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DRAFT Thurston County Medic One EMS Protocols

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Document Key

***Throughout the protocols bold italics indicates ALS level of skill, treatment, or medication*.**

Throughout the protocols normal font indicates EMT level of skill or treatment.

Throughout the document, if a word or phrase is underlined and colored, it indicates a hyperlink to a resource, medication, or protocol.

In the Medication Section: Green highlight indicates EMT level of medication

***** Indicates EMR level of medication

In the Skills section, if it is an EMR level of skill it is stated at the beginning of the individual protocol.

All references to "AHA" refer to the current American Heart Association Standards.

 Symbol indicates an ALS upgrade criteria

 Symbol indicates pediatric treatment or medication

GENERAL PATIENT CARE PROCEDURES

General Patient Care Procedures

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

Bold italics **indicate an ALS procedure.**

Airway

Airway

Airway Management shall be in accordance with American Heart Association (AHA) Standards.

1. Positioning
    A. Head tilt – chin lift (not for trauma)
    B. Jaw thrust
2. Foreign Body Airway Obstruction removal
    A. Suctioning
    B. Finger sweep (no blind finger sweeps for infants or children)
    C. Abdominal thrusts (chest thrusts for infants)
    D. Back blows (for infants)
    E. Direct laryngoscopy and removal of obstruction with Magill forceps
3. Maintenance (in order of preference)
    A. Positioning
    B. Airway adjunct (most appropriate)
        - Naso- or Oropharyngeal Airway (NPA or OPA)
        - Supraglottic Airway (SGA)

    C. Orotracheal intubation
        - ***Eschmann-type stylet***
        - ***Video-assisted laryngoscopy***

    D. Surgical intubation with cricothyroidotomy device

Breathing

Breathing

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

1. Nasal cannula with oxygen at a rate of 2-6 lpm
2. Non-rebreather mask with oxygen at a rate of 8-15 lpm

Ventilation

Ventilation

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

1. Bag-valve mask with a reservoir bag and oxygen at a rate of 15-25 lpm
    A. Used to assist a conscious seated patient
    B. Used to assist or breathe for an unconscious patient utilizing the FATS technique (medical patient only) or 2-person technique with an OPA/NPA
    C. Used in conjunction with an SGA
    D. Used in conjunction with an endotracheal tube
2. ***Portable ventilator***

Circulation

Circulation

1. 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.
2. Assist circulation
    A. All cardiac arrest patients who do not meet the Death in Field (DIF) criteria (Appendix C) will have resuscitation attempted
    B. 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
    C. Cardiopulmonary resuscitation shall be performed in accordance with AHA and MPD-approved guidelines
3. ***Fluid resuscitation***
    A. 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 mm Hg
    B. 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
    C. Peripheral IVs should be established in any patient who exhibits signs or symptoms of hypoperfusion
    D. If IV access is difficult, consider external jugular, then intraosseous infusion:
        - ***Adult – Medial aspect of the proximal tibia or proximal humerus***
        - ***Child – Medial aspect of the proximal tibia***
    E. **ANNUAL MPD REQUIRED TRAINING:** ***If peripheral IV access and intraosseous access attempts are unsuccessful, consider central IV access in one of the following sites:***
        - ***Right subclavian vein***
        - ***Right or left femoral vein***

Disability

Disability

Evaluation of mechanism of injury (MOI) should be completed for every patient who is suspected of having a spinal injury.

1. Patients who request assistance after a fall, or whose situation otherwise suggests a change in their health status, should receive a complete assessment
2. After the initial trauma assessment is complete, EMS providers shall use Spinal Immobilization (Appendix J) to determine whether or not to immobilize the patient
3. 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
4. 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 laying a pillow or blanket roll under the (patient's) right side of the backboard
5. All patients with suspected long bone or joint injuries should be immobilized:
    A. 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 splitting. If the fracture cannot be reduced because of severe pain and remains in a position incompatible with transport, an ALS upgrade is indicated
    B. Joint: Immobilize long bone above and below the injury. Splint in the position found. If no pulse attempt to realign one time
    C. Distal PMS should be evaluated and recorded before and after splinting
6. Splinting should not be delayed for the administration of pain medication

Pain Management

Pain Management

1. Pain management should be a consideration in the care of all patients in severe pain
2. 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
3. Provider should then reassess patient for physical or physiologic signs of severe pain including diaphoresis, tachycardia, hypertension, tachypnea, pallor, or significant grimacing
4. If the patient displays any of these signs, they should be asked to rate their pain on a scale of 1 to 10
5. Patients should receive an ALS evaluation for pain management if they:
    A. Have received all non-pharmacological interventions, and
    B. Show physical or physiologic signs of pain, and
    C. Rate their discomfort at 7 or greater, and
    D. State they would like treatment for pain management
6. Not all patients that receive an ALS evaluation will receive pharmacological pain management

7. ***Any patient receiving opiate pain management will be transported by ALS and must:***
    - ***A. Have documented continuous oximetry, $ETCO_2$, and BP measurements every 5 minutes***
    - ***B. Have code summary attached to their patient care report***

Communication

Communication

1. ALS upgrades will be requested via TCOMM, accompanied by an explanation for the upgrade
2. Short verbal reports (Appendix I) will be given to responding medic units
3. BLS units recommending the cancellation of an ALS unit are required to give a complete verbal report (Appendix I) to the incoming medic unit
4. An Emergency Medical Responder who is the only provider on the scene cannot cancel an EMT or higher-level response to the scene
5. ***EMTS and Paramedics are required to contact a supervising physician/charge RN when:***
    - ***A. Directed to do so by protocol***
    - ***B. The paramedic has evaluated a patient and is requesting permission to leave the patient at the scene***
    - ***C. The paramedic is on scene with a patient who meets Steps 1-4 Washington State Trauma Triage Tool*** (Appendix N***)***
6. ***Contact base station charge RN as early as possible for critical patients***
7. 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 “Ground Transport”), the receiving facility should receive an updated report as soon as possible.
8. Verbal and written documentation of patient care:
    - A. A verbal report must be given at every handoff of a patient
    - B. 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.
    - C. Each EMS until 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).

TRANSPORT

Transport

1. Ground transport
    A. In general, patients should be transported to the hospital of their choice.
    B. 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
2. Air transport
    A. 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
3. Use of safety restraint devices during transport – ALL PATIENTS should be afforded the best possible safety measures available while being transported:
    A. When possible, patients should be transported sitting up
    B. Fasten all manufacturer-supplied gurney safety belts
    C. Care should be taken to secure loose items in the patients compartment during transport
    D. Attendants in the patient compartment should wear their seat belts whenever possible
    E. Children should be restrained in a size-appropriated child-restraint device whenever possible

Dispute Resolution

Dispute Resolution

1. In all cases, a collaborative approach to resolving disputes between personnel on the scene is preferred.
2. BLS: In the event that BLS personnel on the scene disagree about treatment, the most conservative approach will be followed. In the event that the BLS personnel on the scene disagree about whether an ALS upgrade is necessary, an ALS upgrade for evaluation will be requested.
3. 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 UPGRADES

Universal Upgrades

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

- Signs or symptoms of shock
- Symptomatic hypotension with auscultated systolic BP <90 mm Hg (or absent radial pulse)
- Pulse <50 or >130
- Unconscious
- Status epilepticus
- Any patient who meets RED criteria in WA State Trauma Triage Tool
- Intoxicated patient who meets YELLOW criteria in WA State Trauma Triage Tool
- Dyspnea 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)

ASSESSMENTS AND TREATMENT

MEDICAL

Abdominal/Back Pain
Allergic Reaction
Animal Bites
Bleeding (Non-traumatic)
Breathing Difficulty
Chest Pain/Discomfort/Heart Problems
Choking
Diabetic Emergencies
Environmental Emergencies
Headache
Mental/Emotional/Psych
Overdose/Poisoning (Toxic Exposure)
Pregnancy/Childbirth/OB-GYN
Seizures
Stroke
Stroke Transport Decision Tree
Unconscious/Syncope

TRAUMA

Abdominal Trauma
Burns
Chest Trauma
Extremity Trauma
Head and Neck Trauma
Spinal Trauma
Submersion Injury

MEDICAL

ABDOMINAL/BACK PAIN

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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

- Aneurysm
- Ectopic pregnancy
- Myocardial infarction
- Kidney stones
- Urinary tract infection
- Gastroenteritis
- Pelvic inflammatory disease
- Appendicitis
- Ulcers
- Ovarian cysts
- Pancreatitis
- Gallbladder pain

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

PLAN/TREATMENT

1. General patient care procedures
2. Place patient in position of comfort
3. Nothing by mouth

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Abdominal/Back Pain Cont.

ALS TREATMENT

1. ***Monitor ECG***
2. ***IV(s) normal saline – titrate to maintain BP 90-100 systolic***
3. ***Pain management per protocol***

ALLERGIC REACTION

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
- Hoarseness and stridor

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

- Insect bite/sting
- Food allergy
- Drug reactions
- Vasovagal reactions
- Acute Coronary Syndrome
- Dystonic reaction
- Arrhythmias
- Status asthmaticus
- Seizure
- Epiglottis
- Foreign Body Airway Obstruction

ALS UPGRADE REQUIRED FOR

- Patient is presenting with signs and/or symptoms of an anaphylactic reaction.
- 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)

PLAN/TREATMENT

1. General patient care procedures
2. Epinephrine administration (if indicated) (Appendix G & J)
3. If patient is asthmatic, has a BP of at least 90 systolic, and is still dyspneic after administration of epinephrine, assist with patient's albuterol (Appendix G & J)
4. Remove stinger, taking care not to compress the venom sac if present

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Allergic Reaction Cont.

ALS TREATMENT

1. ***Epinephrine***
    - ***0.3 mg IM Q 5 minutes***
2. ***Control airway prn***
3. ***Albuterol nebulized prn (for bronchospasm)***
4. ***Glucagon***
    - ***1.0 mg IV Q 5 min***
    - ***Hypotension refractory to fluid and epinephrine when patients are taking beta blockers***
5. ***Diphenhydramine***
    - ***25-50 mg IM/IV***
6. ***ALS transport recommended for patients who have received glucagon or epinephrine (regardless of who administered)***

PEDIATRIC TREATMENT

1. ***Epinephrine***
    - ***0.15 mg IM Q 5 minutes***
    - ***or 0.01 mg/kg of 1:1,000 IM up to 0.3 mg Q 5 minutes***
    - ***or 0.01 mg/kg of 1:10,000 IV/IO up to 0.3 mg Q 5 minutes***
2. ***Control airway prn***
3. ***Albuterol nebulized prn (for bronchospasm)***
4. ***Glucagon***
    - ***as directed by medical control***
5. ***Diphenhydramine***
    - ***1 mg/kg IV/IO/IM to maximum dose of 50 mg***
6. ***ALS transport recommended for patients who have received glucagon or epinephrine (regardless of who administered)***

ANIMAL BITES/INJURIES

Animal Bites/Injuries

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

PERTINENT SUBJECTIVE FINDINGS

- What bit the patient?
- Where was the patient bitten?
- When was the patient bitten?
- Nausea?
- Risk for rabies

PERTINENT OBJECTIVE FINDINGS

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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

- Venomous animal bite
- Non-venomous animal bite
- Animal bite with major trauma

ALS UPGRADE REQUIRED FOR

- Bite from venomous snakes or reptiles
- Serious injury to the face or neck

PLAN/TREATMENT

1. General patient care procedures
2. Remove stinger, if present, without compressing venom sac
3. DO NOT USE constricting bands, tourniquets, or ice for venomous bites
4. Immobilize affected limbs in position of comfort
5. If venomous animal is suspected, limit physical activity, keep limb lower than heart, and contact the Washington Poison Center at 800-709-0911

ALS TREATMENT

1. ***IV (not in affected limb)***
2. ***Fluid resuscitation as needed***
3. ***Dopamine***
   - ***2-5 mcg/kg/min increased by 5 mcg/kg/min, until systolic BP > 90 mm Hg***
4. ***Pain management per protocol***

BLEEDING (NON-TRAUMATIC)

Bleeding (Non-traumatic)

PERTINENT SUBJECTIVE FINDINGS

- Prolonged vomiting/diarrhea
- "Coffee grounds" emesis
- Bloody or tarry stools
- Medications:
  - Anticoagulants
  - Antiplatelets
- History:
  - Cancer
  - Ulcer
  - Alcoholism
  - Recent surgery
  - Coagulation disorders/hematological disorders

PERTINENT OBJECTIVE FINDINGS

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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

- Upper GI bleed
- Lower GI bleed
- Nosebleed
- Esophageal varices
- Vaginal bleed

ALS UPGRADE REQUIRED FOR

- See Universal ALS Upgrades

PLAN/TREATMENT

1. General BLS patient care procedures
2. Position of comfort
3. Nothing by mouth

ALS TREATMENT

1. ***RSI if needed to protect airway***
2. ***Fluid resuscitation prn***
3. ***Dopamine***
   - ***2-5 mcg/kg/min increased by 5 mcg/kg/min, until systolic BP > 90 mm Hg***
4. ***TXA as directed by medical control***
5. ***Pain management per protocol***

BREATHING DIFFICULTY

Breathing Difficulty

PERTINENT SUBJECTIVE FINDINGS

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

PERTINENT OBJECTIVE FINDINGS

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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

- Pneumonia
- Pulmonary edema/CHF
- Hyperventilation syndrome
- Pulmonary embolus
- Pneumothorax
- Reactive airway disease/COPD
- ACS
- Inhalation injury
- Trauma
- Narcotic overdose
- CO poisoning
- Croup
- Epiglottis

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

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Breathing Difficulty Cont.

PLAN/TREATMENT

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

ALS TREATMENT

1. ***COPD or asthma exacerbation:***
    - ***Albuterol/ipratropium nebulized***
    - ***Continuous albuterol nebulizer as long as patient remains in distress***
    - ***Solumedrol: 125 mg IV***
    - ***Epinephrine: 0.3 mg IM***
    - ***Consider BiPAP®***
    - ***Consider RSI***
2. ***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 mm Hg, then remove***
    - ***Lasix 40 mg or twice the patient's daily dose IV***
    - ***Consider BiPAP®***
3. ***Pneumothorax:***
    - ***Needle thoracentesis***

PEDIATRIC TREATMENT

1. ***Upper airway obstruction (stridor)***
    - ***Treat for FBAO prn***
    - ***Treat croup with epinephrine SVN (1:1,000) 0.5 mL/kg to max 5 mL with 3mL NS***
    - ***BVM assist for ventilatory failure***
2. ***Lower airway obstruction (wheezing)***
    - ***Less than 2 y/o: 2.5 mg albuterol. Otherwise, 5.0 mg albuterol with ipratropium. If severe distress, consider continuous treatment.***
    - ***If in respiratory failure or unable to comply with nebulizer, administer 0.01 mg/kg epinephrine 1:1,000 IM***
    - ***Magnesium as directed by medical control***

Any pediatric patient being ventilated with positive pressure should be evaluated for the placement of a nasogastric tube

CHEST PAIN/DISCOMFORT/HEART PROBLEMS

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 patient's normal angina
- Taking NTG without relief
- Syncopal episode
- Nausea and/or vomiting
- Diaphoresis
- Dyspnea
- Medications: Cardiac, ED, anticoagulants
- Upper abdominal pain
- Similar to prior cardiac symptoms

PERTINENT OBJECTIVE FINDINGS

- Irregular, rapid, or slow pulse
- JVD
- Tachypnea
- Hypotension/hypertension
- Diaphoretic
- Pale, ashen skin color
- Abnormal lung sounds:
- Restless, anxious
- Vomiting
- Pedal edema
- Orthopnea

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

- Acute Coronary Syndrome
- Pericarditis
- Cardiac tamponade
- Cardia dysrhythmia
- Aortic aneurysm
- Acute pulmonary edema
- Pulmonary embolism
- Pneumothorax
- Upper respiratory infection
- Pleurisy
- Esophagitis
- Trauma (blunt or penetrating)
- Muscular skeletal
- Referred pain from abdomen

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

PLAN/TREATMENT

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

continued next page

Chest Pain/Discomfort/Heart Problems Cont.

ALS TREATMENT

1. ***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***
2. ***NTG 0.4mg SL along with 1" of paste (add 1" additional in 10 minutes if pain persists)***
3. ***If ECG is concerning for AMI***
    - ***Notify the receiving physician and transmit 12-lead***
4. ***Pain management per protocol***
5. ***ACLS algorithms (Appendix A)***

PEDIATRIC TREATMENT

1. ***PALS algorithms (Appendix A)***

CHOKING

Choking

PERTINENT SUBJECTIVE FINDINGS

- Events leading to airway obstruction

PERTINENT OBJECTIVE FINDINGS

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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

- Foreign body airway obstruction
- Croup
- Febrile seizure
- Epiglottis
- Allergic reaction

ALS UPGRADE REQUIRED FOR

- Inability to speak/cry/cough
- Signs or symptoms of anaphylaxis

PLAN/TREATMENT

1. General patient care procedures
2. Do no put anything in the conscious patient's mouth
3. Follow AHA guidelines for FBAO

ALS TREATMENT

1. ***If patient becomes unconscious and cannot be ventilated, visualize the airway, and attempt to remove the obstruction***
2. ***If unsuccessful, see Difficult Airway Management (Appendix J)***

PEDIATRIC TREATMENT

1. ***Follow age appropriate AHA guidelines***

DIABETIC EMERGENCIES

Diabetic Emergencies

PERTINENT SUBJECTIVE FINDINGS

- Last meal eaten
- Frequent urination
- Intense thirst
- Recent illness
- Chronic alcohol use
- Medications:
  - Insulin in refrigerator? (Time last taken)
  - Short/long acting?

PERTINENT OBJECTIVE FINDINGS

- 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
- Medic Alert™ tag
- Stroke signs
- Hypoglycemia:
  - Altered or decreased mental status
  - Signs or symptoms of shock

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

- Overdose:
  - Insulin
  - Alcohol
  - Aspirin
  - Beta blockers
- Insulin shock
- Diabetic ketoacidosis (DKA)
- Acute alcohol withdrawal
- Stroke

ALS UPGRADE REQUIRED FOR

- Inability to give oral glucose
- If patient receives caloric supplement and does not meet the following criteria:
  - Blood glucose greater than 80 mg/dL
  - Adequate explanation for hypoglycemic episode
  - Return to baseline mentation
  - Able to eat/check blood glucose on their own
  - Someone is present with patient

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Diabetic Emergencies Cont.

PLAN/TREATMENT

1. General patient care procedures
2. Check blood glucose with glucometer (Appendix J); if hypoglycemic, check gag with tongue depressor
3. 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 TREATMENT

1. ***Dextrose 50%/Dextrose 10%***
2. ***Consider pretreatment of hypoglycemic alcoholic patients with thiamine***
3. ***Glucagon IM if no IV access is available***
4. ***Special consideration for long-acting insulin***

PEDIATRIC TREATMENT

1. ***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***
2. ***Dextrose 10%***

ENVIRONMENTAL EMERGENCIES

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 exposure accidental or intentional?
  - What steps have been taken to decontaminate the patient?
  - Number of patients affected?

PERTINENT OBJECTIVE FINDINGS

- Unusual odors
- Seizures
- Altered or decreased mental status
- Heat:
  - Tachycardia
  - Tachypnea
  - Cool, clammy skin
  - Hot, dry skin
- Cold:
  - Discolored, frozen, hard skin
  - Absence of shivering
  - Bradycardia
  - Slow respiration
  - Hypotensive
- Hazardous materials:
  - Skin irritation at contact site
  - Vomiting
  - Loss of vision
  - Respiratory distress
  - SLUDGE:
    - **S**alivation
    - **L**acrimation
    - **U**rination
    - **D**efecation
    - **G**astrointestinal
    - **E**mesis

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

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

continued next page

Environmental Emergencies Cont.

ALS UPGRADE REQUIRED FOR

- Altered or decreased mental status
- Rectal temperature less than 95°F or greater than 105°F

PLAN/TREATMENT

1. General patient care procedures
2. Removal from hostile environment
3. Decontaminate patients exposed to hazmat:
    - Wash off chemical (dry chemicals should be brushed off before decontamination with copious amounts of water)
4. 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
5. 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
    - Actively warm the patient using a vehicle heater and blankets and by applying heat packs to neck, chest, axilla, and groin.
    - Check rectal temperature
6. Hazardous materials:
    - Treat symptoms with supportive care
    - Contact Washington Poison Center at 800-709-0911 for treatment recommendations

ALS TREATMENT

1. ***Heat injury:***
    - ***IV bolus 20 mL/kg***
    - ***Continue fluid resuscitation if signs of dehydration continue***
2. ***Hazardous materials:***
    - ***Provide supportive care for the presenting toxidrome in consultation with Washington Poison Center and the supervising physician***

continued next page

Environmental Emergencies Cont.

PEDIATRIC TREATMENT

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

HEADACHE

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
- History of migraine

PERTINENT OBJECTIVE FINDINGS

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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

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

ALS UPGRADE REQUIRED FOR

- Altered or decreased mental status
- Severe or multiple episodes of vomiting
- New onset of unequal pupils (greater than 2 mm difference)
- Systolic BP greater than 220 or diastolic blood pressure greater than 110
- Lateralizing signs/stroke signs
- Seizure

PLAN/TREATMENT

General patient care procedures

ALS TREATMENT

1. ***IV***
2. ***Promethazine or ondansetron (prn nausea)***
3. ***Consider RSI for GCS less than 9***
4. ***If patient acutely decompensates showing signs of impending brainstem herniation (unilateral dilated pupil, posturing, decreasing GCS) adjust ventilation to maintain end-tidal CO_2 near 30 mm Hg***
5. ***Pain management per protocol***

MENTAL/EMOTIONAL/PSYCH

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
- History 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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

- 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
- Psychiatric disorders:
  - Schizophrenia
  - Depression
  - Mania
  - Anxiety
  - Dementia
  - Excited/agitated delirium
  - Acute psychosis

ALS UPGRADE REQUIRED FOR

- Violent/combative patient
- Or requiring restraint for transportation from the scene to the hospital

PLAN/TREATMENT

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

continued next page

Mental/Emotional/Psych Cont.

ALS TREATMENT

1. ***IV***
2. ***Monitor***
3. ***Chemical restraint:***
    - ***Midazolam 5-10 mg IM or IN***
    - ***Ketamine 2-4 mg/kg IM***
    - ***Haloperidol 5-10 mg IM***
    - ***Droperidol 5 mg IM***

OVERDOSE/POISONING (TOXIC EXPOSURE)

Overdose/Poisoning (Toxic Exposure)

PERTINENT SUBJECTIVE FINDINGS

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

PERTINENT OBJECTIVE FINDINGS

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

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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

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

ALS UPGRADE REQUIRED FOR

- Polypharmacy
- Intentional overdose with prescription meds
- Seizure associated with street drug use
- Follow recommendation of Washington Poison Center

continued next page

Overdose/Poisoning (Toxic Exposure) Cont.

PLAN/TREATMENT

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

ALS TREATMENT

1. ***Consult with Washington Poison Center***
2. ***Administer proparacaine 30-60 seconds prior to eye irrigation***

PREGNANCY/CHILDBIRTH/OB-GYN

Pregnancy/Childbirth/OB-GYN

PERTINENT SUBJECTIVE FINDINGS

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

PERTINENT OBJECTIVE FINDINGS

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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

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

continued next page

Pregnancy/Childbirth/OB-GYN Cont.

ALS UPGRADE REQUIRED FOR

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

PLAN/TREATMENT

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

continued next page

Pregnancy/Childbirth/OB-GYN Cont.

ALS TREATMENT

1. ***Attempt to monitor fetal heart tones***
2. ***Pre-eclampsia:***
    - ***BP > 160 mm Hg systolic or > 90 mm Hg diastolic - contact the supervising physician***
    - ***Severe edema - contact the supervising physician***
3. ***Eclamptic seizures:***
    - ***Magnesium sulfate 4 g IV over 4 min***
    - ***Call supervising physician for midazolam for refractory seizures***
4. ***Postpartum hemorrhage:***
    - ***Uterine massage***
    - ***10 units in 250 mL NS wide open or 10 units IM; repeat up to a maximum dose of 50 units***
    - ***Hemorrhagic shock treatment, including TXA***
5. ***See "Neonatal Resuscitation" algorithm (Appendix A)***
6. ***Transport per patient status to facility of choice or nearest hospital***

SEIZURES

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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

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

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

PLAN/TREATMENT

1. Protect patient from trauma if still seizing
2. General patient care procedures
3. For febrile seizure, remove clothing to diaper
4. Check blood glucose

continued next page

Seizures Cont.

ALS TREATMENT

1. ***Obtain blood glucose level***
2. ***Midazolam per protocol***
3. ***First-time seizure requires ALS transport (see exception for pediatric patients)***
4. ***RSI followed by sustained paralysis for seizure refractory to midazolam – contact supervising physician***
5. ***Magnesium sulfate for eclamptic seizures***

PEDIATRIC TREATMENT

1. ***Blood glucose test: treat if less than 60 mg/dL (less than 40 mg/dL in neonates)***
2. ***Midazolam per protocol***
3. ***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.***

SEPSIS

Sepsis

PERTINENT SUBJECTIVE FINDINGS

- Dysuria
- Foul smelling urine
- Cough
- Dyspnea
- Fever/Chills
- Abdominal pain
- Vomiting
- Diarrhea
- Dizziness
- Recent hospitalization/surgery

PERTINENT OBJECTIVE FINDINGS

- Cyanosis or pallor
- Weak, rapid pulse
- Tachypnea
- Hypotension
- AMS
- Fever
- Foley catheter
- Wounds

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

- Addisonian crisis
- Pancreatitis
- Pneumonia
- Cardiogenic shock
- Hypovolemic shock
- Anaphylaxis
- Pulmonary embolism

ALS UPGRADE REQUIRED FOR

- See universal ALS upgrades

PLAN/TREATMENT

1. General patient care procedures
2. Check blood glucose level (Appendix J)
3. Obtain oral or rectal temperature
4. Obtain $ETCO_2$ measurements if equipped and trained to do so
5. Evaluate Sepsis Screen (see following page). If Sepsis Screen positive and you are the transporting unit, notify receiving hospital

ALS TREATMENT

1. ***Monitor ECG, $ETCO_2$ ($ETCO_2$ < 25 mm Hg is concerning for lactic acidosis)***
2. ***IV(s) – fluid resuscitation and vasopressors as necessary***
3. ***Consider crystalloid fluid bolus IV/IO if indicated***
    - ***Adults: reassessment every 500 mL***
    - ***Pediatrics: 20 mL/kg with reassessment every 500 mL***
4. ***If SBP > 90 or MAP < 65 after first fluid bolus initiate vasopressor infusion***

continued next page

SEPSIS SCREEN

Must have obvious or suspected source of infection AND any two of these SIRS criteria:

- SBP < 90 mm Hg or MAP < 65
- Heart Rate > 90/min
- Respiratory Rate > 20/min
- GCS < 15
- Temperature > 100.3 F or < 96.0 F (>37.9 C or <35.5 C)
- $ETCO_2$ < 26 mm Hg on at least 2 consecutive measurements 5 minutes apart

STROKE

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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

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

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

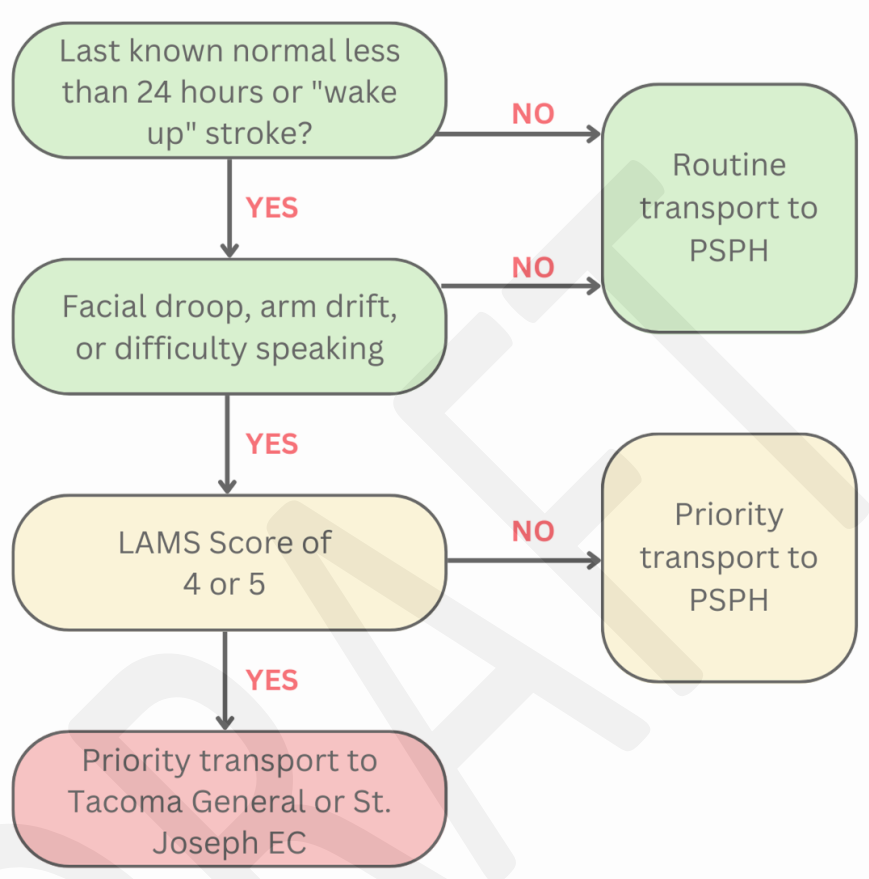
PLAN/TREATMENT

1. General patient care procedures
2. If patient has dysarthria, check for gag reflex with tongue depressor
3. Perform blood glucose check (Appendix J)
4. Obtain accurate "time when last known normal"

continued next page

STROKE TRANSPORT DECISION TREE

Transport Decision Tree



1. **CALL FAST** – first arriving BLS unit immediately contact receiving facility to notify EC of a "Code 3 Stroke."
2. **LIMIT SCENE TIME** – Use closest, fastest transport unit available. If patient meets ALS upgrade criteria, consider rendezvous with medic unit.

ALS TREATMENT

- ***If BLS transport unit is not on the scene, ALS is required to transport acute stroke patients.***

UNCONSCIOUS/SYNCOPE

Unconscious/Syncope

PERTINENT SUBJECTIVE FINDINGS

- Vomiting/aspiration
- Seizure activity
- Trauma
- Medications
- History 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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

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

ALS UPGRADE REQUIRED FOR

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

PLAN/TREATMENT

1. General patient care procedures
2. Check blood glucose level (Appendix J)

continued next page

Unconscious/Syncope Cont.

ALS TREATMENT

1. ***Check blood glucose level***
2. ***Administer Narcan if opiate use is suspected***
3. ***Consider RSI for GCS less than 9***
4. ***If patient acutely decompensates, showing signs of impending brainstem herniation (unilateral dilated pupil, posturing, decreasing GCS) adjust ventilation to maintain end-tidal CO_2 near 30 mm Hg***

PEDIATRIC TREATMENT

1. ***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***
2. ***Dextrose administration guidelines:***
    - ***Child greater than 2 y/o: Give 50% dextrose***
    - ***Child less than 2 y/o: Give 25% dextrose***
    - ***Newborn: Give 10% dextrose***
3. ***Administer Narcan if opiate overdose is suspected***

TRAUMA

ABDOMINAL TRAUMA

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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

- Pelvic fracture
- Spine injury

ALS UPGRADE REQUIRED FOR

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

PLAN/TREATMENT

1. General patient care procedures
2. Pelvis: stabilize using sheet wrap or commercial pelvic splint (“Pelvic Wrap Splint,” Appendix J)
3. Evisceration: cover with a sterile moist dressing, then bulky dressing
4. Impaled object: stabilize impaled objects with bulky dressings and transport with object in place
5. Unresponsive patient with blunt trauma and signs of shock – apply pelvic wrap (Appendix J)

continued next page

Abdominal Trauma Cont.

ALS TREATMENT

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

PEDIATRIC TREATMENT

1. At the end of exhalation, the abdominal organs might be as high as the nipple line
2. Abdomen is often the site of serious blood loss in pediatric trauma patients

BURNS

Burns

PERTINENT SUBJECTIVE FINDINGS

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

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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

- Urticaria
- Infection (cellulitis)

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 that 10% BSA
- Partial/full thickness or chemical burns if patient less than 5 y/o
- Electrical burns

PLAN/TREATMENT

1. Remove patient from hazardous atmosphere
2. Stop burning
    - If skin is warm to the touch, cool with lukewarm tap water and then dry patient
    - Remove burnt or contaminated clothing (that is not melted to the skin)
    - Wash off chemicals (dry chemicals should be brushed off before decontamination with copious amounts of water)
3. General patient care procedures
4. Remove rings, bracelets, and other constricting items
5. Use “Rule of Nines” (Appendix H) or the palm rule to estimate percentage of BSA affected
6. Cover with a clean, dry sheet. Use additional sheets or blankets to prevent hypothermia

continued next page

Burns Cont.

PLAN/TREATMENT CONTINUED

7. 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
8. High flow oxygen if patient was exposed to smoke or fumes in an enclosed space

ALS TREATMENT

1. ***General ALS patient care procedures***
2. ***IV fluid resuscitation guidelines***
    - ***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***
3. ***Intubation is indicated if the patient is unconscious, hypoxic with severe smoke inhalation or flame/flash burns to the face/neck with pharyngeal burns, dyspneic, hoarseness, or carbonaceous sputum***
4. ***NG tube for patients who require intubation***
5. ***Pain management per protocol***
6. ***Consult early with supervising physician on hospital destination and ground vs. air transport decisions****
7. ***State Trauma Triage Tool (Appendix N) applies***
8. ****Requires consultation with supervising physician for burns > 10% BSA***

PEDIATRIC TREATMENT

1. Use caution when cooling burns, as pediatric patients are more vulnerable to hypothermia
2. Estimate the percent of BSA burned
3. ***Pain management per protocol***

CHEST TRAUMA

Chest Trauma

PERTINENT SUBJECTIVE FINDINGS

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

PERTINENT OBJECTIVE FINDINGS

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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

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

ALS UPGRADE REQUIRED FOR

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

PLAN/TREATMENT

1. General patient care procedures
2. 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
3. Impaled object:
    - Stabilize impaled object(s) with bulky dressings and transport with object in place
4. Rib fractures:
    - Splint in position of comfort using patient's body and padding (pillows/blankets)

continued next page

Chest Trauma Cont.

ALS TREATMENT

1. ***Hemo/pneumothorax or tension pneumothorax:***
    - ***Pleural decompression***
2. ***Cardiac tamponade:***
    - ***Pericardiocentesis***
3. ***Pain management per protocol***
4. ***Tranexamic Acid if signs or symptoms of hemorrhagic shock***
5. ***Rapid transport of ALS trauma patients should be prioritized over intravenous access or other interventions of dubious value***
6. ***Washington State Trauma Triage Tool (Appendix N) applies***

PEDIATRIC TREATMENT

1. Suspect injury to the heart, lung(s), and/or abdominal organs with any injury to the rib cage

EXTREMITY TRAUMA

Extremity Trauma

PERTINENT SUBJECTIVE FINDINGS

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

PERTINENT OBJECTIVE FINDINGS

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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

- Non-accidental trauma

ALS UPGRADE REQUIRED FOR

- See Universal ALS Upgrades

PLAN/TREATMENT

1. General patient care procedures
2. 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
3. Amputation
    A. Stump care
        - Direct pressure to control bleeding
        - Cover the stump with a sterile dressing, moistened with sterile normal saline, and apply a bulky dressing if needed for bleeding
        - Immobilize
        - If bleeding from the stump is life threatening, as a LAST RESORT, apply a BP cuff as a tourniquet

    B. 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

continued next page

Extremity Trauma Cont.

PLAN/TREATMENT CONTINUED

Amputated part care continued:

- Place the amputated part in a waterproof bag, then place the bag in cold/ice water; DO NOT put the amputated part in direct contact with ice
- Label the container with patient name, time of amputation, and time placed in the container
- Transport the amputated part to the same hospital as the patient

ALS TREATMENT

1. ***Pain management per protocol***
2. ***Tranexamic acid if signs or symptoms of hemorrhagic shock***
3. ***Consult supervising physician for patient destination***
4. ***Rapid transport of ALS trauma patients should be prioritized over intravenous access or other interventions of dubious value***
5. ***Washington State Trauma Triage Tool (Appendix N) applies***

HEAD AND NECK TRAUMA

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)

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

- AEIOUTIPPS:
  - **A**lcohol/acidosis
  - **E**pilepsy/**e**lectrolytes/**e**ndocrine
  - **I**nsulin (hypo/hyperglycemia)
  - **O**verdose
  - **U**remia/**u**nderdose
  - **T**rauma
  - **I**nfection
  - **P**sychosis
  - **P**ump/**p**oison
  - **S**troke/**s**hock

ALS UPGRADE REQUIRED FOR

- Repetitive
- Severe or multiple episodes of vomiting
- Seizures with recent history of head trauma

PLAN/TREATMENT

1. General patient care procedures

Continued next page

Head and Neck Trauma Cont.

2. Head
    - If S/S of herniation are noted then ventilate at 24 bpm, once $ETCO_2$ is applied frequency adjusted to meet $ETCO_2$ between 35-40 mm Hg
    - 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
3. Eyes
    - Irrigate to remove non-impaled foreign substances
    - Stabilize impaled objects, cover both eyes, and instruct the patient not to look around
4. Ears
    - Leave foreign bodies in place
    - Treat avulsed parts by keeping clean, dry, and cold (not frozen) and send to the hospital with patient
5. Mouth
    - In stable (conscious, maintaining airway) patients, rinse avulsed tooth in saline and attempt to replace in its socket prior to transport
6. Nose
    - To control nosebleed, pinch nostrils for 10 minutes
    - Do not remove foreign objects
    - If possible, position patient so that drainage can occur
7. Throat
    - To control severe bleeding from the neck, use direct pressure on the wound. If venous bleeding, apply an occlusive dressing

ALS TREATMENT

1. ***Consider RSI for GCS less than 9***
2. ***If patient acutely decompensates, showing signs of impending brainstem herniation (unilateral dilated pupil, posturing, decreasing GCS) adjust ventilation to maintain end-tidal CO_2 near 30 mm Hg***
3. ***Administer proparacaine prior to irrigation of eyes***
4. ***Pain management per protocol***
5. ***Tranexamic acid if signs or symptoms of hemorrhagic shock***
6. ***Consult supervising physician for trauma center destination***
7. ***Rapid transport of ALS trauma patients should be prioritized over intravenous access or other interventions of dubious value***

SPINAL TRAUMA

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

1. General patient care procedures
2. 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
3. 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.

ALS TREATMENT

1. ***Treat neurogenic shock with fluid resuscitation***
2. ***Consult supervising physician for trauma center destination***
3. ***Pain management per protocol***
4. ***Rapid transport of ALS trauma patients should be prioritized over intravenous access or other interventions of dubious value***

continued next page

Spinal Trauma Cont.

PEDIATRIC TREATMENT

1. 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.
    - ***Consider risk/benefit of c-collar and backboard***
    - ***Consider sedation for uncooperative pediatric patients***
    - ***The need for full spinal immobilization of a child is rare***

SUBMERSION INJURY

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

ASSESSMENT/DIFFERENTIAL DIAGNOSIS

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

ALS UPGRADE REQUIRED FOR

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

PLAN/TREATMENT

1. General patient care procedures
2. Position patient supine

continued next page

Submersion Injury Cont.

ALS TREATMENT

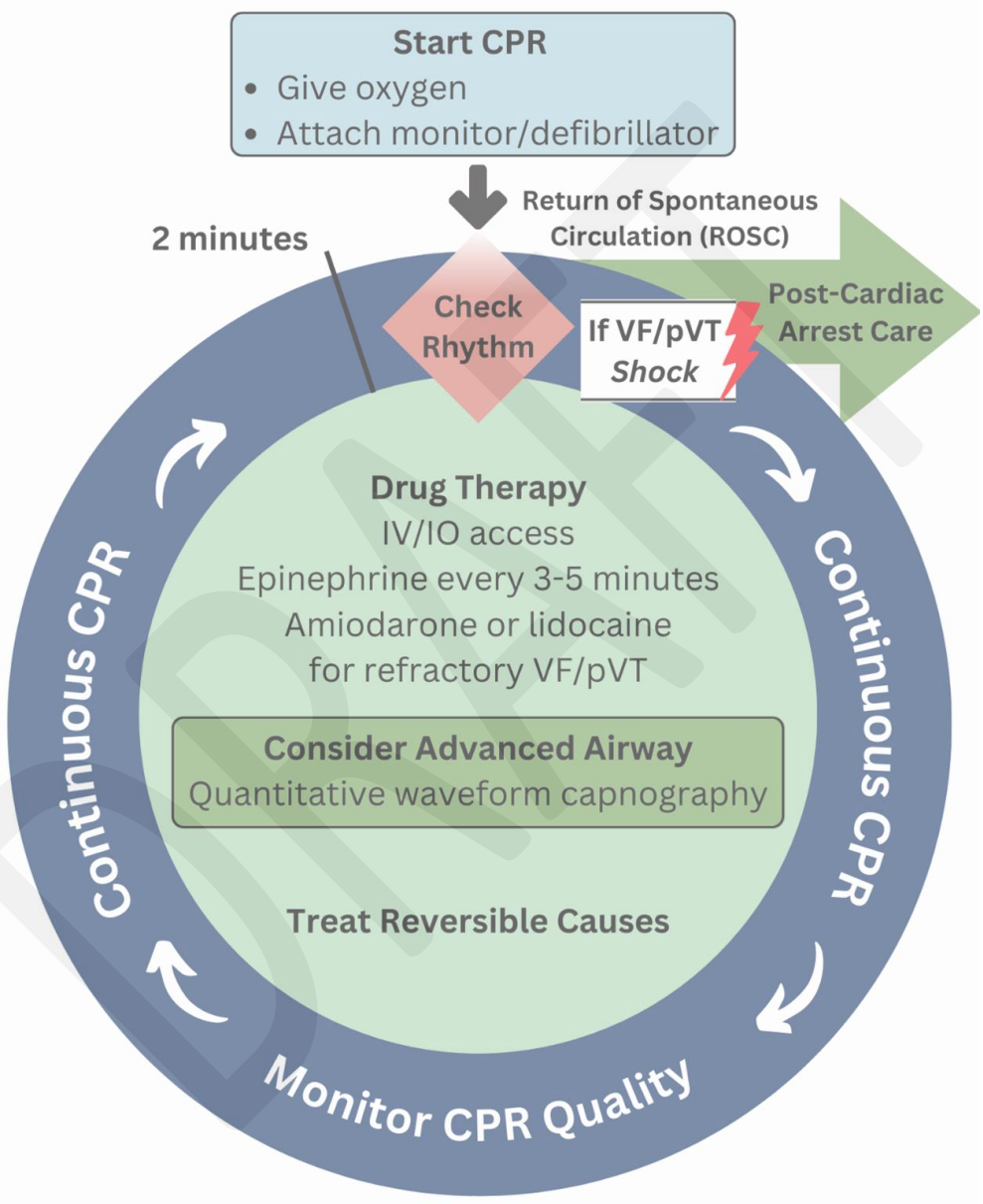
1. ***Contact Divers Alert Network (DAN) at 919-684-9111 for information on treatment of specific diving syndrome, location, and availability of hyperbaric chambers***
2. ***Discuss transport destination and method (air vs. ground) with DAN and supervising physician***
3. ***Transport dive computer to same hospital as patient***

PEDIATRIC TREATMENT

1. ***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***

ACLS – APPENDIX A

ADULT CARDIAC ARREST CIRCULAR ALGORITHM



DOSES/DETAILS FOR THE CARDIAC ARREST ALGORITHMS

CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil
- Minimize interruptions in compressions.
- Avoid excessive ventilation
- Change compressor Q 2 minutes, or sooner if fatigued
- If no advanced airway, 30:2 compression-ventilation ratio
- Quantitative waveform capnography
    - If $PETCO_2$ is low or decreasing, reassess CPR Quality

Shock Energy for Defibrillation

- **Biphasic**: Manufacturer recommendation (e.g., initial dose of 12-200 J)
  If unknown, use maximum available
  Second and subsequent doses should be equivalent, and higher doses may be considered
- **Monophasic**: 360 J

Drug Therapy

- **Epinephrine IV/IO dose**:
  1 mg Q 3-5 minutes
  50 mcg Q 2 minutes with POCUS pulse
- **Amiodarone IV/IO dose**:
  First dose: 300 mg bolus
  Second dose: 150 mg
  or
- **Lidocaine IV/IO dose**:
  First dose: 1-1.5 mg/kg
  Second dose: 0.5-0.75 mg/kg

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath Q 6 seconds (10 breaths/min) with continuous chest compressions

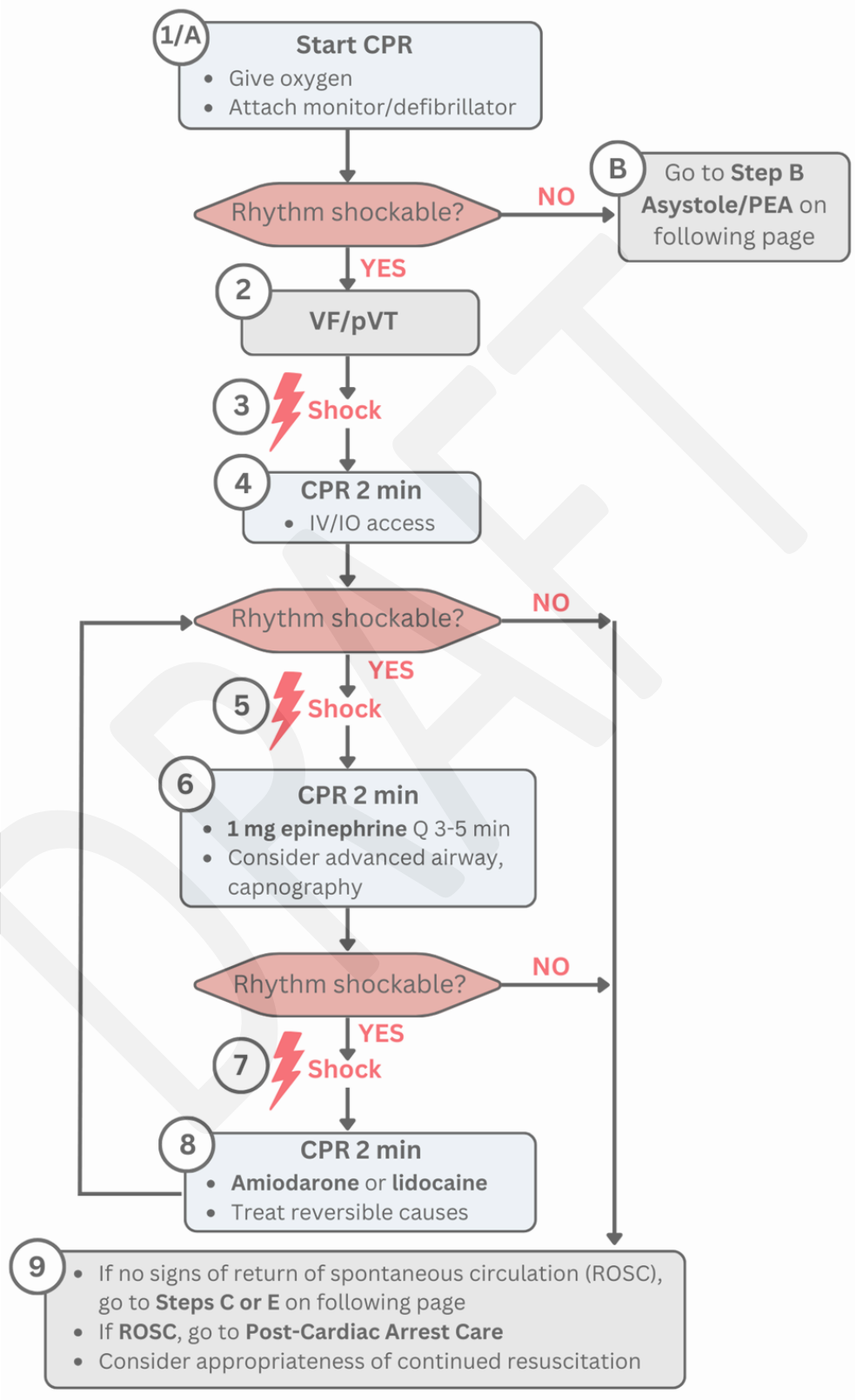
Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Abrupt sustained increase in $PETCO_2$ (typically >40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

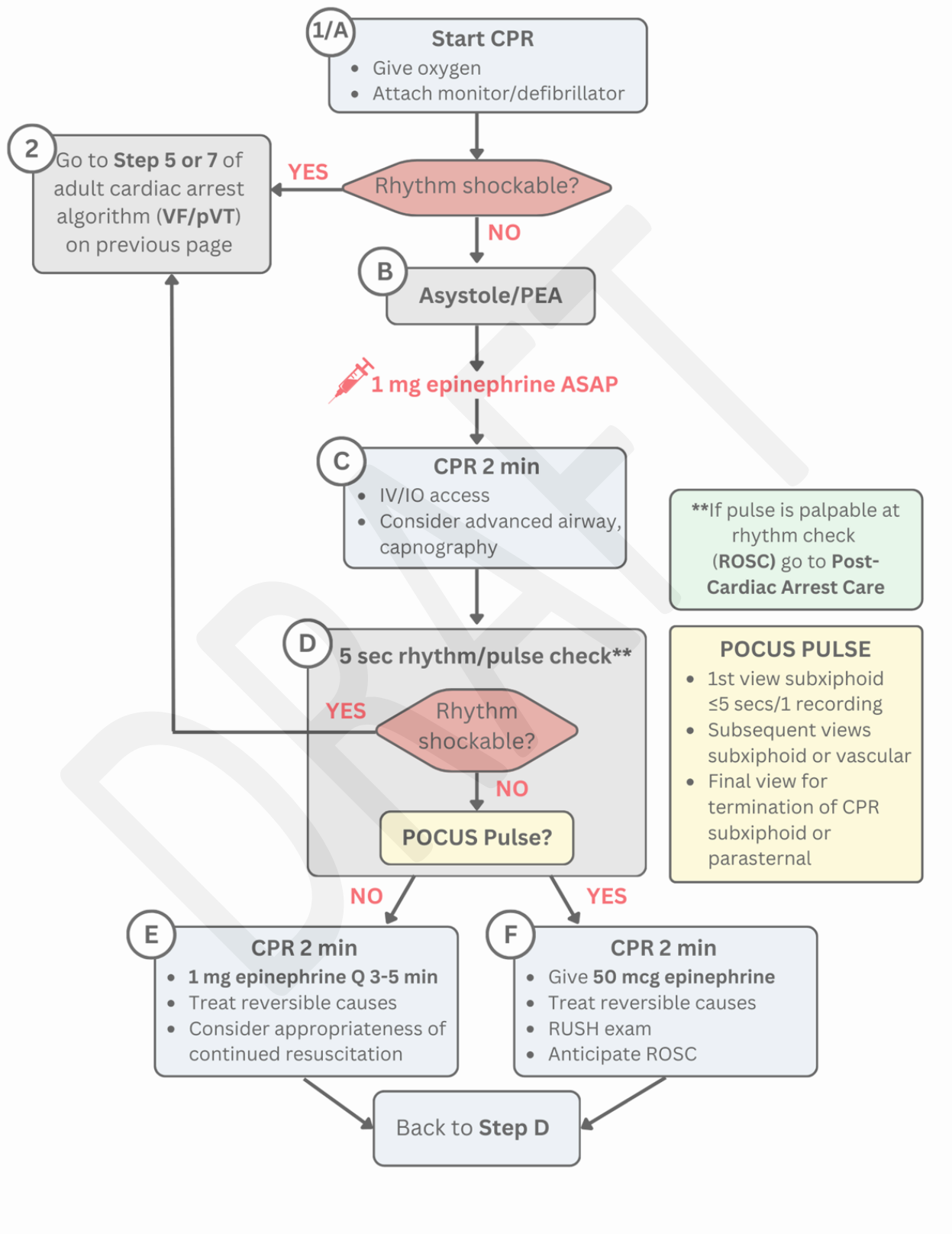
Reversible Causes

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

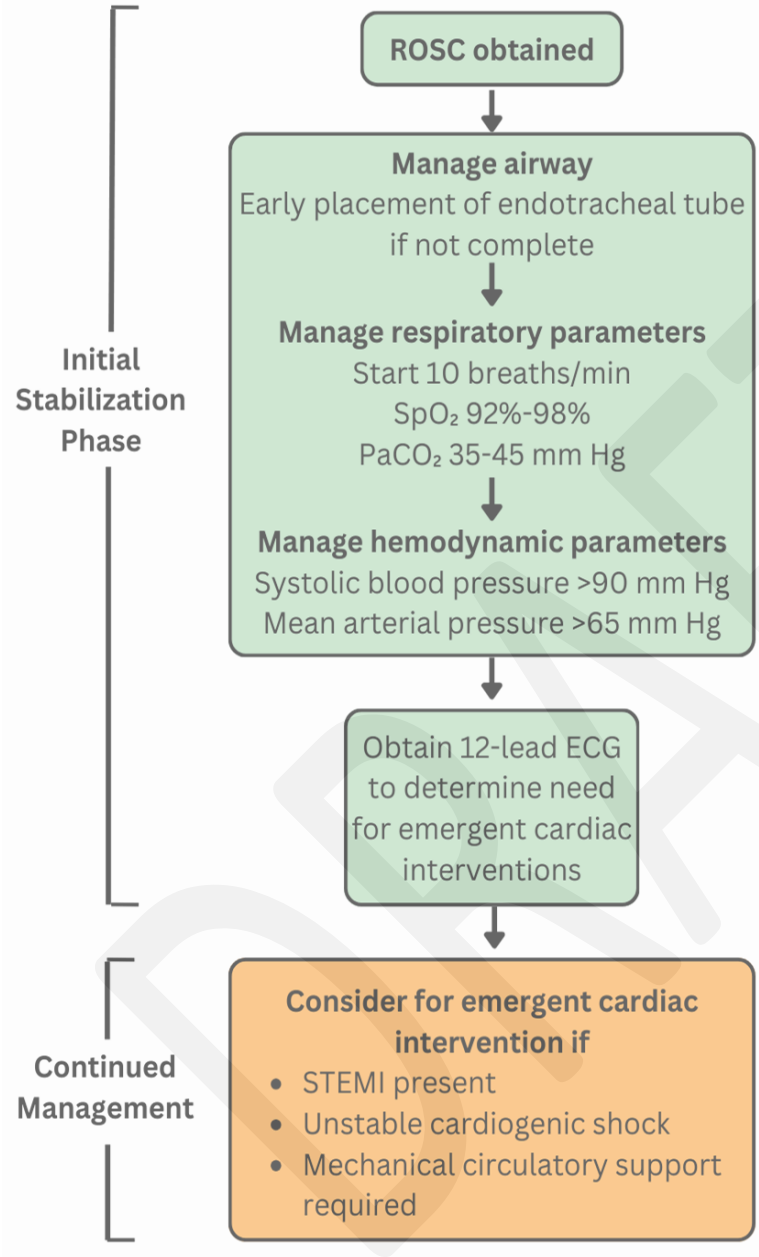
ADULT CARDIAC ARREST ALGORITHM - VF/PVT



ADULT CARDIAC ARREST ALGORITHM - ASYSTOLE/PEA WITH POCUS



ADULT POST-CARDIAC ARREST CARE ALGORITHM



Initial Stabilization Phase

Resuscitation is ongoing during the post-ROSC phase, and many of these activities can occur concurrently. However, if prioritization is necessary, follow these steps:

- **Airway Management**: Waveform capnography or capnometry to confirm and monitor endotracheal tube placement
- **Manage respiratory parameters**: Titrate FIO_2 for SpO_2 92%-98%; start at 10 breaths/min; titrate to $PaCO_2$ of 35-45 mm Hg
- **Manage hemodynamic parameters**: Administer crystalloid and/or vasopressor or inotrope for goal systolic blood pressure >90 mm Hg or mean arterial pressure >65 mm Hg

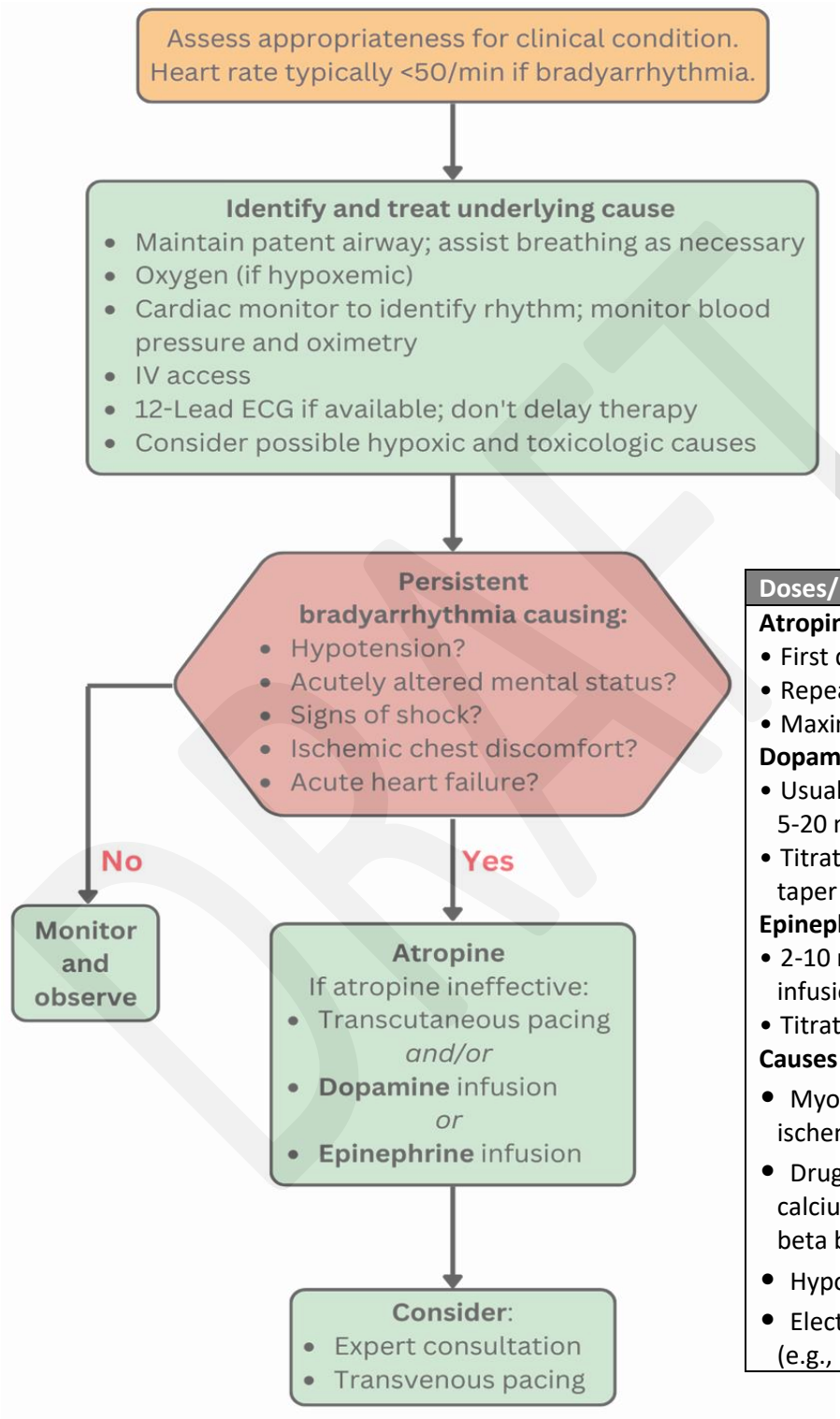
Continued Management and Additional Emergent Activities

- **Emergent cardiac intervention:** Early evaluation of 12-lead electrocardiogram (ECG); consider hemodynamics for decision on cardiac intervention
- **Other critical care management**
  - Maintain normoxia, normocapnia, euglycemia
  - Provide lung-protective ventilation

H's and T's

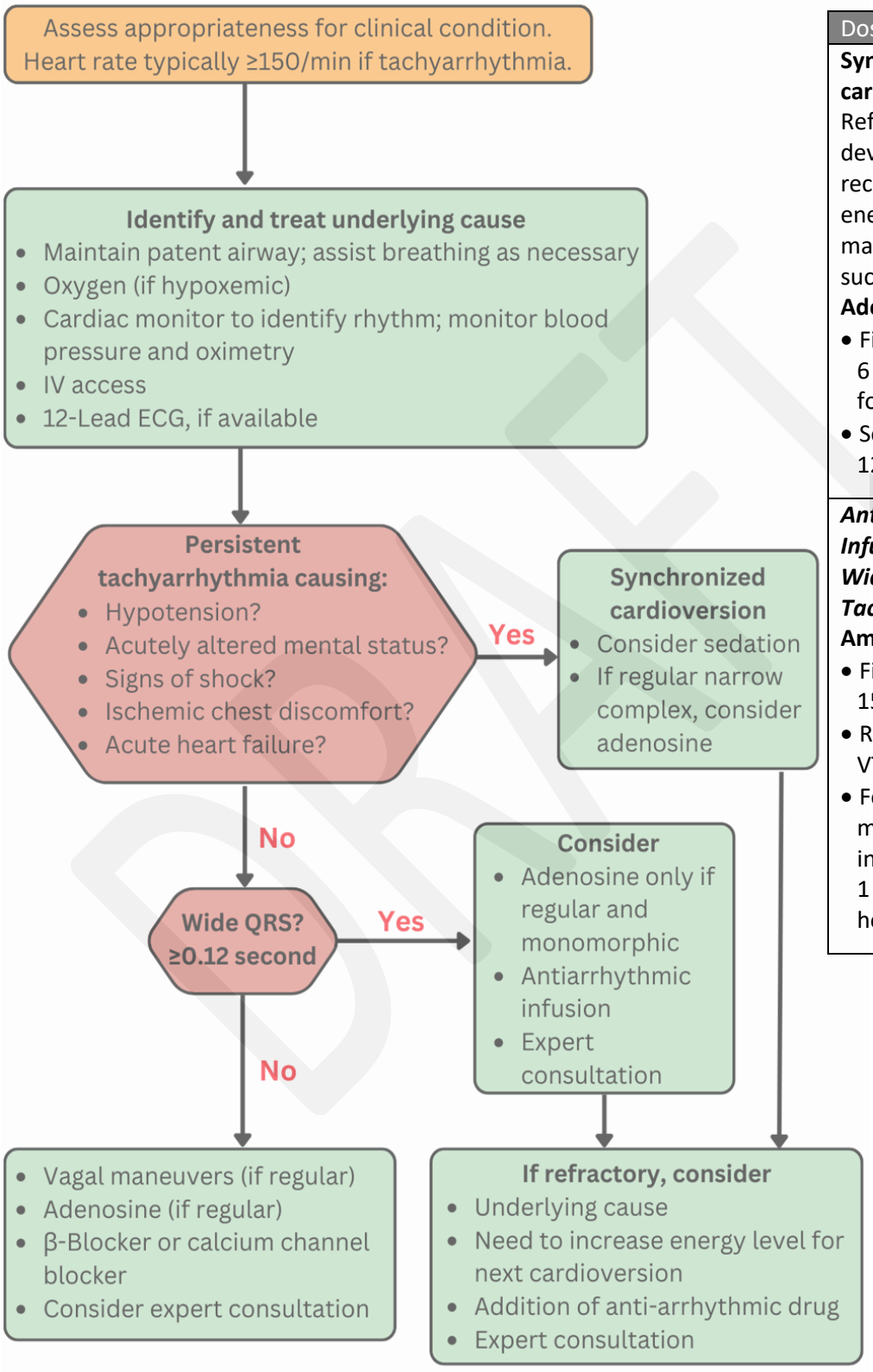
Hypovolemia	**T**ension pneumothorax
Hypoxia	**T**amponade, cardiac
Hydrogen ion (acidosis)	**T**oxins
Hypokalemia/ **h**yperkalemia	**T**hrombosis, pulmonary
Hypothermia	**T**hrombosis, coronary

ADULT BRADYCARDIA ALGORITHM



Doses/Details
Atropine IV dose: • First dose: 1 mg bolus • Repeat Q 3-5 minutes • Maximum: 3 mg **Dopamine IV Infusion:** • Usual infusion rate is 5-20 mcg/kg per minute • Titrate to patient response, taper slowly **Epinephrine IV infusion:** • 2-10 mcg per minute infusion • Titrate to patient response **Causes**: • Myocardial ischemia/infarction • Drugs/toxicologic (e.g., calcium-channel blockers, beta blockers, digoxin) • Hypoxia • Electrolyte abnormality (e.g., hyperkalemia)

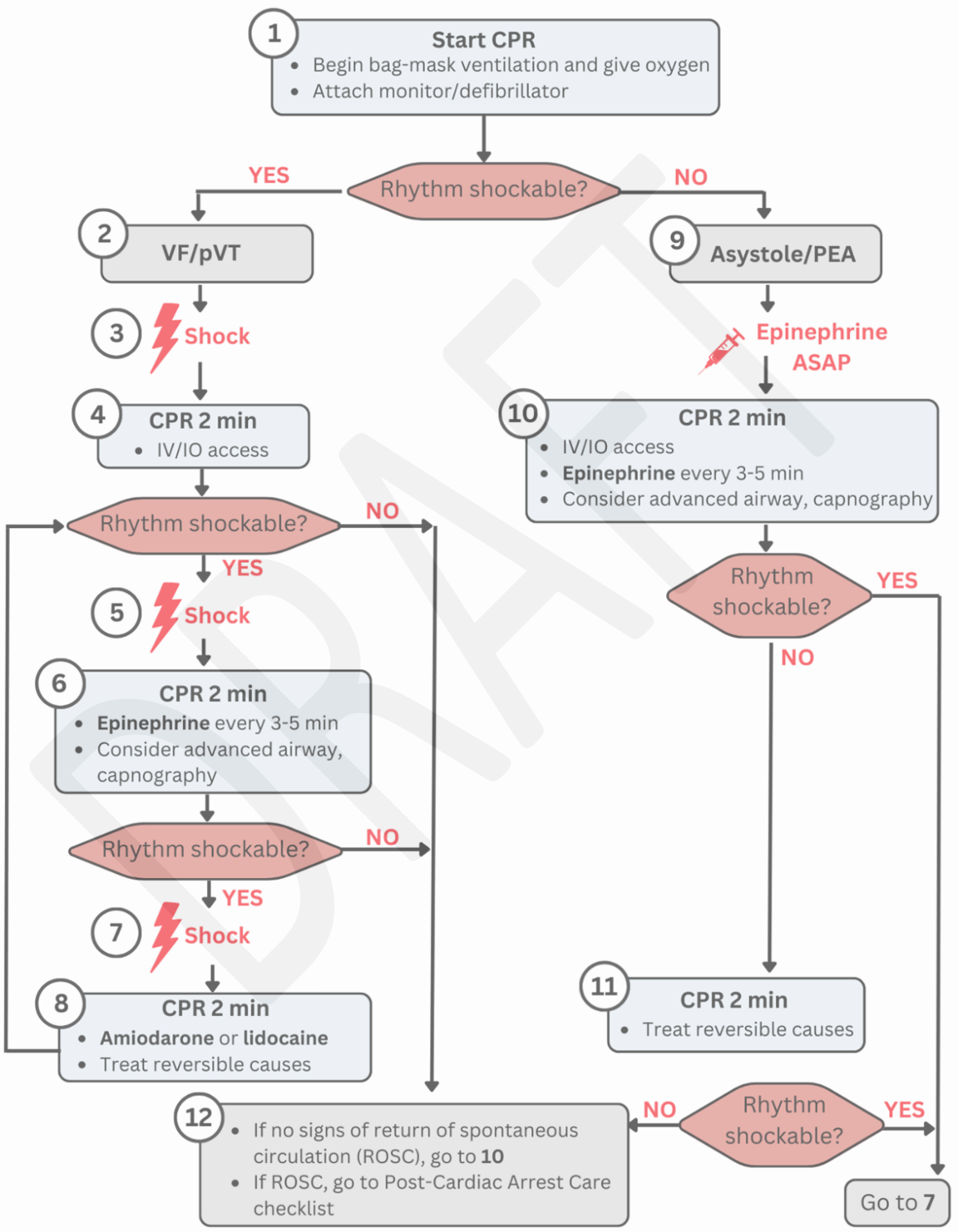
ADULT TACHYCARDIA WITH A PULSE ALGORITHM



Doses/Details
Synchronized cardioversion: Refer to your specific device's recommended energy level to maximize first shock success **Adenosine IV dose:** • First dose: 6 mg rapid IV push; follow with NS flush • Second dose: 12 mg if required
Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia **Amiodarone IV dose:** • First dose: 150 mg/10 minutes • Repeat as needed if VT recurs • Follow by maintenance infusion of 1 mg/min for first 6 hours

PALS – APPENDIX A

PEDIATRIC PULSELESS ARREST



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DOSES/DETAILS FOR THE PEDIATRIC CARDIAC ARREST ALGORITHM

CPR Quality

- Push hard (2½ of anteroposterior diameter of chest) and fast (100-120/min) and allow complete chest recoil
- Minimize interruptions in compressions
- Change compressor Q 2 minutes, or sooner if fatigued
- If no advanced airway, 15:2 compression-ventilation ratio
- If advanced airway, provide continuous compressions and give breath Q 2-3 sec

Shock Energy for Defibrillation

- First shock 2 J/kg
- Second shock 4 J/kg
- Subsequent shocks >4 J/kg maximum 10 J/kg or adult dose

Drug Therapy

Epinephrine IV/IO dose:
0.01 mg/kg (0.1 mL/kg of the 0.1 mg/mL concentration)
Max dose 1 mg
Repeat Q 3-5 minutes
If no IV/IO access, may give endotracheal dose: 0.1 mg/kg (0.1 mL/kg of the 1 mg/mL concentration)

Amiodarone IV/IO dose:
5 mg/kg bolus during cardiac arrest. May repeat up to 3 total doses for refractory VF/pulseless VT
or

Lidocaine IV/IO dose:
Initial: 1 mg/kg loading dose

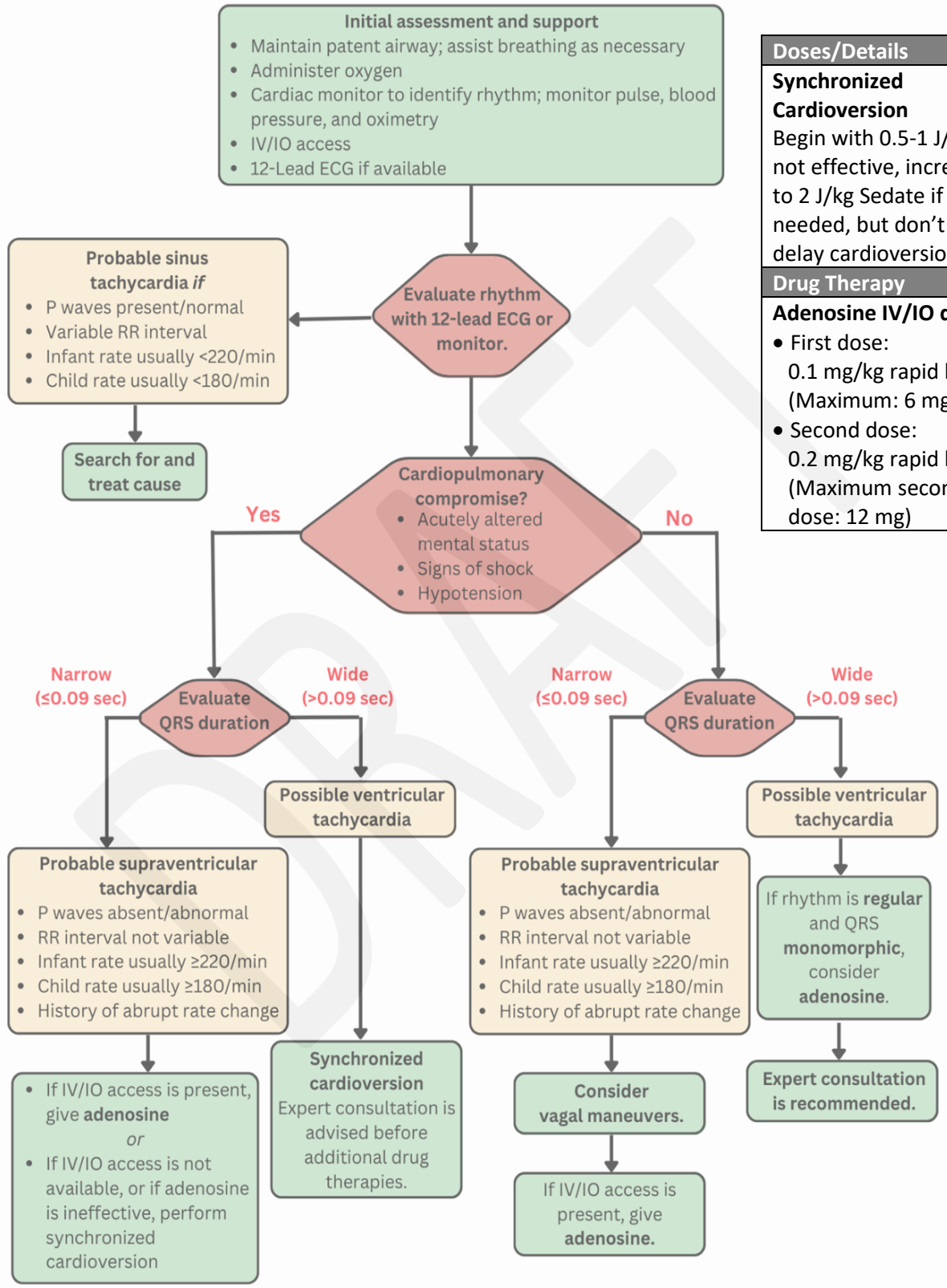
Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

Reversible Causes

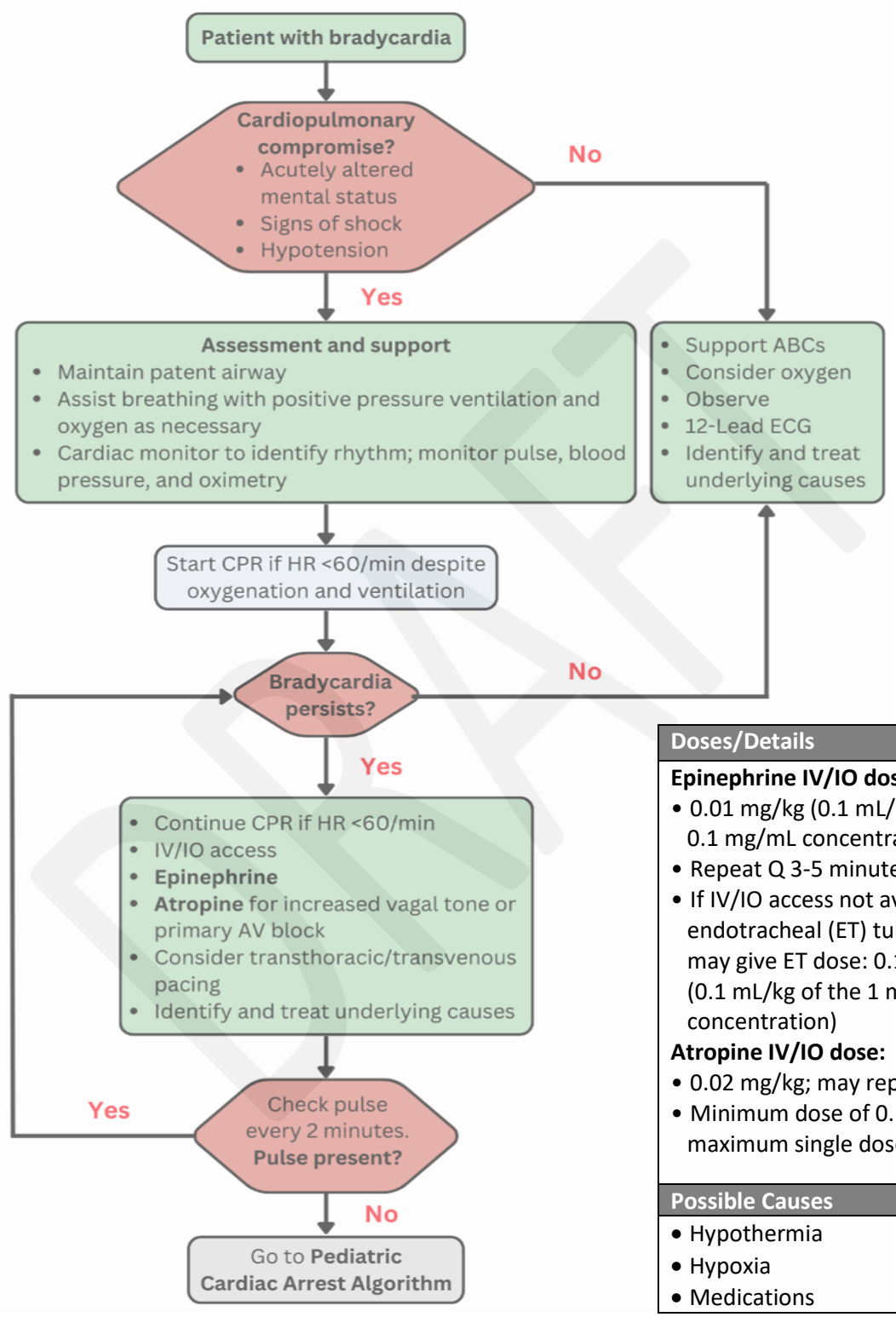
- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

PEDIATRIC TACHYCARDIA



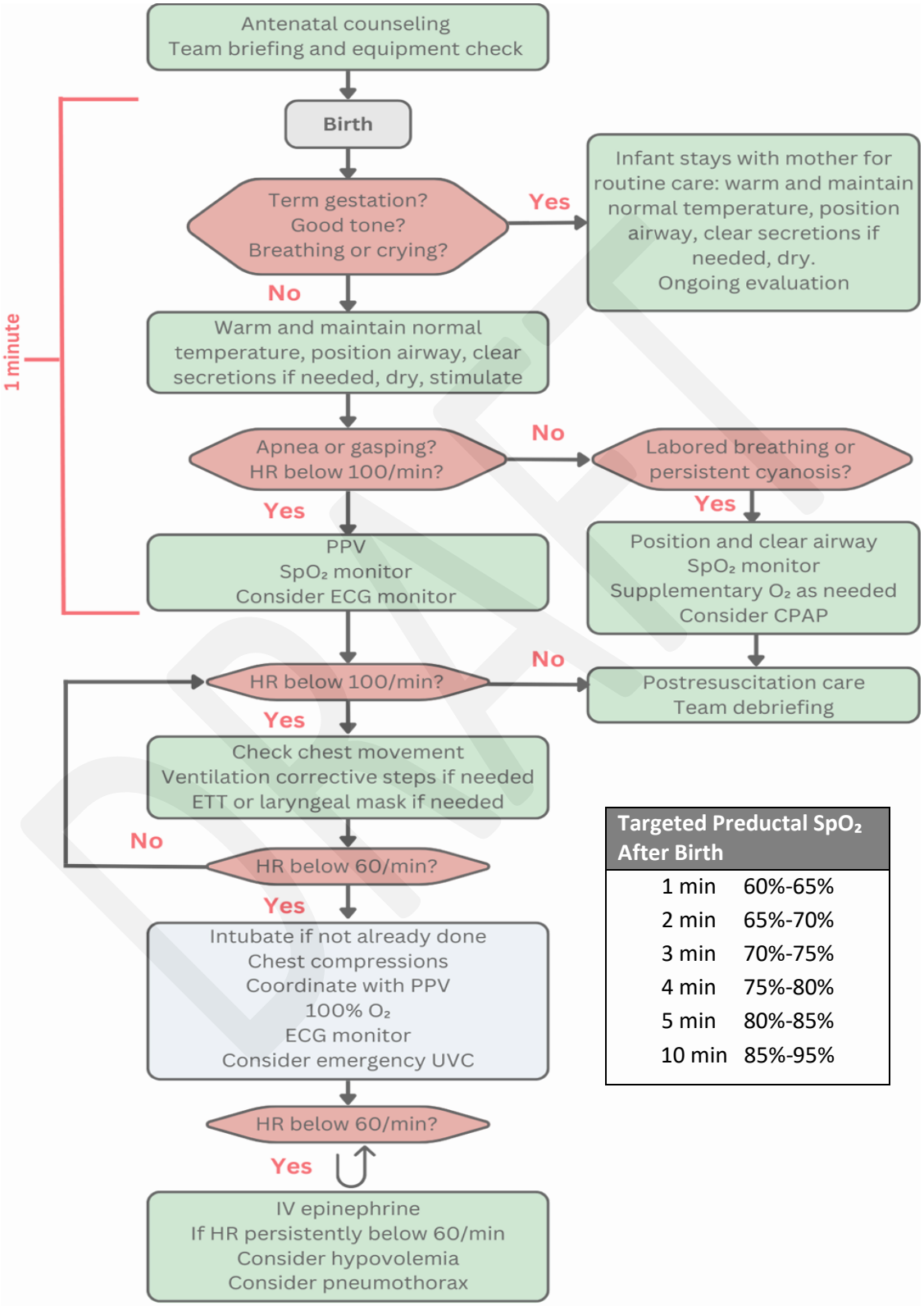
Doses/Details
Synchronized Cardioversion Begin with 0.5-1 J/kg: if not effective, increase to 2 J/kg Sedate if needed, but don't delay cardioversion
Drug Therapy
Adenosine IV/IO dose: • First dose: 0.1 mg/kg rapid bolus (Maximum: 6 mg) • Second dose: 0.2 mg/kg rapid bolus (Maximum second dose: 12 mg)

PEDIATRIC BRADYCARDIA



Doses/Details
Epinephrine IV/IO dose: • 0.01 mg/kg (0.1 mL/kg of the 0.1 mg/mL concentration) • Repeat Q 3-5 minutes • If IV/IO access not available but endotracheal (ET) tube in place, may give ET dose: 0.1 mg/kg (0.1 mL/kg of the 1 mg/mL concentration) **Atropine IV/IO dose:** • 0.02 mg/kg; may repeat once • Minimum dose of 0.1 mg and maximum single dose 0.5 mg
Possible Causes
• Hypothermia • Hypoxia • Medications

NEONATAL RESUSCITATION

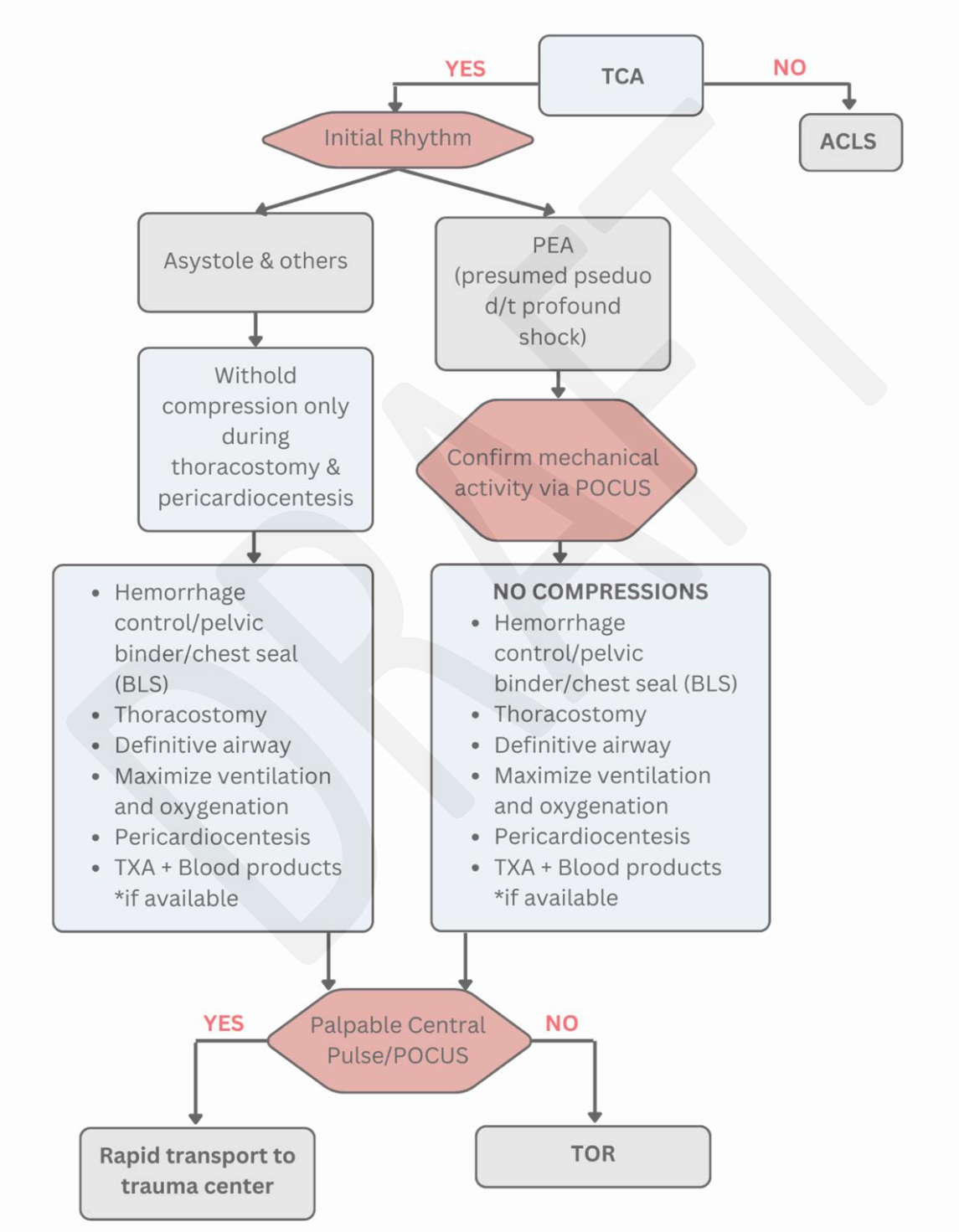


Targeted Preductal SpO_2 After Birth	
1 min	60%-65%
2 min	65%-70%
3 min	70%-75%
4 min	75%-80%
5 min	80%-85%
10 min	85%-95%

TRAUMATIC CARDIAC ARREST – APPENDIX A

TRAUMATIC CARDIAC ARREST ALGORITHM

Traumatic Cardiac Arrest Algorithm



CHILDBIRTH – 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)
        - 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 seconds), 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 shoulder deliver, the rest of the baby usually follows quickly.

E. As soon as the baby is delivered:
   - Place two umbilical clamps 2" apart at least 6-8" from the baby and cut the cord in between the clamps.
   - Stimulate the baby by vigorously drying the baby using towels.
   - Assess need for neonatal resuscitation.
   - Assess APGAR (Appendix H) at 1 minutes.
   - 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.

DEATH IN FIELD – APPENDIX C

Death in Field

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.
    C. The patient presents in asystole.
6. ***Medical cardiac arrest – The patient in non-traumatic (medical) cardiac arrest shall be determined to be dead in the field and not transported after consultation with the supervising physician in any of the following circumstances:***
    A. The patient's initial presenting rhythm is asystole, and no previous resuscitative efforts were initiated.
    B. At any time during the resuscitation, the patient stays in an asystolic or agonal rhythm that is refractory to ACLS measures.

C. After full ACLS resuscitative measures have been instituted and the patient's $ETCO_2$ remains at 10 mm Hg or below for 10 minutes.

D. A patient in PEA does not respond to appropriate ACLS measures.

SPECIAL CIRCUMSTANCES

1. 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.
2. Consider the needs of the survivors when deciding whether to discontinue or withhold resuscitation.
3. ***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.***
4. ***All consultations with the supervising physician will be documented, including the time, physician's name, and instructions.***
5. 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.

INFANT TRANSFER – APPENDIX D

Infant Transfer

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

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

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

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

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

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

Procedures for infant transfers include:

1. The qualified person should notify dispatch that a newborn or other child has been received and request an ALS response.
2. EMS personnel should medically assess the infant in accordance with protocols and provide the appropriate level of BLS/ALS care.
3. The qualified person should inquire as to whether the transferring person is a parent of the child, without requesting name, social security number, or other identifying information.
4. The qualified person should attempt to verify the date and time of birth of the child to ascertain whether the child is a "newborn" as defined by the bill.
5. Based on the answers to those questions, the qualified person will determine whether RCW 13.34.360 applies.
6. Assuring anonymity to the parent, the qualified person will immediately try to attain completion of the family medical history questionnaire. When that is completed, the parent will be given the pamphlet with referral information, but such information shall be provided even if the parent refuses to provide any medical history or information.
7. The qualified person shall notify Child Protective Services (866-END-HARM) within 24 hours of the infant's transfer.

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.

MANDATORY REPORTING CRITERIA – 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 a 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, RCW 26.44.030: "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 service 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
    - 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 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
    - Depression
    - Eating disorders

Responding to sudden unexpected child death or serious injury:

1. Ensure 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 caretake 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; patten injuries, bite marks; reports of injury received from an adult caretaker, etc.
    - Sexual abuse: Difficulty walking or sitting, inappropriate interest of 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.

MEDICAL ABBREVIATIONS - APPENDIX F

Medical Abbreviations

A

<	Less than
>	Greater than
ā	Before
ABD	Abdomen
ac	Before meals
ACS	Acute coronary syndrome
AIDS	Acquired immunodeficiency syndrome
ALNW	Airlift Northwest
ALS	Advanced Life Support
AOB	Alcohol on breath
APAP	Acetaminophen
APGAR	Appearance, Pulse, Grimace, Activity, Respiratory
ASA	Aspirin
AVPU	Alert, Verbal, Pain, Unresponsive

B

BB	Backboard
bid	Twice a day
BLS	Basic Life Support
BP	Blood pressure
BSA	Body surface area
BSI	Body substance isolation
BVM	Bag-valve mask

C

c̄	With
CA	Cancer
cc	Cubic centimeters
CHF	Congestive heart failure
CNS	Central nervous system
CO	Carbon monoxide
CO_2	Carbon dioxide
COPD	Chronic obstructive pulmonary disease
CPR	Cardiopulmonary resuscitation
CVA	Cerebrovascular accident

C/C	Chief complaint
C/O	Complains of

D

D/C	Discontinue
DOA	Dead on arrival
DOB	Date of birth
DTs	Delirium tremens
Dx	Diagnosis

E

ECG	Electrocardiogram
EDC	Estimated date of confinement (due date for delivery)
EPS	Extra-pyramidal symptoms
ET	Endotracheal
$ETCO_2$	End-tidal carbon dioxide
ETOH	Alcohol
EXT	Extremities

F

Fx	Fracture
♀	Female

G

g	Grams
GCS	Glasgow coma scale
GI	Gastrointestinal
GSW	Gunshot wound
gtt	Drop

H

HA	Headache
HEENT	Head, eyes, ears, nose, throat
HIV	Human Immunodeficiency Virus
H&P	History and physical
HPI	History of present illness

HR	Heart rate
hs	At bedtime
Hx	History

I

ICP	Intracranial pressure
IDDM	Insulin-dependent diabetes mellitus
IM	Intramuscular
IV	Intravenous

J

JVD	Jugular venous distention

K

kg	Kilogram
KED	Kendrick Extraction Device
KVO	Keep vein open

L

L	Liter
LLQ	Lower left quadrant
LMP	Last menstrual period
LOC	Level of consciousness
LUQ	Left upper quadrant
LVH	Left ventricular hypertrophy

M

♂	Male
MAP	Mean arterial pressure
MAST	Military Assistance to Safety & Traffic (helicopter)
MCA	Motorcycle accident
MDI	Metered dose inhaler
mEg	Milliequivalent
mg	Milligram
MI	Myocardial infarction
MIR	Medical Incident Report
mL	Milliliter

mm	Millimeter
mm Hg	Millimeter of mercury
MOI	Mechanism of injury
MVA	Motor vehicle accident

N

NAD	No apparent distress
NC	Nasal cannula
NG	Nasogastric
NIDDM	Non-insulin-dependent diabetes mellitus
NKDA	No known drug allergies
NOI	Nature of illness
NPA	Nasopharyngeal airway
NPO	Nothing by mouth
NRM	Non-rebreather mask
NS	Normal saline
NSR	Normal sinus rhythm
NTG	Nitroglycerin
N&V	Nausea and vomiting

O

O_2	Oxygen
OD	Overdose
OPA	Oropharyngeal airway
OPQRST	**O**nset, **P**rovoker(s), **Q**uality, **R**adiation, **S**everity, **T**ime
OTC	Over the counter

P

p̄	Post/after
PAC	Premature atrial contraction
PAT	Paroxysmal atrial tachycardia
pc	After meal
PCN	Penicillin
PE	Patient exam
PERRLA	Pupils equal, round, and reactive to light with accommodation
PMH	Past medical history
PMS	Pulse motor sensation
po	By mouth
prn	As needed

psi	Pounds per square inch
PSVT	Paroxysmal supraventricular tachycardia
Pt	Patient
PVC	Premature ventricular contraction
Px	Pain

Q

q	Every
qd	Every day
qh	Every hour
qid	Four times a day
qod	Every other day

R

RLQ	Right lower quadrant
RN	Registered nurse
R/O	Rule out
ROM	Range of motion
RSI	Rapid sequence induction
RUQ	Right upper quadrant
Rx	Treatment given

S

s̄	Without
SAH	Subarachnoid hemorrhage
SAMPLE	**S**igns/**S**ymptoms, **A**llergies, **M**edications, **P**ertinent past history, **L**ast oral intake, **E**vents leading to 911 call
SpO_2	Oxygen saturation
SC	Subcutaneous
SIDS	Sudden Infant Death Syndrome
SL	Sublingual
SOB	Shortness of breath
SQ	Subcutaneous
STHB	Said to have been
STHH	Said to have had
SVT	Supraventricular tachycardia
Sx	Symptoms

T

TCA	Antidepressant
TIA	Transient ischemic attach
tid	Three times a day
TKO	To keep open
Tx	Transport

U

URI	Upper respiratory infection
UTI	Urinary tract infection

V

VF	Ventricular fibrillation
VS	Vital signs
VT	Ventricular tachycardia

W

WMD	Weapon of mass destruction
WPW	Wolff-Parkinson-White syndrome

Y

Y/O	Years old

MEDICATIONS – APPENDIX G

TABLE OF MEDICATIONS

***Bold italic indicates ALS medication*.** Green highlight indicates EMT medication. * Indicates EMR medication.

Generic Name	Other Names
Acetaminophen	***Tylenol®***
Activated Charcoal	***Actidose®***
Adenosine	***Adenocard®***
Albuterol	Proventil® and Ventolin®
Albuterol/Ipratropium	***Duoneb, Combivent***
Amiodarone	***Cordarone®***
*Aspirin	ASA
Atropine	
Calcium Chloride	***Calcium***
Cyanokit/ Hydroxocobalamin	
Dextrose 10%	***$D_{10}W$***
Dextrose 50%	***$D_{50}W$***
Diltiazem	***Cardizem®***
Diphenhydramine	***Benadryl®***
Dopamine	
Droperidol	***Inapsine®***
Epinephrine	***Adrenalin®***
Epinephrine	
Etomidate	***Amidate®***
Fentanyl Citrate	
Furosemide	***Lasix®***
Glucose	Glutose® and Insta-glucose®
Glucagon	

Generic Name	Other Names
Haloperidol	***Haldol®***
Ketamine	***Ketalar®***
Ketorolac	***Toradol®***
Levetiracetam	***Keppra®***
Lidocaine	
Magnesium Sulfate	
Methylprednisolone	***Solu-Medrol®***
Metoprolol	***Lopressor, Toprol***
Midazolam	***Versed®***
Naloxone	***Narcan®***
Nitroglycerin	***Nitrotab, Nitrostat***
Nitroglycerin Ointment	***Nitrobid***
Norepinephrine	***Levophed®***
Normal Saline	
Ondansetron	Zofran®
*Oxygen	
Oxytocin	***Pitocin®***
Promethazine	***Phenergan®***
Proparacaine	***Alcaine®, Opthaine®, Opthetic®***
Rocuronium	***Zemuron®***
Sodium Bicarbonate	
Succinylcholine	***Anectine®, Quelicin®***
Thiamine	
Tranexamic Acid	***Cyklokapron®, Lysteda®***

ACETAMINOPHEN (TYLENOL®)

Acetaminophen

DESCRIPTION	***Antipyretic analgesic***
INDICATIONS	***Pediatric febrile seizure*** ***Pediatric fever above 103°F***
CONTRAINDICATIONS	***Known hypersensitivity*** ***Liver failure***
PEDIATRIC DOSAGE/ROUTE	• ***15 mg/kg PO or rectal***

ACTIVATED CHARCOAL (ACTIDOSE®)

Activated Charcoal

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***
PRECAUTIONS/SIDE EFFECTS	***Does not absorb iron, lithium, inorganic ions, ethanol, methanol, or cyanide***
ADULT DOSAGE/ROUTE	• ***50 g PO/NG***
PEDIATRIC DOSAGE/ROUTE	• ***Less than 12 Y/O: 1g/kg***

ADENOSINE (ADENOCARD®)

Adenosine

DESCRIPTION	***Antidysrhythmic***
INDICATIONS	***Narrow complex tachycardia***
CONTRAINDICATIONS	***Known or suspected WPW or accessory pathway***
PRECAUTIONS/SIDE EFFECTS	***May cause bronchospasm*** ***Will cause temporary sinus arrest or block in most patients and general transient ill feeling***
ADULT DOSAGE/ROUTE	• ***6 mg rapid IV bolus*** ***If no response, may repeat with 12 mg after 1-2 minutes***
PEDIATRIC DOSAGE/ROUTE	• ***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***

ALBUTEROL (PROVENTIL®, VENTOLIN®)

Albuterol

EMT

DESCRIPTION	Bronchodilator
INDICATIONS	Treatment of moderate to severe bronchospasm Patient believes symptoms are related to asthma or COPD Or dyspnea following epinephrine administration for allergic reaction Wheezing in auscultated lung sounds ***Suspected hyperkalemia***
CONTRAINDICATIONS	None
PRECAUTIONS/SIDE EFFECTS	May cause tachycardia/chest discomfort Consider withholding for crackles/rales
ADULT DOSAGE/ROUTE	• EMT MDI Assist: Repeat every minute as needed for a total of 10 puffs (see "Metered Dose Inhaler (MDI) assist, Appendix J) • 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. • Nebulized initial dose 5 mg. Repeat as needed • ***MDI via BiPAP*** ***5 puffs. Repeat as needed*** • ***Hyperkalemia Dose*** ***Nebulized 15 mg***
PEDIATRIC DOSAGE/ROUTE	• ***If less than 2 y/o*** ***Nebulized 2.5 mg in 2.5 mL of saline*** • ***Otherwise use adult dose***

ALBUTEROL/IPRATROPIUM (DUONEB, COMBIVENT)

Albuterol/Ipratropium

DESCRIPTION	***Bronchodilator***
INDICATIONS	***Initial treatment of moderate to severe bronchospasm***
CONTRAINDICATIONS	***Hypersensitivity to either component***
PRECAUTIONS/SIDE EFFECTS	***May cause tachycardia/severe chest discomfort***
ADULT DOSAGE/ROUTE	• ***Nebulizer*** ***3 mL vial in nebulizer*** • ***MDI via BiPAP*** ***5 puffs***
PEDIATRIC DOSAGE/ROUTE	• ***Nebulizer*** ***3 mL vial in nebulizer*** • ***MDI via BiPAP*** ***5 puffs***

AMIODARONE (CORDARONE®)

Amiodarone

DESCRIPTION	***Anti-dysrhythmic***
INDICATIONS	***Recurrent VF or pulseless VT*** ***Stable VT***
CONTRAINDICATIONS	***2nd and 3rd degree AV block***
PRECAUTIONS/SIDE EFFECTS	***Given rapidly with a patient with a pulse, may cause profound hypotension or pulselessness***
ADULT DOSAGE/ROUTE	• ***Pulseless VT/VF*** ***300 mg IV push*** • ***Stable VT*** ***150 mg IV piggyback over 10 min***
PEDIATRIC DOSAGE/ROUTE	• ***During Cardiac Arrest*** ***5 mg/kg bolus with a maximum single dose of 300 mg*** • ***Refractory VF/Pulseless VT*** ***May repeat up to 2 times***

ASPIRIN* (ASA)

Aspirin*

EMT & EMR

EMR – Specialized MPD Training Required

DESCRIPTION	Antiplatelet, NSAID
INDICATIONS	Signs or symptoms of acute coronary syndrome
CONTRAINDICATIONS	Allergy to Aspirin
PRECAUTIONS/SIDE EFFECTS	None
ADULT DOSAGE/ROUTE	• 325 mg PO chewed
PEDIATRIC DOSAGE/ROUTE	• Not indicated

ATROPINE

Atropine

DESCRIPTION	***Anticholinergic***
INDICATIONS	***Symptomatic bradycardia*** ***Premedication for pediatric RSI*** ***Organophosphate poisoning*** ***Cholinergic poisoning (e.g., mushrooms)*** ***Treating secretions due to ketamine***
CONTRAINDICATIONS	***None***
PRECAUTIONS/SIDE EFFECTS	***May cause tachycardia, nausea, ventricular ectopy***
ADULT DOSAGE/ROUTE	• ***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 DOSAGE/ROUTE	• ***0.02 mg/kg (minimum 0.1 mg)*** ***May repeat once*** • ***Premedication in RSI*** ***0.01 mg/kg (minimum 0.1 mg, maximum 0.5 mg)*** • ***Refer to length-based resuscitation tape***

CALCIUM CHLORIDE 10%

Calcium Chloride 10%

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***
PRECAUTIONS/SIDE EFFECTS	***Can potentiate digoxin toxicity*** ***Painful if given peripherally***
ADULT DOSAGE/ROUTE	• ***1 g slow IVP (1mL/min)*** • ***Cardiac arrest*** ***IVP*** • ***Hypotension/bradycardia associated with diltiazem administration*** ***100 mg IVP*** ***May repeat Q 10 min to max 500 mg*** • ***Patients in hemorrhagic shock receiving blood products*** ***1 g IVP***
PEDIATRIC DOSAGE/ROUTE	• ***10-20 mg/kg (max 500 mg) slow IVP (1 mL/min)*** • ***Refer to length-based resuscitation tape for dose***

CYANOKIT/HYDROXOCOBALAMIN

Cyanokit/Hydroxocobalamin

DESCRIPTION	***Vitamin B-12***
INDICATIONS	***Known or suspected cyanide poisoning***
CONTRAINDICATIONS	***Known anaphylactic reaction to hydroxocobalamin***
PRECAUTIONS/SIDE EFFECTS	***Use caution in combination with other cyanide poisoning antidotes***
ADULT DOSAGE/ROUTE	• ***5 g slow IV over 15 minutes***
PEDIATRIC DOSAGE/ROUTE	• ***As directed by medical control***

DEXTROSE 10% ($D_{10}W$)

Dextrose 10%

DESCRIPTION	***Sugar***
INDICATIONS	***Symptomatic hypoglycemia***
CONTRAINDICATIONS	***Hyperglycemia***
PRECAUTIONS/SIDE EFFECTS	***Pre-treat hypoglycemia alcoholic patients with thiamine***
ADULT DOSAGE/ROUTE	• ***Up to 25 g IV drip*** ***Repeat if blood glucose remains less than 60 mg/dL***
PEDIATRIC DOSAGE/ROUTE	• ***5 mL/kg maximum dose of 250 mL (25 g)***

DEXTROSE 50% ($D_{50}W$)

Dextrose 50%

DESCRIPTION	***Sugar***
INDICATIONS	***Symptomatic hypoglycemia***
CONTRAINDICATIONS	***Hyperglycemia***
PRECAUTIONS/SIDE EFFECTS	***Pre-treat hypoglycemia alcoholic patients with thiamine***
ADULT DOSAGE/ROUTE	• ***25 g IVP*** ***Repeat if blood glucose remains less than 60 mg/dL***
PEDIATRIC DOSAGE/ROUTE	• ***Pediatric*** ***1 g/kg (25% solution) IV*** • ***Neonate*** ***0.2 g/kg (10% solution) (2 mL/kg) IVP*** • ***Refer to length-based resuscitation tape for dosing***
NOTE:	• ***To make 25% solution*** ***Dilute D_{50} 1:1 with NS*** • ***To make 10% solution*** ***Dilute D_{50} 1:4 with NS***

DILTIAZEM (CARDIZEM®)

Diltiazem

DESCRIPTION	***Calcium channel blocker***
INDICATIONS	***Atrial fibrillation*** ***Atrial flutter*** ***PAT*** ***SVT***
CONTRAINDICATIONS	***Known WPW disease*** ***BP less than 90 mm Hg systolic*** ***Acute MI***
PRECAUTIONS/SIDE EFFECTS	***May cause bradycardia, heart block, hypotension, and CHF***
ADULT DOSAGE/ROUTE	• ***10 mg slow IVP*** ***Repeat every 10 min until HR on average <110*** ***Hold for SBP <90***
PEDIATRIC DOSAGE/ROUTE	• ***Not approved for tachycardia in pediatric populations***

DIPHENHYDRAMINE (BENADRYL®)

Diphenhydramine

DESCRIPTION	***Antihistamine***
INDICATIONS	***Allergic reaction*** ***Extrapyramidal side effect/dystonia***
CONTRAINDICATIONS	***Anticholinergic toxidrome***
PRECAUTIONS/SIDE EFFECTS	***May cause drowsiness, dilated pupils, tinnitus, dry mouth, urinary retention***
ADULT DOSAGE/ROUTE	• ***25-50 mg IV or IM***
PEDIATRIC DOSAGE/ROUTE	• ***Over 2 y/o*** ***1 mg/kg IV or IM*** • ***Under 2 y/o*** ***Call medical control***

DOPAMINE

Dopamine

DESCRIPTION	***Vasopressor, adrenergic agonist***
INDICATIONS	***Hypotension with signs of shock***
CONTRAINDICATIONS	***Ventricular fibrillation*** ***Tachydysrhythmias*** ***Pheochromocytoma***
PRECAUTIONS/SIDE EFFECTS	***May cause tissue or cardiac ischemia***
ADULT DOSAGE/ROUTE	• ***Prepare by mixing 400 mcg in 250 mL NS*** • ***2-50 mcg/kg/min until SBP >90 or MAP >60***
PEDIATRIC DOSAGE/ROUTE	• ***Same as adult to max 20 mcg/kg/min***

DROPERIDOL (INAPSINE®)

Droperidol

DESCRIPTION	***Antipsychotic/anti-emetic***
INDICATIONS	***Acute psychosis agitation or delirium***
CONTRAINDICATIONS	***Hypersensitivity or prolonged QT, hyperthermia***
PRECAUTIONS/SIDE EFFECTS	
ADULT DOSAGE/ROUTE	• ***5 mg intramuscular or 2.5 IVP***
PEDIATRIC DOSAGE/ROUTE	• ***As directed by medical control***
NOTE	• ***QT prolongation*** • ***12 lead ECG indicated prior and post medication*** • ***Synergistic with midazolam and compatible in the same syringe***

EPINEPHRINE (ADRENALIN®)

Epinephrine

DESCRIPTION	***Adrenergic agonist***
INDICATIONS	***Respiratory distress or shock due to anaphylaxis*** ***Asystole, PEA, VF, pulseless VT, bradycardia*** ***Refractory hypotension*** ***Croup with respiratory distress*** ***Severe bronchospasm***
CONTRAINDICATIONS	***None***
PRECAUTIONS/SIDE EFFECTS	***May cause hypertension, tachycardia, and cardiac ischemia***
ADULT DOSAGE/ROUTE	• ***Cardiac Arrest*** ***IV, IO (1:10,000) 1 mg IVP, Repeat Q 3-5 min*** ***POCUS Pulse – 50 mcg IVP*** • ***Anaphylaxis*** ***IM (1:1,000) 0.3 mg*** ***IV or SVN (1:10,000) 0.3 mg (3-5 mL)*** • ***Shock or Refractory Anaphylaxis*** ***Drip IV/IO 1-20 mcg/min*** ***(1 mg in 250 mL of NS = 4 mcg/mL)*** • ***Severe Bronchospasm*** ***IM (1:1,000) 0.3 mg*** ***SVN (1:1,000) 5 mL with 3 mL NS*** • ***Push Dose for Hypotension/Bradycardia*** ***5-20 mcg IV/IO Q 1-5 minutes*** ***(Mix 9 mL saline with 1 mL epinephrine 1:10,000 for total of 10 mcg/mL in a 10-cc syringe)***
PEDIATRIC DOSAGE/ROUTE	• ***Cardiac Arrest*** ***IV, IO (1:10,000) 0.01 mg/kg*** • ***Croup/severe bronchospasm*** ***SVN (1:1,000) 0.5 mL/kg to max 5 mL with 3 mL NS*** • ***Anaphylaxis*** ***0.15 mg IM Q 5 minutes*** ***or 0.01 mg/kg of 1:1,000 IM up to 0.3 mg Q 5 minutes*** ***or 0.01 mg/kg of 1:10,000 IV/IO up to 0.3 mg Q 5 minutes***

EPINEPHRINE ADMINISTRATION

Epinephrine Administration

EMT – Specialized MPD Training Required

DESCRIPTION	Adrenergic agonist
INDICATIONS	Patient is displaying signs or symptoms or anaphylaxis: respiratory distress or shock or difficulty swallowing (throat edema), and consents to treatment
CONTRAINDICATIONS	
PRECAUTIONS/SIDE EFFECTS	May increase blood pressure, cause tachycardia or cardiac ischemia
ADULT DOSAGE/ROUTE	• IM (1:1,000) 0.3 mg
PEDIATRIC DOSAGE/ROUTE	• IM (1:1,000) 0.15 mg

ETOMIDATE (AMIDATE®)

Etomidate

DESCRIPTION	***Sedative anesthetic***
INDICATIONS	***Given as an induction agent during RSI*** ***Sedation prior to cardioversion***
CONTRAINDICATIONS	***None in the emergent setting***
PRECAUTIONS/SIDE EFFECTS	***May cause respiratory depression, airway compromise, nausea, adrenal suppression, and myoclonus***
ADULT DOSAGE/ROUTE	• ***Procedural Sedation*** ***0.15 mg/kg IV over 30-60 seconds*** • ***RSI*** ***0.3 mg/kg IVP***
PEDIATRIC DOSAGE/ROUTE	• ***Over 10 y/o*** ***Same as adult*** • ***Under 10 y/o*** ***Not approved***

FENTANYL CITRATE

Fentanyl Citrate

DESCRIPTION	***Opioid analgesic***
INDICATIONS	***Severe pain***
CONTRAINDICATIONS	***Systolic BP <90; ALOC***
PRECAUTIONS/SIDE EFFECTS	***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***
ADULT DOSAGE/ROUTE	• ***50-100 mcg IV or SVN*** ***Repeat Q 5 min as needed to 300 mcg*** ***Contact medical control for dosing over 300 mcg***
PEDIATRIC DOSAGE/ROUTE	• ***1 mcg/kg IV or SVN*** ***Contact medical control for repeat dosing***
NOTE	• ***All patients receiving fentanyl will have continuous oxygen SpO_2 and Q 5 min BPs recorded on the monitor and attached to the patient report***

FUROSEMIDE (LASIX®)

Furosemide

DESCRIPTION	***Diuretic***
INDICATIONS	***CHF*** ***Pulmonary edema***
CONTRAINDICATIONS	***Hypotension*** ***Hypersensitivity to furosemide or sulfonamides***
PRECAUTIONS/SIDE EFFECTS	***Efficiency goes down in patients with renal failure***
ADULT DOSAGE/ROUTE	• ***40 mg IV or twice patient's daily dose slow IVP to a maximum dose of 160mg***
PEDIATRIC DOSAGE/ROUTE	• ***Refer to length-based resuscitation tape***

GLUCOSE (GLUCOSE®, INSTA-GLUCOSE®)

Glucose

EMT

DESCRIPTION	Sugar
INDICATIONS	Suspected or confirmed symptomatic hypoglycemia
CONTRAINDICATIONS	Patient unable to swallow
PRECAUTIONS/SIDE EFFECTS	Use caution to prevent aspiration of the glucose paste
ADULT DOSAGE/ROUTE	• 1 tube
PEDIATRIC DOSAGE/ROUTE	
NOTE	• Following administration, check blood glucose levels and ensure patients is able to maintain a continued oral intake of carbohydrates balanced with protein

GLUCAGON

Glucagon

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***
PRECAUTIONS/SIDE EFFECTS	***Short half-life: hypoglycemia may return*** ***Very nauseating*** ***Administer with ondansetron***
ADULT DOSAGE/ROUTE	• ***1 mg IV/IM/IN/SQ*** ***May repeat in 5 min*** • ***Contact medical control for calcium channel blocker or beta blocker toxicity dosing***
PEDIATRIC DOSAGE/ROUTE	• ***0.025-0.1 mg/kg IV/IM/IN/SQ every 20 min (max 1 mg)*** • ***Contact medical control for calcium channel blocker or beta blocker toxicity dosing***

HALOPERIDOL (HALDOL®)

Haloperidol

DESCRIPTION	***Antipsychotic***
INDICATIONS	***Acute psychosis agitation or delirium***
CONTRAINDICATIONS	***Hypersensitivity or prolonged QT*** ***Hyperthermia***
PRECAUTIONS/SIDE EFFECTS	***QT prolongation*** ***Dosages should be reduced by ½ in the frail elderly patient***
ADULT DOSAGE/ROUTE	• ***IM*** ***5 to 10 mg IM*** • ***IVP*** ***2.5-5 mg IVP*** ***Titrated to response up to 10 mg*** • ***Can be potentiated with 1-5 mg versed IM/IVP*** ***(NOTE: these drugs are same syringe compatible)***
PEDIATRIC DOSAGE/ROUTE	• ***As directed by medical control***
NOTES	• ***Synergistic with midazolam and compatible in the same syringe***

KETAMINE (KETALAR®)

Ketamine

DESCRIPTION	***Dissociative anesthetic***
INDICATIONS	***Deep sedation*** ***Sedation on ventilator*** ***Severe pain***
CONTRAINDICATIONS	***Hypersensitivity to ketamine***
RELATIVE CONTRAINDICATIONS	***SBP >200 mm Hg***
PRECAUTIONS/SIDE EFFECTS	***May cause bronchorrhea, laryngospasm, hypertension, emergence reaction (use with caution with psychosis or PTSD)***
ADULT DOSAGE/ROUTE	• ***Weight-based dosing constitutes the maximum dose unless medical control 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***
PEDIATRIC DOSAGE/ROUTE	

KETOROLAC (TORADOL®)

Ketorolac

DESCRIPTION	***Nonsteroidal anti-inflammatory***
INDICATIONS	***Moderate-acute pain, especially in the circumstance where the patient refuses opioids***
CONTRAINDICATIONS	***Known hypersensitivity*** ***Active peptic ulcers*** ***Renal impairment*** ***Any suspected bleeding*** ***Labor and delivery*** ***Those using aspirin or NSAIDs daily***
PRECAUTIONS/SIDE EFFECTS	***Dosage should be reduced by ½ in elderly patients and those under 50 kgs of body weight***
ADULT DOSAGE/ROUTE	• ***15-30 mg IM*** • ***10 mg IVP***
PEDIATRIC DOSAGE/ROUTE	• ***As directed by medical control***

LEVETIRACETAM (KEPPRA®)

Levetiracetam

DESCRIPTION	***Anticonvulsant***
INDICATIONS	***Status epilepticus***
CONTRAINDICATIONS	***Hypersensitivity*** ***Reduce dose by 1/2 if on Keppra use***
ADULT DOSAGE/ROUTE	• ***20 mg/kg to a maximum of 4,500 mg given over 15 minutes***
PEDIATRIC DOSAGE/ROUTE	• ***20 mg/kg***
NOTE	• ***It is recommended to still give Keppra if the status seizure is controlled with benzodiazepines to prevent recurrence*** • ***Do not delay intubation for anticonvulsant therapy***

LIDOCAINE

Lidocaine

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***
PRECAUTIONS/SIDE EFFECTS	***May cause seizure, confusion, AMS*** • ***Reduce dose to 0.75 mg/kg in CHF or liver failure***
ADULT DOSAGE/ROUTE	• ***Initial dose*** ***1.5 mg/kg IV*** • ***Maintenance*** ***1-2 mg/min IVPB*** • ***Nebulized*** ***2.5 mL (50 mg) of 2%*** • ***IO*** ***50 mg IO***
PEDIATRIC DOSAGE/ROUTE	• ***1 mg/kg IV***

MAGNESIUM SULFATE

Magnesium Sulfate

DESCRIPTION	***Mineral***
INDICATIONS	***Torsades des pointes*** ***Refractory VF*** ***Eclampsia*** ***Severe asthma***
CONTRAINDICATIONS	***Renal impairment*** ***Heart block*** ***Patients treated with paralytic agent***
PRECAUTIONS/SIDE EFFECTS	***Will lower calcium*** ***Observe for hypotension, paralysis, and CNS depression*** ***Pulmonary edema***
ADULT DOSAGE/ROUTE	• ***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***
PEDIATRIC DOSAGE/ROUTE	• ***Not indicated for pediatric patients***

METHYLPREDNISOLONE (SOLU-MEDROL®)

Methylprednisolone

DESCRIPTION	***Corticosteroid***
INDICATIONS	***Adrenal insufficiency*** ***Allergic reactions*** ***Secondary treatment of moderate to severe bronchospasm***
CONTRAINDICATIONS	***Known hypersensitivity to the product or its constituents***
PRECAUTIONS/SIDE EFFECTS	***None in the emergent setting***
ADULT DOSAGE/ROUTE	• ***125 mg IV***
PEDIATRIC DOSAGE/ROUTE	• ***1 mg/kg IV***

METOPROLOL (LOPRESSOR, TOPROL)

Metoprolol

DESCRIPTION	***Beta blocker***
INDICATIONS	***Atrial fibrillation/flutter*** ***SVT*** ***PAT***
CONTRAINDICATIONS	***Severe asthma/bronchospasm*** ***WPW*** ***Hypotension with SBP <90*** ***Decompensated heart failure/cardiogenic shock***
PRECAUTIONS/SIDE EFFECTS	***May cause bradycardia, hypotension, heart block, bronchospasm***
ADULT DOSAGE/ROUTE	• ***5 mg IV*** ***Repeat every 10 min until HR <110*** ***Hold for SBP <90***
PEDIATRIC DOSAGE/ROUTE	• ***Not approved in children***

MIDAZOLAM (VERSED®)

Midazolam

DESCRIPTION	***Sedative***
INDICATIONS	***Status seizures*** ***Sedation***
CONTRAINDICATIONS	***None in emergent setting***
PRECAUTIONS/SIDE EFFECTS	***Respiratory depression and loss of airway reflexes*** ***Hypotension especially when mixed with opioids, alcohol, or other CNS depressants***
ADULT DOSAGE/ROUTE	• ***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***
PEDIATRIC DOSAGE/ROUTE	• ***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***

NALOXONE (NARCAN®)

Naloxone

DESCRIPTION	***Opioid antidote***
INDICATIONS	***Opioid overdose***
CONTRAINDICATIONS	***None in emergent setting***
PRECAUTIONS/SIDE EFFECTS	***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***
ADULT DOSAGE/ROUTE	• ***0.4-2 mg IV/IO/IN/IM/SL/ET*** ***Repeat as needed***
PEDIATRIC DOSAGE/ROUTE	• ***0.1 mg/kg IV/IO/IN/IM/SL/ET*** ***To max single dose 2 mg*** ***Repeat as needed***

NITROGLYCERIN (NITROTAB, NITROSTAT)

Nitroglycerin

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 mm Hg systolic***
PRECAUTIONS/SIDE EFFECTS	***May cause hypotension and headache*** ***May cause cardiovascular collapse in setting of RV infarct***
ADULT DOSAGE/ROUTE	• ***CP/ACS*** ***0.4 mg SL Q 3 min until pain relief*** • ***Pulmonary Edema*** ***0.4 mg SL Q 3 min until SBP <150***
PEDIATRIC DOSAGE/ROUTE	• ***Not indicated for pediatric patients***

NITROGLYCERIN OINTMENT (NITROBID)

Nitroglycerin Ointment

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 mm Hg systolic***
PRECAUTIONS/SIDE EFFECTS	***May cause hypotension and headache***
ADULT DOSAGE/ROUTE	• ***ACS*** ***1 inch to anterior chest wall*** • ***CHF*** ***2 inches to anterior chest wall*** ***Hold/remove for SBP <100***
PEDIATRIC DOSAGE/ROUTE	• ***Not indicated for pediatric patients***

NOREPINEPHRINE (LEVOPHED)

Norepinephrine

DESCRIPTION	***Alpha- and beta-adrenergic agonist*** ***Vasoconstrictor and inotrope***
INDICATIONS	***Hyptotension with signs of shock***
CONTRAINDICATIONS	***Ventricular fibrillation*** ***Tachydysrhythmias*** ***Pheochromocytoma*** ***MAOI therapy***
PRECAUTIONS/SIDE EFFECTS	***Use caution or reduce dose with pre-existing hypertension, preexisting hypothyroidism, peripheral vascular disease, pregnancy*** ***Avoid extravasation as this may cause tissue necrosis***
ADULT DOSAGE/ROUTE	• ***2-50 mcg/min until blood pressure is at 90 mm Hg***
PEDIATRIC DOSAGE/ROUTE	• ***0.05-2mcg/kg/min***

NORMAL SALINE (0.9% SODIUM CHLORIDE IN STERILE WATER)

Normal Saline

DESCRIPTION	***Crystalloid IV fluid***
INDICATIONS	***Suspected volume depletion or hypovolemia*** ***Hyperglycemia*** ***Burns*** ***Post cardiac arrest*** ***Hypotension not due to cardiogenic shock***
CONTRAINDICATIONS	***Pulmonary edema***
PRECAUTIONS/SIDE EFFECTS	***Monitor patient for signs and symptoms of fluid overload***
ADULT DOSAGE/ROUTE	• ***Bolus per patient status then TKO***
PEDIATRIC DOSAGE/ROUTE	• ***Bolus 20 mL/kg then re-evaluate*** ***Repeat x2 prn***

ONDANSETRON (ZOFRAN®)

Ondansetron

EMT

DESCRIPTION	Anti-emetic
INDICATIONS	Nausea, vomiting
CONTRAINDICATIONS	Medication hypersensitivity
PRECAUTIONS/SIDE EFFECTS	Caution in patient with liver dysfunction ***Can cause QT prolongation***
ADULT DOSAGE/ROUTE	• EMT dosage: 4 mg SL • ***4 mg IV/PO*** ***May repeat x1***
PEDIATRIC DOSAGE/ROUTE	• ***0.1 mg/kg to max of 4 mg***

OXYGEN*

Oxygen*

EMT & EMR

DESCRIPTION	Self-explanatory
INDICATIONS	Patients with symptoms of shock, dyspnea, hypoxia, respiratory distress, respiratory arrest, carbon monoxide poisoning, over-sedation, chest pain, and stroke
CONTRAINDICATIONS	None
PRECAUTIONS/SIDE EFFECTS	Supplemental oxygen may cause decreased respirations for patients with chronic hypoxia
ADULT DOSAGE/ROUTE	• Nasal Cannula 2-6 lpm • Non-rebreather mask 8-15 lpm • Bag valve mask 15-25 lpm
PEDIATRIC DOSAGE/ROUTE	

OXYTOCIN (PITOCIN)

Oxytocin

DESCRIPTION	***Hormone***
INDICATIONS	***Postpartum hemorrhage refractory to fundal massage and skin therapy*** ***Hemorrhage Prophylaxis after field delivery***
CONTRAINDICATIONS	***Hypersensitivity toxemia pregnancy undelivered placenta undelivered baby***
PRECAUTIONS/SIDE EFFECTS	***Status of post cervical or uterine surgery*** ***Sepsis of uterine origin*** ***Primipara (first delivery) after age 35***
ADULT DOSAGE/ROUTE	• ***10 units in 250 mL wide open or 10 units IM*** ***Repeat up to a maximum dose of 50 units***
PEDIATRIC DOSAGE/ROUTE	• ***As directed by medical control***

PROMETHAZINE (PHERNERGAN®)

Promethazine

DESCRIPTION	***Anti-emetic***
INDICATIONS	***Vomiting***
CONTRAINDICATIONS	***Ages less than 2 years***
PRECAUTIONS/SIDE EFFECTS	***Can cause sedation, dystonic reaction, QT prolongation*** ***Consider decreased dose in elderly patients***
ADULT DOSAGE/ROUTE	• ***IV*** ***6.25-12.5 mg IV*** ***Repeat once as needed*** ***Always dilute in 10 mL saline*** • ***IM*** ***12.5-25 mg IM***
PEDIATRIC DOSAGE/ROUTE	• ***IV*** ***0.25 mg/kg IV diluted in 10 mL up to adult dose*** • ***IM*** ***0.5 mg/kg IM up to adult dose***

PROPARACAINE (ALCAINE®, OPTHETIC®, OPHTAINE®)

Proparacaine

DESCRIPTION	***Ocular anesthetic***
INDICATIONS	***Temporary ophthalmic anesthesia for eye injuries/pain***
CONTRAINDICATIONS	***None***
PRECAUTIONS/SIDE EFFECTS	***None***
ADULT DOSAGE/ROUTE	• ***2 drops/eye as needed***
PEDIATRIC DOSAGE/ROUTE	• ***Not indicated***

ROCURONIUM (ZEMURON®)

Rocuronium

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***
PRECAUTIONS/SIDE EFFECTS	***Caution in patients with hepatic dysfunction***
ADULT DOSAGE/ROUTE	• ***Defasciculating*** ***0.1 mg/kg*** • ***Paralysis*** ***0.6-1.2 mg/kg***
PEDIATRIC DOSAGE/ROUTE	• ***Same as adult – weight based***
NOTE	• ***Notify supervising physician as soon as possible following procedure. If additional paralysis is necessary following intubation, contact the supervising physician to discuss administering rocuronium 0.1 mg/kg IV***

SODIUM BICARBONATE

Sodium Bicarbonate

DESCRIPTION	***Alkaline solution***
INDICATIONS	***Tricyclic anti-depressant overdose*** ***Hyperkalemia*** ***Prolonged cardiac arrest***
CONTRAINDICATIONS	***None***
PRECAUTIONS/SIDE EFFECTS	***None***
ADULT DOSAGE/ROUTE	• ***1 mEg/kg IV*** ***Repeat as needed***
PEDIATRIC DOSAGE/ROUTE	• ***1 mEg/kg IV*** • ***Or refer to length-based resuscitation tape*** • ***Or as directed by poison control***

SUCCINYLCHOLINE (ANECTINE®, QUELICIN®)

Succinylcholine

DESCRIPTION	***Depolarizing paralytic***
INDICATIONS	***RSI for endotracheal intubation***
CONTRAINDICATIONS	***Hyperkalemia*** ***Personal or family history of malignant hyperthermia*** ***Pseudocholinesterase deficiency*** ***Organophosphate poisoning***
PRECAUTIONS/SIDE EFFECTS	***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***
ADULT DOSAGE/ROUTE	• ***1.5-2 mg/kg IV***
PEDIATRIC DOSAGE/ROUTE	• ***Same as adult – weight-based dose***

THIAMINE (VITAMIN B1)

Thiamine

DESCRIPTION	***Vitamin***
INDICATIONS	***Hypoglycemic patient with history of alcoholism*** ***Given prior to the administration of dextrose***
CONTRAINDICATIONS	***None***
PRECAUTIONS/SIDE EFFECTS	***None***
ADULT DOSAGE/ROUTE	• ***100 mg IV/IM***
PEDIATRIC DOSAGE/ROUTE	• ***Not indicated***

TRANEXAMIC ACID (TXA) (CYKLOKAPRON®, LYSTEDA®)

Tranexamic Acid (TXA)

DESCRIPTION	***Anti-fibrinolytic***
INDICATIONS	***Trauma patient with hemorrhagic shock*** ***Postpartum hemorrhage*** ***Contact medical control for other hemorrhagic shock***
CONTRAINDICATIONS	***Hypersensitivity*** ***Color blindness*** ***Isolated neuro-trauma***
PRECAUTIONS/SIDE EFFECTS	***May cause retinal injury*** ***May cause thromboembolic complications***
ADULT DOSAGE/ROUTE	• ***2 grams IV push***
PEDIATRIC DOSAGE/ROUTE	• ***Not protocolized. Contact medical control.***

TOOLS FOR EMS PROVIDERS – APPENDIX H

NORMAL VITAL SIGNS

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

RULES OF NINES FOR BURN VICTIMS

Rules 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

APGAR

APGAR

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

GLASGOW COMA SCALE AND PEDIATRIC GLASGOW COMA SCALE

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.

*A GCS or PGCS score of 13 higher correlates with a mild brain injury, 9 to 12 is a moderate injury, and 8 or less is a severe brain injury.

*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.

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

Pediatric Glasgow Coma Scale

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

CARDIAC ARREST COMPRESSION RATIOS

	Compressions	Ventilation	Rate	Special Considerations
Adult Over 8 years old	Continuous chest compressions More than 2 inches	Interpose 1 breath every 10th compression Rescue breathing every 5-6 seconds	110	Carotid artery pulse check Full chest recoil Switch compressor Q 2 minutes
Child 1 to 8 years old	1 rescuer – 30 compressions **2+ rescuers – 15 compressions** 1/3 depth of the chest	2 breaths after 30 compressions **2 breaths after 15 compressions** Rescue breathing every 2-3 seconds	110	Carotid/femoral artery pulse check **If pulse less than 60 with signs of poor perfusion, perform CPR** Full chest recoil Switch compressor Q 2 minutes
Infant 30 days to 1 year	1 rescuer – 30 compressions **2+ rescuers – 15 compressions** 1/3 depth of the chest Encircling hands technique	2 breaths after 30 compressions **2 breaths after 15 compressions** Rescue breathing every 2-3 seconds	110	Brachial artery pulse check **If pulse less than 60 with signs of poor perfusion, perform CPR** Full chest recoil Switch compressor Q 2 minutes
Neonate Birth to 30 days	3 compressions 1/3 depth of the chest Encircling hands technique	1 breath (position airway into sniffing position) **If pulse below 100 rescue breathe @ 40-60 times a minute**	120+	Brachial artery pulse check **If pulse less than 60 with signs of poor perfusion, perform CPR** Full chest recoil Switch compressor Q 2 minutes

PRE-HOSPITAL COMMUNICATIONS – APPENDIX I

Pre-Hospital Communications

1. **BLS short report format to incoming ALS unit:**
    - Unit identification
    - Age and sex of patient
    - Chief complaint
    - Very brief pertinent 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 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.

SKILLS – APPENDIX J

Scope of Practice: Each EMS Provider can perform the skills listed in their certification level plus the skills listed in section above their level. ***ALS-only skills are bold and Italicized***.

EMERGENCY MEDICAL RESPONDER SKILLS

- Automated External Defibrillation (AED)
- AED Algorithm
- Bag Valve Mask Ventilation
- Bleeding Control
- Escalating Restraints Guidelines
- Helmet Removal
- Immobilization:
  - Joint Immobilization
  - Long Bone Immobilization
  - Pelvic Wrap Splint
  - Spinal Immobilization Cervical Immobilization Decision Tool
  - Cervical Immobilization Decision Algorithm
  - Spinal Immobilization/Full Immobilization
- Mouth-to-Mask Ventilation with Supplemental Oxygen
- Oropharyngeal Airway
- Oxygen Administration
- Pulse Oximetry
- Suctioning
- Tourniquet Application (Commercial)

EMERGENCY MEDICAL TECHNICIAN SKILLS

- 12-lead ECG Setup
- Acute Coronary Syndrome Management
- Epi Administration
- Glucometry
- IV Line Setup
- Metered Dose Inhaler (MDI) Assist
- Nasopharyngeal Airway
- Nebulized Medication Administration (Mask or T-Tube)
- Supraglottic Airway (endorsement required)
- Traction Device

PARAMEDIC SKILLS

- ***Blood, Obtaining a Specimen***
- ***Cannulation:***
  - ***Femoral Intravenous***
  - ***Peripheral Intravenous***
  - ***Subclavian Intravenous***
- ***Capnography***
- ***Cricothyrotomy - Melker® Kit***
- ***Difficult Airway Management***
- ***Electrical Cardioversion***
- ***Intraosseous Infusion EZ-IO®***
- ***Intubation:***
  - ***Nasogastric***
  - ***Orotracheal***
- ***Manual Defibrillation***
- ***Needle Thoracentesis***
- ***Pericardiocentesis***

continued next page

PARAMEDIC SKILLS CONTINUED

- ***Point of Care Ultrasonography***
  - ***Pulse Checks POCUS***
  - ***Basic Cardiac Exam POCUS***
  - ***Thoracic Exam POCUS***
  - ***RUSH Exam POCUS***
  - ***E-FAST Exam POCUS***
  - ***POCUS Guided Central Venous Access***
  - ***POCUS Guided Peripheral Venous Access***
  - ***POCUS Guided Pericardiocentesis***
- ***Rapid Sequence Induction***
- ***Transcutaneous Pacing***
- ***Ventilation Mechanical***
- ***Ventilation Non-Invasive BiPAP®***

ACUTE CORONARY SYNDROME MANAGEMENT

Acute Coronary Syndrome Management

PROVIDER LEVEL:

- Emergency Medical Technician
- ***Paramedic***

INDICATIONS: Any of the following signs or symptoms:

- Uncomfortable "pressure," "fullness," "squeezing," or discomfort in the chest or neck that lasts more than a few minutes, or that goes away and comes back
- Discomfort that radiates to shoulders, neck, or arms
- Chest discomfort with lightheadedness, fainting, sweating, nausea, or dyspnea
- Symptoms similar to previous cardiac arrest event

-OR-

Patient exhibits any of the following signs or symptoms believed to be of cardiac origin

- ***Atypical chest, stomach, or abdominal discomfort***
- ***Unexplained nausea (without vomiting) or lightheadedness (not vertigo) without chest discomfort***
- ***Dyspnea and difficulty breathing (without chest discomfort)***
- ***Unexplained anxiety, weakness, or fatigue***
- ***Palpitations, cold sweat, or paleness***

CONTRAINDICATIONS:

- None

EQUIPMENT:

- Defibrillator

PROCEDURE:

1. General patient care procedures
2. Administer aspirin (Appendix G) as appropriate
3. ***Administer nitroglycerin (Appendix G)***
4. Prep patient for 12-lead ECG (Appendix J)
5. ***Capture 12-lead prior to moving patient and prior to ALS NTG administration***
6. ***Attach 12-lead to patient care report***
7. ***Prior to sending 12-lead, include patient name and age***
8. ***If evidence of STEMI exists, consult base station physician as early as possible***
9. ***Establish IV access (Appendix J)***
10. ***Administer fentanyl (Appendix G) as appropriate***
11. ***Treat rhythm disturbances as appropriate (Appendix A)***

AUTOMATED EXTERNAL DEFIBRILLATION (AED)

Automated External Defibrillation (AED)

PROVIDER LEVEL:

- Emergency Medical Responder
- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

- Patients greater than 1 Y/O who have confirmed circulatory arrest

CONTRAINDICATIONS:

- See Death in Field Criteria (Appendix C)

EQUIPMENT:

- Defibrillator

PROCEDURE:

1. Immediately upon arrival, verify respiratory and circulatory arrest by the absence of consciousness, normal respirations, and a carotid pulse.
2. Initiate CPR and resuscitation protocols. If it is an unwitnessed cardiac arrest, perform CPR for 2 minutes before initiating defibrillation protocol.
3. Turn the defibrillator power on and begin a verbal report.
4. Immediately attach the defibrillation pads with cables to the patient's chest.
5. Clear patient to analyze the patient's rhythm.
   *Chest compressions should be performed during charging cycle. *
   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.
      - If a shock is indicated, immediately charge, and deliver a single shock. After a single shock, begin 2 minutes of CPR. *
      - If no shock is indicated, immediately check pulse.
        - If no pulse, then begin 2 minutes of CPR.
        - If a pulse is detected, provide other care per algorithm.

continued next page

Automated External Defibrillation (AED) Cont.

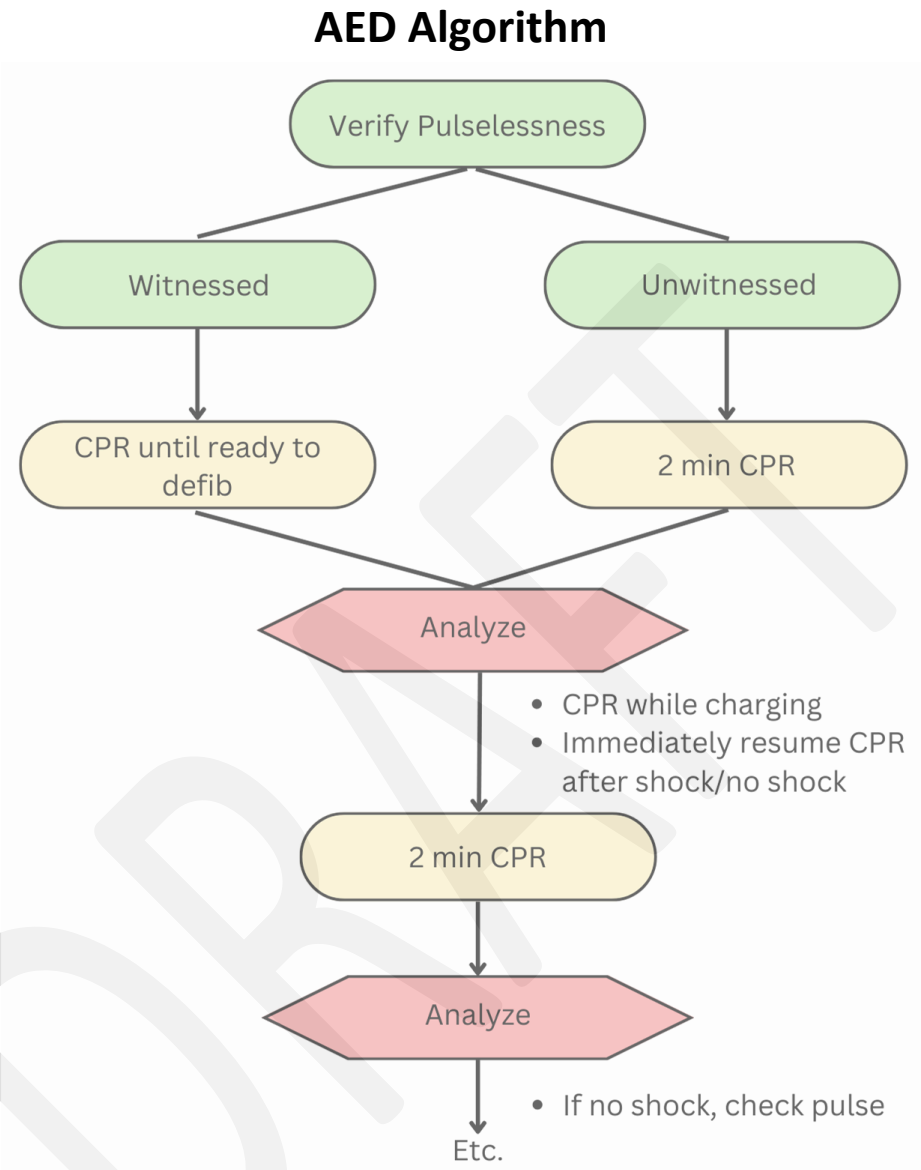
PEDIATRIC GUIDELINES:

- Pediatric arrest: For children <1 year old, verify cardiac arrest and begin effective CPR. DO NOT initiate defibrillation protocol.
- For children 1 to 8 years old use pediatric pads and pediatric CPR protocol.
- For children greater than 8 years of age: Follow adult defibrillation protocol.

SPECIAL PATIENT GUIDELINES:

- 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.
- 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.
- 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. Provider AED download to Medic One immediately following incident

BAG VALVE MASK VENTILATION

Bag Valve Mask Ventilation

PROVIDER LEVEL:

- Emergency Medical Responder
- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

- Patients in respiratory arrest
- Patients who are hypoventilating

CONTRAINDICATIONS:

- Patients who are resisting ventilatory assistance

EQUIPMENT:

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

PREPARATION:

1. Assemble oxygen regulator and tank
2. Connect tubing between regulator and port on rear of bag
3. Place mask on the bag
4. Adjust flow rate of oxygen to at least 15 lpm
5. If equipped with PEEP, set at 5 mmH2O for any patient with SYB > 100 mm Hg

PROCEDURE:

FATS TECHNIQUE (NON-TRAUMA PATIENT):

1. Manually open the airway and insert OPA/NPA
2. Seal the face mask against the patient's face using the FATS technique
3. Ventilate at the appropriate rate and volume for the patient, allowing for passive exhalation

TWO-PERSON BAG VALVE MASK:

- Trauma Patients
- Unknown MOI
- Non trauma patients that are difficult to ventilate

1. Using C-spine precautions (as necessary), rescuers position patient supine
2. First rescuer opens the airway using the jaw thrust maneuver

continued next page

Bag Valve Mask Ventilation Cont.

PROCEDURE CONTINUED:

TWO-PERSON BAG VALVE MASK:

3. Select/insert correct size airway adjunct
4. First rescuer maintains open airway
5. Second rescuer places apex of mask over bridge of the nose
6. 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
7. Second rescuer attaches bag to face mask and gently squeezes the bag between two hands to ventilate the patient

SEATED BAG VALVE MASK:

1. Connect BVM to oxygen source (min. 15 LMP), fill reservoir bag.
2. Remove the oxygen adjunct that previously was in use.
3. Slowly move BVM into position on the patient's face, allowing the patient to begin breathing high flow oxygen.
4. 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.
5. Begin to gently squeeze the bag, making sure to time the ventilations in concert with the patient's inhalations.
6. 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.
7. If the process is interrupted at any time, simply start over, attempting to regain the patient's confidence.

BLEEDING CONTROL

Bleeding Control

PROVIDER LEVEL:

- Emergency Medical Responder
- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

- Patient with uncontrolled bleeding

CONTRAINDICATIONS:

- None

EQUIPMENT:

- Bandage materials
- BP cuff
- Commercial tourniquet

PREPARATION:

- Selecting bandaging material

PROCEDURE:

1. Apply direct pressure on the wound until bleeding is controlled.
2. If bleeding is not controlled with direct pressure, use an escalating treatment plan of elevation above the level of the heart, and pressure points.
3. After bleeding is controlled, apply dressing and bandage.
4. If above measures are ineffective, apply a BP cuff or commercial tourniquet proximal to the wound.

BLOOD/OBTAINING BLOOD SPECIMENS

Obtaining Blood Specimens

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

- ***Altered or decreased mental status***
- ***Hypovolemia***
- ***Request of law enforcement***

CONTRAINDICATIONS:

- ***None in the emergent setting***

EQUIPMENT:

GLUCOSE TESTING:

- ***Lancet***
- ***Alcohol wipe***
- ***Adhesive bandage***
- ***Glucometer***

BLOOD DRAW:

- ***IV start equipment***
- ***10 mL syringe***
- ***Vacutainer holder with female adapter***
- ***7 mL purple-top blood tube (or law enforcement-provided kit)***
- ***Blood band***

PREPARATION:

GLUCOSE TESTING:

- ***Clean the site***
- ***Prepare the glucometer***

BLOOD DRAW:

- ***Start IV and remove needle from catheter***

PROCEDURE:

GLUCOSE TESTING:

1. ***Obtain specimen***
2. ***Test specimen per manufacturer instructions***

BLOOD DRAW:

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

CAPNOGRAPHY

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 CO_2 measuring device***
- ***Capnograph (e.g., LP12® or Nonin®)***
- ***Appropriate adjuncts to apply to patient***

PREPARATION:

- ***Assemble necessary equipment***

PROCEDURE:

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

Note: The absence of returned end-tidal CO_2 in a patient who is in cardiac arrest is not itself an indication for extubation but should cause the paramedic to further investigate the placement of the ETT

PEDIATRIC CONSIDERATIONS:

- ***Colorimetric devices must be specified for pediatric size and are not used with spontaneously breathing patients***

CRICOTHYROTOMY

Cricothyrotomy

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

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

CONTRAINDICATIONS:

- ***Ventilation possible by less invasive means***

EQUIPMENT:

- ***Povidone-iodine***
- ***Scalpel***
- ***Tracheal hook***
- ***Rakes***
- ***Endotracheal or tracheostomy tube***
- ***Eschmann stylette***
- ***Melker® kit***

PREPARATION:

- ***Prep neck with Povidone-iodine***

PROCEDURE:

MELKER® APPROACH:

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

OPEN APPROACH:

1. ***Identify the cricothyroid membrane***
2. ***Make a 3 cm vertical incision over the membrane***
3. ***With rakes or skin traction, retract skin and expose membrane***
4. ***Make a horizontal incision through the membrane***
5. ***Dilate incision with gloved finger or handle of scalpel***
6. ***May retract caudal end of the trachea with tracheal hook***

continued next page

Cricothyrotomy Cont.

PROCEDURE CONTINUED:

OPEN APPROACH:

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 CO_2 detector and auscultate breath sounds to confirm placement***
11. ***Secure tube***

PEDIATRIC CONSIDERATIONS:

- ***Not indicated for pediatric patients***

DIFFICULT AIRWAY MANAGEMENT

Difficult Airway Management

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

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

CONTRAINDICATIONS:

- ***None in the setting of patients needing positive airway control***

EQUIPMENT:

- ***Eschmann stylette***
- ***LMA***
- ***Melker® Emergency Cricothyrotomy Catheter Set***
- ***Prism***
- ***Rakes***
- ***Scalpel***
- ***Tracheal hook***

PREPARATION:

1. ***Gather and prepare proper equipment***

PROCEDURE:

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

PEDIATRIC CONSIDERATIONS:

- ***Size-appropriate equipment should be used***

ELECTRICAL CARDIOVERSION

Electrical Cardioversion

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

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

CONTRAINDICATIONS:

- ***Relative: Immediate cardioversion generally is not needed if heart rate is ≤150***

EQUIPMENT:

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

PREPARATION:

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

PROCEDURE:

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

PEDIATRIC CONSIDERATIONS:

- ***Use pediatric remote defibrillator pads***
- ***Use length-based resuscitation tape for energy levels (0.5-1.0 J/kg)***

12-LEAD ECG SETUP

12-Lead ECG Set-up

PROVIDER LEVEL:

- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

- ACS symptoms

CONTRAINDICATIONS:

- Other patient care priorities (e.g., oxygen, CPR)

EQUIPMENT:

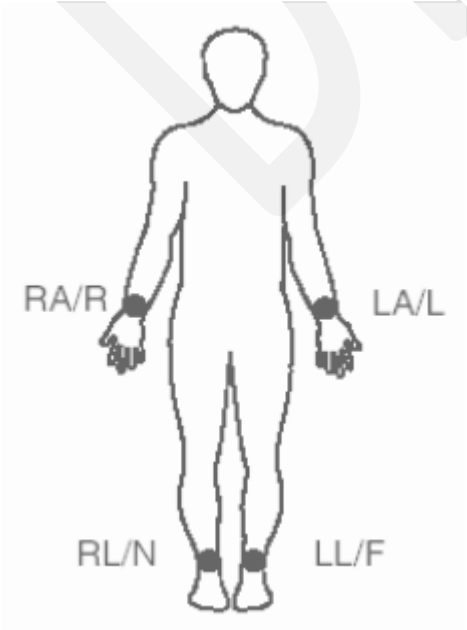
- Gown
- Electrodes
- Towel
- Disposable razor

PREPARATION:

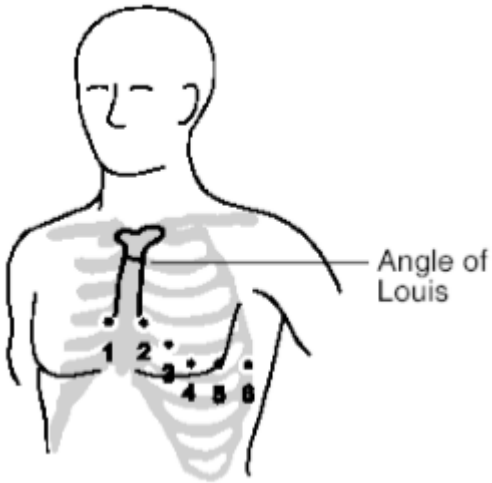
- Identify electrode sites as shown below
- Dry electrode sites vigorously with towel; shave body hair if necessary

PROCEDURE:

1. Attach the limb electrodes as shown below:



2. Attach the precordial electrode to the chest wall as shown below:



EPI ADMINISTRATION

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 1:1,000 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:

1. Assure medication is not cloudy or crystallized. If medication is cloudy or crystallized, contact ALS for direction
2. Check expiration date. If medication is expired, contact ALS for direction
3. Remove cap from vial, sterilize top with alcohol if necessary
4. Select appropriately sized needle/syringe & pull back syringe to desired dose
5. Insert needle into vial, push air from syringe into medication
6. Pull back on plunger to draw medication into syringe just past desired dose and withdraw syringe
7. 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 sharps container and return to Medic One
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

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

continued next page

Femoral Intravenous Cannulation Cont.

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

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

Helmet Removal

PROVIDER LEVEL:

- Emergency Medical Responder
- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

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

CONTRAINDICATIONS:

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

EQUIPMENT:

- Instrument to cut chin strap, if necessary
- Backboard

PROCEDURE:

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

INTRAOSSEOUS INFUSION EZ-IO®

Intraosseous Infusion EZ-IO

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

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

CONTRAINDICATIONS:

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

EQUIPMENT:

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

PREPARATION:

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

PROCEDURE:

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

continued next page

Intraosseous Infusion EZ-IO Cont.

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

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:

1. Remove administration set from dust cover
2. Remove IV bag from dust cover
3. Remove sterile cover from administration set
4. Ensure sterility of uncovered parts is maintained
5. Remove sterile cover from IV bag
6. Puncture membrane of IV bag with pointed end of administration set
7. Close roller clamp on administration set
8. Compress and release administration set drip chamber until chamber fills approximately half-full
9. Bleed air from remainder of administration line by opening roller clamp until saline reaches end of line
10. Remove cap from end when asked to do so by provider starting IV

JOINT IMMOBILIZATION

Joint Immobilization

PROVIDER LEVEL:

- Emergency Medical Responder
- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

- Obviously deformed joint associated with trauma

CONTRAINDICATIONS:

- If it would delay transport of a critical patient

EQUIPMENT:

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

PREPARATION:

- Measure and assemble splinting materials as needed

PROCEDURE:

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

LONG BONE IMMOBILIZATION

Long Bone Immobilization

PROVIDER LEVEL:

- Emergency Medical Responder
- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

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

CONTRAINDICATIONS:

- If it would delay transport of a critical patient

EQUIPMENT:

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

PROCEDURE:

1. Check for distal PMS
2. Apply gentle tension realign bone into gross anatomical position prior to applying splinting material unless this causes severe discomfort
    a. 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
    b. Manually immobilize fracture until arrival of ALS
3. Apply the appropriately sized split and pad as needed
4. Reassess the distal PMS after splint is secured (if absent, expedite transport)
    a. Apply cold pack(s) as needed
    b. Splint hands and feet in a position of function

MANUAL DEFIBRILLATION

Manual Defibrillation

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

- ***Ventricular fibrillation***
- ***Pulseless ventricular tachycardia***

CONTRAINDICATIONS:

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

EQUIPMENT:

- ***Manual defibrillator***
- ***Remote defibrillator pads***

PREPARATION:

- ***If using remote defibrillation pads, position on the patient (sternum-apex)***

PROCEDURE:

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

PEDIATRIC CONSIDERATIONS:

- ***Use pediatric remote defibrillator pads or***
- ***Use length-based resuscitation tape for energy levels (0.5-1.0 J/kg)***

METERED DOSE INHALER (MDI) ASSIST

Metered Dose Inhaler (MDI) Assist

PROVIDER LEVEL:

- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

- Patient has a prescribed MDI of albuterol, Proventil®, or Ventolin®, and
    - Patient exhibiting signs and symptoms of breathing difficulty presumed secondary to asthma or COPD
    - Dyspnea unrelieved by epinephrine or anaphylaxis, in patients with asthma or COPD and has BP of at least 90 mm Hg

CONTRAINDICATIONS:

- Patient in respiratory arrest

EQUIPMENT:

- Patient's MDI
- Spacer

PREPARATION:

- Remove cap from MDI
- Attach spacer to MDI

PROCEDURE:

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

MOUTH-TO-MOUTH VENTILATION WITH SUPPLEMENTAL OXYGEN

Mouth-to-Mouth Ventilation with Supplemental Oxygen

PROVIDER LEVEL:

- Emergency Medical Responder
- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

- Unconscious patient with inadequate respirations
- Respiratory arrest

CONTRAINDICATIONS:

- Conscious or unconscious patient with adequate respirations

EQUIPMENT:

- Pocket mask
- One-way valve
- Oxygen tubing
- Oxygen regulator
- Oxygen tank

PREPARATION:

1. Attach one-way valve to pocket mask
2. Attach oxygen tubing to pocket mask and regulator
3. Adjust oxygen flow to 15 liters per minutes

PROCEDURE:

1. Obtain mask-to-face seal
2. Ventilate patient at proper rate and volume

NASOGASTRIC TUBE INSERTION (NG TUBE)

Nasogastric Tube Insertion (NG Tube)

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

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

CONTRAINDICATIONS:

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

EQUIPMENT:

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

PREPARATION:

- ***Gather equipment***

PROCEDURE:

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

PEDIATRIC CONSIDERATIONS:

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

NASOPHARYNGEAL AIRWAY

Nasopharyngeal Airway

PROVIDER LEVEL:

- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

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

CONTRAINDICATIONS:

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

EQUIPMENT:

- Nasopharyngeal airway
- Water-soluble lubricant

PREPARATION:

- Measure airway from tip of nose to earlobe

PROCEDURE:

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

NEBULIZED MEDICATION ADMINISTRATION (MASK OR T-TUBE)

Nebulized Medication Administration

PROVIDER LEVEL:

- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

- Patient condition indicates administration of nebulized medication.

CONTRAINDICATIONS:

- Patient in respiratory arrest

EQUIPMENT:

- Nebulizer
- Oxygen bottle with regulator
- Medication

PREPARATION:

1. Select a nebulizer delivery method based on the patient's ability to hold the device and coordinate inhalation and breathing technique
    a. If using the hand-held delivery, attach the reservoir hose and mouthpiece to opposite ends of the "T" fitting
    b. If using a mask delivery, use a nebulizer mask or remove the reservoir bag and the one-way valves (flaps) from a non-rebreather mask
2. Assemble the medication cup by screwing the top and bottom sections together.
    a. Most nebulizer medication cups must be kept upright to avoid spilling the medication
3. Inspect the medication
4. Place the medication into the medication cup and attach it to the bottom of the "T" fitting or mask
5. Attach the oxygen tubing to the inlet port of the medication cup. Attach the other end to an oxygen source capable for delivering a 6 - lpm flow

PROCEDURE:

1. Provide supplemental oxygen and/or ventilatory assistance as necessary
2. Allow the patient to achieve a position of comfort
3. Explain procedure to the patient:
    a. Seal lips around the mouthpiece of the hand-held nebulizer or place mask on patient
    b. Take slow breaths and inhale as deeply as possible
    c. Hold breath as long as comfortably able, up to 10 seconds
    d. Continue until the medication is gone and there is no misting

continued next page

Nebulized Medication Administration Cont.

PROCEDURE CONTINUED:

4. Remove supplemental oxygen from patient
5. Start nebulizer with oxygen at 6 - lpm adjust until it makes a fine mist. The mist should "disappear" with each breath. Much of the mist that can be seen is too large to be absorbed
6. Encourage patient to take slow, deep breaths until the medicine is gone from the medication cup.
    a. As the medication is administered and the level drops in the medication cup, the cup may need to be tapped to deliver all the medication
7. If medic unit is not on scene 10 minutes after last puff and patient still is in respiratory distress, place another dose of Albuterol into the medication cup and repeat Steps 3-6
8. Replace supplemental oxygen when the treatment is completed
9. Chart the time of administration and number of doses administered
10. Treatment can be discontinued at any time if the patient is no longer in respiratory distress

CRITICAL CRITERIA:

Before administering any medication, always be certain you have the "six rights:" the right patient, the right medication, the right dose, the right time, the right route, and the right documentation

NEEDLE THORACENTESIS

Needle Thoracentesis

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

- ***Tension pneumothorax***

CONTRAINDICATIONS:

- ***None in setting of tension pneumothorax***

EQUIPMENT:

- ***Thoracentesis (Cook®) kit or another approved device***
- ***10-14 g angiocath***
- ***Tape***

PREPARATION:

- ***Select injection site and prepare with a povidone-iodine solution***

PROCEDURE:

1. ***Select appropriate site for insertion***
    a. ***Insert an appropriately sized over-the-needle catheter in the mid-clavicular line at the 2nd intercostal space at a 90-degree angle by walking the needle over the top of the third rib***
    b. ***Insert an appropriately sized over-the-needle catheter in the midaxillary line at the 4th or 5th intercostal space at a 90-degree angle by walking the needle over the top of the distal 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***

OROPHARYNGEAL AIRWAY

Oropharyngeal Airway

PROVIDER LEVEL:

- Emergency Medical Responder
- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

- Unconscious patient without a gag reflex

CONTRAINDICATIONS:

- Patient with a gag reflex

EQUIPMENT:

- Tongue depressor
- Oropharyngeal airway
- Suction

PREPARATION:

- Measure airway from corner of mouth to earlobe, or center of lips to angle of jaw

PROCEDURE:

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

PEDIATRIC CONSIDERATIONS:

- Use tongue depressor to pull the base of the tongue away from the pharynx
- Insert OPA with curve following curse of tongue

OROTRACHEAL INTUBATION

Orotracheal Intubation

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

- ***Patient undergoing RSI***
- ***Unconscious without a gag reflex***

CONTRAINDICATIONS:

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

EQUIPMENT:

- ***BVM***
- ***Commercially manufactured, purpose-made tracheal tube holder***
- ***Endotracheal tube (variety of sizes)***
- ***End-tidal CO_2 monitoring equipment/device***
- ***Laryngeal handle/blades***
- ***OPA/NPA***
- ***Oxygen tank with regulator***
- ***Pulse oximeter***
- ***Stylette***
- ***Syringe***
- ***Suction***

PREPARATION:

- ***Assemble and check required equipment***

PROCEDURE:

1. ***Use continuous pulse oximetry throughout procedure***
2. ***Apply cricoid pressure until intubation is achieved***
3. ***Perform ET intubation; each attempt lasts no longer than 30 seconds, with re-oxygenation between attempts***
4. ***Each paramedic shall make no more than 2 attempts (total of 4 attempts) before implementing alternative methods of airway control (e.g., LMA)***
5. ***Confirm tube placement with auscultation and continuous end-tidal CO_2 monitoring***
6. ***Secure tube with commercial tube holder***
7. ***Insert naso- or oro-gastric tube***
8. ***Must have continuous oximetry, capnometry, and BP (every 5 minutes) measurement by the defibrillator***
9. ***Attach code summary to patient care report***

continued next page

Orotracheal Intubation Cont.

PEDIATRIC CONSIDERATIONS:

- ***Insert naso- or oro-gastric tube***
- ***Use length-based resuscitation tape to estimate equipment seizes***
- ***Confirm tube placement with auscultation and continuous end-tidal CO_2 monitoring***

OXYGEN ADMINISTRATION

Oxygen Administration

PROVIDER LEVEL:

- Emergency Medical Responder
- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

- Suspected hypoxia

CONTRAINDICATIONS:

- None in the setting of hypoxia

EQUIPMENT:

- Oxygen cylinder
- Oxygen regulator
- Oxygen delivery device

PREPARATION:

1. Ensure that the cylinder contains at least 500 PSI of oxygen
2. Ensure that the regulator is securely fastened and does not leak with pressurized
3. Attach the delivery device to the regulator, and begin the flow of life-saving oxygen
4. Set the flow at the desired rate (fill the reservoir prior to placing on patient)

PROCEDURE:

1. Explain the procedure to the patient
2. Place the delivery device on the patient and adjust to patient's comfort

PELVIC WRAP SPLINT

Pelvic Wrap Splint

PROVIDER LEVEL:

- Emergency Medical Responder
- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

- Patients with a suspected pelvic fracture
- Unresponsive patient with blunt trauma and signs of shock

CONTRAINDICATIONS:

- Hip fracture
- Proximal femur fracture

EQUIPMENT:

- Bed sheet
- Towel clips (4)
- Commercially approved device

PREPARATION:

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

PROCEDURE:

SHEET METHOD

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

COMMERCIAL DEVICE

1. Apply commercial device, approved by the MPD, according to manufacturer's instructions

PERICARDIOCENTESIS

Pericardiocentesis

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

- ***Signs and symptoms of cardiac tamponade***

CONTRAINDICATIONS:

- ***None in setting of tamponade***

EQUIPMENT:

- ***Povidone-iodine wipes***
- ***14g 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

Peripheral Intravenous Cannulation

ANNUAL MPD REQUIRED TRAINING FOR EXTERNAL JUGULAR ACCESS

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

- ***Hypovolemia***
- ***Administration of medications***
- ***Potential need for fluid or medication administration***

CONTRAINDICATIONS:

- ***None in emergent setting***

EQUIPMENT:

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

PREPARATION:

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

PROCEDURE:

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

PEDIATRIC CONSIDERATIONS:

- ***IV tubing should utilize a safety measure (e.g., Volutrol) to prevent unintentional fluid boluses***

POINT OF CARE ULTRASONOGRAPHY (POCUS)

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)***
  - ***Dyspnea***
  - ***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:

- ***Dependent on procedure, see individual protocol***

PROCEDURE:

- ***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 <u>cannot rule out</u> pathology in the appropriate clinical settings***

PULSE CHECKS - POCUS

Pulse Checks POCUS

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

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

- ***Cardiac arrest***

CONTRAINDICATIONS:

- ***Other patient care priorities***

EQUIPMENT:

- ***Ultrasound probe***
- ***Ultrasound gel***
- ***Tablet or screen***

PROCEDURE:

1. ***Save image and record incident number in software***
2. ***Vascular preset, linear array probe, doppler (color or pulse wave) mode***
3. ***Record at least one clip of vessel, ideally during pulse check***
4. ***Place probe over carotid/femoral artery and assess for compressibility and pulsatility***
5. ***<u>Position probe while CPR is ongoing to reduce time off the chest</u>. Pulse checks should remain <u>no more than 5 seconds</u>***
6. ***Once chest compressions have paused, assess artery for compressibility/pulsatility and attempt to visualize flow pattern***
7. ***Document POCUS use in ePCR per dropdowns or narrative guides***

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 <u>cannot rule out</u> pathology***

BASIC CARDIAC EXAM – POCUS

Basic Cardiac Exam POCUS

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

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

- ***Shortness of breath***
- ***Chest pain***
- ***Hypotension***

CONTRAINDICATIONS:

- ***Other patient care priorities***

EQUIPMENT:

- ***Ultrasound probe***
- ***Ultrasound gel***
- ***Tablet or screen***

PROCEDURE:

1. ***Save image and record incident number in software***
2. ***Save a minimum of two views & include pathology***
    - ***Parasternal long***
    - ***Parasternal short***
    - ***Subxiphoid***
    - ***Apical***
3. ***Look for fluid around heart***
    - ***If present consider pericardial effusion or hemopericardium; beware fat pad and pleural effusion as mimics***
4. ***Look for adequacy of squeeze (contractility, mitral valve excursion)***
    - ***If decreased, concerning of heart failure***
5. ***Look for signs of RV strain such as D-sign, engorged RV***
    - ***If present, consider large PE***
6. ***Document POCUS use in ePCR per dropdowns or narrative guides***

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 <u>cannot rule out</u> pathology***

THORACIC EXAM – POCUS

Thoracic Exam POCUS

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

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

- ***Shortness of breath***
- ***Hypoxia***
- ***Hypotension***

CONTRAINDICATIONS:

- ***Other patient care priorities***

EQUIPMENT:

- ***Ultrasound probe***
- ***Ultrasound gel***
- ***Tablet or screen***

PROCEDURE:

1. ***Save image and record incident number in software***
2. ***Save a minimum of one image from each side, include pathology***
3. ***Obtain images from apex, midaxillary and basal lung on each side***
4. ***Look for lung sliding, use M-mode if uncertain***
    - ***If absent or lung point sign, concerning for pneumothorax***
5. ***Look for fluid in the pleural space***
    - ***If present, consider hemothorax of pleural effusion***
6. ***Look for B-lines***
    - ***If focal, consider pneumonia***
    - ***If diffuse, consider congestive heart failure***
7. ***Document findings in ePCR per dropdowns or narrative guides***

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 <u>cannot rule out</u> pathology***

RUSH EXAM - POCUS

Rush Exam POCUS

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:

1. ***Save image and record incident number in software***
2. ***Save image of:***
    - ***Bilateral lungs***
    - ***One adequate cardiac view***
    - ***RUQ (renal-hepatic interface and liver tip)***
    - ***One view of aorta***
    - ***One view of IVC***
3. ***Expose, and prepare ultrasound sites, using the HI-MAP method evaluate for the following:***
    - ***CARDIAC (Heart) (pick best two views: subxiphoid/parasternal, long/short/apical 4 chamber)***
        - ***Heart failure***
        - ***Massive PE***
        - ***Tamponade***

continued next page

Rush Exam POCUS Cont.

PROCEDURE CONTINUED:

- ***IVC***
  - ***Deflated, skinny, collapses with 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***
- ***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***

4. ***Document POCUS use in ePCR per dropdowns or narrative guides***

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 <u>cannot rule out</u> pathology***

E-FAST EXAM POCUS

E-Fast Exam POCUS

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 any criteria in WTTT***
- ***Multisystem ALS trauma***

CONTRAINDICATIONS:

- ***Other patient care priorities***

EQUIPMENT:

- ***Ultrasound probe***
- ***Ultrasound gel***
- ***Tablet or screen***

PROCEDURE:

1. ***Save image and record incident number in software***
2. ***Save image of:***
    - ***Bilateral lungs (look at apex and base bilaterally, save one image on each side)***
    - ***Adequate cardiac view***
    - ***RUQ (renal-hepatic interface and liver tip)***
    - ***Pelvic***
    - ***LUQ (dome of spleen)***
3. ***Expose and prepare sites (cardiac, RUQ, LUQ, pelvic, or lungs):***
    - ***CARDIAC***
        - ***Look for: Pericardial effusion (circumferential)***
    - ***RUQ (Tip of the 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***

continued next page

E-Fast Exam POCUS Cont.

PROCEDURE CONTINUED:

- ***PULMONARY***
  - ***Pneumothorax/hemothorax***
  - ***Free fluid***

4. ***Document POCUS use in ePCR per dropdowns or narrative guides***

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 <u>cannot rule out</u> pathology***

POCUS GUIDED CENTRAL VENOUS ACCESS

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 and clean site***
5. ***Cover the probe with a (preferably) sterile dressing or clean cover (like occlusive dressing, glove, or sterile glove)***

PROCEDURE:

- ***Save image and record incident number in software***

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***
    - ***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***

continued next page

POCUS Guided Central Venous Access Cont.

PROCEDURE CONTINUED:

FEMORAL INTRAVENOUS CANNULATION:

2. ***Save image of procedure target***
3. ***Comfortably abduct and externally rotate the leg***
4. ***Cannulate the Vein***
    a. ***Puncture the skin 1cm medial to femoral artery and 2-4cm 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***
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 patient***
8. ***Document POCUS use in ePCR per dropdowns or narrative guides***

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.***
    - ***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. ***Save image of procedure target***
3. ***Cannulate the Vein***
    a. ***Turn patients 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. ***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 patient***
7. ***Document POCUS use in ePCR per dropdowns or narrative guides***

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POCUS Guided Central Venous Access Cont.

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 <u>cannot rule out</u> pathology***

POCUS GUIDED PERIPHERAL VENOUS ACCESS

POCUS Guided Peripheral Venous Access

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

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

- ***Peripheral vascular access unavailable by other means***

CONTRAINDICATIONS:

- ***Other patient care priorities***

EQUIPMENT:

- ***(Ultrasound probe, ultrasound gel, tablet, or screen)***
- ***Alcohol wipe/s***
- ***Chlorhexidine/ Povidone-iodine wipe***
- ***Over the needle IV catheter***
- ***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 and clean site***
    a. ***Basilic veins generally offer the best site with arm placed above and behind the patient's head.***
5. ***Cover the probe with a (preferably) sterile dressing or clean cover (like occlusive dressing, glove, or sterile glove)***

PROCEDURE:

- ***Save image and record incident number in software***

SHORT AXIS:

1. ***Visualize the vein in the cross section***
2. ***Save image of procedure target***
3. ***Follow the needle tip until it enters the vein***
4. ***Stabilize the needle, and advance the catheter***
5. ***Remove the needle from the catheter***

continued next page

POCUS Guided Peripheral Venous Access Cont.

PROCEDURE CONTINUED:

SHORT AXIS:

6. ***Draw blood sample if needed***
7. ***Attach the IV tubing to the catheter and flush to ensure the catheter is patient***
8. ***Document POCUS use in ePCR per dropdowns or narrative guides***

LONG AXIS:

1. ***Needle and vessel kept in the same plane***
2. ***Save image of procedure target***
3. ***Transducer should remain stationary as needle enters the skin***
4. ***Needle should be followed into the lumen of the vessel***
5. ***Stabilize the needle, and advance the catheter***
6. ***Remove the needle from the catheter***
7. ***Draw blood sample if needed***
8. ***Attach the IV tubing to the catheter and flush to ensure the catheter is patient***
9. ***Document POCUS use in ePCR per dropdowns or narrative guides***

CONSIDERATIONS:

- ***Targets on the upper medial arm are generally more easily visualized however proximal arm may be more reliable***
- ***Brachial vein generally is <u>not</u> a good target due to proximity to never 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

POCUS Guided Pericardiocentesis

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

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

- ***Signs or symptoms of cardiac tamponade, traumatic cardiac arrest***
- ***Supportive US findings:***
  - ***Right atrial and right ventricular diastolic collapse***
  - ***Plethoric IVC that lacks respiratory variation***
  - ***Circumferential pericardial effusion***

CONTRAINDICATIONS:

- ***Relative, other patient care priorities***

EQUIPMENT:

- ***Ultrasound probe, ultrasound gel, tablet, or screen***
- ***Chlorhexidine/Povidone-iodine wipe***
- ***14g x 3.25" or 14g x 5.25" needle***
- ***20mL syringe***

PREPARATION:

1. ***Prepare a large area with chlorhexidine/povidone-iodine***
2. ***Attach the syringe to the needle***
3. ***Cover the probe with a (preferably) sterile dressing or clean cover (like occlusive dressing, glove, or sterile glove)***

PROCEDURE:

- ***Save image and record incident number in software***

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)***

continued next page

POCUS Guided Pericardiocentesis Cont.

PROCEDURE CONTINUED:

SUBXIPHOID (SX) APPROACH:

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***
8. ***Document POCUS use in ePCR per dropdowns or narrative guides***

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.***
    - ***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***
6. ***Document POCUS use in ePCR per dropdowns or narrative guides***

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

Pulse Oximetry

PROVIDER LEVEL:

- Emergency Medical Responder
- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

- Patients with signs of respiratory distress or dyspnea

CONTRAINDICATIONS:

- None

EQUIPMENT:

- Pulse oximeter
- Pulse oximeter probe

PREPARATION:

1. Remove nail polish if necessary

PROCEDURE:

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

PEDIATRIC CONSIDERATIONS:

- Use pediatric probe; alternative sites are possible (earlobe, toes, foot, hand)

RAPID SEQUENCE INDUCTION

Rapid Sequence Induction

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

- ***Ventilatory insufficiency (SpO_2 less than 88 percent refractory to other interventions)***
- ***Severe respiratory distress***
- ***Respiratory arrest***
- ***Suspected closed head injury with GCS less than 9***
- ***Altered or decreased mental status with respiratory compromise***
- ***Potential for airway compromise due to acute burns, neck or midfacial trauma, or anaphylaxis***
- ***Patient is unconscious, flaccid, and has no gag reflex***

RELATIVE CONTRAINDICATIONS:

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

EQUIPMENT:

- ***Patent and secured IV***
- ***RSI medications***
- ***BVM***
- ***OPA***
- ***Oxygen tank with regulator***
- ***Laryngoscope handle/blades***
- ***Endotracheal tube (variety of sizes)***
- ***Stylette***
- ***Syringe***
- ***Suction***
- ***Esophageal bulb detector***
- ***End-tidal CO_2 monitoring equipment/device***
- ***Pulse oximeter***
- ***Commercially manufactured, purpose-made tracheal tube holder***

PREPARATION:

1. ***Assemble and check required equipment***
2. ***Calculate and prepare doses of pre-medication, sedative, and paralytic***
3. ***Pre-oxygenate using bag valve mask and cricoid pressure. If possible, attempt to raise SpO_2 to at least 94 percent over 1-2 minutes***

continued next page

Rapid Sequence Induction Cont.

PROCEDURE:

1. ***Continuous pulse oximetry is required throughout procedure***
2. ***Pre-medicate patient as appropriate:***
    - ***Rocuronium (defasciculating dose): 0.1 mg/kg***
    - ***Atropine (for ages under 7 Y/O): 0.01 mg/kg IV (min 0.1 mg, max 0.5 mg)***
    - ***Etomidate (for sedation of conscious patient): 0.30 mg/kg***
    - ***Fentanyl: 1.5 microgram/kg***
    - ***Succinylcholine: 1.5-2.0 mg/kg IV***
3. ***Maintain cricoid pressure during intubation attempt(s)***
4. ***Perform ET intubation***
5. ***Confirm tube placement using esophageal bulb immediately following intubation***
6. ***Continuous quantitative end-tidal CO_2 monitoring is required following intubation***
7. ***Secure tube with a commercially manufactured tracheal tube holder***
8. ***Insert gastric tube and apply suction***
9. ***If sedation is necessary following intubation, administer midazolam 5 mg IV, 2 mg IV prn***
10. ***Notify supervising physician as soon as possible following procedure. If additional paralysis is necessary following intubation, contact the supervising physician to discuss administering rocuronium 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

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:

- Emergency Medical Responder
- Emergency Medical Technician
- ***Paramedic***

INDICATIONS: All of the following must apply:

- 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:

- Patient has decision-making capacity and refuses care
- Lack of personnel or equipment

EQUIPMENT:

- Soft restraints x4
- Spit mask
- Gurney or backboard
- ***IV access (ALS only)***
- ***Airway equipment (ALS only)***
- ***Sedative medication (ALS only)***

PREPARATION:

- 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.

continued next page

Escalating Restraints Guidelines Cont.

PROCEDURE:

ESTABLISH THAT PATIENT DOES NOT HAVE DECISION-MAKING CAPACITY:

1. Make every attempt to verbally de-escalate the patient and bargain as time and conditions permit.
2. Leverage all resources available including engaging friends and family members, as appropriate, to negotiate patient compliance.
3. 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.
4. 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.
5. 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.
6. Once physically restrained, as time and conditions permit, complete physical assessment to include vital signs, airway, respiratory, cardiac, and neurologic assessments, and document.
7. Assess and document limb perfusion and any injuries that occurred.
8. 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:

1. ***Attempt to obtain vital signs and airway assessment if able***
2. ***Determine risk versus benefit of IV, IM, or IN route of medications***
3. ***Patient must be supine with access to airway before any medication is administered***
4. ***Oxygen, BVM, and airway equipment should be available and prepped before any medication is administered***
5. ***Agents approved for sedation for chemical restraint include:***
    - ***Midazolam 5-10 mg IV/IM/IN***
    - ***Ketamine 2 mg/kg IV or 4 mg/kg IM***
6. ***Contact base station for further dosing/orders if required.***
7. ***Once conditions allow, complete assessment including VS, airway, cardiac and respirator status; monitor Q 5 min and document.***

continued next page

Escalating Restraints Guidelines Cont.

PROCEDURE CONTINUED:

A PATIENT WITH DECISION MAKING CAPACITY MUST:

1. Be able to communicate fluently with the EMS provider
2. Be over the age of eighteen
3. Be oriented to person, place, 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 that is 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 that could result by refusing care

SPINAL IMMOBILIZATION CERVICAL IMMOBILIZATION DECISION TOOL

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

continued next page

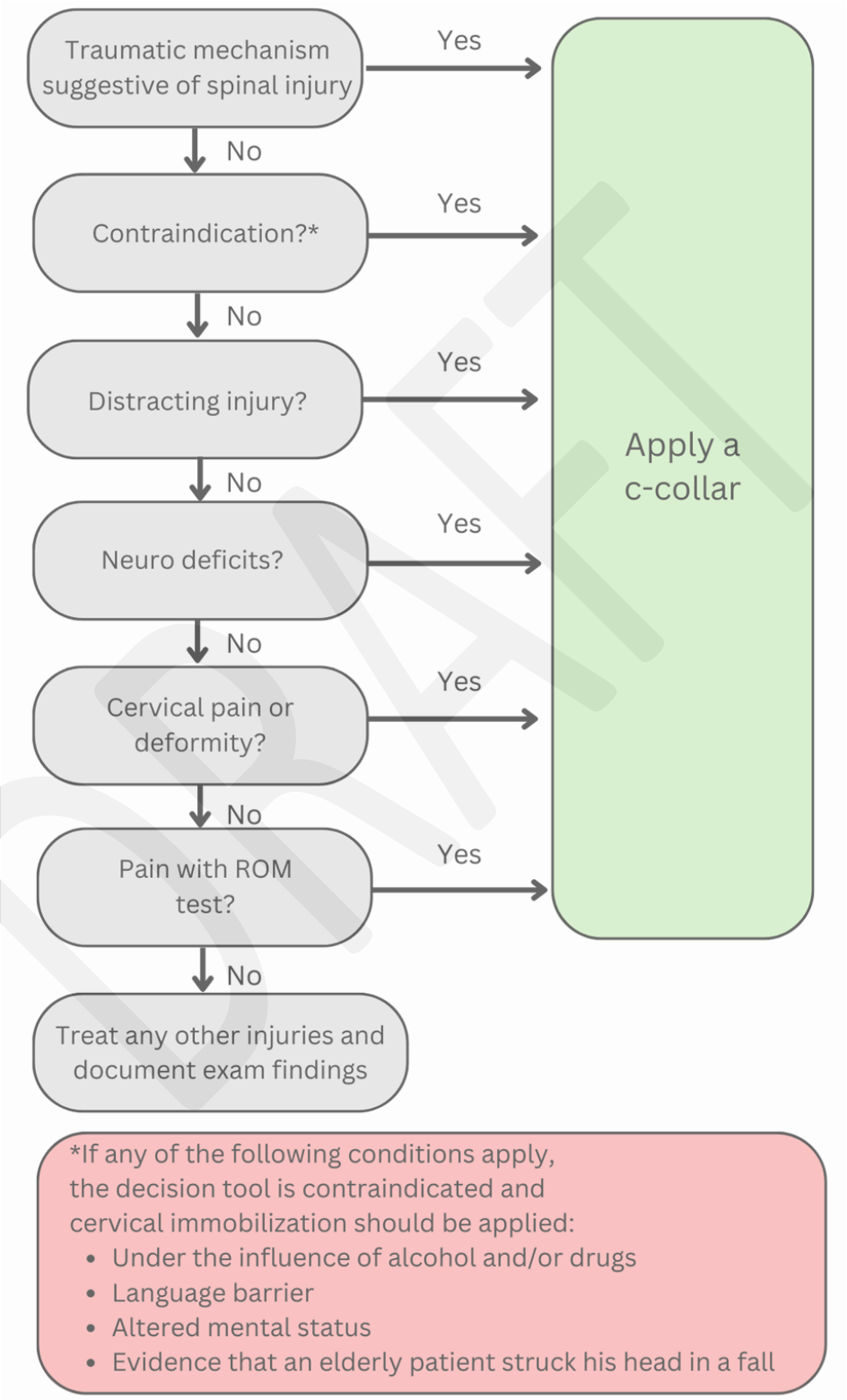
Spinal Imm. Cervical Imm. Decision Tool Cont.

PROCEDURE CONTINUED:

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 place on gurney, remove backboard

CERVICAL IMMOBILIZATION DECISION ALGORITHM

Cervical Immobilization Decision Algorithm



SPINAL IMMOBILIZATION FULL IMMOBILIZATION

Spinal Immobilization Full Immobilization

PROVIDER LEVEL:

- Emergency Medical Responder
- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

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

CONTRAINDICATIONS:

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

EQUIPMENT:

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

PREPARATION:

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

PROCEDURE:

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

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Spinal Immobilization Full Immobilization Cont.

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 Y/O 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 case (e.g., in cases of cardiac arrest, patient movement, or patient or provider security and safety)

SUBCLAVIAN INTRAVENOUS CANNULATION (INFRACLAVICULAR APPROACH)

Subclavian Intravenous Cannulation (Infraclavicular Approach)

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***

PROCEDURE:

1. ***Cannulate the vein***
   a. ***Puncture skin just inferior to the clavicle, at the junction of the medial third and lateral two-thirds of the clavicle***
   b. ***"Walk" the needle underneath the clavicle, while advancing the needle toward the suprasternal notch***
   c. ***While advancing the needle, withdraw the plunger on the syringe until blood is aspirated***
   d. ***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 next page

Subclavian Intravenous Cannulation Cont.

PROCEDURE CONTINUED:

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

Suctioning

PROVIDER LEVEL:

- Emergency Medical Responder
- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

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

CONTRAINDICATIONS:

- Patient able to control airway without assistance

EQUIPMENT:

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

PREPARATION:

1. Attach catheter to tubing
2. Attach tubing to suction unit
3. Check for operation of the suction unit and adequacy of suction
4. ***Pre-measure soft suction catheters for insertion depth:***
    - ***Nose: from tip to earlobe***
    - ***Mouth: from corner of mouth to earlobe***
    - ***Endotracheal: from end of tube to earlobe to supraclavicular notch***

PROCEDURE:

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

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

Supraglottic Airway

EMT: ENDORSEMENT REQUIRED

PROVIDER LEVEL:

- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

- Cardiopulmonary arrest
- Respiratory arrest
- Respiratory distress in unconscious patient

CONTRAINDICATIONS:

- Patient with a gag reflex or resisting assistance
- Angioedema of tongue, lips, or airway
- Age less than 12 (estimated based on size)

***CONSIDERATIONS**:*

- *BLS providers must contact online medical control in cases of trauma*

EQUIPMENT:

- Tongue depressor
- Supraglottic airway
- Bag-valve connected to oxygen supply

PREPARATION:

1. Assemble oxygen regulator and tank
2. Connect oxygen supply to the bag
3. Have other airway adjuncts including suction, OPA, NPA, and mask ready
4. Size appropriate supraglottic airway

PROCEDURE:

1. Manually open the airway (sniffling position)
2. Remove or suction any debris or obstruction
3. Test gag with a tongue depressor or suction catheter
4. Place supraglottic airway as per manufacturer instructions and training
5. Attach bag-valve and begin ventilations
6. 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 (COMMERCIAL)

Tourniquet Application (Commercial)

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

Traction Device

PROVIDER LEVEL:

- Emergency Medical Technician
- ***Paramedic***

INDICATIONS:

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

CONTRAINDICATIONS:

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

EQUIPMENT:

- MPD-approved traction device

PREPARATION:

1. Gather equipment
2. Manually immobilize fracture

PROCEDURE:

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

TRANSCUTANEOUS PACING

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:

1. ***Attach limb leads***
2. ***Place pacer pads in an anterior/anterior (sternum/apex) fashion***
3. ***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

Ventilation Mechanical

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

- ***Intubated patient requiring ongoing ventilation***

CONTRAINDICATIONS:

- ***None***

EQUIPMENT:

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

PREPARATION:

1. ***Set up equipment: select "CMV" mode***
2. ***Verify initial settings***

Mode: CMV – Assist	
Trigger [L/min]	***5***
PEEP [cmH2]	***5***
I:E	***1:3.5***
T_{plat} [%]	***10***
Vt: 6-8 mL/kg*	***Freq: 16-18***
P_{max} 40 cm H_20	***FiO_2 100%***
****"Ideal" body weight***	

PROCEDURE:

1. ***Continuous oximetry is required***
2. ***Continuous capnometry is required***
3. ***Monitor "Flow" display for evidence of Auto-PEEP***

PEDIATRIC CONSIDERATIONS:

- ***Contraindicated in patients requiring <50mL/breath***

VENTILATION NON-INVASIVE ("BI-PAP®")

Ventilation Non-Invasive (Bi-PAP®)

PROVIDER LEVEL:

- ***Paramedic***

INDICATIONS:

- ***Spontaneously breathing patient***
- ***Impending ventilatory failure secondary to CHF, COPD, or asthma***

CONTRAINDICATIONS:

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

EQUIPMENT:

- ***Ventilator***
- ***Mask and ventilator circuit***
- ***Oxygen source***
- ***Oximeter***
- ***Capnometer***

PREPARATION:

1. ***Continuous oximetry is required***
2. ***Select proper mask***
3. ***Set up equipment: select "CPAP-PS" mode***
4. ***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 cm H_2O	***FiO_2 100%***

5. ***Allow patient to hold mask to face initially***

continued next page

Ventilation Non-Invasive (Bi-PAP®) Cont.

PROCEDURE:

1. ***Fasten straps once comfortable***
2. ***Continuous oximetry is required***

PEDIATRIC CONSIDERATIONS:

- ***Contraindicated in patients less than 10 Y/O***

SOAP WRITTEN REPORT FORMAT – APPENDIX K

SOAP WRITTEN REPORT

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 dyspnea 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 the patient's response to the treatment.

REFUSAL OF CARE

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

TOXIDROMES – APPENDIX L

Toxidromes

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

LVAD – APPENDIX M

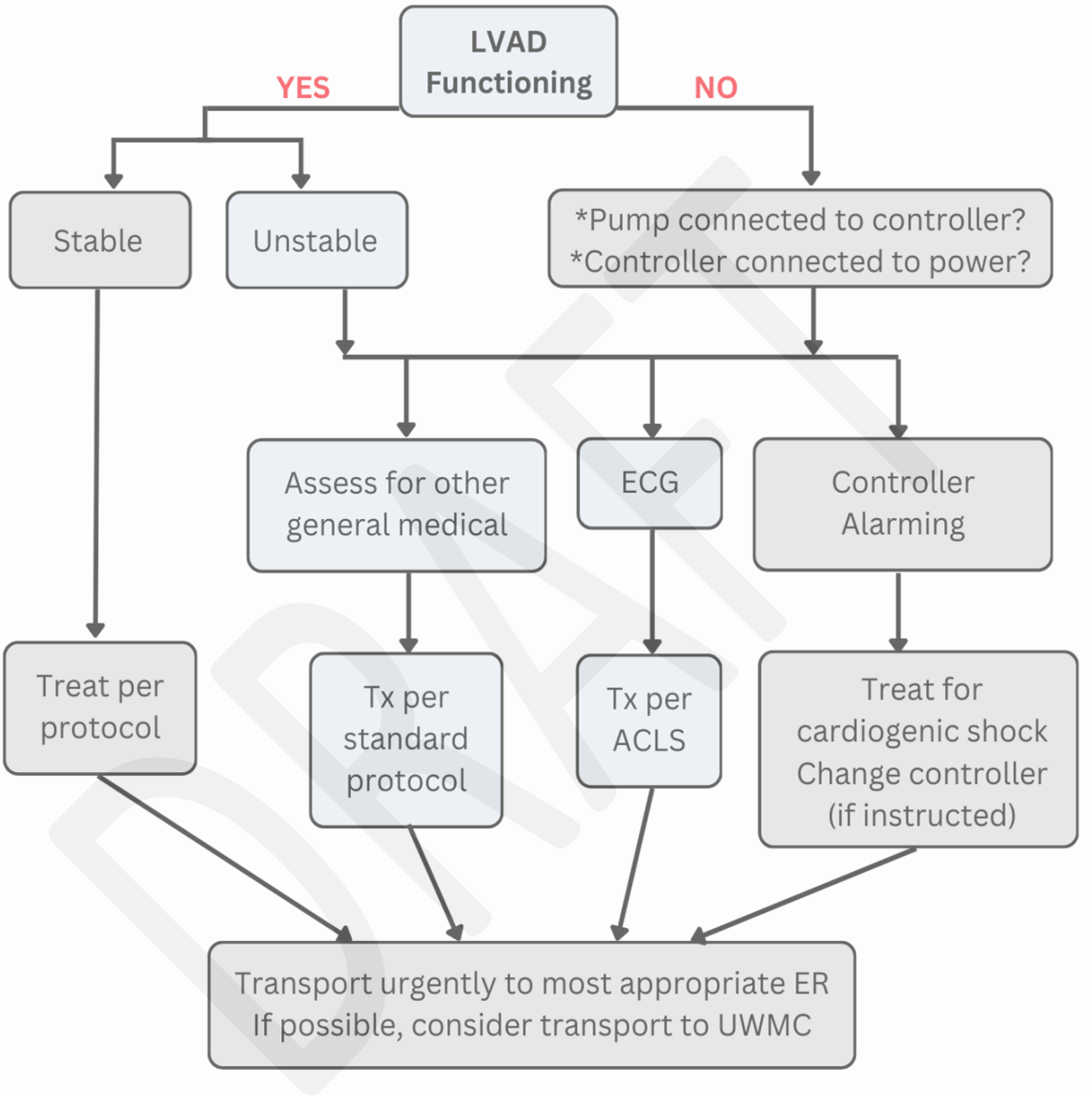
VENTRICULAR ASSIST DEVICE COMPLICATIONS

1. Contact UWMC @ 206.598.6190. Ask for VAD Coordinator on Call. If no answer, contact medical control at PSPH. **Device-specific EMS field guides can be found at this link.**

   Keep patient's companion, if present, with the patient. Bring all the patients' equipment.

2. **Identify emergency**
   a. Treat the patient and follow protocols. Do not focus only on the device. Most patients do not have a primary pump malfunction. Rule out common problems such as stroke, bleeding, arrhythmias, dehydration, and right heart failure.
   b. Assess the device for information and alarms located on the controller display. The number is also listed on the device and batteries. Intervene appropriately based on the type of alarm. See specific device alarm guides.
   c. LVAD failure
      i. Auscultate upper abdominal quadrant for continuous humming sound. **If VAD "hum" is not heard, then the device has stopped.**
      ii. If the LVAD has stopped, the patient's own heart is intact and may provide minimal cardiac output. Initiate appropriate therapy to stabilize patient. Monitor patient during transport.
      iii. Identify the alarm on the controller attached to the percutaneous line from the abdomen (the driveline). Ensure driveline and charged batteries are connected to controller. Call specialist for assistance and prepare to change the controller.
   d. LVAD working with low flow
      i. *ECG abnormal/arrhythmia.* LVAD is dependent on right ventricular function. With arrhythmia, decreased function of right ventricle will affect LVAD flows. The LVAD may be able to maintain flow high enough to keep patient from going into shock. If patient is symptomatic, initiate appropriate therapy to correct the arrhythmia and optimize heart function.
      ii. *ECG normal with suspected hypovolemia* from either suspected internal bleeding, fluid loss, or low fluid intake. If patient is symptomatic, initiate appropriate therapy to stabilize patient including volume replacement.
      iii. *High watts.* Can be a sign of thrombus in the pump. Controller fault indicates a Controller malfunction. Electrical fault can be caused by a break in the wiring.
3. Vitals – Patient **may not have a palpable pulse, accurate pulse oximeter readings, or measurable blood pressure** even when the pump is providing adequate circulation. To obtain a blood pressure an automated cuff or doppler method can be used. If unable to obtain with automated cuff use the mean BP with a doppler (first sound you hear – MAP). Rely on other methods to assess perfusion e.g., mental status, skin color, capillary refill. The device flow shown on the controller display reflects the patient's cardiac output.
4. Large bore peripheral venous access should be established on patient.
5. Perform routine ACLS procedure in cardiac arrest, including cardiac compressions, if indicated.
6. Patient's Controller (small box attached to percutaneous driveline) will display alarm lights. Patient (or companion) will bring extra batteries before transporting. Do not disconnect controller from patient unless instructed by mechanical heart specialist.
7. Get guidance from the VAD coordinator on acceptable vital signs. Further, consider that you will have different goals (such as starting pressors) than normal ACLS due to patient's unique physiology.

LVAD ALGORITHM



DOH/PSPH TRAUMA – APPENDIX N

WASHINGTON STATE TRAUMA TRIAGE TOOL

Figure 1: Trauma Triage Criteria and Categories

Red Criteria: High Risk for Serious Injury

Injury Patterns	Mental Status & Vital Signs
• Penetrating injuries to head, neck, torso, and proximal extremities • Skull deformity, suspected skull fracture • Suspected spinal injury with new motor or sensory loss • Chest wall instability, deformity, or suspected flail chest • Suspected pelvic fracture • Suspected fracture of two or more proximal long bones • Crushed, degloved, mangled, or pulseless extremity • Amputation proximal to wrist or ankle • Active bleeding requiring a tourniquet or wound packing with continuous pressure	All Patients • Unable to follow commands (motor GCS < 6) • RR < 10 or > 29 breaths/min • Respiratory distress or need for respiratory support • Room-air pulse oximetry < 90% Age 0–9 years • SBP < 70mm Hg + (2 x age in years) Age 10–64 years • SBP < 90 mmHg or • HR > SBP Age ≥ 65 years • SBP < 110 mmHg or • HR > SBP

Patients meeting any RED criteria should be transported to the closest level I or II trauma service within 30 minutes transport time (air or ground). Transport times greater than 30 minutes, take to the closest most appropriate trauma service.

Yellow Criteria: Moderate Risk for Serious Injury

Mechanism of Injury	EMS Judgement
• High-risk auto crash - Partial or complete ejection - Significant intrusion (including roof) ▪ >12 inches occupant site OR ▪ >18 inches any site OR ▪ Need for extrication for entrapped patient - Death in passenger compartment - Child (age 0-9 years) unrestrained or in unsecured child safety seat - Vehicle telemetry data consistent with severe injury • Rider separated from transport vehicle with significant impact (e.g., Motorcycle, ATV, horse, etc.) • Pedestrian/bicycle rider thrown, run over, or with significant impact • Fall from height > 10 feet (all ages)	Consider risk factors, including: • Low-level falls in young children (age ≤ 5 years) or older adults (age ≥ 65 years) with significant head impact • Anticoagulant use • Suspicion of child abuse • Special, high-resource healthcare needs • Pregnancy > 20 weeks • Burns in conjunction with trauma • Children should be triaged preferentially to pediatric capable centers If concerned, take to a trauma service

Patients meeting YELLOW criteria, WHO DO NOT MEET THE RED CRITERIA, should be transported to a designated trauma service, it need not be the highest level.

Updated WA DOH Version from October 2023

ST. PETER HOSPITAL FULL TRAUMA TEAM ACTIVATION (FTT) REQUIREMENT

St. Peter Hospital Full Trauma Team Activation (FTT) Requirement

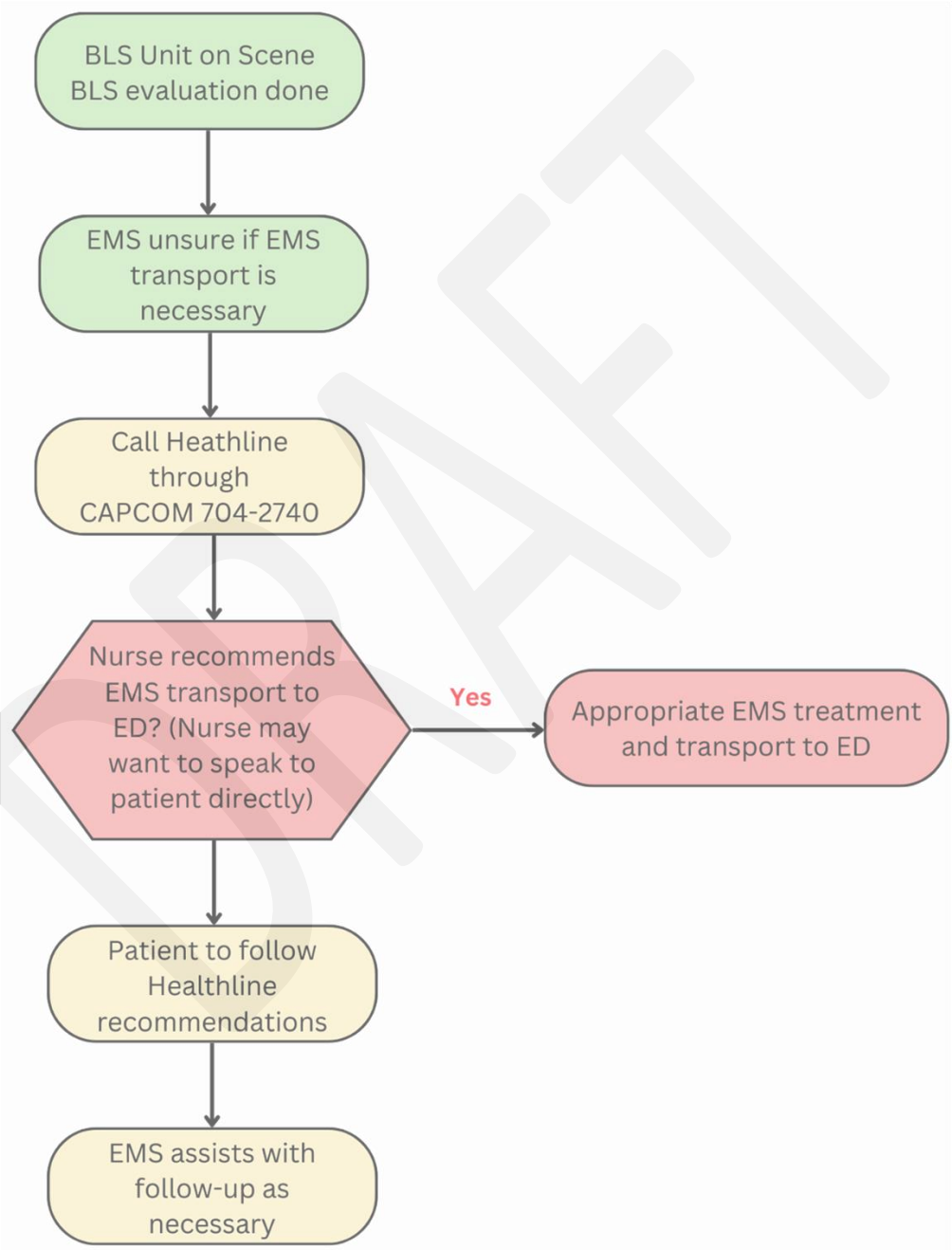
- Penetrating injury of the head, neck, torso, or groin
- Any traumatic injury requiring airway management (including burns and inhalation injuries)
- Confirmed SBP <90 mm Hg at any time in an adult (or child >10 y/o); established by a 2nd reading in rapid succession
- Age specific hypotension in children up to 10 years old

Term neonates (0-28 days)	SBP <60 mm Hg
Infants (1-12 months)	SBP <70 mm Hg
Children (1-10 years)	SBP <80 mm Hg

- Relative hypoxemia: O_2 SpO_2 <90% with associated injury
- GCS <8 with MOI attributed to trauma (GCS)
- Two or more long bone fractures OR suspected pelvic fracture

HEALTHLINE ACCESS – APPENDIX O

Healthline Access Procedure for On-Scene EMS Personnel



GLOSSARY

Glossary

ACS. Acute coronary syndrome refers to any group of clinical symptoms caused by acute myocardial ischemia.

Adrenergic. Resembling adrenaline, especially in physiological action.

Akathisia. 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 blood thinner.

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 of CHEMTREC).

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 heartbeat.

Paresthesia. Sensation of numbness, prickling, or tingling.

Petechial hemorrhaging. Small, purplish hemorrhagic spots on the skin.

Polypharmacy. Ingestion of more than 1 drug together.

POLST. Physician Ordered 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 on 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.

Toxidrome. A syndrome associated with a certain toxic substance.

Trismus. Total contraction of the muscles of the jaw.

Unilateral. Affecting only one side of the body or organ.

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.

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	360	562-6025	8am-5pm Mon-Fri	-
Haven House Youth Shelter (24 hrs.)	360	754-1151	-	-