



Thurston County



EMS Protocols

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General Patient Care Procedures

Bold italics indicate an ALS procedure

EMR, EMT, and paramedic skills are defined as to the scope in Appendix J

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 obstruction with Magill forceps***
- ◆ Maintenance (in order of preference)
 - Positioning
 - Airway adjunct (most appropriate)
 - Naso- or Oropharyngeal Airway (NPA or OPA)
 - Supraglottic Airway (SGA)
 - ***Orotracheal intubation***
 - ***Eschmann-type stylet***
 - ***Video-assisted laryngoscopy***
 - ***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 2-6 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:

- ◆ 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 (medical patients only) or 2-person technique with an OPA/NPA
3. Used in conjunction with an SGA
4. 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. Consider use of a tourniquet with the preference of BP cuff over commercial tourniquet.

◆ **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.***

General Patient Care Procedures

4. ***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***
5. **ANNUAL MPD REQUIRED TRAINING:** ***If peripheral IV access and intraosseous access attempts are unsuccessful, consider external jugular IV access or central IV access in one of the following sites:***
 - a) ***Right subclavian vein***
 - b) ***Right or left femoral vein***

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 playing a pillow or blanket roll under the (patient's) right side of the backboard.
- ◆ 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

General Patient Care Procedures

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 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***

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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.
- ◆ An 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).

General Patient Care Procedures

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
- ◆ Respiratory Distress: accessory muscle use, retractions, altered mental status
- ◆ 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

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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

ALS	<ul style="list-style-type: none">• <i>Monitor ECG</i>• <i>IV(s) normal saline – titrate to maintain BP 90 – 100 systolic</i>• <i>Pain management per protocol</i>
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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
- Epiglottitis
- FBAO

Allergic Reaction

Plan / Treatment

- General patient care procedures
- Epinephrine administration (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

ALS	<ul style="list-style-type: none">• <i>Epinephrine dosing and administration in Appendix G</i>• <i>Control airway prn</i>• <i>Albuterol nebulized prn (for bronchospasm)</i>• <i>Glucagon 1.0 mg IV q 5 min</i><ul style="list-style-type: none">• <i>Hypotension refractory to fluid and epinephrine when patients are taking beta blockers</i>• <i>Diphenhydramine 25-50 mg IM/IV</i>• <i>ALS transport mandatory for patients who have received glucagon or epinephrine (regardless of who administered)</i>
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Animal Bites

(includes humans, reptiles, invertebrates, insects, etc.)

Pertinent Subjective Findings

- What bit the patient?
- When was the patient bitten?
- Where 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 venomous snakes or reptiles
- Serious injury to the face or neck

Assessment / Differential Diagnosis

- Venomous animal bite
- Non-venomous 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

Animal Bites

- Immobilize affected limbs in position of comfort
- If venomous animal is suspected, limit physical activity, keep limb lower than heart, and contact the Washington Poison Center at 800-709-0911.

ALS	<ul style="list-style-type: none">• <i>IV (not in affected limb)</i>• <i>Fluid resuscitation as needed</i>• <i>Dopamine 2-5 mcg/kg/min increased by 5 mcg/kg/min, until systolic BP greater than 90 mmHg</i>• <i>Pain management per protocol</i>
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Bleeding (Non-traumatic)

Pertinent Subjective Findings

- Prolonged vomiting/diarrhea
- “Coffee grounds” emesis
- Bloody or tarry stools
- Medications
 - Coumadin®
 - NSAIDs (ibuprofen, ASA)
- Trauma
- 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)

Assessment and Treatment

ALS

- *RSI if needed to protect airway*
- *Fluid resuscitation prn*
- *Dopamine 2-5 mcg/kg/min increased by 5 mcg/kg/min, until systolic BP greater than 90 mmHg*
- *Pain management per protocol*

Breathing Difficulty

Patient 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
- Corpopedal 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 | ▪ Inhalation injury |
| ▪ Acute pulmonary edema | ▪ Trauma |
| ▪ Hyperventilation syndrome | ▪ Narcotic overdose |
| ▪ Pulmonary embolus | ▪ CO poisoning |
| ▪ Pneumothorax | ▪ Croup |
| ▪ Reactive airway disease | ▪ 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

ALS

- ***For COPD or asthma exacerbation:***
 - ***Albuterol/ipratropium nebulized***
 - ***Continuous albuterol nebulizer as long as patient remains in distress***
 - ***Consider BiPAP®***
 - ***Consider RSI***
- ***For pulmonary edema:***
 - ***Nitroglycerin 0.4 mg SL***
 - ***Up to 2" of nitroglycerin paste; monitor patient's BP q 5 min, if systolic BP drops below 100 mmHg, then remove***
 - ***Lasix 40 mg or twice the patient's daily dose IV***
 - ***Consider BiPAP®***
- ***For pneumonothorax:***
 - ***Needle thoracentesis***

Breathing Difficulty

Ped	<u>Upper Airway Obstruction</u> <u>(stridor)</u>	<u>Lower Airway Obstruction</u> <u>(wheezing)</u>
	<ul style="list-style-type: none"> ▪ <i>Treat for FBAO prn</i> ▪ <i>Treat croup with epinephrine SVN (1:1,000) 0.5 mL/kg to max 5 mL with 3mL NS. BVM assist for ventilatory failure.</i> ▪ <i>If respiratory arrest occurs, attempt one intubation with an ETT 1-2 sizes smaller than usual; if unsuccessful, proceed to a surgical airway.</i> 	<ul style="list-style-type: none"> ▪ <i>Less than 2 y/o: 2.5 mg albuterol. Otherwise, 5.0 mg albuterol with ipratropium. If severe distress, consider continuous treatment.</i> ▪ <i>If in respiratory failure or unable to comply with nebulizer, administer 0.01 mg/kg epinephrine 1:1,000 IM.</i>

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)

ALS	<ul style="list-style-type: none">• <i>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</i>• <i>NTG 0.4 mg SL along with 1" of paste (add 1" additional in 10 minutes if pain persists)</i>• <i>If ACS suspected or confirmed by 12-lead</i><ul style="list-style-type: none">• <i>Notify the receiving physician and transmit 12-lead</i>• <i>Pain management per protocol</i>• <i>ACLS algorithms (Appendix A)</i>
Ped	<ul style="list-style-type: none">• <i>PALS algorithms (Appendix A)</i>

Choking

Pertinent Subjective Findings

- Events leading to airway obstruction

Pertinent Objective Findings

- Inability to talk or cough
- Stridor
- Cyanosis
- Hoarse voice
- Croup cough
- Drolling
- 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

ALS	<ul style="list-style-type: none"> • <i>If patient becomes unconscious and cannot be ventilated, visualize the airway and attempt to remove the obstruction.</i> • <i>If unsuccessful, see Difficult Airway Management (Appendix J).</i>
Ped	<ul style="list-style-type: none"> • <i>Follow age-appropriate AHA guidelines.</i>

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	<ul style="list-style-type: none"> • <i>Dextrose 50%</i> • <i>Consider pretreatment of hypoglycemic alcoholic patients with thiamine</i> • <i>Glucagon IM if no IV access is available</i> • <i>ALS TRANSPORT IS REQUIRED for patients who are taking ultralente, lantus, or oral hypoglycemic medications (except metformin [Glucophage®]) after IV glucose resuscitation.</i>
Ped	<ul style="list-style-type: none"> • <i>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</i> • <i>Dextrose administration guidelines:</i> <ul style="list-style-type: none"> • <i>Child greater than 2 y/o: 50% dextrose</i> • <i>Child less than 2 y/o: 25% dextrose (1 ml of 50% dextrose per 1 ml of saline)</i> • <i>Newborn: 10% dextrose</i>

Environmental Emergencies

Pertinent Subjective Findings

- Onset of symptoms (fast vs. slow)
- Environmental conditions patient was exposed to 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
- Heat
 - Tachycardia
 - Tachypnea
 - Cool, clammy skin
 - Hot, dry skin
- Cold
 - Discolored, frozen, hard skin
 - Absence of shivering
 - Bradycardia
 - Slow respiration
 - Hypotensive
- Seizures
- Altered or decreased mental status
- Hazardous materials
 - Skin irritation at contact site
 - Vomiting
 - Loss of vision
 - Respiratory distress
 - SLUDGE
 - Salivation
 - Lacrimation
 - Urination
 - Defecation
 - Gastrointestinal
 - Emesis

Environmental Emergencies

ALS Upgrades 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 chemical (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

ALS	<ul style="list-style-type: none">• <i>Heat injury</i><ul style="list-style-type: none">• <i>IV bolus 20 ml/kg</i>• <i>Continue fluid resuscitation if signs of dehydration continue</i>• <i>Hazardous materials</i><ul style="list-style-type: none">• <i>Provide supportive care for the presenting toxindrome in consultation with Washington Poison Center and the supervising physician</i>
Ped	<ul style="list-style-type: none">• <i>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.</i>

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've 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

ALS	<ul style="list-style-type: none">• <i>IV</i>• <i>Promethazine and Ondansetron (prn nausea)</i>• <i>Consider RSI for GCS less than 9</i>• <i>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</i>• <i>Pain management per protocol</i>
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Mental / Emotional / Psych

Pertinent Subjective Findings

- Acute onset of underlying illness or injury
- Underlying psychiatric disorders
- Baseline level of function for 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/combatative patient requiring restraint for transportation from the scene to the hospital

Assessment / Differential Diagnosis

- Psychiatric disorders
 - Schizophrenia
 - Depression
 - Mania
 - Anxiety

Mental / Emotional / Psych

- AEIOUTIPPS

- **A**lcohol/acidosis
- **E**pilepsy/electrolytes/endocrine
- **I**nsulin (hypo/hyperglycemia)
- **O**verdose
- **U**remia/underdose
- **T**rauma
- **I**nfection
- **P**sychosis
- **P**ump/poison
- **S**troke/shock

Plan / Treatment

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

ALS	<ul style="list-style-type: none">• IV• Monitor• Chemical restraint – midazolam 5-10 mg IM or IN• Chemical restraint – ketamine 2-4 mg / kg IM
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Overdose / Poisoning (Toxic Exposure)

Pertinent Subjective Findings

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

Pertinent Objective Findings

- | | |
|--------------------------------------|-------------------------------|
| ▪ Respiratory distress | ▪ Gag reflex (present/absent) |
| ▪ Altered or decreased mental status | ▪ SLUDGE symptoms |
| ▪ Difficulty swallowing | ○ S alivation |
| ▪ Empty containers | ○ L acrimation |
| ▪ Pill bottles | ○ U rination |
| ▪ Seizure | ○ D efecation |
| ▪ Signs or symptoms of ACS | ○ G astrointestinal |
| ▪ Drug paraphernalia | ○ E mesis |
| ▪ 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

Assessment / Differential Diagnosis

- | | |
|-----------------------|-------------------------------|
| ▪ Adrenergic agonists | ▪ Ethanol/sedative withdrawal |
| ▪ Antihistamines | ▪ Hallucinogens |
| ▪ Beta blockers | ▪ Opioid compounds |
| ▪ Cholinergic agents | ▪ Opioid withdrawal |

Overdose / Poisoning (Toxic Exposure)

- Cyclic antidepressants
- Salicylate compounds
- Ethanol/sedatives

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
- Seizure
- Passing of tissue
- Abdominal rigidity
- Pedal edema
- Hypotension
- Hypertension
- Headache
- Foul-smelling vaginal discharge
- Altered or decreased mental status

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

Pregnancy / Childbirth / OB-GYN

- 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 age 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 | ▪ Breech presentation |
| ▪ Pelvic inflammatory disease | ▪ Pre-eclampsia/eclampsia |
| ▪ Spontaneous abortion (miscarriage) | ▪ Pre-term labor |
| ▪ Genital trauma | ▪ Placenta previa |
| ▪ Childbirth | ▪ Placental abruption |
| ▪ Prolapsed cord | ▪ Postpartum hemorrhage |
| ▪ Nuchal cord | ▪ 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

Pregnancy / Childbirth / OB-GYN

- 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

ALS	<ul style="list-style-type: none"> • <i>Attempt to monitor fetal heart tones</i> • <i>Pre-eclampsia (BP greater than 160 mmHg systolic or greater than 90 mmHg diastolic or severe edema) – contact the supervising physician</i> • <i>Eclamptic seizures</i> <ul style="list-style-type: none"> • <i>Magnesium sulfate 4g IV over 4 min</i> • <i>Call supervising physician for midazolam for refractory seizures</i> • <i>Postpartum hemorrhage – treat for shock</i> • <i>See “Neonatal Resuscitation” algorithm (Appendix A)</i> • <i>Transport per patient status to facility of choice or nearest hospital</i>
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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 seizing 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
- Pseudo seizure
- 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

ALS	<ul style="list-style-type: none"> • <i>Obtain blood glucose level</i> • <i>Midazolam per protocol</i> • <i>First-time seizure requires ALS transport (see exception for pediatric patients)</i> • <i>RSI followed by sustained paralysis for seizure refractory to midazolam – contact supervising physician</i> • <i>Magnesium sulfate for eclamptic seizures</i>
Ped	<ul style="list-style-type: none"> • <i>Blood glucose test: treat if less than 60 mg/dL (less than 40 mg/dL in neonates)</i> • <i>Midazolam per protocol</i> • <i>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.</i>

Stroke

Pertinent Subjective Findings

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

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

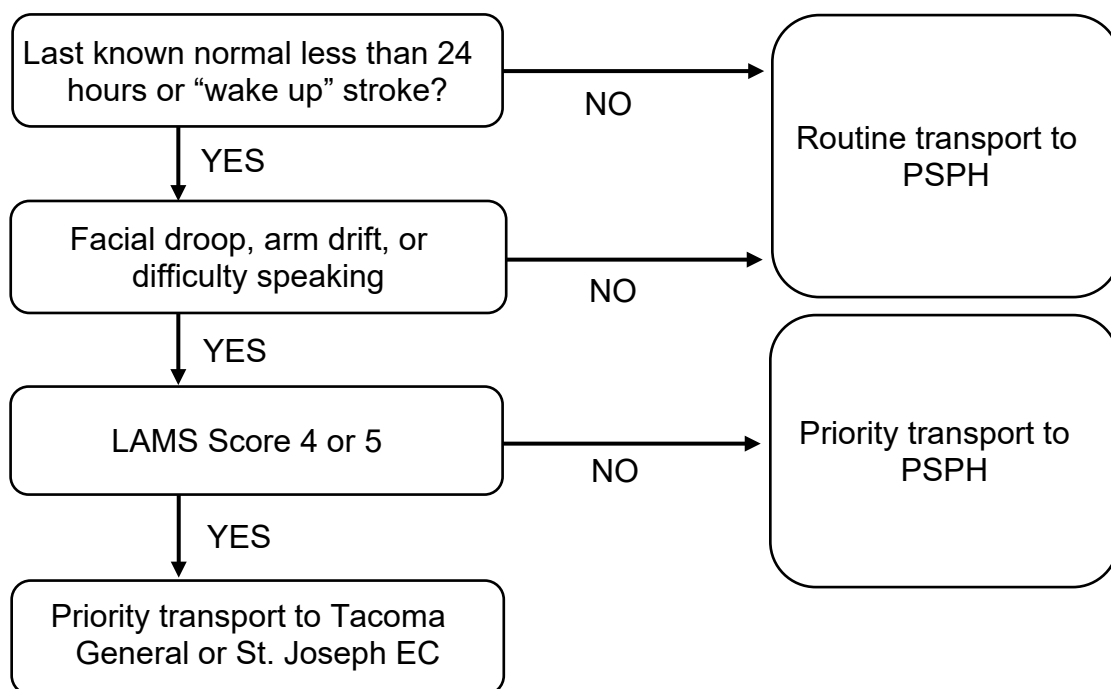
- Hypoglycemia
- Bell's palsy
- Epidural/subdural hematoma
- Tumor
- Migraine
- Encephalitis
- Seizure
- Stroke
- TIA
- Todd's paralysis

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



CALL FAST – First arriving BLS unit immediately contact receiving facility to notify EC of a “Code 3 Stroke.”

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

ALS

- ***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 (prodrome)
- 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

- Syncope
- AEIOUTIPPS
 - **A**lcohol/acidosis
 - **E**pilepsy/electrolytes/endocrine
 - **I**nsulin (hypo/hyperglycemia)
 - **O**verdose
 - **U**remia/underdose
 - **T**rauma
 - **I**nfection
 - **P**sychosis
 - **P**ump/poison
 - **S**troke/shock

Unconscious / Syncope

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

Plan / Treatment

- General patient care procedures
- Check blood glucose level (Appendix J)

ALS	<ul style="list-style-type: none"> • <i>Check blood glucose level</i> • <i>Administer Narcan if opiate use is suspected</i> • <i>Consider RSI for GCS less than 9</i> • <i>If patient acutely decompensates, showing signs of impending brainstem herniation (unilateral dilated pupil, posturing, decreasing GCS) adjust ventilation to maintain end-tidal CO₂ near mmHg</i>
Ped	<ul style="list-style-type: none"> • <i>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</i> • <i>Dextrose administration guidelines:</i> <ul style="list-style-type: none"> • <i>Child greater than 2 y/o: Give 50% dextrose</i> • <i>Child less than 2 y/o: Give 25% dextrose</i> • <i>Newborn: Give 10% dextrose</i> • <i>Administer Narcan if opiate overdose is suspected</i>

Abdominal Trauma

Pertinent Subjective Findings

- MOI
- Protective devices (seat belts/airbags)
- Pregnancy
- Medications (e.g. anticoagulants, 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

Abdominal Trauma

- 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)

ALS	<ul style="list-style-type: none">• <i>Pain management per protocol</i>• <i>Rapid transport of ALS trauma patients should be prioritized over intravenous access or other interventions of dubious value</i>• <i>Washington State Trauma Triage Tool (Appendix N) applies</i>
Ped	<ul style="list-style-type: none">• 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)

Burns

- 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
- Use “Rule of Nines” (Appendix H) or the palm rule to estimate percentage 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

ALS	<ul style="list-style-type: none"> • General ALS patient care procedures • IV fluid resuscitation guidelines <ul style="list-style-type: none"> • Less than 15% BSA = TKO* • 15-40% BSA = 2 IVs, 500 ml bolus, then consult for further • Greater than 40% BSA = 2 IVs wide open • 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 • NG tube for patients who require intubation • Pain management per protocol • Consult early with supervising physician on hospital destination and ground vs. air transport decisions* • State Trauma Triage Tool (Appendix N) applies <p>* Requires consultation with supervising physician for burns > 10% BSA</p>
Ped	<ul style="list-style-type: none"> • Use caution when cooling burns, as pediatric patients are more vulnerable to hypothermia • Estimate the percent of BSA burned • Pain management per protocol

Chest Trauma

Pertinent Subjective Findings

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

Pertinent Objective Findings

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

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)

Plan / Treatment

- General patient care procedures

Chest Trauma

- 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	<ul style="list-style-type: none"> • <i>Hemo/pneumothorax or tension pneumothorax</i> <ul style="list-style-type: none"> • <i>Pleural decompression</i> • <i>Cardiac tamponade</i> <ul style="list-style-type: none"> • <i>Pericardiocentesis</i> • <i>Pain management per protocol</i> • <i>Tranexemic Acid if signs or symptoms of hemorrhagic shock</i> • <i>Rapid transport of ALS trauma patients should be prioritized over intravenous access or other interventions of dubious value</i> • <i>Washington State Trauma Triage Tool (Appendix N) applies</i>
Ped	<ul style="list-style-type: none"> • 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.)
- Medications
- Protective devices (wrist guards, knee pads, etc.)
- Underlying medical condition(s)
- Syncope before or after event

Pertinent Objective Findings

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

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

Extremity Trauma

- If bleeding from the stump is life threatening, consider applying a tourniquet (defined as a BP cuff or a commercial tourniquet).
- 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 contained with patient name, time of amputation, and time placed in the container
 - Transport the amputated part to the same hospital as the patient

ALS	<ul style="list-style-type: none"> • <i>Pain management per protocol</i> • <i>Tranexemic Acid if signs or symptoms of hemorrhagic shock</i> • <i>Consult supervising physician for patient destination</i> • <i>Rapid transport of ALS trauma patients should be prioritized over intravenous access or other interventions of dubious value</i> • <i>Washington State Trauma Triage Tool (Appendix N) applies</i>
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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 nosebleed, 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

ALS

- *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 CO₂ near 30 mmHg*
- *Administer proparacaine prior to irrigation of eyes*
- *Pain management per protocol*
- *Tranexemic Acid if signs or symptoms of hemorrhagic shock*
- *Consult supervising physician for trauma center destination*
- *Rapid transport of ALS trauma patients should be prioritized over intravenous access or other interventions of dubious value*

Assessment and Treatment

Spinal Trauma

Pertinent Subjective Findings

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

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

ALS	<ul style="list-style-type: none">▪ <i>Treat neurogenic shock with fluid resuscitation</i>▪ <i>Consult supervising physician for trauma center destination</i>▪ <i>Pain management per protocol</i>▪ <i>Rapid transport of ALS trauma patients should be prioritized over intravenous access or other interventions of dubious value</i>
Ped	<p>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.</p> <ul style="list-style-type: none">▪ <i>Consider Risk / Benefit of c-collar and backboard</i>▪ <i>Consider sedation for uncooperative pediatric patients</i>▪ <i>The need for full spinal immobilization of a child is rare</i>

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
- 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
- Dyspnea

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

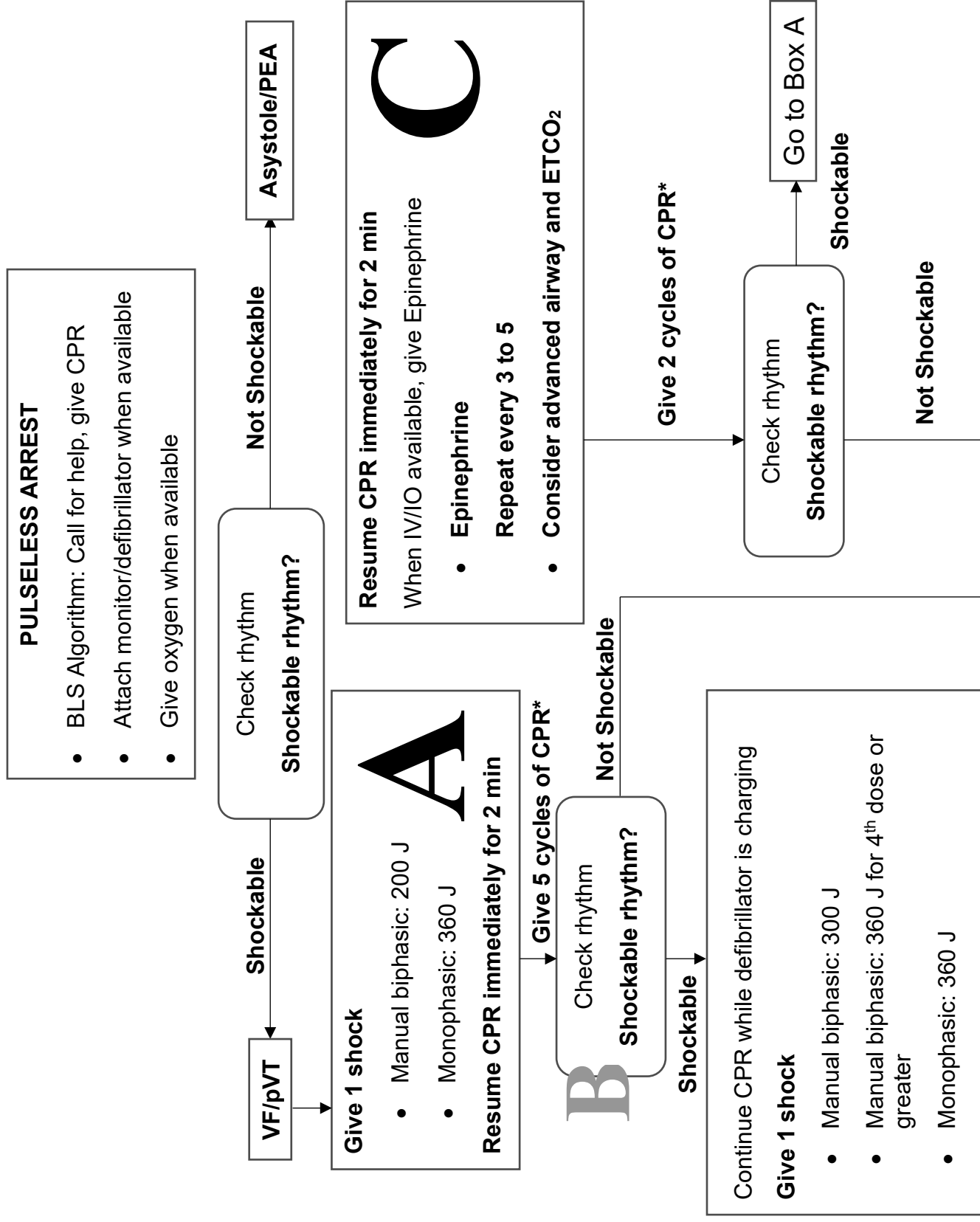
Submersion Injury

ALS	<ul style="list-style-type: none">• <i>Contact Divers Alert Network (DAN) at 919-684-9111 for information on treatment of specific diving syndrome, location and availability of hyperbaric chambers</i>• <i>Discuss transport destination and method (air vs. ground) with DAN and supervising physician</i>• <i>Transport dive computer to same hospital as patient</i>
Ped	<ul style="list-style-type: none">• <i>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</i>

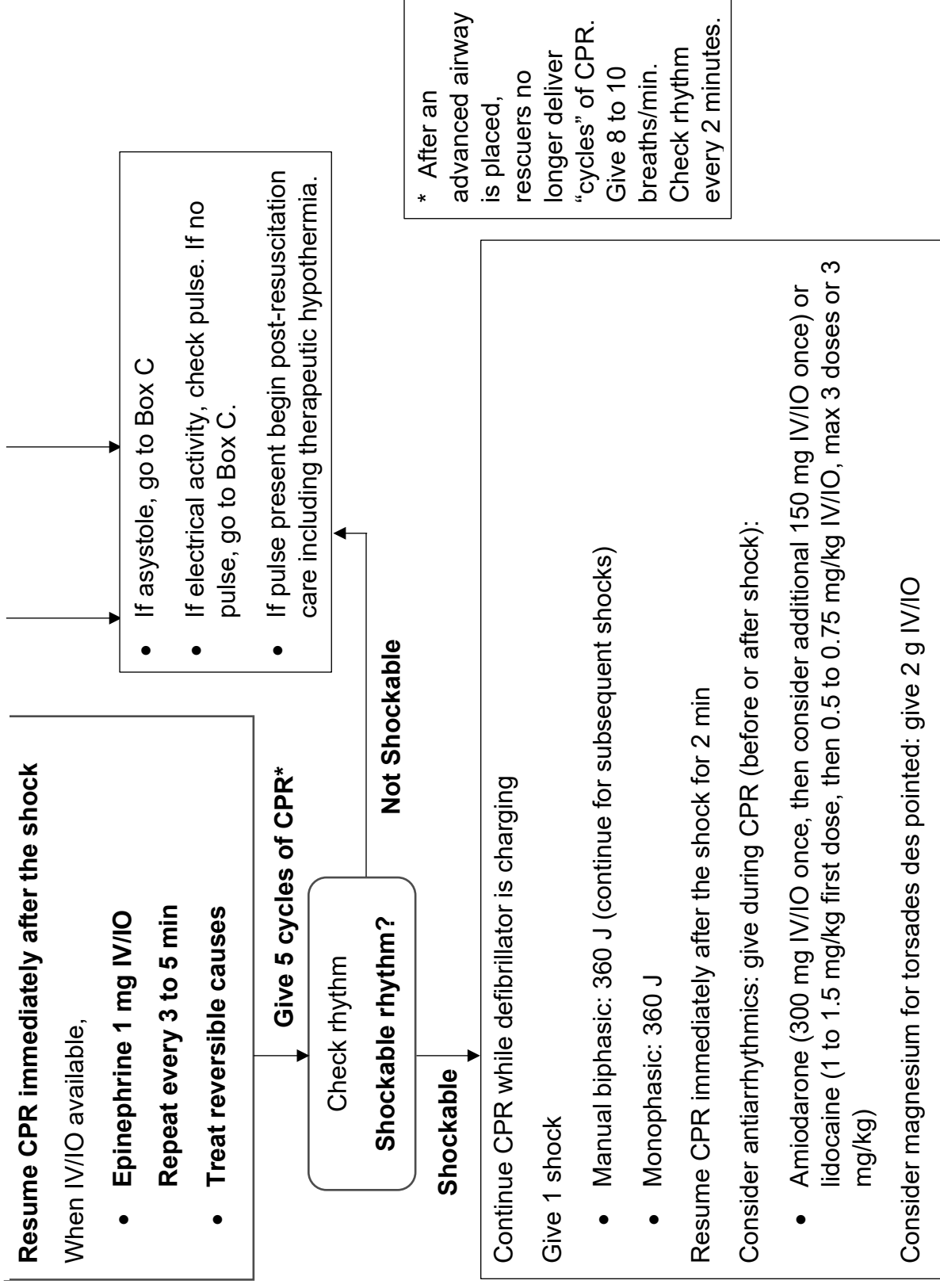
Appendix A – ACLS Algorithms

Pulseless Arrest	A-2
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Pediatric Pulseless Arrest	A-7
Pediatric Tachycardia	A-10
Pediatric Bradycardia	A-12
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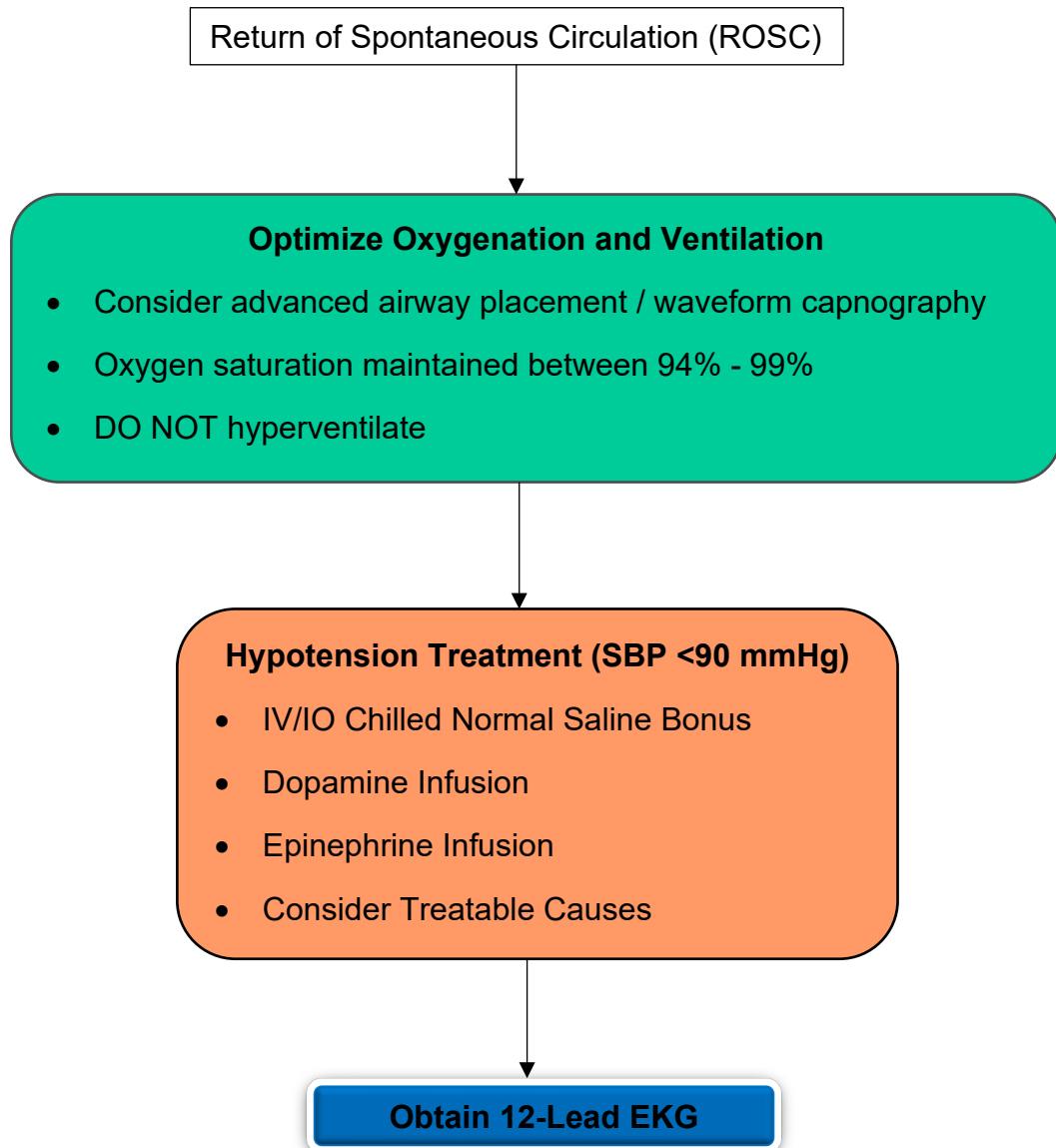
Pulseless Arrest



Pulseless Arrest



Post-Cardiac Arrest Care



Tachycardia

(with pulse)

Assess appropriateness for clinical condition.
Heart rate typically $\geq 150/\text{min}$ 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?

Yes

Synchronized cardioversion

- Consider sedation
- If regular narrow complex, consider adenosine

No

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

- IV access and 12-lead ECG if available
- Vagal maneuvers
- Adenosine (if regular)
- Calcium channel blocker
- Consider expert consultation

Consider:

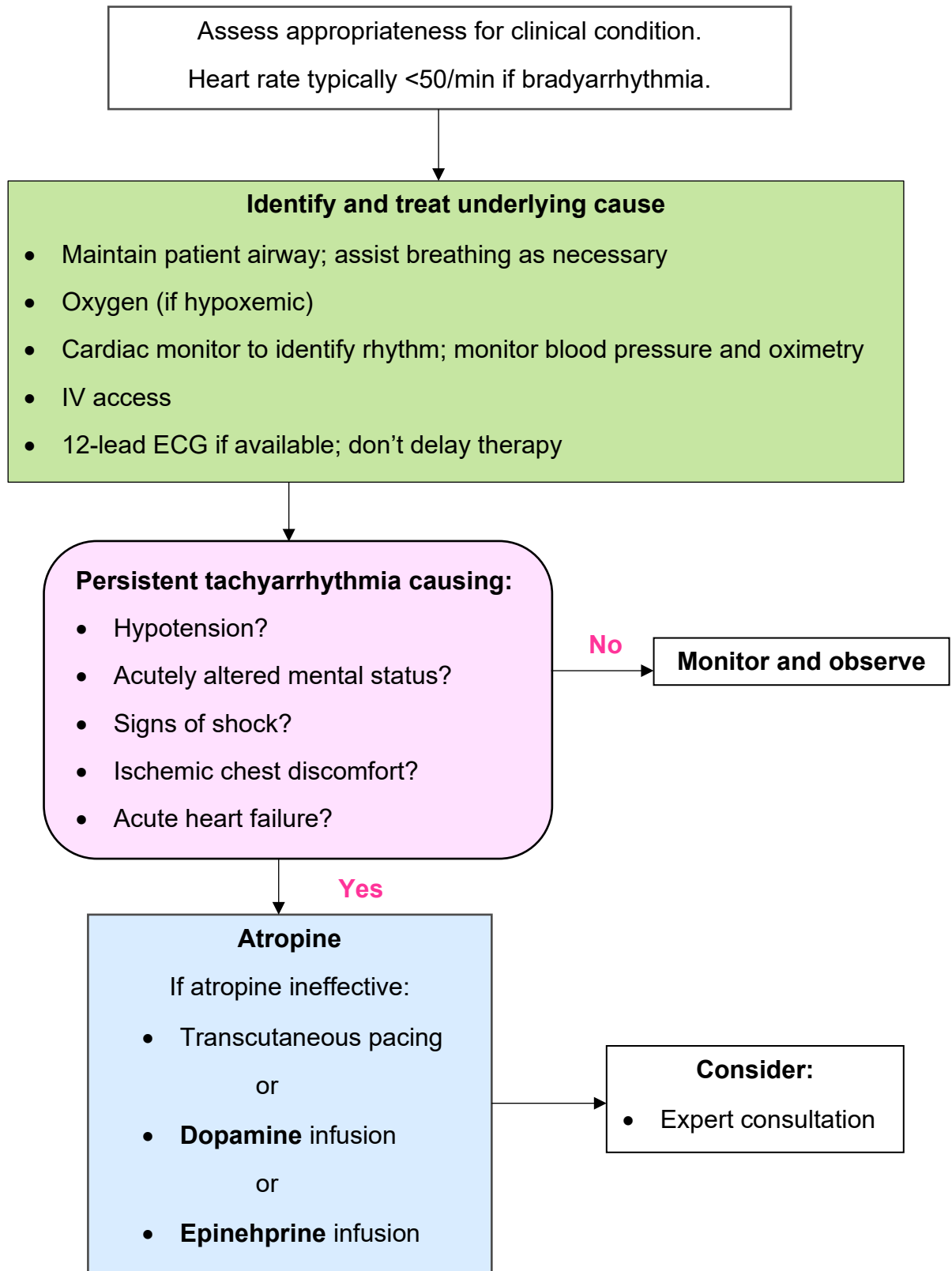
- Expert consultation

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)

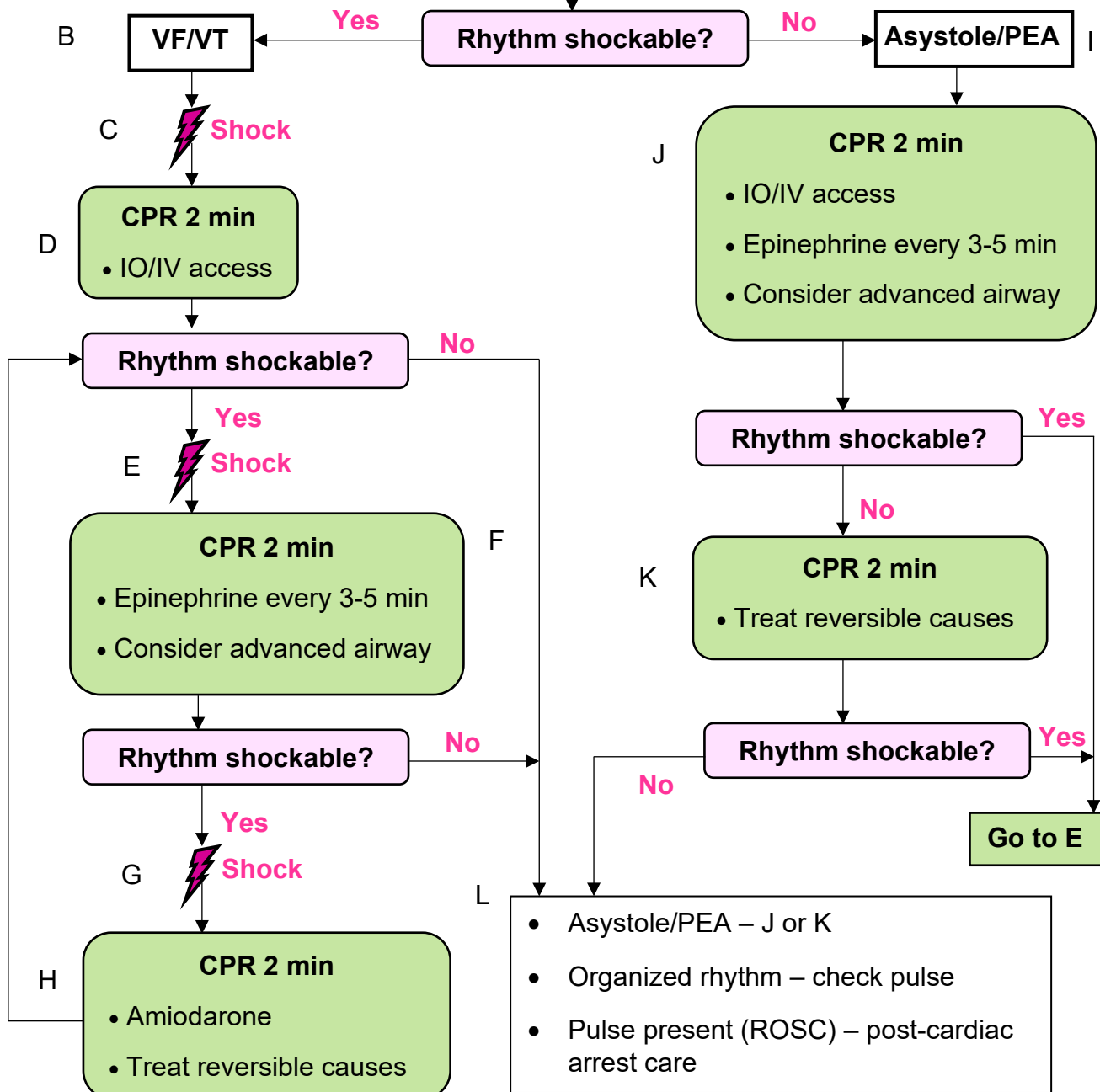


Pediatric Cardiac Arrest

Shout for Help / Activate Emergency Response

Start CPR

- Give oxygen
- Attach monitor/defibrillator



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).

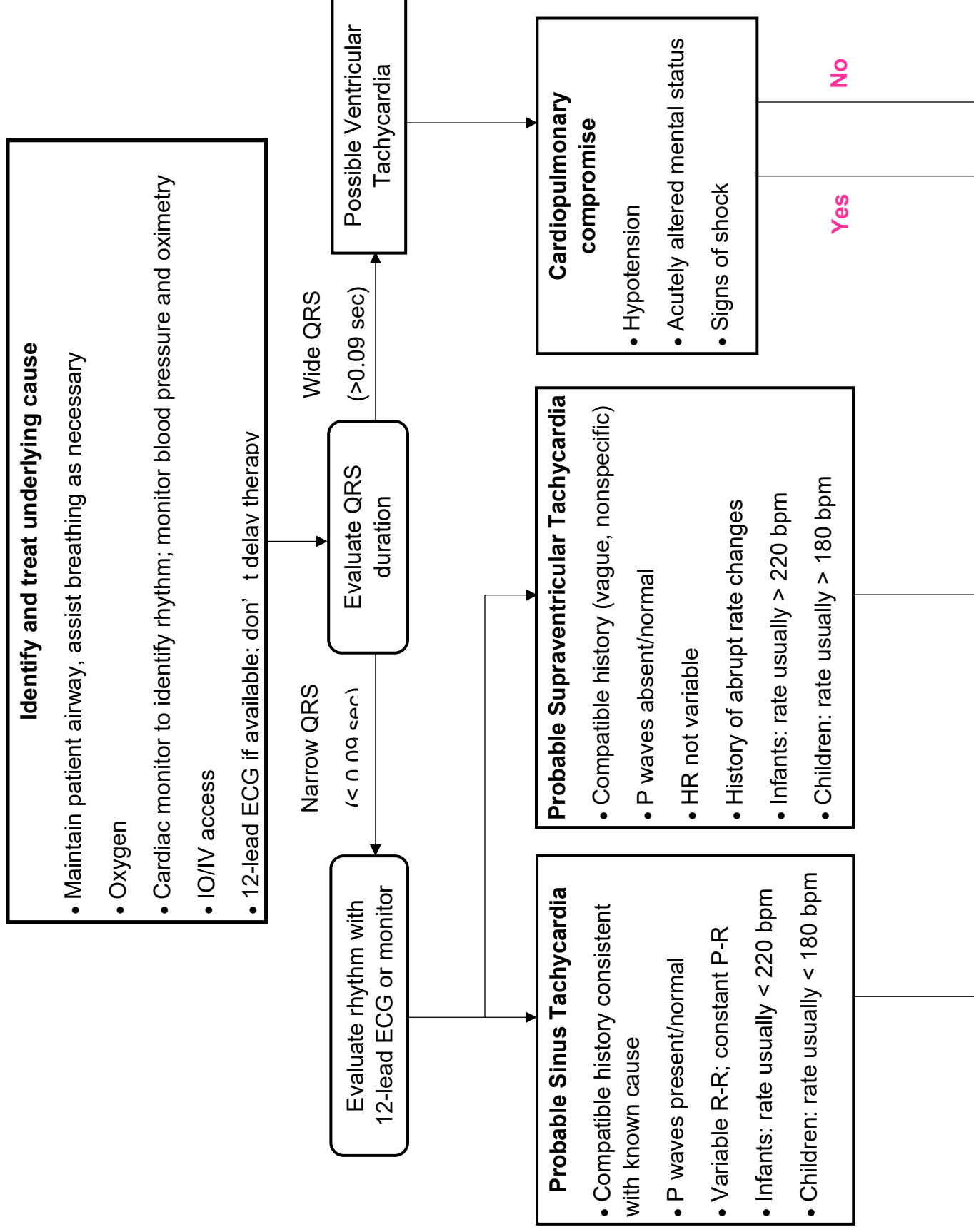
- **Amiodarone IO/IV Dose:**

5 mg/kg bolus during cardiac arrest. May repeat up to 2 times for refractory VF/pulseless VT.

Appendix A – ACLS Algorithms

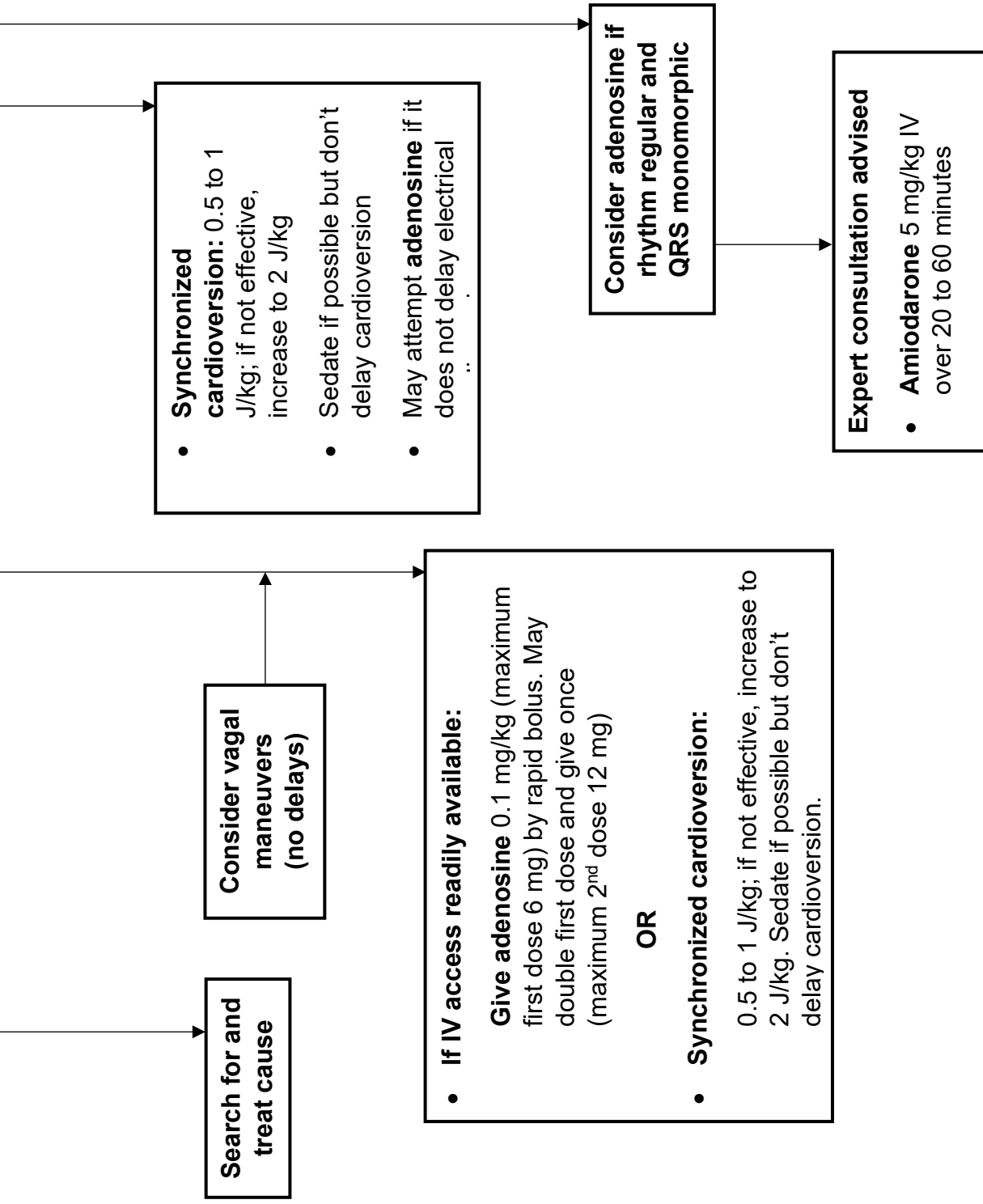
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Pediatric Tachycardia

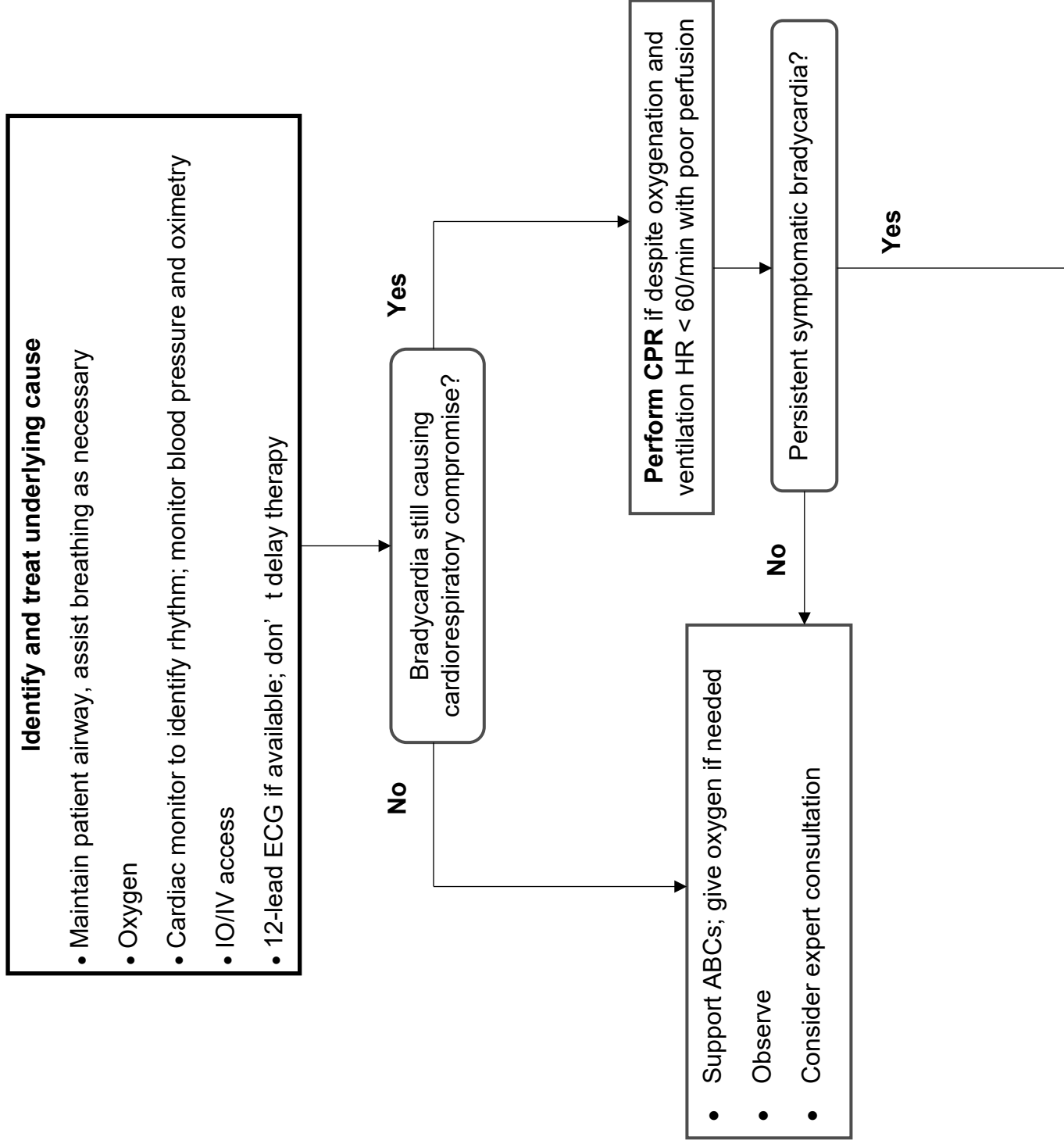


Pediatric Tachycardia

(with a pulse and poor perfusion)

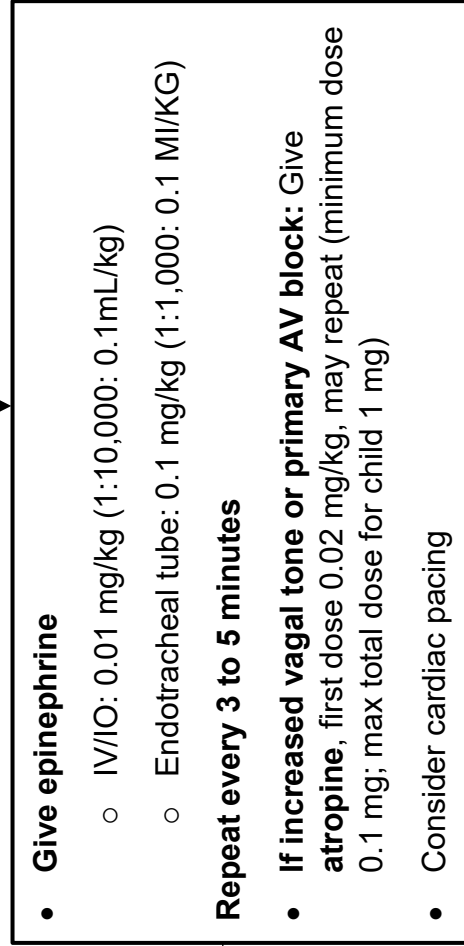


Pediatric Bradycardia (with a pulse and poor perfusion)



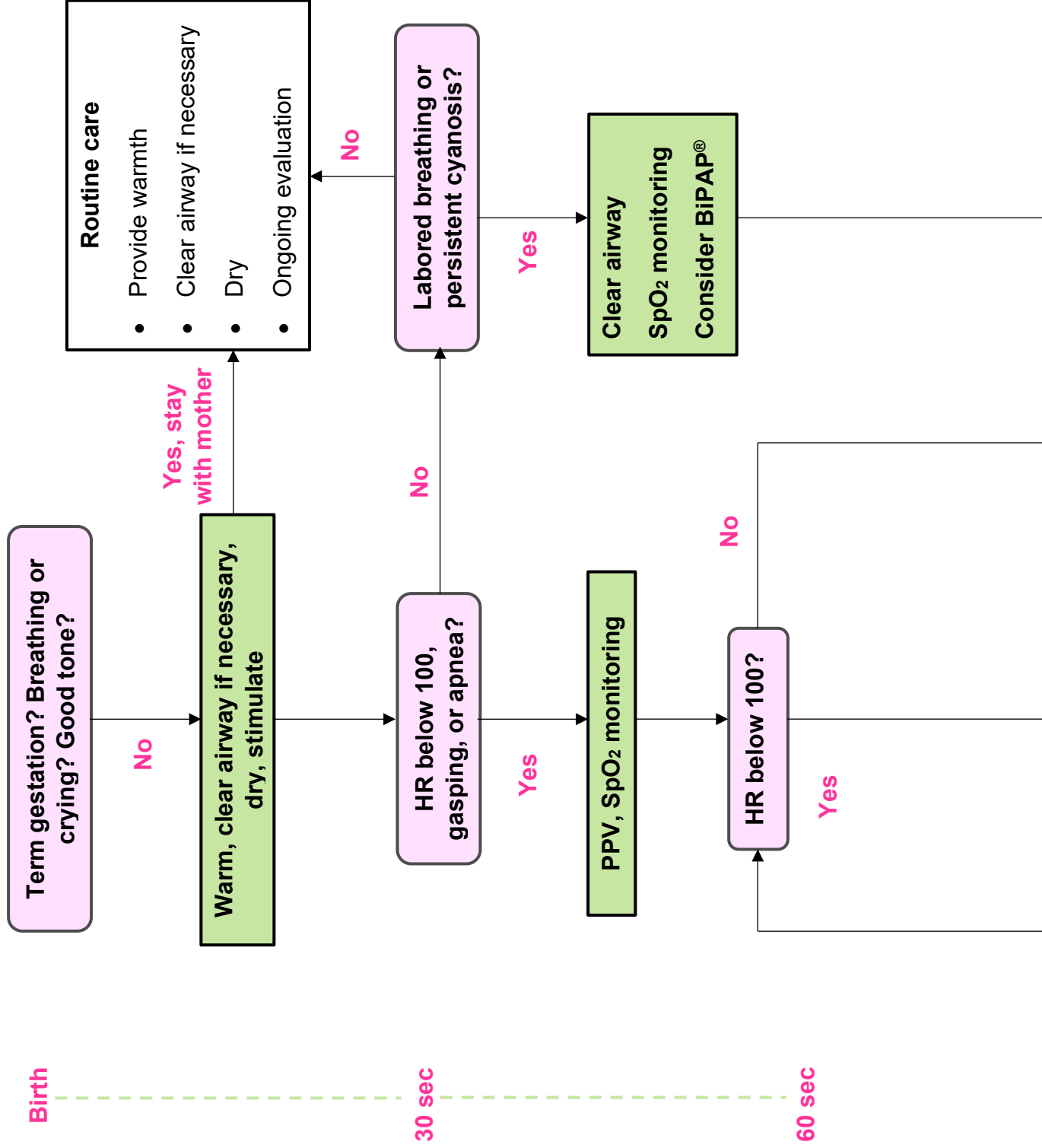
Pediatric Bradycardia

(with a pulse and poor perfusion)

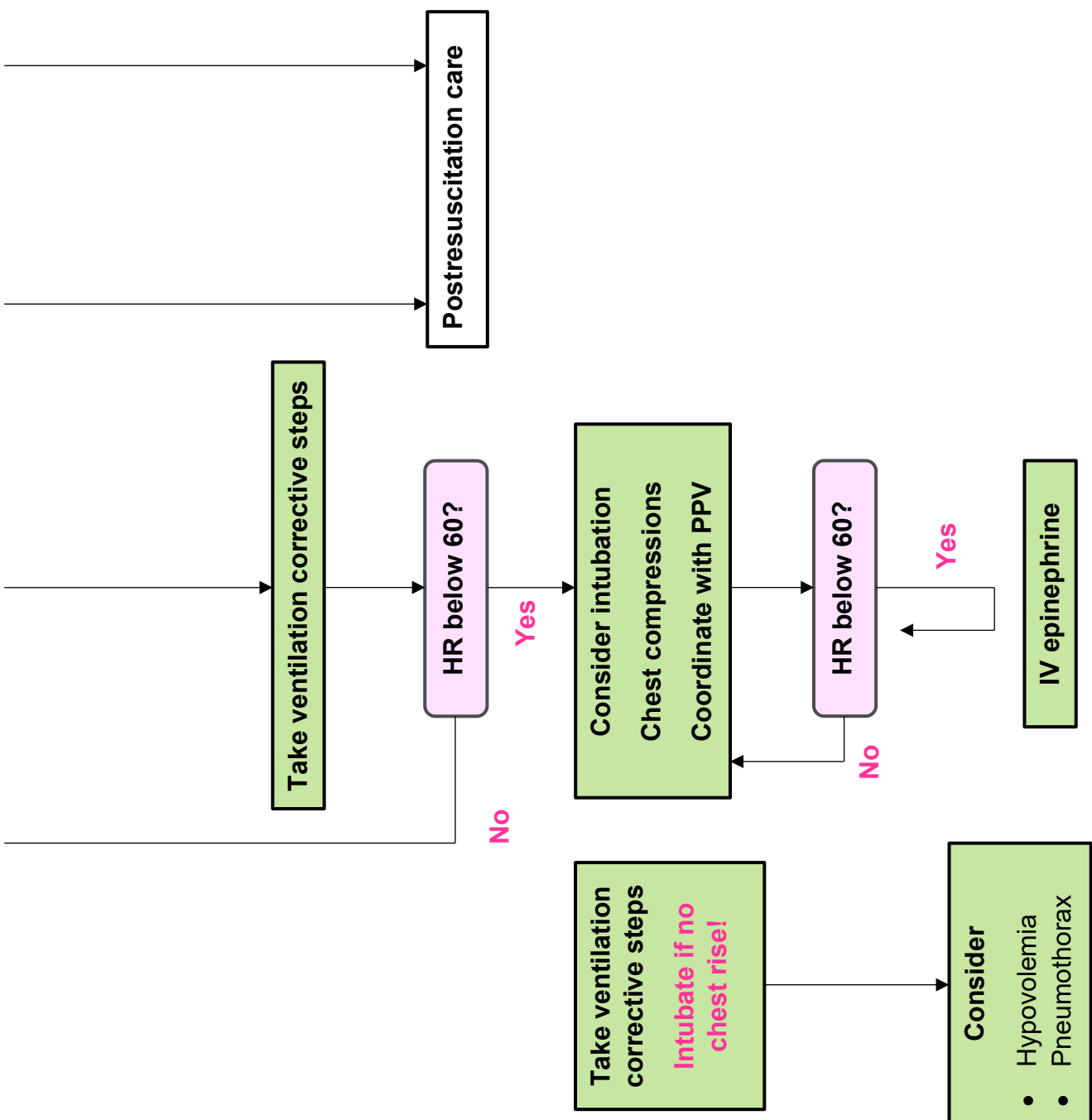


If pulseless arrest develops, go to Pulseless Arrest Algorithm.

Neonatal Resuscitation



Neonatal Resuscitation



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:
 - OB kit nearby, open and ready
 - Towels (warm if possible)

Appendix B – Childbirth

- 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.
 - 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

Appendix B – Childbirth

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.

Appendix C – Death in Field (DIF)

EMS providers 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 their family do not want to have cardiopulmonary resuscitation performed
- c)** Documentation that the patient is enrolled in hospice

3. EMS providers 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 their family do not want to have resuscitative measures 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

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.

Appendix C – Death in Field (DIF)

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 ETCO₂ 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.

Appendix D – Infant Transfer

7. The qualified person shall notify Child Protective Services (866-END-HARM) within 24 hours of the infant's 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.

Appendix E – Mandatory Reporting Criteria

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 of 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 him 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
 - Poor relations with peers

Appendix E – Mandatory Reporting Criteria

- 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

<	Less than	ċ	With
>	Greater than	CA	Cancer
ā	Before	cc	Cubic centimeters
ABD	Abdomen	CHF	Congestive heart failure
ac	Before meals	CNS	Central nervous system
ACS	Acute coronary syndrome	CO	Carbon monoxide
AIDS	Acquired immunodeficiency syndrome	CO ₂	Carbon dioxide
ALNW	Airlift Northwest	COPD	Chronic obstructive pulmonary disease
ALS	Advanced Life Support	CPR	Cardiopulmonary resuscitation
AOB	Alcohol on breath	CVA	Cerebrovascular accident
APAP	Acetaminophen	D/C	Discontinue
APGAR	Appearance, Pulse, Grimace, Activity, Respiratory	DOA	Dead on arrival
ASA	Aspirin	DOB	Date of birth
AVPU	Alert, verbal, pain, unresponsive	DTs	Delirium tremens
BB	Backboard	Dx	Diagnosis
bid	Twice a day	ECG	Electrocardiogram
BLS	Basic Life Support	EDC	Estimated date of confinement (due date for delivery)
BP	Blood pressure	EPS	Extra-pyramidal symptoms
BSA	Body surface area	ET	Endotracheal
BSI	Body substance isolation	ETCO ₂	End-tidal carbon dioxide
BVM	Bag-valve mask	ETOH	Alcohol
C/C	Chief complaint	EXT	Extremities
C/O	Complains of	♀	Female

Appendix F – Medical Abbreviations

Medical Abbreviations – Appendix F

Fx	Fracture	mEq	Milliequivalent
g	Grams	mg	Milligram
GCS	Glasgow coma scale	MI	Myocardial infarction
GI	Gastrointestinal	MIR	Medical Incident Report
GSW	Gunshot wound	ml	Milliliter
gtt	Drop	mm	Millimeter
HA	Headache	mmHg	Millimeter of mercury
HEENT	Head, eyes, ears, nose, throat	MOI	Mechanism of injury
HIV	Human Immunodeficiency Virus	MVA	Motor vehicle accident
H&P	History and physical	NAD	No apparent distress
HPI	History of present illness	NC	Nasal cannula
HR	Heart rate	NG	Nasogastric
hs	At bedtime	NIDDM	Non-insulin-dependent diabetes mellitus
Hx	History	NKDA	No known drug allergies
ICP	Intracranial pressure	NOI	Nature of illness
IDDM	Insulin-dependent diabetes mellitus	NPA	Nasopharyngeal airway
IM	Intramuscular	NPO	Nothing by mouth
IV	Intravenous	NRM	Non-rebreather mouth
JVD	Jugular venous distention	NS	Normal saline
kg	Kilogram	NSR	Normal sinus rhythm
KED	Kendrick Extraction Device	NTG	Nitroglycerin
KVO	Keep vein open	N&V	Nausea and vomiting
L	Liter	O₂	Oxygen
LLQ	Lower left quadrant	OD	Overdose
LMP	Last menstrual period	OPA	Oropharyngeal airway
LOC	Level of consciousness	OPQRST	Onset, Provoker(s), Quality, Radiation, Severity, Time
LUQ	Left upper quadrant	OTC	Over the counter
LVH	Left ventricular hypertrophy	p̄	Post/after
♂	Male	PAC	Premature atrial contraction
MAP	Mean arterial pressure	PAT	Paroxysmal atrial tachycardia
MAST	Military Assistance to Safety & Traffic (helicopter)	pc	After meal
MCA	Motorcycle accident	PCN	Penicillin
MDI	Metered dose inhaler	PE	Patient exam

Appendix F – Medical Abbreviations

PERRLA	Pupils equal, round, and reactive to light with accommodation	SpO₂	Oxygen saturation
PMH	Past medical history	SC	Subcutaneous
PMS	Pulse motor sensation	SIDS	Sudden Infant Death Syndrome
po	By mouth	SL	Sublingual
prn	As needed	SOB	Shortness of breath
psi	Pounds per square inch	SQ	Subcutaneous
PSVT	Paroxysmal supraventricular tachycardia	STHB	Said to have been
Pt	Patient	STHH	Said to have had
PVC	Premature ventricular contraction	SVT	Supraventricular tachycardia
Px	Pain	Sx	Symptoms
q	Every	TCA	Antidepressant
qd	Every day	TIA	Transient ischemic attack
qh	Every hour	tid	Three times a day
qid	Four times a day	TKO	To keep open
qod	Every other day	Tx	Transport
RLQ	Right lower quadrant	URI	Upper respiratory infection
RN	Registered nurse	UTI	Urinary tract infection
R/O	Rule out	VF	Ventricular fibrillation
ROM	Range of motion	VS	Vital signs
RSI	Rapid sequence induction	VT	Ventricular tachycardia
RUQ	Right upper quadrant	WMD	Weapon of mass destruction
Rx	Treatment given	WPW	Wolff-Parkinson-White syndrome
š	Without	Y/O	Years old
SAH	Subarachnoid hemorrhage		
SAMPLE	Signs/Symptoms, Allergies, Medications, Pertinent past history, Last oral intake, Events leading to 911 call		

Appendix G – Medications

Generic name	Other names	Page
Activated Charcoal	Actidose®	G-2
Adenosine	Adenocard®	G-3
Albuterol	Proventil® and Ventolin®	G-4
Albuterol / Ipratropium	Duoneb	G-5
Amiodarone	Cordorone®	G-6
Aspirin	ASA	G-7
Atropine		G-8
Calcium Chloride	Calcium	G-9
Dextrose	D50W	G-10
Diltiazem	Cardizem®	G-11
Diphenhydramine	Benadryl®	G-12
Dopamine		G-13
Epinephrine	Adrenalin®	G-14
Epinephrine		G-15
Etomidate	Amidate®	G-16
Fentanyl Citrate		G-17
Furosemide	Lasix®	G-18
Glucose	Glutose® and Insta-glucose®	G-19
Glucagon		G-20
Ketamine	Ketalar®	G-21
Lidocaine		G-22
Magnesium Sulfate		G-23
Methylprednisolone	Solu-Medrol®	G-24
Metoprolol	Lopressor, Toprol	G-25
Midazolam	Versed®	G-26
Naloxone	Narcan®	G-27
Nitroglycerin		G-28
Nitroglycerin Ointment		G-29
Normal Saline		G-30
Oxygen		G-31
Ondansetron	Zofran®	G-32
Promethazine	Phenergan®	G-33
Proparacaine	Alcaine®, Opthaine®, Opthetic®	G-34
Rocuronium	Zemuron®	G-35
Sodium Bicarbonate		G-36
Succinylcholine	Anectine®, Quelicin®	G-37
Thiamine		G-38
Tranexamic Acid	Cyklokapron®, Lysteda®	G-39

Bold indicates an ALS-only medication

Activated Charcoal

Other Names:	Actidose
Description:	Antidote
Indications:	Treatment of patient who has ingested poisons by mouth, when recommended by the Washington Poison Center
Contraindications:	Relative (without NG tube) Questionable airway
Cautions:	Does not absorb iron, lithium, inorganic ions, ethanol, methanol, or cyanide
Suggested Dose:	
	Adults: 50 g PO/ NG
	Pediatric: Less than 12 Y/O: 1g/kg

Adenosine

Other Names:	Adenocard
Description:	Antidysrhythmic
Indications:	Narrow complex tachycardia
Contraindications:	Known or suspected WPW or accessory pathway
Cautions:	May cause bronchospasm; will cause temporary sinus arrest or block in most patients and general transient ill feeling
Suggested Dose:	
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 IB (maximum single dose would be 0.3 mg/kg or 12 mg)

EMT**Albuterol**

Other Names: Proventil, Ventolin

Description: Bronchodilator

Indications: Treatment of moderate to severe bronchospasm
Suspected hyperkalemia

Contraindications: None

Cautions: May cause tachycardia/chest discomfort

Suggested Dose:

Adults: **Nebulized initial dose – 5 mg**
Repeat as needed
MDI via BiPAP: 5 puffs
Repeat as needed
Nebulized 15 mg (hyperkalemia dose)

Pediatric: **Nebulized 2.5 mg in 2.5 ml of saline if less than 2 y/o;**
otherwise use adult dose

EMT MDI: Repeat every minute as needed for a total of 10 puffs

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, or 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
Description:	Bronchodilator
Indications:	Initial treatment of moderate to severe bronchospasm
Contraindications:	Hypersensitivity to either component
Cautions:	May cause tachycardia/severe chest discomfort
Suggested Dose:	
Adults/pediatric:	3 mL vial in nebulizer MDI via BiPAP 5 puffs

Amiodarone

Other Names: Cordarone

Description: Anti-dysrhythmic

Indications: Recurrent VF or pulseless VT
Stable VT

Contraindications: Second and third degree AV block

Cautions: Given rapidly with a patient with a pulse, may cause profound hypotension or pulselessness

Suggested Dose:

Adults: 300 mg IV push for pulseless VT/VF
150 mg IV piggyback over 10 min for stable VT

Pediatric: 5 mg/kg bolus during cardiac arrest with a maximum single dose of 300 mg. May repeat up to 2 times for refractory VF/pulseless VT

Aspirin

EMR

Specialized MPD
Training Required

EMT

Other Names:	Generic
Description:	Antiplatelet, NSAID
Indications:	Signs or symptoms of acute coronary syndrome
Contraindications:	Allergy to Aspirin
Cautions:	None
Suggested Dose:	
	Adults: 325 mg PO chewed
	Pediatric: Not indicated

Atropine

Other Names: Generic

Description: Anticholinergic

Indications: Symptomatic bradycardia
Premedication for pediatric RSI
Organophosphate poisoning
Cholinergic poisoning (e.g. mushrooms)
Treating secretions due to ketamine

Contraindications: None

Cautions: May cause tachycardia, nausea, ventricular ectopy

Suggested Dose:

Adults: Bradycardia – 0.5-1 mg IV; repeat as needed every 3-5 minutes up to 0.04 mg/kg or 3.0 mg
Organophosphate/cholinergic poisoning – escalating dose
1 mg IVP, then 2 mg IVP, then 5 mg IVP, then 10 mg IVP
Escalate dose every 10 min 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 premedication in RSI
Refer to length-based resuscitation tape

Calcium Chloride 10%

Other Names:	Generic
Description:	Electrolyte
Indications:	Cardiac effects secondary to hyperkalemia Hypotension or bradycardia with calcium channel blocker Hydrofluoric acid burns (call supervising physician for administration regimen) Antidote for magnesium caused respiratory depression Hypocalcemia with tetany
Contraindications:	Digitalis toxicity; hypercalcemia
Cautions:	Can potentiate digoxin toxicity; painful if given peripherally
Suggested Dose:	<p>Adults: 500 mg slow IVP (1mL/min) IVP during cardiac arrest 100 mg IVP for hypotension/bradycardia associated with diltiazem administration May repeat Q 10 min to max 500 mg</p> <p>Pediatric: 10-20 mg/kg (max 500 mg) slow IVP (1mL/min) Refer to length-based resuscitation tape for dose</p>

Dextrose 50%

Other Names: D₅₀W

Description: Sugar

Indications: Symptomatic hypoglycemia

Contraindications: Hyperglycemia

Cautions: Pre-treat hypoglycemic alcoholic patients with thiamine

Suggested Dose:

Adults: 25 g IVP; repeat if blood glucose remains less than 60 mg/dL

Pediatric: 1 g/kg (25% solution) IV

0.2 g/kg (10% solution) (2mL/kg) IVP for neonate

Refer to length-based resuscitation tape for dosing

Note:

To make 25% solution, dilute D50 1:1 with NS.

To make 10% solution, dilute D50 1:4 with NS.

Diltiazem

Other Names:	Cardizem
Description:	Calcium channel blocker
Indications:	Atrial fibrillation, atrial flutter, PAT, SVT
Contraindications:	Known WPW disease BP less than 90 mmHg systolic Acute MI
Cautions:	May cause bradycardia, heart block, hypotension, and CHF
Suggested Dose:	
	Adults: 10 mg IVP Repeat every 10 min until HR on average < 110 Hold for SBP < 90
	Pediatric: Not approved for tachycardia in pediatric populations

Diphenhydramine

Other Names: Bendaryl

Description: Antihistamine

Indications: Allergic reaction
Extrapyramidal side effect/dystonia

Contraindications: Anticholinergic toxindrome

Cautions: May cause drowsiness, dilated pupils, tinnitus, dry mouth, urinary retention

Suggested Dose:

Adults: 25-50 mg IV or IM

Pediatric: 1 mg/kg IV or IM over 2 years old
< 2 years old, call medical control

Dopamine

Other Names:	Generic
Description:	Vasopressor, adrenergic agonist
Indications:	Hypotension with signs of shock
Contraindications:	Ventricular fibrillation, tachydysrhythmias, pheochromocytoma
Cautions:	May cause tissue or cardiac ischemia
Suggested Dose:	
Adults:	Prepare by mixing 400 mcg in 250 mL NS 5 mcg/kg/min starting dose Titrate by 5 mcg/kg/min until SBP > 90 or MAP > 60
Pediatric:	Same as adult to max 20 mcg/kg/min

Epinephrine

Other Names:	Adrenalin
Description:	Adrenergic agonist
Indications:	Respiratory distress or shock due to anaphylaxis Asystole, PEA, VF, pulseless VT, pediatric bradycardia Croup with respiratory distress Severe bronchospasm
Contraindications:	None
Cautions:	May cause hypertension, tachycardia, and cardiac ischemia
Suggested Dose:	<p>Adults: Cardiac Arrest IV, IO (1:10,000) 1 mg IVP Repeat Q 3 min</p> <p>Anaphylaxis IM (1:1,000) 0.3 mg IV or SVN (1:10,000) 0.3 mg (3-5 mL)</p> <p>Shock or refractory anaphylaxis Drip IV/IO 1-5 mcg/min (1 mg in 250 mL of NS = 4 mcg/mL)</p> <p>Bradycardia IV/IO (1:10,000) 0.5-1 mg; repeat Q 3 min</p> <p>Severe bronchospasm IM (1:1,000) 0.3 mg SVN (1:1,000) 5 mL with 3 mL NS</p> <p>Pediatric: Cardiac Arrest IV/IO (1:10,000) 0.01 mg/kg</p> <p>Croup/severe bronchospasm SVN (1:1,000) 0.5 mL/kg to max 5 mL with 3 mL NS</p>

Epinephrine Administration

EMT

Specialized MPD
Training Required

Other Names: Epinephrine

Description: Adrenergic agonist

Indications: Patient is displaying signs or symptoms of anaphylaxis: respiratory distress or shock or difficulty swallowing (throat edema), and consents to treatment

Cautions: May increase blood pressure, cause tachycardia or cardiac ischemia

Suggested Dose:

Adults: IM (1:1,000) 0.3 mg

Pediatric: IM (1:1,000) 0.15 mg

Etomidate

Other Names:	Amidate
Description:	Sedative anesthetic
Indications:	Given as an induction agent during RSI Sedation prior to cardioversion
Contraindications:	None in the emergent setting
Cautions:	May cause respiratory depression, airway compromise, nausea, adrenal suppression and myoclonus
Suggested Dose:	
Adults:	Procedural Sedation: 0.15 mg/kg IV over 30-60 seconds RSI: 0.3 mg/kg IVP
Pediatric:	Over 10 Y/O – same as adult Not approved for children < 10 Y/O

Fentanyl Citrate

Other Names:	Generic
Description:	Opioid analgesic
Indications:	Severe pain
Contraindications:	Systolic BP < 90; ALOC
Cautions:	Consider decreasing dose in patients with alcohol or sedative medications, and in elderly and chronically ill Consider higher dosing in patient who use opioids chronically
Suggested Dose:	Adults: 50-100 mcg IV or SVN Repeat Q 5 min as needed to 300 mcg Contact medical control for dosing over 300 mcg Pediatric: 1 mcg/kg IV or SVN: contact medical control for repeat dosing
Notes:	All patients receiving fentanyl will have continuous oxygen SpO2 and Q 5 min BPs recorded on the monitor and attached to the patient report.

Furosemide

Other Names: Lasix

Description: Diuretic

Indications: CHF or pulmonary edema

Contraindications: hypotension, hypersensitivity to furosemide or sulfonamides

Cautions: Efficiency goes down in patients with renal failure

Suggested Dose:

Adults: 40 mg IV or twice patient's daily dose slow IVP to a maximum dose 160mg

Pediatric: Refer to length-based resuscitation tape

Other Names: Glucose, Insta-glucose

Description: Sugar

Indications: Suspected or confirmed symptomatic hypoglycemia

Contraindications: Patient unable to swallow

Cautions: Use caution to prevent aspiration of the glucose paste

Suggested Dose: 1 tube

Notes:

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

Glucagon

Other Names:	Generic
Description:	Hormone
Indications:	Hypoglycemia with an inability to establish IV access Anaphylaxis when epinephrine is relatively contraindicated by known cardiac disease Calcium channel blocker toxicity Beta Blocker toxicity
Contraindications:	None
Cautions:	Short half-life; hypoglycemia may return; very nauseating, administer with ondansetron
Suggested Dose:	<p>Adults: 1 mg IV/IM/SQ; may repeat in 5 min</p> <p>Pediatric: 0.025-0.1 mg/kg IV/IM/SQ every 20 min (max 1 mg)</p> <p>Contact base station for calcium channel blocker or beta blocker toxicity dosing</p>

Ketamine

Other Names: Ketalar

Description: Dissociative anesthetic

Indications: Deep sedation; sedation on ventilator
Severe pain

Contraindications: Hypersensitivity to ketamine

Relative

Contraindications: SBP > 200 mmHg

Cautions: May cause bronchorrhea, laryngospasm, hypertension, emergence reaction (use with caution with psychosis or PTSD)

Suggested Dose: Weight-based dosing constitutes the maximum dose unless base station has been contacted.

Sedation:

IV 1-2 mg/kg

IM 2-4 mg/kg

Severe pain or BiPAP®

IV 0.3 mg/kg (administered over 5 minutes)

Consider atropine to dry secretions

See Midazolam for emergence reaction dosing

Lidocaine

Other Names:	Generic
Description:	Anesthetic, anti-dysrhythmic
Indications:	Pulseless VT/VF, Stable VT Airway irritation from chemical irritant; IO anesthetic
Contraindications:	Narrow complex tachycardia, WPW, heart block, atrial fibrillation with aberrant conduction Hypersensitivity to any local anesthetic
Cautions:	Reduce dose to 0.75 mg/kg in CHF or liver failure May cause seizure, confusion, AMS
Suggested Dose:	<div>Adults: Initial dose 1.5 mg/kg IV Maintenance 1-2 mg/min IVPB Nebulized 2.5 mL (50 mg) of 2% For IO: 50 mg IO</div> <div>Pediatric: 1 mg/kg IV</div>

Magnesium Sulfate

Other Names:	Generic
Description:	Mineral
Indications:	Torsades des pointes Refractory VF Eclampsia Severe Asthma
Contraindications:	Renal impairment, heart block, patients treated with paralytic agent
Cautions:	Will lower calcium; observe for hypotension, paralysis, and CNS depression; pulmonary edema
Suggested Dose:	<p>Adults: Eclampsia: 4 g diluted with NS to 20 mL given over 4 min Cardiac arrest: 2 g diluted with NS to 20 mL given rapid IVP Asthma / torsades des pointes: 2 g diluted with NS to 20 mL given IV over 5-20 min</p> <p>Pediatric: Not indicated for pediatric patients</p>

Methylprednisolone

Other Names:	Solumedrol
Description:	Corticosteroid
Indications:	Adrenal insufficiency Allergic reactions Secondary treatment of moderate to severe bronchospasm
Contraindications:	Known hypersensitivity to the product or its constituents
Cautions:	None in the emergent setting
Suggested Dose:	
	Adults: 125 mg IV
	Pediatric: 1 mg/kg IV

Metoprolol

Other Names:	Lopressor, Toprol
Description:	Beta blocker
Indications:	Atrial fibrillation/flutter SVT, PAT
Contraindications:	Severe asthma/bronchospasm WPW Hypotension with SBP < 90 Decompensated heart failure/cardiogenic shock
Cautions:	May cause bradycardia, hypotension, heart block, bronchospasm
Suggested Dose:	
	Adults: 5 mg IV Repeat every 10 min until HR < 110 Hold for SBP < 90
	Pediatric: Not approved in children

Midazolam

Other Names:	Versed
Description:	Sedative
Indications:	Status seizures Sedation
Contraindications:	None in emergent setting
Cautions:	Respiratory depression and loss of airway reflexes, hypotension – especially when mixed with opioids, alcohol, or other CNS depressants
Suggested Dose:	<p>Adults: Seizure: 2 mg IV/IO Q 2-3 min to max of 20 mg Seizure: 5 mg IM or IN Sedation: 2-10 mg IV/IM/IN/IO Emergence reaction: 1 mg IV Q 2-3 min to max of 5 mg</p> <p>Pediatric: Seizure: 0.1 mg/kg IV Q 2-3 min to max of 5 mg Seizure: 0.2 mg/kg IM or IN, repeat Q 3 min to max 10 mg Procedural sedation: 0.2 mg/kg IV Emergence reaction: 0.01 mg/kg IV Q 2-3 min to max of 2 mg</p>

Naloxone

Other Names:	Narcan
Description:	Opioid antidote
Indications:	Opioid overdose
Contraindications:	None in emergent setting
Cautions:	Will cause withdrawal symptoms in the chronically habituated. These can include vomiting and agitation/combativeness May require repeat or higher dosing depending on substance/potency/intent
Suggested Dose:	
Adults:	0.4-2 mg IV/IO/IN/IM/SL/ET Repeat as needed
Pediatric:	0.1 mg/kg IV/IO/IN/IM/SL/ET To max single dose 2 mg Repeat as needed

Nitroglycerin

Other Names:	Nitrotab; Nitrostat
Description:	Vasodilator
Indications:	Chest discomfort from suspected ACS Symptoms similar to previous cardiac event Hypertensive pulmonary edema
Contraindications:	Patients taking any ED drugs such as Viagra, Cialis, or Levitra in the past 48 hours Severe bradycardia (HR < 50) Tachycardia (HR > 100) BP less than 100 mmHg systolic
Cautions:	May cause hypotension and headache May cause cardiovascular collapse in setting of RV infarct
Suggested Dose:	<p>Adults: CP/ACS: 0.4 mg SL Q 3 min until pain relief For pulmonary edema: 0.4 mg SL Q 3 min until SBP < 150</p> <p>Pediatric: Not indicated for pediatric patients</p>

Nitroglycerin Ointment

Other Names:	Nitrobid
Description:	Vasodilator
Indications:	Chest discomfort from suspected ACS Symptoms similar to previous cardiac event Hypertensive pulmonary edema
Contraindications:	Patients taking any ED drugs such as Viagra, Cialis, or Levitra in the past 48 hours Severe bradycardia (HR < 50) Tachycardia (HR > 100) BP less than 100 mmHg systolic
Cautions:	May cause hypotension and headache
Suggested Dose:	<div>Adults: ACS 1 inch to anterior chest wall CHF 2 inch to anterior chest wall Hold/remove for SBP < 100</div> <div>Pediatric: Not indicated for pediatric patients</div>

Normal Saline

Other Names:	0.9% sodium chloride in sterile water
Description:	Crystalloid IV fluid
Indications:	Suspected volume depletion or hypovolemia Hyperglycemia Burns Post cardiac arrest Hypotension not due to cardiogenic shock
Contraindications:	Pulmonary edema
Cautions:	Monitor patient for signs and symptoms of fluid overload
Suggested Dose:	
	Adults: Bolus per patient status then TKO
	Pediatric: Bolus 20 mL/kg then re-evaluate; Repeat x2 prn

Oxygen

EMR**EMT**

Other Names: Generic

Description: Self-explanatory

Indications: Patients with symptoms of shock, shortness of breath, hypoxia, respiratory distress, respiratory arrest, carbon monoxide poisoning, over-sedation, chest pain, and stroke

Contraindications: None

Cautions: Supplemental oxygen may cause decreased respirations for patients with chronic hypoxia

Suggested Dose:
2-6 lpm via nasal cannula,
8-15 lpm via non-rebreather mask,
15-25 lpm via bag valve mask

Ondansetron

Other Names: Zofran

Description: Anti-emetic

Indications: Nausea, vomiting

Contraindications: Medication hypersensitivity

Cautions: Caution in patient with liver dysfunction; can cause QT prolongation

Suggested Dose:

Adults: 4 mg IV, may repeat x1

Pediatric: 0.1 mg/kg to max of 4 mg

Promethazine

Other Names:	Phenergan
Description:	Anti-emetic
Indications:	Vomiting
Contraindications:	Age less than 2 years
Cautions:	Can cause edation, dystonic reaction, QT prolongation Consider decreased dose in elderly patients
Suggested Dose:	
Adults:	6.25-12.5 mg IV; repeat once as needed Always dilute in 10 mL saline 12.5-25 mg IM
Pediatric:	0.25 mg/kg IV diluted in 10 mL up to adult dose 0.5 mg/kg IM up to adult dose

Proparacaine

Other Names:	Alcaine, Opthetic, Ophtaine
Description:	Ocular anesthetic
Indications:	Temporary ophthalmic anesthesia for eye injuries/pain
Contraindications:	None
Cautions:	None
Suggested Dose:	
	Adults: 2 drops/eye as needed
	Pediatric: Not indicated

Rocuronium

Other Names:	Zemuron
Description:	Non-depolarizing paralytic
Indications:	Defasciculating dose in RSI Prolonged transport times (greater than 15 min) of intubated patients who are combative enough to be at risk of self extubation or otherwise harm themselves
Contraindications:	Known hypersensitivity
Cautions:	Caution in patients with hepatic dysfunction
Suggested Dose:	
Adults:	Defasciculating: 0.1 mg/kg Paralysis: 0.6-1.2 mg/kg
Pediatric:	Same as adult – weight based

Sodium Bicarbonate

Other Names:	Generic
Description:	Alkaline solution
Indications:	Tricyclic anti-depressant overdose Hyperkalemia Prolonged cardiac arrest
Contraindications:	None
Cautions:	None
Suggested Dose:	
	Adults: 1 mEq/kg IV Repeat as needed
	Pediatric: 1 mEq/kg IV Or refer to length-based resuscitation tape Or as directed by poison control

Succinylcholine

Other Names:	Anectine and Quelicin
Description:	Depolarizing paralytic
Indications:	RSI for endotracheal intubation
Contraindications:	Hyperkalemia, personal or family history of malignant hyperthermia, pseudocholinesterase deficiency, organophosphate poisoning
Cautions:	Caution with anticipated difficult airway: Neuromuscular disorders (e.g. myasthenia gravis, muscular dystrophy, Lou Gehrig's disease), chronic paralysis, or massive tissue injuries including burns – all may cause hyperkalemic response
Suggested Dose:	
	Adults: 1.5-2 mg/kg IV
	Pediatric: Same as adult – weight based dose

Thiamine

Other Names: Vitamin B1

Description: Vitamin

Indications: Hypoglycemic patient with history of alcoholism; given prior to the administration of dextrose

Contraindications: None

Cautions: None

Suggested Dose:

Adults: 100 mg IV/IM

Pediatric: Not indicated

Tranexamic Acid (TXA)

Other Names:	Cyklokapron®, Lysteda®
Description:	Anti-fibrinolytic
Indications:	Trauma patient with hemorrhagic shock Contact medical control for other hemorrhagic shock
Contraindications:	Hypersensitivity Color blindness Isolated neuro-trauma
Cautions:	May cause retinal injury May cause thromboembolic complications
Suggested Dose:	
Adults:	1 gram IV given over 10 minutes
Pediatric:	Not protocolized. Contact medical control.

Appendix H – Tools for EMS Providers

I. Normal vital signs

AGE	PULSE	RESPIRATIONS	BLOOD PRESSURE	
			AVERAGE SYSTOLIC	AVERAGE DIASTOLIC
Newborn (1-28 days)	110-150	60	80	46
3 months	110-140	40	90	60
6-12 months	100-140	40	90	60
1 year	100-140	26	90	60
2 years	90-100	20	98	64
3-5 years	80-100	20	100	70
10 years	70-100	16	114	60
Adolescent	70-100	12	118	60
Adult	60-100	12	120	70

II. Rule of Nines for burn victims

Use in the field to make a rough estimate of body surface.

AREA OF THE BODY	ADULT	CHILD
Head and neck	9 percent	18 percent
Entire arm, each	9 percent	9 percent
Chest	9 percent	9 percent
Abdomen	9 percent	9 percent
Upper back	9 percent	Entire back is 18 percent
Lower back and buttocks	9 percent	
Front of leg, each	9 percent	Entire leg is 14 percent
Back of leg, each	9 percent	
Genitalia	1 percent	1 percent

Note that the phrase “GCS of 11” is essentially 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.

Appendix H – Tools for EMS Providers

III. APGAR score for newborns

The baby's APGAR score should be noted at 1 and 5 minutes after delivery.

Clinical sign	0 points	1 point	2 points
Appearance	Blue, pale	Body pink	Totally pink
Pulse	Absent	Below 100	Above 100
Grimace	No response	Grimaces	Cries
Activity	Limp	Some flexion	Active motion
Respiratory	Absent	Slow, irregular	Good cry

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.

ADULTS	1 point	2 points	3 points	4 points	5 points	6 points
Best Eye Response (4)	No eye opening	Eye opens to pain	Eye opens to verbal command	Eyes open spontaneously	-	-
Best Verbal Response (5)	No verbal response	Incomprehensible sounds	Inappropriate words	Confused	Oriented	-
Best Motor Response (6)	No motor response	Extension to pain	Flexion to pain	Withdrawal from pain	Localizing pain	Obeys commands

PEDS	1 point	2 points	3 points	4 points	5 points	6 points
Best Eye Response (4)	No eye opening	Eye opens to pain	Eye opens to speech	Eyes open spontaneously	-	-
Best Verbal Response (5)	No verbal response	Infants moans to pain	Infant cries to pain	Infant is irritable and continually cries	Infant coos or babbles (normal activity)	-
Best Motor Response (6)	No motor response	Extension to pain (decerebrate response)	Abnormal flexion to pain for an infant (decorticate response)	Infant withdraws from pain	Infant withdraws from touch	Infant moves spontaneously or purposefully

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

Skills – Appendix J

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Acute Coronary Syndrome Management

Skills – Appendix J

Provider level:	<ul style="list-style-type: none"> • Emergency Medical Technician • Paramedic
Indications:	<ul style="list-style-type: none"> • Any of the following signs or symptoms: <ul style="list-style-type: none"> • 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- • <i>Patient exhibits any of the following signs or symptoms believed to be of cardiac origin</i> <ul style="list-style-type: none"> • <i>Atypical chest, stomach, or abdominal discomfort</i> • <i>Unexplained nausea (without vomiting) or lightheadedness (not vertigo) without chest discomfort</i> • <i>Shortness of breath and difficulty breathing (without chest discomfort)</i> • <i>Unexplained anxiety, weakness, or fatigue</i> • <i>Palpitations, cold sweat, or paleness</i>
Contraindications:	<ul style="list-style-type: none"> • None
Equipment:	<ul style="list-style-type: none"> • Defibrillator
Procedure:	<ul style="list-style-type: none"> • General patient care procedures • Administer aspirin (Appendix G) as appropriate • <i>Administer nitroglycerin (Appendix G)</i> • Prep patient for 12-lead ECG (Appendix J) • <i>Capture 12-lead prior to moving patient and prior to ALS NTG administration</i> • <i>Attach 12-lead to patient care report</i> • <i>Prior to sending 12-lead, include patient name and age</i> • <i>If evidence of STEMI exists, consult base station physician as early as possible</i> • <i>Establish IV access (Appendix J)</i> • <i>Administer fentanyl (Appendix G) as appropriate</i> • <i>Treat rhythm disturbances as appropriate (Appendix A)</i>

Automated External Defibrillation (AED)

Provider level:	<ul style="list-style-type: none">• Emergency Medical Responder• Emergency Medical Technician• Paramedic
Indications:	<ul style="list-style-type: none">• Patients greater than 1 Y/O who have confirmed circulatory arrest
Contraindications:	<ul style="list-style-type: none">• See Death in Field Criteria (Appendix C)
Equipment:	<ul style="list-style-type: none">• Defibrillator
Procedure:	<ol style="list-style-type: none">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.<ol style="list-style-type: none">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.<ol style="list-style-type: none">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.<ol style="list-style-type: none">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.

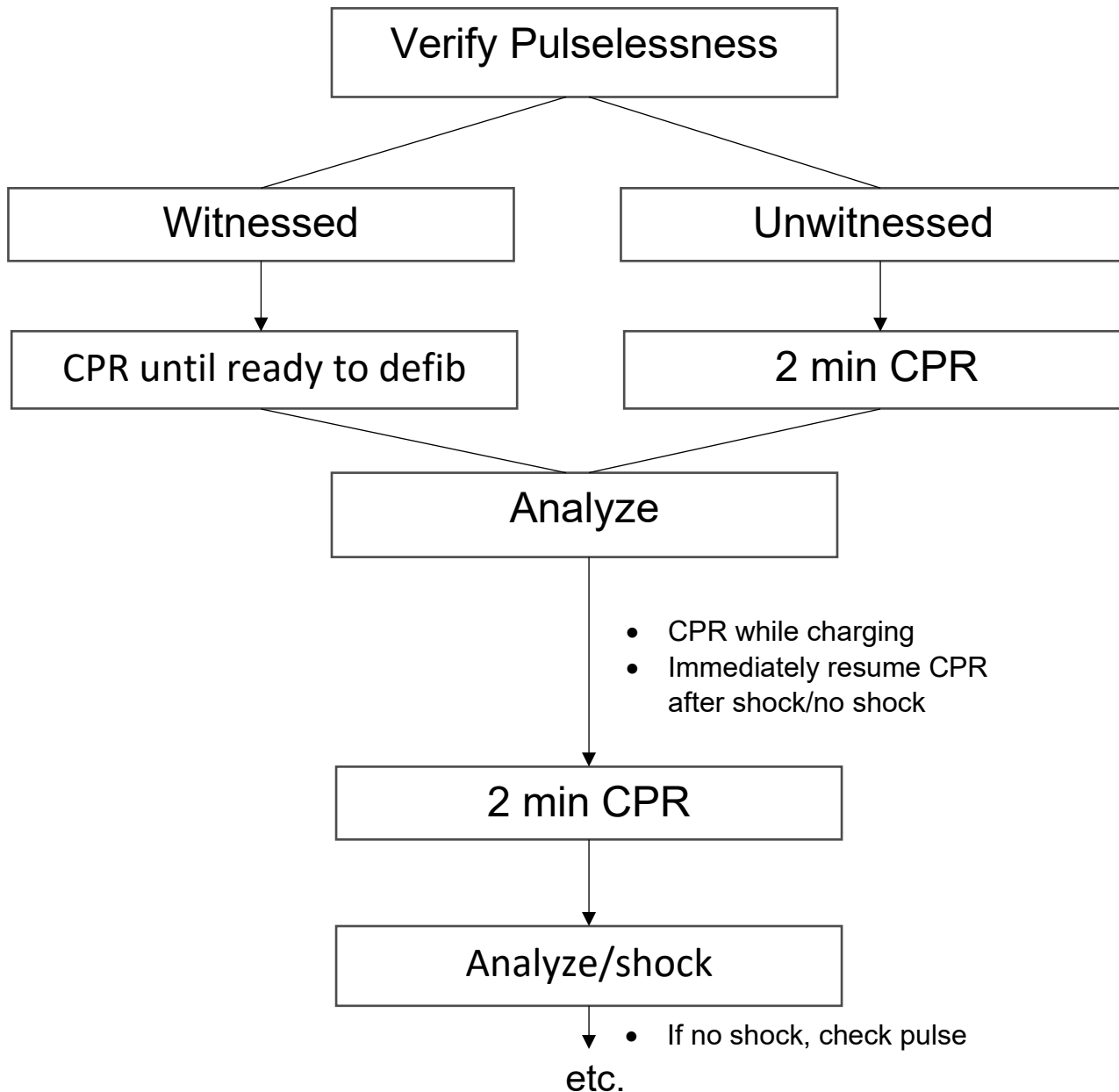
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Automated External Defibrillation

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



- 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 > 8 Y/O, continue chest compressions through suctioning
- 4) Narrate resuscitation into recorder
- 5) Provide AED download to Medic One immediately following incident

Bag Valve Mask Ventilation

Skills – Appendix J

Provider level:	<ul style="list-style-type: none">• Emergency Medical Responder• Emergency Medical Technician• Paramedic
Indications:	<ul style="list-style-type: none">• Patients in respiratory arrest• Patients who are hypoventilating
Contraindications:	<ul style="list-style-type: none">• Patients who are resisting ventilatory assistance
Equipment:	<ul style="list-style-type: none">• Oxygen tank• Oxygen regulator• Bag valve mask• Appropriately-sized mask• Oropharyngeal or nasopharyngeal airway• Suction
Preparation:	<ul style="list-style-type: none">• 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:	<p>FATS technique (non-trauma patient)</p> <ol style="list-style-type: none">a) Manually open the airway and insert OPA/NPAb) Seal the face mask against the patient's face using the FATS techniquec) Ventilate at the appropriate rate and volume for the patient, allowing for passive exhalation <p>Two-person bag valve mask</p> <ul style="list-style-type: none">• Trauma Patients• Unknown MOI• Non trauma patients that are difficult to ventilate <ol style="list-style-type: none">a) Using C-spine precautions (as necessary), rescuers position patient supineb) First rescuer opens the airway using the jaw thrust maneuverc) Select/insert correct size airway adjunctd) First rescuer maintains open airwaye) Second rescuer places apex of mask over bridge of the nosef) First rescuer places the heel of each hand on the sides of the mask and uses the fingertips to pull the jaw up into the mask while maintaining C-spine immobilization

Bag Valve Mask Ventilation

Procedure:

- 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:	<ul style="list-style-type: none">• Emergency Medical Responder• Emergency Medical Technician• Paramedic
Indications:	<ul style="list-style-type: none">• Patient with uncontrolled bleeding
Contraindications:	<ul style="list-style-type: none">• None
Equipment:	<ul style="list-style-type: none">• Bandage materials• BP cuff• Commercial tourniquet
Preparation:	<ul style="list-style-type: none">• Selecting bandaging material
Procedure:	<ol style="list-style-type: none">1. Apply direct pressure on the wound until bleeding is controlled2. If bleeding is not controlled with direct pressure, use an escalating treatment plan of elevation above the level of the heart, and pressure points3. After bleeding is controlled, apply dressing and bandage.4. If above measures are ineffective, apply a BP cuff or commercial tourniquet proximal to the wound

Capnography

- Provider level:**
- *Paramedic*
- Indications:**
- *All intubated patients*
 - *Patients in respiratory distress*
 - *Patients who are hypoventilating or hyperventilating*
- Contraindications:**
- *Colorimetric devices are not used to monitor non-intubated patients who have spontaneous respirations*
- Equipment:**
- *Colorimetric end-tidal CO₂ 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 CO₂ 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:**
- *Colorimetric devices must be specified for pediatric size and are not used with spontaneously breathing patients*

Cricothyrotomy

Provider level:	<ul style="list-style-type: none"> • <i>Paramedic</i>
Indications:	<ul style="list-style-type: none"> • <i>Emergent Airway access when less invasive techniques are not effective</i> • <i>Airway obstruction</i> • <i>Severe neck trauma</i>
Contraindications:	<ul style="list-style-type: none"> • <i>Ventilation possible by less invasive means</i>
Equipment:	<ul style="list-style-type: none"> • <i>Povidone-iodine</i> • <i>Scalpel</i> • <i>Tracheal hook</i> • <i>Rakes</i> • <i>Endotracheal or tracheostomy tube</i> • <i>Eschmann stylette</i> • <i>Melker kit</i>
Preparation:	<ul style="list-style-type: none"> • <i>Prep neck with Povidone-iodine</i>
Procedure:	<p>Melker approach:</p> <ol style="list-style-type: none"> 1. <i>Locate cricothyroid membrane, make small incision in membrane with scalpel</i> 2. <i>Puncture cricothyroid membrane with needle angled toward feet, draw back on syringe plunger until air easily aspirated</i> 3. <i>Remove syringe, advance Seldinger wire, “floppy” end first</i> 4. <i>Remove needle over wire</i> 5. <i>Advance dilator over wire until widest portion is through skin</i> 6. <i>Hold dilator, advance tube until flange seats against skin</i> 7. <i>Secure tube</i> 8. <i>Ventilate patient through tube; verify correct placement</i> <p>Open approach:</p> <ol style="list-style-type: none"> 1. <i>Identify the cricothyroid membrane</i> 2. <i>Make a 3 cm vertical incision over the membrane</i> 3. <i>With rakes or skin traction, retract skin and expose membrane</i> 4. <i>Make a horizontal incision through the membrane</i>

Cricothyrotomy

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

Skills – Appendix J

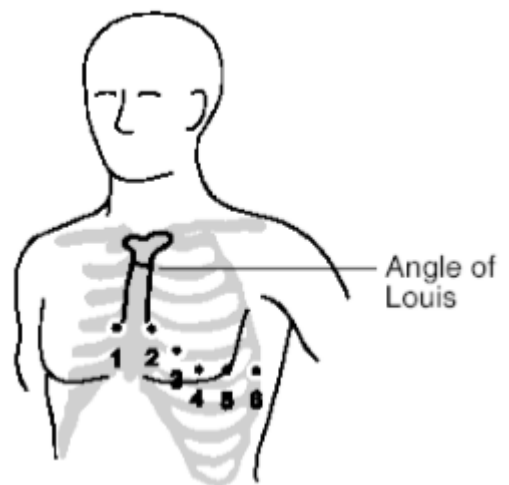
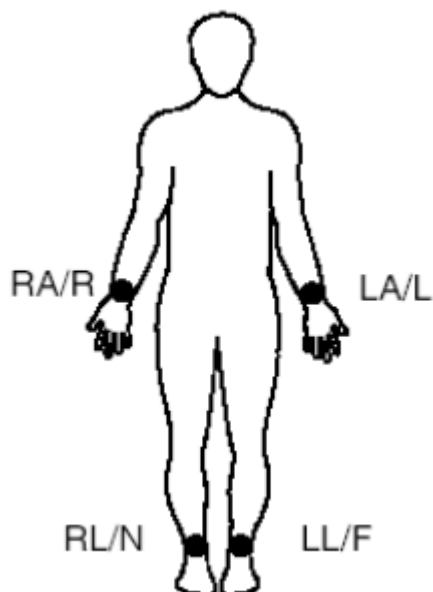
Provider level:	<ul style="list-style-type: none"> • <i>Paramedic</i>
Indications:	<ul style="list-style-type: none"> • <i>A situation exists that makes routine orotracheal intubation unlikely to be successful</i> • <i>Four failed intubation attempts (two attempts by each of two providers)</i>
Contraindications:	<ul style="list-style-type: none"> • <i>None in the setting of patients needing positive airway control</i>
Equipment:	<ul style="list-style-type: none"> • <i>Eschmann stylette</i> • <i>LMA</i> • <i>Melker® Emergency Cricothyrotomy Catheter Set</i> • <i>Prism</i> • <i>Rakes</i> • <i>Scalpel</i> • <i>Tracheal hook</i>
Preparation:	<ul style="list-style-type: none"> • <i>Gather and prepare proper equipment</i>
Procedure:	<ol style="list-style-type: none"> 1. <i>Consider intubation with Eschmann stylette, with or without prism, for situations where cords cannot be visualized</i> 2. <i>Consider use of LMA when unable to place tube using Eschmann stylette</i> 3. <i>Perform emergency cricothyrotomy in situations where orotracheal intubation or use of LMA are impossible. Use Melker® kit or traditional equipment.</i>
Pediatric considerations:	<ul style="list-style-type: none"> • <i>Size-appropriate equipment should be used</i>

Electrical Cardioversion

Provider level:	<ul style="list-style-type: none"> • <i>Paramedic</i>
Indications:	<ul style="list-style-type: none"> • <i>Rate greater than 150 bpm with serious signs and symptoms related to the rate (e.g. angina, respiratory distress, CHF)</i>
Contraindications:	<ul style="list-style-type: none"> • <i>Relative: Immediate cardioversion generally is not needed if heart rate is less than or equal to 150</i>
Equipment:	<ul style="list-style-type: none"> • <i>Manual defibrillator</i> • <i>Remote defibrillation pads</i> • <i>Pre-medication (etomidate) or Midazolom</i> • <i>Complete resuscitation equipment available</i>
Preparation:	<ul style="list-style-type: none"> • <i>Start IV</i> • <i>If using defibrillator pads, position on the patient (sternum/apex)</i> • <i>Perform procedural sedations</i>
Procedure:	<ol style="list-style-type: none"> 1. <i>Ensure that the patient has been sedated if not unconscious</i> 2. <i>Verify shockable rhythm</i> 3. <i>Activate the synchronization mode by pressing the “sync” control button</i> 4. <i>Set the energy level (see Appendix A)</i> 5. <i>Ensure that all team members are clear of the patient</i> 6. <i>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.</i> 7. <i>Check monitor and patient, then repeat shocks prn according to the tachycardia algorithm (Appendix A)</i> 8. <i>Verify sync mode before delivering subsequent shocks</i>
Pediatric considerations:	<ul style="list-style-type: none"> • <i>Use pediatric remote defibrillator pads</i> • <i>Use length-based resuscitation tape for energy levels (0.5-1.0 J/kg)</i>

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 electrode to the chest wall as shown below:



Epi Administration

EMT: MPD REQUIRED TRAINING

- 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:**
- 1 1cc vial 1:1000 epinephrine
 - 1 1ml syringe with 1" needle (adult - 0.3 mg epinephrine)
 - 1 1ml syringe with 5/8" needle (child < 66 lbs or 30 kg - 0.15 mg epinephrine)
 - 2 alcohol prep pads
 - 2 adhesive bandages
 - 1 sharps container
- 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 cap from vial, sterilize top with alcohol if necessary.
 - Select appropriate sized needle/syringe & pull back syringe to desired dose.
 - Insert needle into vial, push air from syringe into medication.
 - Pull back on plunger to draw medication into syringe just past desired dose and withdraw syringe.
 - Hold needle upright and push plunger to remove air & ensure medication dosage is correct.
- Procedure:**
1. Expose injection site, sterilize with alcohol wipe if time permits.
 2. Administer medication by piercing the skin at a 90° angle at patient's lateral thigh (apply skin traction to site if needed).
 3. Needle should be inserted completely to the hub.
 4. Depress the plunger slowly to administer the proper dose.
 5. Withdraw needle, dispose needle with used epi vial in provided sharps container and return to Medic One.

continue →

Epi Administration

Procedure:

6. Massage injection site for at least 10 seconds.
7. Contact ALS for additional doses of epinephrine.
8. Document patient care; medication dose, time, site, and patient response to therapy.

Femoral Intravenous Cannulation

ANNUAL MPD REQUIRED TRAINING

- 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*

continued —→

Femoral Intravenous Cannulation

Procedure:

- 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***

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:	<ul style="list-style-type: none">• Emergency Medical Responder• Emergency Medical Technician• Paramedic
Indications:	<ul style="list-style-type: none">• Patient wearing a helmet who requires airway preservation, stabilization of head to backboard, in-line stabilization for transfer, etc.
Contraindications:	<ul style="list-style-type: none">• Do not remove football helmets unless airway is compromised. If you must remove football helmet, ensure that the shoulder pads are removed.
Equipment:	<ul style="list-style-type: none">• Instrument to cut chin strap, if necessary• Backboard
Procedure:	<ol style="list-style-type: none">1. First rescuer (1) immobilizes patient's head by holding helmet2. Bring head into neutral position with eyes forward, maintaining immobilization3. Second rescuer (2) removes chin strap, face piece and/or nose guard4. 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 head6. Rescuer 1 takes over manual stabilization and support of patient's head, keeping eyes in neutral position7. Apply appropriate-size cervical collar as necessary8. Use padding under the head as necessary to maintain neutral eyes

Hypothermia (Therapeutic)

Provider level:	<ul style="list-style-type: none"> • <i>Paramedic</i>
Indications:	<ul style="list-style-type: none"> • <i>ROSC after cardiac arrest and no purposeful movement after 2 minutes</i>
Contraindications:	<ol style="list-style-type: none"> 1. <i>Traumatic arrest</i> 2. <i>Pediatric (< 16) cardiac arrest</i> 3. <i>Loss of circulation or ongoing ACLS resuscitation</i> 4. <i>POLST form or family wishes indicating a desire to withhold or terminate resuscitative measures</i> 5. <i>If you suspect hypothermia (core temp < 30 °C)</i>
Equipment:	<ul style="list-style-type: none"> • <i>Ice-cold (< 4 °C) saline</i> • <i>Approved cooling adjunct</i> • <i>Midazolam (sedation)</i> • <i>Vecuronium (non-depolarizing) paralytic</i> • <i>Patent and secured IV</i>
Preparation:	<ul style="list-style-type: none"> • <i>Establish and secure IV if not already established (IO not approved)</i>
Procedure:	<ul style="list-style-type: none"> • <i>Infuse 2000 mL cold 0.9% Normal Saline as wide open bolus</i> • <i>Administer midazolam 5 mg IV every 15 minutes during transport; withhold for SBP < 100</i> • <i>Administer vecuronium 10 mg IV</i> • <i>Continue to monitor and record cardiac rhythm, BP, and HR every 5 minutes</i> • <i>Continue all other ALS post-resuscitative measures per protocol</i> • <i>Notify receiving/supervising physician as soon as possible</i> • <i>Attach defibrillator report to Patient Care Record</i>
Pediatric considerations:	<ul style="list-style-type: none"> • <i>Contraindicated in patients less than 16 years</i>

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Intraosseous Infusion EZ-IO®

Provider level:	<ul style="list-style-type: none">• <i>Paramedic</i>
Indications:	<ul style="list-style-type: none">• <i>Emergency circulatory access when peripheral access is not available in the setting of:</i><ul style="list-style-type: none">○ <i>Shock</i>○ <i>Cardiac arrest</i>
Contraindications:	<ul style="list-style-type: none">• <i>(Relative) Peripheral access is available</i>
Equipment:	<ul style="list-style-type: none">• <i>EZ-IO® Driver</i>• <i>EZ-IO AD® or EZ-IO PD® Needle Set</i>• <i>Alcohol or Betadine Swab</i>• <i>EZ-Connect® or Standard Extension Set</i>• <i>10 ml Syringe</i>• <i>Normal Saline (or suitable sterile fluid)</i>• <i>Pressure Bag or Infusion Pump</i>• <i>2% Lidocaine (preservative free)</i>
Preparation:	<ol style="list-style-type: none">1. <i>Wear approved Body Substance Isolation Equipment (BSI)</i>2. <i>Attach IV tubing to Normal Saline solution and flush tubing</i>3. <i>Attach syringe to IV catheter</i>4. <i>Select and clean site</i><ul style="list-style-type: none">• <i>Tibial plateau</i>• <i>Proximal Humerus</i>
Procedure:	<ol style="list-style-type: none">1. <i>Prepare insertion site using aseptic technique</i>2. <i>Prepare the EZ-IO® driver and appropriate needle set</i>3. <i>Stabilize site and insert appropriate needle set</i>4. <i>Remove EZ-IO® driver from needle set while stabilizing catheter hub</i>5. <i>Remove stylet from catheter, place stylet in shuttle or approved sharps container</i>6. <i>Confirm placement</i>7. <i>Connect primed EZ-Connect®</i>8. <i>Slowly administer appropriate dose of Lidocaine 2% (Preservative Free) IO to conscious patients</i>

continued →

Intraosseous Infusion EZ-IO®

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:	<ul style="list-style-type: none">• Emergency Medical Responder• Emergency Medical Technician• Paramedic
Indications:	<ul style="list-style-type: none">• Obviously deformed joint associated with trauma
Contraindications:	<ul style="list-style-type: none">• If it would delay transport of a critical patient
Equipment:	<ul style="list-style-type: none">• Splinting material capable of immobilizing the bone above and below the injured point• Padding material as needed• Ice pack(s)
Preparation:	<ul style="list-style-type: none">• Measure and assemble splinting materials as needed
Procedure:	<ol style="list-style-type: none">1. Check for distal PMS2. 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 transport3. Apply the appropriately sized splint and pad as needed4. After splint is secured, reassess distal PMS<ul style="list-style-type: none">○ Apply cold pack(s) as needed○ Splint hands and feet in a position of function

Long Bone Immobilization

Provider level:	<ul style="list-style-type: none">• Emergency Medical Responder• Emergency Medical Technician• Paramedic
Indications:	<ul style="list-style-type: none">• Pain near a bone associated with recent trauma• Obvious deformity to a bone
Contraindications:	<ul style="list-style-type: none">• If it would delay transport of a critical patient
Equipment:	<ul style="list-style-type: none">• Splinting material capable of immobilizing the joint above and below the injured bone• Padding material as needed• Ice pack
Procedure:	<ol style="list-style-type: none">1. Check for distal PMS2. Apply gentle tension realign bone into gross anatomical position prior to applying splinting material unless this causes severe discomfort<ul style="list-style-type: none">○ 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 ALS3. Apply the appropriately sized splint and pad as needed4. Reassess the distal PMS after splint is secured (if absent, expedite transport)<ul style="list-style-type: none">○ Apply cold pack(s) as needed○ Splint hands and feet in a position of function

Manual Defibrillation

Provider level:	<ul style="list-style-type: none">• <i>Paramedic</i>
Indications:	<ul style="list-style-type: none">• <i>Ventricular fibrillation</i>• <i>Pulseless ventricular tachycardia</i>
Contraindications:	<ul style="list-style-type: none">• <i>Patient with a pulse</i>• <i>Obvious DOA by Death in Field criteria (Appendix C)</i>• <i>Unable to clear contact with the patient (standing water, confined space, etc.)</i>
Equipment:	<ul style="list-style-type: none">• <i>Manual defibrillator</i>• <i>Remote defibrillator pads</i>
Preparation:	<ul style="list-style-type: none">• <i>If using remote defibrillation pads, position on the patient (sternum-apex)</i>
Procedure:	<ol style="list-style-type: none">1. <i>Turn on defibrillator</i>2. <i>Obtain a monitored view of the patient's ECG (through leads or paddles)</i>3. <i>Verify VF/VT</i>4. <i>Select energy level at 200 J (biphasic) and charge the defibrillator</i>5. <i>Assure that all team members are clear of the patient</i>6. <i>Deliver the shock</i>
Pediatric considerations:	<ul style="list-style-type: none">• <i>Use pediatric remote defibrillator pads or</i>• <i>Use length-based resuscitation tape for energy levels (0.5-1.0 J/kg)</i>

Metered Dose Inhaler (MDI) Assist

Provider level:	<ul style="list-style-type: none">• Emergency Medical Technician• Paramedic
Indications:	<ul style="list-style-type: none">• Patient has a prescribed MDI of albuterol, Proventil®, or Ventolin®, and<ul style="list-style-type: none">○ Patient exhibiting signs and symptoms of breathing difficulty presumed secondary to asthma or COPD○ Shortness of breath unrelieved by epinephrine or anaphylaxis, in patients with asthma or COPD and has BP of at least 90 mmHg
Contraindications:	<ul style="list-style-type: none">• Patient in respiratory arrest
Equipment:	<ul style="list-style-type: none">• Patient's MDI• Spacer
Preparation:	<ul style="list-style-type: none">• Remove cap from MDI• Attach spacer to MDI
Procedure:	<ol style="list-style-type: none">1. ALS upgrade required2. Provide supplemental oxygen and/or ventilatory assistance as necessary3. Allow the patient to achieve a position of comfort4. Ensure that the inhaler is at room temperature or warmer and shake the canister vigorously5. Depress the medication canister to fill the spacer with the medication. As soon as the canister is depressed, have the patient exhale deeply then 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 comfortable7. Have the patient exhale slowly through pursed lips8. Repeat every minute as needed for a total of 10 puffs9. If medic unit is not on scene 10 minutes after last puff and patient still is in respiratory distress, repeat Step 810. Chart time of administration and number of puffs11. Treatment can be discontinued at any time that the patient no longer is in respiratory distress

Mouth-to-Mask Ventilation with Supplemental Oxygen

Provider level:	<ul style="list-style-type: none">• Emergency Medical Responder• Emergency Medical Technician• Paramedic
Indications:	<ul style="list-style-type: none">• Unconscious patient with inadequate respirations• Respiratory arrest
Contraindications:	<ul style="list-style-type: none">• Conscious or unconscious patient with adequate respirations
Equipment:	<ul style="list-style-type: none">• Pocket mask• One-way valve• Oxygen tubing• Oxygen regulator• Oxygen tank
Preparation:	<ul style="list-style-type: none">• Attach one-way valve to pocket mask• Attach oxygen tubing to pocket mask and regulator• Adjust oxygen flow to 15 liters per minute
Procedure:	<ol style="list-style-type: none">1. Obtain mask-to-face seal2. Ventilate patient at proper rate and volume

Nasogastric Tube Insertion (NG Tube)

Provider level:	<ul style="list-style-type: none">• <i>Paramedic</i>
Indications:	<ul style="list-style-type: none">• <i>Intubated patients with gastric distention</i>• <i>All intubated pediatric patients</i>• <i>Any intubated patient who requires activated charcoal</i>
Contraindications:	<ul style="list-style-type: none">• <i>Patients with maxillary or nasal trauma or suspected skull fracture</i>• <i>Ingestion of caustic substances</i>• <i>Excessive resistance encountered during insertion</i>
Equipment:	<ul style="list-style-type: none">• <i>Appropriately sized NG tube</i>• <i>Toomey syringe</i>• <i>Suction</i>• <i>Water-soluble lubricant</i>
Preparation:	<ul style="list-style-type: none">• <i>Gather equipment</i>
Procedure:	<ol style="list-style-type: none">1. <i>Measure NG tube from the tip of the nose to the ear and then to a midpoint between the xiphoid and the umbilicus</i>2. <i>Lubricate the end of the tube with water-soluble lubricant</i>3. <i>Gently guide the tube through the naris and continue to insert until the measured depth is reached</i>4. <i>Confirm placement by rapidly injecting 20 cc of air while auscultating over the epigastrium</i>5. <i>Secure tube with tape to nose or cheek</i>6. <i>Attach to suction and aspirate stomach contents</i>7. <i>If indicated, administer activated charcoal</i>
Pediatric considerations:	<ul style="list-style-type: none">• <i>In the pediatric patient, use the length-based tape to select NG tub size. If an infant's nose is too small, perform an oral gastric intubation.</i>

Nasopharyngeal Airway

Provider level:	<ul style="list-style-type: none">• Emergency Medical Technician• Paramedic
Indications:	<ul style="list-style-type: none">• Patient with a decreased LOC and sonorous respirations who will not accept an oropharyngeal airway
Contraindications:	<ul style="list-style-type: none">• Patient with maxillary or nasal trauma or suspected skull fracture• Oropharyngeal airway providing adequate airway control• Resistance encountered during insertion
Equipment:	<ul style="list-style-type: none">• Nasopharyngeal airway• Water-soluble lubricant
Preparation:	<ul style="list-style-type: none">• Measure airway from tip of nose to earlobe
Procedure:	<ol style="list-style-type: none">1. Insert the airway with the bevel toward the septum and the curve downward, toward the throat; the right nostril is preferred2. Insert the airway until the flange is seated against the nostril3. 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:	<ul style="list-style-type: none"> • <i>Paramedic</i>
Indications:	<ul style="list-style-type: none"> • <i>Altered or decreased mental status</i> • <i>Hypovolemia</i> • <i>Request of law enforcement</i>
Contraindications:	<ul style="list-style-type: none"> • <i>None in the emergent setting</i>
Equipment:	<ul style="list-style-type: none"> • <i>Glucose testing</i> <ul style="list-style-type: none"> ○ <i>Lancet</i> ○ <i>Alcohol wipe</i> ○ <i>Adhesive bandage</i> ○ <i>Glucometer</i> • <i>Blood draw</i> <ul style="list-style-type: none"> ○ <i>IV start equipment</i> ○ <i>10 ml syringe</i> ○ <i>Vacutainer holder with female adapter</i> ○ <i>7 ml purple-top blood tube (or law enforcement-provided kit)</i> ○ <i>Blood band</i>
Preparation:	<ul style="list-style-type: none"> • <i>Glucose testing</i> <ul style="list-style-type: none"> ○ <i>Clean the site</i> ○ <i>Prepare the glucometer</i> • <i>Blood draw</i> <ul style="list-style-type: none"> ○ <i>Start IV and remove needle from catheter</i>
Procedure:	<p>Glucose testing:</p> <ol style="list-style-type: none"> 1. <i>Obtain specimen</i> 2. <i>Test specimen per manufacturer instructions</i> <p>Blood draw:</p> <ol style="list-style-type: none"> 1. <i>Attached syringe to IV catheter (or saline lock tubing)</i> 2. <i>Gently aspirate at least 8 ml of blood</i> 3. <i>Disconnect the syringe from the catheter</i>

Obtaining Blood Specimens

Procedure:

- 4. Finish securing the IV with the appropriate IV tubing and flush***
- 5. Transfer blood from syringe to the blood tube***
- 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:	<ul style="list-style-type: none">• Emergency Medical Responder• Emergency Medical Technician• Paramedic
Indications:	<ul style="list-style-type: none">• Unconscious patient without a gag reflex
Contraindications:	<ul style="list-style-type: none">• Patient with a gag reflex
Equipment:	<ul style="list-style-type: none">• Tongue depressor• Oropharyngeal airway• Suction
Preparation:	<ul style="list-style-type: none">• Measure airway from corner of mouth to earlobe, or center of lips to angle of jaw
Procedure:	<ol style="list-style-type: none">1. Assess gag reflex using tongue depressor; if no gag reflex, proceed to step 22. 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 anteriorly3. When properly inserted, the flange of the airway should be seated against the lips4. Assess the need for ventilation
Pediatric considerations:	<ul style="list-style-type: none">• 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:	<ul style="list-style-type: none">• <i>Paramedic</i>
Indications:	<ul style="list-style-type: none">• <i>Patient undergoing RSI</i>• <i>Unconscious without a gag reflex</i>
Contraindications:	<ul style="list-style-type: none">• <i>Gag reflex (see “Rapid Sequence Induction,” Appendix L)</i>• <i>More than four total attempts by two providers (see “Difficult Airway Management,” Appendix L)</i>• <i>Trismus (see “Rapid Sequence Induction,” Appendix L)</i>
Equipment:	<ul style="list-style-type: none">• <i>BVM</i>• <i>Commercially manufactured, purpose-made tracheal tube holder</i>• <i>Endotracheal tube (variety of sizes)</i>• <i>End-tidal CO₂ monitoring equipment/device</i>• <i>Laryngeal handle/blades</i>• <i>OPA/NPA</i>• <i>Oxygen tank with regulator</i>• <i>Pulse oximeter</i>• <i>Stylette</i>• <i>Syringe</i>• <i>Suction</i>
Preparation:	<ul style="list-style-type: none">• <i>Assemble and check required equipment</i>
Procedure:	<ol style="list-style-type: none">1. <i>Use continuous pulse oximetry throughout procedure</i>2. <i>Apply cricoid pressure until intubation is achieved</i>3. <i>Perform ET intubation; each attempt lasts no longer than 30 seconds, with re-oxygenation between attempts</i>4. <i>Each paramedic shall make no more than 2 attempts (total of 4 attempts) before implementing alternative methods of airway control (e.g. LMA)</i>5. <i>Confirm tube placement with auscultation and continuous end-tidal CO₂ monitoring</i>6. <i>Secure tube with commercial tube holder</i>7. <i>Insert naso- or oro-gastric tube</i>

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:	<ul style="list-style-type: none">• Emergency Medical Responder• Emergency Medical Technician• Paramedic
Indications:	<ul style="list-style-type: none">• Suspected hypoxia
Contraindications:	<ul style="list-style-type: none">• None in the setting of hypoxia
Equipment:	<ul style="list-style-type: none">• Oxygen cylinder• Oxygen regulator• Oxygen delivery device
Preparation:	<ul style="list-style-type: none">• 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 life-saving oxygen• Set the flow at the desired rate (fill the reservoir prior to placing on patient)
Procedure:	<ol style="list-style-type: none">1. Explain the procedure to the patient2. Place the delivery device on the patient and adjust to patient's comfort

Pelvic Wrap Splint

Provider level:	<ul style="list-style-type: none">• Emergency Medical Responder• Emergency Medical Technician• Paramedic
Indications:	<ul style="list-style-type: none">• Patients with a suspected pelvic fracture• Unresponsive patient with blunt trauma and signs of shock
Contraindications:	<ul style="list-style-type: none">• Hip fracture• Proximal femur fracture
Equipment:	<ul style="list-style-type: none">• Bed sheet• Towel clips (4)• Commercially approved device
Preparation:	<ul style="list-style-type: none">• Fold sheet until the width of the folded sheet matches the distance from the patient's umbilicus to mid-thigh
Procedure:	<p>Sheet Method</p> <ol style="list-style-type: none">1. Place one rescuer on each side of patient2. Place the folded sheet under the patient's pelvis, aligning top of sheet with patient's umbilicus3. Rescuer 1 passes her end of the sheet to Rescuer 24. Rescuer 2 folds the sheet back toward Rescuer 1, aligning the fold with the patient's iliac crest nearest to Rescuer 25. Rescuer 2 passes unfolded end of sheet to Rescuer 16. Rescuer 2 holds folded end of sheet at the fold and pulls toward himself, while Rescuer 1 pulls other end of sheet toward herself7. Rotate patient's feet internally prior to applying splint (unless leg fractures present)8. Increase pressure until immobilization is achieved9. Rescuer 3 secures sheet in place with (4) towel clips (2 even with fold, and other 2 at opposite iliac crest) <p>Commercial device</p> <ul style="list-style-type: none">• 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

ANNUAL MPD REQUIRED TRAINING FOR EXTERNAL JUGULAR ACCESS

Provider level:	<ul style="list-style-type: none"> • <i>Paramedic</i>
Indications:	<ul style="list-style-type: none"> • <i>Hypovolemia</i> • <i>Administration of medications</i> • <i>Potential need for fluid or medication administration</i>
Contraindications:	<ul style="list-style-type: none"> • <i>None in emergent setting</i>
Equipment:	<ul style="list-style-type: none"> • <i>Tourniquet</i> • <i>Alcohol wipe</i> • <i>Povidone-iodine wipe</i> • <i>Over-the-needle IV catheters (22 g-14 g)</i> • <i>Occlusive dressing</i> • <i>Tape</i> • <i>IV tubing and/or saline lock</i> • <i>Normal saline IV solution (5 ml flush, 250 ml, or 1,000 ml)</i>
Preparation:	<ol style="list-style-type: none"> 1. <i>Attach IV tubing and/or saline lock to normal saline solution and flush tubing</i> 2. <i>Apply tourniquet</i> 3. <i>Select and clean site</i>
Procedure:	<ol style="list-style-type: none"> 1. <i>Cannulate the vein</i> 2. <i>Remove the needle; if not drawing a blood sample, release the tourniquet</i> 3. <i>Flush IV catheter using preload saline syringe or IV fluid bag</i> 4. <i>Secure tubing with tape; apply occlusive dressing</i> 5. <i>Discard sharps</i> 6. <i>Document location, size of needle, number of attempts and fluid given in the patient's MIR</i> 7. <i>Patients who require ongoing IV access shall receive ALS transport</i>
Pediatric considerations:	<ul style="list-style-type: none"> • <i>IV tubing should utilize a safety measure (e.g. Volutrol) to prevent unintentional fluid boluses</i>

Point of Care Ultrasonography

POCUS

ONLY TO BE USED BY PARAMEDICS WHO HAVE GONE THROUGH MPD's APPROVED TRAINING PROGRAM

- Provider level:**
- *Paramedic*
- Indications:**
- *Improve or augment patient care, to include but not limited to; cardiac arrest (PEA), shock and hypotension (RUSH-HI-MAP), shortness of breath, traumatic injuries (E-FAST), ultrasound guided procedures (IE central line placement, pericardiocentesis), pregnancy, etc.*
- Contraindications:**
- *Other patient care priorities*
- Equipment:**
- *Ultrasound probe*
 - *Ultrasound gel*
 - *Tablet or screen*
- Preparation:**
1. *Dependent on procedure, see individual protocol*
- Procedure:**
1. *Dependent on procedure, see individual protocol*
- Considerations:**
- *POCUS should be used to augment physical exam and should not delay patient care or transport in emergent situations*
 - *Images are considered non diagnostic and cannot rule out pathology in the appropriate clinical settings*

POCUS

Pulse Checks

ONLY TO BE USED BY PARAMEDICS WHO HAVE GONE THROUGH MPD's APPROVED TRAINING PROGRAM

Provider level:	<ul style="list-style-type: none"> • <i>Paramedic</i>
Indications:	<ul style="list-style-type: none"> • <i>Cardiac Arrest</i>
Contraindications:	<ul style="list-style-type: none"> • <i>Other patient care priorities</i>
Equipment:	<ul style="list-style-type: none"> • <i>Ultrasound probe</i> • <i>Ultrasound gel</i> • <i>Tablet or screen</i>
Procedure:	<ol style="list-style-type: none"> 1. <i>Vascular preset, linear array probe, doppler (color or pulse wave) mode</i> 2. <i>Place ultrasound gel to probe footprint (either the carotid or femoral artery)</i> 3. <i>Place probe over carotid/femoral artery and assess for compressibility and pulsatility</i> 4. <i><u>Position probe while CPR is ongoing to reduce time off the chest.</u></i> 5. <i>Pulse checks should remain <u>no more than 10 seconds.</u></i> 6. <i>Once chest compressions have paused, assess artery for compressibility/pulsatility and attempt to visualize flow pattern</i> 7. <i>Resume or terminate chest compressions as indicated. Log demographics and incident number in software.</i>
Considerations:	<ul style="list-style-type: none"> • <i>POCUS should be used to augment physical exam and should not delay patient care or transport in emergent situations</i> • <i>Images are considered non diagnostic and <u>cannot rule out</u> pathology</i>

POCUS

RUSH Exam

ONLY TO BE USED BY PARAMEDICS WHO HAVE GONE THROUGH MPD's APPROVED TRAINING PROGRAM

- Provider level:**
- Paramedic
- Indications:**
- Post ROSC or Peri-ROSC
 - Shock
 - Hypotension
- Contraindications:**
- Other patient care priorities
- Precautions:**
- Views of the heart, lungs and IVC (Triple Scan) should take priority if time constraints arise
- Equipment:**
- Ultrasound probe
 - Ultrasound gel
 - Tablet or screen
- Procedure:**
- Expose, and prepare ultrasound sites, using the HI-MAP method and evaluate for the following:**
- Save images, log demographics and incident number in software as a part of documentation
 - Cardiac (Heart)(pick best two views: subxiphoid/parasternal, long/short/apical 4 chamber)
 - Heart failure
 - Massive PE
 - Tamponade
 - IVC
 - Deflated, skinny, collapses w/respiration-Low CVP
 - Hypovolemic shock
 - Distributive shock
 - Neurogenic shock
 - Plump – no change with respiration, High CVP
 - Obstructive
 - Cardiogenic
 - “Morison’s Pouch” RUQ view and other FAST views (pelvic, and LUQ)
 - Presence of fluid
 - Ruptured AAA
 - Ruptured Ectopic
 - Ruptured bowel

continued →

POCUS RUSH Exam

Procedure:

- ***Aorta***
 - ***Enlarged aorta***
 - ***Dissection***
 - ***AAA***
- ***Pulmonary***
 - ***Lung slide is absent, lung point visualized***
 - ***Pneumothorax***
 - ***Presence of fluid***
 - ***Hemothorax/effusion***
 - ***B Lines (diffuse/focal)***
 - ***Pulmonary edema***
 - ***Pneumonia***

Considerations:

- ***POCUS should be used to augment physical exam and should not delay patient care or transport in emergent situations***
- ***Images are considered non diagnostic and cannot rule out pathology***

POCUS

E-Fast Exam

ONLY TO BE USED BY PARAMEDICS WHO HAVE GONE THROUGH MPD's APPROVED TRAINING PROGRAM

- Provider level:**
- *Paramedic*
- Indications:**
- *High index of suspicion of intraabdominal/intrathoracic bleed*
 - *IE patients meeting steps 1 or 2 in WTTT*
 - *Multisystem ALS trauma*
- Contraindications:**
- *Other patient care priorities*
- Equipment:**
- *Ultrasound probe*
 - *Ultrasound gel*
 - *Tablet or screen*
- Procedure:**
- Expose, and prepare ultrasound sites (RUQ, LUQ, pelvic, cardiac, or lungs)*
- *Save images, log demographics and incident number in software as a part of documentation*
 - **Cardiac**
 - **Look for:**
 - *Pericardial effusion (circumferential)*
 - **RUQ**
 - *Tip of liver is a common location for missed free fluid*
 - **Look for:**
 - *Free fluid*
 - **Pelvic**
 - **Look for:**
 - *Free fluid*
 - **LUQ (dome of spleen)**
 - **Look for:**
 - *Free fluid*
 - **Pulmonary**
 - *Pneumothorax/hemothorax*
 - *Free fluid*

continued →

POCUS E-FAST Exam

Considerations:

- ***POCUS should be used to augment physical exam and should not delay patient care or transport in emergent situations***
- ***Images are considered non diagnostic and cannot rule out pathology***

POCUS

Guided Central Venous Access

ONLY TO BE USED BY PARAMEDICS WHO HAVE GONE THROUGH MPD's APPROVED TRAINING PROGRAM

- 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:**
- *Ultrasound probe*
 - *Ultrasound gel*
 - *Tablet or screen*
 - *Alcohol wipe/s*
 - *Chlorhexidine/Povidone-iodine wipe*
 - *Over the needle IV catheter (14g x 3.25" or 14g x 5.25")*
 - *Occlusive dressing*
 - *Tape*
 - *IV tubing*
 - *Normal saline IV solution*
- Preparation:**
1. *Ensure ultrasound device is turned on and operational*
 2. *Attach IV tubing to normal saline solution and flush tubing*
 3. *Attach syringe to IV catheter*
 4. *Select ad clean site*
 5. *Cover the probe with a (preferably) sterile dressing or clean cover (like occlusive dressing, glove, or sterile glove)*

continued →

POCUS

Guided Central Venous Access

Procedure:

- **Save images, log demographics, and incident number in software as a part of documentation**

Femoral Intravenous Cannulation:

- 1. Perform ultrasound inspection of the femoral vein 1 to 2 cm inferior to the inguinal ligament and determine whether the vein is suitable for cannulation**
 - a. If utilizing ultrasound-guidance, information is provided on the relationship of vessels to each other as well as other surrounding structures. Additionally, vessel depth, caliber, and patency can also be assessed. These findings should be integrated with landmark findings to assist in choosing an ideal puncture site, entry angle, and needle direction.**
- 2. Comfortably abduct and externally rotate the leg**
- 3. Cannulate the vein**
 - a. Puncture the skin 1 cm medial to femoral artery and 2-4 cm inferior to inguinal ligament**
 - b. Insert needle at 45-degree angle and advance needle**
 - c. While advancing the needle withdraw the plunger on the syringe until blood is aspirated**
 - d. Stabilized the needle, and advance the catheter**
- 4. Remove the needle from the catheter**
- 5. Draw blood sample if needed**
- 6. Attach the IV tubing to the catheter and flush to ensure the catheter is patent**

continued →

POCUS

Guided Central Venous Access

**Procedure
continued:**

Internal Jugular Venous Cannulation:

1. **Perform ultrasound inspection of the Internal jugular vein at the triangle formed by the two heads of the sternocleidomastoid muscle and clavicle and determine whether the vein is suitable for cannulation.**
 - a. **If utilizing ultra-sound guidance, information is provided on the relationship of vessels to each other as well as other surrounding structures. Additionally, vessel depth, caliber, and patency can also be assessed. These findings should be integrated with landmark findings to assist in choosing an ideal puncture site, entry angle, and needle direction.**
2. **Cannulate the vein**
 - a. **Turn patient's head 45 degrees away from side being cannulated**
 - b. **Relocate the triangle formed by heads of the sternocleidomastoid and clavicle**
 - c. **Insert needle at 30-degree angle to skin at the apex of the triangle lateral to the palpated (and visualized) carotid artery, and advance it 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**
3. **Remove the needle from the catheter**
4. **Draw blood sample if needed**
5. **Attach the IV tubing to the catheter and flush to ensure the catheter is patent**

Considerations:

- **POCUS should be used to augment physical exam and should not delay patient care or transport in emergent situations**
- **Images are considered non diagnostic and cannot rule out pathology**

POCUS

Guided Peripheral Venous Access

ONLY TO BE USED BY PARAMEDICS WHO HAVE GONE THROUGH MPD's APPROVED TRAINING PROGRAM

Provider level:	<ul style="list-style-type: none"> • <i>Paramedic</i>
Indications:	<ul style="list-style-type: none"> • <i>Peripheral vascular access unavailable by other means</i>
Contraindications:	<ul style="list-style-type: none"> • <i>Other patient care priorities</i>
Equipment:	<ul style="list-style-type: none"> • <i>Ultrasound probe</i> • <i>Ultrasound gel</i> • <i>Tablet or screen</i> • <i>Alcohol wipe/s</i> • <i>Chlorhexidine/Povidone-iodine wipe</i> • <i>Over the needle IV catheter</i> • <i>Occlusive dressing</i> • <i>Tape</i> • <i>IV tubing</i> • <i>Normal saline IV solution</i>
Preparation:	<ol style="list-style-type: none"> 1. <i>Ensure ultrasound device is turned on and operational</i> 2. <i>Attach IV tubing to normal saline solution and flush tubing</i> 3. <i>Attach syringe to IV catheter</i> 4. <i>Select and clean site</i> <ol style="list-style-type: none"> a. <i>Basilic vein generally offer the best site with arm placed above and behind the patient's head</i> 5. <i>Cover the probe with a (preferably) sterile dressing or clean cover (like occlusive dressing, glove, or sterile glove)</i>

continued →

POCUS

Guided Peripheral Venous Access

Procedure:

Short Axis:

1. *Visualize the vein in the cross section*
2. *Follow the needle tip until it enters the vein*
3. *Stabilize the needle, and advance the catheter*
4. *Remove the needle from the catheter*
5. *Draw blood sample if needed*
6. *Attach the IV tubing to the catheter and flush to ensure the catheter is patent*

Long Axis:

1. *Needle and vessel kept in the same place*
2. *Transducer should remain stationary as needle enters the skin*
3. *Needle should be followed into the lumen of the vessel*
4. *Stabilize the needle, and advance the catheter*
5. *Remove the needle from the catheter*
6. *Draw blood sample if needed*
7. *Attach the IV tubing to the catheter and flush to ensure the catheter is patent*

Considerations:

- *Targets on the upper medial arm are generally more easily visualized however proximal arm may be more reliable*
- *Brachial vein generally is not a good target due to proximity to nerve bundle and artery*
- *Use both compression and color flow to ensure target is a vein*
- *Look for other structures (arteries, nerves) that could potentially be injured and avoid them*
- *Trace the course of the vein to identify bifurcations, clots, or valves*

POCUS

Guided Pericardiocentesis

ONLY TO BE USED BY PARAMEDICS WHO HAVE GONE THROUGH MPD's APPROVED TRAINING PROGRAM

- | | |
|---------------------------|---|
| Provider level: | <ul style="list-style-type: none"> • <i>Paramedic</i> |
| Indications: | <ul style="list-style-type: none"> • <i>Signs or symptoms of cardiac tamponade, traumatic cardiac arrest</i> • <i>Supportive US findings:</i> <ul style="list-style-type: none"> ○ <i>Right atrial and right ventricular diastolic collapse</i> ○ <i>Plethoric IVC that lacks respiratory variation</i> ○ <i>Circumferential pericardial effusion</i> |
| Contraindications: | <ul style="list-style-type: none"> • <i>Relative, other patient care priorities</i> |
| Equipment: | <ul style="list-style-type: none"> • <i>Ultrasound probe</i> • <i>Ultrasound gel</i> • <i>Tablet or screen</i> • <i>Chlorhexidine/Povidone-iodine wipe</i> • <i>14g x 3.25" or 14g x 5.25" needle</i> • <i>20 ml syringe</i> |
| Preparation: | <ol style="list-style-type: none"> 1. <i>Prepare a large area with chlorhexidine/povidone-iodine</i> 2. <i>Attach the syringe to the needle</i> 3. <i>Cover the probe with a (preferably) sterile dressing or clean cover (like occlusive dressing, glove, or sterile glove)</i> |

continued →

POCUS

Guided Pericardiocentesis

Procedure:

Subxiphoid (SX) Approach:

- 1. The probe is placed in the subxiphoid area angled up into the chest using the liver as a window***
- 2. The most inferior part of the right ventricle will be struck by the sound beam first as it leaves the probe and will appear at the top of the screen on the monitor. A normal SX view will show the right ventricle (RV) up against the liver (L), left ventricle (LV), left atrium (LA) and right atrium (RA).***
- 3. Pericardial effusion will be seen as a black anechoic area above the right ventricle, and this should be where the needle should enter the pericardium***
- 4. The needle should be inserted parallel to the probe and directed at a 45° angle towards the left scapula tip. The needle will appear on the screen as a hyperechoic structure with reverberation artifact and should be used to guide the advancement towards the pericardium***
- 5. The syringe should be aspirated as the needle is advanced every 1-2mm until fluid is aspirated***
- 6. Once fluid is aspirated, remove as much as possible (30-50ml)***
- 7. Catheter may remain in place for subsequent pericardiocentesis depending on clinical setting and presentation***

continued —————>

POCUS

Guided Pericardiocentesis

Procedure continued:

Parasternal Approach:

- *The parasternal approach is often preferred over the subxiphoid due to its closer proximity to the pericardial effusion and a better ability to avoid the liver and lung*
1. *Obtain a parasternal long axis view of the heart.*
 2. *Pericardial effusion will be seen as a black anechoic area above the right ventricle, and this should be where the needle should enter the pericardium. This distance can be measured in between the chest wall and the pericardial effusion.*
 3. *The needle should be inserted at a 45° angle in-plane to the probe on the anterior chest wall and directed down towards the effusion. The ideal insertion site on the chest wall should be closest to the area where the effusion is largest.*
 - a. *The syringe should be aspirated as the needle is advanced every 1-2mm until fluid is drawn back.*
 4. *Once fluid is aspirated, remove as much as possible (30-50ml)*
 5. *Catheter may remain in place for subsequent pericardiocentesis depending on clinical setting and presentation*

Considerations:

- *The best ultrasound views to perform a pericardiocentesis are based on patient body habitus, positioning and which axis of the heart is optimally viewed. Most typically, the subxiphoid (SX) or parasternal long (PSL) views are used.*

Pulse Oximetry

Provider level:	<ul style="list-style-type: none">• Emergency Medical Responder• Emergency Medical Technician• Paramedic
Indications:	<ul style="list-style-type: none">• Patients with signs of respiratory distress or dyspnea
Contraindications:	<ul style="list-style-type: none">• None
Equipment:	<ul style="list-style-type: none">• Pulse oximeter• Pulse oximeter probe
Preparation:	<ul style="list-style-type: none">• Remove nail polish if necessary
Procedure:	<ol style="list-style-type: none">1. Place probe on the patient2. Assess for a good signal (green light or pulse reading must correlate with heart rate)3. Record values in patient care report
Pediatric considerations:	<ul style="list-style-type: none">• Use pediatric probe; alternative sites are possible (earlobe, toes, foot, hand)

Rapid Sequence Induction

Provider level:	<ul style="list-style-type: none"> • <i>Paramedic</i>
Indications:	<ul style="list-style-type: none"> • <i>Ventilatory insufficiency (SpO₂ less than 88 percent refractory to other interventions)</i> • <i>Severe respiratory distress</i> • <i>Respiratory arrest</i> • <i>Suspected closed head injury with GCS less than 9</i> • <i>Altered or decreased mental status with respiratory compromise</i> • <i>Potential for airway compromise due to acute burns, neck or midfacial trauma, or anaphylaxis</i> • <i>Patient is unconscious, flaccid, and has no gag reflex</i>
Relative contraindications:	<ul style="list-style-type: none"> • <i>Very fat or short neck</i> • <i>Severe arthritis of neck with minimal mobility</i> • <i>Known anatomical deformities</i> • <i>History of throat cancer</i> • <i>Non-arrested croup or epiglottitis</i>
Equipment:	<ul style="list-style-type: none"> • <i>Patent and secured IV</i> • <i>RSI medications</i> • <i>BVM</i> • <i>OPA</i> • <i>Oxygen tank with regulator</i> • <i>Laryngoscope handle/blades</i> • <i>Endotracheal tube (variety of sizes)</i> • <i>Stylette</i> • <i>Syringe</i> • <i>Suction</i> • <i>Esophageal bulb detector</i> • <i>End-tidal CO₂ monitoring equipment/device</i> • <i>Pulse oximeter</i> • <i>Commercially manufactured, purpose-made tracheal tube holder</i>
Preparation:	<ol style="list-style-type: none"> 1. <i>Assemble and check required equipment</i>

Rapid Sequence Induction

Preparation:

2. Calculate and prepare doses of pre-medication, sedative and paralytic
3. Pre-oxygenate using bag valve mask and cricoid pressure. If possible, attempt to raise SpO₂ 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 CO₂ 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

Escalating Restraints Guidelines

Physical and chemical restraints are sometimes required for the safety of a patient, of bystanders, or of the EMS providers that are attempting to help care for that patient. The gravity of removing someone's right to self-determination and holding them against their will is not, and should not be, lost upon us. This is also balanced against the physical and medical risks involved in subduing an uncooperative and potentially violent patient. That said, this protocol is to serve as an approach for dealing with such a patient and negotiating the safest outcome for all involved.

- | | |
|---------------------------|--|
| Provider level: | <ul style="list-style-type: none"> • Emergency Medical Responder • Emergency Medical Technician • Paramedic |
| Indications: | <p>All of the following must apply:</p> <ul style="list-style-type: none"> • Implied consent exists • A potential emergent medical or psychiatric condition exists • Patient's behavior poses a threat to themselves or others, or behavior is interfering with providers' ability to assess and care for the patient |
| Contraindications: | <ul style="list-style-type: none"> • Patient has decision-making capacity and refuses care • Lack of personnel or equipment |
| Equipment: | <ul style="list-style-type: none"> • Soft restraints x 4 • Spit mask • Gurney or backboard • IV access (ALS only) • Airway equipment (ALS only) • Sedative medication (ALS only) |
| Preparation: | <ul style="list-style-type: none"> • Time permitting – brief every member of the team on the plan and their role before approaching the patient. • Prepare soft restraints and plan for how to anchor to backboard or gurney. |
| Procedure: | <p>Establish that patient does not have decision-making capacity</p> |

Escalating Restraints Guidelines

Procedure:

- Make every attempt to verbally de-escalate the patient and bargain as time and conditions permit
- Leverage all resources available including engaging friends and family members, as appropriate, to negotiate patient compliance
- Establish a show of force/ manpower. Consider whether law enforcement presence will help or hinder the cause. In some cases this will cause a patient to comply and in others will cause escalating agitation and disruptive behaviors.
- With appropriate manpower, approach the patient as a team and restrain physically with at least one team member per limb and one for head/ airway. Secure each limb with soft restraints to the backboard or gurney. Each member will maintain manual control of each limb until mechanical restraints are in place. Once patient has required physical restraint, limbs are to be secured until evaluated at hospital for removal, even if patient stops resisting or becomes more compliant.
- Determine risk versus benefit of placing a spit mask or non-rebreather mask to avoid body fluid exposure. Avoid with compromised or potentially compromised airway.
- Once physically restrained, as time and conditions permit, complete physical assessment to include vital signs, airway, respiratory, cardiac, and neurologic assessments and document.
- Assess and document limb perfusion and any injuries that occurred.
- If patient continues to struggle against restraints, poses a risk to remove or break free of restraints, or continues to impair our ability to assess or care for them, consider sedation for chemical restraint. Also, if a patient is so violent or combative that they cannot be reasonably placed in physical restraints without significant injury to the patient or EMS providers consider sedation for chemical restraint.

For chemical restraint:

- ***Attempt to obtain vital signs and airway assessment if able***
- ***Determine risk versus benefit of IV, IM, or IN route of medications***

continued →

Escalating Restraints Guidelines

Procedure:

- ***Patient must be supine with access to airway before any medication is administered***
- ***Oxygen, BVM, and airway equipment should be available and prepped before any medication is administered***
- ***Agents approved for sedation for chemical restraint include: midazolam 5-10 mg IV/IM/ IN and ketamine 2 mg/ kg IV or 4mg/ kg IM***
- ***Contact base station for further dosing/ orders if required.***
- ***Once conditions allow, complete assessment including VS, airway, cardiac and respiratory status; monitor Q 5 min and document.***

A patient with decision making capacity must:

- Be able to communicate fluently with the EMS provider
- Be over the age of eighteen
- Be oriented to person, place, time and not show any obvious cognitive deficit
- Be free of the influence of alcohol, drugs, or any mind altering substances
- Not have any injury or medical condition that is affecting their judgement
- Not have threatened or attempted suicide during this episode
- Demonstrate the ability to explain the decision they are making and the possible negative outcomes that could result by refusing care

Spinal Immobilization

Cervical Immobilization Decision Tool

- Provider level:**
- Emergency Medical 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 in a fall
- Equipment:**
- Cervical collar
- Preparation:**
- Adjust cervical collar to/select appropriate size collar
- Procedure:**
- CAUTION: If the patient has a positive finding AT ANY TIME during your exam, stop and proceed with application of c-collar
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

continued —————>

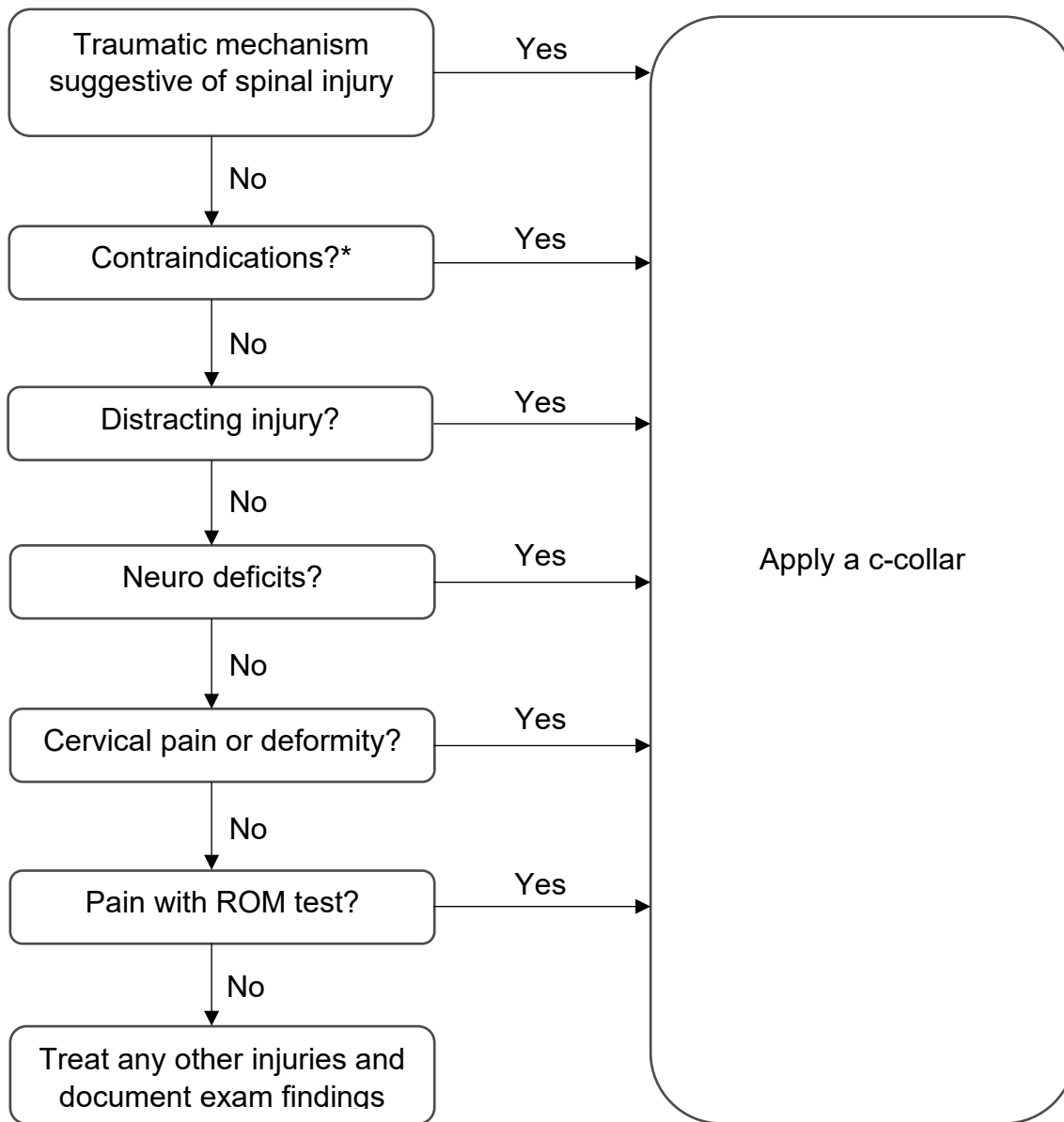
Spinal Immobilization

Cervical Immobilization Decision Tool

Procedure:

6. If a c-collar is applied, determine if patient requires full spinal immobilization (J-54); if so, fully immobilize and extricate with full spinal precautions
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



*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 in a fall

Spinal Immobilization

Full Immobilization

Provider level:	<ul style="list-style-type: none">• Emergency Medical Responder• Emergency Medical Technician• Paramedic
Indications:	<ul style="list-style-type: none">• 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:	<ul style="list-style-type: none">• 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:	<ul style="list-style-type: none">• 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:	<ul style="list-style-type: none">• 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:	<ol style="list-style-type: none">1. During the primary assessment, apply manual immobilization of the head2. Apply appropriately-sized c-collar3. Perform a secondary exam, expose as needed, and perform the proper procedure to place the patient on the LBB4. 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

Spinal Immobilization

Full Immobilization

Procedures:

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
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 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)

ANNUAL MPD REQUIRED TRAINING

- Provider level:**
- *Paramedic*
- Indications:**
- *Emergency venous access 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*

Subclavian Intravenous Cannulation (Infraclavicular Approach)

Procedure:

- 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**
- 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:	<ul style="list-style-type: none"> • Emergency Medical Responder • Emergency Medical Technician • Paramedic
Indications:	<ul style="list-style-type: none"> • Presence of material in the nose or mouth causing respiratory distress or airway compromise
Contraindications:	<ul style="list-style-type: none"> • Patient able to control airway without assistance
Equipment:	<ul style="list-style-type: none"> • Manual or mechanical suction unit • Suction tubing • Rigid or flexible suction catheters • Sterile saline (for clearing a clogged catheter)
Preparation:	<ul style="list-style-type: none"> • Attach catheter to tubing • Attach tubing to suction unit • Check for operation of the suction unit and adequacy of suction • <i>Pre-measure soft suction catheters for insertion depth</i> <ul style="list-style-type: none"> ○ <i>Nose: from tip to earlobe</i> ○ <i>Mouth: from corner of mouth to earlobe</i> ○ <i>Endotracheal: from end of tube to earlobe to supraclavicular notch</i>
Procedure:	<ol style="list-style-type: none"> 1. Measure rigid suction catheter same as OPA (J-38) 2. <i>Insert suction catheter to pre-measured</i> depth or rigid catheter no farther than you are able to observe 3. Suction while withdrawing the catheter 4. Suction until airway is clear

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***

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

Supraglottic Airway

Provider level:	<ul style="list-style-type: none">• Emergency Medical Technician – Endorsement Required• Paramedic
Indications:	<ul style="list-style-type: none">• Cardiopulmonary arrest• Respiratory arrest• Respiratory distress in unconscious patient
Contraindications:	<ul style="list-style-type: none">• Patient with a gag reflex or resisting assistance• Angioedema of tongue, lips, or airway• Age less than 12 (estimated based on size)
Considerations:	<i>BLS providers must contact online medical control in cases of trauma</i>
Equipment:	<ul style="list-style-type: none">• Tongue depressor• Supraglottic airway• Bag-valve connected to oxygen supply
Preparation:	<ul style="list-style-type: none">• Assemble oxygen regulator and tank• Connect oxygen supply to the bag• Have other airway adjuncts including suction, OPA, NPA, and mask ready• Size appropriate supraglottic airway
Procedure:	<ul style="list-style-type: none">• Manually open the airway (sniffling position)• Remove or suction any debris or obstruction• Test gag with a tongue depressor or suction catheter• Place supraglottic airway as per manufacturer instructions and training

continued →

Supraglottic Airway

Procedure:

- Attach bag-valve and begin ventilations
- If patient begins gagging or resisting efforts to ventilate, remove airway immediately and provide appropriate level of assistance. Otherwise, supraglottic airway should remain in place until replaced by definitive airway by paramedic or at hospital.

Tourniquet Application (Commerical)

- Provider level:**
- Emergency Medical Responder
 - Emergency Medical Technician
 - Paramedic
- Indications:**
- Life threatening, arterial bleeding that cannot be controlled by any other means
 - MCI or Rescue Task Force activation (may be applied by any level EMS provider)
- Contraindications:**
- Junctional wounds
- Equipment:**
- Commercial tourniquet
- Procedure:**
1. Expose the affected limb completely
 2. Confirm that no other method for bleeding control is effective
 3. Place the tourniquet at least 2 inches above the wound on uninjured skin, as per manufacturer's directions (Realize that securing mechanism may differ if applied to upper vs lower extremity.)
 4. Tighten the windlass until bright red/pulsatile bleeding has stopped
 5. Lock the windlass and secure the tourniquet as per manufacturer's directions
 6. Write time of application on the patient's skin with indelible marker, and record application time on the patient record and/ or triage tag
 7. Dress wounds appropriately
 - 8. Address pain control per protocol**
 9. If single tourniquet was unable to control arterial bleeding, a second tourniquet may be applied above the first

Traction Device

Provider level:	<ul style="list-style-type: none">• Emergency Medical Technician• Paramedic
Indications:	<ul style="list-style-type: none">• Isolated mid-shaft femur fracture (open or closed)
Contraindications:	<ul style="list-style-type: none">• Distal femur fracture• Hip fracture• Distal fracture of same leg
Equipment:	<ul style="list-style-type: none">• MPD- approved traction device
Preparation:	<ul style="list-style-type: none">• Gather equipment• Manually immobilize fracture
Procedure:	<ol style="list-style-type: none">1. During trauma assessment, assess distal PMS2. Straighten the affected leg and pull manual traction3. Apply the traction device to the leg4. Secure the patient and the traction device to LBB to stabilize joint above and below5. 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:**
- *Cardiac monitor*
 - *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:	<ul style="list-style-type: none"> • <i>Paramedic</i> 																
Indications:	<ul style="list-style-type: none"> • <i>Intubated patient requiring ongoing ventilation</i> 																
Contraindications:	<ul style="list-style-type: none"> • <i>None</i> 																
Equipment:	<ul style="list-style-type: none"> • <i>Ventilator</i> • <i>Ventilator circuit</i> • <i>Oxygen source</i> • <i>Oximeter</i> • <i>Capnometer</i> 																
Preparation:	<ul style="list-style-type: none"> • <i>Set up equipment: select “CMV” mode</i> • <i>Verify initial settings</i> <hr/> <table> <tr> <td colspan="2"><i>Mode: CMV – Assist</i></td></tr> <tr> <td><i>Trigger [L/min]</i></td><td><i>5</i></td></tr> <tr> <td><i>PEEP [cmH₂O]</i></td><td><i>5</i></td></tr> <tr> <td><i>I:E</i></td><td><i>1:3.5</i></td></tr> <tr> <td><i>T_{plat} [%]</i></td><td><i>10</i></td></tr> <tr> <td><i>V_t ; 6-8 mL/kg*</i></td><td><i>Freq: 16-18</i></td></tr> <tr> <td><i>P_{max} 40 cm H₂O</i></td><td><i>FiO₂ 100%</i></td></tr> <tr> <td colspan="2"><i>*"Ideal" body weight</i></td></tr> </table> <hr/>	<i>Mode: CMV – Assist</i>		<i>Trigger [L/min]</i>	<i>5</i>	<i>PEEP [cmH₂O]</i>	<i>5</i>	<i>I:E</i>	<i>1:3.5</i>	<i>T_{plat} [%]</i>	<i>10</i>	<i>V_t ; 6-8 mL/kg*</i>	<i>Freq: 16-18</i>	<i>P_{max} 40 cm H₂O</i>	<i>FiO₂ 100%</i>	<i>*"Ideal" body weight</i>	
<i>Mode: CMV – Assist</i>																	
<i>Trigger [L/min]</i>	<i>5</i>																
<i>PEEP [cmH₂O]</i>	<i>5</i>																
<i>I:E</i>	<i>1:3.5</i>																
<i>T_{plat} [%]</i>	<i>10</i>																
<i>V_t ; 6-8 mL/kg*</i>	<i>Freq: 16-18</i>																
<i>P_{max} 40 cm H₂O</i>	<i>FiO₂ 100%</i>																
<i>*"Ideal" body weight</i>																	
Procedure:	<ul style="list-style-type: none"> • <i>Continuous oximetry is required</i> • <i>Continuous capnometry is required</i> • <i>Monitor “Flow” display for evidence of Auto-PEEP</i> 																
Pediatric considerations:	<ul style="list-style-type: none"> • <i>Contraindicated in patients requiring < 50 ml/breath</i> 																

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, epiglottitis, 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®”)

Trigger [L/min]	5
PEEP [cmH2]	5
PS	10
Ramp	—
V _t N/A mL/kg	Freq: N/A
P _{max} 40 cmH ₂ O	FiO ₂ 100%

- *Allow patient to hold mask to face initially*
- Procedure:**
- *Fasten straps once comfortable*
 - *Continuous oximetry is required*
- Pediatric considerations:**
- *Contraindicated in patients less than 10 Y/O*

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.

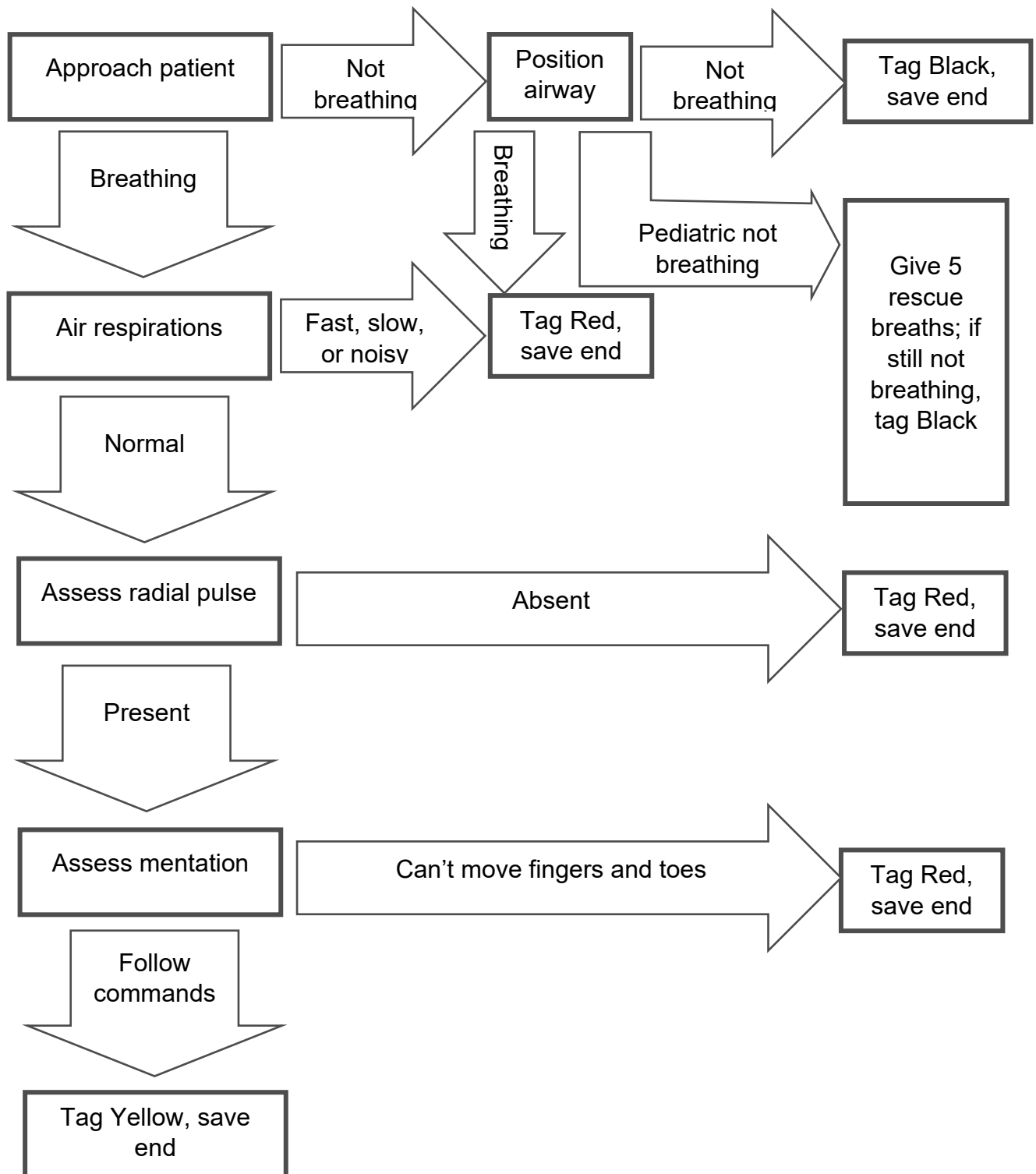
A patient with decision making capacity must:

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

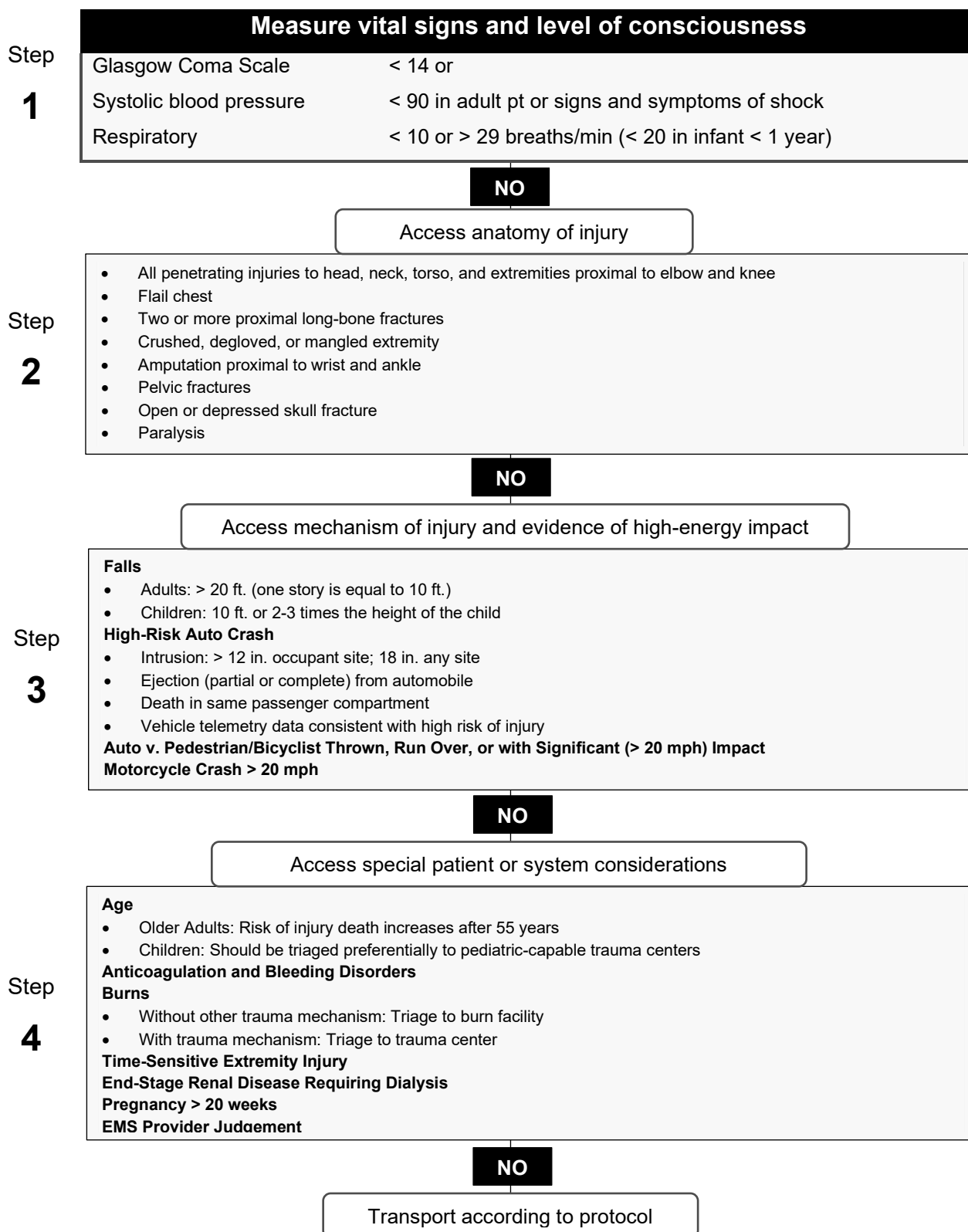
Appendix L – START Tool



Appendix M - Toxindromes

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

Appendix N – Washington State Trauma Triage Tool



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

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

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 Y/O); established by a 2nd reading in rapid succession
- Age specific hypotension in children up to 10 years old

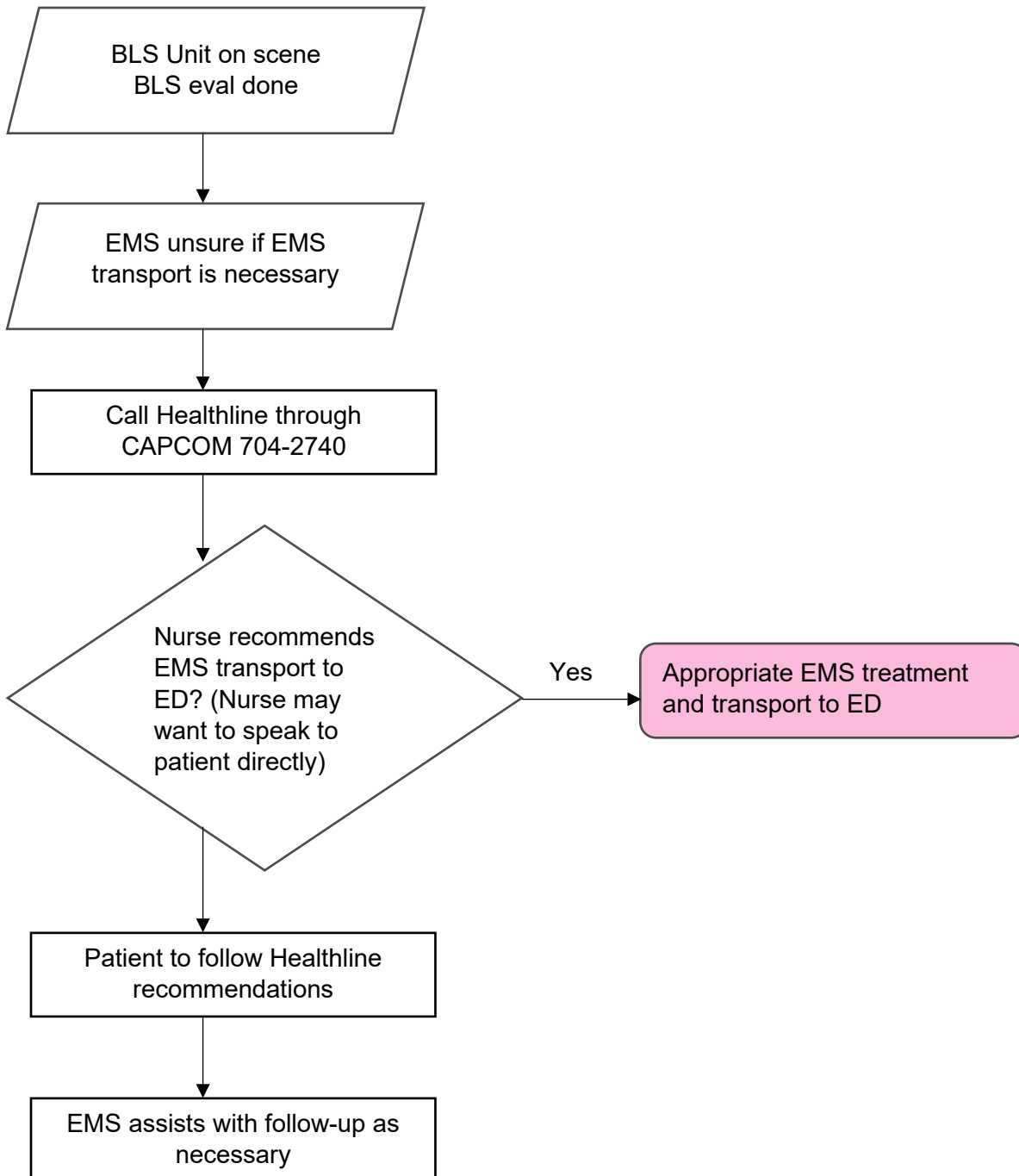
Term neonates (0-28 days)	SBP < 60 mmHg
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Infants (1-12 months)	SBP < 70 mmHg
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Children (1-10 years)	SBP < 80 mmHg
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- Relative hypoxemia: O₂ SpO₂ < 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



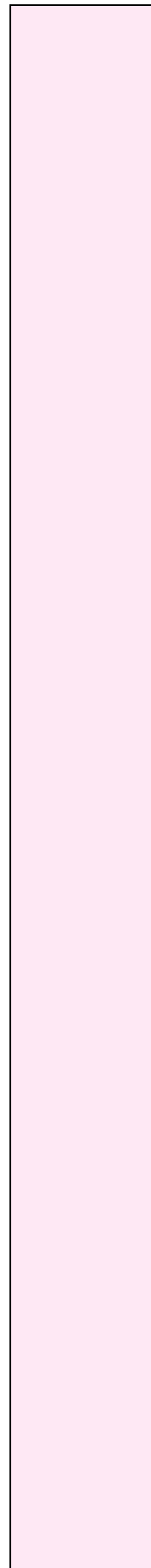
Glossary

ACS	acute coronary syndrome – refers to any group of clinical symptoms caused by acute myocardial ischemia
adrenergic	resembling adrenaline, especially in physiological action
akisthesia	a feeling of restlessness and an urgent need of movement, side effect of phenothiazines
antegrade	forward (e.g. from the time of injury)
anticoagulant	substance that hinders the clotting of blood; a bloodthinner
aphasia	absence or impairment of the ability to communicate through speech, writing, or signs due to dysfunction of brain centers
barotrauma	any injury caused by a change in atmospheric pressure between a potentially closed space and the surrounding area
Bell's palsy	paralysis of the facial nerve producing distortion on one side of the face
bradycardia	a heart rate less than 60 in an adult
carbonaceous sputum	sputum tinged black or charcoal secondary to exposure to fire and/or a smoky environment
carpopedal spasms	involuntary flexion of the hands and feet, usually secondary to carbon dioxide deficiency
cholinergic	liberating, activated by or involving acetylcholine; resembling acetylcholine, especially in physiologic action
CID	cervical immobilization device
clonic activity	rhythmic, involuntary muscle contractions
colorimetric devices	end-tidal carbon dioxide detectors that rely on a litmus type paper to change color in the presence of carbon dioxide
consent definitions	expressed consent means the patient was advised of the treatment being offered and has given permission; implied consent means consent is assumed to exist (i.e., the patient has not refused)
cricoid pressure	application of digital pressure to cricoid cartilage in neck of an unconscious patient to permit visualization of the glottic opening during endotracheal intubation
Cushing's triad	the triad of hypertension, bradycardia, and changing respiratory pattern in patients with head injuries; sign of increasing intracranial pressure
DAN	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)

Glossary

dermatome	an area of skin that is mainly supplied by a single spinal nerve; useful for finding the site of damage to the spine
DTs	delirium tremens is a disorder involving sudden and severe mental (psychosis) or neurological (seizure) changes caused by abruptly stopping the use of alcohol
dysrhythmia	a disordered rhythm exhibited in a record of electrical activity of the brain or heart
dysphagia	difficulty in swallowing
dyspnea	the sensation of shortness of breath
dystonia	involuntary muscle contractions often involving lateral rotation of the neck and lateral gaze
eclampsia	seizure occurring around the time of childbirth; often associated with hypertension or edema
epistaxis	nosebleed
evisceration	protrusion of the internal organs
FATS technique	Face and Thigh Squeeze is a technique for manually maintaining an open airway while using a bag valve mask to ventilate a nontraumatic patient
GCS	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
hydrofluoric acid	acid used for glass etching
incontinence	inability of the body to control the bladder or bowel
intubation attempt	tip of laryngoscope passing the lips
lacrimation	the secretion of tears, especially when abnormal or excessive
lateralizing signs	signs that occur on one side of the body
miosis	very small pupils
mydriasis	pronounced or abnormal dilation of the pupil
normothermic	normal body temperature
nuchal	of or relating to the region of the neck
pallor	deficiency of color, especially of the face
palpitations	a sensation of an unduly rapid or irregular heart beat
paresthesia	sensation of numbness, prickling, or tingling

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Glossary

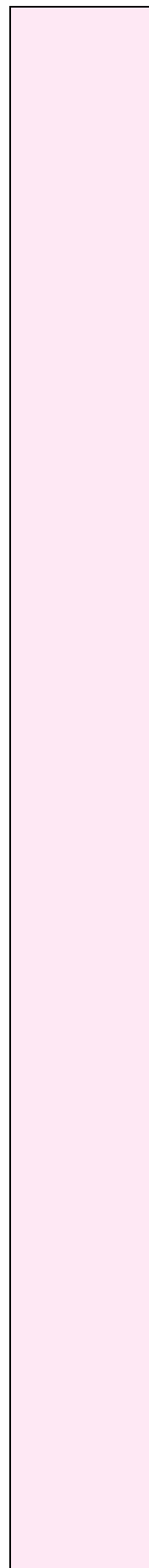
Glossary

petechial hemorrhaging	small, purplish hemorrhagic spots on the skin
polypharmacy	ingestion of more than 1 drug together
POLST	Portable Orders for Life Sustaining Treatment, or end-of-life treatment documentation
postictal	period that follows the clonic phase of a generalized seizure
pre-syncope	signs and symptoms experienced by a patient prior to having a syncopal event
priapism	persistent, abnormal erection of the penis accompanied by pain and tenderness
procedure	describes the sequence of actions in medical protocols or policies
prodrome	symptom(s) that may indicate the onset of a disease
protocol	defines field treatments, or the order and type of medical interventions for specific illness and injury conditions
pseudoseizure	seizure-like behavior that may or may not be voluntary
retrograde	going backward (i.e., loss of memory before injury)
rule of palm	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
salicylate	a group of aspirin-like compounds (i.e., Pepto Bismol, Alka Seltzer)
sclera	the white part of the eyeball
semi-Fowler's	position for patient, with the back raised 45 degrees from horizontal
sonorous respiration	snoring respiration
sublingual	beneath the tongue
status seizure	multiple seizure without return to baseline level of sublingual consciousness
subcutaneous emphysema	the presence of a gas and especially air in the subcutaneous tissue
tachycardia	a heart rate greater than 100 in an adult
tachypnea	abnormally rapid breathing (36-40 breaths per minute for an adult)
Torsades des Pointes	ventricular tachycardia that is characterized by rhythmic fluctuation in amplitude of the QRS complexes
tonic	involuntary muscular contraction

Glossary

toxindrome	a syndrome associated with a certain toxic substance
trismus	total contraction of the muscles of the jaw
unilateral	unilateral
vertigo	the sensation that the environment is moving
WPW	Wolff-Parkinson-White syndrome is an autonomic defect of the heart that is associated with severe or difficult-to-control tachycardias

DELETE FOR PUBLICATION



Phone/Fax Contacts for EMS Providers

Phone/Fax Contacts for EMS Providers

CONTACT	AC	NUMBER	MAIN NUMBER	FAX
Capital Medical Center ED	360	956-2596	754-5858	956-2564
Providence Centralia ED	360	330-8515	877-736-2803	330-8684
Children's Seattle ED	206	987-8899	866-987-2000	987-3945
Divers Alert Network (DAN)	919	684-9111	-	-
Harborview Med Ctr "Trauma Doc"	206	744-3074	744-3000	744-2655
Madigan Army Medical Center	253	968-1396	968-1110	968-3190
Madigan Gate for Entrance	253	968-1396	-	-
Mary Bridge Children's ED	253	403-1476	403-1400	403-1406
Providence St Peter Hospital ED	360	491-8888	491-9480	493-7663
Tacoma General ED	253	627-8500	403-1000	403-1517
Virginia Mason ED	206	583-6450	624-1144	223-6677
END HARM Reporting (Pediatric)	866	363-4276	END-HARM	-
Vulnerable Adults Reporting	877	734-6277	-	-
Area Agency on Aging	360	664-2168	664-2168	664-0791
Thurston County Coroner	360	867-2140	867-2040	867-2141
Washington Poison Center	800	709-0911	800-222-1222	-
Washington State Patrol	360	586-1999	586-1998 (24 hrs)	586-1998 (radio)
Red Cross (24 hrs)	360	507-0021	253-474-0400	253-473-4843
Safeplace (Emergency Shelter)	360	754-6300	(will return voicemail)	-
Salvation Army (Emergency Shelter)	360	352-8596	x109	-
CYS Shelter Project (11-17 Y/O)	360	943-0780	-	-
Crisis Clinic	360	586-2800	800-627-2211	-
Domestic Violence Hotline	800	562-6025	8am-5pm Mon-Fri	-
Haven House Youth Shelter (24 hrs)	360	754-1151	-	-



STATE OF WASHINGTON
DEPARTMENT OF HEALTH
PO Box 47853 • Olympia, Washington 98504-7853

August 8, 2023

Larry Fontanilla, MPD
lfontanilla@comcast.net

Dear Dr. Fontanilla:

The Thurston County MPD Protocols identified below, are approved. We will place an electronic copy on the MPD SharePoint site and a hard copy in our archives for reference.

- Point of Care Ultrasonography

Prehospital patient care protocols are defined in [WAC 246-976-010](#) as “department-approved, written orders adopted by the MPD under RCW [18.73.030](#)(15) and [70.168.015](#)(27) which direct the out-of-hospital care of patients. These protocols are related only to delivery and documentation of direct patient treatment. The protocols meet or exceed statewide minimum standards developed by the department in rule as authorized in chapter [70.168](#) RCW.”

Thank you for the hard work and collaboration demonstrated in completing this project. Please let me know if you have any questions or concerns.

Regards,

Catie Holstein, EMS Program Manager
Office of Community Health Systems, Emergency Care System
Washington State Department of Health
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Phone: (360) 236-2841
catie.holstein@doh.wa.gov