Thurston County

EMS Protocols

Medical Program Director
Dr Larry Fontanilla, MD
June 2015
Thurston County

EMS Protocols

This document describes the methods by which the Thurston County EMS System will continue to provide the highest quality prehospital patient care available. We have incorporated evidence based guidelines with historically proven practices to produce this document. While it is impossible to address every possible variation of disease or traumatic injury, these policies, protocols, and procedures do provide a foundation for treating the vast majority of patients we encounter. Certainly our education, experience and clinical judgment will assist us as we provide the highest quality patient care available. Additionally, on-line medical control is available for those patient presentations that do not fall within the scope of the document.

Dr. Larry Fontanilla, MD
Medical Program Director
<table>
<thead>
<tr>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Patient Care</td>
</tr>
<tr>
<td>Universal ALS Upgrade</td>
</tr>
<tr>
<td>Assessment and Treatment</td>
</tr>
<tr>
<td>ACLS - Appendix A</td>
</tr>
<tr>
<td>Childbirth - Appendix B</td>
</tr>
<tr>
<td>Death in the Field - Appendix C</td>
</tr>
<tr>
<td>Infant Transfer - Appendix D</td>
</tr>
<tr>
<td>Mandatory Reporting Criteria - Appendix E</td>
</tr>
<tr>
<td>Medical Abbreviations - Appendix F</td>
</tr>
<tr>
<td>Medications - Appendix G</td>
</tr>
<tr>
<td>Tools for EMS Providers - Appendix H</td>
</tr>
<tr>
<td>Pre-Hospital Communications - Appendix I</td>
</tr>
<tr>
<td>Skills - Appendix J</td>
</tr>
<tr>
<td>SOAP Written Report Format - Appendix K</td>
</tr>
<tr>
<td>START Tool - Appendix L</td>
</tr>
<tr>
<td>Toxindromes - Appendix M</td>
</tr>
<tr>
<td>DOH/PSPH Trauma - Appendix N</td>
</tr>
<tr>
<td>Appendix O - Healthline Access</td>
</tr>
<tr>
<td>Glossary</td>
</tr>
<tr>
<td>Contacts for EMS Providers</td>
</tr>
</tbody>
</table>

Thurston County Medic One
2703 Pacific Avenue SE, Suite C, Olympia, WA 98501
360-704-2780
General Patient Care Procedures

*Bold italics indicate an ALS procedure*

I. Airway – management shall be in accordance with American Heart Association (AHA) Standards

♦ Positioning
  • Head tilt – chin lift (not for trauma)
  • Jaw thrust

♦ Foreign Body Airway Obstruction removal
  • Suctioning
  • Finger sweep (no blind finger sweeps for infants or children)
  • Abdominal thrusts (chest thrusts for infants)
  • Back blows (for infants)
  • *Direct laryngoscopy and removal of an obstruction with Magill forceps*

♦ Maintenance (in order of preference)
  • Positioning
  • Insertion of an oropharyngeal airway
  • Insertion of a nasopharyngeal airway
  • **Orotracheal intubation**
    • *Eschmann-type stylette*
    • *Video-assisted laryngoscopy*
  • Laryngeal mask airway
  • Surgical intubation with cricothyroidotomy device

II. Breathing – shall be enhanced, assisted, or maintained using the following equipment/techniques:

♦ Nasal cannula with oxygen at a rate of 2-4 lpm

♦ Non-rebreather mask with oxygen at a rate of 8-15 lpm

III. Ventilation – shall be enhanced, assisted, or maintained using the following equipment/techniques:

♦ Pocket mask (with supplemental oxygen if available)

♦ Bag-valve mask with a reservoir bag and oxygen at a rate of 15-25 lpm
General Patient Care Procedures

1. Used to assist a conscious seated patient
2. Used to assist or breathe for an unconscious patient utilizing the FATS technique* with an OPA/NPA (*medical patients only)
3. Used in conjunction with an endotracheal tube

♦ Portable ventilator

IV. Circulation

♦ Bleeding control

Control bleeding with direct pressure. If unsuccessful, elevate and use pressure points. As a last resort, consider use of a BP cuff as a tourniquet. Note: commercial tourniquets are approved for use in tactical situations.

♦ Assist circulation

1. All cardiac arrest patients who do not meet the Death in Field (DIF) criteria (Appendix C) will have resuscitation attempted.
2. If a patient does not meet the criteria in the DIF appendix to be determined dead in the field, BLS personnel shall begin resuscitation and apply an AED.
3. Cardiopulmonary resuscitation shall be performed in accordance with AHA and MPD-approved guidelines.

♦ Fluid resuscitation

1. The goal of fluid resuscitation in the setting of hypovolemia or uncontrolled bleeding is to obtain and maintain a systolic blood pressure of 90-100 mmHg.
2. Initial fluid resuscitation for children less than 8 y/o and presenting with signs or symptoms of shock should consist of a 20 ml/kg bolus of normal saline, repeat x2 prn.
3. Peripheral IVs should be established in any patient who exhibits signs or symptoms of hypoperfusion.

4. If a peripheral IV cannot be established in two attempts, then external jugular IV access or central IV access should be sought in one of the following sites:
   a) Right internal jugular vein
   b) Right subclavian vein
   c) Right or left femoral vein

5. If IV access is difficult, consider intraosseous infusion:
   a) Adult - Medial aspect of the proximal tibia or proximal humerus
   b) Child - Medial aspect of the proximal tibia

V. Disability – evaluation of mechanism of injury (MOI) should be completed for every patient who is suspected of having a spinal injury
   ♦ Patients who request assistance after a fall, or whose situation otherwise suggests a change in their health status, should receive a complete assessment.
   ♦ After the initial trauma assessment is complete, EMS providers shall use Spinal Immobilization (Appendix J) to determine whether or not to immobilize the patient.
   ♦ Patients who have a traumatic MOI that is suggestive of spinal injury and who meet the exclusion criteria of Appendix J shall have full spinal immobilization applied.
   ♦ Consider elevating the knees of patients secured to a backboard, to reduce lower back or abdominal discomfort. Pregnant patients should have the backboard elevated by placing a pillow or blanket roll under the (patient’s) right side of the backboard.
General Patient Care Procedures

♦ All patients with suspected long bone or joint injuries should be immobilized:
  1. Long bone: Immobilize joint above and below the injury. Splint in gross anatomical alignment. Tension should be applied and the limb stabilized during realignment and splinting. If the fracture cannot be reduced because of severe pain or remains in a position incompatible with transport, an ALS upgrade is indicated.
  2. Joint: Immobilize long bone above and below the injury. Splint in the position found. If no pulse attempt to realign one time.
  3. Distal PMS should be evaluated and recorded before and after splinting.

♦ Splinting should not be unduly delayed for the administration of pain medication.

VI. Pain Management

♦ Pain management should be a consideration in the care of all patients in severe pain.

♦ First, all non-pharmacologic measures for relief of pain should be attempted, such as placing the patient in a position of comfort, placing ice or cold packs, and immobilizing and splinting painful areas.

♦ Provider should then reassess patient for physical or physiologic signs of severe pain including: diaphoresis, tachycardia, hypertension, tachypnea, pallor, or significant grimacing.

♦ If the patient displays any of these signs they should be asked to rate their pain on a scale of 1 to 10.

♦ Patients should receive an ALS evaluation for pain management if they:
  • have received all non-pharmacological interventions, and
  • show physical or physiologic signs of pain, and
  • rate their discomfort at 7 or greater, and
  • state they would like an IV injection for pain relief

♦ Not all patients that receive an ALS evaluation will receive an IV opiate injection
Any patient receiving opiate pain management will be transported by ALS and must:

- have documented continuous oximetry and BP measurements every 5 minutes
- have code summary attached to their patient care report

VII. Communication

- ALS upgrades will be requested via TCOMM, accompanied by an explanation for the upgrade.
- Short verbal reports (Appendix I) will be given to responding medic units.
- BLS units recommending the cancellation of an ALS unit are required to give a complete verbal report (Appendix I) to the incoming medic unit.
- A Emergency Medical Responder who is the only provider on the scene cannot cancel an EMT or higher-level response to the scene.
- Paramedics are required to make contact with a supervising physician when:
  1. Directed to do so by protocol.
  2. The paramedic has evaluated a patient and is requesting permission to leave the patient at the scene.
  3. The paramedic is on scene with a patient who meets Steps 1-4 Washington State Trauma Triage Tool (Appendix N).
- Contact base station physician as early as possible for critical patients.
- Any unit transporting a patient is required to contact the receiving facility to give a short verbal report. If patient condition changes significantly while en route (e.g. Section VIII, “Ground Transport”), the receiving facility should receive an updated report as soon as possible.
- Verbal and written documentation of patient care:
  1. A verbal report must be given at every handoff of a patient.
  2. The first-arriving unit will provide an initial report of patient care to the
transporting unit. The EMS provider who performs the hands-on exam is responsible for documenting the physical examination.

3. Each EMS unit that performs an assessment of the patient shall provide a written report to the receiving hospital. The provider performing the examination shall ensure the narrative (SOAP) portion of the report is complete and accurate (Appendix K).

VIII. Transport

♦ Ground transport

1. In general, patients should be transported to the hospital of their choice. Patients in need of specialty care (e.g. stroke, cardiac, pediatric, trauma) require consult with the base station physician.

2. If an ALS rendezvous is declined due to patient proximity to hospital, the ALS unit shall inform the receiving hospital of the patient’s pending arrival.

♦ Air transport

1. Any field provider may request air transport via TCOMM. An ALS upgrade is required. Transport destination shall be determined by the ALS provider in consultation with medical control physician.

♦ Use of safety restraint devices during transport – ALL PATIENTS should be afforded the best possible safety measures available while being transported:

   1. When possible, patients should be transported sitting up.
   2. Fasten all manufacturer-supplied gurney safety belts.
   3. Care should be taken to secure loose items in the patient compartment during transport.
   4. Attendants in the patient compartment should wear their seat belts whenever possible.
   5. Children should be restrained in a size-appropriate child-restraint
device whenever possible.

IX. Dispute resolution

♦ In all cases, a collaborative approach to resolving disputes between personnel on the scene is preferred.

♦ BLS: In the event that BLS personnel on the scene disagree about treatment, the most conservative approach will be followed. In the event that BLS personnel on the scene disagree about whether an ALS upgrade is necessary, an ALS upgrade for evaluation will be requested.

♦ ALS: In the event that ALS personnel disagree on a course of action for a particular patient, the most conservative approach (usually an ALS transport) will be followed.
Universal ALS Upgrades

An ALS upgrade is required if any of the conditions listed below are present:

- Signs or symptoms of shock
- Any blood loss or suspected fluid loss with auscultated systolic BP < 90 mmHg (or absent radial pulse)
- Pulse < 50 or > 130
- Unconscious
- Status epilepticus
- Step 1 or 2 trauma
- SOB with RR < 10 or > 32 or noisy or absent lung sounds
- Airway compromise or impaired gag reflex
- Uncontrollable bleeding
- Prolonged extrication (complex forcible entry to vehicle)
- Intoxicated Step 3 or 4 trauma patient
# Assessment and Treatment

## Medical

- Abdominal / Back Pain ................................................. 12
- Allergic Reaction .................................................. 14
- Animal Bites .......................................................... 16
- Bleeding (Non-traumatic) ........................................... 18
- Breathing Difficulty .................................................. 20
- Chest Pain / Discomfort / Heart Problems .................. 23
- Choking ................................................................. 25
- Diabetic Emergencies ............................................... 27
- Environmental Emergencies ...................................... 29
- Headache ............................................................... 32
- Mental / Emotional / Psych ........................................ 34
- Overdose / Poisoning (Toxic Exposure) ....................... 36
- Pregnancy / Childbirth / OB-GYN .............................. 38
- Seizures ................................................................. 41
- Stroke ................................................................. 43
- Unconscious / Syncope .............................................. 45

## Trauma

- Abdominal Trauma .................................................. 47
- Burns ................................................................. 49
- Chest Trauma ........................................................ 51
- Extremity Trauma .................................................. 53
- Head and Neck Trauma .......................................... 55
- Spinal Trauma ....................................................... 58
- Submersion Injury .................................................. 60
Abdominal / Back Pain

**Pertinent Subjective Findings**
- Vomiting
- Nausea
- Dizziness
- Constipation
- Previous trauma
- Previous surgery
- Missed menses
- Pregnancies
- Cardiac disease
- Hypertension
- Known ulcers
- Diarrhea
- Peripheral vascular disease

**Pertinent Objective Findings**
- Patient position
- Pregnant
- Guarding
- Distended abdomen
- Point tenderness in back
- Vaginal discharge
- Urethral discharge

**ALS Upgrade Required For**
- Upper abdominal pain, age greater than 35
- Lower abdominal pain, women ages 12-50 with dizziness, syncope or heavy vaginal bleeding
- Abdominal/back pain with syncope or near syncope if age greater than 50
- Acutely distended, rigid, or tender abdomen
- Unequal or absent femoral pulses

**Assessment / Differential Diagnosis**
- Aneurysm
- Ectopic pregnancy
- Myocardial infarction
- Kidney stones
- Urinary tract infection
- Gastroenteritis
- Pelvic inflammatory disease
- Appendicitis
- Ulcers
- Ovarian cysts
- Pancreatitis
- Gallbladder pain
# Abdominal / Back Pain

## Plan / Treatment

- General patient care procedures
- Place patient in position of comfort
- Nothing by mouth

<table>
<thead>
<tr>
<th>ALS</th>
<th></th>
</tr>
</thead>
</table>
| • **Monitor ECG**  
• **IV(s) normal saline – titrate to maintain BP 90 - 100 systolic**  
• **Pain management per protocol**  |  |
Allergic Reaction

Pertinent Subjective Findings
- Known allergies
- Previous allergic reaction and severity
- Recent exposure to possible allergens
- Prescription for Epi-Pen®
- Abdominal cramps
- Itching
- Dizziness
- Dyspnea
- Chest discomfort
- Nausea

Pertinent Objective Findings
- Hives (urticaria)
- Flushing
- Cyanosis or pallor
- Swelling of face, pharynx, or tongue
- Medic Alert™ tag
- Weak, rapid pulse
- Hypotension
- Anxiety
- Vomiting

ALS Upgrade Required For
- Patient is presenting with signs and/or symptoms of an anaphylactic reaction within 1 hour of exposure to an allergen AND has a history of anaphylactic reaction to this allergen
- Difficulty swallowing or swelling in throat, lips, or tongue
- Severe abdominal cramps, nausea, vomiting, or diarrhea with urticaria or flushing
- Any use of epinephrine (requires ALS transport)

Assessment / Differential Diagnosis
- Insect bite/sting
- Food allergy
- Drug reactions
- Vasovagal reactions
- Acute Coronary Syndrome
- Dystonic reaction
- Arrhythmias
- Status asthmaticus
- Seizure
- Epiglottis
- FBAO
Allergic Reaction

Plan / Treatment

- General patient care procedures
- Epi-Pen® (if indicated) (Appendix G & J)
- If patient is asthmatic, has a BP of at least 90 systolic, and is still SOB after administration of epinephrine, assist with patient’s albuterol (Appendix G & J)
- Remove stinger, taking care not to compress the venom sac if present

<table>
<thead>
<tr>
<th>ALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Epinephrine dosing and administration in Appendix G</td>
</tr>
<tr>
<td>• Control airway prn</td>
</tr>
<tr>
<td>• Albuterol nebulized prn (for bronchospasm)</td>
</tr>
<tr>
<td>• Glucagon 1.0 mg IV q 5 min</td>
</tr>
<tr>
<td>• Hypotension refractory to fluid and epinephrine when patients are taking beta blockers</td>
</tr>
<tr>
<td>• Diphenhydramine 25-50 mg IM/IV</td>
</tr>
<tr>
<td>• ALS transport mandatory for patients who have received glucagon or epinephrine (regardless of who administered)</td>
</tr>
</tbody>
</table>
Animal Bites
(includes humans, reptiles, invertebrates, insects, etc.)

Pertinent Subjective Findings
- What bit the patient?
- Where was the patient bitten?
- When was the patient bitten?
- Nausea?

Pertinent Objective Findings
- Type of bite (puncture, hive, blister)
- Swelling or bruising around site
- Systemic symptoms
  - Altered or decreased mental status
  - Hypotension
  - Tachycardia
  - Tachypnea
  - Vomiting
  - Oral paresthesia or unusual tastes

ALS Upgrade Required For
- Bite from poisonous snakes or reptiles
- Serious injury to the face or neck

Assessment / Differential Diagnosis
- Poisonous animal bite
- Non-poisonous animal bite
- Animal bite with major trauma

Plan / Treatment
- General patient care procedures
- Remove stinger, if present, without compressing venom sac
- DO NOT USE constricting bands, tourniquets, or ice
- Immobilize affected limbs in position of comfort
Animal Bites

- If poisonous animal is suspected, limit physical activity, keep limb lower than heart, and contact the Washington Poison Center at 800-709-0911

<table>
<thead>
<tr>
<th>ALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV (not in affected limb)</td>
</tr>
<tr>
<td>Fluid resuscitation as needed</td>
</tr>
<tr>
<td>Dopamine 2-10 microgram/kg/mg* for hypotension refractory to fluid bolus</td>
</tr>
<tr>
<td>Pain management per protocol</td>
</tr>
<tr>
<td>* Requires consultation with supervising physician</td>
</tr>
</tbody>
</table>
Bleeding (Non-traumatic)

Pertinent Subjective Findings
- Prolonged vomiting/diarrhea
- “Coffee grounds” emesis
- Bloody or tarry stools
- Pregnancy
- Trauma
- Medications
  - Coumadin®
  - NSAIDs (ibuprofen, ASA)
- History
  - Cancer
  - Ulcer
  - Alcoholism
  - Recent surgery

Pertinent Objective Findings
- Diaphoresis
- Weak or absent radial pulse
- Rapid pulse
- Hypotension
- Obvious bleeding
- Rigid abdomen
- Pallor

ALS Upgrade Required For
- See universal ALS upgrades

Assessment / Differential Diagnosis
- Upper GI bleed
- Lower GI bleed
- Nose bleed
- Esophageal varices
- Vaginal bleed
- Trauma

Plan / Treatment
- General BLS patient care procedures
- Position of comfort
- Nothing by mouth
## Bleeding (Non-traumatic)

<table>
<thead>
<tr>
<th>ALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>- RSI if needed to protect airway</td>
</tr>
<tr>
<td>- Fluid resuscitation prn</td>
</tr>
<tr>
<td>- Dopamine 2-10 microgram/kg/mg* for hypotension refractory to fluid bolus</td>
</tr>
<tr>
<td>- Pain management per protocol</td>
</tr>
</tbody>
</table>
Breathing Difficulty

Pertinent Subjective Findings

- Anxiety
- Recent surgery
- Prolonged immobilization
- Sleeping upright (several pillows)
- Dyspnea
- Home oxygen use
- Speed of onset
- Recent illness
- Productive cough
- Pregnancy
- Chest/back pain
- Recent trauma
- History
- Smoking
- Asthma/Reactive Airway Disease
- COPD
- Intubated previously
- CHF
- Anxiety/hyperventilation

Pertinent Objective Findings

- Altered or decreased mental status
- Inability to speak in full sentences
- Noisy (wheezing, rales, rhonchi)
- Diaphoresis
- Respiratory rate less than 10 or greater than 32
- Heart rate less than 50 or greater than 130
- Hypertension/hypotension
- Position of patient
- Use of accessory muscles
- Carpopedal spasms
- Pursed-lip breathing
- Cyanosis (central or peripheral)
- Pedal edema (dependent edema)
- JVD while semi-Fowlers
- Fever
- Tracheal deviation
- Unequal breath sounds
- Pink frothy sputum
- Facial edema
- Facial paresthesia

ALS Upgrade Required For

- Systolic BP greater than 220 or diastolic BP greater than 110 with associated signs or symptoms
- Altered or decreased mental status
Breathing Difficulty

Assessment / Differential Diagnosis

- Pneumonia
- Acute pulmonary edema
- Hyperventilation syndrome
- Pulmonary embolus
- Pneumothorax
- Reactive airway disease
- Inhalation injury
- Trauma
- Narcotic overdose
- CO poisoning
- Croup
- Epiglottitis

Plan / Treatment

- General patient care procedures
- Check pulse oximetry (Appendix J)
- Position of comfort (e.g. sitting with legs dependent, tripod, etc.)
- Do not allow patient to exert himself or herself
- If patient believes symptoms are related to asthma or COPD, assist with metered dose inhaler (MDI) (Appendix G & J)
- BVM assist with ventilation as needed and tolerated by the patient

<table>
<thead>
<tr>
<th>For COPD or asthma exacerbation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuterol/ipratropium nebulized</td>
</tr>
<tr>
<td>Continuous albuterol nebulizer as long as patient remains in distress</td>
</tr>
<tr>
<td>Consider BiPAP®</td>
</tr>
<tr>
<td>Consider RSI for signs or symptoms of impending ventilatory failure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For pulmonary edema:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitroglycerin 0.4 mg SL</td>
</tr>
<tr>
<td>Up to 2” of nitroglycerin paste; monitor patient’s BP q 5 min, if systolic BP drops below 100 mmHg, then remove</td>
</tr>
<tr>
<td>Lasix 40 mg or twice the patient’s daily dose IV</td>
</tr>
<tr>
<td>Consider BiPAP®</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For pneumonothorax:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle thoracentesis</td>
</tr>
</tbody>
</table>
Breathing Difficulty

| Ped | **Upper Airway Obstruction**  
**(stridor)** | **Lower Airway Obstruction**  
**(wheezing)** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Treat for FBAO prn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Treat croup with epinephrine 1:1,000 3-5 ml nebulized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• BVM assist for ventilatory failure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• If respiratory arrest occurs, attempt one intubation with an ETT 1-2 sizes smaller than usual; if unsuccessful, proceed to a surgical airway</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Less than 2 y/o: 2.5 mg albuterol. Otherwise, 5.0 mg albuterol with ipratropium. If severe distress, consider continuous treatment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• If in respiratory failure or unable to comply with nebulizer, administer 0.01 mg/kg epinephrine 1:1,000 IM.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Any pediatric patient being ventilated with positive pressure should be evaluated for the placement of a nasogastric tube.
Chest Pain / Discomfort / Heart Problems

Pertinent Subjective Findings
- Onset: fast or slow?
- Activity at onset of discomfort
- Chest discomfort (pain, pressure)
- Radiation of discomfort to neck, jaw, back
- Different from “normal” angina
- Taking NTG without relief
- Syncopal episode
- Nausea and/or vomiting
- Diaphoresis
- Shortness of breath
- Medications
- Upper abdominal pain

Pertinent Objective Findings
- Irregular, rapid, or slow pulse
- JVD
- Tachypnea
- Hypotension/hypertension
- Diaphoretic
- Pale, ashen skin color
- Lung sounds: crackles or absent
- Restless, anxious
- Vomiting
- Pedal edema
- Orthopnea

ALS Upgrade Required For
- Patients presenting with typical or atypical symptoms of Acute Coronary Syndrome
- Chest discomfort associated with the use of street drugs
- Upper abdominal pain, age greater than 35

Assessment / Differential Diagnosis
- Acute Coronary Syndrome
- Pericarditis
- Cardiac tamponade
- Cardiac dysrhythmia
- Aortic aneurysm
- Acute pulmonary edema
- Pulmonary embolism
- Pneumothorax
- Upper respiratory infection
- Pleurisy
- Esophagitis
- Trauma (blunt or penetrating)
- Muscular skeletal
- Referred pain from abdomen
Chest Pain / Discomfort / Heart Problems

Plan / Treatment

- General patient care procedures
- If suspected ACS:
  - 325 mg ASA PO chewed (Appendix G)

<table>
<thead>
<tr>
<th>ALS</th>
<th>12-lead ECG for all patients suspected of having ACS within 5 minutes of ALS arrival at patient’s side; attach 12-lead to patient care report</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NTG 0.4 mg SL along with 1” of paste (add 1” additional in 10 minutes if pain persists)</td>
</tr>
<tr>
<td></td>
<td>If ACS suspected or confirmed by 12-lead</td>
</tr>
<tr>
<td></td>
<td>- Notify the receiving physician and transmit 12-lead</td>
</tr>
<tr>
<td></td>
<td>- Pain management per protocol</td>
</tr>
<tr>
<td></td>
<td>- ACLS algorithms (Appendix A)</td>
</tr>
</tbody>
</table>

| Ped | PALS algorithms (Appendix A)                                                                                           |
Choking

Pertinent Subjective Findings
- Events leading to airway obstruction

Pertinent Objective Findings
- Inability to talk or cough
- Stridor
- Cyanosis
- Hoarse voice
- Croup cough
- Drooling
- Presence of stoma
- Hives/rash

ALS Upgrade Required For
- Inability to speak/cry/cough
- Signs or symptoms of anaphylaxis

Assessment / Differential Diagnosis
- Foreign body airway obstruction
- Croup
- Febrile seizure
- Epiglottitis
- Allergic reaction

Plan / Treatment
- General patient care procedures
- Do not put anything in the conscious patient’s mouth
- Follow AHA guidelines for FBAO
## Choking Emergencies

<table>
<thead>
<tr>
<th>ALS</th>
<th>Ped</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>If patient becomes unconscious and cannot be ventilated, visualize the airway and attempt to remove the obstruction.</em></td>
<td></td>
</tr>
<tr>
<td><em>If unsuccessful, see Difficult Airway Management (Appendix J).</em></td>
<td></td>
</tr>
<tr>
<td><em>Follow age-appropriate AHA guidelines</em></td>
<td></td>
</tr>
</tbody>
</table>
Diabetic Emergencies

Pertinent Subjective Findings
- Last meal eaten
- Frequent urination
- Intense thirst
- Recent illness
- Chronic alcohol use
- Medications
  - Insulin in refrigerator? (Time last taken)
  - Oral hypoglycemic agents

Pertinent Objective Findings
- Medic Alert™ tag
- Hypoglycemia
  - Altered or decreased mental status
  - Signs or symptoms of shock
- Stroke signs
- Hyperglycemia
  - Altered or decreased mental status
  - Irregular respirations
  - Odor of ketones on breath
  - Dehydration (dry mucous membranes, poor skin turgor, hypotension, tachycardia)
  - Red, dry, warm skin

ALS Upgrade Required For
- Altered or decreased mental status
- If pt receives caloric supplement

Assessment / Differential Diagnosis
- Insulin shock
- Diabetic ketoacidosis (DKA)
- Acute alcohol withdrawal
- Stroke
- Overdose
  - Insulin
  - Oral hypoglycemic agents
  - Alcohol
  - Aspirin
  - Beta blockers
## Diabetic Emergencies

### Plan / Treatment

- General patient care procedures
- Check blood glucose with glucometer (Appendix J); if hypoglycemic, check gag with tongue depressor
- If patient has symptomatic hypoglycemia, provide appropriate caloric supplement (oral glucose or balanced protein and carbohydrates (Appendix G)). Consider risk/benefit of feeding vs. aspiration.

| ALS | • Dextrose 50%  
|     | • Glucagon IM if no IV access is available  
|     | • ALS TRANSPORT IS REQUIRED for patients who are taking ultralente, lantus, or oral hypoglycemic medications (except metformin [Glucophage®]) after IV glucose resuscitation. |

| Ped | • Any awake and alert child who has a blood sugar less than 60 mg/dL (40 mg/dL in newborns) should be given oral glucose or allowed to breastfeed  
|     | • Dextrose administration guidelines:  
|     |   • Child greater than 2 y/o: 50% dextrose  
|     |   • Child less than 2 y/o: 25% dextrose (1 ml of 50% dextrose per 1 ml of saline)  
|     |   • Newborn: 10% dextrose |
Environmental Emergencies

Pertinent Subjective Findings
- Onset of symptoms (fast vs. slow)
- Environmental conditions patient was exposed to prior to c/o symptoms
- Activity patient was engaged in prior to c/o symptoms
- Length of exposure to hostile environment
- Loss of consciousness
- Drug or alcohol use
- History of current illnesses
- Medications the patient is taking
- Heat exposure
  - Cramps
  - Dizziness
- Cold exposure
  - Was the patient wet?
  - Has any attempt been made to thaw frostbite?
  - Has CPR been performed?
- Hazardous materials exposure
  - What was the patient exposed to?
  - What was the route of exposure?
  - Was the nature of the exposure accidental or intentional?
  - What steps have been taken to decontaminate the patient?
  - Number of patients affected?

Pertinent Objective Findings
- Unusual odors
- Altered or decreased mental status
- Heat
  - Tachycardia
  - Tachypnea
  - Cool, clammy skin
  - Hot, dry skin
- Cold
  - Discolored, frozen, or hard skin
  - Absence of shivering
  - Bradycardia
  - Slow respiration
  - Hypotensive
- Blisters
- Seizures
- Hazardous materials
  - Skin irritation at contact site
  - Vomiting
  - Loss of vision
  - Respiratory distress
  - SLUDGE
    - Salivation
    - Lacrimation
    - Urination
    - Defecation
    - Gastrointestinal
    - Emesis
Environmental Emergencies

ALS Upgrade Required For

- Altered or decreased mental status
- Rectal temperature less than 95° F or greater than 105° F
- Patient very cold to touch without shivering

Assessment / Differential Diagnosis

- Heat cramps
- Heat exhaustion
- Heat stroke
- Drowning/near drowning
- Toxindromes associated with exposure to hazardous materials
- Frostbite
- Hypothermia

Plan / Treatment

- General patient care procedures
- Remove from hostile environment
- Decontaminate patients exposed to hazmat
  - Wash off chemicals (dry chemicals should be brushed off before decontamination with copious amounts of water)
- Heat injury
  - Rest patient
  - Cool patient as quickly as possible without inducing shivering
  - Hydrate patient with water or sports drink diluted 50% with water
  - Check rectal temperature
- Cold injury
  - Handle patient very gently
  - Check carotid pulse for a full minute before starting CPR
  - If patient confirmed pulseless – apply AED and follow protocol as per normothermic patients
  - Cut off wet clothing (do not pull off)
  - Protect frostbitten body parts from trauma, friction, movement, etc.
  - Do not attempt to thaw frozen body parts in the field
**Environmental Emergencies**

- Actively warm the patient using a vehicle heater and blankets and by applying heat packs to neck, chest, axilla, and groin
- Check rectal temperature
- Hazardous materials
  - Treat symptoms with supportive care
  - Contact Washington Poison Center at 800-709-0911 for treatment recommendations

<table>
<thead>
<tr>
<th><strong>ALS</strong></th>
<th><strong>Heat injury</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• <em>IV bolus 20 ml/kg</em></td>
</tr>
<tr>
<td></td>
<td>• <em>Continue fluid resuscitation if signs of dehydration continue</em></td>
</tr>
<tr>
<td></td>
<td><strong>Hazardous materials</strong></td>
</tr>
<tr>
<td></td>
<td>• <em>Provide supportive care for the presenting toxindrome in consultation with Washington Poison Center and the supervising physician</em></td>
</tr>
</tbody>
</table>

| **Ped** | **Children presenting with cardiac arrest in the setting of hypothermia should be provided with an aggressive and prolonged resuscitation effort in accordance with PALS and consultation with the supervising physician.** |
Headache

Pertinent Subjective Findings

- Time symptoms began
- Onset (acute or gradual)
- Loss of consciousness
- Altered or decreased mental status
- Location (front, back, side(s))
- Neck stiffness (nuchal rigidity)
- Sensitive to light/noise
- History of recent trauma
- Change in vision
- Nausea and vomiting
- Activity prior to onset
- Stroke symptoms

Pertinent Objective Findings

- Altered or decreased mental status
- Stiff neck
- Pupillary changes
- Unilateral weakness
- Unilateral change in sensation

ALS Upgrade Required For

- Altered or decreased mental status
- Severe or multiple episodes of vomiting
- Unequal pupils (greater than 2 mm difference)
- Systolic BP greater than 220 or diastolic blood pressure greater than 110
- When asked, “How does this compare to other headaches you’d had?” the patient states, “This is the worst headache of my life.”
- Lateralizing signs
- Seizure

Assessment / Differential Diagnosis

- Migraine
- Tension headache
- Post-concussion headache
- Acute glaucoma
- Hypertensive emergency
- Meningitis
- Subdural hematoma
- Epidural hematoma
- Subarachnoid hemorrhage (SAH)
- Tumor
- Sinusitis
### Headache

#### Plan / Treatment

- General patient care procedures

<table>
<thead>
<tr>
<th>ALS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IV</strong></td>
<td></td>
</tr>
<tr>
<td><em>Promethazine and Ondansetron (prn nausea)</em></td>
<td></td>
</tr>
<tr>
<td><em>Consider RSI for GCS less than 9</em></td>
<td></td>
</tr>
<tr>
<td><em>If patient acutely decompensates showing signs of impending brainstem herniation (unilateral dilated pupil, posturing, decreasing GCS) adjust ventilation to maintain end-tidal CO₂ near 30 mmHg</em></td>
<td></td>
</tr>
<tr>
<td><em>Pain management per protocol</em></td>
<td></td>
</tr>
</tbody>
</table>
Mental / Emotional / Psych

Pertinent Subjective Findings
- Acute onset of underlying illness or injury
- Underlying psychiatric disorders
- Baseline level of function for the patient
- Medication compliance
- Weapons
- Suicidal ideation/overt attempts
- Delusions
- Hallucinations
- Hx of substance abuse
- Recent abstinence from an abused substance
- Recent stressors in the patient’s environment
- Bizarre behavior
- Depression
- Anxiety

Pertinent Objective Findings
- Suicidal traumatic injuries
- Impairment from ingested substances
- Fever
- Hypothermia
- Hyperthermia
- Vomiting

ALS Upgrade Required For
- Violent/combative patient requiring restraint for transportation from the scene to the hospital

Assessment / Differential Diagnosis
- Psychiatric disorders
  - Schizophrenia
  - Depression
  - Mania
  - Anxiety
- AEIOUTIPPS
  - Alcohol/acidosis
  - Epilepsy/electrolytes/endocrine
  - Insulin (hypo/hyperglycemia)
  - Overdose
  - Uremia/underdose
  - Trauma
  - Infection
  - Psychosis
  - Pump/poison
  - Stroke/shock
**Mental / Emotional / Psych**

**Plan / Treatment**

- General patient care procedures
- If altered or decreased mental status, check blood glucose (Appendix J)
- Restrain violent patients (Appendix J)

| ALS     | IV       | Monitor | Chemical restraint – midazolam 10 mg IM or IN |
Overdose / Poisoning (Toxic Exposure)

Pertinent Subjective Findings
- Substance exposed to
- Time of exposure
- Route of exposure
- Duration of exposure
- Concentration or dose
- Number of people exposed (consider WMD)
- Nausea/vomiting
- Alcohol
- Street drugs
- Suicidal ideation/note
- History of mental illness
- Are weapons present or accessible?

Pertinent Objective Findings
- Respiratory distress
- Altered or decreased mental status
- Difficulty swallowing
- Empty containers
- Pill bottles
- Seizure
- Signs or symptoms of ACS
- Drug paraphernalia
- Gag reflex (present/absent)
- SLUDGE symptoms
  - Salivation
  - Lacrimation
  - Urination
  - Defecation
  - Gastrointestinal
  - Emesis
- Unusual odors

(See Appendix M for signs and symptoms of specific poisoning syndromes)

ALS Upgrade Required For
- Polypharmacy
- Intentional overdose with prescription meds
- Seizure associated with street drug use
- Follow recommendation of Washington Poison Center
Overdose / Poisoning (Toxic Exposure)

Assessment / Differential Diagnosis

- Adrenergic agonists
- Antihistamines
- Beta blockers
- Cholinergic agents
- Cyclic antidepressants
- Ethanol/sedatives
- Ethanol/sedative withdrawal
- Hallucinogens
- Opioid compounds
- Opioid withdrawal
- Salicylate compounds

Plan / Treatment

- Decontaminate externally as necessary
  - Dry chemicals: brush off, then rinse with copious amounts of water
  - Wet chemicals: rinse with copious amounts of water
- General patient care procedures
- Check gag reflex
- Contact Washington Poison Center at 800-709-0911

ALS

- Consult with Washington Poison Center
- Administer proparacaine 30-60 secs prior to eye irrigation
Pregnancy / Childbirth / OB-GYN

Pertinent Subjective Findings

- Last menstrual period (date and flow)
- Number of previous pregnancies
- Number of live births
- Due date (EDC)
- Prenatal care
- History of drug/alcohol use
- Placenta previa (Dx by ultrasound)
- History of complications with previous deliveries
- History of rapid delivery
- Rupture of membranes (if ruptured, time and color of fluid)
- Urge to push or move bowels
- Uterine contractions (frequency and duration)
- Vaginal bleeding
  - Number of pads/tampons used per hour
  - Passing any tissue
- Abdominal trauma
- Sudden onset of lower abdominal/back pain
- Cramping (menstrual type)
- History
  - Hypertension
  - Miscarriage
- Ectopic pregnancy

Pertinent Objective Findings

- Vaginal bleeding (color, pain)
- Rupture of membranes (color of fluid)
- Crowning or bulging
- Uterine contractions (frequency and duration)
- Abnormal presentation (breech, prolapsed/nuchal cord)
- Signs or symptoms of shock
- Altered or decreased mental status
- Seizure
- Passing of tissue
- Abdominal rigidity
- Pedal edema
- Hypotension
- Hypertension
- Headache
- Foul-smelling vaginal discharge
ALS Upgrade Required For

- Imminent delivery:
  - Contractions 2 min apart (first pregnancy)
  - Contractions less than 5 min apart (other pregnancy)
  - Urge to push/move bowels
  - Crowning or bulging
- Recently completed childbirth
- Abdominal trauma greater than 20 weeks gestation with uterine contractions
- Vaginal bleeding greater than 20 weeks gestation, more than a few streaks
- Lower abdominal pain, women ages 12 to 50 with dizziness, syncope, or heavy vaginal bleeding
- Infant transfer situation (Appendix D)
- BP greater than 160 mmHg systolic or greater than 90 mmHg diastolic
- Seizure
- Pre-eclampsia

Assessment / Differential Diagnosis

- Ectopic pregnancy
- Pelvic inflammatory disease
- Spontaneous abortion (miscarriage)
- Genital trauma
- Childbirth
- Prolapsed cord
- Nuchal cord
- Breech presentation
- Pre-eclampsia/eclampsia
- Pre-term labor
- Placenta previa
- Placental abruption
- Postpartum hemorrhage
- Abdominal trauma
Plan / Treatment

- General patient care procedures
- High flow oxygen is indicated for any complication of pregnancy or childbirth
- Unless otherwise indicated, position a pregnant patient on left side for transport
- Pre-hospital childbirth (Appendix B)
- Breech presentation
  - Emergent transport
  - Knee-chest position
  - Provide airway for baby if body delivers and head remains in birth canal
- Prolapsed cord
  - Emergent transport
  - Knee-chest position
  - Keep pressure off cord with fingers in a V shape
- Post-partum hemorrhage
  - Place a pad between the patient’s legs; do not pack the vagina
  - Massage uterus
  - Encourage baby to nurse
- Pre-eclampsia
  - Supportive care
  - Treatment for seizures as needed

<table>
<thead>
<tr>
<th>ALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Attempt to monitor fetal heart tones</strong></td>
</tr>
<tr>
<td>• <strong>Pre-eclampsia (BP greater than 160 mmHg systolic or greater than 90 mmHg diastolic or severe edema) – contact the supervising physician</strong></td>
</tr>
<tr>
<td>• <strong>Eclamptic seizures</strong></td>
</tr>
<tr>
<td>• <strong>Magnesium sulfate 4g IV over 4 min</strong></td>
</tr>
<tr>
<td>• <strong>Call supervising physician for midazolam for refractory seizures</strong></td>
</tr>
<tr>
<td>• <strong>Postpartum hemorrhage – treat for shock</strong></td>
</tr>
<tr>
<td>• See “Neonatal Resuscitation” algorithm (Appendix A)</td>
</tr>
<tr>
<td>• <strong>Transport per patient status to facility of choice or nearest hospital</strong></td>
</tr>
</tbody>
</table>
Seizures

Pertinent Subjective Findings

- Tonic/clonic activity
- Focal or generalized
- History of seizures?
- Duration of seizure?
- How many seizures today?
- How long since last seizure?
- Medications?
- Compliance with medications
- Postictal period
- Recent febrile illness
- Recent head trauma
- Diabetic
- Headache
- Drug/alcohol use or recent abstinence
- Trauma secondary to seizure
- Pregnancy

Pertinent Objective Findings

- Incontinence (bowel/bladder)
- Altered or decreased mental status
- Ongoing seizure activity
- Isolated carpopedal spasms
- Head/mouth trauma
- Medic Alert™ tag
- Residual paralysis

ALS Upgrade Required For

- Actively arriving upon arrival of EMS
- First time seizure or unknown history
- Seizure with pregnancy, street drug use, recent head injury, or abrupt onset of severe headache

Assessment / Differential Diagnosis

- Epilepsy
- Increased ICP
- Hyperventilation syndrome
- Eclampsia
- Cerebral hypoxia
- Stroke
- Pseudoseizure
- Withdrawal from drug/alcohol use
- Overdose
- Poisoning
- Syncope
- Hypoglycemia
- Hyperthermia
## Seizures

### Plan / Treatment

- Protect patient from trauma if still seizing
- General patient care procedures
- For febrile seizure, remove clothing to diaper
- Check blood glucose

<table>
<thead>
<tr>
<th>ALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Obtain blood glucose level</strong></td>
</tr>
<tr>
<td>• <strong>Midazolam 5 mg IM or IN</strong></td>
</tr>
<tr>
<td>• <strong>First-time seizure requires ALS transport (see exception for pediatric patients)</strong></td>
</tr>
<tr>
<td>• <strong>RSI followed by sustained paralysis for seizure refractory to midazolam – contact supervising physician</strong></td>
</tr>
<tr>
<td>• <strong>Magnesium sulfate for eclamptic seizures</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ped</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Blood glucose test: treat if less than 60 mg/dL (less than 40 mg/dL in neonates)</strong></td>
</tr>
<tr>
<td>• <strong>Midazolam per protocol</strong></td>
</tr>
<tr>
<td>• <strong>First-time seizure patients require ALS transport unless suspected febrile seizure in a patient with a temp greater than 102° F who presents to EMS with a normal baseline appearance and mental status. In those patients, contact with PMD or supervising physician can be made to facilitate a follow-up visit at the office or the ED.</strong></td>
</tr>
</tbody>
</table>
Stroke

Pertinent Subjective Findings

- History of stroke/TIA or similar
- Onset
- Headache
- Current medications
  - Anti-hypertensives
  - Blood thinners
  - Aspirin
- History of hypertension
- Nausea/vomiting
- ACS symptoms
- History of seizure

Pertinent Objective Findings

- Altered or decreased mental status
- Changes in vision
- Unilateral extremity weakness
- Unilateral change in sensation
- New onset unsteady gait
- Dysarthria (slurred speech)
- Aphasia (expressive or receptive)
- Unilateral facial droop
- Dysphagia

ALS Upgrade Required For

- Altered or decreased mental status
- Uncontrolled nausea/vomiting
- Systolic BP greater than 220 with new onset of stroke symptoms
- Dysarthria with absent gag reflex

Assessment / Differential Diagnosis

- Hypoglycemia
- Bell’s palsy
- Epidural/subdural hematoma
- Tumor
- Migraine
- Encephalitis
- Seizure
- Stroke
- TIA
- Todd’s paralysis
Stroke

Plan / Treatment

- General patient care procedures
- If patient has dysarthria, check for gag reflex with tongue depressor
- Perform blood glucose check (Appendix J)
- Obtain accurate “time when last known normal”

Transport Decision Tree

Last known normal less than 4.5 hours or “wake-up” stroke?

YES

Facial droop, arm drift, or difficulty speaking

YES

CALL FAST – First arriving BLS unit immediately contact PSPH. Notify EC of a “Code 3 Stroke.”

LIMIT SCENE TIME – Use closest, fastest transport available to Providence St. Peter Hospital. If patient meets ALS upgrade criteria, consider rendezvous with medic unit.

NO

NO

Routine transport to PSPH

• If BLS transport unit is not on the scene, ALS is required to transport acute stroke patients
Unconscious / Syncope

Pertinent Subjective Findings

- Vomiting/aspiration
- Seizure activity
- Trauma
- Medications
- Hx of diabetes/seizure
- Recent illness
- Drug or alcohol use
- Onset (prodome)
- Chest compressions or rescue breathing

Pertinent Objective Findings

- Medic Alert™ tag
- Abnormal breathing pattern
- Fever
- Track marks/drug paraphernalia
- Foley catheter
- Diaphoresis
- Pallor
- Incontinence (bladder/bowel)
- Signs of trauma
- Insulin, other hypoglycemic medications

ALS Upgrade Required For

- Altered or decreased mental status
- Severe abdominal or back pain
- Severe headache

Assessment / Differential Diagnosis

- AEIOUTIPPS
  - Alcohol/acidosis
  - Epilepsy/electrolytes/endocrine
  - Insulin (hypo/hyperglycemia)
  - Overdose
  - Uremia/underdose
  - Trauma
  - Infection
  - Psychosis
  - Pump/poison
  - Stroke/shock

- Syncope
  - Vasovagal
  - Cardiac dysrhythmia
  - Stroke
  - Hyperventilation
  - Orthostatic
    - Dehydration
    - Internal bleeding
  - AAA
  - Head bleed
Unconscious / Syncope

### Plan / Treatment

- General patient care procedures
- Check blood glucose level

#### ALS

- **Check blood glucose level**
- **Administer Narcan if opiate use is suspected**
- **Consider RSI for GCS less than 9**
- **If patient acutely decompensates, showing signs of impending brainstem herniation (unilateral dilated pupil, posturing, decreasing GCS) adjust ventilation to maintain end-tidal CO$_2$ near 30 mmHg**

#### Ped

- **Any awake and alert child who has a blood sugar less than 60 mg/dL (40 mg/dL in newborns) should be given oral glucose or allowed to feed**
- **Dextrose administration guidelines:**
  - **Child greater than 2 y/o:** Give 50% dextrose
  - **Child less than 2 y/o:** Give 25% dextrose
  - **Newborn:** Give 10% dextrose
- **Administer Narcan if opiate overdose is suspected**
Abdominal Trauma

Pertinent Subjective Findings

- MOI
- Protective devices (seat belts/airbags)
- Pregnancy
- Medications (e.g. anticoagulations, beta blockers)
- Underlying medical condition

Pertinent Objective Findings

- Signs of trauma
- Signs or symptoms of shock
- Bleeding
- Vomiting
- Impaled object
- Bleeding from rectum or genitalia
- Increased pain or crepitus with palpation of pelvic girdle
- Guarding
- Rigid, tender, and/or distended abdomen
- Evisceration of abdominal organs
- Pregnant
- Bruising on back, inferior to the ribs

ALS Upgrade Required For

- Altered or decreased mental status
- Impaled object
- Evisceration of abdominal organ(s)
- Pelvic fracture

Assessment / Differential Diagnosis

- Pelvic fracture
- Spine injury

Plan / Treatment

- General patient care procedures
- Pelvis: Stabilize using sheet wrap or commercial pelvic splint (see "Pelvic Wrap Splint," Appendix J)
- Evisceration: Cover with a sterile moist dressing, then bulky dressing
- Impaled object: Stabilize impaled objects with bulky dressings and transport with object in place
- Unresponsive patient with blunt trauma and signs of shock – apply pelvic wrap (Appendix J)
### Abdominal Trauma

**ALS**
- Pain management per protocol
- Rapid transport of ALS trauma patients should be prioritized over intravenous access or other interventions of dubious value
- Washington State Trauma Triage Tool (Appendix N) applies

**Ped**
- At the end of exhalation, the abdominal organs might be as high as the nipple line
- Abdomen is often the site of serious blood loss in pediatric trauma patients
Burns

Pertinent Subjective Findings

- Mechanism of injury
- Dyspnea
- Time of burn
- Confined area with steam/smoke
- Potential exposure to hazardous materials
- History of chronic cardiac/respiratory disease
- Voltage and current of electricity burn

Pertinent Objective Findings

- Pharyngeal burns
- Charring or soot around mouth/nose
- Cough
- Hoarse voice
- Extremes of age
- Thickness of burn
- Percentage of body surface area (BSA)
- Location of burn
- Sooty sputum

ALS Upgrade Required For

- Partial/full thickness or chemical burns to the face, or suspicion of airway involvement
- Partial/full thickness or chemical burns greater than 10% BSA
- Partial/full thickness or chemical burns if patient less than 5 y/o
- Electrical burns

Assessment / Differential Diagnosis

- Urticaria
- Infection (cellulitis)

Plan / Treatment

- Remove patient from hazardous atmosphere
- Stop burning
  - If skin is warm to the touch, cool with lukewarm tap water and then dry patient
  - Remove burnt or contaminated clothing (that is not melted to the skin)
  - Wash off chemicals (dry chemicals should be brushed off before decontamination with copious amounts of water)
- General patient care procedures
- Remove rings, bracelets, and other constricting items
### Burns

- Use “Rule of Nines” (Appendix H) or the palm rule to estimate percent of BSA affected
- Cover with a clean, dry sheet. Use additional sheets or blankets to prevent hypothermia
- If the patient’s burns are an area less than the size of two 4x4-inch gauze pads, cover superficial and partial thickness burns with commercially available water-based gel burn dressings
- High flow oxygen if patient was exposed to smoke or fumes in an enclosed space

<table>
<thead>
<tr>
<th>ALS</th>
<th>Ped</th>
</tr>
</thead>
<tbody>
<tr>
<td>- <strong>General ALS patient care procedures</strong>&lt;br&gt; - <strong>IV fluid resuscitation guidelines</strong>&lt;br&gt;  - Less than 15% BSA = TKO*&lt;br&gt;  - 15-40% BSA = 2 IVs, 500 ml bolus, then consult for further&lt;br&gt;  - Greater than 40% BSA = 2 IVs wide open&lt;br&gt; - <strong>Intubation is indicated if the patient is unconscious, hypoxic with severe smoke inhalation or flame/flash burns to the face/neck with pharyngeal burns, SOB, hoarseness, or carbonaceous sputum</strong>&lt;br&gt; - <strong>NG tube for patients who require intubation</strong>&lt;br&gt; - <strong>Pain management per protocol</strong>&lt;br&gt; - <strong>Consult early with supervising physician on hospital destination and ground vs. air transport decisions</strong>&lt;br&gt; - <strong>State Trauma Triage Tool (Appendix N) applies</strong>&lt;br&gt;  <em>Requires consultation with supervising physician for burns &gt; 10% BSA</em></td>
<td></td>
</tr>
<tr>
<td>- Use caution when cooling burns, as pediatric patients are more vulnerable to hypothermia&lt;br&gt; - Estimate the percent of BSA burned&lt;br&gt; - <strong>Pain management per protocol</strong></td>
<td></td>
</tr>
</tbody>
</table>
Chest Trauma

Pertinent Subjective Findings

- MOI
- Protective devices (seat belts/airbag)
- Dyspnea
- Medications
- Underlying medical condition

Pertinent Objective Findings

- Signs of trauma
- Bleeding (arterial/venous) controlled?
- Impaled object
- Sucking chest wound
- Respiratory distress
- Signs or symptoms of shock
- Unequal breath sounds
- Unequal chest expansion/movement
- Crepitus
- Deviated trachea
- JVD
- Subcutaneous emphysema
- Marked cyanosis of head, neck, and shoulders

ALS Upgrade Required For

- Penetrating chest injury
- Flail chest
- Unilateral decreased lung sounds

Assessment / Differential Diagnosis

- Open chest injury
- Traumatic asphyxia
- Flail chest
- Cardiac tamponade
- Pneumo/hemothorax
- Pulmonary contusion
- Tension pneumothorax
- Fractured rib(s)
- Impaled object
- Tear of great vessel(s)
Chest Trauma

Plan / Treatment

- General patient care procedures
- Open chest wound
  - Apply occlusive dressing and secure on three sides
  - If patient develops increased respiratory difficulty or tension pneumothorax, remove occlusive dressing and roll onto affected side
- Impaled object
  - Stabilize impaled object(s) with bulky dressings and transport with object in place
- Rib fractures
  - Splint in position of comfort using patient’s body and padding (pillows/blankets)

| ALS |  
|-----|---|
|     | **Hemo/pneumothorax or tension pneumothorax**  
|     |   - **Pleural decompression**  
|     |   - **Cardiac tamponade**  
|     |     - **Pericardiocentesis**  
|     |   - **Pain management per protocol**  
|     |   - **Rapid transport of ALS trauma patients should be prioritized over intravenous access or other interventions of dubious value**  
|     |   - **Washington State Trauma Triage Tool (Appendix N) applies**

| Ped | Suspect injury to the heart, lung(s), and/or abdominal organs with any injury to the rib cage |
Extremity Trauma

Pertinent Subjective Findings
- MOI (fall height, vehicle speed, etc.)
- Protective devices (wrist guards, knee pads, etc.)
- Medications
- Underlying medical condition(s)
- Syncope before or after event

Pertinent Objective Findings
- Signs of trauma
- Bleeding (arterial/venous)
- Impaled object
- Signs or symptoms of shock
- Crepitus
- Loss of distal pulse, motor function, or sensation
- Partial or complete amputation

ALS Upgrade Required For
- See Universal ALS Upgrades

Assessment / Differential Diagnosis
- Non-accidental trauma

Plan / Treatment
- General patient care procedures
- All patients with suspected long bone or joint injuries should be immobilized:
  - Long bone (see “Long Bone Immobilization,” Appendix J)
  - Joint (see “Joint Immobilization,” Appendix J)
  - Femur (see “Traction Device,” Appendix J)
  - Distal PMS should be evaluated and recorded before and after splinting
- Amputation
  - Stump care
    - Direct pressure to control bleeding
    - Cover the stump with a sterile dressing, moistened with sterile normal saline, and apply a bulky dressing if needed for bleeding
    - Immobilize
    - If bleeding from the stump is life threatening, as a LAST RESORT, apply a BP cuff as a tourniquet
Extremity Trauma

- Amputated part care
  - Rinse the amputated part with sterile normal saline to remove loose debris; DO NOT SCRUB
  - Wrap the amputated part with sterile gauze, moistened with sterile normal saline
  - Place the amputated part in a waterproof bag, then place the bag in cold/ice water; DO NOT put the amputated part in direct contact with ice
  - Label the container with patient name, time of amputation, and time placed in the container
  - Transport the amputated part to the same hospital as the patient

<table>
<thead>
<tr>
<th>ALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>- <strong>Pain management per protocol</strong></td>
</tr>
<tr>
<td>- <strong>Consult supervising physician for patient destination</strong></td>
</tr>
<tr>
<td>- <strong>Rapid transport of ALS trauma patients should be prioritized over intravenous access or other interventions of dubious value</strong></td>
</tr>
<tr>
<td>- <strong>Washington State Trauma Triage Tool (Appendix N) applies</strong></td>
</tr>
</tbody>
</table>
Head and Neck Trauma

Pertinent Subjective Findings
- MOI
- Loss of consciousness
- Protective devices (seat belts/helmets)
- Headache
- Changes in vision or hearing
- History of seizure following trauma
- Altered or decreased mental status
- Medications
- Underlying medical condition(s)
- Nausea/vomiting

Pertinent Objective Findings
- Amnesia (antegrade/retrograde)
- Signs of trauma
- Bleeding (arterial/venous)
- Paralysis/paresthesia
- Impaled object
- Incontinence of bladder/bowel
- Seizure
- Altered or decreased level of consciousness
- Increasing ICP
- Posturing
- Abnormal pupillary responses
- Fluid from ears/nose
- Deviated trachea
- Unable/difficult to talk or swallow
- Cushing’s Triad (↑ BP, ↓ pulse, changing respiratory pattern)

ALS Upgrade Required For
- Repetitive
- Severe or multiple episodes of vomiting
- Seizures with recent history of head trauma

Assessment / Differential Diagnosis

AEIOUTIPPS
- Alcohol/acidosis
- Epilepsy/electrolytes/endocrine
- Insulin (hypo/hyperglycemia)
- Overdose
- Uremia/underdose
- Trauma
- Infection
- Psychosis
- Pump/poison
- Stroke/shock
Head and Neck Trauma

Plan / Treatment

- General patient care procedures

- Head
  - If patient displays Cushing’s triad, ventilate with BVM at 24 breaths per minute
  - If controlling bleeding from a laceration or avulsion, use care not to depress skull fractures
  - Remove objects impaled in cheeks and pack both inside and outside to control bleeding

- Eyes
  - Irrigate to remove non-impaled foreign substances
  - Stabilize impaled objects, cover both eyes, and instruct the patient not to look around

- Ears
  - Leave foreign bodies in place
  - Treat avulsed parts by keeping clean, dry, and cold (not frozen) and send to hospital with patient

- Mouth
  - In stable (conscious, maintaining airway) patients, rinse avulsed tooth in saline and attempt to replace in its socket prior to transport

- Nose
  - To control nose bleed, pinch nostrils for 10 minutes
  - Do not remove foreign objects
  - If possible, position patient so that drainage can occur

- Throat
  - To control severe bleeding from the neck, use direct pressure on the wound. If venous bleeding, apply an occlusive dressing.
### Head and Neck Trauma

<table>
<thead>
<tr>
<th>ALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Consider RSI for GCS less than 9</strong></td>
</tr>
<tr>
<td>• <strong>If patient acutely decompensates, showing signs of impending brainstem herniation (unilateral dilated pupil, posturing, decreasing GCS) adjust ventilation to maintain end-tidal CO$_2$ near 30 mmHg</strong></td>
</tr>
<tr>
<td>• <strong>Administer proparacaine prior to irrigation of eyes</strong></td>
</tr>
<tr>
<td>• <strong>Pain management per protocol</strong></td>
</tr>
<tr>
<td>• <strong>Consult supervising physician for trauma center destination</strong></td>
</tr>
<tr>
<td>• <strong>Rapid transport of ALS trauma patients should be prioritized over intravenous access or other interventions of dubious value</strong></td>
</tr>
</tbody>
</table>
Spinal Trauma

Pertinent Subjective Findings

- MOI
- Loss of consciousness
- Alteration of sensation and region of body affected (dermatome)
- Paresthesia (tingling)
- Prior spinal injury
- Underlying medical condition(s)
- Use of intoxicating substances
- Protective devices (seat belts/helmets)
- Spine pain

Pertinent Objective Findings

- Signs of trauma
- Signs of shock proximal to injury
- Paralysis/weakness
- Incontinence of bladder/bowel
- Tenderness of the spine
- Priapism
- Altered or decreased mental status

ALS Upgrade Required For

- Paralysis secondary to the trauma

Plan / Treatment

- General patient care procedures
- Rapid extrication indications
  - Unsafe scene
  - Critical injuries affecting airway, breathing, or circulation
  - Patient is blocking access to a patient with critical injuries affecting airway, breathing, or circulation
- Perform cervical/spinal immobilization as indicated (Appendix J)

Note: Pregnant patients in their second and third trimesters should have the backboard propped up by placing a pillow or blanket roll under the backboard on the patient’s right side.
### Spinal Trauma

<table>
<thead>
<tr>
<th><strong>ALS</strong></th>
<th><strong>Ped</strong></th>
</tr>
</thead>
</table>
| - *Treat neurogenic shock with fluid resuscitation*  
- *Consult supervising physician for trauma center destination*  
- *Pain management per protocol*  
- *Rapid transport of ALS trauma patients should be prioritized over intravenous access or other interventions of dubious value* | - Special attention should be placed on obtaining neutral alignment. Younger patients will require body padding (shoulders to feet) because of the larger occipital portion of the head. |
Submersion Injury

Pertinent Subjective Findings

- Depth of water vs. height of diving platform (MOI for spinal injury)
- Length of submersion
- Temperature of water
- Loss of consciousness
- Medications
- Drugs/alcohol use
- Bystander chest compressions/rescue breathing
- Vertigo
- Disturbance in vision
- Dyspnea
- Dive profile(s) last 48 hours
- Length of dive
- Depth of dive
- Ascent rate
- Equipment problems
- Headache
- Paralysis/paresthesia
- Onset
- Seizures
- Pain in muscles or joints

Pertinent Objective Findings

- Frothy sputum (with or without blood)
- Abnormal lung sounds
- Subcutaneous emphysema
- Abnormal neurological exam
- Vomiting
- Hemorrhaging in sclera
- Bloody discharge from ears/nose
- Dive computer

ALS Upgrade Required For

- Paralysis following a diver/jumping injury
- SCUBA diving accident

Assessment / Differential Diagnosis

- Drowning
- Near drowning
- Decompression sickness (“the bends”)
- Air embolism
- Pneumothorax
- Barotrauma

Plan / Treatment

- General patient care procedures
- Position patient supine
## Submersion Injury

| ALS | • Contact Divers Alert Network (DAN) at 919-684-9111 for information on treatment of specific diving syndrome, location and availability of hyperbaric chambers  
• Discuss transport destination and method (air vs. ground) with DAN and supervising physician  
• Transport dive computer to same hospital as patient |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ped</td>
<td>• If a drowning takes place in extremely cold water, provide aggressive and prolonged resuscitation efforts in accordance with PALS and consultation with the supervising physician</td>
</tr>
</tbody>
</table>
Appendix A – ACLS Algorithms

Pulseless Arrest ................................................................. A-2
Tachycardia ................................................................. A-4
Bradycardia ................................................................. A-5
Pediatric Pulseless Arrest .................................................. A-6
Pediatric Tachycardia ..................................................... A-8
Pediatric Bradycardia .................................................... A-10
Neonatal Resuscitation .................................................. A-12
**Pulseless Arrest**

**Asystole/PEA**
- Not Shockable
  - Resume CPR immediately for 2 min
  - When IV/I/O available, give vasopressor
    - Epinephrine
    - Repeat every 3 to 5
    - Or
    - May give 1 dose of vasopressin 40 U I/V to replace first or second dose of epinephrine
    - May repeat vasopressin x 1 after 20 min

**Shockable rhythm?**
- Check rhythm
- Shockable
  - Give 2 cycles of CPR*
  - Go to Box A

**VF/VT**
- Shockable
  - Give 1 shock
    - Manual biphasic (e.g. LP12) 200 J
    - Monophasic: 360 J
  - Resume CPR immediately for 2 min
  - Give 5 cycles of CPR*
  - Go to Box A

**Not Shockable**
- Check rhythm
- Shockable
  - Give 1 shock
    - Manual biphasic (e.g. LP12) 200 J
    - Monophasic: 360 J
  - Resume CPR while defibrillator is charging
  - Continue CPR

**PULSELESS ARREST**
- BLS Algorithm: Call for help, give CPR
  - Attach monitor/defibrillator when available
  - Give oxygen when available

**Resume CPR immediately for 2 min**

**Check rhythm**

**Shockable rhythm?**

**Not Shockable**

**A**

**If not shockable, give 1 dose of vasopressin 40 U IV to replace first or second dose of epinephrine.**
Resume CPR immediately after the shock
When IV/IO available, give vasopressor during CPR (before or after the shock)
- Epinephrine 1 mg IV/IO
  Repeat every 3 to 5 min
Or
- May give 1 dose of vasopressin 40 U IV/IO to replace first or second dose of epinephrine may repeat vasopressin x1 after 20 min

Give 5 cycles of CPR*

Check rhythm
Shockable rhythm?

Shockable

Continue CPR while defibrillator is charging
Give 1 shock
- Manual biphasic (e.g.) LP12) 200 J
- Monophasic: 360 J
Resume CPR immediately after the shock for 2 min
Consider antiarrhythmics: give during CPR (before or after shock):
- Amiodarone (300 mg IV/IO once, then consider additional 150 mg IV/IO once) or lidocaine (1 to 1.5 mg/kg first dose, then 0.5 to 0.75 mg/kg IV/IO, max 3 doses or 3 mg/kg)
Consider magnesium for torsades des pointes: give 2 g IV/IO
After 2 min CPR*, go to Box B above

Not Shockable

If asystole, go to Box C
If electrical activity, check pulse. If no pulse, go to Box C.
If pulse present begin post-resuscitation care including therapeutic hypothermia

* After an advanced airway is placed, rescuers no longer deliver “cycles” or CPR. Give 8 to 10 breaths/min. Check rhythm every 2 minutes.
Tachycardia
(with pulse)

Assess appropriateness for clinical condition. Heart rate typically ≥ 150/min if tachyarrhythmia.

Identify and treat underlying cause
- Maintain patient airway; assist breathing as necessary
- Oxygen (if hypoxemic)
- Cardiac monitor to identify rhythm; monitor blood pressure and oximetry

Persistent tachyarrhythmia causing:
- Hypotension?
- Acutely altered mental status?
- Signs of shock?
- Ischemic chest discomfort?
- Acute heart failure?

Wide QRS? ≥ 0.12 second
- Yes
  - IV access and 12-lead ECG if available
  - Consider adenosine only if regular and monomorphic
  - Consider antiarrhythmic infusion
  - Consider expert consultation
- No
  - Consider: Expert consultation

Synchronized cardioversion
- Yes
  - Consider sedation
  - If regular narrow complex, consider adenosine
- No
  - Consider: Expert consultation

Doses/Details
Synchronized cardioversion
- Narrow regular: 50-100 J
- Narrow irregular: 120-200 J biphasic or 200 J monophasic
- Wide regular: 100 J
- Wide irregular: 120-200 J
Bradycardia
(with pulse)

Assess appropriateness for clinical condition.
Heart rate typically <50/min if bradyarrhythmia.

Identify and treat underlying cause
- Maintain patient airway; assist breathing as necessary
- Oxygen (if hypoxemic)
- Cardiac monitor to identify rhythm; monitor blood pressure and oximetry
- IV access
- 12-lead ECG if available; don’t delay therapy

Persistent tachyarrhythmia causing:
- Hypotension?
- Acutely altered mental status?
- Signs of shock?
- Ischemic chest discomfort?
- Acute heart failure?

Monitor and observe

Atropine
If atropine ineffective:
- Transcutaneous pacing
  or
- Dopamine infusion
  or
- Epinephrine infusion

Consider:
- Expert consultation
Pediatric Cardiac Arrest

Shout for Help / Activate Emergency Response

Start CPR
- Give oxygen
- Attach monitor/defibrillator

Rhythm shockable?
- Yes
  - VF/VT
    - Shock
    - CPR 2 min
      - IO/IV access
    - Rhythm shockable?
      - Yes
        - Shock
      - No
        - CPR 2 min
          - Epinephrine every 3-5 min
          - Consider advanced airway
        - Rhythm shockable?
          - Yes
            - CPR 2 min
              - Amiodarone
              - Treat reversible causes
          - No
            - CPR 2 min
              - Treat reversible causes

- No
  - Asystole/PEA
    - CPR 2 min
      - IO/IV access
      - Epinephrine every 3-5 min
      - Consider advanced airway
    - Rhythm shockable?
      - Yes
        - CPR 2 min
          - Organized rhythm – check pulse
          - Pulse present (ROSC) – post-cardiac arrest care
      - No
        - CPR 2 min
          - Asystole/PEA – J or K

Go to E
Pediatric Cardiac Arrest

Shock Energy for Defibrillation
First shock 2 J/kg
Shock 4 J/kg
Subsequent shocks ≥ 4 J/kg
Maximum 10 J/kg or adult dose

Drug Therapy
- Epinephrine IO/IV Dose:
  0.01 mg/kg (0.1 mL/kg of 1:10,000 concentration).
  Repeat every 3-5 minutes. If no IO/IV access, may give endotracheal dose: 0.1 mg/kg (0.1 mL/kg of 1:1,000 concentration).
- Amiodarone IO/IV Dose:
  5 mg/kg bolus during cardiac arrest. May repeat up to 2 times for refractory VF/pulseless VT.
Identify and treat underlying cause

- Maintain patient airway, assist breathing as necessary
- Oxygen
- Cardiac monitor to identify rhythm; monitor blood pressure and oximetry
- IO/IV access
- 12-lead ECG if available; don’t delay therapy

Evaluate rhythm with 12-lead ECG or monitor

Narrow QRS (≤ 0.09 sec)  \(\rightarrow\)  Evaluate QRS duration

Wide QRS (>0.09 sec)  \(\rightarrow\)  Possible Ventricular Tachycardia

Probable Sinus Tachycardia
- Compatible history consistent with known cause
- P waves present/normal
- Variable R-R; constant P-R
- Infants: rate usually < 220 bpm
- Children: rate usually < 180 bpm

Probable Supraventricular Tachycardia
- Compatible history (vague, nonspecific)
- P waves absent/normal
- HR not variable
- History of abrupt rate changes
- Infants: rate usually > 220 bpm
- Children: rate usually > 180 bpm

Cardiopulmonary compromise
- Hypotension
- Acutely altered mental status
- Signs of shock

No
Pediatric Tachycardia (with a pulse and poor perfusion)

Yes

Search for and treat cause

Consider vagal maneuvers (no delays)

- Synchronized cardioversion: 0.5 to 1 J/kg; if not effective, increase to 2 J/kg
- Sedate if possible but don’t delay cardioversion
- May attempt adenosine if it does not delay electrical cardioversion

Consider adenosine if rhythm regular and QRS monomorphic

If IV access readily available:

- **If IV access readily available:**
  
  **Give adenosine 0.1 mg/kg** (maximum first dose 6 mg) by rapid bolus. May double first dose and give once (maximum 2nd dose 12 mg)
  
  OR

- **Synchronized cardioversion:**
  
  0.5 to 1 J/kg; if not effective, increase to 2 J/kg. Sedate if possible but don’t delay cardioversion.

OR

- **Synchronized cardioversion:**
  
  0.5 to 1 J/kg; if not effective, increase to 2 J/kg. Sedate if possible but don’t delay cardioversion.

Expert consultation advised

- **Amiodarone 5 mg/kg IV over 20 to 60 minutes**
Pediatric Bradycardia (with a pulse and poor perfusion)

**Identify and treat underlying cause**
- Maintain patient airway, assist breathing as necessary
- Oxygen
- Cardiac monitor to identify rhythm; monitor blood pressure and oximetry
- IO/IV access
- 12-lead ECG if available; don’t delay therapy

**Bradycardia still causing cardiorespiratory compromise?**
- No
  - Support ABCs; give oxygen if needed
  - Observe
  - Consider expert consultation
- Yes
  - Perform CPR if despite oxygenation and ventilation HR < 60/min with poor perfusion

**Persistent symptomatic bradycardia?**
- No
- Yes
Pediatric Bradycardia

- Give epinephrine
  - IV/IO: 0.01 mg/kg (1:10,000: 0.1 mL/kg)
  - Endotracheal tube: 0.1 mg/kg (1:1,000: 0.1 mL/KG)
- Repeat every 3 to 5 minutes
- If increased vagal tone or primary AV block: Give atropine, first dose 0.02 mg/kg, may repeat (minimum dose 0.1 mg; max total dose for child 1 mg)
- Consider cardiac pacing

If pulseless arrest develops, go to Pulseless Arrest Algorithm.
Neonatal Resuscitation

ACLS Algorithms - Appendix A

Term gestation? Breathing or crying? Good tone?

- No
  - Warm, clear airway if necessary, dry, stimulate

- Yes, stay with mother

HR below 100, gasping, or apnea?

- No
  - Labored breathing or persistent cyanosis?

- Yes
  - Clear airway
  - SpO₂ monitoring
  - Consider BiPAP®

- No
  - HR below 100?

- Yes
  - PPV, SpO₂ monitoring

- No
  - Routine care
    - Provide warmth
    - Clear airway if necessary
    - Dry
    - Ongoing evaluation

Birth

30 sec

60 sec

Yes

No
Neonatal Resuscitation

Postresuscitation care

Take ventilation corrective steps

HR below 60?

No

Yes

Consider intubation
Chest compressions
Coordinate with PPV

Consider

• Hypovolemia
• Pneumothorax

Intubate if no chest rise!

Take ventilation corrective steps

IV epinephrine

HR below 60?

No

Yes
Appendix B – Childbirth

1. Perform risk assessment for field delivery:
   a) If contractions are between 2 and 5 minutes apart, transport to the nearest facility
   b) If contractions are greater than 5 minutes apart, transport to the patient’s hospital of choice
   c) If contractions are less than 5 minutes apart, patient feels urge to push or have a bowel movement or the baby is crowning, plan for a field delivery unless contraindicated below:
      - If baby presents breech at any time, place in knee chest position and expedite transport.
      - If the patient is less than 32 weeks gestation, transport unless the baby is crowning.
      - If the patient is expecting multiple births, transport unless the baby is crowning. If the decision to deliver in the field is made, call for an additional medic unit and plan to transport after the first child is delivered.
      - If the patient reports a history of placenta previa and/or was told by her physician not to deliver vaginally, expedite transport, even if baby is crowning.

2. If birth is not imminent then transport to appropriate facility:
   a) Place patient in left lateral recumbent position and provide supplemental oxygen as needed
   b) Provide early notification of the patient’s status to receiving facility

3. If birth is imminent, upgrade to ALS and prepare for delivery:
   a) Prepare a delivery location (consider the modesty of the patient, the privacy of the family, and the safety of the unborn child)
      - Any position of comfort for the patient that will allow the EMS provider access to her perineum to assist with the delivery of the child
      - DO NOT use the gurney (unless transporting) – it is too narrow, moves too easily, and is top-heavy
   b) Gather equipment and supplies:
Appendix B – Childbirth

- OB kit nearby, open and ready
- Towels (warm if possible)
- Oxygen available for mother and baby (two tanks, regulators, etc.)
- Neonatal resuscitation equipment nearby, open and ready
- Transport vehicle ready to go and warm in the back

4. Delivery:
   a) When the patient feels she needs to push, encourage her to push for as long as possible (usually 10 sec), then take a deep breath and bear down again
   b) As the head emerges, use gentle pressure with the palm of a gloved hand to prevent the baby from delivering too fast
   c) Once the head has delivered (usually face down):
      - Have mother stop pushing
      - If amniotic sac is still covering the baby’s head, rupture membrane by pinching and remove it from baby’s head
      - Quickly and thoroughly suction the baby’s mouth, then nose using a bulb syringe. If meconium is present in the mouth or nose, ALS should visualize the cords and suction as necessary.
      - Check for nuchal cord by sliding your finger down the back of the baby’s neck and feeling for the umbilical cord wrapped around the neck. If the cord is present, gently slip it over the head (cord could wrap multiple times).
      - If the cord is wrapped too tightly to get it over the baby’s head, apply both umbilical clamps and cut the cord between the two clamps.
   d) Once the baby has been suctioned and any nuchal cord issues dealt with, have mother deliver the baby’s body:
      - The baby’s head most likely has rotated to one side or the other as the shoulders prepare to deliver
Appendix B – Childbirth

- Place a hand on both sides of the baby’s head and use gentle pressure to guide the head posteriorly (relative to mother) first, to deliver the anterior shoulder and then guide the head anteriorly to deliver the posterior shoulder. As the shoulders deliver, the rest of the baby usually follows quickly.

  e) As soon as the baby is delivered:
  - Place two umbilical clamps 2” apart at least 6-8” from the baby and cut the cord in between the clamps
  - Stimulate the baby by vigorously drying the baby using towels
  - Assess need for neonatal resuscitation
  - Assess APGAR (Appendix H) at 1 minute
  - Place the baby skin to skin on mother’s abdomen/chest and cover to keep warm
  - Place a hat on the baby’s head
  - Assess APGAR (Appendix H) at 5 minutes
  - Prepare mother and child for transport per patient status to facility of choice or nearest hospital

  f) The placenta usually is delivered 10-30 minutes after delivery of the baby. When the patient says she feels the need to push again, prepare to deliver the placenta. DO NOT pull on the umbilical cord.
  - Place the delivered placenta in a plastic bag and bring to the hospital with the patient.
  - After delivery of the placenta, place pads on the perineum. Change the pads if they become saturated with blood.
  - Massage the uterus and encourage the patient to nurse her baby to assist in controlling postpartum hemorrhaging.
EMTs and paramedics may withhold or terminate resuscitation of patients ONLY in the following circumstances. In all other cases or if in doubt at any time, resuscitation should begin immediately.

1. Obvious signs of death:
   a) Rigor mortis
   b) Livor mortis (lividity)
   c) Decapitation
   d) Incineration
   e) Decomposition
   f) Body position incompatible with life
   g) Evisceration of brain or heart

2. End of Life Treatment Documentation is present and valid (signed)
   a) POLST form with part A checked DNAR/Do Not Attempt Resuscitation (allow natural death)
   b) Patient is in a licensed nursing home (as defined in RCW 18.51.010) and there is a reasonable indication that the patient and his or her family do not want to have cardiopulmonary resuscitation performed.
   c) Documentation that the patient is enrolled in hospice

3. EMTs are authorized by the MPD to withhold or terminate resuscitation if the patient has been diagnosed with a terminal illness and there is a reasonable indication that the patient and his or her family do not want to have cardiopulmonary resuscitation performed.

   NOTE: If family is present and desires resuscitation, EMS personnel should perform all resuscitative measures regardless of any documentation.

4. In a multiple casualty situation – Apneic adult patients who do not start breathing with airway positioning
Appendix C – Death in Field (DIF)

5. Traumatic cardiac arrest – In addition to the above, a victim of trauma shall be determined to be dead in the field and not transported if:

   a) The patient has sustained blunt or penetrating trauma to the head and is pulseless and apneic after opening airway
   
   b) The patient has sustained severe blunt or penetrating trauma to the chest and is pulseless and apneic after opening airway
   
   c) The patient presents in asystole

6. Medical cardiac arrest – The patient in non-traumatic (medical) cardiac arrest shall be determined to be dead in the field and not transported after consultation with the supervising physician in any of the following circumstances:

   a) The patient’s initial presenting rhythm is asystole and no previous resuscitative efforts were initiated
   
   b) At any time during the resuscitation, the patient stays in an asystolic or agonal rhythm that is refractory to ACLS measures
   
   c) After full ACLS resuscitative measures have been instituted and the patient’s ETCO$_2$ remains at 10 mmHg or below for 10 minutes
   
   d) A patient in PEA does not respond to appropriate ACLS measures

Special circumstances

a) All hypothermic patients, possible drug overdoses, and victims of electrocution, lightning, and drowning should have resuscitative efforts begun and be transported to the nearest hospital unless the supervising physician orders otherwise

b) Consider the needs of the survivors when deciding whether to discontinue or withhold resuscitation

c) All cases of non-resuscitation will have an ECG strip documenting the cardiac rhythm, with the time and date recorded on the strip. If using a LP 12, attach it to the patient care report

d) All consultations with the supervising physician will be documented, including the time, physician’s name and instructions

e) The highest-level EMS provider on the scene will consult with the coroner’s representative on all cases of death in the field to determine the disposition of the patient.
Appendix D – Infant Transfer

In compliance with RCW 13.34.360, all firefighters (meaning paid and volunteer firefighters and fire department-certified EMS personnel) shall be trained in and become knowledgeable about their responsibilities as “qualified persons” to accept custody of “newborn” children as defined in the bill (less than 72 hours old).

All qualified persons will ascertain from anyone seeking to transfer custody of a child whether the child is less than 72 hours old as determined to a reasonable degree of medical certainty.

The qualified person also will determine whether the transferor is a parent of the child.

The qualified person shall not require a parent to provide any identifying information as a condition of transferring custody of the newborn, and shall attempt to protect the anonymity of the parent.

The qualified person shall attempt to obtain family medical history or information by providing the parent with the approved Family Medical History Questionnaire.

The qualified person shall provide the parent with the department-approved pamphlet, which includes referral information regarding “adoption options, counseling, appropriate medical and emotional aftercare services, domestic violence, and legal rights.”

Procedures for infant transfers include:

1. The qualified person should notify dispatch that a newborn or other child has been received and request an ALS response.

2. EMS personnel should medically assess the infant in accordance with protocols and provide the appropriate level of BLS/ALS care.

3. The qualified person should inquire as to whether the transferring person is a parent of the child, without requesting name, social security number, or other identifying information.

4. The qualified person should attempt to verify the date and time of birth of the child to ascertain whether the child is a “newborn” as defined by the bill.

5. Based on the answers to those questions, the qualified person will determine whether RCW 13.34.360 applies.

6. Assuring anonymity to the parent, the qualified person will immediately try to attain completion of the family medical history questionnaire. When that is completed, the parent will be given the pamphlet with referral information, but such information shall be provided even if the parent refuses to provide any medical history or information.

7. The qualified person shall notify Child Protective Services (866-END-HARM) within 24 hours of the infant’s transfer.
Appendix D – Infant Transfer

8. If it is determined that the child is not a newborn under the statute, the qualified person shall attempt to obtain family medical history and address the immediate health and safety needs of the child. The qualified person must notify law enforcement and CPS (866-END-HARM), because the parent could face criminal liability.

9. In the event that employees or members of the department who do not meet the definition of qualified person are asked to accept transfer of a newborn from a parent, or any child from any person, they must ask the transferor to wait a few minutes while they summon a qualified person by immediately calling 911 and requesting an EMS response.
Health care workers, including EMS providers, subject to the provisions of Title 18, Revised Code of Washington (RCW), are required to report:

1) When there is reasonable cause to believe that abandonment, abuse, financial exploitations, or neglect or a vulnerable adult has occurred, mandated reporters shall immediately report to the department (Department of Social and Health Services).

2) If there is reason to suspect that sexual or physical assault has occurred, mandated reporters shall immediately report to the appropriate law enforcement agency (city police or county sheriff) AND to the department.

In addition, 26.44.030 RCW: “When any practitioner . . . has reasonable cause to believe that a child or adult dependent or developmentally disabled person has suffered abuse or neglect, he or she shall report such incident . . . to the proper law enforcement agency AND to the department (DSHS) . . .”

**Reporting procedure**

The 24-hour hotline for reporting abuse and neglect of children and vulnerable adults is 866-END-HARM (866-363-4276). The answering service will provide referral to the appropriate agency based on the facts given in the report. Calling the hotline meets a provider’s requirement to contact “the department.”

A vulnerable adult is defined as:

- Someone over the age of 60 who is unable to care for his or herself;
- An adult living in a nursing, board, or adult family home;
- An adult with a developmental disability;
- An adult with a legal guardian; or
- An adult receiving personal care services in his or her own or his or her family’s home.

ABUSE and NEGLECT of adults can take several forms:

1. Signs of physical abuse – adults:
   - Unexplained bruises, welts, black eyes, wounds, or fractures
   - Multiple injuries in various stages of healing
   - Sudden changes in behavior (adult is fearful or depressed or engages in self-destructive behavior)
   - The caregiver refuses to allow visitors
   - The person is in restraints or locked in a room
Appendix E – Mandatory Reporting Criteria

- Missing patches of hair or hemorrhage below the scalp
- The person reports abuse

2. Signs of mental abuse – adults:
- The person is emotionally upset, agitated, withdrawn, noncommunicative, depressed, or nonresponsive
- Caregiver refuses to allow visitors or does not let patient participate in family or community activities
- The person reports abuse

3. Signs of sexual abuse – adults:
- Bruising around breasts and/or genital area
- An unexplained venereal disease
- Soiled underclothes or bedding
- Sudden change in behavior
- The person reports being sexually abused

Signs of abuse in children can be different from in adults and vary somewhat with the age of the child:

ABUSE and NEGLECT of children can take several forms:

1. Signs of abuse – young children:
   - Clinginess
   - Bedwetting
   - Inappropriate sexual knowledge
   - Aggressive behavior
   - Nightmares

2. Signs of abuse – older children:
   - Inability to concentrate in school
   - Drop in grades
   - Promiscuity
   - Self-destructive behaviors
   - Comments about suicide
Appendix E – Mandatory Reporting Criteria

- Poor relations with peers
- Depression
- Eating disorders

Responding to sudden unexpected child death or serious injury

1. Insure safety and provide medical aid as needed to save or assist the child
2. If child is clearly dead, do not move the body
   - Be careful not to destroy potential evidence
3. Make sure Law Enforcement has been notified (whether you stay at the scene or not)
   - Provide your contact information to Law Enforcement
4. Document all adults and children present
   - Include who has left
   - What they did and said; their appearance
   - Their reactions to child’s death or injury
5. Document all statements and demeanor (emotional state) of speakers
   - ASAP and verbatim
   - Explain your job is to provide medical aid
   - Ask for caretaker explanation; request details
   - Record observations of both words and actions
6. Document all your observations of the environment ASAP
   - Focus all your senses on the surroundings
   - Describe scene accurately and completely
   - Possible mechanism of injury present?
7. Consider and record child’s developmental level
   - Compare reasonableness of history given regarding mechanism of injury to child’s age and developmental abilities and scene observations
8. Know signs of possible abuse and neglect:
   - Physical abuse: Unexplained broken bones, bruises, black eyes, cuts, burns, welts; pattern injuries, bite marks; reports of injury received from an adult caretaker, etc.
Appendix E – Mandatory Reporting Criteria

- Sexual abuse: Difficulty walking or sitting, inappropriate interest or knowledge of sexual acts, reports of inappropriate touching, etc.
- Neglect: Obvious lack of hygiene; back of head flat; severe diaper rash; hungry; underweight; lack of food, formula or care; parent or child use of drugs or alcohol, etc.
## Appendix F – Medical Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;</td>
<td>Less than</td>
<td>Cubic centimeters</td>
</tr>
<tr>
<td>&gt;</td>
<td>Greater than</td>
<td>Congestive heart failure</td>
</tr>
<tr>
<td>â</td>
<td>Before</td>
<td>Central nervous system</td>
</tr>
<tr>
<td>ABD</td>
<td>Abdomen</td>
<td>Carbon monoxide</td>
</tr>
<tr>
<td>ac</td>
<td>Before meals</td>
<td>Carbon dioxide</td>
</tr>
<tr>
<td>ACS</td>
<td>Acute coronary syndrome</td>
<td>Chronic obstructive pulmonary disease</td>
</tr>
<tr>
<td>AIDS</td>
<td>Acquired immunodeficiency syndrome</td>
<td>Cardiopulmonary resuscitation</td>
</tr>
<tr>
<td>ALNW</td>
<td>Airlift Northwest</td>
<td>Cerebrovascular accident</td>
</tr>
<tr>
<td>ALS</td>
<td>Advanced Life Support</td>
<td>Discontinue</td>
</tr>
<tr>
<td>AOB</td>
<td>Alcohol on breath</td>
<td>Dead on arrival</td>
</tr>
<tr>
<td>APAP</td>
<td>Acetaminophen</td>
<td>Date of birth</td>
</tr>
<tr>
<td>APGAR</td>
<td>Appearance, Pulse, Grimace, Activity, Respirations</td>
<td>Delirium tremens</td>
</tr>
<tr>
<td>ASA</td>
<td>Aspirin</td>
<td>Diagnosis</td>
</tr>
<tr>
<td>AVPU</td>
<td>Alert, verbal, pain, unresponsive</td>
<td>Electrocardiogram</td>
</tr>
<tr>
<td>BB</td>
<td>Backboard</td>
<td>Estimated date of confinement (due date for delivery)</td>
</tr>
<tr>
<td>bid</td>
<td>Twice a day</td>
<td>Extra-pyramidal symptoms</td>
</tr>
<tr>
<td>BLS</td>
<td>Basic life support</td>
<td>Endotracheal</td>
</tr>
<tr>
<td>BP</td>
<td>Blood pressure</td>
<td>End-tidal carbon dioxide</td>
</tr>
<tr>
<td>BSA</td>
<td>Body surface area</td>
<td>Alcohol</td>
</tr>
<tr>
<td>BSI</td>
<td>Body substance isolation</td>
<td>Extremities</td>
</tr>
<tr>
<td>BVM</td>
<td>Bag-valve mask</td>
<td>Female</td>
</tr>
<tr>
<td>C/C</td>
<td>Chief complaint</td>
<td>Fracture</td>
</tr>
<tr>
<td>C/O</td>
<td>Complains of</td>
<td>Grams</td>
</tr>
<tr>
<td>č</td>
<td>With</td>
<td>Glasgow coma scale</td>
</tr>
<tr>
<td>CA</td>
<td>Cancer</td>
<td>Gastrointestinal</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>GSW</td>
<td>Gunshot wound</td>
<td></td>
</tr>
<tr>
<td>gtt</td>
<td>Drop</td>
<td></td>
</tr>
<tr>
<td>HA</td>
<td>Headache</td>
<td></td>
</tr>
<tr>
<td>HEENT</td>
<td>Head, eyes, ears, nose, throat</td>
<td></td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
<td></td>
</tr>
<tr>
<td>H&amp;P</td>
<td>History and physical</td>
<td></td>
</tr>
<tr>
<td>HPI</td>
<td>History of present illness</td>
<td></td>
</tr>
<tr>
<td>HR</td>
<td>Heart rate</td>
<td></td>
</tr>
<tr>
<td>hs</td>
<td>At bedtime</td>
<td></td>
</tr>
<tr>
<td>Hx</td>
<td>History</td>
<td></td>
</tr>
<tr>
<td>ICP</td>
<td>Intracranial pressure</td>
<td></td>
</tr>
<tr>
<td>IDDM</td>
<td>Insulin-dependent diabetes mellitus</td>
<td></td>
</tr>
<tr>
<td>IM</td>
<td>Intramuscular</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>Intravenous</td>
<td></td>
</tr>
<tr>
<td>JVD</td>
<td>Jugular venous distention</td>
<td></td>
</tr>
<tr>
<td>kg</td>
<td>Kilogram</td>
<td></td>
</tr>
<tr>
<td>KED</td>
<td>Kendrick Extraction Device</td>
<td></td>
</tr>
<tr>
<td>KVO</td>
<td>Keep vein open</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>Liter</td>
<td></td>
</tr>
<tr>
<td>LLQ</td>
<td>Lower left quadrant</td>
<td></td>
</tr>
<tr>
<td>LMP</td>
<td>Last menstrual period</td>
<td></td>
</tr>
<tr>
<td>LOC</td>
<td>Level of consciousness</td>
<td></td>
</tr>
<tr>
<td>LUQ</td>
<td>Left upper quadrant</td>
<td></td>
</tr>
<tr>
<td>LVH</td>
<td>Left ventricular hypertrophy</td>
<td></td>
</tr>
<tr>
<td>Map</td>
<td>Mean arterial pressure</td>
<td></td>
</tr>
<tr>
<td>MAST</td>
<td>Military Assistance to Safety &amp; Traffic (helicopter)</td>
<td></td>
</tr>
<tr>
<td>MCA</td>
<td>Motorcycle accident</td>
<td></td>
</tr>
<tr>
<td>MDI</td>
<td>Metered dose inhaler</td>
<td></td>
</tr>
<tr>
<td>mEq</td>
<td>Milliequivalent</td>
<td></td>
</tr>
<tr>
<td>mg</td>
<td>Milligram</td>
<td></td>
</tr>
<tr>
<td>MI</td>
<td>Myocardial infarction</td>
<td></td>
</tr>
<tr>
<td>MIR</td>
<td>Medical Incident Report</td>
<td></td>
</tr>
<tr>
<td>ml</td>
<td>Milliliter</td>
<td></td>
</tr>
<tr>
<td>mm</td>
<td>Millimeter</td>
<td></td>
</tr>
<tr>
<td>mmHg</td>
<td>Millimeter of mercury</td>
<td></td>
</tr>
<tr>
<td>MOI</td>
<td>Mechanism of injury</td>
<td></td>
</tr>
<tr>
<td>MVA</td>
<td>Motor vehicle accident</td>
<td></td>
</tr>
<tr>
<td>NAD</td>
<td>No apparent distress</td>
<td></td>
</tr>
<tr>
<td>NC</td>
<td>Nasal cannula</td>
<td></td>
</tr>
<tr>
<td>NG</td>
<td>Nasogastric</td>
<td></td>
</tr>
<tr>
<td>NIDDM</td>
<td>Non-insulin-dependent diabetes mellitus</td>
<td></td>
</tr>
<tr>
<td>NKDA</td>
<td>No known drug allergies</td>
<td></td>
</tr>
<tr>
<td>NOI</td>
<td>Nature of illness</td>
<td></td>
</tr>
<tr>
<td>NPA</td>
<td>Nasopharyngeal airway</td>
<td></td>
</tr>
<tr>
<td>NPO</td>
<td>Nothing by mouth</td>
<td></td>
</tr>
<tr>
<td>NRM</td>
<td>Non-rebreather mouth</td>
<td></td>
</tr>
<tr>
<td>NS</td>
<td>Normal saline</td>
<td></td>
</tr>
<tr>
<td>NSR</td>
<td>Normal sinus rhythm</td>
<td></td>
</tr>
<tr>
<td>NTG</td>
<td>Nitroglycerin</td>
<td></td>
</tr>
<tr>
<td>N&amp;V</td>
<td>Nausea and vomiting</td>
<td></td>
</tr>
<tr>
<td>O₂</td>
<td>Oxygen</td>
<td></td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Definition</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------</td>
<td></td>
</tr>
<tr>
<td>OD</td>
<td>Overdose</td>
<td></td>
</tr>
<tr>
<td>OPA</td>
<td>Oropharyngeal airway</td>
<td></td>
</tr>
<tr>
<td>OPQRST</td>
<td>Onset, Provoker(s), Quality, Radiation, Severity, Time</td>
<td></td>
</tr>
<tr>
<td>OTC</td>
<td>Over the counter</td>
<td></td>
</tr>
<tr>
<td>pac</td>
<td>After meal</td>
<td></td>
</tr>
<tr>
<td>PCN</td>
<td>Penicillin</td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td>Patient exam</td>
<td></td>
</tr>
<tr>
<td>PERRLA</td>
<td>Pupils equal, round, and reactive to light with accommodation</td>
<td></td>
</tr>
<tr>
<td>PMH</td>
<td>Past medical history</td>
<td></td>
</tr>
<tr>
<td>PMS</td>
<td>Pulse motor sensation</td>
<td></td>
</tr>
<tr>
<td>po</td>
<td>By mouth</td>
<td></td>
</tr>
<tr>
<td>prn</td>
<td>As needed</td>
<td></td>
</tr>
<tr>
<td>psi</td>
<td>Pounds per square inch</td>
<td></td>
</tr>
<tr>
<td>PSVT</td>
<td>Paroxysmal supraventricular tachycardia</td>
<td></td>
</tr>
<tr>
<td>Pt</td>
<td>Patient</td>
<td></td>
</tr>
<tr>
<td>PVC</td>
<td>Premature ventricular contraction</td>
<td></td>
</tr>
<tr>
<td>Px</td>
<td>Pain</td>
<td></td>
</tr>
<tr>
<td>q</td>
<td>Every</td>
<td></td>
</tr>
<tr>
<td>qd</td>
<td>Every day</td>
<td></td>
</tr>
<tr>
<td>qh</td>
<td>Every hour</td>
<td></td>
</tr>
<tr>
<td>qid</td>
<td>Four times a day</td>
<td></td>
</tr>
<tr>
<td>qod</td>
<td>Every other day</td>
<td></td>
</tr>
<tr>
<td>RLQ</td>
<td>Right lower quadrant</td>
<td></td>
</tr>
<tr>
<td>R/O</td>
<td>Rule out</td>
<td></td>
</tr>
<tr>
<td>ROM</td>
<td>Range of motion</td>
<td></td>
</tr>
<tr>
<td>RSI</td>
<td>Rapid sequence induction</td>
<td></td>
</tr>
<tr>
<td>RUQ</td>
<td>Right upper quadrant</td>
<td></td>
</tr>
<tr>
<td>Rx</td>
<td>Treatment given</td>
<td></td>
</tr>
<tr>
<td>s</td>
<td>Without</td>
<td></td>
</tr>
<tr>
<td>SAH</td>
<td>Subarachnoid hemorrhage</td>
<td></td>
</tr>
<tr>
<td>SAMPLE</td>
<td>Signs/Symptoms, Allergies, Medications, Pertinent part history, Last oral intake, Events leading to 911 call</td>
<td></td>
</tr>
<tr>
<td>SpO₂</td>
<td>Oxygen saturation</td>
<td></td>
</tr>
<tr>
<td>SC</td>
<td>Subcutaneous</td>
<td></td>
</tr>
<tr>
<td>SIDS</td>
<td>Sudden Infant Death Syndrome</td>
<td></td>
</tr>
<tr>
<td>SL</td>
<td>Sublingual</td>
<td></td>
</tr>
<tr>
<td>SOB</td>
<td>Shortness of breath</td>
<td></td>
</tr>
<tr>
<td>SQ</td>
<td>Subcutaneous</td>
<td></td>
</tr>
<tr>
<td>STHB</td>
<td>Said to have been</td>
<td></td>
</tr>
<tr>
<td>STHH</td>
<td>Said to have had</td>
<td></td>
</tr>
<tr>
<td>SVT</td>
<td>Supraventricular tachycardia</td>
<td></td>
</tr>
<tr>
<td>Sx</td>
<td>Symptoms</td>
<td></td>
</tr>
</tbody>
</table>
### Appendix F – Medical Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIA</td>
<td>Transient ischemic attack</td>
<td>VF</td>
<td>Ventricular fibrillation</td>
</tr>
<tr>
<td>tid</td>
<td>Three times a day</td>
<td>VS</td>
<td>Vital signs</td>
</tr>
<tr>
<td>TKO</td>
<td>To keep open</td>
<td>VT</td>
<td>Ventricular tachycardia</td>
</tr>
<tr>
<td>Tx</td>
<td>Transport</td>
<td>WMD</td>
<td>Weapon of mass destruction</td>
</tr>
<tr>
<td>URI</td>
<td>Upper respiratory infection</td>
<td>WPW</td>
<td>Wolff-Parkinson-White syndrome</td>
</tr>
<tr>
<td>UTI</td>
<td>Urinary tract infection</td>
<td>Y/O</td>
<td>Years old</td>
</tr>
</tbody>
</table>
## Appendix G – Medications

<table>
<thead>
<tr>
<th>Generic name</th>
<th>Other names</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activated Charcoal</td>
<td>Actidose®</td>
<td>G-2</td>
</tr>
<tr>
<td>Adenosine</td>
<td>Adenocard®</td>
<td>G-3</td>
</tr>
<tr>
<td>Albuterol</td>
<td>Proventil® and Ventolin®</td>
<td>G-4</td>
</tr>
<tr>
<td>Albuterol / Ipratropium</td>
<td>Duoneb</td>
<td>G-5</td>
</tr>
<tr>
<td>Amiodarone</td>
<td>Cordorone®</td>
<td>G-6</td>
</tr>
<tr>
<td>Aspirin</td>
<td>ASA</td>
<td>G-7</td>
</tr>
<tr>
<td>Atropine</td>
<td></td>
<td>G-8</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>Calcium</td>
<td>G-9</td>
</tr>
<tr>
<td>Dextrose</td>
<td>D50W</td>
<td>G-10</td>
</tr>
<tr>
<td>Diltiazem</td>
<td>Cardizem®</td>
<td>G-11</td>
</tr>
<tr>
<td>Diphenhydramine</td>
<td>Benadryl®</td>
<td>G-12</td>
</tr>
<tr>
<td>Dopamine</td>
<td></td>
<td>G-13</td>
</tr>
<tr>
<td>Epinephrine</td>
<td>Adrenalin®</td>
<td>G-14</td>
</tr>
<tr>
<td>Epinephrine Auto-injector</td>
<td>Epi-Pen® and Epi-Pen® Jr.</td>
<td>G-15</td>
</tr>
<tr>
<td>Etomidate</td>
<td>Amidate®</td>
<td>G-16</td>
</tr>
<tr>
<td>Fentanyl Citrate</td>
<td></td>
<td>G-17</td>
</tr>
<tr>
<td>Furosemide</td>
<td>Lasix®</td>
<td>G-18</td>
</tr>
<tr>
<td>Glucose</td>
<td>Glucose® and Insta-glucose®</td>
<td>G-19</td>
</tr>
<tr>
<td>Glucagon</td>
<td></td>
<td>G-20</td>
</tr>
<tr>
<td>Lidocaine</td>
<td></td>
<td>G-21</td>
</tr>
<tr>
<td>Magnesium Sulfate</td>
<td></td>
<td>G-22</td>
</tr>
<tr>
<td>Methylprednisone</td>
<td>Solu-Medrol®</td>
<td>G-23</td>
</tr>
<tr>
<td>Midazolam</td>
<td>Versed®</td>
<td>G-24</td>
</tr>
<tr>
<td>Naloxone</td>
<td>Narcan®</td>
<td>G-25</td>
</tr>
<tr>
<td>Nitroglycerin</td>
<td></td>
<td>G-26</td>
</tr>
<tr>
<td>Nitroglycerin Ointment</td>
<td></td>
<td>G-27</td>
</tr>
<tr>
<td>Normal Saline</td>
<td></td>
<td>G-28</td>
</tr>
<tr>
<td>Oxygen</td>
<td></td>
<td>G-29</td>
</tr>
<tr>
<td>Ondametron</td>
<td>Zofran®</td>
<td>G-30</td>
</tr>
<tr>
<td>Promethazine</td>
<td>Phenergan®</td>
<td>G-31</td>
</tr>
<tr>
<td>Proparacaine</td>
<td>Alcaine®, Opthaine®, Opthetic®</td>
<td>G-32</td>
</tr>
<tr>
<td>Sodium Bicarbonate</td>
<td></td>
<td>G-33</td>
</tr>
<tr>
<td>Succinylcholine</td>
<td>Anectine®, Quelicin®</td>
<td>G-34</td>
</tr>
<tr>
<td>Thiamine</td>
<td></td>
<td>G-35</td>
</tr>
<tr>
<td>Vasopressin</td>
<td>Pitressin®</td>
<td>G-36</td>
</tr>
<tr>
<td>Vecuronium</td>
<td>Norcuron®</td>
<td>G-37</td>
</tr>
</tbody>
</table>

Bold indicates an ALS-only medication
# Activated Charcoal

<table>
<thead>
<tr>
<th>Other names:</th>
<th>Actidose®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class:</td>
<td>Antidote</td>
</tr>
<tr>
<td>Indications:</td>
<td>Treatment of patient who has ingested poisons by mouth, when recommended by the Washington Poison Center</td>
</tr>
<tr>
<td>Contraindications:</td>
<td>Relative (without NG tube): Absent gag, unconscious patient, potential sedation from suspected overdose</td>
</tr>
<tr>
<td>Precautions/adverse reactions:</td>
<td>Does not absorb iron, lithium, inorganic ions, ethanol, methanol, or cyanide</td>
</tr>
<tr>
<td>Suggested dosage:</td>
<td></td>
</tr>
<tr>
<td>Adults</td>
<td>• 50 g PO/NG</td>
</tr>
<tr>
<td>Pediatric</td>
<td>• Less than 12 y/o: 1 g/kg</td>
</tr>
</tbody>
</table>
# Adenosine

| Other names: | Adenocard® |
| Class: | Anti-dysrhythmic |
| Indications: | Narrow complex SVT |
| Contraindications: | Wide complex tachycardia, second- and third-degree AV block, sick sinus syndrome; caution in patients with asthma and COPD |
| Precautions/adverse reactions: | Severe bradycardia, VF, VT, afib, asystole, complete heart block, bronchospasm; will cause temporary sinus arrest or block in many patients and general transient ill feeling |
| Suggested dosage: | |

- **Adults**
  - 6 mg rapid IV bolus; if no response, may repeat with 12 mg after 1-2 minutes

- **Pediatric**
  - 0.1 mg/kg repeat once as needed at 0.2 mg/kg IV (maximum single dose would be 0.3 mg/kg or 12 mg)
**Other names:** Proventil®, Ventolin®

**Class:** Adrenergic beta-2 agonist

**Indications:**
- Treatment of moderate to severe bronchospasm
- Repeat treatments as needed for symptoms of respiratory distress
- *Signs and symptoms of hyperkalemia*

**Contraindications:** None

**Precautions/adverse reactions:** Arrhythmias, tachycardia, severe chest discomfort

**Suggested dosage:**

- **Adults**
  - *Nebulized initial dose* – 5 mg
  - *Repeat as needed*
  - *MDI via BiPAP®*: 5 puffs, repeat as necessary up to 20 puffs
  - *Nebulized – 10 mg added to 1 ml of sterile saline (hyperkalemia dose)*

- **Pediatric**
  - *Nebulized – 2.5 mg in 2.5 ml of saline if less than 2 y/o;*

**EMT notes:**
- EMTs are allowed to assist with metered dose inhaler (see “Metered Dose Inhaler (MDI) assist,” Appendix J)
  - Indications: Patient believes symptoms are related to asthma or COPD
  - Shortness of breath following epinephrine admin for allergic reaction
- If a patient has a home nebulizer machine and albuterol, the EMT may assist the patient with use of the machine in place of an MDI. Once the patient has a nebulizer set up, the EMT should connect it to an oxygen source at 6 lpm.
Albuterol / Ipratropium

Other names: Duoneb®, Combivent®

Class: Beta-agonist/anticholinergic combination, bronchodilator

Indications: Initial treatment of moderate to severe bronchospasm

Contraindications: None

Precautions/adverse reactions: Arrhythmias, tachycardia, severe chest discomfort

Suggested dosage:

- Adults/Pediatric
  - 3 ml vial in nebulizer, may repeat as needed for persistent respiratory distress
  - MDI via BiPAP®: 5 puffs
## Amiodarone

<table>
<thead>
<tr>
<th>Other names:</th>
<th>Cordarone®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class:</td>
<td>Anti-dysrhythmic</td>
</tr>
<tr>
<td>Indications:</td>
<td>For patients with recurrent VF or pulseless VT after one dose of lidocaine</td>
</tr>
<tr>
<td>Contraindications:</td>
<td>Second- and third-degree AV block</td>
</tr>
<tr>
<td>Precautions/ adverse reactions:</td>
<td>None</td>
</tr>
</tbody>
</table>

### Suggested dosage:

- **Adults**
  - 300 mg IV push for pulseless VT/VF
  - 150 mg IV piggyback for stable VT
- **Pediatric**
  - Contraindicated
| Other names: | Generic |
| Class: | Anti-platelet, non-narcotic analgesic, non-steroidal anti-inflammatory, antipyretic |
| Indications: | Signs and/or symptoms of acute coronary syndrome |
| Contraindications: | Allergy to Aspirin  
Patient has taken Aspirin just prior to arrival of EMS |
| Precautions/ adverse reactions: | None |
| Suggested dosage: |  |
| Adults | 325 mg PO chewed |
| Pediatric | Not indicated |
Atropine

Other names: Generic

Class: Anticholinergic parasympatholytic

Indications:
- Symptomatic bradycardia
- Pre-medication for pediatric RSI
- Organophosphate poisoning
- Cholinergic poisoning (e.g. mushrooms)

Contraindications: HR: greater than 180

Precautions/ adverse reactions: Tachycardia, nausea, ventricular ectopy

Suggested dosage:

**Adults**
- Bradycardia – 0.5-1.0 mg IV; repeat as needed every 3-5 minutes up to 0.04 mg/kg or 3.0 mg
- Organophosphate poisoning/cholinergic poisoning – cascade dose
  1.0 mg IVP, then
  2.0 mg IVP, then
  5.0 mg IVP, then
  10.0 mg IVP
  Escalate the dose every 10 minutes until respiratory secretions dry up

**Pediatric**
- 0.02 mg/kg (minimum 0.1 mg) may repeat once
- 0.01 mg/kg (minimum 0.1 mg, maximum 0.5 mg) for pre-medication in RSI
- Refer to length-based resuscitation tape
# Calcium Chloride 10%

**Other names:** Generic

**Class:** Electrolyte replacement

**Indications:**
- Idioventricular block or ventricular arrhythmia thought to be secondary to hyperkalemia
- Hypotension associated with calcium channel blocker use
- Hydrofluoric acid burns (call supervising physician for administration regimen)
- Antidote for magnesium-caused respiratory depression
- Hypocalcemia with tetany

**Contraindications:** Ventricular fibrillation, digitalis toxicity, hypercalcemia

**Precautions/adverse reactions:**
- Shortened QT, heart block, hypotension, bradycardia, dysrhythmias, cardiac arrest; can potentiate toxicity of digitalis on the heart

**Suggested dosage:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adults</strong></td>
<td>500 mg slow IVP (1 ml/min)</td>
</tr>
<tr>
<td></td>
<td>IV push during cardiac arrest</td>
</tr>
<tr>
<td></td>
<td>100 mg IV push for hypotension associated with diltiazem use</td>
</tr>
<tr>
<td><strong>Pediatric</strong></td>
<td>10-20 mg/kg (max 500 mg or 1 ml/min slow IVP)</td>
</tr>
<tr>
<td></td>
<td>Refer to length-based resuscitation tape for dose</td>
</tr>
</tbody>
</table>
# Dextrose 50%

<table>
<thead>
<tr>
<th>Other names:</th>
<th>$D_{50}W$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class:</td>
<td>Caloric</td>
</tr>
<tr>
<td>Indications:</td>
<td>Symptomatic hypoglycemia</td>
</tr>
<tr>
<td>Contraindications:</td>
<td>Hyperglycemia, delirium tremens</td>
</tr>
<tr>
<td>Precautions/adverse reactions:</td>
<td>Pre-treat hypoglycemic alcoholic patients with thiamine</td>
</tr>
</tbody>
</table>

## Suggested dosage:

<table>
<thead>
<tr>
<th>Adults</th>
<th>25 g 50% solution IVP; repeat if blood glucose remains less than 60 mg/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatric</td>
<td>1 g/kg 25% solution IVP (1:1 $D_{50}W$:NS)</td>
</tr>
<tr>
<td></td>
<td>1 g/kg 10% solution IVP (1:4 $D_{50}W$:NS) for neonate</td>
</tr>
<tr>
<td></td>
<td>Refer to length-based resuscitation tape for dosing</td>
</tr>
</tbody>
</table>
Diltiazem

Other names: Cardizem®

Class: Calcium channel blocker

Indications:  
- Narrow complex tachycardia  
- Atrial fibrillation, flutter or PAT

Contraindications:  
- Wide complex SVT  
- Known WPW disease  
- Second- or third-degree heart block  
- BP less than 90 mmHg systolic  
- Acute MI  
- Pulmonary congestion

Precautions/ adverse reactions: Hypotension, arrhythmias, CHF

Suggested dosage:

- **Adults**  
  - 10-25 mg for initial dose; if unsuccessful after 10 mins follow-up 10 mg IVP

- **Pediatric**  
  - Not used for tachycardia in pediatric patients
<table>
<thead>
<tr>
<th>Other names:</th>
<th>Benadryl®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class:</td>
<td>Antihistamine</td>
</tr>
</tbody>
</table>
| Indications: | • Anaphylaxis  
• Allergic reaction with hives  
• Dystonia  
• Akathisia caused by droperidol |
| Contraindications: | Anticholinergic poisoning |
| Precautions/ adverse reactions: | Drowsiness, dilated pupils, tinnitus, dry mouth |
| Suggested dosage: | |
| Adults | • 25-50 mg IV or IM (anaphylaxis, EPS) |
| Pediatric | • 1 mg/kg IV or IM |
Dopamine

Other names: Generic

Class: Vasopressor

Indications: • Cardiogenic shock
• Other non-hypovolemic shock syndromes
• Bradycardia with serious signs and symptoms

Contraindications: Ventricular fibrillation, tachydysrhythmias, pheochromocytoma

Precautions/adverse reactions: May cause ischemia in patients with peripheral vascular disease.
Reduce dose by half in patients with significant renal disease.

Suggested dosage:

- Adults • Prepare by mixing 400 mg in 250 ml NS
  • 2-5 X mcg/kg/min increased by 5 X mcg/kg/min, until systolic BP greater than 90 mmHg

- Pediatric • 5-20 X mcg/kg/min IV
# Epinephrine

<table>
<thead>
<tr>
<th>Other names:</th>
<th>Adrenalin®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class:</td>
<td>Adrenergic</td>
</tr>
</tbody>
</table>
| Indications: | 1:1,000 – Respiratory distress or shock due to anaphylactic respiratory distress or shock; severe bronchospasm  
1:10,000 – Asystole, PEA, VF, pulseless VT, pediatric bradycardia  
Croup |
| Contraindications: | None |
| Precautions/ adverse reactions: | BP greater than 180 mmHg systolic  
HR greater than 160  
May cause cardiac ischemia in the elderly or patients with known coronary artery disease  
Tachycardia |
| Suggested dosage: |  
**Adults**  
Cardiac arrest: IV, IO 1:10,000 1.0 mg  
Anaphylaxis:  
IM I:1,000 0.3 mg or Epi-Pen® or IV or SVN, 0.3-0.5 mg (3-5 ml 1:10,000)  
Drip IV, IO 4-8 mcg/min (1 mg in 250 ml of saline = 4 microgram/ml)  
**Pediatric**  
Cardiac arrest: IV, IO 0.01 mg/kg (refer to length-based resuscitation tape) |
Epinephrine Auto-injector
Epi-Pen®, Epi-Pen® Jr.

Other names: Epinephrine

Class: Adrenergic

Indications:
- Patient is displaying signs or symptoms of anaphylaxis: respiratory distress OR shock (hypotension) OR difficult swallowing (throat edema), and consents to treatment
- Epi-Pen® Jr. is indicated in patients less than 30 kg (66 pounds)

Precautions/adverse reactions:
- Increased blood pressure
- Tachycardia
- May cause cardiac ischemia in the elderly or patients with known coronary artery disease

Suggested dosage:

- Adults: 0.3 mg Epi-Pen®
- Pediatric: 0.15 mg Epi-Pen® Jr.
# Etomidate

<table>
<thead>
<tr>
<th>Other names:</th>
<th>Amidate®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class:</td>
<td>General anesthetic</td>
</tr>
</tbody>
</table>
| Indications: | - Given as an induction agent prior to succinylcholine during RSI  
- Sedation prior to cardioversion |
| Contraindications: | None in emergent settings |
| Precautions/adverse reactions: | Caution in elderly patients, shock, apnea, nausea, vomiting |

**Suggested dosage:**

| Adults | Procedural sedation: 0.15 mg/kg IV given over 30-60 seconds; may repeat X 1 if adequate sedation does not occur within 2 minutes  
- RSI: 0.30 mg/kg IV |
| Pediatric | Not recommended in children under 10 y/o |
**Fentanyl Citrate**

**Other names:** Generic

**Class:** Narcotic analgesic

**Indications:** Severe pain

**Contraindications:**
- Systolic BP < 90
- Altered LOC in the setting of head injury

**Precautions/adverse reactions:**
- Consider decreasing dose in patients with evidence of alcohol or sedative intoxication
- Consider decreasing dose (0.5 microgram/kg) in elderly or chronically ill patients
- Consider increasing dose in patients who use narcotics chronically

**Suggested dosage:**

- **Adults**
  - 50-100 micrograms IV or SVN
  - Repeat every 3-5 min as needed to 300 mg

- **Pediatric**
  - 1 microgram/kg IV or SVN: consult supervising physician for repeat dosing

**Notes:**
- If greater than three doses of fentanyl necessary, contact with supervising physician is mandatory
- All patients receiving fentanyl will have continuous oxygen SPOs and q 5 minute BPs recorded on the LP-12 and attach to the patient report
## Furosemide

<table>
<thead>
<tr>
<th><strong>Other names:</strong></th>
<th>Lasix®</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class:</strong></td>
<td>Loop diuretic</td>
</tr>
</tbody>
</table>
| **Indications:** | • CHF  
|                  | • Pulmonary edema  
|                  | • Hypertension (diastolic greater than 120 mmHg) with volume overload |
| **Contraindications:** | Hepatic coma, suspected electrolyte disturbances, hypotension, patients with allergies to sulfonamides |
| **Precautions/ adverse reactions:** | Efficiency goes down in patients with renal failure |

<table>
<thead>
<tr>
<th><strong>Suggested dosage:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adults</strong></td>
</tr>
<tr>
<td><strong>Pediatric</strong></td>
</tr>
</tbody>
</table>
### Glucose

<table>
<thead>
<tr>
<th>Other names:</th>
<th>Glucose®, Insta-glucose®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class:</td>
<td>Caloric</td>
</tr>
<tr>
<td>Indications:</td>
<td>Suspected or confirmed symptomatic hypoglycemia</td>
</tr>
<tr>
<td>Contraindications:</td>
<td>Patient unable to swallow</td>
</tr>
<tr>
<td>Precautions/ adverse reactions:</td>
<td>Use caution to prevent aspiration of the glucose paste</td>
</tr>
<tr>
<td>Procedure:</td>
<td>Place paste between cheek and gum. Continuously assess patient’s ability to protect his/her airway.</td>
</tr>
<tr>
<td>Suggested dosage:</td>
<td>1 tube</td>
</tr>
</tbody>
</table>

**Notes:** Following administration, check blood glucose levels and ensure patient is able to maintain a continued oral intake of carbohydrates balanced with protein.
# Glucagon

<table>
<thead>
<tr>
<th>Other names:</th>
<th>Generic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class:</td>
<td>Endocrine</td>
</tr>
</tbody>
</table>
| Indications:   | - Hypoglycemia with an inability to establish IV access  
                 - Anaphylaxis when epinephrine is relatively contraindicated by age or known cardiac disease  
                 - Ca++ blocker toxicity (contact supervising physician for dosing regimen)  
                 - Beta blocker toxicity (contact supervising physician for dosing regimen) |
| Contraindications: | None |
| Precautions/ adverse reactions: | - Short half-life; hypoglycemia may return  
                           - When giving glucagon IV, administer Zofran® concurrently |
| Suggested dosage: |  
                     - Adults: 1.0 mg IV/IM/SQ; may repeat in 5 min  
                     - Pediatric: 0.025 - 0.1 mg/kg IV/IM/SQ every 20 min (max 1 mg/dose) |
# Lidocaine

<table>
<thead>
<tr>
<th>Other names:</th>
<th>Generic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class:</td>
<td>Anti-dysrhythmic</td>
</tr>
</tbody>
</table>
| Indications:     | - Pulseless VF/VT (primary agent)  
|                  | - Stable VT  
|                  | - Wide-complex tachycardia of uncertain type  
|                  | - Airway irritation from chemical irritant |
| Contraindications: | Narrow-complex SVT, heart block, WPW, atrial fibrillation with rapid aberrant ventricular response |
| Precautions/ adverse reactions: | - Use 0.75 mg/kg in CHF, greater than 70 y/o or if patient presents with acute jaundice  
|                  | - Seizures  
|                  | - Confusion |
| Suggested dosage: |  
| Adults            | - Initial dose: 1.5 mg/kg IV  
|                  | - Maintenance: 2 mg/min IV piggyback drip  
|                  | - Nebulized: 2.5 ml (50 mg) of 2%  
| Pediatric         | - 1.0 mg/kg IV;  
|                  | - Refer to length-based resuscitation tape |
## Magnesium Sulfate

<table>
<thead>
<tr>
<th>Other names:</th>
<th>Generic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class:</td>
<td>Anti-convulsant, mineral</td>
</tr>
<tr>
<td>Indications:</td>
<td>• Torsades des pointes</td>
</tr>
<tr>
<td></td>
<td>• VF refractory to lidocaine</td>
</tr>
<tr>
<td></td>
<td>• Eclampsia</td>
</tr>
<tr>
<td></td>
<td>• Severe asthma</td>
</tr>
<tr>
<td>Contraindications:</td>
<td>Renal impairment, heart block, patients treated with paralytic agents</td>
</tr>
<tr>
<td>Precautions/adverse reactions:</td>
<td>Will lower calcium; observe for hypotension, paralysis and CNS depression; will tend to reverse the effect of digitalis, pulmonary edema</td>
</tr>
<tr>
<td>Suggested dosage:</td>
<td>Adults</td>
</tr>
<tr>
<td></td>
<td>• Eclampsia: 4 g diluted with NS to 20 ml given IV over 4 minutes</td>
</tr>
<tr>
<td></td>
<td>• Cardiac arrest: 2 g diluted with NS to 20 ml given rapid IVP</td>
</tr>
<tr>
<td></td>
<td>• Asthma/torsades des pointes: 2 g diluted with NS to 20 ml given IV over 5-20 minutes</td>
</tr>
<tr>
<td></td>
<td>Pediatric</td>
</tr>
<tr>
<td></td>
<td>• Not indicated for pediatric patients</td>
</tr>
</tbody>
</table>
Methylprednisolone

Other names: Solu-Medrol®

Class: Glucorticoid

Indications:
- Adrenal insufficiency
- Secondary treatment of moderate to severe bronchospasm
- Allergic reactions

Contraindications:
Known hypersensitivity to the product or its constituents

Precautions/adverse reactions:
None in emergent setting

Suggested dosage:

- **Adults**
  - Unit dose: 125 mg IV

- **Pediatric (12 years or less)**
  - Unit dose: 62.5 mg IV
Midazolam

Other names: Versed®

Class: Benzodiazepine

Indications: • Status seizures
               • Sedation

Contraindications: None in emergent setting

Precautions/ adverse reactions: Respiratory depression, hypotension – especially when mixed with narcotics, alcohol, or other benzodiazepines

Suggested dosage:

   Adults  • Seizure control: 2.0 mg IV, repeat q 2-3 mins to max of 10 mg
             • Seizure control: 5 mg IM or IN
             • Procedural sedation: 5 mg IV, then 2 mg prn
             • Sedation of agitated patient: 10 mg IM or IN

   Pediatric • Seizure control: 0.1 mg/kg IV; repeat q 3 min to max 5 mg
                • Seizure control: 0.2 mg/kg IM or IN, repeat q 3 min to max 10 mg
                • Procedural sedation: 0.2 mg/kg IV, then 0.1 mg/kg prn
# Naloxone

Other names: Narcan®

Class: Narcotic antagonist

Indications: Narcotic overdose

Contraindications: Neonate with possible drug dependence

Precautions/adverse reactions: May need to use larger dose for overdoses

Suggested dosage:

<table>
<thead>
<tr>
<th>Category</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>0.4-2.0 mg IV/ET/IM SL</td>
</tr>
<tr>
<td></td>
<td>0.1 mg/kg</td>
</tr>
<tr>
<td>Pediatric</td>
<td>Refer to length-based resuscitation tape for proper weight-based dosing</td>
</tr>
</tbody>
</table>
# Nitroglycerin

<table>
<thead>
<tr>
<th>Other names:</th>
<th>Nitrotab®, Nitrostat®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class:</td>
<td>Vasodilator, anti-anginal</td>
</tr>
</tbody>
</table>
| Indications:| - Chest discomfort from ACS  
- Symptoms similar to previous cardiac event  
- Hypertensive pulmonary edema |
| Contraindications: | Patients taking Viagra® or Cialis® or Levitra® in past 48 hours  
Severe bradycardia (HR<50/min)  
Tachycardia (HR>100/min)  
BP less than 100 mmHg systolic |
| Precautions/ adverse reactions: | Hypotension, headache |
| Suggested dosage: |  
| Adults | 0.4 mg q 3 min until pain relief |
| Pediatric | Not indicated for pediatric patients |
Nitroglycerin Ointment

Other names: Nitrobid®

Class: Vasodilator, anti-anginal

Indications: Symptoms suggestive of ACS or CHF
- Symptoms similar to previous cardiac event
- Atypical ACS symptoms
- Hypertensive pulmonary edema

Contraindications: Patients taking Viagra® or Cialis® or Levitra® in past 48 hours
- Severe bradycardia (HR<50/min)
- Tachycardia (HR>100/min)
- BP less than 100 mmHg systolic

Precautions/ adverse reactions: Hypotension (additive effect with ETOH and calcium channel blockers), tachycardia, headache

Suggested dosage: Apply as soon as possible along with first sublingual nitro

- Adults:
  - ACS: 1 inch; if pain remains after 10 minutes and systolic BP remains above 100 mmHg, increase to 2 inches
  - CHF: 1 inch; if systolic BP remains above 100 mmHg after 10 minutes, increase to 2 inches

- Pediatric: Not indicated for pediatric patients
**Normal Saline**

<table>
<thead>
<tr>
<th>Other names:</th>
<th>0.9% sodium chloride in sterile water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class:</td>
<td>Isotonic crystalloid</td>
</tr>
<tr>
<td>Indications:</td>
<td>- Hypovolemic shock</td>
</tr>
<tr>
<td></td>
<td>- Diabetic coma</td>
</tr>
<tr>
<td></td>
<td>- Burns</td>
</tr>
<tr>
<td></td>
<td>- Lactic acidosis</td>
</tr>
<tr>
<td></td>
<td>- Post cardiac arrest</td>
</tr>
<tr>
<td>Contraindications:</td>
<td>Pulmonary edema</td>
</tr>
<tr>
<td>Precautions/ adverse reactions:</td>
<td>Monitor patient for signs and symptoms of fluid overload</td>
</tr>
</tbody>
</table>

**Suggested dosage:**

<table>
<thead>
<tr>
<th>Adults</th>
<th>Bolus per patient status, then TKO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatric</td>
<td>Bolus 20 ml/kg, then re-evaluate; repeat x 2 prn, TKO after patient stabilizes</td>
</tr>
<tr>
<td>Other names:</td>
<td>Generic</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Class:</td>
<td>Oxidizer</td>
</tr>
<tr>
<td>Indications:</td>
<td>Patients with symptoms of shock, respiratory distress, respiratory arrest</td>
</tr>
<tr>
<td>Contraindications:</td>
<td>None</td>
</tr>
<tr>
<td>Precautions/ adverse reactions:</td>
<td>None</td>
</tr>
<tr>
<td>Suggested dosage:</td>
<td>• 2-4 lpm via nasal cannula, 8-15 lpm via non-breather mask, 15-25 lpm via bag valve mask</td>
</tr>
</tbody>
</table>
Ondansetron

Other names: Zofran®

Class: Anti-emetic

Indications: Nausea, vomiting

Contraindications: Medication allergy

Precautions/adverse reactions: Caution in liver dysfunction

Suggested dosage:

- Adults: 4 mg IV, may repeat in 5 min if needed
- Pediatric: 0.1 mg/kg to max 4 mg
# Promethazine

**Other names:** Phenergan®

**Class:** Anti-emetic

**Indications:**
- Vomiting as a primary problem
- Vomiting associated with the use of medications such as fentanyl and glucagon

**Contraindications:** Age less than 2 years

**Precautions/adverse reactions:** Dystonia, sedation; consider lower end of dosing range in elderly patients

**Suggested dosage:**

<table>
<thead>
<tr>
<th>Group</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>6.25-12.5 mg IV (lower dose in elderly), repeat once as needed; always dilute in 10 ml saline</td>
</tr>
<tr>
<td></td>
<td>12.5-25 mg IM</td>
</tr>
<tr>
<td>Pediatric</td>
<td>0.25 mg/kg IV (diluted in 10 ml saline) up to adult dose</td>
</tr>
<tr>
<td></td>
<td>0.50 mg/kg IM (up to adult dose)</td>
</tr>
</tbody>
</table>
## Proparacaine

<table>
<thead>
<tr>
<th>Other names:</th>
<th>Alcaine® and Opthetic® and Ophaine®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class:</td>
<td>Anesthetic</td>
</tr>
<tr>
<td>Indications:</td>
<td>Temporary ophthalmic anesthesia for eye injuries</td>
</tr>
<tr>
<td>Contraindications:</td>
<td>None</td>
</tr>
<tr>
<td>Precautions/adverse reactions:</td>
<td>None</td>
</tr>
<tr>
<td>Suggested dosage:</td>
<td></td>
</tr>
</tbody>
</table>

- **Adults**: 2 drops/eye as needed
- **Pediatric**: Do not use
Sodium Bicarbonate

Other names: Generic

Class: Electrolyte (acid/base)

Indications: • Tricyclic antidepressant overdose
• May be indicated for dialysis patients in cardiac arrest to treat hyperkalemia
• Hyperkalemia: use in conjunction with calcium and albuterol (consult supervising physician)

Contraindications: Hypertension, hypertensive pulmonary edema

Precautions/adverse reactions: None

Suggested dosage:

  Adults • 1 mEq/kg IV

  Pediatric • Refer to length-based resuscitation tape
Succinyllcholine

Other names: Anectine® and Quelicin®

Class: Neuromuscular blocker

Indications: Intubation in patients with intact gag reflex or whose degree of pharyngeal muscle tone prevents intubation

Contraindications: Hyperkalemia, personal or family history of malignant hyperthermia, pseudocholinesterase deficiency, organophosphate poisoning

Precautions/adverse reactions:
- Very thick or short neck, severe arthritis of neck with minimal mobility, known anatomical deformities, history of throat cancer, non-arrested croup or epiglottis
- Neuromuscular disorders (e.g. myasthenia gravis, muscular dystrophy, Lou Gehrig's disease), glaucoma, stroke, paraplegia, quadriplegia, or subacute trauma (burns or other in previous 3 to 10 days)

Suggested dosage:

- Adults: 1.5-2.0 mg/kg IV
- Pediatric: Refer to length-based resuscitation tape
**Thiamine**

<table>
<thead>
<tr>
<th>Other names:</th>
<th>Vitamin B1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class:</td>
<td>Vitamin</td>
</tr>
<tr>
<td>Indications:</td>
<td>Hypoglycemic patients with a history of alcoholism; given prior to the administration of dextrose</td>
</tr>
<tr>
<td>Contraindications:</td>
<td>None</td>
</tr>
<tr>
<td>Precautions/adverse reactions:</td>
<td>None</td>
</tr>
<tr>
<td>Suggested dosage:</td>
<td></td>
</tr>
<tr>
<td>Adults</td>
<td>• 100 mg IV/IM</td>
</tr>
<tr>
<td>Pediatric</td>
<td>• Not indicated for pediatric patients</td>
</tr>
</tbody>
</table>
# Vasopressin

## Other names:
- Pitressin®

## Class:
- Endocrine

## Indications:
- VF, pulseless VT

## Contraindications:
- None in the setting of cardiac arrest

## Precautions/ adverse reactions:
- None

## Suggested dosage:

<table>
<thead>
<tr>
<th>Category</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>40 units IV, may repeat once after 20 minutes as substitute for epinephrine in cardiac arrest</td>
</tr>
<tr>
<td>Pediatric</td>
<td>Not indicated for pediatric patients</td>
</tr>
</tbody>
</table>
# Vecuronium

<table>
<thead>
<tr>
<th>Other names:</th>
<th>Norcuron®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class:</td>
<td>Neuromuscular blocker</td>
</tr>
</tbody>
</table>
| Indications: | - Prolonged transport times (greater than 15 min) of intubated patients who are combative enough to extubate themselves or otherwise harm themselves  
              - Defasciculating agent in RSI |
| Contraindications: | Hypersensitivity to vecuronium or bromides |
| Precautions/ adverse reactions: | Respiratory insufficiency, apnea, skeletal muscle weakness, profound and prolonged skeletal muscle paralysis |
| Suggested dosage: |  
  Adults - Sustained paralysis: 0.1 mg/kg IV  
                - Defasciculating dose: 0.01 mg/kg IV  
  Pediatric - Refer to length-based resuscitation tape |
Appendix H – Tools for EMS Providers

I. Normal vital signs

<table>
<thead>
<tr>
<th>AGE</th>
<th>PULSE</th>
<th>RESPIRATIONS</th>
<th>BLOOD PRESSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>AVERAGE SYSTOLIC</td>
</tr>
<tr>
<td>Newborn (1-28 days)</td>
<td>110-150</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>3 months</td>
<td>110-140</td>
<td>40</td>
<td>90</td>
</tr>
<tr>
<td>6-12 months</td>
<td>100-140</td>
<td>40</td>
<td>90</td>
</tr>
<tr>
<td>1 year</td>
<td>100-140</td>
<td>26</td>
<td>90</td>
</tr>
<tr>
<td>2 years</td>
<td>90-100</td>
<td>20</td>
<td>98</td>
</tr>
<tr>
<td>3-5 years</td>
<td>80-100</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>10 years</td>
<td>70-100</td>
<td>16</td>
<td>114</td>
</tr>
<tr>
<td>Adolescent</td>
<td>70-100</td>
<td>12</td>
<td>118</td>
</tr>
<tr>
<td>Adult</td>
<td>60-100</td>
<td>12</td>
<td>120</td>
</tr>
</tbody>
</table>

II. Rule of Nines for burn victims
Use in the field to make a rough estimate of body surface.

<table>
<thead>
<tr>
<th>AREA OF THE BODY</th>
<th>ADULT</th>
<th>CHILD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head and neck</td>
<td>9 percent</td>
<td>18 percent</td>
</tr>
<tr>
<td>Entire arm, each</td>
<td>9 percent</td>
<td>9 percent</td>
</tr>
<tr>
<td>Chest</td>
<td>9 percent</td>
<td>9 percent</td>
</tr>
<tr>
<td>Abdomen</td>
<td>9 percent</td>
<td>9 percent</td>
</tr>
<tr>
<td>Upper back</td>
<td>9 percent</td>
<td>9 percent</td>
</tr>
<tr>
<td>Lower back and buttocks</td>
<td>9 percent</td>
<td>9 percent</td>
</tr>
<tr>
<td>Front of leg, each</td>
<td>9 percent</td>
<td>9 percent</td>
</tr>
<tr>
<td>Back of leg, each</td>
<td>9 percent</td>
<td>9 percent</td>
</tr>
<tr>
<td>Genitalia</td>
<td>1 percent</td>
<td>1 percent</td>
</tr>
</tbody>
</table>

Entire back is 18 percent
Entire leg is 14 percent

Note that the phrase “GCS of 11” essentially is meaningless; it is important to break the figure down into its components, such as E3V3M5 = GCS 11.

A GCS or PGCS score of 13 or higher correlates with a mild brain injury, 9 to 12 is a moderate injury and 8 or less is a severe brain injury.
III. APGAR score for newborns
The baby’s APGAR score should be noted at 1 and 5 minutes after delivery.

<table>
<thead>
<tr>
<th>Clinical sign</th>
<th>0 points</th>
<th>1 point</th>
<th>2 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Blue, pale</td>
<td>Body pink</td>
<td>Totally pink</td>
</tr>
<tr>
<td>Pulse</td>
<td>Absent</td>
<td>Below 100</td>
<td>Above 100</td>
</tr>
<tr>
<td>Grimace</td>
<td>No response</td>
<td>Grimaces</td>
<td>Cries</td>
</tr>
<tr>
<td>Activity</td>
<td>Limp</td>
<td>Some flexion</td>
<td>Active motion</td>
</tr>
<tr>
<td>Respiratory</td>
<td>Absent</td>
<td>Slow, irregular</td>
<td>Good cry</td>
</tr>
</tbody>
</table>

IV. Glasgow Coma Scale and Pediatric Glasgow Coma Scale
The GCS is scored between 3 and 15, 3 being the worst and 15 the best. A patient’s score comprises three parameters: Best Eye Response, Best Verbal Response, and Best Motor Response, as given below.

<table>
<thead>
<tr>
<th>ADULTS</th>
<th>1 point</th>
<th>2 points</th>
<th>3 points</th>
<th>4 points</th>
<th>5 points</th>
<th>6 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Eye Response (4)</td>
<td>No eye opening</td>
<td>Eye opens to pain</td>
<td>Eye opens to verbal command</td>
<td>Eyes open spontaneously</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Best Verbal Response (5)</td>
<td>No verbal response</td>
<td>Incomprehensible sounds</td>
<td>Inappropriate words</td>
<td>Confused</td>
<td>Oriented</td>
<td>–</td>
</tr>
<tr>
<td>Best Motor Response (6)</td>
<td>No motor response</td>
<td>Extension to pain</td>
<td>Flexion to pain</td>
<td>Withdrawal from pain</td>
<td>Localizing pain</td>
<td>Obeys commands</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PEDS</th>
<th>1 point</th>
<th>2 points</th>
<th>3 points</th>
<th>4 points</th>
<th>5 points</th>
<th>6 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Eye Response (4)</td>
<td>No eye opening</td>
<td>Eye opens to pain</td>
<td>Eye opens to speech</td>
<td>Eyes open spontaneously</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Best Verbal Response (5)</td>
<td>No verbal response</td>
<td>Infant moans to pain</td>
<td>Infant cries to pain</td>
<td>Infant is irritable and continually cries</td>
<td>Infant coos or babbles (normal activity)</td>
<td>–</td>
</tr>
<tr>
<td>Best Motor Response (6)</td>
<td>No motor response</td>
<td>Extension to pain (decerebrate response)</td>
<td>Abnormal flexion to pain for an infant (decorticate response)</td>
<td>Infant withdraws from pain</td>
<td>Infant withdraws from touch</td>
<td>Infant moves spontaneously or purposefully</td>
</tr>
</tbody>
</table>
Appendix I – Pre-hospital Verbal Communications

1. BLS short report format to incoming ALS unit:
   - Unit identification
   - Age and sex of patient
   - Chief complaint
   - Very brief pertinent medical history (1-2 sentences if possible)
   - Vital signs
   - Pertinent treatment rendered

All reports should be given in this format and should be less than 30 seconds. If a BLS unit is recommending the cancellation of an ALS unit, the report may require additional details but still should be completed in less than 60 seconds.

2. Hospital notification report format:
   - Unit identification
   - Age and sex of patient
   - Name of the patient*
   - Patient’s primary care physician
   - Chief complaint or reason for transport
   - Very brief pertinent medical history (1-2 sentences if possible)
   - Vital signs
   - Pertinent treatment rendered
   - Estimated time of arrival (ETA)

All reports should be given in this format and should be less than 60 seconds.

*Patients’ names should not be transmitted over the HEAR.

3. Verbal report to emergency department RN or MD:
   - Name, age, sex and patient’s physician
   - Chief complaint or injuries
   - If trauma, describe the mechanism of injury
   - If ACS, provide 12-lead ECG
   - Pertinent medical history
   - Allergies to medications
   - Physical exam findings
   - Treatment provided and patient’s response

This report should contain more detail than the radio report and should be accompanied by a copy of the initial written report.
Appendix J – Skills

ACS Management ................................................. J-3
Airway – Difficult Airway Management .................. J-14
  Insertion of Nasopharyngeal .......................... J-34
  Insertion of Oropharyngeal ............................. J-38
Bag Valve Mask Ventilation ................................. J-8
Bleeding Control ................................................. J-10

Blood, Obtaining a Specimen ............................... J-36

Cannulation – Internal Jugular Intravenous ............. J-23
  Femoral Intravenous ..................................... J-18
  Peripheral Intravenous ................................. J-44
  Subclavian Intravenous .................................. J-58

Capnography ....................................................... J-11

Cricothyrotomy ................................................... J-12

Defibrillation – Automated External Defibrillation ..... J-5
  Automated External Defibrillator Algorithm ......... J-7
  Manual ......................................................... J-30

ECG set-up, 12-lead ............................................ J-16

Electrical Cardioversion ...................................... J-15

Epi-Pen® Administration ....................................... J-17

Glucometry ........................................................ J-20

Helmet Removal .................................................. J-21

Hypothermia (Therapeutic) .................................. J-22

Immobilization – Joint ......................................... J-28
  Long Bone ...................................................... J-29
  Pelvic Wrap Splint .......................................... J-42
  Spinal Immobilization Decision Tool ................. J-53
  Spinal Immobilization Decision Algorithm .......... J-55
  Spinal Immobilization ..................................... J-56
  Traction Device ............................................. J-61

Introsseous Infusion ............................................ J-25

Intravenous Line Setup ....................................... J-27

Intubation – Nasogastric ...................................... J-33

Intubation – Orotracheal .................................... J-39

Melker® Cricothyrotomy Kit ................................ J-14

Metered Dose Inhaler (MDI) Assist ....................... J-31

Mouth-to-Mask Ventilation with Supplemental Oxygen  J-32

Needle Thoracentesis ......................................... J-35

Nasogastric ......................................................... J-33

Oxygen Administration ........................................ J-41
Appendix J – Skills

Orotracheal Intubation .......................................................... J-39
Pericardiocentesis ................................................................. J-43
Pulse Oximetry ................................................................. J-45
Rapid Sequence Induction ................................................... J-46
RestRAINT Guidelines – Patients with Altered LOC ............... J-48
RestRAINT Guidelines – Patients who are Violent/Combative ... J-50
Suctioning ................................................................. J-60
Transcutaneous Pacing ....................................................... J-62
Ventilation Mechanical ...................................................... J-63
Ventilation Non-Invasive BiPAP® ........................................ J-64
Acute Coronary Syndrome Management

Provider level:
- Emergency Medical Technician
- Paramedic

Indications:
- Any of the following signs or symptoms:
  - Uncomfortable “pressure,” “fullness,” “squeezing,” or discomfort in the chest or neck that lasts more than a few minutes, or that goes away and comes back
  - Discomfort that radiates to shoulders, neck, or arms
  - Chest discomfort with lightheadedness, fainting, sweating, nausea, or shortness of breath
- Symptoms similar to previous cardiac arrest event
- OR-
  - Patient exhibits any of the following signs or symptoms believed to be of cardiac origin
    - Atypical chest, stomach, or abdominal discomfort
    - Unexplained nausea (without vomiting) or lightheadedness (not vertigo) without chest discomfort
    - Shortness of breath and difficulty breathing (without chest discomfort)
    - Unexplained anxiety, weakness, or fatigue
    - Palpitations, cold sweat, or paleness

Contraindications:
- None

Equipment:
- Defibrillator

Procedure:
- General patient care procedures
- Administer aspirin (Appendix G) as appropriate
- Administer nitroglycerin (Appendix G)
- Prep patient for 12-lead ECG (Appendix J)
- Capture 12-lead prior to moving patient and prior to ALS NTG administration
- Attach 12-lead to patient care report
- Prior to sending 12-lead, include patient name and age
- If evidence of STEMI exists, consult base station physician as early as possible

continued →
Acute Coronary Syndrome Management

Procedure:

- *Establish IV access (Appendix J)*
- *Administer fentanyl (Appendix G) as appropriate*
- *Treat rhythm disturbances as appropriate (Appendix A)*
Automated External Defibrillation (AED)

Provider level:
- Emergency Medical Technician
- Paramedic
- First Responder

Indications:
- Patients greater than 1 y/o who have confirmed circulatory arrest

Contraindications:
- See Death in Field Criteria, Appendix C
- Patients less than 1 y/o

Equipment:
- Defibrillator

Procedure:
1. Immediately upon arrival, verify respiratory and circulatory arrest by the absence of consciousness, normal respirations, and a carotid pulse.
2. Initiate CPR and resuscitation protocols. If it is an unwitnessed cardiac arrest, perform CPR for 2 minutes before initiating defibrillation protocol.
3. Turn the defibrillator power on and begin a verbal report.
4. Immediately attach the defibrillation pads with cables to the patient’s chest.
5. Clear patient to analyze the patient’s rhythm.
   a. If a shock is indicated, immediately charge and deliver a single shock. After the single shock, immediately begin 2 minutes of CPR (see algorithm).*
   b. If no shock is indicated, immediately begin 2 minutes of CPR (see algorithm).*
   c. After 2 minutes of CPR, reanalyze the rhythm.
      i. If a shock is indicated, immediately charge and deliver a single shock. After a single shock, begin 2 minutes of CPR.*
      ii. If no shock is indicated, immediately check pulse.
         1) If no pulse, then begin 2 minutes of CPR.
         2) If a pulse is detected, provide other care per algorithm.

*Chest compressions should be performed during charging cycle
Automated External Defibrillation

**Special patient and pediatric guidelines:**

A. Pediatric arrest: For children < 1 year old, verify cardiac arrest and begin effective CPR. DO NOT initiate defibrillation protocol.

B. For children 1 to 8 years old use pediatric pads and pediatric CPR protocol.

C. For children greater than 8 years of age: Follow adult defibrillation protocols.

D. Traumatic arrest: Defibrillation is ineffective in traumatic cardiac arrest. If major blood loss/trauma is obvious, initiate basic life support. If major blood loss/trauma is NOT obvious, initiate defibrillation protocols.

E. Patients attached to a public access defibrillator (PAD): If EMS Defibrillation providers arrive to find the patient attached to a PAD device, that device should be removed and replaced with the provider’s device and the standing order protocol initiated. This should be accomplished with minimal interruption of CPR.

F. Documentation Submittal: Review of any event in which the defibrillator is attached in cardiac arrest is mandatory. The complete event data and the medical incident report MUST be transmitted to Thurston County Medic One within 4 days of the event.
AED Algorithm

Verify Pulselessness

Witnessed

CPR until ready to defib

Unwitnessed

2 min CPR

Analyze

- CPR while charging
- Immediately resume CPR after shock / no shock

2 min CPR

Analyze / shock

- If no shock, check pulse etc.

1) Compressions 30:2 ventilations for patients 1-8 y/o (except 2 person CPR)
2) Asynchronous ventilations every 10 compressions for patients greater than 8 y/o
3) For >8yr, continue chest compressions through suctioning
4) Narrate resuscitation into recorder
5) Provide AED download to Medic One immediately following incident
Bag Valve Mask Ventilation

Provider level: • First Responder
• Emergency Medical Technician
• Paramedic

Indications: • Patients in respiratory arrest
• Patients who are hypoventilating

Contraindications: • Patients who are resisting ventilatory assistance

Equipment: • Oxygen tank
• Oxygen regulator
• Bag valve mask
• Appropriately-sized mask
• Oropharyngeal or nasopharyngeal airway
• Suction

Preparation: • Assemble oxygen regulator and tank
• Connect tubing between regulator and port on rear of bag
• Place mask on the bag
• Adjust flow rate of oxygen to at least 15 lpm

Procedure: FATS technique (non-trauma patient)
a. Manually open the airway and insert OPA/NPA
b. Seal the face mask against the patient’s face using the FATS technique
c. Ventilate at the appropriate rate and volume for the patient, allowing for passive exhalation

Two-person bag valve mask
• Trauma Patients
• Unknown MOI
• Non trauma patients that are difficult to ventilate
a. Using C-spine precautions (as necessary), rescuers position patient supine
b. First rescuer opens the airway using the jaw thrust maneuver
c. Select/insert correct size airway adjunct
d. First rescuer maintains open airway
e. Second rescuer places apex of mask over bridge of the nose
f. First rescuer places the heel of each hand on the sides of
Bag Valve Mask Ventilation

Procedure:

the mask and uses the fingertips to pull the jaw up into the mask while maintaining C-spine immobilization.

g. Second rescuer attaches bag to face mask and gently squeezes the bag between two hands to ventilate the patient.

Seated bag valve mask

a. Connect BVM to oxygen source (min. 15 LPM); fill reservoir bag.

b. Remove the oxygen adjunct that previously was in use.

c. Slowly move BVM into position on the patient’s face, allowing the patient to begin breathing high flow oxygen.

d. Watch the diaphragm in the one-way valve between the bag and the mask. The diaphragm will begin to move in response to the air flow induced by the patient’s respirations.

e. Begin to gently squeeze the bag, making sure to time the ventilations in concert with the patient’s inhalations.

f. As the patient gains confidence in the process and the rescuer develops a “feel” for the patient’s respiratory pattern, the force of the ventilations can be increased.

g. If the process is interrupted at any time, simply start over, attempting to regain the patient’s confidence.
Bleeding Control

Provider level:  • First Responder  
• Emergency Medical Technician  
• Paramedic

Indications:  • Patient with uncontrolled bleeding

Contraindications:  • None

Equipment:  • Bandage materials  
• BP cuff

Preparation:  • Selecting bandaging material

Procedure: 1. Apply direct pressure on the wound until bleeding is controlled
2. If bleeding is not controlled with direct pressure, use an escalating treatment plan of elevation above the level of the heart, and pressure points
3. After bleeding is controlled, apply dressing and bandage.
4. AS A LAST RESORT, TO CONTROL LIFE-THREATENING BLEEDING FROM AN EXTREMITY, apply a BP cuff proximal to the wound and inflate until the bleeding stops
Capnography

**Provider level:**  
- Paramedic

**Indications:**  
- All intubated patients  
- Patients in respiratory distress  
- Patients who are hypoventilating or hyperventilating

**Contraindications:**  
- Colormetric devices are not used to monitor non-intubated patients who have spontaneous respirations

**Equipment:**  
- Colormetric end-tidal CO$_2$ measuring device  
- Capnograph (e.g. LP12® or Nonin®)  
- Appropriate adjuncts to apply to patient

**Preparation**  
- Assemble necessary equipment

**Procedure:**  
1. Attach monitoring device to patient  
2. Record results in MIR

*Note: The absence of returned end-tidal CO$_2$ in a patient who is in cardiac arrest is not itself an indication for extubation but should cause the paramedic to further investigate the placement of the ETT*

**Pediatric considerations:**  
- Colormetric devices must be specified for pediatric size and are not used with spontaneously breathing patients
Cricothyrotomy

Provider level:  
- Paramedic

Indications:  
- Emergent Airway access when less invasive techniques are not effective
- Airway obstruction
- Severe neck trauma

Contraindications:  
- Ventilation possible by less invasive means

Equipment:  
- Povidone-iodine
- Scalpel
- Tracheal hook
- Rakes
- Endotracheal or tracheostomy tube
- Eschmann stylette
- Melker kit

Preparation:  
- Prep neck with Povidone-iodine

Procedure:  
Melker approach:
1. Locate cricothyroid membrane, make small incision in membrane with scalpel
2. Puncture cricothyroid membrane with needle angled toward feet, draw back on syringe plunger until air easily aspirated
3. Remove syringe, advance Seldinger wire, “floppy” end first
4. Remove needle over wire
5. Advance dilator over wire until widest portion is through skin
6. Hold dilator, advance tube until flange seats against skin
7. Secure tube
8. Ventilate patient through tube; verify correct placement

Open approach:
1. Identify the cricothyroid membrane
2. Make a 3 cm vertical incision over the membrane
3. With rakes or skin traction, retract skin and expose membrane
Cricothyrotomy

4. Make a horizontal incision through the membrane
5. Dilate incision with gloved finger or handle of scalpel
6. May retract caudal end of the trachea with tracheal hook
7. Place endotracheal tube or Eschmann stylette into trachea
8. Place ETT tube over stylette if using Eschmann
9. Inflate ETT cuff
10. Attach end-tidal CO₂ detector and auscultate breath sounds to confirm placement
11. Secure tube

Pediatric considerations:
- Not indicated for pediatric patients.
Difficult Airway Management

Provider level:  • Paramedic

Indications:  • A situation exists that makes routine orotracheal intubation unlikely to be successful
• Four failed intubation attempts (two attempts by each of two providers)

Contraindications:  • None in the setting of patients needing positive airway control

Equipment:  • Eschmann stylette
• LMA
• Melker® Emergency Cricothyrotomy Catheter Set
• Prism
• Rakes
• Scalpel
• Tracheal hook

Preparation:  • Gather and prepare proper equipment

Procedure:  1. Consider intubation with Eschmann stylette, with or without prism, for situations where cords cannot be visualized
2. Consider use of LMA when unable to place tube using Eschmann stylette
3. Perform emergency cricothyrotomy in situations where orotracheal intubation or use of LMA are impossible. Use Melker® kit or traditional equipment.

Pediatric considerations:  • Size-appropriate equipment should be used
Electrical Cardioversion

**Provider level:**
- Paramedic

**Indications:**
- Rate greater than 150 bpm with serious signs and symptoms related to the rate (e.g. angina, respiratory distress, CHF)

**Contraindications:**
- Relative: Immediate cardioversion generally is not needed if heart rate is less than or equal to 150

**Equipment:**
- Manual defibrillator
- Remote defibrillation pads
- Pre-medication (etomidate) or Midazolom
- Complete resuscitation equipment available

**Preparation:**
- Start IV
- If using defibrillator pads, position on the patient (sternum/apex)
- Perform procedural sedations

**Procedure:**
1. Ensure that the patient has been sedated if not unconscious
2. Verify shockable rhythm
3. Activate the synchronization mode by pressing the “sync” control button
4. Set the energy level (see Appendix A)
5. Ensure that all team members are clear of the patient
6. Press the shock button and hold until the shock is delivered. If delays in synchronization occur and clinical condition is critical, go immediately to unsynchronized shocks.
7. Check monitor and patient, then repeat shocks prn according to the tachycardia algorithm (Appendix A)
8. Verify sync mode before delivering subsequent shocks

**Pediatric considerations:**
- Use pediatric remote defibrillator pads
- Use length-based resuscitation tape for energy levels (0.5-1.0 J/kg)
12-lead ECG Setup

Provider level:  • Emergency Medical Technician
  • Paramedic

Indications:  • ACS symptoms

Contraindications:  • Other patient care priorities (e.g. oxygen, CPR)

Equipment:  • Gown
  • Electrodes
  • Towel
  • Disposable razor

Preparation:  • Identify electrode sites as shown below
  • Dry electrode sites vigorously with towel; shave body hair if necessary

Procedure:
  • Attach the limb electrodes as shown below:
  • Attach the precordial electrodes to the chest wall as shown below:

![Diagram of limb electrodes](image)

![Diagram of precordial electrodes](image)
Epi-Pen® Administration

**Provider level:**  
- Emergency Medical Technician  
- Paramedic

**Indications:**  
- Patient is displaying signs or symptoms of severe anaphylaxis: respiratory distress OR shock (hypotension) OR difficult swallowing (throat edema)

**Equipment:**  
- Epi-Pen® Auto-Injector (adult – 0.3 mg epinephrine) or Epi-Pen® Jr. Auto-Injector (child < 66 lbs or 30 kg – 0.15 mg epinephrine)

**Preparation:**  
- Assure medication is not cloudy or crystallized. If medication is cloudy or crystallized, contact ALS for direction.  
- Check expiration date. If medication is expired, contact ALS for direction.  
- Remove end cap  
- Sharps container

**Procedure:**  
1. Administer epinephrine by placing auto-injector on the patient’s lateral thigh and pushing injector firmly against the site. Hold it there for 10 seconds minimum.  
2. Massage site  
3. Dispose of injector in sharps container  
4. Record time of injection  
5. Reassess in 2 minutes  
6. Contact ALS for additional doses of epinephrine  
7. Treat for shock if necessary  
8. Turn in MIR to Medic One and pick up Epi-Pen® replacement
Femoral Intravenous Cannulation

Provider level: • Paramedic

Indications: • Emergency venous access when peripheral access is not available in the setting of:
  • Shock
  • Cardiac arrest

Contraindications: • (Relative) Peripheral access is available

Equipment: • Alcohol wipe
  • Povidone-iodine wipe
  • Over-the-needle IV catheters (14g X 3.25” or 14g X 5.25”)
  • Occlusive dressing
  • Tape
  • IV tubing
  • Normal saline IV solution (1,000 ml)

Preparation: 1. Attach IV tubing to normal saline solution and flush tubing
2. Attach syringe to IV catheter
3. Select and clean site: right or left femoral

Procedure:
1. Cannulate the vein:
   • Puncture skin 1 cm medial to femoral artery and 2-4 cm inferior to inguinal ligament
   • Insert needle at 45-degree angle and advance it
   • While advancing the needle, withdraw the plunger on the syringe until blood is aspirated
   • Stabilize the needle and advance the catheter
2. Remove the needle from the catheter
3. Draw blood sample if needed
4. Attach the IV tubing to the catheter and flush to ensure the catheter is patent
5. Secure tubing with tape; apply occlusive dressing
6. Discard sharps
7. Document location, size of needle, number of attempts and fluid given in the patient care report
Femoral Intravenous Cannulation

**Pediatric considerations:**

- **IO route generally should be used for pediatric patients**
- **A three-way stopcock and 60 cc syringe should be used to administer fluid in infants requiring fluid resuscitation**
- **IV tubing should utilize a safety device (e.g. Volutrol) to prevent unintentional fluid boluses**
Glucometry

Provider level: • Emergency Medical Technician
• Paramedic

Indications: • Altered level of consciousness
• Signs or symptoms of stroke

Contraindications: • Other patient care priorities (e.g. airway, oxygenation, behavioral management)

Equipment: • Alcohol swab
• Gauze
• Glucometer
• Lancet
• Test strip

Preparation: 1. Turn on and check glucometer for readiness
2. Insert appropriate test strip

Procedure: 1. Choose desired finger, and apply gentle compression to engorge capillaries
2. Clean planned site with alcohol swab
3. Use lancet to puncture skin at cleansed site
4. Apply droplets of blood to test strip and follow directions on glucometer
5. Apply pressure with clean gauze to puncture site
6. Record measured capillary blood glucose

*Note: Glucometry is a tool that should be used to supplement an assessment; although it can safely be performed by ALS or EMTs, it is not a decision point in determining either upgrade or disposition of patient.
Helmet Removal

Provider level:
- First Responder
- Emergency Medical Technician
- Paramedic

Indications: 
- Patient wearing a helmet who requires airway preservation, stabilization of head to backboard, in-line stabilization for transfer, etc.

Contraindications:
- Do not remove football helmets unless airway is compromised. If you must remove football helmet, ensure that the shoulder pads are removed.

Equipment:
- Instrument to cut chin strap, if necessary
- Backboard

Procedure:
1. First rescuer (1) immobilizes patient’s head by holding helmet
2. Bring head into neutral position with eyes forward, maintaining immobilization
3. Second rescuer (2) removes chin strap, face piece and/or nose guard
4. Rescuer 2 places one hand on patient’s mandible, with thumb on one side and index finger on the opposite side. The other hand is placed behind patient’s neck, and pressure is applied to the occipital region.
5. Rescuer 1 spreads helmet and rotates it anteriorly off head
6. Rescuer 1 takes over manual stabilization and support of patient’s head, keeping eyes in neutral position
7. Apply appropriate-size cervical collar as necessary
8. Use padding under the head as necessary to maintain neutral eyes
Hypothermia (Therapeutic)

**Provider level:**
- Paramedic

**Indications:**
- ROSC after cardiac arrest and no purposeful movement after 2 minutes

**Contraindications:**
1. Traumatic arrest
2. Pediatric (<16) cardiac arrest
3. Loss of circulation or ongoing ACLS resuscitation
4. POLST form of family wishes indicating a desire to withhold or terminate resuscitative measures
5. If you suspect hypothermia (core temp < 30 °C)

**Equipment:**
- Ice-cold (< 4 °C) saline
- Approved cooling adjunct
- Midazolam (sedation)
- Vecuronium (non-depolarizing) paralytic
- Patent and secured IV

**Preparation:**
- Establish and secure IV if not already established (IO not approved)

**Procedure:**
- Infuse 2000 mL cold 0.9% Normal Saline as wide open bolus
- Administer midazolam 5mg IV every 15 minutes during transport; withhold for SBP<100
- Administer vecuronium 10 mg IV
- Continue to monitor and record cardiac rhythm, BP, and HR every 5 minutes
- Continue all other ALS post-resuscitative measures per protocol
- Notify receiving/supervising physician as soon as possible
- Attach defibrillator report to Patient Care Record

**Pediatric considerations:**
- Contraindicated in patients less than 16 years
Internal Jugular Intravenous Cannulation

Provider level:  • Paramedic

Indications:  • Emergency venous access when peripheral access is not available in the setting of:
  • Shock
  • Cardiac arrest

Contraindications:  • (Relative) Peripheral access is available

Equipment:  • Alcohol wipe
  • Povidone-iodine wipe
  • Over-the-needle IV catheters (14g X 3.25” or 14g X 5.25”)
  • Occlusive dressing
  • Tape
  • IV tubing
  • Normal saline IV solution (1,000 ml)

Preparation:  1. Attach IV tubing to normal saline solution and flush tubing
  2. Attach syringe to IV catheter
  3. Select and clean site

Procedure:  1. Cannulate the vein:
   a. Turn patient’s head 45 degrees away from side being cannulated
   b. Locate triangle formed by heads of sternocleidomastoid and clavicle
   c. Insert needle at 30 degrees to skin at apex of triangle, lateral to the palpated carotid artery, and advance toward the ipsilateral nipple
   d. While advancing the needle, withdraw the plunger on the syringe until blood is aspirated
   e. Stabilize the needle and advance the catheter
  2. Remove the needle from the catheter
  3. Draw blood sample if needed
  4. Attach the IV tubing to the catheter and flush to ensure the catheter is patent

continued →
**Internal Jugular Intravenous Cannulation**

**Procedure:**

5. Secure tubing with tape; apply occlusive dressing over site
6. Discard sharps
7. Document location, size of needle, number of attempts and fluid given in the patient care report

**Pediatric considerations:**

- Generally, the IO route should be used for pediatric patients
- A three-way stopcock and 60 cc syringe should be used to administer fluid in infants requiring fluid resuscitation
- IV tubing should utilize a safety device (e.g. Volutrol) to prevent unintentional fluid boluses
Introsseous Infusion EZ-IO®

**Provider level:**
- Paramedic

**Indications:**
- Emergency circulatory access when peripheral access is not available in the setting of:
  - Shock
  - Cardiac arrest

**Contraindications:**
- (Relative) Peripheral access is available

**Equipment:**
- EZ-IO® Driver
- EZ-IO AD® or EZ-IO PD® Needle Set
- Alcohol or Betadine Swab
- EZ-Connect® or Standard Extension Set
- 10 ml Syringe
- Normal Saline (or suitable sterile fluid)
- Pressure Bag or Infusion Pump
- 2% Lidocaine (preservative free)

**Preparation:**
1. Wear approved Body Substance Isolation Equipment (BSI)
2. Attach IV tubing to Normal Saline solution and flush tubing
3. Attach syringe to IV catheter
4. Select and clean site
   - Tibial plateau

**Procedure:**
1. Prepare insertion site using aseptic technique
2. Prepare the EZ-IO® driver and appropriate needle set
3. Stabilize site and insert appropriate needle set
4. Remove EZ-IO® driver from needle set while stabilizing catheter hub
5. Remove stylet from catheter, place stylet in shuttle or approved sharps container
6. Confirm placement
7. Connect primed EZ-Connect®
8. Slowly administer appropriate dose of Lidocaine 2% (Preservative Free) IO to conscious patients

continued →
Introsseous Infusion EZ-10®

Procedure:

9. Syringe bolus (flush) the EZ-IO® catheter with the appropriate amount of normal saline
10. Utilize pressure (pressure bag or infusion pump) for continuous infusions where applicable
11. Dress site, secure tubing, and apply wristband as directed
12. Monitor EZ-IO® site and patient condition

Pediatric considerations:

- Generally, the IO route should be used for pediatric patients
- A three-way stopcock and 60 cc syringe should be used to administer fluid in infants requiring fluid resuscitation
- IV tubing should utilize a safety device (e.g. Volutrol) to prevent unintentional fluid boluses
IV Line Setup

Provider level:  • Emergency Medical Technician

Indications:  • Patient requiring central or peripheral IV line

Contraindications:  • Other patient care priorities

Equipment:  • Saline
  • Administration set
  • Extension set

Procedure:  • Remove administration set from dust cover
  • Remove IV bag from dust cover
  • Remove sterile cover from administration set
  • Ensure sterility of uncovered parts is maintained
  • Remove sterile cover from IV bag
  • Puncture membrane of IV bag with pointed end of administration set
  • Close roller clamp on administration set
  • Compress and release administration set drip chamber until chamber fills approximately half-full
  • Bleed air from remainder of administration line by opening roller clamp until saline reaches end of line
  • Remove cap from end when asked to do so by provider starting IV
## Joint Immobilization

**Provider level:**
- Emergency Medical Responder
- Emergency Medical Technician
- Paramedic

**Indications:**
- Obviously deformed joint associated with trauma

**Contraindications:**
- If it would delay transport of a critical patient

**Equipment:**
- Splinting material capable of immobilizing the bone above and below the injured point
- Padding material as needed
- Ice pack(s)

**Preparation:**
- Measure and assemble splinting materials as needed

**Procedure:**
1. Check for distal PMS
2. If no pulse, attempt realignment. If unable to realign, consider rendezvous with ALS and delay further manipulation of joint until procedural sedation. After realignment, if no pulse, note the time and provide rapid transport
3. Apply the appropriately sized splint and pad as needed
4. After splint is secured, reassess distal PMS
   - Apply cold pack(s) as needed
   - Splint hands and feet in a position of function
Long Bone Immobilization

Provider level:
- Emergency Medical Responder
- Emergency Medical Technician
- Paramedic

Indications:
- Pain near a bone associated with recent trauma
- Obvious deformity to a bone

Contraindications:
- If it would delay transport of a critical patient

Equipment:
- Splinting material capable of immobilizing the joint above and below the injured bone
- Padding material as needed
- Ice pack

Procedure:
1. Check for distal PMS
2. Apply gentle tension realign bone into gross anatomical position prior to applying splinting material unless this causes severe discomfort

Special patient and pediatric guidelines:
- If the fracture cannot be reduced secondary to severe discomfort or remains in a position incompatible with transport, upgrade to ALS, consider rendezvous and delay further manipulation of fracture until procedural sedation. After realignment, if no pulse, note the time and provide rapid transport
- Manually immobilize fracture until arrival of ALS
3. Apply the appropriately sized splint and pad as needed
4. Reassess the distal PMS after splint is secured (if absent, expedite transport)
   - Apply cold pack(s) as needed
   - Splint hands and feet in a position of function
Manual Defibrillation

Provider level: • Paramedic

Indications: • Ventricular fibrillation
• Pulseless ventricular tachycardia

Contraindications: • Patient with a pulse
• Obvious DOA by Death in Field criteria (Appendix C)
• Unable to clear contact with the patient (standing water, confined space, etc.)

Equipment: • Manual defibrillator
• Remote defibrillator pads

Preparation: • If using remote defibrillation pads, position on the patient (sternum-apex)

Procedure: 1. Turn on defibrillator
2. Obtain a monitored view of the patient’s ECG (through leads or paddles)
3. Verify VF/VT
4. Select energy level at 200 J (biphasic) and charge the defibrillator
5. Assure that all team members are clear of the patient
6. Deliver the shock

Pediatric considerations: • Use pediatric remote defibrillator pads or
• Use length-based resuscitation tape for energy levels (0.5-1.0 J/kg)
Metered Dose Inhaler (MDI) Assist

Provider level:  
- Emergency Medical Technician  
- Paramedic

Indications:  
- Patient has a prescribed MDI of albuterol, Proventil®, or Ventolin®, and  
  - Patient exhibiting signs and symptoms of breathing difficulty presumed secondary to asthma or COPD  
  - Shortness of breath unrelieved by epinephrine for anaphylaxis, in patients with asthma or COPD and has BP of at least 90 mmHg

Contraindications:  
- Patient in respiratory arrest

Equipment:  
- Patient’s MDI  
- Spacer

Preparation:  
- Remove cap from MDI  
- Attach spacer to MDI

Procedure:  
1. ALS upgrade required
2. Provide supplemental oxygen and/or ventilatory assistance as necessary
3. Allow the patient to achieve a position of comfort
4. Ensure that the inhaler is at room temperature or warmer and shake the canister vigorously
5. Depress the medication canister to fill the spacer with the medication. As soon as the canister is depressed, have the patient exhale deeply than place his lips around the mouthpiece and inhale slowly and deeply (avoiding the whistle)
6. Remove the spacer from the patient’s lips and coach the patient to hold his breath for 10 seconds, or as long as is comfortable
7. Have the patient exhale slowly through pursed lips
8. Repeat every minute as needed for a total of 10 puffs
9. If medic unit is not on scene 10 minutes after last puff and patient still is in respiratory distress, repeat Step 8
10. Chart time of administration and number of puffs
11. Treatment can be discontinued at any time that the patient no longer is in respiratory distress
Mouth-to-Mouth Ventilation with Supplemental Oxygen

Provider level: • Emergency Medical Responder
• Emergency Medical Technician
• Paramedic

Indications: • Unconscious patient with inadequate respirations
• Respiratory arrest

Contraindications: • Conscious or unconscious patient with adequate respirations

Equipment: • Pocket mask
• One-way valve
• Oxygen tubing
• Oxygen regulator
• Oxygen tank

Preparation: • Attach one-way valve to pocket mask
• Attach oxygen tubing to pocket mask and regulator
• Adjust oxygen flow to 15 liters per minute

Procedure: 1. Obtain mask-to-face seal
2. Ventilate patient at proper rate and volume
**Nasogastric Tube Insertion (NG Tube)**

**Provider level:**
- Paramedic

**Indications:**
- Intubated patients with gastric distention
- All intubated pediatric patients
- Any intubated patient who requires activated charcoal

**Contraindications:**
- Patients with maxillary or nasal trauma or suspected skull fracture
- Ingestion of caustic substances
- Excessive resistance encountered during insertion

**Equipment:**
- Appropriately sized NG tube
- Toomey syringe
- Suction
- Water-soluble lubricant

**Preparation:**
- Gather equipment

**Procedure:**
1. Measure NG tube from the tip of the nose to the ear and then to a midpoint between the xiphoid and the umbilicus
2. Lubricate the end of the tube with water-soluble lubricant
3. Gently guide the tube through the naris and continue to insert until the measured depth is reached
4. Confirm placement by rapidly injecting 20 cc of air while auscultating over the epigastrium
5. Secure tube with tape to nose or cheek
6. Attach to suction and aspirate stomach contents
7. If indicated, administer activated charcoal

**Pediatric considerations:**
- In the pediatric patient, use the length-based tape to select NG tube size. If an infant’s nose is too small, perform an oral gastric intubation.
Nasopharyngeal Airway

Provider level:  
- Emergency Medical Responder  
- Emergency Medical Technician  
- Paramedic

Indications:  
- Patient with a decreased LOC and sonorous respirations who will not accept an oropharyngeal airway

Contraindications:  
- Patient with maxillary or nasal trauma or suspected skull fracture  
- Oropharyngeal airway providing adequate airway control  
- Resistance encountered during insertion

Equipment:  
- Nasopharyngeal airway  
- Water-soluble lubricant

Preparation  
- Measure airway from tip of nose to earlobe

Procedure:  
1. Insert the airway with the bevel toward the septum and the curve downward, toward the throat; the right nostril is preferred  
2. Insert the airway until the flange is seated against the nostril  
3. Assess the need for positive pressure ventilation
Needle Thoracentesis

Provider level: • Paramedic

Indications: • Tension pneumothorax

Contraindications: • None in setting of tension pneumothorax

Equipment: • Thoracentesis (Cook®) kit
• Tape

Preparation: • Select injection site and prepare with a povidone-iodine solution

Procedure: 1. Insert an appropriately sized over-the-needle catheter in the mid-clavicular line at the second intercostal space at a 90-degree angle by walking the needle over the top of the third rib
2. Pull suction on syringe while advancing. Once air is freely aspirated, do not advance needle further. Stabilize needle and advance catheter into pleural space.
3. Remove the needle, leaving the catheter in place
4. Attach a one-way ("Heimlich") valve to the catheter
5. Secure the catheter and valve in place
Obtaining Blood Specimens

Provider level:  
- Paramedic

Indications:  
- Altered or decreased mental status
- Hypovolemia
- Request of law enforcement

Contraindications:  
- None in the emergency setting

Equipment:  
- Glucose testing
  - Lancet
  - Alcohol wipe
  - Adhesive bandage
  - Glucometer
- Blood draw
  - IV start equipment
  - 10 ml syringe
  - Vacutainer holder with female adapter
  - 7 ml purple-top blood tube (or law enforcement-provided kit)
  - Blood band

Preparation:  
- Glucose testing
  - Clean the site
  - Prepare the glucometer
- Blood draw
  - Start IV and remove needle from catheter

Procedure:  
Glucose testing:
1. Obtain specimen
2. Test specimen per manufacturer instructions

Blood draw:
1. Attached syringe to IV catheter (or saline lock tubing)
2. Gently aspirate at least 8 ml of blood
3. Disconnect the syringe from the catheter
4. Finish securing the IV with the appropriate IV tubing and flush
5. Transfer blood from syringe to the blood tube
Obtaining Blood Specimens

Procedure:

6. Write patient's name and date of birth, the current date and your initials on the blood band
7. Remove blood band label and attach it to blood tube
8. Place blood band on patient's wrist and remove tail
9. Remove adhesive backing on tail and affix tail to blood tube
Oropharyngeal Airway

Provider level: • Emergency Medical Responder
• Emergency Medical Technician
• Paramedic

Indications: • Unconscious patient without a gag reflex

Contraindications: • Patient with a gag reflex

Equipment: • Tongue depressor
• Oropharyngeal airway
• Suction

Preparation: • Measure airway from corner of mouth to earlobe, or center of lips to angle of jaw

Procedure: 1. Assess gag reflex using tongue depressor; if no gag reflex, proceed to step 2
2. Insert the airway with the tip pointing toward the roof of the mouth; rotate the airway 180 degrees as the tip reaches the soft palate so as to displace the tongue anteriorly
3. When properly inserted, the flange of the airway should be seated against the lips
4. Assess the need for ventilation

Pediatric considerations: • Use tongue depressor to pull the base of the tongue away from the pharynx
• Insert OPA with curve following curve of tongue
Orotracheal Intubation

Provider level:  
- Paramedic

Indications:  
- Patient undergoing RSI
- Unconscious without a gag reflex

Contraindications:  
- Gag reflex (see “Rapid Sequence Induction,” Appendix L)
- More than four total attempts by two providers (see “Difficult Airway Management,” Appendix L)
- Trismus (see “Rapid Sequence Induction,” Appendix L)

Equipment:  
- BVM
- Commercially manufactured, purpose-made tracheal tube holder
- Endotracheal tube (variety of sizes)
- End-tidal CO₂ monitoring equipment/device
- Laryngeal handle/blades
- OPA/NPA
- Oxygen tank with regulator
- Pulse oximeter
- Stylette
- Syringe
- Suction

Preparation:  
- Assemble and check required equipment

Procedure:  
1. Use continuous pulse oximetry throughout procedure
2. Apply cricoid pressure until intubation is achieved
3. Perform ET intubation; each attempt lasts no longer than 30 seconds, with re-oxygenation between attempts
4. Each paramedic shall make no more than 2 attempts (total of 4 attempts) before implementing alternative methods of airway control (e.g. LMA)
5. Confirm tube placement with auscultation and continuous end-tidal CO₂ monitoring
6. Secure tube with commercial tube holder
7. Insert naso- or oro-gastric tube

continued ➔
Orotracheal Intubation

Procedure:

8. Must have continuous oximetry, capnometry and BP (every 5 minutes) measurement by the defibrillator
9. Attach code summary to patient care report

Pediatric considerations:

- Insert naso- or oro-gastric tube
- Use length-based resuscitation tape to estimate equipment sizes
- Confirm tube placement with auscultation and continuous end-tidal CO₂ monitoring
Oxygen Administration

Provider level: • Emergency Medical Responder
• Emergency Medical Technician
• Paramedic

Indications: • Suspected hypoxia

Contraindications: • None in the setting of hypoxia

Equipment: • Oxygen cylinder
• Oxygen regulator
• Oxygen delivery device

Preparation: • Ensure that the cylinder contains at least 500 PSI of oxygen
• Ensure that the regulator is securely fastened and does not leak when pressurized
• Attach the delivery device to the regulator, and begin the flow of oxygen
• Set the flow at the desired rate (fill the reservoir prior to placing on patient)

Procedure: 1. Explain the procedure to the patient
2. Place the delivery device on the patient and adjust to patient’s comfort
Pelvic Wrap Splint

Provider level: • Emergency Medical Responder
• Emergency Medical Technician
• Paramedic

Indications: • Patients with a suspected pelvic fracture
• Unresponsive patient with blunt trauma and signs of shock

Contraindications: • Hip fracture
• Proximal femur fracture

Equipment: • Bed sheet
• Towel clips (4)
• Commercially approved device

Preparation • Fold sheet until the width of the folded sheet matches the distance from the patient’s umbilicus to mid-thigh

Procedure: Sheet method
1. Place one rescuer on each side of patient
2. Place the folded sheet under the patient’s pelvis, aligning top of sheet with patient’s umbilicus
3. Rescuer 1 passes her end of the sheet to Rescuer 2
4. Rescuer 2 folds the sheet back toward Rescuer 1, aligning the fold with the patient’s iliac crest nearest to Rescuer 2
5. Rescuer 2 passes unfolded end of sheet to Rescuer 1
6. Rescuer 2 holds folded end of sheet at the fold and pulls toward himself, while Rescuer 1 pulls other end of sheet toward herself
7. Rotate patient’s feet internally prior to applying splint (unless leg fractures present)
8. Increase pressure until immobilization is achieved
9. Rescuer 3 secures sheet in place with (4) towel clips (2 even with fold, and other 2 at opposite iliac crest)

Commercial device
• Apply commercial device, approved by the MPD, according to manufacturer’s instructions
Pericardiocentesis

Provider level: • Paramedic

Indications: • Signs and symptoms of cardiac tamponade

Contraindications: • None in setting of tamponade

Equipment: • Povidone-iodine wipes
• 14 g 3.25” or 5.25” needle
• 20 ml syringe

Preparation: • The entire lower xiphoid area should be prepped with povidone-iodine
• Attach the syringe to the needle

Procedure: 1. Insert the needle between the xiphoid process and the left costal margin at a 30- to 45-degree angle to the skin
2. Aim the needle at the left shoulder and advance the needle while aspirating constantly
3. Once fluid is aspirated, remove as much as possible (30-50 ml)

Pediatric considerations: • Use shallower angle of approach in children with small chests
Peripheral Intravenous Cannulation

Provider level: • Paramedic

Indications: • Hypovolemia
• Administration of medications
• Potential need for fluid or medication administration

Contraindications: • None in emergent setting

Equipment: • Tourniquet
• Alcohol wipe
• Povidone-iodine wipe
• Over-the-needle IV catheters (22 g-14 g)
• Occlusive dressing
• Tape
• IV tubing and/or saline lock
• Normal saline IV solution (5 ml flush, 250 ml, or 1,000 ml)

Preparation: 1. Attach IV tubing and/or saline lock to normal saline solution and flush tubing
2. Apply tourniquet
3. Select and clean site

Procedure: 1. Cannulate the vein
2. Remove the needle; if not drawing a blood sample, release the tourniquet
3. Flush IV catheter using preload saline syringe or IV fluid bag
4. Secure tubing with tape; apply occlusive dressing
5. Discard sharps
6. Document location, size of needle, number of attempts and fluid given in the patient’s MIR
7. Patients who require ongoing IV access shall receive ALS transport

Pediatric considerations: • IV tubing should utilize a safety measure (e.g. Volutrol) to prevent unintentional fluid boluses
Pulse Oximetry

Provider level: • Emergency Medical Technician
• Paramedic

Indications: • Patients with signs of respiratory distress or dyspnea

Contraindications: • None

Equipment: • Pulse oximeter
• Pulse oximeter probe

Preparation: • Remove nail polish if necessary

Procedure: 1. Place probe on the patient
2. Assess for a good signal (green light or pulse reading must correlate with heart rate)
3. Record values in patient care report

Pediatric considerations: • Use pediatric probe; alternative sites are possible (ear lobe, toes, foot, hand)
Rapid Sequence Induction

Provider level:  
- Paramedic

Indications:  
- Ventilatory insufficiency (\(\text{SpO}_2\) less than 88 percent refractory to other interventions)
- Severe respiratory distress
- Respiratory arrest
- Suspected closed head injury with GCS less than 9
- Altered or decreased mental status with respiratory compromise
- Potential for airway compromise due to acute burns, neck or midfacial trauma, or anaphylaxis
- Patient is unconscious, flaccid, and has no gag reflex

Relative Contraindications:  
- Very fat or short neck
- Severe arthritis of neck with minimal mobility
- Known anatomical deformities
- History of throat cancer
- Non-arrested croup or epiglottis

Equipment:  
- Patent and secured IV
- RSI medications
- BVM
- OPA
- Oxygen tank with regulator
- Laryngoscope handle/blades
- Endotracheal tube (variety of sizes)
- Stylette
- Syringe
- Suction
- Esophageal bulb detector
- End-tidal CO\(_2\) monitoring equipment/device
- Pulse oximeter
- Commercially manufactured, purpose-made tracheal tube holder

Preparation:  
1. Assemble and check required equipment
2. Calculate and prepare doses of pre-medication, sedative and paralytic
Rapid Sequence Induction

**Preparation:**

3. **Pre-oxygenate using bag valve mask and cricoid pressure.** If possible, attempt to raise $\text{SpO}_2$ to at least 94 percent over 1-2 minutes.

**Procedure:**

1. **Continuous pulse oximetry is required throughout procedure.**

2. **Pre-medicate patient as appropriate:**
   - Vecuronium (defasciculating dose): 0.01 mg/kg
   - Atropine (for ages under 7 y/o): 0.01 mg/kg IV (min 0.1 mg, max 0.5 mg)
   - Etomidate (for sedation of conscious patient): 0.30 mg/kg
   - Fentanyl: 1.5 microgram/kg
   - Succinylcholine: 1.5-2.0 mg/kg IV

3. **Maintain cricoid pressure during intubation attempt(s)**

4. **Perform ET intubation**

5. **Confirm tube placement using esophageal bulb immediately following intubation**

6. **Continuous quantitative end-tidal CO$_2$ monitoring is required following intubation.**

7. **Secure tube with a commercially manufactured tracheal tube holder**

8. **Insert gastric tube and apply suction**

9. **If sedation is necessary following intubation, administer midazolam 5 mg IV, 2 mg IV prn**

10. **Notify supervising physician as soon as possible following procedure.** If additional paralysis is necessary following intubation, contact the supervising physician to discuss administering vecuronium 0.1 mg/kg IV.

**Pediatric considerations:**

- If paralysis is repeated, it is not necessary to administer additional atropine. Treat bradycardia with oxygenation.
- Use of a gastric tube in children is just as important as in adults
- Use length-based resuscitation tape to estimate equipment sizes and calculate drug doses
Restraint Guidelines for Patients with Altered LOC

Provider level: • Emergency Medical Responder
• Emergency Medical Technician
• Paramedic

Indications: • Implied consent exists, AND
• The patient’s confused mental status likely would cause them to resist necessary procedures, OR
• Patient is unconscious but with treatment may become conscious and, in a state of altered mental status, likely would resist necessary procedures

Contraindications: • Alert, oriented patient who refuses treatment
• Patient with suspected head or spine trauma (consider risk benefit)

Equipment: • Soft restraints x 4
• Two backboard restraint straps with buckles
• Long backboard (LBB)

Preparation: • Prepare soft restraints
• Have backboard nearby
• Communicate plan with team members (minimum 5)

Procedure: 1. Each member of the team secures the assigned limb, with the leader directing care and interacting with the patient
2. With a team approach, and one person per limb, place the patient supine on a long backboard. EMS providers maintain manual restraint of their assigned limbs until relieved by mechanical restraint.
3. Place a backboard strap just above the patient’s knees and tightly secure the legs to the LBB
4. Place a backboard strap high under the patient’s armpits and tightly secure the upper torso to the LBB
5. If patient requires further restraint:
   a. Secure a soft restraint to the patient’s wrist and secure the arm down to the patient’s side
   b. Secure a soft restraint to the patient’s other wrist and secure that arm to the board above the patient’s head
Restraint Guidelines for Patients with Altered LOC

6. If the patient becomes violent or combative at any time, call for law enforcement and upgrade to ALS (see “Restraint Guidelines for Violent/Combative Patients,” Appendix J)

**Documentation:**
- A health care emergency existed and the need for treatment was explained to the patient
- Implied consent existed because the patient was not legally competent
- Evidence of the patient’s incompetence
- The patient refused treatment
- Less restrictive methods of restraint attempted/considered
- Assistance/direction of law enforcement with restraint and/or orders from Supervising Physician to restrain
- Type of restraint employed
- The limb(s) restrained
- Injuries that occurred during or after restraint
- Distal circulation checks every 15 minutes (minimum of twice during transport)
- Behavior and/or mental status of patient after restraint
Restraint Guidelines for Violent / Combative Patients

Provider level: • Emergency Medical Responder
• Emergency Medical Technician
• Paramedic

Indications: All of the following must exist:
• A potential or recognized medical emergency exists
• Patient is exhibiting violent or combative behavior
• Less restrictive means of gaining patient cooperation have failed
• In the judgment of the provider, the patient is incapable of making appropriate health care decisions for him/herself (e.g. intoxication, head injury, developmental delay, psychosis)

Contraindications: • Insufficient resources available

Equipment: • Soft restraints x 4
• 2 backboard restraint straps with buckles
• Long backboard (LBB)

Preparation: • ALS upgrade required
• Prepare soft restraints
• Have backboard nearby
• Communicate plan with team members

1. Team leader assigns one team member to each limb

Procedure:
1. Using a team approach, and one person per limb, place the patient supine on a long back board. EMS providers maintain manual restraint of their assigned limbs until relieved by mechanical restraint.
2. Place a strap just above the patient’s knees and tightly secure the legs to the LBB
3. Place a strap high under the patient’s armpits and tightly secure the upper torso to the LBB
4. Secure soft restraints to the patient’s wrists
5. Secure the arms down to the patient’s side
6. Apply immobilization as indicated (Appendix J)
Skills - Appendix J

Restraint Guidelines
for Violent / Combative Patients

Procedure:

7. Once the patient is restrained, continue with a thorough examination and appropriate treatment while closely monitoring the patient throughout transport.

8. **If the patient continues to struggle once secured or is not compliant with spinal immobilization, chemical restraint is indicated**

Without SUSPECTED spinal injury

1. Secure a soft restraint to the patient’s other wrist and secure the arm above the patient’s head to the top of the LBB

Chemical Restraint: **Indications:**

- **Patients who are so violent and combative that they cannot reasonably be placed in medical restraint without causing physical injury to the patient or EMS providers, OR**
- **Patients who continue to struggle after placed in full body medical restraint**
- **IF SITUATION ALLOWS, contact supervising physician for orders for midazolam 10 mg IN or IM**

Documentation:

- A health care emergency existed and the need for treatment was explained to the patient
- Implied consent existed because the patient was not legally competent
- Evidence of the patient’s incompetence
- The patient refused treatment
- Less restrictive methods of restraint attempted
- Assistance/direction of law enforcement with restraint and/or orders from supervising physician to restrain
- Type of restraint employed

---

continued →
Restraint Guidelines for Violent / Combative Patients

Documentation (cont.)

- The limb(s) restrained
- Injuries that occurred during or after restraint
- Distal circulation checks every 15 minutes (minimum of twice during transport)
- Behavior and/or mental status of patient after restraint
Spinal Immobilization
Cervical Immobilization Decision Tool

Provider level:
- First Responder
- Emergency Medical Technician
- Paramedic

Indications:
- Traumatic mechanism suggestive of spinal injury

Contraindications:
- If any of the following apply, proceed with application of c-collar:
  - Patient appearing under the influence of alcohol and/or drugs
  - Patient with a language barrier
  - Patient with an altered or decreased mental status
  - Evidence that an elderly patient struck his head

- Cervical collar

Equipment:
- Adjust cervical collar to/select appropriate size collar

Preparation:
CAUTION: If the patient has a positive finding AT ANY TIME during your exam, stop and proceed with application of c-collar

Procedure:
1. Provide manual immobilization and complete the primary assessment
2. During secondary trauma exam, assess for:
   - Distracting injury
   - Neurological deficits (burning, tingling, numbness, paresthesia/anesthesia, weakness, paralysis)
   - Cervical spine tenderness, pain, or deformity
3. Instruct the patient to slowly perform range of motion tests (DO NOT manually move the patient’s neck to assess range of motion)
4. Document findings in the patient's MIR
5. Treat other injuries if present.
6. If a c-collar is applied, determine if patient requires full spinal immobilization (J-56); if so, fully immobilize and extricate with full spinal precautions

continued ➔
Spinal Immobilization
Cervical Immobilization Decision Tool

Procedure:

7. If patient does not require full spinal immobilization and is able to walk, have him/her walk to the gurney. Patients may be offered assistance from the vehicle without providing full spinal immobilization.
8. For patients who are unable to walk, use the backboard to move to gurney. Ensure proper manpower (at least 4) or straps to prevent patient from falling off board.
9. Once placed on gurney, remove backboard.
Cervical Immobilization Decision Algorithm

1. Traumatic mechanism suggestive of spinal injury
   - Yes → Apply a c-collar
   - No → No

2. Contraindications?*
   - Yes → Apply a c-collar
   - No → No

3. Distracting injury?
   - Yes → Apply a c-collar
   - No → No

4. Neuro deficits?
   - Yes → Apply a c-collar
   - No → No

5. Cervical pain or deformity?
   - Yes → Apply a c-collar
   - No → No

6. Pain with ROM test?
   - Yes → Apply a c-collar
   - No → No

7. Treat any other injuries and document exam findings

*If any of the following conditions apply, the decision tool is contraindicated and cervical immobilization should be applied:
- Under the influence of alcohol and/or drugs
- Language barrier
- Altered mental status
- Evidence that an elderly patient struck his head
Spinal Immobilization
Full Immobilization

Provider level:
- Emergency Medical Responder
- Emergency Medical Technician
- Paramedic

Indications:
- Any patient with traumatic mechanism and unconscious
- Any patient with traumatic mechanism and new neurological deficits
- Any patient with traumatic mechanism and spinal tenderness or crepitus at the thoracic-lumbar junction

Contraindications:
- Part or all of this procedure may be contraindicated if it causes increased pain for the patient, or if the patient’s head cannot be placed in the neutral position

Equipment:
- C-collar
- Cervical immobilization device (CID)
- Blankets, towels, or other padding
- Long backboard (LBB)
- Straps or 3” medical tape as needed for securing the patient to the LBB

Preparation:
- C-collar should be sized for the patient and assembled
- LBB, straps/tape, gurney, etc. should be ready and staged nearby
- All team members should be briefed and be ready

Procedure:
1. During the primary assessment, apply manual immobilization of the head
2. Apply appropriately-sized c-collar
3. Perform a secondary exam, expose as needed, and perform the proper procedure to place the patient on the LBB
4. Position the patient so that his head is near the top of the LBB, in neutral alignment, and his body is in line and centered
5. Provide padding under the patient’s knees as needed to relieve discomfort in the lower back
6. Secure the patient’s shoulders, hips, upper legs, and lower legs with feet together
Spinal Immobilization
Full Immobilization

Procedure:
7. Secure the patient’s head with a CID (ensuring neutral alignment)
8. Cover the patient with a blanket for warmth and privacy
9. Reassess distal PMS and continue with exam as needed

Rapid Extrication:
• Indicated when the patient must be removed to begin immediate life-saving treatment involving airway, breathing, or circulation, OR the patient is blocking access to a patient for whom rapid extrication is indicated

Pediatric considerations:
• Children found in car seats should be immobilized in place
• Children less than 9 years old should have supplemental padding placed from the level of the shoulders to the level of the feet

Additional considerations:
• Long backboards may still be used at the provider’s discretion as a tool to facilitate ease of transport and care (e.g., in cases of cardiac arrest, patient movement, or patient or provider security and safety).
Subclavian Intravenous Cannulation
(Infraclavicular Approach)

**Provider level:**
- Paramedic

**Indications:**
- Emergency venous access when peripheral access is not available in the setting of:
  - Shock
  - Cardiac arrest

**Contraindications:**
- Relative: Peripheral access is available

**Equipment:**
- Alcohol wipe
- Povidone-iodine wipe
- Over-the-needle IV catheters (14g X 3.25” or 14g X 5.25”)
- Occlusive dressing
- Tape
- IV tubing
- Normal saline IV solution (1000 ml)

**Preparation:**
1. Attach IV tubing to normal saline solution and flush tubing
2. Attach syringe to IV catheter
3. Select and clean site

**Procedure:**
1. Cannulate the vein
   - Puncture skin just inferior to the clavicle, at the junction of the medial third and lateral two-thirds of the clavicle
   - “Walk” the needle underneath the clavicle, while advancing the needle toward the suprasternal notch
   - While advancing the needle, withdraw the plunger on the syringe until blood is aspirated
   - Stabilize the needle and advance the catheter
2. Remove the needle from the catheter
3. Draw blood sample if needed
4. Attach the IV tubing to the catheter and flush to ensure the catheter is patent
5. Secure the tubing with tape and apply an occlusive dressing over the site
Subclavian Intravenous Cannulation (Infraclavicular Approach)

Procedure:

6. Discard sharps
7. Document location, size of needle, number of attempts and fluid given in the patient care report

Pediatric considerations:

- Generally, the IO route should be used for pediatric patients
- A three-way stopcock and 60 cc syringe should be used to administer fluid in infants requiring fluid resuscitation
- IV tubing should utilize a safety device (e.g. Volutrol) to prevent unintentional fluid boluses
Suctioning

Provider level:
- Emergency Medical Responder
- Emergency Medical Technician
- Paramedic

Indications:
- Presence of material in the nose or mouth causing respiratory distress or airway compromise

Contraindications:
- Patient able to control airway without assistance

Equipment:
- Manual or mechanical suction unit
- Suction tubing
- Rigid or flexible suction catheters
- Sterile saline (for clearing a clogged catheter)

Preparation:
- Attach catheter to tubing
- Attach tubing to suction unit
- Check for operation of the suction unit and adequacy of suction

- Pre-measure soft suction catheters for insertion depth
  - Nose: from tip to earlobe
  - Mouth: from corner of mouth to earlobe
  - Endotracheal: from end of tube to earlobe to supraclavicular notch

Procedure:
1. Measure rigid suction catheter same as OPA (Appendix J-38)
2. Insert suction catheter to pre-measured depth or rigid catheter no farther than you are able to observe
3. Suction while withdrawing the catheter
4. Suction until airway is clear

*Note: if patient is in cardiac arrest you should suction airway while performing chest compressions.

Endotracheal (paramedics only)
1. Insert appropriate suction catheter down the endotracheal tube
2. Apply suction while withdrawing the catheter
3. Place 3 ml of sterile saline down the endotracheal tube to moisten secretions as necessary to facilitate suctioning
Traction Device

Provider level:  
- Emergency Medical Technician  
- Paramedic

Indications:  
- Isolated mid-shaft femur fracture (open or closed)

Contraindications:  
- Distal femur fracture  
- Hip fracture  
- Distal fracture of same leg

Equipment:  
- MPD-approved traction device  
- Additional padding as needed  
- Long backboard (LBB)

Preparation:  
- Gather equipment  
- Manually immobilize fracture

Procedure:  
1. During trauma assessment, assess distal PMS  
2. Straighten the affected leg and pull manual traction  
3. Apply the traction device to the leg  
4. Secure the patient and the traction device to LBB to stabilize joint above and below  
5. Re-assess distal PMS
Transcutaneous Pacing

**Provider level:**
- Paramedic

**Indications:**
- Bradycardia associated with severely reduced cardiac output that is unresponsive to atropine
- First line therapy for bradycardia in patient who has a transplanted heart

**Contraindications:**
- Patient meeting Death in Field criteria

**Equipment:**
- LP 12
- Pacer pads

**Preparation:**
- Attach limb leads
- Place pacer pads in an anterior/anterior (sternum/apex) fashion
- Sedate as needed with midazolam 2-5 mg IV

**Procedure:**
1. Assure a good tracing of the patient’s baseline rhythm
2. Set pacing rate at 80
3. Increase energy level until mechanical capture is obtained
4. After mechanical capture, adjust energy to lowest effective level

**Pediatric considerations:**
- Use pediatric pacing pads
Ventilation Mechanical

**Provider level:**
- Paramedic

**Indications:**
- Intubated patient requiring ongoing ventilation

**Contraindications:**
- None

**Equipment:**
- Ventilator
- Ventilator circuit
- Oxygen source
- Oximeter
- Capnometer

**Preparation:**
- Set up equipment: select “CMV” mode
- Verify initial settings

---

**Mode:** CMV - Assist

- **Trigger [L/min]**: 5
- **PEEP [cmH2]**: 5
- **I:E**: 1:3.5
- **T_{plat} [%]**: 10
- **V_t; 6-8 mL/kg***: Freq: 16-18
- **P_{max} 40 cm H2O**: FiO\textsubscript{2} 100%
- **“Ideal” body weight**

---

**Procedure:**
- Continuous oximetry is required
- Continuous capnometry is required
- Monitor “Flow” display for evidence of Auto-PEEP

**Pediatric considerations:**
- Contraindicated in patients requiring < 50 ml/breath
Ventilation Non-Invasive ("BiPAP®")

Provider level:  • Paramedic

Indications:  • Spontaneously-breathing patient
  • Impending ventilatory failure secondary to CHF, COPD, or asthma

Contraindications:  • Patient is unconscious/obtunded/absent gag reflex
  • Patient is suspected/potential upper airway obstruction - Anaphylaxis, FBAO, epiglottis, or burns
  • Peds < 10 years
  • RELATIVE: Excessive anxiety, uncooperative patient

Equipment:  • Ventilator
  • Mask and ventilator circuit
  • Oxygen source
  • Oximeter
  • Capnometer

Preparation:  • Continuous oximetry is required
  • Select proper mask
  • Set up equipment: select “CPAP-PS” mode
  • Verify initial settings

Mode: CPAP PS – NIV ("BiPAP®")

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trigger [L/min]</td>
<td>5</td>
</tr>
<tr>
<td>PEEP [cmH2]</td>
<td>5</td>
</tr>
<tr>
<td>PS</td>
<td>10</td>
</tr>
<tr>
<td>Ramp</td>
<td></td>
</tr>
<tr>
<td>Vt, N/A mL/kg</td>
<td>N/A</td>
</tr>
<tr>
<td>Freq: N/A</td>
<td></td>
</tr>
<tr>
<td>P_max 40 cmH2O</td>
<td>FiO2 100%</td>
</tr>
</tbody>
</table>

• Allow patient to hold mask to face initially

Procedure:  • Fasten straps once comfortable
  • Continuous oximetry is required

Pediatric considerations:  • Contradindicated in patients less than 10 years old
Appendix K – SOAP Written Report Format

The narrative section of the Medical Incident Report should provide a comprehensive yet as brief as possible “snapshot” of the patient’s situation and condition at the time of EMS arrival.

In Thurston County, the narrative section of a pre-hospital MIR is organized using the SOAP format. SOAP stands for Subjective, Objective, Assessment, and Plan.

- **Subjective (hx present, past):** This is information told to the examiner that he or she could not directly observe. The information required in this section is easily remembered by two mnemonics: SAMPLE (Signs and symptoms, Allergies, Medications, Pertinent past medical history, Last oral intake, and Events leading to the 911 call) and OPQRST (Onset, Provokers, Quality, Radiation, Severity, and Time).

- **Objective (findings):** The objective portion of the narrative section contains details the examiner observed directly. This is where the patient assessment is documented.

- **Assessment (findings):** This is the examiner’s impression of what the patient’s medical problem might be. This is not a diagnosis. The assessment should be written as a two-part statement. The first part should state simply whatever the examiner found wrong with the patient: “Chest discomfort,” for example. The second part of the assessment is the “Rule Out” section, which is written in a particular way: The examiner’s impression of the patient’s problem should be preceded by the abbreviation “R/O” (“Rule Out”). For example, the assessment of a patient with chest discomfort and shortness of breath might look like this:

  A/Chest Discomfort 1) R/O ACS 2) R/O CHF.

- **Plan (care events):** This section of the narrative should detail the care the patient received and his or her response to the treatment.
Refusal of Care

Patients have the right to participate in and guide their medical care including the ability to refuse any given treatment or transport. However, in order to exercise this right a patient must demonstrate to the EMS provider that they have 'decision making capacity.' Competency is a legal term used to determine whether a person is able to stand trial, and is not a relevant term in medical care. Instead 'decision making capacity' involves a medical provider determining that a patient has the ability to understand his/her choices and the possible outcomes of their decisions.

A patient with decision making capacity must:
   1. Have fluency in English
   2. Be over the age of 18
   3. Be oriented to person, place and time and not show any obvious cognitive deficit
   4. Be free of the influence of alcohol, drugs, or any mind-altering substances
   5. Not have any injury or medical condition affecting their judgement
   6. Not have threatened or attempted suicide during this episode
   7. Demonstrate the ability to explain the decision they are making and the possible negative outcomes including death and devastating disability

If a patient that meets these standards wishes to refuse any aspect of medical care or transport, the Thurston County EMS provider will use the following procedure:
   • Assess the patient thoroughly for any substance or intoxicant, medical condition, or injury that may impair their judgement
   • Determine what level of care, if any, the patient is willing to accept
   • Explain the risks the patient is accepting including risk of death or devastating disability due to current, subsequent or undiagnosed conditions, or deterioration of their condition caused by deviation from Thurston County standards and protocols
   • Have the patient verbalize their decision and the possible negative outcomes that may entail
   • Document this discussion on the patient care report, and have the patient sign the "Against Medical Advice" portion of the MIR
   • If the patient is not transported to the hospital, encourage the patient to seek medical attention or call 911 if conditions change or they decide they would like evaluation and care
Appendix L – START Tool

1. Approach patient
   - Breathing
     - Air respirations
       - Normal
         - Assess radial pulse
           - Present
             - Assess mentation
               - Follow commands
                 - Tag Yellow, save end
               - Can’t move fingers and toes
                 - Tag Red, save end
           - Absent
             - Tag Red, save end
2. Not breathing
   - Position air-way
     - Breathing
       - Pediatric not breathing
         - Tag Red, save end
       - Not breathing
         - Not breathing
         - Tag Black, save end
     - Fast, slow, or noisy
       - Tag Red, save end
   - Give 5 rescue breaths; if still not breathing, tag Black
## Appendix M – Toxindromes

<table>
<thead>
<tr>
<th>Substance</th>
<th>BP</th>
<th>HR</th>
<th>RR</th>
<th>T</th>
<th>Mental status</th>
<th>Signs/symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adrenergic agonists</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>Agitation, psychosis</td>
<td>Mydriasis, diaphoresis</td>
</tr>
<tr>
<td>Antihistamines</td>
<td>↓</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>Variable – Agitation to coma, psychosis</td>
<td>Dry mouth, blurred vision, mydriasis, flushing, urinary retention</td>
</tr>
<tr>
<td>Beta blockers</td>
<td>↓</td>
<td>↓</td>
<td></td>
<td></td>
<td>Lethargy, coma</td>
<td>Dizziness, cyanosis, seizures</td>
</tr>
<tr>
<td>Cholinergic agents</td>
<td>↓↑</td>
<td>↓↑</td>
<td></td>
<td></td>
<td>Lethargy, coma</td>
<td>Salivation, lacrimation, urination, diarrhea, miosis, diaphoresis, seizures</td>
</tr>
<tr>
<td>Cyclic antidepressants</td>
<td>↓</td>
<td>↑</td>
<td></td>
<td></td>
<td>Lethargy, coma</td>
<td>Dry mouth, blurred vision, mydriasis, flushing, urinary retention</td>
</tr>
<tr>
<td>Ethanol and sedatives</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
<td>Lethargy, coma</td>
<td>Slurred speech, ataxia, hyporeflexia</td>
</tr>
<tr>
<td>Ethanol or sedative</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>Agitation, psychosis</td>
<td>Mydriasis, diaphoresis, tremor, seizures</td>
</tr>
<tr>
<td>Hallucinogens</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Variable – Agitation to lethargy, psychosis</td>
<td>Mydriasis</td>
</tr>
<tr>
<td>Opioid compounds</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
<td>Lethargy, coma</td>
<td>Slurred speech, ataxia, hyporeflexia</td>
</tr>
<tr>
<td>Opioid withdrawal</td>
<td>↑</td>
<td>↑</td>
<td></td>
<td></td>
<td>Normal to agitated</td>
<td>Nausea, vomiting, abdominal cramping, hyperactivity</td>
</tr>
<tr>
<td>Salicylate compounds</td>
<td>↓</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>Variable – Agitation to coma</td>
<td>Tinnitus, nausea, vomiting, diaphoresis</td>
</tr>
</tbody>
</table>
Appendix N – Washington State Trauma Triage Tool

Measure vital signs and level of consciousness

<table>
<thead>
<tr>
<th>Measure</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glasgow Coma Scale</td>
<td>&lt; 14 or</td>
</tr>
<tr>
<td>Systolic blood pressure</td>
<td>&lt; 90 in adult pt or signs and symptoms of shock</td>
</tr>
<tr>
<td>Respiratory rate</td>
<td>&lt; 10 or &gt; 29 breaths/min ( &lt; 20 in infant &lt; 1 year)</td>
</tr>
</tbody>
</table>

Access anatomy of injury

- All penetrating injuries to head, neck, torso, and extremities proximal to elbow and knee
- Flail chest
- Two or more proximal long-bone fractures
- Crushed, degloved, or mangled extremity
- Amputation proximal to wrist and ankle
- Pelvic fractures
- Open or depressed skull fracture
- Paralysis

Access mechanism of injury and evidence of high-energy impact

Falls
- Adults: > 20 ft. (one story is equal to 10 ft.)
- Children: 10 ft. or 2-3 times the height of the child

High-Risk Auto Crash
- Intrusion: > 12 in. occupant site; > 18 in. any site
- Ejection (partial or complete) from automobile
- Death in same passenger compartment
- Vehicle telemetry data consistent with high risk of injury

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

Access special patient or system considerations

Age
- Older Adults: Risk of injury death increases after age 55 years
- Children: Should be triaged preferentially to pediatric-capable trauma centers

Anticoagulation and Bleeding Disorders

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

Time Sensitive Extremity Injury
End-Stage Renal Disease Requiring Dialysis
Pregnancy > 20 weeks
EMS Provider Judgement

Transport according to protocol
Appendix N – Washington State Trauma Triage Tool

YES

Take to a trauma center. Steps 1 and 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to the highest level of care within the trauma system.

YES

Take to a trauma center. Steps 1 and 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to the highest level of care within the trauma system.

YES

Transport to closest appropriate trauma center, which depending on the trauma system, need not be the highest level trauma center.

YES

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

When in doubt, transport to a trauma center.
For more information on the Decision Scheme, visit: www.cdc.gov/FieldTriage
St. Peter Hospital Full Trauma Team Activation (FTT) Requirement

- Penetrating injury of the head, neck, torso or groin
- Any traumatic injury requiring airway management (including burns and inhalation injuries)
- Confirmed SBP < 90 mmHg at any time in an adult (or child >10 years old); established by a 2nd reading in rapid succession
- Age specific hypotension in children up to 10 years old
  - Term neonates (0-28 days) SBP <60mmHg
  - Infants (1-12 mo) SBP <70mmHg
  - Children (1-10 yrs) SBP <80mmHg
- Relative hypoxemia: $O_2$ $SpO_2$ < 90% with associated injury
- GCS < 8 with MOI attributed to trauma
- Two or more long bone fractures OR suspected pelvic fracture
Healthline Access Procedure for On-scene EMS Personnel

BLS Unit on scene BLS eval done

EMS unsure if EMS transport is necessary

Call HealthLine through CAPCOM 704-2740

Nurse recommends EMS transport to ED? (Nurse may want to speak to patient directly)

Yes

Appropriate EMS treatment and transport to ED

Patient to follow HealthLine recommendations

EMS assists with follow-up as necessary
# Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACS</td>
<td>acute coronary syndrome – refers to any group of clinical symptoms caused by acute myocardial ischemia</td>
</tr>
<tr>
<td>adrenergic</td>
<td>resembling adrenaline, especially in physiological action</td>
</tr>
<tr>
<td>akisthesia</td>
<td>a feeling of restlessness and an urgent need of movement; side effect of phenothiazines</td>
</tr>
<tr>
<td>antegrade</td>
<td>forward (e.g. from the time of injury)</td>
</tr>
<tr>
<td>anticoagulant</td>
<td>substance that hinders the clotting of blood; a bloodthinner</td>
</tr>
<tr>
<td>aphasia</td>
<td>absence or impairment of the ability to communicate through speech, writing, or signs due to dysfunction of brain centers</td>
</tr>
<tr>
<td>barotrauma</td>
<td>any injury caused by a change in atmospheric pressure between a potentially closed space and the surrounding area</td>
</tr>
<tr>
<td>Bell’s palsy</td>
<td>paralysis of the facial nerve producing distortion on one side of the face</td>
</tr>
<tr>
<td>bradycardia</td>
<td>a heart rate less than 60 in an adult</td>
</tr>
<tr>
<td>carbonaceous sputum</td>
<td>sputum tinged black or charcoal secondary to exposure to fire and or a smoky environment</td>
</tr>
<tr>
<td>carpopedal spasms</td>
<td>involuntary flexion of the hands and feet, usually secondary to carbon dioxide deficiency</td>
</tr>
<tr>
<td>cholinergic</td>
<td>liberating, activated by or involving acetylcholine; resembling acetylcholine, especially in physiologic action</td>
</tr>
<tr>
<td>CID</td>
<td>cervical immobilization device</td>
</tr>
<tr>
<td>clonic activity</td>
<td>rhythmic, involuntary muscle contractions</td>
</tr>
<tr>
<td>colormetric devices</td>
<td>end-tidal carbon dioxide detectors that rely on a litmus type paper to change color in the presence of carbon dioxide</td>
</tr>
<tr>
<td>consent definitions</td>
<td>expressed consent means the patient was advised of the treatment being offered and has given permission; implied consent means consent is assumed to exist</td>
</tr>
<tr>
<td>cricoid pressure</td>
<td>application of digital pressure to cricoid cartilage in neck of an unconscious patient to permit visualization of the glottic opening during endotracheal intubation</td>
</tr>
<tr>
<td>Cushing’s triad</td>
<td>the triad of hypertension, bradycardia, and changing respiratory pattern in patients with head injuries; sign of increasing intracranial pressure</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DAN</td>
<td>Divers Alert Network, an international support network that can provide specialized information and assistance in the area of dive medicine (similar to poison control or CHEMTREC)</td>
</tr>
<tr>
<td>dermatome</td>
<td>an area of skin that is mainly supplied by a single spinal nerve; useful for finding the site of damage to the spine</td>
</tr>
<tr>
<td>DTs</td>
<td>delirium tremens is a disorder involving sudden and severe mental (psychosis) or neurological (seizure) changes caused by abruptly stopping the use of alcohol</td>
</tr>
<tr>
<td>dysrhythmia</td>
<td>a disordered rhythm exhibited in a record of electrical activity of the brain or heart</td>
</tr>
<tr>
<td>dysphagia</td>
<td>difficulty in swallowing</td>
</tr>
<tr>
<td>dyspnea</td>
<td>the sensation of shortness of breath</td>
</tr>
<tr>
<td>dystonia</td>
<td>involuntary muscle contractions often involving lateral rotation of the neck and lateral gaze</td>
</tr>
<tr>
<td>eclampsia</td>
<td>seizure occurring around the time of childbirth; often associated with hypertension or edema</td>
</tr>
<tr>
<td>epistaxis</td>
<td>nosebleed</td>
</tr>
<tr>
<td>evisceration</td>
<td>protrusion of the internal organs</td>
</tr>
<tr>
<td>FATS technique</td>
<td>Face and Thigh Squeeze is a technique for manually maintaining an open airway while using a bag valve mask to ventilate a nontraumatic patient</td>
</tr>
<tr>
<td>GCS</td>
<td>Glasgow Coma Scale is used to quantify a patient’s level of consciousness by assigning a point value to best eye-opening response, best verbal response, and best motor response</td>
</tr>
<tr>
<td>hydrofluoric acid</td>
<td>acid used for glass etching</td>
</tr>
<tr>
<td>incontinence</td>
<td>inability of the body to control the bladder or bowel</td>
</tr>
<tr>
<td>intubation attempt</td>
<td>tip of laryngoscope passing the lips</td>
</tr>
<tr>
<td>lacrimation</td>
<td>the secretion of tears, especially when abnormal or excessive</td>
</tr>
<tr>
<td>lateralizing signs</td>
<td>signs that occur on one side of the body</td>
</tr>
<tr>
<td>miosis</td>
<td>very small pupils</td>
</tr>
<tr>
<td><strong>Term</strong></td>
<td><strong>Definition</strong></td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>mydriasis</td>
<td>pronounced or abnormal dilation of the pupil</td>
</tr>
<tr>
<td>normothermic</td>
<td>normal body temperature</td>
</tr>
<tr>
<td>nuchal</td>
<td>of or relating to the region of the neck</td>
</tr>
<tr>
<td>pallor</td>
<td>deficiency of color, especially of the face</td>
</tr>
<tr>
<td>palpitations</td>
<td>a sensation of an unduly rapid or irregular heart beat</td>
</tr>
<tr>
<td>paresthesia</td>
<td>sensation of numbness, prickling, or tingling</td>
</tr>
<tr>
<td>petechial</td>
<td>hemorrhaging</td>
</tr>
<tr>
<td>petechial</td>
<td>hemorrhaging</td>
</tr>
<tr>
<td>hemmorhaging</td>
<td>small, purplish hemorrhagic spots on the skin</td>
</tr>
<tr>
<td>polypharmacy</td>
<td>ingestion of more than 1 drug together</td>
</tr>
<tr>
<td>POLST</td>
<td>Physician Ordered Life Sustaining Treatment, or end-of-life treatment documentation</td>
</tr>
<tr>
<td>postictal</td>
<td>period that follows the clonic phase of a generalized seizure</td>
</tr>
<tr>
<td>pre-syncope</td>
<td>signs and symptoms experienced by a patient prior to having a syncopal event</td>
</tr>
<tr>
<td>priapism</td>
<td>persistent, abnormal erection of the penis accompanied by pain and tenderness</td>
</tr>
<tr>
<td>procedure</td>
<td>describes the sequence of actions in medical protocols or policies</td>
</tr>
<tr>
<td>prodrome</td>
<td>symptom(s) that may indicate the onset of a disease</td>
</tr>
<tr>
<td>protocol</td>
<td>defines field treatments, or the order and type of medical interventions for specific illness and injury conditions</td>
</tr>
<tr>
<td>pseudoseizure</td>
<td>seizure-like behavior that may or may not be voluntary</td>
</tr>
<tr>
<td>retrograde</td>
<td>going backward (i.e., loss of memory before injury)</td>
</tr>
<tr>
<td>rule of palm</td>
<td>method used to measure the body surface area of a burn patient: the palm of the person who is burned (not fingers or wrist area) is about 1 percent of the body; use the person’s palm to measure the body surface area burned</td>
</tr>
<tr>
<td>salicylate</td>
<td>a group of aspirin-like compounds (i.e., Pepto Bismol, Alka Seltzer)</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>sclera</td>
<td>the white part of the eyeball</td>
</tr>
<tr>
<td>semi-Fowler's</td>
<td>position for patient, with the back raised 45 degrees from horizontal</td>
</tr>
<tr>
<td>sonorous respiration</td>
<td>snoring respirations</td>
</tr>
<tr>
<td>sublingual</td>
<td>beneath the tongue</td>
</tr>
<tr>
<td>status seizure</td>
<td>multiple seizure without return to baseline level of sublingual consciousness</td>
</tr>
<tr>
<td>subcutaneous emphysema</td>
<td>the presence of a gas and especially air in the subcutaneous tissue</td>
</tr>
<tr>
<td>tachycardia</td>
<td>a heart rate greater than 100 in an adult</td>
</tr>
<tr>
<td>tachypnea</td>
<td>abnormally rapid breathing (36-40 breaths per minute for an adult)</td>
</tr>
<tr>
<td>Torsades des Pointes</td>
<td>ventricular tachycardia that is characterized by rhythmic fluctuation in amplitude of the QRS complexes</td>
</tr>
<tr>
<td>tonic</td>
<td>involuntary muscular contraction</td>
</tr>
<tr>
<td>toxindrome</td>
<td>a syndrome associated with a certain toxic substance</td>
</tr>
<tr>
<td>trismus</td>
<td>total contraction of the muscles of the jaw</td>
</tr>
<tr>
<td>unilateral</td>
<td>affecting only one side</td>
</tr>
<tr>
<td>vertigo</td>
<td>the sensation that the environment is moving</td>
</tr>
<tr>
<td>WPW</td>
<td>Wolff-Parkinson-White syndrome is an autonomic defect of the heart that is associated with severe or difficult-to-control tachycardias</td>
</tr>
<tr>
<td>CONTACT</td>
<td>AC</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----</td>
</tr>
<tr>
<td>Capital Medical Center ED</td>
<td>360</td>
</tr>
<tr>
<td>Providence Centralia ED</td>
<td>360</td>
</tr>
<tr>
<td>Children’s Seattle ED</td>
<td>206</td>
</tr>
<tr>
<td>Divers Alert network (DAN)</td>
<td>919</td>
</tr>
<tr>
<td>Harborview Med Ctr “Trauma Doc”</td>
<td>206</td>
</tr>
<tr>
<td>Madigan Army Medical Center</td>
<td>253</td>
</tr>
<tr>
<td>Madigan Gate for Entrance</td>
<td>253</td>
</tr>
<tr>
<td>Mary Bridge Children’s ED</td>
<td>253</td>
</tr>
<tr>
<td>Providence St Peter Hospital ED</td>
<td>360</td>
</tr>
<tr>
<td>Tacoma General ED</td>
<td>253</td>
</tr>
<tr>
<td>Virginia Mason ED</td>
<td>206</td>
</tr>
<tr>
<td>END HARM Reporting</td>
<td>866</td>
</tr>
<tr>
<td>Area Agency on Aging</td>
<td>360</td>
</tr>
<tr>
<td>Thurston County Coroner</td>
<td>360</td>
</tr>
<tr>
<td>Washington Poison Center</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Cross (24 hrs)</td>
<td>360</td>
</tr>
<tr>
<td>Safeplace (Emergency Shelter)</td>
<td>360</td>
</tr>
<tr>
<td>Salvation Army (Emergency Shelter)</td>
<td>360</td>
</tr>
<tr>
<td>CYS Shelter Project (11-17yrs)</td>
<td>360</td>
</tr>
<tr>
<td>Crisis Clinic</td>
<td>360</td>
</tr>
<tr>
<td>Domestic Violence Hotline</td>
<td>800</td>
</tr>
<tr>
<td>Haven HouseYouth Shelter (24 hrs)</td>
<td>360</td>
</tr>
</tbody>
</table>