with rigid, or non-rigid device.


7. OB- assist with normal delivery.

8. Eye irrigation.

B. Emergency Medical Technician (EMT). In addition to Emergency Medical Responder scope of practice, an EMT in Pierce County may perform the following:

1. Assessment & Diagnostic Procedures.
   a. Telemetric cardiac monitoring.

2. Airway/Breathing management.
   a. O₂ administration by Partial Re-breather Mask, Simple Face Mask, Venturi Mask.
   b. Positive pressure ventilation devices.
   c. Automatic Transport Ventilators (ATV) - adjust rate and tidal volume.
   d. Continuous Positive Airway Pressure (CPAP).
   e. Humidifiers with O₂ administration.
   f. Carbon monoxide monitoring (with MPD specialized training).
   g. End-tidal carbon dioxide (EtCO₂) monitoring (with MPD specialized training).
   h. Suctioning tracheostomy and tracheal bronchial of an intubated patient (with MPD specialized training).
   i. Supraglottic airway placement (with SGA endorsement).

3. Circulation management.
   a. CPR with mechanical CPR device.
   b. ECG monitor lead placement, ECG acquisition, computerized analysis, and transmission.
   c. Ventricular Assist Device (VAD)- transport patient with VAD in place.

4. Medication administration.
   a. Routes: PO, Inhalation (aerosolized/nebulized), IM, MDI, PR.
   b. May administer per medication list Appendix O:
      i. Acetaminophen -PO, PR.
      ii. Anticholinergics.
      iii. Beta agonist/bronchodilators.
      iv. Diphenhydramine -PO (with MPD specialized training).
      v. Epinephrine 1 mg/mL by syringe (with MPD specialized training) or Epi-Auto Injector.
vi. Glucagon IN/IM (with MPD specialized training).

vii. Ibuprofen - PO.

viii. Naloxone (Narcan)- IM (with MPD specialized training).

ix. Nerve Agent Antidote Kit (e.g. DuoDote or Mark I).

x. Nitrous Oxide (with MPD specialized training).

xi. Ondansetron PO (with MPD specialized training).

xii. Oxymetazoline (with MPD specialized training).

xiii. Vaccination during a public health emergency when there is a state or local declaration of an emergency (with MPD specialized training).

c. May assist with:
   i. Nitroglycerin.

5. Patient Restraint Device (mechanical, e.g. Posey wrist, ankle, chest).

6. OB- assist with complicated delivery.

C. Paramedic. In addition to EMR and EMT scope of practice, a Paramedic in Pierce County may perform the following:

1. Assessment & Diagnostic Procedures.
   a. Blood chemistry- cardiac enzymes (e.g. iStat).
   b. Ultrasound (when trained).
   c. Vascular assessment by doppler.

2. Airway/Breathing management.
   a. O₂ administration by High Flow Nasal Cannula.
   b. Bi-level Positive Airway Pressure (BiPAP).
   c. Endotracheal intubation (nasal or oral).
   d. Needle cricothyrotomy.
   e. Surgical cricothyrotomy.
   f. Pleural Chest Decompression (Needle).
   g. Pleural Chest Decompression (Finger thoracostomy) (with MPD specialized training).
   h. Chest tube monitoring and management.
   i. Chest tube placement (assist only).
   j. Automatic Transport Ventilators (ATV) - adjust beyond rate and tidal volume.
   k. Pharmacological facilitation of intubation.

3. Circulation management.
   a. Defibrillation- manual, AED, SAED.
   b. Cardioversion.
   c. Transcutaneous pacing.
   d. Transvenous cardiac pacing monitoring and maintenance (with MPD specialized training).
   e. ECG monitoring/diagnostic (multi-lead) ECG and interpretation.
   f. Pericardiocentesis.
   g. Ventricular Assist Device (VAD)- assessment/battery management.

4. Administer IV/IO fluids.
   a. Peripheral IV insertion (including external jugular).
b. Subclavian IV insertion (with MPD specialized training).
c. Central line monitoring.
d. Access existing central lines, indwelling catheters and central IV ports.
e. Operate/manage controlled delivery device for IV infusion (IV pump).
f. Maintain an infusion of blood or blood products.

5. Medication administration.
a. Routes: ID, SQ, transdermal, topical, aerosolized, PR, NG, IV, IO, ET, central venous line.
b. May administer: See medication list Appendix O (e.g. cardiac, controlled substances, benzodiazepines, bronchodilators/beta agonists, depolarizing agents, narcotics, sedatives, thrombolytics, vasoconstrictors). Blood/blood product initiation (with MPD specialized training).


7. Obtain venous blood samples.
a. Fill blood tubes for Emergency Department (ED) use.
b. Fill blood tubes for Law Enforcement (LE) use (e.g. blood alcohol).

8. Eye irrigation with Morgan lens.

II. Physician on Scene.

A. A physician on scene with a medical license in hand may:

1. Participate in patient care management by:
a. Assisting the EMS personnel in carrying out protocols.
b. Performing additional interventions at the direction of the Base Station.

2. Give orders if both:
a. The Base Station concurs, and
b. The physician accompanies the patient to the hospital.

III. Withholding/Terminating Resuscitation.

A. Resuscitation will be withheld if any of the following clinical signs of irreversible death exist:

1. Rigor mortis.
2. Incineration.
3. Decomposition.
4. Decapitation.
5. Lividity.
6. Evisceration of the heart.
7. External brain matter combined with an absence of vital signs/signs of life.
8. Situations when attempts to do CPR would place the rescuer at risk of serious injury or mortal peril (to include exposure to incurable, highly infectious disease).
B. Fetal Demise.

1. **Contact Mary Bridge Base Station for advice.**
   2. If there is no fetal age known, use step 3 below.
   3. If the fetus has no signs of life and is >20 weeks of age consider it a still birth.
      a. Contact the Medical Examiner’s office for direction.
      b. Contact LE if the situation warrants.
      c. Transport mother to the hospital.
   4. If the fetus has no signs of life and is <20 weeks.
      a. EMS personnel should transport the mother and fetus to the hospital.
   5. If the mother refuses transport then follow the AMA protocol.

C. Trauma cardiac arrest.

1. If PEA is on the monitor (cardiac rhythm on ECG > 40 bpm), consider any/all of the following:
   a. Hemorrhage control.
   b. Aggressive airway management.
   c. Bilateral chest needle insertions.
   d. Fluid resuscitation.
   e. Pericardiocentesis.
   f. Transport if there is an improvement in patient status.
2. In blunt trauma, resuscitation efforts may be withheld if the patient is pulseless, apneic, without witnessed signs of life by EMS responder on arrival.
3. In penetrating trauma, resuscitation efforts may be withheld if there are no signs of life (e.g. no pupillary reflexes, GCS 3, and no organized cardiac rhythm on ECG > 40 bpm).

D. Medical cardiac arrest.

1. Resuscitation efforts may be terminated after providing > 40 minutes of high quality CPR for the patient with witnessed collapse who remains in shockable rhythms or has organized electrical rhythms (PEA).
2. Resuscitation efforts may be terminated after providing > 25 minutes of high quality CPR for the unwitnessed cardiac arrest patient, and those with non-shockable rhythms.
3. Consider transporting the medical patient with CPR in progress if at least one of the following is suspected:
   a. Drug overdose.
   b. Drowning.
   c. Hypothermia.
   d. Refractory shockable rhythm.
   e. Age ≤ 30 years old.
   f. Circumstances require that the patient be transported.

E. Advanced Directives.

1. Full resuscitation should not be initiated if POLST (Portable Orders for Life-Sustaining Treatment) guidelines are present and believed to be valid.
a. If POLST form indicates “Comfort-Focused Treatment”, Base Station must be contacted to determine the need for transport to the Emergency Department.
b. Communication with the legal surrogate should be considered if there is concern about the patient’s wishes.

2. Compelling reasons permit EMS personnel to withhold resuscitation from a patient in cardiac arrest when the following two criteria are both present:
   a. The patient is at the end stage of a terminal condition.
   b. There is written or verbal information from family, caregivers or patient stating that the patient did not want resuscitation.

3. Living wills should be honored if present.
4. All documentation must be made on a Patient Care Report (PCR).

F. Providers should contact Base Station for consultation for termination of resuscitation efforts.

G. EMS must notify the Medical Examiner (ME) and/or Law Enforcement (LE).

H. All documentation must be made on a Patient Care Report (PCR) and a copy provided to the ME’s office.

IV. Vulnerable Populations.

A. EMS shall notify Law Enforcement and/or Child Protective Services (CPS) to report any suspicion of child abuse or neglect, child death or near death.
   1. Children’s Administration Intake (CPS) – Tacoma Office, 8:00 a.m.-4:30 p.m. M-F: 888-713-6115.
   2. Children’s Administration Intake (CPS), 24 hour: 800-562-5624.
   3. MEDCON (UW) expert consultation: 800-326-5300.

B. EMS shall notify Law Enforcement and/or Adult Protective Services to report any suspicion of geriatric abuse or neglect.
   1. If the person you suspect of being abused or neglected is living in a licensed facility (e.g. nursing home, boarding home, or adult family home) contact: WA State Complaint Resolution Unit toll-free hotline, 24 hours: 800-562-6078.
   2. If the person you suspect of being abused or neglected is living in their own home or somewhere other than a licensed residential care facility, contact: Pierce County Aging & Disability Resource Center (ADRC) – Tacoma, 8:00 a.m.-5:00 p.m. M-F: 253-798-4600.
      Adult Protective Services Intake (APS) – Pierce County, 8:00 a.m.-5:00 p.m. M-F: 877-734-6277.

C. EMS should report any suspicion of adult domestic violence to Law Enforcement and/or Receiving Facility staff.

D. EMS may also discreetly inform the victim of the following domestic violence resources:
2. Crystal Judson Family Justice Center, 8:30 a.m.-4:30 p.m. M-F: 253-798-4166.

V. Crime Scene Preservation.

A. EMS personnel will communicate with Law Enforcement (LE) to ensure that the scene is safe.

B. Forensic guidelines emphasizing crime scene preservation are important; however, the most important role of EMS providers is to ensure the preservation of life, therefore access to patient assessment and care must not be delayed.
   1. EMS is in charge of the patient and should be aware of signs of possible abuse and neglect.
   2. LE is in charge of the crime scene.

C. While an emotional cause of death, such as apparent Sudden Unexplained Infant Death (SUID), may cause a scene to be difficult, this is not an acceptable reason to move or transport a deceased person. If the patient is obviously deceased, EMS providers should not disturb or move the body unless there is a clear potential the body will be lost or further damaged. If the body is moved, EMS shall document the reason why and what actions were taken.

D. At the request of the Medical Examiner or LE, EMS will assist with the completion of the Sudden Unexplained Infant Death Investigation (SUIDI) form when an infant has died. EMS will make sure LE has been notified and will provide contact information to LE.

E. EMS limits access and egress to a single path/route. This may be identified by LE; or if EMS arrives first, EMS will notify LE of their route.

F. EMS limits the number of personnel entering a potential crime scene to only those essential to safely and efficiently care for the patient. Upon request from LE or Medical Examiner, EMS will provide a list of responders’ names, when they arrived/departed, and any pertinent documentation.

G. EMS providers should not disturb the scene unless absolutely necessary to perform critical patient care. EMS providers should not move anything; they should leave items alone unless absolutely necessary to perform lifesaving patient care.

H. EMS providers will not cut through bullet/stab holes on patient’s clothing or otherwise disturb binding knots, etc. in an effort to preserve critical evidence.

I. EMS providers shall not use phones, sinks, toilets, garbage containers, or anything at a crime scene. They will only utilize equipment that they brought to the scene and remove the equipment when absolutely necessary.

J. EMS shall not take anything from a crime scene that can be left; they will give clothes, blankets and sheets to LE.
K. When practical, EMS providers will document everything they observed (lighting, weather, temperature, odors, bystanders’ behavior, position of patient), moved, and performed as patient care. Include statements made by the patient, being as specific and exact as possible. EMS should consider the following:

1. All statements and demeanor (emotional state) of speakers.
2. Explain that their job is to provide medical care; ask for caretaker’s explanation with specific details; record observations of both words and actions.
3. Consider all personal observations of the environment as soon as possible. Focus all their senses on the surroundings. Describe the scene accurately and completely. Determine possibility of mechanism of injury.
4. Record the child’s developmental level. Compare reasonableness of history given regarding mechanism of injury to child’s age and developmental abilities and scene observations.

L. EMS will document any unusual observations in a supplemental report.

If no LE is present, EMS will document all adults and children present including who has left, noting what they did, said, and their appearance.

M. By invitation, EMS may participate in Multidisciplinary Team (MDT) meetings to review child abuse cases and/or attend Child Death Review.

VI. Non-Patients are:

Asymptomatic persons without a significant mechanism of injury, no obvious injury or illness, without a desire for care, and are not medically evaluated.

VII. ALS Cancellation.

An on-scene EMT may cancel an enroute ALS unit if the following conditions are met:

1. There is no patient, as defined in Section VI, or
2. A BLS assessment has been performed and the patient is determined to meet the BLS Transport Guidelines (see Appendix F).

VIII. On-scene Patient Care.

A. On-scene BLS personnel will not prevent any on-scene Pierce County EMS agency paramedic from access to conduct an evaluation of and care for a patient.
B. The medical person with the highest level of EMS certification shall direct patient care. Generally, the first arriving paramedic shall be in charge of the patient’s care. The incident commander may decide if there is any question as to who should direct patient care.

IX. Release of Responsibility/Against Medical Advice.

A. A Release of Responsibility (ROR) may be considered by EMS personnel when, after evaluation of the patient, the patient’s medical needs are considered to be of such a minor nature that 9-1-1 activation was unnecessary and/or signs and
symptoms do not meet treatment/transport criteria as outlined in Pierce County Patient Care Protocols. No adult Base Station contact is necessary by the treating EMS personnel and a patient may be released under ROR if the following conditions are met:

1. No substantial medical intervention has been rendered by EMS.
2. There is no potential risk for loss of life or limb.
3. It is reasonable not to expect a recurrence of the condition within the next 6 hours.
4. There is an individual with adequate decision-making capacity who can observe the patient for a reasonable amount of time.
5. The adult patient or his/her caregiver meet all elements of the Pierce County Decision-Making Capacity Checklist and agrees to sign the agency’s ROR form.
   * 6. Mary Bridge Base Station contact must be made on all trauma and ‘injured’ patients < 15 years old, and medical patients < 18 years old before the EMS person in charge of the patient leaves the scene.
   * 7. If the patient does not meet above criteria, ROR of the patient can only be done at the discretion of the Base Station.

B. An Against Medical Advice (AMA) may be considered only if the following conditions exist:

1. The patient is believed to be ≥ 18 years old or an emancipated minor.
2. The patient meets all elements of the Pierce County Decision-Making Capacity Checklist.
3. The patient has been told of his or her condition, the risks of refusing and the benefits of seeking medical treatment/transport.
4. The patient has been offered a reasonable alternative.
   * 5. Base Station shall be consulted and a physician should speak to the patient whenever possible.
6. The patient should sign the agency’s AMA form, and have the opportunity to ask questions. If the patient is unwilling to sign the form, then two EMS providers on scene must sign indicating that an attempt was made but the patient refused to sign.

C. A patient with diminished decision-making capacity does not meet all the elements of the Pierce County Decision-Making Capacity Checklist. Non-transport of the patient with diminished decision-making capacity can only be done at the direction of the Base Station.

D. Documentation of every ROR and AMA shall be accomplished on a Patient Care Report (PCR). EMS personnel shall document the following:

1. Reason(s) for the 9-1-1 call (description of events).
2. Patient’s medical history and current assessment findings.
3. Quotes made by the patient, to include reasons for ROR or AMA.
4. Signs of injury/illness (why treatment/transport is recommended).
5. When applicable, name of the Base Station RN report was given to, and name of physician and whether they spoke with the patient or not.
6. Time of Base Station contact and any orders given.
7. Disposition of the patient (e.g. left at scene and with whom; taken to another location, by what mode of transportation and by whom).
8. Name and agency of Law Enforcement officer when appropriate.

E. Pierce County Decision-Making Capacity Checklist.

YES = Patient meets all elements of the listed criteria (all must be marked).
NO = Patient does not meet all elements of the listed criteria (if any are marked NO, the patient is considered to have diminished decision-making capacity).

Patient/caregiver is:

1. 18 years old or believed to be an emancipated minor.  
   YES NO  
   ( ) ( )

2. Oriented (GCS 15) and understands the situation and consequences; and is able to weigh risk/benefit options; and rationally/logically processes information before making a decision; and communicates their desires.  
   YES NO  
   ( ) ( )

3. Neither physically, nor cognitively impaired by the use of alcohol and/or drug(s).  
   YES NO  
   ( ) ( )

4. Neither suspected of brain trauma, nor hypoxia as evidenced by pulse oximetry > 85%.  
   YES NO  
   ( ) ( )

5. Absent of dementia, mental illness, or other medical disease that impairs the patient’s decision-making.  
   YES NO  
   ( ) ( )

6. Absent of attempted suicide, verbalized suicidal intent, or other factors suggesting suicidal intent.  
   YES NO  
   ( ) ( )

F. To refuse care and/or transport against medical advice (AMA), a patient (or a person authorized to speak on their behalf) must be oriented and understand the situation and consequences; and be able to weigh risk/benefit options; and rationally/logically process information before making a decision; and communicate their desires.

This statement should be read by the patient who is making AMA choices or have it read to them by the EMS professional caring for them:

“This form has been given to you because you do not want treatment and/or transport by EMS. Your health and safety concerns us, even though you have decided not to accept our advice. In doing so, please remember the following:

1. Your condition may not seem as bad to you as it may actually be. Without treatment your condition or problem could become worse. If you are planning to get medical treatment, a decision to refuse treatment or transport by EMS may result in a delay of care, which could make your condition or problem worse.

2. The evaluation and/or treatment offered to you by EMS cannot replace treatment by a doctor. You should obtain medical evaluation and/or treatment by going to any hospital Emergency Department in this area, or by calling your doctor if you have one.
3. If you change your mind or your condition becomes worse, do not hesitate to call 9-1-1. Don’t wait. When medical treatment is needed, call 9-1-1; it is better to get help immediately.”

X. Patient’s Right to Privacy.

A. Respect for a patient’s right to privacy is paramount.

B. Remove only enough clothing to determine the presence or absence of a condition or injury.

C. When practical, attempt to have another provider present when clothing is removed to conduct a patient assessment.

D. Privacy may be achieved by having additional members shield the patient with blankets or sheets.

XI. Hazardous Materials.

A. If a scene is potentially contaminated with hazardous material, do not enter the scene until it can be done safely and the scene is secured by a hazardous materials team.

B. If a concern remains regarding patient or provider exposure, a hazardous materials team shall be notified immediately.

XII. Documentation.

A. Complete and accurate documentation is essential for continuity of patient care.

B. Strict adherence to the Health Insurance Portability and Accountability Act (HIPAA) and protection of a patient’s confidential Protected Health Information (PHI) shall guide all documentation and communication as it relates to patient care.

C. If a complete patient report cannot be left at the time of patient delivery, then at the time the patient is delivered, the certified EMS provider in charge of patient care must provide information to the Receiving Facility staff in accordance with WAC 246-976-330 requirements. The minimum of a brief written or electronic patient report must include: agency name, EMS personnel names, date/time of the emergency, time of onset, vital signs including serial vital signs where indicated, patient assessment findings, procedures and therapies provided by EMS, any changes in patient condition while in the care of EMS personnel, and mechanism of injury or type of illness. Individual EMS agencies may require additional data points be recorded.

   All ALS and BLS prehospital providers that do not accompany the patient to the hospital shall provide a report of their patient care to the transporting agency.

D. Within 24 hours of patient delivery, the certified EMS provider in charge of patient care must provide the final complete written or electronic patient care report to the Receiving Facility staff in accordance with WAC 246-976-330 and WAC 246-976-430 requirements. The minimum information must include:
agency name, EMS personnel names and certification levels, date/time of the emergency, applicable components of system response time, age of the patient, vital signs including serial vital signs where indicated, patient assessment findings, procedures and therapies provided by EMS to include times each procedure or therapy was provided, patient response to procedures and therapies while in the care of EMS personnel, mechanism of injury or type of illness, and patient destination. The minimum information for the Trauma Registry must also include: incident information, patient information, times, vital signs, and treatment. Individual EMS agencies may require additional data points be recorded.
COMMUNICATION POLICY

I. General.
   A. Communication will occur as soon as possible with the Receiving Facility/Base Station.
   B. Prehospital personnel will contact the most appropriate Receiving Facility for all medical and trauma patients they are transporting to that facility, unless additional medical direction is needed. Additional medical direction includes, but is not limited to, all asterisked * items in this protocol book. In that case, the prehospital provider will contact their assigned Base Station. If an asterisked item is requested by the Receiving Facility or if the protocols must be exceeded, the prehospital provider can follow this direction, and document accordingly.
   C. Base Station for Adult Medical and Trauma Patients:
      Medical- age ≥ 18 years old;
      ‘Injured’- age ≥ 15 years old;
      Step Trauma- age ≥ 15 years old.
      Good Samaritan: Assigned agencies
      St. Anthony: Assigned agencies
   D. Base Station for Pediatric Patients:
      Medical- age < 18 years old;
      ‘Injured’- age < 15 years old;
      Step Trauma- age < 15 years old.
      Mary Bridge Children’s Hospital: All agencies

II. Difficult Communication.
    If the prehospital provider has difficulty with a Receiving Facility while attempting to transport a patient to that facility, they should contact their assigned Base Station. The Base Station can resolve the issues or reassign the transporting vehicle to another Receiving Facility.

III. Disrupted Communication.
    In the event of disrupted communications, prehospital providers will act according to protocol, document afterwards, and make Receiving Facility/Base Station contact immediately when it becomes available.

IV. Disaster Medical Control Center (DMCC) Communication.
   A. Once the DMCC has been activated for an MCI, prehospital providers will not make individual contact with Receiving Facilities to give patient reports. However, prehospital providers should attempt to update the Receiving Facility if enroute the patient’s condition deteriorates and this causes an upgrade to the triage status. Contacting the Receiving Facility should only be attempted if patient care is not compromised and the provider has time to do so. Agencies transporting non-MCI related patients may contact the Receiving Facilities as usual.
   B. Primary DMCC is Good Samaritan; Secondary DMCC is St. Joseph.
TRANSPORT POLICY

I. Transport Criteria.

A. ALS versus BLS transport:
   1. If the patient meets ALS criteria, they must be transported by the crew of a licensed, verified ALS ambulance agency; with at least one paramedic in the patient compartment in care of the patient.
   2. If the patient meets BLS criteria, they may be transported by the crew of a licensed, verified BLS or ALS ambulance agency; with at least one paramedic or EMT in the patient compartment in care of the patient.
   * 3. If the transport of an ALS patient will be delayed longer than the time it would take a BLS unit to transport to the Receiving Facility, the BLS unit may transport the patient with the permission of Base Station.
   4. Transporting units will contact the Receiving Facility unless Base Station orders are required (Appendix F).

B. Trauma: see Appendix B.

C. Cardiac: see Appendix C.

D. Neurologic: see Appendix D.

E. Sepsis: see Appendix E.

F. Pediatric: Consult Mary Bridge Base Station if unsure as to where to transport the patient. Include parents in care as much as possible.

II. Capabilities.

A. Pierce County Receiving Facility Capabilities:

<table>
<thead>
<tr>
<th></th>
<th>AH</th>
<th>GSH</th>
<th>MAMC</th>
<th>MB</th>
<th>SAH</th>
<th>SCH</th>
<th>SJMC</th>
<th>TG</th>
<th>RRC/CRC</th>
<th>WBHH</th>
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14
B. Recognized Non-Pierce County Receiving Facility Capabilities:

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1. I/II/III/IV/V indicates Washington State trauma, cardiac and stroke receiving designations.

2. Neonatal Intensive Care Unit (NICU).
   a. 1 = 36 weeks and up.
   b. 2 = 32 weeks and up.
   c. 3 = 26 weeks and up.
   d. 4 = 20 weeks and up.
   e. < 20 weeks is considered nonviable. Refer to Administrative Policy III. Withholding/Terminating Resuscitation, B. Fetal Demise section.

C. Transportation to a non-recognized, non-Pierce County EMS Receiving Facility could take place only at the direction of the Base Station.

1. Current recognized Pierce County Receiving Facilities:
   Allenmore Hospital / Good Samaritan Hospital / Madigan Army Medical Center / Mary Bridge Children’s Hospital / Recovery & Crisis Response Centers / St. Anthony Hospital / St. Clare Hospital / St. Joseph Medical Center / Tacoma General Hospital / Wellfound Behavioral Health Hospital / OCED

2. Current recognized Non-Pierce County Receiving Facilities:
   Auburn Regional Medical Center / Harborview / St. Michael Medical Center / Morton General Hospital / Providence St. Peter Hospital / Seattle Children’s Hospital / St. Elizabeth Hospital / St. Francis Hospital / UW Medical Center

III. Medical.

A. A medical patient with an unstable airway will be transported to the nearest Receiving Facility’s emergency department regardless of the emergency department’s designated capabilities.

B. Medical patients should generally be transported to the nearest appropriate medical Receiving Facility.

1. Cardiac patients will be transported according to the Pierce County Prehospital Cardiac Triage Procedures (Appendix C).

2. Stroke patients will be transported according to the Pierce County Prehospital Stroke Triage Procedures (Appendix D).
C. Transportation to a more distant appropriate Receiving Facility may be considered by the prehospital provider. Patient’s medical provider and/or patient preference should be considered.

IV. Trauma.

A. A trauma patient with an unstable airway will be transported to the nearest Receiving Facility’s emergency department regardless of the emergency department’s designated capabilities.

B. Trauma patients will be transported according to the Pierce County Prehospital Trauma Triage Procedures (Appendix B). Immediately upon initiation of the transport system for Step 1 and Step 2 trauma patients, the nearest available Level II trauma receiving hospital in Pierce County will be contacted for activation of the Trauma System. Step 3 and Step 4 trauma patients can be taken to the nearest available trauma receiving hospital of any level. Transport of the Step 3 and Step 4 trauma patient to a non-trauma receiving hospital can only be done at the direction of the Base Station, but should be classed as ‘injured.’

C. Injured patients are those individuals who are injured but do not meet trauma Step criteria, or are classified as ‘injured’ by the Base Station even if they meet trauma step criteria. These patients should be taken to the nearest most appropriate Receiving Facility for further care. ‘Injured’ or trauma patients who are 15 years of age and older are considered adult patients, those less than 15 years of age are considered pediatric.

V. Individual with a Mental Disorder Transport Guideline.

A. Follow all current Pierce County Patient Care Protocols regarding the violent and/or agitated patient.

B. Patients who meet the Pierce County Decision Making Protocol retain the right to refuse transport.

C. EMS professionals must remember that aggressive violent behavior may be a symptom of medical conditions such as but not limited to:

1. Head trauma.
2. Alcohol/drug related problems (e.g. excited delirium).
3. Metabolic disorders (e.g., hypoglycemia, hypoxia, etc.).

D. Soft physical management devices are to be used only when necessary in situations where the patient is potentially violent and may be of danger to themselves, others, or EMS personnel.

E. Patient health care management remains the responsibility of EMS personnel.

1. The method of physical and/or pharmacologic management shall not restrict the adequate monitoring of vital signs or the ability to protect the patient’s airway, compromise of the patient’s peripheral neurovascular status, or otherwise prevent appropriate and necessary therapeutic measures.
2. It is recognized that evaluation of many patient parameters requires patient cooperation and thus, may be difficult or impossible.

F. If after the evaluation by EMS personnel the patient is felt to present “an imminent threat of bodily injury” to themselves, others, or the EMS personnel then Law Enforcement (LE) should be consulted by calling the shift supervisor.

1. LE will follow their protocol regarding assessing the situation and intervening as allowed under current WAC and RCW.
2. This is a consultation to assess the situation not to restrain the patient.
3. LE will determine if restraints or some other method of de-escalation by LE is warranted.

G. All physical management devices should have the ability to be quickly released if necessary.

1. The person who was responsible for applying a physical management device that requires a key or special releasing device must physically remain with the patient regardless of the vehicle of transport in the interest of the patient’s safety.
2. This policy is not intended to negate the need for Law Enforcement personnel to use appropriate patient management equipment to establish scene control.
3. When possible, hard restraints should be replaced with soft-restraints as soon as possible, this will allow LE to leave the scene.

H. Documentation on the EMS report for patients requiring physical and/or pharmacologic management will include:

1. Reason for physical and/or pharmacologic management,
2. Agency responsible for the application of the physical management device (e.g. EMS, police),
3. Documentation of serial cardio-respiratory status and peripheral neurovascular status.

I. EMS personnel reserve the right to refuse the treatment or transport of patients who are deemed too violent or uncooperative to be controlled by the physical and/or pharmacologic management methods and devices permitted by their prehospital protocols.

1. The safety of EMS personnel will be maintained at all times during treatment and transport.
2. EMS personnel may request consultation by Law Enforcement personnel to ensure the safety of the patient and the EMS personnel.

J. Generally speaking, and only with the concurrence of LE, the only time a patient should be transported by LE is if the patient is restrained, calm and already in the back of a LE vehicle where moving him/her to a transport vehicle might agitate the patient; keeping in mind that transport of the behavioral health
patient is an EMS responsibility. Under this circumstance EMS could follow LE to the hospital/psychiatric receiving center.

K. **EMS personnel may administer an appropriate dose of a benzodiazepine and/or Ketamine as a pharmacologic management measure prior to the EMS transport of the patient as allowed in the Pierce County Patient Care Protocols.**

L. A decision to refuse treatment and/or transport of a violent or uncooperative patient will be made by the senior member of the EMS personnel team or his/her supervisor.

M. The Base Station may be contacted at any time for advice and pharmacological orders.

N. There are three reasons to leave a patient at the scene.

1. AMA and ROR will not be discussed here.
2. Leaving a patient at the scene due to provider safety is the third reason. Refer to the algorithm below, “Individual with a Mental Health Disorder Transport Guideline”.
   a. This is done if any of the EMS personnel feel that the scene cannot be secured or the patient cannot be restrained sufficiently to make transport safe for the providers.
   b. If a patient is to be left at the scene and not transported due to their violent or uncooperative behavior, or the scene cannot be safely entered Law Enforcement should be contacted to request their assistance in controlling the patient or securing the scene.
   c. If Law Enforcement declines to assist this must be documented.
   d. The Base Station must be contacted prior to departing the scene.
   e. If the patient is left at the scene, for patients 18 years or older EMS personnel will contact the Designated Crisis Responder (DCR) at 253-999-5590.
   f. For patients less than 18 years of age EMS personnel will contact Catholic Community Services (CCS) at 253-208-2098.
   g. All needed information will be provided to the agency contacted. Documentation of contact with LE, Base Station, and DCR or CCS in the EMS report is mandatory.

O. Documentation standards for unsecured scenes and uncooperative patients.

1. In addition to standard documentation that is traditionally completed by EMS providers to document the care and decisions made by EMS personnel, EMS should also complete documentation that supports assessment and determination of scene safety, physical or pharmacological management, medical care, and transport or no transport decisions made by the EMS personnel for these types of calls.
2. Documentation should include:
   a. Descriptive overview of physical characteristics of the scene.
   b. Description of the danger or safety elements involved.
c. List and describe measures used to attempt to engage the patient.

d. List and describe measures used to attempt to create safety.

e. Describe why safety could not be established.

f. Document exposure to violence or threats of violence in personnel module if available on ePCR platform.

g. Document medical care.

h. Document other agencies that interacted or attempted to interact with the person.

i. Document information acquired about the situation that resulted in EMS being called.

Individual with a Mental Disorder Transport Guidelines

Does the patient meet decision making capacity?

Yes

Follow protocol and transport.

No

Does EMS feel safe entering the scene and/or restraining the patient on their own?

Yes

Follow protocol and transport.

No

Contact LE Supervisor for consultation.

Is LE willing to respond, secure the scene and/or restrain the patient?

Yes

Follow protocol and transport.

No

Contact the Base Station

Patient ≥18y/o EMS contact DCR at 253-999-5599, or Patient <18y/o EMS contact CCS at 253-208-2098.

Sign patient out AMA. Accurately & thoroughly document entire event.

Leave patient at the scene for reasons of provider safety. Accurately & thoroughly document entire event.
VI. Interfacility Transports.

A. Prehospital providers shall not function beyond their level of certification. Patients that require care beyond this level shall be accompanied by appropriately/specially trained, certified or licensed personnel.

B. Communication with the Receiving Facility before and during interfacility transport is encouraged to facilitate a smooth transfer with the receiving hospital.

C. Communication with the Receiving Facility/Base Station shall be made if a patient deteriorates enroute.

VII. Off-Campus Emergency Department (OCED) Transports.

A. Off-Campus EDs are interpreted as ‘Freestanding EDs’ per WA DOH.

B. Off-Campus EDs are not the same as Urgent Care Clinics.

C. Patients may be taken directly to Off-Campus EDs.

1. Call the OCED and identify yourself then provide a patient report as you would for any ED patient.

2. Inclusion criteria- most patients with any chief complaint that would be transported to any ED, if you are unsure consult with the OCED or Base Station.

3. Exclusion criteria- do not consider transport to the OCED of patients with the following chief complaints or presentations:
   a. Trauma:
      i. Step 1 through 4 Trauma.
      ii. Fall of patient on blood thinners, e.g. Xarelto, Eliquis, Coumadin.
      iii. Fractures: open, hip, or extremity with neuro or vascular compromise.
   b. Acute onset neurological complaint:
      i. Focal weakness.
      ii. Suspected CVA/TIA.
      iii. Numbness/paresthesias.
   c. Suspected cardiac chest pain/ACS based on Cardiac Emergencies Protocol.
   d. Vital Signs:
      i. Heart Rate >150, or <50 sustained and with symptoms.
      ii. Systolic BP >180, or <90.
      iii. SpO₂ <93%.
      iv. Respiratory Rate >30, or <10.
      v. Temperature >100 in pediatrics 3 months old or less.
   e. Suspected Sepsis/Severe infection.
   f. Acute Altered Mental Status or confusion.
   g. Seizure that is new onset/ without history or with postictal state.
   h. Syncope/Near syncope.
   i. Abdominal pain/flank pain in patients over 50 years old.
   j. Blood in stool or emesis.
k. Vascular Emergency:
   i. Ischemic limb.
   ii. Active arterial bleeding.
   iii. Decreased or absent pulses.
l. Overdose or ingestion.
m. Alcohol or illicit drug(s) use who are clinically impaired.
n. Bariatric patients >400 pounds.
o. Suspected sexual assault.
p. Chemical contamination: mace, chemical or biological warfare.
q. Acute psychiatric or behavioral health complaint:
   i. Suicidal/Homicidal Ideations,
   ii. Psychosis,
   iii. Depression.
r. Known or suspected pregnancy.
s. Suspected esophageal foreign object.
t. Non-traumatic ambulatory dysfunction.
u. Isolation requirements.
GENERAL PRINCIPLES/ROUTINE CARE

I. Utilize Standard Precautions, conduct a scene survey, triage as needed, determine mechanism of injury/nature of illness, chief complaint, and history to include medications/drugs. Conduct a complete assessment and obtain vital signs initially, then repeat at least every 5 minutes for critical patients or every 15 minutes for non-critical patients. Minimize scene time.

II. Airway/Breathing.
   A. Manual c-spine stabilization as needed.
   B. Maintain or establish a clear airway for the patient. Use head tilt/chin lift or jaw thrust as needed. Follow AHA Handbook for obstruction appropriate for age group. Refer to Respiratory Emergencies protocol.
   C. Consider oral/nasal airway as needed.
   D. Suction patient as needed.
   E. Administer oxygen as appropriate to patient’s condition/chief complaint. Monitor pulse oximetry if available. Maintain the patient’s O₂ saturation between 94% - 99%. Monitor EtCO₂ level as needed if available.
   F. Give nothing by mouth if the patient is unable to swallow or maintain their own airway.
   G. Consider ventilation.
      1. Adult: ventilate or assist ventilations with BVM and high flow O₂ if respiratory rate is < 10 or > 30 and/or shallow/labored; or patient appears cyanotic; or as needed at a rate of 12 times/minute-1 every 5 seconds; or allow patient to self-administer O₂ with demand valve.
      2. Pediatric: manage airway and ventilate with BVM and high flow O₂ at a rate 20 times/minute-1 every 3 seconds if respirations are labored or shallow, or patient is cyanotic or unconscious. If < 2 years old, utilize BVM as needed if respiratory rate < 15 or > 60.
   H. Position of comfort or recovery position if no trauma suspected.
   I. Consider CPAP/BiPAP for the patient with severe respiratory distress or respiratory failure associated with CHF, pulmonary edema, asthma, or COPD and who:
      1. Is awake and able to follow directions.
      2. Is > 12 years old and able to fit in a CPAP/BiPAP mask.
      3. Has the ability to maintain an open airway without assistance.
      4. Exhibits two or more of the following:
         a. Respiratory rate > 25 per minute.
         b. SPO₂ < 90% or an EtCO₂ > 50.
         c. Using accessory muscles during respirations.
         d. Unable to speak in full sentences.
      5. Contraindications include:
a. Apnea or respirations < 8 per minute.
b. Pneumothorax or significant chest trauma (excluding pulmonary contusion).
c. Tracheostomy.
d. Vomiting.
e. Upper GI bleeding.
6. CPAP/BiPAP therapy needs to be continuous and should not be removed unless patient:
   a. Cannot tolerate the mask.
   b. Is unable to maintain own airway.
   c. Experiences respiratory arrest.
   d. Begins to vomit.
   e. Needs medication administered orally.
7. BiPAP settings:
   a. CHF/Pulmonary Edema- provide 10L/minute oxygen and IPAP at 10cm H2O with EPAP at 5cm H2O.
   b. Asthma/COPD- provide 10L/minute oxygen and IPAP at 12-15cm H2O with EPAP at 5cm H2O.
8. To ensure continuous treatment, notify Receiving Facility enroute of CPAP/BiPAP use so necessary equipment is available at time of arrival.

J. Intubation as needed.
1. Use in-line stabilization in trauma.
2. Utilize oral or nasal routes (xylocaijne jelly or Oxymetazoline should be used for nasal tubes).
3. All intubations will include use of waveform capnography and at least one other method such as lung sounds or visual confirmation to confirm placement. Use waveform capnography continuously to confirm correct tube placement. Document methods used and results on the Patient Care Report, and print capnography report if able to do so.
4. No nasal intubation if significant facial trauma or patient is < 8 years old.
5. Follow Rapid Sequence Intubation (RSI) / Delayed Sequence Intubation (DSI) protocols when needed (Appendix G/Appendix GG).

K. Difficult airway.
1. If unable to intubate on first attempt, and once patient is adequately oxygenated, a second intubation attempt may be made; consider changing technique.
2. If ventilation is difficult, or not able to be readily performed, or after a failed intubation, then consider using an MPD approved rescue breathing device/supraglottic airway device.
3. All intubations and SGA placements will include use of waveform capnography and at least one other method such as lung sounds or visual confirmation to confirm placement. Use waveform capnography to continuously confirm correct tube placement. Document methods used and results on the Patient Care Report, and print capnography report if able to do so.
L. Consider needle or surgical cricothyrotomy if indicated (patients with severe facial or throat trauma or upper airway occlusions).

III. Circulation.

A. See Traumatic Emergencies or Medical Emergencies for bleeding with shock.

B. Keep the patient warm.

C. Adult: Establish peripheral IV access or EJ if other peripheral site not available. Pediatric: Establish peripheral IV access.

Adult and Pediatric: Avoid starting an IV in an extremity with a shunt or venous device, or on the same side as a post mastectomy unless life is threatened. You may use the extremity to include the shunt or venous device if life is threatened.

1. Adult and Pediatric: Normal Saline (NS), Lactated Ringer’s (LR), or Dextrose in Water should be your fluids of choice depending on availability and purpose of IV solution, and your patient’s condition.

2. Adult: When fluid resuscitation is necessary by status of pulse and BP, start 2 large bore IVs (18g or larger) of (warmed) NS or LR while enroute to facility. In patients with suspected hemorrhage, titrate to a state of relative hypotension with systolic BP of 80-90.

   Pediatric: Fluid replacement with NS or LR.
   a. For shock, give 20 mL/kg bolus.
   b. May give up to 3 rapid infusions if inadequate perfusion.

3. Adult and Pediatric: Consider use of saline lock when only IV access is desired.

4. Adult and Pediatric: Intraosseous (IO) route.
   a. If an IV is not preferable, an IO site may be utilized.
   b. All medications that can be administered IV can be given IO.
   c. Consider pain management for IO infusions if the patient is having discomfort:
      i. Adult: Lidocaine 20-50 mg IO.
      * ii. Pediatric: morphine sulfate 0.1 mg/kg up to 4 mg IO single dose or Fentanyl 1-2 mcg/kg IN/IO.
   d. IO contraindications include:
      i. Suspected fracture of bone site being accessed.
      ii. Previous orthopedic procedures, such as joint replacement at or near insertion site.
      iii. Infection at the insertion site.
      iv. Inability to locate landmarks.

5. Adult and Pediatric: If patient has existing external central vascular catheter (CVC), such as a Hickman, Groshong or PICC line, trained paramedics may utilize this line to gain IV access. Dialysis access sites cannot be used unless there is a life-threatening situation, cardiac arrest and no other suitable means of vascular access is available.
D. Place medical/cardiac patients on ECG monitor. Obtain 12-lead ECG as soon as possible. *Cardiac monitoring of trauma patients should be done enroute, if time permits.*

E. Use AED/manual defibrillation as indicated.

F. *Use vascular doppler as indicated as an assessment tool for/to/when:*

1. inability to palpate a pulse, or
2. determine an approximate mean arterial pressure for an LVAD patient, or
3. auscultate pulse points to confirm ROSC in pulseless/cardiac arrest patient, or
4. evaluate for pseudo PEA, or
5. suspected decreased perfusion to an extremity, or
6. confirm loss of pulses post-tourniquet application as needed.

IV. Neurologic Exam.

A. Assess mental status using the Glasgow Coma Scale (Appendix H).

B. Use of ammonia inhalants to determine level of consciousness is non-diagnostic and therefore is not appropriate, nor authorized.

C. Check blood glucose level and treat accordingly when indicated per Medical Emergencies protocol.

V. Expose/Environment.

A. Remove the patient’s clothing appropriate to illness/injury to adequately assess the patient’s condition.

B. Cover the patient again to conserve body heat and keep the patient warm.

VI. Pain Management: Refer to Pain Management protocol for considerations.

VII. Spinal Motion Restriction (SMR) Guidelines Algorithm (Appendix N).

A. General.

1. SMR can be achieved by use of an ambulance cot, scoop stretcher, vacuum splint, or other similar device upon which a patient is safely secured during EMS transport.
2. Long backboard may still have a role in facilitating the safe extrication and rapid transfer of patients to the ambulance cot.

B. Indications for SMR following blunt trauma include:

1. Acutely altered level of consciousness (e.g. GCS < 15, evidence of intoxication), or
2. Midline neck or back pain and/or tenderness, or
3. Focal neurologic signs and/or symptoms (e.g. numbness or motor weakness), or
4. Anatomic deformity of the spine, or
5. Distracting circumstances or injury (e.g. long bone fracture, degloving or crush injuries, large burns, emotional distress, communication barrier) or any similar injury that impairs the patient’s ability to contribute to a reliable examination.

C. There is no indication for SMR following penetrating trauma.

D. SMR, when indicated, should be applied to the entire spine and includes the following best practices:
   1. Place an appropriately-sized cervical collar to limit movement of the cervical spine whenever SMR is employed.
   2. Stabilize the spine by keeping the head, neck and torso in alignment as much as possible during extrication, transfer and transport.
   3. If patient is ambulatory on scene or can safely self-extricate:
      a. Assist the patient in moving to the ambulance cot with minimal spinal motion into a seated position.
      b. Once on the ambulance cot, lay the patient back gently into the supine position.
   4. If patient is not ambulatory or extrication is required:
      a. Pay particular attention to minimizing spinal motion during patient transfer from one surface to another including, for example, ground to ambulance cot,
      b. Utilize a scoop stretcher, a long backboard, or a vacuum mattress to assist with patient extrication and transfer to the ambulance cot to minimize movement of the possibly injured spine.
   5. Once a patient is safely positioned on an ambulance cot, the rigid transfer device (e.g. long backboard, scoop stretcher) should be removed unless removal interferes with critical patient treatments or interventions. Removal of the transfer device should occur in all but the rarest of situations.
   6. After removal of the transfer or extrication device, maintain SMR by ensuring that the patient remains secured in the supine position, directly on the ambulance cot, with a cervical collar in place.
   7. Consider extremes of age during assessment and utilize caution:
      a. Age alone should not be a factor in decision-making for prehospital spine care.
      b. Communication barriers with infants/toddlers or elderly patients with dementia may prevent accurate spinal assessment.
   8. **Pediatric: Additional padding under the shoulders is often necessary to avoid excessive cervical spine flexion with SMR.**
   9. If elevation of the head is clinically indicated (e.g. severe traumatic brain injury, respiratory distress):
      a. The head of the ambulance cot may be elevated 30 degrees while maintaining alignment of the neck and torso.
      b. SMR cannot be properly performed with a patient in an upright sitting position.
10. EMS personnel shall notify the receiving facility that a patient is in SMR on the ambulance cot, as the use of a slider board or similar device is necessary to safely transfer the patient from the ambulance cot to the hospital cot.

E. Sports equipment removal.
   1. Patients with helmets but no shoulder pads: remove helmet.
   2. Patients with sports helmets and shoulder pads:
      a. Players should be stabilized for transport with helmet and shoulder pads in place.
      b. Following stabilization, the facemask should be removed before transport.
      c. Helmet and pads should be removed if they interfere with proper immobilization (loose fit) or airway control cannot be achieved with facemask removal.
   3. Spinal motion restriction as indicated.

VIII. Consider blood draw when indicated.
   A. Fill lab tube(s) slowly.
      1. Label each tube with patient name, date, time and paramedic's initials.
      2. Tape to IV bag when possible.
   B. Complete blood chemistry analysis tests as necessary if able.
   C. See Appendix K for guidance on blood alcohol draw policy.

IX. Domestic Violence and Human Trafficking.
   A. Attempt to identify victims of domestic violence or human trafficking.
   B. All patient questioning should take place in a confidential place and not in front of children or a partner.
   C. Communicate this information to the Receiving Facility.
   D. Transport the patient whenever possible.
   E. Discreetly inform patient that the situation is potentially lethal, and remind them battering is a crime and they can be protected by law.
   F. Do not use the patient’s phone.
   G. Privately furnish patient with the domestic violence resources phone number even if he/she doesn’t ask for it:
      2. Crystal Judson Family Justice Center, 8:30 a.m.-4:30 p.m. M-F: 253-798-4166.
   H. Assess the patient’s safety. If patient refuses care and there is risk of continued harm, notify law enforcement.
X. Patients with Access and Functional Needs.
   A. EMS providers must meet and maintain the additional support required for patients with functional needs during the delivery of prehospital care. This includes, but is not limited to:
      1. Identifying individuals with physical, sensory, mental health, and cognitive and/or intellectual disabilities affecting their ability to function independently without assistance.
      2. Identifying the functional need by means of information from the patient, the patient’s family, caregiver, bystanders, medic alert bracelets or documents, or the patient’s assistive devices.
   B. Medical care should not intentionally be reduced or abbreviated, however the manner in which the care is provided may need to be modified to accommodate the specific needs of the patient.
   C. Assistive devices that facilitate the activities of life/functions of daily living for the patient should accompany the patient, to include service animals. Patients may have specific requirements on how assistance adjuncts are transported. When possible, EMS providers should discuss methods for transporting assistive devices with the patient.

XI. Mass Casualty Incidents (MCI).
   A. Sort, Assess, Lifesaving Interventions, Transport/Treatment (SALT) triage will be used with all MCIs, to include pediatric patients (Appendix M).
   B. An MCI may be declared anytime you have recognized the need. Refer to the Pierce County Fire Chiefs Association MCI Plan as approved by the Pierce County EMS Office.
   C. Contact the Disaster Medical Control Center (DMCC) as soon as possible for coordination of patient transports.
   D. Contact the Disaster Medical Control Center (DMCC) to request ‘open protocols’ which means the agencies involved in the event may follow the protocols without requiring Base Station contact. Remember to call the DMCC when the incident is cleared so they can ‘close the protocols’.
   E. All patients evaluated by EMS and transported from an MCI will be identified using the ‘StatBand’ tracking number/bar code triage tag. The ‘StatBand’ should be attached to the patient prior to transport, and the tracking number and patient destination recorded on a transportation log.
   F. The transportation log must be provided to the Pierce County EMS Office as soon as possible during the event or immediately after the event. It can be scanned or a legible picture taken of it and emailed to PCEOC@piercecountywa.gov, or faxed to 253-798-2200, with a cover sheet stating the agency, date and location of the event.
TRAUMATIC EMERGENCIES

I. General.
   A. Follow General Principles/Routine Care protocol unless otherwise indicated.
   B. Limit scene time for trauma patients, with goal of $\leq 15$ minutes.
      1. If Low Titer O Whole Blood (LTOWB) is enroute and waiting for blood will not delay transport by more than 10 minutes then wait for it.
      2. If LTOWB is not readily available arrange to meet LTOWB enroute to trauma center, survival is improved when blood products are transfused within 30 minutes of injury.
   C. See Appendix B for Trauma Triage destination procedures.

II. Traumatic Hypovolemic Shock. Adult and Pediatric.
   A. Recognize Mechanism of Injury that has high probability of producing injuries requiring blood transfusion (Step I & II criteria):
      1. Penetrating injuries to thorax, abdomen and/or pelvis associated with uncontrolled external and/or internal hemorrhage, or
      2. Significant blunt trauma to thorax, abdomen and/or pelvis, or
      3. Fall from height with associated injuries to thorax, abdomen and/or pelvis, or
      4. Severely crushed extremities, or
      5. Above-the-knee traumatic amputation, especially if associated with pelvic injury, or
      6. Proximal, bilateral, or multiple fractures and/or amputations (including mangled extremity), or
      7. Uncontrolled major bleeding secondary to large soft-tissue injuries, or
      8. Severe trauma with altered mental status (in absence of brain injury) and/or weak or absent radial pulse.
   B. Utilize M.A.R.C.H.E.S. to treat immediately identify and treat life-threatening conditions:
      1. Massive Bleeding- Treat based on injury type - utilize direct pressure, wound packing, pressure dressings, hemostatic agents, tourniquets, junctional tourniquets, pelvic binder, splint to control bleeding. If a tourniquet is used, mark time on the tourniquet(s). Contact the Receiving Facility to inform them a tourniquet has been applied. Consider Pain Management protocol as necessary, unless patient is in decompensated shock.
      2. Airway- NPA/OPA/Suction/Positioning/SGA/ETT/Cricothyroidotomy as needed.
      3. Respiration- Occlusive dressing for open chest injuries, needle thoracentesis if shock is present and tension pneumothorax is suspected, support respiration with BVM as needed.
5. Hypothermia- prevent/treat hypothermia early and aggressively in the trauma patient. Utilize active rewarming devices (ready heat blankets, hot packs, medical heating pads, ambulance heater etc.) in conjunction with thermal barriers (wool/insulated blankets, blizzard or other suitable hypothermia barrier devices).

6. Head Injury- follow CNS and facial trauma protocol.

7. Eye Injuries- Cover with rigid shield and no pressure on the eye(s).

8. Spinal motion restriction if indicated (See General Principles, Section VII).

9. Transport as soon as possible with patient in the supine position.

C. Initiate fluid resuscitation, following permissive hypotension guidelines:

1. **LTOWB or plasma are preferred over crystalloids; Lactated Ringers or Plasma-Lyte A is preferred over Normal Saline.**

2. **Crystalloids:**
   a. Adult:
      i. Large bore IV(s) or IO(s) with warm NS or LR.
      ii. If suspected uncontrolled internal hemorrhage, titrate to a state of relative hypotension with systolic BP of 80-90.
      iii. If suspected Traumatic Brain Injury (TBI) titrate fluids to maintain systolic BP > 90.
      iv. If hemorrhage is controlled but signs and symptoms of shock are present greater amounts of fluids may be infused.
   b. **Pediatric:**
      i. Large bore IV(s) or IO(s) with warm NS or LR.
      ii. Push 20 mL/kg initially, then
      iii. Titrate infusion rate to restore adequate perfusion (i.e. capillary refill, central and peripheral pulses, appropriate mentation for age).

3. **Indications for administration of plasma/LTOWB:**
   a. Altered mental status due to hemorrhage and/or absent radial pulse, or
   b. Shock Index > 1.0, or
   c. Systolic BP < 80, or
   d. Systolic BP < 90 with pulse greater than > 110 bpm, or
   e. Clinical signs of shock, such as cool extremities, delayed capillary refill, or
   f. EtCO₂ < 25, or
   g. Witnessed cardiac arrest due to exsanguination < 5 minutes prior to provider arrival with continuous CPR throughout downtime, or
   h. Age ≥65 and SBP ≤100 and pulse ≥ 100 bpm.
   i. Other indications of severe bleeding: lactate concentration > 4mmol/L, ph < 7.25, positive Focused Assessment Sonography for Trauma exam.
   j. Consider medications that increase bleeding or blunt physiologic response to shock:
      i. Anticoagulation or Antiplatelet Therapy- e.g. Coumadin, Warfarin, Lovenox, Plavix, Aspirin, Pradaxa, Xarelto, Eliquis.
ii. Beta blockers and calcium channel blockers may suppress tachycardia.

4. **LTOWB/Plasma/Tranexamic Acid (TXA) Administration:**
   a. **Rapid infusion of LTOWB/Plasma via blood filter tubing and in line warming device:**
      i. **Adult:** 1 unit
      ii. **Pediatric: 20ml/kg.**
   b. Blood products may be infused via IV and/or IO routes. 16g IV or larger is preferred but may be transfused through smaller gauge catheters when required.
   c. Establish a second IV/IO for administration of medications.
   d. Permissive hypotension - resuscitate to and maintain a SBP from 80-90mmHg. Traumatic brain injury maintain a SBP of >90mmHg.
   e. Maintain SpO2 >92%.
   f. Maintain temperature >95° F (35° C).
   g. Administer TXA through separate IV/IO if available. If not, give via same route:
      i. **Adult:** 1 gram over 10 minutes.
      ii. **Pediatric: 15mg/kg to maximum of 1 gram over 10 minutes.**
   h. Administer calcium chloride or calcium gluconate IV push with first unit of blood/plasma:
      i. **Adult:** calcium chloride 1gram or calcium gluconate 15-30 mL IV over 5 minutes.
      ii. **Pediatric: calcium chloride 20mg/kg IV slowly with 1st unit of LTOWB or calcium gluconate 60mg/kg slow IV/IO.**
         Contact Mary Bridge Base Station for additional doses.
      iii. **Adult and Pediatric:** Give 2nd dose after 4 units of blood are transfused or serum Ca is <1.2mmol/L.
   i. Ventilate patients in hemorrhagic shock with caution.
      i. Do not withhold ventilation if it is needed.
      ii. Attempt to match respiratory rate.
      iii. Forcibly reducing respiratory rate will worsen acidosis.
      iv. Positive pressure ventilation reduces venous return to the heart and contributes to worsening shock state.
   v. Automatic ventilator is preferred.
   j. **Pediatric resuscitation goals:** cap refill <2 seconds, restoration of central or peripheral pulses, appropriate mentation for age.

III. CNS and facial trauma.

   A. Administer O2 at 15 l/NRB mask if patient is breathing adequately on own. If patient is not breathing adequately and has a Traumatic Brain Injury (TBI), ventilate with high flow O2 at 10 breaths/min. for adults, **20 breaths/min. for children and 25 breaths/min. for infants.** If Increased Intracranial Pressure (IICP) (widening pulse pressure, decreased HR and increased BP, posturing, blown pupil, change in respiratory pattern) is associated with the TBI, ventilate
at 20 breaths/min. for adults, **25 breaths/min. for children and 30 breaths/min. for infants.**

B. Keep pulse oximetry ≥ 95%. SGA/Intubate PRN. No nasal intubation with significant facial trauma. Follow RSI/DSI protocol if needed (Appendix G/Appendix GG). Keep EtCO₂ level between 35-40 mmHg for TBI, and between 30-35 mmHg for TBI with IICP if able to monitor.

C. Spinal motion restriction as needed (See General Principles, Section VII).

D. For partially avulsed teeth, replace if possible if patient is awake. For completely avulsed teeth, rinse with saline, and wrap in gauze soaked with saline.

Be alert for potential tooth aspiration.

E. **Initiate fluid resuscitation.**

1. Adult: See Section II.
2. Pediatric: See Section II.

F. For seizures.

1. Adult:
   a. 1ˢᵗ choice- May use midazolam, 10 mg for > 40 kg, single dose IM, or
   b. 2ⁿᵈ choice- May use midazolam, 0.2 mg/kg of a 5 mg/mL concentration IN, or
   c. 3ʳᵈ choice- May use midazolam, 2 mg increments IV to a maximum dose of 0.1 mg/kg or 10 mg (whichever is less), or
   d. 4ᵗʰ choice- May use diazepam, 0.2 mg/kg/dose not to exceed 10 mg IV push; may repeat dose once.
   e. Wait 1-2 minutes between IN/IV doses to evaluate response.

2. Pediatric:
   a. 1ˢᵗ choice- May use midazolam, 0.2 mg/kg of a 5 mg/mL concentration IM/IN, to a maximum dose of 10 mg, or
   b. 2ⁿᵈ choice- May use midazolam, 0.1 mg/kg IV slowly over 2 minutes in no greater than 2 mg increments not to exceed 5 mg, or
   c. 3ʳᵈ choice- May use diazepam, 6 month to 5 years old- maximum dose is 5mg; > 5 years old- maximum dose is 10mg.
      i. 0.2 mg/kg IV/IO in increments no greater than 2 mg. Wait 1-2 minutes between doses to observe effect.
      ii. Rectally, 0.5 mg/kg. Wait at least 5 minutes before giving a second dose. Administer rectal dose with 3 mL syringe (without needle) inserted as far as possible.
      iii. Contact Mary Bridge Base Station for more repeated doses.
   d. Wait 1-2 minutes between IN/IV doses to evaluate response.

IV. Spinal Trauma.

A. Spinal motion restriction as needed (See General Principles, Section VII).
B. Assess for neurovascular deficits in extremities.
C. Be prepared to assist ventilations if a high spinal cord injury occurred.

D. Keep patient warm by controlling the ambulance temperature and use adjuncts (e.g. heat packs and reflective blankets) when necessary.

E. Initiate fluid resuscitation.
   1. Adult: See Section II.E.
   2. Pediatric: See Section II.E.

V. Injuries to the Neck.
   A. Seal open wounds with an occlusive dressing.
   B. Consider early intubation when signs of expanding hematoma are present.
   C. Initiate fluid resuscitation.
      1. Adult: See Section II.E.
      2. Pediatric: See Section II.E.
   D. Airway obstruction.
      1. Keep traumatic tracheostomy open with any appropriate adjunct.
      2. Perform a needle/surgical cricothyrotomy if trachea and/or larynx is collapsed or laryngeal edema is obstructing the airway.

VI. Injuries to the Eye.
   A. Protect injured eye; consider use of a rigid shield.
   B. Cover/bandage unaffected eye.
   C. Stabilize impaled objects.
   D. Do not use a pressure dressing to stop fluid leakage or apply pressure to the eye.
   E. Elevate head if the patient is not hypotensive.
   F. Chemical burns to the eye:
      1. Continuously flush with copious amounts of water or saline solution from inside to outside.
      2. Attempt to identify agent if possible, and/or take a picture of the container.
   G. Consider antiemetic prophylactically.

VII. Chest/Abdominal Trauma.
   A. Assess/monitor quality of breathing.
   B. Monitor for development of tension pneumothorax and treat per E.1. below.
   C. Initiate fluid resuscitation.
      1. Adult: See Section II.E.
      2. Pediatric: See Section II.E.
   D. ECG monitor enroute.
E. Specific injuries.

1. Open chest wounds/tension pneumothorax.
   a. Monitor and assist ventilations PRN.
   b. Seal with occlusive dressing. ‘Burp’ dressing if tension pneumothorax develops.
   c. \textit{Perform needle thoracostomy if the patient is hypotensive and has suspected tension pneumothorax.}

2. Flail chest.
   a. Monitor and assist ventilations PRN.
   b. Monitor for tension pneumothorax and treat per E.1. above.
   c. Stabilize with tape and bulky dressing.
   d. \textit{Consider intubation PRN.}

3. Pulmonary contusion.
   a. Monitor and assist ventilations PRN.
   b. \textit{Consider use of CPAP/BiPAP if the patient is unable to maintain adequate ventilation.}

4. Cardiac tamponade.
   a. \textit{Consider pericardiocentesis.}

5. Abdominal injuries.
   a. Evisceration: Cover with sterile, moist, occlusive dressing.
   b. Consider transport with knees flexed/position of comfort.

VIII. Musculoskeletal Trauma.

A. Dress wounds, monitor perfusion (pulse and/or capillary refill), motor, sensory status before and after splinting.

1. Fractures/Dislocations.
   a. Splint in the position found.
   b. If there is severe deformity or the distal extremity is cyanotic or lacks pulses, align with gentle manipulation to achieve return of circulation before splinting.

2. Control hemorrhage.

3. Refer to Pain Management protocol for other considerations.

B. Femur, hip, or pelvic fracture/dislocation suspected.

1. Stabilize on ambulance cot. Consider use of scoop stretcher to move the patient.

2. Consider traction device for isolated mid-shaft femur fractures (open or closed).

3. Consider use of pelvic wrap (sheet or commercial device) for stabilization of pelvic fractures.

4. \textit{Initiate fluid resuscitation.}
   a. Adult: See Section II.
   b. \textit{Pediatric: See Section II.}

5. Refer to Pain Management protocol for other considerations.

C. Acute low back discomfort without spinal trauma.
1. Consider use of ice/warm packs over area to relieve discomfort.
2. Refer to Pain Management protocol for other considerations.

IX. Amputated Parts.
A. Collect parts and debride gross contaminants with saline flush.
B. Wrap in sterile saline moistened gauze, place in plastic bag, protect with towel, place on ice.
C. Label bag with patient name, date, and time. Send amputated part with patient if available. Note disposition of amputated part on PCR.
D. Refer to Pain Management protocol for other considerations.

X. Impaled Objects.
A. Do not remove unless the airway is compromised.
B. Secure the object in place.
C. Taser\textsuperscript{\textregistered} darts will be removed by EMS personnel only if EMS was already dispatched to the scene for a medical/trauma event.
   1. Unlike other forms of penetrating foreign objects, Taser\textsuperscript{\textregistered} barbed darts, because of their short length (¼ in.), may be safely removed by EMS personnel.
   2. The darts should only be removed in the field if they do not involve the eye, face, neck, breast, or groin. Patients with retained darts in these areas should be transported to a hospital.
   3. The individual must be in police custody and EMS personnel must be convinced that the patient is adequately restrained.
   4. Use standard precautions. Gloves must be worn.
   5. Ensure the wires are disconnected from the gun or the wires have been cut.
   6. Push on the body part in which the barbed dart (straight #8 fish hook) is imbedded and simultaneously pull the dart straight out.
   7. Apply alcohol or iodine to the puncture area and dress as needed.
   8. The darts should be placed in a biohazard sharps container and turned over to Law Enforcement.
   9. All patients must be thoroughly assessed to determine if other medical problems or injuries are present. Consider ECG/12 lead evaluation if appropriate.
   10. If the individual does not have any other presenting injuries/illness, they may be left in the custody/care of Law Enforcement, obtain the name of the officer.
   11. If the patient is aggressive and must be transported to a hospital, follow the restraint procedure outlined in the Behavioral Emergencies section.

XI. Burns.
A. Thermal.
   1. \textit{Consider early intubation PRN, insert an NG/OG tube if patient is intubated.}
2. Stop the burning process, irrigate with room-temperature water if necessary.
3. Remove constricting jewelry, and annotate on PCR to whom the jewelry was given.
4. Elevate burned extremities on pillows above level of the heart and monitor distal pulses.
5. Apply dry, sterile non-adherent dressings and/or clean sheets.
6. Keep patient warm.
7. **Initiate fluid resuscitation with large bore IV(s) and warmed NS or LR.**
   a. Use the Parkland Formula to calculate IV drip rate as fluid resuscitation in the burn patient is paramount. $4 \text{ mL} \times \text{ kg} \times \% \text{ of } 2^{\text{nd}} \text{ and } 3^{\text{rd}} \text{ degree body surface area burned}$.
   b. Half of this calculated total mLs will be given in the first 8 hours from the time the patient was burned, so the drip rate per hour must be calculated on that.
8. Refer to Pain Management protocol for other considerations.
9. **Consider anxiety relief.**
   a. Diazepam 2-10 mg IM/IV/IO, or
   b. Midazolam
      i. Adult
         1. 0.2 mg/kg of a 5 mg/mL concentration IN, or
         2. 2 mg increments IV/IO to a maximum dose of 0.1 mg/kg or 10 mg (whichever is less) or
         3. 5 mg IM; may repeat once in 10-15 minutes.
   ii. **Pediatric:**
      1. 0.2 mg/kg of a 5 mg/mL concentration IM/IN, to a maximum dose of 10 mg, or
      2. 0.1 mg/kg IV slowly over 2 minutes in no greater than 2 mg increments not to exceed 5 mg.
   3. **Contact Mary Bridge Base Station for direction if unsure.**
10. Consider transport from the scene to Harborview Burn Center if burn is:
   a. >20% 2$^{\text{nd}}$ or 3$^{\text{rd}}$ degree burns TBSA in any patient, or
   b. >10% 2$^{\text{nd}}$ or 3$^{\text{rd}}$ degree burns TBSA in patients ≤ 8 or > 65 years old, or
   c. Involving face, hands, feet, genitalia, perineum, or major joints.

B. Electrical.
   1. Ensure source is deactivated.
   2. Apply dry, sterile non-adherent dressings and/or clean sheets.
   3. Elevate burned extremities on pillows above level of the heart and monitor distal pulses.
   4. **Initiate fluid resuscitation with large bore IV(s) and warmed NS or LR.**
      a. Use the Parkland Formula to calculate IV drip rate as fluid resuscitation in the burn patient is paramount. $4 \text{ mL} \times \text{ kg} \times \% \text{ of } 2^{\text{nd}} \text{ and } 3^{\text{rd}} \text{ degree body surface area burned}$. Electrical injuries use 4 mL for Adults and Pediatrics.
      b. Half of this calculated total mLs will be given in the first 8 hours from the time the patient was burned, so the drip rate per hour must be calculated on that.
5. Intubate PRN, insert an NG/OG tube if patient is intubated.
6. Acquire 12-lead ECG. Monitor ECG/treat dysrhythmias according to AHA Handbook when appropriate.
7. Consider transport from the scene to Harborview if burn is:
   a. >20% 2\textsuperscript{nd} or 3\textsuperscript{rd} degree burns TBSA in any patient, or
   b. >10% 2\textsuperscript{nd} or 3\textsuperscript{rd} degree burns TBSA in patients ≤ 8 or > 65 years old, or
   c. Involving face, hands, feet, genitalia, perineum, or major joints.

C. Chemical (Consult Dept. of Transportation Emergency Response Guidebook).
   1. Avoid self-contamination.
   2. Remove all clothing.
   3. Remove constricting jewelry, and annotate on PCR to whom the jewelry was given.
   4. Dry powder; brush off if needed.
   5. Flush copiously with water.
   6. Elevate burned extremities on pillows above level of the heart and monitor distal pulses. Avoid spreading contamination on adjacent tissue.
   7. Attempt to identify chemical if possible, and/or take a picture of the container.
   8. Intubate PRN, insert an NG/OG tube if patient is intubated.
   9. Consider transport from the scene to Harborview if burn is:
      a. > 20% 2\textsuperscript{nd} or 3\textsuperscript{rd} degree burns TBSA in any patient, or
      b. >10% 2\textsuperscript{nd} or 3\textsuperscript{rd} degree burns TBSA in patients ≤ 8 or > 65 years old, or
      c. Involving face, hands, feet, genitalia, perineum, or major joints.

XII. Crush Injury Syndrome (CIS)/Traumatic Rhabdomyolysis (TR).
It is imperative that patients be pretreated before extrication or movement, therefore assessment of extremities (in the position found) for symptoms of CIS/TR must be accomplished initially. A patient pinned or entrapped with at least one major limb having arterial circulatory compromise for at least 4 hours should be considered for CIS/TR. Patients with CIS/TR may not survive if treatment is not initiated before removal from the situation.

A. Manage airway as indicated. If RSI/DSI is necessary, do not use succinylcholine; consider vecuronium 0.1 mg/kg IV/IO or rocuronium 1.5 mg/kg IV/IO.
B. Administer O\textsubscript{2} with NRB mask at 10-15 LPM.
C. Give albuterol 2.5 mg in 3 mL NS SVN continuously.
D. Administer IV: 1000 mL NS with sodium bicarbonate 100 mEq (label bag) mixed in. Volume replacement and pre-alkalization should take place immediately after CIS identified. Set drip rate to infuse at 1500 mL/hour.
E. Monitor ECG/treat dysrhythmias according to AHA Handbook when appropriate.
F. Stabilize excitable cardiac tissue with calcium gluconate 10\%, 15-30 mL IV over 5 minutes; or calcium chloride 10\%, 500-1000 mg IV push over 5 minutes. Consider 2\textsuperscript{nd} dose after 20 minutes. Don’t mix in the same IV line as the bicarb drip.
G. Consider midazolam 2 mg increments IV/IO to a maximum dose of 0.1 mg/kg or 10 mg for sedation.

H. Refer to Pain Management protocol for other considerations.

I. If prolonged extrication (longer than 4 hours), consult Base Station for other medication considerations.

J. For pediatric patients contact Mary Bridge Base Station for treatment regimen.
CARDIAC EMERGENCIES

I. General.
   A. Follow General Principles/Routine Care protocol, Appendix C for Cardiac Triage Destination Procedures, as well as the AHA Handbook of Emergency Cardiovascular Care unless otherwise indicated.
   B. Limit scene time for non-cardiac arrest patients, with goal of ≤ 15 minutes.
   C. Acquire 12-lead ECG as quickly as possible (i.e. goal of < 5 minutes from arrival at scene).
      1. If suspected STEMI patient, notify Receiving Facility immediately of ‘Code STEMI’. See Section II. below.
      2. Obtain sequential 12-lead ECGs during transport.
   D. Administer supplemental oxygen for chest discomfort and possible acute coronary syndrome (ACS) patients if oxygen saturation is < 94% or evidence of respiratory distress: 4L/minutes per nasal cannula; titrate to maintain SaO₂ ≥ 94% and ≤ 99%.
   E. Initiate CPR and defibrillate when indicated, referring to current AHA Handbook.
   F. Allow patient to assume a position of comfort.
   G. Repeat vital signs every 5 minutes.
   H. If automatic implantable cardioverter defibrillator (AICD) is in place, follow appropriate arrhythmia protocol.
      I. Initiate IV(s) NS, titrate to BP > 90/S, or saline lock.
      J. Consider NG/OG tube in cardiac arrest; preferred in pediatric cardiac arrest.

II. STEMI/ High Risk presentations.
   A. Inclusion criteria of ‘Code STEMI’ Receiving Facility notification:
      1. Refer to all sections of Appendix C for Cardiac Triage Destination Procedures.
      2. ST Elevation of:
         a. at least 1 mm in 2 or more anatomically contiguous limb leads; and/or
         b. at least 2 mm in 2 or more anatomically contiguous precordial/chest leads.
         c. at least 1 mm in V4R confirms right-sided involvement in STEMI.
         d. at least 1 mm in V7-V9 confirms a posterior STEMI.
      3. Support/Confirmation- Reciprocal Changes/ST depression:
         a. Reciprocal ST depression of > 1 mm is not required for ‘STEMI’ but helps confirm, as in cases noted below.
      4. STEMI mimics that EMS should consider prior to field STEMI activation:
a. Left Bundle Branch Block or ventricular rhythm including paced rhythm.
   b. Left ventricular hypertrophy.
   c. Benign early repolarization.
   d. Hyperkalemia ECG changes.

B. Significant ECG findings not meeting STEMI criteria but should be considered to notify the Receiving Facility regarding a patient with cardiac symptoms/presentations:
   1. DeWinter’s ST/T waves.
   2. Wellen’s Syndrome.
   3. New onset Left Bundle Branch Block.
   4. Left Bundle Branch Block or paced rhythm that meets Sgarbossa criteria.
   5. Left main coronary occlusion- ST elevation in aVR > 1 mm with widespread horizontal ST depression most prominent in leads I, II, and V4-6.

C. Exclusion criteria of ‘Code STEMI’ Receiving Facility notification generally precluded:
   1. POLST with ‘Comfort-Focused Treatment’ marked.
   2. Active CVA.
   3. Obvious, significant active uncontrolled bleeding.

D. Considerations for STEMI and/or High-Risk cardiac patient care:
   1. Notify Receiving Facility as soon as possible.
   2. Transport priority to an appropriate Level I Cardiac Center.
   3. Bring additional personnel in the ambulance as patient deterioration is likely.
   4. Attach defib pads as precautionary measure due to potential cardiac arrest.
   5. Treatment should include appropriate pain management.
   6. Obtain bilateral antecubital fossa IVs with ≥ 18 gauge catheters.
   7. Perform serial 12-lead ECGs while enroute to Receiving Facility.

II. Chest Discomfort and Possible Acute Coronary Syndrome (ACS)

A. Give non-enteric coated aspirin to chew and swallow; 162 mg total if patient is already taking aspirin (or took aspirin prior to EMS arrival), 324 mg total if not.

B. Give nitroglycerin 0.4 mg SL tablet or L/SL spray (EMT may only use the patient’s own nitroglycerin).
   1. May be given every 5 minutes until chest pain free as long as systolic BP remains > 100.
   2. Use with caution if HR < 50 or > 100.
   3. Limit systolic BP drop of 10% of baseline or 25% if hypertensive.
   4. Avoid use of NTG if patient has taken medications for erectile dysfunction or pulmonary hypertension drugs, such as sildenafil or tadalafil, within the last 48 hours.
   5. Administer nitrates with extreme caution, if at all, to patients with inferior wall STEMI with suspected right ventricular involvement.
C. Refer to Pain Management protocol for other considerations.

D. Follow Prehospital Cardiac Triage Destination Procedures in Appendix C.

E. Any pharmacologic treatment for pediatrics (< 18 years old) requires contact with Mary Bridge Base Station.

III. Cardiac Arrest Management.

A. Follow AHA Handbook guidelines.

B. Post-resuscitation management:
   1. If a patient regains sustained ROSC, acquire a 12-lead ECG as soon as possible and immediately notify the Receiving Facility of a ‘Code STEMI’ if appropriate.
   2. Post-cardiac arrest patients with ROSC should be transported to a cardiac center if there is any suspicion that arrest originated due to cardiac disease.
PAIN MANAGEMENT

I. General.

A. Assess pain level in all patients with discomfort and treat accordingly.
   1. Obtain numeric pain level (0-10 scale) if able.
   2. See Appendix I for Wong-Baker FACES Pain Rating Scale if language barriers exist.

B. Cautions for pain management:
   1. GCS < 15.
   2. Symptomatic hypotension < 90/S.
   3. Allergy to pain medication selected.
   4. Hypoxia (SpO₂ < 90%) after supplemental oxygen.
   5. Signs of hypoventilation, consider EtCO₂ monitor.

C. Reassess all patients during pain management medication administration.

II. Medication Administration.

A. Adult.

   1. Pain management options for Non-ACS patients:
      a. Morphine sulfate up to 0.1 mg/kg every 5-10 minutes titrating to effect, to a maximum dose of 20 mg, IM or slow IV/IO push, or
      b. Fentanyl 25 - 100 mcg increments IN/IM/IV/IO every 5-10 minutes titrating to effect, to a maximum dose of 300 mcg if BP > 90/S.
      c. Ketamine 0.2 mg/kg IN/IM/IV/IO every 10 minutes as needed for refractory pain up to 3 doses total.
      d. Nitrous oxide.
      e. Acetaminophen 500-1000 mg PO.
      f. Ibuprofen 400-800 mg PO with 8 ounces of water.
   2. Pain management for ACS patients:
      a. STEMI:
         i. Morphine sulfate 2-4 mg IV; may give additional doses of 2-8 mg IV at 5-15 minute intervals up to 10 mg if systolic BP >100; or
         ii. Fentanyl 25-50 mcg IV; may repeat every 5-10 minutes, or 50 mcg IN every 5 minutes up to 100 mcg if systolic BP >100.
      b. NSTEMI-ACS:
         i. Morphine sulfate 1-5 mg IV only if symptoms not relieved by nitrates or if symptoms recur up to 10 mg if systolic BP >100; or
         ii. Fentanyl 25-50 mcg IV; may repeat every 5-10 minutes, or 50 mcg IN every 5 minutes up to 100 mcg if systolic BP >100.
   3. Contact Base Station for additional doses.

B. Pediatric.

   1. Pain management options:
a. Morphine sulfate up to 0.1 mg/kg IM or slow IV/IO push, titrating to effect, not to exceed 4 mg single dose, or
b. Fentanyl 1-2 mcg/kg IN/IM/IV/IO every 5-10 minutes, titrating to effect, to a maximum dose of 100 mcg.
c. Ketamine 0.2 mg/kg IN/IM/IV/IO every 10 minutes as needed for refractory pain up to 3 doses total.

*EMT d. Nitrous oxide.
*EMT e. Acetaminophen 15 mg/kg PO or by rectal suppository.
*EMT f. Ibuprofen (6 months-12 years old) 10 mg/kg PO.

2. Contact Mary Bridge Base Station for additional doses.
RESPIRATORY EMERGENCIES

I. General.
   A. Follow General Principles/Routine Care protocol unless otherwise indicated.
   B. Assist patient to position of comfort. Consider early transport.
   C. EMT may assist with albuterol metered dose inhaler, as indicated to a total of 5 doses, then call Base Station for medical direction.
   D. Initiate IV(s) NS/saline lock. Titrate to BP > 90/S.
   E. Monitor: ECG/pulse oximetry, EtCO₂, temperature, if available.
   F. In agitated hypoxic patients that cannot tolerate traditional pre-oxygenation methods consider Delayed Sequence Intubation (DSI) instead of Rapid Sequence Intubation (RSI) to improve oxygenation prior to paralysis.

II. Adult Respiratory Distress Acuity Reference:
   A. Mild distress: mild dyspnea at rest, able to speak full sentences.
   B. Moderate distress: moderate dyspnea, speaks in broken sentences, normal mentation, orthopnea or tripoding.
   C. Severe distress: one word sentences, diaphoretic, altered mental status (AMS).

III. Difficulty Breathing.
   A. If congestive heart failure suspected:
      1. If patient is in mild distress and BP > 100/S:
         *EMT Give nitroglycerin 0.4 mg SL tablet or L/SL spray; may repeat every 3-5 minutes, if patient remains symptomatic, to a maximum of 2 mg. EMT must use the patient’s own nitroglycerin.
      2. If patient is in moderate distress, or severe distress without AMS and BP > 100/S:
         *EMT a. Give nitroglycerin 0.4 mg SL tablet or L/SL spray; may repeat with 0.4 mg SL tablet or 1-2 L/SL sprays every 3-5 minutes, if patient remains symptomatic, to a maximum of 2 mg. EMT must use the patient’s own nitroglycerin.
         b. Apply CPAP/BiPAP as quickly as possible.
         c. If CPAP/BiPAP is not tolerated then consider anti-anxiety medication, midazolam 2 mg increments IV to a maximum dose of 0.1 mg/kg or 10mg (whichever is less) or diazepam 5-10 mg IV.
      3. If patient is in severe distress, with altered mental status: immediately ventilate with BVM and consider RSI/DSI.
      4. Consider albuterol for wheezing, 2.5 mg in 3 mL NS via SVN; may repeat once.
      5. Consider dopamine 10 mcg/kg/minute IV/IO. Titrate to maintain BP > 90/S.
      6. Consider possibility of acute coronary syndrome/acute myocardial infarction.
a. Obtain 12-lead ECG as quickly as possible.
b. Give aspirin if history suggests possible acute coronary syndrome or acute MI (see Cardiac Emergencies protocol).

B. If asthma or COPD suspected in adults:

1. If patient is in mild and moderate distress:
   a. Give albuterol 2.5 mg with Atrovent 0.5 mg in 3 mL NS via SVN; may repeat combination of albuterol and Atrovent once.
   b. Additional doses of albuterol 2.5 mg in 3 mL NS can be given continuously.
   c. Initiate IV NS titrate to BP > 90/S.
   d. Give methylprednisolone 125 mg IV or dexamethasone 0.6 mg/kg PO/IV up to 10 mg.
   e. Consider CPAP/BiPAP.

2. If patient is in severe distress, without altered mental status, and BP > 100/S:
   a. Apply CPAP/BiPAP as quickly as possible.
   b. If CPAP/BiPAP is not tolerated then consider anti-anxiety medication, midazolam 2mg increments IV to a maximum dose of 0.1 mg/kg or 10mg (whichever is less), or diazepam 5-10 mg IV.
   c. Initiate IV NS titrate to BP > 90/S.
   d. Give methylprednisolone 125 mg IV or dexamethasone 0.6 mg/kg PO/IV up to 10 mg.
   e. In asthmatics:
      i. Give epinephrine 1:1- 0.3 mg IM; may repeat in 20 minutes.
      ii. Give magnesium sulfate 2 gm in 10 mL NS, IV/IO. Infuse over 15 minutes.

3. If patient in severe distress develops altered mental status or cardiovascular compromise (bradycardia, hypotension, etc.), then BVM and consider RSI/DSI.

4. Additional consideration for suspected COPD patients:
   a. Maintain pulse oximetry saturation at 90-94%.
   b. If EtCO₂ increases, and/or patient becomes drowsy, consider reducing oxygen administration level, and begin BVM ventilation as necessary.

C. If asthma suspected or wheezing present in pediatrics:

1. If the pediatric patient is in mild or moderate distress:
   a. Give albuterol 2.5 mg with Atrovent 0.25 mg in 3.0 mL NS SVN; may repeat once. Use blow-by if < 5 years old.
      i. Additional doses of albuterol 2.5 mg in 3 mL can be given continuously.
   b. Give methylprednisolone 2 mg/kg IV/IO up to 60 mg per dose or dexamethasone 0.6 mg/kg PO/IV up to 16 mg.

2. If the pediatric patient is in severe distress:
   a. Give epinephrine 0.01 mg/kg of 1:1 IM, not to exceed 0.3 mg total.
   b. Initiate IV NS, give 20 mL/kg bolus; repeat as needed.
c. Give magnesium sulfate 50 mg/kg in 10 mL NS, IV/IO. (Max dose: 2 gm). Infuse over 15 minutes.
d. Give methylprednisolone 2 mg/kg IV/IO up to 125 mg per dose or dexamethasone 0.6 mg/kg PO/IV/IO up to 16 mg.
e. If the patient develops altered mental status or cardiovascular compromise (bradycardia, fatigue, hypotension, etc.), then BVM and consider RSI/DSI.

D. If pediatric croup suspected and patient has stridor at rest:
1. Assist patient to position of comfort as upright as possible.
2. Administer blow-by oxygen.
   a. 2 mL (undiluted) for patients < 6 years old.
   b. 3 mL (undiluted) for patients ≥ 6 years old.
4. Give dexamethasone 0.6 mg/kg PO up to 16 mg.
   a. Give ondansetron (Zofran) 4 mg ODT prior to dexamethasone.

E. Upper airway obstruction suspected.
1. If foreign object, attempt relieving obstruction according to AHA Handbook.
2. If unable to relieve obstruction, visualize airway with laryngoscope.
   a. If obstruction visible superior to vocal cords use Magill forceps to remove object.
   b. If obstruction visible beyond vocal cords, perform a surgical or needle cricothyrotomy.
   c. If obstruction is not visible beyond vocal cords, intubate to push obstruction until you can ventilate.

F. Upper airway edema (e.g. epiglottitis, angioedema).
1. Decrease anxiety.
2. Provide O₂ if tolerated, use blow-by if necessary.
3. Assist patient to position of comfort as upright as possible.
4. If in impending respiratory failure, lay patient down and ventilate with BVM and supplemental O₂.
5. Consider early intubation.
6. If patient is breathing, consider epinephrine:
   a. Adult: 1:1- 0.3 mg IM or 1:10- 0.3 mg IV.
   b. Pediatric: 1:1- 0.01 mg/kg IM up to maximum of 0.3 mg.
7. If unable to ventilate, perform needle or surgical cricothyrotomy.
8. Rapidly transport.

G. In lieu of SVN for suspected COVID / highly infectious pulmonary disease patients presenting with CHF, Asthma/COPD/Allergic Reaction, and Anaphylaxis:
1. With the MDI, a commercially made spacer specifically designed to fit onto the albuterol MDI must be used (no ‘homemade’ versions):
   a. Administer albuterol 4 puffs simultaneously into the spacer to achieve the 2.5 mg of albuterol.
b. Additional doses of 4 puffs simultaneously into the spacer for continuous treatment can be repeated every 15 minutes.

2. **Contact Mary Bridge Base Station if other direction is needed for pediatric patients.**
MEDICAL EMERGENCIES

I. General.
   A. Follow General Principles/Routine Care protocol unless otherwise indicated.
   B. Check blood glucose level.
   C. Initiate IV NS/saline lock. Titrate to BP > 90/S.
   D. Monitor ECG. Acquire 12-lead ECG and treat dysrhythmias according to AHA Handbook when appropriate.
   E. Consider blood draw when indicated.
   F. Verify medications taken by the patient.

II. Altered Level of Consciousness/Unconsciousness.
   A. If increased intracranial pressure suspected (widening pulse pressure, decreased HR and increased BP, posturing, blown pupil, change in respiratory pattern):
      1. Ventilate at 20/minute for adults. Keep pulse oximeter ≥ 95%. Keep EtCO₂ level between 30-35 mmHg if able to monitor.
      2. Position patient with head of bed elevated approximately 30 degrees. When spinal motion restriction must be taken, elevate head end of stretcher to approximately 30 degrees.
      3. Transport ASAP.
   B. If diabetic history with medications and able to maintain airway:
      1. Adult and Pediatric: Administer oral glucose or simple sugar (e.g. honey, cake frosting, orange juice with 2-3 teaspoons of sugar) if glucose level is low or unknown (normal is 80-120 mg/dL).
   C. If diabetic history, signs and symptoms of hypoglycemia, but unable to maintain airway:
      1. Adult: Titrate and/or repeat until patient at baseline and blood glucose remains > 80.
         a. Give 50 mL D₅₀W (25 gm) IV push, or
         b. Give 250 mL D₁₀W (25 gm) IV, or
         c. If unable to secure an IV, give glucagon 1 mg IM/glucagon nasal powder 3 mg IN, or
         d. If unable to secure an IV and glucagon is unavailable or contraindicated, give D₅₀W 50 mL (25 gm) IO or D₁₀W 250 mL (25 gm/250 mL) IO.
      2. Pediatric: Titrate and/or repeat until patient at baseline and blood glucose remains > 60.
         a. Give 50% dextrose (0.5 gm/mL)(≥ 8 years old); give 1 mL/kg IV/IO, or
         b. Give 25% dextrose (0.25 gm/mL); give 2 mL/kg IV/IO, or
         c. Give 10% dextrose (0.1 gm/mL); give 5 mL/kg IV/IO, or
d. Give 5% dextrose (0.05 gm/mL); give 10 mL/kg IV/IO if volume tolerated.
e. Neonate specifically: give 2 mL/kg of D10W.
f. If unable to secure an IV: give glucagon; children ≤ 20 kg give 0.5 mg IM, children > 20 kg give 1 mg IM. Children ≥ 4 years old give glucagon nasal powder 3 mg IN.

D. If actively seizing with a perfusing rhythm and normal glucose level:
   1. Protect patient from injury.
   2. Adult:
      a. 1st choice- May use midazolam, 10 mg for > 40 kg, single dose IM, or
      b. 2nd choice- May use midazolam, 0.2 mg/kg of a 5 mg/mL concentration IN, or
      c. 3rd choice- May use midazolam, 2 mg increments IV to a maximum dose of 0.1 mg/kg or 10 mg (whichever is less), or
      d. 4th choice- May use diazepam, 0.2 mg/kg/dose not to exceed 10 mg IV push; may repeat dose once.
      e. Wait 1-2 minutes between IN/IV doses to evaluate response.
      f. If patient is pregnant or postpartum, give magnesium sulfate 4 gm slow IV push over 5 minutes.

3. Pediatric:
   a. 1st choice- May use midazolam, 0.2 mg/kg of a 5 mg/mL concentration IM/IN, to a maximum dose of 10 mg, or
   b. 2nd choice- May use midazolam, 0.1 mg/kg IV slowly over 2 minutes in no greater than 2 mg increments not to exceed 5 mg, or
   c. 3rd choice- May use diazepam IV/IO, 6 month to 5 years old- maximum dose is 5mg; >5 years old- maximum dose is 10mg.
      i. 0.2 mg/kg IV/IO in increments no greater than 2 mg.
      ii. Wait 1-2 minutes between doses to observe effect.
   d. 4th choice- May use diazepam rectally, 6 month to 5 years old- maximum dose is 5mg; >5 years old- maximum dose is 10mg.
      Wait at least 5 minutes before giving a second dose. Contact Mary Bridge Base Station for more repeated doses.
      i. Administer 0.5 mg/kg rectal dose with 3 mL syringe (without needle) inserted as far as possible.
      ii. May administer patient’s own Diastat when available.

*EMT e. For temperature > 101.0 give acetaminophen 15 mg/kg PO if child is able to maintain airway and swallow without difficulty. May give acetaminophen 15 mg/kg per rectal suppository if child is unable to swallow or maintain airway, or

*EMT f. If child > 6 months and has had maximum dose of acetaminophen less than 4 hours ago and still has
temperature > 101.0 consider ibuprofen 10 mg/kg PO if child is able to maintain airway and swallow without difficulty.

E. If inadequate breathing and suspicious of narcotic overdose:
   1. Adult: Consider naloxone 0.4-4.0 mg IN/IM/IV/IO/ET; dose may be repeated every 2-3 minutes, up to 10 mg or until patient begins to maintain airway and breathe adequately.
   2. Pediatric: Consider naloxone 0.1 mg/kg IN/IM/IV/IO/ET/SQ up to 2 mg/dose; dose may be repeated every 2-3 minutes, up to 10 mg or until patient begins to maintain airway and breathe adequately.
   3. Adult/Pediatric:
      a. If no response is observed after 10 mg, consider different etiology of inadequate breathing.
      * b. Higher doses may be ordered if no initial response.

F. Overdose.
   1. All overdoses that are unstable/ALOC/AMS shall be dispatched as ALS.
   2. Consider consulting with Poison Control for advice, 800-709-0911.
   3. If overdose/ingestion suspected, bring in all containers, pill bottles, emesis.
   4. For suspected tricyclic overdose with wide QRS, give sodium bicarbonate
      Adult: 1.0 mEq/kg IV/IO. ** Pediatric: Neonates or children ≤ 2 years old:
          give 1 mEq/kg of 4.2% solution IV/IO slowly. Children > 2 years old:
          give 1 mEq/kg of 8.4% solution IV/IO slowly up to 50 mEq.
   5. For suspected beta blocker OD, give glucagon 3-10 mg IV slowly over 3-5 minutes for symptomatic bradycardia, followed by infusion of 3-5 mg/hour. For pediatric patients contact Mary Bridge Base Station for direction.

G. Dystonic reaction/extrapyramidal effects.
   Consider diphenhydramine:
   1. Adult: 25-50 mg deep IM or slow IV/IO; maximum dose 100 mg.
   2. Pediatric: 1 mg/kg deep IM or slow IV/IO, to a maximum dose of 50 mg.

III. Abdominal Pain/Vomiting.
   A. Position of comfort.
   B. Consider ondansetron (Zofran).
      1. Adult: 8 mg oral disintegrating tablet (ODT) or 4 mg IM/or slow IV push.
      2. Pediatric:
         a. > 11 years old: 8 mg ODT or 4 mg slow IV push. Contact Mary Bridge Base Station for additional doses.
         b. 4-11 years old: 4 mg ODT or 0.15 mg/kg up to 4 mg slow IV push. Contact Mary Bridge Base Station for additional doses.
   C. Refer to Pain Management protocol for other considerations.
IV. Renal Dialysis Patients with Suspected Hyperkalemia.

If tall, peaked T waves, prolongation of QRS, or low P waves with bradycardia:

A. Give calcium chloride 10%, 500-1000 mg IV over 5 minutes; may be repeated as needed in 20 minutes, or
B. Give calcium gluconate 10%, 15-30 mL IV over 5 minutes; may be repeated as needed in 20 minutes.
C. Give sodium bicarbonate 1 mEq/kg IV/IO.
D. Give albuterol 2.5 mg in 3 mL NS SVN continuously.

V. Stroke Emergencies (See Appendix D).

A. Check temperature and pulse oximetry (if possible).
B. Give nothing by mouth unless hypoglycemic.
C. Perform B.E.F.A.S.T. Assessment (Balance/Eyes/Face/Arm/Speech/Time last known well). If one component is positive, suspect a stroke.
D. Perform Stroke Severity Score assessment per Appendix D to determine destination, and report that score on PCR as well as verbally to Receiving Facility.
E. Refer to Stroke Triage Procedures in Appendix D.
F. If stroke is suspected notify Receiving Facility of “Code Neuro” ASAP, and remember to report Stroke Severity Score/LAMS to ED staff.
G. Limit scene time, with a goal of < 15 minutes.
H. Transport.
   1. Notify the Receiving Facility of “Code Neuro” ASAP while in transit, if not already done.
   2. Position patient with head of bed elevated approximately 30 degrees.
   3. Transport according to Stroke Triage Procedures in Appendix D.
   4. Consider air transport when appropriate.

VI. Sepsis Emergencies (See Appendix E).

VII. Vasogenic/Neurogenic Shock, or Hypotension of Unknown Etiology.

A. Immobilize based on mechanism /nature of illness.
B. Transport patient in the supine position as soon as possible.
C. Keep patient warm by controlling the ambulance temperature (use heat packs and reflective blankets PRN).
D. Initiate large bore IV(s) or IO(s) with warm NS or LR.
   1. Adult: Give 250-500 mL fluid challenge if BP < 90/S; consider additional fluid boluses depending upon clinical impression.
   2. Pediatric: Push 20 mL/kg; may repeat x 2.
E. Profound Bradycardia or Hypotension:

1. Give epinephrine-push-dose IV-Mix 1 mL of 1:10 epi with 9 mL NS in a 10mL syringe (10 mcg/mL) and administer 0.5-2 mL of push-dose epi every 2-5 minutes; or
2. Give epinephrine infusion IV-Mix 1 mg in 250 mL NS; administer at 2-10 mcg/minute (0.5 mL-2.5 mL), titrating to effect.

F. Consider dopamine 10 mcg/kg/minute IV/I0. Titrate to maintain BP > 90/60.

G. Consider norepinephrine for acute symptomatic hypotension secondary to non-hypovolemic states:

1. Adult: 8-12 mcg/min (0.1-0.5 mcg/kg/min) IV infusion initial dose titrating to individual patient response.
2. Adult: 2-4 mcg/min maintenance dose. (Individual response is variable).
3. Pediatric: 0.1 mcg/kg/min to a maximum rate of 2 mcg/kg/min.

VIII. Suspected Intoxication.

If the patient does not meet the Administrative Policy Decision-Making Capacity Checklist or Transport Policy criteria, then contact Base Station or consider transport to the nearest Receiving Facility.

IX. Medical Bleeding.

A. Recognize patients at risk for significant medical hemorrhage- e.g. GI bleeding (upper or lower), postpartum or pregnancy related hemorrhage, vaginal bleeding, cirrhotic liver or liver failure, vascular (uncontrolled hemorrhage from fistula, shunt or varicose vein), urological (especially recent surgery or procedure), recent surgical patient, ruptured AAA, uncontrolled epistaxis.

B. Request LTOWB as soon as major bleeding is recognized.

C. Utilize M.A.R.C.H. to treat immediately identify and treat life-threatening conditions.

1. Massive Bleeding- treat based on bleeding type - utilize direct pressure, wound packing, pressure dressings, hemostatic agents, tourniquets, junctional tourniquets to control bleeding. If a tourniquet is used, mark time on the tourniquet(s) and consider Pain Management protocol as necessary, unless patient is in decompensated shock. Contact the Receiving Facility to inform them a tourniquet has been applied.
2. Airway- NPA/OPA/Suction/Positioning/SGA/ETT/Cricothyroidotomy as needed.
3. Respirations- occlusive dressing for open chest injuries, if shock is present and tension pneumothorax is suspected- needle thoracentesis, support respirations with BVM.
5. Hypothermia- prevent/treat hypothermia early and aggressively in the bleeding patient. Utilize active rewarming devices (ready heat blankets, hot
packs, medical heating pads, ambulance heater etc.) in conjunction with thermal barriers (wool/insulated blankets, blizzard or other suitable hypothermia barrier devices).

D. Indications for administration of plasma/LTOWB:

1. Altered mental status due to hemorrhage and/or absent radial pulse, or
2. Shock Index > 1.0, or
3. Systolic BP < 80, or
4. Systolic BP < 90 with pulse greater than >110 bpm, or
5. Clinical signs of shock, such as cool extremities, delayed capillary refill, or
6. EtCO₂ < 25, or
7. Witnessed cardiac arrest due to exsanguination < 5 minutes prior to provider arrival with continuous CPR throughout downtime, or
8. Age ≥ 65 and SBP ≤ 100 and pulse ≥ 100 bpm.
9. Other indications of severe bleeding: lactate concentration > 4mmol/L, pH < 7.25, positive Focused Assessment Sonography for Trauma exam.
10. Consider medications that increase bleeding or blunt physiologic response to shock:
   a. Anticoagulation or Antiplatelet Therapy - e.g. Coumadin, Warfarin, Lovenox, Plavix, Aspirin, Pradaxa, Xarelto, Eliquis.
   b. Beta blockers and calcium channel blockers may suppress tachycardia.

E. Resuscitation:

1. Initiate resuscitation as early as possible as survival is improved when blood products are transfused within 30 minutes of injury.
2. LTOWB or plasma are preferred over crystalloids; Lactated Ringers or Plasma-Lyte A is preferred over Normal Saline.
3. Rapid infusion of LTOWB/Plasma via blood filter tubing and in line warming device:
   a. Adult - 1 unit
   b. Pediatric - 20ml/kg.
4. Blood products may be infused via IV and/or IO routes. 16g IV or larger is preferred but may be transfused through smaller gauge catheters when required.
5. Establish a second IV/IO for administration of medications.
6. Permissive hypotension - resuscitate to and maintain a SBP from 80-90mmHg. Traumatic brain injury maintain a SBP of >90mmHg.
7. Maintain SpO₂ > 92%.
8. Maintain temperature > 95° F (35° C).
9. Administer TXA through separate IV/IO if available. If not, give via same route:
   a. Adult: 1 gram over 10 minutes.
   b. Pediatric: 15mg/kg to maximum of 1 gram over 10 minutes
10. Administer calcium chloride or calcium gluconate IV push with first unit of blood/plasma:
a. Adult: calcium chloride 1 gram or calcium gluconate 15-30 mL IV over 5 minutes.

b. Pediatric: calcium chloride 20 mg/kg to maximum 1 gram or calcium gluconate 60 mg/kg slow IV/IO push. Contact Mary Bridge Base Station for additional doses.

c. Adult and Pediatric: Give 2nd dose after 4 units of blood are transfused or serum Ca is < 1.2 mmol/L.

11. Ventilate patients in hemorrhagic shock with caution.
   a. Do not withhold ventilation if it is needed.
   b. Attempt to match respiratory rate.
   c. Forcibly reducing respiratory rate will worsen acidosis.
   d. Positive pressure ventilation reduces venous return to the heart and contributes to worsening shock state.
   e. Automatic ventilator is preferred.

12. Pediatric resuscitation goals: cap refill < 2 seconds, restoration of central or peripheral pulses, appropriate mentation for age.
ENVIRONMENTAL EMERGENCIES

I. General.
   A. Call for specialized assistance if indicated. Remove patient from hazardous environment if not jeopardizing EMS personnel. Notify hospital if contamination suspected.
   B. Follow General Principles/Routine Care protocol unless otherwise indicated.
   C. Initiate IV NS/saline lock. Titrate to BP >90/S.
   D. Monitor ECG/treat dysrhythmias according to AHA Handbook when appropriate.

II. Toxic Inhalations.
   A. If wheezing:
      1. Adult: give albuterol 2.5 mg with Atrovent 0.5 mg in 3 mL NS SVN; may repeat combination of albuterol and Atrovent once.
         *EMT a. Additional doses of albuterol 2.5 mg in 3 mL can be given continuously.
      2. Pediatric: Use blow-by if < 5 years old.
         a. Give albuterol 2.5 mg with Atrovent 0.25 mg in 3.0 mL NS SVN; may repeat combination of albuterol and Atrovent once.
         *EMT b. Additional doses of albuterol 2.5 mg in 3 mL can be given continuously.
   B. Carbon Monoxide (CO).
      1. Remove patient from CO environment.
      2. Monitor CO readings when able.
      3. If readings are elevated (> 5% in a non-smoker and > 10% in a smoker), or CO poisoning is suspected, ensure O₂ delivery is high flow at 100%.
      4. Transport patient to the nearest Receiving Facility for assessment, stabilization, then possible referral to a hyperbaric chamber.
   C. Cyanide poisoning: treat for any person removed from or having high potential for unprotected exposure to fire gasses and smoke.
      1. Remove the patient from the smoke filled environment.
      2. Ensure O₂ delivery is high flow at 100%.
      3. If possible, draw blood tubes to be used for analysis prior to administration of Cyanokit-hydroxocobalamin.
      4. Administer an MPD approved cyanide poisoning antidote agent (Cyanokit-hydroxocobalamin) if available.

III. Cold injuries.
   A. Handle gently.
   B. Remove wet clothing, dry as soon as possible, warm patient by using warm blankets, heating pads and/or reflective covers.
C. Administer warm IV solution if indicated.

IV. Heat injuries.
   A. Move to a cool environment, remove clothing.
   B. Institute cooling measures (fan, mist with water, ice packs) while rapidly transporting.
   C. Provide cool fluids if able to swallow, administer cool IV solution if indicated.

V. Drowning (all drowning terms).
   A. Remove wet clothing, dry as soon as possible, warm patient by using warm blankets.
   B. Watch for vomiting, prevent aspiration.

VI. Scuba-Related injuries.
   A. Check blood glucose and treat as needed.
   B. Transport in horizontal supine position.
   C. Consider horizontal lateral recumbent if vomiting.
   D. Transport patient to the nearest Trauma Receiving Facility for assessment, stabilization, and then possible referral to a hyperbaric chamber.

VII. Envenomations (Animal/Insect Bites, Stings).
   A. Identify and retain the source specimen if possible.
   B. For snake bite: Keep site at heart level or below. Apply a pressure immobilization bandage (e.g. ace bandage) around the entire length of the involved extremity.
   C. Give epinephrine for anaphylaxis (see Section X).
   D. Consider diazepam 2-10 mg IV for muscle spasms.

VIII. Organophosphate/Nerve Agent Poisoning (Symptomatic).
   A. Decontaminate. Remove clothing. Protect against secondary contamination.
   B. Adult:
      1. If not using a NAAK (e.g. DuoDote/Mark I) and patient is unresponsive, give atropine 2 mg IV every 1 minute, not to exceed 10 mg until symptoms clear.
      2. If using a NAAK (e.g. DuoDote/Mark I):
         a. For mild to moderate symptoms, give one dose of atropine and pralidoxime chloride (2-PAM) IM.
         b. If signs or symptoms are still present after 5-10 minutes (depending on severity), repeat a second dose of atropine and 2-PAM IM.
         c. If signs or symptoms are still present after 5-10 minutes (depending on severity), repeat a third dose of atropine and 2-PAM IM.
d. For severe symptoms, give three doses (sets) of atropine and 2-PAM IM in rapid succession.

3. Consider intubation.

C. Pediatric: Start with giving atropine,

1. Age < 12 years old start with 0.05 mg/kg IV/IO then repeat and double the dose every 5 minutes until muscarinic symptoms reverse;
2. Age ≥ 12 years old start with 1mg IV/IO then repeat and double the dose every 5 minutes until muscarinic symptoms reverse.

D. Notify the Receiving Facility of contamination as soon as possible.

IX. Allergic Reaction (not anaphylactic shock; Anaphylactic shock – see Section X). Localized or systemic reaction involving a single organ system and hemodynamically stable.

A. Adult:

1. Consider epinephrine 1:1- 0.3-0.5 mg IM if airway involvement is suspected.
2. Give albuterol 2.5 mg with Atrovent 0.5 mg in 3 mL NS via SVN; may repeat combination of albuterol and Atrovent once.
3. Additional doses of albuterol 2.5 mg in 3 mL NS can be given continuously.
4. Give diphenhydramine 25-50 mg deep IM or slow IV; may repeat. Maximum dose 100 mg. EMT may give 50 mg PO.
5. Consider repeating epinephrine 1:1- 0.3 mg IM after 5-10 minutes if airway is involved and there is no improvement, or after 15-20 minutes if other signs such as urticaria persist.
6. Consider methylprednisolone 125 mg IV.

B. Pediatric:

1. Give epinephrine 1:1- 0.01 mg/kg IM to maximum of 0.3 mg if airway involvement is suspected.
2. Give albuterol 2.5 mg with Atrovent 0.25 mg in 3 mL NS SVN; may repeat once.
3. Additional doses of albuterol 2.5 mg in 3 mL can be given continuously.
4. Give diphenhydramine 1 mg/kg PO, deep IM or slow IV/IO, to a maximum dose of 50 mg.
5. Consider repeating epinephrine after 5-10 minutes if airway is involved and there is no improvement, or after 15-20 minutes if other signs such as urticaria persist.
   * 6. Consider methylprednisolone 2 mg/kg IV/IO up to 60 mg per dose.

X. Anaphylactic Shock.
Multiple organ system reaction or hemodynamically unstable.

A. Consider early intubation if patient has signs of airway compromise.

B. Initiate large bore IV(s) or IO(s) with NS or LR.
1. **Adult:** Give 250-500 mL fluid challenge if BP < 90/S; may repeat until BP > 90/S.

2. **Pediatric:** Push 20 mL/kg; may repeat x 2.

C. **Give epinephrine.**

1. **Intramuscular:**
   a. 1:1-0.3-0.5 mg IM for adults.
   b. 1:1-0.3 mg for pediatric patients ≥ 66 pounds for Adult Epi auto-pen.
   c. 1:1-0.15 mg for pediatric patients < 66 pounds for Jr Epi auto-pen.
   d. 1:1-0.01 mg/kg with syringe from amp/vial for pediatric patients.

2. **Intravenous/Intraosseous:**
   a. Adult: 1:10-0.5 mg IV/IO.
   b. **Pediatric: Not recommended.**

3. **Endotracheal:**
   a. Adult: 2-2.5 mg of 1:1 mixed with 10 mL NS.
   b. **Pediatric: contact Mary Bridge Base Station for direction.**

*EMR/EMT*

4. Consider repeated doses as necessary.

D. **Consider diphenhydramine.**

1. Adult: 25-50 mg deep IM or slow IV/IO; may repeat. Maximum dose 100 mg. EMT may give 50 mg PO.

2. **Pediatric:** 1 mg/kg PO, deep IM or slow IV/IO, to a maximum dose of 50 mg.

E. **Consider methylprednisolone.**

1. Adult: 125 mg IV/IO.

2. **Pediatric:** 2 mg/kg IV/IO up to 60 mg per dose.

F. **Consider epinephrine drip 2-10 mcg/minute IV/IO or dopamine 10 mcg/kg/minute IV/IO. Titrate to maintain BP > 90/S.**

G. **Consider albuterol.**

1. EMT may administer via metered dose inhaler, as indicated to a total of 5 doses, then call Base Station for medical direction.

2. Adult: 2.5 mg in 3 mL NS SVN can be given continuously.

3. **Pediatric:** Use blow-by if < 5 years old. 2.5 mg in 3 mL NS SVN can be given continuously.

H. **Consider glucagon for anaphylactic patient on beta blockers who is unresponsive to epinephrine.**

1. **Adult:** 1-3 mg IV.

2. **Pediatric:** **contact Mary Bridge Base Station for direction.**
BEHAVIORAL EMERGENCIES

I. General.
   A. Follow General Principles/Routine Care protocol unless otherwise indicated.
   B. Assure scene safety, if not safe then retreat and stage until scene is secured by Law Enforcement.
   C. If a show of force is necessary to render care, contact Law Enforcement.
   D. Scan for signs of items contributing to crisis or that could potentially be used as a weapon.
   E. One EMT or Paramedic should assume control of situation.
      1. Speak slowly in a calm, quiet voice; maintain eye contact; move slowly.
      2. Answer questions honestly and briefly.
      3. Be alert as patient behavior can change very quickly.
   F. Assess patient and treat life threats.
   G. Provide routine care.
      1. Airway, O₂ (assess if behavior is due to hypoxia).
      2. Vital signs (assess if behavior is due to hypovolemia).
      3. Check blood glucose level (assess if behavior is due to hypoglycemia).
      4. Assess for stroke.
   H. Stay with the patient at all times and maintain a constant visual observation.
   I. Severely agitated patients judged as unsafe for transport (because of possible injury to patient or EMS personnel) may be sedated by the paramedic. If sedated, the patient must be closely monitored during transport. Do serial vital signs assessment, and place the patient on EtCO₂ monitor if available. Suggested regimens for sedation:
      1. Diazepam: Adult 5-10 mg IM/IV. **Call Mary Bridge Base Station for pediatric dosing.**
      2. Or Midazolam:
         a. Adult:
            i. Give 0.2 mg/kg of a 5 mg/mL concentration IN, or
            ii. Give 2 mg increments to a maximum dose of 0.1 mg/kg or 10mg (whichever is less) IM/IV.
            iii. Wait 1-2 minutes between IN/IV doses to evaluate response.
            iv. Give half doses if patient is > 60 years old.
         b. Pediatric:
            i. Give 0.2 mg/kg of a 5 mg/mL concentration IM/IN, to a maximum dose of 10 mg, or
            ii. Give 0.1 mg/kg IV slowly over 2 minutes in no greater than 2 mg increments not to exceed 5 mg.
            iii. Wait 1-2 minutes between IN/IV doses to evaluate response.
3. **Or Ketamine:**
   
a. **Adult:** Give 4 mg/kg IM to maximum of 400mg; or 2 mg/kg IV to maximum of 200mg.

b. **Pediatric:** Call Mary Bridge Base Station for pediatric dosing.

J. Restrain only if necessary for your protection or that of the patient, not for staff convenience.

1. Use the minimum physical restraint required to accomplish necessary patient care and still ensure safe transport.
2. Use appropriate device to perform the restraint: soft restraints, gauze roll, triangular bandages, commercial type restraint.
3. If locking devices (handcuffs, flex cuffs, zip ties) were applied by Law Enforcement to ensure patient safety, Law Enforcement personnel must accompany the patient and EMS personnel in the ambulance during transport to facilitate rapid removal of the locking devices as needed for resuscitation.
4. The patient will only be immobilized on the ambulance gurney or appropriate equipment in the supine, fowlers or lateral recumbent position.
5. At no time will the patient be restrained in the prone position.
6. At no time will any piece of equipment (backboard, scoop stretcher, etc.) be placed over the patient for any reason.
7. A protective facemask may be placed over the patient’s mouth/nose if the patient is attempting to bite or spit at EMS personnel.
8. The patient will be continuously monitored for any type of medical compromise.
9. ABCs, vital signs, level of consciousness and circulation in extremities shall be assessed and documented at least every five minutes.
10. At no time will the restrained patient be left alone or unattended.

11. Documentation should include:
   a. Mental status of the patient.
   b. Lack of response to verbal control.
   c. The need for restraint.
   d. The method and process of restraint used.
   e. The type of restraint used.
   f. The patient’s response to restraint and condition while restrained.
   g. Any injuries to the patient or EMS personnel resulting from restraint efforts.
   h. Patient position during treatment and transport.
   i. Methods of monitoring the restrained patient during transport.
   j. Vital signs.
   k. Distal extremity neurovascular checks.
   l. Patient status at the time of transfer of care at the hospital.

II. Types of behavioral emergency conditions.

A. Psychological/psychiatric crisis:

   Panic, anxiety, agitation, bizarre behavior, hallucinations, delusions, danger to self or others.
B. Suicide risk:

Depression, suicidal gestures or thoughts, substance abuse, multiple losses, giving away possessions.

C. Excited Delirium syndrome (ExDs) in an agitated patient.

1. A patient with ExDs will present with extremely violent/aggressive behavior that does not resolve with verbal de-escalation. Patients presenting with ExDs are critically ill. Sedation is needed to assure the safety of the providers and patient, to initiate treatment, and to monitor this critically ill patient.

2. Consider ExDs with any or all of the following patient presentations:
   a. Extremely violent/aggressive behavior.
   b. Constant or near constant physical activity.
   c. Does not respond to police presence.
   d. Attracted to reflective objects.
   e. Attracted to bright lights and/or loud sounds.
   f. Naked or inadequately clothed.
   g. Is hot to touch.
   h. Rapid breathing.
   i. Profuse sweating.
   j. Keening (unintelligible animal noises).
   k. Extreme tolerance to pain.
   l. Excessive strength (out of proportion).
   m. Does not tire despite heavy exertion.

3. If the call is dispatched as ExDs or symptoms suggest ExDs, coordinate with Law Enforcement, if available, to develop a sedation and/or patient control plan.

4. If the call is upgraded to ExDs once on scene, ensure crew and bystander safety while awaiting decision if Law Enforcement can respond, if so then coordinate with Law Enforcement to develop a sedation and/or patient control plan.

5. Be alert to the patient that develops ‘instant tranquility’ prior to sedation as this can indicate cardiac arrest.

6. Prepare sedative prior to making contact with the patient:
   a. Midazolam 10 mg IN/IM/IV, or
   b. Ketamine 4 mg/kg IM; or 2mg/kg IV, or
   c. Diazepam 5-10 mg IM/IV.
   d. Call Mary Bridge Base Station for pediatric dosing.

7. All ExDs patients will be restrained (See Section I. above).
   a. Patient will not be removed from restraints until medically cleared or for resuscitative measures.
   b. Law Enforcement may accompany the patient to the hospital.

8. Take and document the patient’s behavior and temperature, then apply ice packs to facilitate cooling if hyperthermic, monitor for overcooling.

9. Establish an IV of NS as soon as feasible and check blood glucose. If unable to establish an IV and if the patient has an elevated body temperature and was extremely agitated prior to sedation, establish an IO.
a. Administer NS IV fluids up to 2 liters. Cooled fluids, if possible, for the patient with an elevated body temperature.
b. If extreme agitation is present prior to sedation and the patient has an elevated body temperature (≥102°F), administer Sodium Bicarbonate 50 mEq IV push for each liter of saline given, to a maximum of 100 mEq.
c. If you have the ability to draw blood tubes - 20 mL red top, 10 mL gray top (x2), and 10 mL purple.

10. Manage the airway of a patient who has an elevated body temperature and was extremely agitated prior to sedation.
   a. *Remember Succinylcholine is contraindicated in ExDs, so use vecuronium or rocuronium.*
   b. Monitor EtCO₂ if available, watching closely for apnea, hypopnea, or acidosis.

11. Patient should be monitored:
   a. Monitor ABCs continuously.
   b. Obtain vital signs every 5 minutes.
   c. Monitor EtCO₂ and pulse oximetry watching closely for hypoxia, apnea, hypopnea and acidosis.
   d. Monitor airway patency including need for suctioning as ketamine can cause hypersalivation and/or laryngospasm:
      i. *Consider atropine 0.5 mg IV/IM/IO if hypersalivation impacts airway patency.*
      ii. Manage laryngospasm in this order until airway is controlled. Larson’s maneuver (digital pressure applied to the notch behind the lobule of the pinna of each ear), high flow O₂, BVM, and if unsuccessful then RSI/DSI.
   e. Place patient on ECG monitor.
   f. Perform a 12-Lead ECG.
      i. *Pay close attention for evidence of hyperkalemia and treat according to the hyperkalemia protocol.*
      ii. Pay close attention to the QT interval as QT >500 increases risk of Torsades. Torsades should be treated per AHA guidelines.

III. Transport.

A. Refer to the Transport Policy, Section V – Individual with a Mental Disorder Transport Guideline.

B. If the patient does not fall into the above guideline, consult with Base Station.

C. May transport to the Recovery Response Center or Crisis Response Center.
   1. Call RRC / CRC (Appendix L).
      a. Identify yourself and explain that you have a patient who has been medically cleared in the field and is ready for transport to the RRC/CRC.
      b. Give clinical information.
   2. Inclusion criteria- consider the following for transport to RRC/CRC:
a. Any patient with a psychiatric or behavioral health presentation who is \( \geq 18 \) years old or emancipated.
b. Patient with psychosis of unknown etiology (drugs vs. mental health) with a history of mental health problems.
c. Patient with a mental health chief complaint who is cooperative and voluntarily/willing to go to the RRC/CRC.
d. Patient with a mental health chief complaint referred by LE or Designated Mental Health Professional (DMHP).
e. The patient’s current condition cannot be explained by another medical issue and traumatic injury is not suspected.
f. Patient has a normal level of consciousness, no medical physical conditions suspected.
g. Suicidal patients who accept voluntary care or are detained by LE or DMHP.
h. Vital signs parameters: HR 50-110, BP systolic 100-190 with diastolic less than 110, RR 12-24, Temperature 97-100.3° F, \( \text{SPO}_2 > 92\% \), blood sugar 70-300.
i. Patient has the ability to care for self, such as activities of daily living, as well as indwelling tubes, lines or catheters.

3. Exclusion criteria- do not consider the following for transport to RRC/CRC:
   a. Suspected drug overdose or ingestion of unknown substance.
   b. Medically unstable patients.
   c. Patients who appear intoxicated/under the influence as their primary complaint.
   d. Patients in moderate/acute alcohol or drug withdrawal (abnormal vitals, tachycardia, dehydration, hallucinations, nausea & vomiting).
   e. Patients who were violent and required sedation.
   f. Pregnant patients.
   g. Patient with a loss of consciousness or seizure within the past 24 hours by patient history.
   h. Patients on anticoagulation medications who have any trauma, even minor.

4. Documentation of all findings, patient care and inclusion criteria must be made on a patient care report, and a copy of that report and all supporting LE/DMHP documents must be left at the RRC/CRC at the time of delivery.
I. Obstetrics (OB).

A. Childbirth – Woman in Labor.
   1. Follow General Principles/Routine Care guidelines, assessing vaginal area for crowning and signs of meconium.
   2. *Initiate IV with NS/LR for possible fluid replacement.*
   3. If not crowning, transport the mother on her left side to the most appropriate facility based on her history and gestational development of the fetus. (See Transport Policy, Section II tables).

B. Childbirth – Imminent Delivery.
   1. If crowning is present at time of examination, prepare for immediate delivery and assess for possible meconium.
   2. While coaching the mother, perform delivery making sure to prevent explosive delivery.
   3. Check for cord wrapped around the baby’s neck. If present, unwrap or clamp and cut the cord before proceeding with the delivery.
   4. Dry the baby and stimulate to a cry.

C. Childbirth – Breech Delivery.
   1. All efforts should be made to rapidly transport the mother to the closest, most appropriate facility. Place the mother in a gravity dependent, knee chest position and coach her not to push.
   2. If delivery cannot be delayed, assess for type of breech delivery: Frank (bottom first) or Footling (feet first).
      a. If Frank: perform delivery, coaching the mother to prevent an explosive delivery. Dry the baby and stimulate to a cry.
      b. If Footling: place a gloved hand into the vagina along the newborn baby’s chest and face, keeping the cervix open while maintaining an air passage through the birth canal. Deliver the baby if possible, dry the baby and stimulate to a cry.

D. Childbirth – Prolapsed cord.
   1. Place mother on back and elevate the hips, or consider knee-chest position.
   2. Place sterile gloved index and middle fingers into the vagina, pushing the infant up to relieve pressure on the cord.
   3. Check cord for pulse and assure pulse is maintained.
   4. Transport immediately.

E. Childbirth – Meconium Present.
   1. Assess the mother’s garments and the surrounding area while getting a good history of when her membrane ruptured and assess for the presence of meconium. Continue to deliver as above.
   2. Once delivered, assess the baby for vigorous activity.
      a. For the vigorous baby, continue the care per Section F.2. below.
b. For the non-vigorous baby:
   i. Once delivered and prior to drying and stimulation, use a bulb syringe to suction the baby's mouth and nose, clearing as much meconium from the oral and posterior pharynx as possible.
   ii. Continuously monitor the baby's heart rate.
      iii. If the baby does not become vigorous or if the heart rate is < 100, place an ETT into the trachea and secure it for continued ventilation assistance and transport.
   iv. Provide resuscitative efforts following the guidelines listed below.

F. Neonatal Resuscitation.

1. HR < 100, apneic, or weak respiratory effort (non-vigorous).
   a. Ventilate with 100% oxygen using a BVM at a rate of 40-60 breaths per minute. Hold the pop-off valve closed for the first 2 or 3 ventilations, assuring good expansion of the alveoli. Release the pop-off valve and continue ventilation as needed.
   b. Clamp and cut umbilical cord approximately 6-8" from baby.
   c. Dry and stimulate.
   d. If HR remains < 60 perform CPR at the rate of 120 per minute at a ratio of 3 compressions to 1 ventilation.
   e. Initiate IV/IO access.
   f. Check blood glucose levels and if < 60, neonate specifically give 2 mL/kg of D10W.
   g. Administer epinephrine 0.01 mg/kg of 1:10 solution (0.1 mL = 0.01 mg of 1:10 solution, maximum dose 1 mg) IV/IO. ET- use 0.1 mg/kg (1:1 0.1 mL/kg).
   h. Transport the newborn and the mother to the closest, most appropriate facility.

2. HR > 100, (vigorous).
   a. After one minute, clamp and cut umbilical cord approximately 6-8" from baby.
   b. Wrap the baby in a dry, warm blanket and place a hat on the head if available.
   c. Assess APGAR at 1 and 5 minutes (Appendix J).

G. Post-Delivery Care.

1. Encourage the mother to nurse the newborn baby.
2. Allow the placenta to deliver naturally. Do not pull on the umbilical cord. Transport all passed tissue to the hospital for further evaluation.
3. Massage the fundus (uterus) to help control any postpartum bleeding.
4. For postpartum hemorrhage:
   a. Transport immediately.
   b. Place a sanitary napkin or trauma dressing over the vaginal opening. Do not pack anything into the vagina.
   c. Initiate IV NS/LR, titrate to BP > 90/S.
   d. Re-assess the mother for signs of shock and hypoglycemia. Treat according to protocol.
e. Transport the mother and the baby to the closest, most appropriate facility.

H. Pre-Eclampsia/Eclampsia/Seizures/Hypertension.
1. Follow General Principles/Routine Care guidelines.
2. Initiate IV with NS.
3. Check blood glucose level and treat as needed.
4. Place the mother on her left side and transport to the closest most appropriate facility. Transport should be as smooth and quiet as possible to prevent/reduce seizure activity.
5. If the mother is seizing, follow the seizure protocol listed in Medical Emergencies.
6. In addition to above, give the mother magnesium sulfate 4 gm slow IV push over 5 minutes.

I. Gestational Diabetic Problems.
1. Hypoglycemia: Follow General Principles/Routine Care guidelines and the Altered level of consciousness/unconsciousness protocol listed in Medical Emergencies.
2. Hyperglycemia: Follow General Principles/Routine Care guidelines and transport to the closest, most appropriate facility.

J. Vaginal Bleeding (unrelated to post-delivery).
1. Assess perineum and vaginal area for signs of trauma or other problems.
2. Estimate amount of blood loss. Follow General Principles/Routine Care guidelines.
3. Place a sanitary napkin or trauma dressing over the vaginal opening. Do not pack anything into the vagina.
4. Initiate IV with NS/LR for possible fluid replacement. Consider fluid resuscitation per Medical Emergencies section IX. Medical Bleeding. E.
5. Treat for hemorrhagic shock and keep patient warm.

II. Gynecological Emergencies.

Vaginal bleeding.
1. Follow General Principles/Routine Care guidelines, assessing perineum and vaginal area for signs of trauma or other problems. Estimate amount of blood loss.
2. Place a sanitary napkin or trauma dressing over the vaginal opening. Do not pack anything into the vagina.
3. Initiate IV with NS/LR for possible fluid replacement. Consider fluid resuscitation per Medical Emergencies section IX. Medical Bleeding. E.
4. Treat for hemorrhagic shock and keep patient warm.
5. Inquire as to the possibility of pregnancy.
A. STANDARD REPORTING FORMAT

†This is ___________________ †with ___________________

Name Service

Destination ___________________ †ETA ___________________

†We have a ______ year old male/female, approximately ____lbs. who is an urgent/non-urgent medical (Identify a ‘Code Neuro’ or ‘Code STEMI’ or ‘Code Sepsis’ patient) or a Step 1 / 2 / 3/ 4 trauma or an injured patient.

†C/C ____________________________________________

†If stroke patient, give BEFAST results with time last known well: _____, and Stroke Severity Score: _____.

LOC ____________________________________________

BP is _____________ HR _______________ ECG _____________

Lungs are ___________ RR _______________ Effort ____________

Eye Opening ___________ Verbal Response ______ Motor Response ___

Pupils are ___________________ Skin is_____________________

Pertinent past history ___________________________________

Meds _____________________________________________

Pertinent PE _______________________________________

†Pediatric- Peds Card / ‘Broselow’ color.____________________________

†Treatment done _________________________________________

Treatment requested _______________________________________

†Items for a short report for critical patients with short ETA

Definitions:

URGENT Cardiac/respiratory arrest. Unstable vital signs.

NON-URGENT Stable vital signs.

SIGNAL I Death by fire.

SIGNAL II Death by natural causes.

SIGNAL III Suspicious death.
B. PIERCE COUNTY
PREHOSPITAL TRAUMA TRIAGE (DESTINATION) PROCEDURES

STEP 1 Measure Vital Signs & Level of Consciousness
• Glasgow Coma Scale ≤13 or
• Systolic blood pressure <90 mmHg or
• Respiratory rate <10 or >29 breaths/minute (<20 or ≥29 breaths/minutes in infant aged <1 year), or need for ventilatory support

YES

NO

STEP 2 Assess Anatomy of Injury
• All penetrating injuries to head, or neck, or torso, or extremities proximal to elbow or knee
• Chest wall instability or deformity (e.g. flail chest)
• Two or more proximal long-bone fractures
• Crushed, or degloved, or mangled, or pulseless extremity
• Amputation proximal to wrist or ankle
• Pelvic fractures
• Open or depressed skull fracture
• Paralysis

YES

NO

STEP 3 Assess Mechanism of Injury & Evidence of High-Energy Impact
Falls
• Adults and Children ≥15 years: >20 feet (one story is equal to 10 feet)
• Children <15 years: >10 feet or 2-3 times the height of the child

High-Risk Vehicle Crash
• Intrusion, including roof: >12 inches occupant site or >18 inches any site
• Ejection (partial or complete) from vehicle
• Death in same passenger compartment
• Vehicle telemetry data consistent with high risk of injury

Vehicle v. Pedestrian/Bicyclist Thrown, Run Over, or with Significant (>20 mph) Impact
Motorcycle Crash >20 mph

YES

NO

STEP 4 Assess Special Patient or System Considerations
Older Adults
• Risk of injury death increases after age 55 years
• Systolic BP < 110 may represent shock after age 65
• Low impact mechanisms (e.g. ground level fall) may result in severe injury

Children
• Should be triaged preferentially to pediatric-capable trauma centers

Anticoagulation and Bleeding Disorders
• Patients with head injury are at high risk for rapid deterioration

Burns
• Without other trauma mechanism: Triage to burn facility
• With trauma mechanism: Triage to trauma center

Pregnancy >20 Weeks

EMS Provider Judgment

YES

NO

When in Doubt, Transport to a Trauma Center!

Contact medical control or receiving facility, and consider transport to a trauma center or a specific resource hospital.

Transfer according to local protocol.

Take patient to the nearest Level I or Level II trauma center within 30 minutes transport time via ground or air transport according to DOH approved regional patient care procedures.

Burns & amputations transported to Harborview Medical Center.

Take patient to the nearest appropriate trauma center within 30 minutes transport time (Air or Ground), which, depending upon the defined trauma system, need not be the highest level trauma center.

Rev. December 2021
STATE OF WASHINGTON (Pierce County)
PREHOSPITAL TRAUMA TRIAGE (DESTINATION) PROCEDURE

Purpose

The Trauma Triage Procedure was developed by the Centers for Disease Control in partnership with The American College of Surgeons, Committee on Trauma. The guidelines have been adopted by the Department of Health (DOH) based on the recommendation of the State EMS and Trauma Steering Committee.

The procedure is described in the attached algorithm. The guidelines represent the current best practice for the triage of trauma patients. The algorithm allows EMS and trauma responders to quickly and accurately determine if the patient is a major trauma patient.

The "defined system" is the trauma system that exists within an EMS and Trauma Care Region.

Explanation of Procedure

Any certified EMS and trauma responder can identify a major trauma patient and notify the trauma system. This may include asking for Advanced Life Support response or air medical evacuation.

Step (1) Assess the patient's vital signs and level of consciousness using the Glasgow Coma Scale. Step 1 findings require activation of the trauma system. They also require rapid transport to the nearest Level I or Level II trauma center within 30 minutes transport time via ground or air transport according to DOH approved regional patient care procedures. If unable to manage the patient's airway, consider meeting up with an ALS unit or transporting to the nearest facility capable of definitive airway management.

Step (2) Assess the anatomy of injury. Step 2 findings require activation of the trauma system. They also require rapid transport to the nearest appropriate trauma center within 30 minutes transport time (Air or Ground), which, depending upon the defined trauma system, need not be the highest level trauma center. The presence of the specific anatomical injuries even with normal vital signs, lack of pain or normal levels of consciousness still require activating the trauma system.

Step (3) Assess biomechanics of the injury and address other risk factors. The conditions identified are reasons for the provider to transport to a trauma center. Transport to the nearest appropriate trauma center within 30 minutes transport time (Air or Ground), which, depending upon the defined trauma system, need not be the highest level trauma center.

Step (4) has been added to assess special patients or system considerations. Risk factors coupled with "Provider Judgment" are reasons for the provider to contact Medical Control or receiving facility and consider transport to a trauma center or a specific resource hospital.

Regional Patient Care Procedures (PCPs) and Local County Operating Procedures (COPs) provide additional detail about the appropriate hospital destination. PCPs and COPs are intended to further define how the system operates. The Prehospital Trauma Triage procedure and the Regional Patient Care Procedures work in a "hand in glove" fashion to address trauma patient care needs.
C. PIERCE COUNTY
PREHOSPITAL CARDIAC TRIAGE (DESTINATION) PROCEDURES

Assess Applicability for Triage

☐ Post cardiac arrest with ROSC
☐ ≥ 21 years of age with symptoms lasting more than 10 minutes but less than 12 hours suspected to be caused by coronary artery disease:
  ☐ Chest discomfort (pressure, crushing pain, tightness, heaviness, cramping, burning, aching sensation), usually in the center of the chest lasting more than a few minutes, or that goes away and comes back.
  ☐ Pain or discomfort in 1 or both arms, neck, jaws, shoulders, or back.
  ☐ Shortness of breath with or without chest discomfort.
  ☐ Epigastric (stomach) discomfort, such as unexplained indigestion, belching, or pain.
  ☐ Other symptoms may include sweating, nausea/vomiting, lightheadedness.

NOTE: Women, diabetics, and geriatric patients might not have chest discomfort or pain. Instead they might have nausea/vomiting, back or jaw pain, fatigue/weakness, or generalized complaints.

If ALS has not been dispatched, upgrade if available.

Assess High Risk Criteria
In addition to symptoms in Box 1, pt. has 4 or more of the following:

☐ Age ≥ 55
☐ 3 or more CAD risk factors:
  ☐ family history
  ☐ high blood pressure
  ☐ high cholesterol
  ☐ diabetes
  ☐ current smoker
☐ Aspirin use in last 7 days
☐ ≥2 anginal events in last 24 hours, including current episode
☐ Known coronary disease
☐ ST deviation ≥ 0.5 (if available)
☐ Elevated cardiac markers (if available)

If EMS personnel still suspect an acute coronary event, contact medical control for destination. If not, transport per regional patient care procedures.

Level I Cardiac Hospital w/in 30 minutes

YES
 Go to Level I Cardiac Hospital and alert destination hospital enroute ASAP

NO
 Level II Cardiac Hospital 30 minutes closer than Level I?

YES
 Go to Level I Cardiac Hospital and alert destination hospital enroute ASAP

NO
 Go to closest Level II Cardiac Hospital and alert destination hospital enroute ASAP

Level I Cardiac Hospital w/in 60 minutes

YES
 Go to Level I Cardiac Hospital and alert destination hospital enroute ASAP

NO
 Level II Cardiac Hospital 60 minutes closer than Level I?

YES
 Go to closest Level II Cardiac Hospital and alert destination hospital enroute ASAP

NO

Unstable patients (life-threatening arrhythmias, severe respiratory distress, shock) unresponsive to EMS treatment should be taken to the closest hospital.

• Slight modifications to the transport times may be made in county operating procedures. See page 2.
  Consider ALS and air transport for all transports greater than 30 minutes.
  If there are two or more Level I facilities to choose from within the transport timeframe, patient preference, insurance coverage, physician practice patterns, and local rotation agreements may be considered in determining destination. This also applies if there are two or more Level II facilities to choose from.

April 2011
PIERCE COUNTY
PREHOSPITAL CARDIAC TRIAGE (DESTINATION) PROCEDURES cont.

Why triage cardiac patients?
The faster a patient having a heart attack or who’s been resuscitated gets treatment, the less likely he or she will die or be permanently disabled. Patients with unstable angina and non-ST elevation acute coronary syndromes (UA/NSTE) are included in the triage procedure because they often need immediate specialized cardiac care. This triage procedure is intended to be part of a coordinated regional system of care that includes dispatch, EMS, and both Level I and Level II Cardiac hospitals.

How do I use the Cardiac Triage Destination Procedure?
A. Assess applicability for triage – If a patient is post cardiac arrest with ROSC, or is over 21 and has any of the symptoms listed, the triage tool is applicable to the patient. Go to the “Assess Immediate Criteria” box. NOTE: Women, diabetics, and geriatric patients often have symptoms other than chest pain/discomfort so review all symptoms with the patient.

B. Assess immediate criteria – If the patient meets any one of these criteria, he or she is very likely experiencing a heart attack or other heart emergency needing immediate specialized cardiac care. Go to “Assess Transport Time and Determine Destination” box. If the patient does not meet immediate criteria, or you can't do an ECG, go to the “Assess High Risk Criteria” box.

C. Assess high risk criteria – If, in addition to meeting criteria in box 1, the patient meets four or more of these high risk criteria, he or she is considered high risk for a heart attack or other heart emergency needing immediate specialized cardiac care. These criteria are based on the TIMI risk assessment for unstable angina/non-STEMI. If the patient does not meet the high risk criteria in this box, but you believe the patient is having an acute coronary event based on presentation and history, consult with medical control to determine appropriate destination. High risk criteria definitions:

- Age ≥ 55: epidemiological data for WA show that incidence of heart attack increases at this age.
- 3 or more CAD (coronary artery disease) risk factors:
  - Family history: father or brother with heart disease before 55, or mother or sister before 65
  - High blood pressure: ≥140/90, or patient/family report, or patient on blood pressure medication
  - High cholesterol: patient/family report or patient on cholesterol medication
  - Diabetes: patient/family report
  - Current smoker: patient/family report
- Aspirin use in last 7 days.
- ≥ 2 anginal events in last 24 hours: 2 or more episodes of symptoms described in box 1 of the triage tool, including the current event.
- Known coronary disease: history of angina, heart attack, congestive heart failure, balloon angioplasty, stent, or bypass surgery.
- ST deviation ≥ 0.5 mm (if available): ST depression ≥ 0.5 mm is significant; transient ST elevation ≥ 0.5 mm for < 20 minutes is treated as ST-segment depression and is high risk; ST elevation > 1 mm for more than 20 minutes places these patients in the STEMI treatment category.
- Elevated cardiac markers (if available): CK-MB or Troponin I in the “high probability” range of the device used. Only definitely positive results should be used in triage decisions.

D. Determine destination – The general guideline is to take a patient meeting the triage criteria directly to a Level I Cardiac Hospital within reasonable transport times. For BLS, this is generally within 30 minutes transport time, and for ALS, generally 60 minutes transport time. See below for further guidance. Regional patient care procedures and county operating procedures may provide additional guidance.

E. Inform the hospital enroute so staff can activate the cath lab and call in staff if necessary.

What if a Level I Cardiac Hospital is just a little farther down the road than a Level II?
You can make slight changes to the 30/60 minute timeframe. The benefits of opening an artery faster at a Level I can outweigh the extra transport time. To determine whether to transport beyond the 30 or 60 minutes, figure the difference in transport time between the Level I Cardiac Hospital and the Level II Cardiac Hospital. For BLS, if the difference is more than 30 minutes, go to the Level II Cardiac Hospital. For ALS, if the difference is more than 60 minutes, go to the level II Cardiac Hospital.

BLS examples:
A) Minutes to Level I minus minutes to Level II = 29: go to Level I
B) Minutes to Level I minus minutes to Level II = 35: go to Level II

ALS examples:
A) Minutes to Level I minus minutes to Level II = 45: go to Level I
B) Minutes to Level I minus minutes to Level II = 68: go to Level II

NOTE: We recommend ALS use a fibrinolytic checklist to determine if a patient is ineligible for fibrinolysis. If ineligible, transport to closest Level I hospital even if it’s greater than 60 minutes or rendezvous with air transport.

What if there are two or more Level I or II facilities to choose from?
If there are two or more of the same level facilities to choose from within the transport times, patient preference, insurance coverage, physician practice patterns, and local rotation agreements may be considered in destination decision.
D. PIERCE COUNTY
PREHOSPITAL STROKE TRIAGE (DESTINATION) PROCEDURES

**STEP 1: Assess Likelihood of Stroke**
- Numbness or weakness of the face, arm, or leg, especially on one side of the body
- Confusion, trouble speaking, or understanding
- Trouble seeing in one or both eyes
- Trouble walking, dizziness, loss of balance, or coordination
- Severe headache with no known cause

If any of above, proceed to **STEP 2**, if none, transport per county operating procedures

**STEP 2: Perform B.E. F.A.S.T. Assessment (positive if any are abnormal)**
- **Balance**: Sudden trouble with balance or coordination
- **Eyes**: Sudden blurred or double vision or loss of vision in one or both eyes
- **Face**: Unilateral facial droop
- **Arms**: Unilateral arm drift or weakness
- **Speech**: Abnormal or slurred
- **Time**: Best estimate of Time Last Known Well = ____ (clock time)

If B.E. F.A.S.T. negative, transport per county operating procedures

**STEP 3: If B.E. F.A.S.T. Positive - Calculate Stroke Severity Score (LAMS) - notify hospital of SSScore/LAMS #**

<table>
<thead>
<tr>
<th>Facial Droop:</th>
<th>Absent 0</th>
<th>Present 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm Drift:</td>
<td>Absent 0</td>
<td>Drifts 1</td>
</tr>
<tr>
<td></td>
<td>Falls Rapidly 2</td>
<td></td>
</tr>
<tr>
<td>Grip Strength:</td>
<td>Normal 0</td>
<td>Weak 1</td>
</tr>
<tr>
<td></td>
<td>No Grip 2</td>
<td></td>
</tr>
</tbody>
</table>

**Total Stroke Severity Score = ____ (max. 5 points)**

**STEP 4: Determine Destination: Time Last Known Well + Stroke Severity Score**

<table>
<thead>
<tr>
<th>Time Last Known Well is &lt; 6 hours</th>
<th>Time Last Known Well is &gt; 24 hours (regardless of Stroke Severity Score, alert destination hospital)</th>
<th>Time Last Known Well is 6-24 hours (Provide stroke alert to destination hospital ASAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Stroke Severity Score 4 or more?</td>
<td>NO</td>
<td>Stroke Severity Score 4 or more?</td>
</tr>
<tr>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
</tr>
</tbody>
</table>

**Additional Destination Considerations:**
- Any additional transport time should not take the patient outside of the IV tPA time window.
- Assess availability of critical care air transport if it can help get the patient to a Stroke Center within the window of time for intervention.
- If unable to manage airway, consider rendezvous with ALS or intermediate stop at nearest facility capable of definitive airway management.
- If there are two or more Stroke Centers of the same level to choose from within the transport timeframe, patient preference, physician practice patterns, and local rotation agreements may be considered.
PIERCE COUNTY
PREHOSPITAL STROKE TRIAGE (DESTINATION) PROCEDURES

The purpose of the Prehospital Stroke Triage and Destination Procedure is to identify stroke patients in the field and take them to the most appropriate hospital, which might not be the nearest hospital. Stroke treatment is time-critical – the sooner patients are treated, the better their chances of survival and recovering function.

For strokes caused by a blocked blood vessel in the brain (ischemic, the majority of strokes), clot-busting medication (tPA) must be administered within 4.5 hours from the time the patient was last known well, a treatment that can be given at WA DOH Level 1, 2 or 3 stroke centers (for a list of categorized hospitals, please click here).

If a patient presents to EMS with a severe stroke, they are more likely to have blockage of a large vessel and can benefit from mechanical clot retrieval (thrombectomy). Thrombectomy must begin by 24 hours since last known well, and is a more complex intervention, only available in Level I and a small number of Level II stroke centers.

There are 3 key elements to determine the appropriate destination hospital:

• **BEFAST stroke screen** to identify a patient with a high probability of stroke.
• **Stroke Severity Score** to determine if a patient meets criteria for “severe” stroke.
• **Time since Last Known Well (LKW)** which helps determine eligibility for tPA and thrombectomy.

**STEPS to determine destination:**

1) **Do a BEFAST Stroke Screen Assessment:** (Balance, Eyes, Facial droop, Arm drift, Speech changes, Time since LKW) is a simple way to tell if someone might be having a stroke. If BEFAST is negative, stroke is less likely, and standard destination procedures apply. If BEFAST is positive (balance or vision or face or arms or speech is abnormal), it’s likely the patient is having a stroke and the EMS provider moves on to assessing stroke severity.

2) **Assess severity:** The stroke severity assessment scores the FAST stroke screen. Patients get points for deficits:
   - **Facial droop** gets 1 point if present, 0 points if absent;
   - **Arm drift** (have patient hold arms up in air) gets 2 points if an arm falls rapidly, 1 point if slowly drifts down and 0 points if the arms stay steady;
   - **Grip strength** gets 2 points if no real effort can be made, 1 point if grip is clearly there but weak, and 0 points if grips seem of full strength.

3) **Add up the points:** A score ≥ 4 is interpreted as “severe.”

4) **Determine time since LKW:** It is important to use the LKW time as opposed to when symptoms were first noticed. If a patient woke up in the morning with symptoms and was well when they went to bed, time LKW is the time they went to bed. If stroke symptoms occur when the patient is awake, LKW could be the same time the symptoms started if the patient or a bystander noticed the onset. LKW time could also be prior to symptoms starting if a patient delays reporting symptoms, or, for example, someone discovers a patient with symptoms but saw them well 2 hours prior. Report by actual clock hour, not by ‘30 prior to arrival’, etc.

5) **Determine Destination:**
   - **Time since LKW ≤ 6 hours and “Severe” (score ≥ 4):** Transport to nearest Level I or II Stroke Center with endovascular capability provided transport time is no more than 15 minutes greater than to a nearer Level II or Level III Stroke Center.
   - **Time since LKW > 24 hours (regardless of severity score):** Transport to the nearest Level I or Level II stroke center provided it is no more than 15 extra minutes travel than to a nearer Level III stroke center.
   - **Time since LKW 6 – 24 hours AND “Severe”:** Transport to the nearest Level I or Level II stroke center with endovascular capability provided transport time is no more than 30-60 extra minutes travel to a nearer Level II or Level III stroke center.
   - **Time since LKW 6 – 24 hours but NOT “Severe”:** Transport to the nearest Level I or Level II stroke center provided it is no more than 15 extra minutes travel compared to a nearer Level III stroke center.

6) **Notification:** Immediately notify the destination hospital of incoming stroke, and report the Stroke Severity Score/LAMS.

7) **Document:** key medical history; medication list and next of kin phone contacts; time on scene; BEFAST assessment completed and results (or reason why not); Stroke Severity Score/LAMS #; LKW actual clock time (including unknown); blood glucose level; and whether the hospital was notified from the field and if it was a stroke alert.
E. EMS SEPSIS SCORE CARD

Use tool with any suspected or confirmed infection or illness in adults ≥ 18 years old.

<table>
<thead>
<tr>
<th>EMS TRIAGE</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Rate</td>
<td>&lt; 8</td>
<td>9-20</td>
<td>21-29</td>
<td>≥30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart Rate</td>
<td>≤ 40</td>
<td>41-59</td>
<td>60-89</td>
<td>90-119</td>
<td>≥120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature (F)</td>
<td>&lt;96.8</td>
<td>96.8-100.4</td>
<td>&gt;100.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>≤ 54</td>
<td>55-64</td>
<td>65-74</td>
<td>≥ 75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-existing Factors</td>
<td>none</td>
<td>2</td>
<td>3</td>
<td>≥ 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GCS</td>
<td>≤ 6</td>
<td>7 - 11</td>
<td>12 - 14</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBP</td>
<td>≤ 90</td>
<td>≥ 91</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EtCO₂</td>
<td>&lt;25</td>
<td>25-32</td>
<td>32-37</td>
<td>&gt;37</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub-TOTAL</td>
<td>Score ≥ 9 = CODE SEPSIS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Score 7-8: Advise Hospital of Sepsis Score Card total

- ALS transport
- Add EtCO₂ monitoring; adjust score as needed
- Place on monitor
- Establish large bore IV; consider 2nd line if able
- Titrate O₂ to maintain saturation of 94-99%
- Consider normal saline 20ml/kg bolus if strong suspicion for sepsis (hypotension ≤ 90 SBP & tachycardia ≥ 120/min) regardless of co-morbidities such as CHF/ESRD
- If there is no response to the initial fluid bolus repeat the bolus and consider norepinephrine

Score ≥9: Notify Hospital of Sepsis Score Card total; RN will initiate Code Sepsis

- Consider priority transport
- Place on monitor
- Establish large bore IV; strongly consider 2nd line
- Titrate O₂ to maintain saturation of 94-99%
- Normal Saline wide open or 20ml/kg regardless of co-morbidities such as CHF/ESRD - up to 2L
- Consider using norepinephrine early if there is not a rapid response to the fluid infusion

Pre-Existing Factors

___ Cancer with recent treatment (chemo, etc)
___ Diabetes Mellitus
___ Renal Failure
___ Liver Failure
___ Hypertension (HTN)
___ Cardiac Disease (CHF and vascular disease)
___ Known Infection
___ Implanted Ports
___ Feeding Tube
___ Urinary Tube (Foley or urostomy)
___ Colostomy
___ Surgical Sites
___ Implanted devices
___ Pressure ulcers
___ Antibiotic therapy within 30 days
___ Surgery within 30 days
___ HIV
F. ALS/BLS TRANSPORT GUIDELINES

Consider extremes of age when evaluating for BLS versus ALS transport.

**BLS** If the patient meets BLS criteria, they may be transported by the crew of a licensed, verified BLS or ALS ambulance agency. The ambulance crew will contact the Receiving Facility unless Base Station orders are required.
- Warm, dry, pink skin at rest.
- HR 60 to 130 regular when at rest, peripheral pulses present.
- RR 10 to 30 at rest.
- BP > 100 systolic unless symptomatic due to BP.
- BP < 180 systolic unless symptomatic due to BP.
- BP < 120 diastolic unless symptomatic due to BP.
- Awake, alert, or at baseline mental status.
- No chest pain/no shortness of breath/no signs of a stroke/TIA.
- No drug overdose.
- No suicide attempt requiring ALS interventions.
- No significant mechanism of injury resulting in ALS symptoms.
- No impending or current childbirth associated with complications.
- Patients with Ventricular Assist Device (VAD) not requiring ALS interventions.
- Patients with medical devices/equipment managed by the patient/caregiver requiring no medical intervention or monitoring (e.g. peg tubes, CSF shunts, colostomy/ileostomy bags, insulin pumps, feeding tubes that are not running during transport).

**ALS** If the patient meets ALS criteria, they must be transported by the crew of a licensed, verified ALS ambulance agency. The ambulance crew will contact the Receiving Facility unless Base Station orders are required.
- Cool, clammy skin.
- HR < 60 or > 130 at rest, in adults.
- RR < 10 to > 30 shallow or labored at rest.
- BP < 100 systolic if symptomatic due to BP.
- BP > 180 systolic if symptomatic due to BP.
- BP > 120 diastolic if symptomatic due to BP.
- Altered LOC or confirmed loss of consciousness now or prior to arrival.
- Chest pain/shortness of breath/signs of a stroke/TIA.
- Impending/recent childbirth/neonate care.
- Medication reaction/drug overdose/suicide attempt resulting in ALS symptoms, requiring ALS intervention or if decompensation may occur.
- Severe bleeding, amputation; including fingers/toes resulting in shock.
- Significant mechanism of injury resulting in ALS symptoms.
- Supra-umbilicus abdominal and/or back pain when atypical cardiac origin is suspected.

* If the transport of an ALS patient will be delayed longer than the time it would take a BLS unit to transport to the Receiving Facility, the BLS unit may transport the patient with the permission of Base Station.
# Appendix G

## G. Rapid Sequence Intubation

*Use Adult dosing for Adult patients; use Pediatric dosing for patients without signs of puberty.*

<table>
<thead>
<tr>
<th>CHECK</th>
<th>ACTION</th>
<th>DOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>Prepare equipment and supplies.</td>
<td>Verbalize plan-ABCD.</td>
</tr>
<tr>
<td></td>
<td>Preoxygenation to an ( O_2 ) saturation as close to 100% as possible for 3 full minutes</td>
<td>Nonrebreather mask at flush rate OR CPAP/BiPAP OR Bag valve mask ventilation.</td>
</tr>
<tr>
<td>✓</td>
<td>Preoxygenate with the patient’s head up 25° to 30° when clinically feasible.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positioning- sniffing position if feasible.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apneic Oxygenation-</td>
<td>Nasal cannula:</td>
</tr>
<tr>
<td>✓</td>
<td>Initiate anytime if oxygen source available, preferably before paralysis with induction.</td>
<td>Adult at 15 L/minute.</td>
</tr>
<tr>
<td></td>
<td>Continue until intubation is complete.</td>
<td>Pediatric &lt; 1 year old at 5L/minute.</td>
</tr>
<tr>
<td></td>
<td>Pre-intubation Optimization</td>
<td>Resuscitate before you intubate, consider IV fluid bolus and vasopressor infusion.</td>
</tr>
<tr>
<td>✓</td>
<td>Paralysis with induction-</td>
<td>Dose all in Ideal Body Weight (IBW). Consider ½ dose in hypotension or high shock index.</td>
</tr>
<tr>
<td></td>
<td>▶ Etomidate</td>
<td>Adult: 0.3 mg/kg IV/IO push over 30 - 60 seconds.</td>
</tr>
<tr>
<td>✓</td>
<td>OR Ketamine $ !</td>
<td>Pediatric: 0.3 mg/kg IV/IO push over 30-60 seconds.</td>
</tr>
<tr>
<td>✓</td>
<td>▶ Succinylcholine † $ OR Rocuronium</td>
<td>Adult: 2 mg/kg IV/IO.</td>
</tr>
<tr>
<td>✓</td>
<td>Placement - intubate, confirm with Et( CO_2 ).</td>
<td>Pediatric: 2 mg/kg IV/IO.</td>
</tr>
<tr>
<td></td>
<td>If metabolic acidosis match Et( CO_2 ) to pre-intubation Et( CO_2 ).</td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td>Pain Management and Sedation- ▶ Fentanyl AND ▶ Versed</td>
<td>Adult: 1 mcg/kg IV/IO q10 minutes as needed.</td>
</tr>
<tr>
<td>✓</td>
<td>OR Ketamine</td>
<td>Pediatric: same as adult.</td>
</tr>
<tr>
<td>✓</td>
<td>Paralysis- only if needed after sedation &amp; pain management ▶ Rocuronium (Zemuron) OR ▶ Vecuronium (Norcuron)</td>
<td>Adult: 2 mg IV/IO q10 minutes as needed.</td>
</tr>
<tr>
<td>✓</td>
<td></td>
<td>Pediatric: 0.1 mg/kg IV/IO slowly over 2 minutes in no greater than 2 mg increments, q 10 minutes as needed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adult: 0.5 mg/kg IV/IO q10 minutes as needed up to 3 doses total.</td>
</tr>
<tr>
<td>✓</td>
<td></td>
<td>Pediatric: 0.5 mg/kg IV/IO q10 minutes as needed up to 3 doses total.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adult: 1.5 mg/kg IV/IO.</td>
</tr>
<tr>
<td>✓</td>
<td></td>
<td>Pediatric: 1 mg/kg IV/IO.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adult: 0.1 mg/kg IV/IO.</td>
</tr>
<tr>
<td>✓</td>
<td></td>
<td>Pediatric: 0.1 mg/kg IV/IO.</td>
</tr>
</tbody>
</table>
† CONTRAINDICATIONS:
1) Suspected hyperkalemia—renal failure and missed dialysis
2) From 5 days post significant burn or crush injury until healed
3) From 5 days post severe intra-abdominal infection until treated
4) From 5 days – 6 months post spinal cord injury or severe stroke
5) Neuromuscular diseases such as Multiple Sclerosis and Muscular Dystrophy
6) Personal or family history of malignant hyperthermia

$ Note: May use ketamine and succinylcholine IM if IV/IO unattainable, double the IV/IO dose.

! Note: Caution in elderly/ACS risk, adrenal depletion

Note: Vecuronium may be used as initial paralytic if succinylcholine is contraindicated and rocuronium is not available.
# GG. DELAYED SEQUENCE INTUBATION

*Use Adult dosing for Adult patients; use Pediatric dosing for patients without signs of puberty.*

<table>
<thead>
<tr>
<th>CHECK \</th>
<th>ACTION</th>
<th>DOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>□</td>
<td>Prepare equipment and supplies.</td>
<td>Verbalize plan-ABCD.</td>
</tr>
<tr>
<td>□</td>
<td>Identify agitated patient requiring emergency intubation.</td>
<td>Agitated or otherwise intolerant of preoxygenation via NC, NRB, CPAP, BiPAP, BVM and/or non-invasive ventilation.</td>
</tr>
<tr>
<td>□</td>
<td>Position the patient ‘head-up’ at 30° or more, with auditory meatus above the jugular notch.</td>
<td></td>
</tr>
</tbody>
</table>
| □       | Administer induction agent-  
  ➫ Ketamine $  
  ➫ Succinylcholine † $  
  OR  
  ➫ Rocuronium (Zemuron)  
  Adult: 1 mg/kg slow IV/IO push over 15-30 seconds to prevent apnea.  
  Additional doses of 0.5 mg/kg IV/IO to achieve complete dissociation if required.  
  **Pediatric:** 2 mg/kg slow IV/IO push over 15-30 seconds to prevent apnea.  
  Additional doses of 0.5 mg/kg IV/IO to achieve complete dissociation if required.  
  Adult: 2 mg/kg IV/IO  
  **Pediatric:** 2 mg/kg IV/IO  
  Adult: 1.5 mg/kg IV/IO  
  **Pediatric:** 1 mg/kg IV/IO |
| □       | Apneic Oxygenation | Nasal cannula at 15L/minute |
| □       | Choose preoxygenation device-  
  ➫ SpO₂ > 95%  
  ➫ SpO₂ < 95% | Non-rebreather mask at flush rate, or BVM with PEEP valve at flush rate.  
  BVM with PEEP valve at flush rate. |
| □       | Preoxygenate at least 3 minutes with target saturation >95%. |
| □       | Administer neuromuscular blocker-  
  ➫ Succinylcholine † $  
  OR  
  ➫ Rocuronium (Zemuron)  
  Adult: 1.5 mg/kg IV/IO  
  **Pediatric:** 1 mg/kg IV/IO |
| □       | Wait 45-60 seconds then intubate the patient. |

† **CONTRAINDICATIONS:**
- Suspected hyperkalemia—renal failure and missed dialysis
- From 5 days post significant burn or crush injury until healed
- From 5 days post severe intra-abdominal infection until treated
- From 5 days – 6 months post spinal cord injury or severe stroke
- Neuromuscular diseases such as Multiple Sclerosis and Muscular Dystrophy
- Personal or family history of malignant hyperthermia

$ Note: May use ketamine and succinylcholine IM if IV/IO unattainable, double the IV/IO dose.
H. GLASGOW COMA SCALE

<table>
<thead>
<tr>
<th>INFANT</th>
<th>CHILD/ADULT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye Opening</strong></td>
<td></td>
</tr>
<tr>
<td>____ 4</td>
<td>Spontaneous</td>
</tr>
<tr>
<td>3</td>
<td>To voice</td>
</tr>
<tr>
<td>2</td>
<td>To pain</td>
</tr>
<tr>
<td>1</td>
<td>No response</td>
</tr>
<tr>
<td><strong>Best Verbal Response</strong></td>
<td></td>
</tr>
<tr>
<td>____ 5</td>
<td>Coos, babbles</td>
</tr>
<tr>
<td>4</td>
<td>Irritable, cries</td>
</tr>
<tr>
<td>3</td>
<td>Cries to pain</td>
</tr>
<tr>
<td>2</td>
<td>Moans, grunts</td>
</tr>
<tr>
<td>1</td>
<td>No response</td>
</tr>
<tr>
<td><strong>Best Motor Response</strong></td>
<td></td>
</tr>
<tr>
<td>____ 6</td>
<td>Spontaneous</td>
</tr>
<tr>
<td>5</td>
<td>Localizes pain</td>
</tr>
<tr>
<td>4</td>
<td>Withdraws from pain</td>
</tr>
<tr>
<td>3</td>
<td>Flexion (decorticate)</td>
</tr>
<tr>
<td>2</td>
<td>Extension (decerebrate)</td>
</tr>
<tr>
<td>1</td>
<td>No response</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
</tr>
</tbody>
</table>
I. Wong-Baker FACES® Pain Rating Scale

Wong-Baker FACES® Pain Rating Scale

0 2 4 6 8 10
No Hurt Hurts Little Bit Hurts Little More Hurts Even More Hurts Whole Lot Hurts Worst

Used with permission.

No Pain
Sin dolor
Không Đau
Tsis Mob
Отсутствие боли

Mild Pain
Dolor leve
Hội Đau
Mob Me Ntsis
Слабая боль

Moderate Pain
Dolor moderado
Đau Vừa Phải
Mob Hauj Sim
Умеренная боль

Severe Pain
Dolor agudo
Rất Đau
Mob Heev
Сильная боль

English
Spanish
Vietnamese
Hmong
Russian
## J. APGAR SCORE

<table>
<thead>
<tr>
<th></th>
<th>1 minute</th>
<th>5 minutes</th>
</tr>
</thead>
</table>
| A Appearance (skin color) | All pink = 2  
Some pink = 1  
No pink = 0 |           |
| P Pulse (heart rate) | > 100 = 2  
< 100 = 1  
No pulse = 0 |           |
| G Grimace (irritability) | Strong = 2  
Weak = 1  
Absent = 0 |           |
| A Activity (muscle tone) | Active motion = 2  
Some flexing = 1  
Absent = 0 |           |
| R Respiration (rate) | Rapid, crying = 2  
Slow, irregular = 1  
Absent = 0 |           |
K. BLOOD ALCOHOL DRAW

Blood alcohol levels may be drawn on EMS patients and non-EMS individuals to assist Law Enforcement under the following circumstances:

1. If the Paramedic is establishing an IV and drawing blood on the patient for medical indications as permitted elsewhere in the Patient Care Protocols; or

2. If already at the scene of an incident and there are non-EMS individuals for whom Law Enforcement requests a blood alcohol level to be drawn, and this will not delay in patient care or patient transport.

Other than the above mentioned circumstances, it is anticipated that Law Enforcement will obtain blood alcohols through other resources available to them.

Contact Base Station if there is any question as to whether or not you should do the blood draw.

Note: Use betadine to clean site.
## L. HOSPITAL/FACILITY/AGENCY PHONE NUMBERS

<table>
<thead>
<tr>
<th>Facility</th>
<th>Telephone Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Airlift Northwest</strong></td>
<td></td>
</tr>
<tr>
<td>EMS</td>
<td>800-426-2430</td>
</tr>
<tr>
<td>Fax (Office)</td>
<td>206-521-1612</td>
</tr>
<tr>
<td>Fax (Comm Center)</td>
<td>206-767-4639</td>
</tr>
<tr>
<td><strong>Allenmore Hospital</strong></td>
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<tr>
<td>ER EMS (no phone in room)</td>
<td>253-459-6410</td>
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<tr>
<td>ER General</td>
<td>253-459-6352</td>
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<tr>
<td>ER Fax</td>
<td>253-459-6206</td>
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<td>Hospital Information:</td>
<td>253-459-6633</td>
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<tr>
<td><strong>American Lake Veterans</strong></td>
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<tr>
<td>Hospital Information</td>
<td>253-582-8440</td>
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<tr>
<td><strong>Auburn Regional Medical Center</strong></td>
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<tr>
<td>ER EMS</td>
<td>253-691-5087</td>
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<td>ER General</td>
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<tr>
<td>Fax</td>
<td>253-333-2547</td>
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<tr>
<td>Hospital Information</td>
<td>253-833-7711</td>
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<tr>
<td><strong>Good Samaritan Hospital</strong></td>
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<tr>
<td>ER EMS-primary</td>
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<td>ER EMS-secondary</td>
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<td>ER General</td>
<td>253-697-1848</td>
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<td>ER Fax</td>
<td>253-697-5900</td>
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<td>253-697-4000</td>
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<td>ER EMS</td>
<td>206-744-4074</td>
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<tr>
<td>ER General</td>
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<tr>
<td>ER Fax</td>
<td>206-744-2655</td>
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<td>Hospital Information</td>
<td>206-744-3000</td>
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<tr>
<td><strong>Harrison Medical Center</strong></td>
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<tr>
<td>ER EMS</td>
<td>360-377-9111</td>
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<tr>
<td>ER General</td>
<td>360-744-4949</td>
</tr>
<tr>
<td>ER Fax</td>
<td>360-744-6889</td>
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<tr>
<td>Hospital Information</td>
<td>360-744-3911</td>
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<tr>
<td><strong>Madigan Army Medical Center</strong></td>
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<td>ER EMS</td>
<td>253-968-1396</td>
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<tr>
<td>ER General</td>
<td>253-968-1390</td>
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<tr>
<td>ER Fax</td>
<td>253-968-3190</td>
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<tr>
<td>Hospital Information</td>
<td>253-968-1110</td>
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Mary Bridge Children’s Hospital
ER Ambulance Line 253-403-4444
ER General 253-403-1418
ER Fax 253-403-1406
Hospital Information 253-403-1000

Mental Health Professional
~see listing at the end of this section

Morton General Hospital
ER EMS 360-496-6866
ER General 360-496-5112 (then dial “0”)
ER Fax 360-496-2315
Hospital Information 360-496-5112

NUWC, Commander
610 Dowell St.; Keyport, WA 98345

Keyport Regional Hyperbaric Facility:
Diving Emergency Duty Supervisor: 360-340-3772
0700-1600 hrs. (General) 360-396-2522
1600-0700 hrs. (Regional Dispatch Center) 360-396-2111

Pierce County Medical Examiner
General 253-798-6494
Fax 253-798-2893

Seattle Children’s Hospital
ER EMS 206-987-8899
ER General 206-987-8899
ER Fax 206-987-3945
Hospital Information (Toll free) 866-987-2000

St. Anthony Hospital
ER EMS 253-530-2111
ER General 253-530-2100
ER Fax 253-530-2129
Hospital Information 253-530-2000

St. Clare Hospital
ER EMS 253-588-2255
ER General 253-985-8700
ER Fax 253-985-6588
Hospital Information 253-985-1711

St. Elizabeth Hospital
ER EMS 360-802-8383
ER General 360-802-8360
ER Fax 360-802-8359
Hospital Information 360-802-8800
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<td>253-874-0456</td>
<td>253-944-7971</td>
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<td>St. Joseph Hospital</td>
<td>253-426-6769</td>
<td>253-426-6388</td>
<td>253-426-6963</td>
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<td>St. Peter Hospital</td>
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<td>Tacoma General Hospital</td>
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<td>253-403-1050</td>
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<tr>
<td>UW Medical</td>
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<td>Virginia Mason</td>
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<td>Washington Poison Center</td>
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<td>Western State Hospital</td>
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<td>Dispatch Centers</td>
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<td>AMR</td>
<td>206-444-4444</td>
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<tr>
<td>Fire Comm</td>
<td>253-588-5217</td>
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<td>Madigan Army Medical Center</td>
<td>253-968-1396</td>
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<tr>
<td>TFD</td>
<td>Routine: 253-591-5734</td>
<td>Priority: 253-627-0151</td>
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Off-Campus Emergency Departments

Bonney Lake OCED
9550 195th Ave E, Bonney Lake, WA 98391
Main Line 253-447-3400
EMS recorded line 253-447-3410

Parkland OCED
14815 Pacific Ave S, Tacoma, WA 98444
Main Line 253-697-8660
EMS recorded line 253-697-8670

South Hill OCED
13106 Meridian E, Puyallup, WA 98374
Main Line 253-697-8860
EMS recorded line 253-697-8870

Mental Health Telephone Numbers

National Suicide Prevention Lifeline 800-273-8255
Crisis Line for Tacoma/Pierce County 800-576-7764
(24-hour emotional support and referral) Includes access to Pierce County Mobile Outreach Crisis Team (MOCT) for voluntary/involuntary commitment

Domestic Violence Resources
Crystal Judson Family Justice Center 253-798-4166
8:30 a.m. - 4:30 p.m. M – F
Pierce County YWCA 24 hour: 253-383-2593
or www.ywcapiercecounty.org

Greater Lakes Mental Health 253-581-7020
Serves southwest county, east to Waller Road, between 8 a.m. to midnight. Serves entire county between midnight and 8 a.m.
Serving Spanaway 8:30 a.m. - 5:00 p.m. M – F 253-535-1935

Recovery Response Center, 2150 Freeman Rd E, Tacoma 253-942-5644
FAX 253-922-4722
Crisis Response Center, 11405 Bob Finlay Rd E, Tacoma 253-319-7272
FAX 253-319-7292
Recovery Support Line 877-780-5222
M. SORT, ASSESS, LIFESAVING INTERVENTIONS, TRANSPORT/TREATMENT (SALT) TRIAGE GUIDELINE

Step 1: Sort (Global sorting)
- Still / Obvious Life Threat: Assess first
- Wave / Purposeful Movement: Assess second
- Walk: Assess third

Step 2: Assess (Individual assessment)
Breathing?
- No: Dead
- Yes:
  - Breathing?
    - No: Expectant
    - Yes:
      - Likely to survive given current resources?
        - No: Delayed
        - Yes: Immediate

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

Step 3: Treatment and/or Transport
Reassess considering patient conditions, resources, scene safety – provide treatment as needed until transport is available.
N. SPINAL MOTION RESTRICTION ALGORITHM

Assess mechanism of injury and likelihood of a spinal injury.

Assess patient in position found.

Altered mental status, GCS <15?

Yes

No

Midline neck or spine pain or tenderness with palpation?

Yes

No

Focal neurologic signs or symptoms?

Yes

No

Evidence of alcohol or drug intoxication?

Yes

No

Distracting injury or pain?

Yes

No

Communication barrier?

Yes

No

Patient may be transported without Spinal Motion Restriction.

• Falls greater than 20 feet in adults or 10 feet in children.
• High-risk vehicle crash.
• Ejection from vehicle.
• Auto vs pedestrian/bicyclist thrown, run over, or with significant impact.
• Axial loading injury to the spine (e.g. diving).

Spinal Motion Restriction
Apply cervical collar

If ambulatory:
Assist patient in moving to stretcher with minimal spinal motion into a seated position then lay back gently.

If non-ambulatory:
Use long backboard, scoop stretcher, or vacuum mattress to move patient to stretcher with minimal spinal motion. Remove transfer device and transport on stretcher mattress only unless device removal interferes with critical patient treatments.

Three circumstances in which raising the head of the stretcher to 30 degrees should be considered:
• Severe respiratory distress.
• Suspected severe brain injury.
• Facilitate patient compliance.
MEDICATION
 IV GUIDE
O. MEDICATION / IV GUIDE
# = Alternative Medication

Acetaminophen (Tylenol) .............................................................. O-3
Adenosine (Adenocard) .............................................................. O-4
Albuterol ................................................................................. O-5
Amiodarone (Cordarone) ......................................................... O-7
Aspirin (Chewable) ................................................................. O-8
Atropine .................................................................................... O-9
Calcium Chloride 10% .............................................................. O-11
Calcium Gluconate 10% ........................................................... O-13
Cyanokit (Hydroxocobalamin) ................................................ O-14
Dexamethasone (Decadron) ..................................................... O-16
Dextrose 5% (D5W), 10% (D10W), 25% (D25W) and 50% (D50W) ........................................ O-17
Diazepam (Valium) ................................................................. O-18
Diltiazem (Cardizem) .............................................................. O-20
Diphenhydramine (Benadryl) ................................................ O-21
Dopamine ................................................................................ O-22
Droperidol (Inapsine) # .......................................................... O-24
Epinephrine (Adrenalin) .......................................................... O-25
Etomidate (Amidate) ............................................................... O-28
Famotidine (Pepcid) # ............................................................. O-29
Fentanyl (Sublimaze) ............................................................. O-30
Glucagon ................................................................................. O-31
Glucose, Oral .......................................................................... O-32
Haloperidol (Haldol) # .......................................................... O-33
Hydromorphone (Dilaudid) # ................................................ O-34
Ibuprofen ................................................................................. O-35
Ipratropium Bromide (Atrovent) .......................................... O-36
Ketamine (Ketalar) ................................................................. O-37
Ketorolac (Toradol) # ............................................................ O-39
Lactated Ringer’s (LR) ............................................................ O-40
Lidocaine 2% ........................................................................... O-41
Lorazepam (Ativan) # ............................................................ O-43
Low Titer “O” Whole Blood (LTOWB) ................................ O-44
Magnesium Sulfate ............................................................... O-46
Mark I/DuoDote (NAAK) ........................................................ O-48
Methylprednisolone (Solu-Medrol) ........................................ O-49
Midazolam (Versed) ............................................................... O-50
Morphine Sulfate ................................................................. O-52
Naloxone (Narcan) ............................................................... O-54
Nitroglycerin .................................................................... O-56
Nitrous Oxide (Nitronox) ....................................................... O-58
Norepinephrine (Levophed) ................................................ O-59
Olanzapine (Zyprexa) # ................................................................. O-60
Ondansetron (Zofran) ................................................................. O-61
Oxygen ......................................................................................... O-62
Oxymetazoline (Afrin) ................................................................. O-63
Pancuronium (Pavulon) # ............................................................ O-64
Phenobarbital (Luminal) # ......................................................... O-65
Plasma (Fresh Blood Product) ...................................................... O-67
Plasma-Lyte A ............................................................................... O-69
Pramidoxime Chloride (2-PAM Chloride) ...................................... O-70
Procainamide (Pronestyl) # ......................................................... O-71
Prochlorperazine (Compazine) # ................................................ O-72
Promethazine (Phenergan) # ....................................................... O-73
Rocuronium (Zemuron) ............................................................... O-74
Sodium Bicarbonate .................................................................... O-75
Sodium Chloride 0.9% (Normal Saline) (NS) ................................ O-76
Succinylcholine (Anectine) .......................................................... O-77
Tranexamic Acid (TXA) ............................................................... O-78
Vasopressin # ........................................................................... O-80
Vecuronium (Norcuron) .............................................................. O-81
Verapamil # ................................................................................ O-82
Xylocaine 2% Jelly ....................................................................... O-83
Ziprasidone (Geodon) # ............................................................... O-84
Alternative Medications List (# Table) ......................................... O-85
ACETAMINOPHEN (TYLENOL)

CLASSIFICATION
1. Antipyretic.
2. Analgesic.

ACTION
1. Inhibits prostaglandin in CNS to reduce fever.
2. Blocks pain impulses.

ONSET OF ACTION
1. PO and PR: 10-30 minutes.

DURATION OF ACTION
1. PO and PR: 3-4 hours.

INDICATION
1. Fever.
2. Pain management.

CONTRAINDICATION
1. Hypersensitivity.
2. Severe liver disease.

USE WITH CAUTION
1. Anemia.
2. Liver disease.
3. Renal disease.

DOSAGE AND ADMINISTRATION
1. Adult: 500-1000 mg orally.
   2. Pediatric: 15 mg/kg orally or by rectal suppository.

ADVERSE REACTION
1. Nausea, Vomiting, Rash.

REFERENCE IN PROTOCOL
1. Medical Emergencies (Febrile pediatric patient).
ADENOSINE (ADENOCARD)

CLASSIFICATION
1. Antiarrhythmic.

ACTION
1. Acts on AV node to slow conduction. May inhibit reentry pathways.

ONSET OF ACTION
1. Immediate.

DURATION OF ACTION
1. Less than one minute.

INDICATION
1. Conversion of stable narrow complex SVT to sinus rhythm.
2. Conversion of unstable narrow complex reentry tachycardia to sinus rhythm.
3. Regular and monomorphic wide complex tachycardia, thought to be or previously defined to be reentry SVT.

CONTRAINDICATION
1. Second and third degree heart blocks, sick sinus syndrome, unless patient has a pacemaker.
2. Hypersensitivity to adenosine.

USE WITH CAUTION
1. May produce TRANSIENT first, second, and third degree blocks or asystole for 10-15 seconds.
2. Asystolic pause may be longer in patients taking Tegretol (carbamazepine) or Persantine (dipyridamole).
3. Patients taking theophylline or caffeine may require higher doses.
4. Patients with asthma may experience bronchoconstriction.
5. May be used with wide QRS complex SVT at direction of Base Station. Its use may cause acceleration of the rate.
6. It is ineffective in atrial fibrillation or flutter, and ventricular tachycardia.

DOSAGE AND ADMINISTRATION
1. Place patient in mild reverse Trendelenburg position (about 30°) before administration of drug.
2. Adult: 6 mg by rapid IV push over 1-3 seconds followed by a rapid NS flush of 20 mL, then elevate extremity. If no response within 1-2 minutes, give 12 mg by same method as before.
3. Pediatric: 0.1 mg/kg up to 6 mg rapid IV push over 1-3 seconds followed by a rapid NS flush of 5-10 mL. If no response within 1-2 minutes, give 0.2 mg/kg up to 12 mg by the same method as before.
4. Upper extremity IV placement preferred with largest bore catheter for age.

ADVERSE REACTION

REFERENCE IN PROTOCOL
1. Cardiac Emergencies (see AHA handbook).
ALBUTEROL

CLASSIFICATION

ACTION
1. Relaxes bronchial and uterine smooth muscle by acting on beta adrenergic receptors.
2. Causes potassium influx into the cell.

ONSET OF ACTION
1. 5-15 minutes.

DURATION OF ACTION
1. 3-6 hours.

INDICATION
1. Wheezing, allergic reactions, asthma, COPD.
2. Suspected hyperkalemia.
3. Crush Injury Syndrome.

CONTRAINDICATION
1. Known hypersensitivity.

USE WITH CAUTION
1. Patients with cardiovascular disease.
2. Patients taking tricyclics.
3. Elderly patients generally require a lower dose.
4. Beta blockers may blunt effect.

DOSAGE AND ADMINISTRATION
1. Adult:
   a. SVN:
      i. CHF: 2.5 mg in 3 mL NS SVN; may repeat once.
      ii. Asthma/COPD/allergic reaction:
         a) Albuterol 2.5 mg with Atrovent 0.5 mg in 3 mL NS via SVN; may repeat combination of albuterol and Atrovent once.
         b) Additional doses of albuterol 2.5 mg in 3 mL NS can be given continuously.
      iii. Anaphylaxis/Renal Dialysis with hyperkalemia/Crush Injury: 2.5 mg in 3 mL NS SVN can be given continuously.
   b. MDI: administer as indicated to a total of 5 doses then call Base Station for medical direction.
   c. In lieu of SVN for suspected COVID infected Adult and Pediatric patients in CHF, Asthma/COPD/Allergic Reaction, and Anaphylaxis/Renal Dialysis:
      i. MDI, a commercially made spacer specifically designed to fit onto the Albuterol MDI must be used (no ‘homemade’ versions):
         a) Administer Albuterol 4 puffs simultaneously into the spacer to achieve the 2.5 mg of Albuterol.
         b) Additional doses of 4 puffs simultaneously into the spacer for continuous treatment can be repeated every 15 minutes.
ii. Contact Mary Bridge Base Station if other direction is needed for pediatric patients.

2. Pediatric: Use blow-by if < 5 years old.
   a. Albuterol 2.5 mg with Atrovent 0.25 mg in 3 mL NS SVN; may repeat once.
   b. Additional doses of albuterol 2.5 mg in 3 mL can be given continuously.

ADVERSE REACTION

REFERENCE IN PROTOCOL
1. Respiratory Emergencies (Difficulty breathing).
2. Medical Emergencies (Renal dialysis-hyperkalemia).
3. Environmental Emergencies (Toxic inhalations; Allergic reaction).
4. Traumatic Emergencies (Crush Injury Syndrome).
**AMIODARONE (CORDARONE)**

**CLASSIFICATION**
1. Antiarrhythmic.

**ACTION**
1. Rate control in a variety of atrial and ventricular tachyarrhythmia.

**ONSET OF ACTION**
1. Immediate.

**DURATION OF ACTION**
1. Up to 40 days.

**INDICATION**
1. Shock refractory VF/pulseless VT.
2. Polymorphic VT/wide complex tachycardia of uncertain origin.
3. Control of hemodynamically unstable VT when cardioversion is unsuccessful.
4. Acceptable for termination of ectopic or multifocal atrial tachycardia with preserved LV function.
5. Used for rate control in treatment of atrial fibrillation or flutter when other therapies are ineffective.

**CONTRAINDICATION**
1. Patients with a hypersensitivity to amiodarone (Cordarone).
2. Patients with cardiogenic shock, marked sinus bradycardia, second- or third-degree AV block unless a pacemaker is available.

**USE WITH CAUTION**
1. May produce vasodilation and hypotension.
2. May have negative inotropic effects and prolong QT interval.
3. Do not administer with other drugs that prolong QT interval (e.g. procainamide).
4. Renal failure, terminal elimination is long (half-life lasts up to 40 days).

**DOSAGE AND ADMINISTRATION**
1. Cardiac Arrest.
   a. First dose: 300 mg IV/IO push. Second dose if needed after 3-5 minutes: 150 mg IV/IO push.
   b. **Pediatric:** 5 mg/kg IV/IO push, up to a maximum of 300 mg; may repeat to total daily dose of 15 mg/kg.
2. Wide complex tachycardia.
   a. Mix 150 mg in 100 mL D\textsubscript{5}W and infuse IV/IO over 10 minutes (15 mg per minute).
   b. May repeat every 10 minutes as needed.
   c. Consult Base Station if arrhythmia persists beyond second dose.

**ADVERSE REACTION**
1. Vasodilation, Hypotension, Bradycardia.

**REFERENCE IN PROTOCOL**
1. Cardiac Emergencies (see AHA handbook).
ASPIRIN (CHEWABLE)

CLASSIFICATION
1. Platelet inhibitor.

ACTION
1. Inhibits platelet aggregation in patients with suspected acute MI.

ONSET OF ACTION
1. 5-30 minutes.

DURATION OF ACTION
1. Decreasing by 1/7th over 7 days.

INDICATION
1. Suspected ischemic chest pain.
2. Suspected acute coronary syndrome.

CONTRAINDICATION
1. Patients with known allergy to salicylates.
2. Possible hemorrhagic stroke.

USE WITH CAUTION
1. Patients taking anti-coagulants.
2. Patients with active ulcer disease.
3. Patients with asthma.

DOSAGE AND ADMINISTRATION
1. Adult: 162 mg, or if not already taking ASA then give 324 or 325 mg (chewing is preferable). Ensure aspirin is non-enteric coated.

2. Pediatric: Contact Mary Bridge Base Station.

ADVERSE REACTION
1. None in the non-allergic patient with prescribed field dosage.

REFERENCE IN PROTOCOL
1. Cardiac Emergencies (Chest discomfort and possible ACS; AHA handbook).
ATROPINE

CLASSIFICATION
1. Parasympathetic blocker, anticholinergic.

ACTION
1. Cardiac.
   a. Increases firing rate of sinoatrial (SA) node by blocking action of vagus nerve, which results in an increased pulse rate.
   b. Increases conduction velocity through the atroventricular (AV) node.
2. Non-Cardiac.
   a. Decrease of all body secretions.
   b. Dilation of pupils and paralysis of the ciliary muscle.
   c. Decrease in bladder tone resulting in urinary retention.
   d. Central nervous system stimulation.

ONSET OF ACTION
1. IV: immediate.
2. IM: 1 minute.

DURATION OF ACTION
1. 4 hours.

INDICATION
1. Symptomatic bradycardic rhythms associated with hypotension, decreased mentation, ventricular irritability (PVC’s), chest pain.
2. May be beneficial in AV nodal block, but not likely to be effective for type 2 second-degree or third-degree AV block, PEA or asystole.
3. Organophosphate anticholinesterase poisoning.

CONTRAINDICATION
1. Atrial fibrillation or flutter.
2. Tachycardia.
3. Bradycardia secondary to increased ICP (e.g. stroke, head trauma).
4. Unstable cardiovascular status in acute hemorrhage.

USE WITH CAUTION
1. Do not mix with sodium bicarbonate.
2. Be certain patient with bradycardia is not hypoxic or head injured in origin.
3. Ineffective for bradycardia treatment in a transplanted heart.
**DOSAGE AND ADMINISTRATION**

1. Bradycardia:
   a. Adult:
      i. IV: 1 mg every 3-5 minutes as needed,
         a) Maximum total dose 0.04 mg/kg (total 3 mg).
         b) Use shorter dosing interval (3 minutes) and higher doses in severe clinical conditions.
      ii. ET: 1 mg diluted in 10 mL NS.
   b. Pediatric:
      i. IV/IO: 0.02 mg/kg.
         a) Minimum single dose: 0.1 mg.
         b) Maximum child single dose: 0.5 mg, maximum child total dose 1 mg.
         c) Maximum adolescent single dose: 1 mg, maximum adolescent total dose 3 mg.
         d) May repeat dose once in 3-5 minutes.
      ii. ET: 0.05 mg/kg diluted in 5 mL NS.

   a. Adult: 2 mg IV every 1 minute until symptoms (bradycardia, bronchial secretions, etc.) clear, up to 10 mg.
   b. If using the DuoDote/Mark 1 antidote kit, give one atropine injector (2 mg) into the thigh followed with 2-PAM chloride injection. May give up to three sets.
   c. Pediatric: Age < 12 years old start with 0.05 mg/kg IV/IO then repeat and double the dose every 5 minutes until muscarinic symptoms reverse; Age ≥ 12 years old start with 1 mg IV/IO then repeat and double the dose every 5 minutes until muscarinic symptoms reverse.

3. Ketamine treatment for side effect of hypersalivation if it affects airway patency.
   a. Adult: 0.5mg IV/IM/IO.

**ADVERSE REACTION**

2. Non-Cardiac: Dryness of mouth (common), Pain in eyes or blurred vision (precipitates glaucoma), Restlessness, Irritability, Change in mental state, Injection site pain.

**REFERENCE IN PROTOCOL**

1. Cardiac Emergencies (see AHA handbook).
2. Environmental Emergencies (Organophosphate/Nerve Agent poisoning).
3. Behavioral Emergencies (Ketamine side effect).
CALCIUM CHLORIDE (10%)

CLASSIFICATION
1. Electrolyte.

ACTION
1. Involved in regulation of cell membrane permeability to sodium and potassium.
2. Plays a role in excitation contraction coupling (increases force of myocardial contraction and muscle contraction).
3. Essential in clot formation. Replaces Ca lost due to exsanguination. Increases serum Ca levels that are decreased in stored blood due to citrate binding with Ca to prevent clotting in the donor bag.

ONSET OF ACTION
1. Immediate.

DURATION OF ACTION
1. 30 minutes-2 hours.

INDICATION
1. Bradycardic renal dialysis patients secondary to hyperkalemia exhibiting tall, peaked T waves, prolongation of QRS, low P waves.
2. Calcium channel blocker or beta blocker overdose.
3. Antidote for magnesium sulfate toxicity.
5. In cases of blood or plasma transfusion.

CONTRAINDICATION
1. Ventricular fibrillation.
2. Digitalis intoxication (may result in asystole).
3. Hypercalcemia.

USE WITH CAUTION
1. Extravasation causes tissue sloughing.
2. Do not mix with sodium bicarbonate (flush line first).

DOSAGE AND ADMINISTRATION
1. 10% = 100 mg/mL.
2. Adult: 500 - 1000 mg (5-10 mL of 10% solution) IV over 5 minutes; may be repeated as needed in 20 minutes.
3. **Pediatric: 20 mg/kg slow IV/IO push.**
4. Transfusion:
   a. Adult- 1000mg (1g) IV slowly with 1st unit of LTOWB and repeat dose on 4th unit of blood.
   b. **Pediatric- 20mg/kg IV slowly with 1st unit of LTOWB. Contact Mary Bridge Base Station for additional doses.**

ADVERSE REACTION
REFERENCE IN PROTOCOL

1. Cardiac Emergencies (see AHA handbook).
2. Medical Emergencies (Renal dialysis and medical bleeding patients).
CALCIUM GLUCONATE (10%)

CLASSIFICATION
1. Electrolyte – calcium salt.

ACTION
1. Involved in regulation of cell membrane permeability to sodium and potassium.
2. Plays a role in excitation contraction coupling (increases force of myocardial contraction and muscle contraction).

ONSET OF ACTION
1. Immediate.

DURATION OF ACTION
1. 30 minutes-2 hours.

INDICATION
1. Suspected hyperkalemia – ECG exhibiting tall, peaked T waves, prolongation of QRS, low P waves.
2. Calcium channel blocker or beta blocker overdose.
3. Antidote for magnesium sulfate toxicity.

CONTRAINDICATION
1. Ventricular fibrillation.
2. Digitalis intoxication (may result in asystole).
3. Hypercalcemia.

USE WITH CAUTION
1. Extravasation causes tissue sloughing.
2. Dehydration.
3. Do not mix with sodium bicarbonate (flush line first).

DOSAGE AND ADMINISTRATION
1. 10% = 100 mg/mL
2. Adult: 15-30 mL IV over 5 minutes; may be repeated as needed in 20 minutes.
3. Pediatric: 60 mg/kg slow IV/IO push. Contact Mary Bridge Base Station for additional doses.

ADVERSE REACTION
2. Mild to severe IV site irritation.

REFERENCE IN PROTOCOL
1. Cardiac Emergencies (see AHA handbook).
2. Medical Emergencies (Renal dialysis patients).
3. Traumatic Emergencies (Crush Injury Syndrome).
CLASSIFICATION
1. Hydroxocobalamin – a form of B-12.

ACTION
1. Hydroxocobalamin binds to the cyanide ion forming cyanocobalamin which is excreted in the urine.

ONSET OF ACTION
1. Immediate.

DURATION OF ACTION
1. Up to 24 hours.

INDICATION
1. Treatment for known or suspected cyanide poisoning. Signs and symptoms of high concentrations of cyanide exposure with an appropriate clinical history are indications for treatment.
2. High concentrations of cyanide signs and symptoms:
   a. Markedly altered level of consciousness.
   b. Seizure.
   c. Respiratory depression or arrest.
   d. Cardiac dysrhythmia (other than sinus tachycardia).

CONTRAINDICATION
1. Patients with known anaphylactic reactions to hydroxocobalamin or cyanocobalamin.

USE WITH CAUTION
1. Caution should be exercised when administering other cyanide antidotes simultaneously with Cyanokit, as safety has not been established. If a decision is made to administer another cyanide antidote with Cyanokit, these drugs should not be administered concurrently in the same IV line.

DOSAGE AND ADMINISTRATION
1. If able, collect a pre-treatment blood sample in the appropriate tube to assess cyanide level.
2. Adult: Initial dose is 5 gm administered over 15 minutes slow IV. (Each 5 gm vial of hydroxocobalamin for injection is to be reconstituted with 200 mL of 0.9% NS. Invert repeatedly for at least 60 seconds, but do not shake to reconstitute). An additional 5 gm dose may be administered.
3. Pediatric: Dose is 70 mg/kg (reconstitute concentration is 25 mg/mL) over 15 minutes slow IV. (Each 5 gm vial of hydroxocobalamin for injection is to be reconstituted with 200 mL of 0.9% NS.) Invert repeatedly for at least 60 seconds, but do not shake to reconstitute. Maximum single dose is 5 gm.
ADVERSE REACTION
1. Reddish discoloration of the skin and urine (not to be confused with the rare sign of carbon monoxide poisoning). The devices that rely on colorimetry (pulse oximetry and CO level) will be interfered with by the color change and are not reliable for patient assessment.
2. Rash, Increased blood pressure, Nausea, Headache, Injection site reactions, Allergic reactions.

REFERENCE IN PROTOCOL
1. Environmental Emergencies (Toxic inhalations).
DEXAMETHASONE (DECADRON)

CLASSIFICATION
1. Glucocorticoid.

ACTION
1. Synthetic steroid that is related chemically to the natural hormones secreted by the adrenal cortex.
2. Suppresses acute and chronic inflammation.
3. Potentiates the relaxation of vascular and bronchial smooth muscle by beta adrenergic agonists.
4. Possibly alters airway hyperactivity.

ONSET OF ACTION
1. IV: 1 hour.
2. PO: 2 hours.

DURATION OF ACTION
1. 24-72 hours.

INDICATION
1. Moderate to severe asthma, croup or COPD.
2. Moderate to severe allergic reactions.
3. Moderate to severe angioedema.
4. Anaphylaxis.

CONTRAINDICATION
1. Known hypersensitivity.

USE WITH CAUTION
1. Active untreated infections.

DOSAGE AND ADMINISTRATION
1. Adult: 0.6 mg/kg PO/IV up to 10 mg.
2. **Pediatric: 0.6 mg/kg PO/IV up to 16 mg.**
3. Incompatible with Diphenhydramine (Benadryl); flush between medications.
4. Medication should be protected from heat.

ADVERSE REACTION
1. Hypertension, GI bleeding, Hyperglycemia.

REFERENCE IN PROTOCOL
1. Respiratory Emergencies (Difficulty breathing).
DEXTROSE
5% (D₅W), 10% (D₁₀W), 25% (D₂₅W), 50% (D₅₀W)

CLASSIFICATION
1. Simple carbohydrate.

ACTION
1. Provides glucose required for metabolic needs.
2. Spares body proteins.

ONSET OF ACTION
1. Immediate.

DURATION OF ACTION
1. Varies.

INDICATION
1. Suspected hypoglycemia.
2. Coma of unknown origin.
3. Crush Injury Syndrome.
4. Routine IV administration.

CONTRAINDICATION
1. Hyperglycemia.

USE WITH CAUTION
1. Increased intracranial pressure in constant infusion.

DOSAGE AND ADMINISTRATION
1. Hypoglycemia:
   a. Adult: Titrate and/or repeat until patient at baseline and blood glucose remains > 80.
      i. 50 mL of D₅₀W (25 gm) IV/IO push, or
      ii. 250 mL of D₁₀W (25 gm) IV/IO.
   b. Pediatric: Titrate and/or repeat until patient at baseline and blood glucose remains > 60.
      i. 50% dextrose (0.5 gm/mL) (≥ 8 years old); give 1 mL/kg IV/IO, or
      ii. 25% dextrose (0.25 gm/mL); give 2 mL/kg IV/IO, or
      iii. 10% dextrose (0.1 gm/mL); give 5 mL/kg IV/IO, or
      iv. 5% dextrose (0.05 gm/mL); give 10 mL/kg IV/IO if volume tolerated.
      v. Neonate specifically: give 2 mL/kg of D₁₀W.
2. IV maintenance:
   a. D₅W-Adult and Pediatric: Route and indication dependent.

ADVERSE REACTION
1. Extravasation causes tissue sloughing with D₂₅W and D₅₀W.

REFERENCE IN PROTOCOL
1. Medical Emergencies (Altered level of consciousness).
2. OB/GYN Emergencies (Neonatal Resuscitation).
3. Traumatic Emergencies (Crush Injury Syndrome).
DIAZEPAM (VALIUM)

CLASSIFICATION
1. Anticonvulsant, anti-anxiety, sedative.

ACTION
1. Depresses central nervous system.

ONSET OF ACTION
1. IV/IO: 1-5 minutes, peak actions at 5-10 minutes.
2. IM: 15-30 minutes, peak actions at 30-60 minutes. Absorption is slow, erratic and incomplete.
3. PR: 1-5 minutes, peak actions at 10-45 minutes.

DURATION OF ACTION
1. 15-60 minutes.

INDICATION
1. Seizures secondary to head trauma/alcohol withdrawal.
2. Status epilepticus.
3. For pacing, cardioversion, and post Rapid Sequence Intubation for relief of anxiety, tension, and diminish recall of procedures.
4. Severe muscle spasm.
5. Severe anxiety.

CONTRAINDICATION
1. Known hypersensitivity.

USE WITH CAUTION
1. Elderly.
2. Patients with inadequate pulmonary function.
3. Patients with liver and/or kidney disease.
4. Patients with a history of drug addiction.
5. Patients that have used other CNS depressants.

DOSAGE AND ADMINISTRATION
1. Adult: Range is 2-10 mg IM/IV/IO, refer to dosage regimen referenced in appropriate protocol section. General dose, 0.2 mg/kg/dose not to exceed 10 mg IV push.

2. Pediatric:
   a. 6 month to 5 years old- maximum dose is 5mg.
   b. >5 years old- maximum dose is 10mg.
   c. 0.2 mg/kg IV/IO in increments no greater than 2 mg. Wait 1-2 minutes between doses to observe effect.
   d. Rectally, 0.5 mg/kg. Wait at least 5 minutes before giving a second dose.
      i. Administer rectal dose with 3 mL syringe (without needle) inserted as far as possible.
      ii. Contact Mary Bridge Base Station for more repeated doses.
ADVERSE REACTION
1. Central nervous system depression, Ataxia, Drowsiness, Fatigue, Dizziness, Urticaria, Skin rash, Transient hypotension, Respiratory depression.
2. Venous thrombosis and phlebitis at the injection site.

REFERENCE IN PROTOCOL
1. Traumatic Emergencies.
2. Cardiac Emergencies (see AHA handbook).
3. Medical Emergencies (Altered level of consciousness – if actively seizing).
5. Behavioral Emergencies (Violent patients).
DILTIAZEM (CARDIZEM)

CLASSIFICATION
1. Calcium-channel blocker.

ACTION
1. Slows conduction through AV node.

ONSET OF ACTION
1. 3 minutes.

DURATION OF ACTION
1. 1-3 hours.

INDICATION
1. To control ventricular rate in symptomatic atrial fibrillation or flutter.
2. Use after adenosine to treat refractory reentry SVT in patients with narrow complex QRS.

CONTRAINDICATION
1. Sick Sinus Syndrome.
2. Second or third degree heart block.
3. A-fib associated with WPW or short PR syndrome.
5. Cardiogenic shock.
6. Hypersensitivity.
7. Wide complex tachycardia.

USE WITH CAUTION
1. Can cause hypotension.
2. Impaired renal or hepatic function.
3. Patients on oral beta blockers.

DOSAGE AND ADMINISTRATION
1. Adult: Initial dose 15-20 mg IV over 2 minutes. Second dose after 15 minutes, if needed is 20-25 mg IV over 2 minutes.
2. Pediatric: Contact Mary Bridge Base Station.

ADVERSE REACTION

REFERENCE IN PROTOCOL
1. Cardiac Emergencies (see AHA handbook).
DIPHENHYDRAMINE (BENADRYL)

CLASSIFICATION
1. Antihistamine, sedative.

ACTION
1. Potent antihistamine agent, which possesses anticholinergic (antispasmodic), antiemetic, and sedative effects.

ONSET OF ACTION
1. IV/IO: Immediate.
2. IM: 15-30 minutes.

DURATION OF ACTION
1. IV/IO and IM: 6-8 hours.

INDICATION
1. Antihistamine.
   a. Anaphylaxis, use as an adjunct to epinephrine.
   b. Uncomplicated allergic conditions.
2. Dystonic or extrapyramidal reactions.

CONTRAINDICATION
1. Hypersensitivity.

USE WITH CAUTION
1. Hypotensive patients.
2. Glaucoma.
3. Chronic asthmatic.

DOSAGE AND ADMINISTRATION
1. Adult: 25-50 mg deep IM or slow IV/IO; maximum dose 100 mg. 50 mg PO.
2. Pediatric: 1 mg/kg PO, deep IM or slow IV/IO, to a maximum dose of 50 mg.

ADVERSE REACTION
1. Sedation, Sleepiness, Dizziness, Disturbed coordination, Epigastric distress, Dry mouth, Thickening of bronchial secretions, Hypotension, Palpitations, Tachycardia, Bradycardia, Blurred vision.

REFERENCE IN PROTOCOL
1. Medical Emergencies (Overdose).
DOPAMINE

CLASSIFICATION

ACTION
1. Increases blood pressure.
2. At low dose of 1-5 mcg/kg/minute, dopaminergic effects occur resulting in vasodilation of renal, mesenteric, and cerebral arteries increasing renal blood flow and urine output, but may not increase pulse or BP.
3. At dose of 2-20 mcg/kg/minute, beta adrenergic effects (increased contractibility and chronotropic effect) occur resulting in increased cardiac output with minimal changes in systemic vascular resistance or preload.
4. At dose of 10-20 mcg/kg/minute, alpha-adrenergic effects occur resulting in vasoconstriction in the renal, mesenteric and peripheral arteries and veins.

ONSET OF ACTION
1. 5 minutes.

DURATION OF ACTION
1. 10 minutes after infusion ends.

INDICATION
1. Symptomatic hypotension secondary to non-hypovolemic states.
2. Low cardiac output states such as cardiogenic, anaphylactic, septic or neurogenic shock.
3. Symptomatic bradycardia after atropine/pacing.

CONTRAINDICATION
1. Uncorrected tachyarrhythmia due to hypovolemia.
2. Ventricular fibrillation.
3. Hypovolemic shock.

USE WITH CAUTION
1. Avoid extravasation of dopamine into surrounding tissue. If intravenous infusion infiltrates, it must be immediately removed. Notify the physician.
2. Do not mix sodium bicarbonate or similar alkaline solutions, because inactivation of dopamine will result.

DOSAGE AND ADMINISTRATION
1. Dopamine must be diluted prior to administration; mix 400 mg in 250 mL NS with a micro-drip (1600 mcg/mL).
   a. Usual infusion rate ranges from 5-20 mcg/kg/minute IV/IO, titrating to individual patient response; taper slowly. Refer to specific sections of the protocol for dosages specific to your patient’s presentation.
2. May use: DUGGAN FORMULA.
   a. Estimate the patient’s weight in pounds.
   b. Cross off the 3rd digit of the weight in pounds to get gtts/minute, e.g. 183 pounds = 18.
   c. At 18 gtts/minute, you will be administering 5-6 mcg/kg/minute.
3. May use: Patient weight in kg.

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Microdrops per minute (or mL/hr). 400 mg in 250 mL NS (1600 mcg/mL).

ADVERSE REACTION
1. Hypertension, Supraventricular tachycardia, Ventricular arrhythmias (premature ventricular contractions, ventricular tachycardia/fibrillation).

REFERENCE IN PROTOCOL
1. Respiratory Emergencies (Difficulty breathing).
2. Cardiac Emergencies (see AHA handbook).
DROPERIDOL (INAPSINE) #

CLASSIFICATION  
1. Anti-psychotic.  
2. Tranquilizer.  
3. Anti-nausea.

ACTION  
1. Blocks dopamine (D2), muscarinic cholinergic, alpha adrenergic, and histamine (H1) receptors. Antipsychotic effects are thought to be a result of its selective blockade of postsynaptic dopamine receptors.

ONSET OF ACTION  
1. IV/IM: 3–10 minutes.

DURATION OF ACTION  
1. 2–4 hours.

INDICATION  
1. Aggressive or agitated behavior.  
2. Excited delirium.  
3. Severe nausea.

CONTRAINDICATION  
1. Depressed mental status.  
2. Parkinson’s disease.  
3. Prolonged QT (>440 ms in males, >450 ms in females).

USE WITH CAUTION  
1. Elderly patients with dementia related psychosis.  
2. Utilize caution if combined with other medications that may prolong the QT (ondansetron).

DOSAGE AND ADMINISTRATION  
1. Agitation/Chemical Sedation:  
   a. Adult: 1.25-2.5 mg IM or slow IV.  
   b. Pediatric: Contact Mary Bridge Base Station.
2. Severe Nausea:  
   a. Adult: 1.25-2.5 mg IM or slow IV.  
   b. Pediatric: Contact Mary Bridge Base Station.

ADVERSE REACTION  
1. Extrapyramidal symptoms.  
2. Parkinsonism (rigidity, tremor, and shuffling gait).  
3. Dystonia (continuous spasms and contraction of muscle groups, often in neck).  
5. Tardive Dyskinesia (stereotyped involuntary movements, such as lip smacking, jaw movements, darting of the tongue, or purposeless movement of the limbs).  
6. Neuroleptic Malignant Syndrome (catatonia, fever, autonomic instability, altered mental status).  
7. QT prolongation and the potential for torsades de pointes.  
8. Hypotension.  
10. Apnea.
EPINEPHRINE (ADRENALIN)

CLASSIFICATION
1. Beta adrenergic and alpha stimulator.

ACTION
1. Alpha and beta adrenergic effects.
   a. Increases force of myocardial contraction.
   b. Increases pulse rate and systolic blood pressure.
   c. Increases conduction velocity through the A-V node.
   d. Increases irritability of ventricles.
   e. Dilates bronchi and coronary arteries.
   f. Increases cerebral blood flow (alpha effects).

ONSET OF ACTION
1. IV/ET/IO: Immediate.
2. Push-dose IV: 1 minute.
3. IM: Variable.
4. Inhalation: 3-5 minutes.
5. SQ: 6-15 minutes.

DURATION OF ACTION
1. IV/ET/IO: 1-4 hours.
2. Push-dose IV: 2-5 minutes.
3. IM: varies.
4. Inhalation: 1-3 hours.
5. SQ: varies.

INDICATION
1. Cardiac arrest: VF, pulseless VT, asystole, PEA.
2. Anaphylactic shock.
3. Allergic reactions.
4. Status asthmaticus.
5. Bradycardia unresponsive to atropine, TCP, dopamine.
7. Upper airway obstruction edema.
8. Hypotension.

CONTRAINDICATION
1. Chest pain accompanied by ectopic beats or tachycardia.
2. Do not mix with sodium bicarbonate.
3. Do not use to treat VT secondary to cocaine, or hydrocarbon overdose.

USE WITH CAUTION
1. Bronchial asthma and significant emphysema, when patients may also have congestive heart disease.
2. Raising BP and P may cause myocardial ischemia, angina and increase O2 demand.
DOSAGE AND ADMINISTRATION (1:10 = 0.1 mg/mL; 1:1 = 1 mg/mL)

1. Adult:
   a. Cardiac Arrest:
      i. IV/IO: 1 mg (10 mL of 1:10) every 3-5 minutes; follow with 20 mL NS flush and elevate arm for 10-20 seconds after dose.
      ii. ET: 2-2.5 mg of 1:1 mixed with 10 mL NS.
      iii. Higher dose: Higher doses (up to 0.2mg/kg) may be used for specific indications (B-blocker or calcium channel blocker overdose).
      iv. Continuous infusion: Initial rate: 0.1-0.5mcg/kg per minute (for 70kg patient 7-35mcg/min). Titrate to response.
   b. Profound Bradycardia or Hypotension:
      i. Push-dose IV: Mix 1 mL of 1:10 epi with 9 mL NS in a 10 mL syringe (10 mcg/mL) and administer 0.5-2 mL of push-dose epi every 2-5 minutes; or
      ii. Infusion IV: Mix 1 mg in 250 mL NS; administer at 2-10 mcg/minute (0.5 mL-2.5 mL), titrating to effect.
   c. Allergic reaction: 0.3-0.5 mg 1:1 IM.
   d. Anaphylactic shock:
      i. IM: 0.3-0.5 mg of 1:1.
      ii. IV/IO: 0.5 mg (5 mL of 1:10).
      iii. ET: 2-2.5 mg of 1:1 mixed with 10 mL NS.
   e. Asthma: 0.3 mg of 1:1 IM; may repeat in 20 minutes if necessary.
   f. Upper airway edema due to obstruction:
      i. IM: 0.3 mg of 1:1.
      ii. IV: 0.3 mg of 1:10.

2. Pediatric:
      i. 2 mL (undiluted) given blow-by < 6 years old.
      ii. 3 mL (undiluted) given blow-by ≥ 6 years old.
   b. Cardiac arrest/Bradycardia/Anaphylaxis: 0.01 mg/kg of 1:10 solution (0.1 mL = 0.01 mg of 1:10 solution, maximum dose 1 mg) IV/IO. ET- use 0.1 mg/kg (1:1 0.1 mL/kg).
   c. Anaphylactic shock:
      i. IM:
         a) 1:1- 0.3 mg for pediatric patients ≥ 66 pounds for Adult Epi auto-pen.
         b) 1:1- 0.15 mg for pediatric patients < 66 pounds for Jr Epi auto-pen.
         c) 1:1- 0.01 mg/kg.
   d. Allergic Reaction/Asthma:
      i. IM: 1:1- 0.01 mg/kg to maximum of 0.3 mg.
   e. Upper airway edema due to obstruction:
      i. IM: 1:1- 0.01 mg/kg to maximum of 0.3 mg.

ADVERSE REACTION

REFERENCE IN PROTOCOL

1. Cardiac arrest (see AHA handbook)
2. Respiratory Emergencies (If asthma suspected; If croup suspected; Upper airway obstruction; Allergic reaction).
5. Medical Emergencies (Shock).
ETOMIDATE (AMIDATE)

CLASSIFICATION
1. Non-narcotic, non-barbiturate, sedative hypnotic.

ACTION
1. Depresses the activity of the brain stem reticular system. It may lower intraocular and intracranial pressure, and lower the rate of cerebral oxygen utilization, all with minimal cardiovascular and respiratory depressant effects.

ONSET OF ACTION
1. Within 10-60 seconds.

DURATION OF ACTION
1. Dose dependent but can be 3-5 minutes with full recovery in 15 minutes.

INDICATION
1. Induction agent for RSI in adults and pediatric patients.
2. Sedation prior to cardioversion.

CONTRAINDICATION
1. Known hypersensitivity to the agent.
2. Not recommended for pregnant or nursing mothers.

USE WITH CAUTION
1. Elderly patients.

DOSAGE AND ADMINISTRATION
1. Adult: Induction agent – 0.3 mg/kg IV/IO push over 30-60 seconds. Sedation agent – 0.1 mg/kg IV/IO.

2. Pediatric: 0.3 mg/kg IV/IO push over 30-60 seconds. Max dose: 20 mg.

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ADVERSE REACTION
1. Painful myoclonus (diffuse muscle contraction) which may be painful after patient awakens. This can be reduced by giving muscle relaxant immediately after Etomidate is given.
2. Pain at the injection site, moderated by using a large vessel and giving with IV fluid.
3. Apnea, Hypotension, Tachycardia, Nausea, Vomiting.

REFERENCE IN PROTOCOL
1. Rapid Sequence Intubation (Appendix G).
2. Cardiac Emergencies (see AHA handbook).
FAMOTIDINE (PEPCID) #

CLASSIFICATION
1. Histamine H₂ antagonist.

ACTION
1. Competitively blocks histamine at H₂ receptors, particularly those in gastric parietal cells, leading to inhibition of gastric acid secretion.

ONSET OF ACTION
1. 15 - 30 minutes.

DURATION OF ACTION
1. 8 – 15 hours.

INDICATION
1. Allergic reactions.

CONTRAINDICATION
1. Know hypersensitivity to drug or other histamine2-receptor antagonists.

USE WITH CAUTION
1. Patients with severe renal impairment may have prolonged QT interval.
2. Elderly patients.

DOSAGE AND ADMINISTRATION
1. Adult: 20 mg IV.
2. Pediatric: 0.25 mg/kg IV over 2 minutes, max single dose 20 mg.

ADVERSE REACTION
1. Dizziness.
2. Headache.
3. Nausea/vomiting.
4. Palpitations.
FENTANYL (SUBLIMAZE)

CLASSIFICATION
1. Narcotic analgesic.

ACTION
1. Potent analgesic, sedative, euphoric.

ONSET OF ACTION
1. IV/IO/IN: 1 minute.
2. IM: 7-8 minutes.

DURATION OF ACTION
1. IV/IO/IN: 30-60 minutes.
2. IM: 1-2 hours.

INDICATION
1. Severe pain.
2. Rapid Sequence Intubation.

CONTRAINDICATIONS
1. Known hypersensitivity.
2. Myasthenia gravis.
3. Monoamine oxidase inhibitor (MAOI) antidepressant use.

USE WITH CAUTION
1. Bradycardia.
2. Respiratory depression.
3. Head trauma with increased ICP.
4. Severe liver or renal insufficiencies.

DOSAGE AND ADMINISTRATION
1. Adults:
   a. Pain management: 25 mcg-100 mcg increments IN/IM/IV/IO every 5-10 minutes titrating to effect, to a maximum dose of 300 mcg if BP > 90/S. Refer to specific sections of the protocol for dosages specific to your patient’s presentation.
   b. Post-RSI: 1 mcg/kg IV/IO every 10 minutes as needed.

2. Pediatrics:
   a. Pain management: 1-2 mcg/kg IN/IM/IV/IO.
   b. Post-RSI: 1 mcg/kg IV/IO every 10 minutes as needed.

ADVERSE REACTION
1. Hypotension, Bradycardia, CNS depression, Nausea, Vomiting, Respiratory depression, Chest wall rigidity.

REFERENCE IN PROTOCOL
1. Traumatic Emergencies (Musculoskeletal Trauma, Amputated parts, Burns and Crush Injury Syndrome).
2. Cardiac Emergencies (Chest discomfort and possible ACS).
4. Rapid Sequence Intubation (Appendix G).
GLUCAGON

CLASSIFICATION
1. Hyperglycemic agent.
2. Hormone.

ACTION
1. Increases blood glucose concentration by converting liver glycogen to glucose.
2. Relaxes smooth muscle of stomach, duodenum, small bowel and colon.

ONSET OF ACTION
1. IV: 1 minute.
2. IM: 10 minutes.

DURATION OF ACTION
1. IV: 25 minutes.
2. IM: 30 minutes.

INDICATION
1. Blood glucose < 80 when unable to establish an IV.
2. Beta blocker or calcium channel blocker overdose.
3. Anaphylaxis refractory to epi in the patient on beta blockers.

CONTRAINDICATION
1. Known hypersensitivity.

USE WITH CAUTION
1. Liver, renal or cardiovascular disease.
2. Starvation.

DOSAGE AND ADMINISTRATION
1. Adult:
   a. For hypoglycemia: 1 mg IM or 3 mg nasal powder IN.
   b. For beta blocker OD: 3-10 mg IV slowly over 3-5 minutes, followed by infusion of 3-5mg/hour.
   c. For anaphylactic patient on beta blockers who is unresponsive to epi: 1-3 mg IV.
2. Pediatric:
   a. For hypoglycemia (and IV not available): children ≤ 20 kg give 0.5 mg IM; children > 20 kg give 1 mg IM. Children ≥ 4 years old give glucagon nasal powder 3 mg IN.
   b. For beta blocker OD: Contact Mary Bridge Base Station for direction.
   c. For anaphylactic patient on beta blockers who is unresponsive to epi: contact Mary Bridge Base Station for direction.

ADVERSE REACTION

REFERENCE IN PROTOCOL
1. Medical Emergencies (Altered level of consciousness; Overdose on beta blocker).

NOTE: Blood glucose levels fall to normal or to hypoglycemia level if patient does not receive IV dextrose or food by mouth after glucagon administration.
GLUCOSE, ORAL

CLASSIFICATION
1. Monosaccharide.

ACTION
1. When given orally, it is readily absorbed in the intestine.
2. After absorption from the gastrointestinal tract, glucose is readily distributed in the tissues and provides a prompt increase in circulating blood glucose.

ONSET OF ACTION
1. 30-60 minutes.

DURATION OF ACTION
1. Hours.

INDICATION
1. Patients with altered mental status.
2. Symptomatic hypoglycemia.

CONTRAINDICATION
1. Unconsciousness.
2. Unable to swallow.

USE WITH CAUTION
1. Because changes in levels of consciousness can change rapidly in patients with hypoglycemia, it is important to ascertain the patient’s ability to swallow an oral preparation of glucose without airway compromise.

DOSAGE AND ADMINISTRATION
1. Adult: Squeeze glucose from tube onto tongue depressor and insert tongue depressor into patient’s mouth between cheek and gum. Alternatively, let patient squeeze the oral glucose into his/her own mouth to swallow.

2. Pediatric: Titrate to effect.

ADVERSE REACTION
1. Possible aspiration by patient without a gag reflex.
2. Nausea.

REFERENCE IN PROTOCOL
1. Medical Emergencies (Altered level of consciousness).
HALOPERIDOL (HALDOL) #

CLASSIFICATION
1. Tranquilizer.
2. Anti-psychotic

ACTION
1. Controls aggression and activity in psychotic patient by blocking dopamine receptors and
suppresses the cerebral cortex, limbic system, and an anti-cholinergic blocking
component if present. It also exhibits a strong alpha-adrenergic effect.

ONSET OF ACTION
1. Use IV only if emergent: 10 minutes.
2. IM: 15 – 60 minutes.

DURATION OF ACTION
1. 12 – 24 hours.

INDICATION
1. Acute psychotic episode.
2. Control movements and outbursts related to Tourette’s syndrome.
3. Excited delirium.

CONTRAINDICATION
1. CNS depression or Coma or suspected brain damage.
2. Hypersensitivity to Haloperidol.
3. Last three months of pregnancy.
4. Alcohol or barbiturate withdrawals.
5. Parkinson’s disease.

USE WITH CAUTION
1. Potentiates other CNS depressants.

DOSAGE AND ADMINISTRATION
1. Adult: 2 – 5 mg IM preferred over IV use; may repeat to total 10 mg.
2. Pediatric: 3-12 years old: 0.025 mg/kg IM, max single dose 5 mg.
   >12 years old: 0.05 mg/kg IM, max single dose 5 mg.
   May repeat x 1 after contacting Mary Bridge Base Station.

ADVERSE REACTION
1. Extrapyramidal symptoms.
2. Hypotension (orthostatic).
3. Dystonia.
4. Akathisia.
5. Nausea and vomiting.
7. Seizures.
8. Respiratory depression.
9. Cardiac arrest.
HYDROMORPHONE (DILAUDID) 

CLASSIFICATION
1. Opioid analgesic.

ACTION
1. Blocks pain receptors in the brain to establish disconnect of pain sensation.

ONSET OF ACTION
1. 3 - 5 minutes.

DURATION OF ACTION
1. 2 - 4 hours.

INDICATION
1. Moderate to severe pain.

CONTRAINDICATION
1. Known hypersensitivity.
2. Respiratory depression.
3. Patient in labor.

USE WITH CAUTION
1. Elderly patients generally require a lower dose.
2. Opiate naive patients should receive a lower dose.
3. Significantly smaller dosing is required for hydromorphone than for morphine.

DOSAGE AND ADMINISTRATION
1. Adult: 0.01 mg/kg every 5 - 10 minutes titrating to effect, to a maximum dose of 2 mg, IM or slow IV/IO push. Elderly and opiate naive patients require 0.005 mg/kg dose, to a maximum of 1 mg.

2. Pediatric: 0.01 mg/kg IM or IV/IO over 3 minutes, max dose 0.5 mg. May repeat after 5 - 10 minutes x 1.

ADVERSE REACTION
1. Respiratory depression.
2. Hypotension.
3. Orthostasis.

REFERENCE IN PROTOCOL
1. Pain Management.
IBUPROFEN

CLASSIFICATION
1. Non-Steroidal Anti-inflammatory Drug (NSAID).

ACTION
1. The exact mechanism of action of ibuprofen is unknown.
2. Its pharmacological effects are believed to be due to inhibition of cyclooxygenase-2 (COX-2) which decreases the synthesis of prostaglandins involved in mediating inflammation, pain, fever, and swelling.
3. Antipyretic effects may be due to action on the hypothalamus, resulting in an increased peripheral blood flow, vasodilation, and subsequent heat dissipation.

ONSET OF ACTION
1. PO: 30 minutes.

DURATION OF ACTION
1. PO: 3-4 hours.

INDICATION
1. Pain management (e.g. back pain, ankle sprain).
2. Fever.

CONTRAINDICATION
1. Hypersensitivity.
2. Severe liver disease.

USE WITH CAUTION
1. Anemia.
2. Renal disease.
3. Hypertension.

DOSAGE AND ADMINISTRATION
1. Adult: 400-800 mg PO with 8 ounces of water.
2. Pediatric (6 months-12 years old): 10 mg/kg PO.

ADVERSE REACTION
1. Nausea, Vomiting, Rash.

REFERENCE IN PROTOCOL
1. Pain Management.
IPRATROPIUM BROMIDE (ATROVENT)

CLASSIFICATION
1. Anticholinergic bronchodilator.

ACTION
1. Inhibits vagally mediated reflexes by antagonizing the action of acetylcholine.

ONSET OF ACTION
1. 5-15 minutes.

DURATION OF ACTION
1. 4-5 hours.

INDICATION
1. Bronchospasms secondary to COPD, asthma and reactive airway disease.

CONTRAINDICATION
1. Allergy to soy products or peanuts.

USE WITH CAUTION
1. Glaucoma.

DOSAGE AND ADMINISTRATION
1. Adult: 0.5 mg to be added to albuterol/NS SVN; may repeat once.
   
   2. **Pediatric: 0.25 mg to be added to albuterol/NS SVN; may repeat once.**

ADVERSE REACTION
1. Dry mouth, Headache, Cough, Dizziness, Nervousness, Palpitations.

REFERENCE IN PROTOCOL
1. Respiratory Emergencies (Difficulty breathing).
KETAMINE (KETALAR)

CLASSIFICATION
1. Dissociative agent.
2. Sedative.

ACTION
1. Short term anesthetic state.

ONSET OF ACTION
1. IV/IO/IN: 30 seconds.
2. IM: 3-4 minutes.

DURATION OF ACTION
1. IV/IO/IN: 5-10 minutes.
2. IM: 12-25 minutes.

INDICATION
1. Severe agitation.
2. Excited Delirium.

CONTRAINDICATION
1. Known hypersensitivity.
2. Severe liver or renal insufficiencies.

USE WITH CAUTION
1. Hypertension.

DOSAGE AND ADMINISTRATION
1. Severe Agitation/Excited Delirium: 4 mg/kg IM to maximum of 400 mg or 2 mg/kg IV to a maximum of 200mg.
2. Refractory Pain Management: Adult: 0.2 mg/kg IN/IM/IV/IO every 10 minutes as needed up to 3 doses total. Pediatric: 0.2 mg/kg IN/IM/IV/IO every 10 minutes as needed up to 3 doses total.
3. Pre-RSI Adult: 1.5 mg/kg IV/IO. Pediatric: 2 mg/kg IV/IO. Adult and Pediatric: May use ketamine IM if IV/IO unattainable, double the IV/IO dose.
4. Pre-DSI Adult: 1 mg/kg IV/IO push over 15-30 seconds to prevent apnea. Additional doses of 0.5 mg/kg IV/IO to achieve complete dissociation if required. Pediatric: 2 mg/kg slow IV/IO push over 15-30 seconds to prevent apnea. Additional doses of 0.5 mg/kg IV/IO to achieve complete dissociation if required.
5. Post-RSI Adult: 0.5 mg/kg IV/IO every 10 minutes as needed up to 3 doses total. Pediatric: 0.5 mg/kg IV/IO every 10 minutes as needed up to 3 doses total.

POST ADMINISTRATION
1. Monitor ABCs continuously.
2. Obtain vital signs every 5 minutes.
3. Monitor EtCO₂ and pulse oximetry watching closely for hypoxia, apnea, hypopnea and acidosis.
4. Monitor airway patency including need for suctioning as ketamine can cause hypersalivation and/or laryngospasm:
   a. Consider atropine 0.5 mg IV/IM/IO if hypersalivation impacts airway patency.
   b. Manage laryngospasm in this order until airway is controlled. Larson’s maneuver (digital pressure applied to the notch behind the lobule of the pinna of each ear), high flow O₂, BVM, and if unsuccessful then RSI.

ADVERSE REACTION
1. Laryngospasm, Respiratory depression, Hypotension or Hypertension, Nausea, Vomiting, Hypersalivation.
2. Transient apnea with rapid IV/IO push.

REFERENCE IN PROTOCOL
4. Delayed Sequence Intubation (Appendix GG).

Excited Delirium  Ketamine IM Dosage Chart

<table>
<thead>
<tr>
<th>Weight in lbs</th>
<th>Weight in kg</th>
<th>Dose in mg</th>
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<tr>
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KETOROLAC (TORADOL) 

CLASSIFICATION
1. Nonsteroidal anti-inflammatory.

ACTION
1. Prostaglandin synthetase inhibition.

ONSET OF ACTION
1. IV, IM 30 minutes.

DURATION OF ACTION
1. 4 - 6 hours.

INDICATION
1. Moderate to severe pain.

CONTRAINDICATION
1. Peri-operative patients, e.g. coronary artery bypass graft surgery.
2. Advanced renal impairment.
3. Cerebrovascular or GI bleeding.
4. Labor and Delivery.
5. Hypersensitivity.

USE WITH CAUTION
1. Elderly patients generally require a lower dose.

DOSAGE AND ADMINISTRATION
1. IV administration slowly over 15-20 seconds. IM administration slowly and deeply into the muscle.
2. Adult: IM: Patients < 65 years old: 60 mg. Patients ≥65 years old and/or <110 lbs: 30 mg.
   IV: Patients < 65 years old: 30 mg. Patients ≥65 years old and/or <110 lbs: 15 mg.

   Pediatric: ≥ 2 years old- 0.5 mg/kg IV/IO/IM.  
   Max single dose of 15 mg.

ADVERSE REACTION
1. Allergic reaction.
2. Dizziness.
3. Hypertension.

REFERENCE IN PROTOCOL
1. Pain Management.
LACTATED RINGER’S (LR)

CLASSIFICATION
1. Isotonic crystalloid solution.

ACTION
1. Replaces extracellular fluid by remaining in vascular space.

INDICATION
1. Primarily indicated for use in trauma patients.
2. Hypovolemia.
3. Heat exhaustion.
4. Shock.

CONTRAINDICATION
1. Do not use in patients with a known hypersensitivity to sodium lactate.
2. Do not use in patients for the treatment of lactic acidosis or severe metabolic acidosis.
3. Do not use in patients for the treatment of alkalosis or patients at risk for alkalosis.
4. Do not use in patients with severe renal impairment, hypervolemia, overhydration, or conditions that may cause sodium and/or potassium retention, fluid overload, or edema.

USE WITH CAUTION
1. Hypertensive patients.
2. Fluid overloaded patients.
3. Use volume control device with pediatric patients.
4. Use with particular caution to neonates and infants less than 6 months of age.

DOSAGE AND ADMINISTRATION
1. Adult: Route and indication dependent.
   2. Pediatric: 20 mL/kg, repeat PRN; may give up to 3 rapid infusions if inadequate perfusion.

ADVERSE REACTION
1. Fluid overload, Hypersensitivity, Hyperkalemia.

REFERENCE IN PROTOCOL
1. Throughout.
LIDOCAINE 2%

CLASSIFICATION
1. Antiarrhythmic.

ACTION
1. Suppresses ventricular arrhythmias.
2. Local anesthetic.

ONSET OF ACTION
1. IV/IO: Immediate.
2. ET: Immediate.

DURATION OF ACTION
1. IV/IO: 10-20 minutes.
2. ET: 10-20 minutes.

INDICATION
1. Cardiac arrest from VF/VT.
3. As anesthetic flush prior to IO infusion for adult patients that are awake.

CONTRAINDICATION
1. Known hypersensitivity.
2. Heart blocks.
3. WPW.

USE WITH CAUTION
1. Liver disease.
2. Congestive heart failure.
3. Severe respiratory depression.
5. Shock.

DOSAGE AND ADMINISTRATION
1. Cardiac Arrest from VF/VT, use as follows:
   a. Initial dose: 1-1.5 mg/kg IV/IO bolus.
   b. For refractory VF: may give additional 0.5-0.75 mg/kg IV/IO, repeat in 5-10 minutes; maximum is 3 doses or maximum total of 3 mg/kg.
   c. ET dose: 2-3 mg/kg in 10 mL NS.
2. Perfusing arrhythmia of stable VT, wide complex tachycardia of uncertain type, significant ectopy use as follows:
   a. Initial dose: 1 mg/kg IV/IO.
   b. Repeat 0.5 mg/kg IV/IO every 5-10 minutes, maximum total dose is 3 mg/kg.
3. Maintenance infusion: Mix 1 gm in 250 mL of NS = 4 mg/mL or use premixed solution at 1-4 mg/minute.
### Table

<table>
<thead>
<tr>
<th>MICRODROPS/MINUTE</th>
<th>mg/minute</th>
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<td>15</td>
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</table>

NOTE: In patients with liver disease or severe congestive heart failure, administer half of the above recommended doses for maintenance dose (not initial).

4. **Pediatric:** 1 mg/kg IV/IO, **OR** 2-3 mg/kg in 5 mL NS ET. Contact Mary Bridge Base Station for maintenance infusion.

5. IO anesthesia: Adult: 20-50 mg IO prior to infusion. **Contraindicated in Pediatric patient.**

### Adverse Reaction

1. CNS: Dizziness, Somnolence, Confusion, Paresthesias, Muscle twitching, Seizures, Slurred speech.
2. CV: Hypotension, Bradycardia.
3. EENT: Tinnitus, Blurred vision.

### Reference in Protocol

1. Cardiac Emergencies (see AHA handbook).
LORAZEPAM (ATIVAN) #

CLASSIFICATION
1. Anticonvulsant.
2. Sedative.
3. Anxiolytic.

ACTION
1. Binds to benzodiazepine receptors.
2. Enhances GABA to produce sedation, relaxation of skeletal muscle, anticonvulsion, and induced coma.
3. Has amnesia effect.

ONSET OF ACTION
1. 1 – 5 minutes IV.
2. 15 – 30 minutes IM.

DURATION OF ACTION
1. 6 – 8 hours.

INDICATION
1. Procedural sedation.
2. Anxiolysis.

CONTRAINDICATION
1. Known sensitivity benzodiazepines, polyethylene glycol, propylene glycol or benzyl alcohol.
2. COPD.
3. History of obstructive sleep apnea.
4. Shock of any origin.
5. Acute closed-angle glaucoma.

USE WITH CAUTION
1. Administer IV and IO doses slowly.
2. Dilute with NS or DsW prior to administration.
3. Repeat doses may be needed for management of status epilepticus.

DOSAGE AND ADMINISTRATION
1. Sedation/Anxiolysis:
   a. Adult & Pediatric: 0.05 mg/kg IV/IO, max single dose of 2 mg.
2. Seizures:
   a. Adult: 4 mg IV/IO given over 2-5 minutes. Repeat in 10-15 minutes. Can also be given IM or rectally.
   b. Pediatric: 0.1 mg/kg slow IV push over 1-minute, max single dose of 4 mg, may repeat x 1.

ADVERSE REACTION
1. Headache.
2. Amnesia.
3. Dysarthria.
4. Syncope.
5. Tremors.
6. Respiratory depression.
7. Paradoxical CNS stimulation.
8. Hypotension.
LOW TITER “O” WHOLE BLOOD (LTOWB)

CLASSIFICATION
1. Low Titer “O” Whole Blood.

ACTION
1. Mitigate the effects of acute blood loss anemia.
2. Replenish circulating blood volume, clotting factors, increase oxygen carrying capacity, and reduce inadequate tissue perfusion.
3. Reverse hypothermia, acidosis, coagulopathy.

ONSET OF ACTION
1. Immediate.

DURATION OF ACTION
1. Varies based on amount of blood lost, continued bleeding, hemostasis and degree of coagulopathy, acidosis and hypothermia present during resuscitation.

INDICATION
1. Patient in hemorrhagic shock due to trauma.
2. Patient in hemorrhagic shock due to medical bleeding.

CONTRAINDICATION
1. Religious objection or patient refusal to receiving blood or blood products.

USE WITH CAUTION
1. Be prepared to treat reaction.
2. Allergy is uncommon (~1%).
3. Anaphylaxis is rare (0.1%).

DOSAGE AND ADMINISTRATION
1. Unit of Stored Low Titer “O” Whole Blood is approx. 450-500ml. Begin resuscitation with 1 unit of LTOWB. Multiple units of LTOWB may be used to obtain resuscitation goals. See Traumatic Injuries Damage Control Resuscitation guidelines for vital signs goals or See Medical Emergencies Medical Bleeding for resuscitation guidelines during medical bleeding.
2. **Pediatric: initial dose 20ml/kg but recognize that more blood may be needed to resuscitate patient properly. Repeat at 10ml/kg PRN as clinically indicated.**
3. Must be administered with a filter-line set (170-260 microns) in a Y-type (recommended) set. Infuse with a pressure bag. Ensure maximal elevation if possible.
4. Infuse through a blood and fluid warmer that heats the blood to a temperature of 98.6° F or 37° C.
5. Do not give medications through the same line at the same time.
6. Rapidly establish a second line for medication administration or temporarily stop transfusion, flush line with crystalloid and administer medications, flush line and then restart transfusion.
7. All blood bags must be kept with the patient. DO NOT throw away. These are kept for proper documentation in the event of future incidence of a communicable disease and in the rare event of a transfusion reaction to document the type of blood that was given.
8. Stored LTOWB is to be stored at 33.8 - 42.8° F (1-6° C). During storage the temperature must be constantly monitored and logged. If citrate phosphate dextrose (CPD) is utilized in the blood donation bag LTOWB may be stored for up to 21 days from time of donation. If citrate phosphate dextrose adenine (CPDA)-1 or (CPDA)-2 is used it may be stored for up to 35 days from time of donation.
ADVERSE REACTION
1. Fever, chills, back pain, chest pain, tachycardia, hypotension, rash / urticaria, wheezing, dyspnea, vomiting, diarrhea.
2. Hemolytic reaction.
REFERENCE IN PROTOCOL
1. Traumatic injuries.
2. Medical emergencies/Medical Bleeding.
MAGNESIUM SULFATE

CLASSIFICATION
1. Antiarrhythmic, anticonvulsant, CNS depressant, electrolyte.

ACTION
1. Replaces and maintains magnesium levels.
2. Reduces muscle contractions by interfering with release of acetylcholine at the myoneural junction.

ONSET OF ACTION
1. 1-2 minutes.

DURATION OF ACTION
1. 30 minutes.

INDICATION
1. Seizures due to pre-eclampsia, eclampsia.
2. Life threatening ventricular arrhythmias due to digitalis toxicity, tricyclic overdose.
3. Torsades de pointes.
4. Respiratory distress (Asthma).

CONTRAINDICATION
1. Heart block.
2. Hypocalcemia.

USE WITH CAUTION
1. Dialysis patients.
2. Excessive dose may cause respiratory depression, cardiac arrest.

DOSAGE AND ADMINISTRATION
1. Adult dose:
   a. Seizures due to eclampsia: 4 gm slow IV push over 5 minutes. Must be given slowly to avoid cardiac or respiratory distress.
   b. Cardiac arrest-pulseless Torsades: 1-2 gm in 10 mL NS, IV/IO. (Max dose: 2 gm) bolus.
   c. Torsades with a pulse: 1-2 gm in 50-100 mL NS, IV/IO. (Max dose: 2 gm). Infuse over 15 minutes.
   d. Asthma: 2 gm in 10 mL NS, IV/IO. Infuse over 15 minutes.

2. Pediatric dose:
   a. Pulseless VT with Torsades: 50 mg/kg in 10 mL NS, IV/IO. (Max dose: 2 gm) bolus.
   b. Torsades with a pulse: 50 mg/kg in 10 mL NS, IV/IO. (Max dose: 2 gm). Infuse over 15 minutes.
   c. Asthma: 50 mg/kg in 10 mL NS, IV/IO. (Max dose: 2 gm). Infuse over 15 minutes.

ADVERSE REACTION
1. CNS: Weak or absent reflexes, Flaccid paralysis, Hypothermia, Drowsiness.
2. CV: Slow-weak pulse, Hypotension, Flushing. Monitor ECG continuously while administering.
3. Respiratory depression.

REFERENCE IN PROTOCOL
1. Cardiac Emergencies (see AHA handbook).
2. Respiratory Emergencies (Difficulty breathing).
3. Medical Emergencies (If actively seizing).
4. OB/GYN Emergencies (Hypertensive disorders of pregnancy).

NOTE: Antidote is Calcium Chloride.
MARK I / DuoDote NERVE AGENT ANTIDOTE KIT (NAAK)

CLASSIFICATION
1. Antidote for organophosphate poisoning (nerve agent/insecticide).

ACTION
1. Reactivates organophosphate-inhibited cholinesterase.

ONSET/DURATION OF ACTION
1. See ATROPINE section for atropine specifics.
2. See PRALIDOXIME CHLORIDE section for pralidoxime chloride specifics.

INDICATION
1. Organophosphate/nerve agent poisoning.

CONTRAINDICATION
1. Hypersensitivity to atropine or 2-Pam.

USE WITH CAUTION
1. See ATROPINE section for atropine specifics.
2. See PRALIDOXIME CHLORIDE section for pralidoxime chloride specifics.

DOSAGE AND ADMINISTRATION
1. Administer atropine auto injector.
2. Administer pralidoxime (2-Pam) auto injector.
3. Give up to three times if symptoms persist.

ADVERSE REACTION
1. See ATROPINE section for atropine specifics.
2. See PRALIDOXIME CHLORIDE section for pralidoxime chloride specifics.

REFERENCE IN PROTOCOL
1. Environmental Emergencies.
2. See ATROPINE section for atropine specifics.
3. See PRALIDOXIME CHLORIDE section for pralidoxime chloride specifics.
METHYLPREDNISOLONE (SOLU-MEDROL)

CLASSIFICATION
1. Anti-inflammatory/corticosteroid.

ACTION
1. An adrenocortical steroid with potent anti-inflammatory effects.

ONSET OF ACTION
1. 1-4 hours.

DURATION OF ACTION
1. 7 days.

INDICATION
1. Moderate to severe asthma / COPD exacerbations.
2. Moderate to severe allergic reactions.
3. Moderate to severe angioedema.
4. Anaphylaxis.

CONTRAINDICATION
1. Known hypersensitivity.

USE WITH CAUTION
1. Seizures may occur if patient is taking cyclosporin.

DOSAGE AND ADMINISTRATION
1. Adult: 125 mg IV/IO, single dose only.
2. Pediatric: 2 mg/kg IV/IO up to 60 mg per dose.
3. Incompatible with diphenhydramine (Benadryl); flush between medications.

ADVERSE REACTION
1. None acutely.
2. Some adverse metabolic effects if taken long term, greater than a few weeks.

REFERENCE IN PROTOCOL
1. Respiratory Emergencies (Difficulty breathing).
MIDAZOLAM (VERSED)

CLASSIFICATION
1. Tranquilizer (Benzodiazepine).

ACTION
1. Hypnotic, amnesiac, sedative, anticonvulsant.
2. Potent but short-acting, 3-4 times more potent than diazepam.
3. Has NO effect on pain.

ONSET OF ACTION
1. IV/IO: 1.5-5 minutes.
2. IN: 2-6 minutes.
3. IM: 15 minutes.

DURATION OF ACTION
1. IV/IO/IN/IM: 2-6 hours.

INDICATION
1. Premedication sedation prior to cardioversion.
4. Post-intubation sedation.

CONTRAINDICATION
1. History of hypersensitivity.
2. Narrow angle glaucoma.

USE WITH CAUTION
1. Shock.
2. May be accentuated by narcotics and/or alcohol.

DOSAGE AND ADMINISTRATION
1. Give half doses if patient is > 60 years old.
2. Wait 1-2 minutes between IN/IV doses to evaluate response.
3. Seizures:
   a. Adult:
      i. 1st choice- 10 mg for > 40 kg, single dose IM, or
      ii. 2nd choice- 0.2 mg/kg of a 5 mg/mL concentration IN, or
      iii. 3rd choice- 2 mg increments IV to a maximum dose of 0.1mg/kg or 10 mg (whichever is less).
   b. Pediatric:
      i. 1st choice- 0.2 mg/kg of a 5 mg/mL concentration IM/IN, to a maximum dose of 10 mg, or
      ii. 2nd choice- 0.1 mg/kg IV slowly over 2 minutes in no greater than 2 mg increments not to exceed 5 mg.
4. Anxiety Relief/Sedation: e.g. CPAP/BiPAP, pre-cardioversion, behavioral-not ExDs (specific doses/routes in protocol sections):
   a. Adult:
      i. 0.2 mg/kg of a 5 mg/mL concentration IN, or
ii. 2 mg increments IV/IO to a maximum dose of 0.1 mg/kg or 10 mg (whichever is less) or

iii. 5 mg IM; may repeat once in 10-15 minutes.

b. Pediatric:
   i. 0.2 mg/kg of a 5 mg/mL concentration IM/IN, to a maximum dose of 10 mg, or
   ii. 0.1 mg/kg IV slowly over 2 minutes in no greater than 2 mg increments not to exceed 5 mg.
   iii. Contact Mary Bridge Base Station for direction if unsure.

5. Excited Delirium Sedation:
   a. Adult: 10 mg IN/IM/IV.
   b. Pediatric: Contact Mary Bridge Base Station for direction.

6. Post-RSI:
   a. Adult: 2 mg IV/IO q 10 minutes as needed.
   b. Pediatric: 0.1 mg/kg IV/IO slowly over 2 minutes in no greater than 2 mg increments, q 10 minutes as needed.

<table>
<thead>
<tr>
<th>Patient age (years)</th>
<th>Weight (kg)</th>
<th>INTRanasAL Midazolam volume in mL of 5 mg/mL concentration</th>
<th>Dose (mg)</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>5 mg/mL</td>
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<tr>
<td>0-3 months</td>
<td>4 kg</td>
<td>0.2 mL</td>
<td>0.8 mg</td>
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<tr>
<td>4-6 months</td>
<td>6 kg</td>
<td>0.2 mL</td>
<td>1.0 mg</td>
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<tr>
<td>7-12 months</td>
<td>8 kg</td>
<td>0.3 mL</td>
<td>1.6 mg</td>
</tr>
<tr>
<td>1-2 years</td>
<td>10 kg</td>
<td>0.4 mL</td>
<td>2.0 mg</td>
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<tr>
<td>2-3 years</td>
<td>13 kg</td>
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<td>3-5 years</td>
<td>16 kg</td>
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<td>5-6 years</td>
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<td>7-8 years</td>
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<td>9-10 years</td>
<td>32 kg</td>
<td>1.0 mL</td>
<td>5.0 mg</td>
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<tr>
<td>Small teenager</td>
<td>40 kg</td>
<td>1.8 mL</td>
<td>8.0 mg</td>
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<tr>
<td>Adult or full-grown teenager</td>
<td>≤ 50 kg</td>
<td>2.0 mL</td>
<td>10.0 mg</td>
</tr>
</tbody>
</table>

ADVERSE REACTION
1. Drowsiness, Hypotension, Amnesia, Respiratory depression, Apnea, Laryngospasm, Bronchospasm, Dyspnea, Bradycardia, Tachycardia, PVCs, Retching.
2. May decrease ICP in head injured patients.
3. Causes nasal burning for 30-45 seconds post IN administration.

REFERENCE IN PROTOCOL
1. Traumatic Emergencies (For seizures, Crush Injury Syndrome).
2. Cardiac Emergencies (see AHA handbook).
3. Medical Emergencies (If actively seizing).
4. Rapid Sequence Intubation (Appendix G).
5. Behavioral Emergencies (Violent patients).
MORPHINE SULFATE

CLASSIFICATION
1. Narcotic analgesic.

ACTION
1. Potent analgesic, sedative and euphoric.
2. Decreases rate of A-V conduction (vagotonic).
3. Peripheral vasodilation and venous pooling of blood.

ONSET OF ACTION
1. IV/IO: 5 minutes.
2. IM: 10-30 minutes.

DURATION OF ACTION
1. IV/IO/IM: 4-5 hours.

INDICATION
1. Severe pain, e.g. myocardial infarction, burns, isolated extremity injuries, abdominal pain.

CONTRAINDICATION
1. Known hypersensitivity.
2. Head trauma.
3. Altered states of consciousness.
4. Shock.

USE WITH CAUTION
1. Respiratory depression, e.g. associated with asthma, COPD.
2. Elderly patients.
3. Hypotension.
5. Right-ventricular infarction.

DOSAGE AND ADMINISTRATION
1. Adult:
   a. Non-ACS pain management: 0.1 mg/kg every 5-10 minutes titrating to effect, to a maximum dose of 20 mg, IM or slow IV/IO push.
   b. ACS pain management:
      i. STEMI: 2-4 mg IV. May give additional doses of 2-8 mg IV at 5-15 minute intervals up to 10 mg if systolic BP >100.
      ii. NSTEMI/ACS: 1-5 mg IV only if symptoms not relieved by nitrates or if symptoms recur up to 10 mg if systolic BP >100.
2. Pediatric: 0.1 mg/kg IM or slow IV/IO push, not to exceed 4 mg single dose. Contact Mary Bridge Base Station for additional doses.

ADVERSE REACTION
1. Respiratory depression, Respiratory arrest, Hypotension, Nausea, Vomiting, Bradycardia, Heart block, Drowsiness.
REFERENCE IN PROTOCOL
1. Trauma Emergencies (Skeletal Trauma, Amputated Parts, Burns, Crush Injury Syndrome).
2. Cardiac Emergencies (Chest discomfort and possible ACS; see AHA handbook).
4. Medical Emergencies (Abdominal Pain).
5. Respiratory Emergencies (Difficulty breathing).
NALOXONE (NARCAN)

CLASSIFICATION
1. Narcotic antagonist.

ACTION
1. Binds up opiate receptor sites, displaces narcotic molecules from opiate receptors.
3. Reverses respiratory depression secondary to narcotic overdose.

ONSET OF ACTION
1. IV/ET/IO: 1-2 minutes.
2. IN: 3-4 minutes.
3. IM: 2-5 minutes.

DURATION OF ACTION
1. Approximately 45 minutes.
2. Effects are variable with route and agent.

INDICATION
1. Respiratory depression secondary to narcotics, synthetic narcotic agents and related drugs.
2. Cardiac Arrest if opioid poisoning is suspected.
3. Opiate overdoses such as Codeine, Darvon, Demerol, Dilaudid, Fentanyl, Heroin, Hydrocodone, Methadone, Morphine, Nubain, Oxycodone, Percodan, Stadol, Talwin, etc.
4. Treatment of coma of unknown origin with apnea/hypoventilation or in neonatal resuscitation.

CONTRAINDICATION
1. Known hypersensitivity.

USE WITH CAUTION
1. In patients known to be physically dependent on narcotics; may precipitate withdrawal symptoms.
2. Be prepared to restrain potentially violent patients if necessary after naloxone has been administered.

DOSAGE AND ADMINISTRATION
1. 0.4-4 mg IN/IM/IV/IO/ET; dose may be repeated every 2-3 minutes, up to 10 mg or until patient begins to maintain airway and breathe adequately.
   a. It is not necessary to wake the patient; just give enough to make them breathe on their own.
2. If no response is observed after 10 mg, consider different etiology of respiratory depression or unconsciousness.
3. Higher doses may be ordered if no initial response.
4. Pediatric: 0.1 mg/kg IN/IM/IV/IO/E/SQ up to 2 mg/dose; dose may be repeated every 2-3 minutes, up to 10 mg or until patient begins to maintain airway and breathe adequately.
ADVERSE REACTION

1. Withdrawal symptoms: Sweating, Gooseflesh, Tremor, Nausea and vomiting, Dilation of pupils, Tearing of eyes, Agitation, Belligerence, Convulsions, Hyper or Hypoventilation.

REFERENCE IN PROTOCOL

1. Respiratory Emergencies (Difficulty breathing).
2. Medical Emergencies (Altered Level of Consciousness).
3. OB/GYN Emergencies (Neonatal Resuscitation).
NITROGLYCERIN

CLASSIFICATION
1. Vasodilator.

ACTION
1. Dilates veins and arteries in peripheral circulation resulting in:
   a. Reduced resistance to blood flow.
   b. Decreased blood pressure.
   c. Decreased workload on heart.
2. Dilates coronary arteries.
3. Dilates blood vessels in smooth muscle; e.g. GI tract, gallbladder, bile ducts, uterus.
4. Improves cardiac output in patient with congestive heart failure.

ONSET OF ACTION
1. 1-3 minutes.

DURATION OF ACTION
1. 30-60 minutes.

INDICATION
2. Congestive heart failure with pulmonary edema and adequate BP.

CONTRAINDICATION
1. Known hypersensitivity.
2. Systolic BP < 100.
3. Use of erectile dysfunction drugs or pulmonary hypertension drugs, such as sildenafil or tadalafil, within 48 hours.

USE WITH CAUTION
1. When HR < 50 or > 100.
2. With evidence of AMI, limit systolic BP drop to 10% of baseline or 25% if hypertensive.

DOSAGE AND ADMINISTRATION
1. Do not shake metered dose spray.
2. Patient should sit or lie down while administered.
3. Tablet and Metered dose spray L/SL delivers 0.4 mg.
4. Transdermal- for interfacility transfer- set per releasing physician’s order.
5. ACS dose: 0.4 mg SL tablet or L/SL spray; may be given every 5 minutes until chest pain free as long as BP remains > 100/S.
6. CHF dose:
   a. If patient is in mild distress and BP > 100/S: Give nitroglycerin 0.4 mg SL tablet or L/SL spray; may repeat every 3-5 minutes, if patient remains symptomatic, to a maximum of 2 mg.
   b. If patient in moderate distress, or severe distress without AMS and BP > 100/S: Give nitroglycerin 0.4 mg SL tablet or L/SL spray; may repeat with 0.4 mg SL tablet or 1-2 L/SL sprays every 3-5 minutes, if patient remains symptomatic, to a maximum of 2 mg.
7. **IV:**
   a. Bolus- 12.5 to 25 mcg if no SL or spray available.
   b. IV infusion-
      i. Begin at 10 mcg/minute. Titrate to effect, increasing by 10 mcg/minute every 3-5 minutes until desired effect. Ceiling dose is 200 mcg/minute.
      ii. For interfacility transfer- set per releasing physician’s order using IV medication pump.

8. **Pediatric: Contact Mary Bridge Base Station.**

**ADVERSE REACTION**

1. Hypotension, Throbbing headache, Skin flushing.

**REFERENCE IN PROTOCOL**

1. Cardiac Emergencies (Chest discomfort and possible ACS; see AHA handbook).
2. Respiratory Emergencies (Difficulty breathing).
NITROUS OXIDE (NITRONOX)

CLASSIFICATION
1. Anesthetic, potent analgesic.

ACTION
1. Nitronox is a blended mixture of 50% nitrous oxide and 50% oxygen.
2. Effect quickly dissipates (within 2-5 minutes) after cessation of administration.

ONSET OF ACTION
1. 2-5 minutes.

DURATION OF ACTION
1. 2-5 minutes.

INDICATION
1. Musculoskeletal pain due to fractures.
2. Burns.
3. Severe pain with physician approval.

CONTRAINDICATION
1. Severe head injury with evidence of increased intracranial pressure, decreased LOC.
2. COPD, pneumothorax.

USE WITH CAUTION
1. O\textsubscript{2} saturation < 90%.
2. Patient must be able to self-administer.

DOSAGE AND ADMINISTRATION
1. Adult: self-administered by inhalation (50% oxygen/50% nitrous oxide mix).
2. Pediatric: Contact Mary Bridge Base Station.

CAUTION: Must be used in well-ventilated area. If used in ambulance keep exhaust fan running, window open.

ADVERSE REACTION
1. Nausea, Vomiting, Bizarre behavior.

REFERENCE IN PROTOCOL
1. Pain Management.
NOREPINEPHRINE (LEVOPHED)

CLASSIFICATIONS
1. Alpha and Beta Adrenergic stimulator.
2. Potent Vasoconstrictor and Inotrope.

ACTIONS
1. Acts predominately on peripheral alpha adrenergic receptors to produce constriction of resistance and capacitance vessels, thereby increasing systemic blood pressure and coronary artery blood flow.
2. Low doses cause a cardiac stimulation effect which increases systolic, diastolic, and pulse pressures.
3. Larger doses cause a vasoconstrictor effect.

ONSET OF ACTIONS
1. Immediate.

DURATION OF ACTIONS
1. 1-2 minutes after infusion ends.

INDICATIONS
1. Cardiogenic shock.
2. Acute symptomatic hypotension secondary to non-hypovolemic states.
3. Sepsis or septic shock.

CONTRAINDICATIONS
1. True Hypovolemia.
3. MAOI Therapy.

USE WITH CAUTION
1. Preexisting Hypertension.
2. Preexisting Hypothyroidism.
3. Peripheral Vascular Disease.
4. Asthma.
5. Pregnancy.
6. Avoid extravasation of norepinephrine into surrounding tissue. If intravenous infusion infiltrates, it must be immediately removed. Notify the physician.

DOSAGES AND ADMINISTRATION
1. Adult: 8-12 mcg/min (0.1-0.5 mcg/kg/min) IV infusion initial dose titrating to individual patient response.
2. Adult: 2-4 mcg/min maintenance dose. (Individual response is variable).
3. Pediatric: 0.1 mcg/kg/min to a maximum rate of 2 mcg/kg/min.
4. Do not administer in the same IV tubing with alkaline solutions.

ADVERSE REACTIONS
1. Arrhythmia, Pulmonary Edema, Bradycardia, Hypertension, Tachycardia, Anxiety.

REFERENCE IN PROTOCOL
1. Cardiac Emergencies (see AHA handbook).
2. Medical Emergencies (Sepsis).
OLANZAPINE (ZYPREXA) #

CLASSIFICATION
1. Antipsychotic.
2. Antimanic.

ACTION
1. Dopamine and Serotonin antagonist.

ONSET OF ACTION
1. ODT: 20-30 minutes.
2. IM: 15-45 minutes.

DURATION OF ACTION
1. 6 hours.

INDICATION
1. Acute agitation (non-combative or violent).

CONTRAINDICATION
1. Hypersensitivity to the drug or any component of the formulation.

USE WITH CAUTION
1. Elderly patients.
2. Prolonged QT interval.

DOSAGE AND ADMINISTRATION
1. Adult: 5-10 mg ODT or 10 mg IM.
2. Pediatric: 2.5-5 mg slow, deep IM administration.

ADVERSE REACTION
1. Sedation.
2. Extrapyramidal symptoms.
3. Orthostasis.
ONDANSETRON (ZOFRAN)

CLASSIFICATION
1. Antiemetic.

ACTION
1. Blocks the actions of chemicals in the body that cause nausea and vomiting.

ONSET OF ACTION
1. IV: Immediate.
2. IM: 5-10 minutes.
3. ODT: 15-30 minutes.

DURATION OF ACTION
1. 4-6 hours.

INDICATION
1. Nausea and/or vomiting.

CONTRAINDICATION
1. Hypersensitivity to medication/class/compound.

USE WITH CAUTION
1. Patients with impaired liver function.
2. Pregnancy.
3. Prolonged QT syndrome/QT > 500 ms on ECG.

DOSAGE
1. Adult: 8 mg oral disintegrating tablet (ODT) or 4 mg IM/slow IV push.
2. Pediatric: > 11 years old 8 mg ODT or 4 mg slow IV push. Contact Mary Bridge Base Station.
3. Pediatric: 4-11 years old 4 mg ODT or 0.15 mg/kg up to 4 mg slow IV push. Contact Mary Bridge Base Station.

ADMINISTRATION
1. ODT: Place on tongue immediately after opening blister pack. Handle with dry hands only. Do not cut or chew. Administration with water is not necessary. Tablet is fragile and will dissolve in seconds on tongue.
2. IM: Administer undiluted intramuscularly as a single injection for adults.
3. IV: Administer undiluted in not less than 30 seconds, preferably over 2-5 minutes.

ADVERSE REACTION

REFERENCE IN PROTOCOL
1. Medical Emergencies (Abdominal pain/vomiting).
OXYGEN

CLASSIFICATION
1. Naturally occurring atmospheric gas.

ACTION
1. Odorless, tasteless, colorless gas present in room air at approximately 21%.
2. Used to reverse hypoxemia.

ONSET OF ACTION
1. Immediate.

DURATION OF ACTION
1. As long as is on.

INDICATION
1. Hypoxia-confirmed or suspected.
2. Ischemic chest pain and/or stroke if pulse oximetry < 94%.
3. Respiratory insufficiency.
4. Apneic oxygenation during RSI / DSI procedure.
5. Suspected carbon monoxide poisoning.

CONTRAINDICATION
1. None.

USE WITH CAUTION
1. Patients with COPD and chronic carbon dioxide retention.

DOSAGE AND ADMINISTRATION
1. Via nasal cannula, non-rebreather mask, ET tube, BVM, or by whatever means to maintain O₂ saturation > 94%.
2. COPD and chronic carbon dioxide retention patients: target O₂ saturation of 92-94%.
3. Post-cardiac arrest with ROSC: target O₂ saturation of 94%, acceptable range 94-99%.
4. Carbon Monoxide Poisoning: high flow at 100%.

ADVERSE REACTION
1. High-concentration oxygen may cause decreased LOC and respiratory depression over time in patients with chronic carbon dioxide retention.

REFERENCE IN PROTOCOL
1. Throughout.
OXYMETAZOLINE (AFRIN)

CLASSIFICATION
1. Adrenergic sympathomimetic.

ACTION
1. Unknown. Causes vasoconstriction of the smaller arterioles in the nasal passages which lasts up to 12 hours.

ONSET OF ACTION
1. Less than 5 minutes.

DURATION OF ACTION
1. Less than 12 hours.

INDICATION
1. Preparation for nasotracheal intubation.
2. Control of epistaxis.

CONTRAINDICATION
1. Known hypersensitivity to medication.

USE WITH CAUTION
1. Not recommended for children < 6 years old.

DOSAGE AND ADMINISTRATION
1. Adult and Pediatric > 6 years old: 2-3 sprays in each nostril.
2. Pediatric < 6 years old: none.

ADVERSE REACTION
1. Headache, Drowsiness, Insomnia, Palpitations, Hypertension, Rebound nasal congestion or irritation.
2. Burning, Stinging or Sneezing may occur if recommended dosage is exceeded.
3. Use of the dispenser by more than one patient may spread infection.

REFERENCE IN PROTOCOL
**PANCURONIUM (PAVULON) #**

**CLASSIFICATION**
1. Paralytic.
2. Non-depolarizing neuromuscular blocker.

**ACTION**
1. Provides skeletal muscle relaxation to facilitate endotracheal intubation.

**ONSET OF ACTION**
1. 3 minutes.

**DURATION OF ACTION**
1. 30-50 minutes.

**INDICATION**
1. Maintenance of paralysis after intubation to assist ventilation during prolonged transport.

**CONTRAINDICATION**
1. First trimester pregnancy.

**USE WITH CAUTION**
1. Patients with neuromuscular diseases such as myasthenia gravis or myasthenic syndrome may have prolonged periods of paralysis.
2. Newborns.

**DOSAGE AND ADMINISTRATION**
1. Paralysis maintenance.
   a. Adult: 0.05 mg/kg IV/IO push q 30-60 minutes as needed.
   b. Pediatric: **0.05 mg/kg IV/IO push q 20-30 minutes as needed.**

**ADVERSE REACTION**
1. Apnea.
2. Prolonged paralysis.
3. Tachycardia.
4. Hypotension.
5. Hypertension.

**REFERENCE IN PROTOCOL**
1. Rapid Sequence Intubation (Appendix G).
2. Traumatic Emergencies (Crush Injury Syndrome).

**NOTE:** Must be stored according to manufacturer’s instructions.
PHENOBARBITAL (LUMINAL) #

CLASSIFICATION
1. Barbiturate, anticonvulsant, sedative, hypnotic.

ACTION
1. Limits spread of seizure activity by increasing threshold for motor cortex activity.
2. Sedative and hypnotic effects are due primarily to interference with impulse transmission of the cerebral cortex by inhibition of the reticular activating system.

ONSET OF ACTION
1. 3 – 30 minutes.

DURATION OF ACTION
1. 4 – 6 hours.

INDICATION
1. Seizures.
2. Anxiety.

CONTRAINDICATION
1. Hypersensitivity.
2. Patients with porphyria*.
3. Severe liver or respiratory disease.

USE WITH CAUTION
1. Other anticonvulsants, CNS depressants, and MAO inhibitors may potentiate effects.
2. Use with caution in patients with pulmonary, cardiovascular, hepatic or renal insufficiency.
3. Use a large, stable vein for injections (extravasation may cause tissue necrosis).
4. Monitor vital signs closely and prepare to assist with ventilations as necessary.

DOSAGE AND ADMINISTRATION
1. Seizures: Adult: 260 mg IV slowly, may repeat in 5 minutes if seizure has not stopped, may repeat a third dose in 5 minutes if seizure has not stopped. Contact Base Station thereafter.
   a. Pediatric: 20 mg/kg load dose IV slowly over 10-15 minutes.
   b. Child ≤ 60kg: max rate of infusion 30 mg/min.
   c. Child > 60kg: max rate of infusion 50 mg/min.
   d. Can be given in 10 mg/kg increments.
2. RSI: Adult: 130 mg IV slowly. Pediatric: Contact Mary Bridge Base Station for dosing.
3. Sedation: Adult: 65 mg IV slowly. Contact Base Station thereafter. Pediatric: Contact Mary Bridge Base Station for dosing.

ADVERSE REACTION
1. CNS depression.
2. Hypotension.
4. Respiratory depression.
5. Nystagmus.

REFERENCE IN PROTOCOL
1. Medical Emergencies (If actively seizing).
2. Traumatic Emergencies (For seizures, Crush Injury Syndrome).

* Porphyria the name used for a variety of disorders related to problems in producing the substance known as heme. Heme is an iron-rich molecule that is found primarily in hemoglobin in the blood. When heme is not produced appropriately, chemicals known as porphyrins can build up in the body, leading to the disease called porphyria. These many types can be broadly divided into two categories, acute and cutaneous. Acute porphyria affects the nervous system. These types of porphyria are mainly inherited or genetic. Symptoms, which occur sporadically, include abdominal pain, numbness or tingling, cramping, vomiting, and mental disorders. Acute porphyria is treated with medication and, in some cases, hospitalization. Cutaneous porphyria affects the skin. Symptoms include blisters and swelling when the skin is exposed to sunlight.
PLASMA (FRESH PLASMA = FP)

CLASSIFICATION
1. Blood product

ACTION
1. Mitigate the effects of acute blood loss anemia.
2. Replenish circulating blood volume, clotting factors, and reduce inadequate tissue perfusion.
3. Reverse hypothermia, acidosis, coagulopathy.

ONSET OF ACTION
1. Immediate.

DURATION OF ACTION
1. Varies based on amount of blood lost, continued bleeding, hemostasis and degree of coagulopathy, acidosis and hypothermia present during resuscitation.

INDICATION
1. Patient in hemorrhagic shock due to trauma.
2. Patient in hemorrhagic shock due to medical bleeding.

CONTRAINDICATION
1. Religious objection or patient refusal to receiving blood or blood products.

USE WITH CAUTION.
1. Be prepared to treat reaction.
2. Allergy is uncommon (~1%).
3. Anaphylaxis is rare (0.1%).

DOSAGE AND ADMINISTRATION
1. Fresh plasma (FP) pack / unit is approximately 400 ml.
2. NS or Plasma-Lyte A are the only solutions that should be used with FP so not to cause precipitation, agglutination, and hemolysis.
3. Begin resuscitation with 1 unit of FP. Multiple units of FP may be used to obtain resuscitation goals. See Traumatic injuries Damage Control Resuscitation guidelines for vital signs goals or See Medical Emergencies Medical Bleeding for resuscitation guidelines during medical bleeding.
4. Pediatric: initial dose 20ml/kg but recognize that more FP may be needed to resuscitate patient properly. Repeat at 10ml/kg PRN as clinically indicated.
5. Must be administered with a filter-line set (170-260 microns) in a Y-type (recommended) set. Infuse with a pressure bag. Ensure maximal elevation if possible.
6. Infuse through a blood and fluid warmer that heats the FP to a temperature of 98.6° F or 37° C.
7. Do not give medications through the same line.
8. Rapidly establish a second line for medication administration or temporarily stop transfusion, flush line with crystalloid and administer medications, flush line and then restart transfusion.
9. All FP bags must be kept with the patient. DO NOT throw away. These are kept for proper documentation in the event of future incidence of a communicable disease and in the rare event of a transfusion reaction to document the FP that was given.

10. FP is to be stored at 33.8 - 42.8°F (1-6°C). During storage the temperature must be constantly monitored and logged.

ADVERSE REACTION

1. Fever, chills, back pain, chest pain, tachycardia, hypotension, rash / urticaria, wheezing, dyspnea, vomiting, diarrhea.

2. Hemolytic reaction.

REFERENCE IN PROTOCOL


2. Medical emergencies/Medical Bleeding.
PLASMA-LYTE A

CLASSIFICATION
1. Isotonic pH balanced multiple electrolyte crystalloid solution.

ACTION
1. Volume replacement.

ONSET OF ACTION
1. Immediate.

DURATION OF ACTION
1. Variable.

INDICATION
1. Hypovolemia.
2. Heat stroke or heat exhaustion.
3. Hemorrhagic Shock.
4. Safe for use with blood products.

CONTRAINDICATION
1. Hypersensitivity.

USE WITH CAUTION
1. Patients with conditions that may result in hyperkalemia.
2. Patients on corticosteroids or corticotropin.
3. Hypertensive patients.
4. Fluid overloaded patients.
5. Use volume control device with pediatric patients.

DOSAGES AND ADMINISTRATION
1. Adult: Route and indication dependent.
   2. Pediatric: 20ml/kg, repeat PRN; may give up to 3 boluses.

ADVERSE REACTION
1. Fluid overload, hypersensitivity, hyperkalemia.

REFERENCE IN PROTOCOL
1. Throughout.
PRALIDOXIME CHLORIDE (2-PAM Chloride)

CLASSIFICATION
1. Cholinesterase reactivator.

ACTION
1. Reactivates cholinesterase so destruction of accumulated acetylcholine can occur.

ONSET OF ACTION
1. 15 minutes.

DURATION OF ACTION
1. 3 hours.

INDICATION
1. Organophosphate poisoning.
2. Nerve Agent (GB or VX) poisoning.

CONTRAINDICATION
1. Hypersensitivity to medication.
2. Do not use morphine, theophylline, aminophylline, or succinylcholine with this medication.
3. Avoid reserpine or phenothiazine-type tranquilizer use with this medication.
4. This medication is not indicated as an antidote for intoxication by pesticides of the carbamate class.
5. This medication is not effective in the treatment of poisoning due to phosphorus, inorganic phosphates, or organophosphates not having anticholinesterase activity.

USE WITH CAUTION
1. Use great caution in treating organophosphate/nerve agent poisoning in cases of myasthenia gravis.
2. Monitor the dosage in the presence of renal insufficiency.

DOSAGE AND ADMINISTRATION
1. Adult: 1 auto-injector (600 mg) IM into thigh; may be repeated depending on symptoms.

ADVERSE REACTION
1. 40-60 minutes after the IM injection, mild to moderate pain may be experienced at the site of the injection.
2. Blurred vision, Diplopia, Impaired accommodation, Dizziness, Headache, Drowsiness, Nausea, Tachycardia, Increased BP, Hyperventilation, Muscular weakness.

REFERENCE IN PROTOCOL
1. Environmental Emergencies (Organophosphate/Nerve Agent poisoning).
PROCAINAMIDE (PRONESTYL) #

CLASSIFICATION
1. Antidysrhythmic.

ACTION
1. Suppresses ectopy in atrial & ventricular tissue, has little use on arrhythmias of nodal origin.
2. In normal ventricular muscle and Purkinje fibers, it suppresses phase 4 diastolic depolarization thus reducing the automaticity of all pacemakers. It also slows intraventricular conduction, thus suppressing reentry arrhythmias.
3. May further slow conduction and produce bidirectional block and may terminate reentry dysrhythmias.
4. Potent vasodilator.
5. Decreases chronotropy, excitability, negative dromotropy.
6. Modest negative inotropy.

ONSET OF ACTION
1. IV-10-30 minutes.

DURATION OF ACTION
1. IV- 3-6 hours.

INDICATION
1. Sustained ventricular tachycardia (with pulse) refractory to lidocaine.
2. Management of ventricular dysrhythmias when lidocaine contraindicated.
3. Atrial fibrillation with rapid rate in Wolff-Parkinson-White syndrome.

CONTRAINDICATION
1. Pre-existing QT prolongation or torsades de pointes
2. High AV blocks unless a pacemaker is in place.
3. Hypersensitivity.

USE WITH CAUTION
1. Additive effect with other antidysrhythmics.
2. Additive anticholinergic effects with other anticholinergics.
3. Neurological toxicity with lidocaine.

DOSAGE AND ADMINISTRATION
1. Adult: VT/pVT: 20 mg/min IV/IO, maximum total dose 17mg/kg.
   Maintenance infusion: mix 1 gm in 250 mL D5W or NS, administer between 1-4 mg/min.
2. Pediatric: Contact Mary Bridge Base Station.
   Generally, 15 mg/kg IV/IO over 60 minutes.

ADVERSE REACTION
1. Severe hypotension.
2. Bradycardia and heart blocks.
3. Nausea and vomiting are common.
PROCHLORPERAZINE (COMPRO, COMPAZINE) #

CLASSIFICATION
1. Antiemetic.
2. Antipsychotic.

ACTION
1. Acts centrally by blocking chemoreceptor trigger zone, which in turn acts on vomiting center.

ONSET OF ACTION
1. IV: 5 minutes.
2. IM: 10-20 minutes.

DURATION OF ACTION
1. IV: 3-4 hours.
2. IM: 3-4 hours.

INDICATION
1. Nausea and Vomiting.

CONTRAINDICATION
1. Hypersensitivity to Compazine.
2. Comatose states.
3. Under influence of CNS depressants (ETOH, barbiturates, narcotics).
4. Seizures.
5. Encephalopathy.
6. Bone marrow depression.
7. Narrow angle glaucoma.

USE WITH CAUTION
1. Additive effect with other phenothiazines.

DOSAGE AND ADMINISTRATION
1. Adult: 5-10 mg IM or 2.5-5mg slow IV.
2. Pediatric: ≥ 5 years old: 0.1 mg/kg IV/IM. Max dose 10 mg.
3. IM in large muscle mass.
4. Dilute before administration IV.

ADVERSE REACTION
1. Neuroleptic malignant syndrome.
2. Extrapyramidal reactions; for reactions administer 50 mg Benadryl.
3. Tachycardia.
4. Respiratory depression.
5. Severe Hypotension.
PROMETHAZINE (PHENERGAN) #

CLASSIFICATION
1. Antiemetic.
2. Phenothiazine class.

ACTION
1. Phenothiazine derivative that competitively block histamine H1 receptors without blocking secretion of histamine.
2. Drug has sedative, anti-motion sickness, antiemetic, and anticholinergic effects, but no dopaminergic effects.

ONSET OF ACTION
1. IV: 1-2 minutes.
2. IM: 5-15 minutes.

DURATION OF ACTION
1. 4-6 hours.

INDICATION
1. Nausea and Vomiting.

CONTRAINDICATION
1. Decreased LOC.
2. Use with other sedating medications.
3. History of dystonic reaction.
4. Subcutaneous or intra-arterial administration.
5. Lower respiratory tract infection.
6. Avoid in Parkinson’s disease.

USE WITH CAUTION
1. Potentiates opioids and other CNS depressants.
2. Pediatric patient (especially less than 2 years old).
3. IV incompatible with cephalosporins, clindamycin, diazepam, heparin, haloperidol, ketorolac, methylprednisolone, nitroprusside, pantoprazole, bicarb.

DOSAGE AND ADMINISTRATION
1. Adult: 12.5-25 mg IV/IM/PR.
2. Geriatric patients – starting dose 6.25 mg IV.
3. Decrease dosing of narcotic medications by 25-50%.
4. Pediatric ≥ 2 years old: 0.25-0.5 mg/kg/dose PO/IM/PR/IV, maximum single dose 25 mg.
5. IM in large muscle mass.
6. Dilute before administration IV.

ADVERSE REACTION
1. Subcutaneous or intra-articular injection has resulted in severe tissue necrosis and gangrene. If patient c/o pain, stop injection immediately.
2. Sedation.
3. Dystonic reaction.
4. Respiratory suppression.
5. Lower seizure threshold.
ROCURONIUM (ZEMURON)

CLASSIFICATION
1. Paralytic.
2. Non-depolarizing neuromuscular blocker.

ACTION
1. Provides skeletal muscle relaxation to facilitate endotracheal intubation.

ONSET OF ACTION
1. 60 seconds.

DURATION OF ACTION
1. 40-60 minutes.

INDICATION
1. To facilitate endotracheal intubation in patients with an intact gag reflex.
2. Maintenance of paralysis after intubation to assist ventilation during prolonged transport.

CONTRAINDICATION
1. Known sensitivity to rocuronium.

USE WITH CAUTION
1. Patients with neuromuscular diseases such as myasthenia gravis or myasthenic syndrome may have prolonged periods of paralysis.

DOSAGE AND ADMINISTRATION
RSI and DSI
1. Adult: 1.5 mg/kg IV/IO push.
2. Pediatric: 1 mg/kg IV/IO push.

ADVERSE REACTION
1. May cause tachycardia in up to 30% of patients.
2. May cause temporary hypotension or hypertension.

REFERENCE IN PROTOCOL
1. Rapid Sequence Intubation (Appendix G).
2. Delayed Sequence Intubation (Appendix GG).
3. Traumatic Emergencies (Crush Injury Syndrome).

NOTE: Must be stored according to manufacturer’s instructions.
SODIUM BICARBONATE

CLASSIFICATION
1. Class IIb alkalizing agent.

ACTION
1. Alkalizing agent, binds up hydrogen ions.
2. Increases potassium influx into cells.
3. Increases pH of urine.

ONSET OF ACTION
1. Immediate.

DURATION OF ACTION
1. Unknown.

INDICATION
1. Correct known hyperkalemia.
2. Correct known bicarbonate responsive acidosis; e.g. overdose of tricyclic antidepressant, aspirin, cocaine or diphenhydramine.
3. Prolonged resuscitation with effective ventilation; on return of spontaneous circulation after long arrest interval.

CONTRAINDICATION
1. Metabolic alkalosis.

USE WITH CAUTION
1. Do not mix with atropine, calcium chloride, epinephrine, dopamine, isoproterenol, Vecuronium.

DOSAGE AND ADMINISTRATION
1. Adult: 1 mEq/kg of 8.4% solution IV/IO.
2. For Excited Delirium- if extreme agitation is present prior to sedation and the patient has an elevated body temperature (≥102°F), administer 50 mEq IV push for each liter of saline given, to a maximum of 100 mEq.
3. For CIS: IV – 1000 mL NS with sodium bicarbonate 100 mEq (label bag) mixed in. Volume replacement and pre-alkalization should take place immediately after CIS identified. Set drip rate to infuse at 1500 mL/hour.

4. Pediatrics:
   - Neonates or children ≤ 2 years old: give 1 mEq/kg of 4.2% solution IV/IO slowly. Children > 2 years old: give 1 mEq/kg of 8.4% solution IV/IO slowly up to 50 mEq.

ADVERSE REACTION
1. Congestive heart failure with shortness of breath and/or rales.

REFERENCE IN PROTOCOL
1. Medical Emergencies (Excited Delirium, Overdose-Tricyclic).
2. Cardiac Emergencies (see AHA handbook).
3. Traumatic Emergencies (Crush Injury Syndrome).
SODIUM CHLORIDE 0.9% SOLUTION (NORMAL SALINE) (NS)

CLASSIFICATION
  1. Isotonic crystalloid solution.

ACTION
  1. Replace extracellular fluid by remaining in vascular space.

INDICATION
  1. Use for mixing/dilution of medications.
  2. Fluid resuscitation.
  3. To keep vein open.

CONTRAINDICATION
  1. None.

USE WITH CAUTION
  1. Hypertensive patients.
  2. Fluid overloaded patients.
  3. Use volume control device with pediatric patients.

DOSAGE AND ADMINISTRATION
  1. Adult: Route and indication dependent.
    2. Pediatric: 20 mL/kg, repeat PRN; may give up to 3 rapid infusions if inadequate perfusion.

ADVERSE REACTION
  1. Fluid overload.

REFERENCE IN PROTOCOL
  1. Throughout.
SUCCINYLCHOLINE (ANECTINE)

CLASSIFICATION
1. Paralytic.
2. Depolarizing neuromuscular blocker.

ACTION
1. Prolongs depolarization of the muscle end plate.
2. Induces skeletal muscle relaxation causing onset of flaccid paralysis in less than 1 minute.
3. Has no effect on consciousness, pain threshold or cerebration.

ONSET OF ACTION
1. IV/IO: 30-60 seconds.
2. IM: 2-3 minutes.

DURATION OF ACTION
1. 4-10 minutes.

INDICATION
1. To facilitate endotracheal intubation in patients with an intact gag reflex.

CONTRAINDICATION
1. Known hypersensitivity.
2. Acute glaucoma, penetrating eye injuries.
3. Suspected hyperkalemia.
4. 24 hours or more post burn.
5. Avoid in Crush Injury Syndrome.

USE WITH CAUTION
1. Changes in cardiac rhythm may result from vagal stimulation.
2. In patients with possible increased ICP.

DOSAGE AND ADMINISTRATION
RSI and DSI
1. Adult: 2 mg/kg IV/IO. May use IM if IV/IO is unattainable; double the IV/IO dose.
2. Pediatric: 2 mg/kg IV/IO.

ADVERSE REACTION
1. Prolonged muscle relaxation, Prolonged respiratory depression or apnea, Bradycardia, Tachycardia, Hypertension, Hypotension, Arrhythmias, Excessive salivation.
2. Potential increase in ICP with second and third doses.

REFERENCE IN PROTOCOL
1. Rapid Sequence Intubation (Appendix G).
2. Delayed Sequence Intubation (Appendix GG).
3. Traumatic Emergencies (Crush Injury Syndrome).

NOTE: Must be stored according to manufacturer’s instructions.
TRANEXAMIC ACID (TXA)

CLASSIFICATIONS
1. Anti-Fibrinolytic/Clotting Promoter

ACTIONS
1. Reduces blood loss in patients with normal or exaggerated fibrinolytic responses due to bleeding without increasing post-injury/post-bleeding complications.
2. TXA is a synthetic derivative of lysine that inhibits fibrinolysis by blocking the lysine binding sites on plasminogen
3. Anti-fibrinolytic that inhibits both Plasminogen activation and Plasmin activity thus preventing clot breakdown rather than promoting new clot formation.

ONSET OF ACTIONS
1. 5-15 minutes.

DURATION OF ACTIONS
1. 3 hours.

INDICATIONS
1. Patient experiencing or that have experienced massive bleeding. Must be given within the first 3 hours from time of injury. 2nd dose must be initiated within the 3 hour window.

CONTRAINDICATIONS
1. Sub-Arachnoid Hemorrhage.
2. Active intravascular clotting (DIC).
3. Hypersensitivity to TXA.

USE WITH CAUTION
1. Patients with renal dysfunction.

DOSAGES AND ADMINISTRATION
1. Adult:
   a. Loading Dose: Mix 1 gram of TXA in 100cc of NS or D5W, infuse over 10 minutes.
   b. Follow 1st dose with an additional 1 gram of TXA mixed in 100cc of NS or D5W given over 8 hours, second dose must be started within 3 hours of first dose.
2. Pediatric:
   a. Age ≥ 12 years old- same as adult dose.
   b. Age < 12 years old- Loading Dose: 15 mg/kg IV over 10 minutes (maximum dose 1 g).
   c. Follow 1st dose with an additional dose of 2 mg/kg/hr IV infusion over 8 hours or until bleeding stops. Second dose must be started within 3 hours of first dose.
3. Do not give through the same line as blood products, establish an additional IV or IO site to infuse TXA when giving blood or blood products.

ADVERSE REACTIONS
1. Hypotension has been observed when TXA is administered rapidly.
2. Acute gastrointestinal disturbances (nausea, vomiting, diarrhea, generally dose-related).
5. Renal Impairment.
6. Ureteral Obstruction – upper tract obstruction may lead to bleeding.
7. Occasional thromboembolic events (e.g., deep venous thrombosis, pulmonary embolism, generally observed in the setting of active intravascular clotting such as thrombotic DIC).

REFERENCE IN PROTOCOL
2. Medical emergencies/Medical Bleeding.
VASOPRESSIN #

CLASSIFICATION
1. Antidiuretic hormone.

ACTION
1. Potent peripheral vasoconstrictor.

ONSET OF ACTION
1. Immediate.

DURATION OF ACTION
1. 10–20 minutes after infusion terminated.

INDICATION
1. May be useful for hemodynamic support in vasodilatory shock (e.g. septic shock).

CONTRAINDICATION
1. Responsive patients with coronary artery disease.

USE WITH CAUTION
1. Increased vascular resistance may provoke cardiac ischemia.

DOSAGE AND ADMINISTRATION
1. Infusion: 0.03 units/minute.
2. Discontinuation in septic shock: clinically significant hypotension may occur when vasopressin is discontinued prior to norepinephrine. When discontinuing therapy, consider slowly tapering by 0.01 units/minute every 30 to 60 minutes to reduce the risk of hypotension.
3. Pediatric: Contact Mary Bridge Base Station.

ADVERSE REACTION
1. Cardiac: angina, a-fib, bradycardia, arrhythmia, ischemia, R heart failure, shock.
2. CNS: headache.
3. GI: nausea and vomiting.
4. Respiratory: bronchoconstriction.
VECURONIUM (NORCURON)

CLASSIFICATION
1. Paralytic.
2. Non-depolarizing neuromuscular blocker.

ACTION
1. Provides skeletal muscle relaxation to facilitate endotracheal intubation.

ONSET OF ACTION
1. 1 minute.

DURATION OF ACTION
1. 25-30 minutes.

INDICATION
1. Maintenance of paralysis after intubation to assist ventilation during prolonged transport.
2. May be used as initial paralytic if succinylcholine is contraindicated and rocuronium is not available.

CONTRAINDICATION
1. Hypersensitivity.

USE WITH CAUTION
1. Elderly.
2. Patients with cardiovascular disease, hepatic disease, obesity, neuromuscular disease.
3. Do not mix with alkaline solutions.
4. Prior administration of succinylcholine may enhance the neuromuscular blocking effect.
5. Monitor heart rate continuously.

DOSAGE AND ADMINISTRATION
1. Adult and Pediatric: 0.1 mg/kg IV/IO.

ADVERSE REACTION
1. Prolonged dose related to respiratory insufficiency or apnea, Wheezing, Aspiration, Bradycardia, Sinus arrest, Hyper or Hypotension, Increased intraocular pressure.

REFERENCE IN PROTOCOL
1. Rapid Sequence Intubation (Appendix G).
2. Traumatic Emergencies (Crush Injury Syndrome).
VERAPAMIL #

CLASSIFICATION
1. Calcium channel blocker.

ACTION
1. Slows conduction through the AV node.
2. Inhibits dysrhythmias predicted by reentry mechanisms, like PSVT.
3. Decreases rapid ventricular responses in cases of atrial tachydysrhythmias like atrial fibrillation and flutter.
4. Coronary and peripheral vasodilatory effect decreases myocardial oxygen demand.

ONSET OF ACTION
1. 5 minutes.

DURATION OF ACTION
1. 10 – 60 minutes.

INDICATION
1. Paroxysmal supraventricular tachycardias refractory to adenosine or other antidysrhythmics.

CONTRAINDICATION
1. Severe hypotension or cardiogenic shock.
2. Ventricular tachycardia (ensure tachycardia is supraventricular).
3. Wolff-Parkinson-White syndrome (patient may be dependent on accessory pathway).
4. If patient is receiving IV beta-blocker medication.

USE WITH CAUTION
1. Monitor for hypotension following administration.
2. Use calcium chloride if adverse effects develop.
3. Impaired renal or hepatic function.
4. Patients on oral beta blockers.

DOSAGE AND ADMINISTRATION
1. Adult:
   a. 2.5-5 mg IV/IO over 2-3 minutes.
   b. Additional 5-10 mg dose may be given in 15-30 minutes if first is ineffective and adverse effects have not developed.
   c. Maximum dose of 20 mg in 30 minutes.

2. Pediatric: Contact Mary Bridge Base Station.
   a. 0.1-0.3 mg/kg IV/IO slowly over 2-3 minutes to max initial dose of 5 mg.
   b. Additional 0.1-0.3 mg/kg dose may be given in 15-30 minutes if first is ineffective and adverse effects have not developed.
   c. Max dose of 10 mg in 30 minutes.

ADVERSE REACTION
1. Nausea and vomiting.
2. Headache, dizziness.
3. Arrhythmias: bradycardia, heart blocks, asystole.
4. Hypotension.
XYLOCAINE 2% JELLY

CLASSIFICATION
1. Topical anesthetic.

ACTION
1. Aqueous producing local anesthetic effect when applied topically.

ONSET OF ACTION
1. 3-5 minutes after contact with topical region or mucosa.

DURATION OF ACTION
1. 1.5-2 hours; can vary with dosage and site of application.

INDICATION
1. Nasal/oral endotracheal intubation.
2. Nasogastric tube placement.

CONTRAINDICATION
1. Known hypersensitivity to local anesthetics.

USE WITH CAUTION
1. Reduce dose with elderly/young.
2. Wear protective gloves when handling to prevent numbing sensation.
3. Do not apply to stylet or inner lumens of endotracheal/nasogastric tubes.

DOSAGE AND ADMINISTRATION
1. Apply moderate amount to external surfaces of endotracheal/nasogastric tubes prior to placement.

ADVERSE REACTION
1. Impaired swallowing may lead to aspiration.
2. Numbness of tongue or buccal mucosa may enhance possibility of unintentional biting trauma.
3. Allergic reaction, Bradycardia, Hypotension, Drowsiness, Blurred/double vision, Lightheadedness.

REFERENCE IN PROTOCOL
1. General Principles (Airway/breathing).
ZIPRASIDONE (GEODON) 

CLASSIFICATION
1. Antipsychotropic.

ACTION
1. Blocks dopamine and serotonin receptors.
2. Inhibits reuptake of serotonin and epinephrine in the brain.

ONSET OF ACTION
1. 1 minute.

DURATION OF ACTION
1. 9-17 minutes.

INDICATION
1. Psychosis where Excited Delirium is suspected.

CONTRAINDICATION
1. Hypersensitivity to the drug.
2. Patients with recent acute myocardial infarction or known history of QT prolongation.
3. Never give IV/IO.

USE WITH CAUTION
1. Elderly patients.
2. Prolonged QT interval.

DOSAGE AND ADMINISTRATION
1. Adults: 10-20 mg IM only.
2. Pediatric ≥ 10 years old: 10 mg IM.
   Pediatric < 10 years old: Contact Mary Bridge Base Station.

ADVERSE REACTION
1. Prolonged QT interval.
<table>
<thead>
<tr>
<th>Medication</th>
<th>Approved Use</th>
<th>Approved Medication(s), Indication, Route &amp; Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuterol by SVN</td>
<td>Wheezing, allergic reactions, asthma</td>
<td>Albuterol MDI with a spacer (mandatory)</td>
</tr>
<tr>
<td></td>
<td>COPD; Suspected hyperkalemia; Crush Injury Syndrome</td>
<td>Adult: 2.5 mg = 4 puffs by MDI into spacer, may repeat continuously.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peds: 2 months ≤ 1 year old: 4 puffs; &gt;1 year old: 8 puffs.</td>
</tr>
<tr>
<td>Amiodarone</td>
<td>Ventricular dysrhythmias</td>
<td>1. <strong>Lidocaine</strong>- Refer to current PC Protocol book &amp; AHA handbook for specific dosing for specific indication.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. <strong>Procainamide</strong>-</td>
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<td>Adult: VT/pVT: 20 mg/min IV/IO, max 17mg/kg.</td>
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<td>Maintenance infusion: mix 1 gm in 250 mL D5W or NS, administer between 1-4 mg/min.</td>
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<tr>
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<td></td>
<td><strong>Peds</strong>: Contact Mary Bridge Base Station. General, 15 mg/kg IV/IO over 60 minutes.</td>
</tr>
<tr>
<td>Atropine</td>
<td>Bradycardia</td>
<td>1. <strong>Transcutaneous Pacing</strong> per AHA handbook.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. <strong>Dopamine</strong>- Refer to current PC Protocol book &amp; AHA handbook for specific dosing for specific indication.</td>
</tr>
<tr>
<td>Dextrose, 50%</td>
<td>Hypoglycemia</td>
<td>1. <strong>10% Dextrose</strong> (preferred)- Refer to current PC Protocol book.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. <strong>25% Dextrose</strong>- Refer to current PC Protocol book.</td>
</tr>
<tr>
<td>Diazepam</td>
<td>Anticonvulsant; Excited delirium or severe</td>
<td>1. <strong>Midazolam</strong>- Refer to current PC Protocol book for specific dosing for specific indication.</td>
</tr>
<tr>
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<td>agitation; Severe anxiety; Sedation prior to</td>
<td>2. <strong>Lorazepam</strong>-</td>
</tr>
<tr>
<td></td>
<td>cardioversion</td>
<td>Sedation/Anxiolysis:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adult &amp; Peds: 0.05 mg/kg IV/IO, max single dose of 2 mg.</td>
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<td></td>
<td>Seizures/Status Epilepticus:</td>
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<tr>
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<td></td>
<td>Adult: 4 mg IV/IO given over 2-5 minutes, repeat in 10-15 minutes</td>
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<td>Can also be given IM or rectally.</td>
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<tr>
<td></td>
<td></td>
<td><strong>Peds</strong>: 0.1 mg/kg slow IV push over 1 minute, max single dose of 4 mg, may repeat x 1.</td>
</tr>
<tr>
<td>Medication</td>
<td>Approved Use</td>
<td>Approved Medication(s), Indication, Route &amp; Dosage</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Diazepam (Cont.) |                                           | 3. **Ketamine**- May be used for sedation, not for anticonvulsant. Refer to current PC Protocol book for specific dosing for specific indication.  
4. **Phenobarbital**-  
   Sedation:  
   Adult: 65 mg IV slowly. Contact Base Station thereafter.  
   **Peds**: **Contact Mary Bridge Base Station for dosing.**  
   Seizure:  
   Adult: 260 mg IV slowly, may repeat in 5 minutes if seizure has not stopped, may repeat a third dose in 5 minutes if seizure has not stopped. Contact Base Station thereafter.  
   **Peds**: *20 mg/kg load dose IV slowly over 10-15 minutes.*  
   Child ≤ 60kg: max rate of infusion 30 mg/min.  
   Child > 60kg: max rate of infusion 50 mg/min.  
   Can be given in 10 mg/kg increments. |
| Diltiazem    | Narrow complex supraventricular tachycardia | **Verapamil**-  
   Adult: 2.5-5.0 mg IV/IO over 2-3 minutes. Additional 5-10 mg dose may be given in 15-30 minutes if first is ineffective and adverse effects have not developed. Max dose of 20 mg in 30 minutes.  
   **Peds**: **Contact Mary Bridge Base Station. Dose: 0.1-0.3 mg/kg IV/IO slowly over 2-3 minutes to max initial dose of 5 mg. Additional 0.1-0.3 mg/kg dose may be given in 15-30 minutes if first is ineffective and adverse effects have not developed. Max dose of 10 mg in 30 minutes.** |
| Diphenhydramine | Moderate to severe anaphylaxis            | 1. **Hydroxyzine**-  
   Adult: 25 mg IM.  
   **Peds**: 1 mg/kg IM, max single dose of 25 mg.  
2. **Famotidine**-  
   Adult: 20 mg IV.  
   **Peds**: 0.25 mg/kg IV over 2 minutes, max single dose 20 mg. |
<table>
<thead>
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</tr>
</thead>
</table>
| Dopamine   | Cardiogenic shock; hypotension not related to hypovolemia; septic shock | 1. Epinephrine- Refer to current PC Protocol book & AHA handbook for specific dosing for specific indication.  
2. Norepinephrine - Add 4 mg to 250 mL piggybacked into an established fluid line of D5W or D5NS, but never NS.  
   Adult: 0.1-0.5 mcg/kg/min as IV titrated to maintain a SBP >80mmHg. Refractory shock may require doses as high as 30 mcg/min.  
   Peds: 0.1-2 mcg/kg/min IV infusion to a max dose of 2 mcg/kg/min. Start at 0.1 mcg/kg/min IV infusion titrating to clinical improvement (mental status, perfusion, minimum acceptable SBP for age). |
| Epinephrine 1 mg/mL (1:1000) | Severe anaphylaxis | 1. Epinephrine Drip- Titrate to effect- refer to PC Protocol book.  
2. Epi-Pen-  
   Adult: 0.3 mg IM.  
   Peds: 0.15 mg IM. |
| Epinephrine 0.1mg/mL(1:10,000) | Asystole; PEA | 1. Epinephrine- 1 mg/mL diluted per Epinephrine Shortage Dilution Protocol to a concentration of 0.1 mg/mL (See end of this document).  
2. Vasopressin- Infusion: 0.03 units/minute. |
| Etomidate   | Sedative agent during RSI | IV/IO only.  
1. Ketamine*-  
   Adult: 2 mg/kg.  
   Peds: 2 mg/kg.  
2. Fentanyl- Post RSI- Adult: & Peds: 1 mcg/kg q 10 minutes as needed.  
3. Midazolam- Post RSI-  
   Adult: 2 mg q 10 minutes as needed.  
   Peds: 0.1 mg/kg IV/IO slowly over 2 minutes in no greater than 2 mg increments, q 10 minutes as needed.  
4. Diazepam-  
   Adult: 2 – 10 mg slowly .  
   Peds: 0.2 mg/kg IV/IO in increments no greater than 2 mg to a maximum dose of 10 mg. Wait 1-2 minutes between doses to observe effect.  
   6 months-5 years old max dose 5mg; >5 years old max dose 10mg. |
<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Phenobarbital</strong>&lt;br&gt;Adult: 130 mg IV slowly. <strong>Peds: Contact Mary Bridge Base Station for dosing.</strong></td>
<td>5.</td>
<td></td>
</tr>
<tr>
<td><strong>Fentanyl</strong>&lt;br&gt;Acute pain control</td>
<td>1. <strong>Morphine</strong>- Refer to current PC Protocol book for specific dosing for specific indication.&lt;br&gt;2. <strong>Ketamine</strong>- Refer to current PC Protocol book for specific dosing for specific indication.&lt;br&gt;3. <strong>Nitrous oxide</strong>- Refer to current PC Protocol book for specific dosing for specific indication.&lt;br&gt;4. <strong>Hydromorphone</strong>-&lt;br&gt;   Adult: 0.01 mg/kg every 5-10 minutes titrating to effect, to a maximum dose of 2 mg, IM or slow IV/IO push. Elderly and opiate naive patients require 0.005 mg/kg dose, to a max of 1 mg.&lt;br&gt;   <strong>Peds: 0.01 mg/kg IM or IV/IO over 3 minutes, max dose 0.5 mg. May repeat after 5-10 minutes x 1.</strong></td>
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<td><strong>Ketamine</strong>&lt;br&gt;Agitation/Chemical Sedation</td>
<td>5. <strong>Ketorolac</strong>- IV administration slowly over 15-20 seconds.&lt;br&gt;   IM administration slowly and deeply into the muscle.&lt;br&gt;   Adult: IM: Patients &lt; 65 years old: 60 mg.&lt;br&gt;   Patients ≥ 65 years old and/or &lt; 110 lbs: 30 mg.&lt;br&gt;   IV: Patients &lt; 65 years old: 30 mg.&lt;br&gt;   Patients ≥ 65 years old and/or &lt; 110 lbs: 15 mg.&lt;br&gt;   <strong>Peds: ≥ 2 years old- 0.5 mg/kg IV/IO/IM, max single dose 15 mg.</strong></td>
<td><strong>NOTE:</strong> Each may substitute Ketamine, but do not use more than one for the same patient.&lt;br&gt;1. <strong>Haloperidol</strong>-&lt;br&gt;   Adult: 2-5 mg IM preferred over IV; may repeat to total 10 mg.&lt;br&gt;   <strong>Peds: 3-12 years old: 0.025 mg/kg IM, max single dose 5 mg.&lt;br&gt;   &gt;12 years old: 0.05 mg/kg IM, max single dose 5 mg.</strong>&lt;br&gt;   May repeat x 1 after contacting Mary Bridge Base Station.&lt;br&gt;2. <strong>Droperidol</strong>-&lt;br&gt;   Adult: 1.25-2.5 mg IM or slow IV.&lt;br&gt;   <strong>Peds: Contact Mary Bridge Base Station for dosing.</strong>&lt;br&gt;3. <strong>Olanzapine (Zyprexa)</strong>-&lt;br&gt;   Adult: 5-10 mg ODT or 10 mg IM.&lt;br&gt;   <strong>Peds: 2.5-5 mg slow, deep IM administration.</strong>&lt;br&gt;4. <strong>Ziprasidone (Geodon)</strong>-&lt;br&gt;   Adult: 10-20 mg IM only.</td>
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<tr>
<td>Medication</td>
<td>Approved Use</td>
<td>Approved Medication(s), Indication, Route &amp; Dosage</td>
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2. **Procainamide**-  
   - Adult: VT/pVT: 20 mg/min IV/IO, max 17mg/kg.  
   - Maintenance infusion: mix 1 gm in 250 mL D_{5}W or NS, administer between 1-4 mg/min.  
   - **Peds**: Contact Mary Bridge Base Station for dosing. |
| Midazolam  | Anticonvulsant; Sedation prior to cardioversion; Excited delirium; Sedation post RSI | 1. **Diazepam**- Refer to current PC Protocol book for specific dosing for specific indication.  
2. **Ketamine**- May be used for sedation, not for anticonvulsant. Refer to current PC Protocol book for specific dosing for specific indication.  
3. **Lorazepam**-  
   - Sedation/Anxiolysis:  
     - Adult & **Peds**: 0.05 mg/kg IV/IO, max single dose of 2 mg.  
     - Seizures/Status Epilepticus:  
       - Adult: 4 mg IV/IO given over 2-5 minutes, repeat in 10-15 minutes.  
       - Can also be given IM or rectally.  
       - **Peds**: 0.1 mg/kg slow IV push over 1 minute, max single dose of 4 mg, may repeat x 1.  
4. **Phenobarbital**-  
   - Sedation:  
     - Adult: 65 mg IV slowly. Contact Base Station thereafter.  
     - **Peds**: Contact Mary Bridge Base Station for dosing.  
   - Seizure:  
     - Adult: 260 mg IV slowly, may repeat in 5 minutes if seizure has not stopped, may repeat a third dose in 5 minutes if seizure has not stopped. Contact Base Station thereafter.  
     - **Peds**: 20 mg/kg load dose IV slowly over 10-15 minutes.  
     - Child ≤ 60kg: max rate of infusion 30 mg/minutes.  
     - Child > 60kg: max rate of infusion 50 mg/minutes.  
     - Can be given in 10 mg/kg increments. |
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</table>
2. Ketamine- Refer to current PC Protocol book for specific dosing for specific indication.  
4. Hydromorphone -  
   Adult: 0.01 mg/kg every 5-10 minutes titrating to effect, to a maximum dose of 2 mg, IM or slow IV/IO push. Elderly and opiate naive patients require 0.005 mg/kg dose, to a maximum of 1 mg.  
   Peds: 0.01 mg/kg IM or IV/IO over 3 minutes, max dose 0.5 mg. May repeat after 5-10 minutes x 1.  
5. Ketorolac- IV administration slowly over 15-20 seconds. IM administration slowly and deeply into the muscle.  
   Adult: IM: Patients < 65 years old: 60 mg.  
   Patients ≥ 65 years old and/or < 110 lbs: 30 mg.  
   IV: Patients < 65 years old: 30 mg.  
   Patients ≥ 65 years old and/or < 110 lbs: 15 mg.  
   Peds: ≥ 2 years old- 0.5 mg/kg IV/IO/IM, max single dose 15 mg.  |
| Naloxone     | Opiate Overdose    | No alternative medication. SGA or intubate prn.                                                                                                                                                                                                                                                                                                                                 |
| Ondansetron  | Severe Nausea      | 1. Promethazine-  
   Adult: 12.5-25 mg IV/IM/PR.  
   Geriatric: 6.25 mg starting dose IV.  
   Peds: ≥ 2 years old: 0.25-0.5 mg/kg PO/IM/PR/IV, max single dose 25 mg.  
2. Prochlorperazine-  
   Adult: 5-10 mg IM, 2.5-5 mg slow IV.  
   Peds: ≥ 5 years old: 0.1 mg/kg IV/IM. Max dose 10 mg.  
3. Droperidol-  
   Adult: 1.25-2.5 mg IM or slow IV.  
   Peds: Contact Mary Bridge Base Station for dosing.  |
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<td>Rocuronium</td>
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<td>Induce Paralysis during RSI/DSI; IV/IO only.</td>
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<td>1. Succinylcholine-</td>
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<td>Adult: 1.5 mg/kg.</td>
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<td><strong>Peds:</strong> 2 mg/kg.</td>
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<td>2. Vecuronium-</td>
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<td>Adult: 0.1 mg/kg.</td>
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<td><strong>Peds:</strong> 0.1 mg/kg.</td>
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<tr>
<td></td>
<td>Maintain Paralysis after intubation</td>
<td>Maintain Paralysis; IV/IO only.</td>
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<td>1. Vecuronium-</td>
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<td>Adult: 0.01 mg/kg q 20-30 minutes as needed.</td>
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<td><strong>Peds:</strong> 0.01 mg/kg q 20-30 minutes as needed.</td>
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<td>2. Pancuronium-</td>
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<td>Adult: 0.05 mg/kg q 30-60 minutes as needed.</td>
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<td>Adult: 1 mg/kg.</td>
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<td><strong>Peds:</strong> 1 mg/kg.</td>
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**Ketamine** – Mix 50 mg in 250 mL balanced salt solution (= 2 mg/mL). Give slow IV, over 1min. Do not give undiluted 100 mg/mL preparation.

**Epinephrine Shortage Protocol**

Criteria: When Epinephrine 0.1 mg/mL (formerly referred to as 1:10,000) is unavailable due to drug shortage, Epinephrine 1 mg/mL (formerly referred to as 1:1000) may be diluted using the following protocol for use in Cardiac Arrest.

1) Dilution of epinephrine 1 mg/mL (either ampule or multi-use vial) to yield a final concentration of 0.1mg/mL (formerly known as EPI 1:10,000) per options below:

a. From a *1 mL glass ampule or vial* of 1 mg/mL epinephrine:
   i. Waste 1 mL of a 10 mL saline flush, leaving 9 mL remaining in the syringe.
   ii. Draw 1 mL of the epinephrine into the syringe containing the 9 mL saline (using a filtered needle if drawing from a glass ampule).
   iii. Gently shake to mix. (This creates a 10 mL syringe of 0.1 mg/mL epinephrine).
   iv. Adult dose: 1 mg (10mL) IV/IO or pediatric dose (0.01 mg/kg or 0.1 mL/kg) IV/IO.

b. From a *multi-dose vial* of 1 mg/mL of epinephrine:
   i. Draw 1 mL of the epinephrine into an empty 10 mL syringe. NOTE: Do this step 1st if using a multi-dose vial and verify only 1 mL has been withdrawn. **
   ii. Next draw 9 mL normal saline into the above 10 mL syringe.
   iii. Gently shake to mix. (This creates a 10 mL syringe of 0.1 mg/mL epinephrine)
   iv. Adult dose: 1 mg (1 mL) IV/IO or pediatric dose (0.01 mg/kg or 0.1 mL/kg) IV/IO

**WARNING:** Using the technique described for a 1 mL ampule or vial when drawing from a *multi-dose vial* has a high risk of an incorrect dose of epinephrine being withdrawn and should not be used.

- Dilution of epinephrine is for POINT OF CARE USE ONLY. Do not pre-mix as part of stock for daily readiness.
- Mixing should only occur at time of use and any remaining drug should be disposed.