Josephine County EMS
Treatment Protocols and Standing Orders

2023-2024

These protocols are written to provide the prehospital care framework and outline the scope of medical responsibility to the first responders, emergency medical technicians, and paramedics that are under my medical supervision. It is understood that these protocols are not absolute and that EMS providers have considerable latitude in the approach to patient care. Through continuing education, quality assurance and improvement programs, and routine review of the effectiveness of these protocols it is believed that effective and efficient patient care will be administered to the citizens we serve.

As Medical Director for American Medical Response (AMR), Josephine County I do here by authorize and implement these treatment protocols to AMR and the following first responding agencies within Josephine County:

1. Grants Pass Department of Public Safety
2. Rural/Metro Fire Department
3. Wolf Creek Rural Fire Protection District
4. Williams Fire Department
5. Illinois Valley Rural Fire Protection District

Adam Wurstle, MD
Supervising Physician – American Medical Response

Date in Effect: 6/2023 to 12/2024

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TREATMENT

ABDOMINAL PAIN

SUBJECTIVE

Pain can be gradual or rapid in onset, sharp, dull, intermittent or constant with or without radiation. It may change with time and/or position. Guarding may be present. The patient may complain of vomiting, diarrhea, constipation, bloody emesis, bloody stools, urinary problems, abnormal menstrual cycle (late or spotting), fever and dyspnea. SAMPLE history should include trauma, abnormal ingestions, medications, past surgeries and last menstrual cycle.

OBJECTIVE

Diaphoresis, dyspnea, pallor, jaundice, hypotension, orthostatic BP changes, tachycardia. Normal, hypoactive, hyperactive, or absent bowel sounds. Abdominal inspection can show distention, rigidness, bruising or a pulsatile mass. Emesis: type and amount, if visualized.

ASSESSMENT

Causes of pain may include stomach ulcers, appendicitis, diverticulitis, kidney stones, pelvic inflammatory disease, ectopic pregnancy, pancreatitis, cholecystitis, pyelonephritis, ovarian cyst, hepatitis, cancer, abdominal aortic aneurysm, peritonitis, or bowel obstruction. Abdominal pain may be of cardiac origin. Radiation to arms or shoulders is concerning for serious cause.

Pregnant patients 20-36 weeks with abdominal pain should be transported to TRMC ED/Obstetrics. Pregnant patients < 20 weeks or > 36 weeks may be transported to their preferred hospital.

PEDIATRIC PATIENTS:

- Consider non-accidental trauma.
- Closely monitor vital signs; blood pressure may drop quickly.
- If systolic BP is inappropriate for age, treat 20cc/kg bolus
    - Lowest normal pediatric systolic blood pressure by age:
        - Less than one month: > 60 mmHg.
        - One month to 1 year: > 70 mmHg.
        - Greater than 1 year: 70 + 2 x age in years.

TREATMENT

EMR, EMT:

- Oxygen
- Position of Comfort
- Nothing to eat or drink

AEMT

- Vascular access: one or two large bore IV's or IO with crystalloid based on severity: BP<90 and signs of shock
- If abdominal aortic aneurysm is suspected, do not increase systolic BP>90 mm/Hg

EMT-I, Paramedic

- Cardiac Monitor / 12 lead EKG interpretation (epigastric abdominal pain)
- Analgesic (agency optional)
- Anti-emetic

ABDOMINAL TRAUMA

SUBJECTIVE

Mechanism of injury; blunt vs. penetrating. Describe mechanism. In MVA provide scene description, type of vehicle, estimated speed (if info is available), restraints used, and airbag deployment if applicable. Document the time of event and onset of signs and symptoms if possible. Symptoms include pain, difficulty breathing, and emesis. If weapon or penetrating injury; provide mechanism, type of weapon used, and scope of visible injury.

OBJECTIVE

Examination may be normal initially. Patient may appear with pale and diaphoretic, conscious or unconscious. May have guarding and rigidity. Note injuries associated with traumatic event. Visualize bruising, abdominal distention, entrance/exit wounds, guarding, and/or rigidity. Evaluate vital signs frequently.

ASSESSMENT

Diagnosis of abdominal trauma is made on the basis of the traumatic event history, palpation, and visual examination.

Blunt: speed of motor vehicle crash, steering wheel damage, passenger restraints, type of weapon if used, type of fall or blast injury

Penetrating: mechanism, type of weapon and proximity

TREATMENT

EMR, EMT:

- Oxygen
- Position of Comfort
- Cover open wounds; wet dressing, pressure dressing as indicated
- Keep warm

AEMT

- Vascular access; one or two large bore IV's or IO based on severity: BP<90 and signs of shock

EMT-I

- Cardiac Monitor
- Analgesic (agency optional)
- Anti-emetic

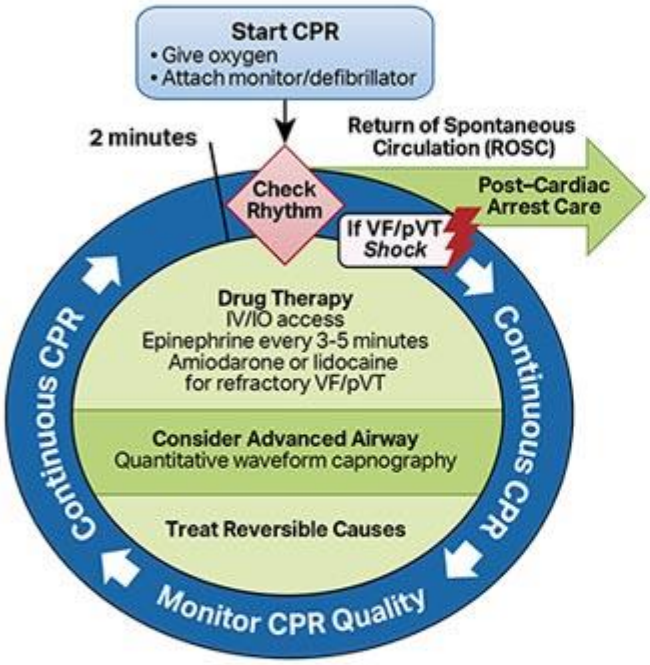
Paramedic

- Advanced airway as indicated

ADVANCED CARDIAC LIFE SUPPORT ALGORITHMS

Adult Cardiac Arrest Circular Algorithm

Adult Cardiac Arrest Circular Algorithm



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 every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
  - If P_{ETCO_2} is low or decreasing, reassess CPR quality.

Shock Energy for Defibrillation

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 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 every 3-5 minutes
- **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 every 6 seconds (10 breaths/min) with continuous chest compressions

Return of Spontaneous Circulation (ROSC)

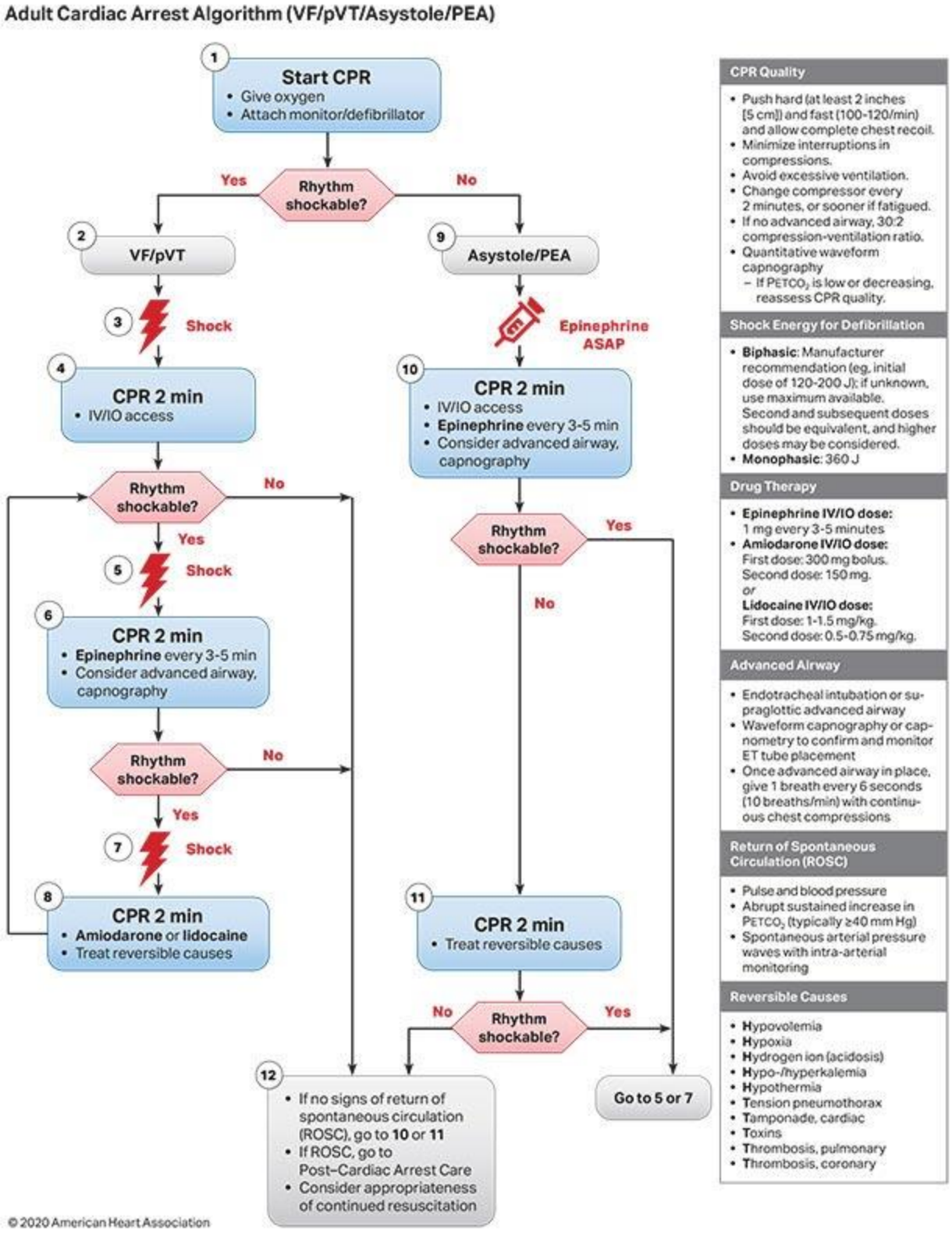
- Pulse and blood pressure
- Abrupt sustained increase in P_{ETCO_2} (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

Reversible Causes

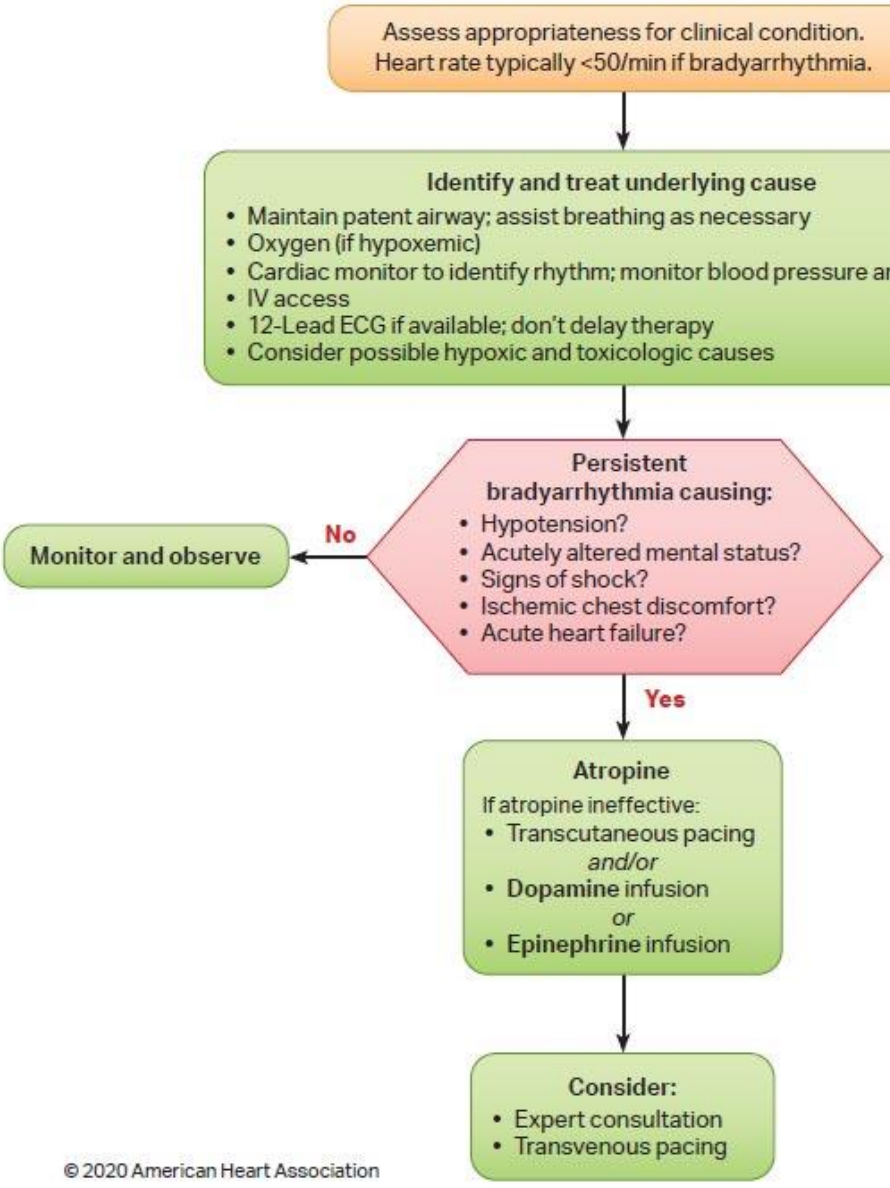
- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

ADVANCED CARDIAC LIFE SUPPORT ALGORITHMS

Adult Cardiac Arrest Algorithm



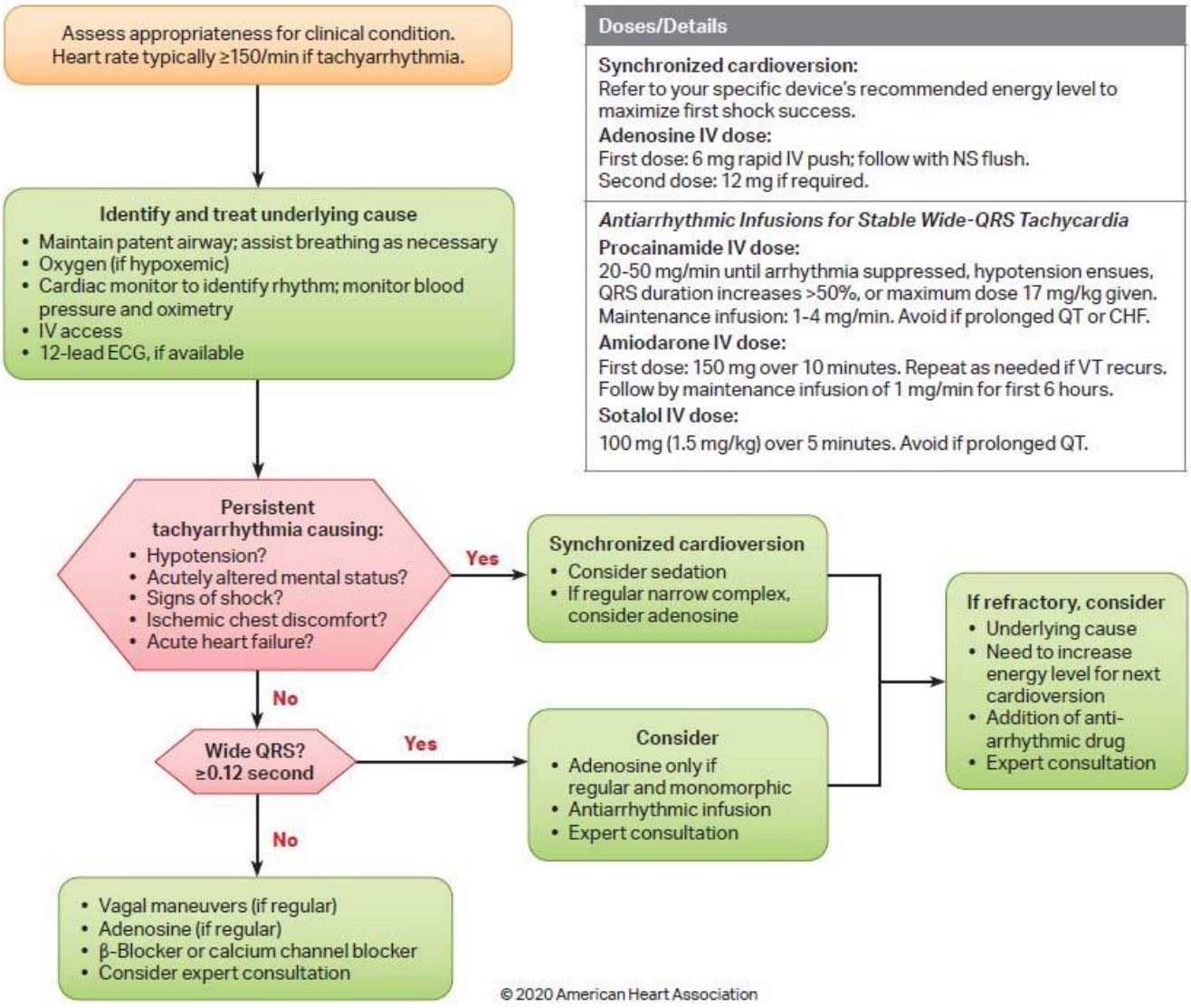
Adult Bradycardia Algorithm



Doses/Details
Atropine IV dose: First dose: 1 mg bolus. Repeat every 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 (eg, calcium-channel blockers, beta blockers, digoxin) • Hypoxia • Electrolyte abnormality (eg, hyperkalemia)

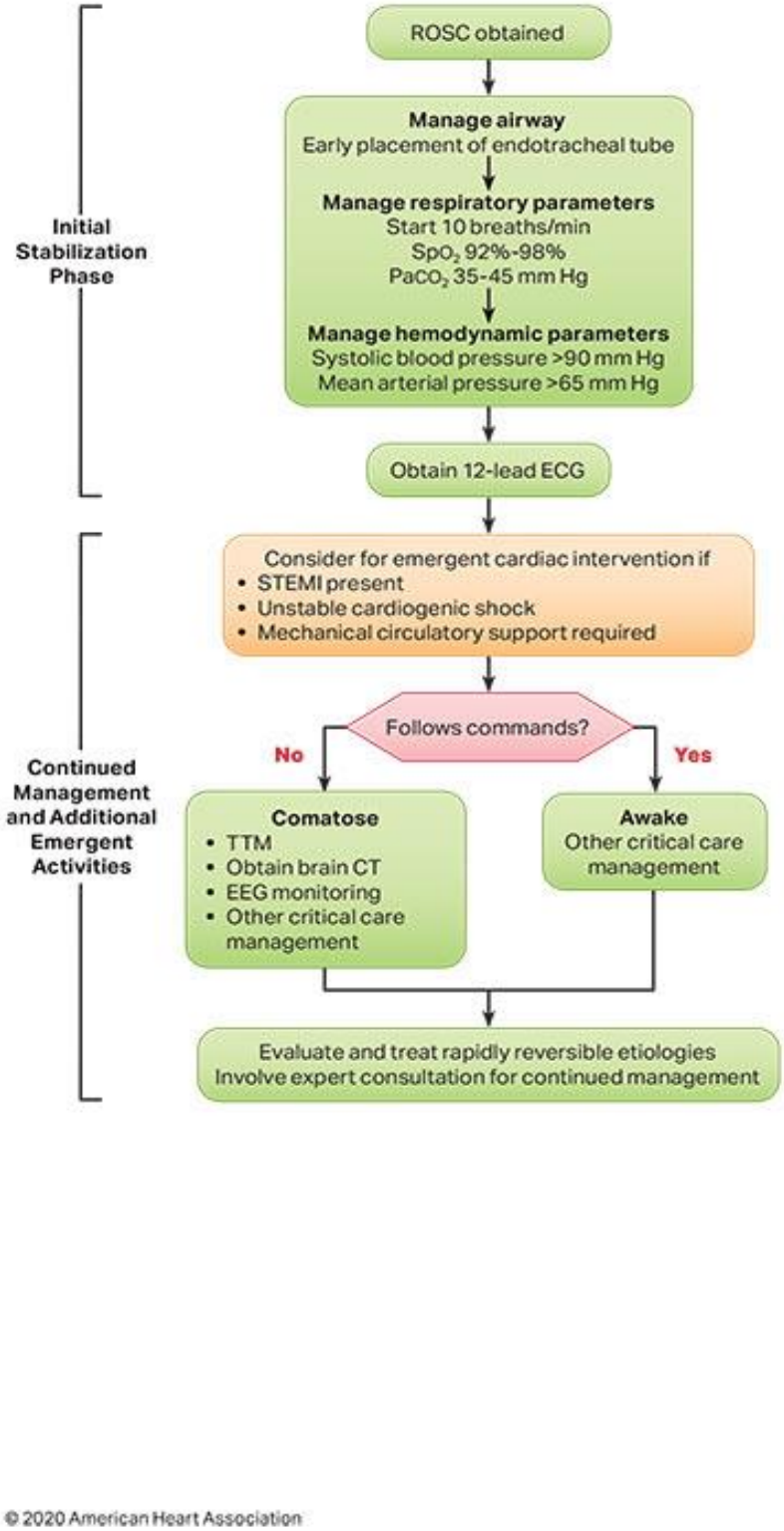
ACLS – TACHYCARDIA W/ PULSE ALGORITHM

Adult Tachycardia With a Pulse Algorithm



ACLS – RETURN OF SPONTANEOUS CIRCULATION ALGORITHM

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

These evaluations should be done concurrently so that decisions on targeted temperature management (TTM) receive high priority as cardiac interventions.

- Emergent cardiac intervention: Early evaluation of 12-lead electrocardiogram (ECG); consider hemodynamics for decision on cardiac intervention
- TTM: If patient is not following commands, start TTM as soon as possible; begin at 32-36°C for 24 hours by using a cooling device with feedback loop
- Other critical care management
  - Continuously monitor core temperature (esophageal, rectal, bladder)
  - Maintain normoxia, normocapnia, euglycemia
  - Provide continuous or intermittent electroencephalogram (EEG) monitoring
  - Provide lung-protective ventilation

H's and T's

Hypovolemia
Hypoxia
Hydrogen ion (acidosis)
Hypokalemia/**h**yperkalemia
Hypothermia
Tension pneumothorax
Tamponade, cardiac
Toxins
Thrombosis, pulmonary
Thrombosis, coronary

SUBJECTIVE

When you are obtaining a history from a patient thought to have ACS, focus on the signs and symptoms that may be present during anginal or an AMI event. Evaluate the patient's chest pain utilizing the **PQRST: P**rovokes or alleviates (body movement, deep inspiration, or palpitation), alleviates (NTG, oxygen). **Q**uality (sharp, dull, pressure). **R**adiation (jaw, neck, back, arm, or epigastric region). **S**everity (0-10). **T**ime (length of discomfort / event). Associated symptoms can include dizziness, nausea, vomiting, "indigestion", shortness of breath and sweating. Complete your history taking by identifying possible contributing factors. Inquire specifically about cardiac bypass surgery, stent placement, angina, heart attack or myocardial infarction. Other factors are diabetes, smoker, hypertension or family history of cardiac events.

OBJECTIVE

Examination may be normal. Patient may present as ashen, sweaty or short of breath. Patient may be hypotensive, bradycardic with rales on auscultation. Monitor cardiac rhythm to detect arrhythmias.

ASSESSMENT

Diagnosis of cardiac chest pain or heart equivalent discomfort is made based on the patient's history. Other emergent causes of chest discomfort include chest wall trauma, aortic dissection, pneumothorax, pulmonary embolism, and strangulated esophageal/gastric hernia.

If patient had ventricular fibrillation or ventricular tachycardia converted to a perfusing rhythm with stable vital signs, then ECG must be obtained within 5 minutes of the converted rhythm.
ECG must be obtained within 7 minutes from first medical contact on all suspected STEMI patients.

TREATMENT

EMR:

- Obtain 12 lead EKG (before treatment is preferred)
- Oxygen if SpO2 <90%, start at 4lpm and titrate to SpO2 92-94%
- Elevate head to 15-30° to improve alveolar recruitment and oxygenation
- Aspirin 324mg (may hold if taken by patient within 12hrs)
- Monitor V/S every 5-10 minutes
- **IF monitor interpretation of 12 lead EKG reads ***ACUTE MI SUSPECTED*** OR ***MEETS ST ELEVATION MI CRITERIA***, activate STEMI system via call to RRMC and update responding medic unit of EKG meeting STEMI criteria**

EMT:

- May assist patient with administration of patient's own nitroglycerin (Nitroglycerin maybe administered as follows. 0.4mg sublingual every 5 minutes to a total of 3 doses, or until relief of pain, or until pressure falls below 100mmHg)

AEMT

- Vascular access (18 or 20 gauge preferred)
- Nitroglycerin
- Crystalloid for SBP < 100 mmHg

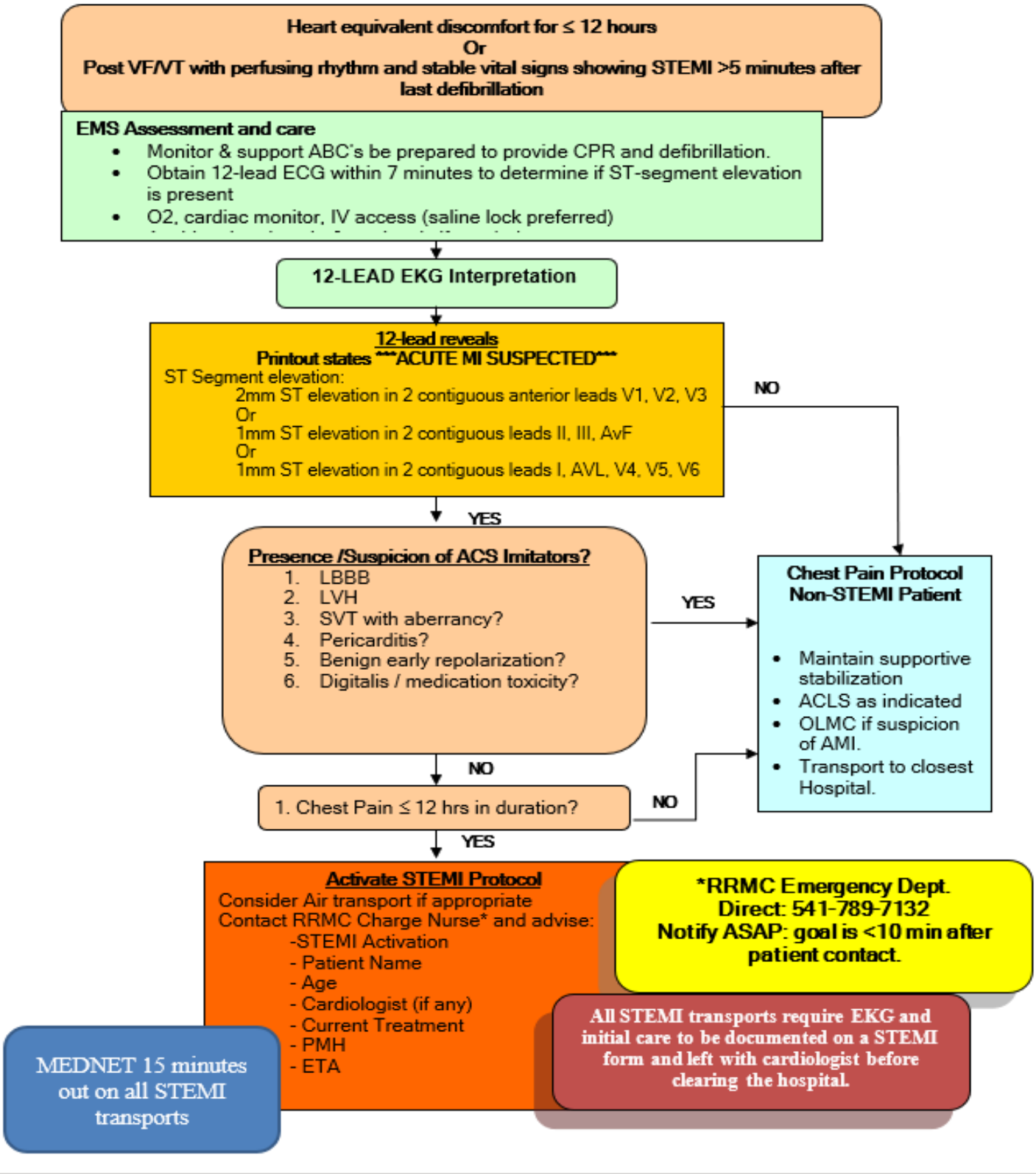
EMT- I

- Cardiac Monitor / 12 lead EKG interpretation
- Analgesia

Paramedic:

- Evaluate 12 lead utilizing the STEMI algorithm
- Repeat 12 lead ECG every 10 mins if symptoms persist
- **If STEMI confirmed notify RRMC within 10 minutes of patient contact**.
- IF inferior MI present, use V4R to confirm presence of right inferior infarct. *Do not delay activation or transport to obtain V4R or right side EKG.
- In the presence of Right Ventricular Infarct (RVI) with hypotension, aggressive fluid therapy may be indicated. Limit administration of nitrates and/or narcotic pain relief in those patients presenting with hypotension
- Both chest lead and inferior lead depression may be signs of a posterior infarct; perform posterior leads V7, V8, V9. STEMI activation if >0.5mm elevation in two contiguous of V7, V8, or V9 in the presence of precordial or inferior depression on standard 12 lead EKG.
- Administer a fluid bolus up to 1000 cc and/or systolic blood pressure < 100 mm/Hg.
- Consider epinephrine or norepinephrine for refractory hypotension
- Follow ACLS guidelines for treatment of dysrhythmias

ACUTE CORONARY SYNDROME ALGORITHM
STEMI



STEMI

SUBJECTIVE

Symptoms suggestive of myocardial ischemia or infarction of ≤ 12 hours duration OR ventricular fibrillation or ventricular tachycardia converted to perfusing rhythm with stable vital signs AND

OBJECTIVE

12-lead ECG without LBBB or paced rhythm and meeting one of these 2 criteria:

- ST elevation, beginning at the J point:
  - ≥1 mm ST elevation in
    - 2 contiguous lateral leads (I, aVL, V4, V5 , V6) OR
    - 2 contiguous inferior leads (II, III, aVF)
  - ≥2 mm ST elevation in two contiguous chest leads (V1, V2, V3)
- **OR** ECG findings of pure posterior STEMI, which must include ALL of the following:
  - ≥0.5 mm ST depression in two contiguous leads V1, V2, V3, V4 AND
  - Automatic ECG interpretation indicating "acute infarction", "acute ST Elevation infarction" or "STEMI" (based on ST elevation or depression) OR
  - ≥0.5 mm ST elevation in two contiguous leads V7, V8, V9
- **OR** Automatic ECG interpretation indicating "acute infarction", "acute ST Elevation infarction" or "STEMI" **based on ST elevation**
  - OLMC before STEMI activation on automatic ECG interpretations of STEMI if HR > 140 and narrow-complex

*If patient had ventricular fibrillation or ventricular tachycardia converted to perfusing rhythm with stable vital signs, then **ECG must be at obtained after at least 5 minutes of the converted rhythm**.*

ASSESSMENT

Acute myocardial infarction with ST elevation is usually best managed with rapid transport to a hospital offering emergent cardiac catheterization services for diagnosis and treatment.

TREATMENT – All STEMI patients are Paramedic ALS transports

- OLMC is ***required*** for all patients with DNR comfort measures, known non-interventional status from prior heart cath, known creatinine >2.5, known anaphylactic reaction to IV contrast, significant dementia.
- Minimize on-scene time and transport the patient to RRMC, advising patients that RRMC is the current local STEMI treatment facility
- Notify the receiving hospital of "STEMI Activation" as soon as possible and give estimated time of arrival, patient name and birthdate (541-789-7367)
- Report criteria for "STEMI Activation": auto-reading or ST elevation
- Confirm STEMI Activation with a "read back"
- A copy of any pre-hospital 12-lead ECG obtained will be labeled with the patient's name and date of birth, attached to the labeled EMS 12 lead ECG form
- Report Form and EKG left with the patient at the receiving hospital.
- 2nd IV (refer to scope) (20 or 18 gauge preferred) with saline lock in same arm if possible, avoiding right wrist
- Note the specific time of symptom onset and the duration of symptoms.
- Report time of "first EMS patient contact" in PCR
- Patient to receive hospital registration from ED before going to cath lab
- Patient should be transported to the ED unless the cardiologist is waiting in the ambulance bay to escort patient and crew to the cath lab

ACUTE DYSTONIC REACTION

SUBJECTIVE

Dystonic reactions are involuntary motor movements of the trunk, limbs, neck or face that follow the administration of antipsychotic and/or anti-emetic medications. For example, haloperidol (Haldol), promethazine (Phenergan), droperidol (Inapsine), prochlorperazine (Compazine) and metoclopramide (Reglan) are medications that can cause dystonic reactions. Dystonic reactions are often referred to as extra-pyramidal symptoms.

OBJECTIVE

Patient is normally found conscious and alert with extrapyramidal symptoms (EPS). The patient is often extremely anxious. Symptoms often consist of small spasmodic movements of the arms, legs, face or neck muscles with lip smacking, grimacing, tongue protrusion, eye movements or neck twisting.

ASSESSMENT

Dystonic reactions are distressing to the patient, but rarely life threatening. They may be mistaken for anaphylaxis or focal seizure activity.

TREATMENT

EMR, EMT:

- Oxygen
- Patient transported in position of comfort

AEMT:

- Vascular access

EMT- I, Paramedic:

- 25mg Diphenhydramine

ADRENAL CRISIS

SUBJECTIVE

Adrenal Crisis is the inability to cope with shock due to lack of appropriate cortisol production. It can occur from stress secondary to medical or trauma etiologies. Patient will likely have a known history of Addison's Disease, Adrenal Tumors, Adrenal Insufficiency, or Congenital Adrenal Hypo/Hyperplasia. Patients will be on replacement medications (Hydrocortisone, Fluticortisone, Methylprednisolone) daily. Look for medical alert bracelets/pendants. Patient/family will likely be well versed in their condition and may have a Hydrocortisone or Solu-Cortef emergency kit with them.

OBJECTIVE

An Adrenal Crisis is often precipitated by illness or trauma. Patient may present with flu like symptoms (HA, dizziness, abdominal pain, pale skin/shivering, nausea/vomiting, confusion). CBG and blood pressure may fall to dangerous levels and do so very quickly. Seizures are possible. May present with shock-like symptoms.

TREATMENT

EMR

- Vital Signs
- Oxygen

EMT

- Check CBG

AEMT

- IV or IO with crystalloid
- Glucose IV or IO if hypoglycemic

EMT-I

- Cardiac Monitor

PARAMEDIC

- Solu-medrol
- May administer patients own prescribed corticosteroid as prescribed
- Epinephrine or Norepinephrine if shock

ALTERED MENTAL STATUS / BEHAVIORAL

SUBJECTIVE

SAMPLE history may reveal a history of recent crisis, emotional trauma, bizarre or abrupt changes in behavior. Evaluate the patient for suicidal ideation, use of alcohol and/or drug abuse. Consider illness and/or injury as a possible cause of altered mentation.

OBJECTIVE

Observe the patient's level of consciousness and orientation. Evaluate the patient for signs of trauma that maybe accidental or intentional. Survey the scene for clues of possible ingestion, inhalation, or injection of drugs and poisonous substances. Look for medical alert tags.

ASSESSMENT

Differential is broad and includes overdose, hypoglycemia, stroke, sepsis, head injury, seizure, and syncope (causes include cardiac dysrhythmia, ruptured abdominal aortic aneurysm, GI bleed, and vasovagal reaction).

For sudden-onset coma, consider hypoglycemia, overdose, seizure, and stroke.

TREATMENT

EMR:

- Attempt to establish rapport
- Do not leave patient alone
- Remove dangerous objects
- Restraints if needed
- Naloxone if narcotic OD is suspected
- Oxygen

EMT:

- Check blood sugar and treat with oral glucose if hypoglycemic
- Supraglottic airway
- 12-lead ECG

AEMT:

- One or two IVs or IO with crystalloid
- Dextrose IV or Glucagon 1mg IM for CBG <70
- Dextrose 10%, 10 – 20 grams (100 – 200 ml) IV/IO by infusion or Dextrose 50%, 25 grams (50 ml) in large vein.

EMT–I:

- Cardiac monitor
- Transport in calm and quiet manner

Paramedic:

- Benzodiazepine (Lorazepam, Midazolam, or Diazepam)
- Droperidol (Inapsine)
- Ketamine (only if needed for patient/staff safety)
- Zyprexa (agency optional)

*****Behavioral disorders and suicidal ideology are ALS calls*****

ALTERED MENTAL STATUS
AGITATED DELIRIUM

SUBJECTIVE

Agitated delirium is as category of symptoms seen in some people after they have ingested stimulants (cocaine, methamphetamine). Additional causes may be metabolic in nature (low blood sugar), illness / infections (meningitis) and psychological / mental illness. Patients suffering from agitated delirium may demonstrate intense paranoia, extreme agitation, rapid emotional changes, disorientation, hallucinations, delusional, violent or bizarre behavior towards people or inanimate objects, screaming or incoherent speech. Patients may be described as "just snapped" or "just flipped out" by witnesses, family or friends. Patient may have a history of alcoholism, substance abuse, or mental illness. 91-99% of reported agitated delirium cases involve males. Age range is typically 31-45 years of age. These patients are at high risk for sudden cardiac death during extended exertion, often during attempts by law enforcement to restrain the patient.

OBJECTIVE

- Dilated pupils
- Profuse sweating
- Hyperthermia (103°F to 110°F) Flushed skin
- Uncontrollable shaking / shivering (substance withdrawal)

TREATMENT

EMR:

- **Ensure personal safety first. Do not approach without law enforcement**
- Oxygen
- Keep patient calm / minimize external stimulus (i.e. noise, flashing lights, crowds)
- Naloxone if narcotic overdose suspected
- Restrain if necessary

EMT:

- CBG
- Oral glucose if hypoglycemic

AEMT:

- Vascular access
- Glucose IV or IO if hypoglycemic

EMT-I:

- Cardiac Monitor

Paramedic:

- Ketamine
- Midazolam or Lorazepam + Haloperidol
- Droperidol (Inapsine)
- Zyprexa

AMPUTATION

SUBJECTIVE

Obtain SAMPLE history when possible. Note location, time of incident, and mechanism of injury.

OBJECTIVE

Amputations are classified as partial or complete. Evaluate distal circulation and distal neurological status in partial amputations.

ASSESSMENT

Quantity of blood loss, active bleeding, presence of shock. Evaluate for other injuries. Amputation may not be life threatening but may be psychologically traumatic for a patient or family. Use pain control medications with caution in patients with significant hemorrhage as it may cause hypotension. Amputations above the wrist or ankle are a mandatory trauma system entry.

TREATMENT

EMR, EMT:

- Control bleeding: Follow **Exsanguinating Hemorrhage protocol** as needed
- Oxygen
- Cover wound with sterile dressing soak with crystalloid solution
- Splint partial amputations in position of function
- Wrap severed body part in dry gauze, place in a sealed plastic bag, then place bag in ice

AEMT:

- One or two large bore IV's or IO with crystalloid

EMT-I:

- Analgesic

Paramedic:

- Diazepam or Midazolam
- Ketamine

ANAPHYLAXIS

SUBJECTIVE

Obtain SAMPLE history including any specific allergic reactions. There are several methods of exposure: oral, inhaled, dermal, and percutaneous. Associated symptoms may include itching, throat tightening, shortness of breath, nausea, diarrhea, abdominal cramps, and syncope.

OBJECTIVE

Evaluate patient's level of consciousness. Note any wheezing, respiratory distress, or stridor. Patient can be hypotensive with flushed skin, hives, edema, vomiting, and diarrhea.

ASSESSMENT

Anaphylaxis or systemic allergic reactions range from mild skin rash to shock. Anaphylactic reactions involve symptoms and at least one sign: diffuse skin reaction (flushing, itching or hives), shock, bronchospasm or angioedema (swelling) about the face, mouth and eyes. Mild systemic reaction may be managed with diphenhydramine alone. Local reactions confined to one extremity are not systemic or anaphylaxis.

There are three distinct levels of a reaction. First level is a local reaction. Symptoms include pain, swelling, and redness. Second level is a systemic reaction. Symptoms include flushed skin, hives, itching, shortness of breath, swelling. Third level is an anaphylaxis reaction. Symptoms include flushed skin, hives, itching, short of breath, swelling, and hypotension. Patients may have minimal signs and/or symptoms. Patients can present at any level of reaction without progression between levels.

TREATMENT

EMR:

- Oxygen
- Epi-pen /Epi auto injector if agency approved
- Remove allergen if possible
- SPO2 & ETCO2

EMT:

- Epinephrine 1:1000 IM
- Supraglottic airway

AEMT:

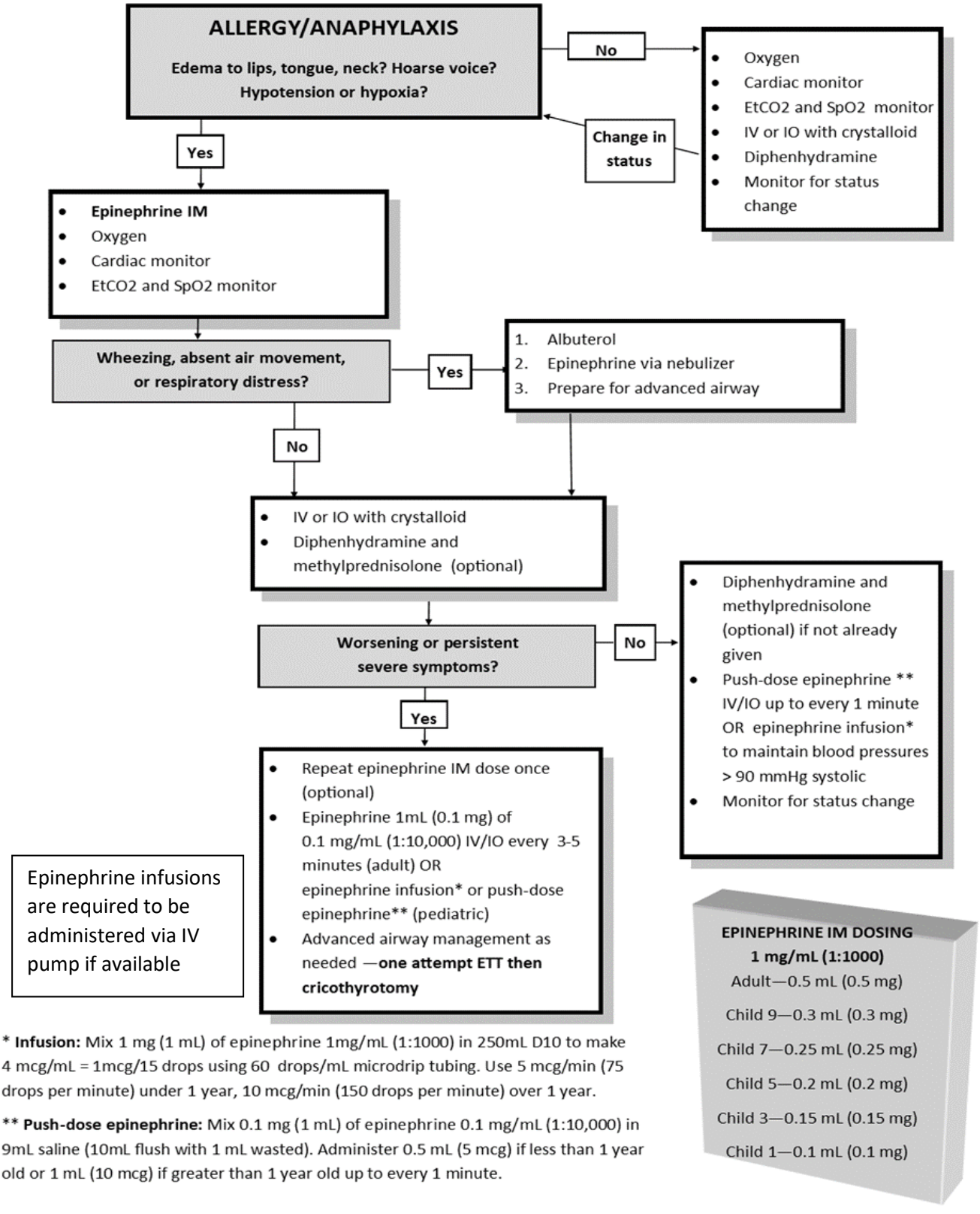
- IV or IO with crystalloid
- Albuterol / Atrovent

EMT-I

- Cardiac monitor
- Epinephrine via nebulizer
- Diphenhydramine

Paramedic:

- Advanced airway management as indicated
- Epinephrine IV or IO
- Solu-Medrol
- Dexamethasone (optional)



* **Infusion:** Mix 1 mg (1 mL) of epinephrine 1mg/mL (1:1000) in 250mL D10 to make 4 mcg/mL = 1mcg/15 drops using 60 drops/mL microdrip tubing. Use 5 mcg/min (75 drops per minute) under 1 year, 10 mcg/min (150 drops per minute) over 1 year.

** **Push-dose epinephrine:** Mix 0.1 mg (1 mL) of epinephrine 0.1 mg/mL (1:10,000) in 9mL saline (10mL flush with 1 mL wasted). Administer 0.5 mL (5 mcg) if less than 1 year old or 1 mL (10 mcg) if greater than 1 year old up to every 1 minute.

BAROTRAUMA

SUBJECTIVE

Scuba diving accidents are not common. Remember to ask whether patient may have taken any type of breath from a scuba device while underwater. Patients will complain of chest pain, dyspnea, dizziness, limb paresthesia, paralysis, weakness, itching, blotching rash, visual disturbance or loss, fatigue, joint soreness, abdominal pain or coughing spasms.

OBJECTIVE

Patient may present with hypothermia, pulmonary edema, rash, crepitus over chest and neck, altered level of consciousness, coma, unequal pupils, wide pulse pressure, dysarthria, seizures, paralysis, decreased or absent breath sounds, apnea, or cardiac arrest.

ASSESSMENT

It is essential to attempt to obtain a diving history or profile, including: time at which signs and symptoms occurred; type of breathing apparatus used; depth, number and duration of dives; aircraft travel following a dive; rate of ascent; previous decompression illness, use of medications or alcohol. Transportation to recompression chamber without delay is the optimum treatment; do not delay in field.

****NOTE** Call OLMC for assistance in determining regional hyperbaric chamber availability

TREATMENT

EMR:

- Supine if unconscious
- Left Lateral Trendelenburg if conscious with head down to prevent embolus
- High-flow oxygen
- SPO2 & ETCO2

EMT:

- Supraglottic airway

AEMT:

- IV or IO with crystalloid

EMT-I:

- Cardiac monitoring

Paramedic:

- Advanced airway management as indicated
- Chest Decompression as indicated

BURNS

SUBJECTIVE

Evaluate the cause of the burn. For example: explosion, fire, radiation, inhalation, electrocution, lightning, and chemical exposure. Associated symptoms may include shortness of breath, airway compromise, loss of consciousness. Finish evaluation with SAMPLE history.

OBJECTIVE

Examine the extent of body surface area (BSA) involved and depth of burn. Burns are classified as superficial, partial or full thickness burns. With possible inhalation burns, evaluate the patient for soot or blisters around the mouth, singed nasal or facial hair, hoarseness when breathing or speaking, cough, or respiratory distress. The patient may be anxious.

ASSESSMENT

Personal safety comes first when treating burn victims. There may be lethal and hard to detect by-products in the area. Based on the mechanism, be alert for other injuries from falls, explosion and inhalation.

Toxin exposure: Carbon monoxide and cyanide toxicity are risks in closed spaces. Consider if patient is altered or hypotensive and apply high-flow oxygen.

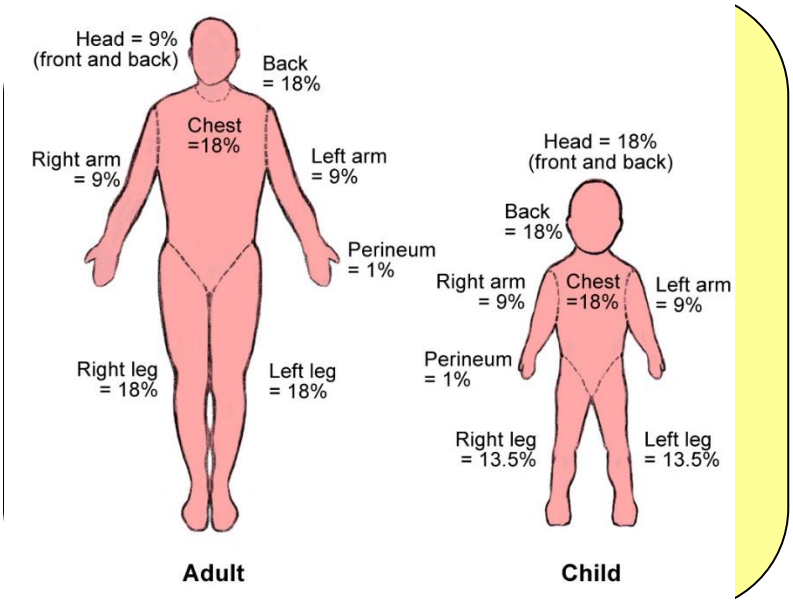
Inhalation injury: Support with oxygen and prepare for intubation if condition progresses.

Evaluate for:

- Singed nasal hairs
- Soot around nose or mouth
- Facial burns
- Carbonaceous sputum
- Mild shortness of breath
- Wheezing
- Cough

Immediate intubation:

- Hoarse voice
- Stridor
- Severe respiratory distress
- Blistering of oral mucosa
- Difficulty swallowing



First aid treatment for hydrogen fluoride (HF) or hydrofluoric acid burns or exposure (not eyes) at an industrial site may include topical 0.13% benzalkonium chloride solution (Benzarid™) – ice cold if needed for pain relief prior to EMS arrival. This is for pain control only and should be replaced with calcium gluconate upon EMS arrival.

TREATMENT

EMR:

- Oxygen (humidified if available)
- SPO2 and ETCO2
- Remove smoldering clothing and restrictive rings, bracelets, belts, straps or jewelry
- Cool thermal burns with water for 3-5 minutes
- Large burns (>20% BSA) cover with dry sterile dressing
- Small burns (<20% BSA) apply cool wet dressing
- Avoid heat loss
- Chemical burns: flush area with large amounts of water to dilute and remove chemical

EMT:

- Supraglottic airway

AEMT:

- One or two large bore IVs or IO with crystalloid
- Fluid replacement: (See Burn formula below)
    - Initial fluid rate:
        - Age < 6: 125 mL/hr
        - Age 6-13: 250 mL/hr
        - Age 14+: 500mL/hr

EMT-I:

- Cardiac Monitor
- Analgesic

Paramedic:

- Anxiolysis
- Ketamine + Fentanyl for pain
- Advanced airway
- Calcium gluconate topically or via nebulizer for hydrogen fluoride or hydrofluoric acid exposure.

PARKLAND BURN FORMULA:

4cc x Pt's Weight in Kg x % BSA. Then divided by 24 hours. Half of the amount should be administered in the first 8 hours.

$$\frac{(4cc)\ (KG)\ (\%BSA)}{24}$$

CARDIAC ARREST

SUBJECTIVE

Patients with loss of consciousness with absent or agonal breathing and without a palpable pulse.

OBJECTIVE

Unresponsive, pulseless, agonal respirations or apneic.

TREATMENT

EMR

- High performance CPR
- AED as soon as available
- Oxygen
- Capnography
- Naloxone if suspected opiate overdose
- CBG

EMT

- Supraglottic airway

AEMT

- Vascular access
- Crystalloid
- Dextrose if hypoglycemic

EMT-I

- Manual defibrillation
- ACLS algorithms as appropriate
- Epinephrine
- Amiodarone or lidocaine if VF/VT

Paramedic

- Advanced airway as indicated
- Magnesium sulfate if refractory VF, torsades de pointes, or suspected digoxin overdose
- Calcium gluconate if clinical suspicion for hyperkalemia or calcium channel blocker overdose
- Bilateral chest decompression if trauma

DOCUMENTATION

- Times: estimated/known time of arrest, time of first CPR, time of ROSC or termination of resuscitation.
- If resuscitation in the field is ended, a rhythm strip showing final rhythm in at least 2 leads must be attached to PCR.

NOTES

Cardiac arrest resuscitation should be completed on scene - 'treat in place' - when possible.

Traumatic arrest

- EMS resuscitation may be terminated without OLMC:
  - Trauma arrest with initial rhythm asystole and no signs of life (pupil response, agonal breaths, residual movements)
  - After treating reversible causes
- Contact OLMC for termination of resuscitation for:
  - Hypothermic patients or electrocution injuries if crew feels ongoing resuscitation and transport are not indicated

Medical arrests

- Asystole/PEA arrests - early epinephrine administration goal 5 minutes
- IV access preferred, if not readily able to be accomplished, humeral IO preferred over tibial

CARDIAC DYSRHYTHMIA

SUBJECTIVE

Obtain SAMPLE history to include recent syncope, palpitations, chest pain, SOB, dizziness, nausea, vomiting, and sweating. Bystander treatment prior to EMS arrival.

OBJECTIVE

Monitor vital signs, level of consciousness, pulmonary function, and peripheral perfusion.

ASSESSMENT

Treatment protocol based on patients condition and cardiac rhythm.

TREATMENT

EMR:

- Oxygen.
- SPO2 & ETCO2
- High Performance CPR
- Automatic External Defibrillation as applicable
- Assist in performing 12 lead EKG

EMT:

- Supraglottic airway device

AEMT:

- IV or IO with Crystalloid

EMT-I:

- Intermediate Medications and treatment per protocol
- Cardiac Monitor / 12 lead EKG interpretation

Paramedic:

- Advanced airway

CEREBRAL VASCULAR ACCIDENT (STROKE)

SUBJECTIVE

Obtain SAMPLE history including exact time of onset or last known well.

Sudden onset of focal neurological deficit - commonly unilateral paralysis (extremity or facial weakness typically on one side of the body), aphasia (absent, abnormal, garbled or slurred speech), and/or gaze deviation. These are typical symptoms of anterior stroke (front of the brain).

Symptoms of posterior stroke (back of the brain) are more subtle and may include vertigo (dizziness with a sensation of spinning or movement), loss of coordination ("I feel like I'm drunk but I'm not"), partial or complete visual loss, diplopia (double vision) or other visual disturbance, and/or abnormal eye movements.

Symptoms of large stroke may also include seizure, sudden-onset coma, or death.

Risk factors for stroke include prior stroke or TIA, atrial fibrillation/atrial flutter, hypertension, angina or heart attack, diabetes, hypercholesterolemia, obesity, smoking history, and illicit drug use (i.e. meth, cocaine, synthetic marijuana).

OBJECTIVE

Patient assessment should include the evaluation of pupils, speech, language, motor responses and sensations. Limbs should be evaluated for equal strength and motion. Neurological exam findings may change with time. Monitor blood pressure, pulse, respiration, cardiac rhythm and blood sugar.

Cincinnati Prehospital Stroke Scale (CPSS)

Test	Findings
Facial Droop: have patient show teeth or smile.	**Normal**-both sides of face move equally **Abnormal**- one side of face doesn't move as well as other side or at all.
Arm Drift: patient closes eyes and extends both arms straight out, with palms up for 10 seconds	**Normal**- both arms move the same or both arms do not move at all **Abnormal**- one arm does not move or one arm drifts down compared with the other.
Abnormal Speech: Have patient say "You can't teach an old dog new tricks."	**Normal**- patient uses correct words with no slurring **Abnormal** – patient slurs words, uses wrong words, or is unable to speak.
Time: What was the exact time of onset of symptoms or last known normal?	If ≤ 6 hours since onset pre-alert receiving hospital with STROKE ACITVATION and give ETA. If symptoms > 6hrs but < 24hrs notify receiving hospital.
Interpretation: If any 1 of these 3 signs is abnormal, the probability of stroke is 72%. The presence of all 3 findings indicates the probability of stroke is >85%	

Cincinnati Prehospital Stroke Severity Scale (CSTAT)

Test	Findings
Gaze Preference: Have patient look forward	**Normal** - eyes look ahead **Abnormal** - Deviation of eyes away from the side of weakness --- 2 pts
Arm Weakness: patient closes eyes and extends both arms straight out, with palms up for 10 seconds	**Normal** - both arms move the same or both arms do not move at all **Abnormal** - one arm does not move, or one arm drifts down compared with the other. --- 1 pt
Level of Consciousness: ask year or month, provide two simple commands	**Normal** - patient responds appropriately **Abnormal** – patient cannot answer dates AND fails to follow 1 of 2 commands. --- 2 pts
CSTAT is positive if score is ≥ 2	

Posterior Stroke Screen		
BALANCE	**Yes**	**No**
Truncal ataxia		
Finger to nose abnormal		
Heel to shin abnormal (use only if patient unable to stand)		
Ataxic gait present		
EYES	**Yes**	**No**
Reported blindness or vision change (assess visual fields)		
Extraocular movement abnormal (dysconjugate gaze present)		
FACE	**Yes**	**No**
Inability or asymmetry to 'puff out cheeks'		
TONGUE	**Yes**	**No**
Inability to 'stick their tongue out' or move tongue left and right		
SHOULDER	**Yes**	**No**
Inability or asymmetry to shrug both shoulders		
******Posterior Stroke Screen is considered positive if YES for any of the above******		

Assessment

EMS assessment of stroke is made on the basis of patient history and physical exam.

Perform stroke assessment for any patient with new-onset weakness, dizziness, vision changes, altered mental status, or other focal neurologic symptoms.

"Stroke mimics" include trauma, hypoglycemia, seizure disorder, complicated migraine, psychiatric disorder and drug ingestion. Patients presents with stroke-like signs or symptoms less than 24 hours' duration may be candidates for thrombolytic or interventional (thrombectomy) therapy.

Symptoms or recent history of headache, head trauma, new-onset seizure, vomiting, sudden-onset GCS 3 are suspicious for intracranial hemorrhage and are best treated at a center with neurosurgical capability.

Reduce scene time, transport, and report "Stroke Activation" when appropriate.

TREATMENT **Do not delay transport**

EMR:

- Neurological assessment
- Oxygen only to maintain SpO2 > 92%
- Assist in performing 12 lead EKG
- SPO2 & ETCO2

EMT:

- CBG
- Supraglottic airway as applicable

AEMT:

- IV access

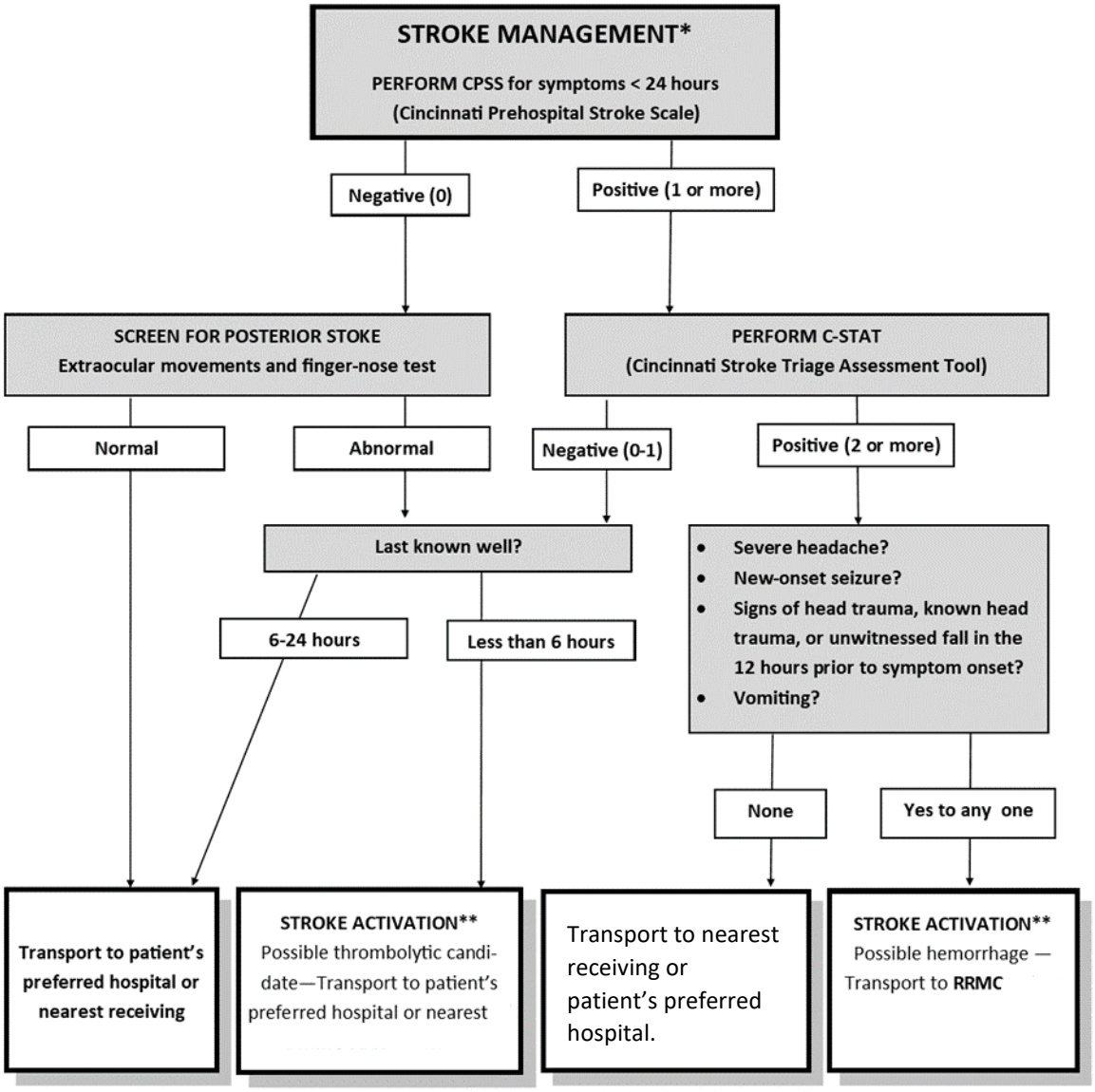
EMT-I:

- Cardiac Monitor / 12 lead EKG interpretation

Paramedic:

- Advanced airway management as indicated

CEREBRAL VASCULAR ACCIDENT (STROKE)
Algorithm



* For patient with symptoms <24 hours

**No stroke activation for patients with a valid POLST form with section B marked "Comfort Measures Only"

STROKE CARE

- Oxygen
- Check blood glucose
- IV or IO with saline lock
- Cardiac monitor
- 12-lead ECG
- Elevate head of bed 15-30 degrees
- Airway management as needed

Post TPA Interfacility Transport Guidelines

- Follow all written transfer orders (Be sure to clarify with physician if necessary)
- V/S and neurological exam every 15 minutes
- Watch for signs of elevated ICP: Hypertension, bradycardia, change in respiratory presentation, decreased LOC and seizures.
- Watch for signs of post t-PA complications such as ICH (neurological deterioration, new or worsening headache, changes in LOC or pupillary responses, acute hypertension, nausea, vomiting, diaphoresis), other internal or external bleeding (i.e. gums, venipuncture sites, hematuria, hemoptysis, ecchymosis), and/or orolingual angioedema (swelling of the tongue and upper lip). Avoid repeat venipuncture.
- If TPA is infusing during transport and a problem with infusion arises, contact medical control at TRMC or receiving hospital
- **Maintain systolic BP <180 and diastolic <105.** If systolic > 180 *or* diastolic blood pressure > 105 with heart rate > 55 bpm then push Labetalol: 10 mg IV for 1-2 min. May repeat once with initial dose or increase to 20mg IV. Contact medical control if BP remains over 180 systolic for further dosing of Labetalol.
- O2 (if SPO@ <94%), patent IV, and Cardiac monitoring in place.

CHEST TRAUMA

SUBJECTIVE

Obtain history and mechanism of injury to include blunt and/or penetrating trauma. Interview the patient specifically for chest pain, difficulty breathing, or coughing up blood after injury. In MVC, evaluate speed of vehicle, airbag deployment, damage to vehicle including steering wheel damage, and were the occupants wearing restraints. In penetrating trauma, type of weapon (i.e. knife, handgun, rifle, shotgun, etc.) and the number of wounds present.

OBJECTIVE

Patient may present cyanotic, pale, cool and with clammy skin. Examination should include evaluation for respiratory distress, paradoxical chest movement, subcutaneous air, decreased or absent breath sounds, open or closed chest injuries.

ASSESSMENT

Diagnosis of chest trauma will be based on patient history, mechanism of injury and physical findings. Do not overlook other potential injuries; head, spine, abdomen or extremities.

TREATMENT

EMR:

- Oxygen
- Cover open chest wounds with occlusive dressing
- Spinal motion restriction for blunt trauma
- SPO2 &ETCO2

EMT:

- Supraglottic airway as applicable

AEMT:

- IV or IO with crystalloid

EMT-I:

- Cardiac monitor / 12 lead EKG interpretation
- Analgesia

Paramedic:

- Advanced airway management as indicated
- Chest decompression as indicated

CHILDBIRTH
CARE OF THE NEWBORN

SUBJECTIVE

Interview the patient to estimate due date. Ask if the patient has received any pre-natal care, past medical history, current medications, and usage of alcohol or drugs during their current pregnancy. If birth has already occurred, determine time of birth and whether there were any complications associated with delivery. Blood pressure history. History of eclampsia, pre-eclampsia, HELLP Syndrome, premature rupture of membranes (PPROM), pre-term labor (PTL), vaginal bleeding, history of multiple births (twins, triplets, etc). Utilize GPTPAL acronym to assist in gathering history:

Gravidity – number of pregnancies

Parity (Para) – number of viable births

Term – number of pregnancies carried to term

PreTerm – number of premature births (20-37wks)

Abortion/Miscarriage – number of pregnancies ended before 20 weeks

Living children – number of living children the patient has

OBJECTIVE

Respiratory rate and effort, grunting, use of accessory muscles, meconium, skin color, heart rate, muscle tone, multiple births.

ASSESSMENT

Most newborns will quickly respond to stimulation through gently drying and placement upon mother's chest or abdomen and encouragement to nurse.

APGAR Scoring			
ITEM	**0**	**1**	**2**
Appearance	Cyanotic	Pink with blue extremities	All pink
Pulse	Absent	<100/min	>100/min
Grimace	None	Grimace	Sneeze or cough
Activity	Limp	Some flexion	Active motion
Respirations	None	Slow or irregular	Good cry

TREATMENT

EMR:

- Stimulate newborn by gently drying.
- Suction mouth first and then nose with bulb syringe to remove any secretions.
- Cover infant, including head with dry blanket or towel to maintain body temperature.
- Provide blow-by oxygen for respiratory difficulty or cyanosis.
- Assess APGAR score at one and five-minute intervals.
- If APGAR 0-4 provide BLS: CPR if pulse<60.

EMT:

- CBG

AEMT:

- Vascular access with fluid resuscitation (10cc/kg) if indicated.
- If CBG < 60 treat with Dextrose. Repeat as indicated.

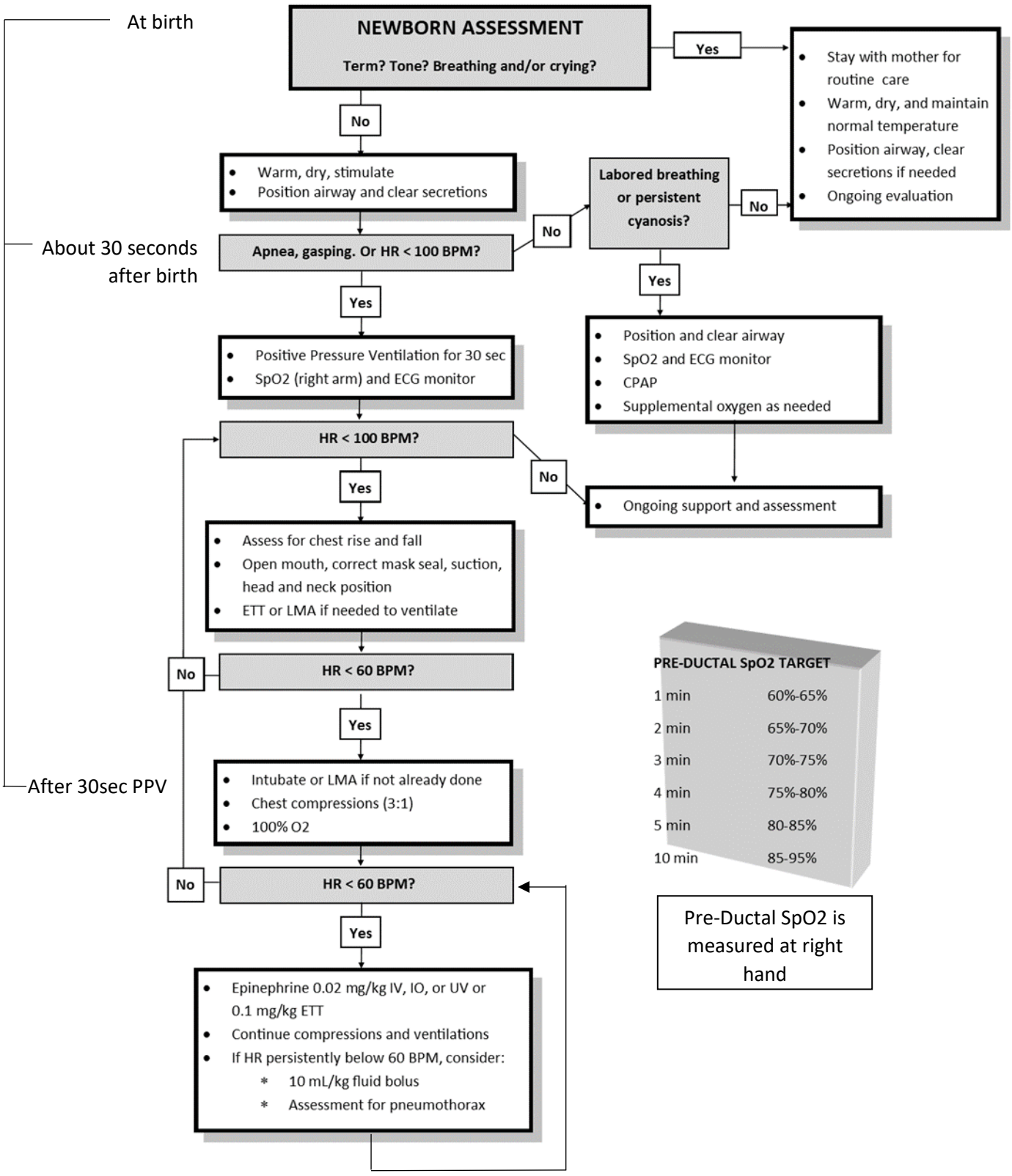
EMT-I:

- Cardiac monitoring

Paramedic:

- Advanced airway management as indicated.
- PALS guidelines as appropriate.

CHILDBIRTH
NEONATAL RESUSCITATION ALGORITHM



CHILDBIRTH
BREECH DELIVERY

SUBJECTIVE

Obtain brief history of pregnancy including known breech position, due date, complications during pregnancy, drug or alcohol use, and past medical history.

OBJECTIVE

Evaluate patient for frequency and duration of contractions. Examine patient for presenting part and meconium during contraction.

ASSESSMENT

Transport without delay to closest hospital, notify early and be prepared to assist.

TREATMENT

EMR, EMT:

- High-flow oxygen.
- Place mother supine or in Trendelenburg position.
- If the birth is imminent allow the mom to push**. Do not pull baby**.
- If head does not deliver place a gloved hand into the vagina and form a V around the baby's head and mouth to create an air passage. Maintain this position until birth.
- Consider Marceau maneuver to help deliver the head

AEMT & EMT-I:

- Vascular access

Paramedic:

- Prepare for, and assist with, delivery.
- Cardiac monitor

CHILDBIRTH
POST-PARTUM HEMORRHAGE

SUBJECTIVE

Obtain delivery time and date if not known. Estimate the quantity of blood loss. Continue with SAMPLE history including delivery time of placenta.

OBJECTIVE

Evaluate patient for hypotension, tachycardia, active bleeding, and tears in perineum.

Assessment

Immediate (first 24 hours) post-partum hemorrhage is usually due to poor uterine muscle tone, cervical, or perineal tears. Late post-partum hemorrhage (7-10 days) is usually from presence of retained placental parts. If immediately post-partum, the first priority is delivery of the placenta.

TREATMENT

EMR, EMT:

- High-flow oxygen
- External (Fundal) uterine massage
- Allow infant to nurse to stimulate uterine contractions or have patient stimulate her own nipples
- Apply direct pressure to active external perineal bleeding

AEMT:

- One or two large bore IVs or IO with crystalloid

EMT-I:

- Cardiac Monitor
-

Paramedic:

- Oxytocin
- Tranexamic acid (TXA)

CHILDBIRTH UNCOMPLICATED

SUBJECTIVE

Interview patient to obtain Gravida, Parity and estimated due date, recent vaginal bleeding, complications with prior pregnancies, pre-natal care, known multiple births, recent drug use and PmHX. Contractions (onset, interval and duration), and urge to push. Blood pressure history. History of eclampsia, pre-eclampsia, HELLP Syndrome, premature rupture of membranes (PPROM), pre-term labor (PTL), vaginal bleeding, history of multiple births (twins, triplets, etc). Utilize GPTPAL acronym to assist in gathering history:

Gravidity – number of pregnancies

Parity (Para) – number of viable births

Term – number of pregnancies carried to term

PreTerm – number of premature births (20-37wks)

Abortion/Miscarriage – number of pregnancies ended before 20 weeks

Living children – number of living children the patient has

OBJECTIVE

Vital signs, fetal heart tones (LLQ, RLQ, over bladder), frequency of contractions. Respecting privacy, inspect perineum for crowning or bulging, vaginal fluid, bleeding, meconium, abnormal presentation.

ASSESSMENT

Childbirth is a natural event and usually is uncomplicated. If you suspect a complicated delivery, refer to the appropriate protocol and request additional resources. If you suspect an uncomplicated delivery and imminent birth is not present, transport mother on left side. If impending birth, follow below protocol.

TREATMENT

EMR, EMT:

- Oxygen.
- Position patient for delivery.
- OB pack/kit
- Respect patient privacy.
- Assist with delivery of head applying gentle pressure and continue to support head.
- Feel around neck for nuchal cord, if present gently slip around head.
- Suction the baby's mouth and then nose with bulb syringe, if noted meconium.
- Supporting the head, assist delivery of anterior shoulder and then the rest of the body.
- Keep baby level with the placenta until the cord is clamped.
- Clamp cord using 2 clamps spaced 6–8 inches from baby's body and cut cord between clamps.
- **GO TO: CARE OF THE NEWBORN PROTOCOL**
- Inspect perineum for tears. Apply direct pressure with gauze pad to any bleeding.
- Let placenta deliver normally and take to hospital.
- After placenta delivers, massage uterus by rubbing abdomen firmly.

AEMT, EMT-I, Paramedic:

- IV or IO with crystalloid.
- Re-evaluate mother and neonatal patient throughout transport

CROUP

SUBJECTIVE

"Barking" cough with breathing difficulty mostly during inspiration and worse when excited or agitated in a child, most commonly of age 6 months - 6 years. May have a low-grade fever and cold symptoms. Symptoms typically are worse at night.

OBJECTIVE

Inspiratory stridor heard loudest in the neck. Child can handle oral secretions. Stridor usually lessens when child is calm.

ASSESSMENT

Croup (laryngotracheobronchitis) is a viral respiratory illness with swelling in the larynx which results in the typical "barky" cough and inspiratory stridor (noisy breathing). Asthma and bronchospasm typically causes expiratory wheezing. Treatment is supportive, unless child's SpO2 is less than 90% or significant inspiratory stridor is present at rest.

Inhaled epinephrine may be administered for significant inspiratory stridor present at rest.

Advanced airway placement may trigger marked laryngospasm and should be done only as a last resort.

Inspiratory stridor may also be caused by epiglottitis, which is a bacterial illness usually with an ill-appearing patient, significant fever, drooling, or an inhaled foreign body, which usually has a sudden onset without cold symptoms or a fever.

TREATMENT

EMR, EMT, AEMT:

- Supportive care
- Oxygen or blow by to keep SaO2 above 92%.
- Position of comfort
- Soothe child

EMT-I:

- Epinephrine via nebulizer

Paramedic:

- Dexamethasone oral
- Cardiac monitor
- Advanced airway only as last resort

DIABETIC EMERGENCIES

SUBJECTIVE

Obtain SAMPLE history including any recent illness or injury. If patient takes insulin, when was the last dose taken? Common oral hypoglycemic medications are glyburide (Diabeta, Micronase), glipizide (Glucotrol), tolbutamide (Orinase), metformin (Glucophage), and chlorpropamide (Diabinase).

OBJECTIVE

Evaluate patient's level of consciousness noting any confusion, disorientation, combativeness, or unresponsiveness. Patient may have pale, moist skin. The patient can also have normal to deep rapid respirations or a fruity odor on their breath. The patient will present with a slow, normal, or fast heart rate, and their blood pressure will be low or normal.

ASSESSMENT

Patients with hypoglycemia (blood sugar less than 70mg/dl) have normally been ill for a short period of time. These patients may present with seizures, coma, behavior problems, intoxication, confusion, or focal neurologic deficits.

Patients with hyperglycemia (blood sugar more than 300 - 400mg/dl) often have been ill for several days, and they may have associated dehydration. Consider IV crystlalloid 500 – 1000 cc.

TREATMENT

EMR:

- Oxygen
- Oral glucose or oral dextrose if no airway risk due to decreased LOC

EMT:

- Check blood sugar

AEMT:

- Vascular access prefer large vein
- Dextrose as indicated by blood glucose <70 (dosing-refer to dextrose protocol)

EMT-I & Paramedic:

- Cardiac monitor
- Glucagon if no vascular access (agency optional)

DO NOT RESUSCITATE

INITIATION AND TERMINATION OF RESUSCITATION, TRANSPORT and POLST

Most patients who do not have ROSC (Return of Spontaneous Circulation) in the field with EMS treatment are unlikely to be resuscitated in the hospital after transport. Most trauma patients with cardiac arrest have poor prognosis unless they have ongoing cardiac activity and arrive at the hospital within 15 minutes of the arrest.

There are some situations in which ongoing CPR during transport may improve the chance of survival at the hospital for a patient with cardiac arrest including: pulseless ventricular tachycardia or PEA with a narrow complex rhythm; patients with normal-range end-tidal CO2 during resuscitation; victims of penetrating trauma close to the hospital; electrocution, hypothermia, or local anesthetic systemic toxicity (LAST); pediatric patients with initial rhythm other than asystole; or pregnant women beyond 20 weeks.

Ongoing CPR during transport (including gurney and ambulance travel) is difficult and may not be very effective, in addition to posing risk to the EMS providers. Transport of patients in cardiac arrest and post-arrest should be done with a mechanical CPR device in place when available.

GUIDELINES FOR INITIATION OF RESUSCITATION:

- All patients who are unresponsive, apneic, and pulseless or who have impending cardiac arrest or respiratory failure will receive full resuscitation efforts within the first responder or EMT's abilities and knowledge, unless:
  - Patient has a valid POLST form or wallet card with corresponding name and date of birth and be signed and dated by a physician, nurse practitioner, physician assistant, or naturopathic physician, including verbal orders by any of those authorized practitioners documented in writing by an RN.
  - A patient with a valid POLST as confirmed with the POLST registry by provider via phone.
  - Obvious death with rigor mortis in a warm environment, decomposition or dependent lividity (venous pooling)
  - Scene is not safe for EMS providers
  - Patient with capacity clearly states to EMS provider that s/he does not want resuscitation prior to arrest, and this conversation is witnessed by a second provider
- Resuscitation should be withheld in **traumatic arrest** for any of the above or:
  - Injury incompatible with life, such as decapitation, hemicorpectomy, massive crush injury or massive head trauma
  - Initial rhythm asystole and no signs of life (pupil response, agonal breaths, residual movements)
- If resuscitation would otherwise be indicated, but there is confusion or discrepancy about the POLST form from the patient, family, or caretakers, CPR should be initiated while contacting OLMC. **When in doubt, begin resuscitation**.

GUIDELINES FOR TERMINATION OF RESUSCITATION and TRANSPORT:

For medical cardiac arrest:

- EMS resuscitation of may be terminated without OLMC:
  - Adult patients (excluding women > 20 weeks pregnant) with persistent asystole or slow (<40 BPM), wide PEA after 20 minutes of EMS resuscitation measures.
  - Pediatric patients with initial rhythm asystole and no rhythm changes after 20 minutes of EMS resuscitation measures.
  - Patients in cardiac arrest when EMS resuscitation measures have been initiated and a valid POLST or written DNR is later found, as long as family is in agreement.

- Consider transport after 20 minutes of on-scene resuscitation for:
  - Patients with persistent EtCO2 readings 25-50
  - Hypothermic patients, electrocution injuries, or patients suspected to have local anesthetic systemic toxicity (LAST)
  - Women > 20 weeks pregnant with transport times greater than 5 minutes

- Consider immediate transport for women > 20 weeks pregnant with transport times less than 5 minutes

- Contact OLMC for termination of resuscitation for:
  - Adult patients with recurrent or persistent ventricular fibrillation, ventricular tachycardia, fast (> 40 BPM) PEA, or changing rhythm in whom sustained ROSC has not been achieved after 40 minutes of EMS resuscitation measures.
  - Pediatric patients with initial rhythm other than asystole in whom sustained ROSC has not been achieved after 40 minutes of EMS resuscitation measures.
  - Hypothermic patients or electrocution injuries if crew feels ongoing resuscitation and transport are not indicated.
  - **Patients in cardiac arrest when EMS resuscitation measures have been initiated and a valid POLST or written DNR is later found, if family or caregivers wish for resuscitation to continue**

For traumatic cardiac arrest:

- EMS resuscitation may be terminated without OLMC:
- Trauma arrest with initial rhythm asystole and no signs of life (pupil response, agonal breaths, residual movements
- Treat reversible causes
- Contact OLMC for termination of resuscitation for:
  - Hypothermic patients or electrocution injuries if crew feels ongoing resuscitation and transport are not indicated

GUIDELINES FOR MANAGEMENT AFTER DEATH:

- If patient is pronounced dead, notify the medical examiner through law enforcement.
- Explain to the survivors the next steps likely to occur.
- Do not move the patient or remove medical treatment devices such as IVs or airway devices, although you may consider eliminating connection devices such as IV tubing, electrode wires, or airway tubing extending beyond the lips that cannot be adequately covered with a sheet.
    - If there is no suspicion that the scene is a crime scene, and the wishes of the family are to relocate the patient to a bed, couch, etc at the location for viewing/visiting/cultural considerations, the patient may be moved. Consultation with law enforcement prior to moving the patient may be performed if the provider prefers.
- Arrange for support of family or friends, such as calling a chaplain or clergy before leaving the scene.
- Allow family or friends to appropriately view or visit the patient if desired.

POLST INFORMATION AND RESOURCES:

POLST, or Portable Orders for Life-Sustaining Treatment, is a legal order for treatment for patients who cannot speak for themselves. A patient's expressed wishes on scene always take precedence over a POLST. Family members may alter a POLST, but should only do so in accordance with the patient's wishes. Any advance directive or DNR other than a POLST should serve as a discussion point with patient and family about goals of care, with OLMC as needed for orders.

EMS providers are required by law to request and honor a POLST form, and are protected by law for doing so. All patients should be treated with respect and attention to comfort, dignity, and hygiene.

If the POLST form is unavailable, the POLST Registry at OHSU (1-888-476-5787 for EMS use only) may be called with as much patient identifying information as possible (name, POLST Registry #, birthdate, address, last 4 digits of social security number) and the POLST instructions for Section A & B can be provided verbally and the POLST form can be faxed.

EMS personnel will follow the instructions checked in Section A or B. Section A instructs whether or not to attempt resuscitation for a patient who is both pulseless and apneic. Section B refers to EMS treatment (comfort measures only, limited additional interventions, or full treatment) in the case of a patient who has a pulse, is breathing or both

If there is any confusion or discrepancy about the POLST form or from the patient, family or caretakers, begin care or resuscitation measures and contact OLMC

EPISTAXIS

SUBJECTIVE

Obtain SAMPLE history including recent trauma, recent upper respiratory tract infection, intra-nasal drug use, history of hypertension and current medications.

OBJECTIVE

Evaluate for airway compromise. If head trauma is suspected, check both ears for clear or bloody fluid. Evaluate for presence of a hypertensive crisis.

ASSESSMENT

Most nosebleeds occur on the anterior septum from one side only and will stop spontaneously or with direct pressure if applied appropriately. Patients may be very anxious, particularly if the bleeding is persistent. The risk of significant blood loss is generally small. Bleeding from the posterior nose is often much more serious, but also very unusual. Medical intervention is usually required for posterior bleeds.

TREATMENT

EMR, EMT:

- Calm the patient
- Have patient blow nose and cough to expel clots
- Apply direct pressure by pinching the soft part of nose for ten minutes or until bleeding has stopped

AEMT, EMT-I:

- Vascular access

Paramedic:

- Oxymetazoline (Afrin), 2 sprays each affected side, repeat up to 3 times

EXERCISE ASSOCIATED HYPONATREMIA (EAH)

SUBJECTIVE

Participation in a long-distance endurance event, such as a triathlon, marathon or ultramarathon "ultra". Usually takes several hours of prolonged exertion to develop. Patients have often been drinking large amounts of liquid and can be taking salt tablets.

OBJECTIVE

Altered level of consciousness: disorientation, delirium, confusion, seizure, coma. Normothermic. No hypotension or tachycardia. No hypoglycemia or weight gain/loss during the event

ASSESSMENT

Exercise Associated Hyponatremia (EAH) is an acute electrolyte abnormality which occurs in generally healthy people who participate in long distance endurance events and is due to excess water intake.

Definitive diagnosis is made by measurement of serum sodium [Na+] which is done at the hospital.

Evaluate for and treat other medical conditions first.

TREATMENT

EMR, EMT:

- Oxygen
- Evaluate and treat other medical conditions

AEMT, EMT-I, Paramedic:

- Vascular access - Saline lock – avoid crystalloid IV or IO
- Record pre-race weight and current weight, if available
- If [Na+] is measured onsite by event medical staff, then online medical control (OLMC) and report [Na+] value
- Transport to the hospital

EXSANGUINATING HEMORRHAGE

SUBJECTIVE

Injuries can occur from multiple traumatic causes, blunt or penetrating mechanisms. Patients will have severe bleeding that is life threatening and requires immediate action.

OBJECTIVE

Examine patient for source of bleeding.

ASSESSMENT

If transport time is longer than 15 minutes and the patient is stable, then the tourniquet can be released to reevaluate hemorrhage control. If hemorrhage is not controlled, then tourniquet must be re-applied and left in place for the remainder of the transport.

TREATMENT

EMR

- Apply agency-approved tourniquet to extremity injuries. Tourniquet should be applied two inches proximal to the site of bleeding and tightened until bleeding stops. If bleeding continues after application of first tourniquet a second may be applied proximal and next to first tourniquet
- Note time of tourniquet application on tourniquet
- Oxygen (after bleeding controlled)
- Accepting physician MUST be informed tourniquet has been applied

EMT:

- Wound packing with an agency approved hemostatic bandage or apply a hemostatic agent (if available) to wound and apply pressure dressing

AEMT:

- Vascular access – prefer large bore IV with saline lock
- Crystalloid – if SBP <90 and signs of shock – titrate to SBP 90

EMT-I, Paramedic:

- Cardiac monitor
- Analgesia

EYE INJURY

SUBJECTIVE

Mechanism of injury: chemical exposure, foreign body, penetrating injury; changes in vision or loss of vision; use of eye protection or corrective lenses; associated injuries.

OBJECTIVE

Pupil irregularity; foreign body on or in the eye; redness; associated injuries of eyelid, eyebrow, or adjacent face; visual acuity

ASSESSMENT

Eye injuries are generally more severe if associated with change in vision or pain with eye movement. All eye injuries treated by EMS need medical evaluation.

TREATMENT

EMR, EMT, AEMT:

- Assess for and treat life-threatening injuries first
- Check and record visual acuity in each eye tested separately BEFORE AND AFTER ANY TREATMENT by reading text, counting fingers, or distinguishing shapes
- Remove any contact lens in the injured eye, if possible
- Avoid rubbing the injured eye
- Penetrating eye injury:
  - Protect the eye from further injury and minimize movement of the other eye
  - Stabilize any impaled object
  - Do not irrigate the eye
- Suspected foreign body:
  - Irrigate the eye with clean water or crystalloid – minimum 1 L

EMT-I:

- Analgesia

Paramedic:

- Ketamine
- Midazolam

FRACTURES AND DISLOCATIONS

SUBJECTIVE

Obtain history of trauma, mechanism of injury, localized pain, loss of sensation, and/or motor function.

OBJECTIVE

Tenderness, swelling, deformity, angulation, discoloration, crepitus, loss of motion or guarding. Open wound or exposed bones. Arterial compromise demonstrated by cool extremity, loss of pulses or loss of sensation.

ASSESSMENT

Diagnosis of a suspected fracture or dislocation is based on the patient's history, mechanism of injury and physical findings. Other causes may be a strain or sprain. Evaluate for other trauma.

TREATMENT

EMR, EMT

- Oxygen
- Dressing to open wounds
- Immobilize, splint, elevate, and apply ice as indicated
- Monitor distal circulation, sensation, and movement before and after splinting
- Compare quality of distal pulses between affected and unaffected limbs
- Traction splint for suspected mid-shaft femur fractures

AEMT:

- Vascular access
- Crystalloid if indicated

EMT-I:

- Cardiac monitor
- Analgesia

Paramedic:

- Conscious sedation as needed (paramedic only)
- Ketamine
- For extremities with arterial compromise (pulseless, cool, cyanotic/pale) or angulated in a manner that prevents ability to transport in ambulance, may attempt re-alignment once prior to splinting to restore circulation or facilitate ambulance transport

HEAD TRAUMA

SUBJECTIVE

Obtain history of trauma and mechanism of injury. Evaluate patient for changes in consciousness and if protective devices worn, such as safety belts or helmets. Associated symptoms can include headache, nausea, vomiting, visual changes, numbness, tingling or paralysis.

OBJECTIVE

Evaluate the patient's level of consciousness. Examine ears and nose for clear and/or bloody fluids**. Cushing's Triad:** Bradycardia, Hypertension, and Abnormal respiratory pattern. Pupil size and reactivity to light. Skull or facial lacerations or fractures. Assess for further injuries. Is patient taking anticoagulants?

ASSESSMENT

Head trauma may produce lacerations, fractures, or brain injury. Control severe bleeding from the scalp with direct pressure. An altered level of consciousness may be due to other medical conditions. For example: seizures, hypoglycemia, hypoxia, and stroke. Patients who do not meet trauma system entry criteria but have history of or signs of head injury should be transported according to the algorithm below.*

TREATMENT

EMR:

- Oxygen ***(prevent/treat hypoxia)***
- SPO2 & ETCO2 (Mandatory)
- Spinal motion restriction

EMT:

- Supraglottic airway as indicated

AEMT & EMT-I:

- Vascular access ***(prevent/treat hypotension)***

Paramedic:

- Consider Rapid Sequence Induction (RSI).
- Chemical Restraint / Sedation as appropriate.

❋ **IF age > 55 yo and/or patient is on anticoagulants and one of the following is present:**

- Active seizing or seizure after injury
- Neurologic posturing (flexion /extension)
- Hypertension with bradycardia (Cushing's Reflex)
- Intermittent apnea (periodic breathing)
- Decrease in GCS score by 2 or more points (neurologic deterioration)
- Suspected open or depressed skull fracture

❋ **THEN, Transfer to RRMC and Trauma Activation**

- If GCS is ≤8 and one or more of the following signs of brain herniation are present, maintain a continuous ETCO2 value between 30-35mmHG. ***(prevent/treat hypo/hypercapnia)***
- Elevated head of bead to 15-30 degrees
- Spinal motion restriction

DO NOT MISS

Prevent hypoxia, hypotension, and hypo/hypercapnia for all suspected brain injury patients.

HEAT RELATED ILLNESS

SUBJECTIVE

Obtain a SAMPLE history from patient. Associated complaints may be headache, nausea, abdominal cramps, extremity cramps, dizziness, altered mentation, or general weakness.

OBJECTIVE

Evaluate patient's core temperature and level of consciousness. Note the patient's skin color and whether skin is warm and moist or hot and dry.

ASSESSMENT

Heat illness may range from heat cramps, treated with removal from heat, to heat exhaustion, treated with hydration, to heat stroke where the body's ability to maintain normal temperature fails. Heat stroke is diagnosed on the basis of hot environment, body temperature greater than 40°C (104°F), dry skin, and neurological abnormalities including an altered mental status. Patients with heat stroke need to have active cooling measures begun immediately, including ice packs to groin, axillae, and neck; application of wet sheets and water to patient; fan on high; cool IV fluids.

TREATMENT

EMR, EMT:

- Remove patient from environment
- Oxygen
- Active cooling in heat stroke patients

AEMT:

- Vascular access
- Crystalloid if indicated

EMT-I

- Cardiac monitoring / EKG interpretation

Paramedic:

- Benzodiazepine (Lorazepam, Diazepam, or Midazolam) for seizures

SUBJECTIVE

Patient is enrolled in a local hospice program to provide end of life comfort care.

ASSESSMENT

Patient likely will have POLST Form specifying DNR in Section A and Comfort Measures Only in Section B, BUT THIS IS NOT REQUIRED FOR HOSPICE and current POLST should be followed if patient is unable to make current wishes known.

Any patient, already enrolled in a hospice program, should have already contacted the on-call hospice nurse before EMS providers arrive or are called.

TREATMENT

EMR, EMT, AEMT, EMT-I, Paramedic:

- Provide patient and family comfort
- Use protocols to treat pain, respiratory distress, nausea, anxiety, or confusion, using IM or IN administration when possible
- Contact the on-call hospice nurse to discuss further care, which may or may not include transport of the patient to the hospital for further evaluation or care
- OLMC if the on-call hospice nurse is not reachable in a timely fashion
- The patient may elect to leave hospice program at any time

Hospice Program

24 Hour Contact Phone Number

Asante Hospice

541-789-5005

Providence Hospice

541-732-6500

Signature Hospice

541-664-7400

HYPERTENSIVE EMERGENCIES

SUBJECTIVE

Patient may complain of headache, blurred vision, nausea or vomiting, confusion, chest pain or dyspnea. Patient will often have a history of hypertension and be on medication to control blood pressure (diuretics, beta blockers, calcium channel blockers, ACE inhibitors). If patient is pregnant, think pre-eclampsia.

OBJECTIVE

Hypertensive emergencies may demonstrate confusion, coma, nuchal rigidity, pupillary changes, irregular respirations (Cheyne-Stokes), pulmonary edema, chest pain, seizures, and nosebleeds.

ASSESSMENT

Hypertension itself is rarely a medical emergency.
Persistent blood pressure greater than 240/140 and altered mental status, pulmonary edema or chest pain may warrant treatment of the blood pressure.
Elevated blood pressures are common with closed head injuries (Cushing's Triad) and CVA's. It is the body's response to maintain adequate blood flow to the brain. Therefore, lowering the patients' blood pressure may worsen the patients' mental status and/or result in death.
Treatment of hypertension in the context of suspected head injury or CVA is contraindicated.

TREATMENT

EMR, EMT:

- ABC's
- Oxygen
- Monitor vital signs every 5-10 minutes
- SPO2

AEMT:

- Vascular access

EMT-I & Paramedic:

- Cardiac monitor / EKG interpretation
- Nitroglycerin

HYPOTHERMIA

SUBJECTIVE

Obtain SAMPLE history including length of exposure, alcohol and/or drug abuse.

OBJECTIVE

Evaluate patients' core temperature and any signs of trauma. Refer to reference chart below for associated signs and/or symptoms.

ASSESSMENT

Oral or tympanic temperature measurement may be used in place of core temperature measurement for awake patients.

Patient in cardiac arrest or comatose with tympanic temperatures < 32°C or <90°F should have a rectal temperature assessed.

The very young, the very old, and those with chronic medical or debilitating conditions are at increased risk of hypothermia, even in mild environments.

No patient is dead until warm and dead.

MILD	MODERATE	SEVERE
94-97°F 34.5-36°C	86-94°F 30-34.5°C	<86°F <30°C
Shivering	Shivering lessens	Stupor
Lethargy	Confusion	Coma
Staggering gait	Loss of balance	Dysrhythmias
		Cardiac Arrest

TREATMENT

EMR:

- Eliminate environmental heat loss (remove wet clothes)
- Avoid rough movement and excess activity
- Oxygen
- Heat to head, neck, chest, groin, and arm pits (only if mild or moderate hypothermia)
- Oral glucose if patient has a patent airway and low blood sugar is suspected
- SPO2 & ETCO2
- Rapid transport

EMT:

- Supraglottic airway as indicated
- CBG
- Oral dextrose if airway is protected

AEMT:

- IV or IO with warmed crystalloid (43C or 109F)
- Dextrose 10%, 10 – 20 grams (100 – 200 ml) IV/IO by infusion or Dextrose 50%, 25 grams (50 ml) in large vein for blood glucose < 70

EMT-I:

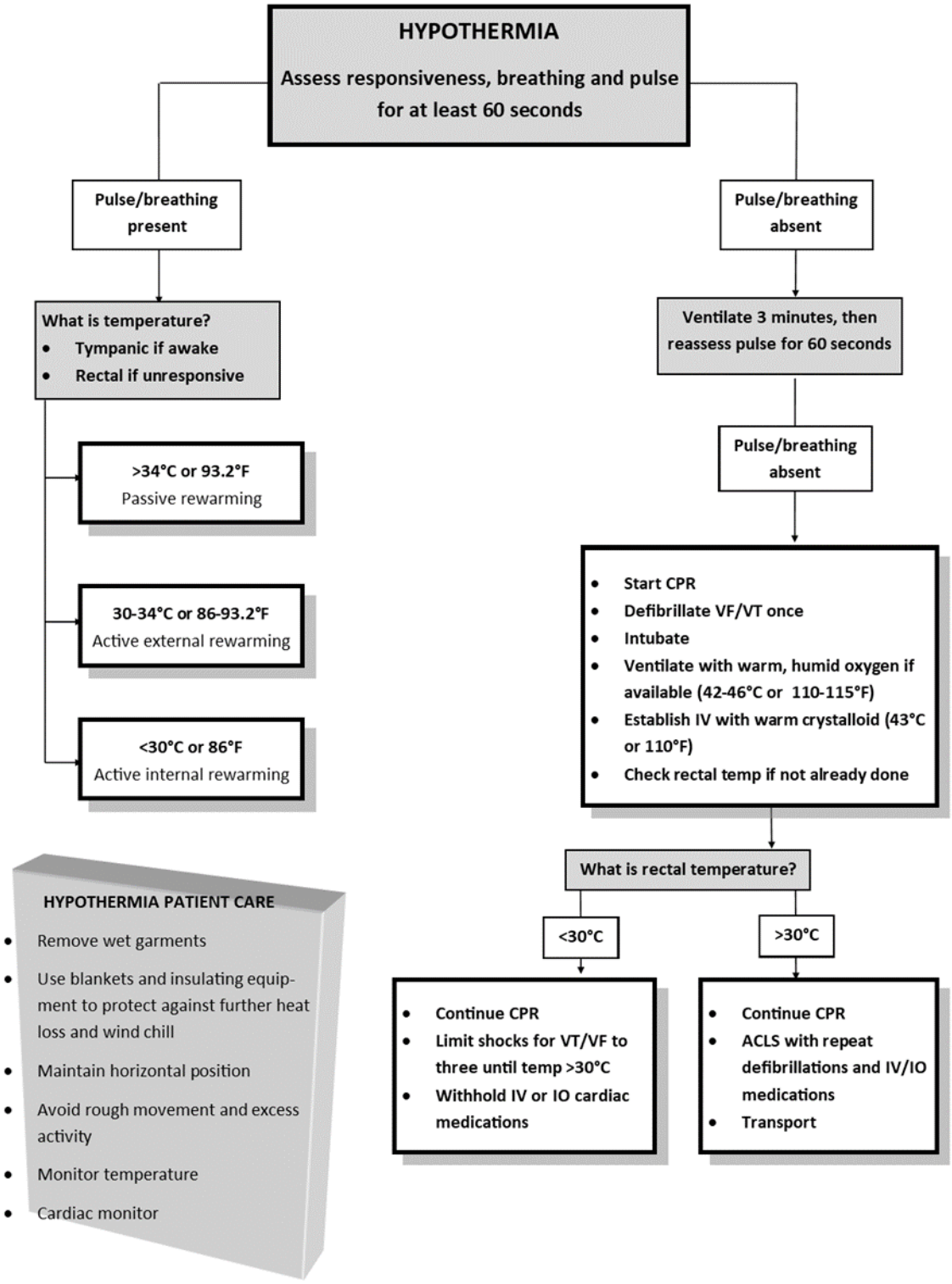
- Cardiac monitor / EKG interpretation
- ACLS treatment algorithm as indicated.

Paramedic:

- Advanced airway management as indicated.

HYPOTHERMIA

ALGORITHM



INHALATION INJURIES

SUBJECTIVE

Inhalation injuries can result from poorly ventilated spaces, fire, explosion, exhaust, furnaces, gases present (i.e., methane, CO, cyanide), barbecues, or charcoal fires. Consider the length and type of exposure when evaluating inhalation injuries. Patients will often complain of dyspnea, headache, sore throat, sore mouth, cough, nausea, vomiting, or poor coordination.

OBJECTIVE

Evaluate patient for soot around face and in airways. Also note any singed facial hairs, stridor, hoarseness, cough, shortness of breath, changes in mentation, or syncope.

ASSESSMENT

Inhalation is the most rapid route of toxins into body. Onset of symptoms can take up to 12-36 hours. Patients may rapidly deteriorate; airway management may need to be aggressive. Multiple patients with similar symptoms suggest toxic inhalation.

Contact Poison Center for management of specific toxins: 1-800-222-1222

TREATMENT

EMR:

- ABC's
- Remove from toxic environment
- High-flow oxygen, humidified preferred
- Be alert for respiratory compromise
- SPO2 & ETCO2, CO if available

EMT:

- Supraglottic airway as indicated

AEMT:

- Vascular access

EMT-I:

- Cardiac Monitoring

Paramedic:

- Advanced airway management as indicated.
- Hydroxocobalamin for suspected CO toxicity (agency optional)

INSECT STINGS AND BITES

SUBJECTIVE

Obtain history from patient to include localized pain, burning sensation or itching at the site. Patient may complain of associated anxiety, restlessness, weakness, dizziness, headache, syncope, numbness, muscle cramps, chest tightness, shortness of breath, abdominal pain, nausea, and/or vomiting. Complete the SAMPLE history. Gather information from bystanders on scene that may assist in identification of insect, spider, or animal.

OBJECTIVE

Examine patient for puncture marks on skin, redness, swelling, discoloration, or blistering at injury site. Attempt to identify the animal or insect that has caused the sting or bite.

ASSESSMENT

Insect stings, spider bites, scorpion stings, and marine life stings are typical sources of injected poisons or toxins. Gather information from the patient, bystanders at the scene and determine whatever you can about the insect, spider or other possible source of the poisoning.

- *BLACK WIDOW SPIDER BITE*: Progressive muscle spasm of back, abdomen and large muscle groups, vomiting, seizures, paralysis, hypertension, headache, tingling and burning sensation
- *BROWN RECLUSE OR HOBO SPIDER BITE*: Reddened area with underlying blister formation and surrounding area of necrosis. Over several days area turns dark and becomes ulcerated
- *TICK BITES*: Save tick if possible for identification
- *ANIMAL BITES*: Contusions or superficial abrasions to severe crush injuries, deep puncture wounds and tissue loss may develop.

TREATMENT

EMR, EMT, AEMT, EMT-I, Paramedic:

- Scene safety
- Oxygen as indicated
- Wound care
- Remove constricting item (clothing, jewelry)
- **Insect stings:** gently remove stinger by scraping away
- **Tick:** Do not remove in prehospital setting
- **Animal bites:** If patient not transported, contact law enforcement

If patient becomes symptomatic see **ANAPHYLAXIS PROTOCOL**

LEFT VENTRICULAR ASSIST DEVICE (LVAD)

OVERVIEW

A Left Ventricular Assist Device (LVAD) is used in patients with end-stage heart failure to allow them to return home to their family and community. The LVAD is dependent on an external power supply, either 110-volt AC or rechargeable batteries (to allow increased mobility). A patient needing an LVAD usually has enough intrinsic cardiac function to maintain life, but not enough to allow any significant activities above baseline. A patient with an LVAD, along with his or her close family members or friends, will have received extensive training in the use and operation of the LVAD.

SUBJECTIVE:

The level of consciousness will be of prime importance in evaluating the patient's condition.

OBJECTIVE:

- Patients with an LVAD will probably not have a palpable pulse or blood pressure detectable by EMS personnel or a reliable pulse oximeter reading.
- A hum from the implanted pump will usually be heard or palpated in the patient's central or left lower chest.
- End tidal CO2 measurements will be reliable with a normal value of 35-45 mmHg.
- Most patients with an LVAD will have received an Automatic Implantable Cardioverter Defibrillator (AICD), typically in the left upper chest.

TREATMENT:

EMR, EMT:

- Oxygen
- **DO NOT PERFORM CHEST COMPRESSIONS**
- Automatic External Defibrillator (AED) can be used normally.
- Transport all LVAD equipment (power supply, controllers, batteries, etc.) with the patient.
- One patient companion knowledgeable about the LVAD should be transported in the back of the ambulance along with the patient.
- **Any patient transported should be taken to RRMC where cardiology consultation is readily available.**
- For questions contact the patient's LVAD Center or OHSU LVAD Center at 503-494-9000

AEMT:

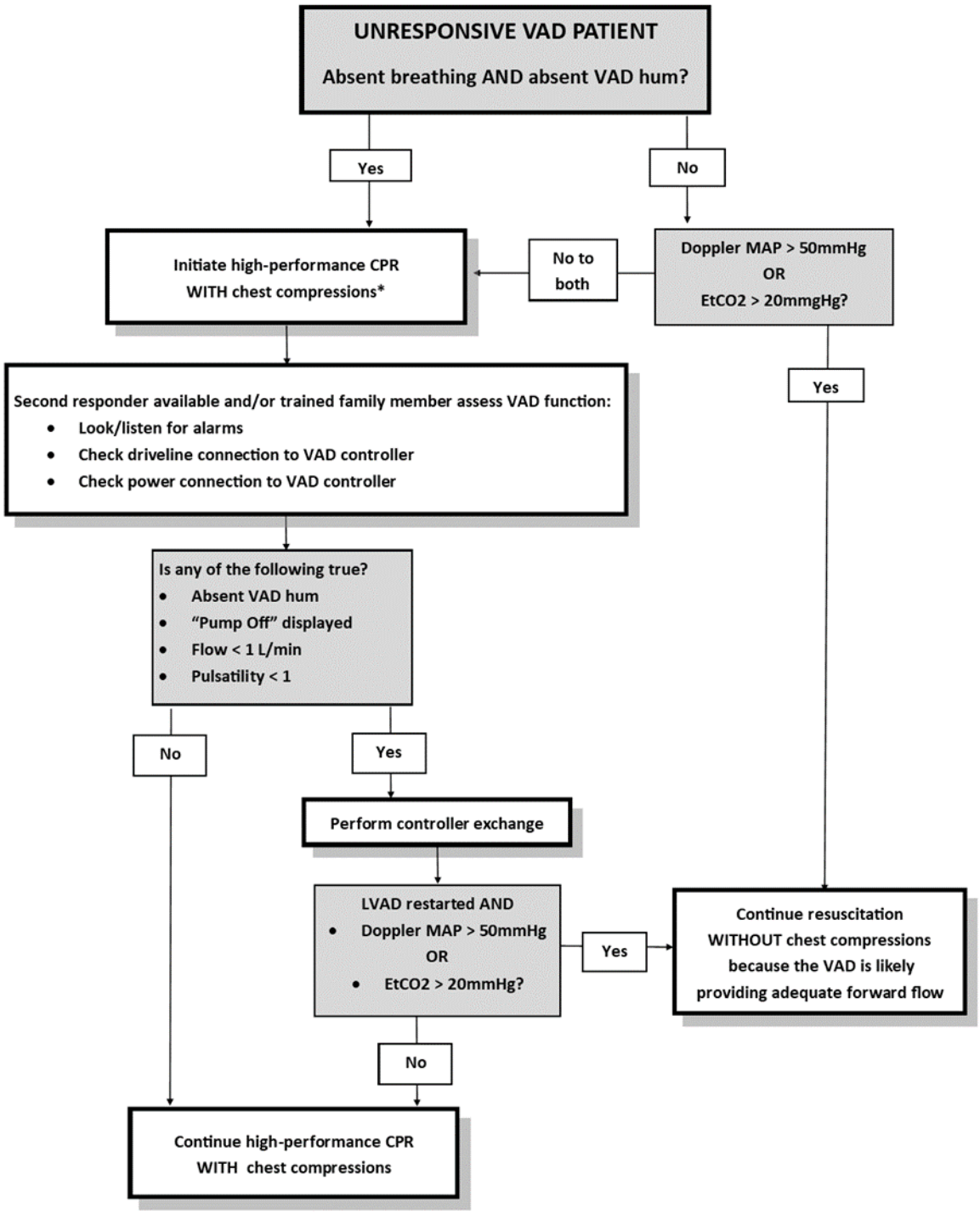
- IV or IO with crystalloid

EMT-I, Paramedic

- Manual defibrillation if indicated
- 12-lead ECG

LEFT VENTRICULAR ASSIST DEVICE (LVAD)

ALGORITHM



*No resuscitation for patients with a valid POLST form with section B marked "Comfort Measures Only"

NEAR DROWNING

SUBJECTIVE

Obtain information related to length of exposure, fresh or saltwater, water temperature, or diving accident. Patient may complain of dyspnea, coughing, chest tightness, headache, nausea, vomiting, and neck pain.

OBJECTIVE

Evaluate patients' level of consciousness, lung fields for crackles, increased respiratory rate, and skin for cyanosis.

ASSESSMENT

Patients may present asymptomatic and develop symptoms up to 24 hours post-event. Evaluate for signs and symptoms of respiratory distress, laryngospasm, pulmonary edema.

TREATMENT

EMR:

- ABC's
- Suction airway as indicated
- Spinal immobilization as indicated
- Oxygen
- Remove wet clothing and warm patient
- SPO2 & ETCO2
- Advocate for transport for evaluation

EMT:

- Supraglottic airway as indicated
- Consider CPAP if indicated for respiratory distress with hypoxia in conscious patient

AEMT:

- Vascular access
- Crystalloid if indicated

EMT-I:

- Cardiac Monitoring / EKG interpretation
- Consider an orogastric tube

Paramedic:

- Advanced airway management as indicated
    - Tracheal suctioning as needed
    - Consider PEEP for hypoxia refractory to oxygen administration
- Consider nasal or oral gastric tube

SUBJECTIVE

Patient complaining of pain as a result of an acute, or ongoing, illness or injury. Patient may rate the pain as uncomfortable to intolerable.

OBJECTIVE

Patient in pain may appear pale, diaphoretic, anxious, restless or irritable. Patient maybe tachypneic or tachycardiac. Physical exam may not reveal the source of pain and may be normal. Pain management should be initiated, and pain controlled to a comfortable level. Examples of processes causing pain include, but are not limited to, back spasms, migraine headache, cardiac chest pain, orthopedic injury, abdominal pain, burns, cancer, pancreatitis, diverticulitis or kidney stones.

ASSESSMENT

Patient management should be initiated to control pain to a tolerable level. Take patient's assessment of his or her own pain at face value. If you do not feel opioids are appropriate (for example, exacerbation of chronic pain), please offer another alternative such as ketorolac, acetaminophen, or ketamine.

Patients have different opioid receptor patterns, and what works for one may be ineffective for another. If your patient with severe pain is not getting relief from appropriate doses of fentanyl, consider a dose of morphine, and vice versa; or consider adding ketamine.

Benzodiazepines such as midazolam and lorazepam may help your patient relax, but they are not pain medications and should not be used for treatment of pain.

- **Conscious Sedation.**
  Conscious sedation is defined as the use of both an opiate and benzodiazepine to induce both an analgesic and sedative response. This must be used with caution as CNS depression, with ensuing respiratory depression, altered LOC and hypotension, may result.

- **Hypotension**
  Patients in pain and presenting with hypotension must have shock ruled out before administering analgesia.

TREATMENT

EMR, EMT:

- ABC's
- Oxygen
- Position of comfort
- Splinting
- Cold or hot compresses

AEMT:

- Vascular access
- Crystalloid if indicated

EMT-I:

- Opioid Analgesic (Agency Optional)
- Ketorolac

Paramedic

- Acetaminophen
- Conscious Sedation
    - **O2, IV, ECG, SPO2, ETCO2 MUST BE IN PLACE**
    - Sedation with benzodiazepine (Diazepam, Lorazepam or Midazolam)
    - Ketamine
    - Indications for field use are prolonged extrications or patients in extremis.
    - Avoid in headache or altered levels of consciousness.

POISONING AND OVERDOSE

SUBJECTIVE

Obtain a SAMPLE history from the patient including any psychiatric history, alcohol, and/or drug abuse. Determine type of toxin, approximate time of exposure, and quantity of substance. Toxins can be ingested, inhaled, injected, or absorbed through the skin. Evaluate whether the exposure was accidental, abuse, neglect, assault, or suicidal gesture. Finally, has the patient or bystanders attempted to induced vomiting or give the patient an antidote.

OBJECTIVE

Evaluate the patient's level of consciousness and any associated complaints. Observe patients' pupils. Constricted pupils may indicate narcotic overdose and dilated pupils may indicate barbiturate overdose. Monitor heart rate for tachycardia or bradycardia. Tachycardia may be associated with methamphetamine, cocaine or aspirin overdose. Bradycardia may be associated with digitalis overdose or exposure to organophosphates.

ASSESSMENT

- **CNS** - Altered level of consciousness, headache, seizures, hallucinations, coma
- **Pupils** - Constricted (narcotics, organophosphates) or dilated (anticholinergics, stimulants, carbon monoxide)
- **Respiratory** - Abnormal breathing, tachypnea or shallow respirations
- **Cardiovascular** - Tachydysrhythmias (methamphetamine, cocaine, ASA) or bradydysrhythmias (digitalis, beta blockers, calcium channel blockers, organophosphates); hypotension or hypertension
- **Skin** - Cyanosis, pallor, diaphoretic, evidence of needle tracks
- **Gastrointestinal**- Burns or stains around patient mouth, odor on breath, gag reflex, nausea & vomiting, abdominal pain or tenderness
- Use caution when giving Narcan. The patient can abruptly become conscious and endanger your safety.
- Consider toxidromes (refer to chart on next page)

One Pill Kills – These common medications may kill a pediatric patient with only one dose, and should prompt consideration for activated charcoal in adults:

- Calcium channel blockers: Diltiazem, amlodipine, verapamil, nicardipine
- Tricyclic antidepressants: Amitriptyline, nortriptyline, imipramine, doxepin
- Beta blockers: Metoprolol, carvedilol, propranolol, sotalol
- Sulfonylureas: Glipizide, glyburide, glimepiride
- Amphetamines
- Opioids
- Theophylline
- Chloroquine, hydroxychloroquine, quinidine, quinine

Bring all medicine containers. If suspected hazardous material, leave container but obtain correct spelling and UN or NFPA704 number. **Oregon Poison Center 800-222-1222**

Toxidromes Reference			
Toxidrome	**Mechanism & Possible Agents**	**Signs & Symptoms**	**Considerations**
Cholinergic	Acute phase of cholinesterase inhibitor poisoning resulting from the accumulation of excessive levels of acetylcholine in the synapses, glands, smooth muscles, and motor end plates where cholinergic receptors are found. *Possible agents: organophosphates, nerve agents, pesticides*	*SLUDSBAM* Salivation Lacrimation Urination Defecation Sweating Bronchospasm Arrhythmia Miosis (pinpoint)	Refer to Organophosphate Protocol Atropine Mark 1 injector
Anticholinergic	Competitive antagonism of acetylcholine at muscarinic receptors with symptoms presenting from either central or peripheral receptor antagonism. May occur following deliberate or accidental ingestion of agents, due to interactions between 2 or more anticholinergics, or increased susceptibility to standard doses. *Possible agents: diphenhydramine, doxylamine, promethazine, chlorpheniramine, dextromethorphan, tricyclic antidepressants (amitriptyline, imipramine, doxepin), Chlorpromazine, droperidol, haloperidol, quetiapine, olanzapine, carbamazepine, scopolamine, oxybutynin. Plants including deadly nightshade, jimsonweed, mandrake root, lupin beans, angel's trumpet.* *Consider additional differential diagnosis such as: Serotonin Syndrome, Neuroleptic malignant syndrome, malignant hyperthermia, salicylate toxicity.*	Mild Tachycardia Flushed face Mydriasis Blurred vision Dry mouth & skin Fever Moderate Agitated delirium Urinary retention Hypertension Hyperthermia Severe CNS depression Coma Seizures EKG abnormalities (wide QRS, ↑QT interval) Circulatory collapse Rhabdomyolysis	Supportive Treat presentations of symptoms per protocols
Acute exposure to Solvents, Anesthetics, or Sedatives (SAS)	Acute central nervous system depression resulting from acute exposure to SAS. Underlying pathology, biological processes, or modes of action include: a) unclear (solvents), b)release of catecholamines, c) effects on ion channels (including GABA receptors). *Possible agents: Gasoline, benzene, toluene, xylene, carbon tetrachloride, methylene chloride, Freon, nitrous oxide, halothane, isoflurane, benzodiazepines (e.g., diazepam, alprazolam, midazolam), barbiturates (e.g., phenobarbital, pentobarbital), and miscellaneous compounds (e.g., chloral hydrate, methaqualone, etomidate, and propofol).*	Dependent on route and extent of exposure: CNS depression Behavioral changes Slurred speech Nystagmus Ataxia Chemical dermatitis Coma Seizures Dysrhythmias Cardiac arrest	Supportive ACLS as indicated Treat presentations of symptoms per protocols

Knockdown	Disrupted cellular oxygen delivery to tissues may be caused by simple asphyxia due to oxygen displacement by inert gases, hemoglobinopathies, inhibition of oxygen transport, impairment of cellular ability to use oxygen. *Possible agents: carbon monoxide, methemoglobin inducers, cyanide, hydrogen sulfide, phospine, nitrogen.*	Possibly rapid: Loss of consciousness Seizures Hypotension Cardiac arrest Inhalation exposure Flushing of skin Fatigue Lightheadedness Nausea Anxiety Difficulty breathing Seizures Respiratory distress Ingestion exposure Vomiting Abdominal pain Fatigue Lightheadedness GI irritation Sedation Confusion Seizures Hypotension Hematemesis Acidemia Refractory bradycardia	Oxygen is field treatment for CO poisoning. Consider hyperbaric availability. Refer to hydroxocobalamin protocol for suspected cyanide or CO poisoning.
Irritant / Corrosive	Sulfur mustards are vesicants causing skin, eye, and respiratory tract injury. Although these agents cause cellular changes within minutes of contact, the onset of pain and other clinical effects are typically delayed for 1 to 24 hours. Sulfur mustards are highly reactive alkylating agents that damage tissues at the point of contact and are also absorbed systemically. *Possible agents: mustard agents (sulfur mustards)*	Slow, intensifying over days: Eye pain/swelling Lacrimation Photophobia Erythema Blistering of skin	Immediate decontamination to reduce exposure Supportive care

TREATMENT

EMR:

- Scene safety
- Oxygen
- Oral glucose as indicated if patient has a patent airway
- Naloxone if narcotic overdose suspected
- Contact Poison Control for assistance as needed. (**1-800-222-1222**)

EMT:

- Activated charcoal in an awake and alert patient. Refer to drug protocol or contact online medical control
- CBG
- Supraglottic airway as indicated

AEMT:

- Vascular access
- Crystalloid if indicated
- IV glucose if hypoglycemic

EMT-I:

- Cardiac monitor / EKG interpretation

Paramedic:

- Advanced airway management as indicated
- Consider nasal or oral gastric tube if no esophageal injury

Suspected calcium channel blocker or magnesium poisoning:

- Calcium gluconate

Suspected cyanide or CO poisoning:

- Hydroxocobalamin

POISONING NERVE AGENT / ORGANOPHOSPHATE

SUBJECTIVE

History of organophosphate poisoning or exposure to nerve agent and: Diarrhea, Urination, Miosis (constricted pupils), Bradycardia, Bronchospasm, Emesis, Lacrimation (tearing), Salivation, Secretion and Sweating. (DUMB-BELS).

OBJECTIVE

EXAMINATION MAY SHOW

- Mild Symptoms: Fatigue, headache, nausea, vomiting, diarrhea, wheezing, and rhinorrhea
- Moderate Symptoms: Mild symptoms PLUS; systemic weakness, fasciculations, unable to walk.
- Severe Symptoms: Mild and Moderate Symptoms PLUS; flaccid paralysis, syncope, comatose.

Remember the chemical that caused the poisoning may still be contaminating the patient; perform proper decon and protect yourself and your team.

ASSESSMENT

Diagnosis of organophosphate poisoning or exposure to nerve agent is made on the basis of the patient's symptoms and known exposure. If multiple patients present at one setting but a known exposure is not confirmed, you should take precautions and treat the patients.

TREATMENT

Mark 1 autoinjectors available in the Chempack supply. Contact AMR Supervisor (Josephine County) or Mercy Flights Supervisor (Jackson County) to access.

EMT:

Mild Symptoms Without Respiratory Distress

- Mark 1 kit autoinjector should not be used

Mild Symptoms WITH Respiratory Distress

- Administer ONE Mark-1 kit
- 1 kit = atropine and 1 pralidoxime autoinjector
- Repeat as needed every 5 – 10 minutes – maximum 3 Mark-1 kits

Moderate Symptoms

- Administer 1-2 Mark-1 kits
- Repeat as needed every 5 – 10 minutes – maximum 3 Mark-1 kits

Severe Symptoms

- Administer up to 3 Mark-1 kits
- Secure airway and assist ventilations

AEMT:

- IV or IO with crystalloid

EMT-I:

- Atropine

Paramedic:

- Advanced airway

PRE-ECLAMPSIA / ECLAMPSIA

SUBJECTIVE

Obtain SAMPLE history including recent onset of headache, decreased urinary output, weight gain, increased edema in extremities, visual disturbances, and abdominal pain. Patient may be on bed rest orders from physician. Patient may also report history of seizures.

OBJECTIVE

Evaluate patient for hypertension, pulmonary edema, and hyperreflexia.

ASSESSMENT

Pre-eclampsia is a pregnancy related condition that can occur after 20 weeks EGA. It involves hypertension and edema. It may occur months after childbirth.

Eclampsia is a pregnancy related seizure including signs and symptoms of pre-eclampsia.

Suspect eclampsia in third trimester pregnant patients who are seizing.

TREATMENT

EMR, EMT:

- High-flow oxygen
- Lay mother on left side
- Keep environmental stimulation at a minimum
- Darken the environment if possible

AEMT:

- Vascular access
- Crystalloid if indicated

EMT-I:

- Cardiac monitoring

Paramedic:

- Magnesium Sulfate
- Advanced airway management as applicable
- Seizure control / management as applicable – after magnesium sulfate

RESPIRATORY DISTRESS

SUBJECTIVE

Obtain SAMPLE history and include onset and duration of symptoms. Onset and duration of dyspnea, pain (quality, region, severity, provocation), hemoptysis, cough (sputum, color), fever, myalgias, nausea, recent travel or other exposures to COVID-19 patients, time of onset of symptoms, change with position, fatigue, history of injury to area, previous history of similar episodes, exposure to toxic substances, overdose, history of recent surgeries, leg swelling. Prior heart or lung problems and medications.

OBJECTIVE

Examine patients' lung fields for crackles, rhonchi, or wheezing. Examine patient chest for hives, cyanosis, and tenderness on palpitation. Note patient preferred position on initial contact and if patient is pursed lip breathing or tripoding.

ASSESSMENT

COVID-19 should be suspected in all cases of respiratory distress. However, patients may still require treatment for asthma, COPD, or CHF. Many things may lead to respiratory distress: CHF, COPD, asthma, trauma, pulmonary embolism, respiratory infections, croup, epiglottitis, anaphylaxis, foreign bodies, poisonings, inhalation injuries, vaping-associated lung injury, anemia, and neurological problems.

Breath Sounds in Respiratory Distress

Characteristics	Possible Causes
Clear, symmetric	Hyperventilation, MI, metabolic, pulmonary embolus
Crackles, symmetric	pulmonary edema, extensive pneumonia
Wheezing, symmetric	Asthma, pulmonary edema, COPD
Clear, asymmetric or absent	Pneumothorax, pulmonary embolus, COPD
Crackles, asymmetric	Pneumonia, pulmonary edema

Respiratory Distress Severity Assessment			
	Mild	**Moderate**	**Severe**
Short of breath when:	Walking	Talking	At rest
Able to speak:	In sentences	In phrases	In words
Heart rate:	< 100	100-120	> 120
Respiratory rate:	Elevated	Elevated	< 12 or > 30
Accessory muscle use:	Not usually	Common	Usually
Alertness:	Possibly agitated	Usually agitated	Usually agitated

TREATMENT

EMR:

- ABC'S
- Oxygen (SPO2 <94%) with ETCO2 monitoring
- Elevate Head 15-30° to improve alveolar recruitment and oxygenation or sit patient upright if conscious
    - ***Allergic Reaction***, refer to **ANAPHYLAXIS** protocol
    - ***Foreign body airway obstruction***
        - Abdominal thrusts for conscious patient
        - CPR for unconscious patients
    - ***Pulmonary edema***
        - If systolic blood pressure <90mmHg, consider cardiogenic shock
    - ***Croup/Epiglottitis***
        - Supportive care-soothe child
        - Position of comfort
        - Oxygen to keep SpO2 above 92%

EMT:

- Supraglottic airway as indicated
    - ***Pulmonary Edema***
        - CPAP if pulmonary edema is present appears fatigued
    - ***Asthma/COPD***
        - Albuterol
        - CPAP
    - ***Croup/Epiglottitis***
        - Humidified Oxygen

AEMT:

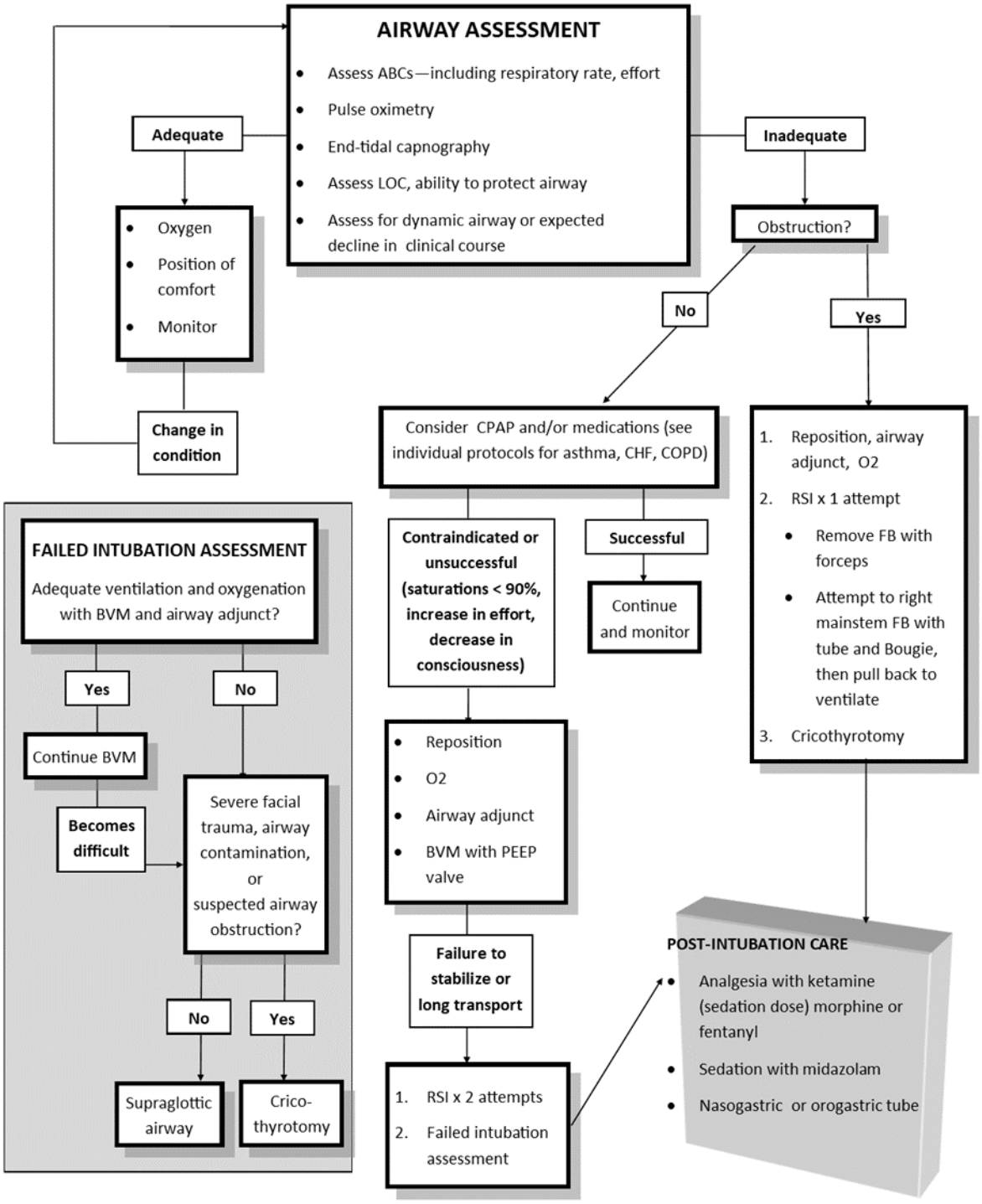
- Vascular access
- Crystalloid if indicated
    - ***Pulmonary edema***
        - Nitroglycerin if systolic BP >90mmHg
    - ***Asthma/COPD***
        - Ipratropium Bromide
    - ***Pneumonia***
        - Consider albuterol
        - Consider ipratropium bromide

EMT-I:

- Cardiac Monitor / EKG interpretation
  - ***Asthma/COPD***
    - Epinephrine if patient in severe distress and <50yrs old
  - ***Pulmonary Edema***
    - Furosemide
  - ***Croup/Epiglottitis***
    - Nebulized epinephrine

Paramedic:

- Advanced airway management as indicated
  - ***Foreign body airway obstruction***
    - Removal via direct laryngoscopy
    - Consider cricothyrotomy if complete obstruction
  - ***Asthma/COPD***
    - Magnesium Sulfate
    - Methylprednisolone or Dexamethasone
  - ***Croup/Epiglottitis***
    - Dexamethasone
  - ***Pneumothorax***
    - Chest decompression for tension pneumothorax with severe distress


AIRWAY ASSESSMENT
Assess ABCs—including respiratory rate, effort
Pulse oximetry
End-tidal capnography
Assess LOC, ability to protect airway
Assess for dynamic airway or expected decline in clinical course
Adequate
Oxygen
Position of comfort
Monitor
Change in condition
Inadequate
Obstruction?
No
Yes
Consider CPAP and/or medications (see individual protocols for asthma, CHF, COPD)
Contraindicated or unsuccessful (saturations < 90%, increase in effort, decrease in consciousness)
Successful
Continue and monitor
Reposition
O2
Airway adjunct
BVM with PEEP valve
Failure to stabilize or long transport
1. RSI x 2 attempts
2. Failed intubation assessment
1. Reposition, airway adjunct, O2
2. RSI x 1 attempt
Remove FB with forceps
Attempt to right mainstem FB with tube and Bougie, then pull back to ventilate
3. Cricothyrotomy
POST-INTUBATION CARE
Analgesia with ketamine (sedation dose) morphine or fentanyl
Sedation with midazolam
Nasogastric or orogastric tube
FAILED INTUBATION ASSESSMENT
Adequate ventilation and oxygenation with BVM and airway adjunct?
Yes
No
Continue BVM
Becomes difficult
Severe facial trauma, airway contamination, or suspected airway obstruction?
No
Yes
Supraglottic airway
Crico-thyrotomy

Suspected Respiratory Infection

ASSESSMENT

Most respiratory infections are viral in origin and can be easily transmitted from person to person by droplet spread.

EMTs should always wear PPE (surgical mask, gloves and eye protection) when caring for any patient with fever and/or respiratory infection symptoms.

- Sudden Acute Respiratory Infection (SARI) is defined as an acute respiratory illness with history of fever or measured temperature ≥38 C° and cough; onset within the last ~10 days; and requiring hospitalization.
- Some viruses carry higher risk of progression to serious infection such as SARI, with increased morbidity and mortality. Examples include Influenza, SARS, MERS, Coronavirus
- EMS should attempt early recognition of patients with SARI, especially in the setting of known epidemic of viral illness such as SARS, MERS, Coronavirus
- Airborne precautions (including N-95 mask) should be initiated when performing an aerosol generating procedure such as endotracheal intubation, cardiopulmonary resuscitation, non-invasive ventilation and manual ventilation before intubation, which are known to increase risk of transmission. Airborne precautions should also be initiated when using nebulizers which may increase risk of aerosolization.
- For specific instructions for screening patients and description of contact, droplet and airborne precautions see: **HIGH RISK UPPER RESPIRATORY INFECTION**

TREATMENT

EMR:

- If patient has known fever or respiratory symptoms, EMT's should wear surgical mask, gloves and eye protection prior to evaluating patient.
- If possible, have the patient wear a medical mask to further reduce risk of transmission
- Infection control measures including contact and droplet protection should be initiated immediately when SARI is suspected.
- Administer supplemental oxygen if needed via nasal cannula or mask. Consider high flow oxygen via non-rebreather mask if hypoxia (SaO2 <92%) is present or SaO2 is <95% despite O2 via NC.
- Assist patients having severe breathing difficulty with BVM at 100% FIO2 / 15 l/min.
- Initiate Airborne Precautions in patients with suspected SARI.
- When possible, titrate down O2 to maintain SaO2 ≥95%

EMT/AEMT/EMT-I/Paramedic:

- If respiratory distress is mild to moderate, and patient has wheezing, consider treatment with Albuterol MDI and chamber to minimize aerosolization of secretions.
- If severe distress or patient does not respond to MDI, a Duo-neb Treatment can be administered. Initiate Airborne Precautions in patients with suspected SARI.
- Avoid administering corticosteroids in the prehospital setting in patients with suspected SARI. Studies have shown no survival benefit and possible harms (higher risk of mortality and secondary infections, delayed viral clearance)

SUBJECTIVE

Ebola Infection:

- Fever (101.5 F or 38.6 C) and additional symptoms such as headache, joint and muscle aches, weakness, fatigue, diarrhea, vomiting, abdominal pain, or unexplained hemorrhage (bleeding or bruising).
  AND EITHER:

- Travel to or from West Africa (Guinea, Liberia, Sierra Leone, Senegal, Nigeria or other countries where Ebola transmission has been reported by WHO) within 21 days (3 weeks) of symptom onset
  OR

- Close contact with a patient known to have Ebola

SARI Infection (Sudden Acute Respiratory Infection):

(eg. SARS, MERS, Coronavirus)

- Fever, cough or shortness of breath, AND *EITHER:*
- History of travel from countries or regions where a severe acute respiratory infection outbreak has been reported
- Close contact with a symptomatic traveler who developed fever and acute respiratory illness (not necessarily pneumonia) within 14 days after traveling from countries or regions with reported cluster of SARI,

  OR

- A member of a cluster of patients with severe acute respiratory illness (e.g., fever and pneumonia requiring hospitalization) of unknown etiology in which a SARI is being evaluated, in consultation with state and local health departments.

  OR

- Fever AND symptoms of respiratory illness (not necessarily pneumonia, e.g. cough, shortness of breath) AND being in a healthcare facility (as a patient, worker, or visitor) within 14 days before symptom onset in a country or territory in which recent healthcare-associated cases of SARI have been identified.

OBJECTIVE

EMS providers should minimize the number of crew members in close contact with the patient until the initial interview is completed. Perform initial interview of all patients with fever or respiratory illness wearing a surgical mask, gloves and eye protection. Attempt to maintain distance of at least six (6) feet away, to determine if additional PPE precautions are necessary.

TREATMENT

- ***For suspected SARI, adhere to the following guidelines:***
  - 1. Apply droplet and contact precautions for all patients:
    - Droplet and contact precautions prevent direct or indirect transmission from contact with contaminated surfaces or equipment (i.e. contact with contaminated oxygen tubing/interfaces).
    - Use PPE (medical mask, eye protection, gloves and gown) when caring for patient.
    - Give suspect patient a medical mask
    - If possible, use either disposable or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers). If equipment needs to be shared among patients, clean and disinfect between each patient use.
    - Refrain from touching eyes, nose, and mouth with potentially contaminated gloved or ungloved hands.
  - 2. Apply airborne precautions when performing an aerosol generating procedure:
    - When performing aerosol-generating procedures (i.e. open suctioning of respiratory tract, intubation, bronchoscopy, cardiopulmonary resuscitation) use PPE, including gloves, long-sleeved gowns, eye protection, and fit-tested particulate respirators (N95 or equivalent, or higher level of protection).
    - Whenever possible, use adequate ventilation during procedures
- ***For suspected Ebola, adhere to the following guidelines:***
  - PPE (Personal Protective Equipment) - Recommended provider PPE includes:
    - Gloves (double gloving).
    - Full body protective outer garment (Tyvek suit or higher) with integral hood and booties
    - PAPR (if available) or full-face mask with P100 or higher respiratory protection.
  - PPE should be donned and doffed according to published guidelines to prevent cross contamination.

Patient PPE during transport:

- If patient is ambulatory, place patient into protective Tyvek full body suit and a surgical or N95 mask (on all patients with suspected Ebola/SARI symptoms) before performing a detailed examination.
- If patient requires resuscitation where body fluid exposure risk is high, Fire/EMS providers should attempt to place the patient into a “patient isolation bag” to decrease exposure risk during transport whenever possible.
- Avoid droplet-producing procedures whenever possible, including nasal or oral airway placement, use of nebulizers, bag-valve-mask (BVM) use, suctioning or endotracheal or King Airway intubation. If BVMs are needed, use with HEPA filters whenever possible.

Transport

- For patients in whom Ebola/SARI is suspected, only providers essential for patient care should be in the patient compartment of the ambulance.
- Turn on ambulance exhaust fans in the patient compartment to the highest possible setting. If feasible, open the outside air vents.
- Alert receiving hospital personnel of the possibility of an infectious patient as soon as possible and hold suspected infectious patients in the ambulance until either the ED or hospital staff is ready to receive them.

Cleaning and Disinfection

- EMS personnel cleaning equipment and patient care areas should wear full PPE including face and airway protection prior to initiating cleaning.
- Upon completion of the call, use an approved U.S. Environmental Protection Agency (EPA) registered hospital disinfectant for any non-enveloped virus to thoroughly clean all equipment and all patient-care areas (including stretchers, railings, medical equipment control panels, and adjacent flooring, walls, and work surfaces).
- After completing cleaning tasks, including cleaning and disinfection of reusable equipment, cleaning personnel should carefully remove and dispose of PPE.
- If possible, remove the ambulance from any patient care service for a minimum of 24 hours post transport for suspected Ebola.

RESPONDER REHABILITATION – TREAT IN PLACE

INDICATIONS

Emergency personnel identified to be at risk of heat illness, hypothermia, dehydration, fatigue, or other exposure-related illness in the course of emergency scene response or training exercises

To be used for fire and EMS providers only

SUBJECTIVE

Hot or cool environment, exercise, rate of temperature rise or drop, underlying medical conditions, current medications. Symptoms may include headache, nausea, cramps, dizziness, generalized weakness, confusion, numbness, thirst, profuse sweating, or shivering.

OBJECTIVE

Assess temperature, skin temperature and moist or dry, drowsiness, lethargy, weakness or lack of coordination, alteration in behavior or mental status. Signs of dehydration including dry mucous membranes, poor skin turgor, sunken eyes. Check carboxyhemoglobin if available.

ASSESSMENT

Hypothermia – Temperature < 35°C or > 95°F. Patients with mild hypothermia (temperature 34-35°C, 93.2-95°F) may be treated in place according to this protocol. Patients with moderate to severe hypothermia should be transported to the Emergency Department and treated per Hypothermia protocol.

Mild heat illness – Temperature 100-101°F, HR 100-120, normal blood pressure, normal neurologic exam, and no other significant focal findings, patient able to sweat – these patients may be treated in place according to this protocol.

Moderate to severe heat illness – Temperature > 101°F, HR > 120, hypotension, drowsiness or lethargy, abnormal neurologic symptoms or exam, changes in behavior including anxiety and irritability. These patients should be transported to the Emergency Department and treated per Heat Illness protocol.

IV fluids are not always necessary, but may be considered for responders with tachycardia, hypotension, hypo- or hyperthermia, significant sweating or fluid loss, or other signs of dehydration or shock.

All patients should have a chart completed including a full assessment and plan. This should be submitted to the supervisor and supervising physician for review.

RESPONDER REHABILITATION – TREAT IN PLACE

TREATMENT

EMR:

- Remove patient from hot or cold environment
- Add or remove clothing if damp or to maintain normal body temperature
- Active cooling should be initiated for patients with temperature greater than 38.3°C (101°F)
- Active warming should be initiated for patients with temperature less than 34°C (93.2°F)
- Oral hydration with water/Gatorade/Powerade/fruit juice or other beverage with electrolytes. Can make a 0.1% salt solution by dissolving ¼ teaspoon of table salt in a quart of water
- Energy bars with a 40/30/30 balance of carbohydrates, protein and fat should be available, along with fresh fruit

EMT:

- Check blood glucose

AEMT:

- D10 as needed for hypoglycemia
- IV with crystalloid – 500 mL bolus over 30-minute period, repeated once. If no improvement following this, patient should be transported to the Emergency Department

EMT-I, Paramedic:

- Cardiac monitor for syncope, significant tachycardia or hypotension

DO NOT MISS

Responders should remain in rehabilitation for a minimum of 20 minutes.

To return to response activities, responders should have:

- HR 60-100
- Temp < 37.7°C (100°F)
- Systolic BP 100-160 mmHg
- Diastolic BP 60-100 mmHg
- SpO2 > 95% on room air
- COHb < 16% (if available)
- Normal mental status

Consider transport for responders whose vital signs or mental status do not normalize with the above measures in 40-60 minutes, or sooner if condition is worsening despite treatment.

SEIZURES

SUBJECTIVE

History of current event, environmental conditions, time of onset, duration, "Status" seizure, type; focal, febrile, grand mal, petit mal, or pseudo seizure activity. Consider previous medical history if available, medications and compliance, recent head trauma, pregnancy, diabetes, and drug or alcohol use.

OBJECTIVE

Head trauma or mouth injury. Level of consciousness. Incontinence of urine or stool.

Observed seizure activity. Temperature. Rashes, petechiae or purpura. Is the patient actively seizing (Focal or Grand Mal)? Evaluate patient vital signs and level of consciousness. Does the patient appear Post-ictal?

ASSESSMENT

With injury, infection or disease the electrical activity of the brain becomes irregular, which brings about sudden changes in sensation, behavior, or movement called seizures.

- TONIC-CLONIC (GRAND MAL)
  - Generalized major motor seizure. Unresponsive to stimuli. Alternating tonic (contractions) or clonic (successive contractions and relaxations) movements of extremities
- FOCAL MOTOR (SIMPLE PARTIAL)
  - Characterized by dysfunction of one area of the body including, tingling, stiffening or jerking
- PSYCHOMOTOR (COMPLEX PARTIAL)
  - Characterized by abnormal behavior such as confusion, glassy stare, aimless movements, lip smacking or fidgeting with clothing
- PETIT MAL
  - Seizure is brief, usually 1-10 seconds, with a temporary loss of concentration.

TREATMENT

EMR:

- ABC's
- Oxygen
- If patient is not actively seizing, transport patient in position of comfort
- Monitor vital signs

EMT:

- CBG
- Supraglottic airway

AEMT:

- Vascular access with crystalloid
- Glucose for hypoglycemia

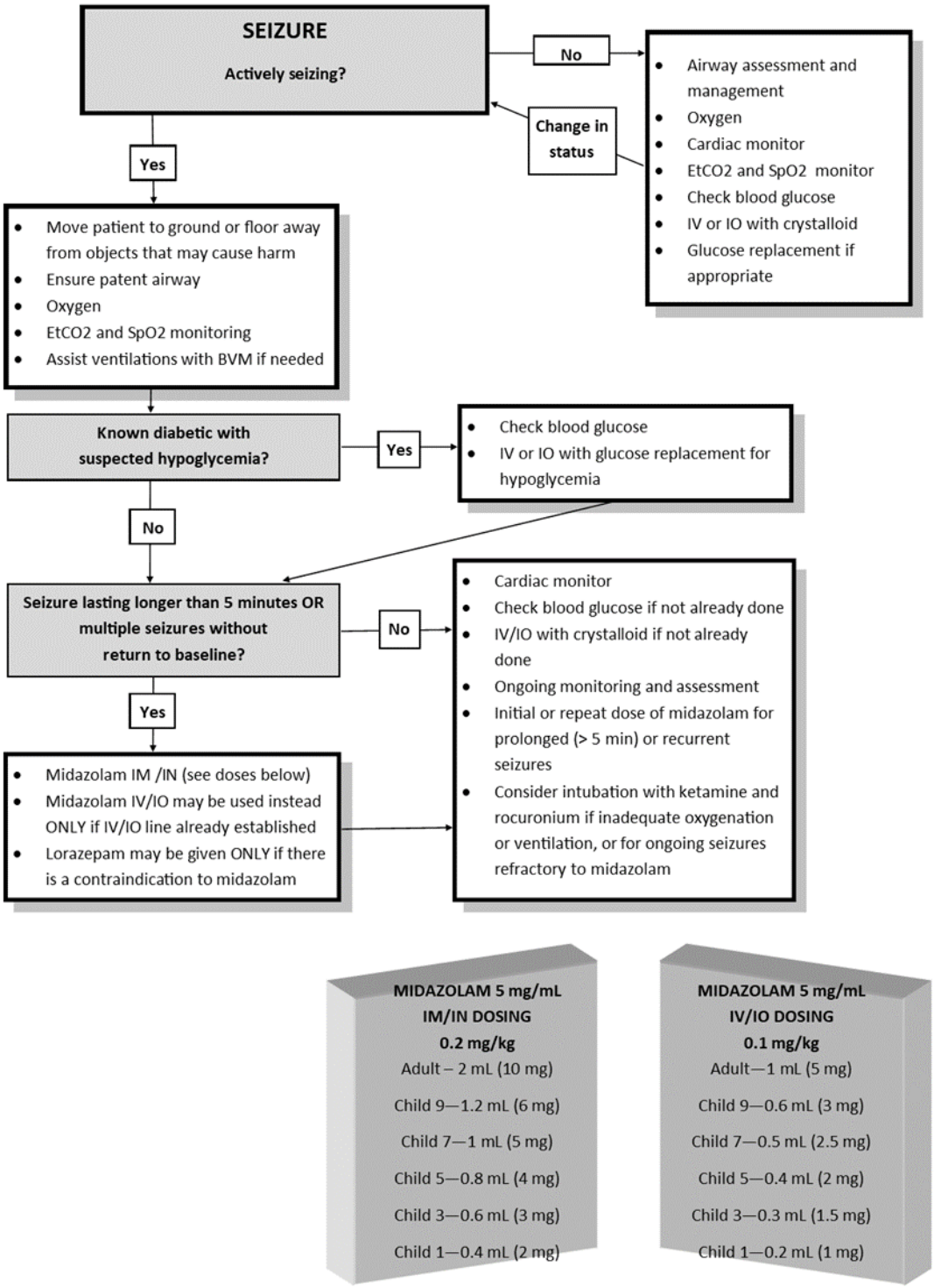
EMT-I:

- Cardiac monitor

Paramedic:

- Advanced airway management as indicated
- Benzodiazepine (Lorazepam, Diazepam, or Midazolam)

SEIZURES
Algorithm



SEPSIS

SUBJECTIVE

Weakness. Fatigue. Productive cough. Recent diagnosis of UTI. Recent diagnosis of infection with or without treatment. Nausea/Vomiting. History leading to suspicion of infection.

OBJECTIVE

PATIENT WITH A SUSPCTED SOURCE OF INFECTION

AND

TWO OR MORE OF THE FOLLOWING PRESENT AND NEW TO PATIENT:

- Temperature > 100.4 or < 96.8 degrees F
- GCS < 15 or change in mental status from baseline
- Respiratory rate >= 22 breaths per minute
- Heart rate >= 100 bpm
- Systolic blood pressure < 100mmHg OR MAP < 65
- Heart rate greater than systolic BP (shock index > 1)
- End-tidal CO2 < 30

ASSESSMENT

Sepsis may present in a multitude of forms depending on patient presentation and comorbidities this may include medications that mask signs/symptoms. Whether the patient is compensating, or decompensating will also determine patient presentation.

TREATMENT

EMR:

- Oxygen
- Keep patient warm

EMT:

- CBG
- Provide oral glucose if hypoglycemic
- CPAP if indicated
- Lung sounds
- Capnography

AEMT:

- Vascular access with crystalloid
- Fluid bolus 20ml/kg for pediatric patients
- Fluid bolus 1000cc for adult or 30ml/kg up to 3 liters.

EMT-I:

- Cardiac monitor
- Anti-emetic if indicated

Paramedic:

- Advanced airway
- Vasopressor therapy – Epinephrine or Norepinephrine if fluid resuscitation fails
- If patient is known to have adrenal insufficiency or congenital adrenal hyperplasia, may administer the patient's own corticosteroid as prescribed

SNAKE BITES

SUBJECTIVE

Localized pain at site of bite. Time of bite. Snake identification. Metallic or rubber taste in mouth and lips. Thirst. Blurry or dim vision. Weakness, dizziness or lightheadedness, numbness or tingling around face and head. Treatment rendered.

OBJECTIVE

One or more fang marks with redness, swelling, ecchymosis or oozing from site, followed later by hemorrhagic blisters. Respiratory distress, tachycardia, hypotension, vomiting or diarrhea, bloody urine or gastrointestinal hemorrhage.

ASSESSMENT

The seriousness of a snake bite is related to amount of venom injected, the location of the bite, the type of snake and pre-existing medical conditions. The vast majority of snake bites are non-fatal.

TREATMENT

PROTECT YOURSELF AND OTHERS FIRST

EMR, EMT:

- Ensure scene safety
- Calm and reassure patient
- Minimize victim's physical activity
- Oxygen
- Splint bitten extremity in dependent position, below level of heart
- Remove constricting clothing or jewelry
- Do not apply ice to the snake bite

AEMT:

- Vascular access
- Crystalloid if indicated

EMT-I:

- Morphine or fentanyl
- Cardiac monitor

Paramedic:

- Ketamine (pain dose)

SOFT TISSUE INJURY

SUBJECTIVE

History of trauma and mechanism of injury.

OBJECTIVE

Hemorrhage, laceration, abrasion, bruising, swelling, deformity. Neurovascular compromise.

ASSESSMENT

Soft tissue injuries frequently are associated with bleeding that must be controlled. Significant soft tissue injury can occur without external bleeding, such as burns, contusions, crush injuries and dislocations. Treatment should be directed toward control of bleeding, reduction of risk of further injury, and patient comfort. Evaluate patient for other less obvious injuries

TREATMENT

EMR, EMT:

- Direct pressure with fingertips targeted on bleeding vessel to control external bleeding
  - If bleeding not controlled with direct pressure within 3-5 minutes, apply a hemostatic dressing with direct pressure:
    - If injury is on an extremity, is not controlled with a hemostatic dressing with direct pressure, and is life threatening, apply a tourniquet
    - If a junctional wound, is not controlled with a hemostatic dressing with direct pressure, and is life threatening, then pack wound with hemostatic dressing or with gauze
- "Trauma Activation" if tourniquet or wound packing used
- Position of comfort, including splinting
- Prevent heat loss
- Cold packs for closed injuries if neurovascular intact
- Evaluate and treat for other injuries
- Oxygen

AEMT:

- Vascular access
- Crystalloid if indicated

EMT-I:

- Cardiac monitor
- Morphine or fentanyl

Paramedic:

- Ketamine (pain dose)

SPINE TRAUMA

SUBJECTIVE

Mechanism of injury (blunt vs. penetrating) and force used. High energy transfer: ejection, helmet damage, starred windshield, steering column bent, surface diving accident. Back, neck, bilateral arm or leg pain. Tingling, paresthesia, numbness, or paralysis.

OBJECTIVE

Diaphragmatic or impaired breathing. Head injury. Open injury, spinal deformity or tenderness. Hypotension. Loss of bladder or bowel control. Priapism. Paralysis or numbness.

ASSESSMENT

The presence of spine trauma and the need to utilize spinal motion restriction for the patient can be indicated by mechanism of injury, the presence of other injuries or by specific signs or symptoms of spinal cord injury. Spinal motion restriction is not indicated for penetrating trauma and may make the injury worse. Spinal cord injury may mask signs and symptoms of other significant injuries.

TREATMENT

EMR:

- Oxygen
- Spinal motion restriction for blunt trauma
- Check motor and sensory exam frequently
- Evaluate and treat for other injuries
- Prevent loss of body heat

EMT:

- Supraglottic airway

AEMT:

- Vascular access
- Crystalloid if indicated

EMT-I:

- Cardiac monitor
- Atropine if bradycardic and hypotensive

Paramedic:

- Norepinephrine or push-dose epinephrine after adequate fluid resuscitation
- Advanced airway

SYNCOPE/NEAR SYNCOPE

SUBJECTIVE

Onset, frequency, stressful or anxiety provoking factors, position of patient, seizure activity, vertigo, nausea, chest or abdominal pain, diaphoresis, past medical history, medications, previous syncope, recent illness, dietary changes, pregnancy.

OBJECTIVE

Orthostatic blood pressure and pulse changes. Level of consciousness, cardiac dysrhythmias, pulsating abdominal mass, other injury or bleeding.

ASSESSMENT

Syncope implies a brief loss and rapid return of consciousness. The most common causes are vasovagal reactions and idiopathic (unknown). Other common causes include GI bleed, abdominal aortic aneurysm, cardiac dysrhythmia and cerebrovascular accident.

TREATMENT

EMR:

- Oxygen
- Treat for shock
- Acquire 12 Lead

EMT:

- Check blood sugar
- Oral glucose or dextrose if hypoglycemia and no airway risk

AEMT:

- Vascular access – Fluid bolus as indicated
- Glucose if hypoglycemia

EMT-I & Paramedic:

- Cardiac monitor / 12-lead EKG interpretation

TRAUMA SYSTEM ACTIVATION CRITERIA

SUBJECTIVE:

History of mechanism of injury. Environmental conditions. Co-existing medical illnesses or conditions.

OBJECTIVE:

Some injuries may be obvious. Examine the patient fully to find the hidden injuries. Undress the patient appropriately.

ASSESSMENT:

Entry of a patient into the trauma system speeds care for those who need resuscitation or emergency surgical procedures during the first hour or two after trauma.

<table>
<tr><th colspan="2">Trauma Activation if any one is present

MANDATORY ACTIVATION</th><th>Trauma Activation if any 3 or more are present</th></tr>
<tr><td colspan="2">Physiologic and Anatomic Criteria

• GCS ≤13
• SBP of <90 mmHg
• Resp rate <10 or >29
• Resp rate <20 in an infant <1yr
• Need for Ventilator support
• Penetrating injuries to head, neck, torso and extremities proximal to elbow or knee.
• Chest wall instability or deformity
• 2 or more proximal long bone FX (Femur / humerus)
• Crushed, degloved, mangled, or pulseless extremity.
• Amputation proximal to wrist or ankle
• Suspected pelvic fracture
• Open or depressed skull fracture
• Motor sensory deficit</td><td>Mechanism of Injury, evidence of high-energy impact, special patient or system considerations

• Falls: Adult >20ft, Child >10ft or 2-3 times the height of the child.
• High-risk auto crash:
Intrusion, including roof: >12 inches occupant site; >18 inches any site
Ejection; partial or complete
Death in same passenger compartment
Vehicle telemetry data consistent with high risk for injury
• Auto vs. pedestrian /bicyclist thrown, run over or with significant impact (>20mph)
• Motorcycle crash >20 mph
Special patient or system Considerations

• Age: ≤ 14 or >55 years
• Anticoagulants or bleeding disorder
• Burns
• Pregnancy >20 weeks</td></tr>
</table>

1. The hospital should be notified as early as possible. If the medics are actively engaged in care, use the on-scene incident commander to contact the receiving hospital. Use MEDNET first, cell phone if MEDNET is not effective. Avoid going through dispatch whenever possible.
2. When communicating with the receiving hospital, state: “Trauma System Entry”, then follow up with the entry criteria and time to ER. Example: “Trauma System Entry, 30 y/o male, BP <80, GCS <12, and flail chest, ETA 20 minutes”. This will help prepare the Hospital for their response to your patient.
3. Update and give a more thorough MEDNET when you can.
4. OLMC for **ALL** patients meeting discretionary criteria, discuss with ER physician.
5. ***Do not forget trauma band***

TRAUMA SYSTEM ACTIVATION

Prioritize interventions by what will result in death most rapidly:

M Massive hemorrhage – tourniquet or pressure/wound packing
A Airway – open airway and secure as needed
R Respirations – ventilate, oxygenate, chest seal, needle decompression
C Circulation – patient positioning, IV access, fluids, pelvic sling, TXA
H Hypothermia prevention – ensure warm environment

EMS Providers may consider scene and patient factors and use their judgement to activate trauma even if typical criteria are not met.

*****Patients with an unstable airway go to the nearest hospital.*****

TRAUMA ACTIVATION AND TRANSFER TO RRMC IF ANY ONE IS PRESENT

- Penetrating injuries to head, neck, torso
- Skull deformity or suspected skull fracture
- Suspected spinal injury with new motor or sensory loss
- Chest wall instability, deformity, or suspected flail chest
- Suspected pelvic fracture
- Open fractures of two or more proximal long bones
- Crushed, degloved, mangled, or pulseless extremity
- Amputation proximal to wrist or ankle
- Pregnancy > 20 weeks (uterus at or above the umbilicus)
- Pediatrics age 17 or less
- Dialysis patients

TRAUMA ACTIVATION AND TRANSFER TO CLOSEST HOSPITAL / PATIENT PREFERENCE IF ANY ONE IS PRESENT (and none of the above):

- High-risk auto crash
- Partial or complete ejection
- Significant intrusion (including roof)
- > 12 inches occupant site OR > 18 inches any site
- 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 (motorcycle, ATV, horse, etc.)
- Pedestrian/skateboard/bicycle rider thrown, run over, or with significant impact
- Fall from height > 10 feet

SPECIAL PATIENT CONSIDERATIONS FOR TRAUMA ACTIVATION

- Low-level falls in children 5 and under or adults 65 and older with significant head impact
- Anticoagulant use
- Suspicion of child abuse
- Special, high-resource healthcare needs
- Pregnancy > 20 weeks (transfer to RRMC)
- Burns in conjunction with trauma

MEDICATIONS

ACETAMINOPHEN
(Tylenol, Ofirmev)

PHARMACOLOGY AND ACTIONS

Acetaminophen is effective as an antipyretic and analgesic agent. Acetaminophen has a positive effect on the heat-regulating center in the hypothalamus. It also works as an analgesic by increasing the pain threshold.

INDICATIONS

- Fever ≥ 102.0°F in children 12 years or younger that appear toxic.
- Pediatric that has had a seizure secondary to increased fever.
- Analgesia

PRECAUTIONS/ NOTES/ SIDE EFFECTS

Contraindications:

- Do not administer to patients with known sensitivity to acetaminophen.
- Do not administer medication to patient with heat related emergencies.

Overdose:

- Overdose may cause liver failure.
- Do not give if patient has had appropriate dosage within two hours.

ADMINISTRATION

Paramedic

Adult:

- 657mg or 975mg PO (based on weight)
- 650mg to 1000mg IV infusion single dose over 15 minutes (Infusion pump required if available)

Pediatric:

- 15 mg/kg oral if patient conscious and awake.
- 15mg/kg up to 1000mg IV Infusion if not conscious (Infusion pump required if available)

ACETAMINOPHEN DOSING

AGE	WEIGHT (LBS)	WEIGHT(KG)	DOSE
UNDER 2 YOA	<24LBS	<11KG	15MG/KG
2-3 YOA	24-35LBS	11-16KG	160MG
4-5 YOA	36-47LBS	16-21KG	240MG
6-8 YOA	48-59LBS	22-27KG	320MG
9-10 YOA	60-71LBS	27-32KG	400MG
≥ 11 YOA	72-95LBS	33-43KG	480MG

ACETYLSALICYLIC ACID (Aspirin, ASA)

PHARMACOLOGY AND ACTIONS

Aspirin (ASA) inhibits the formation of prostaglandins that are associated with blood platelet aggregation, clot formation, and vasoconstriction. ASA also blocks the formation of Thromboxane A2. Thromboxane A2 causes platelets to aggregate and the arteries to constrict. ASA has been shown to maintain vessel patency after thrombolytic therapy.

INDICATIONS

- Any chest pain suggestive of unstable angina or AMI.
- Barotrauma

PRECAUTIONS / NOTES / SIDE EFFECTS

***Contraindications*:**

- Known sensitivity to aspirin
- History of active GI ulcer
- History of other active gastrointestinal bleeding

***Bleeding disorders*:**

- ASA should be used with caution in patients with bleeding disorders or those taking anticoagulants (Coumadin, Warfarin, Heparin).

***Early administration*:**

- ASA should not take priority over other ACLS therapeutic interventions; however, it should be given as early as possible.

ADMINISTRATION

EMR, EMT, AEMT, EMT-I, Paramedic

Adult:

- 324 mg (4) 81 mg tablets PO

ACTIVATED CHARCOAL

PHARMACOLOGY AND ACTIONS

Absorbs toxic substances ingested and inhibits gastrointestinal absorption by forming an effective barrier between remaining particulate material and the gastrointestinal mucosa, thereby reducing their absorption to the body.

INDICATIONS

- *Management of poisoning and/or overdose of many substances.*

PRECAUTIONS / NOTES / SIDE EFFECTS

Contact On-Line Medical Control:

- Contact Poison Control for assistance when possible (**1-800-222-1222**) before administering Activated Charcoal.
- If unable to contact Poison Control, contact the receiving facility for advice via phone or radio when possible.

Patients with Altered LOC:

- Activated Charcoal should NOT be given to patients who are unconscious or who may have a rapidly diminishing level of consciousness**.**
- Administration of Activated Charcoal can result in aspiration or significant particulate obstruction of the airway.

Activated Charcoal Ineffective with:

- Activated Charcoal may be ineffective in ingestion of mineral acids, alkalis, petroleum products, or cyanide.

Pediatric patients

- If available, administer activated charcoal without the additive sorbitol. Sorbitol can create a laxative effect that can cause dehydration in pediatric patients.

ADMINISTRATION

EMT, AEMT, EMT-I

Adult and Pediatric:

- 25 to 50 gm or (1gm/kg) Orally

Paramedic

Adult and Pediatric:

- 25 to 50 gm or (1gm/kg) Orally or via NG tube.

ADENOSINE
(Adenocard)

PHARMACOLOGY AND ACTIONS

Adenosine slows conduction through the A-V node. Adenosine can interrupt the re-entry pathways thereby restoring normal sinus rhythm in patients with PSVT, including PSVT associated with Wolf-Parkinson-White Syndrome. The half-life of IV Adenosine is < 10 seconds.

INDICATIONS

- PSVT.
- Narrow complex tachycardia with undetermined etiology

PRECAUTIONS / NOTES / SIDE EFFECTS

Transient arrhythmias may occur:

- Asystole, PVC's, PAC's, sinus tachycardia, sinus bradycardia, and A-V blocks.

Specific rhythms:

- Should not be used in sick-sinus-syndrome.
- Adenosine will only have a transient slowing effect on A-Fib and A-Flutter.

***Methylxanthines (caffeine, theophylline and theobromide*):**

- Methylxanthines can block the receptors responsible for adenosines action. The effects of Adenocard may vary from little to no response in rhythm change.

Tegretol (carbamazapine) & Persantine (dipyridamole):

- Dipyridamole potentiates adenosine's effects and carbamazapine prolongs adenosine's effects.

ADMINISTRATION

Paramedic

Adult:

- 6 mg rapid IV push over 1-2 seconds, followed with a rapid 20cc saline flush. May be repeated PRN in 1-2 min. with 12 mg. Total 30 mg.

Pediatric:

- 0.1 mg/kg rapid IV or IO push over 1-2 seconds with a rapid 10cc saline flush. Maximum initial dose is 6 mg. May repeat once with 0.2 mg/kg in 1-2 min.

ALBUTEROL
(Proventil, Ventolin)

PHARMACOLOGY AND ACTIONS

Albuterol sulfate is a potent beta-2 agent. It induces bronchial dilation by relaxing the smooth muscle of the bronchial tree. Onset of action varies from 2 to 15 minutes with duration of 4 to 6 hours.

INDICATIONS

- Presence of bronchospasm with shortness of breath

PRECAUTIONS / NOTES / SIDE EFFECTS

Cardiac effects:

- Monitor the patient's rhythm for arrhythmias. If any rhythm other than sinus tachycardia should develop, stop treatment immediately

Neurological effects:

- Skeletal muscle tremors are common
- Nausea and vomiting may follow treatment

ADMINISTRATION

EMT, AEMT, EMT-I, Paramedic

Adult:

- 5.0 mg (2 x 2.5 mg premix). Administered via handheld nebulizer (HHN) or nebulizer mask. Attach O2 tubing and set flow at 8 LPM. Repeated every 10-15 min as indicated. Total of 3 treatments.
- **OR** If available, use an albuterol metered dose inhaler (MDI) in lieu of a nebulizer treatment. If patient has their own MDI, consider bringing it to use during transport. 4 puffs on an MDI is equivalent to 1 nebulizer treatment. Use a spacer if available.

Pediatric:

- 2.5 mg (2.5 mg premix). Administered via handheld nebulizer (HHN) or nebulizer mask. Attach O2 tubing and set flow at 8 LPM. Repeated every 10-15 min as indicated. Total of 3 treatments.

Note: Albuterol maybe administered via ETT. Dosage is 2.5 mg of premix.

AMIODARONE
(Cordarone)

PHARMACOLOGY AND ACTIONS

Amiodarone is a complex drug. It has effects on sodium, potassium, and calcium channels as well as alpha and beta-adrenergic blocking properties. Amiodarone is used primarily for treatment of ventricular dysrhythmias, and it is a secondary agent for atrial dysrhythmias.

INDICATIONS

- Refractory VF
- Pulseless VT
- Wide complex tachycardia of uncertain origin
- Control of hemodynamically stable VT when cardioversion is unsuccessful
- Atrial tachycardia's with uncontrolled ventricular response (Secondary agent)

PRECAUTIONS/NOTES/SIDE EFFECTS

Contraindications:

- Known sensitivity to medication, bradycardia, 2° or 3° AV Block, and cardiogenic shock.

Conscious vs. Unconscious:

- Administer 150 mg over 10 minutes in the conscious patient. Administer 300 mg in pulseless patient.

Possible side effects:

- Amiodarone may produce hypotension and/or bradycardia. Side effects are easily treated. First, slow the infusion rate. Next, administer a fluid challenge. Use transcutaneous pacing as necessary.

ADMINISTRATION

EMT I, Paramedic

Cardiac Arrest

Adult:

- VF/Pulseless VT, 300mg IV/ IO, consider additional 150mg in 3 - 5 minutes

Pediatric:

- VF/Pulseless VT, 5 mg/kg IV or IO

Stable ventricular tachycardia/ Atrial tachycardia w/ RVR

- 150 mg over 10 minutes. Repeat dose as indicated. (Infusion pump required if available)
  - If no available infusion pump: 150mg in 10ml via soluset @ 1gtt/sec

Maintenance infusion (IMED pump infusion required if available)

- 1mg /min
  - 100mg in 100ml via soluset @ 1gtt/sec

ATROPINE SULFATE

PHARMACOLOGY AND ACTIONS

Atropine Sulfate is a parasympatholytic agent that enhances sinus node automaticity and conduction through the A-V node. It increases the heart rate by blocking vagal influences. Atropine dilates bronchial tissue and dilates pupils by blocking the effects of the parasympathetic nervous system.

INDICATIONS

- Symptomatic bradycardia
- Organophosphate poisoning (Insect spray)
- Exposure to nerve agents

PRECAUTIONS / NOTES / SIDE EFFECTS

Symptomatic bradycardia:

- Bradycardia in the setting of an AMI is common. Bradycardia should only be treated with Atropine when symptomatic and after a 12-lead has ruled out STEMI.

Advanced heart blocks: (2°type II and 3°)

- Atropine may accelerate the atrial rate and produce increased AV nodal block.
- External pacing maybe required.

Insecticide exposures:

- Patients exposed to organophosphate may present with significant signs/symptoms. SLUDS BAM (Salivation, Lacrimation, Urination, Defecation, Sweating, bronchospasm, arrhythmia, miosis)
- Watch for the reversal of symptoms, dilated pupils, dry mouth, headache, flushed skin, and blurred vision.

Atropine vs. External Pacing:

- Do not to delay TCP in symptomatic bradycardia patients.
- Start IV and give Atropine as indicated.
- TCP is class 1, always recommended.

ADMINISTRATION

EMT-I, Paramedic

Adult:

(Symptomatic Bradycardia)

- 1mg IV / IO every 3-5 minutes until HR $\geq$ 60 bpm or total of 3 mg or 0.04 mg/kg.

(Organophosphates Poisoning)

- 1 mg IV / IO every 3-5 minutes until signs/symptoms are subsiding. Maximum dose is 5 mg. Contact Poison Control if additional dosage is required. **(1-800-222-1222)**

Pediatric:

(Symptomatic Bradycardia)

- 0.02 mg/kg with a minimum dose of 0.1 mg and a maximum single dose of 0.5 mg. Repeat once in 5 minutes as indicated.

Note: *Effective airway management and oxygen is the first line treatment for bradycardia in children.*

CALCIUM GLUCONATE 10%

PHARMACOLOGY AND ACTIONS

Electrolyte essential for muscle contraction.

INDICATIONS

- Antidote for overdoses of calcium channel blockers or magnesium.
- Treatment for Hydrogen Fluoride or Hydrofluoric acid exposure of skin or lungs.
- Symptomatic hyperkalemia
- Symptomatic bradycardia refractory to atropine, TCP, and epinephrine infusion

PRECAUTIONS / NOTE / SIDE EFFECTS

Contraindications:

- Known sensitivity to Calcium Gluconate

Possible side effects:

- Will precipitate if infused in the same line as Sodium Bicarbonate.
- ***Use with caution in patients taking Digoxin – can precipitate dysrhythmias***

ADMINISTRATION

Paramedic

Calcium Channel Blocker or Magnesium Sulfate overdose

- Adult: 10 ml IV or IO over 5-10 minutes.
- Pediatric: 0.6 - 0.75 ml/kg IV or IO over 5-10 minutes.

Hyperkalemia - symptomatic / Refractory Symptomatic Bradycardia

- Adult: 10 ml IV or IO over 5-10 minutes.
- Pediatric: 0.6 - 0.75 ml/kg IV or IO over 5-10 minutes.

Hydrogen fluoride or hydrofluoric acid exposure or burn

For skin burns or exposure - apply topically

- Mix 1 ampule of 10% calcium gluconate in 1-ounce (30cc) water-based, water-soluble personal lubricant (such as K-Y jelly) and massage into burned area

Inhalation exposure or pulmonary burns - via nebulizer

- Administer 2.5% solution - mix 10% calcium gluconate (100mg/ml =10%) with 3ml of saline (25mg/ml or 2.5% solution)

CRYSTALLOID

PHARMACOLOGY AND ACTIONS

Crystalloid solutions are an isotonic fluid used for intravenous use. Crystalloid solutions are used as a volume expander in the context of fluid loss either through trauma or medical illness. Crystalloids are not a replacement for blood, and have no oxygen carrying properties. Types of crystalloids solutions are: Normal Saline (.9% saline), NormoSol R, and Lactated Ringer's.

INDICATIONS

- Intravascular volume expansion, fluid challenge, medication administration or catheter /saline lock flush.
- Current literature suggests Lactated Ringers to be the preferred volume expander in trauma.

PRECAUTIONS/ NOTES/ SIDE EFFECTs

- Administer with caution to patients with fluid overload such as pulmonary edema, brain injury, heart disease or kidney disease. In pediatric patients use a pump, Soluset, or syringe to avoid excessive administration.
- Limit fluid administration in hemorrhagic trauma. Titrate to SBP 90mmHg.

ADMINISTRATION

Crystalloids may be administered via IV, IO in Adults and pediatrics, or UV in the neonate.

AEMT, EMT-I, Paramedic:

- 2-5ml; catheter flush
- 10-20ml; medication flush
- 500ml; Fluid challenge. May repeat if BP <90mm/Hg

Pediatric & Neonates:

- 10-20 ml/Kg
- If cardiogenic shock, 5-10mL/kg

DEXAMETHASONE

Agency Optional

PHARMACOLOGY AND ACTIONS:

A synthetic anti-inflammatory corticosteroid.

INDICATIONS:

- Patient with anaphylaxis who have been treated with epinephrine
- Patients with croup
- Severe respiratory distress due to asthma or COPD and prolonged transport time
- Severe illness or significant trauma in a patient with known adrenal insufficiency

CONTRAINDICATIONS:

- Known sensitivity to dexamethasone or corticosteroids

SIDE EFFECTS & PRECAUTIONS:

- Not to be used for respiratory distress due to pulmonary edema, CHF, foreign body, or pneumonia or in such patients with a short transport time.

ADMINISTRATION:

Paramedic

Adult & Pediatric:

- 0.6 mg/kg (maximum dose of 10 mg) IV or IO over 1-2 minutes, IM or orally. If given orally (preferred for children with croup) may be better tolerated in juice.

DEXTROSE 10%

PHARMACOLOGY AND ACTIONS

Glucose is the body's basic fuel. It produces most of the body's quick energy. It is regulated by insulin, which stimulates storage of excess glucose. Dextrose 10% contains 25 grams of dextrose in 250cc of water or 10 grams of dextrose in 100cc of water. Dextrose 10% is the preferred administration standard to minimize the potential harmful effects of extravasation of dextrose into the surrounding tissue.

INDICATIONS

- Hypoglycemia.

PRECAUTIONS/ NOTES/ SIDE EFFECTS

Hypoglycemic state, definition of:

- Capillary blood glucose level of <70mg/dl in adults. Normal adult range is 70-120mg/dl.
- Capillary blood glucose level of < 60 mg/dl in children.
- Capillary blood glucose level of <50mg/dl in neonates
- Capillary blood glucose is required before administering dextrose 10%.

Stroke like symptoms in the Elderly:

- Capillary blood glucose level should be obtained to verify the absence of a hypoglycemic state.

Tissue Necrosis:

- The extravasation of dextrose into the surrounding tissue will cause tissue necrosis. Although the risk of serious extravasation is much higher with Dextrose 50%, care should still be taken during administration. Before dextrose is given intravenously, aspiration to assure a blood flash at the catheter hub is crucial and should be checked at least 2 times during administration.

ADMINISTRATION

EMR, EMT:

Adult:

- 100cc orally if patient can protect airway

Pediatric:

- 0.1g/Kg orally if patient can protect airway.

AEMT, EMT-I, Paramedic:

Adult:

- 100cc of D10% (10 grams) IV /IO or NG/OGT over 5 minutes. Consider repeating if no response to first dose and glucose levels remains low.

Pediatric & Neonates:

- 2ml/kg of D10% IV/IO/UV over 10 minutes.

DEXTROSE 50%

Agency Optional

PHARMACOLOGY AND ACTIONS

Glucose is the body's basic fuel. It produces most of the body's quick energy. It is regulated by insulin, which stimulates storage of excess glucose.

INDICATIONS

- Hypoglycemia

PRECAUTIONS/NOTES/SIDE EFFECTS

Hypoglycemic state, definition of:

- Capillary blood glucose level of <70mg/dl in adults
- Capillary blood glucose level of < 60 mg/dl in children
- Capillary blood glucose is required prior to the administration dextrose

Stroke like symptoms in the Elderly:

- Capillary blood glucose level should be obtained to verify the absence of a hypoglycemic state

Tissue Necrosis:

- The extravasation of dextrose into the surrounding tissue will cause tissue necrosis. Before dextrose is given intravenously, aspiration to assure a blood flash at the catheter hub is crucial and should be checked at least 2 times during administration.

ADMINISTRATION

AEMT, EMT-I, Paramedic

Adult:

- 50ml of D50 (25 grams) slow IV /IO push in a patent site. Consider repeating if no response to first dose and glucose levels remains low. May be administered orally in the conscious patient.

Infants:

- 0.5–1.0 gram/kg of D25 (D50 can be diluted 1:1 with sterile water to prepare D25)

Neonates:

- 0.5–1.0 gram/kg of D12.5 (D50 can diluted 1:2 with sterile water to prepare D12.5)

DIAZEPAM (Valium)

Agency Optional

PHARMACOLOGY AND ACTIONS

Diazepam acts as a tranquilizer, anticonvulsant and skeletal muscle relaxant. Onset of action is 1-5 minutes, and it has a duration of 15-60 minutes.

INDICATIONS

- Seizures (maybe of greater benefit in status epilepticus than Ativan)
- Sedation prior to synchronized cardioversion or transcutaneous pacing when etomidate is unavailable
- Control of psychotic and/or combative patient when other agents are unavailable or contraindicated
- Stimulant overdose

PRECAUTIONS / NOTES / SIDE EFFCTS

Status epilepticus:

- Any seizure that has lasted longer than 10 minutes, or two consecutive seizures without a postictal phase.

Common side effects:

- Drowsiness, dizziness, fatigue and ataxia. Sometimes there is a paradoxical excitement or stimulation.

ADMINISTRATION

Paramedic

Adult:

- 2-10 mg IV /IO or IM. Give no more than 5 mg/minute.

Pediatric:

- 0.2 – 0.3 mg/kg IV, IM, IO or rectal. Rectal dose is 0.5mg/kg. Maximum single dose is 5 mg.

DILTIAZEM HYDROCHLORIDE
(Cardizem)

PHARMACOLOGY AND ACTIONS

Cardizem is a calcium channel blocker that decreases intranodal AV conduction and decreases smooth muscle tone causing arterial dilation.

INDICATIONS

- Atrial fibrillation with rapid ventricular response
- Atrial flutter with rapid ventricular response
- Supraventricular tachycardias unresponsive to adenosine (Physician Consult Only)

PRECAUTIONS / NOTE / SIDE EFFECTS

Contraindications:

- Known sensitivity to diltiazem hydrochloride
- Wolf-Parkinson-White syndrome
- Known history of congestive heart failure

Cardizem verses Cardioversion:

- Use cardioversion if patient hemodynamically unstable and/or has severe signs or symptoms (Chest pain, SOB, syncope)
  - Narrow Complex tachycardia

Possible side effects:

- May precipitate cardiac dysrhythmias
- May worsen congestive heart failure
- May cause heart block if given to a person on Beta blockers (Metroprolol, etc.)
- May cause severe hypotension when given with nitrates

ADMINISTRATION

Paramedic

Adult:

- 0.25mg/kg (max of 20mg) IV / IO slowly over 2 minutes.
  - Recommend initial dose of 10mg. Then, if no response in 10 minutes administer the remaining dose. Monitor blood pressure and heart rate.
- May repeat at 0.35 mg/kg (max of 25mg) if inadequate after 15 minutes.

DIPHENHYDRAMINE (Benadryl)

PHARMACOLOGY AND ACTIONS

Benadryl is an antihistamine which blocks the actions of histamines that are released from cells during an allergic reaction. Benadryl is also used for the treatment of dystonic reactions associated with phenothiazines. (Haldol, Thorazine, Compazine, Phenergan, Inapsine). These reactions include occulogyric crisis, acute torticolis, and facial grimacing.

INDICATIONS

- Allergic reaction
- Anti-emetic
- Dystonic reactions

PRECAUTIONS / NOTES / SIDE EFFECTS

- Mild sedative, use with caution in the presence of other sedatives

ADMINISTRATION

EMT-I, Paramedic

Adult:

- 25 mg IV/ IO or IM. Max 50 mg.

Pediatric:

- 1 mg/kg IV/ IO or IM. Maximum dose is 25 mg.

DOPAMINE
(Inotropin)

Agency Optional

PHARMACOLOGY AND ACTIONS

Dopamine is a chemical precursor of Norepinephrine. It has both alpha and beta-receptor stimulating actions. Dopamine is a dose dependent medication (see chart below):

INDICATIONS

- When epinephrine and/or norepinephrine are unavailable and
  - Second/third-line agent-cardiogenic shock
  - Second/third-line agent-symptomatic bradycardia
  - Second/third-line agent-Other types of shock (non-hypovolemic) unresponsive to fluid therapy

PRECAUTIONS/ NOTES / SIDE EFFECTS

Cardiovascular Affects:

- May induce tachyarrythmias. In which case the infusion should be decrease or stopped
- Angina has been reported during administration

Peripheral vascular affects:

- High dose may cause extreme peripheral vasoconstriction
- Low doses may cause a decreased blood pressure due to peripheral dilation

Inactivation of Dopamine:

- Dopamine is inactivated by alkaline solutions such as sodium bicarbonate

Rule out of Hypovolemia:

- Suspect hypovolemia as a contributing factor and treat it first
- Consider a fluid bolus of 250-2000 ml
- Monitor patient closely for signs of pulmonary edema

ADMINISTRATION (IMED pump required if available)

Paramedic

Adult:

- *IV INFUSION ONLY* – Dopamine should be initiated by starting at 5mcg/kg/min, and titrate until desired effects are achieved (increase in systolic BP/increase in level of consciousness) 20 mcg/kg/min maximum. If infusion pump is available it is ***required*** for administration.

DROPERIDOL (Inapsine)

Agency Optional

PHARMACOLOGY AND ACTIONS

Droperidol is a butyrophenone antipsychotic medication. Droperidol produces a dopaminergic blockade, a mild alpha-adrenergic blockade, and causes peripheral vasodilation. It's major actions are sedation and tranquilization.

Onset: Within 3-10 minutes after IM administration

Duration: 2-3 hours (may be longer in some individuals)

INDICATIONS

- Sedation of a severely agitated combative patient
- Anti-nausea for patients with intractable nausea and vomiting

CONTRAINDICATIONS

- Suspected myocardial infarction
- Hypotension
- Respiratory or CNS depression
- Pregnancy
- Children < 8 years old

PRECAUTIONS / NOTES / SIDE EFFECTS

Butyrophenones may cause hypotension, tachycardia, and prolongation of the QT interval. Use with caution in severe cardiovascular disease.

Cardiac monitoring and IV access should be initiated as soon as possible with all administrations.

Some patients may experience unpleasant sensations manifested as restlessness, hyperactivity, or anxiety following administration.

Extra-pyramidal reactions have been noted hours to days after treatment, usually presenting as spasm of the muscles of the tongue, face, neck, and back. This may be treated with diphenhydramine.

Use reduced dose in patients >65 years old

Droperidol can be very effective in treating cannabinoid hyperemesis/cyclical vomiting syndrome and intractable nausea and vomiting.

ADMINISTRATION

Paramedic

Adult:

- Severe agitation
  - <65 years - 5mg IM or slow IV push
  - >65 years - 2.5mg IM
- Intractable nausea and vomiting
  - 2.5mg slow IV push

EPINEPHRINE

PHARMACOLOGY AND ACTIONS

Epinephrine is a catecholamine with both alpha and beta effects. Therefore, the following cardiovascular responses maybe expected:

- Increased heart rate
- Increased myocardial contractile force
- Increased systemic vascular resistance
- Increases arterial blood pressure
- Increases myocardial oxygen consumption
- Increases automaticity
- Potent bronchodilator

INDICATIONS

- Ventricular fibrillation
- Ventricular Tachycardia without pulse
- Asystole/PEA
- Symptomatic bradycardia (severe)
- Anaphylaxis
- Systemic allergic reactions
- Asthma in-patients <50yrs
- Peri-procedural hypotension
- Hypotension
- Non-traumatic shock

PRECAUTIONS/ NOTES / SIDE EFFECTS

Epinephrine and Bicarbonate:

- Should not be added directly to bicarbonate infusion, since catecholamines may be partially inactivated by alkaline solution.

Epinephrine can precipitate angina or AMI:

- Increased cardiac workload can precipitate angina and/or MI in a susceptible individual. May induce major arrhythmias.

Other causes of wheezes:

- Pulmonary edema
- Pulmonary embolus
- Emphysema/Bronchitis

Common side effects:

- Anxiety, tremors, headache, tachycardia's, palpitations, PVC's, Angina, and Hypertension.

EPINEPHRINE

ADMINISTRATION

ANAPHYLAXIS

EMR:

Agency approved Epi-pen or auto-injector device

EMT, AEMT, EMT-I, Paramedic:

Adult:

- 0.3 - 0.5 mg (0.3 – 0.5 cc) of 1:1,000 epinephrine IM,SQ
  - **EMT-I, Paramedic**
    - 0.3-0.5mg (3-5ml) slow IV of 1:10,000. Repeat in 5-10 minutes as indicated

Pediatric:

- Infant < 1 y/o 0.1 mg (0.1cc) of 1:1,000 epinephrine IM, SQ
- Child1-12 y/o 0.2 mg (0.2cc) of 1:1,000 epinephrine IM, SQ
- Child >12 y/o 0.3 mg (0.3cc) of 1:1,000 epinephrine IM, SQ

CARDIAC ARREST

EMT-I, Paramedic:

- Adult: 1 mg IV / IO every 3-5 minutes of 1:10,000 Concentration
- Pediatric: .01mg/kg IV/IO every 3-5 minutes of 1:10,000 concentration
- ETT @ 2-2.5 times the IV dose

ASTHMA

EMT-I, Paramedic

- Adult 0.3mg - 0.5mg (0.3 to 0.5cc) of 1:1000 SQ /IM
- Infant < 1 y/o 0.1 mg (0.1cc) of 1:1,000 epinephrine SQ/IM
- Child1-12 y/o 0.2 mg (0.2cc) of 1:1,000 epinephrine SQ/IM
- Child >12 y/o 0.3 mg (0.3cc) of 1:1,000 epinephrine SQ/IM

SEVERE ASTHMA OR ANAPHYLAXIS

EMT-I, Paramedic

- Adult:0.3-0.5 mg (3-5 ml) slow IV / IO of 1:10,000. Repeat in 5-10 minutes as indicated.
- Pediatric: 0.01mg/kg IV/IO of 1:10,000. Do not exceed single dose of 0.3mg. Repeat 5-10 minutes as indicated.

CROUP

EMT-I, Paramedic

- 5mg of 1:1,000 epinephrine diluted with 3-5mL of saline via nebulizer-one dose only

INFUSION

Paramedic only

Preparation

- 1mg (1:1000) in 100ml normal saline (10mcg/ml)

Dosing

- Infuse at 2-10mcg/min via solu-set or IMED pump (preferred) - titrate to effect

HYPOTENSION / PERIPROCEDURAL HYPOTENSION / SYMPTOMATIC BRADYCARDIA / NON-TRAUMATIC SHOCK

Paramedic only

Preparation

- 1mg/10mL (1:10,000) epinephrine in 9mL of normal saline to yield 10mcg/mL
  Alternatively:
- 1mg/1mL (1:1,000) epinephrine in 100mL of normal saline to yield 10mcg/mL

Dosing

- 5-10mcg (0.5-1mL) slow IVP
- May repeat q1min PRN

ETOMIDATE
(Amidate)

PHARMACOLOGY AND ACTIONS

Etomidate is a non-barbiturate hypnotic without analgesic activities. Intravenous injection of etomidate produces hypnosis characterized by a rapid onset of action, usually within one minute. Duration of hypnosis is dose-dependent but brief.

INDICATIONS

- Rapid sequence induction
- Sedation for synchronized cardioversion

PRECAUTIONS / NOTES / SIDE EFFECTS

Cardiovascular effects:

- Etomidate does not cause significant cardiovascular side effects

Central nervous system effects:

- Etomidate has little effect on the patient's respiratory drive when administered correctly
- Decreases cerebral blood flow and lowers intracranial pressure
- Lowers intraocular pressure moderately
- May cause skeletal muscle movements
- Midazolam is mandatory to continue sedation for RSI
- Nausea and vomiting

ADMINISTRATION

Paramedic:

RSI Dose

Adult:

- 0.4 mg/kg injected IV /IO over 1 minute

Pediatric:

- 0.2-0.3 mg/kg injected IV /IO over 1 minute

Synchronized Cardioversion

- 0.15mg/Kg slow IVP (over 30-60 seconds)

FENTANYL
(Sublimaze)

Agency Optional

PHARMACOLOGY AND ACTIONS

Potent Narcotic Analgesic.

INDICATIONS

- Extremity fractures, crush or amputation injuries in the absence of head injuries (see below)
- Analgesia prior to synchronized cardioversion
- Abdominal pain
- Severe Burns
- As part of post-intubation management protocol
- As part of RSI induction with midazolam when preferred agents are unavailable

PRECAUTIONS / NOTES / SIDE EFFCTS

- Patients who have received MAO inhibitors within the last 21 days
- Known Sensitivity to fentanyl
- CNS depressant; causes respiratory depression
- Decreases cardiac output
- Peripheral vasodilator
- Chest wall rigidity affecting respiratory effort in higher / multiple dosing regimens

RELATIVE CONTRAINDICATION

- Head injury or suspected TBI – may increase ICP and decrease CPP. May only administer 0.5mcg/kg IF the patient is conscious and can be monitored via serial neuro evals during transport.

ABSOLUTE CONTRAINDICATION

- Intubated, sedated, or obtunded patients with head injuries.

ADMINISTRATION

EMT-I, Paramedic

Adult:

- 0.5-1 mcg/kg IM, or IN / IV / IO bolus over 3-5 minutes. **May repeat every 30 minutes**
- If initial dose is 0.5mcg/kg, may repeat dose at 15min
- If initial dose is 1mcg/kg, may repeat ***half*** of original dose at 15min (0.5mcg/kg)

Pediatric > 2 years of age:

- 1-2 mcg /Kg IM, or IV /IO bolus over 3-5 minutes. **May repeat every 30 minutes**

Nalaxone will reverse the effect of this opioid.

FUROSEMIDE
(Lasix)

PHARMACOLOGY AND ACTIONS

A potent diuretic with rapid onset of action and short duration of effect. It acts primarily by inhibiting sodium re-absorption throughout the kidneys. Increase in potassium excretion occurs along with the sodium excretion. Venous capacity is increased in 3-4 minutes. This decreases venous congestion and probably accounts for its immediate effect in pulmonary edema. Peak effect: ½ -1 hour after IV administration. Duration is about 2 hours.

INDICATIONS

- Acute pulmonary edema.

CONTRAINDICATIONS

- Recent history of pneumonia
- Clinical suspicion of pneumonia

PRECAUTIONS/ NOTES / SIDE EFFECTS

- Should not be used in children or pregnant women.
- May cause acute and profound diarrhea.
- May cause nausea and vomiting.
- Hypotension; consider cardiogenic shock

ADMINISTRATION

EMT-I, Paramedic

Adult:

- 20-40mg slow IV / IO or 0.5 mg/kg up to 2 mg/kg.
- If patient is taking lasix PO, administer lasix at their oral dose to a max of 80mg.

GLUCAGON

PHARMACOLOGY AND ACTIONS

Agency Optional

Glucagon is a hyperglycemic agent that is naturally produced in the pancreas. It causes an increase in blood glucose by converting glycogen in the liver and muscles to glucose. Glucagon is a smooth muscle relaxant.

INDICATIONS

- Unconscious or semi-conscious patients with documented hypoglycemic when an IV cannot be established

PRECAUTIONS / NOTES / SIDE EFFECTS

Diluting Glucagon:

- Only the diluting agent supplied by the manufacturer should be used to mix glucagon

Common Side Effects:

- Common side effects include nausea and vomiting (may also be due to hypoglycemia)

After Glucagon is administered:

- Give supplemental carbohydrate as soon as possible to hypoglycemic patient

ADMINISTRATION

AEMT, EMT-I, Paramedic

Adult:

- 1 mg IV, IO, IM or SQ

HALOPERIDOL
(Haldol)

Agency Optional

PHARMACOLOGY AND ACTIONS

Haldol is a potent Neuroleptic and antipsychotic agent with antiemetic properties

INDICATIONS

- Treatment of agitation in patients who have a head injury or are combative
- Acute Delirium in the elderly
- Nausea and vomiting refractory to ondansetron

CONTRAINDICATIONS

- Known sensitivity to haloperidol
- Observed or suspected seizure
- History of prolonged QT interval
- Pregnancy
- Age<14

PRECAUTIONS / NOTES / SIDE EFFECTS

- Hypotension
- Acute dystonic reactions-best treated with diphenhydramine
- Should be administered with cardiac monitoring in place due to risk of arrhythmia (torsade's de pointes)

ADMINISTRATION

Paramedic

Acute Delirium in the elderly

Adult:

- 2-5 mg IV, IO, IM

Agitation or nausea / vomiting

- 2.5 to 5mg IV, IO, IM

HYDROXYCOBALAMIN (Cyanokit)

Agency Optional

PHARMACOLOGY AND ACTIONS

Hydroxocobalamin is an antidote used in the suspected cyanide poisoning in the smoke inhalation patient. Cyanide binds to the tissues, preventing the absorption of oxygen. The Cyanokit has proven effective in the treatment of the smoke inhalation, cardiac arrest patient.

INDICATIONS

While there is no rapid test for cyanide poisoning, it can be reasonably assumed in a smoke inhalation victim in the following settings:

- Exposure to smoke or fire in an enclosed area
- Presence of soot around the mouth, nose or oropharynx
- Altered mental status
- Suspected carbon monoxide poisoning with altered mental status

Treatment decisions must be made based on clinical history and signs and symptoms of cyanide poisoning.

PRECAUTIONS/ NOTES/ SIDE EFFECTS

- Known anaphylactic reaction to hydroxocobalamin or cyanocobalamin
- Use with caution in pediatric patients
- Use with caution in pregnancy; Must weigh the risk vs. benefit in pregnant patients.
- Adverse reactions: (<5%) – Increased blood pressure, chromaturia, erythema, rash, nausea, headache, increased lymphocyte percentage, injection site reactions, and photosensitivity.
- Can alter laboratory values

ADMINISTRATION

Paramedic:

- *Adult dose*: 5.0 gm vial diluted with Normal Saline to 200 mL infused over 15 minutes. A second dose may be administered. This will require notification of the receiving hospital so they can pull it from the pharmacy.

- *Pediatric dose*: 70mg/kg infused over 15 minutes.

IPRATROPIUM BROMIDE (Atrovent)

PHARMOCOLOGY AND ACTIONS

Atrovent is an anticholinergic (parasympatholytic) agent that is effective in relaxing the smooth muscle in the bronchial tree. Atrovent has an onset time of 15-20 minutes and a half-life of 6 hours.

INDICATIONS

- Bronchospasm with shortness of breath
- Allergic reaction
- Exposure to toxic substance

PRECAUTIONS / NOTES / SIDE EFFECTS

- Contraindicated for ETT administration
- Hypersensitivity to Atrovent
- It should be mixed with Albuterol
- Atrovent is SINGLE DOSE ONLY
- Solution can cause temporary blurring of vision and/or eye pain if solution comes into direct contact with eyes

ADMINISTRATION

EMT, AEMT, EMT-I, Paramedic

Adult:

- 0.5mg. Administer via handheld nebulizer (HHN) or nebulizer mask. Attach tubing to 8 LPM of oxygen. Mix with albuterol (5.0mg)

Pediatric:

- 250-500mcg via Handheld Nebulizer or nebulizer mask. Attach tubing to 8 LPM of oxygen. Mix with albuterol (2.5mg)

KETAMINE
(Ketalar)

Agency Optional

PHARMACOLOGY AND ACTIONS

Ketamine is a rapid-acting, general anesthetic agent producing an anesthetic state characterized by profound analgesia, normal pharyngeal-laryngeal reflexes, normal or slightly enhanced skeletal muscle tone, cardiovascular and respiratory stimulation, and occasionally transient respiratory depression. Ketamine administration has little effect on blood pressure.

INDICATIONS

- Sedation for RSI/DSI
- Post-intubation sedation when midazolam is unavailable, ineffective, or hypotension is of concern per the post-intubation management protocol
- Sedation in Agitated Delirium if patient poses a risk of harm to self or others.
- Sedation for the following painful procedures:
    - Trauma patients requiring prolonged extrication >20min requiring manipulation of injuries to extricate
    - Cardioversion ***IF*** etomidate is unavailable
    - Transcutaneous pacing ***IF*** pain is unrelieved with pain management and transport time is >30min
    - Pulseless fractured/dislocated extremity re-alignment when etomidate is not available

- Analgesia in association with opioid administration to treat those patients suffering from traumatic pain such as long bone and open extremity fractures, dislocations, burns, multi-systems trauma.

- Pediatric status epilepticus refractory to maximum doses of benzodiazepines

CONTRAINDICATIONS

- Glaucoma
- Schizophrenia
- Pregnancy
- Pediatric <3 months
- Stroke

PRECAUTIONS/ NOTES / SIDE EFFECTS

- Transient increases in blood pressure and pulse rate. Usually self-resolved.
- Oral secretions have suction available.
- Nausea (consider pretreating in the immobilized patient).
- Transient, self-resolving, arrhythmias.
- Emergence Hallucinations

ADMINISTRATION (Paramedic Only)

RSI and Agitated Delirium

- Adult: Administer 2mg/Kg IV/IO over 1 minute. 3mg/Kg IM.
- Pediatric >3months Administer 1.5mg/Kg IV/IO over 1 minute. 3mg/Kg IM

Sedation for Severe Burns/ Sedation for Painful Procedures

- 0.5-1 mg/kg IV/IO or 2mg/Kg IM. Repeat every 5 minutes as needed to assist in maintaining sedation.

Pain Management/Analgesia

(Only used in conjunction with an opiate or if known allergies to opiates are documented).

Adult/Pediatric:

- Administer 0.2mg/Kg IV/IO over 1 minute (slow push) 0.5/Kg IM may be given if no IV /IO available.
- Max single dose is not to exceed 25mg.
- If inadequate analgesia, may repeat opiate administration. Further Ketamine dosing for analgesia requires authorization with medical control.
- If nystagmus or sedation is noted, hold further administration.

Post-intubation Management

- If Ketamine was used for RSI/DSI induction
  - 1mg/kg every 10-15 minutes as needed to maintain sedation
- If Ketamine was not used for induction
  - 2mg/kg IV/IO every 10-15 minutes as needed to maintain sedation

Notes

- In Sedation or chemical restraint Ketamine must be used with a Benzodiazepine to minimize hallucinations / emergence reactions associated with emergence from the medication. This does not apply to analgesia dosing of <25mg.
- Ketamine has duration of action from 45-60 minutes.

Purpose	Analgesia	Sedation	RSI/Agitated Delirium/ Refractory Pediatric Status Epilepticus
Indications	Second-line for traumatic pain refractory to opiate • Long bone fractures/ dislocations • Open extremity fractures • Burns • Multi-system trauma	Sedation for these painful procedures: • Trauma with extended extrication requiring injury manipulation • Realignment of pulseless, fractured/dislocated extremity • Cardioversion • TCP	• RSI/DSI • Clinical impression of Agitated Delirium posing risk of harm • Refractory Pediatric Status Epilepticus
Administer with	**Opiate required**	• Benzodiazepine is **REQUIRED** • May also administer opiate if managing pain.	Benzodiazepine is **REQUIRED**
Dose	0.1 - 0.2 mg/kg IV/IO OR 0.5mg/kg IM	0.5 - 1mg/kg IV/IO OR 2mg/kg IM	2mg/kg IV/IO OR 3mg/kg IM
Maximum / Re-dose info	Maximum single dose 25mg May re-dose after 30minutes	May repeat q5m to maintain sedation	Single dose for RSI/DSI induction OLMC is **REQUIRED** for additional dosing

KETOROLAC TROMETHAMINE
(Toradol)

Agency Optional

PHARMACOLOGY AND ACTIONS

Ketorolac works by inhibiting cyclooxygenase-1 and 2 enzymes to block the synthesis of prostaglandins and reduces inflammation and pain.

INDICATIONS

- Musculoskeletal pain
- Flank pain from suspected kidney stone

CONTRAINDICATIONS

- Age < 2 or > 64
- History of renal disease or kidney transplant
- History of liver disease
- Allergies to aspirin or other NSAIDs
- Pregnancy or lactating females
- On anticoagulation therapy
- Bleeding or clotting disorder or history of ulcer
- Suspected cardiac chest pain

PRECAUTIONS / NOTES / SIDE EFFECTS

- Burning and pain at injection site
- Nausea and vomiting
- Dizziness
- Itching
- Flushing

ADMINISTRATION

Paramedic

- **Adult Dosing**: 30 mg IM or 15 mg IV **SINGLE DOSE ONLY.**

- **Pediatric Dosing: (**age 2 – 16 years)
  - 1 mg/kg IM to a max of 30mg or 0.5 mg/kg IV to a max of 15mg

LABETALOL

Interfacility transport only

PHARMACOLOGY AND ACTIONS

Labetalol combines both selective, competitive alpha1-adrenergic blocking and nonselective, competitive beta-adrenergic blocking activity in a single substance. These actions decrease blood pressure without reflex tachycardia and without a significant reduction in heart rate.

INDICATIONS

- Management during transport of acute hypertension in the CVA patient post TPA.

CONTRAINDICATIONS

- Bronchial asthma
- Overt cardiac failure
- 2nd° and 3rd° Heart Block
- Cardiogenic Shock
- Severe Bradycardia
- Hypotension
- Known Sensitivity

PRECAUTIONS / NOTES / SIDE EFFECTS

- Bradycardia
- Hypotension
- Dizziness
- Ventricular arrhythmias
- Bronchospasm

ADMINISTRATION

Paramedic

- 10-20mg IV over 1-2 minutes. May repeat twice every 10 minutes.
- **Goal is a systolic BP ≤180**.

LEVALBUTEROL (Xopenex)

PHARMACOLOGY AND ACTIONS

Levalbuterol sulfate is a potent beta-2 agent. It induces bronchial dilation by relaxing the smooth muscle of the bronchial tree. Onset of action varies from 2 to 15 minutes with duration of 4 to 6 hours.

INDICATIONS

- Presence of bronchospasm with shortness of breath

PRECAUTIONS / NOTES / SIDE EFFECTS

Cardiac effects:

- Monitor the patient's rhythm for arrhythmias and EKG changes. If any rhythm other than sinus tachycardia should develop, stop treatment immediately
- Use caution in hypokalemia
- Use caution in patients who take MAOIs or have discontinued use of MAOIs in the last 2 weeks, vascular effects may be potentiated

Neurological effects:

- CNS excitation may occur, use caution in patients with history of seizure disorders
- Skeletal muscle tremors are common
- Nausea and vomiting may follow treatment

ADMINISTRATION

EMT, AEMT, EMT-I, Paramedic

Adult:

- 1.25 mg (Administered via handheld nebulizer (HHN) or nebulizer mask. Attach O2 tubing and set flow at 8 LPM. Repeated every 10-15 min as indicated. Total of 3 treatments.

Pediatric:

- 0.63 mg for children age 12 or older
- 0.31 mg for children ages 6 to 11yo
- Administered via handheld nebulizer (HHN) or nebulizer mask. Attach O2 tubing and set flow at 8 LPM. Repeated every 10-15 min as indicated. Total of 3 treatments.

LIDOCAINE
(Xylocaine)

PHARMACOLOGY AND ACTIONS

Lidocaine is an antiarrhythmic agent. It depresses automaticity of the Purkinje fibers thereby increasing the stimulation threshold making ventricular fibrillation less likely. The actions of lidocaine can be observed in minutes, and it has duration of 8-10 minutes.

INDICATIONS

- Alternative to Amiodarone in Cardiac Arrest from VF/VT when Amiodarone is contraindicated.
- Stable ventricular tachycardia or wide complex tachycardias of undetermined etiology.
- Anesthetic effect prior to the saline bolus after placement of an EZ-IO in the conscious patient.

PRECAUTIONS/ NOTES /SIDE EFFECTS

Lidocaine and Heart Blocks:

- Use with extreme caution in presence of advanced AV block or heart rate less than 50 beats per minute. If the patient has a pacemaker, this does not apply.

Lidocaine and SVT's:

- In atrial fibrillation or flutter, quinidine-like effect may cause alarming ventricular acceleration.

Possible CNS effects:

- Tremors, restlessness, and seizures can occur with rapid administration.
- Treat seizures with Valium.

Possible cardiovascular effects:

- Hypotension related to decreased myocardial contractility.
- Sudden cardiovascular collapse and/or death.

Decreased repeat dosages:

- All dosages after the initial dose must be decreased by one-half in patients over 70 years, hepatic disease, shock, and CHF. Including the maintenance drip rate.

ADMINISTRATION

EMT-I, Paramedic:

Adult:

- 1-1.5 mg/kg slow IV/ IO (2% concentration) Repeat bolus at 0.5-0.75 mg/kg every 3-5 minutes as indicated. Total of 3 mg/kg.
- 2-2.5 times the IVP dose via ETT.
- Standard infusion rate is 2-4 mg/min. based on bolus therapy.
- ***IO bolus in conscious patients:*** 0.5 mg/kg of 2% Lidocaine (40mg max) over 2minutes.

Pediatric:

- 1 mg/kg IV or IO
- IO bolus in conscious patients: 0.5mg/kg of 2% Lidocaine (max 20mg) over 2 minutes

LORAZEPAM
(Ativan)

Agency Optional

PHARMACOLOGY AND ACTIONS

Benzodiazepine used to treat seizures, muscle spasms, and uncontrolled anxiety.

INDICATIONS

- Seizures
- Sedation for combative patients
- Severe, uncontrollable anxiety
- ***Interfacility only*** – premedication for anxiety or restlessness

PRECAUTIONS / NOTES / SIDE EFFECTS

Contraindications:

- Know sensitivity to lorazepam

Possible side effects:

- Respiratory depression, hypotension, paradoxical excitement, or agitation.
- Use with caution in presence of alcohol, barbiturates, benzodiazepines or opiates.

ADMINISTRATION

Paramedic

Adult:

- 0.5 - 2 mg IV / IO, IN or IM. May be repeated once as indicated. Max dose 4mg.

Pediatric:

- 0.1 mg/kg IV / IO, IN or IM (maximum dose 4mg). May be repeated once as indicated

MAGNESIUM SULFATE

PHARMACOLOGY AND ACTIONS

Magnesium is both an antiarrhythmic and anticonvulsant agent. It is essential for the function of the sodium/potassium ATPase pump. It acts as a physiological calcium channel blocker and blocks neuromuscular transmissions.

INDICATIONS

- Ventricular fibrillation.
- Pulseless ventricular tachycardia.
- Pre-eclampsia / Eclampsia
- Pre-term labor
- Torsades de Pointes.
- Severe asthma.

PRECAUTIONS/ NOTES / SIDE EFFECTS

Cardiovascular effects:

- Patient may develop hypotension and/or bradycardia during administration of magnesium sulfate. Decrease infusion rate if patient becomes symptomatic.

CNS effects:

- Patient may have decreased reflexes and decreased level of consciousness.

ADMINISTRATION

Paramedic

Adult:

Refractory V-Fib/V-tach or suspected digitalis overdose in cardiac arrest

- 2gm in 10ml saline slow IVP/ IO.

Eclampsia/Pre-Eclampsia/Pre-term labor

- 4gm in 100mL saline over 10 minutes IV / IO.

Torsade de points

- 4gm in 10ml saline over 1-3 minutes slow IV / IO.

Severe Asthma

- 2 gm in 10ml of saline over 1-3 minutes slow IV / IO.

Pediatric:

Severe Asthma

- **PEDIATRIC DOSE**: 25-50 mg/Kg, slow IV / IO. Maximum dose 2 g.

METHYLPREDNISONE
(Solu-Medrol)

PHARMACOLOGY AND ACTIONS

Solu-medrol is a synthetic steroid that suppresses acute and chronic inflammation. It potentiates smooth muscle relaxation by way of beta-adrenergic agonists, and it alters airway hyperactivity. Onset of action occurs rapidly after IV administration.

INDICATIONS

- Asthma.
- Exacerbated COPD.
- Anaphylaxis.
- Adrenal Insufficiency / Adrenal Crisis

PRECAUTIONS / NOTES / SIDE EFFECTS

Side effects:

- May cause headache, hypertension, Sodium and H20 retention, hypokalemia and alkalosis.

Use in the Diabetic patient:

- Hypoglycemic responses to Insulin/Oral hypoglycemic agents may be blunted due to Solu-Medrol decreasing carbohydrate tolerance.

ADMINISTRATION

Paramedic

Adult:

(*Anaphylaxis, COPD, Asthma)*

- 125mg – 250 mg IV /IO over a few minutes. Thoroughly mix powder with liquid.

(Adrenal Insufficiency)

- 125mg IV/IO/IM

Pediatric:

(*Anaphylaxis*, *Asthma*, *Adrenal insufficiency)*

- Pediatric – 2mg/Kg IV /IO / IM

MIDAZOLAM (Versed)

PHARMACOLOGY AND ACTIONS

Versed is a short-acting benzodiazepine that causing central nervous system depression, respiratory depression and skeletal muscle relaxation.

INDICATIONS

- Sedation following endotracheal intubation.
- Sedation for cardioversion when etomidate is not available or is contraindicated
- Sedation for transcutaneous pacing.
- Conscious sedation as part of pain management
- Seizures when Ativan and Valium are not available
- Induction for RSI when etomidate and ketamine are not available or are contraindicated

PRECAUTIONS / NOTES / SIDE EFFECTS

Respiratory depression:

- Respiratory depression is especially likely to occur in the elderly, debilitated, those with COPD, renal failure or heart failure, and in the presence of alcohol, barbiturates, narcotics or other benzodiazepines.
- If IV, IO, Intranasal routes are not available, may be administered IM.

ADMINISTRATION

Paramedic

Adult:

Sedation post ETI

- *0.05mg/kg (max single dose 5mg)* ***slow*** *IV or IO every 5 minutes as needed to maintain sedation*

Cardioversion, for TCP, conscious sedation, seizures

- 1-2 mg slow IV, IO, MAD. Repeat as indicated to achieve desired effect. Maximum dose is 10mg.

RSI Induction

- 5mg slow IV/IO. Co-administer fentanyl. Repeat once if sedation not achieved.

Pediatric:

- 0.1 mg/Kg slow IV, IO, MAD. Repeat as indicated to achieve desired effect. Maximum dose is 10 mg.

MORPHINE SULFATE

Agency Optional

PHARMACOLOGY AND ACTIONS

Morphine sulfate is a potent narcotic analgesic that induces drowsiness, mental clouding and mood changes. It increases venous capacity thereby reducing venous blood return resulting in a reduced preload. It also reduces systemic vascular resistance at the arteriolar level resulting in reduced afterload. Onset of action is 2-3 minutes when given IV. Peak effect occurs in 7-10 minutes.

INDICATIONS

- Suspected ischemic chest pain unresponsive to nitroglycerin.
- Isolated extremity fractures.
- Abdominal pain in hemodynamically stable patient.
- Burns
- Air hunger
- Post-Intubation management

CONTRAINDICATIONS

- Known sensitivity to morphine or sulfates

PRECAUTIONS/ NOTES / SIDE EFFECTS

Closed head injuries

- Morphine moderately increases intracranial pressure, decreases mean arterial blood pressure and cerebral perfusion pressure, but has no significant effect on arteriovenous oxygen content difference and middle cerebral artery mean flow velocity in patients with severe brain injury.

Patients' normal response to pain:

- Hypotension is a contraindication to use. Remember that some people will be hypotensive in response to pain itself.

Hemorrhagic Shock:

- The bodies' compensatory mechanisms will be suppressed, and hypotensive effects will become very prominent.

Common side effects:

- May cause vomiting, hypotension, localized venous irritation and agitation in the elderly.

Intramuscular administration:

- Morphine can be administered IM, however, is contraindicated in the setting of an AMI.

ADMINISTRATION

EMT-I, Paramedic

Adult:

CHEST PAIN/EXTREMITY FRACTURES/ABDOMINAL PAIN/BURNS

- 2- 5 mg slow IV /IO or IM. Repeat every 5 minutes as needed. The end point is decreased anxiety level and patient comfort. Maximum dosage is 20 mg.

POST-INTUBATION MANAGEMENT

- *0.05-0.1mg/kg (max single dose 5mg)* ***slow*** *IV/IO. Repeat every 5min prn. Max 20mg Consider diphenhydramine premedication to prevent vomiting.*

AIR HUNGER

- 1-2mg slow IV/IO/IM. No repeat dose.

Pediatric:

- 0.1 mg/kg slow IV /IO or IM. Repeat every 5 minutes as needed. The end point is decreased anxiety level and patient comfort. Maximum dosage is 10 mg.

NALOXONE
(Narcan)

PHARMACOLOGY AND ACTIONS

Narcan is a narcotic antagonist which competitively binds to narcotic sites, but which exhibits almost no pharmacological activity of its own. Duration of action: 1-4 hours.

INDICATIONS

- Narcotic overdose with respiratory depression.
- Diagnostically in coma of unknown etiology.

PRECAUTIONS / NOTES / SIDE EFFECTS

Narcotic overdose:

- In-patients physically dependent on narcotics, frank and occasionally violent withdrawal symptoms may be precipitated. Be prepared to restrain the patient.

Duration of Narcan:

- Some narcotics have a longer duration than Narcan. Repeat doses of Narcan may be required. Patients who have had Narcan should be transported to the hospital.

Chronically ill patients:

- Use caution in administration of Narcan to chronically ill patients. Monitor vital signs and respiratory rate/volume.

ADMINISTRATION

EMR, EMT

Adult:

- 0.4mg - 2mg administered slowly via IN route. Titrate to respirations. Repeat every 3-5 minutes as indicated.

Pediatric:

- 0.1 mg/kg injected slowly via IN route. Repeat every 3-5 minutes as indicated.

AEMT, EMT-I, Paramedic

Adult:

- 0.4mg - 2mg injected slowly IV, IM, SQ, IN, or SL and titrated to respirations. Repeated every 3-5 minutes as indicated.

Pediatric:

- 0.1 mg/kg injected IV, IM, MAD, SQ, or IO. Repeat every 3-5 minutes as indicated.

Narcan is Administered SLOW IV push, and titrated to respirations

NITROGLYCERIN

PHARMACOLOGY AND ACTIONS

Nitroglycerin is an antianginal agent. It is effective in dilating the coronary arteries and relaxing smooth muscle. It also reduces venous tone resulting in blood pooling in the peripheral vascular bed.

INDICATIONS

- Chest pain thought to be related to cardiac ischemia or AMI.
- Arm, neck, or epigastric discomfort possibly related to coronary ischemia.
- Diagnostically as well as therapeutically.
- Hypertension.
- Pulmonary edema.

PRECAUTIONS/ NOTES / SIDE EFFECTS

(RVI) Right Ventricular Infarction:

- Use with caution in suspected RVI. Hypotension (≤ 100 systolic) is common in this patient. The patient may benefit from a fluid challenge. As much as 2 liters of fluid maybe indicated to compensate for right ventricular failure.

Viagra and ED (erectile dysfunction) drugs:

- NTG is contraindicated in patients that have taken Viagra (sidenafil citrate) or Levitra (vardenafil HCI) within 24 hours. NTG is also contraindicated in patients that have taken Cialis (tadalafil) within 48 hours. Use of NTG may result in severe hypotension and/or death. This applies to both Men and Women.

Common side effects:

- Common side effects include throbbing headache, flushing, dizziness, and burning under the tongue (if these side effects are noted, the pills may be assumed potent).

Smooth muscle spasms:

- NTG causes generalized smooth muscle relaxation therefore it may be effective in relieving chest pain caused by esophageal spasm.

ADMINISTRATION

EMT

- May assist with administering patient's own nitro as prescribed.

AEMT, EMT-I, Paramedic

Adult:

- 0.4 mg sublingually every 3-5 minutes if BP>90mm/Hg systolic. Repeat as indicated. No Max dose.

NOREPINEPHRINE (Levophed)

PHARMACOLOGY AND ACTIONS

- Naturally occurring catecholamine with primarily alpha- adrenergic effects

INDICATIONS

- Hypotension due to non-hypovolemic shock, not responding to volume replacement

CONTRAINDICATIONS

- Known sensitivity to norepinephrine
- Hypotension without adequate volume replacement
- Patients taking MAO (monoamine oxidase) inhibitor antidepressants
- Absence of large free-flowing intravascular access (long term use requires central line)

PRECAUTIONS/ NOTES/ SIDE EFFECTS

- Vasoconstriction and myocardial workload increase as dose increases which may result in cardiac dysrhythmia, angina, or headache
- Inactivated in alkaline solutions such as sodium bicarbonate
- May cause extreme peripheral vasoconstriction, particularly if peripheral vascular disease is present or IV access is small
- Causes tissue necrosis if IV infiltrates
- Should be administered via an infusion pump or another rate control device through a large upper arm vein or an IO
- Patient must be constantly attended by a paramedic
- Blood pressure must be taken about every 2 minutes initially until stable and then at about 5 minutes

ADMINISTRATION

Preparation:

- Add 4mg norepinephrine to 250mL of D10 or NS = 16mcg/ml – microdrip tubing

Paramedic

ADULT

- 4mcg/min (15 drops/min) IV or IO titrated upwards every 3-5 minutes to a systolic BP of 90mmHg, then 8mcg/min (30 drops/min), then to a maximum dose of 12mcg/min (45 drops/min)

PEDIATRIC

- 0.1mcg/kg/min IV or IO titrated upwards every 3-5 minutes to the lower age-normal systolic BP: 70mmHg + (2 x Age in years) Maximum dose of 0.4mcg/kg/min.
- For weight greater than 36kg use adult dosing

PEDIATRIC NOREPNIPHRINE INFUSION TABLE

Drops / Minute using microdrip tubing (60 drops/mL)

Weight (kg)	0.1 mcg/kg/min	0.2 mcg/kg/min	0.4 mcg/kg/min
5	2	4	8
10	4	8	15
15	6	11	22
20	8	15	30
25	9	18	38
30	11	23	45

OLANZAPINE
(Zyprexa)

Agency Optional

PHARMACOLOGY AND ACTION:

Dopamine and serotonin (5-HT) antagonist, along with anticholinergic, antihistaminic, and anti-alpha adrenergic effects. Has anxiolytic properties. With a low incidence of extrapyramidal effects.

INDICATIONS:

- Patients between 18-65 years who are/are exhibiting signs or symptoms of:
  - Anxious and/or agitated patient.
  - To avoid the need for physical or chemical restraint.

CONTRAINDICATIONS:

- Patients less than 18years of age
- Patients greater than 65 years of age
  - Exception - patients greater than 65yrs of age with a current prescription for olanzapine who have not taken their prescribed daily dose may be administered their prescribed PO dose.

SIDE EFFECTS & PRECAUTIONS:

- May prolong QT but unlikely in single dose. Obtain EKG before administration if known history or suspicion for prolonged QT or cardiovascular disease.
- Known hypersensitivity.
- Use with caution in suspected drug overdose.
- Can cause orthostatic hypotension or bradycardia.

ADMINISTRATION:

EMT-I, Paramedic

- ADULT DOSING (Age 18 – 65): 10mg IM / PO (Tablet only)

- Adult dosing for adults >65yrs with a current prescription for olanzapine 10mg PO
  - If too agitated to take PO medication, may be administered IM.

ONDANSETRON
(Zofran)

PHARMACOLOGY AND ACTION:

Potent anti-emetic agent, a selective 5-HT3 receptor antagonist.

INDICATIONS:

- Nausea or vomiting
- Prophylactically to prevent nausea or vomiting

CONTRAINDICATIONS:

- Known sensitivity to ondansetron.
- Recent administration of apomorphine (given SQ for Parkinson's Disease) –apomorphine is rarely used – may cause severe hypotension

SIDE EFFECTS & PRECAUTIONS:

May cause minor headache, constipation or diarrhea.

ADMINISTRATION:

EMT-I, Paramedic

Adult & Pediatric:

- 0.1mg/kg slow IV or IM. Max single dose 4mg.May be repeated once, total dose of 8mg.

ORAL GLUCOSE

PHARMACOLOGY AND ACTIONS

Glucose is a large molecule carbohydrate (six carbon sugar), and it is the body's basic energy source. Its use is regulated by Insulin, which stimulates storage of excess glucose in the bloodstream. Oral glucose raises serum glucose levels in the blood stream as it is absorbed in the oral mucosa and the G.I. Tract.

INDICATIONS

- Hypoglycemic (blood glucose <70 mg/dl)

PRECAUTIONS/ NOTES / SIDE EFFECTS

Use in suspected CVA's:

- Oral glucose should only be administered after a confirmed blood glucose level of <70 mg/dl.

Contraindications:

- Unconscious or semi-conscious patient who is unable to protect his/her own airway.

ADMINISTRATION

EMR, EMT, AEMT, EMT-I, Paramedic

Adult and Pediatric:

- 15-30 grams PO. Can be repeated PRN.

OXYGEN

PHARMACOLOGY AND ACTIONS

Oxygen added to the inspired air raises the amount of oxygen in the blood thereby increasing the amount delivered to the tissues. Tissue hypoxia may result in cell damage and death. Breathing in most persons is regulated by small changes in acid/base balance and CO levels. It takes relatively large drops in blood oxygen concentration to stimulate respiration.

INDICATIONS

- SPO2 < 94%
- Suspected hypoxemia or respiratory distress from any cause
- Acute chest pain with myocardial infarction is suspected.
- Shock.
- Major trauma.
- Altered mentation level.
- Inhalation poisoning.

PRECAUTIONS/ NOTES / SIDE EFFECTS

BVM ventilation:

- If the patient is not breathing adequately on his/her own, the treatment of choice is ventilation, not just oxygen.

Patients with COPD:

- DO NOT WITHHOLD oxygen. Be prepared to assist ventilations if needed.

Patients with Traumatic Brain Injuries:

- DO NOT WITHHOLD oxygen. High-flow oxygen if SpO2 <100%.

ADMINISTRATION

EMR, EMT, AEMT, EMT-I, Paramedic

DOSAGE	AIRWAY ADJUNCT	INDICATIONS
Low flow, 1-4 l/min.	Nasal cannula	General medical, mild respiratory distress
High flow, 15 l/min.	Non-rebreather	Trauma, chest pain, moderate to severe distress where assisted ventilations are not necessary.
High flow, 15 l/min.	Bag-valve mask	Severe respiratory distress - either medical or traumatic, apnea, or where assisted ventilations are necessary to insure oxygenation.

Oxygen delivery and volume administration should be titrated to maintain adequate signs of tissue perfusion and a SPO2 of 94% and should coincide with ETCO2 evaluation.

OXYMETAZOLINE
(Afrin)

PHARMACOLOGY AND ACTIONS

Oxymetazoline is an over the counter nasal spray usually prescribed for the temporary relief of nasal congestion and/or stuffiness from allergies and/or infections. It is a sympathomimetic agent that constricts the small arteries and veins in the nasal mucosa.

INDICATIONS

- Epistaxis uncontrolled by direct pressure.
- Pretreatment for nasotracheal intubation.

PRECAUTIONS/ NOTES/ SIDE EFFECTS

Hypertension, Cardiovascular Effects:

- May elevate blood pressure and pulse. Use caution in patients with uncontrolled hypertension (BP 180/110 or higher).

Clearing patients' nasal airways:

- Have patient blow their nose just prior to each administration of Afrin.

Controlling of emesis:

- The patient may vomit from swallowed blood. If the vomiting persists, consider an anti-emetic.

Patient instructions following control of epistaxis:

- Clear nasal airways and repeat the sprays immediately.
- Repeat sprays every 2 hours for the first 24 hours.
- Repeat sprays every 3 hours for the next 24 hours.
- Finally, repeat sprays every 4 hours for the last 24 hours.

ADMINISTRATION

Paramedic

Adult and Pediatric:

- 2 sprays in the affected side. If unclear which side is bleeding, spray both nostrils twice.
- After spraying, pinch the nose between the index finger and thumb, applying firm pressure to the area over the nasal septum for two minutes.

OXYTOCIN
(Pitocin)

Agency Optional

PHARMACOLOGY AND ACTIONS

Polypeptide hormone which stimulates uterine contraction

INDICATIONS

- Control of postpartum hemorrhage following deliver of the placenta.

PRECAUTIONS / NOTES / SIDE EFFECTS

Side effects:

- The most common side effect is nausea and vomiting.
- Severe uterine cramping

Contraindications:

- Known sensitivity
- Pregnancy

ADMINISTRATION

Paramedic

Adult:

- 10-20 units IV or IO added to 1000mL of normal saline run wide open.

PROMETHAZINE (Phenergan)

Agency Optional

PHARMACOLOGY AND ACTIONS

Phenergan is an antihistaminic, sedative, anti-motion sickness, anti-emetic, and anticholinergic agent. The duration of action is generally 4-6 hours. As an antihistamine, it acts by competitive antagonism but does not block the release of histamines.

INDICATIONS

- Nausea and vomiting.

PRECAUTIONS / NOTES / SIDE EFFECTS

Side effects:

- The most common side effect is mild sedation. Less common effects include hypotension, tinnitus, tremors, and dizziness.
- Extra pyramidal reactions can occur with administration of phenergan. If EPS does occur, treat with Benadryl (25-50mg).
- Children <2 years contraindicated

Use with Narcotics:

- Phenergan can potentiate the effects of narcotics.

ADMINISTRATION

Paramedic

Adult:

- 12.5 mg IV or IM. Repeat as indicated to control nausea and vomiting.
- 6.25mg IV or IM for patients >70 years of age.

Pediatric > 2 years of age

- 0.25 mg/kg IV, IM or IO. Maximum dose is 12 mg.

ROCURONIUM BROMIDE (Zemuron)

Agency Optional

PHARMACOLOGY AND ACTIONS

Rocuronium bromide is a non-depolarizing neuromuscular blocking agent with a rapid to intermediate onset depending on dose and intermediate duration. It acts by competing for cholinergic receptors at the motor endplate. Has no analgesic properties and the patient maybe conscious, but unable to communicate by any means. Patients should be pre-medicated with a sedative (versed) as Rocuronium has no effect on patient's level of consciousness. First muscles affected include eyes, face, neck; followed by limbs, abdomen, chest; diaphragm affected last. Recovery usually occurs in the reverse order and may take longer than 60 minutes. **IV onset of actions in less than 2 minutes, peaks in 1-3 minutes and lasts for 20-60 minutes at the dose of 1.0 mg/kg**

INDICATIONS

- Rapid Sequence Induction as an initial paralytic where Succinylcholine is unavailable or contraindicated
- Post RSI maintenance paralytic when continued paralysis is necessary to achieve ventilation and oxygenation

PRECAUTIONS / NOTES /SIDE EFFECTS

- Respiratory paralysis: ensure secondary airway is available.
- Pre-medicate and maintain sedation with Benzodiazepines.
- Use with caution in patients with known significant Hepatic disease, pulmonary hypertension and valvular heart disease.
- Hypersensitivity /anaphylaxis
- Transient hypotension and Arrhythmia
- Tachycardia
- Hypertension

ADMINISTRATION

PARAMEDIC

INDUCTION DOSAGE

- Adult: 1.0 mg/kg slow administration (30-60 seconds)
- Pediatric: 0.6mg/Kg

MAINTENANCE DOSE

- Adult: 0.15-0.2 mg/Kg IV prn or 10-12 mcg/kg/min via **IMED pump only** for transports > 1 hour.
- Pediatric: 0.15mg/Kg IV prn or 7-10 mcg/kg/min IV via **IMED pump only** for transports > 1 hour.

SUCCINYLCHOLINE CHLORIDE (Anectine)

PHARMACOLOGY AND ACTIONS

Succinylcholine is a depolarizing skeletal muscle relaxant. Like acetylcholine, it combines with cholinergic receptors of the motor end plate to produce depolarization. The depolarization may be observed as fasciculation. Onset of action is one minute. Maximum paralysis is about 2 minutes. Recovery from anectine is normally within four to six minutes.

INDICATIONS

- Temporary paralysis to facilitate intubation.

CONTRAINDICATIONS

- Known sensitivity to succinylcholine chloride.
- History or family history of malignant hyperthermia.
- Known severe hyperkalemia
- History of stroke, burns, crush injuries > 4 days and < 6 months previously.
- Quadriplegia, paraplegia, muscular dystrophy, multiple sclerosis, amyotrophic
- Lateral sclerosis (ALS) or other neuromuscular disorder of > 4 days duration.
- History of masseter muscle spasm.

PRECAUTIONS / NOTES / SIDE EFFECTS

Paralysis/apnea:

- Must be prepared to intubate and/or ventilate with a BVM.

Induction sedative agent is required to be administered prior to succinylcholine:

- Administer sedative prior to the paralytic agent

Multiple doses:

- Administering multiple doses increases potential for dysrhythmias. Patient should be monitored during procedure.

Side effects:

- Hypotension is the most common side effect.

ADMINISTRATION

Paramedic

Adult:

- 1-2 mg/kg IV /IO. If inadequate paralysis occurs, check IV and repeat initial dose.

Pediatric:

- 2 mg/kg IV or IO. If inadequate paralysis occurs, check IV or IO and repeat initial dose.

TRANEXAMIC ACID

Agency Optional

PHARMACOLOGY AND ACTIONS

TXA, a synthetic derivative of the amino acid lysine, is an antifibrinolytic agent that acts by binding to plasminogen and blocking the interaction of plasminogen with fibrin, thereby preventing dissolution of the fibrin clot.

INDICATIONS:

- Adult patient 18 years of age or older
- Hemorrhagic shock due to trauma* or post-partum hemorrhage
- Trauma less than 3 hours old; best outcomes if given within 1st hour
- Sustained tachycardia >120 bpm
- Sustained hypotension systolic < 90 mmHg
- Transport time 15+ minutes to TRMC or qualified receiving center

** Trauma is defined as:*

- All penetrating injuries to head, neck, torso and proximal extremities
- Chest wall deformities
- 2 long bone fractures proximally
- Crushed and pulseless extremity
- Amputation
- Pelvic instability

CONTRAINDICATIONS

- Known allergy to TXA
- Anticoagulant therapy; Coumadin, Eliquis, Xarelto
- Children < 12 years of age

PRECAUTIONS / NOTES / SIDE EFFECTS

- Control External bleeding; direct pressure, packing, tourniquet
- Treating Medic should be trained in TXA use and administration
- Do not bolus; infusion only. Risk of hypotension
- Do not use through same line as blood products.
- **Mandatory trauma system entry; apply trauma band**

ADMINSTRATION

Paramedic:

- 1 gram in 100 mL of NS IV or IO over 10 minutes (via pump)

If pump is not available:
TXA comes in a concentration of 1 gram per 10mL of liquid. Draw up the drug into the 10mL syringe and inject into the 50mL bag of normal saline. This gives you a bag containing 1 gram of tranexamic acid in 60mL of fluid. Hang the 10cc/mL tubing attached to the bag. Set the drip at 1 drip per second. There are 600 drips in 10 minutes. There is no need for a pump and you will administer it within close to ten minutes.

VECURONIUM BROMIDE (Norcuron)

PHARMACOLOGY AND ACTIONS

Vecuronium is a synthetic non-depolarizing neuromuscular blocking agent. The onset time averages 2-3 minutes and its duration is from 15-30 minutes

INDICATIONS

- Provide continued neuromuscular blockade after intubation when necessary to achieve ventilation and oxygenation after adequate sedation and pain management has been administered.
- As a first-line paralytic when Succinylcholine is contraindicated or risks of succinylcholine administration are greater than benefit.

PRECAUTIONS/NOTES/SIDE EFFECTS

CNS effects:

- Vecuronium does not alter a patient's level of consciousness
- Conscious and Semi-conscious patients must receive an induction sedative before the administration of Vecuronium.

ADMINISTRATION

Paramedic

Paralyzing Dose for RSI

Adult & Pediatric

- 0.1 mg/kg IV / IO. Repeated as indicated. (Usual adult dose is 10mg). Effect last up to 45 minutes.

Post RSI maintenance dose

Adult & Pediatric

- 0.01 mg/kg IV/ IO at first sign patient is coming out of paralysis. Repeat every 15 minutes as needed to retain paralysis.

PROCEDURES

AUTOMATIC EXTERNAL DEFIBRILLATOR (AED)

EMR, EMT, AEMT, EMT-I, Paramedic

INDICATIONS

- Unconscious, unresponsive, patient with possible cardiac arrest.

PRECAUTIONS

- Use adult electrodes if patient 8 years of age-of-older and have an estimated body weight of greater than 55 lbs. or estimated height of more than 50 inches.
- Use pediatric wiring and adaptor if patient is 1-8 years-of-age.

PROCEDURE

- Prepare equipment:
    a. AED.
    b. Oxygen.
    c. Bag valve mask.
    d. Oral airway.
- Power on the automatic or semi-automatic defibrillator.
- Attach electrode pads to the patient's bare chest using correct pad size. Use child size pads for children <8 years of age if available.
- Stop CPR and allow defibrillator to analyze rhythm.
- If the defibrillator determines a shock is advised, clear all personnel and bystanders away from patient.
- Administer one shock
- Immediately resume high-quality CPR; continue for 2 minutes or 5 cycles.
- After 2 minutes, AED should prompt you to re-analyze patient.

Pediatric Interfacility High Flow Nasal Oxygen (HFNO) (AIRVO2)

HEATED HIGH FLOW NASAL CANNULA (HHFNC) FOR BRONCHIOLITIS AND OTHER RESPIRATORY ILLNESSES: Bronchiolitis is a very common condition in young children, most common in children under the age of 2. Many viruses cause bronchiolitis with a common virus being RSV. Symptoms can include fever, nasal congestion, cough, and wheezing. Many cases are very mild. Children with tracheal retractions, intercostal retractions, belly breathing, or other signs of respiratory distress not improved with suctioning may be placed on HFNC in the hospital. HHFNC therapy can help maintain functional residual capacity with positive airway pressure, facilitate breathing by overcoming nasopharyngeal resistance due to edema and secretions, and wash out physiologic dead space. HFNC is not just a traditional nasal cannula with the flow turned up. It requires special equipment and consists of a flow rate and a percentage of oxygen. Often pediatric patients start at 1.5 L/kg. The information below outlines equipment that may be used in the case of a facility transfer, along with guidance for the calculations and amounts of oxygen supply needed.

Indications

- Order from sending facility/physician as part of an interfacility transfer with HHFNC by a Paramedic (for patients 13 years or older) or CCT Paramedic (for patients less than 13 years old).
- Hypoxic respiratory distress or respiratory distress
- Availability of AIRVO high flow nasal cannula device and necessary supplies required to facilitate transport of the patient

Contraindications

- Inability to provide continuous, humidification using an approved delivery device
- Inability to provide therapy through appropriately sized nasal prongs
- Insufficient supply of oxygen to complete the transport

Procedure

- Ensure that an adequate supply of oxygen is available for the transport
  - Calculate the amount of oxygen needed prior to departure.
  - Ensure that you have at least two times the amount of oxygen anticipated.
- Perform appropriate patient assessment, including obtaining vital signs, pulse oximeter reading, cardiac rhythm, and current device settings
- Utilize facility settings to set flow rate in liters per minute (L/min) to decrease work of Breathing and maintain SPO2 at or above 92%
  - Flow calculation: 2 L/kg/min up to the first 12 kg, plus 0.5 L/kg/min for each kg thereafter, up to a maximum flow rate of 60 L/min.
- Reassess vitals, work of breathing, mental status, and breath sounds. Reassessment should be continuous, but documentation of vitals must occur at least every five minutes throughout patient contact.
- Consider the need for escalation of respiratory support if patient remains in respiratory failure on more than 2 L/kg/min of flow or maximum settings for the delivery device.
- If patient deterioration occurs, terminate HFNO and begin positive pressure respiratory support via BVM, CPAP, or BIPAP if necessary.

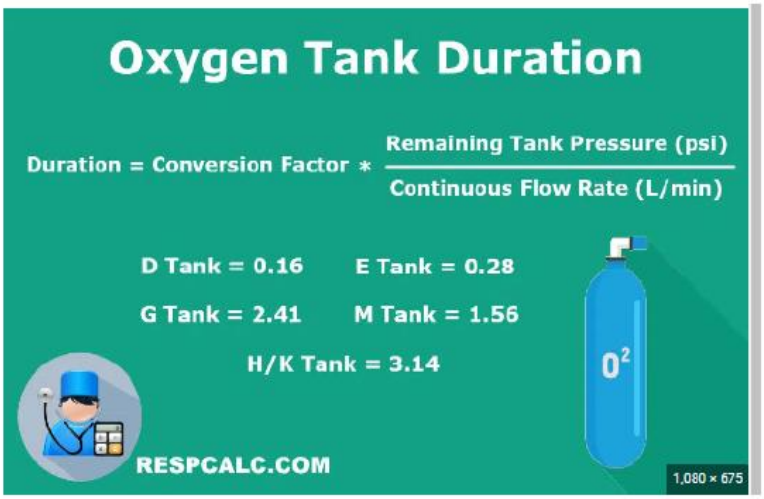
Notes

For suspected or confirmed COVID-19 patients, personnel must don respirators, eye protection, gowns, and gloves for transport.

If ground transport is not available, consider aeromedical transportation.

Informational videos for the Airvo II device are able to be accessed for review at:

https://www.fphcare.com/us/hospital/adult-respiratory/optiflow/airvo-2-system/#airvo2videos



EXAMPLE: "M" TANK

$$286 \text{ (in minutes)} = 1.56 * \frac{1100 \text{ (psi remaining)}}{6 \text{ (L/min)}}$$

$$= 4.77 \text{ hrs}$$

Uses Time (in hours)					
Size	**1 liter/min**	**2 liters/min**	**3 liters/min**	**4 liters/min**	**5 liters/min**
D	5.33	2.667	1.77	1.33	1.066
E	9.33	4.66	3.11	2.33	1.866
M	52	26	17.33	13	10.4
G	80.33	40.166	26.77	20.08	16.06
H and K	104.66	52.33	34.88	26.16	20.93

CHEST DECOMPRESSION

Paramedic

INDICATIONS:

- The emergency decompression of a tension pneumothorax using an over-the-needle catheter.

  Patient must be significantly symptomatic or in extremis (at risk of death) with:
  a. High clinical suspicion and:
  b. Progressive respiratory distress and;
  c. Shock symptoms with low or rapidly decreasing blood pressure.

  With at least one of the following:
  a. Decreased or absent breath sounds
  b. Consistent history (i.e., chest trauma, COPD, asthma).
  c. Distended neck veins.
  d. Tracheal shift away from affected side.
  e. Asymmetrical movement on inspiration.
  f. Hyper-expanded chest on affected side.
  g. Drum-like percussion on affected side.
  h. Increased resistance to positive pressure ventilation, especially if intubated.

- **EMS witnessed traumatic arrest patients with abdominal or chest trauma for whom resuscitation is indicated should have bilateral chest decompression performed even in the absence of the above signs.**

PRECAUTIONS:

a. Patient's chest should be auscultated often for return of tension pneumothorax or other respiratory complications after needle decompression.
b. Tension Pneumothorax is a rare condition, but can occur with trauma, spontaneously, or as a complication of intubation. Tension takes time to develop, but positive ventilation may increase the rate of development.
c. Simple or non-tension Pneumothorax is not life threatening and should not be decompressed in the field.
d. The ideal decompression catheter length is $\geq$ three inches.

COMPLICATIONS:

a. Creation of Pneumothorax if none existed previously.
b. Laceration of lung or pericardium.
c. Damage of blood vessels and nerves. (Hence placement of the needle above the rib).
d. Infection. Clean rapidly but vigorously; use sterile gloves if possible.
e. Tension Pneumothorax can be precipitated by the occlusion of an open chest wound. If the patient deteriorates after dressing an open chest wound, remove the dressing.

CHEST DECOMPRESSION

Paramedic

PROCEDURE:

1. Prepare Equipment:
    a. High flow oxygen
    b. Needle decompression kit with 3” minimum length needle
    c. Antiseptic solution
    d. Tape

2. Expose the entire chest.

3. Place patient in supine position

4. Establish landmarks:
    a. Anterior – 2nd intercostal space mid clavicular line.
    b. Lateral – 4th / 5th intercostal space anterior axillary line (above or lateral to the nipple) **if Anterior approach is unavailable due to anatomy or trauma.**

5. Clean chest with appropriate antiseptic.

6. On affected side, using the indicated landmarks insert the over-the-needle catheter with syringe attached while withdrawing the plunger, along the superior margin of the rib.

7. If the air is under tension, the plunger will “pop” out into the barrel of the syringe.

8. Continue to advance the catheter and remove the needle.

9. Secure the catheter.

10. Reassess the patient

CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

EMT, AEMT, EMT-I, Paramedic

INDICATIONS:

Respiratory distress in the conscious patient suffering from COPD or pulmonary edema or CHF done in conjunction with or before medical therapy with nitroglycerin or furosemide.

PRECAUTIONS:

Requires a cooperative, spontaneously breathing, patient with normal ventilatory drive.

May increase oral secretions. May precipitate hypotension. Discontinue if hypotension develops.

CONTRAINDICATIONS:

- Age < 12 years.
- Unconscious or uncooperative.
- Respiratory failure with a need for immediate intubation and or BVM ventilation.
- Facial deformity preventing adequate mask seal over the mouth and nose.
- Respiratory rate < 25/minute.
- Systolic blood pressure < 90 mm Hg
- Untreated pneumothorax.
- Vomiting.
- Upper airway abnormalities or trauma.
- Tracheostomy used for normal respirations (the presence of a plugged tracheostomy is not a contraindication).

PROCEDURE:

1. Have the patient in an upright position of comfort.
2. Explain the procedure to the patient.
3. Instruct patient to breathe in through their nose slowly and exhale slowly out through their mouth.
4. Initiate oxygen flow at manufacturer's recommended flow rate (target 5 cm H2O). Gently place the CPAP mask over the patient's mouth and nose and secure with the head straps. This may be facilitated by applying the mask edgewise starting on one side of the patient's face.
5. Titrate the oxygen flow based on patient condition as tolerated:
6. If patient's respiratory status or level of consciousness deteriorates, remove the CPAP mask and provide bag-valve-mask ventilation, and consider advanced airway management.
7. Monitor patient's respiratory status, vital signs, pulse oximetry, and capnometry frequently.
8. Continue CPAP until transfer to the hospital ED staff unless patient is unable to tolerate the CPAP or the patient's clinical condition worsens despite CPAP use.

CPR-HIGH PERFORMANCE

EMR,EMT, AEMT, EMT-I, Paramedic

INDICATIONS

- Any patient with cardiac arrest (unresponsive with absent or abnormal respiration without a POLST or Do Not Resuscitate order
- See Initiation and Termination of Resuscitation and POLST-DNR protocol for instances in which resuscitative efforts should be withheld.

PRECAUTIONS

- Do not delay the initiation of chest compressions
- Pulse check should not take more than 10 seconds
- If definite pulse is not detected, then begin chest compressions

PROCEDURE

ELEMENTS OF HIGH-PERFORMANCE CPR

- **Resuscitation on scene for 20 minutes or until stable ROSC is achieved in adults and pediatric patients.**
- Continuous chest compressions at 110-120 compressions per minute (use a timing device)
- Compression depth
  - Adult 2-2.4" (5-6cm)
  - Child at least 1/3 the depth of the chest - about 2 inches (5cm)
  - Infant at least 1/3 the depth of the chest - about 1 ½ inches (4cm)
- Minimal (1-2 second) chest compression interruptions during shock administration using 'hover' technique
- Ventilations - just to get chest rise
  - BVM ventilations with 100% oxygen every 10th compression if no advanced airway
  - Advanced airway present - asynchronous ventilations once every 6 seconds (use a timing device)
  - If only 1 rescuer is present, perform compressions to ventilations at a ratio of 30:2
- Passive oxygenation with 15Lpm nasal cannula if second oxygen source is available
- Pulse check begins during compressions to assess quality of CPR and continues when chest compressions stop for rhythm analysis for maximum of 10 seconds
- First epinephrine dose within 5 minutes of arrival

AGE BASED CONSIDERATIONS

- Airway
  - Over 3 years of age: endotracheal intubation is preferred if adequate personnel are available
- Pulse
  - Infants - Brachial
  - Children - Carotid
  - Adults - Carotid or Femoral
- Preferred vascular access
  - Adults - IV, then humeral IO, then tibial IO
  - 10yrs-puberty - IV, then tibial IO or distal femur IO
  - Under 10yrs - tibial IO or distal femur IO

MECHANICAL CPR

- A mechanical CPR device may be placed in the adult patient early in the resuscitation when attaching monitor pads if it can be done with minimal interruption (<10 seconds) to compressions if:
  - A 2 or 3-person crew may activate a mechanical CPR device after two minutes of manual CPR, rhythm is assessed, and first shock delivered or rhythm is non-shockable.
  - If available, a mechanical CPR device should be placed for transport of any cardiac arrest patient, regardless of ROSC, and activated for patients who are pulseless during transport.

CRICOTHYROTOMY

Quicktrach

Paramedic

INDICATIONS

This technique is to be used only when other attempts to establish an airway have been unsuccessful and total, complete respiratory obstruction exists. Such conditions are most likely to be found with foreign-body obstruction; facial or laryngo-tracheal trauma; inhalation; thermal, or caustic injury of the upper airway, angioneurotic edema, upper airway hemorrhage, epiglottitis, and croup.

PRECAUTIONS

Hazards in performing this procedure are primarily those of damage to nearby structures; major vessels to either side of the midline, vocal cords if the puncture is made too high, and puncture of the trachea with entry into the esophagus lying immediately behind if entered too deeply.

Note: Cricothyrotomy is a temporizing measure only: ventilatory support is very poor and the most one can hope for is a slight improvement in the oxygen concentration delivered to the alveoli. Rapid transport with no delay in the field for other than the most essential measures is a necessity.

Procedure for Use of the Rusch QuickTrach

1. Attempt FBAO removal first if applicable.
2. Place the patient in a supine position. Assure stable positioning of the neck and hyperextend the neck (unless cervical spine injury suspected)
3. Secure the larynx laterally between the thumb and forefinger. Find the cricothyroid ligament (in the midline between the thyroid cartilage and the cricoid cartilage). This is puncture site.
4. Firmly hold device and puncture cricothyroid ligament at a 90-degree angle.
5. After puncturing the cricothyroid ligament, check the entry of the needle into the trachea by aspirating air through the syringe. If air is present, needle is within the trachea.
6. Now, change the angle of insertion to 60 degrees (from the head) and advance the device forward into the trachea to the level of the stopper. The stopper reduces the risk of inserting the needle too deeply and causing damage to the rear wall of the trachea. Should no aspiration of air be possible because of an extremely thick neck, it is possible to remove the stopper and carefully insert the needle further until entrance into the trachea is made.
7. Remove the stopper. After the stopper is removed, be careful not to advance the device further with the needle still attached.
8. Hold the needle and syringe firmly and slide only the plastic cannula along the needle into the trachea until the flange rests on the neck. Carefully remove the needle and syringe.
9. Secure the cannula with the neck strap
10. Apply the connecting tube to the 15 mm connection and connect the other end to the bag-valve-mask with supplemental oxygen.
11. Continue ventilation with 100 percent oxygen and periodically assess the airway.

CRICOTHYROTOMY
Surgical
Paramedic

INDICATIONS

Inability to adequately oxygenate and ventilate when all other methods have been unsuccessful, including repositioning and bag valve mask ventilations.

Surgical cricothyrotomy should only be used as a last resort on adults where all other alternate airway management is unsuccessful at maintaining adequate oxygenation (SpO2 near 90%) and ventilation.

Needle cricothyrotomy is the airway management method of last resort for children.

CONTRAINDICATIONS

- Ability to oxygenate and ventilate using less invasive measures
- Age less than 12 years old

EQUIPMENT

- (A packaged tracheostomy kit with bougie introducer is preferred)
- Chlorhexidine
- #10 blade scalpel
- Bougie
- 6mm endotracheal tube or cuffed tracheostomy tube with 6.0 mm ID
- 10ml Syringe
- Tape or strap to secure airway
- BVM and Oxygen
- Quantitative ETCO2

PROCEDURE

Position the patient supine and extend the neck as needed to improve anatomic view.

Prep neck with Chlorhexidine

Using your non-dominant hand, stabilize the larynx and locate the following landmarks: thyroid cartilage (Adam's apple) and cricoid cartilage. The cricothyroid membrane lies between these cartilages.

Make an approximately 2 - 3cm vertical incision 0.5cm deep through the skin and fascia (may require a deeper incision depending on subcutaneous fat), over the cricothyroid membrane. With finger, dissect the tissue and locate the cricothyroid membrane.

Insert the bougie curved-tip first through the incision and angled towards the patient's feet. While advancing the bougie into the trachea feeling for "clicks" of tracheal rings and until it cannot be gently advanced any further and stops near the carina. This confirms tracheal position. (Carina is near the sternal angle / T4 vertebral line)

Advance a 6.0 mm endotracheal tube or tracheostomy tube with 6.0 mm ID (ensure all air aspirated out of cuff) over the bougie and into the trachea. In some kits the bougie will be preloaded inside the tracheostomy tube.

Remove bougie while stabilizing ETT/Tracheostomy tube ensuring it does not become dislodged.

Inflate the cuff with 5 – 10 cc of air.

Confirm appropriate proper placement by symmetrical chest-wall rise, auscultation of equal breath sounds over the chest and a lack of epigastric sounds with ventilations using bag-valve-mask, condensation in the tube, and quantitative waveform capnography.

Secure the tube and continue oxygenation and ventilation.

Ongoing monitoring of tube placement and ventilation status using waveform capnography is required for all patients.

ENDOTRACHEAL INTUBATION (DIGITAL, NASAL, ORAL)

Paramedic

INDICATIONS

- Cardiac/ Respiratory Arrest.
- Patient requiring RSI.

PRECAUTIONS / NOTES / SIDE EFFECTS

Possible Complications:

- Lacerations of soft tissue.
- Dental injury.
- Laryngospasm.
- Right or left mainstream intubation.
- Esophageal intubation.

Required Documentation on all Intubations

- ✓ Visualized vocal cords (if applicable)
- ✓ Epigastric sounds
- ✓ Lung sounds anterior /axillary
- ✓ Color metric / In-line Capnography reading, waveform attached
- ✓ ET tube depth

****Re-evaluation and documentation is required each time patient is moved, with final re-assessment once the patient is moved to the hospital bed.****

EQUIPMENT

1. Laryngoscope & blades (check light)
2. Endotracheal tubes
3. Alternate airway device if Intubation is unsuccessful
4. 10ml syringe
5. Stylette
6. Lubricant
7. Magil Forceps
8. ETCO2 (with waveform)
9. ET tube holder
10. Suction unit
11. Ventilator

Adult male:	7.0 to 8.5
Adult Female:	6.5 to 8.0
Child:	4.0 to 6.0
Infant	3.5 to 4.0
Newborn	2.5 to 3.5

Standard Size Ranges

ENDOTRACHEAL INTUBATION (DIGITAL, NASAL, ORAL)

Paramedic

PROCEDURE FOR DIGITAL INTUBATION

1. Hyper-oxygenate the patient.
2. Select an appropriate size ET tube.
3. Insert bite block.
4. Insert the ET tube.
5. Confirm lung sounds and no epigastric sounds on ventilation with 5-point check.
6. Attach main-stream ETCO2. (Document initial reading /waveform).
7. Secure the ET tube.
8. Re-confirm ET tube placement after each movement of the patient, clinical changes, and on arrival at the receiving facility.

PROCEDURE FOR NASAL TRACHEAL INTUBATION

1. Hyper-oxygenate the patient.
2. Select an appropriate size ET tube. (Adult 7.0 or smaller).
3. Pre-treat the selected nostril with two sprays of Afrin to reduce bleeding.
4. Position patients' head in a neutral position.
5. Insert a well lubricated tube into the selected nostril. Gently introduce the ET tube posteriorly with a twisting motion.
6. Air movement and tube misting should be present when the ET tube is near the tracheal opening.
7. Time the introduction of the ET tube with the patients' inspiratory pattern.
8. Confirm lung sounds and no epigastric sounds on ventilation with 5-point check.
9. Attach main-stream ETCO2. (Documentation).
10. Secure the ET tube.
11. Re-confirm ET tube placement after each movement of the patient, clinical changes, and on arrival at the receiving facility.

PROCEDURE FOR ORAL INTUBATION

1. Hyper-oxygenate the patient.
2. Prepare ET tube. (Check cuff, stylet, lubricate).
3. Use Selleck maneuver if indicated.
4. Visually place ET tube.
5. Confirm lung sounds and no epigastric sounds on ventilation with 5-point check.
6. Attach main-stream ETCO2. (Documentation)
7. Secure the ET tube.
8. Re-confirm ET tube placement after each movement of the patient, clinical changes, and on arrival at the receiving facility.

END TIDAL CO2 DETECTOR

EMR, EMT, AEMT, EMT-I, Paramedic

INDICATIONS

- Any advanced airway placement including ventilated patients and supraglottic airways.
- A patient presenting with respiratory distress/ tachypnea / hypoventilation.
- A patient with signs of shock / chest trauma / head trauma / CVA.

PRECAUTIONS

- A sudden drop in CO2 output from normal (35-45 mm/Hg) to 15-20 mm/Hg and an obvious change in waveform are indicative of tube displacement. Re-assess tube placement immediately and take corrective action.
- Patients can have an O2 saturation of 100% and still be poorly ventilated.
- CO2 detection is a secondary device.
- Endotracheal medications and/or emesis can make ETCO2 unreliable.

PROCEDURE

- *Manual Colorimetric Detector*:
    a. Attach detector directly to end of endotracheal tube or dual lumen airway device.
    b. When ventilating properly, the color should change from purple to yellow on expiration.
- *Electronic Detector: Main Stream*
    a. Attach detector directly to end of endotracheal tube or dual lumen airway device.
    b. Attach small tubing to monitor.
    c. Record waveform.
    d. Record waveform with any significant patient change and following any patient movement.
- *Electronic Detector: Awake Patient*
    a. Place nasal cannula on patient.
    b. Attach small tubing to monitor.
    c. Record waveform.
    d. Record waveform with any significant patient change and following any patient movement.

ETCO2 value ranges

> 40 = Hypoventilation
35.45 = Normal ventilation
30.35 = Hyperventilation
< 30 = Aggressive hyperventilation

Patients with signs of increased intracranial pressure (Altered mental status, unilateral dilated pupil, posturing, focal neurologic findings) maintain CO2 between 30-35.

EXTERNAL TRANSCUTANEOUS PACING
Paramedic

INDICATIONS

- Symptomatic bradycardia.
- Symptomatic bradycardia refractory to atropine.
- Symptomatic heart blocks.
- Witnessed Asystole.

CONTRAINDICATIONS

- Penetrating chest trauma.
- Blunt trauma.
- Patients meeting death in the field criteria.
- Patient with POLST or DNR.

PROCEDURE

- Prepare equipment:
    a. High-flow oxygen.
    b. Cable and pacing electrodes. (Adult or Pediatric)
    c. Analgesic /Sedative (versed preferred).
- Administer oxygen.
- Ensure 4-lead electrodes are in place. (Lifepaks cannot continue pacing without 4 lead in place, ensure it is not discontinued until planned at transfer of care)
- Ensure the pacer leads are attached and the monitor is displaying a cardiac rhythm.
- Attach pacing electrodes to right anterior chest and left lateral chest or left anterior chest and left posterior chest.
- Set pace rate at 80 bpm.
- Increase current by 20 MA while observing monitor for evidence of electrical capture.
- Confirm mechanical capture by obtaining pulse and blood pressure.
- If unable to obtain mechanical capture, discontinue pacing.
- If patient complains of pain during pacing administer analgesia and sedation per protocol. Repeat as indicated.

Celox, Combat Gauze, Combat Pad

INDICATIONS

- Uncontrolled, life-threatening external hemorrhage.

PRECAUTIONS

- Celox: Do not use on scalp lacerations if skull fracture is suspected.

CELOX PROCEDURE

1. Open CELOX / Gauze packet
2. Blot away excess blood from wound with gauze pad
3. Immediately pour entire contents of pouch directly into wound
4. Apply firm pressure directly to wound for 5 minutes using gauze. DO NOT release pressure for any reason during this time period.
5. Wrap and tie pressure bandage to maintain pressure on the wound.

HEMOSTATIC DRESSING PROCEDURE

1. Open Packet and ensure proper side is applied to injury site.
2. Apply directly to the active area of bleeding. For large, open wounds pack with dressing.
3. Apply pressure for a minimum of two minutes, multiple dressing may need to be applied
4. Secure bandages in place, do not remove.

I-GEL AIRWAY

EMT, AEMT, EMT-I, Paramedic

INDICATIONS

- Advanced airway management when endotracheal intubation cannot be accomplished.
- Two unsuccessful attempts at endotracheal intubation by a single EMS provider. Or a total of three unsuccessful attempts by two EMS providers.

PRECAUTIONS

- Do not use in patients with intact gag reflex.
- Do not use in patients with known esophageal disease.
- Do not use in patients who have ingested caustic substance.
- Do not use in patients with unresolved foreign body obstruction
- Do not use in patients with a tracheostomy or stoma
- Do not force the I-gel airway device.

PROCEDURE

1. Prepare equipment:
    a. High-flow oxygen.
    b. Bag valve mask.
    c. I-gel kit.
    d. Suction.
    e. Lubricant.
2. Hyper-oxygenate patient with bag valve mask for 1-2 minutes with supplemental oxygen while preparing equipment. If CPR is in progress, do not interrupt continuous chest compressions.
3. Remove dentures, loose or broken teeth.
4. Position patient's head in neutral position.
5. Choose the correct size I-gel airway

i-gel size	Patient size	Patient weight guidance (kg)
1	Neonate	2-5
1.5	Infant	5-12
2	Small paediatric	10-25
2.5	Large paediatric	25-35
3	Small adult	30-60
4	Medium adult	50-90
5	Large adult+	90+

6. Apply lubricant to the anterior, posterior and lateral edges of the cuff.
7. Hold the I-gel at the integrated bite block with dominant hand. With the free hand, open mouth and apply gentle chin lift while maintaining C-spine precautions if indicated.
8. Position the device so that the gel cuff outlet faces the patients chin. Advance the tip into the mouth of the patient following the hard palate.
9. Without exerting excessive force, advance the device until a definitive resistance is felt.
10. Begin ventilation with 100% oxygen, while bagging patient to assess ventilation.
11. Confirm proper placement by auscultation, chest rise, end tidal CO2 monitoring or Colorimetric CO2 detector.
12. Secure the I-gel with tape from maxilla to maxilla or with the included securing device.
13. All patients with an inserted I-gel device should have their head and neck immobilized with a cervical collar.
14. Document proper airway placement as well as method used to stabilize I-gel device.
15. Reassess the position of the I-gel device, and again if patient is moved.
    - EMT-Intermediate & Paramedics:
        - Consider placement of an OG tube in the gastric port for I-gel sizes 1.5-5
            - Size 1.5 – 10 french
            - Size 2-4 – 12 french
            - Size 5-14 – 14 french

- Placement of the I-gel device should not delay CPR or patient care.
- Devices are single use and should be appropriately disposed of.
- The I-gel airway may be used for a maximum of 2 hours unless approved by medical control.

INFANT T-PIECE RESUSCITATOR (Neo-Tee)

Initiation - Paramedic

Continuation - EMT, AEMT, EMT-I, Paramedic

INDICATIONS

- Patients less than 10kg (approximately 1 year) requiring assisted ventilation or CPAP

CONTRAINDICATIONS

- Weight >10kg (approximately 1 year)
- Uncontrolled vomiting, airway contamination, or airway obstruction in the non-intubated patient
- Facial/airway trauma or abnormalities in the non-intubated patient

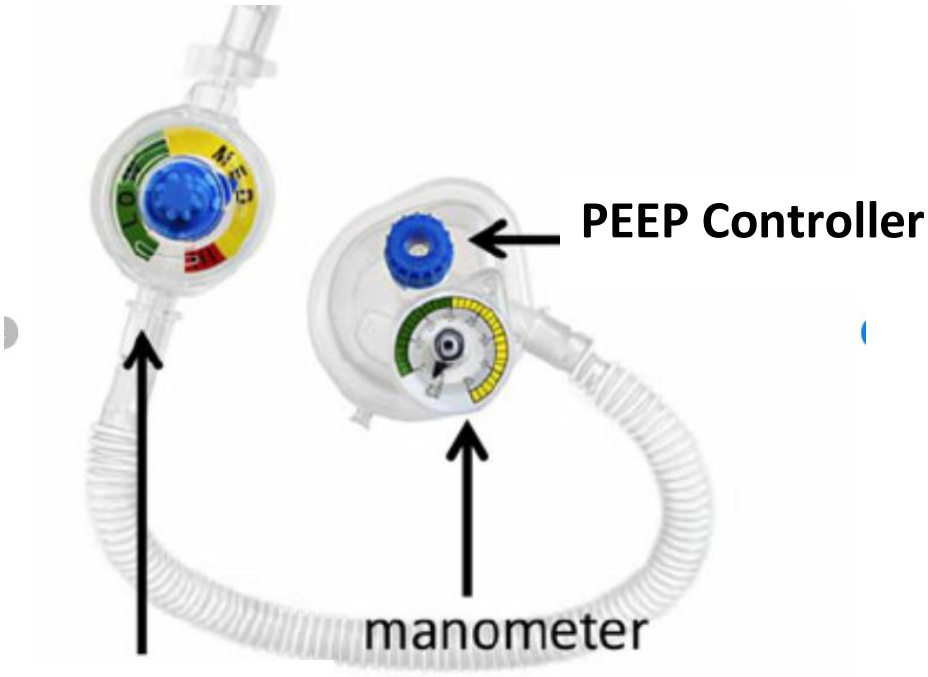
PRECAUTIONS

- For the spontaneously breathing infant this device provides oxygen and CPAP
- Infants requiring assisted ventilations: may be used either with a mask or attached to a supraglottic airway or endotracheal tube
- Ventilation must be done carefully, avoiding prolonged inspiratory time and allowing adequate time for full exhalation between breaths
    - ½ second inspiration, 1 second expiration for neonates
    - 1 second inspiration, 2 seconds expiration for older infants
- Positive pressure may exacerbate untreated pneumothorax

PROCEDURE

- Initial set-up and titration must be performed by a Paramedic. Once titrated and ventilation confirmed adequate, may be continued by an EMT, AEMT, EMT-I, or Paramedic.
- Attach tubing to the oxygen tank and turn the flow meter to 10lpm
- Place the cap on the ventilation port or occlude against your hand
- Adjust PEEP to 5 using PEEP valve controller (increase flow meter up to 15 if needed to achieve goal PEEP
- Adjust PIP using PIP controller to goal 20-25: start by setting to the high end of MED (yellow) and adjust as needed - test by occluding the hole in the PEEP valve as if giving a breath
- Remove the cap and attach the ventilation port to the mask, supraglottic airway, or endotracheal tube.
- Occlude the hole in the PEEP controller with your finger to ventilate
- Ensure adequate ventilation with auscultation, chest rise, SpO2 monitoring, and waveform capnography (if advanced airway in place)
- Adjust controllers for goal PIP 20-25 and PEEP 5
- Monitor patient's respiratory status, vital signs, oximetry, and capnography frequently
- FOR CPAP ONLY: In a spontaneously breathing patient, apply face mask as an oxygen delivery device without delivering ventilations - your PEEP is your CPAP

INFANT T-PIECE RESUSCITATOR
(Neo-Tee)
Initiation - Paramedic
Continuation - EMT, AEMT, EMT-I, Paramedic



INTRANASAL MEDICATION ADMINISTRATION
EMT, AEMT, EMT-I, Paramedic

INDICATIONS:

- Patient without IV access requiring urgent medication administration (active seizure, respiratory arrest secondary to opiate overdose etc.)
- Alternate administration route for fentanyl administration for pain management.

PRECATIONS:

a. Epistaxis

b. Nasal Trauma

c. Nasal septal abnormalities

d. Nasal congestion or discharge

PROCEDURE:

Patient should be in a supine or recumbent position. If the patient is sitting, then compress the nares after administration.

a. Draw up medication into a syringe using appropriate transfer device.
b. Remove air from syringe
c. Remove transfer device and place atomizer onto syringe and confirm it is secure.
d. Administer medication by briskly compressing the plunger to expel and atomize the medication administering a maximum of 1cc of solution per nare.
e. Evaluate medication effectiveness and continue with treatment protocol

NOTES:

In the absence of an established IV, intranasal is a rapid route offering high level of bioavailability of the medication being administered. The intranasal route can reduce the risk of needle sticks while delivering effective medication levels. The rich vasculature of the nasal cavity provides a direct route into the bloodstream for medications that easily cross the mucous membranes.

INTRAVENOUS CATHETERIZATION

AEMT, EMT-I, Paramedic

INDICATIONS

- Fluid resuscitation.
- Medication administration.

PRECAUTIONS

- Do not attempt in area of injury or infection.
- Splinting devices may be needed to limit motion.
- Monitor the site for signs of infiltration.
- Do not attempt external jugular cannulation unless vein is visible.

PROCEDURE

- Prepare equipment:
    a. Disinfectant solution.
    b. Tourniquet.
    c. Crystalloid solution and infusion set.
    d. Intravenous catheter.
    e. Sterile dressing.
    f. Tape.

Extremity Vein.

a. Disinfect the largest, most appropriate site.
b. Apply the tourniquet.
c. Insert the catheter at an angle until blood returns.
d. Advance the catheter into the vein.
e. Attach infusion set.
f. Flush catheter.
g. Secure catheter with sterile dressing and tape.

External Jugular Vein.

a. Position patient in Trendelenburg position.
b. Turn patient's head to side.
c. Disinfect site.
d. Apply finger pressure above clavicle to occlude vein.
e. Insert catheter at an angle toward patient's clavicle until blood returns.
f. Confirm intravascular cannulation.
g. Attach infusion set.
h. Flush catheter.
i. Secure catheter with sterile dressing and tape.

INTRAOSSEOUS INFUSION - CHILD
AEMT, EMT-I, Paramedic

INDICATIONS

- An alternative technique for establishing Vascular access in pediatric patients when peripheral Vascular access is difficult and time consuming.

PRECAUTIONS

- Only one attempt per limb.
- Avoid growth plates.
- Limb fractures can result from an IO attempt.

PROCEDURE

- Prepare equipment:
    a. Approved bone marrow type needles. Use 18 ga for patients 18-month-old and younger. Use 15 ga for patients older than 18 months.
    b. Disinfectant solution.
    c. Two 5 cc syringes.
    d. 60 cc Luer-Lock syringe.
    e. Crystalloid solution and infusion set.
    f. Sterile gauze pads.
    g. Tape.
    h. Rigid splint.
- Select the proximal tibia in the extremity that has not been traumatized or infected.
- Palpate the landmarks and note the entry point that is the anteromedial flat surface 1 to 3 cm below the tibial tuberosity.
- Prep the site with a disinfectant solution.
- Penetrate the soft tissue and with a twisting motion penetrate the cortex of the bone until a “pop” or loss of resistance is felt.
- Remove the stylet while holding the needle firmly.
- Attempt to aspirate bone marrow or blood. You may not be able to aspirate anything even if the needle is in the marrow.
- If you think the needle is in the marrow, infuse 5-10 cc of crystalloid solution while palpating for infiltration.
- Secure the needle.
- Attach infusion set. Pressure to the IV solution bag is commonly needed to maintain flow rate.
- Place rigid splint on extremity to protect IO site.

INTRAOSSEOUS INFUSION - EZ-IO
AEMT, EMT-I, Paramedic

INDICATIONS

- An alternative technique for establishing vascular access in adult patients when peripheral vascular access is difficult and time consuming.
- Adult and pediatric patients, within proper weight range, who present with one or more of the following clinical conditions:
    - Cardiac Arrest
    - Hemodynamic instability (BP<90 mmHg and clinical signs of shock)
    - Imminent respiratory failure
    - Status Epilepticus with prolonged seizure activity greater than 10 minutes, and refractory to IM anticonvulsants
    - Toxic conditions requiring immediate vascular access for antidote
- Pediatric patients <39kg (agency optional)

CONTRAINDICATIONS

- Fracture of the bone selected for IO infusion.
- Excessive tissue at insertion site with the absence of anatomical landmarks.
- Infection at the site of insertion.
- Previous known orthopedic injury on the side of the IO insertion.

PRECAUTIONS

- Improper site preparation has a 1% risk of osteomyelitis.
- Growth plate injury (in pediatric patients), and extravasation of fluid with compression of the popliteal vessels or the tibial nerve may occur.
- Do not perform more than one attempt in each site
- Do not use a hypertonic saline solution to flush IO.
- In event of driver failure, EZ-IO needles can be inserted manually
- **Weight >40kg is adult needle**
- **Weight<39kg is pediatric needle**

PROCEDURE

Adult EZ-IO™:

- Determine patient's weight.
- Assemble all necessary equipment.
  - The standard EZ-IO 25mm needle (blue) should be utilized on patients who weigh > 40 kg (approximately 88 lbs. or greater)
  - The longer EZ-IO 45mm needle (yellow) should be used preferably on all adult humeral IO insertions and tibial insertions where the 25mm needle (blue) is not adequate

- **Site Selection**
  - Determine site of needle insertion
    - Standard site is proximal tibia unless patient is in cardiac arrest
    - Proximal Humerus in adult patients
      - in cardiac arrest
      - after failed peripheral IV placement.

- **Site Landmarks**
  - Tibial
    - Palpate the landmarks at the proximal tibia (patella and tibial tuberosity).
    - Insertion site should be approximately one finger width to the medial side of the tibial tuberosity.
    - An alternative site may be used at the distal tibia (especially for morbidly obese patients). Insertion site should be two finger widths proximal to the medial malleolus along the midline of the tibia.
  - Proximal Humerus (Use 45mm needle)
    - Ensure that the patient's hand is resting on the abdomen and that the elbow is adducted (close to the body).
    - "Karate chop" the proximal humerus. Bring thumbs together and slide up the anterior shaft of the humerus until you feel the surgical neck.
    - Approximately 1 cm (depending on patient anatomy) above the surgical neck is the insertion site. Insertion site is located directly on the most prominent aspect of the greater tubercle.

- **Needle Insertion**
  - Prep the surface with Betadine or Chloraprep.
  - Stabilize patient's leg or arm and begin insertion from a 90-degree angle to the insertion site. Gently advance the needle set into position–do not force. Stop when you feel the "pop."
  - When needle is in proper position, remove stylet (if insertion fails, leave the needle in place and clamp the EZ-Connect; do not attempt second insertion on same leg).
  - Connect extension tubing or EZ-Connect, primed with saline, to IO hub.
  - Confirm the catheter position (catheter is stable at a 90-degree angle to the bone, able to aspirate blood, and fluids flow without evidence of extravasation).
  - Rapid bolus or flush with approximately 10 mL NS.
  - Connect IV tubing and bag to extension tubing or EZ-Connect.
  - Consider an additional 10 mL bolus of NS if flow rates slower than expected.
  - Utilize a blood pressure cuff or pressure bag to help infuse fluids.
  - Dress site and secure tubing.
  - Consider securing with EZ-IO stabilizer device.
- **Pain Management**
  - If the procedure is performed on a conscious or semi-conscious patient, immediately following placement of the IO needle, administer 0.5 mg/kg 2% lidocaine (not to exceed 40 mg) slowly over 2 minutes through the IO site. Wait approximately 30–60 seconds before flushing with 10 cc NS.
  - In the event a patient regains consciousness and complains of severe pain secondary to the IO insertion, temporarily stop infusing the fluids, and administer lidocaine. Wait approximately 30–60 seconds before continuing fluid administration.

Pediatric EZ-IO™
(patients weighing 3-39 kg)

- Assemble all equipment
  - The EZ-IO 25mm needle should be used on patients who weigh between 3–39 kg (approximately 6–87 lbs.)
  - Stabilizer should be used to secure needle.

- **Site Selection**
  - Proximal Tibia
    - Palpate the landmarks at the proximal tibia (patella and tibial tuberosity).
    - Insertion site is one finger width below the tuberosity and then medial (towards inner leg) along the flat aspect of the tibia
    - If the tibial tuberosity cannot be identified on the child, the insertion site may be two finger widths below the lower portion of patella, then medial along the flat aspect of the tibia.

- Distal Femur
  - Secure the leg outstretched to ensure the knee does not bend.
  - Locate upper edge of the patella. Insertion site is one finger width above and then one finger width medial (towards the inner leg) from the upper patella edge. This location will avoid the growth plate of the distal femur.

- **Needle Insertion**
  - Prep the surface with Betadine and wipe dry with a sterile gauze pad.
  - If you have concern that the needle may not reach the bone, gently apply pressure so the needle goes through skin until tip touches bone.
    - The black 5mm line must be visible outside the skin prior to insertion
  - Stabilize patient's leg and begin insertion from a 90-degree angle to the insertion site. Gently advance the needle set into position–do not force. Stop when you feel a "pop" or "give".
  - When needle is in proper position, remove stylet
    - If insertion fails, leave the needle in place and clamp the EZ-Connect.
    - Do not attempt second insertion on same leg).
  - Apply EZ-Stabilizer.
  - Connect extension tubing or EZ-Connect, primed with saline, to IO hub.
  - Confirm the catheter position:
    - Catheter is stable at a 90-degree angle to the bone.
    - Able to aspirate blood.
    - Fluids flow without evidence of extravasation.
  - Rapid bolus or "power" flush with approximately 5 mL normal saline
  - Connect IV tubing and bag to extension tubing or EZ-Connect.
  - Consider additional bolus of saline if flow rates slower than expected.
  - Utilize a blood pressure cuff or pressure bag to help infuse fluids.

- **Pain Management**
  - If the procedure is performed on a conscious or semi-conscious patient, immediately following placement of the IO needle, administer 0.5 mg/kg 2% lidocaine (not to exceed 40 mg) slowly 2 minutes through the IO site. Wait approximately 30–60 seconds before flushing with normal saline.
  - In the event a patient regains consciousness and complains of severe pain secondary to the IO insertion, temporarily stop infusing the fluids, and administer lidocaine as above. Wait approximately 30–60 seconds before continuing fluid administration

KING AIRWAY

EMT, AEMT, EMT-I, Paramedic

Agency Optional

INDICATIONS

Advanced airway management in an airway compromised patient where either endotracheal intubation was unsuccessful or unavailable.

PRECAUTIONS

Do not use in patients with:

- An intact gag reflex.
- Known or suspected esophageal disease.
- Confirmed or suspected ingestion of caustic substances.
- Known or suspected foreign body obstruction of the larynx or trachea
- A tracheostomy

			Cuff balloon volume	
Patient Size	**Airway Size**	**Connector color**	**King LTS-D**	**King LT-D**
>6 feet	Large adult #5	Purple	60-80ml	70-90ml
5-6 feet	Medium adult #4	Red	50-70ml	60-80ml
4-5 feet	Small adult #3	Yellow	40-55ml	45-60ml
42-52 inches(105-130cm) or 25-35kg	Peds #2.5	Orange	n/a	30-40ml
36-46 inches(90-115cm) or 12-25kg	Peds #2	Green	n/a	25-35ml

PROCEDURE

1. Prepare Equipment
   a. High flow O2
   b. BVM
   c. Appropriately sized KING airway and supplied cuff syringe
   d. Suction
   e. Lubricant for posterior side of airway only
2. Pre-oxygenate with BVM ventilations for several minutes with supplemental Oxygen.
3. Remove dentures, loose or broken teeth, foreign airway materials
4. Place the patient's head in sniffing position by lifting tongue and lower jaw upward with one hand. Insert tube so that the blue orientation line is touching the corner of the patient's mouth. Introduce tip into the mouth and advance behind the base of the tongue. As the tube tip passes under the tongue, rotate tube back to midline with the blue orientation line facing the chin. Without exerting excessive force, advance tube until the base of the connector is aligned with the teeth or gums.
   a. Suspected cervical spine injuries may remain in the neutral position for the procedure.
5. Using the syringe provided, inflate the cuff balloon of the KING airway with the appropriate volume per the table above.
6. Attach BVM to the KING airway and while gently bagging the patient to assess ventilation, simultaneously withdraw the KING airway until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).
7. Confirm ventilations by listening for breath sounds, watching for chest rise and monitoring the patient's vital signs and condition.
8. Monitor SPO2 and ETCO2 closely.

LUCAS Chest Compression Device
EMT, AEMT, EMT-I, Paramedic

Agency Optional

INDICATIONS

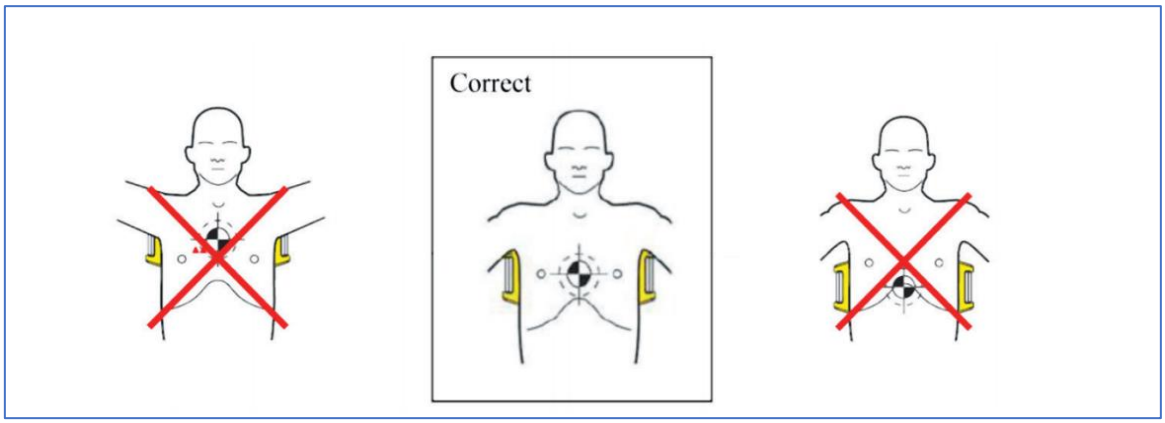
- The LUCAS device may be used in patients who have suffered non-traumatic cardiac arrest, where manual CPR would otherwise be used.

CONTRAINDICATIONS

- Patients who do not fit within the device.
  - Too small patient: If LUCAS alerts with 3 fast signals when lowering the SUCTION CUP, and you cannot enter the PAUSE mode or ACTIVE mode.
  - Too large patient: If you cannot lock the upper part of LUCAS to the backplate without compressing the patient's chest.
- Traumatic arrest.
- Pregnancy.
- LVAD or HVAD patients.

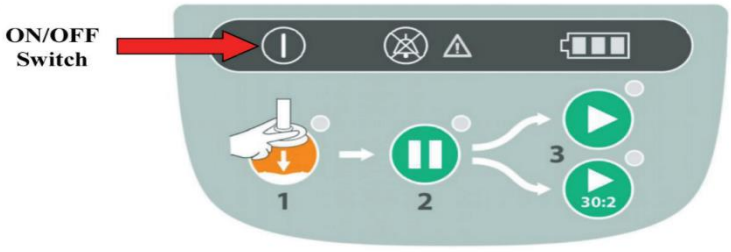
PROCEDURE

- All therapies related to the management of cardiopulmonary arrest should be continued as currently defined.
- Initiate resuscitative measures:
  - Manual chest compressions should be initiated immediately while the LUCAS device is being placed on the patient.
  - Limit interruptions in chest compressions to 10 seconds or less.
  - Do not delay manual CPR for the LUCAS. Continue manual CPR until the device can be placed.
- While resuscitative measures are initiated, the LUCAS device should be removed from its carrying case and placed on the patient in the following manner:

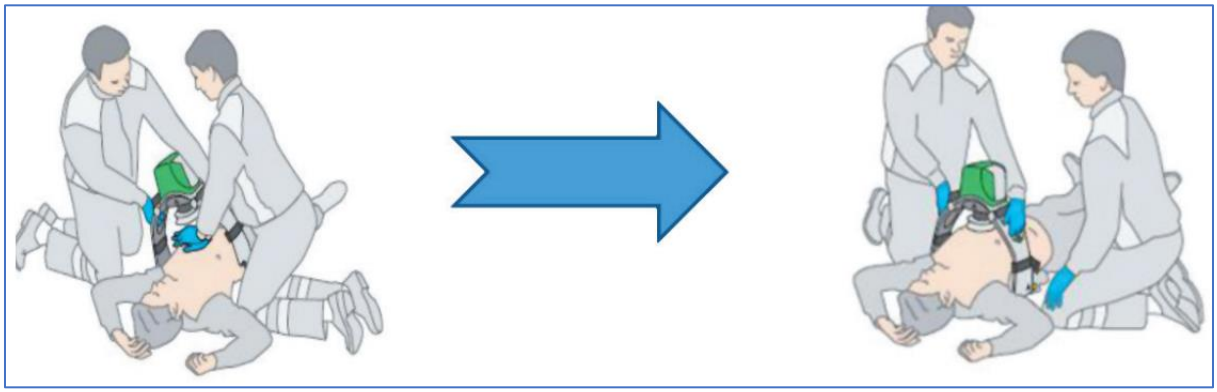


  - Backplate Placement
    - The backplate should be centered on the nipple line and the top of the backplate should be located below the
    - If the patient is already on the stretcher, place the backplate underneath the thorax. This can be accomplished by log-rolling or sliding the backplate under the patient or raising the torso. Placement should occur during a scheduled discontinuation of compressions (e.g., after five cycles of 30:2 or two minutes of uninterrupted compressions).

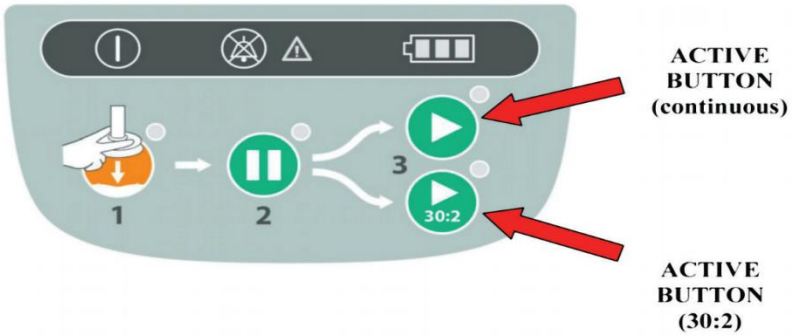
- **Position the Compressor**
  - Turn the LUCAS device on (the device will perform a three second self test).
  - Remove the LUCAS device from its carrying case using the handles provided on each side.



  - With the index finger of each hand, pull the trigger to ensure the device is set to engage the backplate. Once this is complete, you may remove your index finger from the trigger loop.
  - Approach the patient from the side opposite the person performing manual chest compressions.
  - Attach the claw hook to the backplate on the side of the patient opposite from where compressions are being provided.
  - Place the LUCAS device across the patient, between the arms of the person who is performing manual CPR.

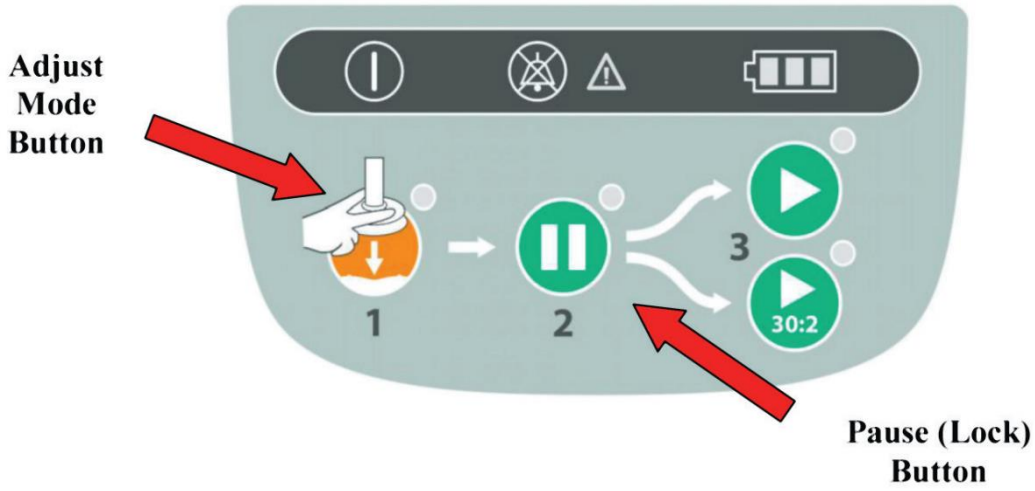


  - At this point the person performing manual CPR stops and assists attaching the claw hook to the backplate on their side.
  - Pull up once to make sure that the parts are securely attached.
- **Adjust the Height of the Compression Arm**
  - Use two fingers (V pattern) to make sure that the lower edge of the SUCTION CUP is immediately above the end of the sternum. If necessary, move the device by pulling the support legs to adjust the position.



- Press the ADJUST MODE BUTTON on the control pad labeled #1 (this will allow you to easily adjust the height of the compression arm).
    - To adjust the start position of the compression arm, manually push down the SUCTION CUP with two fingers onto the chest (without compressing the patient's chest).
    - Once the position of the compression arm is satisfactory, push the green PAUSE BUTTON labeled #2 (this will lock the arm in this position), then remove your fingers from the SUCTION CUP.
    - If the position is incorrect, press the ADJUST MODE BUTTON and repeat the steps.

- **Start Compressions**
    - If the patient is not intubated and you will be providing compression-to-ventilation ratio of 30:2 push ACTIVE (30:2) BUTTON to start.
    - If the patient is intubated and you will be providing continuous compressions push ACTIVE (continuous) BUTTON.
- **Patient Adjuncts**
    - Place the LUCAS stabilization strap behind the patient's head and attach the straps to the LUCAS device.



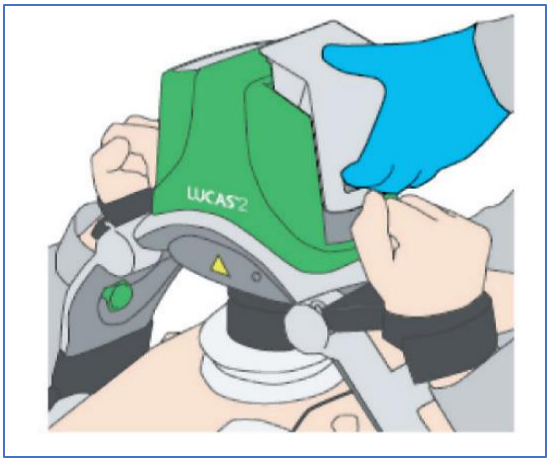
    - This will prevent the LUCAS from migrating toward the patient's feet.
    - Place the patients arms in the straps provided.

USING THE LUCAS DURING RESUSCITATION

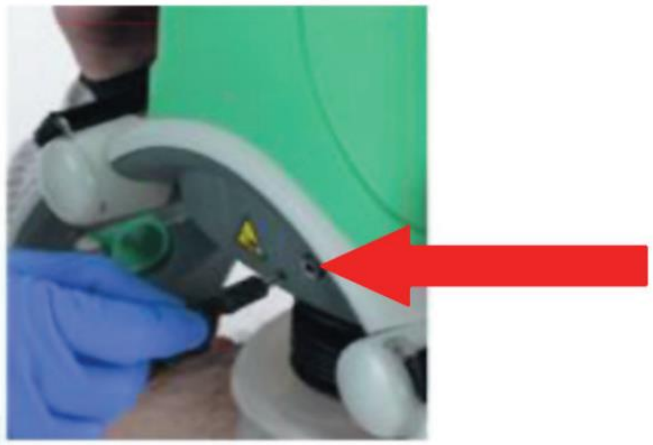
- **Defibrillation**
  - Defibrillation can and should be performed with the LUCAS device in place and in operation. There is no need to stop LUCAS to deliver a shock.
  - One may apply the defibrillation electrodes either before or after the LUCAS device has been put in position.
    - The defibrillation pads and wires should not be underneath the SUCTION CUP.
    - If the electrodes are already in an incorrect position when the LUCAS is placed, you must apply new electrodes.
    - If double sequential defibrillation is anticipated, consider application of posterior therapy pad/electrode before LUCAS backplate placement.
  - For rhythm analysis, stop the compressions by pushing the PAUSE BUTTON. The duration of interruption of compressions should be kept as short as possible and should not be > 10 seconds. There is no need to interrupt chest compressions other than to analyze the rhythm.
  - Once the rhythm is determined to require defibrillation, the appropriate ACTIVE BUTTON should be pushed to resume compressions while the defibrillator is charging and then the defibrillator should be discharged.
- **Pulse Checks/Return of Spontaneous Circulation (ROSC)**
  - Pulse checks should occur intermittently while compressions are occurring.
  - If the patient moves or is obviously responsive, pause the LUCAS device and evaluate the patient.
  - If there is a change in rhythm, but no obvious indication of responsiveness or ROSC, a pulse check while compressions are occurring should be undertaken. If the palpated pulse is asynchronous, consider pausing the LUCAS device. If the pulse remains, reassess the patient. If the pulse disappears, immediately restart the LUCAS device.
  - A sudden change in EtCO2 may indicate ROSC.
- **Disruption or Malfunction of LUCAS Device**
  - If disruption or malfunction of the LUCAS device occurs, immediately revert to manual CPR.

DEVICE MANAGEMENT (Power Supply, Battery Operation)

- **Changing the Battery**
  - Push PAUSE to temporarily stop the compressions.
  - Pull the battery out and then upward to remove it.
  - Install a fully-charged LUCAS battery. Put it in from above.
  - Wait until the green PAUSE mode LED illuminates.
  - Push ACTIVE (continuous) or ACTIVE (30:2) to start chest compressions again. The LUCAS Smart Restart feature remembers the settings and start position for 60 seconds.



- **Other Battery Operations**
  - When fully charged, the Lithium Polymer battery should allow 45 minutes of uninterrupted operation.
  - There is an extra battery in the LUCAS device carrying case.
  - The battery is automatically charged when the device is plugged into a wall outlet and not in operation. The device should be stored with the LUCAS device plugged into a wall outlet (when detaching from the wall outlet, make sure that the cord is always with the LUCAS device).
  - When the orange Battery LED shows an intermittent light, replace the battery or connect to a wall outlet.
  - Ambulance: LUCAS is connected while stored in the ambulance (always keep a battery installed for the LUCAS device to remain operational).
- **Care of the LUCAS Device After Use**
  - Remove the SUCTION CUP and the stabilization strap (if used, remove the patient straps).
  - Clean all surfaces and straps with a cloth and warm water with an appropriate cleaning agent.
  - Let the device and parts dry.
  - Replace the used battery with a fully-charged battery.
  - Remount (or replace) the SUCTION CUP and straps.
  - Repack the device into the carrying case.
  - Make sure that the charging cord is plugged into the LUCAS device.
  - The LUCAS device in the carrying case should be charging on and secure while stored in the ambulance.



NASOGASTRIC/OROGASTRIC TUBE PLACEMENT
Orogastric: EMT-I, Paramedic
Nasogastric: Paramedic

INDICATIONS

- Any pediatric patient that has received assisted ventilations.
- Any intubated patient that will be air transported.
- Any patient with an esophageal placement of a Supraglottic airway.
- To prevent or alleviate abdominal distention in an intubated patient.
- Significant poisonings.

CONTRAINDICATIONS

- Ingestion of caustic substances.
- Known esophageal varices.

PROCEDURE

- Prepare equipment:
    a. Gastric tubes:
    b. Lubricant.
    c. Large syringe.
    d. Suction unit.
    e. Consider Afrin for nasogastric tube placement.

Gastric Tube Sizing	
Less than 1-year-old	**5-8 Fr**
Pediatric	**10-14 Fr**
Adult	**16-18 Fr**

- **Orogastric tube, EMT-I, Paramedic**
    a. An EMT-I may only place an orogastric tube after esophageal placement of a supraglottic airway device that allows for passage of an orogastric tube.
    b. With the BVM on tube #1, insert the orogastric tube down tube #2.
    c. Confirm stomach placement by instilling air with the syringe through the gastric tube while listening over the epigastric region.
    d. Secure tube.
    e. Connect suction at 80-120 mm/Hg.
- **Orogastric tube, Paramedic**
    a. Measure tube length from tip of nose to xiphoid process.
    b. Insert tube into mouth and advance into stomach.
    c. Confirm location by instilling air with the syringe through the gastric tube while listening over the epigastric region.
    d. Secure tube.
    e. Connect to suction at 80-120 mm/Hg.
- **Nasogastric tube, Paramedic**
    a. Measure tube length from tip of nose to earlobe to xiphoid process.
    b. Select the most open nostril for placement and spray nostril with Afrin.
    c. Insert the lubricated tube directing it posteriorly and sliding it along the nasal pharynx. Continue to insert the tube into the esophagus and into the stomach.
    d. Confirm location by instilling air with the syringe through the gastric tube while listening over the epigastric region.
    e. Secure tube.
    f. Connect to suction 80-120 mm/Hg.

NEBULIZER SETUP
EMT, AEMT, EMT-I, Paramedic

INDICATIONS

- Bronchospasm due to COPD, CHF, asthma, or allergic reactions.

PRECAUTIONS

- Patients may not tolerate a specific administration method, nebulizer mask, mouthpiece, or blow-by.

PROCEDURE

- Prepare equipment:
    a. Oxygen source.
    b. Nebulizer system.
    c. Medications.
- Assemble nebulizer system and attach oxygen source.
- Add desired medication to nebulizer.
- Set oxygen source to 8 liters per minute.

NEEDLE CRICOTHYROTOMY
Paramedic

INDICATIONS

- To establish an emergency airway for patients < 12yrs when all other methods have been exhausted to provide oxygenation and ventilation - including BLS airways such as BVM.

CONTRAINDICATIONS

- Ability to oxygenate using less invasive means
- Patients > 12 years old

PRECAUTIONS

- Punctures or lacerations of the blood vessels, vocal cords, or esophagus may occur
- Subcutaneous emphysema
- Needle cricothyrotomy is a temporizing measure only; ventilation will be poor with a slight rise in oxygenation in the alveoli

PROCEDURE

- Prepare equipment
  - High-flow oxygen with bag-valve mask
  - Suction
  - 50 psi (greater than or equal to 15 liters/minute) oxygen supply
  - 14-16g IV catheter attached to 10mL syringe or 10mL saline flush
  - Meconium aspirator
  - 3.0 endotracheal tube adapter
  - Disinfectant solution
  - Tape
- Place patient supine with support under the shoulders and mild hyperextension of the neck
- Palpate the neck over the trachea and locate the cricothyroid membrane just below the notch of the thyroid cartilage
- Clean and prep the site over the membrane
- With the IV catheter, puncture the membrane aiming caudally at a 45° angle
- While entering, apply negative pressure to the syringe/flush
- When air is met, remove the syringe and needle, advance the catheter to the hub
- Connect the 3.0 adapter and meconium aspirator and ventilate the patient via meconium aspirator (one second inflation to four seconds exhalation) OR connect the 3.0 adapter and ventilate directly via BCM (one second inhalation to four seconds exhalation)
- Observe and auscultate the chest for bilateral breath sounds
- Secure the device and continue to ventilate

PATIENT RESTRAINT
Physical: EMR, EMT, AEMT, EMT-I, Paramedic
Chemical: Paramedic

INDICATIONS

- Physical and/or chemical restraints should be utilized only if the patient is potentially a danger to self and/or others.
- It is not to be used on patients specifically refusing treatment unless they are placed under a police officer's hold or being treated under implied consent.

PRECAUTIONS

- Use the least restrictive method required to accomplish necessary patient care and ensure safe transportation.
- Do not endanger yourself or your crew.
- If law enforcement or additional personnel are likely to be needed, call for assistance prior to attempting restraint procedures.
- Avoid restraining patient in prone position. The prone position may result in positional asphyxia.
- Whenever locked devices are used, by anyone, keys must always be immediately available .

PROCEDURE

- Assess the need for physical restraints prior to administering a chemical restraint.
- Position the patient in a supine or lateral recumbent to maintain an open airway.
- Consider restraining patient to a long backboard.
- Protect the patient's head from injury.
- Secure all four extremities even if chemical restraints are effective in managing the patient.
- Document circulatory status of physically restrained extremities frequently.
- Monitor vital signs frequently.

PEEP VALVE
(Positive-End-Expiratory Pressure)
EMT, AEMT, EMT-I, Paramedic

INDICATIONS

- Most patients receiving assisted ventilations via bag-valve-mask
- May be increased to improve **oxygenation**

CONTRAINDICATIONS

- Tension pneumothorax
- Conditions that require increased ventilation such as severe DKA or aspirin overdose

PRECAUTIONS

- PEEP is especially important in conditions where lung surfactant has been disturbed, such as neonatal resuscitation (immature surfactant), drowning, pulmonary edema, and pneumonia.
- Patients must always be ventilated slowly when using a PEEP valve to prevent over-expanding the lungs.
- For asthma patients with an advanced airway, a small amount of PEEP (less than 3mmHg) may be helpful; however, ventilations must be slow and the patient may need manual squeezing of the chest on exhalation to help release trapped air. If unable to ventilate with these measures, remove the PEEP valve.

PROCEDURE

1. Remove the plastic diverter from the end of the BVM and attach the PEEP valve
2. Turn the red dial at the end of the PEEP valve to the appropriate setting (the number at the base of the dial)
    a. Start at 3mmHg and increase to a max of 5mmHg for asthma or COPD, severe shock, or moderate to severe brain injury
    b. Start at 5mmHg and increase to a maximum of 15mmHg for pneumonia or other suspected lung infection, pulmonary edema (heart failure), drowning, neonatal resuscitation, or other undifferentiated respiratory distress.
3. Reassess oxygenation via SpO2, skin signs, and mentation frequently, and increase PEEP in increments of 5mmHg every 3-5 minutes as needed to improve oxygenation.

PELVIC SLING
EMR, EMT, AEMT, EMT-I, Paramedic

INDICATIONS:

Stabilization of suspected unstable pelvis fractures.

PRECAUTIONS:

Once applied, the pelvic sling is to be removed only under the supervision of a physician.

PROCEDURE:

1. Remove patient's clothes which will be covered by the pelvic sling.
2. After visual examination, the pelvic sling is wrapped around the patient's pelvis – hips & buttocks - (not abdomen). The pelvic sling is then tightened and securely fastened anteriorly over the pubic symphysis to reduce motion and internal hemorrhage of the unstable pelvis fracture during transport to the hospital.
3. Provide further immobilization by placing the patient on a backboard and strapping the patient's knees together and the ankles together.

Specific directions and training will depend on the type of pelvic sing used by the agency. Acceptable methods include:

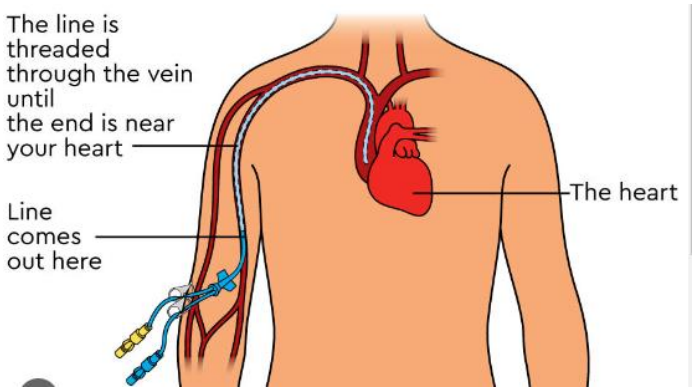
- Bed sheet
- Commercial devices, such as the SAM Sling®

PICC LINE ACCESS
Paramedic

A Peripherally Inserted Central Line (PICC) is a common method of maintaining long-term venous access in select patients. PIC lines are typically inserted into the antecubital fossa and then threaded into central circulation. PICC lines are flushed with heparin to maintain patency and therefore it is imperative to aspirate 5mL of blood from the line prior to use.

INDICATIONS

- PICC lines may be accessed when there is a need for drug or fluid administration and traditional means of venous access are unsuccessful.
- Patient or patient's caregiver requests use of PICC line.



CONTRAINDICATIONS

- Inability to aspirate or infuse through the catheter.
- Catheter located in any place other than the patient's upper arm.
- Need for rapid fluid resuscitation.

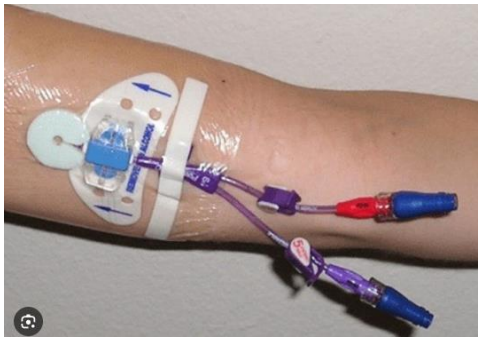
NOTES AND PRECAUTIONS

- **Do not administer medications, flush, or aspirate with less than a 10mL syringe. Smaller size syringes generate too much pressure and can damage the catheter.**
- Do not attempt to re-inject aspirated blood as it may contain clots.
- The maximum flow rates for a PICC line is 125 mL/hr for less than size 2.0 French, and 250 mL/hr for catheters over 2.0 French.
- Keep patient's arm straight to avoid kinking the PICC line and obstructing flow.
- Ensure all line connections are secure.
- PICC lines access the patient's central circulation and the risk of infection is high. Avoid contamination to ports and connections when accessing.
- Do not administer the following medications through a PICC line:
    - Adenosine: The line may rupture during rapid infusion due to over pressurization.
    - Dextrose 50%: The catheter can be damaged due to the viscosity of the fluid.

PROCEDURE

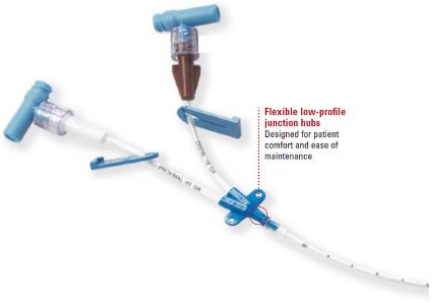
A. Use clean gloves and maintain sterility as much as possible.

B. If there is a needleless type port on the distal end of the catheter, perform the following:
   1. Scrub the port with an alcohol pad and allow to dry for 5 seconds.
   2. Attach a 10mL syringe (without saline) to the port.
   3. Unclamp if necessary (needleless port may not have a clamp)
   4. Attempt to aspirate at least 5mL of blood. Blood should draw freely. If it does not, remove the syringe and DO NOT use the catheter for access.
   5. If blood aspirates freely, remove the 10mL syringe with blood and discard.



   6. Attach a 10mL syringe with NS and gently flush the line. Never use a smaller syringe. If the line does not flush, remove the syringe and DO NOT use the catheter for access.
   7. If line flushes, remove the syringe, and attach the catheter to the end of the IV tubing and begin infusion of NS. Adjust the rate to the needs of the patient within the limits of the catheter.
   8. Administer medications through the IV tubing port if indicated.

C. If there is a capped needle-type port on the distal end of the catheter, perform the following:
   1. Scrub the cap with an alcohol pad and allow to dry for 5 seconds.
   2. Clamp the catheter tubing using ONLY the existing clamp on the catheter and then remove the cap. **Never allow a central line to be open to air.**
   3. Attach a 10mL syringe to the catheter end.
   4. Unclamp the catheter.
   5. Attempt to aspirate at least 5mL of blood. Blood should draw freely. If it does not, re-clamp the line and remove the syringe. DO NOT use the catheter for access.
   6. If blood aspirates freely, clamp the catheter again.
   7. Remove the 10mL syringe with blood and discard.



   8. Attach a 10mL syringe with NS.
   9. Unclamp and gently flush the line. Never use a smaller syringe. If line does not flush, re-clamp the line and remove the syringe. DO NOT use the catheter for access.
   10. If line flushes, re-clamp and remove the syringe.
   11. Attach the catheter to the end of the IV tubing.
   12. Unclamp the catheter and begin infusion of NS. Adjust the rate according to the needs of the patient within the limits of the catheter.
   13. Administer medications through the IV tubing port if indicated.

POST-INTUBATION MANAGEMENT
Paramedic

INDICATIONS

- Intubated patient requiring pain management and sedation.

PRECAUTIONS

- Inadequate PIM leads to increased pain and oxygen demand
- Post-intubation management should consist of a pain medication and a sedative.
- Assess pain and sedation ***early and often***
- **Analgesia and sedation must be administered after use of rocuronium or vecuronium even if there are no signs of discomfort.**
- **In patients with or at risk of hypertension/hypotension, after administration of midazolam provider must reassess vital signs, including blood pressure, prior to administering an opiate. Do not cause rapid changes in blood pressure.**

PROCEDURE

1. Confirm successful placement of an advanced airway
2. Initiate and continue to monitor EtCO2, SpO2, ET cuff, heart rate, blood pressure
3. Establish and maintain patent intravenous/intraosseous access
4. Assess and document responsiveness before and after each medication administration, with any changes in patient condition, and/or at least every 15 minutes

Systolic BP >150 or at risk for hypertension: Examples: stroke, stimulant overdose	**Systolic BP <100 or at risk for hypotension** Examples: trauma, sepsis, shock, asthma
Midazolam: 0.05mg/kg (max single dose 5mg) IV or IO every 5minutes **AND EITHER** **Fentanyl** 0.5-1mcg/kg (max single dose 100mcg) IV or IO for initial dose. Repeat doses at 0.5mcg/kg every 15 minutes PRN. **CONTRAINDICATED IN HEAD INJURED OR INTRACRANIAL HEMORRHAGE PATIENTS** **OR** **Morphine** 0.05-0.1 mg/kg (max single dose 5mg) IV or IO. Repeat every 5 minutes as needed. Maximum dosage is 20mg. If morphine, consider diphenhydramine premedication for vomiting.	**Midazolam:** 1-2mg IV/IO every 3-5minutes PRN If Midazolam is ineffective, then: **Ketamine:** If Ketamine used for RSI/DSI induction, 1mg/kg every 10-15 minutes If Ketamine not used for induction, 2mg/kg every 10-15 minutes **Appropriate resuscitation with fluid, blood, and/or vasopressors should be initiated based on patient condition. It is acceptable to initiate norepinephrine to offset the hemodynamic effects of sedation.**

RAPID SEQUENCE INDUCTION (RSI/DSI)
Paramedic

INDICATIONS

Patient meets criteria described under "Endotracheal Intubation," and has any of the following:

- Trismus (clenched jaw).
- Active gag reflex.
- Uncontrollable combative behavior.
- Clinical conditions requiring airway protection.

PRECAUTIONS

Airway maintenance, including control of the cervical spine, is the primary concern in the treatment of all patients. If unable to establish and/or maintain an adequate airway, transport the patient to the nearest hospital. This includes patients entered in the trauma system.

1. Check IV placement if the first dose of succinylcholine does not appear to be effective in paralyzing patient.
2. Do not rely solely on pulse oximetry and/or ETCO2 monitoring to determine the efficacy of intubation.

Succinylcholine and vecuronium do not affect the level of consciousness and should always be used with etomidate, ketamine, and/or versed in the conscious or semi-conscious patient.

PROCEDURE

1. Open airway, pre-oxygenate patient, and maintain cricoid pressure if using BVM. Preoxygenate patient with nasal cannula set to 10-15lpm oxygen and either non-rebreather mask, CPAP, or BVM with 10-15lpm oxygen.
2. Provide adequate resuscitation prior to induction and intubation (optimize oxygenation, optimize hemodynamics, etc).
3. Assemble airway equipment, suction, and ETCO2 device.
4. Attach cardiac monitor and pulse oximeter.
5. Start IV per protocol.
6. If hypotensive or was hypotensive prior to resuscitation, prepare push-dose epinephrine for possible peri-procedural hypotension.
7. **Administer induction agent (etomidate or Ketamine, or if both are unavailable, midazolam and fentanyl):**
8. **Immediately administer paralytic agent:**
9. Continue cricoid pressure and maintain until ET tube is in place and has been verified then secured.
10. If intubation attempt(s) fail, ventilate via BVM.
11. Perform Supraglottic airway insertion as indicated.
12. Treat bradycardia occurring during intubation with ventilation first then atropine as indicated.

    Adult: 1 mg IV /IO.

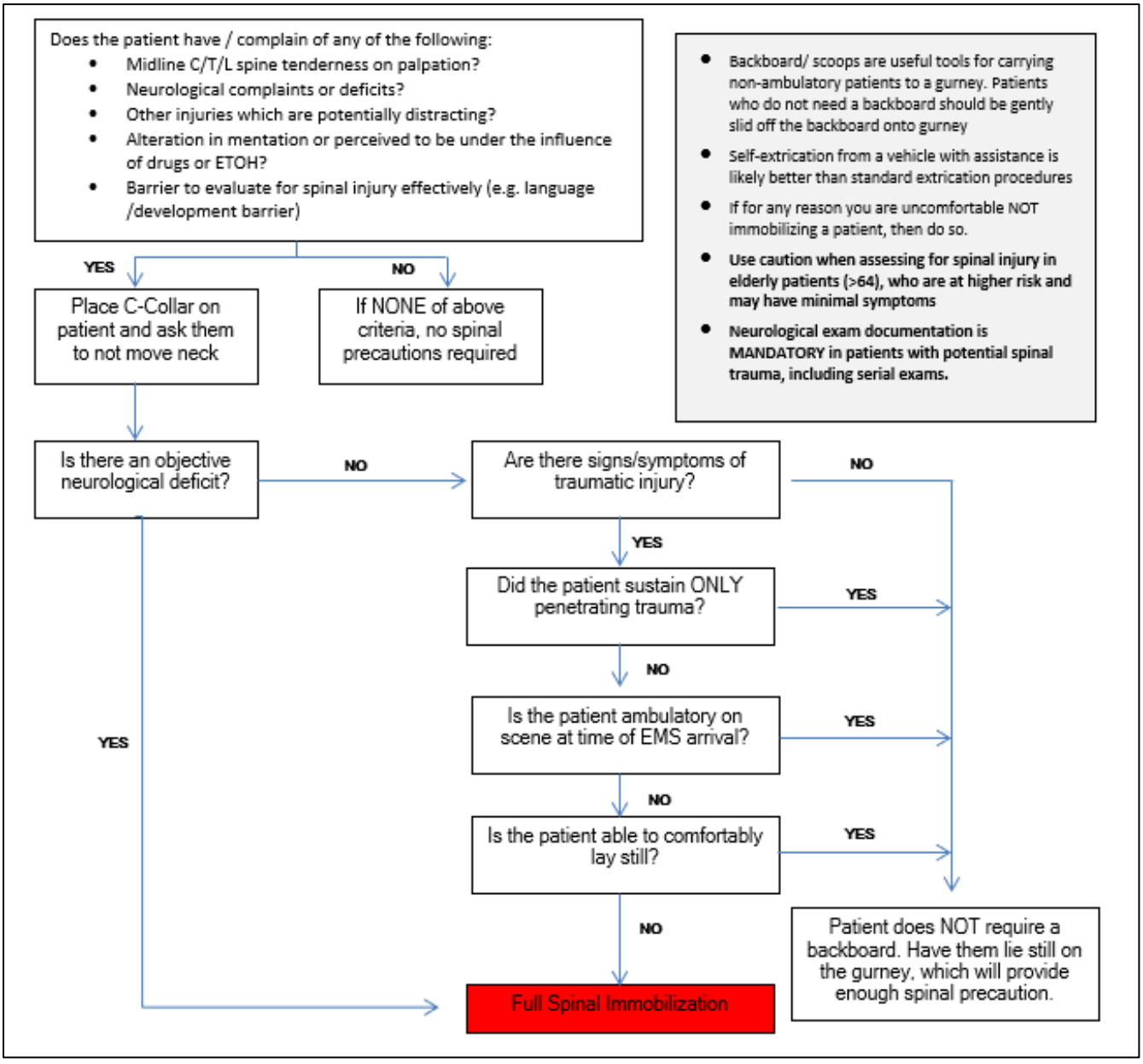
    Ped: 0.02 mg/kg. Minimum dose is 0.1 mg, not to exceed adult dose.
13. Verify ET tube placement using 5-point check and main-stream ETCO2.
14. Secure ET tube and record ET tube depth.
15. Always recheck and document the ET tube placement after every patient movement or change in vital signs.
16. **Administer post-intubation sedation (e.g. midazolam) as indicated**
17. If additional paralysis is needed during transport after succinylcholine administration to accomplish oxygenation and ventilation, vecuronium may be administered. Additional doses of vecuronium can be administered if transport time is prolonged.

SPINAL MOTION RESTRICTION
EMR, EMT, AEMT, EMT-I, Paramedic

INDICATIONS

- Patients with a high risk of cervical, thoracic, or lumbar injury based on neck pain, neck tenderness, back pain, neurological abnormalities (weakness, numbness, or paralysis) or mechanism of injury and are >12 years of age. Patients <12 years of age; full spinal precautions.

PROCEDURE



TRANSPORT VENTILATOR-SUREVENT
Paramedic

INDICATIONS

For the intubated patient requiring advanced ventilatory support with a transport time of 10 minutes or longer.

PRECAUTIONS

- As with any device, treat your patient first. Patient should be closely monitored for signs of adequate ventilation and oxygenation. Lung sounds should be closely monitored.
- Patients with COPD need special attention due to increased risk of pneumothorax.
- Do not use with patients weighing less than 40kg. **Not for pediatric use**.
- The ventilator will **NOT** work without a pressurized air source. Ensure you have enough oxygen available for procedure.

PROCEDURE

1. Perform and confirm intubation and tube placement.
2. Attach Surevent to oxygen source and assure oxygen source is set to 15-25 lpm. (25 lpm is preferred)
3. Set rate control to 12 breathes per minute.
4. Initiate Peak Inspiratory Pressure to 15, increase slowly just to obtain visual rise of chest.
5. Connect Surevent to ET tube.
6. Reconfirm lung sounds and chest rise.
7. Place in-line ETCO2 monitor.
8. Reassess patient for signs of adequate ventilation and oxygenation:

a. ETCO2 levels should move to 35-40

b. Vital sign changes.

c. Skin changes.

9. Adjust breaths per minute if needed.
10. Secure Surevent to avoid tube kink or movement.

TRANSPORT VENTILATOR-PARAPAC
Paramedic

OVERVIEW

The Parapac Ventilator provides timed-cycle positive pressure ventilations for patients suffering from an absence of spontaneous respiratory effort. The ventilator incorporates an ability to detect spontaneous breathing by an adult patient allowing the device to function in a "demand" mode. If breathing is inadequate the ventilator will interpose ventilations synchronized with the patient's efforts (demand). Oxygen concentrations of 50% or 100% may be delivered.

INDICATIONS

For the intubated patient requiring advanced ventilatory support on long distance, interfacility transports.

PRECAUTIONS

- As with any device, treat your patient first. Patient should be closely monitored for signs of adequate ventilation and oxygenation. Lung sounds should be closely monitored.
- Patients with COPD need special attention due to increased risk of pneumothorax, and may require lower ventilatory rates (6-10) and the addition of PEEP (no more than 5cmH2O)
- Do not use with patients weighing less than 5kg.
- The ventilator will **NOT** work without a pressurized air source. Ensure you have enough oxygen available for procedure.

PROCEDURE

1. Insure pre-set settings: Rate:10-12 bpm, TV: 500ml, RP: between 35-40cmH2O
    a. Adjust settings as outline by MD or RT orders for transport.
    b. Apply PEEP valve as outline by MD or RT orders for transport.
2. Attach to oxygen source and assure oxygen source is set to 15-25 lpm. (25 lpm is preferred)
3. Connect to ET tube.
4. Reconfirm lung sounds and chest rise.
5. Place in-line ETCO2 monitor.
6. Reassess patient for signs of adequate ventilation and oxygenation:
7. ETCO2 levels should move to 35-40
8. Vital sign changes.
9. Skin changes.
10. Secure tubing to avoid tube kink or movement.

TRACHEOSTOMY CARE
Paramedic

INDICATIONS

Tracheostomy crises occur from a variety of reasons. For example, occlusion from mucus plugs, accidental removal of tracheostomy tube, or a tracheostomy tube introduced into a false passage.

PRECAUTIONS

- When replacing a tracheostomy tube, you may inadvertently insert the tube into the soft tissue creating a false passage.
- The patient may require intubation through the stoma in order to secure an airway.

PROCEDURE

- Prepare equipment:
    a. Bag-valve mask.
    b. Oxygen.
    c. Suction unit.
    d. Tracheal suction catheter.
    e. Endotracheal tube. (7.0 or smaller)
- Assess patients breathing.
    - **If patient apneic:**
        a. Attach bag-valve to tracheostomy tube and attempt to ventilate. Continue ventilations if airway is patent.
    - **If unable to ventilate patient:**
        a. Attempt to suction tracheostomy tube.
        b. Attempt the ventilations again.
    - **If still unable to adequately ventilate patient:**
        a. Remove inner cannula of tracheostomy tube.
        b. Attempt suctioning.
        c. Attempt the ventilations again.
    - **If still unable to ventilate patient:**
        a. Remove the whole tracheostomy tube.
        b. Cover stoma and attempt to ventilate patient with bag-valve mask over mouth.
    - **If still unable to adequately ventilate patient:**
        a. Attempt oral endotracheal intubation.
        b. If unsuccessful, insert a 7.0 or smaller endotracheal tube into the stoma. Insert the tube until the cuff is no longer visible and no further.
        c. Ventilate and reassess the patient.

UMBILICAL VEIN CATHETERIZATION
Paramedic

INDICATIONS

- Preferred site of vascular access during neonatal resuscitation.

PRECAUTIONS

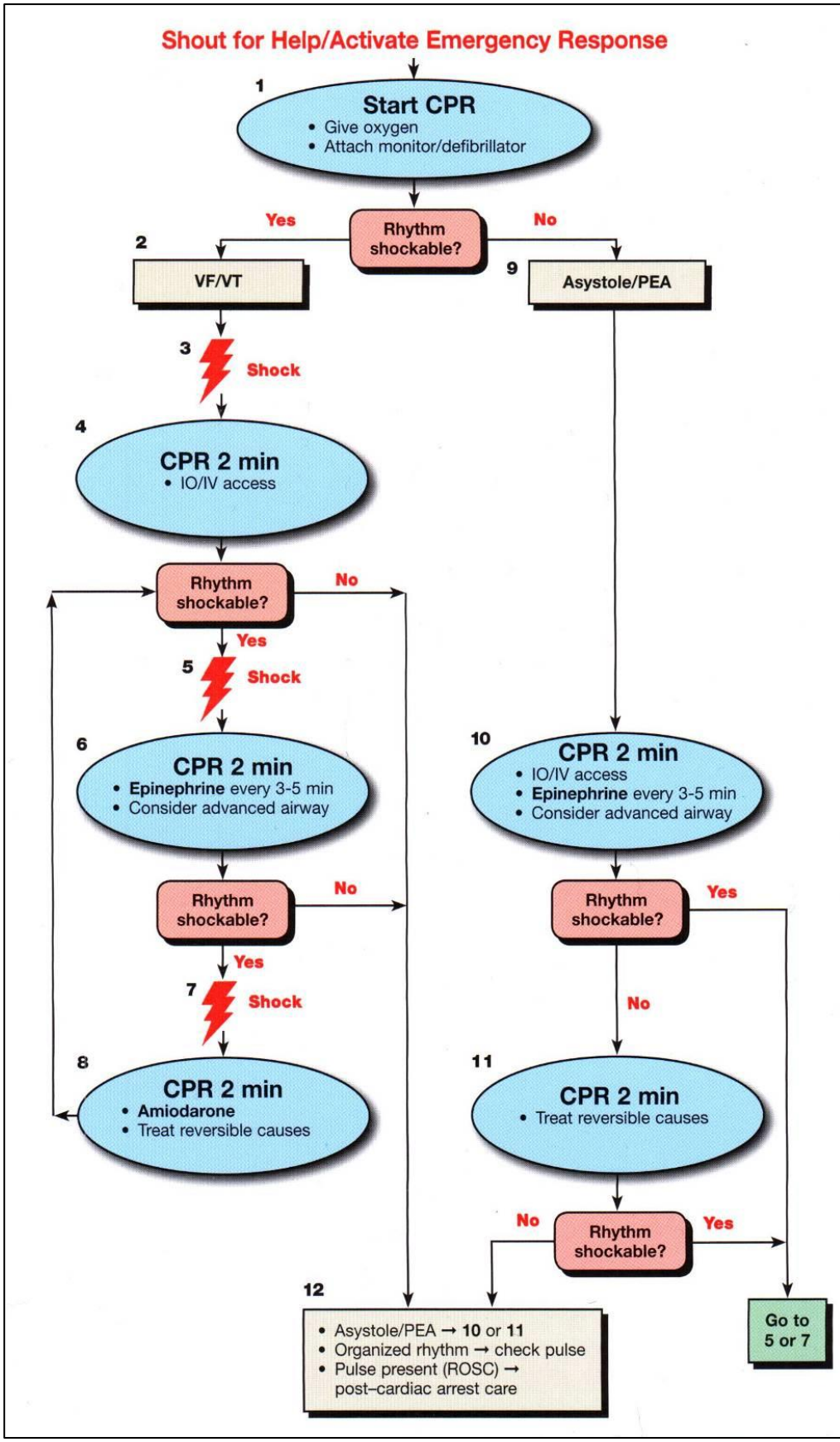
- Sterile procedure. Cannulate the umbilical vein not the umbilical arteries.
- Do not insert the cannula more than 6 cm.

PROCEDURE

- **Prepare equipment:**
  a. 5 Fr umbilical catheter or 18 ga IV catheter without needle.
  b. Three-way stopcock.
  c. Syringe.
  d. Scalpel.
  e. Disinfectant solution.
  f. Crystalloid solution.
  g. Sterile gauze pad.
  h. Tape.
  i. Umbilical tape.
- Attach crystalloid solution filled syringe and three-way stopcock to umbilical catheter or IV catheter and flush.
- Sterile prep the cord area.
- Apply mild pressure to umbilical cord near the skin with umbilical tape to prevent bleeding.
- Cut the cord approximately 2 cm from the skin leaving a clean and smooth end.
- Insert catheter in the large thin walled single vessel for 2 cm then check for blood return. If no blood return, advance the catheter in 1 cm increments until blood return or catheter has been advanced 6 cm. **If no blood return is noted, do not use catheter.**
- If catheter is patent, secure with tape and cover with sterile gauze pad.
- Frequently flush with 1-2 ml of crystalloid solution.

Pediatric Algorithms

PEDIATRIC CARDIAC ARREST ALGORITHM



Doses/Details

CPR Quality
- Push hard (≥1/3 of anterior-posterior diameter of chest) and fast (at least 100/min) and allow complete chest recoil
- Minimize interruptions in compressions
- Avoid excessive ventilation
- Rotate compressor every 2 minutes
- If no advanced airway, 15:2 compression-ventilation ratio. If advanced airway, 8-10 breaths per minute with continuous chest compressions

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 IO/IV Dose:** 0.01 mg/kg (0.1 mL/kg of 1:10 000 concentration). Repeat every 3-5 minutes. If no IO/IV access, may give endotracheal dose: 0.1 mg/kg (0.1 mL/kg of 1:1000 concentration).
- **Amiodarone IO/IV Dose:** 5 mg/kg bolus during cardiac arrest. May repeat up to 2 times for refractory VF/pulseless VT.

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 6-8 seconds (8-10 breaths per minute)

Return of Spontaneous Circulation (ROSC)
- Pulse and blood pressure
- Spontaneous arterial pressure waves with intra-arterial monitoring

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

Management of Shock After ROSC

Optimize Ventilation and Oxygenation

- Titrate FIO_2 to maintain oxyhemoglobin saturation 94%-99%; if possible, wean FIO_2 if saturation is 100%
- Consider advanced airway placement and waveform capnography

Assess for and Treat Persistent Shock

- Identify, treat contributing factors.*
- Consider 20 mL/kg IV/IO boluses of isotonic crystalloid. Consider smaller boluses (eg, 10 mL/kg) if poor cardiac function suspected.
- Consider the need for inotropic and/or vasopressor support for fluid-refractory shock.

***Possible Contributing Factors**

Hypovolemia
Hypoxia
Hydrogen ion (acidosis)
Hypoglycemia
Hypo-/hyperkalemia
Hypothermia
Tension pneumothorax
Tamponade, cardiac
Toxins
Thrombosis, pulmonary
Thrombosis, coronary
Trauma

Hypotensive Shock

- Epinephrine
- Dopamine
- Norepinephrine

Normotensive Shock

- Dobutamine
- Dopamine
- Epinephrine
- Milrinone

- Monitor for and treat agitation and seizures
- Monitor for and treat hypoglycemia
- Assess blood gas, serum electrolytes, calcium
- If patient remains comatose after resuscitation from cardiac arrest, consider therapeutic hypothermia (32°C-34°C)
- Consider consultation and patient transport to tertiary care center

Estimation of Maintenance Fluid Requirements

- **Infants <10 kg:** 4 mL/kg per hour

  Example: For an 8-kg infant, estimated maintenance fluid rate
  = 4 mL/kg per hour × 8 kg
  = 32 mL per hour

- **Children 10-20 kg:** 4 mL/kg per hour for the first 10 kg + 2 mL/kg per hour for each kg above 10 kg

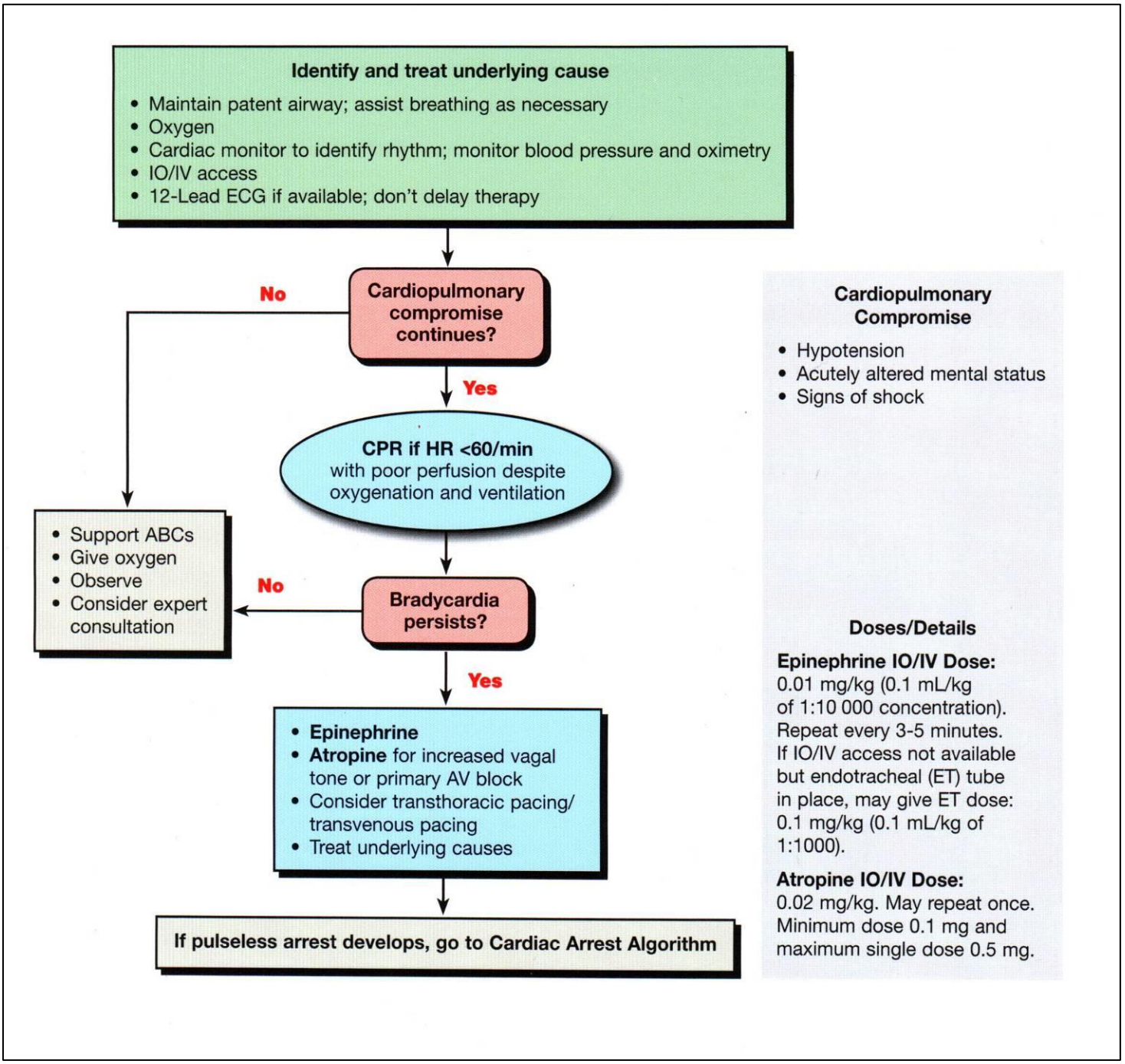
  Example: For a 15-kg child, estimated maintenance fluid rate
  = (4 mL/kg per hour × 10 kg)
  + (2 mL/kg per hour × 5 kg)
  = 40 mL/hour + 10 mL/hour
  = 50 mL/hour

- **Children >20 kg:** 4 mL/kg per hour for the first 10 kg + 2 mL/kg per hour for kg 11-20 + 1 mL/kg per hour for each kg above 20 kg.

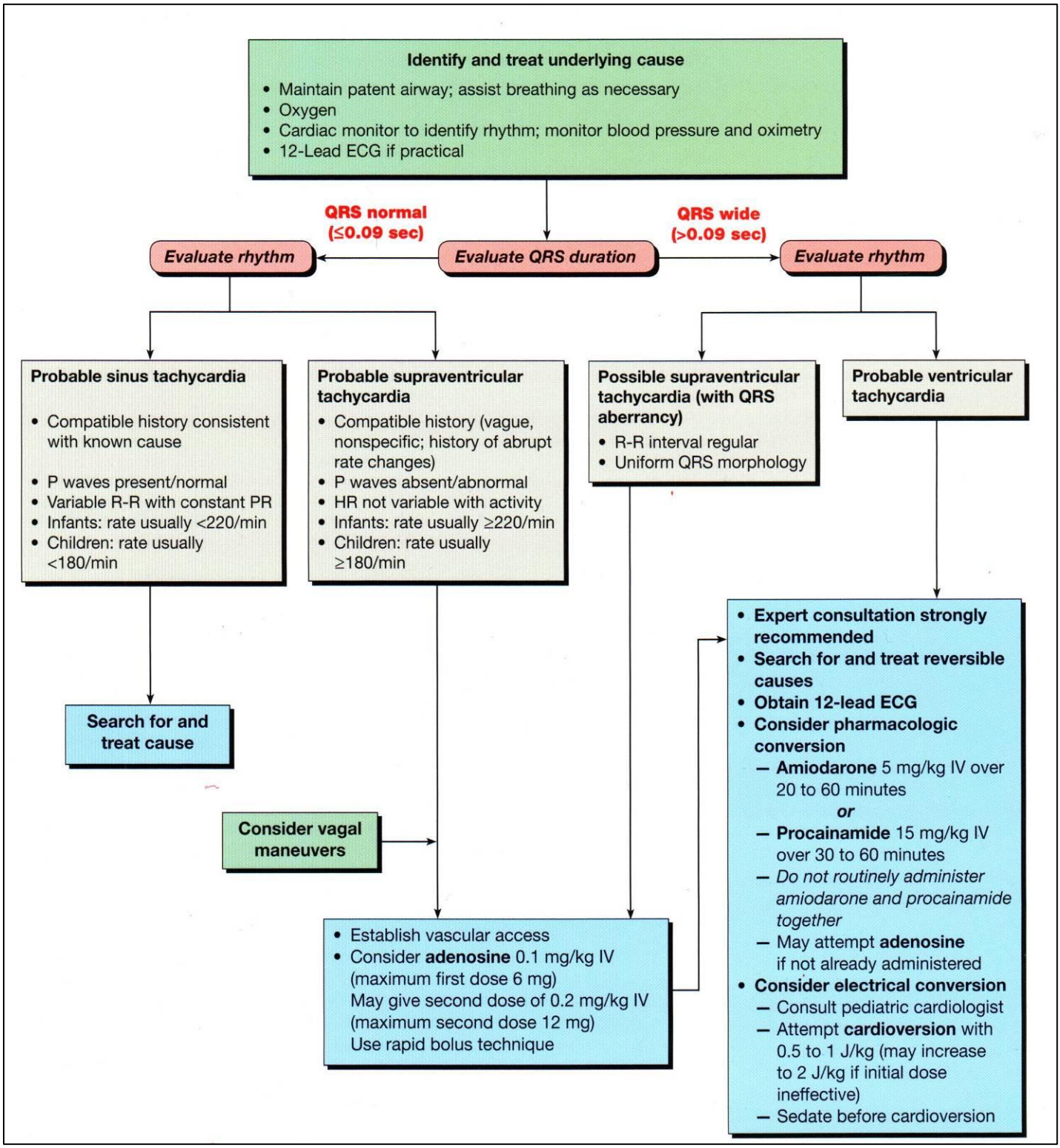
  Example: For a 28-kg child, estimated maintenance fluid rate
  = (4 mL/kg per hour × 10 kg)
  + (2 mL/kg per hour × 10 kg)
  + (1 mL/kg per hour × 8 kg)
  = 40 mL per hour + 20 mL per hour
  + 8 mL per hour
  = 68 mL per hour

Following initial stabilization, adjust the rate and composition of intravenous fluids based on the patient's clinical condition and state of hydration. In general, provide a continuous infusion of a dextrose-containing solution for infants. Avoid hypotonic solutions in critically ill children; for most patients use isotonic fluid such as normal saline (0.9% NaCl) or lactated Ringer's solution with or without dextrose, based on the child's clinical status.

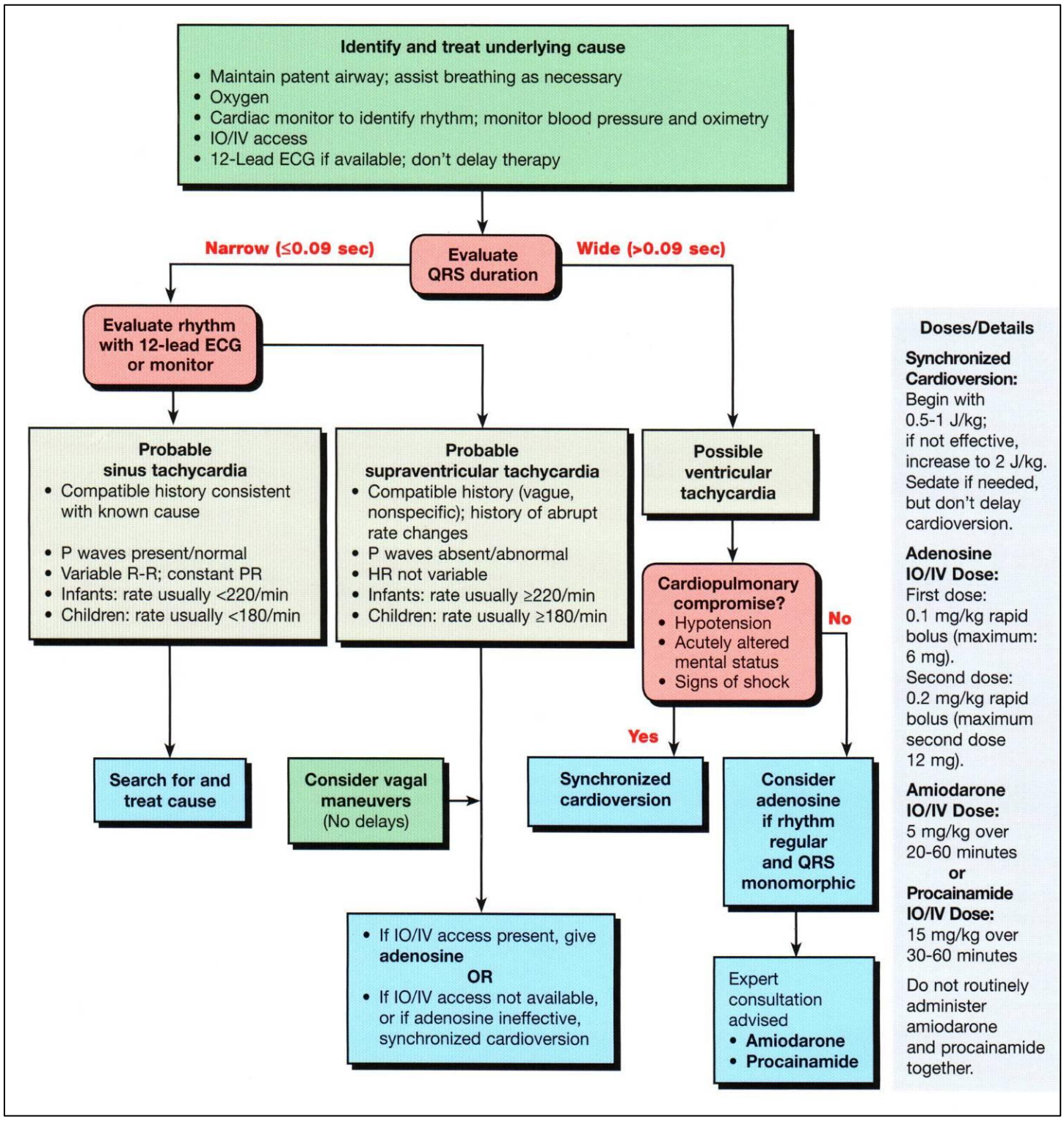
PEDIATRIC BRADYCARDIA WITH A PULSE AND POOR PERFUSION



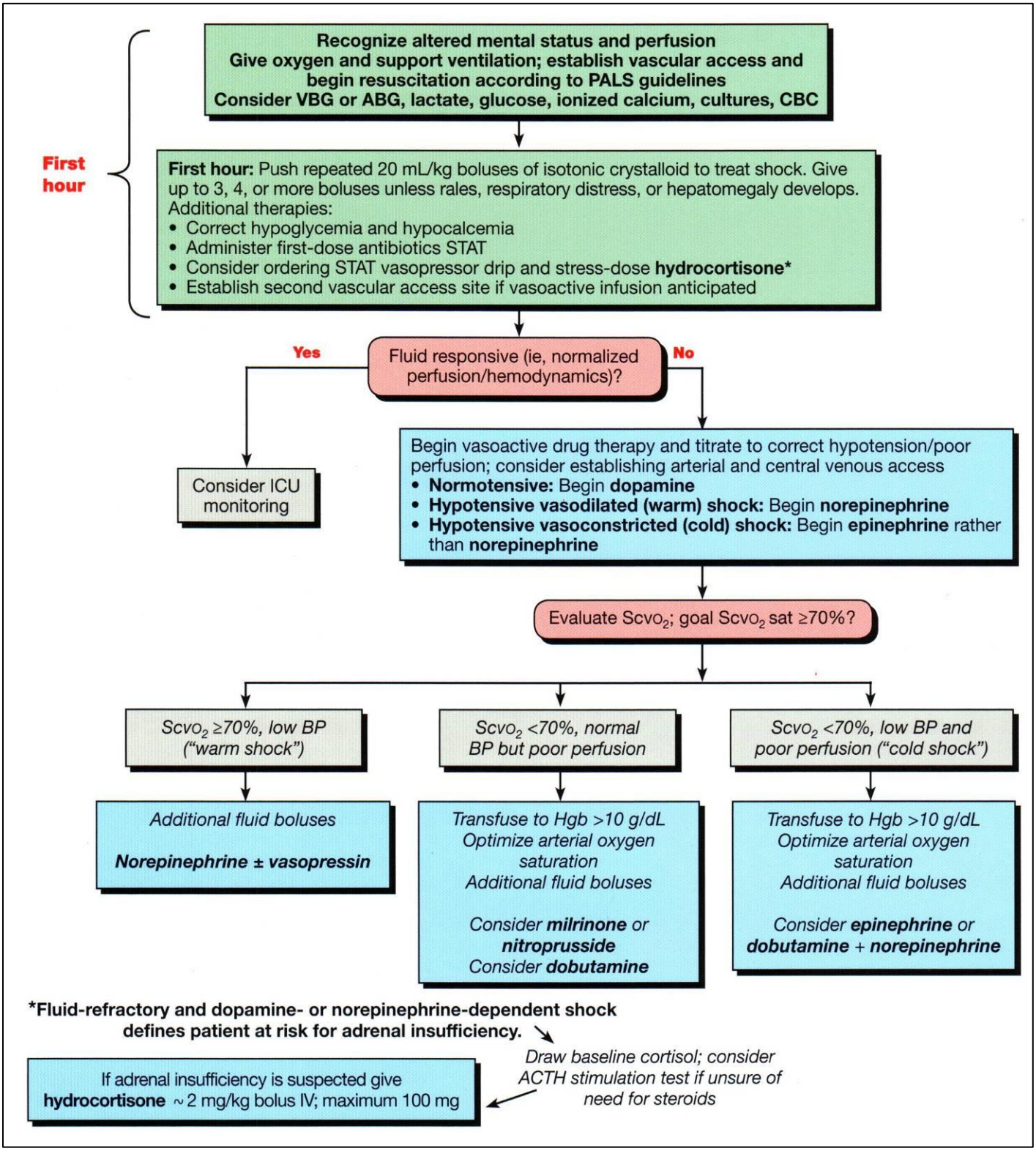
PEDIATRIC TACHYCARDIA WITH A PULSE AND ADEQUATE PERFUSION



PEDIATRIC TACHYCARDIA WITH POOR PERFUSION



PEDIATRIC SEPTIC SHOCK



PEDIATRIC ADVANCED LIFE SUPPORT

Pediatric Vital Sign Ranges

Heart Rate (per minute)

Age	Awake Rate	Sleeping Rate
Newborn to 3 months	85-205	80-160
3 months -2 years	100-190	75-160
2 - 10 years	60 -140	60- 90
>10 years	60 -100	50 -90

Respiratory Rate (breaths / min)

Age	Rate
Infant	30- 60
Toddler	24- 40
Preschooler	22- 34
School-aged child	18- 30
Adolescent	12- 16

Definition of Hypotension by Systolic Blood Pressure Age

Age	Systolic BP
Term neonates (0- 28 days)	<60
Infants (1- 12 months)	<70
Children 1- 10 years	<70+(age in yearsx2)
Children >10 years	<90

Modified Glascow Coma Scale For Infants and Children

	Child	Infant	Score
Eye Opening	Spontaneous	Spontaneous	**4**
	To Speech	To Speech	**3**
	To Pain	To Pain	**2**
	None	None	**1**
Best Verbal	Oriented, appropriate	Coos and babbles	**5**
Response	Confused	Irritable, cries	**4**
	Inappropriate words	Cries in response to pain	**3**
	Incomprehensible sounds	Moans in response to pain	**2**
	None	None	**1**
Best Motor	Obeys commands	Move spontaneously and purposefully	**6**
Response	Localizes painful stimulus	Withdraws in response to touch	**5**
	Withdraws from pain	Withdraws in response to pain	**4**
	Felxion in response to pain	Abnormal Flexion posture to pain	**3**
	Extension in response to pain	Abnormal extension posture to pain	**2**
	None	None	**1**

Mobile Healthcare

INTRODUCTION

The Physician Standing Orders which follow are to be utilized only by personnel performing mobile health care, Wildland fire, other federal response activities or designated special events for American Medical Response Northwest, and only by those personnel who have completed the initial training program and outcome testing and annual refresher training. Whenever these Physician Standing Orders are utilized, the personnel involved will complete all appropriate documentation.

MOBILE HEALTH CARE PROTOCOLS

The Clinical Protocols allow treatment of minor medical problems under special circumstances. Many conditions require evaluation and treatment by a physician.

To identify and triage those conditions requiring physician intervention, they are classified as follows:

Protocol Symbol:	**Intervention Level:**	**Action:**
****Emergency**		Use ALS or RAT orders, use additions present in these protocols, and evacuate by fastest means possible.
***Urgent**		Patient should be seen by a physician immediately, consider ambulance transport, if available.
****Semi-Urgent**		Patient should be evaluated by a physician, nurse practitioner or physician's assistant within 24 hours.
***Routine**		If treatment under these protocols does not mitigate the condition within 24 hours, consult a physician. When appropriate, notify patient and AMR Comm Ctr to schedule recheck by MHC technician during next dayshift.

Note: Although brand names are often used in these protocols for ease of recognition, a generic equivalent may be used. The use of combination drugs is discouraged.

- **An EMT may never exceed his/her scope of practice.**

Non-burn related blisters. Evaluate foot or hand wear for proper fit.

* **Routine conditions**

1. **Closed Blister(s)**

Treatment:

- Clean and dry area.
- Apply moleskin in a donut shape around blister, then place second skin (if available) over blister.
- Apply an additional layer of moleskin over entire area to protect skin and blister.

2. **Open Blister(s)**

Treatment

- Have patient shower, if possible, or cleanse with soap and water.
- Apply moleskin in a donut shape around blister, then place antibiotic cream over blister and/or bio-occlusive.
- Apply an additional layer of moleskin over entire area to protect skin and blister.
- Watch for signs of infection; explain the signs of infection to patient.

Follow your BLS, ALS or RAT protocols for significant burns.

*** Routine conditions**

1. Minor Burns

Signs: Superficial or small partial thickness (1% or less body surface area).

Treatment:

- Remove clothing and jewelry.
- Cool compress or immersion in cool water for pain relief.
- Gently cleanse.
- Leave blisters intact.
- Apply antibiotic cream and occlusive dressing (such as an Adaptec dressing).
- Elevate affected area.
- Ibuprofen 600-800 mg q 6 hours for pain (max. 2400 mg/day).
- Keep dressing dry, change daily and observe for signs of infection or skin breakdown.
- All but superficial burns should be rechecked in 24-48 hours.

*** **Urgent conditions:**

1. ***Avulsed tooth***

Treatment:

- Arrange for dentist & patient transport.
- If tooth is found within 1 hour, and patient is alert and oriented (will not aspirate tooth), rinse debris from tooth with normal saline, then firmly place tooth back in socket and have patient bite down on tooth to seat in place.
- Ibuprofen 600-800 mg q 6 hours for pain (maximum of 2400 mg/day).

2. ***Abscess tooth or gum***

Treatment:

- Arrange for dentist & patient transport.
- Rinse mouth with salt water. (1 tsp salt per 8 oz water)
- Ibuprofen 600-800 mg q 6 hours for pain (max. 2400 mg/day).
- Hot packs as needed to area.

** **Semi-Urgent conditions**

1. ***Toothache***

Treatment

- Ibuprofen 600-800 mg q 6 hours (max. 2400 mg/day) and/or topical oil of clove until dentist referral.
- Hot packs as needed to area.

**** **Emergency conditions:**

Severe abdominal pain in a female 10-62 yrs of age.

- Utilize ALS protocols as necessary

*** **Urgent conditions:**

Unusual bleeding or moderate abdominal pain.

- Utilize ALS protocols, as necessary.

* **Routine conditions:**

Menstrual cramp discomfort occurring during a normal menstrual cycle.

Treatment:

- Document date of last menstrual period.
- Ibuprofen 400-800 mg q 6 hours (max. 2400 mg/day).
- Hot packs as needed to area.

EAR CONDITIONS

Examination of the ear requires an otoscope for illumination and magnification. If equipment is not available, transport for evaluation.

*** **Urgent conditions requiring immediate physician evaluation:**

1. Fever above 101.5° F.
2. Acute hearing loss.
3. Patients with diabetes or other serious illness and significant ear complaints.
4. Elderly patients with significant ear complaints.

** **Semi-Urgent conditions:**

1. Acute tympanic membrane perforation.
2. **Otitis Media**:
   a. Signs include sharp pain inside ear, current upper respiratory infection, hearing loss, fever, red and bulging ear drum.
   b. Treat with ibuprofen 600-800 mg q 6 hours and Auralgan until seen by an M.D.
3. Otitis Externa:
   a. Signs Include: severe ear pain, tender to touch, swelling of ear canal, purulent material in canal.
4. Retained foreign body.
5. Ear symptoms that persist after 3 days of treatment.

* **Routine conditions:**

1. **Impacted earwax (Cerumen):**

Signs/symptoms:

- decreased hearing
- "plugged ear" sensation
- cerumen filled canal
- ear pain is rare

Treatment:

- Hard wax can be softened with mineral oil or Debrox (carbamide peroxide, 6.5% solution with anhydrous glycerin) applied to the ear canal for 3-7 days.
- Irrigate by removing the needle from the IV catheter and connecting the catheter to a syringe filled with **body temperature** water (cold or hot water will cause vertigo and vomiting)

2. Foreign body in ear, including insects:

Signs: visualization of foreign body in ear.

Treatment:

- Live insects should be suffocated by application of mineral oil to the canal.
- Irrigation can be accomplished by removing the needle from the IV catheter and connecting the catheter to a syringe filled with *body temperature water* (cold or hot water will cause vertigo and vomiting).
- If a loop is necessary, utilize only a plastic loop for retrieval.

EYE CONDITIONS

Most eye conditions require prompt attention.

Patient care documentation should include visual acuity before any intervention.

Contact lenses should be removed.

****** Emergency conditions:**

1. Sudden loss of vision or significant decrease in vision.
2. Penetrating injury to the globe.
3. Chemical burns.
4. Sudden, severe, unexplained eye pain.
5. Significant swelling and redness around eye.
6. Eye pain with fever.

Specific Treatments:

Penetrating Injury:

Signs:

a) History suggestive of projectile (chainsaw, high speed cutting/grinding, flying branch).
b) Distorted pupil.
c) Blood behind cornea / in front of pupil.
d) Blood or fluid leaking from globe

Treatment

- Cover the eye with a cup or shield
- Elevate head
- Avoid putting anything in the eye
- Avoid straining or valsalva
- Morphine per pain protocol
- Fly - remain below 1500 feet if possible
- Administer ondansetron (Zofran) 4mg, or phenergen 12.5mg IV, or Zofran ODT 8 mg to prevent vomiting

Chemical Burns:

Treatment

- Instill proparacaine 1 drop. If there is no effect within one minute, three additional drops may be instilled at one-minute intervals. If eye pain returns, 1-4 additional drops may be instilled.
- Immediately irrigate with BSS continuously for at least 15 minutes

*** **Urgent conditions:**

Retained foreign body after irrigation

a) Signs: Visible foreign body or persistent foreign body sensation after irrigation (see below for irrigation)

** **Semi-Urgent conditions:**

Conjunctivitis

- Red, irritated, eye with or without purulent drainage
- If suspected allergic symptoms (watery discharge, sneezing, runny nose) try antihistamine
- Physician evaluation in 24 hours if not better

* **Routine conditions:**

1. **Dry or irritated eyes without signs of infection**:

Treatment:

- Saline eye drops every 2-3 hours as needed
- Avoid other eye drops with waxy substances that attract smoke and dust

2. **Superficial foreign body:**

a) Signs: Sensation of "something in eye"

Treatment:

- Instill proparacaine 1 drop. If there is no effect within one minute, three additional drops may be instilled at one-minute intervals. If eye pain returns, 1-4 additional drops may be instilled.
- Flush eye with 500-1000 cc of fluid.
- If foreign body sensation persists once anesthetic wears off (usually < 2 hours), patient requires physician evaluation.

****** Emergency condition:**

Hemodynamically unstable patient

***** Urgent conditions:**

Bleeding does not stop after 30 minutes of treatment

**** Semi-Urgent conditions:**

1. Recurrent epistaxis - more than twice in 24 hours.
2. Blood pressure greater than 160/100

*** Routine conditions:**

Routine epistaxis

Treatment:

- Place patient in a sitting position and have patient pinch nostrils shut for 15-20 minutes.
- For recurrent nosebleed, patient may use Afrin nasal spray BID for not more than 3 days.
- Saline drops for moisture.

* **Routine conditions**

Athlete's Foot

Signs: cracks between toes, itching

Treatment

- Dry feet, especially after bathing, shower, or wet
- Clean socks
- Apply antifungal cream twice daily

Jock Itch

Signs: Itching, reddened skin around scrotum and thighs.

Treatment:

- Good hygiene
- Cotton underwear
- Dry completely after bath/shower
- Antifungal medicated powder or cream applied

Vaginitis

*** **Urgent conditions:**

1. Abdominal pain
2. Vaginal bleeding

* **Routine conditions:**

Candida Vaginitis

Signs: Vaginal discharge, usually white like "cottage cheese', itching, genital skin irritation.

Treatment:

- Advise against tight fitting clothing
- Advise against sexual intercourse
- Lotrimin or Monistat or other antifungal vaginal cream daily.

Care should be taken to assure the patient is not contagious. Instruct all patients on hand washing, sanitation, food handling, and water procedures. If large groups become ill, consult with Safety Officer or Public Health Officer.

****** Emergency conditions:**

1. **Severe abdominal pain (ectopic?) in a female 10-62 yrs of age.**

2. Hemodynamic instability

***** Urgent conditions:**

1. Abdominal pain, other than mild cramping
2. Inability to keep down fluids after treatment
3. Blood in stool or vomitus
4. Fever above 101.5° F

*** Routine conditions:**

Gastroenteritis:

Signs: vomiting, nausea, diarrhea

Treatment:

- Oral rehydration, small sips of water or diluted sports drink.
- Do not attempt solid food
- If dehydrated or not able to take PO hydration, IV rehydration (if ALS):
  - 1000 cc BSS IV over 1 - 2 hours.
- Anti-emetics:

  ⇒ Zofran 4mg IV, IM; or 8mg ODT may repeat in 4-6 hours if prolonged contact (if ALS)

  ⇒ Promethazine 12.5-25 mg po/IV q 6 hours (causes drowsiness, so person may not work)
- Anti-diarrheal:

  ⇒ Pepto-Bismol, 2-3 tbsp or 2-3 tablets q 3-4 hours

  ⇒ Imodium, 4 mg initially, then 2 mg after each unformed stool to a max of 16 mg mg/day.

Constipation

Commonly occurs in new environment with change in diet.

Treatment:

- Increase fluid intake (at least 3 liters per day)
- Encourage fresh fruits and vegetables
- Metamucil or other bulk forming agent 1 tbsp in 8 oz water daily.
- Milk of Magnesia 1 - 2 tbsp at bedtime

Care should be taken to rule out serious conditions: dehydration, hypertension, hypertensive crisis, CVA, TIA, or other etiology.

****** Emergency conditions:**

1. Severe headache described as “worst headache of my life”.
2. Headache with neurological symptoms or vision loss
3. Altered level of consciousness
4. Headache associated with diastolic BP 110 or systolic BP 200

***** Urgent conditions:**

Headache unresolved after 1-2 hours with treatment in this protocol

*** Routine conditions:**

Headache without other symptoms

Treatment

- Assure adequate hydration
- Ibuprofen 600-800 mg PO, Tylenol 100 mg or Excedrin 2 tablets every 4-6 hours.
- Rest in a quiet, cool, dark location

HEAT-RELATED CONDITIONS

Heat related conditions include Heat Stroke, Heat Exhaustion, and Heat Cramps. The treatment of Heat Stroke should be guided by ALS protocols

****** Emergency conditions:**

1. Temperature above 101.5° F
   - Heat stroke may reach 106°-107° F
   - Cool as rapidly as possible
2. Altered mental status
3. Hemodynamic instability
   - aggressive fluid replacement and follow ALS protocols.

***** Urgent conditions:**

Heat exhaustion not responsive to treatment at site by EMT/Paramedic personnel under these orders

*** Routine conditions:**

Heat Cramps:

Signs: Muscle cramps, typically in the legs and abdomen. Often associated with strenuous physical activity in a hot environment.

Treatment:

- Cool and/or comfortable environment
- Oral hydration with fluid containing electrolytes (Electrolyte replacement fluid - cut 50% with water, diluted juice or water and food)
- 6-8 hours rest

Heat Exhaustion:

Signs: Normal mental status and body temperature! Evidence of weakness, dehydration, nausea, tachycardia.

Treatment:

- Rest in cool &/or comfortable environment
- Rapid cooling: Remove clothing and allow air circulation. Mist with cool water from spray bottle.
- Oral hydration with fluid containing Electrolytes (Electrolyte Replacement Fluid [ERF] - cut 50% with water, diluted juice)
- If ALS, 1000 - 2000 cc IV over 60 minutes.
- If rapid improvement not seen, transport!

****** Emergency Conditions**

1. Hypertension associated with:
   - Neurologic changes
   - altered mental status
   - headache
   - chest pain
   - shortness of breath

**** Semi-urgent**

If blood pressure found to be incidentally high (generally systolic >160, diastolic >100) with no associated symptoms. Recheck the next morning. If still elevated, refer to physician.

*** Routine**

Mild hypertension

Systolic between 140 – 150

Diastolic between 90 - 100

<u>Treatment:</u>

- Rest
- Oral Fluids
- Repeat in 24°. If not better, refer for evaluation.

Influenza

Pharmacology and indications:

Influenza vaccine is an inoculation of antigens prepared from inactivated influenza virus stimulating the production of antibodies. Protection is afforded only against those strains (or closely related stains) contained in the vaccine

Procedure:

1. Perform assessment including assessment of allergy to any component of the vaccine. (influenza vaccines are grown in chicken eggs) If the individual has had any symptoms of anaphylaxis to any vaccine or eggs in the past do not vaccinate.

2. Verify the *Five R's*: (Right **Patient**, Right **Medicine**, Right **Dose**, Right **Route**, Right **Time)** before administering any medication to a patient.

3. Follow CDC/ACIP guidelines for influenza administration and manufactures guidelines. **Generally, 0.5 mL of influenza vaccine is given IM into the deltoid muscle.**

4. A current influenza information sheet should be provided to the individual and the individual receiving vaccination must sign an informed consent form.

5. In the event of a presumed allergic reaction treat according to your EMS protocols

6. Document the vaccination given including the vaccine, dose, site, date and lot number of the vaccine

Side effects and precautions

1. Pain at the site of injection for the next 24-48 hours is common
2. Fever, chills, headache or muscle aches may occur

Tetanus

* **Routine conditions:**

Indication for Tetanus Prophylaxis:

Skin break within the last 72 hours in a person who has not been immunized in the past 5 years, or whose immune status is unknown.

Procedure:

- Administer Tetanus and Diphtheria Toxoid (dT) 0.5 cc IM into deltoid muscle.
- Record date of immunization, dose, lot number on a slip of paper for patient and on medical record.

Contraindications/Side Effects:

- Contraindicated in persons hypersensitive to dT
- Local pain, tenderness, muscle stiffness at site are common.
- Patient may develop a viral-like syndrome.

Immunoglobulin for Hepatitis A

*****At Direction of a Public Health Professional Only! *****

* **Routine conditions**

Indication:

- Potential exposure to Hepatitis A
- At the direction of a public health professional, the paramedic may administer immune globulin to a person with potential exposure to hepatitis A.

Procedure:

- Administer 0.06 mg/kg IM in the gluteal muscle.
- Do not administer more than 2 cc at any single site.

Side Effects/Contraindications:

- Contraindicated in persons hypersensitive to immune globulin.
- Local pain, tenderness, muscle stiffness at site are common.
- May experience malaise, headache, light headedness, nausea.

****** Emergency Conditions:**

1. Signs of anaphylaxis
2. Black Widow Spider bites, or suspected bite, with severe abdominal cramping, nausea, dizziness.
3. Systemic reaction to insect bite

**** Semi-Urgent conditions:**

1. Significant local reaction, not responsive to treatment
2. Brown Recluse or Hobo spider bites
   - pain beginning after a few hours, with "bull's eye" lesion leading to local necrosis.

*** Routine conditions:**

Sting or insect bite without systemic reaction

Treatment

- Remove stinger
- Apply sting kill or a water solution of meat tenderizer, if treated within 45 minutes.
- Apply ice, sting-kill, or equivalent
- Benadryl 25-50 mg PO for local reaction
- Calamine lotion
- For significant itching, hydrocortisone cream 1% q 3-4 times per day.
- Monitor for swelling or signs of infection.

* **Routine conditions:**

1. **Insomnia**

Signs: Sleeplessness may be due to strange environment, noise, or stress. Look for significant stressors.

Treatment:

- Avoid heavy meals late in the evening
- Avoid alcohol
- Change sleep area to quieter location
- Benadryl 25-50 mg PO at sleep time

LACERATIONS - MINOR

Only minor lacerations should be considered under this protocol. Go to ALS protocols (if RAT, RAT Orders) for larger lacerations.

*** **Urgent conditions:**

1. Wounds that can be separated, and the underlying fat layer is visible.
2. Any wound that crosses the vermillion border of the lip.
3. Wounds greater than 3cm, crosses joint, &/or does not easily close.

* **Routine conditions:**

Minor lacerations, abrasions, incisions

a) Wounds less than 3 cm, non-gapping, easily closed, not located on face or across joints:

Treatment

- Cleanse wound with soap and water or antiseptic
- Remove any foreign bodies.
- Apply antibiotic ointment or cream and a dressing.
- If Steri-strip needed to close:
  - ⇨ Apply benzoin to adjacent skin and allow to dry until "tacky"
  - ⇨ Approximate edges of wound
  - ⇨ Apply steri-strip
  - ⇨ Apply non-stick dressing and bandage
- Alternatively, tissue adhesive may be used if available and technician has received training in use. Adhesive should not be used across a joint line, near mouth, eyes or other mucous membrane.
- If person has not had tetanus prophylaxis in the past 5 years, or status is unknown – Give Tetanus immunization or refer for tetanus in next 72 hours.
- Recheck in 24-48 hours

****** Emergency Conditions:**

1. Multiple trauma
2. Neurologic or vascular compromise
3. Hemodynamic instability

***** Urgent conditions:**

1. Dislocation
2. Angulation
3. Severe pain

**** Semi-Urgent conditions:**

1. Lower extremity injury with inability to ambulate without a limp.
2. Significant swelling
3. Bony tenderness

*** Routine conditions:**

Extremity injury without significant swelling or pain

Ottawa ankle rules: If person meets the following criteria, he or she does not have an ankle fracture

1. Able to walk 4 steps without a limp
2. No tenderness over the maleolus (the bony prominence of the ankle
3. No tenderness at the base of the 5th bone of the foot

Ottawa knee rules (modified)

1. Able to walk 4 steps without a limp
2. Age less than 55 years
3. No significant swelling/ point tenderness

Treatment

- Apply ice 15-20 minutes of every hour
- Elevate extremity
- Ibuprofen 600-800 mg PO q 6 hours (max. 2400 mg/day).
- AVOID circumferential support or bandage while working. (No ACE Wrap)

Overuse syndrome:

Signs: History of pain; no acute trauma; involvement in new, strenuous or repetitive activity.

Treatment:

- Ice
- Elevation
- Ibuprofen 600-800 mg PO q 6 hours (max. 2400 mg/day).
- For overuse of wrist, a wrist splint may be beneficial, especially while working.

Back pain without new trauma and no radiation to leg(s)

Signs: History of pain; no acute trauma; involvement in new, strenuous or repetitive activity.

Treatment:

- Ice for first 24 hours, heat may be used if over 24 hours old injury
- Ibuprofen 600-800 mg PO q 6 hours (max. 2400 mg/day).
- Activities such as walking, and swimming are beneficial. The person should avoid lifting, bending, running and other heavy activities

POISON OAK AND CONTACT DERMATITIS

Poison ivy and sumac are not commonly found in the Northwest, but firefighters coming from the east have been known to retain the oils on their clothing. Poison Oak is common throughout the Northwest, be cautious of burning Poison Oak, which may lead to systemic reactions.

****** Emergency conditions:**

1. Signs of anaphylaxis
3. Rapidly progressing hives or swelling
4. Rash with presence of fever (purple, non-blanching rash is most serious)

**** Semi-Urgent conditions:**

1. Rashes unlikely to be contact dermatitis (unexposed skin, no clear history of exposure, generalized distribution)
2. Poison Oak with systemic reaction (fever, nausea, vomiting)

*** Routine conditions:**

Scabies & Lice:

Signs: Visible lice on skin or hair - Signs of scabies on person.

Treatment:

- Wash all clothing and bedding Rid or Nix shampoo according to package insert
- Treat persons in intimate contact.

Poison Oak

Treatment:

- Mild local reaction: Hydrocortisone cream 1% and/or Calamine lotion/gel 3-4 times daily
- Severe local reaction (body surface area > 30% or involvement of face, eyes, genitalia) ALS only and referral to MD, PA or NP not practical:
    - Kenalog* 60 mg IM;

      or
    - Prednisone* 40 mg po daily for 10 days (must be given by paramedic each day); or
    - Dexamethasone* 10 mg po every other day for 10 days

***Cortico-steroids (prednisone, dexamethasone, Kenalog)**

Steroids are used to treat inflammation. They generally take 8-12 hours to take effect. Kenalog is a long acting injectable steroid.

Serious side effects when used short-term (less than 2 weeks) are rare but include psychosis, elevation in blood glucose and increased risk of infection. Less serious common side effects include change in appetite, insomnia, euphoria, nausea and vomiting.

Contraindications:

- Pregnancy
- Possible secondary infection
- Diabetes
- Allergy to prednisone/dexamethasone
- Current infection
- Current immune-compromised

PULMONARY / UPPER RESPIRATORY CONDITIONS

Contagious diseases are propagated through close contact and poor hygiene.

******** **Emergency conditions:**

1. Significant respiratory distress
2. Hemodynamic instability
4. Inability to swallow oral secretions
5. Significant smoke inhalation
6. Respiratory burns
   - singed nasal hairs, facial burns, sputum containing carbon, dyspnea, abnormal lung sounds, cough, agitation, hoarseness.

******* **Urgent conditions:**

1. Underlying medical conditions
2. Person with underlying medical conditions
3. Oxygen saturation less than 94%
4. Wheezing unresponsive to1-2 nebulizer treatments
5. Sore throat with inability open mouth
6. Facial swelling

****** **Semi-Urgent conditions:**

1. Sore throat with fever
2. Exudate (pus) on tonsils
3. Swollen lymph nodes in neck

***** **Routine conditions:**

Person wheezing, with a history of asthma or reactive airway disease.

Treatment:

- Albuterol 2.5 mg via nebulizer

  OR

- Albuterol MDI 2 puffs may repeat as needed
- If patient does not respond to 1-2 treatments transport per ALS orders
- If transporting, give solumedrol 125 mg IV or dexamethasone 10mg IV

Upper Respiratory Infection:

Signs: Cough, runny nose, congestion, sore throat.

Treatment:

- Robitussin DM (or equivalent), 1 tbsp q 4 hrs
- Loradine (Claritan) 5-10 mg PO q day for allergy symptoms
- Diphendyramine 25-50 mg at bedtime only
- Maintain high fluid intake.
- Reduce smoke inhalation
- If not improving, high fever, abnormal vital signs, refer to physician

*** Routine conditions:**

Minimal sore throat, no exudates, no fever, and no lymphadenopathy.

Treatment:

- Ibuprofen, acetaminophen or aspirin for pain
- Throat lozenges
- Caution about good hand washing and not sharing utensils or drinking containers

****** Emergency Conditions:**

1. Venomous bite

Signs/symptoms:

Local: Edema, discoloration, ecchymosis, two puncture wounds, and pain. Severe pain following a bite is suggestive of a venomous bite.

Systemic: Hypotension, tachycardia, diaphoresis.

Treatment:

- Minimize activity
- Keep extremity at heart level
- Apply splint to extremity
- Remove all jewelry
- Identify snake if possible (dead snake can reflexively bite)
- Define an area above bite and measure extremity circumference every 15 minutes.
- Oxygen, via NRB mask at 12-15 liters
- IV, large bore, NS per ALS protocols for shock
- ECG monitor

* **Routine conditions:**

Procedure

- Use blunt forceps
- Grasp tick as close to the skin as possible, apply gentle, even pressure
- Do not crush or squeeze.
- After removal, cleanse site with disinfectant, soap and water.
- Warn person that if an area of redness occurs at site, any rash, fever or joint aches, obtain physician evaluation.

Note: Lyme disease cannot be transmitted if the tick is in place for less than 24 hours. In tick infested areas encourage personnel to check for ticks daily and remove immediately.

*** **Urgent conditions:**

1. Fever above 101.5° F
2. Flank pain
3. Vomiting
4. Urinary retention (inability to void beyond 8-10 hours)

* **Routine conditions:**

Dysuria (painful urination):

Treatment:

- Use urine dip stick, if available.
- If dip stick is normal, person may be treated with increasing oral fluids.
- If symptoms do not resolve in 24 hours, refer for physician evaluation.
- Pyridium 100mg po every 6-8hrs prn. NOTE: Counsel patient medication will turn urine orange

Cloudy Urine:

Treatment:

- Use urine dipstick, if available.
- If dipstick is normal, treat with increasing oral fluids.
- If symptoms do not resolve in 24 hours, refer for physician evaluation.

Dehydration

1. Symptoms begin to when approximately 2% of the body's weight has been lost due to water loss (about 1.5 liters)
2. Severe dehydration occurs at 10%
3. Fatal dehydration at between 20-30%

Prevention information

- Temperature less than 50^0 F drink at least 2 liters of water a day.
- In warmer weather, a minimum of 3-4 quarts a day should be consumed.
- Soda pop, hypertonic fluids, or other sugar drinks are not primary fluid replacement.
- Plain water also is not enough. People need electrolytes: sodium and potassium. Food sources are best.
- At 92^0F, the body relies upon evaporation (sweating) to provide cooling. In an acclimatized person, a two-hour period of work can result in 5% dehydration.

MHC
AUTHORIZED OVER THE COUNTER MEDICATIONS

Note: Although brand names are used in these protocols for ease of recognition, a generic equivalent may be used.

Aspirin:	Nonsteroidal anti-inflammatory and pain medicine. Can also be used to lower fever.
Auralgan:	Local anesthetic for use in the ear
Acetaminophen:	Used for pain or to lower fever. Will not help with elevated temperature from heat stroke. Causes liver damage in overdose.
	Decongestant
Antifungal cream	Tolfanate, Lotriman, miconazole, etc
Excedrin:	Medication containing acetaminophen, aspirin and caffeine. The caffeine can be helpful in relieving headaches, especially migraine type.
Ibuprofen:	Nonsteroidal anti-inflammatory pain medication. Can cause stomach upset. Should not be taken by people with ulcer disease or gastritis. Take with food. Do not exceed 2400 mg/day.
Imodium	Anti-diarrhea
Hydrocortisone cream	Steroid cream
Diphenhydramine (Benadryl):	Itching and allergic reactions. Sedating, it can be used for sleep. Persons using Benadryl should be cautioned about doing dangerous activities. Because it is anticholinergic, it should not be used with other antihistamines or decongestants.
Calamine:	Lotion or ointment which has a drying and soothing action for use on sunburn or poison oak, sumac or ivy.
Loradine (Claritan):	Non-sedating antihistamine. Can be used during day
Cerumenex; Dubrox:	Medication used to soften impacted ear wax

MHC
AUTHORIZED OVER THE COUNTER MEDICATIONS

Lotrimin:	Antifungal and anti-yeast medication. Comes in both skin and vaginal preparations. Be sure to use the right preparation in the right place!
Metamucil:	Fiber containing product. Can help with both constipation and diarrhea. There are many other brands of fiber agents. Must be mixed in at least 8 oz water.
Milk of Magnesia:	Medication for constipation. Will usually work in 8-12 hours.
Nix:	Treatment for lice
Nyquil:	Cold medication which contains alcohol and cannot be dispensed in a Fire Camp
Oil of Clove:	Local anesthetic for dental pain
Opthaine:	Local anesthetic for the eye. Can be used for temporary eye relief but should never be used repeatedly because it is a slight irritant and the eye cannot heal while using it.
PeptoBismol:	Used for diarrhea and stomach upset
Pyridium:	Local bladder anesthetic
Pseudoephedrine:	Decongestant. Because it is anticholinergic, it should not be used with other antihistamines or decongestants. CANNOT be used in Oregon because it is a prescription drug
Rix:	Treatment for lice infection
Robitussin DM:	Contains dextromethorphan, a cough suppressant and guiafesin, an expectorant. Note that some cough medications contain a decongestant as well and should be avoided if other decongestants are used.

ATHLETIC EVENT PROCEDURES AND CONSIDERATIONS

Procedures:

During athletic events the following changes in the response to incidents within the event occur:

1. If patient is classified at the Emergency, Urgent, or Semi-urgent level the technician on scene must request ALS ambulance backup.
2. If the patient refuses care or transport, a patient refusal form and patient care report must be completed.
3. There must be an adult guardian or parent present at all times during the athletic event that includes minors.
4. During athletic events, where an athletic trainer is present, the technician should provide care within the scope of the protocols, evaluate patients for serious injury/illness, provide access to further levels of care, and provide emergent interventions. Other patient care issues should be referred to the athletic trainer at the event.

Considerations:

Due to the nature of the athletic event, the technician should consider the following:

1. Co-location with the athletic trainer for the event
2. Designation of ambulance entry and exit for patient access
3. Notification to event officials of technician presence and procedure for access during event.
4. Delineation of ambulance request at the event
5. Utilize On-Line Medical Control for protocol deviations and patient refusal situations.

MEDICAL SYSTEM POLICY AND PROCEDURES

Section 1.0
The Roles and Responsibilities of the Supervising Physician.

(1) The EMS Supervising physician will fulfill the responsibilities as described in OAR 847-035:

(http://arcweb.sos.state.or.us/pages/rules/oars_800/oar_847/847_035.html)

(2) The EMS medial director of a licensed ambulance agency will fulfill the responsibilities as described in OAR 333-250, OAR 333-255 and OAR 333-265:

(http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_250.html)

(http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_255.html)

(http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_265.html)

SECTION 1.1

Scope of Practice OAR:847-035-0030

(1) The Oregon Medical Board has established a scope of practice for emergency and nonemergency care for emergency medical services providers. Emergency medical services providers may provide emergency and nonemergency care in the course of providing prehospital care as an incident of the operation of ambulance and as incidents of other public or private safety duties but is not limited to "emergency care" as defined in OAR 847-035-0001.

(2) The scope of practice for emergency medical services providers is the maximum functions which may be assigned to an emergency medical services provider by a Board-approved supervising physician. The scope of practice is not a set of statewide standing orders, protocols, or curriculum.

(3) Supervising physicians may not assign functions exceeding the scope of practice; however, they may limit the functions within the scope at their discretion.

(4) Standing orders for an individual emergency medical services provider may be requested by the Board or Authority and must be furnished upon request.

(5) An emergency medical services provider, including an EMR, may not function without assigned standing orders issued by a Board-approved supervising physician.

(6) An emergency medical services provider, acting through standing orders, must respect the patient's wishes including life-sustaining treatments. Physician-supervised emergency medical services providers must request and honor life-sustaining treatment orders executed by a physician, nurse practitioner or physician assistant if available. A patient with life-sustaining treatment orders always requires respect, comfort and hygienic care.

(7) Whenever possible, medications should be prepared by the emergency medical services provider who will administer the medication to the patient.

(8) EMS Providers shall always function within their scope of practice even if requested to do otherwise. EMS Providers operating under these standing orders have the scope of practice as described in current Oregon Administrative Rules (OAR) 847-035 and (OAR 333-265) and are expected to provide this level of care.

(http://arcweb.sos.state.or.us/pages/rules/oars_800/oar_847/847_035.html)

(http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_265.html)

SECTION 2.0
COMMUNICATIONS

2.1- MEDICAL CONTROL PROTOCOLS

2.1(a) OFF-LINE MEDICAL CONTROL-

Off-line medical control is considered to include the following:

- Standing orders approved by the Supervising Physician.
- Written patient orders and protocols pertaining to a specific transport.
- Peer review conferences.
- Educational programs.
- Quality Assurance case reviews.
- Individual evaluation, counseling, and advice concerning the care rendered to specific patients.

The primary authority for all off-line medical control shall rest with the state certified supervising physician for pre-hospital care personnel. The Emergency dept. medical director shall also engage in off-line medical control. The quality assurance plan will ensure that medical control activities are standardized. All pre-hospital care providers within ATAB 5 will function less than one set of trauma protocols as required by the Oregon State Health Division.

Medical Control may override written protocols when appropriate, such as:

- Directing medical care for patients within the pre-hospital care providers' scope of practice.
- Routing patients to a more appropriate hospital destination; considering multiple patients, HMO or health maintenance organization requirements, or patients needing specialty care (i.e. pediatrics, OB/GYN, trauma, ICU, or OR)

Contacting Medical control should not unnecessarily delay medical or surgical treatment.

2.1(b) ON-LINE MEDICAL CONTROL-

On-line medical control refers to direct radio and/or phone communication between pre-hospital care personnel and an emergency physician.

2.1(c) PHYSICIAN CONSULTATION -

Physician consultation refers to direct contact with an emergency room physician or primary care physician via radio and/or phone. The consultation with the physician by pre-hospital staff should be done anytime there arises a question in regards to patient care, or the standing orders dictate (i.e. drug administration). The consult should be brief and to the point. The following outline should be used:

- Identify yourself and agency.
- Identify patient name.
- Identify chief complaint or problem.
- Give pertinent findings (Vital signs, ECG reading, Physical assessment, etc.)
- Explain what you want to do and why.
- Be prepared to answer the question "why will this be beneficial?"

Once you have initiated a consultation, it must be documented along with any orders received on a PCR. If the emergency room physician is unaware of the standing orders and/or scope of practice and advises a procedure or therapy that violates either, then advise the physician in a polite manner that you are unable to do so and why.

2.2 DISPATCH

Using dispatch as an intermediate resource between pre-hospital care personnel and hospital staff should be **avoided whenever possible**. Dispatch personnel are not trained on pre-hospital terminology or treatment guidelines. When faced with no other option, the following outline should be used:

Medical (e.g. STEMI, Stroke)

- Advise Dispatch "Emergency Traffic, unit ID#"
- Advise 'STEMI' or 'Stroke' Activation
- Advise receiving hospital
- Advise age of patient
- Advise ETA
- Ask, "Any Questions?"
- Await an answer, and provide information as needed.

Trauma

- Advise Dispatch "Emergency Traffic, unit ID#"
- Advise Trauma systems entry.
- Advise Receiving Hospital.
- Advise Entry Criteria.
- Advise ETA.
- Ask, "Any Questions?"
- Await an answer, and provide information as needed.

Information should be short and to the point. Speak in a calm and clear manner. Be prepared to spell medications. Avoid unnecessary, prolonged "Med-Net" type responses.
Dispatch may be utilized for systems of care notifications when resources on scene are inadequate to provide patient care and cell phone notification of system activation. This is only applicable to systems of care for which this is established: STEMI, Trauma, and Stroke. The pre-hospital provider shall use the above format in communicating the system activation. The dispatch center will relay via phone the information provided to the receiving facility.

2.3 MED-NET

The purpose of contacting the receiving hospital is to provide notification to the facility prior to the arrival of an emergency patient. The report should be short and concise providing enough information so that the hospital will have a general idea of the patient's condition, and type of injury or illness. In order to minimize airtime, reports should be limited to 60 seconds. The Med Net report is not designed to be a full patient report. The report should only relay pertinent patient information. Patient identification information, "code words", or communicable disease status is not appropriate to be given over Med Net. Patient initials may be given for direct admission and routine transfer patients. When using Med Net, the following outline should be used:

1. Receiving hospital from agency-unit # (i.e.: Three River Hospital – AMR Medic 3).
2. Code to facility
3. Patient age, sex & Physician
4. Chief Complaint
5. Subjective & Objective findings
6. Treatment
7. ETA
8. "Any Questions?"

All emergency departments and pre-hospital care providers operating under the protocols of these standing orders shall maintain radio communication equipment that meets the standards of the Oregon State Health Division. All first response units will have Med Net primary (155.340) and all transport capable vehicles will have Med Net primary and secondary (155.340 &155.400).

Annual review of the policies concerning the medical control system shall be the responsibility of ATAB 5 (Area Trauma Advisor Board). Peer review case references will be used at each facility participating in the trauma system. Any difficulties or problems that arise within the medical control system shall be communicated to ATAB 5 for clarification and/ or resolution.

SECTION 3.0
RESPONSE / ONSCENE PROTOCOLS

3.1 PROCEDURE FOR CANCELLATION OR DOWNGRADING RESPONSE:

- BLS EMRs/ QRT's may downgrade ambulance response when they determine after initial assessment, that the patient does not require ALS treatment. They may also downgrade or cancel ambulance response if the patient refuses treatment or transport and meets the criteria for refusal of treatment as defined under the non-transport guidelines.
- ALS EMRs/ QRT's may downgrade ambulance response when they determine after initial assessment that the patient's condition is stable, or will be stabilized prior to the ambulances arrival. They may also downgrade or cancel ambulance response if the patient refuses treatment or transport and meets the criteria for refusal of treatment as defined under the non-transport guidelines.
- Law enforcement units should not cancel all EMS response, unless there is nothing found or there are no patients or victims at the scene.
- Law enforcement units may downgrade EMS response when a patient is identified as needing first aid only. (Minor bandaging and simple splinting are examples). Law enforcement units may also downgrade response if it is deemed that such a response may compromise officer or public safety if the scene is unsafe or a crime scene.

3.2 PRIMARY CARE OF THE PATIENT DURING TRANSPORT BASED ON CHIEF COMPLAINT

What follows is a conservative list of what patients an EMT, AEMT, or EMT-I can be the primary care provider for during transport. Once again, this is **not an all-inclusive list**; if there is a question on-scene whether something is ALS or BLS it is ALS and the paramedic will maintain primary care during transport. Please put your patients first.

Any patient >8 years of age, without concern for obstetric complaint/etiology, and/or meets the following criteria:

1. Interfacility transport going to a lower level of care or home of a stable patient
2. A long-distance transport of a stable patient requiring no interventions other than patient evaluation and vital signs.
3. Any patient with a simple fracture or sprain that does not involve a long bone or suspected hip, and who is adamantly refusing pain medications, and does not show any signs of shock.
4. Any patient with lacerations with bleeding controlled if penetrating trauma beyond soft tissue is not suspected and no signs of shock.
5. General illness complaints (i.e. flu-like symptoms, cough, runny nose, cold symptoms) without signs of shock or altered level of consciousness.
6. Patients complaining of minor neck or back pain who are neurologically intact, without a traumatic distraction injury or the presence of drugs/ intoxicants and no altered level of consciousness.
7. Minor external trauma, bleeding or bruising (i.e. epistaxis, abrasions, hematoma's, evulsions, etc.) that is controlled without signs of shock, does not require pain management, or a result of hypertension, and was not a result of an underlying ALS condition (i.e. syncope, CVA, TIA, GI bleed, suspected cardiac event)
8. Constipation or diarrhea without signs of hypotension.
9. 1st degree burns <20% of body surface area and refusing pain management
10. Meets mobile health care criteria, and does not require ALS management of the complaint (i.e. tetanus shot)

As a reminder all EMT's are required to justify in their patient care report why they are the primary technician through thorough documentation of pertinent clinical negatives as well as documentation that a complete ALS assessment was done to rule out an occult condition leading to the current complaint.

3.3 ON SCENE AUTHORITY

At times multiple agencies will be responding to the same event. To avoid the potential of conflict, the following guideline will be used to determine on-scene authority:

1. The highest level EMT will be in charge of determining the direction of patient care.
2. Once the transporting agency has arrived, a brief report and transfer of care to the transporting paramedic will occur, and the transporting paramedic will assume the direction of patient care.
3. Should a conflict in patient care direction occur, contact on-line medical control immediately for direction. If unable to contact medical control, care will default to the transporting paramedic.

Section 4.0
CRIME SCENE / HIGH RISK RESPONSE

4.1 CRIME SCENE RESPONSE

Law enforcement agencies stress that their first interest on any crime scene is the preservation of life. Effective reconstruction of the crime scene must follow. EMS personnel can be of assistance by adhering to the following guidelines regarding crime scene response.

4.1(a) RESPONSE AND ARRIVAL:

1. EMS units responding to the scene of a reported crime will be advised by the communications center about the nature of the incident and whether staging will be required. If staging is required, follow the high-risk response protocol.
2. As EMS and fire units move into location, they should be aware of possible physical evidence and weather conditions around the site. Tire tracks of suspect vehicles are often located in, or adjacent to, the driveway. Driving units over these tracks can obliterate potentially significant evidence.
3. In any crime scene response, it is important to limit the number of personnel allowed into the scene. It may be advantageous to have one of the EMS personnel consult with the police on scene. Then direct placement of vehicles and personnel response into the scene.

4.1(b) ACCESS AND TREATMENT

1. When entering the area where the victim is located, it is of great importance for EMS personnel to select a single route to the victim. Maintaining a single route decreases the chances of altering, destroying, or tracking blood over a suspect's footprints.
2. When moving toward the victim, it is important to note the location of furniture, weapons, and other articles. Avoid disturbing them when possible. If you need to move anything, note the location of the item and who moved it. Also, note where the item was moved. Report the actions to the police officer in charge
3. Leave all medical debris at the scene except sharps.
4. Be conscientious of any statements made by the victim and/or other parties at the crime scene. As soon as possible, write what these statements were and report to the investigating officers.
5. In treating the victim of a crime, it is important to note the specific garments worn by the patient at the time of treatment. It is also very important that EMS personnel do not, if at all possible, tear the clothing, cut through any holes, whether made by a knife, bullet or other object.

4.2 CRIME SCENE DOCUMENTATION

A detailed report that covers your involvement at the crime scene is important in case you are later called to testify in court. This narrative should cover your observations and conversations with the family and/or persons present at the scene. Document location of response vehicles, equipment, furniture, weapons or clothing that has been moved. Next, document any items that were handled by EMS responders. Then document your route to the victim. Avoid offering your opinions. It is best to actually quote the persons statements if possible. This narrative should be a separate document from your PCR.

4.2(a) POTENTIAL CRIME SCENES

The following are list of potential crime scenes. EMS providers should be alert when responding on these types of calls.

- Deaths
- Assaults
- Work accidents
- Fires
- Domestic violence
- Behavioral
- MVA's
- Suicide attempts
- Drug related

These are not all the possible scenes, just a few examples. If any EMS responder thinks something is not right, report it immediately to law enforcement.

4.3 STAGING POLICY FOR HIGH-RISK RESPONSE

The purpose of this protocol is to establish guidelines for the response of EMS responders to incidents that involve violence or are anticipated to be potentially violent in nature. Violent incidents are defined as, but not limited to, assaults, shootings, stabbings, or any other type of incident. Staging is required when advised by dispatch and/or the EMS responders feel their safety is in question. These guidelines do not supersede individual agency policy or procedure on staging for high risk response. If there is any question, follow your agency's policy /procedures.

4.3(a) Staging procedure

Medical units shall stage on the following:

1. Any time dispatch directs responders to do so.
2. Any time a violent incident might expose medical responders to danger.
3. Any call at the medical unit's discretion. If the responding unit decides to stage, all other responding units will stage.
4. If the scene you are responding to is a known or suspected hazardous materials situation (based on information from dispatch) stage and wait for the hazardous materials personnel.
5. When you have arrived on scene and find out that hazardous materials are involved, stage and wait for the hazardous materials personnel.

4.3(b) Staging Policy

When staging:

1. Stage approximately four blocks from the incident address and out of the line of site (or scope).
2. Avoid traveling past the incident location.
3. Advise dispatch you are staged. Do not give your location.
4. Additional responding units will also stage.
5. Unless deemed a traffic hazard, turn off headlights and all warning devices. Avoid using the cab or map light.
6. Once staged, no unit will enter the scene until it is secured by police.
7. Dispatch will advise when you are clear to respond in.

4.3 STAGING POLICY FOR HIGH-RISK RESPONSE - continued

IMPORTANT: It shall not be assumed that the mere presence of police on scene means that medical responders may now proceed safely into the scene. Once police are on scene, verify with dispatch that it is clear for medical units to respond into the scene.

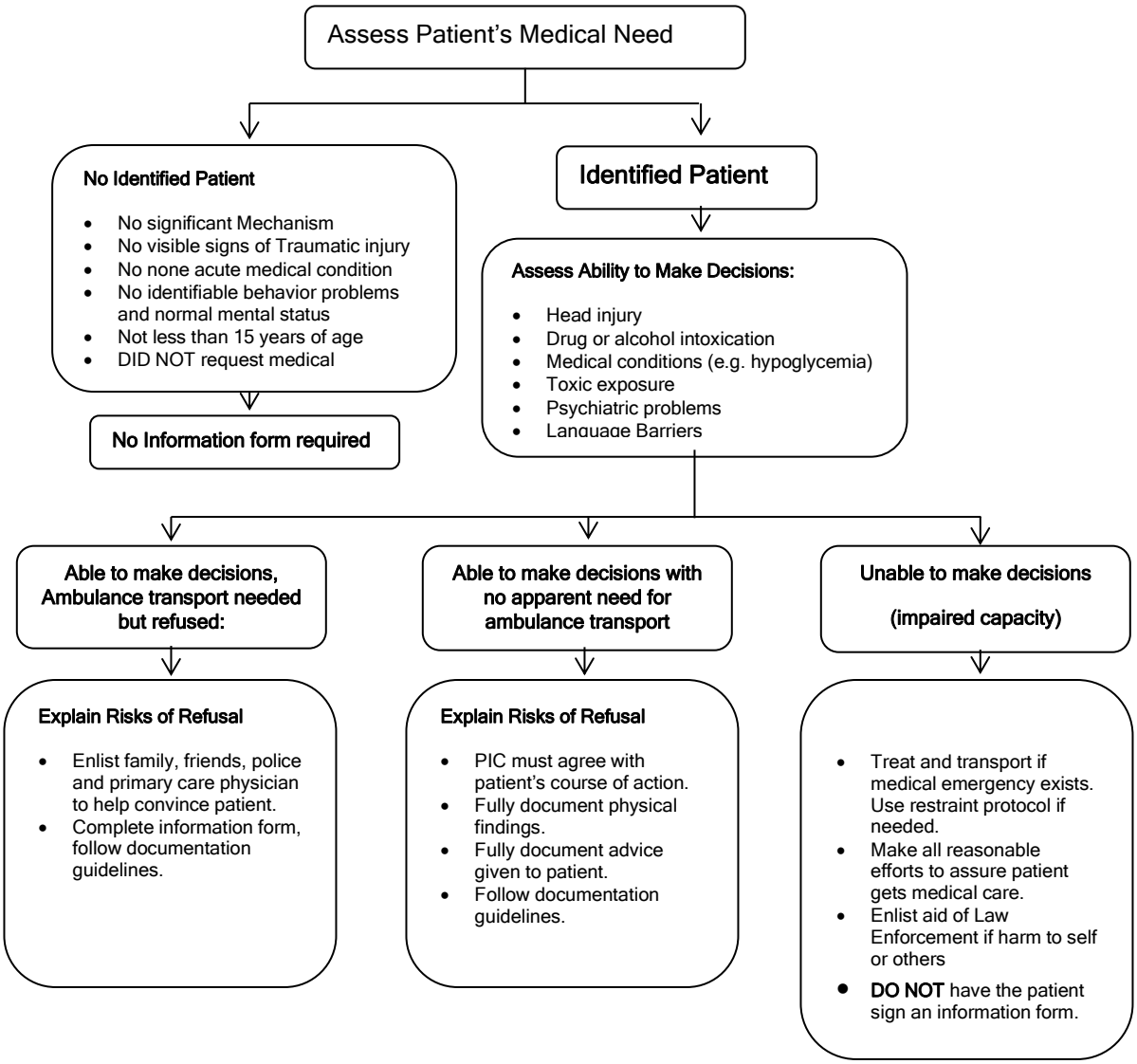
If no law enforcement is available, and the scene has been cleared by another agency, then the transporting agency, at their discretion, may enter the scene. If the scene is still deemed dangerous the transporting agency can coordinate with the on-scene IC to extricate the patient to a safer place to facilitate transport.

SECTION 5.0
TRANSPORT AND NON-TRANSPORT GUIDELINES

Before the termination of the Healthcare Professional/ patient relationship all of the following items will be evaluated, then specifically documented on the PHCR.

1. Physical examination performed including full set of vital signs (i.e. complete blood pressure, pulse, respiratory rate) or the patient's refusal of consent to an examination and vital signs are fully documented on the PHCR.
2. History of event and past medical history, including medications.
3. Patient or decision-maker determined to be capable of refusing medical treatment and/or transport. If patient is a minor or incompetent adult, assure that a legal guardian or person able to make healthcare decisions for the individual is refusing care.
4. Risks of refusal of medical treatment and transportation explained to patient or responsible party.
5. Benefits of medical treatment and transportation explained.
6. Patient clearly offered medical treatment and transportation.
7. Refusal Information Form completed and explained to patient. To include patient signature when possible.
8. Patient confirmed to have a meaningful understanding of the risks and benefits involved in the healthcare decision.
9. Patient advised to seek medical attention for complaint(s).
10. Patient advised to call 911 for medical assistance if condition continues or worsens.
11. Patient's primary physician was contacted for advice / direction if the patient had an ALS suspected medical illness or chief complaint.
12. Supervisor was notified if an unusual termination of the healthcare professional/patient relationship occurred.

REFUSAL AND INFORMED CONSENT FLOWCHART



Minimum Documentation:

For all identified patients

- General appearance and level of consciousness
- History, **VITAL SIGNS**, physical exam
- Assessment of patients decision-making capacity
- Any risks that were explained to the patient

5.1 REFUSAL OF TREATMENT

If a conscious patient who is rational, calm, alert, and age fifteen or older refuses treatment, it is appropriate to comply with the patient's request (*utilize the above algorithm*). This should be documented and the refusing party should be asked to sign the appropriate refusal information form. If the patient is irrational either emotionally or mentally, is under the influence of intoxicants or drugs, or if the refusal of treatment will likely end in harm. Contact the patients' primary care physician for medical direction. Law enforcement officials can be of benefit when dealing with irrational people who might further harm themselves or others by refusing transportation. Fully document all actions and means of determining the patient's competence. The EMT shall explain the risks and benefits of treatment and transport to the patient and any concerned family members using the 12-Step program.

5.1(a) MINORS - any patient under the age of fifteen is considered a minor for medical decisions. As a minor, patients in this category are unable to refuse transport unless they are emancipated. When faced with a minor who is refusing transport and is rational, hemodynamically stable, and has no apparent injury, a parent or legal guardian must be contacted. The parent or legal guardian must be present to sign all appropriate refusal information as well as having all the risks of refusing transport explained to them. Law Enforcement may also be of benefit and can legally take the minor into custody in the absence of a parent or legal guardian.

5.2 DEATH IN THE FIELD

Withholding resuscitative efforts should be considered under the following conditions:

- Patient qualifies as a "DNR" (see DNR protocol)
- A pulseless and apneic patient in a multiple casualty incident where the resources of the system are required for the stabilization of the living patients.
- Decapitation.
- Rigor Mortis in a warm environment.
- Decomposition.
- Venous pooling in dependent body parts (dependent lividity).
- Penetrating head wound with no vital signs.
- Blunt Trauma with no vital signs (pulseless/ apneic, fixed and dilated pupils).

The victim of non-traumatic cardiac arrest should not be determined to be dead on the scene unless the patent has been unresponsive to appropriate ACLS resuscitative measures, such as:

- Patients found in Asystole, confirmed in at least two leads, may be determined to be dead at the scene.
- Patients found in Pulseless Electrical Activity (PEA) who have not responded to initial ACLS therapy for PEA, may be determined to be dead at the scene.

All hypothermic patients and cold-water drowning should have resuscitative efforts begun, and transported to the hospital. Remember, in these situations a patient is not considered dead until rewarming measures have been performed.

Lightning strikes and Electrocution should have EKG and Cardiac Monitoring performed. If patient has no cardiac activity patient may be considered as Death in the Field. If any activity on EKG or Cardiac Monitor initiate resuscitative efforts and transport.

5.3 DO NOT RESUSCITATE ORDERS AND LIVING WILLS

The goal of EMS is to provide comfort and emotional support with the highest quality of medical care to patient and family in conformity with the highest ethical and medical standards. Unless a DNR order or living will is present at the time of cardiopulmonary arrest and follows the protocol outlined, any patient who sustains a cardiopulmonary arrest will receive full resuscitative efforts with the objective of restoring life unless obvious signs of death are present as outlined under the Death in the Field protocol.

A DNR order is issued by a physician directing that in the event the patient suffers a cardiopulmonary arrest, resuscitative measures will not be administered. Resuscitation includes attempts to restore failed cardiac and/or ventilatory function by procedures such as intubation, mechanical ventilation, external chest compression, and defibrillation.

A living will is a document prepared by the patient outlining the type of care and resuscitative efforts they would like should they be unable to make those decisions due to death or serious illness and/or injury.

When the patient's family, friends or nursing staff states the patient has a DNR/ living will the following guideline for treatment should be used:

1. BLS/CPR protocols at the EMR & EMT level will be followed while attempts to determine if a written DNR order/ living will is in the patient's medical file.
2. In the absence of a written DNR order/ living will, call the attending MD or (if not readily available) medical control for a verbal DNR order.

The DNR order/living will shall be documented on the PCR.

5.3(a) The Following procedures should not be performed on a patient who is the subject of a confirmed DNR order, and who is pulseless and apneic:

- CPR
- Endotracheal intubation
- Defibrillation
- Assistance with ventilation/ oxygenation
- Oral/Nasal Airways
- Suction
- IV lines or fluids
- Medications, including oxygen
- Cardiac monitoring

Those patients with a confirmed living will have the treatment they expect outlined in their will. The treatment should be followed to the best of the EMR/EMT's ability without deviating from their scope of practice or standing orders. Any conflict with treatments outlined in a patient's living will should be immediately addressed with either medical control or the patient's primary care physician.

5.4 DOCUMENTATION

All patient care provided should be documented with procedures and corresponding times on a PHCR, whether written or electronic. In non-traumatic deaths, all stopped resuscitation cases will have an ECG strip attached to the PHCR. Finally, all conversations with primary care physicians and/or medical control should be fully documented with the MD's name, time and instructions.

Section 6.0
INTERFACILITY TRANSPORTS

6.1 CRITICAL PATIENTS

Any critically ill or injured patient that needs additional personnel to adequately treat and/or stabilize during transport will be provided by the transporting agency when possible. This will be most commonly seen with the intubated patient. The paramedic should make sure that all medical staff that are with the patient in the treatment compartment are given a briefing on where supplies can be found. This should include airway adjuncts medications, and cardiac supplies. Although the paramedic is in charge of the MICU, there will be occasion where a RN or Physician accompanies the patient. Unless stated otherwise, these individuals are continuing patient care during the transfer and will assume the "lead" role. The paramedic will be in a support role, helping with patient care. If at any time EMS personnel are asked to transport a critically ill or injured patient either without additional resources, or are told they don't have resources available, then the on-duty supervisor should be contacted immediately. It is also assumed that a paramedic may ask for additional resources anytime they feel that it is needed to ensure quality patient care during transport.

6.2 TRANSFERS VS EMT SCOPE OF PRACTICE

It is the desire to ensure that all patients receive the highest level of patient care at all times. Although there are times when a patient meets the state definition of an EMT's scope of practice, it must be realized that this is in response to that level of EMT being the highest EMT on the unit (i.e. 2 basics, or a basic and EMR). **When on an ALS unit, it is desired to always have the highest technician in charge of patient care**. To ensure this, the paramedic must be the technician on all transfers that meet the following criteria:

- Pt. is a critical patient.
- Pt. Requires ECG monitoring or pacing.
- Pt. is on a medication pump of any kind or requires drug administration.
- Pt. is intubated or requires airway care.
- Any OB/GYN patient.
- Any post-surgical patient where serious complications may occur.
- Pt. requires, or may require, pain management through the use of medication(s).

An EMT-Intermediate may be the technician in the back with patients that do not exceed the following criteria:

- Pt. is stable and will remain so.
- Has an IV without medication being infused.
- Pt. has a saline lock.
- Pt. is on oxygen, but not in respiratory distress.

An EMT- Basic may be the technician in the back with patients that do not exceed the following criteria:

- Pt. is stable and will remain so.
- Pt. is on oxygen but is not in respiratory distress.
- Pt. has a Foley catheter.
- Pt. has stabilized fractures that do not require drug administration.

If presented with a patient that does not fit within these defined parameters, the paramedic will be the technician.

6.3 IV & PCP PUMPS

EMS personnel presented with patients who have IV medication pumps need to know the following:

- Technician must have a basic understanding of how the pump works.
  1. Must know how to clear the line of air/obstructions.
  2. Must be able to change volume infused as necessary.
  3. Must be able to effectively troubleshoot problems as they arise.
  4. Must know the drug, concentration and amount to be infused.
  5. Be familiar with the medication transfer protocols.

- When dealing with PCP pumps the technician must*:*
  1. Make sure the nursing staff provide a key to BOTH locks for access should it require it. DO NOT take a PCP pump unless the staff provides you with a key.
  2. Know the medication being infused, why, and the dose.
  3. Know how often the medication is being administered.

Section 7.0
TRAUMA PROTOCOL

7.1 TRANSPORT OF THE TRAUMA PATIENT

OAR 333-200-080(4) defines triage and transportation guidelines for the trauma patient:

"Triage and transportation protocols shall be written which assure that patients who meet triage criteria as set forth in these in exhibit II will be directly transported to a level I or 2 hospital as described under OAR 333-200-090(1) unless otherwise advised by on-line medical control or under the following circumstances:

(b) If unable to establish and maintain an adequate airway, the patient should go to the nearest hospital to obtain definitive airway control;

(c) Level 3 hospital may be appropriate if the expected scene time and transport time to a level 2 or 1 hospital is greater than 30 minutes and transport time to the level 3 hospital is less than the transport time to the higher level hospital;

(d) Level 4 hospital may be appropriate for immediate evaluation and stabilization if the expected transport time to a level 3,2, or 1 hospital is greater than 30 minutes and the transport time to the level 4 hospital is less than the transport time to the higher level hospital;

(e) Medical control may override these standards when appropriate, such as when a hospital is unable to meet hospital resource standards as defined in exhibit III of these rules, when multiple patients are involved, or patient needs specialty care. Medical control may override these standards for patients with special circumstances, such as a membership in a health maintenance organization, if the patient's condition permits; and

(f) Application of subsections (b), (c), and (d) of this section should not unnecessarily delay medical or surgical treatment."

7.2 DIRECT TRANSPORT OF THE TRAUMA PATIENT TO RRMC

There are some circumstances when a trauma patient may be taken directly to RRMC or Providence Hospital. This is usually a patient who does not need immediate surgical intervention, or that requires subspecialty care or surgical facilities not present at TRMC. It is understood that most EMS personnel are aware of which trauma patients will end up at RRMC. To this end, transporting directly to RRMC can save a substantial amount of time.

The receiving facility should be notified at time of Trauma System activation in the field and provided with estimated arrival time. When in doubt on-line medical control should be attempted.

The following is a list of injuries that will be grounds for a direct transport to RRMC:

- Pregnancy - > 20 weeks estimated gestational age
- Pediatric - age 2 or under
- Penetrating chest injury - level of the clavicles to level of the umbilicus
- ***A patient who may need urgent neurosurgical services by having any one of:***
  - Suspected isolated head injury,
  - penetrating injury of the head,
  - open or depressed skull fracture, or
  - Spinal cord injury with limb paralysis.
  - GCS ≤8 and actively seizing or one or more of the following signs of brain herniation are present:
    - Fixed or asymmetric pupils
    - Abnormal flexion or extension (neurologic posturing)
    - Hypertension and bradycardia (Cushing's Reflex)
    - Intermittent apnea
    - Further decrease in GCS by 2 or more points (neurologic deterioration)

7.3 SCENE TIME

Pre-Hospital care has been allotted 10 minutes of the 60-minute "golden hour" to perform Initial treatment for life threatening injuries and then transport. For most of EMS personnel 10 minutes is the number by which effective trauma scene management is gauged. It should be noted, however, That EMS providers are not given 10 minutes for every trauma call they respond on. Instead, providers should approach trauma patients from the angle that rapid transport to an awaiting surgical team is the only true life saving measure for the trauma patient. With this in mind, scene time should be based on how soon you can transport. If it can be done in less than 10 minutes, this is optimal. However there will always be scenes that go beyond the "10 minute" window do to extraneous circumstances, such as heavy extrication, or prolonged rescues. EMS providers should initiate rapid assessment, treat life-threatening emergencies, provide spinal immobilization, and transport. All other measures should be done enroute to the designated trauma hospital.

7.4 AIR MEDICAL HELICOPTER USE AND ACTIVATION

The use of air-medical helicopter transport should be limited to those patients whose critical nature of illness or injury requires immediate transport to either RRMC or Providence and a ground transport time to either facility would be greater than 45 minutes. It is understood that patient care in the aero-medical environment is very difficult and that an air ambulance simply provides a quicker mode of transport when indicated and that helicopter transport is not without risk to the patient and providers. With the exception of a declared disaster or MPS/ MCI helicopter activation within the city limits of Grants Pass is not authorized. Additionally, the following criteria will also be followed when using / requesting a helicopter:

1. All air ambulance requests will be done through Josephine County 911 dispatch only.
2. The default primary air ambulance service will be any Josephine County or Jackson County based air ambulance service with the closest response based on proximity to the patient location. If the primary provider is unavailable notification will be made to dispatch as outlined and the next closest air ambulance will be dispatched.
3. Requests for air ambulance resource(s) shall be placed by the incident commander to dispatch pending recommendation by the lead paramedic on scene conducting patient treatment. Air ambulance standby can be made prior to arrival of first responder resources by the primary medic unit responding based on incident information provided by dispatch.
4. The default air ambulance service provider is to communicate availability status updates to dispatch of any delays of availability of 15 minutes or more or if the aircraft is out of position for closest response. Examples would include, but not be limited to, the aircraft being out of standby position (primary county), mission commitment, scheduled maintenance etc. Dispatch will place the resource on divert status and the next closest available air ambulance resource is placed in default status. Changes in availability or divert status will also be simulcast at the time of occurrence.
5. The lead medic, incident commander or dispatch supervisor may facilitate the provision of a written narrative to the supervising physician using their chain of command for incidents involving questionable practices or conduct by an air ambulance provider within 72 hours of the event. The supervising physician will follow up reporting to the affected first response agency(s), EMS Board, and the Board of County commissioners as they deem appropriate and necessary.

SECTION 8.0
HOSPITAL DIVERT SYSTEM PROTOCOL

The Diversion system was developed to indicate the ability of Three Rivers Community Hospital Emergency Department and other specific areas to accept patients transported by ambulance. This procedure clarifies the types of patients defined by each category.

Use of the Diversion System:

The diversion system will be used to help determine a destination hospital for all 9-1-1 dispatched ambulances. Interfacility transports (IFT) will not be included in which hospital destination is determined by physician to physician communication.

Activation of Diversion:

EMS personnel will receive notification from 9-1-1 that TRCH has gone on divert and at what level. If you are en route to TRCH and are advised of divert you will be allowed to complete your transport. If you have any questions contact the ED for clarification and see if by diverting to an out of the area hospital would be the most appropriate treatment for your patient.

Levels of Diversion:

Level one:

Once the decision has been made to go on divert, Glendale and Rogue River patients will need to be diverted to Douglas or Jackson County Hospitals respectively.

TRMC will contact ECSO, JoCo 911 and Douglas County dispatch centers. AMR and mutual aid agencies will still be able to transport to TRCH under level one from Josephine County Addresses only.

Level Two:

The ED is unable to accept any patient (adult or pediatric) transported from a 911 EMS call.

This will be a total ambulance divert (TAD).

TRMC will contact ECSO, JoCo 911, and Douglas County dispatch centers and the AMR Supervisor to advise TAD.

Only Exceptions to Total Ambulance Divert:

- Patient with uncontrolled airway
- All Trauma patients who do not meet bypass criteria or need urgent stabilization.
- Non-trauma patient too unstable to transport to another facility
- CVA activation
- Patient refuses alternate facility
- Prearranged inter-facility transfer (IFT)
- OB patients greater than 20 weeks gestation with OB complaint
- Ambulance en route prior to diversion decision

CT scan divert: If the CT is down or unavailable

- Any brain CT (i.e. stroke, acute neurological deficit)
- Suspected aortic aneurysm (including abdominal and or thoracic)
- Isolated abdominal injury – which would not otherwise meet criteria for trauma system entry.

If questions arise about hospital divert and patient condition, EMS personnel need to call in for on-line medical control consultation and direction.

8.1 COMMUNICATING WITH THE PATIENT REGARDING A TAD:

When you receive the information that TRCH is on TAD, you will need to communicate the situation to your patient and family members if applicable. Inform them that the hospital in not able to accept them at this point due to patient volume, and that they could have an extended waiting time, approximately 1-2 hours or more should they still want to be seen at TRCH. If they still insist contact TRCH and inform them of the situation refer to the exception to TAD.

Make every effort to try and convince the patient to be seen at another facility. It is in the patient's best interest to be transferred to the next available hospital.

SECTION 9.0
DESTINATION PROTOCOL

Purpose:
This protocol is for ground ambulance transports in the prehospital setting to assist in transporting the patient to the most appropriate receiving facility, while considering the patient's preference.

Criteria:
All patients, in the prehospital setting, who require ambulance transport to a receiving facility.

Exclusion Criteria:
Inter-facility transport – Patients who are being transported from one acute care hospital to another.
Procedure:

Patients transported from prehospital setting

Transport to closest hospital - Unless specifically permitted by this protocol, patients transported by ambulance shall be transported to the closest receiving facility.

Exceptions:

Patient choice exception -

There may be many reasons why a patient may choose one facility over another, these may include but are not limited to, preexisting relationship with a physician, medical service availability (e.g. a dialysis service, urologic service) or follow up care. Transport by ambulance to a facility other than the closest receiving facility is permitted if the patient or other person with legal authority to act for the patient (hereafter "legal representative") expresses a preference for transport to a different facility. This is subject to the following:
b. The patient's choice must be reasonable. EMS agencies are not required to transport patients to more distant facilities to accommodate a patient's choice if the additional transport distance is not reasonable. Ie. Transport outside of Jackson and Josephine counties.

Multiple/mass casualty incidents (MCI)

This does not imply that all patients in an MCI must be transported to the closest hospital. At a mass casualty incident, individuals within the incident command structure should communicate with area receiving facilities to determine the capacity for patients at each center and should distribute patients as appropriate.
Weather conditions exception.

Severe Weather Conditions exception

Severe weather conditions, as determined by the EMS vehicle operator and provider or by the EMS agency management, may make it hazardous to transport the patient to some of the agency's usual receiving facility. In this case, agencies may choose to restrict transportation to the closest receiving facility that can be reached safely.

Time Critical Diagnosis (Stroke, STEMI, Trauma) exception

Josephine County Treatment Protocols Ambulances shall transport patients in these circumstances to the appropriate destination per existing protocols. Prompt treatment for serious injuries reduces disability and improves outcomes. The goal of EMS providers is to get the right patient to the right facility.
If expected specialty care is not available at closest facility and patient is stable. Consider transfer to alternate facility for patients with high probability of hip fracture based on mechanism and exam or significant orthopedic trauma (ex. open fracture) expected to need surgical services.

Closest receiving facility on "diversion" exception

An ambulance may transport a patient to the next closest receiving facility if the closest center is on "divert". The ambulance service may not consider a receiving facility to be on divert unless that facility has notified the ground ambulance service of the divert condition through AMR dispatch.

Closest receiving facility does not have services expected

Known dialysis patients who report chest pain, meet Sepsis criteria, or demonstrate evidence of fluid overload and require oxygen would benefit from a facility with access to dialysis. Additionally, stable patients who report or demonstrate hematemesis with a known history of esophageal varices would benefit from a facility with GI services. Dialysis, GI and Urology are not available at TRMC at this time.

Medical Control exception

Transport by ambulance to a facility other than the closest facility if directed by a medical control physician due to circumstances that lead the medical control physician to reasonably perceive that transport to an alternate facility is in the patient's best interest. This may occur in the following situations:
a. The medical control physician determines that anticipated specialty care is not available at the closest receiving facility (e.g. dialysis, urologic care, neurosurgical care, hyperbaric oxygen, specialty pediatric care, or lack of on call services, etc.) and the patient is stable for transfer to an alternate facility. The goal is to avoid a delay in anticipated care that could lead to adverse outcomes for the patient.
b. If the provider of an ambulance has any question regarding the facility to which a patient is to be transported or whether the patient is stable enough for transportation to a further facility that has been requested by the patient or his/her legal representative, the provider may contact medical control for assistance.

Contact with receiving facility

Communicate with the receiving facility as soon as possible to provide patient information and an estimated time of arrival. Provide this information to the receiving facility as soon as possible since the information may affect the mobilization of various resources within the facility in preparation for the arrival of the patient.

Josephine County Approved EMS Abbreviations

ā	before
A-FIB	atrial fibrillation
AAA	abdominal aortic aneurysm
ABD	abdomen
AMA	against medical advice
ASA	aspirin
ASAP	as soon as possible
BBB	bundle branch block
bm	bowel movement
BP	blood pressure
BS	breath sounds
BT	bowel tones
BVM	bag valve masks
°C	Clesius/centigrade
	with
CA	cancer
CABG	coronary artery bypass graft
cc	cubic centimeter
C/C	chief complain
CHI	closed head injury
cm	centimeter
cms	circulation, motor, sensory
csm	circulation, sensory, motor
CO	carbon monoxide
C/O	complains of
CO_2	carbon dioxide
COA	conscious, oriented, alert
CBG	capillary blood glucose
CBS	capillary blood sugar
COPD	chronic obstructive pulmonary disease
CP	chest pain or cerebral palsy
CSF	cerebral spinal fluid
CPR	cardiopulmonary resuscitation
CT	computerized tomography
CVA	cerebral vascular accident
Cx	neck or cervix
D/C	discontinue
dig	digoxin
DM	diabetes mellitus
DOA	dead on arrival
DOE	dyspnea on exertion
DT's	delirium tremens
Dx	diagnosis
EBL	estimated blood loss
ECG	electrocardiogram
EJ	external jugular
EKG	electrocardiogram
ET	endotracheal
ETOH	ethyl alcohol
f,	female
°F	fahrenheit
FB	foreign body
Fe	iron
FHR	fetal heart rate
FHT	fetal heart tones
fib	fibrillation

Fr	french
Fx	fracture
ga	gauge
GCS	Glasgow coma score
G_P_	gravida/parity
GI	gastroinstestinal
gm	gram
grav	pregnancies/gravida
GSW	gunshot wound
gtt	drops
GU	genitourinary
GYN	gynecological
hr	hour
H_20	water
H&P	history and physical
HS	bedtime
HTN	hypertension
Hx	history
IDDM	insulin dependent diabetes mellitus
IM	intramuscular
IO	intraosseous
irreg	irregular
IV	intravenous
J	joules
JVD	jugular venous distension
kg	kilogram
lb	pound
LBP	low back pain
LLQ	lower left quadrant
l/min	liters per min
LMP	last menstrual period
LOC	level of consciousness
LUQ	left upper quadrant
m,	male
MAE	moves all extremities
mcg	microgram
meq	milli-equivalent
mg	milligram
$MgSO_4$	magnesium sulfate
MI	myocardial infarction
min	minute(s)
MS	morphine sulfate
MVC	motor vehicle crash
N/A	not applicable
N&V	nausea and vomiting
Na	sodium
NaCl	sodium chloride
NG	nasogastric
N/V/D	nausea, vomiting, diarrhea
neg	negative
noc	night
NPA	nasopharyngeal airway
NPO	nothing by mouth
NS	normal saline
NSR	normal sinus rhythm
NTG	nitroglycerin
OG	orogastric tube
OPA	oropharyngeal airway
oz	ounce
O_2	oxygen
P	pulse or heart rate
	after

PAC	premature atrial contraction
para	number of deliveries
PAT	Paroxysmal atrial tachycardia
PE	physical exam
peds	pediatrics
PERL	pupils equal & reactive to light
PHCR	pre-hospital care report
PMHX	past medical history
po	by mouth
pr	per rectum
prn	as needed
prox	proximal
PSVT	paroxysmal supraventricular tachycardia
pt	patient
PTA	prior to arrival
pulm	pulmonary
PVC	premature ventricular contraction
PVD	peripheral vascular disease
pvt	private
q	every
R	respirations
RLQ	right lower quadrant
R/O	rule out
RSI	rapid sequence intubation
RUQ	right upper quadrant
RX	prescription or treatment
rxn	reaction
	without
SPO2	oxygen saturation
SL	sublingual
SOAP	subjective, objective, assessment, plan
SOB	shortness of breath
SQ	subcutaneously
ST	sinus tachycardia
stat	at once, immediately
SVT	supraventricular tachycardia
Sz	seizure
T	temperature
tsp	teaspoonful
Tx	traction or treatment
URI	upper respiratory infection
UTI	urinary tract infection
U/K	unknown
vag	vaginal
vo	verbal order
V/S	vital signs
WNL	within normal limits
WPW	Wolff-Parkinson-White
x	multiple
y/o	years old
Δ	change
@	at
↑	increase
↓	decrease
1°	primary
2°	secondary
Ψ	psych

MPS / MCI

INTRODUCTION

This section of the Standing Orders has been prepared to provide a management plan for a coordinated response to a single or multi-agency Mass Casualty Incidents (MCI). An MCI involves five (5) or more patients transported for treatment. This plan is meant to give guidance to the Incident Commander (IC), Medical Branch Director, Triage, Treatment and

Transport Group Supervisors, and the Staging Area Manager. The duties for specific positions that are outlined in this plan have been made into checklists to be used on scene as a reference during an MCI. Under these standing orders, the MCI scene shall be managed using the National Incident Management System (NIMS) form of the Incident Command System (ICS). Command Staff and General Staff positions are filled as needed, dictated by the complexity of the incident, and the "span of control" rule of supervising 3 – 7 people. The positions outlined within this plan are activated when the Incident Commander (or designee) assigns a person to a position and delegates duties to that individual. **The Incident Commander is responsible for all duties on the incident until he or she delegates such duties to others.** Therefore, when an MCI occurs the Incident Commander may initially be responsible for multiple positions. During incident demobilization when tasks have been completed, personnel may no longer be needed. Therefore, resource re-assignment within the incident or resource demobilization may occur. If the incident is multi-jurisdictional or if the incident has a multi-disciplinary agency response, consider a unified command structure following the NIMS-ICS model.

1. A triage tag system (Red, Yellow, Green, and Black) and START program will be used by agencies in Josephine County functioning under these patient care protocols.

2. When the MCI plan is put into effect, all incoming ambulances and fire department resources assigned to the incident will report to staging unless otherwise instructed.

3. EMS radio traffic will be restricted during all MCI incidents. The Transportation Group Supervisor will direct transporting units to specific hospitals after discussing available hospital resources with the Medical Branch Director.

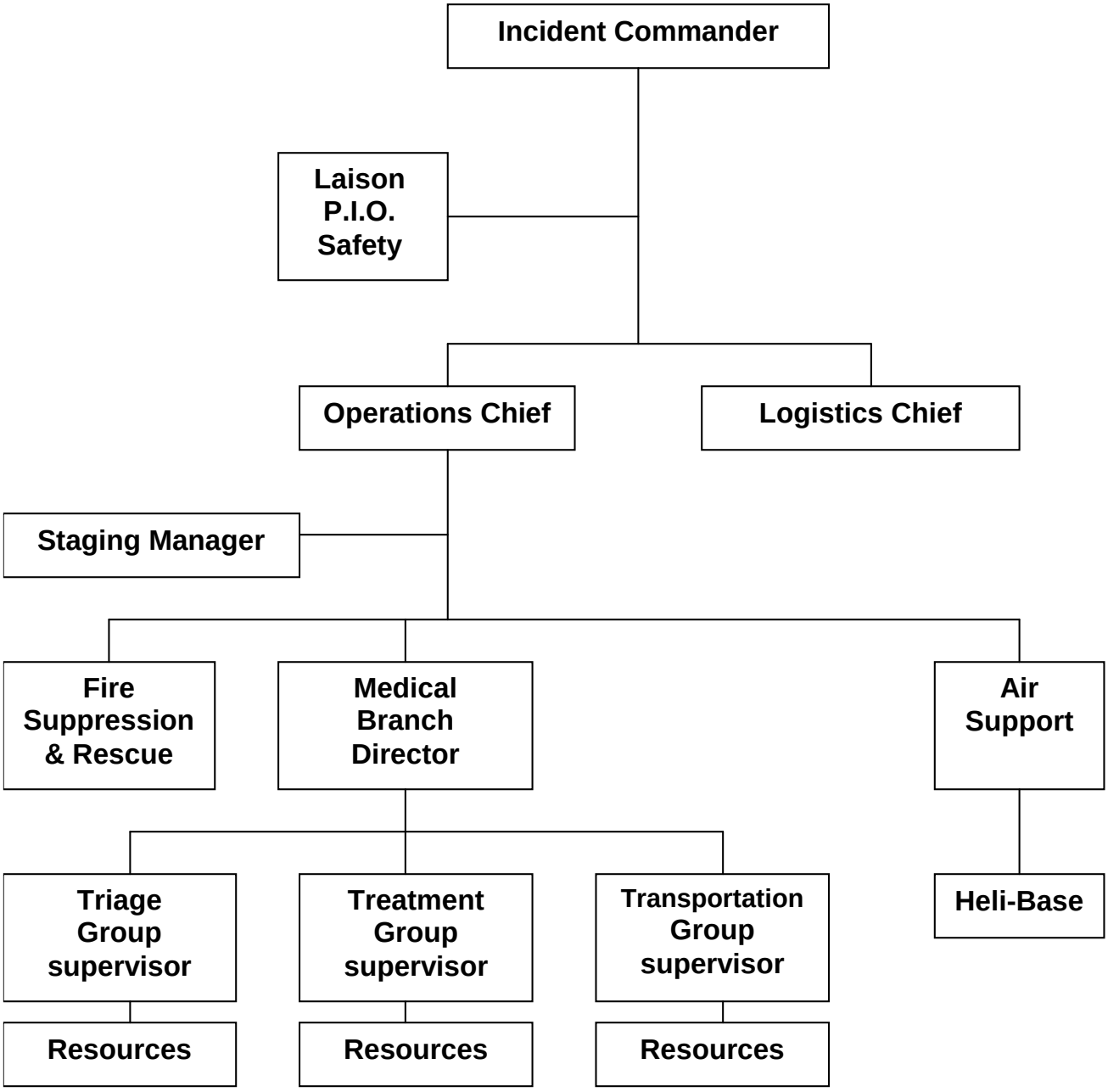
4. Transporting units will notify dispatch as they leave the scene with their unit ID, destination, and patient load. (Dispatch – AMR Medic 2 in route to TRCH with 1 Red and 1 Yellow.)

5. Transporting units will then notify their destination hospital, as soon as possible, their unit ID, destination, patient load, and ETA. (TRCH – AMR Medic 2 enroute with 1 Red and 1 Yellow, ETA of 15 minutes.

6. Transporting units will notify dispatch when they arrive at their destination.

7. Ambulances transporting non-MCI patients will report to the hospital as usual on MEDNET.

INCIDENT COMMAND SYSTEM
(ICS)



MEDICAL BRANCH DIRECTOR

DUTY CHECKLIST

(YOU MAY HAVE TO FILL MULTIPLE ROLES UNTIL ADEQUATE PERSONNEL ARRIVE)

1. ***RADIO CALL SIGN: "MEDICAL".***
2. ***WEAR "MEDICAL" IDENTIFICATION VEST.***
3. ***APPOINT TRIAGE GROUP SUPERVISOR- PROVIDE TRIAGE PACKET.***
4. ***REPORT ACCURATE TRIAGE COUNT TO DISPATCH AND TO INCIDENT***
5. ***COMMAND.***

Inform dispatch of the complete triage count with site name, ICS position, total patients and the number of red, yellow, green and black patients.

(make sure that the sum of the red, yellow, green and black patients is the same as the total patient count; i.e. "Dispatch – Redwood Hwy Medical with 14 patients; 3 Red, 2 Yellow, 8 Green, and 1 Black.")

☐ APPOINT TREATMENT GROUP SUPERVISOR - PROVIDE TREATMENT PACKET.

☐ APPOINT TRANSPORTATION GROUP SUPERVISOR – PROVIDE TRANSPORTATION PACKET.

☐ ADVISE TRANSPORTATION GROUP SUPERVISOR OF HOSPITAL RESOURCES AFTER DISCUSSING WITH DISPATCH.

☐ COORDINATE LOCATION OF TRIAGE, TREATMENT AND TRANSPORTATION AREAS.

☐ ANTICIPATE AND REQUEST SUPPLIES AND EQUIPMENT NEEDED.

☐ ENSURE ALL WORK AREAS ARE OUT OF HAZARDOUS ZONES.

☐ COORDINATE FUNCTIONING OF TRIAGE, TREATMENT AND TRANSPORTATION GROUP SUPERVISOR.

MAINTAIN RECORD OF ACTIVITIES AND FORWARD TO OPERATIONS.

TRIAGE GROUP SUPERVISOR
DUTY CHECKLIST

☐ OBTAIN BRIEFING FROM MEDICAL BRANCH DIRECTOR.

☐ RADIO CALL SIGN: “TRIAGE”.

☐ WEAR “TRIAGE” IDENTIFICATION VEST.

☐ APPOINT AND BRIEF STAFF AS NEEDED.

☐ DIRECT S.T.A.R.T. SORTING AND TAGGING OF VICTIMS.

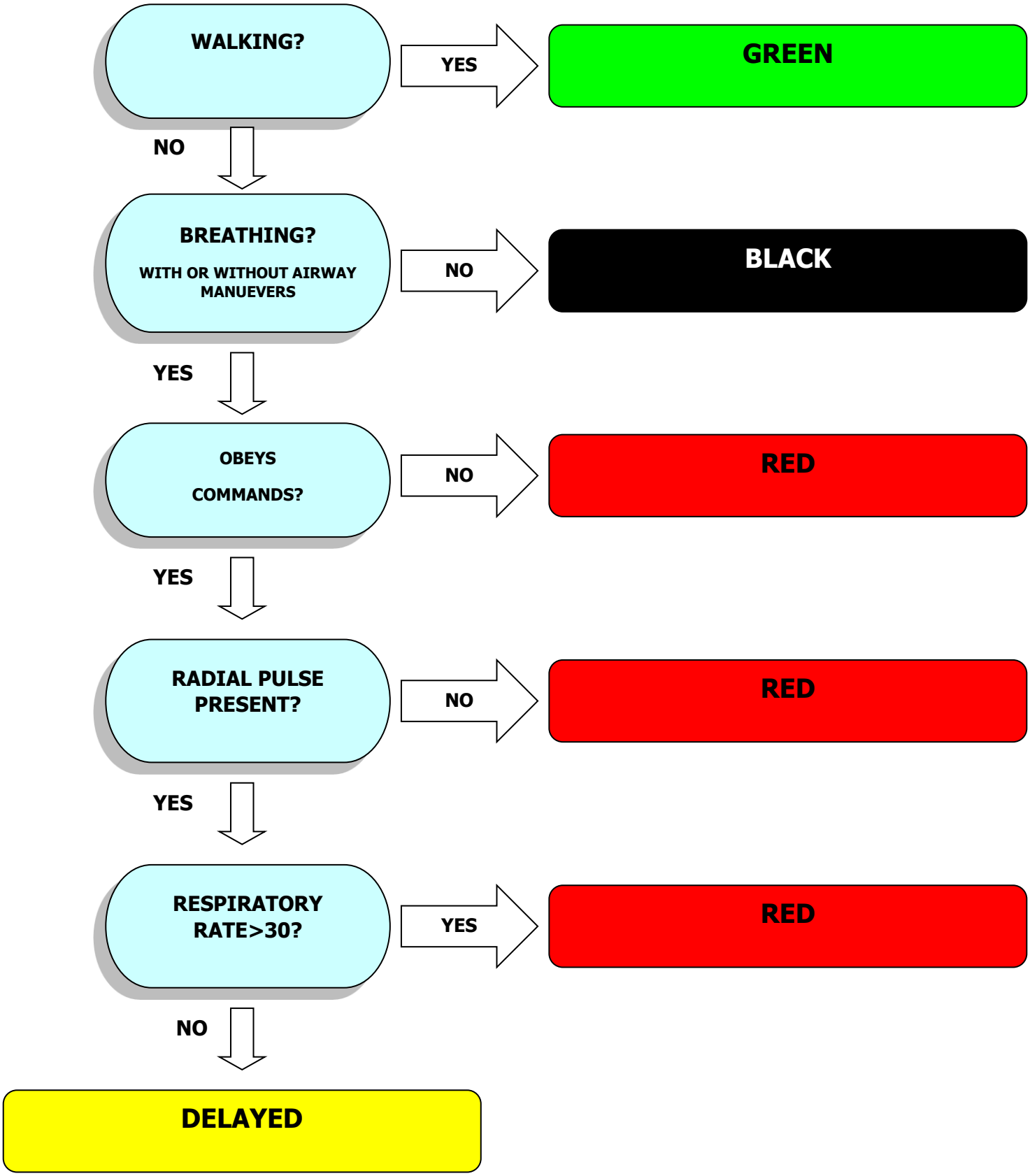
☐ INFORM MEDICAL BRANCH DIRECTOR OF THE COMPLETE TRIAGE COUNT. *(make sure that the sum of the red, yellow, green and black patients is the same as the total patient count)*

☐ EXPEDITE MOVEMENT OF VICTIMS TO TREATMENT AREAS.

☐ REQUEST ADDITIONAL RESOURCES VIA MEDICAL BRANCH DIRECTOR.

☐ CONFIRM WITH MEDICAL BRANCH DIRECTOR FINAL PATIENT COUNT.

START – SIMPLE TRIAGE AND RAPID TREATMENT



TREATMENT GROUP SUPERVISOR

DUTY CHECKLIST

- ☐ OBTAIN BRIEFING FROM MEDICAL BRANCH DIRECTOR.
- ☐ RADIO CALL SIGN: “TREATMENT”.
- ☐ WEAR “TREATMENT” IDENTIFICATION VEST.
- ☐ APPOINT AND BRIEF STAFF AS NEEDED: EMTS, LITTER BEARERS.
- ☐ ESTABLISH RED, YELLOW AND GREEN TREATMENT AREAS.
- ☐ REQUEST ADDITIONAL RESOURCES FROM MEDICAL BRANCH DIRECTOR.
- ☐ COORDINATE AND OVERSEE PATIENT TREATMENT ACCORDING TO THEIR RED, YELLOW OR GREEN PRIORITIZATION.
- ☐ “TRANSPORTATION” WILL ASK FOR SPECIFIC PATIENT NUMBERS AND TYPES, i.e., “GIVE ME 2 REDS AND 3 YELLOWS.” BE PREPARED TO PROVIDE TRANSPORTATION GROUP SUPERVISOR WITH SPECIFIC PATIENT NUMBERS AND TYPES (RED, YELLOW, GREEN).

TRANSPORTATION GROUP SUPERVISOR

DUTY CHECKLIST

☐ OBTAIN BRIEFING FROM MEDICAL BRANCH DIRECTOR.

☐ RADIO CALL SIGN: “TRANSPORTATION”.

☐ WEAR “TRANSPORTATION” IDENTIFICATION VEST.

☐ APPOINT AND BRIEF STAFF AS NEEDED: AIDES, LITTER BEARERS.

☐ ESTABLISH TRAFFIC PATTERNS AND PATIENT LOADING ZONES.

☐ REQUEST ESTABLISHMENT OF HELICOPTER LANDING ZONE AS NEEDED VIA MEDICAL BRANCH DIRECTOR.

☐ REQUEST ADDITIONAL RESOURCES VIA MEDICAL BRANCH DIRECTOR.

☐ DIRECT TRANSPORTATION OF SPECIFIC PATIENTS TO SPECIFIC HOSPITALS AFTER DISCUSSING AVAILABLE HOSPITAL RESOURCES WITH MEDICAL BRANCH DIRECTOR.

MAINTAIN LOG OF PATIENTS TRANSPORTED.

HELICOPTER LANDING ZONE (LZ)

DUTY CHECKLIST

- ☐ Responders should be familiar with helo operations
- ☐ 100’ x 100’ area for daytime (75’ x 75’ min with pilot approval)
- ☐ 300’ x 300’ area for night (needs to be pre-approved)
- ☐ When possible, provide ground contact and LZ security to keep animals and unauthorized people away. Ground contact not required if limited manpower or at remote location sites
- ☐ Surface should be level, flat with minimal debris, and no more than 8% slope
- ☐ Wet surface if dust is a problem
- ☐ LZ should be far enough away from scene to avoid excessive noise and rotor wash
- ☐ Alert pilot of potential hazards/conditions:
    - Poles
    - Trees
    - Wires
    - Wind speed at surface

- ☐ Avoid landing on I-5 unless freeway is already shut down and no other options available
- ☐ If assigned, ensure proper communications with Medical Branch Director and Transportation Group Leader
- ☐ For night LZ’s, keep strobe lights off, and turn only 1 set of headlights into LZ
- ☐ Pilot always has the final say in the LZ. If necessary, a different one may be required.

Multi-agency QA/CQI Program

Multi-Agency QA/CQI Program

Overview

All agencies that are covered by these protocols and operate under the license of the current Medical director are required to participate in a multi-agency quality assurance and continuous quality improvement program. It is expected and understood that each agency will have a documented and maintained internal process to review patient care documentation, assessment and treatment. Each agency's QA/CQI program should be available for review by the Medical Director. Each agency program will contain at a minimum the following components:

1. A review and feedback system on reviewed charts
2. A file /database system containing a list of those charts reviewed, easily identified for Medical Director review or request.
3. QA/CQI program will be HIPAA compliant.
4. A minimum of a 10% retrospective review of charting per technician.
5. 100% review of the following specific criteria:
    a. Trauma activations
    b. Cardiac Arrests
    c. Birth / Delivery in the field
    d. Helicopter activation and transport
    e. STEMI activation
    f. Advanced airway placement (ET tube /Combitube)
    g. 2nd & 3rd degree burn patients
    h. Any critical pediatric call (≤8 years)
    i. SIDS calls
    j. CVA meeting Stroke activation protocol
    k. Death in the Field

Agency Review Requests

All agencies have the right to request specific calls to be reviewed by the multi-agency QA/CQI committee and/or the Medical Director. Review requests are to be made using the interagency quality assurance request program form.

Multi-agency QA/CQI Committee

All agencies covered by these protocols and Medical Director are required have a representative present at a quarterly multi-agency QA/CQI committee meeting. The intent and direction of this committee is to review specific calls for system improvement opportunities as well as direct changes to the standing orders based on clinical need.

Case Review

Monthly case review will be conducted by the Medical Director or His/her designee based on specific calls at the Medical Directors discretion. Agencies may request specific cases be presented at case review using the interagency quality assurance request program form.

Josephine County
Interagency Quality Assurance Program
Request Form

Date of Service:_____ County Run# or AMR Crew: _____

Requesting Agency :

☐GPDPS ☐R/MFD ☐IVFPD ☐WCFD ☐WFD ☐TRMC

Request:

☐ Clinical Question/ Clarification

☐ Follow up on the patient outcome

☐ Case Review request

☐ Clinical Concern/Complaint

☐ Other _____

Explanation of Request (add additional pages if needed):

_____

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