

# **CLARK COUNTY EMS SYSTEM EMERGENCY MEDICAL CARE PROTOCOLS**



**EFFECTIVE: January 6, 2025**  
**(Replaces July 1, 2024 Version)**

PO BOX 3902 – LAS VEGAS, NV 89127

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# FOREWORD

## EMERGENCY MEDICAL SERVICES PROTOCOL MANUAL

Optimal prehospital care results from a combination of careful patient assessment, essential prehospital emergency medical services, and appropriate medical consultation. The purpose of this manual is to provide guidance for **ALL** prehospital care providers and emergency department physicians within the Clark County EMS System.

The **GOAL** of the manual is to **STANDARDIZE** prehospital patient care in Clark County. It is to be understood that these protocols are guidelines. Nothing contained in these protocols shall be construed to expand the scope of practice of any licensed Attendant beyond that which is identified in the Clark County Emergency Medical Services Regulations and these protocols (Appendix C).

**NOTHING** contained within these protocols is meant to delay rapid patient transport to a receiving facility. Patient care should be rendered while en-route to a definitive treatment facility.

The General Assessment protocols must be followed in the specific sequence noted. For all other treatment protocols, the algorithm defines the care every patient should receive, usually in the order described.

To maintain the life of a specific patient, it may be necessary, in rare instances, for the physician providing on-line medical consultation, as part of the EMS consultation system, to direct a prehospital provider in rendering care that is not explicitly listed within these protocols, to include administering a patient's own medications which are not part of the approved formulary. To proceed with such an order, both the telemetry physician and the provider must acknowledge and agree that the patient's condition and extraordinary care are not addressed elsewhere within these medical protocols, and that the order is in the best interest of patient care. Additionally, the provider must feel capable, based on the instructions given by the telemetry physician, of correctly performing the directed care. Whenever such care is provided, the telemetry physician and the provider must immediately notify the Office of EMS & Trauma System (OEMSTS) of the extraordinary care situation. In addition, the provider must immediately, upon completion of the call, make available the prehospital care record and documentation specifying the nature of the deviation and the ordering physician's name to the OEMSTS. All such incidents will be entered into the Quality Improvement Review process.

Occasionally a situation may arise in which a physician's order cannot be carried out, e.g., the provider feels the administration of an ordered medication would endanger the patient, a medication is not available, or a physician's order is outside of protocol. If this occurs, the provider must immediately notify the telemetry physician as to the reason the order cannot be carried out, and indicate on the prehospital care record what was ordered, the time, and the reason the order could not be carried out. In addition, the provider must immediately notify the OEMSTS, and upon completion of the call, make available the prehospital care record to the OEMSTS. All such incidents will be entered into the Quality Improvement Review process.

Protocol Key:



Caution / Warning / Alert



Pediatric Treatment Consideration (for patients less than 12 years of age)



Telemetry Contact Required



Specific Protocol



EMT Licensed Attendant and above may perform these steps



AEMT Licensed Attendant and above may perform these steps



Paramedic Licensed Attendant

Definition of a patient:

A patient is any individual that meets at least one of the following criteria:

- 1) A person who has a complaint or mechanism suggestive of potential illness or injury;
- 2) A person who has obvious evidence of illness or injury; or
- 3) A person identified by an informed 2nd or 3rd party caller as requiring evaluation for potential illness or injury.

Pediatric patient considerations:

For patients <18 years old, use the Pediatric Patient Destination protocol.

Pediatric treatment protocols are to be used on children who have not yet experienced puberty. Signs of puberty include chest or underarm hair on males, and any breast development in females.

These protocols have been developed specifically for the Clark County EMS System and represent consensus among all of the Clark County EMS agency medical directors and the District Health Officer. The protocols demonstrate a commitment to a consistent approach to quality patient care.

From time to time, protocols may be added or revised by the District Health Officer upon recommendation by the Medical Advisory Board (MAB). Additional recommendations are welcome and appreciated at any time. They may be submitted to the OEMSTS for consideration and referral to the Medical Advisory Board.

Southern Nevada Health District  
Office of Emergency Medical Services & Trauma System  
P.O. Box 3902  
Las Vegas, Nevada 89127

Physical address:  
280 S Decatur Blvd  
Las Vegas, NV 89152  
Office Hours: Mon-Fri 8:00 am to 4:30 pm

Questions may also be telephoned to EMS staff at (702) 759-1050, or visit our website at <http://www.southernnevadahealthdistrict.org/ems/index.php>.

**District Health Officer:** Fermin Leguen, MD, MPH

**EMS Agency Medical Directors who serve on the Medical Advisory Board:**

Dan Rollins, MD, Boulder City Fire Department

Scott Scherr, MD, Clark County Fire Department and Guardian Elite Medical Services

Michael Holtz, MD, Clark County Fire Department

Jessica Leduc, DO, Henderson Fire Department

Nate Jensen, DO, Mesquite Fire & Rescue

Ryan Hodnick, DO, Moapa Valley Fire District and Mt. Charleston Fire Protection District

Kelly Morgan, MD, Las Vegas Fire and Rescue

Mike Barnum, MD, American Medical Response

Jeff Davidson, MD, MedicWest Ambulance

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**Hospitals:**

Boulder City Hospital: 901 Adams Blvd, Boulder City, NV 89005 (702) 293-4111

Centennial Hills Hospital: 6900 N Durango Dr, Las Vegas, NV 89149 (702) 629-1210

Henderson Hospital: 1050 Galleria Drive, Henderson, NV 89011 (702) 963-7000

Mesa View Regional Hospital: 1299 Bertha Howe Ave, Mesquite, NV 89027 (702) 756-3408

Mike O'Callaghan Federal Medical Center: 4700 N Las Vegas Blvd, Las Vegas, NV 89115 (702) 653-3682

MountainView Hospital: 3100 N Tenaya, Las Vegas, NV 89128 (702) 345-4270

North Vista: 1409 E Lake Mead Blvd North, Las Vegas, NV 89030 (702) 657-5512

Southern Hills Hospital: 9300 W Sunset, Las Vegas, NV 89148 (702) 880-2800

Spring Valley Hospital & Medical Center: 5400 S Rainbow, Las Vegas, NV 89118 (702) 853-3611

St Rose San Martin: 8280 W Warm Springs, Las Vegas, NV 89113 (702) 492-8600

St Rose Siena: 3001 St Rose Pkwy, Henderson, NV 89052 (702) 616-5600

Summerlin Hospital Medical Center: 657 N Town Center Dr, Las Vegas, NV 89144 (702) 233-7000

Sunrise Hospital & Medical Center: 3186 S Maryland Pkwy, Las Vegas, NV 89106 (702) 731-8000

University Medical Center: 1800 W Charleston Las Vegas, NV 89102 (702) 383-2211

Valley Hospital Medical Center: 620 Shadow Ln, Las Vegas, NV 89106 (702) 388-4000

West Henderson Hospital: 1155 Raiders Way Henderson, NV 89052 (725)235-2100

## TERMS AND CONVENTIONS

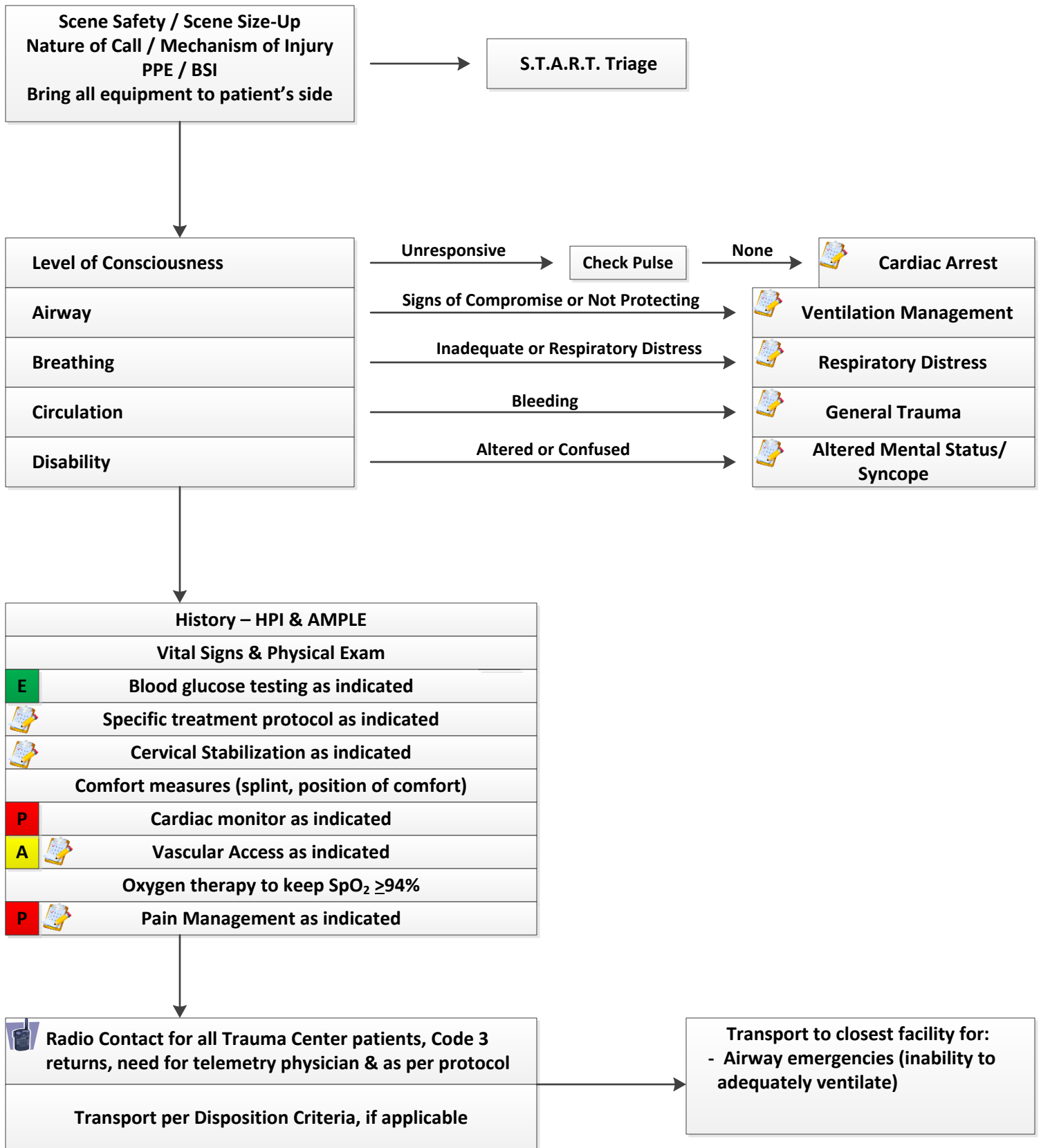
<b>AED</b>	means Automated External Defibrillator
<b>AMPLE</b>	means Allergies; Medications; Prior history; Last meal eaten; Events leading up to injury/illness
<b>AMS</b>	means Altered Mental Status
<b>ASA</b>	means Acetylsalicylic Acid
<b>BG</b>	means Blood Glucose
<b>BP</b>	means Blood Pressure
<b>BVM</b>	means Bag-Valve-Mask
<b>CCC</b>	means Continuous Cardiac Compressions
<b>CHF</b>	means Congestive Heart Failure
<b>COPD</b>	means Chronic Obstructive Pulmonary Disease
<b>CP</b>	means Chest Pain
<b>CPR</b>	means Cardiopulmonary Resuscitation
<b>CVA</b>	means Cerebrovascular Accident
<b>DCAP-BTLS</b>	means Deformities; Contusions; Abrasions; Punctures/Penetrations; Burns; Tenderness; Lacerations; Swelling
<b>DKA</b>	means Diabetic Ketoacidosis
<b>ECG</b>	means Electrocardiogram
<b>ETA</b>	means Estimated Time of Arrival
<b>ETT</b>	means Endotracheal Tube
<b>GCS</b>	means Glasgow Coma Scale
<b>GU</b>	means Genitourinary
<b>HEENT</b>	means Head, Ears, Eyes, Nose, Throat
<b>HPI</b>	means History of Present Illness
<b>HR</b>	means Heart Rate
<b>ICP</b>	means Intracranial Pressure
<b>IM</b>	means Intramuscular
<b>IN</b>	means Intranasal
<b>IO</b>	means Intraosseous
<b>IV</b>	means Intravenous
<b>IVP</b>	means Intravenous Push
<b>IVPB</b>	means Intravenous Piggyback
<b>JVD</b>	means Jugular Venous Distention



<b>MAD</b>	means Mucosal Atomizer Device
<b>MI</b>	means Myocardial Infarction
<b>MOI</b>	means Mechanism of Injury
<b>NRB</b>	means Non-rebreather
<b>NS</b>	means Normal Saline
<b>NV</b>	means Nausea/Vomiting
<b>OEMSTS</b>	means Office of Emergency Medical Services & Trauma System
<b>OPQRST</b>	means Onset; Provokes; Quality; Radiates; Severity; Time (used in evaluating localized pain)
<b>PCI</b>	means Percutaneous Coronary Intervention
<b>PCR</b>	means Patient Care Record/Report
<b>PO</b>	means By Mouth
<b>PRN</b>	means As Needed
<b>q</b>	means Every
<b>ROSC</b>	means Return of Spontaneous Circulation
<b>RR</b>	means Respiratory Rate
<b>RUQ</b>	means Right Upper Quadrant
<b>SAMPLE</b>	means Symptoms; Allergies; Medications; Prior history; Last meal eaten; Events leading up to injury/illness
<b>SL</b>	means Sublingual
<b>SOB</b>	means Shortness of Breath
<b>S/P</b>	means Status/Post
<b>SQ</b>	means Subcutaneous
<b>S/S</b>	means Signs/Symptoms
<b>SVT</b>	means Supraventricular Tachycardia
<b>TCAs</b>	means Tricyclic Antidepressants
<b>TFTC</b>	means Trauma Field Triage Criteria
<b>TIA</b>	means Transient Ischemic Attack
<b>TKO/KVO</b>	means To Keep Open/Keep Vein Open
<b>VF</b>	means Ventricular Fibrillation
<b>VT</b>	means Ventricular Tachycardia
<b>VS</b>	means Vital Signs
<b>WPW</b>	means Wolff-Parkinson-White Syndrome

# **ADULT TREATMENT PROTOCOLS**

# General Adult Assessment



### **Pearls**

- For all scenes where patient needs exceed available EMS resources, initial assessment and treatment shall be in accordance with an approved triage methodology.
- Correct life-threatening problems as identified.
- If the ability to adequately ventilate a patient cannot be established, the patient must be transported to the nearest emergency department.
- Never withhold oxygen from a patient in respiratory distress.
- Contact with online medical control should be established by radio. Telephone contact may only be used if the call is routed via a recorded phone patch through FAO at 702-382-9007.

### **Disposition**

- Patients sustaining traumatic injuries shall be transported in accordance with the Trauma Field Triage Criteria Protocol.
- Patients sustaining burn injuries shall be transported in accordance with the Burns Protocol.
- Pediatric patients (<18 y/o for transport purposes only) shall be transported in accordance with the Pediatric Destination Protocol.
- Patients with evidence of a stroke shall be transported in accordance with the Stroke (CVA) Protocol.
- Sexual assault victims <13 y/o shall be transported to Sunrise Hospital.
- Sexual assault victims 13 y/o up to 18 y/o shall be transported to Sunrise Hospital or UMC.
- Sexual assault victims 18 y/o and older shall be transported to UMC.
- For sexual assault victims outside a 50-mile radius from the above facilities, the patient shall be transported to the nearest appropriate facility.
- Stable patients shall be transported to the hospital of their choice, if the patient has no preference the patient should be transported to the closest facility.
- For patients outside a 50 mile radius from protocol designated transport destinations, the licensee providing emergency medical care shall transport the patient to the nearest appropriate facility.

### **Waiting Room Criteria**

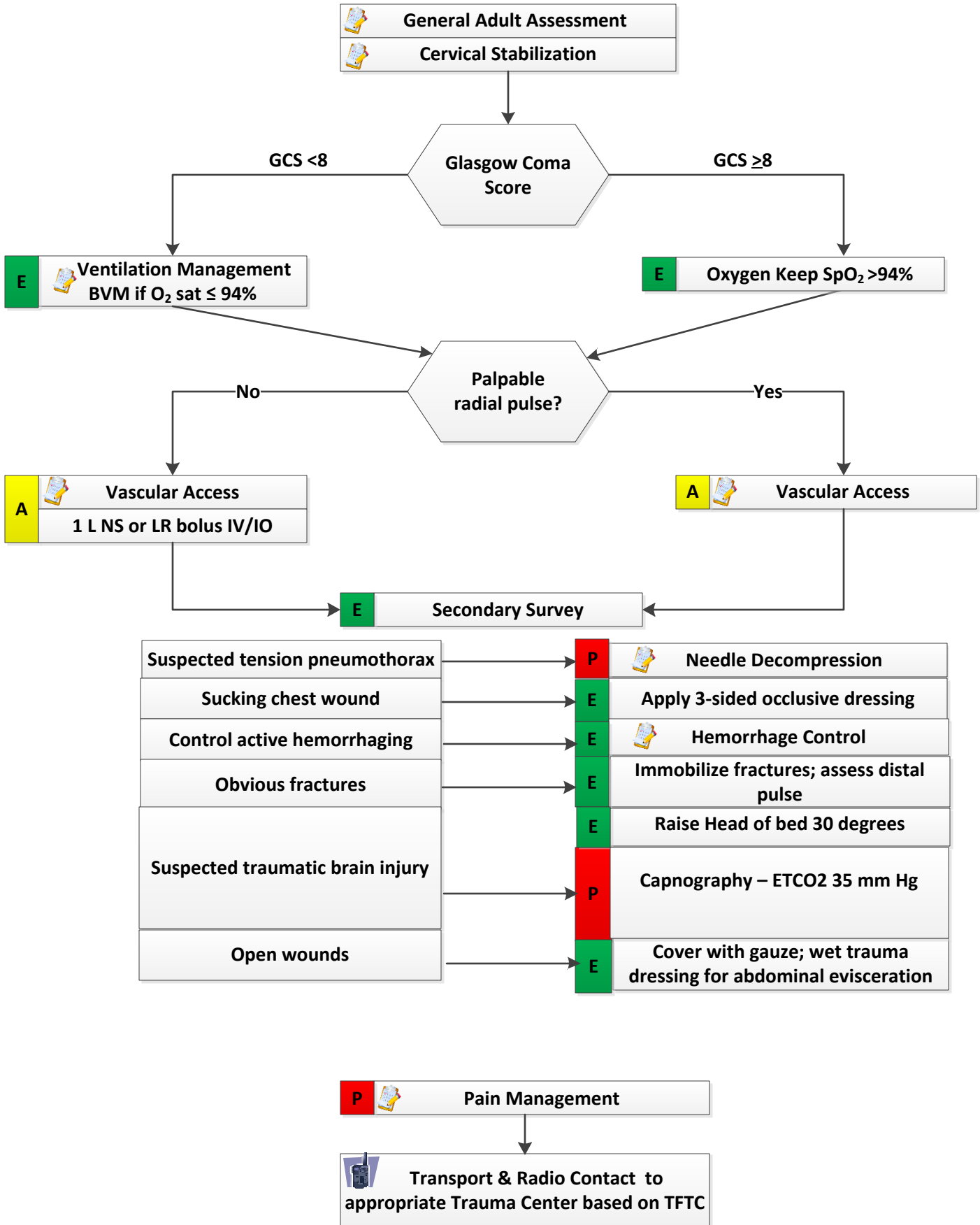
Upon arrival in the emergency department, if transfer of care has not occurred in accordance with NRS 450B.790, any patient, excluding patients placed on a legal psychiatric hold, meeting *ALL* the following criteria may be placed in the hospital waiting room or other appropriate location:

1. Normal vital signs
  - A. Heart rate 60 - 100
  - B. Respiratory rate 10 - 20
  - C. Systolic BP 100 - 180
  - D. Diastolic BP 60 - 110
  - E. Room air pulse oximetry >94%
  - F. Alert and oriented x 4
2. Did not receive any parenteral medications during EMS transport except a single dose of analgesia and/or an antiemetic.
3. In the judgment of the Paramedic, does not require continuous cardiac monitoring. Note: Any ECG monitoring initiated by a transferring facility may not be discontinued by EMS personnel.
4. Can maintain a sitting position without adverse impact on their medical condition.
5. Is left with a verbal report to hospital personnel.

### **Internal Disaster**

- If a hospital declares an internal disaster, that facility is to be bypassed for all patients except patients in cardiac arrest or in whom the ability to adequately ventilate has not been established.
- Operational exceptions may be initiated in regard to transport to hospitals on internal disaster.

# General Adult Trauma Assessment



**History**

- Time and mechanism of injury
- Damage to structure or vehicle
- Location in structure or vehicle
- Others injured or dead
- Speed and details of MVC
- Restraints/protective equipment
- Past medical history
- Medications

**Signs and Symptoms**

- Pain, Swelling
- Deformity, lesions, bleeding
- AMS or unconscious
- Hypotension or shock
- Arrest

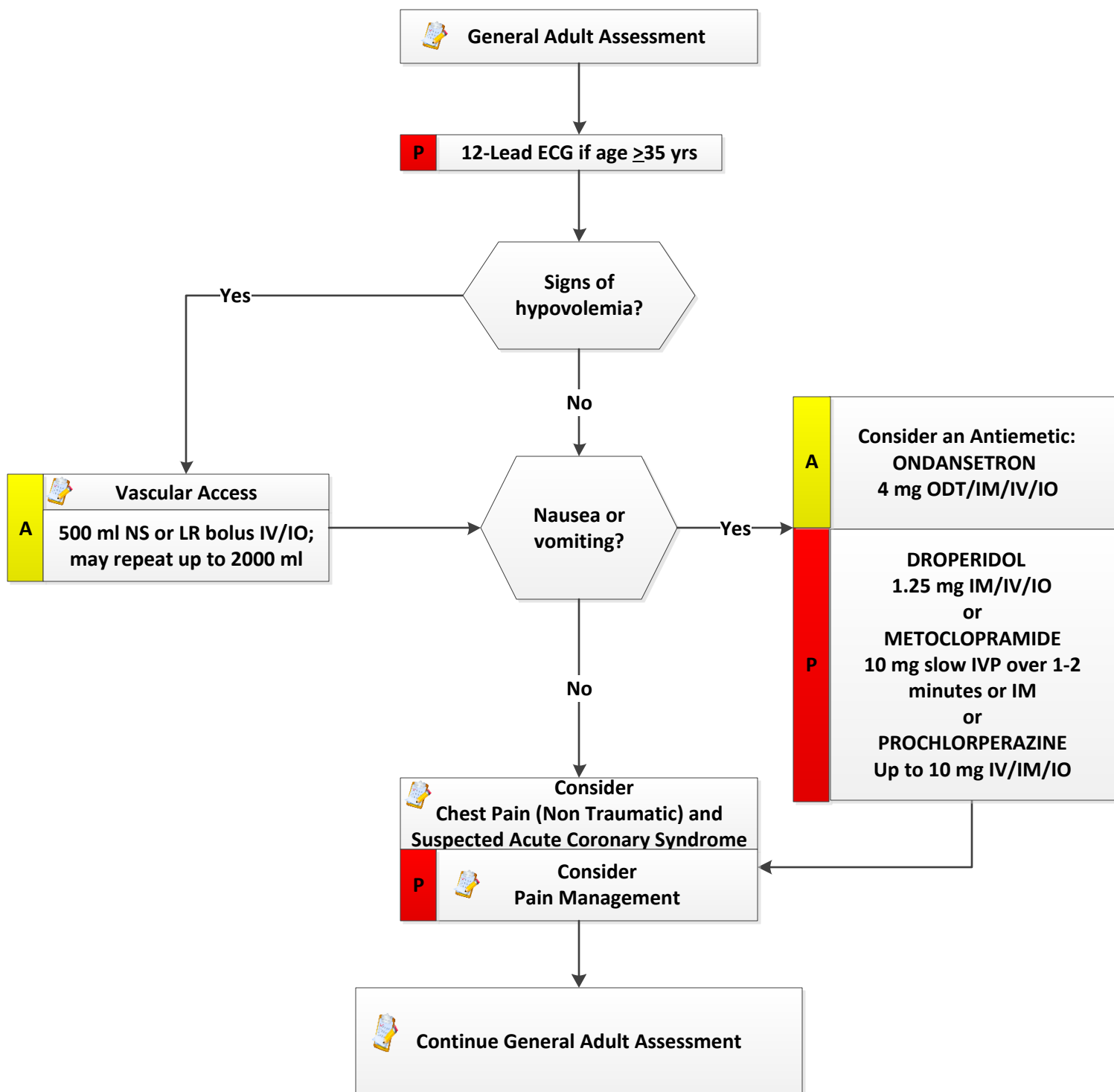
**Differential (life threatening)**

- Tension pneumothorax
- Flail chest
- Pericardial tamponade
- Open chest wound
- Hemothorax
- Intra-abdominal bleeding
- Pelvis/femur fracture
- Spine fracture/cord injury
- Head injury
- Extremity fracture
- HEENT (airway obstruction)
- Hypothermia

**Pearls**

- Recommended exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Back, Neuro.
- Transport destination is based on the Trauma Field Triage Criteria Protocol.
- Transport should not be delayed for procedures; ideally procedures should be performed enroute when possible.
- BVM is an acceptable method of ventilating and managing an airway if pulse oximetry can be maintained  $\geq 90\%$ .
- Geriatric patients should be evaluated with a high index of suspicion; occult injuries may be present and geriatric patients can decompensate quickly.

# Abdominal / Flank Pain, Nausea & Vomiting



**History**

- Age
- Medical/surgical history
- Onset
- Quality
- Severity
- Fever
- Menstrual history

**Signs and Symptoms**

- Pain location
- Tenderness
- Nausea
- Vomiting
- Diarrhea
- Dysuria
- Constipation
- Vaginal bleeding/discharge
- Pregnancy

**Differential**

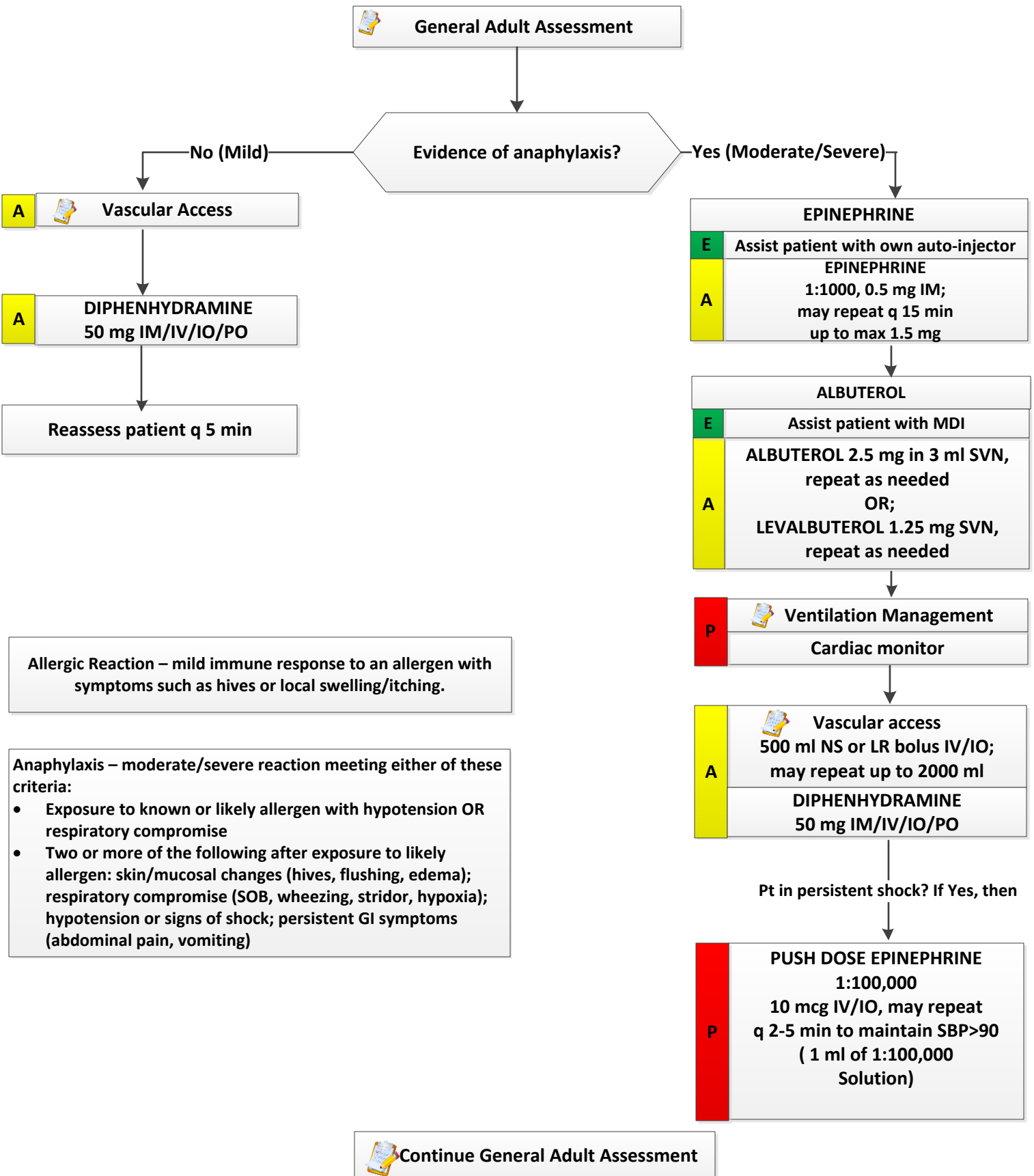
- Liver (Hepatitis)
- Gastritis
- Gallbladder
- MI
- Pancreatitis
- Kidney stone
- Abdominal aneurysm
- Appendicitis
- Bladder/prostate disorder
- Pelvic (PID, ectopic pregnancy, ovarian cyst)
- Spleen enlargement
- Bowel obstruction
- Gastroenteritis
- Ovarian and testicular torsion

**Pearls**

- Recommended Exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Back, Extremities, Neuro.
- Neuro disorders or signs of hypoperfusion/shock in the presence of abdominal pain may indicate an aneurysm.
- Document mental status and vital signs prior to administration of antiemetics & pain management.
- Repeat vital signs after each fluid bolus
- In patients  $\geq 35$  years old consider cardiac origin. Perform a 12-Lead ECG.
- Consider retroperitoneal palpation for kidney pain.
- Abdominal pain in women of childbearing age should be considered pregnancy until proven otherwise.



# Allergic Reaction



**History**

- Onset and location
- Insect sting or bite
- Food allergy/exposure
- Medication allergy/exposure
- New clothing, soap, detergent
- Past history of reactions
- Past medical history
- Medication history

**Signs and Symptoms**

- Itching or hives
- Coughing/wheezing or respiratory distress
- Throat or chest constriction
- Difficulty swallowing
- Hypotension/shock
- Edema
- Nausea/vomiting

**Differential**

- Urticarial (rash only)
- Anaphylaxis (systemic effect)
- Shock (vascular effect)
- Angioedema (drug induced)
- Aspiration/airway obstruction
- Asthma/COPD
- CHF

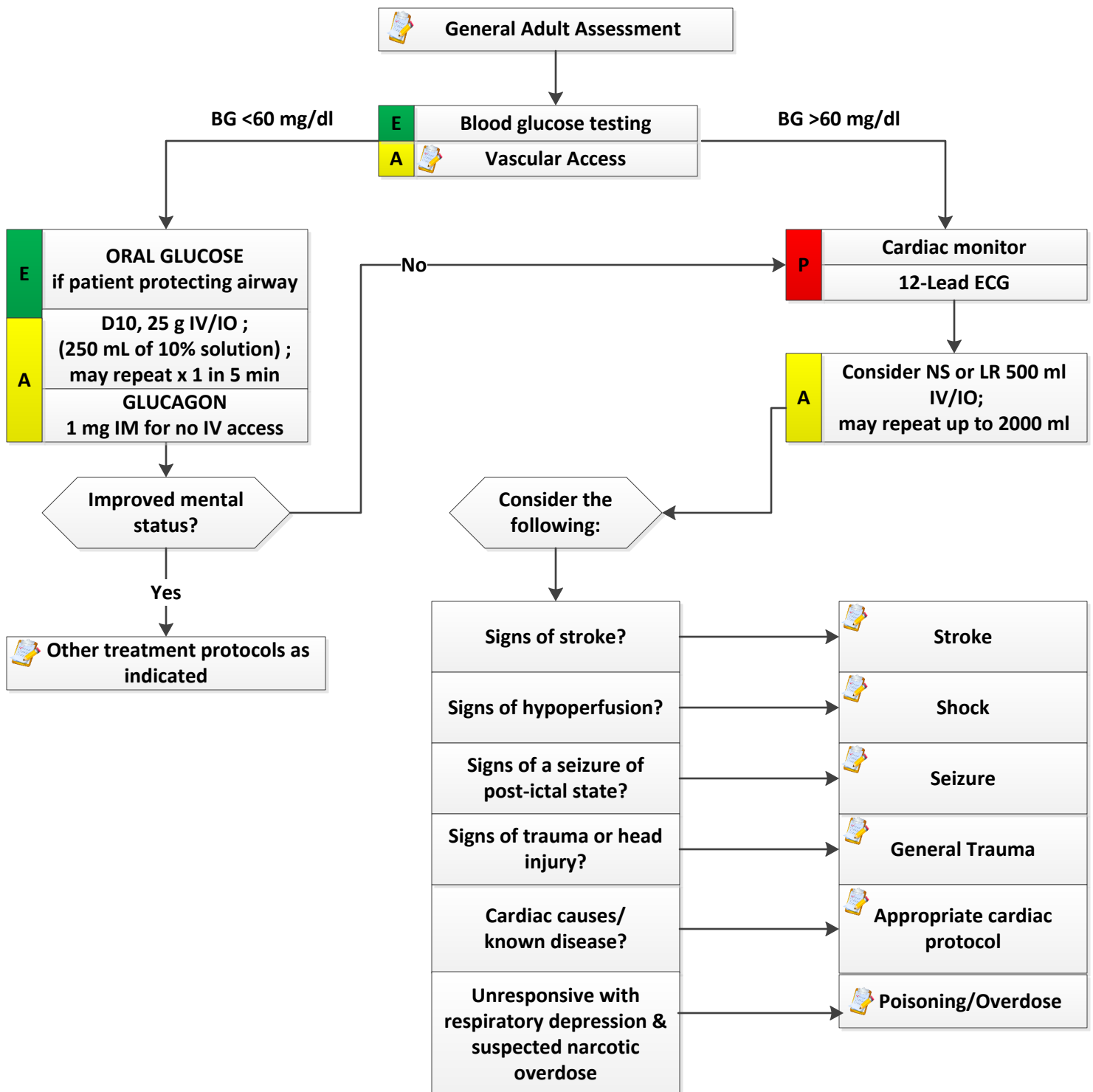
**Pearls**

- Recommended Exam: Mental Status, Skin, Heart, Lung.
- Anaphylaxis is an acute and potentially lethal multisystem allergic reaction.
- Epinephrine is a first-line drug that should be administered in acute anaphylaxis (moderate / severe symptoms). IM Epinephrine (1:1,000) should be administered in priority before or during attempts at IV or IO access.
- Contact Medical Control for refractory anaphylaxis.
- Consider ETCO<sub>2</sub> monitoring.
- Hypovolemia or distributive shock should be addressed with a fluid bolus prior to the administration of push-dose pressors.
- While there are no absolute contraindications to epinephrine, it should be used with caution in elderly patients, patients with known cardiovascular disease, or significant tachycardia or hypertension, and should be administered only when the patient's signs and symptoms are severe.
- Remove trigger if still present (sting, food, etc)
- Never give epinephrine 1:1000 (IM concentration) through IV/IO route.
- Always perform ECG monitoring when administering epinephrine.

**QI Metrics:**

- Epinephrine given appropriately.
- Airway assessment documented.

# Altered Mental Status / Syncope



**History**

- Known diabetic, Medic Alert tag
- Drugs or drug paraphernalia
- Report of drug use or toxic ingestion
- Past medical history
- Medications
- History of trauma
- Change in condition
- Changes in feeding or sleep habits

**Signs and Symptoms**

- Decreased mental status or lethargy
- Changes in baseline mental status
- Bizarre behavior
- Hypoglycemia
- Hyperglycemia
- Irritability

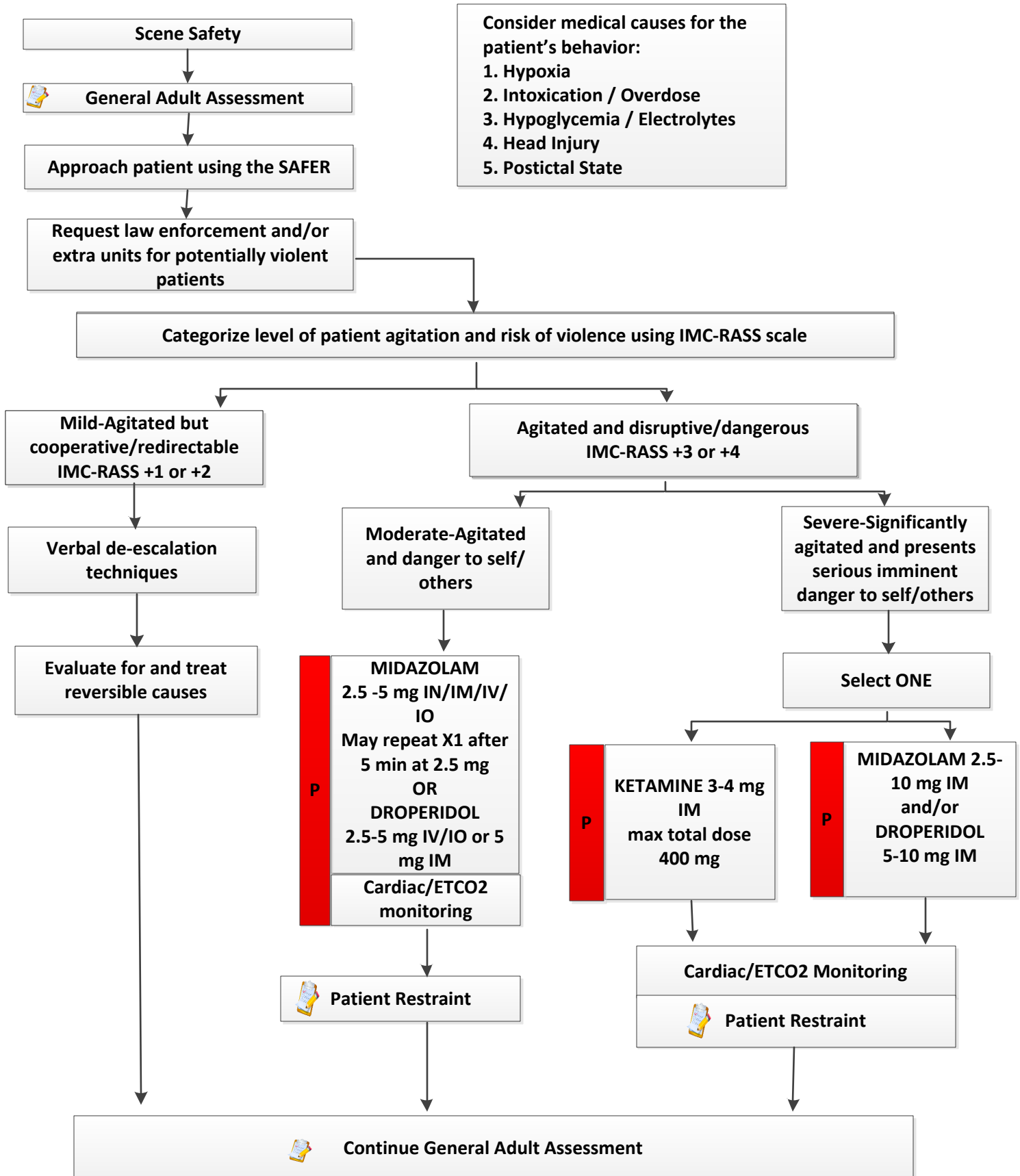
**Differential**

- Head trauma
- CNS (stroke, tumor, seizure, infection)
- Cardiac (MI, CHF)
- Hypothermia
- Infection
- Thyroid
- Shock (septic, metabolic, traumatic)
- Diabetes
- Toxicological or ingestion
- Acidosis/Alkalosis
- Environmental exposure
- Hypoxia
- Electrolyte abnormality
- Psychiatric disorder

**Pearls**

- Recommended Exam: Mental Status, HEENT, Skin, Heart, Lung, Abdomen, Back Extremities, Neuro.
- Pay careful attention to the head exam for signs of injury.
- Be aware of AMS as presenting sign of an environmental toxin or Haz-Mat exposure, and protect personal safety and that of other responders.
- Do not let alcohol confuse the clinical picture; alcohol is not commonly a cause of total unresponsiveness to pain.
- If narcotic overdose or hypoglycemia is suspected, administer Narcan 0.4-2mg or Glucose prior to advanced airway procedures.

# Behavioral Emergency



### History

- Situational crisis
- Psychiatric illness/medications
- Injury to self or threats to others
- Medic Alert tag
- Substance abuse/overdose
- Diabetes

### Signs and Symptoms

- Anxiety, agitation, confusion
- Affect change, hallucinations
- Delusional thoughts, bizarre behavior
- Combative, violent
- Expression of suicidal/homicidal thoughts

### Differential

- AMS differential
- Alcohol intoxication
- Toxin/substance abuse
- Medication effect or overdose
- Withdrawal syndromes
- Depression
- Bipolar
- Schizophrenia
- Anxiety disorder

### Pearls

- **Pharmacological sedation is a medical procedure that results from a medical assessment. Sedation is never to be utilized to control behavior for the purpose of law enforcement initiatives or assistance.**
- **Law enforcement assistance should be requested on all calls involving potentially violent patients.**
- **Under no circumstances are patients to be transported restrained in the prone position.**
- **Patients may not be transported with their arms restrained behind their back or in an ankle-to-wrist (hog-tied) manner.**
- The clinician should be ready to resuscitate the patient in case of inadvertent changes in respiratory or hemodynamic status. Patients should be continuously monitored with all available adjuncts when possible, including HR, ECG, RR, SpO2, BP, ETCO2, perfusion state, mental state.
- Physical restraints, including gurney straps, should never restrict chest wall movement.
- Patients expressing suicidal or homicidal ideation or who are otherwise a danger to themselves or others may not refuse transport. Contact law enforcement if necessary to initiate legal hold.
- EMS providers are not to remove taser darts unless there is a need to do so to administer medical care. Dart removal is part of the education to use the device and is the responsibility of the person or agency who deploys the device.

### Dystonic Reaction

- Condition causing involuntary muscle movements or spasms typically of the face, neck and upper extremities.
- Typically an adverse reaction to drugs such as Haloperidol (may occur with administration).
- When recognized, administer Diphenhydramine 50 mg IM/IV/IO.

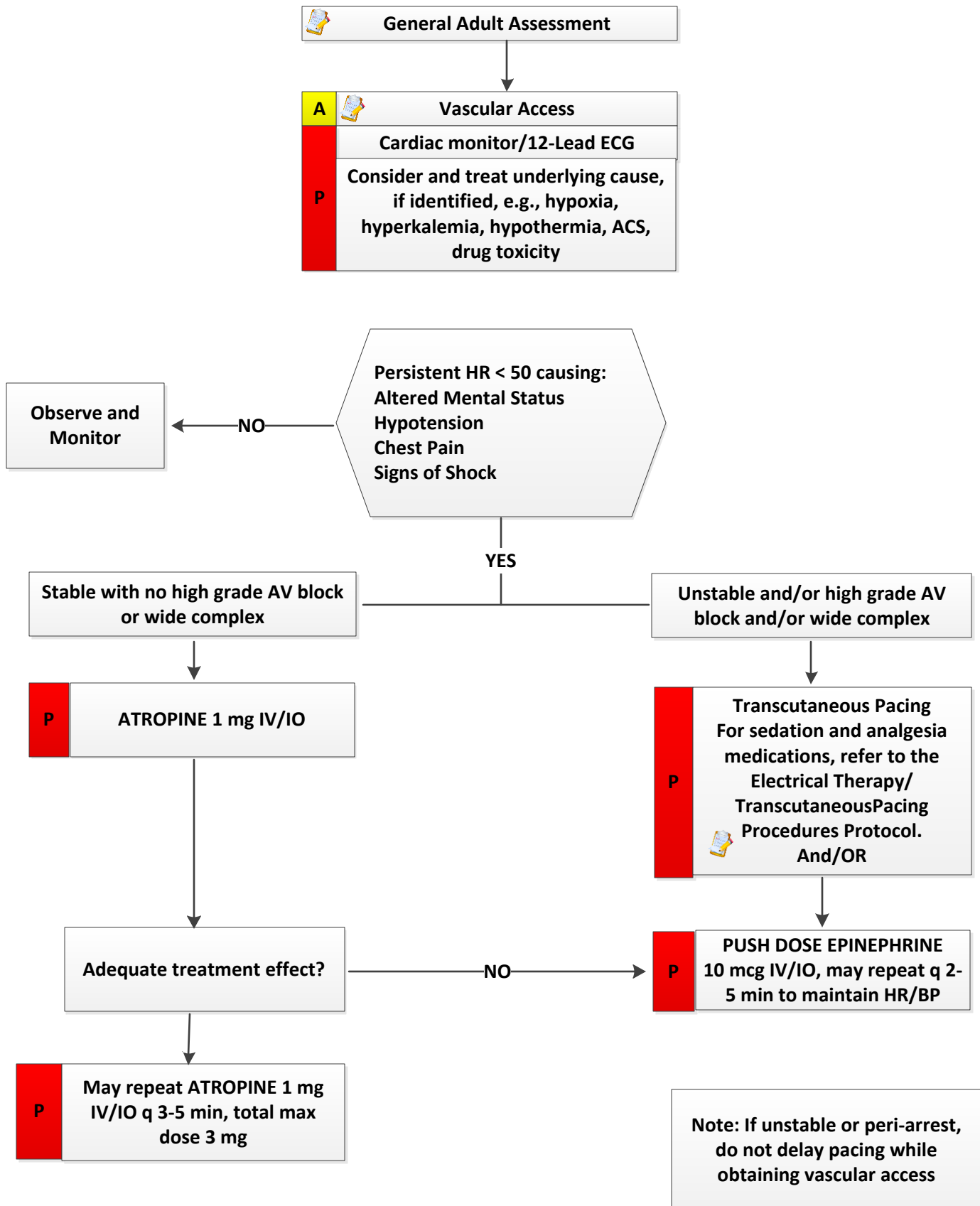
### S.A.F.E.R.

- Stabilize the situation by containing and lowering the stimuli.
- Assess and acknowledge the crisis.
- Facilitate the identification and activation of resources (chaplain, family, friends or police).
- Encourage patient to use resources and take actions in his/her best interest.
- Recovery or referral – leave patient in care of responsible person or professional, or transport to appropriate facility.

### Improved Montgomery County Richmond Agitation Sedation Scale (IMC-RASS)

Score	Term	Description	EMS Activity
+4	Combative	Overtly combative, violent, immediate danger to staff	Unsafe to care for patient without max assistance, require law enforcement
+3	Very Agitated	Pulls or removes tubes and catheters, aggressive.	Struggles aggressively and forcefully against care, routine EMS care impossible.
+2	Agitated	Frequent, non-purposeful movement, fights interventions	Resists EMS care, requires gentle physical redirection to allow for EMS care
+1	Restless	Anxious but movements are not aggressive or vigorous	Verbally redirectable, follows commands, routine EMS care possible
0		Alert and Calm	
-1	Drowsy	Not fully alert but has sustained awakening and eye contact to voice (>10 sec)	Awakens to voice
-2	Light Sedation	Briefly awakens with eye contact to voice (<10 sec)	Awakens to bumps in roadway or application of oxygen delivery devices
-3	Moderate Sedation	Movement or eye opening to voice (no eye contact)	Eyes open to physical exam, venous tourniquet application or BP cuff inflation
-4	Deep Sedation	No response to voice but movement or eye opening to physical stimulation	Responds to NPA insertion or IV start
-5	Unarousable	No response to voice or physical stimulation	No response to NPA/OPA insertion or IV start

# Bradycardia



**History**

- Past medical history
- Medications
- Pacemaker

**Signs and Symptoms**

- HR <60/min with hypotension, acute AMS, chest pain, acute CHF, seizures, syncope, or shock secondary to bradycardia
- Respiratory distress

**Differential**

- Acute myocardial infarction
- Hypoxia
- Pacemaker failure
- Hypothermia
- Sinus bradycardia
- Athletic
- Head injury (elevated ICP) or stroke
- Spinal cord lesion
- AV block
- Overdose

**Pearls**

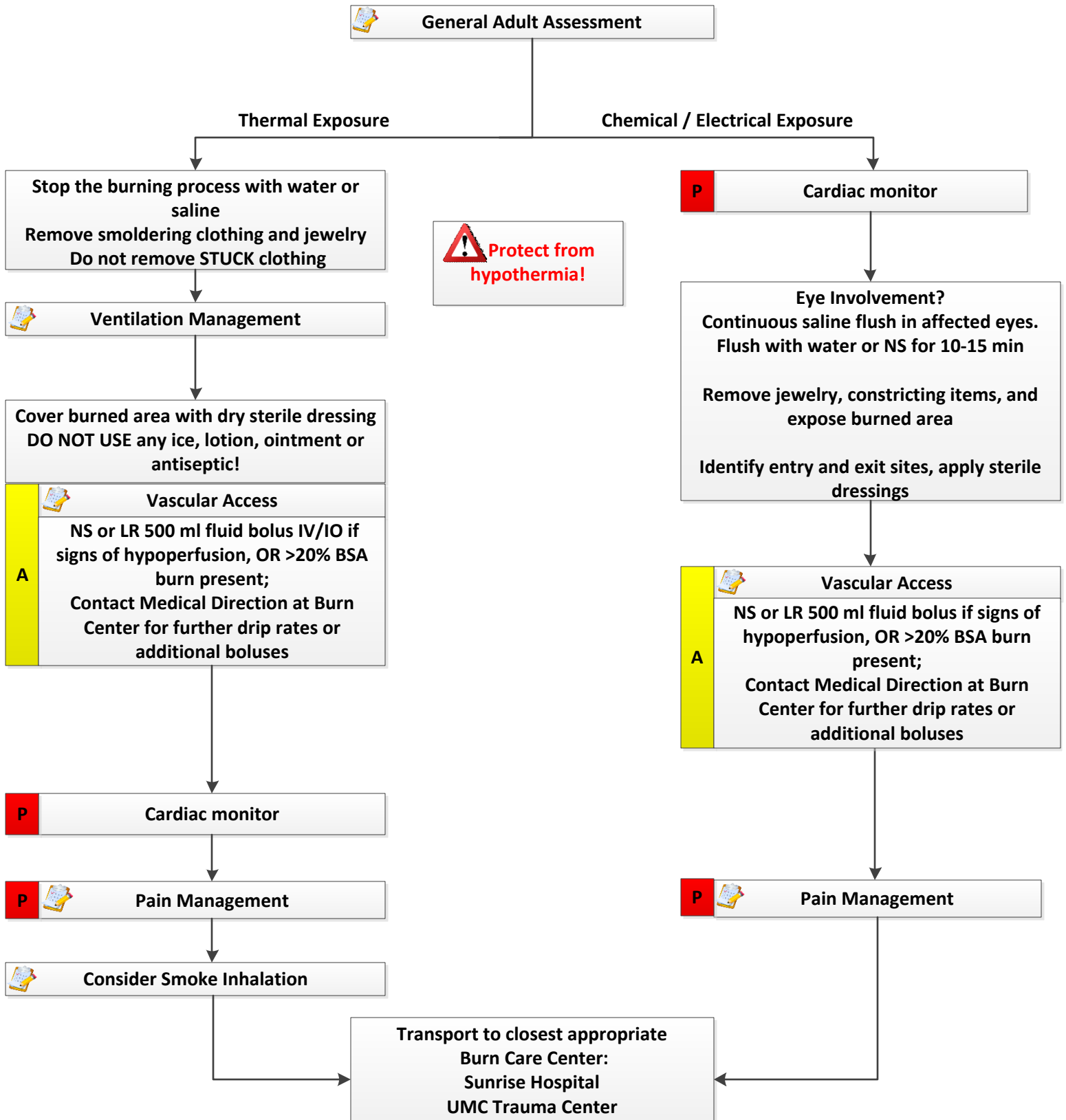
- Recommended Exam: Mental Status, HEENT, Heart, Lung, Neuro.
- Identifying signs and symptoms of poor perfusion caused by bradycardia are paramount. Treatment should only be given when patient is symptomatic due to bradycardia. Athletes, patients on beta blockers, and young healthy patients may have a slow resting heart rate at baseline.
- Do not delay pacing while waiting for IV access.
- Ensure adequate oxygenation and provide ventilatory support as needed.
- Consider hyperkalemia in patients with wide complex bradycardia.
- Atropine is unlikely to be effective and should be avoided in patients who have had a heart transplant.

**QI Metrics**

- High degree blocks correctly identified.
- Pacer pads on patient if Atropine given.
- Patient paced if appropriate.



# Burns



### History

- Type of exposure (heat, gas, chemical)
- Inhalational injury
- Time of injury
- Past medical history & medications
- Other trauma
- Loss of consciousness
- Tetanus/immunization status

### Signs and Symptoms

- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Hypotension/shock
- Airway compromise/distress
- Wheezing
- Singed facial or nasal hair
- Hoarseness or voice changes

### Differential

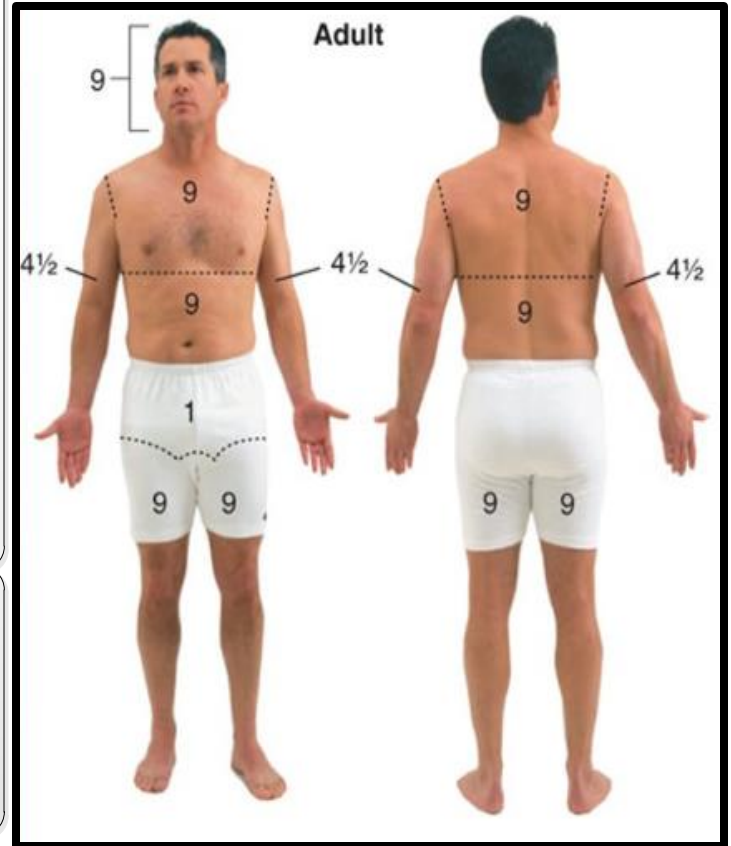
- Superficial (1<sup>st</sup> degree) – red and painful
- Partial Thickness (2<sup>nd</sup> degree) – blistering
- Full Thickness (3<sup>rd</sup> degree) – painless/charred or leathery skin
- Thermal
- Chemical
- Electrical
- Radiation
- Lightning

### Pearls

- Burn patients are trauma patients; evaluate for multisystem trauma.
- Assure whatever has caused the burn, is no longer contacting the injury. (Stop the burning process!)
- Recommended Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, Neuro.
- Consider early intubation with patients experiencing significant inhalation injuries.
- Potential CO exposure should be treated with 100% oxygen. (For patients in which the primary event is CO inhalation, transport to a hospital equipped with a hyperbaric chamber is indicated [when reasonably accessible].)
- Circumferential burns to extremities are dangerous due to potential vascular compromise secondary to soft tissue swelling. Elevate extremity.
- Burn patients are prone to hypothermia - never apply ice or cool burns; must maintain normal body temperature.
- Consider ETCO<sub>2</sub> monitoring.

### Early Intubation Indications

- Signs of Airway Obstruction
- Hoarseness, Stridor, Dysphagia
- Extensive Deep Facial Burns
- Signs of Respiratory Compromise
  - Accessory Muscle Use
  - Inability to Clear Secretions
  - Poor Oxygenation
- Burns in Mouth
- Total BSA ≥ 40%
- Altered Mentation
- Significant Risk of Edema



### Patients meeting the following criteria shall be transported to the closest appropriate Burn Care Center:

1. Second degree burns >10% body surface area (BSA).
2. Any Third degree burns.
3. Burns that involve the face, hands, feet, genitalia, perineum, or major joints.
4. Electrical burns including lightning injury.
5. Chemical burns.
6. Circumferential burns.
7. Inhalation burns.
8. Burn injury with concomitant trauma

### Fluid Resuscitation

- Adults 13 years and above 500 ml NS or LR bolus
- Contact Burn Center Medical Direction for additional boluses or drip rates or if it is a prolonged transport.

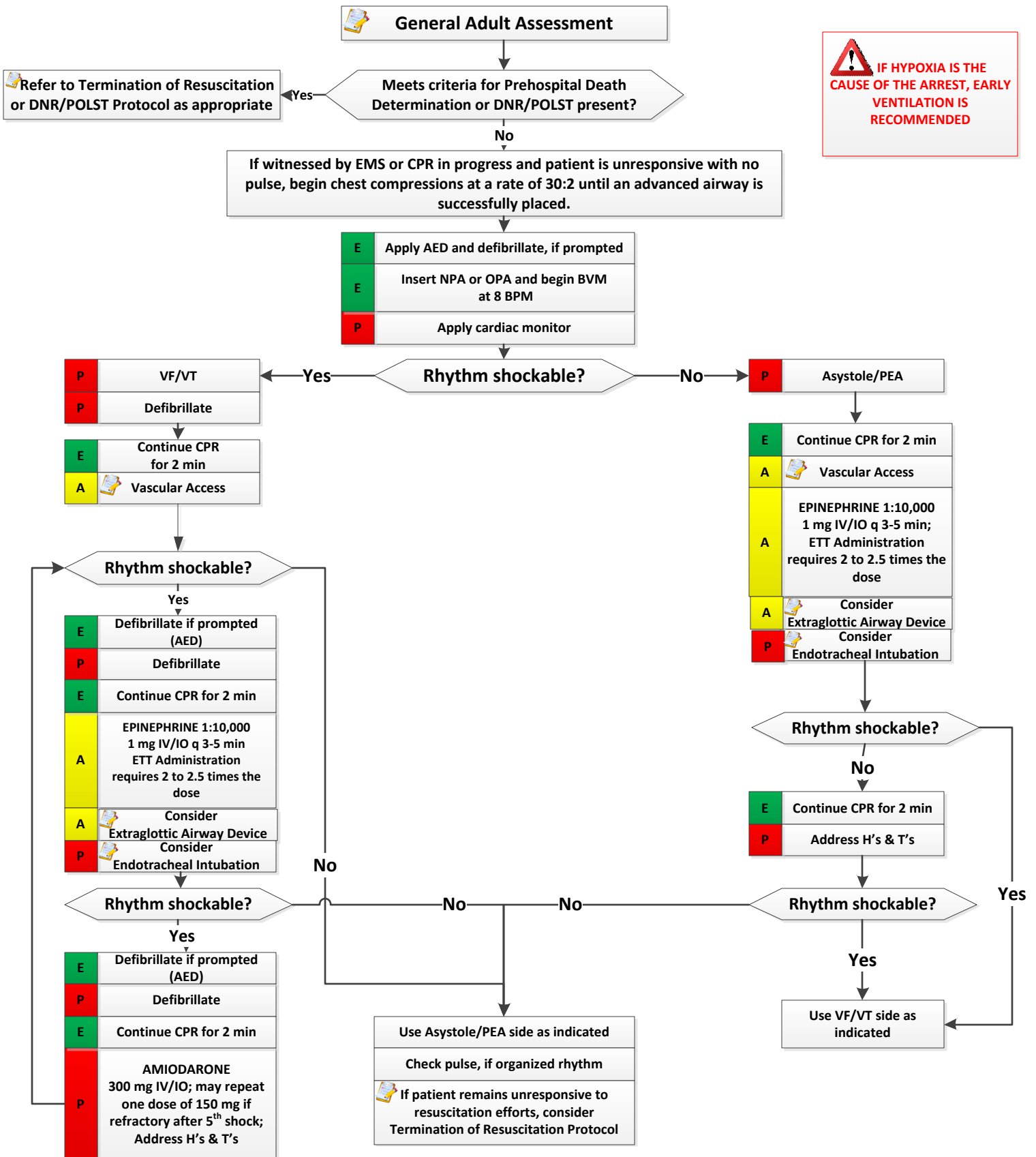
### Pearls (Electrical)

- Do not contact the patient until you are certain the source of the electric shock has been disconnected.
- Attempt to locate contact points, (entry wound where the AC source contacted the patient; an exit at the ground point); both sites will generally be full thickness.
- Cardiac monitor; anticipate ventricular or atrial irregularity to include V-Tach, V-Fib, heart blocks, etc.
- Attempt to identify the nature of the electrical source (AC vs DC), the amount of voltage and the amperage the patient may have been exposed to during the electrical shock.

### Pearls (Chemical)

- Certainly 0.9% NaCl Sol'n or Sterile Water is preferred; however if it is not readily available, do not delay; use tap water for flushing the affected area or other immediate water sources. Flush the area as soon as possible with the cleanest, readily available water or saline solution using copious amounts of fluids.

# Cardiac Arrest (Non-Traumatic)



**IF HYPOXIA IS THE CAUSE OF THE ARREST, EARLY VENTILATION IS RECOMMENDED**

### History

- Events leading to arrest
- Estimated down time
- Past medical history
- Medications
- Existence of terminal illness

### Signs and Symptoms

- Unresponsive
- Apneic
- Pulseless

### Differential

- Medical vs. Trauma
- VF vs. Pulseless VT
- Asystole
- PEA
- Primary cardiac event vs. respiratory or drug overdose

### Pearls

- Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated. Crews should consider using a “pit crew” approach with predefined roles and crew resource management principles.
- Consider early IO placement if IV is difficult.
- Ventilation rate should be 8-10 breaths per minute. Hyperventilation can worsen patient outcomes.
- Continuous waveform capnography should be monitored throughout resuscitation for confirmation and monitoring of advanced airways (when present), as well as monitoring effectiveness of chest compressions.
- Mechanical chest compression devices may be utilized if available. If utilized, the mechanical CPR device should be applied in a manner that minimizes interruptions in compressions, keeping breaks in CPR to less than 10 seconds. Use mechanical CPR devices per manufacturer’s guidelines. Manual CPR must be initiated before the application of a CPR device. Ideally, complete 2 rounds of manual compressions before application.
- If a patient is pregnant at or over 20 weeks estimated gestational age OR if the fundus is palpable above the umbilicus, apply the following interventions: During CPR, an additional rescuer should apply continuous manual leftward lateral displacement of the uterus to reduce pressure on the inferior vena cava and improve venous return. Vascular access should be obtained above the diaphragm. If no ROSC after two rounds of BLS/ACLS, consider immediate transport to the nearest Emergency Department for possible Resuscitative Cesarean Delivery (RCD).

Left uterine displacement using 1-handed technique.



Terry L. Vanden Hoek et al. Circulation. 2010;122:S829-S861



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Terry L. Vanden Hoek et al. Circulation. 2010;122:S829-S861

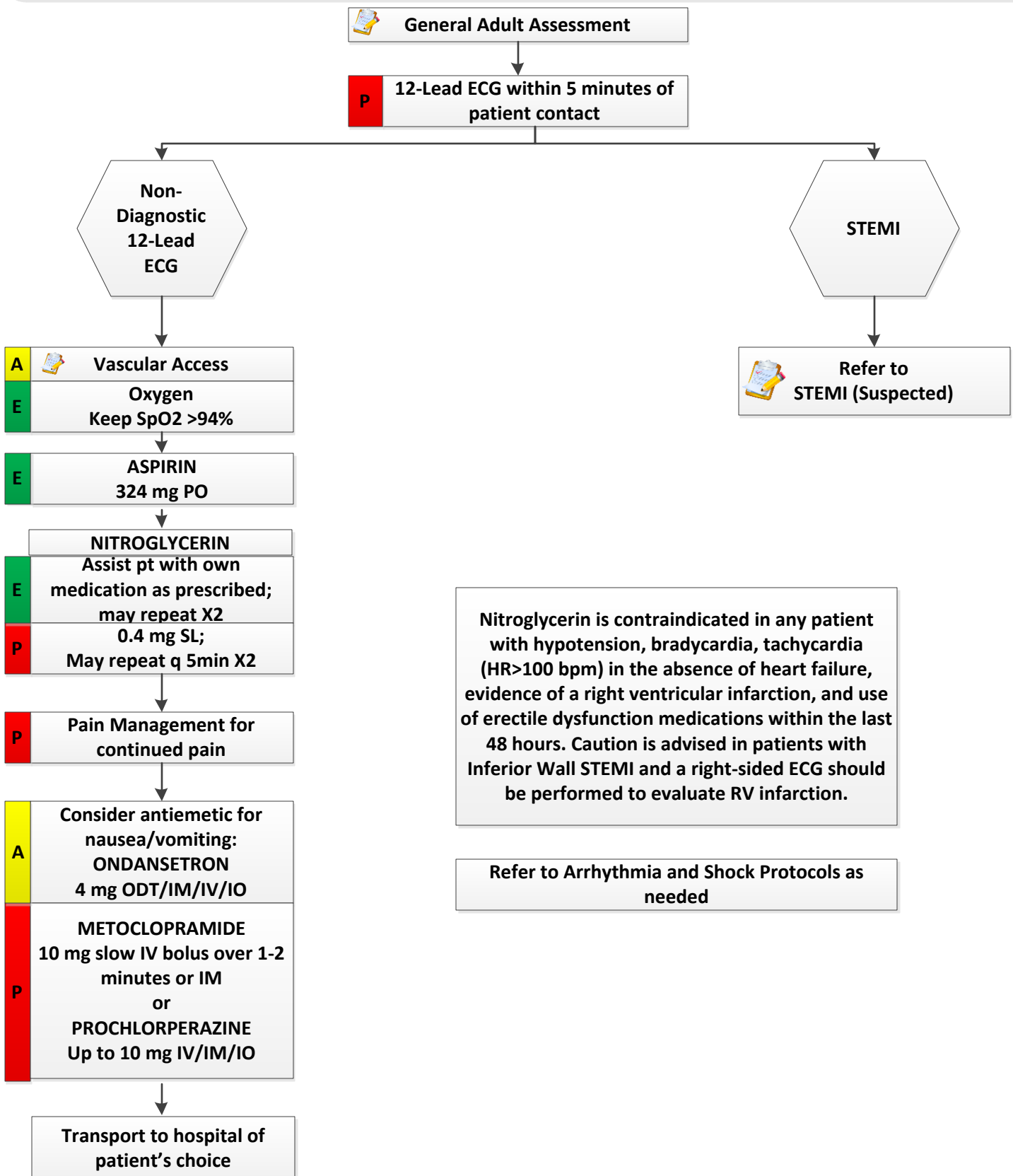


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### H's & T's (reversible causes)

- Hypovolemia – Volume infusion
- Hypoxia – Oxygenation & ventilation, CPR
- Hydrogen ion (acidosis) – Ventilation, CPR
- Hypokalemia
- Hyperkalemia -Calcium chloride, sodium bicarbonate, albuterol
- Hypothermia - Warming
- Tension pneumothorax – Needle decompression
- Tamponade, cardiac – Volume infusion
- Toxins – Agent specific antidote
- Thrombosis, pulmonary – Volume infusion
- Thrombosis, coronary – Emergent PCI

# Chest Pain (Non Traumatic) and Suspected Acute Coronary Syndrome



### History

- Age
- Medications: Viagra, Levitra, Cialis
- Past medical history of MI, angina, diabetes
- Allergies
- Recent physical exertion
- Palliation, provocation
- Quality
- Region, radiation, referred
- Severity (1-10)
- Time of onset, duration, repetition

### Signs and Symptoms

- CP, pressure, ache, vise-like pain, tight
- Location, substernal, epigastric, arm, jaw, neck, shoulder
- Radiation of pain
- Pale, diaphoresis
- Shortness of breath
- Nausea, vomiting, dizziness
- Time of onset

### Differential

- Trauma versus medical
- Anginal versus MI
- Pericarditis
- Pulmonary embolism
- Asthma, COPD
- Pneumothorax
- Aortic dissection or aneurysm
- GE reflux or hiatal hernia
- Esophageal spasm
- Chest injury or pain
- Pleural pain
- Drug overdose (cocaine, methamphetamine)

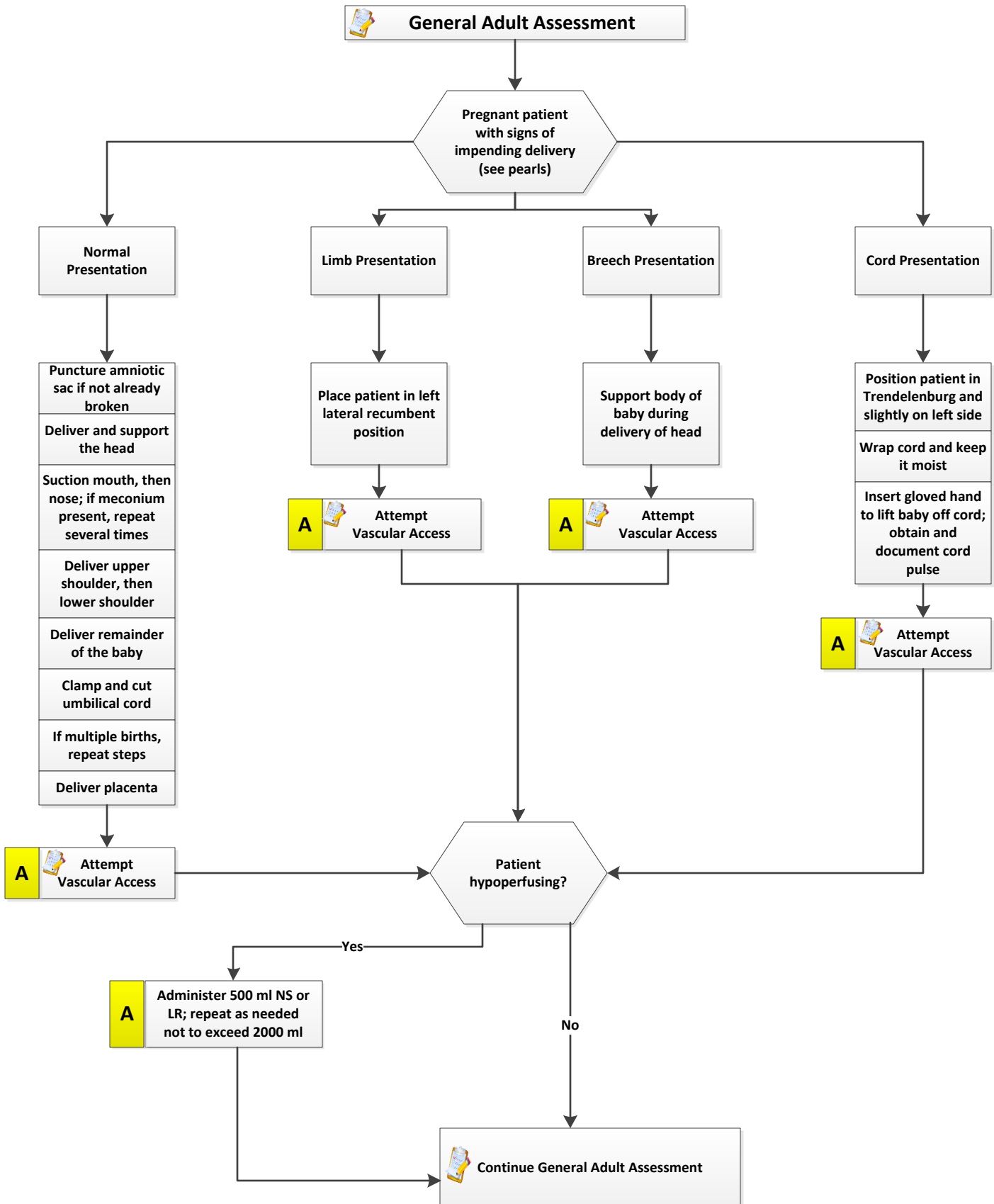
### Pearls

- Recommended exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Back, Extremities, Neuro.
- Diabetics, geriatrics, and female patients often have atypical pain. Have a high index of suspicion.
- Perform a 12-Lead ECG on all patients 35 years old or older experiencing vague jaw/ chest/ abdominal discomfort.
- Perform a 12-Lead ECG within 5 minutes of patient contact.
- The administration of nitroglycerin is contraindicated for any patient who has used erectile dysfunction medications within the last 48 hours.
- Nitroglycerin is contraindicated in any patient with hypotension, bradycardia, or tachycardia in the absence of heart failure and evidence of a right ventricular infarction.
- Avoid the use of nitroglycerin in patients with a suspected aortic dissection.

### QI Metrics

- 12-Lead ECG within 5 minutes of patient contact.
- Pain reassessed after every intervention.
- Pain control documented.

# Childbirth / Labor



**History**

- Due date
- Time contractions started/ duration/frequency
- Rupture of membranes (meconium)
- Time and amount of any vaginal bleeding
- Sensation of fetal movement
- Pre-natal care
- Past medical and delivery history
- Medications
- Gravida/Para status
- High risk pregnancy

**Signs and Symptoms**

- Spasmodic pain
- Vaginal discharge or bleeding
- Crowning or urge to push
- Meconium

**Differential**

- Abnormal presentation (breech, limb)
- Prolapsed cord
- Placenta previa
- Abruptio placenta

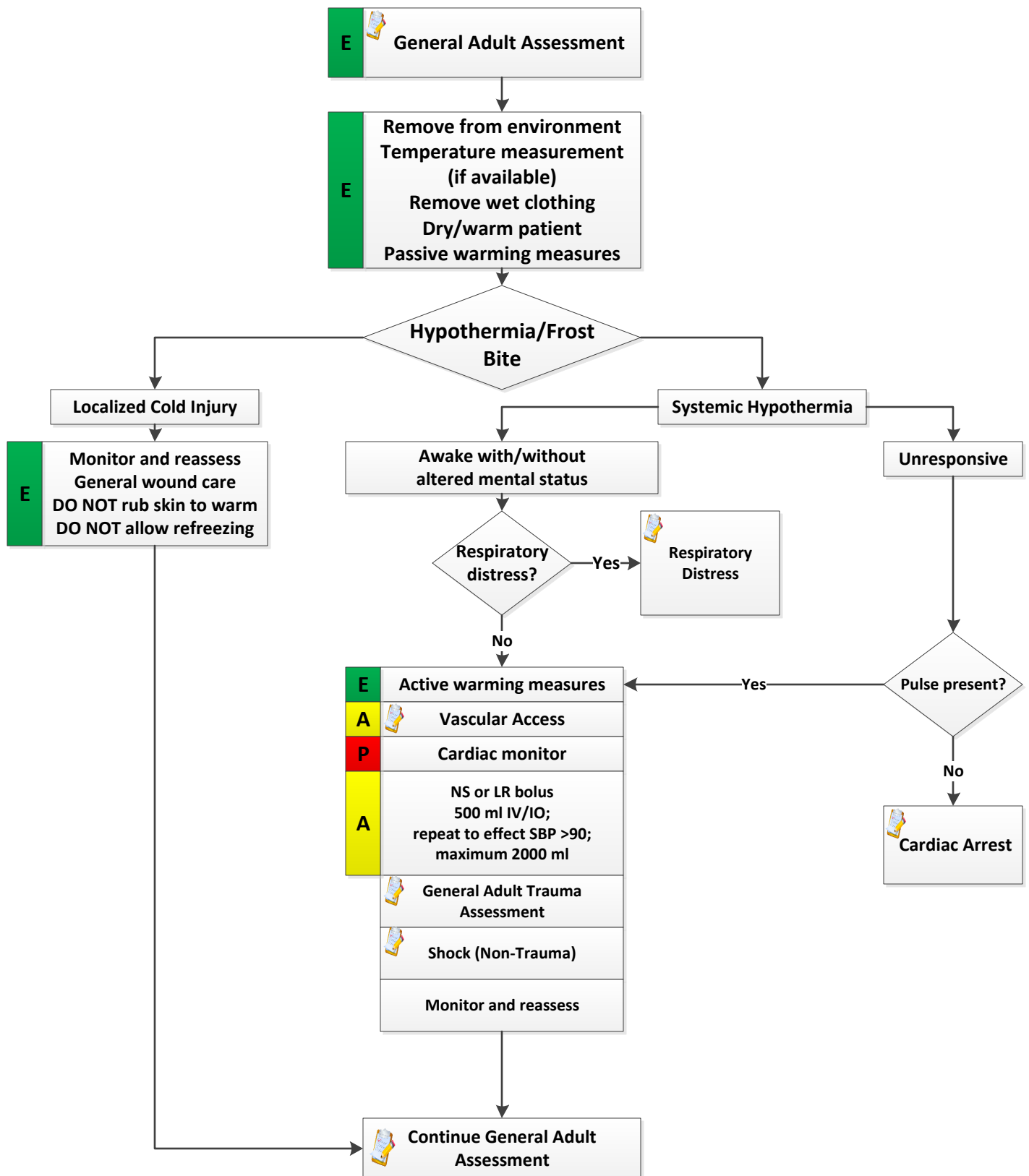
**Pearls**

- Recommended exam (of mother): Mental Status, Heart, Lungs, Abdomen, Neuro.
- Document all times (delivery, contraction duration and frequency).
- Some bleeding is normal; copious amounts of blood or free bleeding is abnormal.
- Record APGAR at one and five minutes after birth.
- APGAR of 7-10 is normal, while 4-7 requires resuscitative measures.

<b>APGAR</b>	<b>Score=0</b>	<b>Score=1</b>	<b>Score=2</b>
• <b><u>Activity/Muscle Tone</u></b>	Absent	Arms/legs flexed	Active movement
• <b><u>Pulse</u></b>	Absent	Below 100	Above 100
• <b><u>Grimace/Reflex Irritability</u></b>	No response	Grimace	Sneeze, cough, pulls away
• <b><u>Appearance/Skin Color</u></b>	Blue-Grey, pale all over	Normal, except extremities	Normal over entire body
• <b><u>Respiration</u></b>	Absent	Slow, irregular	Good, crying



# Cold-Related Illness



**History**

- Age, very young and old
- Exposure to decreased temperatures, but may occur in normal temperatures
- Past medical history/medications
- Drug or alcohol use
- Infections/sepsis
- Time of exposure/wetness/wind chill

**Signs and Symptoms**

- AMS/coma
- Cold, clammy
- Shivering
- Extremity pain
- Bradycardia
- Hypotension or shock

**Differential**

- Sepsis
- Environmental exposure
- Hypoglycemia
- Stroke
- Head injury
- Spinal cord injury

**Pearls**

- Recommended exam: Mental Status, Heart, Lung, Abdomen, Extremities, Neuro.
- Extremes of age are more prone to cold emergencies.
- Obtain and document patient temperature.
- If temperature is unknown, treat the patient based on suspected temperature.
- Active warming includes hot packs that can be used on the armpit and groin; care should be taken not to place the packs directly on the skin.
- Warm saline or lactated ringers IV may be used.
- Recognize the cardiac arrest resuscitation guidelines for the hypothermic patient.

**Hypothermia Categories**

- Mild 90° - 95° F (33° - 35° C)
- Moderate 82° - 90° F (28° - 32° C)
- Severe <82 degrees F (<28° C)

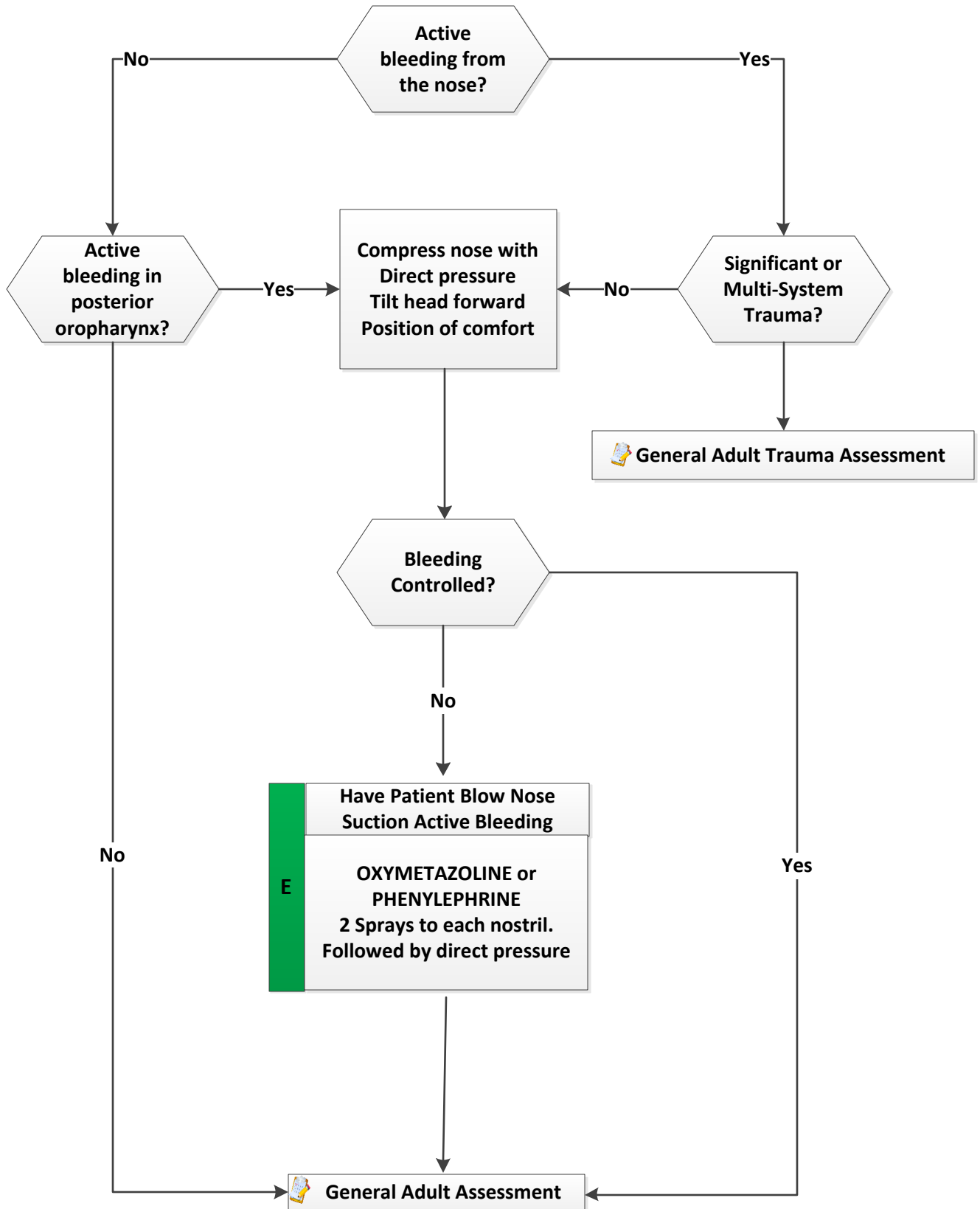
**Hypothermia Mechanisms**

- Radiation
- Convection
- Conduction
- Evaporation

**Active Heating Measures**

- Hot packs to the armpits and groin (do not place directly onto skin)

# Epistaxis



### History

- Age
- Past Medical History
- Medications (HTN, Anticoagulants, aspirin, NSAIDS)
- Previous episodes of epistaxis
- Trauma
- Duration of bleeding
- Quantity of bleeding

### Signs and Symptoms

- Bleeding from nasal passages
- Pain
- Nausea
- Vomiting

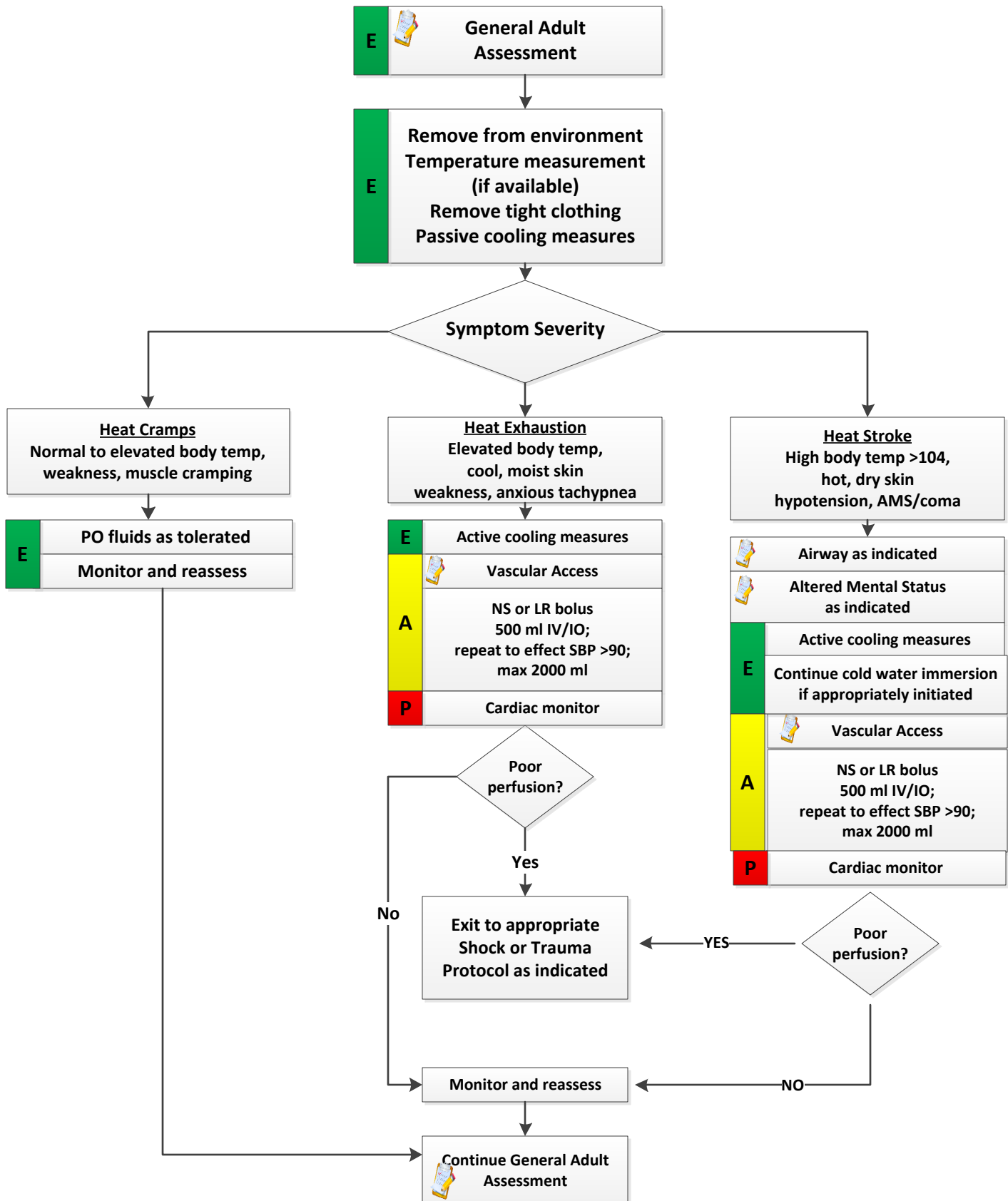
### Differential

- Trauma
- Infection (viral URI or Sinusitis)
- Allergic rhinitis
- Lesions (polyps, ulcers)
- Hypertension

### Pearls

- Recommended exam: Mental Status, HEENT, Lungs, Neuro
- It is very difficult to quantify the amount of blood loss with epistaxis
- Bleeding may be also occurring posteriorly. Evaluate for posterior blood loss by examining the posterior pharynx.
- Anticoagulants include warfarin (Coumadin), heparin, enoxaparin (Lovenox), dabigatran (Pradaxa), rivaroxaban (Xarelto), and many other over the counter headache relief powders.
- Anti-platelet agents like aspirin, clopidogrel (Plavix), aspirin/dipyridamole (Aggrenox), and ticlopidine (Ticlid) can contribute to bleeding.

# Heat-Related Illness



**History**

- Age, very old and young
- Exposure to increased temperatures and/or humidity
- Past medical history/medications
- Time and duration of exposure
- Poor PO intake, extreme exertion
- Fatigue and/or muscle cramping

**Signs and Symptoms**

- AMS/coma
- Hot, dry, or sweaty skin
- Hypotension or shock
- Seizures
- Nausea

**Differential**

- Fever
- Dehydration
- Medications
- Hyperthyroidism
- DTs
- Heat cramps, heat exhaustion, heat stroke
- CNS lesions or tumors

**Pearls**

- Recommended exam: Mental Status, Skin, Heart, Lung, Abdomen, Extremities, Neuro.
- Extremes of age are more prone to heat emergencies.
- Cocaine, amphetamines, and salicylates may elevate body temperatures.
- Sweating generally disappears as body temperatures rise over 104° F (40° C).
- Intense shivering may occur as patient is cooled.
- Active cooling includes application of cold packs or ice (not directly on skin), fanning either by air conditioning or fanning.
- Cold saline is not to be administered for the treatment of hyperthermia unless directed by telemetry physician.
- Cold water immersion is the preferred method of active cooling. Some providers such as certified athletic trainers and event medical personnel are prepared to initiate cold water immersion prior to EMS arrival. If cold water immersion was initiated due to documented hyperthermia, these patients should not be removed from cold water immersion prior to their rectal temperature reaching 102.2F (39C) or mental status returning to baseline unless it is required to manage other emergent issues such as airway.

**Heat Cramps**

- Consist of benign muscle cramping caused by dehydration and is not associated with an elevated temperature.

**Heat Exhaustion**

- Consists of dehydration, salt depletion, dizziness, fever, AMS, headache, cramping, N/V. Vital signs usually consist of tachycardia, hypotension and elevated temperature.

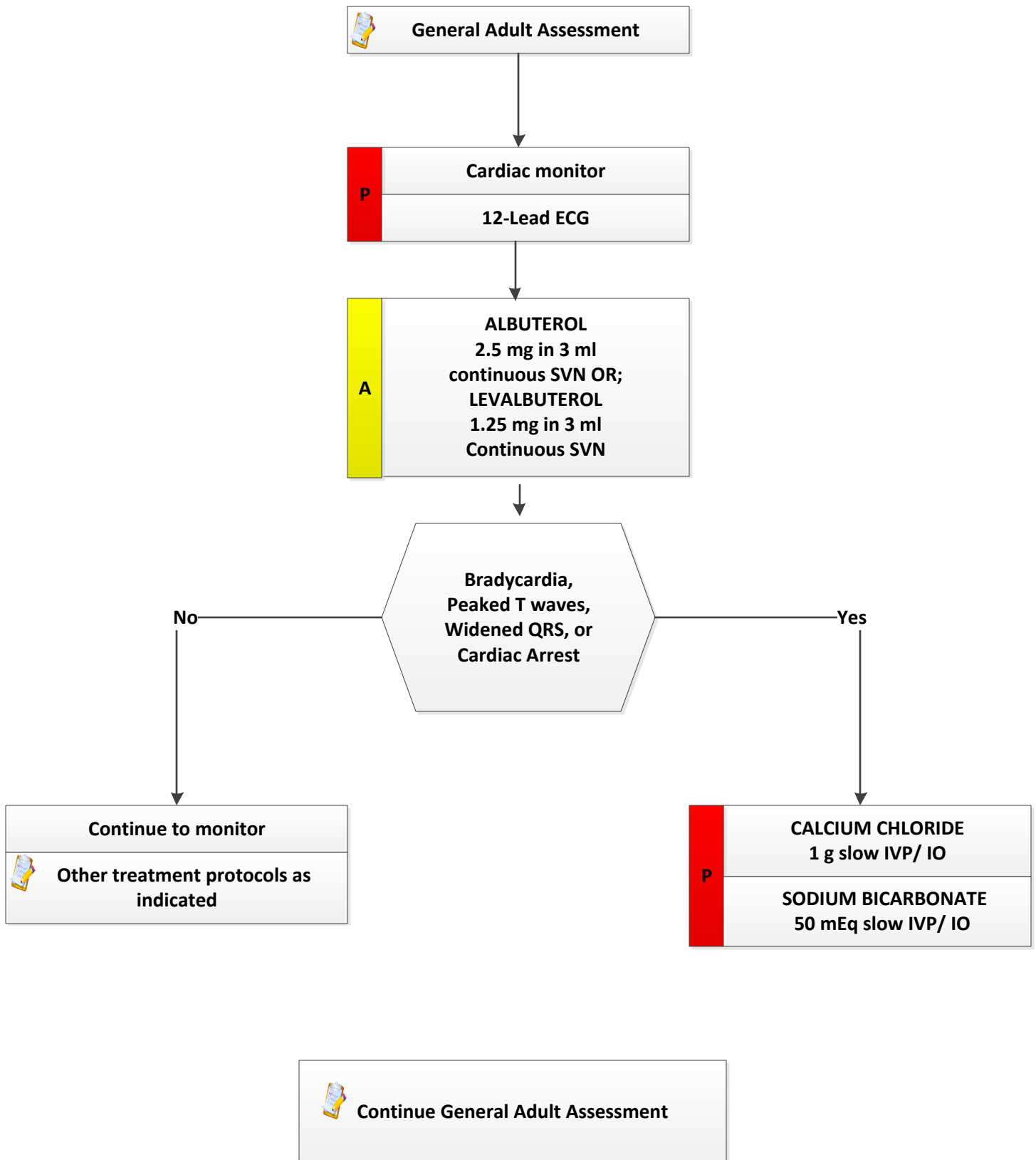
**Heat Stroke**

- Consists of dehydration, tachycardia, hypotension, temperature >104° F (40° C), and AMS.

**Active Cooling Measures**

- Cold packs
- Ice (do not place directly onto patient's skin)
- Fanning
- Air Conditioning

# Hyperkalemia (Suspected)



### History

- History of renal failure
- History of dialysis
- Trauma, crush injury

### Signs and Symptoms

- Cardiac conduction disturbances
- Irritability
- Abdominal distension
- Nausea
- Diarrhea
- Oliguria
- Weakness

### Differential

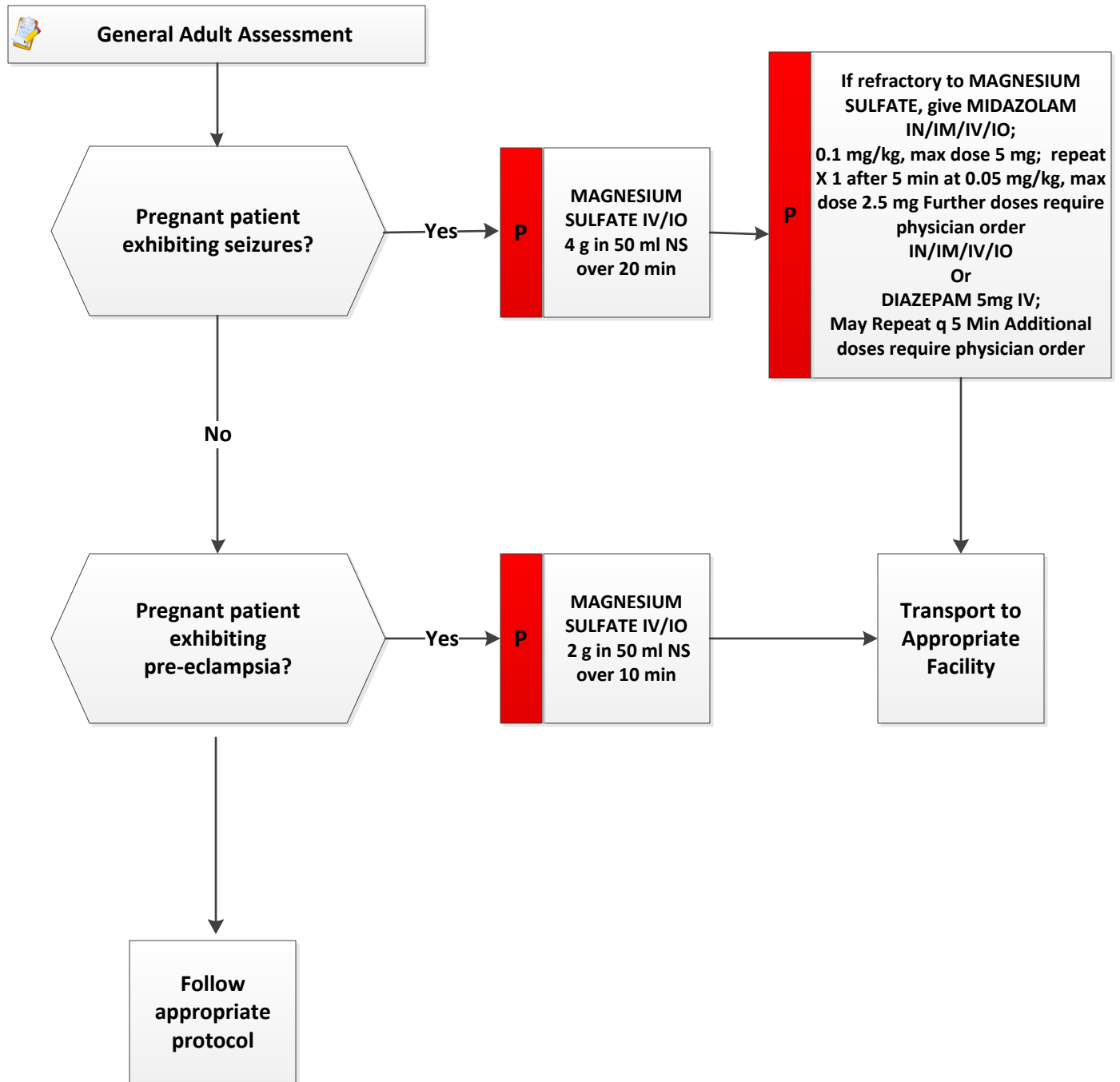
- Cardiac disease
- Renal failure
- Dialysis
- Trauma

### Pearls

- **Patients must have suspected hyperkalemia *OR* electrocardiographic findings consistent with hyperkalemia (bradycardia with widening QRS complexes) BEFORE initiating treatment.**
- **Hyperkalemia is defined as a potassium level higher than 5.5 mmol/L.**
- **Potassium of 5.5 - 6.5 mmol/L - Tall tented T waves.**
- **Potassium of 6.5 - 7.5 mmol/L - Loss of P waves.**
- **Potassium of 7.5 - 8.5 mmol/L - Widening QRS.**
- **Potassium of >8.5 mmol/L - QRS continues to widen, approaching sine wave.**



# Obstetrical Emergency



**History**

- Medical history
- Hypertension medication
- Prenatal care
- Prior pregnancies/births
- Previous pregnancy complications

**Signs and Symptoms**

- Vaginal bleeding
- Abdominal pain
- Seizures
- Hypertension
- Severe headache
- Visual changes
- Edema of the hands or face

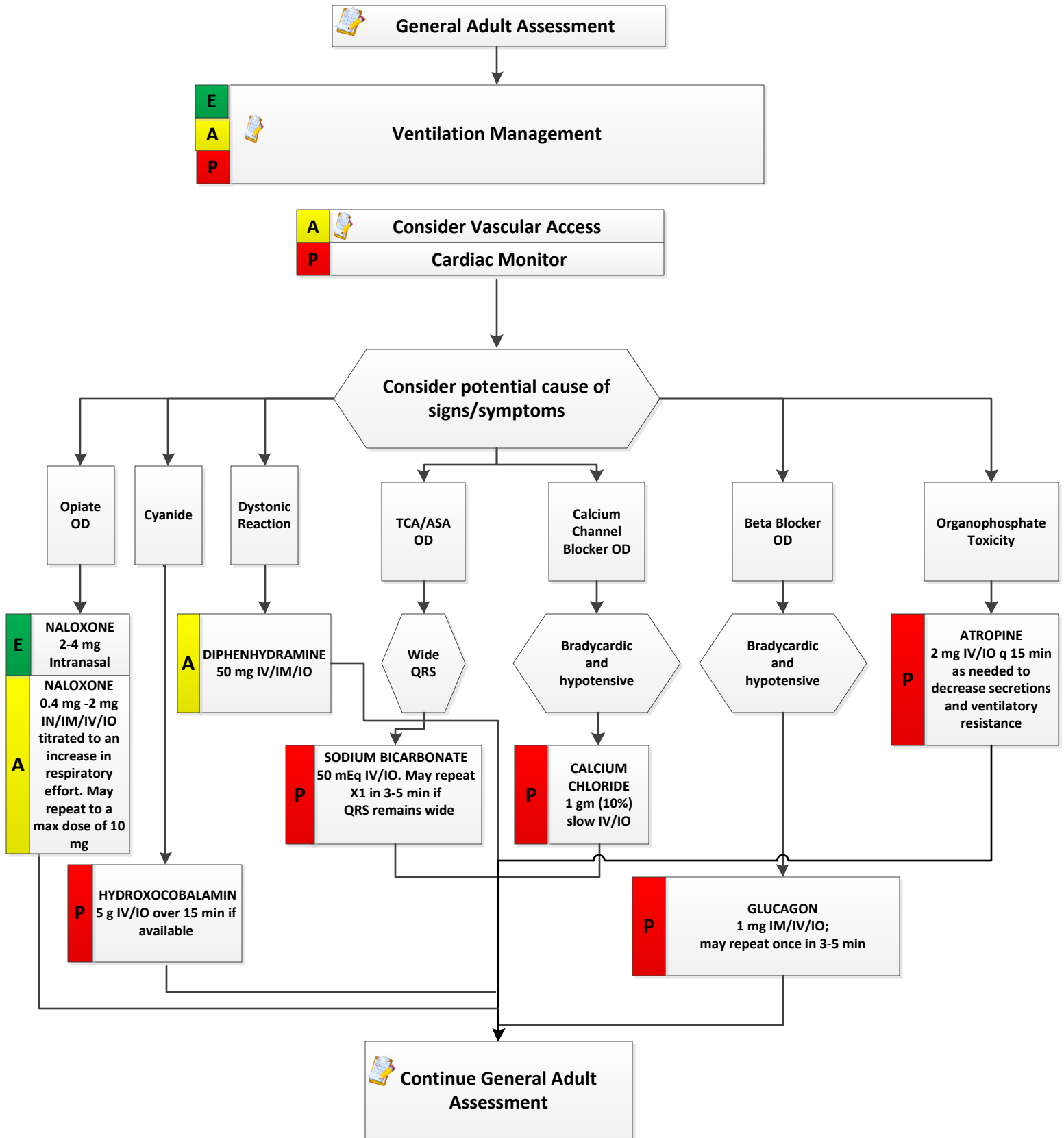
**Differential**

- Pre-eclampsia/eclampsia
- Placenta previa
- Placenta abruptio
- Spontaneous abortion

**Pearls**

- Recommended exam: Mental Status, Heart, Lung, Abdomen, Neuro.
- Severe headache, vision changes or RUQ pain may indicate pre-eclampsia.
- In the setting of pregnancy hypertension is defined as >140 systolic or >90 diastolic or a relative increase of 30 systolic and 20 diastolic from the patient's normal pre-pregnancy BP.
- Maintain left lateral position.
- Ask patient to quantify bleeding - number of pads used per hour.
- Any pregnant patient involved in a MVC should be seen by a physician for evaluation.
- Postpartum eclampsia/pre-eclampsia commonly presents up to 48 hours after childbirth. If symptomatic, treat as eclampsia/pre-eclampsia.
- May present up to 6 weeks after childbirth, Assess for history or pre-eclampsia/eclampsia during pregnancy or delivery.

# Overdose/Poisoning



### History

- Ingestion or suspected ingestion of a potentially toxic agent
- Substance ingested, route, quantity
- Time of ingestion
- Reason (suicidal, accidental, criminal)
- Available medications in home
- Past medical history, medications

### Signs and Symptoms

- Mental status changes
- Hypotension/hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures
- SLUDGE
- Malaise, weakness
- GI symptoms
- Dizziness
- Syncope
- Chest pain

### Differential

- TCA overdose
- Acetaminophen OD
- Aspirin
- Depressants
- Stimulants
- Anticholinergic
- Cardiac medications
- Solvents, alcohols, cleaning agents, insecticides

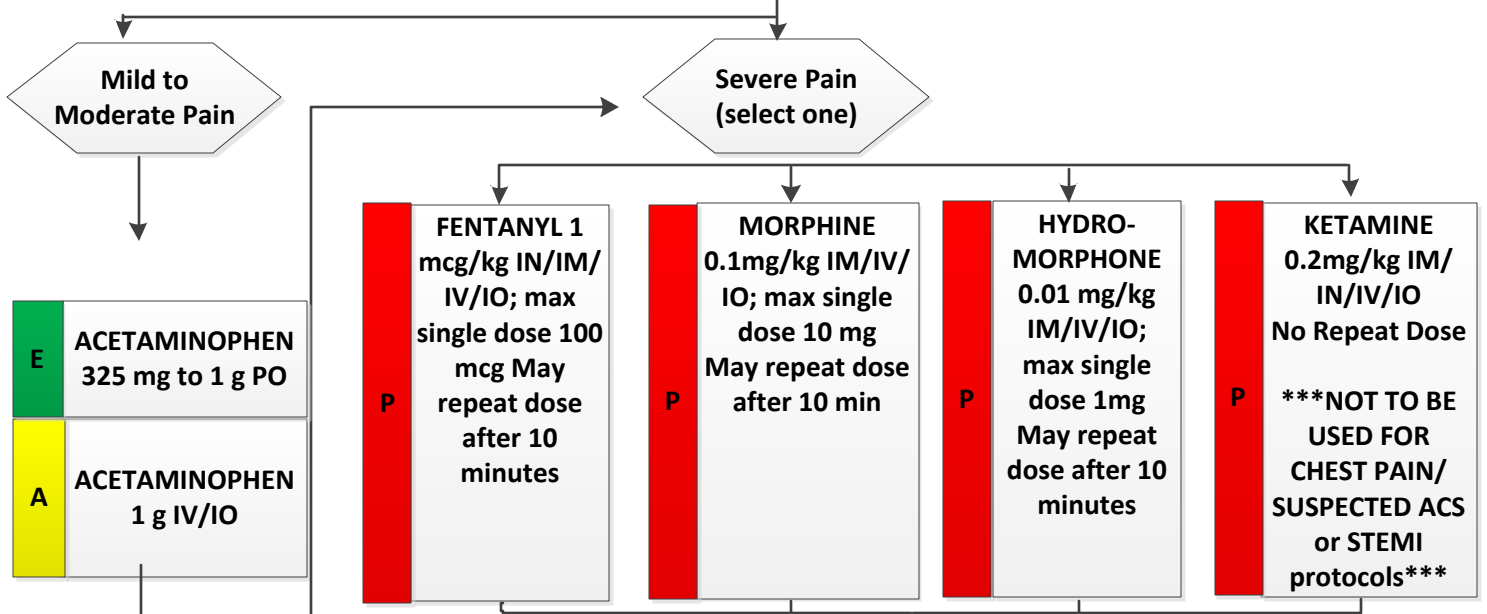
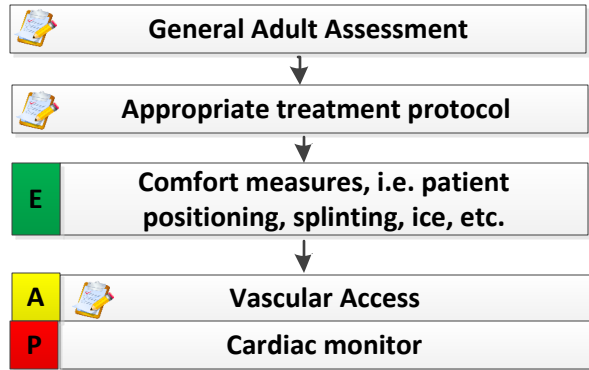
### Pearls

- Recommended exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Neuro.
- Narcan should be administered in small increment doses IV to address respiratory depression and ensure adequate ventilation. Monitor patient to watch for any signs of respiratory depression reoccurring. IV/IM are preferred routes for predictability.
- Overdose or toxin patients with significant ingestion/exposure should be closely monitored and aggressively treated. Do not hesitate to contact medical control if needed.
- In the case of cyanide poisoning, altered mental status may be profound. Profound altered mental status can be defined as a deficit that includes disorientation, bewilderment and difficulty following commands.
- If patient is suspected to have narcotic overdose/hypoglycemia, administer Narcan/ Glucose prior to extraglottic device/intubation.
- Poison Control: 1-800-222-1222

### Agents

- Acetaminophen: Initially normal or N/V. Tachypnea and AMS may occur later. Renal dysfunction, liver failure and/or cerebral edema may manifest.
- Depressants: Decreased HR, BP, temp and RR.
- Anticholinergic: Increased HR, increased temperature, dilated pupils and AMS changes.
- Insecticides: May include S/S of organophosphate poisoning.
- Solvents: N/V, cough, AMS.
- Stimulants: Increased HR, BP, temperature, dilated pupils, seizures, and possible violence.
- TCA: Decreased mental status, dysrhythmias, seizures, hypotension, coma, death.

# Pain Management



**A** Consider ACETAMINOPHEN Up to 1000 mg IV/IO/PO If not given previously

**A** For nausea/vomiting after pain medication consider: ONDANSETRON 4 mg ODT/IM/IV/IO

**P** DROPERIDOL 1.25 mg IM/IV/IO or METOCLOPRAMIDE 10 mg slow IV bolus over 1-2 minutes or IM or PROCHLORPERAZINE Up to 10 mg IV/IM/IO

Continue General Adult Assessment

Contact Medical Control for additional repeat dosages or to utilize an additional controlled substance

**History**

- Age
- Location, duration
- Severity (1-10)
- Past medical history
- Pregnancy status
- Drug allergies and medications

**Signs and Symptoms**

- Severity (pain scale)
- Quality
- Radiation
- Relation to movement, respiration
- Increased with palpation of area

**Differential**

- Musculoskeletal
- Visceral (abdominal)
- Cardiac
- Pleural, respiratory
- Neurogenic
- Renal (colic)

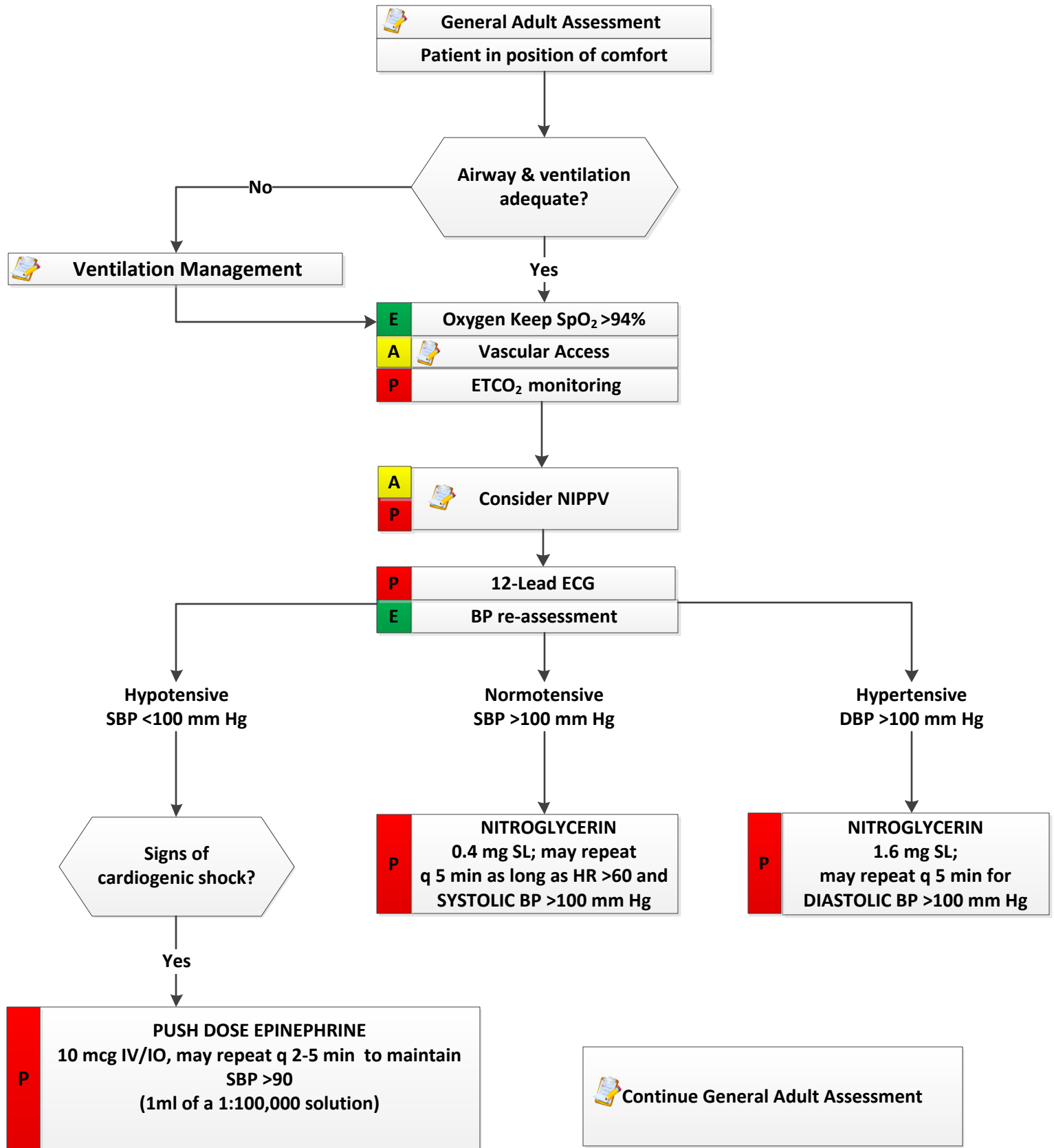
**Pearls**

- Recommended exam: Respiratory Status, Mental Status, Area of pain, Neuro.
- Pain severity (1-10) is to be recorded before and after medication administration and patient hand off.
- Monitor BP and respirations closely as sedative and pain control agents may cause hypotension and/or respiratory depression.
- Consider patient's age, weight, clinical condition, use of drugs/alcohol, exposure to opiates when determining initial opiate dosing. Weight based dosing may provide a standard means of dosing calculation, but it does not predict response. Consider starting at a lower initial dose and titrating to effect is recommended. Patients may not exceed listed maximum dose without Medical Control orders.
- Exercise care when administering opiates and benzodiazepines; this combination results in deeper anesthesia with significant risk of respiratory compromise.
- Burn patients may require more aggressive dosing. Consider early Medical Control for additional doses.
- Acetaminophen is not to be used as the primary pain management medication for Chest Pain/Suspected ACS or STEMI patients.
- Acetaminophen should be considered the primary treatment for severe pain for patients that do not wish to receive narcotic analgesia.
- Consider fentanyl as the preferred opioid agent for traumatic pain.

**• QI Metrics**

- Vital signs with O<sub>2</sub> sats recorded.
- Pain scale documented before and after intervention.
- Vital signs repeated after intervention.
- If considering repeat administration of pain medications, nasal cannula capnography must be utilized.

# Pulmonary Edema/CHF



**History**

- Congestive heart failure
- Past medical history
- Medications
- Cardiac history

**Signs and Symptoms**

- Respiratory distress, bilateral rales
- Apprehension, orthopnea
- JVD
- Pink, frothy sputum
- Peripheral edema
- Diaphoresis
- Hypotension, shock
- Chest pain

**Differential**

- MI
- Congestive heart failure
- Asthma
- Anaphylaxis
- Aspiration
- COPD
- Pleural effusion
- Pneumonia
- Pericardial tamponade
- Toxic exposure

**Pearls**

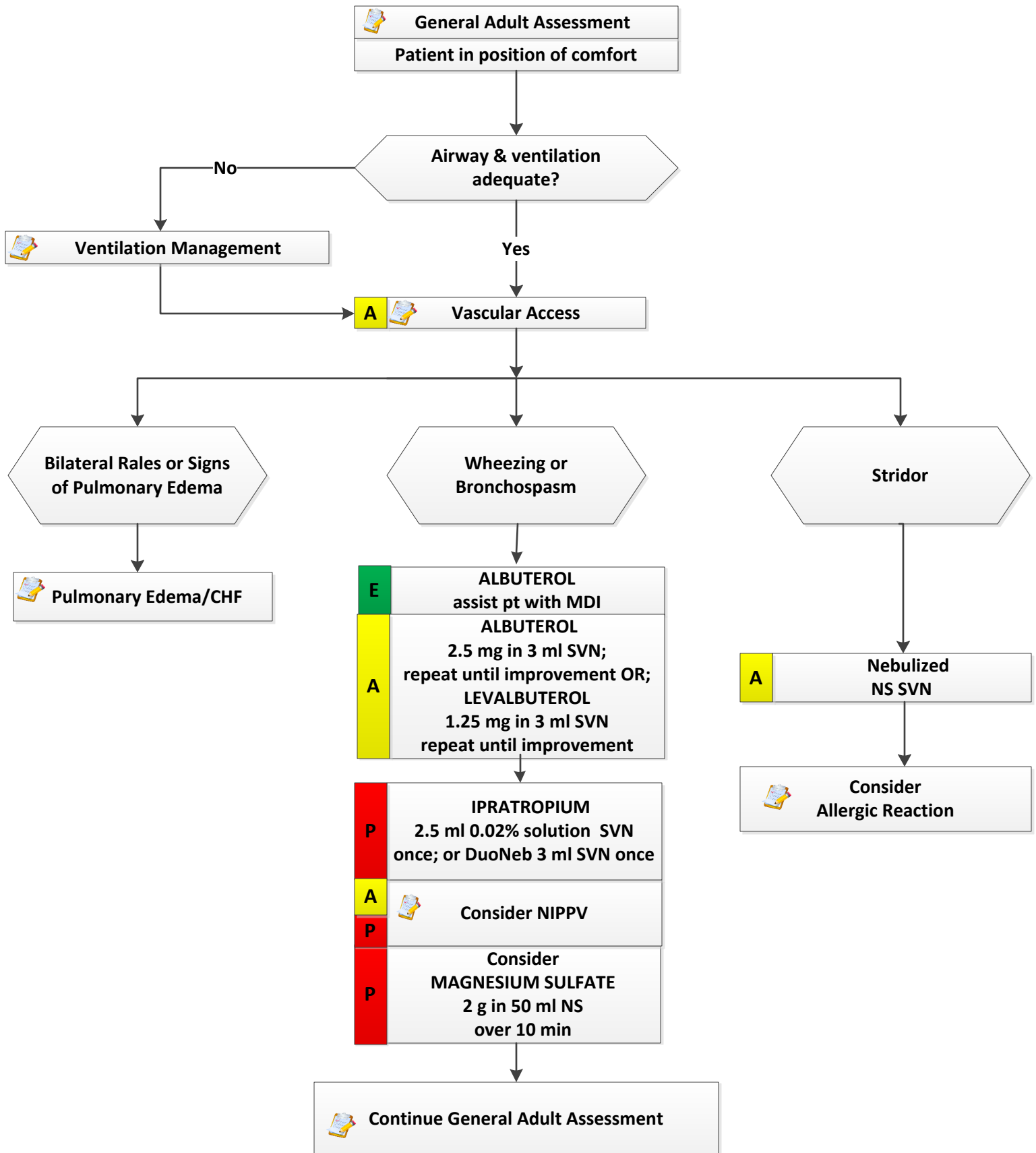
- The administration of nitroglycerin is contraindicated for any patient who has used erectile dysfunction medications within the last 48 hours.
- Carefully monitor the patient as you administer interventions.
- Consider MI.
- Allow patient to maintain position of comfort.

**QI Metrics**

- Blood pressure reassessed after each nitroglycerin dose.
- ETCO<sub>2</sub> monitored.



# Respiratory Distress



**History**

- Asthma, COPD, CHF, chronic bronchitis, emphysema
- Home treatment (oxygen, nebulizers)
- Medication
- Toxic exposure

**Signs and Symptoms**

- Shortness of breath
- Pursed lip breathing
- Decreased ability to speak
- Increased respiratory rate and effort
- Wheezing, rhonchi
- Use of accessory muscles
- Fever, cough
- Tachycardia

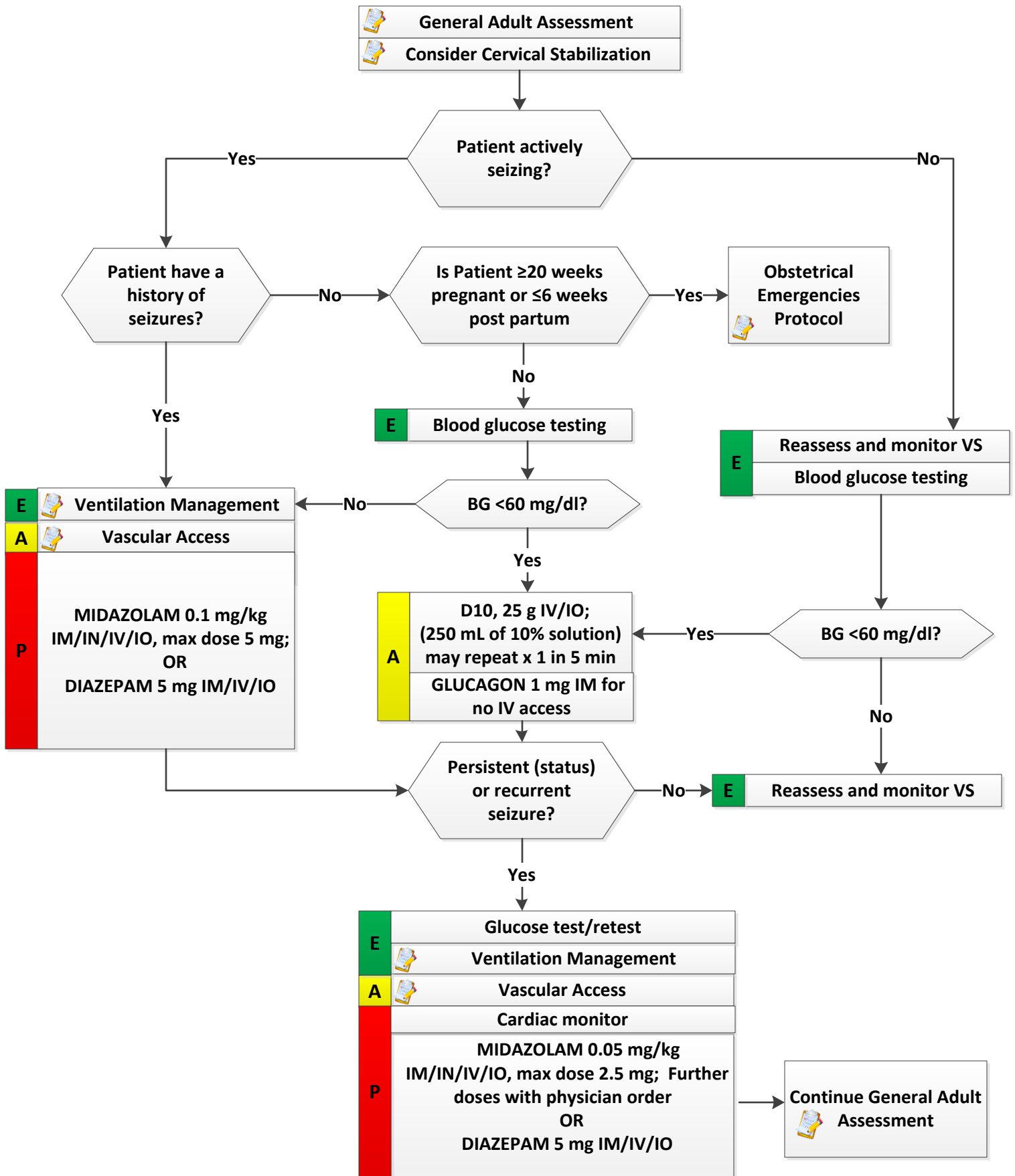
**Differential**

- Asthma
- Anaphylaxis
- Aspiration
- COPD
- Pleural effusion
- Pneumonia
- Pulmonary embolus
- Pneumothorax
- Cardiac (MI or CHF)
- Pericardial tamponade
- Hyperventilation
- Inhaled toxin

**Pearls**

- Recommended exam: Mental Status, HEENT, Skin, Neck, Heart, Lungs, Abdomen, Extremities, Neuro.
- Pulse oximetry and end tidal continuous waveform capnography must be monitored.
- Consider MI.
- Allow the patient to assume a position of comfort.

# Seizure



**History**

- Reported or witnessed seizure activity
- Previous seizure history
- Seizure medications
- History of trauma
- History of diabetes
- History of pregnancy
- Time of seizure onset
- Number of seizures
- Alcohol use, abuse, or abrupt cessation
- Fever

**Signs and Symptoms**

- Decreased mental status
- Sleepiness
- Incontinence
- Observed seizure activity
- Evidence of trauma
- Unconsciousness

**Differential**

- CNS trauma
- Tumor
- Metabolic, hepatic or renal failure
- Hypoxia
- Electrolyte abnormality (Na, Ca, Mg)
- Drugs, medication non-compliance
- Infection, fever
- Alcohol withdrawal
- Eclampsia
- Stroke
- Hyperthermia
- Hypothermia

**Pearls**

- Recommended exam: Mental Status, HEENT, Heart, Lungs, Extremities, Neuro.
- Benzodiazepines are effective in terminating seizures; do not delay IM/IN administration while initiating an IV.
- Status epilepticus is defined as two or more seizures successively without an intervening lucid period, or a seizure lasting over five minutes.
- Grand mal seizures (generalized) are associated with loss of consciousness, incontinence and oral trauma.
- Focal seizures affect only part of the body and are not usually associated with a loss of consciousness.
- Be prepared to address airway issues and support ventilations as needed.
- Consider ETCO<sub>2</sub> monitoring.

# Sepsis (Suspected)

 **General Adult Assessment**

- E** Oxygen Keep SpO2 >94%
- A** Vascular Access
- P** Cardiac Monitoring/Capnography

Does the patient have a known or suspected source of infection AND TWO of the following criteria?

- SBP <90 mm Hg
- HR >90/min
- Respiratory rate >20
- Altered mental status
- Temperature > or = 100.4 F or < or = 96.8 F
- Persistent ETCO2 <25 on waveform capnography

**YES**

**NO**

Facility Code Sepsis notification telemetry immediately upon recognition of patient meeting Sepsis criteria

Alternate appropriate treatment protocols as indicated

<b>A</b>	NS or LR bolus 500 ml IV/IO, reassess criteria and re-examine. May repeat x3 for SBP <90, with no rales on lung exam. Max dose 2000 ml.
<b>P</b>	If SBP <90 after 2000 ml IV fluids <b>PUSH DOSE EPINEPHRINE 1:100,000</b> 10 mcg IV/IO, may repeat q 2-5 min to maintain SBP >90 (1 ml of a 1:100,000 solution) OR
	<b>PUSH DOSE PHENYLEPHRINE</b> 100 mcg – 200 mcg IV/IO, may repeat q 2-5 min to maintain SBP >90 (1 ml – 2 ml of a 100 mcg/ml solution)

 **Continue General Adult Assessment**

### History

- Age (Common in elderly and very young)
- Presence and duration of fever
- Previously documented infection or illness (UTI, Pneumonia, meningitis, encephalitis, cellulitis, abscesses, etc)
- Recent surgery or invasive procedure
- Any recent hospitalization
- Immunocompromised (transplant, HIV, diabetes, cancer)
- Bedridden or immobile patients
- Prosthetic or indwelling devices
- Immunization status
- Open wounds, even minor ones

### Signs and Symptoms

- Hyper or hypothermia
- Rash and/or excessive bruising
- Chills
- Myalgia
- Markedly decreased urine output
- Altered mentation
- Delayed capillary refill
- Elevated blood glucose (unless diabetic)

### Differential

- **Cardiogenic Shock**
- Hypovolemic Shock
- Dehydration
- Hyperthyroidism
- Medication/drug interaction
- Non-septic infection
- Allergic reaction/anaphylaxis
- Toxicological emergency

### Pearls

- Early recognition of sepsis allows for attentive care and early administration of antibiotics.
- Aggressive IV fluid therapy is the most important prehospital treatment for sepsis. Suspected septic patients should receive repeated fluid boluses (to a max total of 2 liters) while being checked frequently for signs of pulmonary edema, especially those patients with known history of CHF or ESRD on dialysis. STOP fluid resuscitation in the setting of pulmonary edema.
- Time IV fluid bolus was initiated and total amount given is to be recorded and reported to hospital staff at patient hand off.
- Septic patients are especially susceptible to traumatic lung injury and ARDS. If artificial ventilation is necessary, avoid ventilating with excessive tidal volumes. If NIPPV is utilized, airway pressure should be limited to 5 cm H<sub>2</sub>O.
- Attempt to identify source of infection (skin, respiratory, etc.) and relay previous treatments and related history to the ED physician and nursing staff.
- Elevated serum lactate levels are a useful marker of hypoperfusion in sepsis and often become elevated prior to the onset of hypotension. ETCO<sub>2</sub> levels are inversely proportional to serum lactate levels.
- Disseminated intravascular coagulation (DIC) is an ominous, late stage manifestation of sepsis characterized by frank, extensive bruising, bleeding from multiple sites, and finally tissue death.
- Conditions such as Crohn's, psoriasis, rheumatoid arthritis and other autoimmune disorders are now being treated with medications that impair the immune system. These patients need to be considered as immunocompromised.
- Hypovolemia or distributive shock should be addressed with a fluid bolus prior to the administration of push-dose pressors.
- While there are no absolute contraindications to epinephrine, it should be used with caution in elderly patients, patients with known cardiovascular disease, or significant tachycardia or hypertension, and should be administered only when the patient's signs and symptoms are severe.

### QI Metrics

- Vital signs to include blood pressure, heart rate, respiratory rate, SpO<sub>2</sub>, and EtCO<sub>2</sub> documented throughout transport.
- Vital signs before, during, and after fluid administration.
- Documentation of the time IV fluid was started and total amount given.

# Shock



**For patients with known adrenal insufficiency, administer patient's own Solu-Cortef (hydrocortisone) as prescribed**

**General Adult Assessment**

- E** Oxygen Keep SpO<sub>2</sub> >94%
- A** Vascular Access
- P** Cardiac monitor/capnography

**Alternative appropriate treatment protocols as indicated**

**Trauma - related**

**General Trauma**

**Non-trauma, Non-cardiogenic**

**A** NS or LR bolus 1000 ml IV/IO; may repeat x 1 with no rales on lung exam

**P**

**PUSH DOSE EPINEPHRINE 1:100,000**  
 10 mcg IV/IO, may repeat q 2-5 min to maintain SBP >90 (1 ml of a 1:100,000 solution)  
**OR**  
**PUSH DOSE PHENYLEPHRINE**  
 100 mcg – 200 mcg IV/IO q 2-5 min to maintain SBP >90 (1 ml – 2ml of 100 mcg/ml solution)

Obtain waveform capnography

**Cardiogenic**

**Appropriate arrhythmia protocol as indicated**

**P** 12-Lead ECG  
 Obtain waveform capnography

**A** NS or LR bolus 500 ml IV/IO; if no rales on lung exam, may repeat x 1

**P** **PUSH DOSE EPINEPHRINE 1:100,000**  
 10 mcg IV/IO, may repeat q 2-5 min to maintain SBP >90 (1ml of a 1:100,000 solution)

Obtain waveform capnography

**Continue General Adult Assessment**

### History

- Blood loss-vaginal bleeding, ectopic, GI bleeding or AAA
- Fluid loss-vomiting, diarrhea, fever
- Infection
- Cardiac tamponade
- Medications
- Allergic reaction
- Pregnancy
- History of poor oral intake

### Signs and Symptoms

- Restlessness, confusion
- Weakness, dizziness
- Weak rapid pulse
- Pale, cool, clammy skin
- Delayed capillary refill
- Hypotension
- Coffee-ground emesis
- Tarry stools

### Differential

- Hypovolemic shock
- Cardiogenic shock
- Septic shock
- Neurogenic shock
- Anaphylactic shock
- Ectopic pregnancy
- Dysrhythmias
- Pulmonary embolism
- Tension pneumothorax
- Medication effect or overdose
- Vasovagal
- Physiologic (pregnancy)

### Pearls

- Recommended exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro.
- Hypotension can be defined as a systolic BP of <90. This is not always reliable and should be interpreted in context and patient's typical BP, if known. Shock may present with a normal BP initially.
- Hypovolemia or distributive shock should be addressed with a fluid bolus prior to the administration of push-dose pressors.
- While there are no absolute contraindications to epinephrine, it should be used with caution in elderly patients, patients with known cardiovascular disease, or significant tachycardia or hypertension, and should be administered only when the patient's signs and symptoms are severe.
- Shock often is present with normal vital signs and may develop insidiously. Tachycardia may be the only manifestation.
- Consider all possible causes of shock and treat per appropriate protocol.
- An ETCO<sub>2</sub> measurement of <25 mm/hg is indicative of shock

### Hypovolemic shock

- Hemorrhage, trauma, GI bleeding, ruptured aortic aneurysm, or pregnancy related bleeding

### Cardiogenic shock

- Heart failure, MI, cardiomyopathy, myocardial contusion, toxins

### Distributive shock

- Sepsis (consider telemetry of code sepsis to receiving facility), anaphylaxis, neurogenic, toxins

### Obstructive shock

- Pericardial tamponade, pulmonary embolus, tension pneumothorax

**For patients with known adrenal insufficiency, administer patient's own Solu-Cortef (hydrocortisone) as prescribed.**

### Causes of Adrenal Insufficiency:

**Addison's Disease**

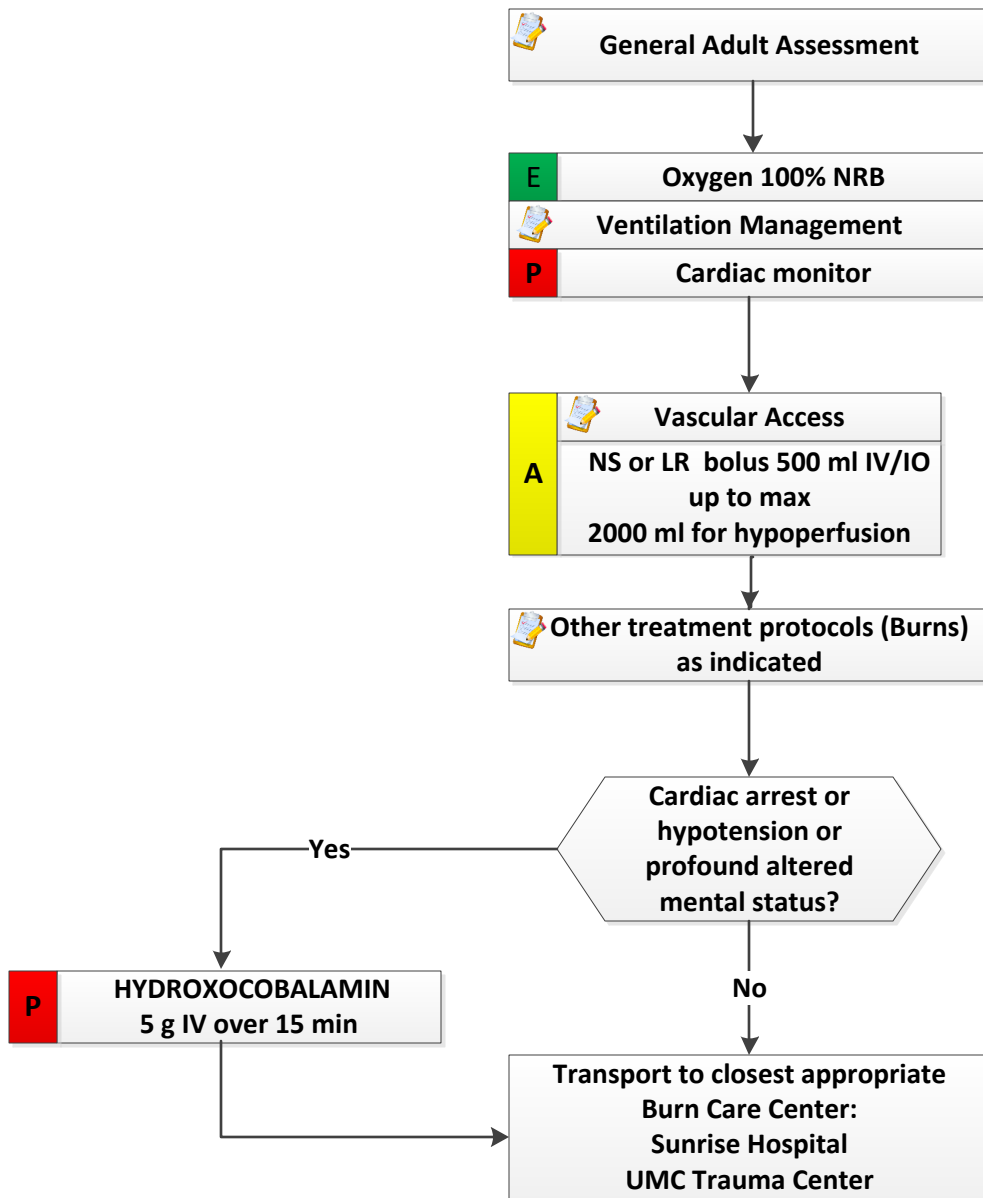
**Congenital Adrenal Hyperplasia**

**Long term administration of steroids**

**Others**



# Smoke Inhalation



### History

- Exposed to smoke in a structure fire
- Exposed to smoke in a vehicle fire
- Exposed to smoke from other sources, industrial, confined space, wilderness fire, etc.

### Signs and Symptoms

- Facial burns
- Singed nasal hairs or facial hair
- Shortness of breath
- Facial edema
- Stridor
- Grunting respirations

### Differential

- COPD
- CHF
- Toxic inhalation injury
- Caustic inhalation injury

### Pearls

- Protect yourself and your crew.
- Have a high index of suspicion when treating patients at the scene of a fire.
- If the medication is not available on scene do not delay transport waiting for it.
- Carefully monitor respiratory effort and correct life threats immediately.
- Decide early on if you want to intubate as burned airways swell, making intubation difficult.
- Profound altered mental status can be defined as a deficit that includes disorientation, bewilderment and difficulty following commands.

### Preparation and Administration of Hydroxocobalamin

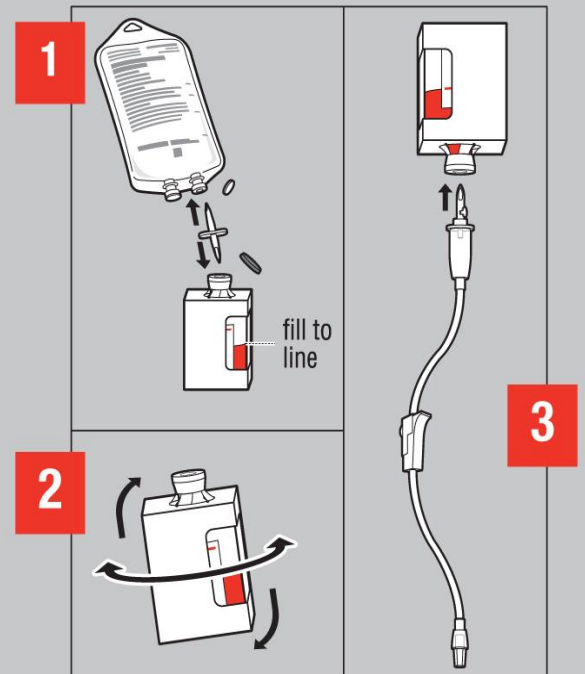
#### Complete Starting Dose: 5 g

**1. Reconstitute:** Place the vial in an upright position. Add **200 mL** of 0.9% Sodium Chloride Injection\* to the vial using the transfer spike. **Fill to the line.**

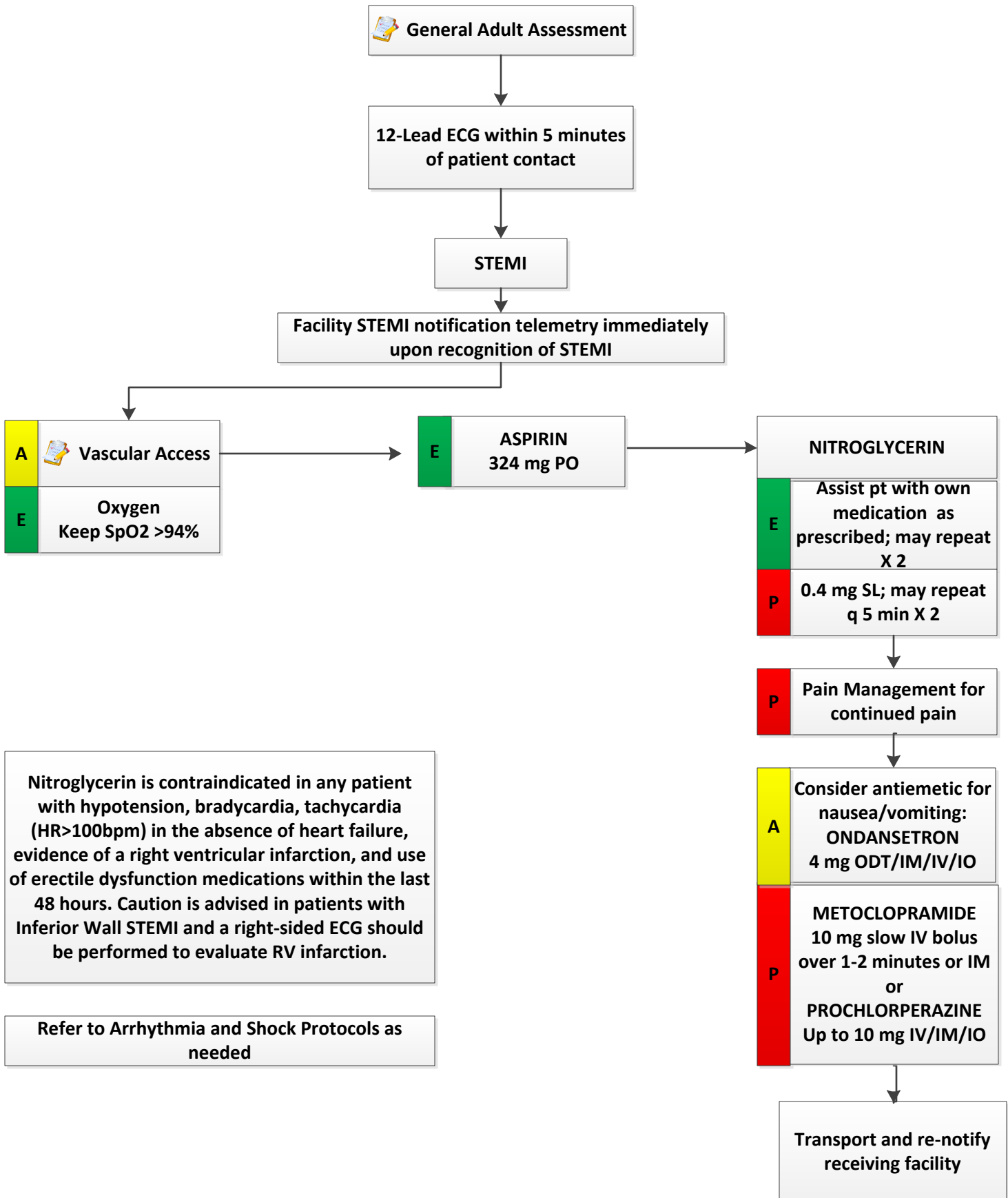
\* 0.9% Sodium Chloride Injection is the recommended diluent (diluent not included in the kit). Lactated Ringer's Solution and 5% Dextrose Injection have also been found to be compatible with Hydroxocobalamin.

**2. Mix:** The vial should be repeatedly inverted or rocked, **NOT** shaken, for at least **60 seconds** prior to infusion.

**3. Infuse Vial:** Use vented intravenous tubing, hang and infuse over **15 minutes**.



# STEMI (Suspected)



### History

- Age
- Medication: Viagra, Levitra, Cialis
- Past Medical History of MI, angina, diabetes
- Allergies
- Recent Physical Exertion
- Palpitation, provocation
- Quality
- Region, radiation, referred
- Severity (1-10)
- Time of onset, duration, repetition

### Signs and Symptoms

- CP, pressure, ache, vice-like pain, tight
- Location, substernal, epigastric, arm, jaw, neck, shoulder
- Radiation of pain
- Pale, diaphoresis
- Shortness of breath
- Nausea, vomiting, dizziness
- Time of onset

### Differential

- Trauma versus medical
- Anginal versus MI
- Pericarditis
- Pulmonary embolism
- Asthma, COPD
- Pneumothorax
- Aortic dissection or aneurysm
- GE reflux or hiatal hernia
- Esophageal spasm
- Chest injury or pain
- Pleural pain
- Drug overdose (cocaine, methamphetamines)

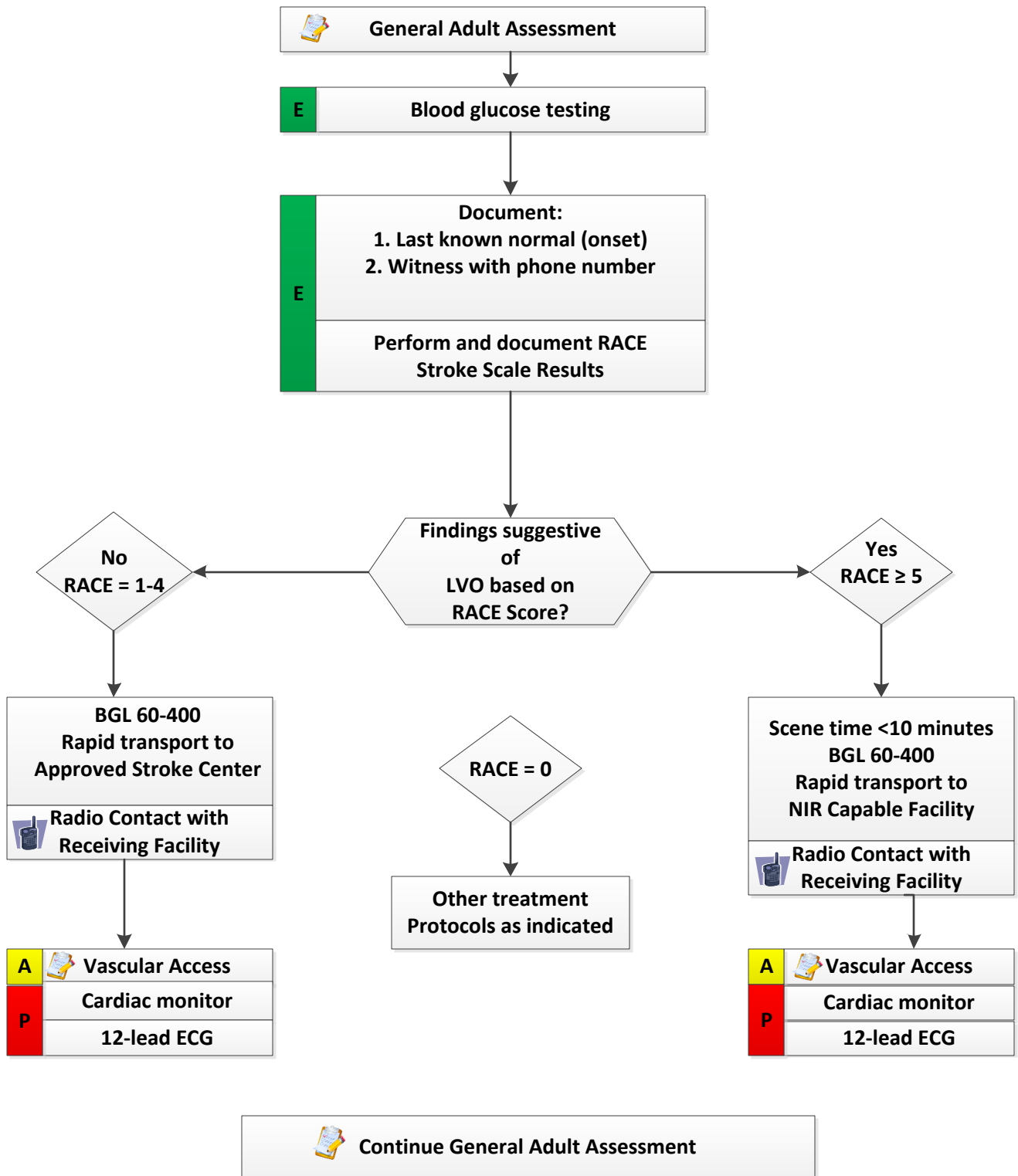
### Pearls

- Recommended exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Back, Extremities, Neuro.
- Diabetics, geriatrics, and female patients often have atypical pain. Have a high index of suspicion.
- Perform a 12-Lead ECG on all patients 35 years old and older experiencing vague jaw/ chest/ abdominal discomfort.
- Perform a 12-Lead ECG within 5 minutes of patient contact.
- The administration of nitroglycerin is contraindicated for any patient who has used erectile dysfunction medications within the last 48 hours.

### QI Metrics

- 12-Lead ECG within 5 minutes of patient contact.
- Pain reassessed with every intervention.
- Pain control documented.

# Stroke (CVA)



### History

- Previous CVA, TIAs
- Previous cardiac/vascular surgery
- Associated diseases: diabetes, HTN
- CAD
- Atrial Fibrillation
- Medications
- History of trauma

### Signs and Symptoms

- AMS
- Weakness, paralysis
- Blindness or other sensory loss
- Aphasia, dysarthria
- Syncope
- Vertigo, dizziness
- Vomiting
- Headache
- Seizures
- Respiratory pattern change
- Hypertension, hypotension

### Differential

- AMS
- TIA
- Seizure
- Hypoglycemia
- Tumor
- Trauma
- Dialysis/ Renal Failure

### Pearls

- Recommended exam: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro.
- Determine time of onset of symptoms or last time patient was seen normal
- Transport to an appropriate Stroke Center or Endovascular Treatment Center

### Stroke Centers

- Centennial Hills
- Henderson
- MountainView
- Southern Hills
- Spring Valley
- St Rose Siena
- St Rose San Martin
- Summerlin
- Sunrise
- UMC
- Valley

### NIR Capable Centers

- Centennial Hills
- Henderson Hospital
- Southern Hills Hospital
- Spring Valley
- St Rose Siena
- Sunrise
- UMC
- Valley

### QI Metrics

- Complete the RACE assessment in less than five minutes
- Time of symptom onset documented
- Blood glucose documented
- 12-Lead EKG completed
- Scene time <10 minutes
- Telemetry to receiving facility

## Rapid Arterial Occlusion Evaluation (RACE) Scale

### An EMS Assessment Tool for Acute Ischemic Stroke

(Sensitivity 85%, Specificity 68%)

Test Item	Score = 0	Score = 1	Score = 2	Patient Score
Facial Palsy	Absent	Mild	Moderate/Severe	
Arm Motor	Normal/Mild	Moderate	Severe	
Leg Motor	Normal/Mild	Moderate	Severe	
Head/Gaze Deviation	Absent	Present	N/A	
Aphasia* (if righthemiparesis)	Performs Both Tasks	Performs 1 Task	Performs Neither Tasks	
Agnosia* (if lefthemiparesis)	Patient Recognizes Arm and Impairment	Unable to Recognize Arm or Impairment	Unable to Recognize BOTH Arm and Impairment	
			<b>TOTAL SCORE = (0-9)</b>	

\*Aphasia: Ask the patient to: 1. "Close your Eyes" AND 2. "Make a Fist"

\*Agnosia: Ask the patient and evaluate recognition of deficit:

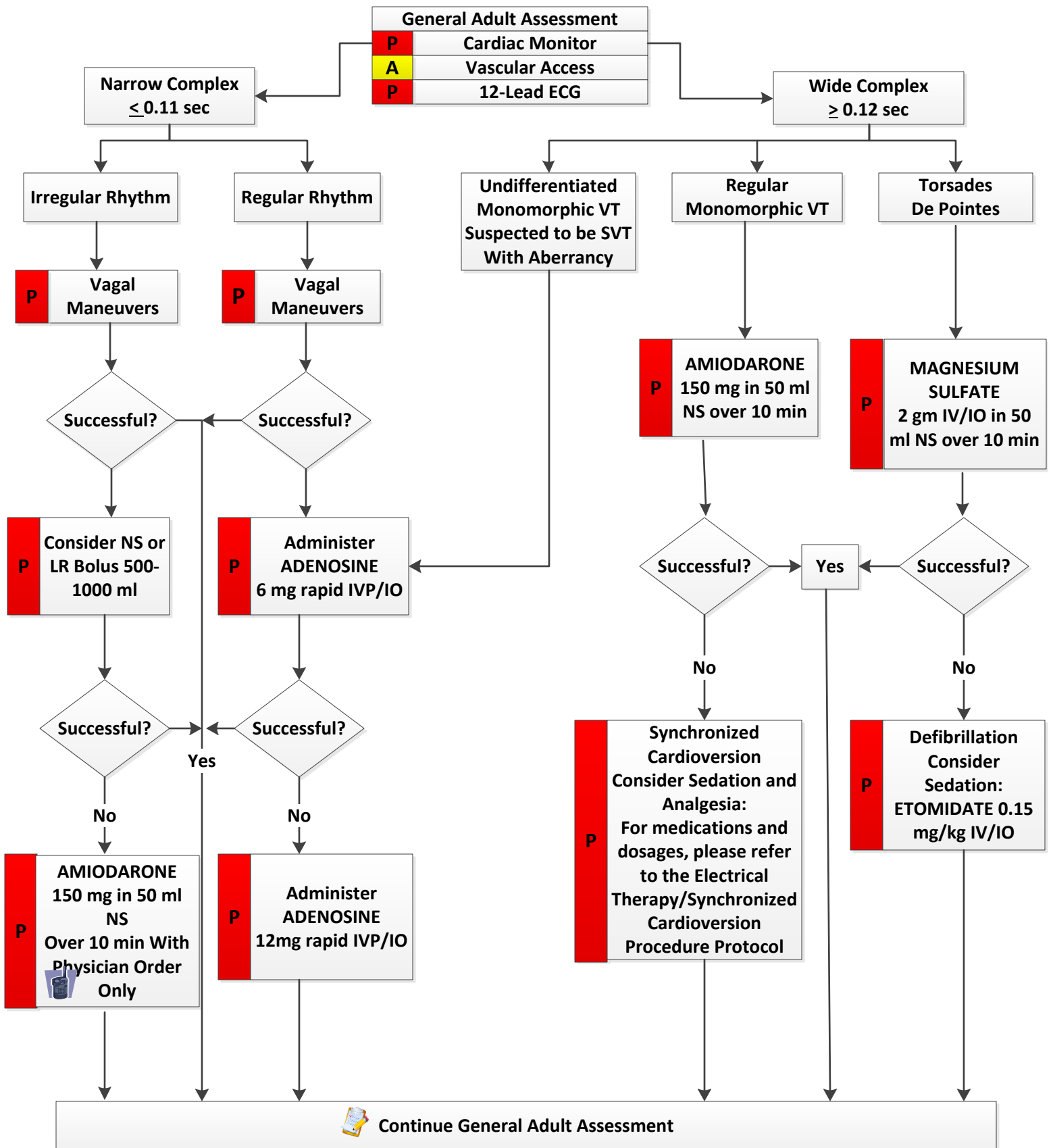
1. While showing paretic arm: "Whose arm is this?"
2. Ask patient: "Can you lift both arms and clap?"

**If RACE Score = 5 or greater, patient may have an ischemic stroke with a large vessel occlusion**

Reference:

Natalia Pérez de la Ossa, et al. (2014). Design and Validation of a Prehospital Stroke Scale to Predict Large Arterial Occlusion: The Rapid Arterial Occlusion Evaluation Scale. *Stroke*, 45, 87-91. Retrieved from <http://stroke.ahajournals.org/content/45/1/87.full>

# Tachycardia/Stable (Normal Mental Status, Palpable Radial Pulse)



**History**

- Medications (aminophylline, diet pills, thyroid supplements, decongestants, digoxin)
- Diet (caffeine)
- Drugs (cocaine, methamphetamines)
- Past medical history
- Syncope/near syncope
- History of palpitations/racing heart

**Signs and Symptoms**

- Heart rate >150
- Dizziness, CP, SOB
- Diaphoresis
- CHF

**Differential**

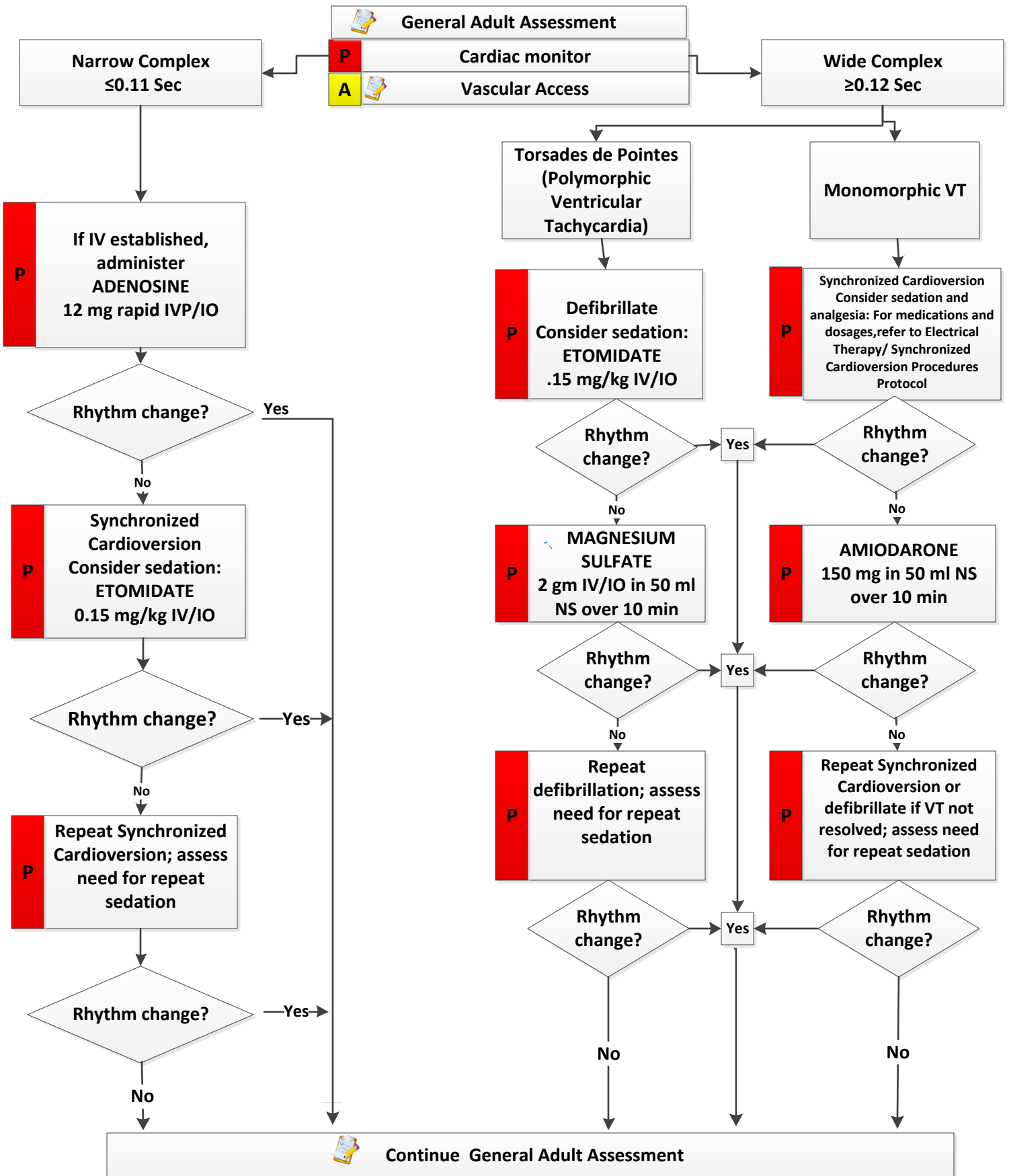
- Heart disease (WPW, valvular)
- Sick sinus syndrome
- MI
- Electrolyte imbalance
- Exertion, fever, pain, emotional stress
- Hypoxia
- Hypovolemia
- Drug effect, overdose
- Hyperthyroidism

**Pearls**

- Recommended exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro.
- Carefully monitor patients as you treat them; stable tachycardia may convert to unstable rhythms/conditions quickly.
- Sedate patients prior to cardioversion, if time allows.



# Tachycardia / Unstable (Mental Status Changes, No Palpable Radial Pulse)



**History**

- Medications (aminophylline, diet pills, thyroid supplements, decongestants, digoxin)
- Diet (caffeine)
- Drugs (cocaine, methamphetamines)
- Past medical history
- Syncope/near syncope
- History of palpitations/racing heart

**Signs and Symptoms**

- Cardiac arrest
- Heart rate >150
- Dizziness, CP, SOB
- Diaphoresis
- CHF

**Differential**

- Heart disease (WPW, valvular)
- Sick sinus syndrome
- MI
- Electrolyte imbalance
- Exertion, fever, pain, emotional stress
- Hypoxia
- Hypovolemia
- Drug effect, overdose
- Hyperthyroidism

**Pearls**

- Recommended exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro.
- If patient is in arrest, efforts should focus on quality chest compressions and rhythm correction.
- Administer Adenosine at a proximal IV site, rapidly followed by a saline flush.

# Ventilation Management

Use supplemental oxygen to maintain an oxygen saturation of >94% or >90% for patients on home oxygen for chronic conditions

E	Basic Airway Maneuvers -Open Airway Chin Lift/Jaw Thrust -NPA or OPA as needed -Suction as needed	Respiratory Distress and/or Tracheostomy Tube Replacement Protocol if needed
	Consider Cervical Stabilization	
	Consider Altered Mental Status/Syncope	

E	Administer oxygen
	BVM as needed

Intervention effective? Yes

A	Extraglottic Airway	Obtain Vascular Access
	Endotracheal Intubation	ECG Monitor
For Nasotracheal Intubation Prep the Nostrils With PHENYLEPHRINE 1-2 Sprays Each Or OXYMETAZOLINE 1-2 sprays each nostril and LIDOCAINE 2% Lubricant		
P	Consider Induction Administer ETOMIDATE 0.3 mg/kg IV/IO, max dose 30 mg OR; KETAMINE 2 mg/kg IV/IO Or 4 mg/kg IM OR; MIDAZOLAM 0.1 mg/kg IN/IV/IO/IM max single dose 10 mg. Repeat dose with Physician Order	
	Post-Intubation Sedation Administer MIDAZOLAM 0.1 mg/kg IN/IV/IM/IO; max dose 10 mg May Repeat X 1 after 5 min at 0.05 mg/kg IV/IN/IM/IO, max dose 2.5 mg, repeat doses with Physician Order OR; KETAMINE 2 mg/kg IV or 4 mg/kg IM. Repeat Dose with Physician Order OR; DIAZEPAM 5 mg IV/IO; May Repeat Dose after 5 Minutes With Physician Order	
	Post-Intubation Analgesia Administer FENTANYL 1 mcg/kg; max dose 100 mcg.	

Extraglottic/ETT placement successful? YES

No

Able to ventilate without extraglottic/ETT in place?

No

Cricothyroidotomy

Continue Care and Transport as Appropriate

Always weigh the risks and benefits of endotracheal intubation in the field against transport. All prehospital endotracheal intubations are considered high risk. If ventilation/oxygenation is adequate, transport may be the best option. The most important airway device and the most difficult to use correctly and effectively is the Bag Valve Mask (not the laryngoscope). Few prehospital airway emergencies cannot be temporized or managed with proper BVM techniques.

#### **DIFFICULT AIRWAY ASSESSMENT:**

**Difficult BVM Ventilation-MOANS:** Difficult **M**ask seal due to facial hair, anatomy, blood or secretions/trauma; **O**beso or late pregnancy; **A**ge >55; **N**o teeth (roll gauze and place between gums and cheeks to improve seal); **S**tiff or increased airway pressures (asthma, COPD, obese, pregnant).

**Difficult Laryngoscopy-LEMON:** Look externally for anatomical distortions (small mandible, short neck, large tongue); Evaluate 3-3-2 Rule (Mouth open should accommodate 3 patient fingers, mandible to neck junction should accommodate 3 patient fingers, chin-neck junction to thyroid prominence should accommodate 2 patient fingers); **M**allampati (difficult to assess in the field); **O**bstruction / **O**beso or late pregnancy; **N**eck mobility.

**Difficult Extraglottic Device Placement-RODS:** Restricted mouth opening; **O**bstruction / **O**beso or late pregnancy; **D**istorted or disrupted airway; **S**tiff or increased airway pressures (asthma, COPD, obese, pregnant).

**Nasotracheal intubation:** *Orotracheal intubation is the preferred choice.* Procedure requires patient to have spontaneous breathing. Contraindicated in anatomically disrupted or distorted airways, increased intracranial pressure, severe facial trauma, basal skull fracture, head injury.

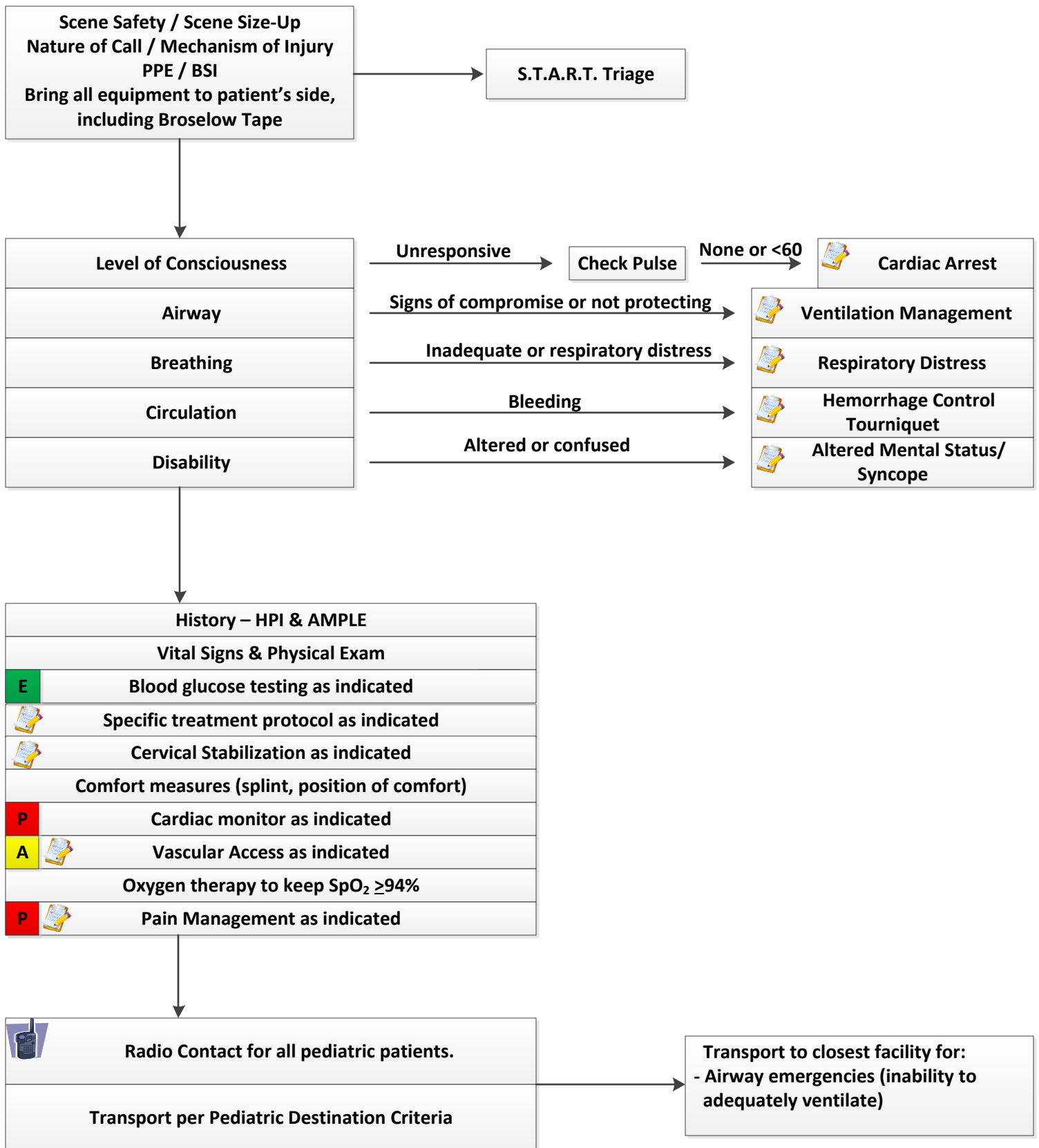
#### **Pearls**

- Consider preoxygenation/lung denitrogenation with a non-rebreather, a nasal cannula at 15 LPM, or NIPPV prior to intubation (as patient condition allows).
- Severe hypotension (SBP<90) should be addressed with IV fluids and/or pressors (as appropriate) prior to intubation in order to reduce the likelihood of post-intubation cardiovascular decline.
- Capnometry (Color) or capnography is mandatory with all methods of intubation. Document results.
- Continuous capnography (ETCO<sub>2</sub>) is mandatory for the monitoring of all patients with an ET tube.
- If an effective airway is being maintained by BVM and/or basic airway adjuncts (e.g. nasopharyngeal airway) with continuous pulse oximetry values of ≥90% or values expected based on pathophysiologic condition with otherwise reassuring vital signs (e.g. pulse oximetry of 85% with otherwise normal vitals in a post-drowning patient), it is acceptable to continue with basic airway measures instead of using an extraglottic airway device or intubation. Consider NIPPV as indicated by protocol and patient condition.
- For the purposes of this protocol, a secure airway is achieved when the patient is receiving appropriate oxygenation and ventilation.
- An intubation attempt is defined as passing the laryngoscope blade or endotracheal tube past the teeth or inserted into the nasal passage.
- An appropriate ventilatory rate is one that maintains an ETCO<sub>2</sub> of 35 - 45. Avoid hyperventilation.
- Paramedics should use an extraglottic airway device if oral-tracheal intubation is unsuccessful.
- Maintain C-spine stabilization for patients with suspected spinal injury.
- Gastric tube placement should be considered in all intubated patients, if time allows.
- It is important to secure the endotracheal tube well.

# **PEDIATRIC TREATMENT PROTOCOLS**

**(for patients under 12 years of age)**

# General Pediatric Assessment



**Pearls**

- For all scenes where patient needs exceed available EMS resources, initial assessment and treatment shall be in accordance with an approved triage methodology.
- Correct life-threatening problems as identified.
- If the ability to adequately ventilate a patient cannot be established, the patient must be transported to the nearest emergency department.
- Never withhold oxygen from a patient in respiratory distress.
- Contact with online medical control should be established by radio. Telephone contact may only be used if the call is routed via a recorded phone patch through the FAO at 702-382-9007.

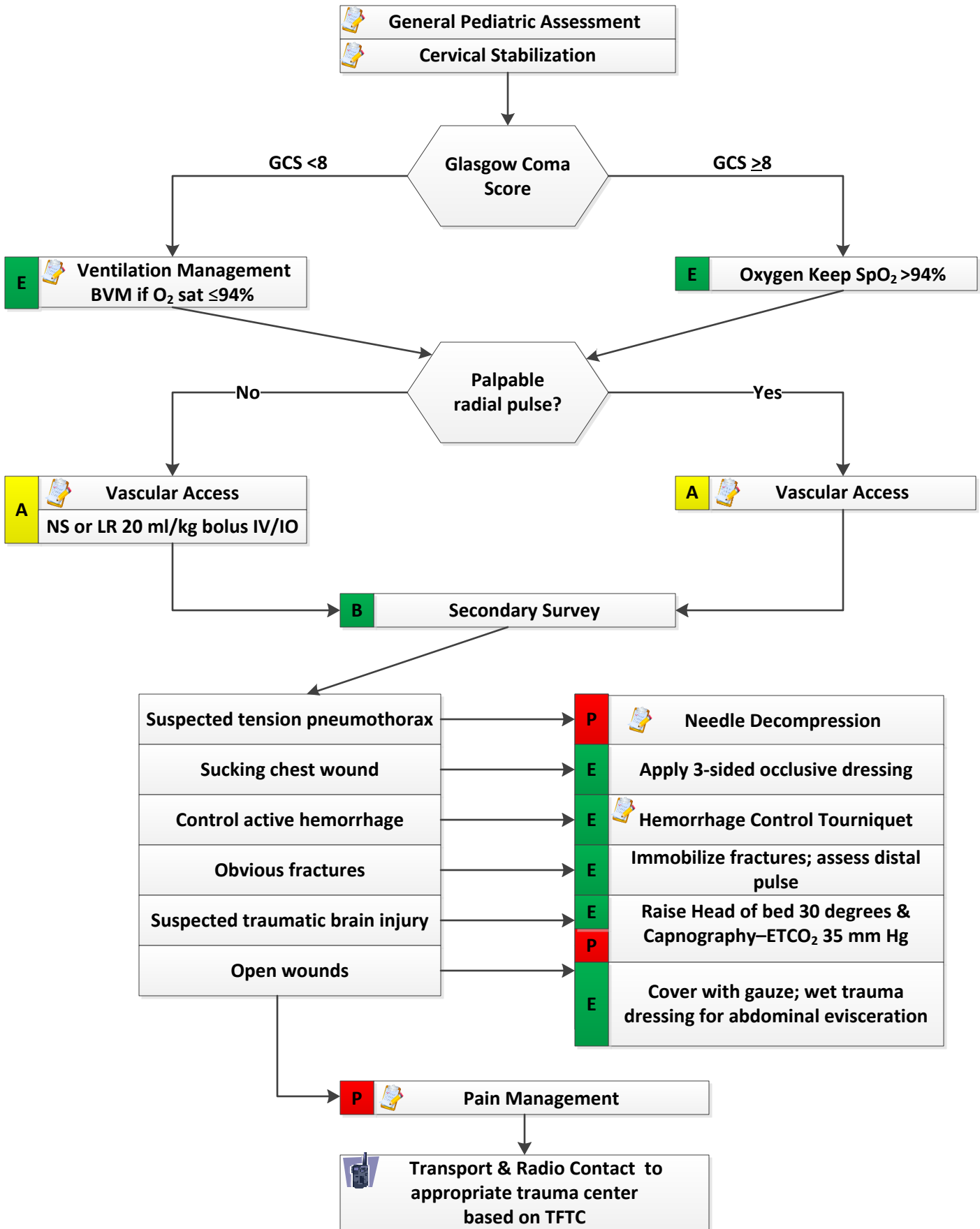
**Disposition**

- Patients sustaining traumatic injuries shall be transported in accordance with the Trauma Field Triage Criteria Protocol.
- Patients sustaining burn injuries shall be transported in accordance with the Burns Protocol.
- Pediatric patients (<18 y/o for transport purposes only) shall be transported in accordance with the Pediatric Destination Protocol.
- Patients with evidence of a stroke shall be transported in accordance with the Stroke Protocol.
- Sexual assault victims <13 y/o shall be transported to Sunrise Hospital.
- Sexual assault victims 13 y/o up to 18 y/o shall be transported to Sunrise Hospital or UMC.
- Sexual assault victims 18 y/o and older shall be transported to UMC.
- For sexual assault victims outside a 50-mile radius from the above facilities, the patient shall be transported to the nearest appropriate facility.
- Stable patients shall be transported to the hospital of their choice; if the patient has no preference, the patient should be transported to the closest facility.

**Internal Disaster**

- If a hospital declares an internal disaster, that facility is to be bypassed for all patients except patients in cardiac arrest, or in whom the ability to adequately ventilate has not been established.
- Operational exceptions may be initiated in regard to transport to hospitals on internal disaster.

# General Pediatric Trauma Assessment





**History**

- Time and mechanism of injury
- Damage to structure or vehicle
- Location in structure or vehicle
- Others injured or dead
- Speed and details of MVC
- Restraints/protective equipment
- Past medical history
- Medications

**Signs and Symptoms**

- Pain, Swelling
- Deformity, lesions, bleeding
- AMS or unconscious
- Hypotension or shock
- Arrest

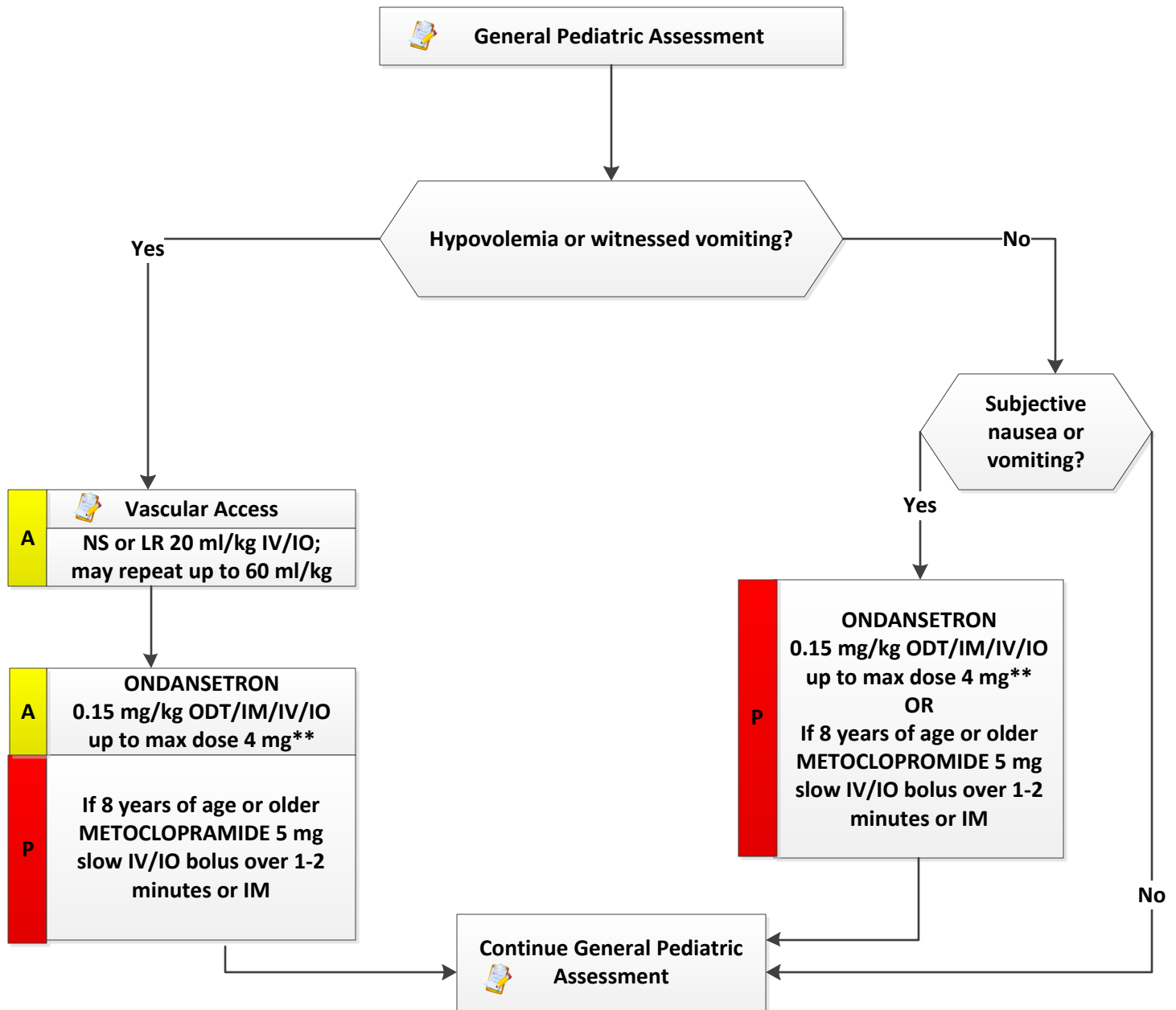
**Differential (Life threatening)**

- Tension pneumothorax
- Flail chest
- Pericardial tamponade
- Open chest wound
- Hemothorax
- Intra-abdominal bleeding
- Pelvis/femur fracture
- Spine fracture/cord injury
- Head injury
- Extremity fracture
- HEENT (airway obstruction)
- Hypothermia

**Pearls**

- Recommended exam: Mental Status, Skin, HEENT, Heart Lung, Abdomen, Extremities, Back, Neuro.
- Transport destination is based on the Trauma Field Triage Criteria Protocol.
- Transport should not be delayed for procedures; ideally procedures should be performed enroute when possible.
- BVM is an acceptable method of ventilating and managing an airway if pulse oximetry can be maintained  $\geq 90\%$ .
- Pediatric patients should be evaluated with a high index of suspicion; occult injuries may be present and pediatric patients can decompensate quickly.

# Pediatric Abdominal Pain, Nausea & Vomiting



**\*\*Round up to nearest ½ pill**

**History**

- Age
- Medical/surgical history
- Onset
- Quality
- Severity
- Fever

**Signs and Symptoms**

- Pain location
- Tenderness
- Nausea
- Vomiting
- Diarrhea
- Dysuria
- Constipation

**Differential**

- Liver (Hepatitis)
- Gastritis
- Pancreatitis
- Kidney stone
- Appendicitis
- Bladder
- Bowel obstruction
- Gastroenteritis

**Pearls**

- Recommended Exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Back, Extremities, Neuro.
- Document mental status and vital signs prior to administration of antiemetics & pain management.
- Repeat vital signs after each fluid bolus.
- Consider retroperitoneal palpation for kidney pain.
- Pediatric fluid bolus is 20 ml/kg; may repeat to a maximum of 60 ml/kg.
- If there is suspicion that the patient is in DKA, do not exceed 20 ml/kg NS or LR.
- Morphine is not recommended in children for abdominal pain.
- Consider cardiac and ETCO<sub>2</sub> monitoring.

# Pediatric Allergic Reaction

 General Pediatric Assessment

Evidence of anaphylaxis?

NO (Mild)

YES (Moderate/Severe)

**A**  Vascular Access

**A** **DIPHENHYDRAMINE**  
1 mg/kg IM/IV/IO/PO;  
max 50 mg

Reassess patient q 5 min

Allergic Reaction – mild immune response to an allergen with symptoms such as hives or local swelling/itching

Anaphylaxis – moderate/severe reaction meeting either of these criteria:

- Exposure to known or likely allergen with hypotension OR respiratory compromise
- Two or more of the following after exposure to likely allergen: skin/mucosal changes (hives, flushing, edema); respiratory compromise (SOB, wheezing, stridor, hypoxia); hypotension or signs of shock; persistent GI symptoms (abdominal pain, vomiting)

**EPINEPHRINE**

**E** Assist patient with own auto-injector

**A** **EPINEPHRINE 1:1000,**  
0.01 mg/kg IM;  
max single dose 0.5 mg;  
may repeat q 5 min  
up to max 1.5 mg

**ALBUTEROL**


**E** Assist patient with MDI

**A** 2.5 mg in 3 ml SVN; repeat as needed

**A** **OR**  
**LEVALBUTEROL 1.25 mg SVN;**  
repeat as needed

**P**  Ventilation Management


Cardiac monitor

**A**  Vascular access  
20 ml/kg IV/IO NS or LR bolus;  
may repeat up to 60 ml/kg

**A** **DIPHENHYDRAMINE**  
1 mg/kg IM/IV/IO/PO;  
max 50 mg

Pt in persistent shock? If Yes, then

**P** Consider  
**PUSH DOSE EPINEPHRINE**  
0.1 mcg/kg IV/IO, max dose 5 mcg  
Titrate to SBP>70 mm Hg + 2 X age

 Continue General Pediatric Assessment

**History**

- Onset and location
- Insect sting or bite
- Food allergy/exposure
- Medication allergy/exposure
- New clothing, soap, detergent
- Past history of reactions
- Past medical history
- Medication history

**Signs and Symptoms**

- Itching or hives
- Coughing/wheezing or respiratory distress
- Throat or chest constriction
- Difficulty swallowing
- Hypotension/shock
- Edema
- Nausea/vomiting

**Differential**

- Urticarial (rash only)
- Anaphylaxis (systemic effect)
- Shock (vascular effect)
- Angioedema (drug induced)
- Aspiration/airway obstruction
- Asthma/COPD
- CHF
- Scorpion Envenomation

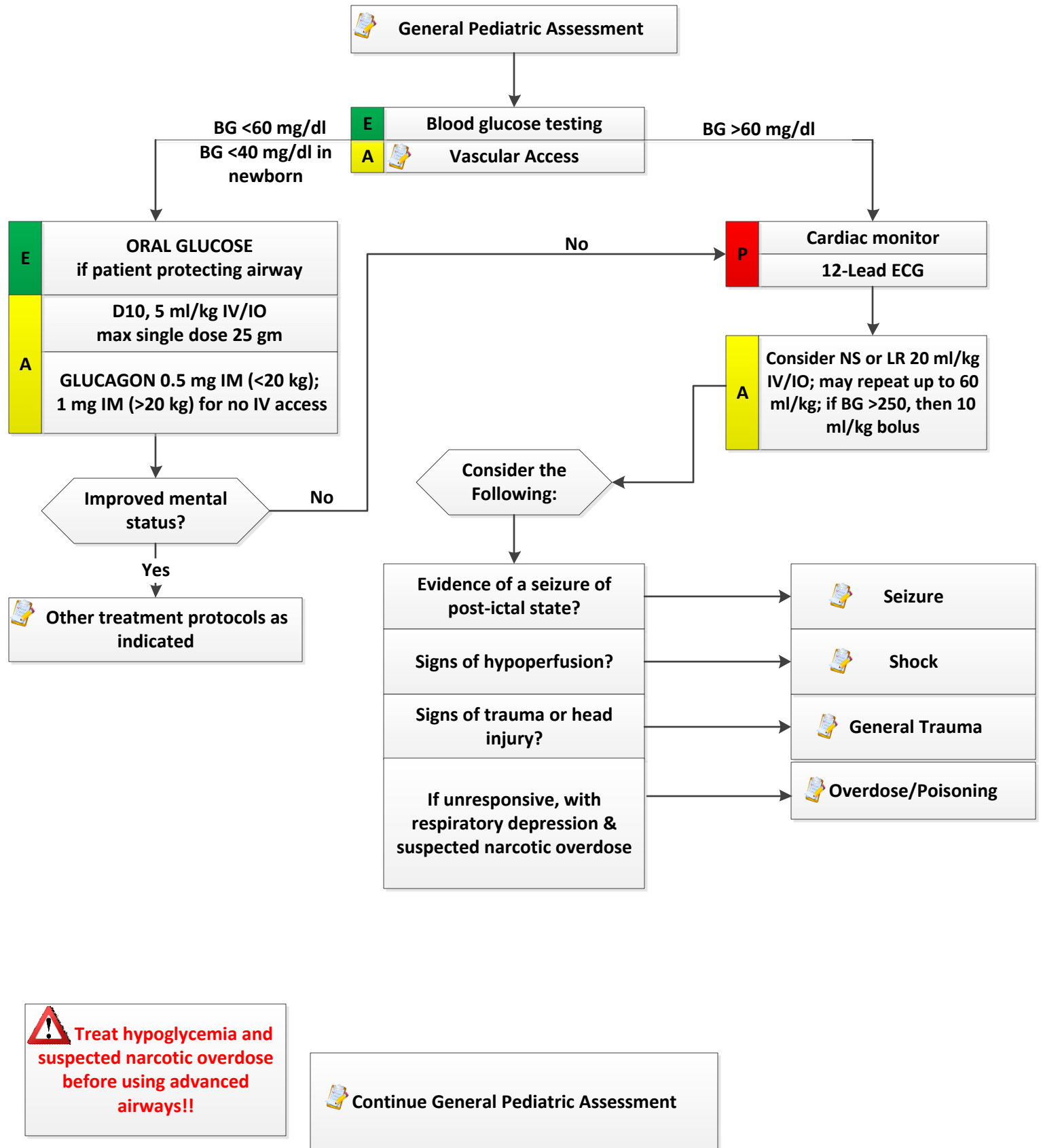
**Pearls**

- Recommended exam: Mental status, skin, heart, lung
- Anaphylaxis is an acute and potentially lethal multisystem allergic reaction.
- Epinephrine is a first-line drug that should be administered immediately in acute anaphylaxis. IM Epinephrine (1:1000) should be administered before or during attempts at IV or IO access.
- Remove trigger if still present (stinger, food, etc)
- Never give Epinephrine 1:1000 (IM concentration) through IV/IO route

**QI Metrics**

- Epinephrine given appropriately.
- Airway assessment documented.

# Pediatric Altered Mental Status



**History**

- Past medical history
- Medications
- Recent illness
- Irritability
- Lethargy
- Changes in feeding/sleeping
- Diabetes
- Potential ingestion
- Trauma

**Signs and Symptoms**

- Decrease in mentation
- Change in baseline mentation
- Decrease in blood sugar
- Cool, diaphoretic skin
- Increase in blood sugar
- Warm, dry, skin; fruity breath
- Kussmaul respirations, signs of dehydration

**Differential**

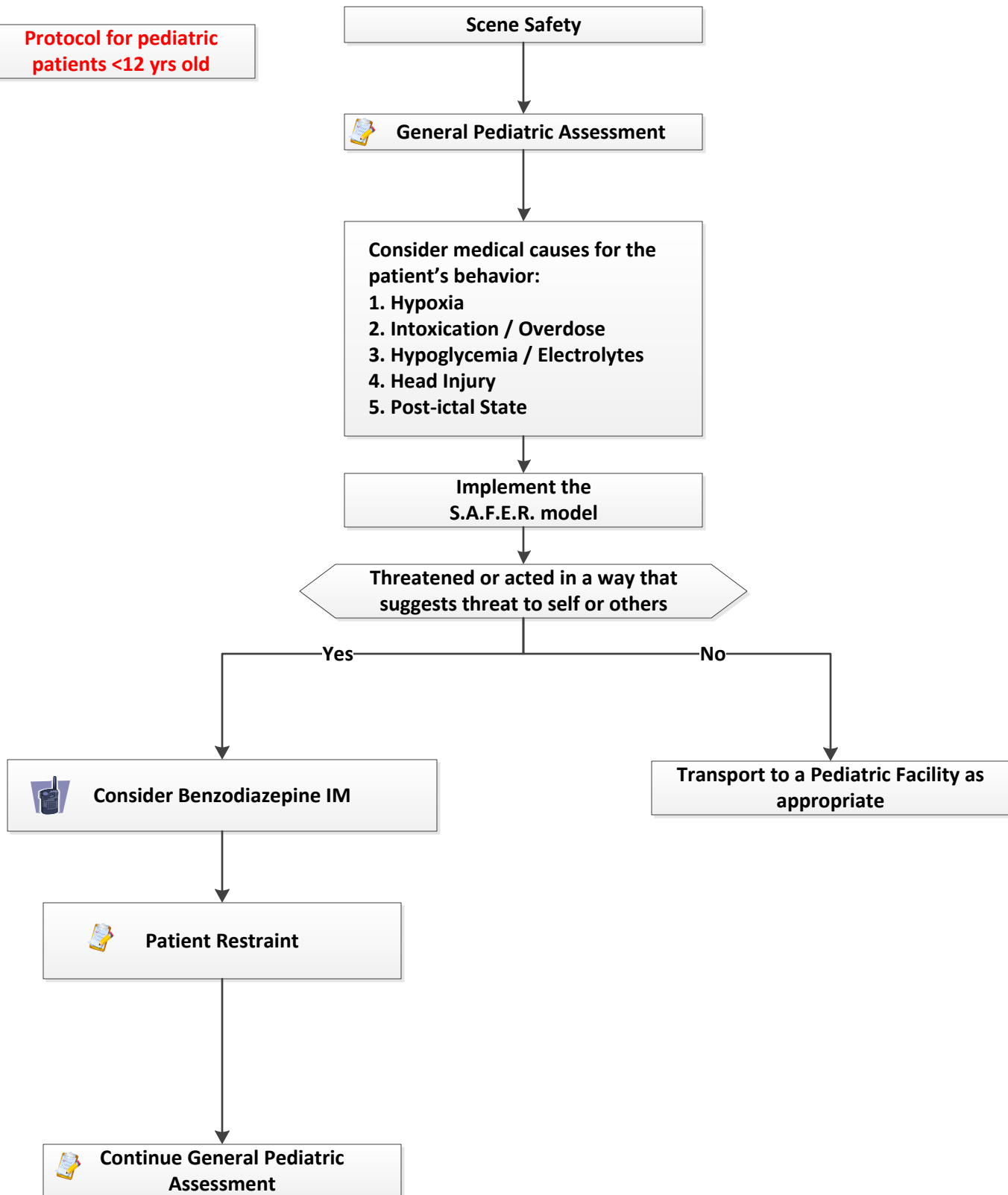
- Hypoxia
- CNS (trauma, stroke, seizure, infection)
- Thyroid (hyper/hypo)
- Shock (septic-infection, metabolic, traumatic)
- Diabetes (hyper/hypoglycemia)
- Toxicological
- Acidosis/Alkalosis
- Environmental exposure
- Electrolyte abnormalities
- Psychiatric disorder

**Pearls**

- Recommended Exam: Mental Status, HEENT, Skin, Heart, Lung, Abdomen, Back, Extremities and Neuro.
- Pay careful attention to the head exam for signs of injury.
- Be aware of AMS as presenting sign of an environmental toxin or Haz-Mat exposure and protect personal safety and that of other responders.
- Consider alcohol, prescription drugs, illicit drugs and over the counter preparations as possible etiology.
- If narcotic overdose or hypoglycemia is suspected, administer Narcan 0.1 mg/kg or Glucose prior to advanced airway procedures.
- Narcan is not recommended in the newly born.

# Pediatric Behavioral Emergency

Protocol for pediatric patients <12 yrs old





### History

- Situational crisis
- Psychiatric illness/medications
- Injury to self or threat to others
- Medic Alert tag
- Substance abuse/overdose
- Diabetes

### Signs and Symptoms

- Anxiety, agitation, confusion
- Affect change, hallucinations
- Delusional thoughts, bizarre behavior
- Combative, violent
- Expression of suicidal/homicidal thoughts

### Differential

- Altered mental status differential
- Alcohol intoxication
- Toxin/substance abuse
- Medication effect or overdose
- Withdrawal syndromes
- Depression
- Bipolar
- Schizophrenia
- Anxiety disorder

### Pearls

- Midazolam is **NOT** recommended for use in children for behavioral emergencies.
- Law enforcement assistance should be requested on all calls involving potentially violent patients.
- Under no circumstances are patients to be transported restrained in the prone position.
- Recommended Exam: Mental Status, Skin, Heart, Lung, Neuro.
- Consider all possible medical/trauma causes for behavior.
- Do not irritate the patient with a prolonged exam.
- EMS providers are mandatory reporters in regard to suspected abuse of any vulnerable person.
- Consider cardiac and ETCO<sub>2</sub> monitoring.

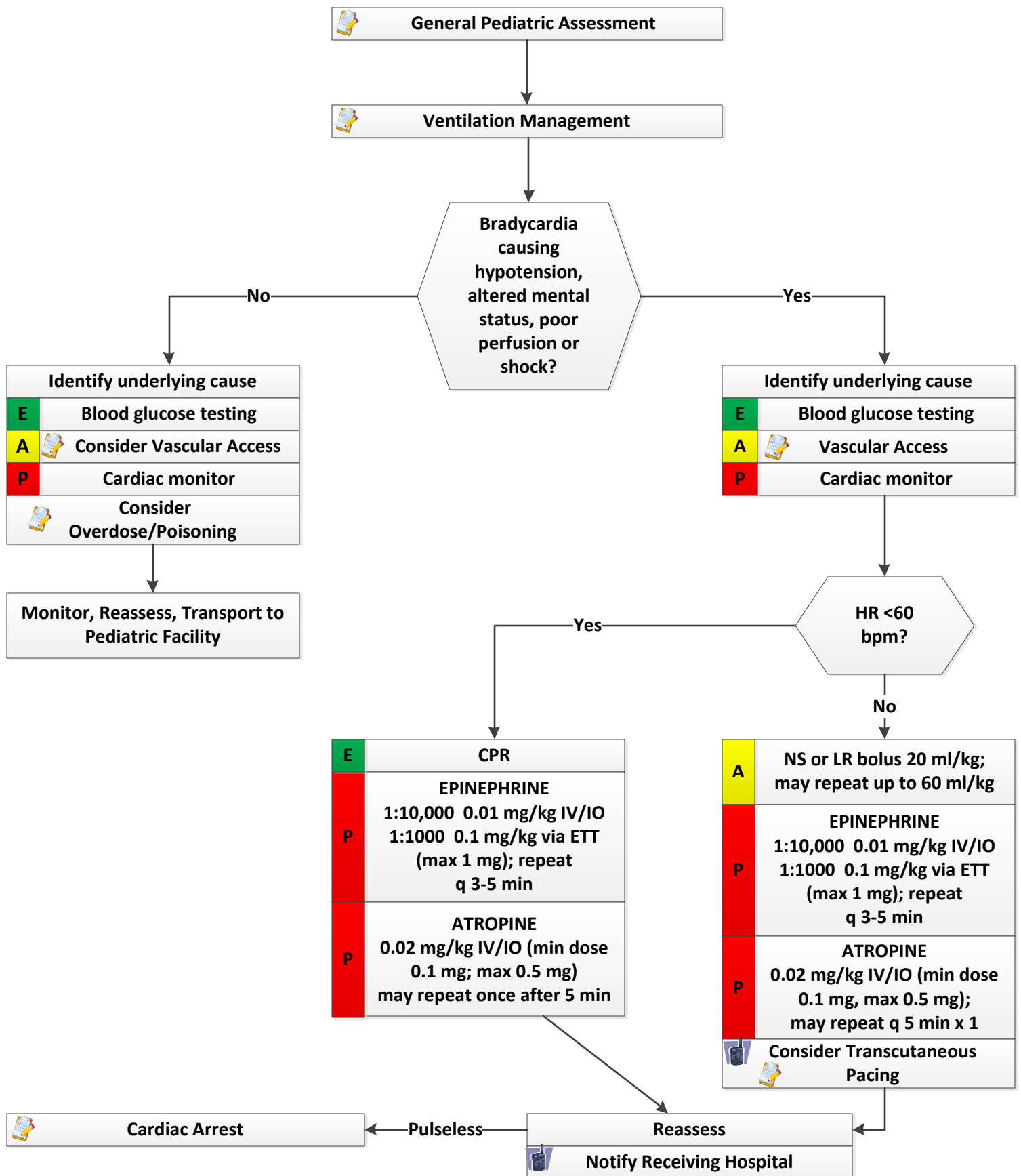
### Dystonic Reaction

- Condition causing involuntary muscle movements or spasms typically of the face, neck and upper extremities.
- Typically an adverse reaction to drugs such as Haloperidol (may occur with administration).
- When recognized, administer Diphenhydramine 1 mg/kg up to 50 mg IM/IV.

### S.A.F.E.R.

- Stabilize the situation by containing and lowering the stimuli.
- Assess and acknowledge the crisis.
- Facilitate the identification and activation of resources (chaplain, family, friends or police).
- Encourage patient to use resources and take actions in his/her best interest.
- Recovery or referral – leave patient in care of responsible person or professional, or transport to appropriate facility.

# Pediatric Bradycardia



**History**

- Respiratory insufficiency
- Past medical history
- Medications
- Pacemaker

**Signs and Symptoms**

- HR <60/min with hypotension, acute altered mental status, chest pain, acute CHF, seizures, syncope, or shock secondary to bradycardia
- Respiratory distress

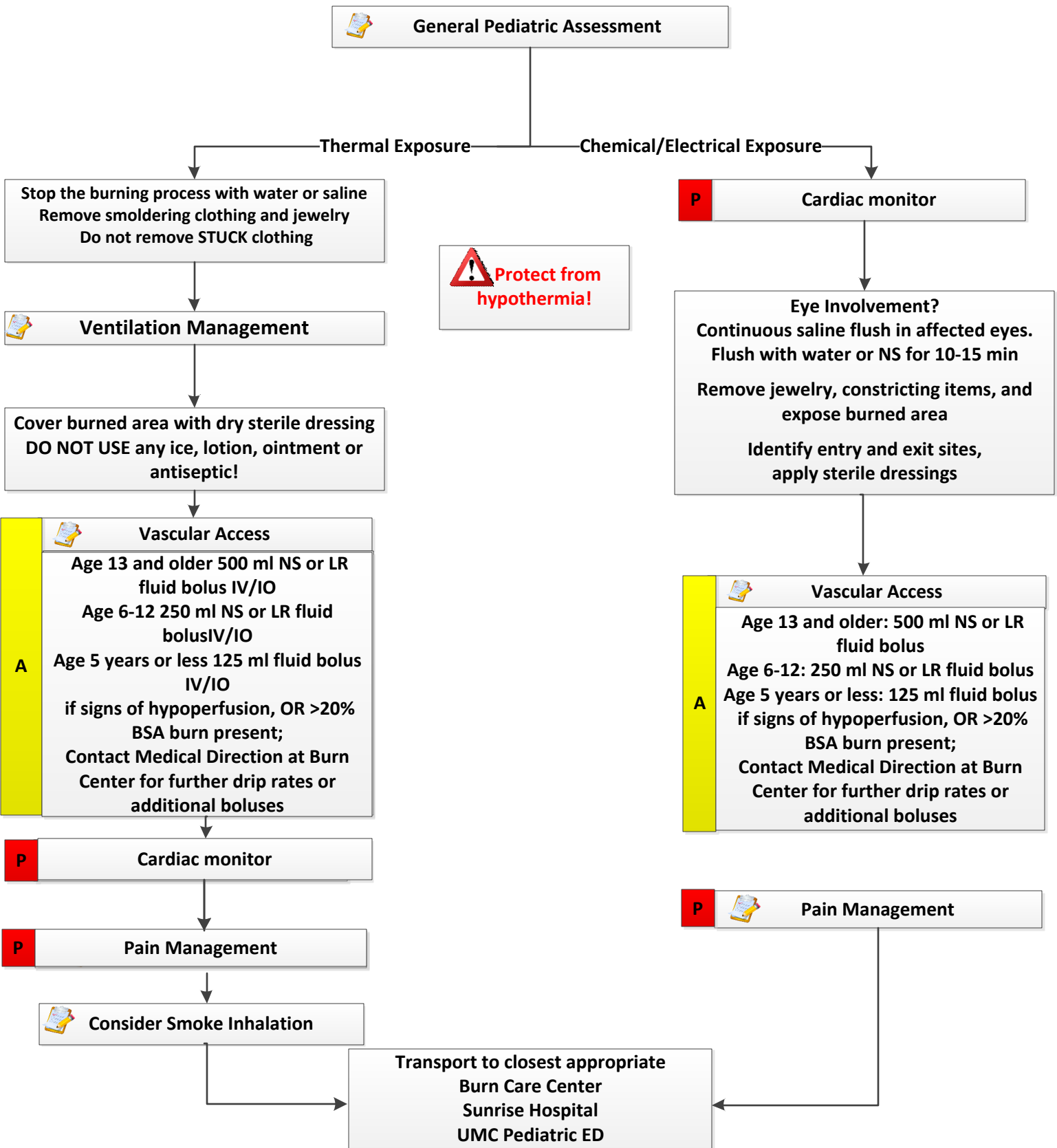
**Differential**

- Hypoxia
- Hypothermia
- Sinus bradycardia
- Athletic
- Head injury (elevated ICP)
- Spinal cord lesion
- Overdose

**Pearls**

- Pediatric pacing is by Telemetry Physician order only.
- Recommended Exam: Mental Status, HEENT, Heart, Lung, Neuro.
- Bradycardia causing symptoms is typically <50/minute. Rhythm should be interpreted in the context of symptoms and pharmacological treatment given only when symptomatic; otherwise, monitor and reassess.
- Identifying signs and symptoms of poor perfusion caused by bradycardia are paramount.
- Hypoxemia is a common cause of bradycardia; be sure to oxygenate the patient and provide ventilatory support as needed.

# Pediatric Burns



### History

- Type of exposure (heat, gas, chemical)
- Inhalational injury
- Time of injury
- Past medical history & medications
- Other trauma
- Loss of consciousness
- Tetanus/immunization status

### Signs and Symptoms

- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Hypotension/shock
- Airway compromise/distress
- Wheezing
- Singed facial or nasal hair
- Hoarseness or voice changes

### Differential

- Superficial (1<sup>st</sup> degree) – red and painful
- Partial Thickness (2<sup>nd</sup> degree) – blistering
- Full Thickness (3<sup>rd</sup> degree) – painless/charred or leathery skin
- Thermal
- Chemical
- Electrical
- Radiation
- Lightning

### Pearls

- Burn patients are trauma patients; evaluate for multisystem trauma.
- Assure whatever has caused the burn, is no longer contacting the injury. (Stop the burning process!)
- Recommended Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, Neuro.
- Consider early intubation with patients experiencing significant inhalation injuries.
- Potential CO exposure should be treated with 100% oxygen. (For patients in which the primary event is CO inhalation, transport to a hospital equipped with a hyperbaric chamber is indicated [when reasonably accessible].)
- Circumferential burns to extremities are dangerous due to potential vascular compromise secondary to soft tissue swelling. Elevate extremity.
- Burn patients are prone to hypothermia - never apply ice or cool burns; must maintain normal body temperature.
- Consider ETCO<sub>2</sub> monitoring.
- Evaluate the possibility of child abuse with children and burn injuries

### Patients meeting the following Criteria shall be transported to the closest appropriate Burn Care Center:

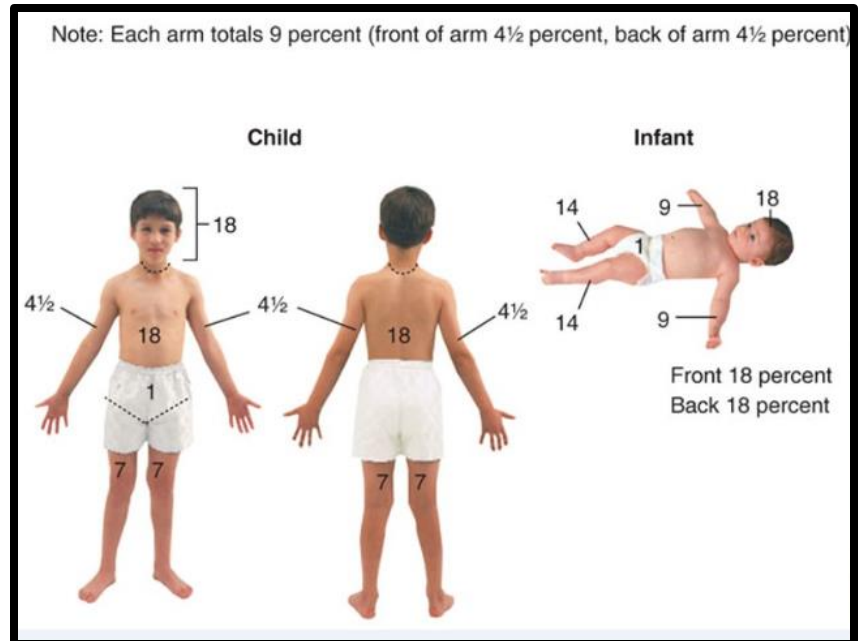
1. Second degree burns >10% body surface area (BSA).
2. Any Third degree burns.
3. Burns that involve the face, hands, feet, genitalia, perineum, or major joints.
4. Electrical burns including lightning injury.
5. Chemical burns.
6. Circumferential burns.
7. Inhalation burns.
8. Burn injury with concomitant trauma

### Pearls (Electrical)

- Do not contact the patient until you are certain the source of the electric shock has been disconnected.
- Attempt to locate contact points, (entry wound where the AC source contacted the patient; an exit at the ground point); both sites will generally be full thickness.
- Cardiac monitor; anticipate ventricular or atrial irregularity to include V-Tach, V-Fib, heart blocks, etc.
- Attempt to identify the nature of the electrical source (AC vs DC), the amount of voltage and the amperage the patient may have been exposed to during the electrical shock.

### Pearls (Chemical)

- Certainly 0.9% NaCl Sol'n or Sterile Water is preferred; however if it is not readily available, do not delay; use tap water for flushing the affected area or other immediate water sources. Flush the area as soon as possible with the cleanest, readily available water or saline solution using copious amounts of fluids.



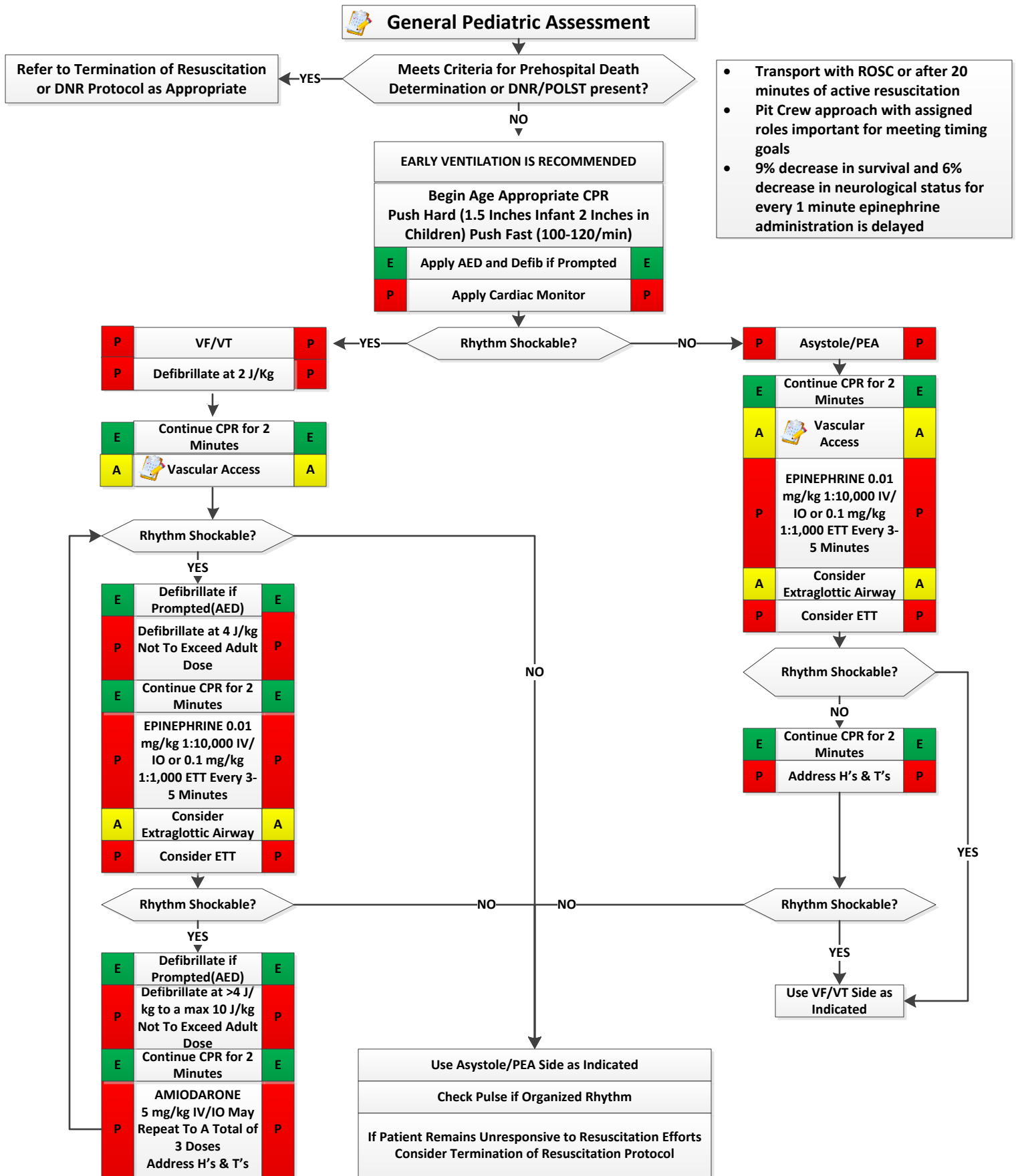
### Early Intubation Indications

- Signs of Airway Obstruction
- Hoarseness, Stridor, Dysphagia
- Extensive Deep Facial Burns
- Signs of Respiratory Compromise
  - Accessory Muscle Use
  - Inability to Clear Secretions
  - Poor Oxygenation
- Burns in Mouth
- Total BSA ≥ 40%
- Altered Mentation
- Significant Risk of Edema

### Fluid Resuscitation

- 13 years and above 500 ml NS or LR bolus
- 6-12 years 250 ml NS or LR bolus
- 5 years or less 125 ml NS or LR bolus
- Contact Burn Center Medical Direction for additional boluses or drip rates or if it is a prolonged transport.

# Pediatric Cardiac Arrest Non-Traumatic



- Transport with ROSC or after 20 minutes of active resuscitation
- Pit Crew approach with assigned roles important for meeting timing goals
- 9% decrease in survival and 6% decrease in neurological status for every 1 minute epinephrine administration is delayed

### History

- Events leading to arrest
- Estimated down time
- Past medical history
- Medications
- Existence of terminal illness

### Signs and Symptoms

- Unresponsive
- Apneic
- Pulseless

### Differential

- Medical vs. Trauma
- VF vs. Pulseless VT
- Asystole
- PEA
- Primary cardiac event vs. respiratory or drug overdose

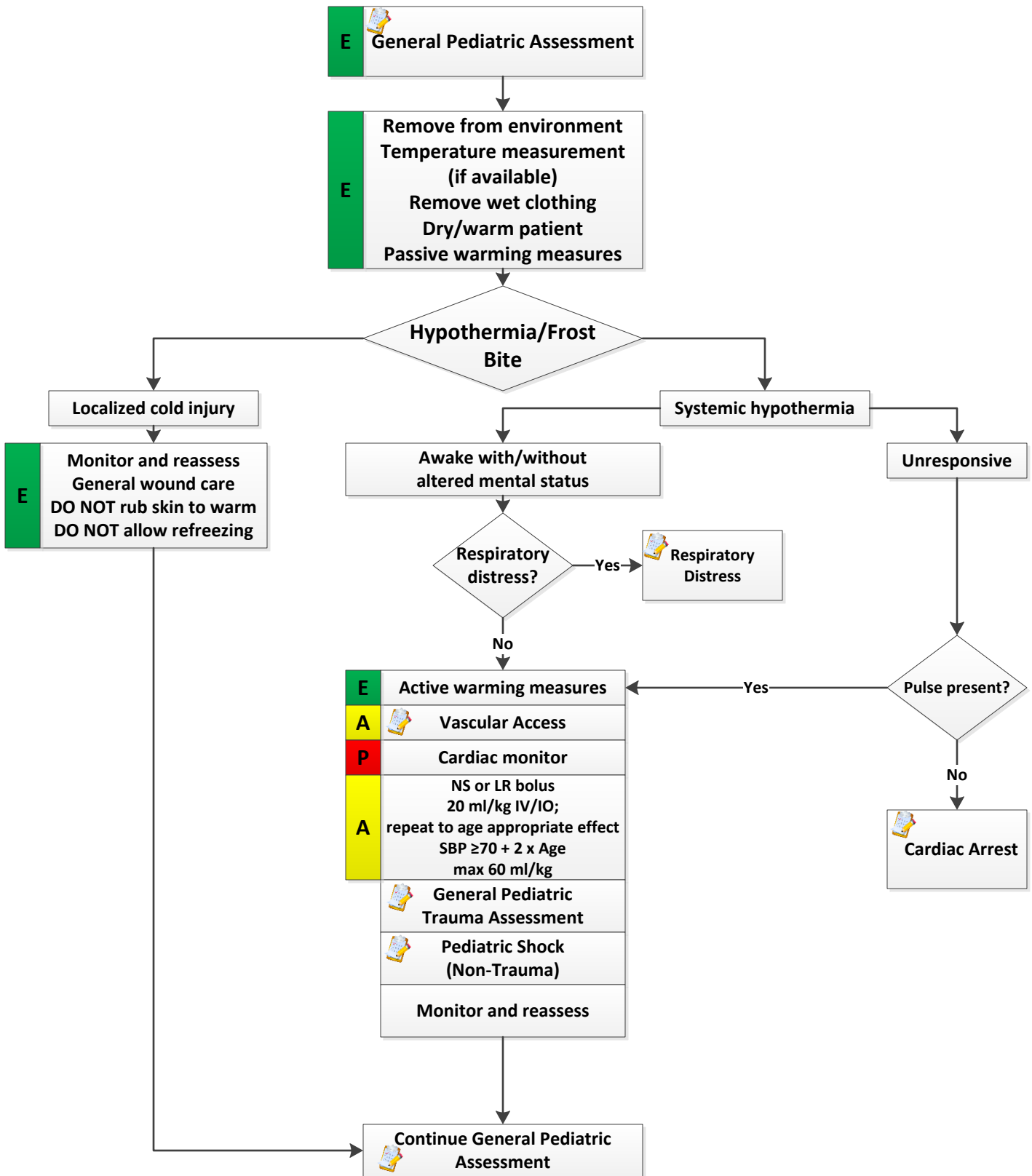
### Pearls

- Respiratory failure resulting in cardiac arrest should be addressed as it is identified.
- Efforts should be directed at high quality chest compressions with limited interruptions and early defibrillation when indicated.
- Consider early IO placement if IV is difficult.
- DO NOT HYPERVENTILATE.
- Once an advanced airway is in place, compressions should be continuous with ventilations every three seconds.
- Reassess and document ETT placement using auscultation and ETCO<sub>2</sub> capnography.
- Switch compressors every two minutes.
- Try to maintain patient modesty.
- Mechanical chest compression devices should be used if available and appropriate for patient age/size in order to provide for consistent uninterrupted chest compressions and crew safety.
- Adult paddles/pads may be used on children weighing greater than 10 kg.
- Pre-assignment of pit crew roles is recommended. When this is not possible, tasks may be assigned by order of arrival: 1<sup>st</sup>: Airway; 2<sup>nd</sup>: Compressions; 3<sup>rd</sup>: IV/IO access, medication administration; 4<sup>th</sup>: Measure, Monitor/AED placement; 5<sup>th</sup>: family liaison/history gathering
- Pre-plan drug dosing based on weight estimations while en route and verify with a height based tape once reaching the patient
- Proper BVM selection: <5 kg = infant BVM. 5-30 kg = pediatric BVM. >30 kg = adult BVM.

### H's & T's (reversible causes)

- Hypovolemia – Volume infusion
- Hypoxia – Oxygenation & ventilation, CPR
- Hydrogen ion (acidosis) – Ventilation, CPR
- Hyperkalemia – Calcium Chloride, Glucose, Sodium Bicarbonate, Albuterol
- Hypokalemia
- Hypothermia – Warming
- Hypoglycemia – Glucose
- Tension pneumothorax – Needle decompression
- Tamponade, cardiac – Volume infusion
- Toxins – Agent specific antidote
- Thrombosis, pulmonary – Volume infusion
- Thrombosis, coronary – Emergent PCI

# Pediatric Cold-Related Illness





**History**

- Age, very young and old
- Exposure to decreased temperatures, but may occur in normal temperatures
- Past medical history/medications
- Drug or alcohol use
- Infections/sepsis
- Time of exposure/wetness/wind chill

**Signs and Symptoms**

- AMS/coma
- Cold, clammy
- Shivering
- Extremity pain
- Bradycardia
- Hypotension or shock

**Differential**

- Sepsis
- Environmental exposure
- Hypoglycemia
- Stroke
- Head injury
- Spinal cord injury

**Pearls**

- Recommended exam: Mental Status, Heart, Lung, Abdomen, Extremities, Neuro.
- Extremes of age are more prone to cold emergencies.
- Obtain and document patient temperature.
- If temperature is unknown, treat the patient based on suspected temperature.
- Hot packs can be used on the armpit and groin; care should be taken not to place the packs directly on the skin.

**Hypothermia Categories**

- Mild 90° - 95° F (33° - 35° C)
- Moderate 82° - 90° F (28° - 32° C)
- Severe <82° F (<28° C)

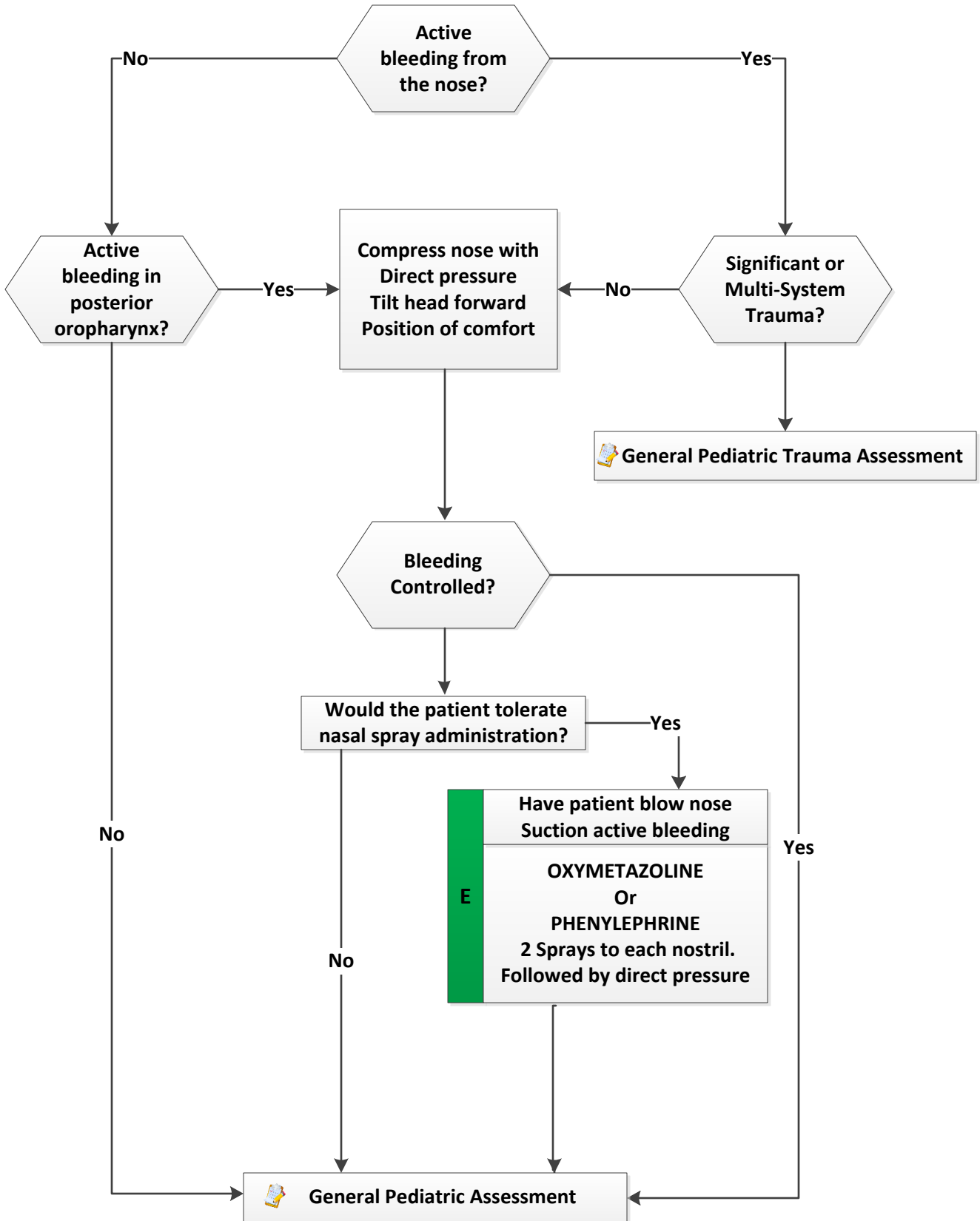
**Hypothermia Mechanisms**

- Radiation
- Convection
- Conduction
- Evaporation

**Active Heating Measures**

- Hot packs to the armpits and groin (do not place directly onto the skin)

# Pediatric Epistaxis



### History

- Age
- Past Medical History
- Medications (HTN, Anticoagulants, aspirin, NSAIDS)
- Previous episodes of epistaxis
- Trauma
- Duration of bleeding
- Quantity of bleeding

### Signs and Symptoms

- Bleeding from nasal passages
- Pain
- Nausea
- Vomiting

### Differential

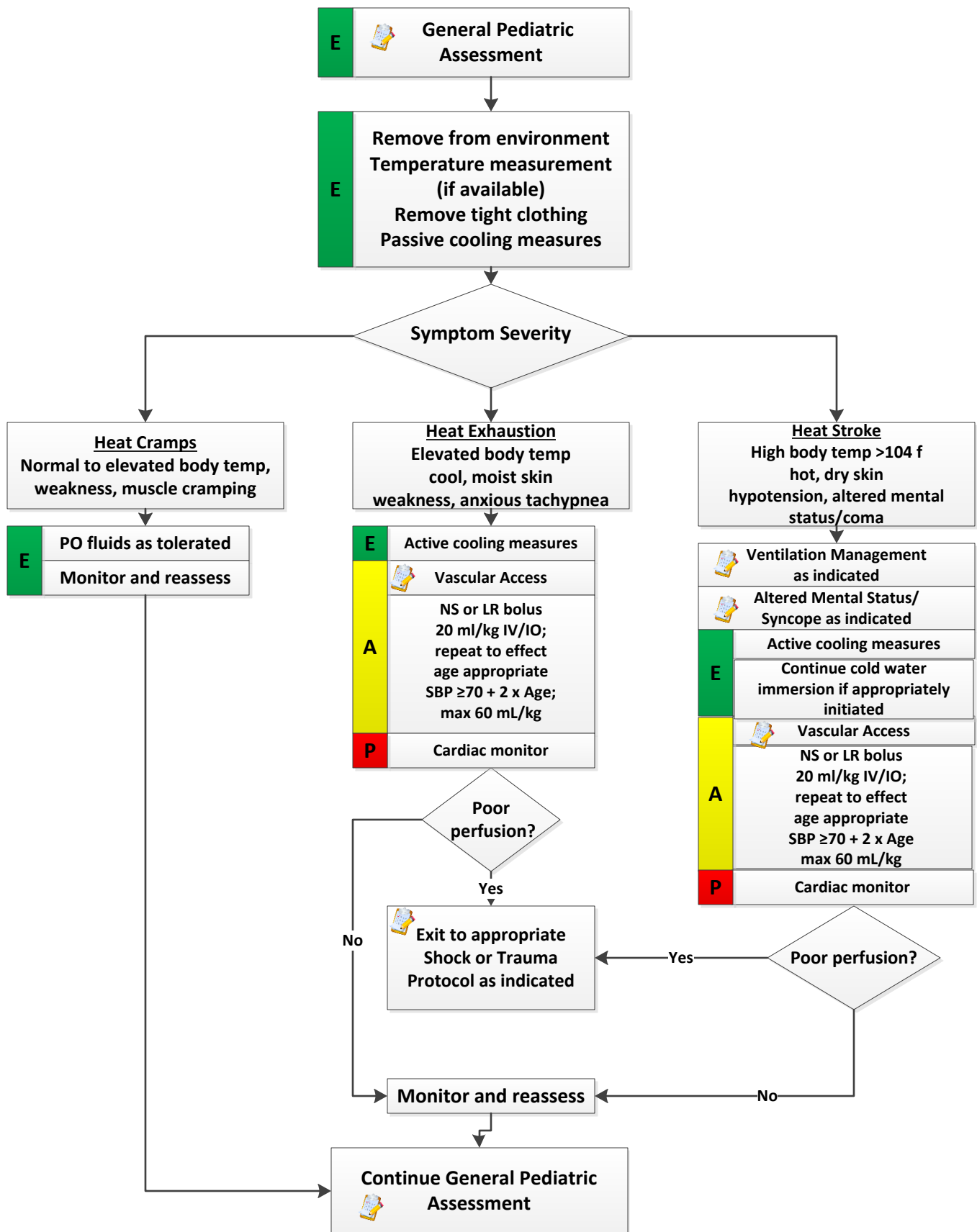
- Trauma
- Infection (viral URI or Sinusitis)
- Allergic rhinitis
- Lesions (polyps, ulcers)
- Hypertension

**Oxymetazoline (Afrin) and Phenylephrine (Neosynephrine)** should be avoided if child cannot follow instructions to blow their nose, or are unable to tolerate the administration of a nasal medication.

### Pearls

- Recommended exam: Mental Status, HEENT, Lungs, Neuro
- History should include any clotting disorders such as Hemophilia or Von Willebrand disease, as these can contribute to bleeding.
- Non-accidental trauma as well as foreign body should be considered in pediatric patients with epistaxis.
- It is very difficult to quantify the amount of blood loss with epistaxis
- Bleeding may be also occurring posteriorly. Evaluate for posterior blood loss by examining the posterior pharynx.
- Detailed medication history should be obtained to assess for any NSAIDS, Antiplatelet agents or Anticoagulant medications that may contribute to bleeding.

# Pediatric Heat-Related Illness



**History**

- Age, very old and young
- Exposures to increased temperatures and/or humidity
- Past medical history/medications
- Time and duration of exposure
- Poor PO intake, extreme exertion
- Fatigue and/or muscle cramping

**Signs and Symptoms**

- AMS/coma
- Hot, dry, or sweaty skin
- Hypotension or shock
- Seizures
- Nausea

**Differential**

- Fever
- Dehydration
- Medications
- Hyperthyroidism
- DTs
- Heat cramps, heat exhaustion, heat stroke
- CNS lesions or tumors

**Pearls**

- Recommended exam: Mental Status, Skin, Heart, Lung, Abdomen, Extremities, Neuro.
- Extremes of age are more prone to heat emergencies.
- Cocaine, amphetamines, and salicylates may elevate body temperatures.
- Sweating generally disappears as body temperatures rise over 104° F (40° C).
- Intense shivering may occur as patient is cooled.
- Active cooling includes application of cold packs or ice (not directly on skin), fanning either by air conditioning or fanning.
- Cold saline is not to be administered for the treatment of hyperthermia unless directed by telemetry physician.
- Cold water immersion is the preferred method of active cooling. Some providers such as certified athletic trainers and event medical personnel are prepared to initiate cold water immersion prior to EMS arrival. If cold water immersion was initiated due to documented hyperthermia, these patients should not be removed from cold water immersion prior to their rectal temperature reaching 102.2F (39C) or mental status returning to baseline unless it is required to manage other emergent issues such as airway.

**Heat Cramps**

- Consist of benign muscle cramping caused by dehydration and is not associated with an elevated temperature.

**Heat Exhaustion**

- Consists of dehydration, salt depletion, dizziness, fever, AMS, headache, cramping, N/V. Vital signs usually consist of tachycardia, hypotension and elevated temperature.

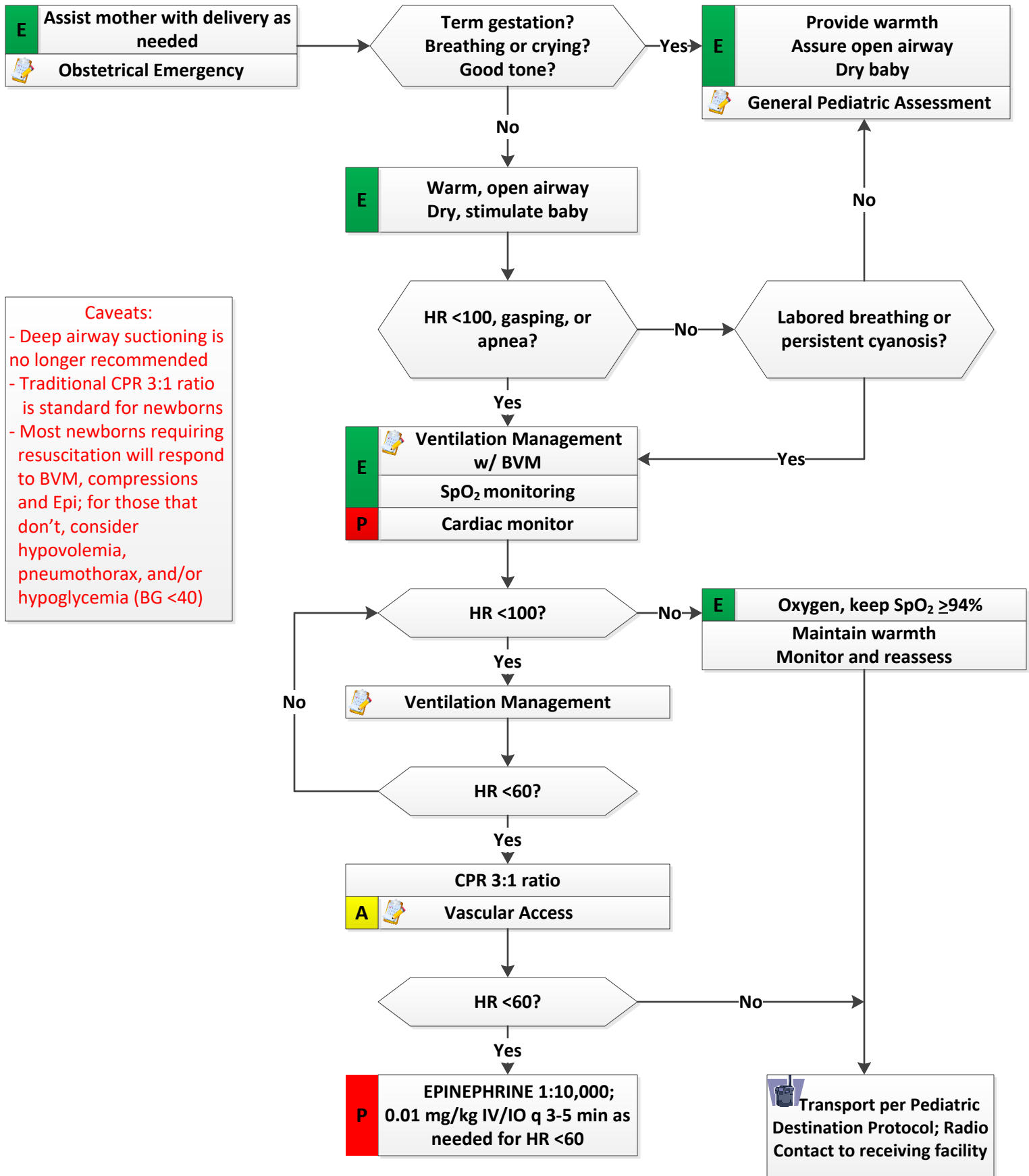
**Heat Stroke**

- Consists of dehydration, tachycardia, hypotension, temperature >104° F (40° C) and AMS.

**Active Cooling Measures**

- Cold packs
- Ice (do not place directly on the skin)
- Fanning
- Air conditioning

# Neonatal Resuscitation



**Caveats:**

- Deep airway suctioning is no longer recommended
- Traditional CPR 3:1 ratio is standard for newborns
- Most newborns requiring resuscitation will respond to BVM, compressions and Epi; for those that don't, consider hypovolemia, pneumothorax, and/or hypoglycemia (BG <40)

### History

- Due date
- Time contractions started/ duration/frequency
- Rupture of membranes (meconium)
- Time and amount of any vaginal bleeding
- Sensation of fetal movement
- Prenatal care
- Past medical and delivery history
- Medications
- Gravida/Para Status
- High risk pregnancy

### Signs and Symptoms

- Spasmodic pain
- Vaginal discharge or bleeding
- Crowning or urge to push
- Meconium

### Differential

- Abnormal presentation (breech, limb)
- Prolapsed cord
- Placenta previa
- Abruptio placenta

### Pearls

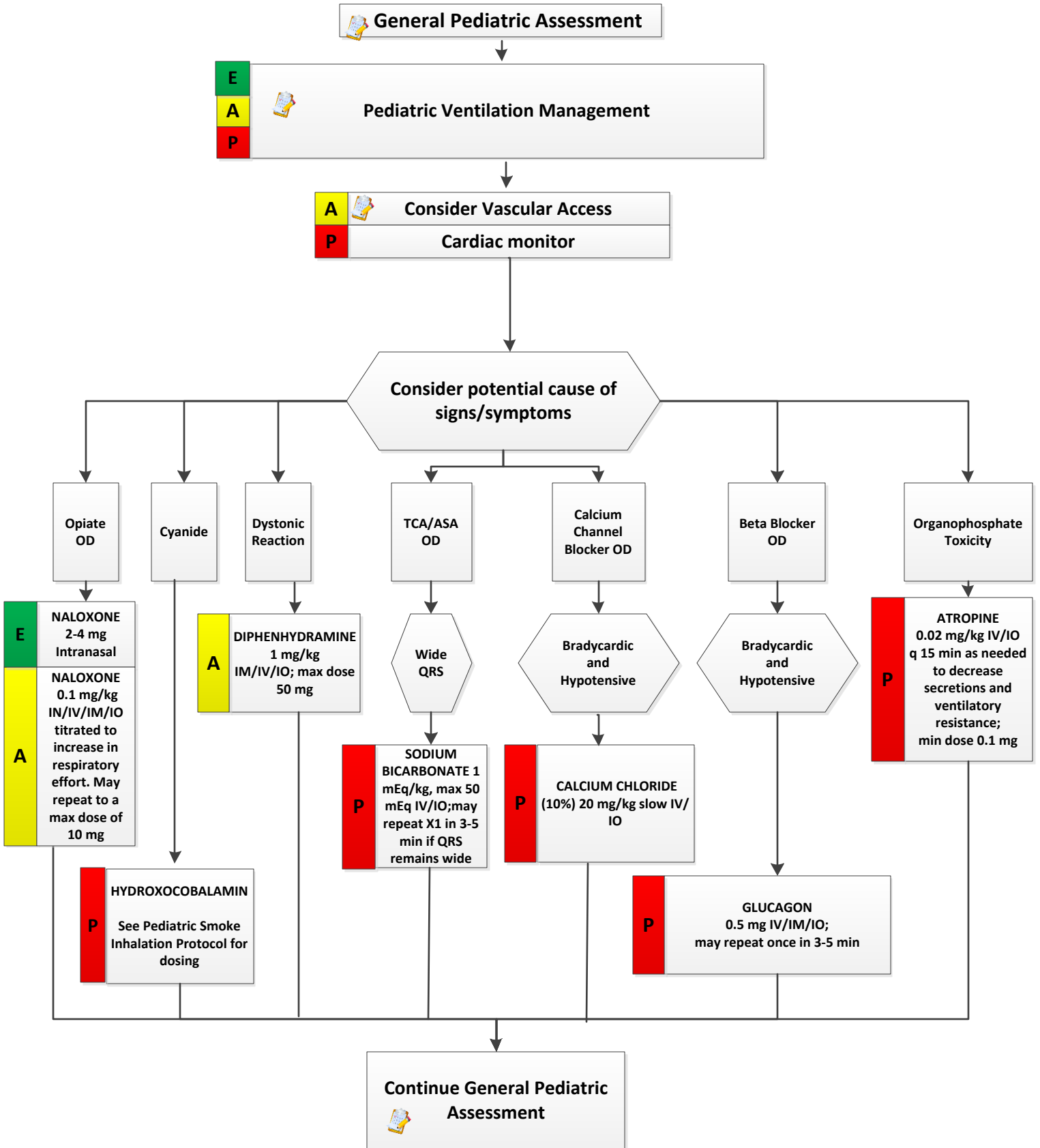
- Recommended Exam: Mental Status, Skin, HEENT, Neck, Chest, Heart, Lungs, Abdomen, Neuro.
- Document all times (delivery, contraction, duration, frequency).
- Some bleeding is normal; copious amounts of blood or free bleeding is abnormal.
- Record APGAR at one and five minutes after birth.
- APGAR of 7-10 is normal, while 4-7 require resuscitative measures
- Transport mother and infant together whenever possible.

<b>APGAR</b>	<b>Score=0</b>	<b>Score=1</b>	<b>Score=2</b>
• <b>Activity/Muscle Tone</b>	Absent	Arms/legs flexed	Active Movement
• <b>Pulse</b>	Absent	Below 100	Above 100
• <b>Grimace/Reflex Irritability</b>	No response	Grimace	Sneeze, cough, pulls away
• <b>Appearance/Skin Color</b>	Blue-Grey, pale all over	Normal, except extremities	Normal over entire body
• <b>Respiration</b>	Absent	Slow, irregular	Good, crying

### Caveats:

- Deep airway suctioning no longer recommended.
- Traditional CPR 3:1 ratio is standard for newborns.
- Most newborns requiring resuscitation will respond to BVM, compressions and Epinephrine; for those that don't, consider hypovolemia, pneumothorax, and/or hypoglycemia (BG <40).

# Pediatric Overdose / Poisoning





**History**

- Ingestion or suspected ingestion of a potentially toxic agent
- Substance ingested, route, quantity
- Time of ingestion
- Reason (suicidal, accidental, criminal)
- Available medications in home
- Past medical history, medications

**Signs and Symptoms**

- Mental status changes
- Hypotension/hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures
- SLUDGE
- Malaise, weakness
- GI symptoms
- Dizziness
- Syncope
- Chest pain

**Differential**

- TCA overdose
- Acetaminophen OD
- Aspirin
- Depressants
- Stimulants
- Anticholinergic
- Cardiac medications
- Solvents, alcohols, cleaning agents, insecticides

**Pearls**

- Pediatric patients should be evaluated by a physician if an overdose/poisoning is suspected regardless of agent, amount or time.
- 4.2% Sodium Bicarbonate should be used for all neonatal patients.
- Recommended exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Neuro.
- Narcan should be administered in small increment doses IV to address respiratory depression and ensure adequate ventilation. Monitor patient to watch for any signs of respiratory depression reoccurring. IV/IM are preferred routes for predictability.
- Overdose or toxin patients with significant ingestion/exposure should be closely monitored and aggressively treated. Do not hesitate to contact medical control if needed.
- In the case of cyanide poisoning, altered mental status may be profound. Profound altered mental status can be defined as a deficit that includes disorientation, bewilderment and difficulty following commands.
- Poison Control: 1-800-222-1222

**Agents**

- Acetaminophen: Initially normal or N/V. Tachypnea and AMS may occur later. Renal dysfunction, liver failure and/or cerebral edema may manifest.
- Depressants: Decreased HR, BP, temp and RR.
- Anticholinergic: Increased HR, increased temp, dilated pupils and mental status changes.
- Insecticides: May include S/S of organophosphate poisoning.
- Solvents: N/V, cough, AMS.
- Stimulants: Increased HR, BP, temp, dilated pupils, seizures and possible violence.
- TCA: Decreased mental status, dysrhythmias, seizures, hypotension, coma, death.

# Pediatric Pain Management



General Pediatric Assessment



Appropriate treatment protocol

E

Comfort measures, i.e. patient positioning, splinting, ice, etc.



A



Vascular Access



P



Cardiac monitor



For mild/moderate pain, consider:



E

**ACETAMINOPHEN**  
15 mg/kg PO, max single dose 1 g

A

**ACETAMINOPHEN**  
15 mg/kg IV/IO  
Maximum single dose 1g  
Slow IVP over 2 min



For severe pain, consider:



P

**FENTANYL** 1 mcg/kg  
IN/IM/IV/IO; maximum single  
dose 100 mcg  
Additional FENTANYL doses  
require a physician order



P

**MORPHINE** 0.1 mg/kg IM/IV/  
IO  
Maximum single dose  
10 mg

For nausea/vomiting after pain medication, consider:

A

**ONDANSETRON**  
0.15 mg/kg ODT/IM/IV/IO  
Up to max dose 4 mg (round up to nearest  
half pill)

P

IF 8 years of age or older  
**METOCLOPRAMIDE** 5 mg slow IV/IO bolus  
over 1-2 minutes or IM



Continue General Pediatric Assessment



Contact  
Medical Control  
for additional  
doses

### History

- Age
- Location, duration
- Severity (1-10)
- Past medical history
- Pregnancy status
- Drug allergies and medications

### Signs and Symptoms

- Severity (pain scale)
- Quality
- Radiation
- Relation to movement, respiration
- Increased with palpation of area

### Differential

- Musculoskeletal
- Visceral (abdominal)
- Cardiac
- Pleural, respiratory
- Neurogenic
- Renal (colic)

### Pearls

- Recommended exam: Respiratory Status, Mental Status, Area of pain, Neuro.
- Pain severity (1-10) is to be recorded before and after medication administration and patient hand off.
- Monitor BP and respirations closely as sedative and pain control agents may cause hypotension and or respiratory depression.
- Consider patient's age, weight, clinical condition, use of drugs/alcohol, exposure to opiates when determining initial opiate dosing. Weight based dosing may provide a standard means of dosing calculation but it does not predict response. Consider starting at a lower initial dose and titrating to effect is recommended. Patients may not exceed listed maximum dose without Medical Control orders.
- Exercise caution when administering opiates and benzodiazepines; this combination results in deeper anesthesia with significant risk of respiratory compromise.
- Burn patients may require more aggressive dosing. Consider early Medical Control for additional orders.
- Consider fentanyl as the primary opioid medication for pediatric traumatic pain.

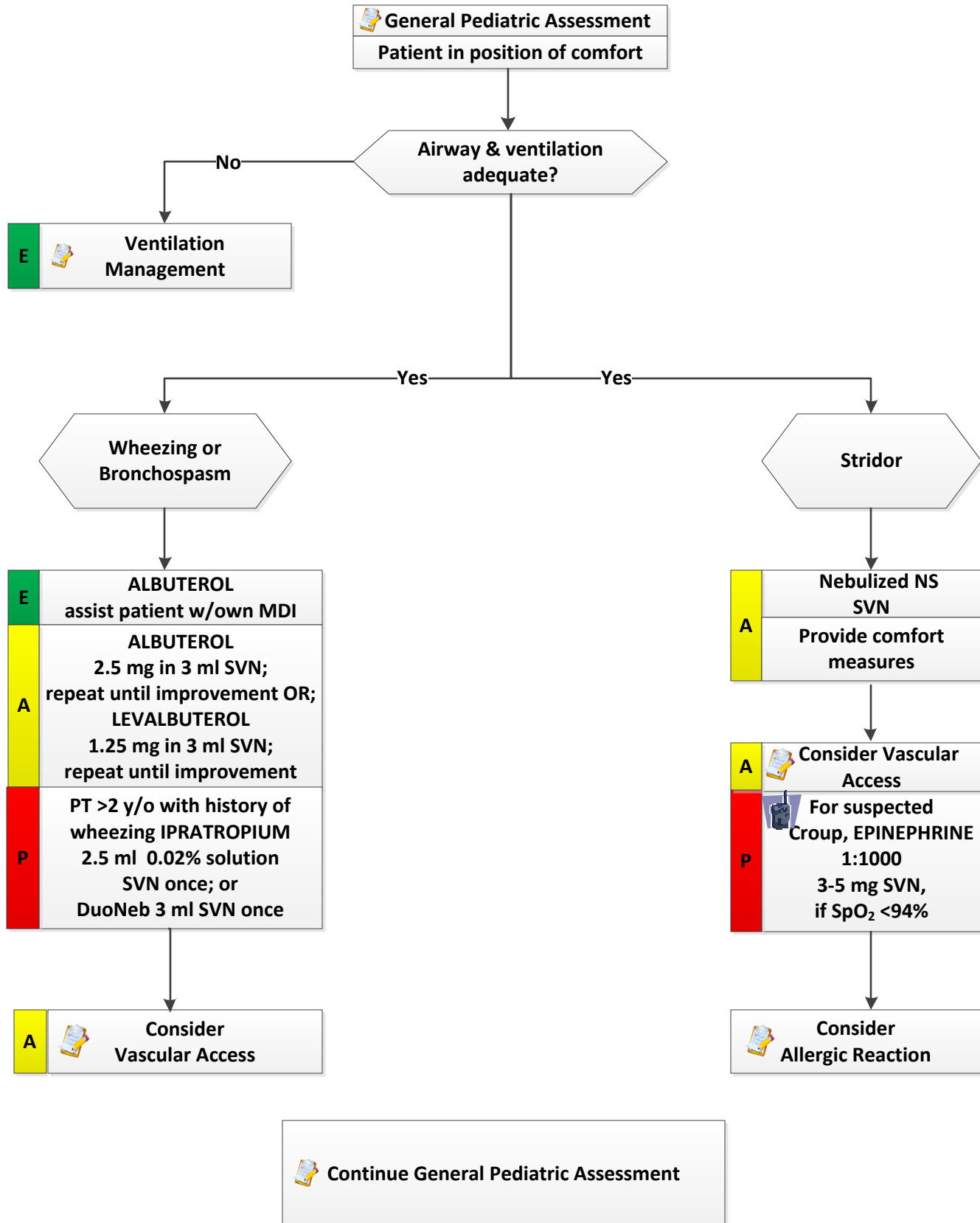
### QI Metrics

- Vital signs with O<sub>2</sub> sats documented.
- Pain scale documented before and after each intervention.
- Repeat vital signs after each intervention.
- If considering repeat administration of pain medications, nasal cannula capnography must be utilized.

## Wong-Baker FACES<sup>®</sup> Pain Rating Scale



# Pediatric Respiratory Distress



**History**

- Asthma
- Home treatment (oxygen, nebulizers)
- Medication
- Toxic exposure

**Signs and Symptoms**

- Shortness of breath
- Pursed lip breathing
- Decreased ability to speak
- Increased respiratory rate and effort
- Wheezing, rhonchi
- Use of accessory muscles
- Fever, cough
- Tachycardia

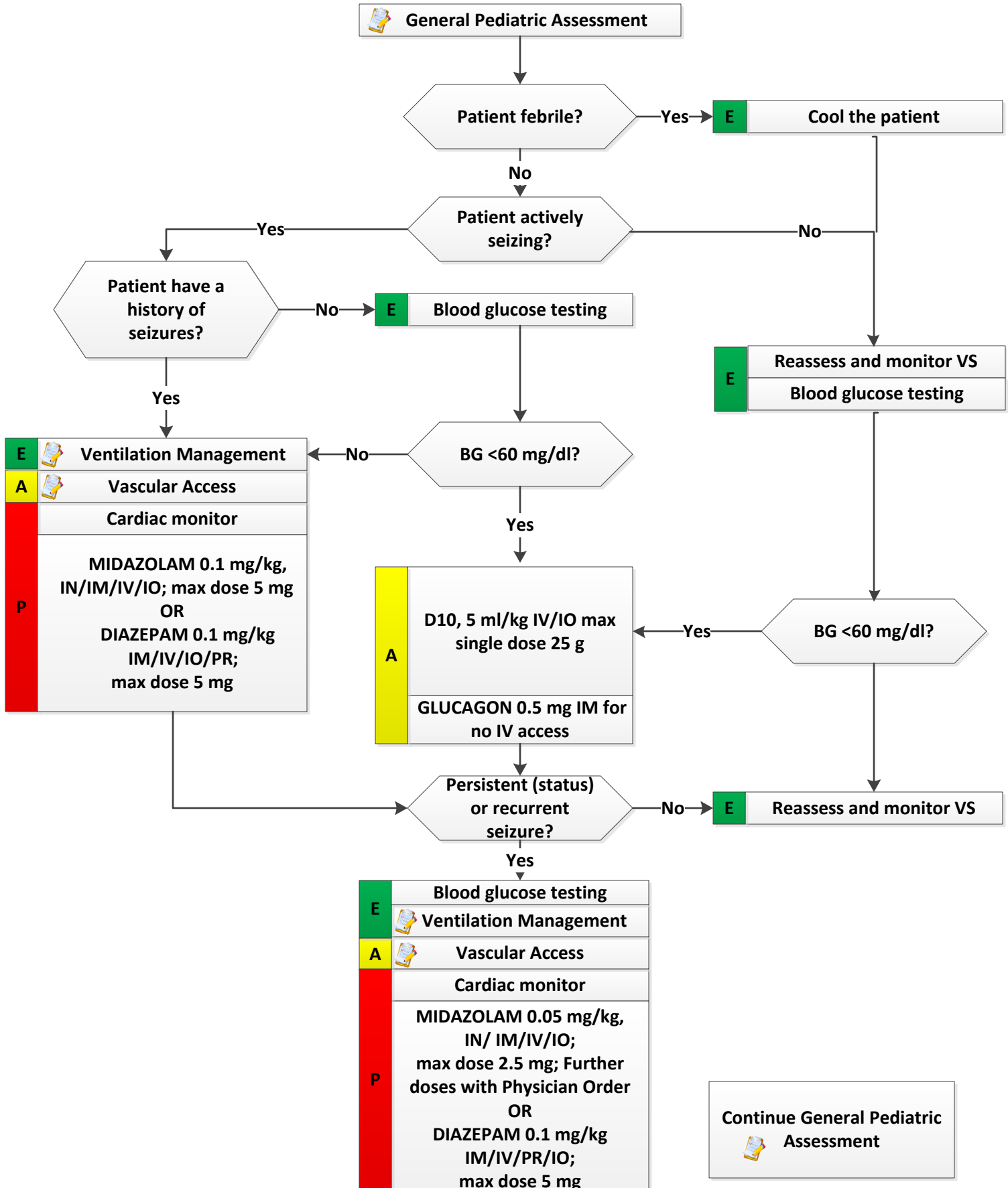
**Differential**

- Asthma
- Anaphylaxis
- Aspiration
- Pleural effusion
- Pneumonia
- Pneumothorax
- Pericardial tamponade (trauma)
- Hyperventilation
- Inhaled toxin

**Pearls**

- Be prepared to assist ventilations as needed.
- Recommended exam: Mental Status, HEENT, Skin, Neck, Heart, Lungs, Abdomen, Extremities, Neuro.
- Pulse oximetry and end tidal continuous waveform capnography must be monitored.
- Consider MI.
- Allow the patient to assume a position of comfort.

# Pediatric Seizure



**History**

- Reported or witnessed seizure activity
- Previous seizure history
- Seizure medications
- History of trauma
- History of diabetes
- Time of seizure onset
- Number of seizures
- Alcohol use, abuse or abrupt cessation
- Fever

**Signs and Symptoms**

- Decreased mental status
- Sleepiness
- Incontinence
- Observed seizure activity
- Evidence of trauma
- Unconsciousness

**Differential**

- CNS trauma
- Tumor
- Metabolic, hepatic or renal failure
- Hypoxia
- Electrolyte abnormality (Na, Ca, Mg)
- Drugs, medications non-compliance
- Infection, fever
- Alcohol withdrawal
- Hyperthermia
- Hypothermia

**Pearls**

- Recommended exam: Mental Status, HEENT, Heart, Lungs, Extremities, Neuro.
- Benzodiazepines are effective in terminating seizures; do not delay IM/IN administration while initiating an IV.
- Status epilepticus is defined as two or more seizures successively without an intervening lucid period, or a seizure lasting over five minutes.
- Grand mal seizures (generalized) are associated with loss of consciousness, incontinence and oral trauma.
- Focal seizures affect only part of the body and are not usually associated with a loss of consciousness.
- Be prepared to address airway issues and support ventilations as needed.
- Consider cardiac and ETCO<sub>2</sub> monitoring.

# Pediatric Shock

General Pediatric Assessment

- E** Oxygen 15 L NRB
- A** Vascular Access
- P** Cardiac monitor/Capnography

Alternative appropriate treatment protocols as indicated

Estimated Minimum Systolic BP Calculation  
 $(\text{Age in Years} \times 2) + 70$

**BP calculation applies up to age 10 years**

**Trauma - related**

**General Trauma**

**For patients with known adrenal insufficiency, administer patient's own Solu-Cortef (hydrocortisone) as prescribed**

**Non-Trauma related**

**A** **Vascular Access**  
 NS or LR bolus 20 ml/kg IV/IO;  
 may repeat x 2 with no rales on lung exam

**E** **Blood glucose testing**

BG <60 mg/dl  
 BG <40 mg/dl in newborn

BG normal

BG >250 mg/dl

**E** **ORAL GLUCOSE** if patient protecting airway

**A** **D10**, 5 ml/kg IV/IO max single dose 25 g

**A** **GLUCAGON**  
 0.5 mg IM (<20 kg);  
 1 mg IM (>20 kg) for no IV access

**A** **NS bolus**  
 10 ml/kg for hypotension;  
 may repeat x 2

**P** **Consider PUSH DOSE EPINEPHRINE**  
 0.1 mcg/kg IV/IO, max dose 5 mcg;  
 titrate to SBP >70 mm Hg + 2 x Age

**Continue General Pediatric Assessment**



**History**

- Blood loss-vaginal bleeding, ectopic, GI bleeding or AAA
- Fluid loss-vomiting, diarrhea, fever
- Infection
- Cardiac tamponade
- Medications
- Allergic reaction
- Pregnancy
- History of poor oral intake

**Signs and Symptoms**

- Restlessness, confusion
- Weakness, dizziness
- Weak rapid pulse
- Pale, cool, clammy skin
- Delayed capillary refill
- Hypotension
- Coffee-ground emesis
- Tarry stools

**Differential**

- Hypovolemic shock
- Cardiogenic shock
- Septic shock
- Neurogenic shock
- Anaphylactic shock
- Ectopic pregnancy
- Dysrhythmias
- Pulmonary embolism
- Tension pneumothorax
- Medication effect or overdose
- Vasovagal

**For patients with known adrenal insufficiency, administer patient's own Solu-Cortef (hydrocortisone) as prescribed.**

**Causes of Adrenal Insufficiency:**

**Addison's Disease**

**Congenital Adrenal Hyperplasia**

**Long term administration of steroids**

**Others**

**Pearls**

- Recommended exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro.
- Hypotension can be defined as a systolic <Estimated Minimum Systolic. This is not always reliable and should be interpreted in context and patient's typical BP, if known. Shock may present with a normal BP initially.
- Shock often is present with normal vital signs and may develop insidiously. Tachycardia may be the only manifestation.
- Consider all possible causes of shock and treat per appropriate protocol.

**Hypovolemic shock**

- Hemorrhage, trauma, GI bleeding, ruptured aortic aneurysm or pregnancy-related bleeding

**Cardiogenic shock**

- Heart failure, MI, cardiomyopathy, myocardial contusion, toxins

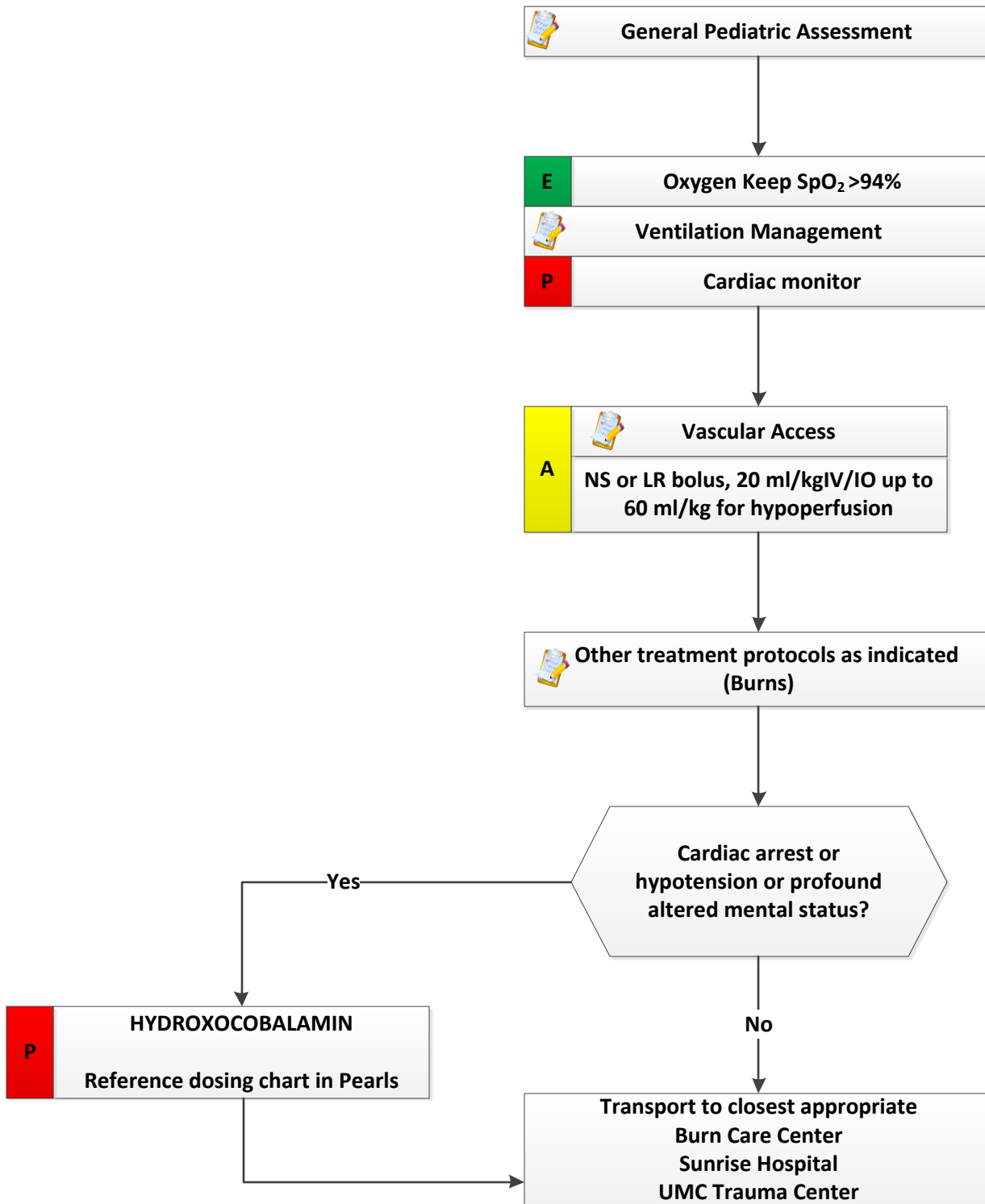
**Distributive shock**

- Sepsis, anaphylaxis, neurogenic, toxins

**Obstructive shock**

- Pericardial tamponade, pulmonary embolus, tension pneumothorax

# Pediatric Smoke Inhalation



### History

- Exposed to smoke in a structure fire
- Exposed to smoke in a vehicle fire
- Exposed to smoke from other sources, industrial, confined space, wilderness fire etc.

### Signs and Symptoms

- Facial burns
- Singed nasal hairs or facial hair
- Shortness of breath
- Facial edema
- Stridor
- Grunting respirations

### Differential

- COPD
- CHF
- Toxic inhalation injury
- Caustic inhalation injury

### Pearls

- Protect yourself and your crew.
- Have a high index of suspicion when treating patients at the scene of a fire.
- If the medication is not available on scene do not delay transport waiting for it.
- Carefully monitor respiratory effort and correct life threats immediately.
- Decide early on if you want to intubate as burned airways swell making intubation difficult.
- Profound altered mental status can be defined as a deficit that includes disorientation, bewilderment and difficulty following commands.

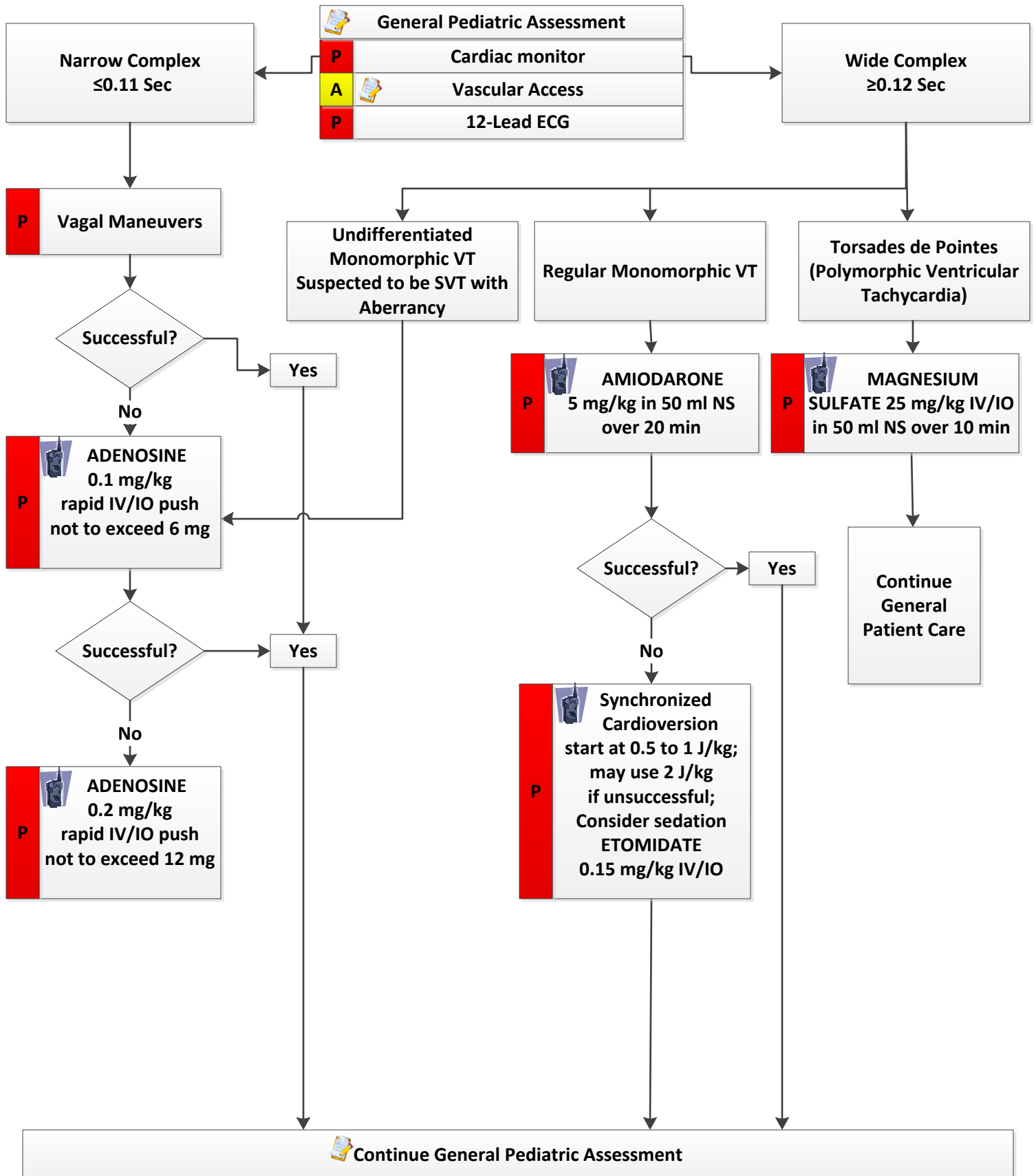
## Pediatric Cyanokit Instructions and Dosing

1. Reconstitute Cyanokit vial per the Instructions. **The new vial concentration will be 25mg/ml.**
2. See chart below to find the appropriate reconstituted dose.

APPROXIMATE AGE	NB-1 m	2 m	4-6 m	8-10 m	1-1.5 y	2-2.5 y	3-3.5 y	4-5 y	5.5-7 y	7.5-8 y	8.5-10 y
WEIGHT IN LBS	7-9 lb	11 lb	13-15 lb	18-20 lb	22-24 lb	26-31 lb	33-40 lb	42-48 lb	53-62 lb	66-70 lb	71-80 lb
WEIGHT IN KGS	3-4 kg	5 kg	6-7 kg	8-9 kg	10-11 kg	12-14 kg	15-18 kg	19-22 kg	24-28 kg	30-32kg	34-36 kg
RECONSTITUTED SYRINGE AMOUNT	10 ml	15 ml	20 ml	25 ml	30 ml	40 ml	50 ml	60 ml	75 ml	85 ml	100 ml
TOTAL DOSAGE OF MEDICATION	250mg	375mg	500mg	625mg	750mg	1000mg	1250mg	1500mg	1875mg	2125mg	2500mg
gtts / sec	1	1	1	5	5	5	5	5	5	6	6
	GIVE DOSE IN 50ml NS BAG			GIVE DOSE IN 250ml NS BAG							

3. Withdraw and waste the equivalent volume of Normal Saline from the bag size indicated.
4. Draw the appropriate dose from the vial referencing the chart, using the appropriate syringe size.
5. Inject the reconstituted medication into the appropriate sized bag of Normal Saline, below the Chart.
6. Spike the bag with 15 gtts/ml IV tubing.
7. Piggyback line into an IV/IO line and **Infuse over ~15 minutes** using the gtts/second noted above.

# Pediatric Tachycardia / Stable (Normal Mental Status, Palpable Radial Pulse)



**History**

- Medications
- Diet (caffeine)
- Drugs (cocaine, methamphetamines)
- Past medical history
- Syncope/near syncope
- History of palpitations/racing heart

**Signs and Symptoms**

- Heart rate  $\geq 180$  in children
- Heart rate  $\geq 220$  in infants
- Dizziness, CP, SOB
- Diaphoresis

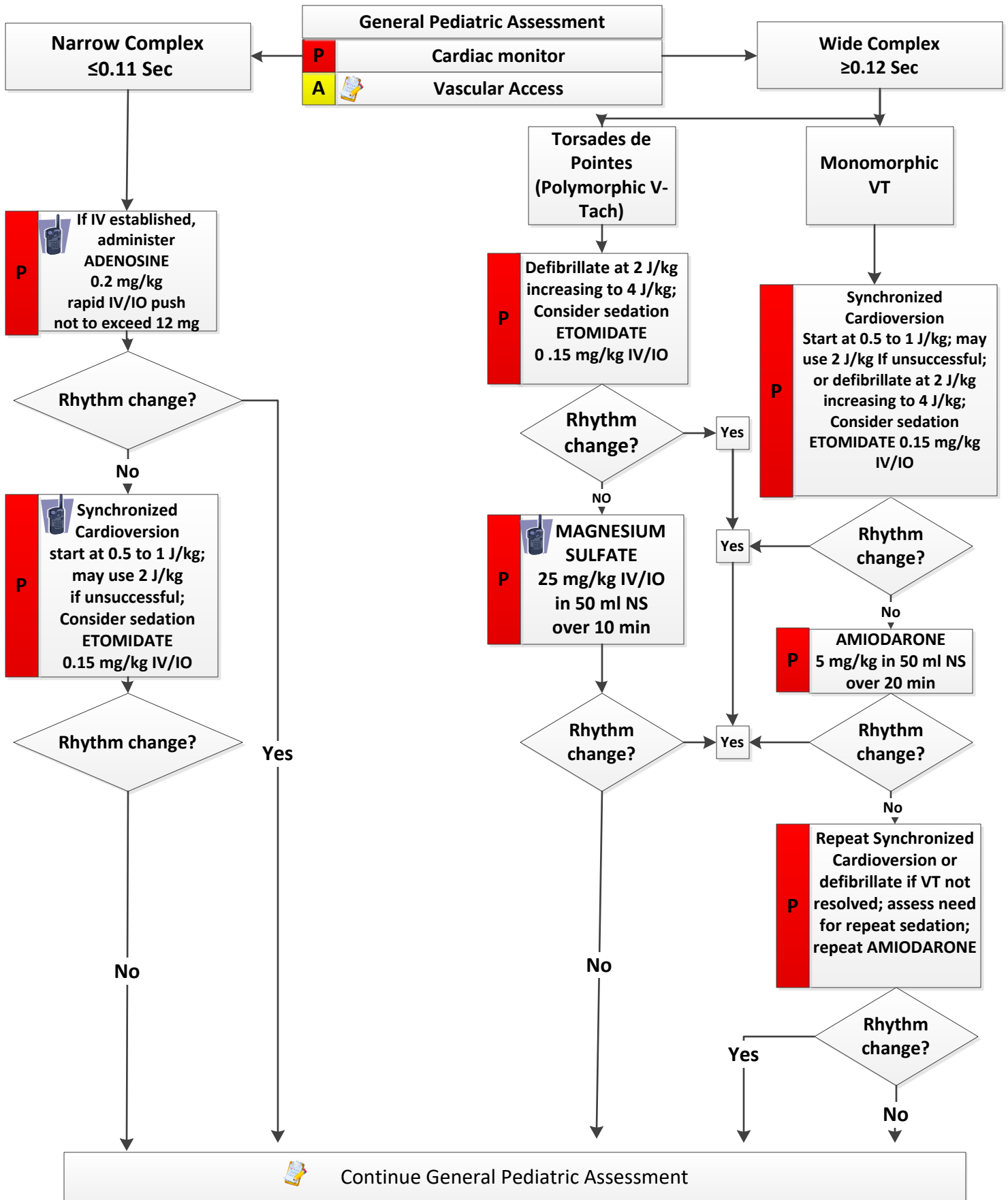
**Differential**

- Heart disease (WPW, valvular)
- Sick sinus syndrome
- Electrolyte imbalance
- Exertion, fever, pain, emotional stress
- Hypoxia
- Hypovolemia
- Drug effect, overdose
- Hyperthyroidism

**Pearls**

- Recommended exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro.
- Carefully monitor patients as you treat them; stable tachycardias may convert to unstable rhythms/conditions quickly.
- Sedate patients prior to cardioversion, if time allows.
- The most common tachyarrhythmia in children is sinus.

# Pediatric Tachycardia / Unstable (Mental Status Changes, No Palpable Radial Pulse)



**History**

- Medications
- Diet (caffeine)
- Drugs (cocaine, methamphetamines)
- Past medical history
- Syncope/near syncope
- History of palpitations/racing heart

**Signs and Symptoms**

- Cardiac Arrest
- Heart rate  $\geq 180$  in children
- Heart rate  $\geq 220$  in infants
- Dizziness, CP, SOB
- Diaphoresis

**Differential**

- Heart disease (WPW, valvular)
- Sick sinus syndrome
- Electrolyte imbalance
- Exertion, fever, pain, emotional stress
- Hypoxia
- Hypovolemia
- Drug effect, overdose
- Hyperthyroidism

**Pearls**

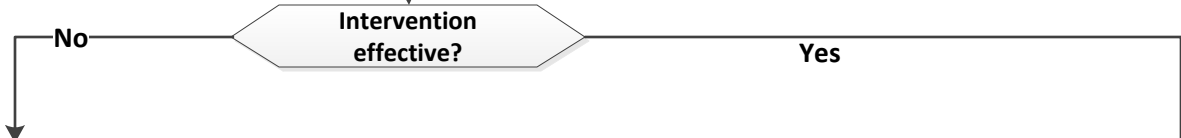
- Recommended exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro.
- If patient is in arrest, efforts should focus on quality chest compressions and rhythm correction.
- Administer Adenosine at a proximal IV site, rapidly followed by a saline flush.
- The most common tachyarrhythmia in children is sinus.

# Pediatric Ventilation Management

Use supplemental oxygen to maintain an oxygen saturation of >94%; >90% for patients on home oxygen for chronic conditions

E	Basic Airway Maneuvers - Open airway, Chin lift/Jaw thrust - NPA or OPA as needed - Suction as needed	Respiratory Distress and/or Tracheostomy Tube Replacement Protocol if needed
	Consider Cervical Stabilization	
	Consider Altered Mental Status/Syncope	

E	Administer oxygen
	BVM as needed

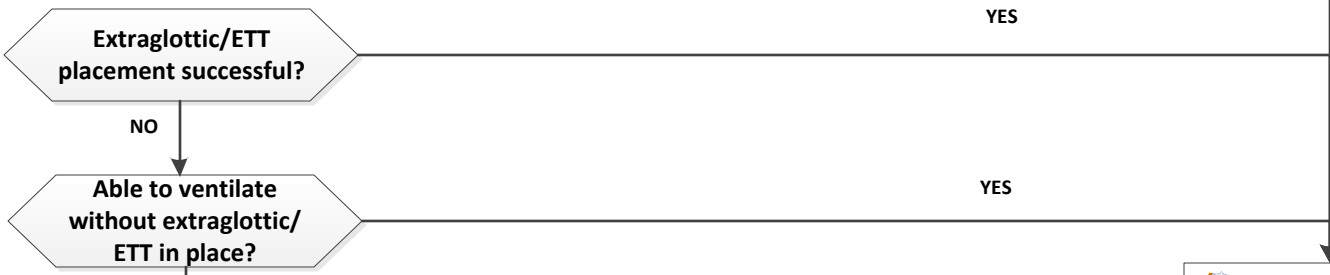


A	Extraglottic Airway	Vascular Access
	Endotracheal Intubation	ECG Monitor

Induction Administer ETOMIDATE 0.3 mg/kg IV/IO max dose 20 mg. OR; KETAMINE 2 mg/kg IV/IO max 200 mg or 4 mg/kg IM max 400 mg. OR; MIDAZOLAM 0.1 mg/kg IN/IM/IV/IO titrated to effect, max single dose 5 mg. Repeat doses with physician order.

Post-Intubation Sedation Administer MIDAZOLAM 0.1 mg/kg IN/IM/IV/IO, max dose 10 mg. May repeat X1 after 5 min at 0.05 mg/kg IV/IN/IM/IO, max dose 2.5 mg. Repeat dose with physician order. OR; KETAMINE 2 mg/kg IV or 4 mg/kg IM. Repeat doses with physician order. OR; DIAZEPAM 0.2 mg/kg IV/IO. Maximum dose 5 mg. May Repeat After 5 Minutes with Physician order. OR; DIAZEPAM 0.5 mg/kg PR via #5 or #8 French feeding tube, Maximum Dose 20 mg

Post-Intubation Analgesia Administer FENTANYL 1 mcg/kg; max dose 100 mcg



P	Cricothyroidotomy
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Continue General Pediatric Assessment
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## Pearls

- Consider preoxygenation/lung denitrogenation with a non-rebreather or a nasal cannula at 15 LPM prior to intubation (as patient condition allows)
- Severe hypotension (SBP  $70+(2 \times \text{age})$ ) should be addressed with IV fluids and/or pressors (as appropriate) prior to intubation in order to reduce likelihood of post-intubation cardiovascular decline.
- Capnometry (Color) or capnography is mandatory with all methods of intubation. Document results.
- Continuous capnography (ETCO<sub>2</sub>) is mandatory for the monitoring of all patients with an ET tube.
- If an effective airway is being maintained by BVM and/or basic airway adjuncts (e.g. nasopharyngeal airway) with continuous pulse oximetry values of  $\geq 90\%$ , or values expected based on pathophysiologic condition with otherwise reassuring vital signs (e.g. pulse oximetry of 85% with otherwise normal vitals in a post drowning patient), it is acceptable to continue with basic airway measures instead of using an extraglottic airway device or intubation.
- For the purposes of this protocol, a secure airway is achieved when the patient is receiving appropriate oxygenation and ventilation.
- An Intubation Attempt is defined as passing the laryngoscope blade or endotracheal tube past the teeth or inserted into the nasal passage.
- An appropriate ventilatory rate is one that maintains an ETCO<sub>2</sub> of 35 - 45. Avoid hyperventilation.
- Paramedics should use an extraglottic airway device if oral-tracheal intubation is unsuccessful.
- Maintain C-spine stabilization for patients with suspected spinal injury.
- Gastric tube placement should be considered in all intubated patients if time allows.
- It is important to secure the endotracheal tube well.

# **OPERATIONS PROTOCOLS**

# Communications



Telemetry contact should be established by radio.  
Telephone contact may only be used if the call is recorded via a  
phone patch through the FAO at 702-382-9007.

1. Telemetry contact shall be established:
  - A. For all time sensitive or life threatening condition transports.
  - B. For any medical emergency in which the EMS provider's judgment suggests consultation with a telemetry physician is necessary.
  - C. For all trauma patients going to a trauma center.
  - D. When telemetry contact is required per protocol.
2. For patients who meet Trauma Field Triage Criteria, telemetry reports shall include:
  - A. ETA
  - B. Patient age
  - C. Gender
  - D. Mechanism of injury
  - E. Ambulatory at scene
  - F. Suspected injuries
  - G. Vital signs
  - H. Airway status
  - I. Neurologic status
  - J. An incident identifier if multiple patients are involved (e.g. fire department command code "Main Street Command")
3. Notify/meet with the receiving facility prior to transfer of care with suspected need for Contact Isolation Preparation
  - A. State the general type of agent involved (insect, chemical, biological, radiation, nuclear, explosive)
  - B. State the type of agent if known.
  - C. If unknown state the general type with patient symptoms. Example – "Unknown chemical substance causing respiratory distress with secretions.
4. For all other patients, telemetry reports shall include, at a minimum:
  - A. Attendant/vehicle identification
  - B. Nature of call: INFORMATION ONLY or REQUEST FOR PHYSICIAN ORDERS
  - C. Patient information (i.e. number, age, sex)
  - D. Patient condition (i.e. stable, full arrest)
  - E. History
    - 1) Basic problem or chief complaint
    - 2) Pertinent associated symptoms
    - 3) Time since onset
    - 4) Past history, if pertinent
  - F. Objective findings
    - 1) General status of patient
    - 2) Level of responsiveness
    - 3) Vital signs
    - 4) Pertinent localized findings
    - 5) Working impression of patient's problem
  - G. Treatment
    - 1) In progress
    - 2) Requests for drugs or procedures
  - H. Estimated time of arrival, including any special circumstances that may cause a delay in transport.
    - I. For patients meeting "Code White" or "Code STEMI" criteria, a preliminary telemetry report should be made to notify the receiving facility of the type of activation, and an estimated arrival time. An "Information Only" telemetry should follow once transport has been initiated.

# Communications (Cont.)



Telemetry contact should be established by radio.  
Telephone contact may only be used if the call is recorded via a  
phone patch through the FAO at 702-382-9007.

5. Notification of transport shall be provided to the receiving hospital for ALL other calls.
  - A. Notification can be completed via:
    - 1) Radio
    - 2) Telephone
    - 3) EMSsystem
  - B. Notification reports shall include:
    - 1) Patient age
    - 2) Chief complaint
    - 3) Type of bed required (monitored/unmonitored)
    - 4) Unit number
    - 5) ETA
6. Providers will relay assessment findings and treatment provided to the individual(s) assuming responsibility for the patient(s).
7. Patient confidentiality must be maintained at all times.
8. All patients should be treated with dignity and respect in a calm and reassuring manner.

# Do Not Resuscitate (DNR/POLST)

1. All patients with absent vital signs who do not have conclusive signs of death (refer to Prehospital Death Determination protocol) shall be treated with life-resuscitating measures unless EMS personnel are presented with a valid Do-Not-Resuscitate (DNR)/Physician Order for Life-Sustaining Treatment (POLST) Identification/Order.



- A. A valid DNR Identification is a form, wallet card, or medallion issued by the Southern Nevada Health District, Nevada Division of Public and Behavioral Health, or an identification issued by another state indicating a person's desire and qualification to have life-resuscitating treatment withheld.
- B. A valid DNR Order is a written directive issued by a physician licensed in this state that life-resuscitating treatment is not to be administered to a qualified patient. The term also includes a valid Do-Not-Resuscitate order issued under the laws of another state.
- C. A valid POLST form signed by a physician that records the wishes of the patient and directs a healthcare provider regarding the provision of life-resuscitating treatment and life-sustaining treatment.

**Note:** Verbal instructions from friends or family members *DO NOT* constitute a valid DNR/POLST.

2. In preparation for, or during a inter-facility transfer, a valid DNR Order/POLST in the qualified patient's medical record shall be honored in accordance with this protocol.
3. If the EMS provider is presented with a DNR/POLST Order or Identification, he shall attempt to verify the validity of the Order or Identification by confirming the patient's name, age, and condition of identification.
4. The DNR/POLST Order or Identification shall be determined *INVALID* if at any time the patient indicates that he/she wishes to receive life-resuscitating treatment. The EMS provider shall document the presence of the DNR/POLST Order or Identification, and how the patient indicated that he/she wanted the Order or Identification to be revoked. EMS personnel shall relay this information to any subsequent medical providers, including but not limited to, flight crews and staff at the receiving medical facility.
5. Once the DNR/POLST Order or Identification is determined to be valid and has not been revoked by the patient, the emergency care provider shall provide *ONLY* supportive care and withhold life-resuscitating treatment.
6. Faxed, copied or electronic versions of the DNR Identification/POLST are legal and valid.

## Supportive Care:

- Suction the airway
- Administer oxygen
- Position for comfort
- Splint
- Control bleeding
- Provide pain medication (ALS only)
- Provide emotional support
- Contact hospice, home health agency, attending physician or hospital as appropriate
- Be attentive of any actions the patient may take to revoke his authorization to withhold life-resuscitating treatment

# Do Not Resuscitate (DNR/POLST)(Cont.)

## **Withhold Life-Resuscitating Treatment:**

### **CPR and its components including:**

**Chest compressions**

**Defibrillation**

**Cardioversion**

**Assisted ventilation**

**Airway intubation**

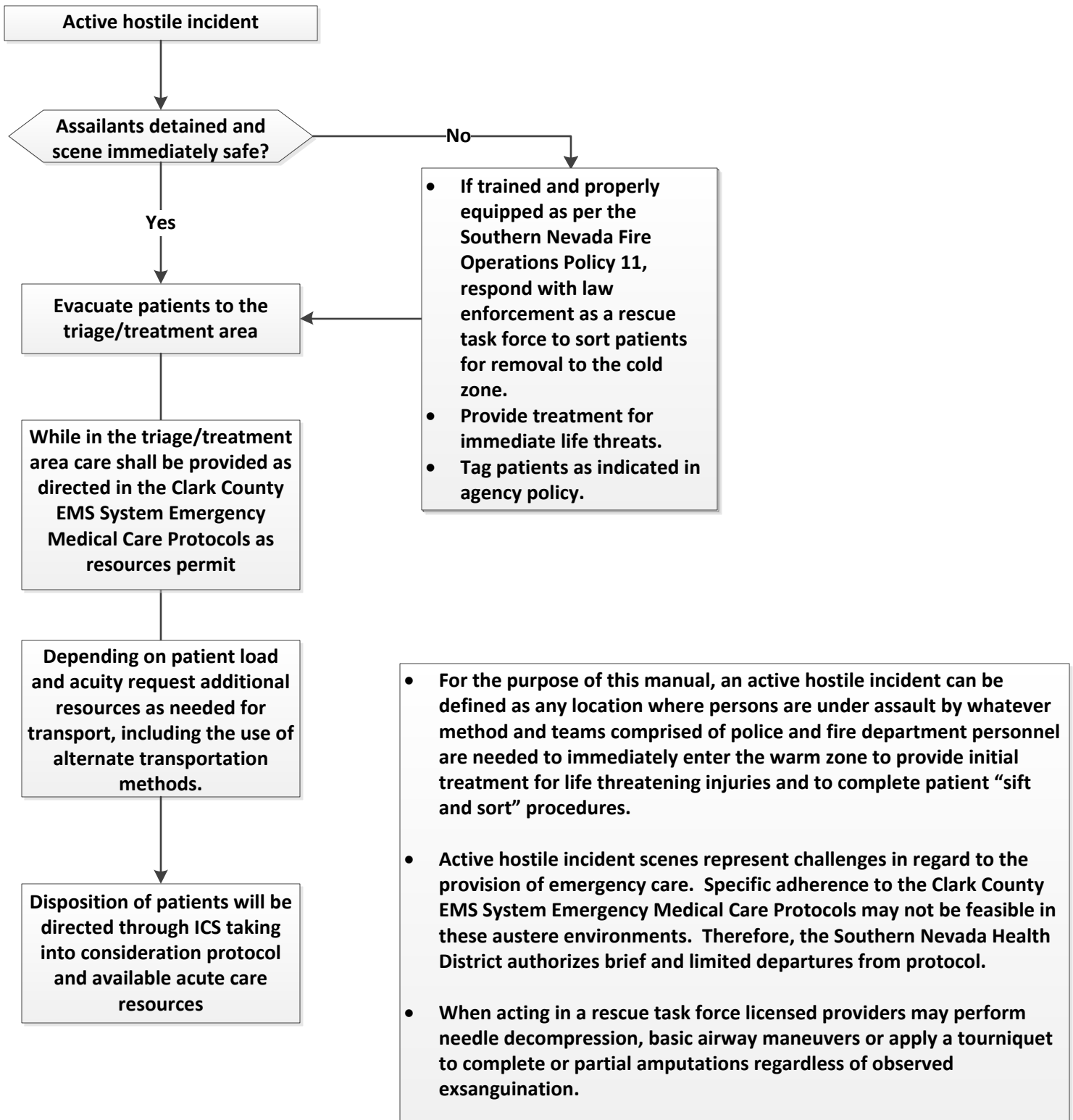
**Administration of cardiotoxic drugs**

- 6. EMS personnel will document on the PCR the presence of the DNR/POLST Order or Identification. Documentation should include the patient's name, and the physician's name and identification number, which are found on the DNR/POLST Order or Identification.**
- 7. An EMS provider who is unwilling or unable to comply with the DNR protocol shall take all reasonable measures to transfer a patient with a DNR/POLST Order or Identification to another provider or facility in which the DNR/POLST protocol may be followed.**

# Documentation

1. A Patient Care Record (PCR) will be completed for each incident/patient encounter, in accordance with current EMS Regulations. A patient is any individual that, upon contact with an EMS system, has any of the following:
  - A. A complaint or mechanism suggestive of potential illness or injury.
  - B. Obvious evidence of illness or injury.
  - C. An individual or informed 2<sup>nd</sup>/3<sup>rd</sup> party caller requests evaluation for potential illness or injury.
  
2. PCRs shall include no less than the following information:
  - A. Patient's name, address, age, and sex;
  - B. Date and location of call;
  - C. Time of dispatch, arrival at scene, departure from scene, and arrival at hospital;
  - D. Mechanism of injury—chief complaint;
  - E. Medication(s) used by patient and allergies;
  - F. Pertinent patient history, including current medication(s) and allergies;
  - G. Signs and symptoms identified during patient assessment, and changes;
  - H. Care and treatment given at scene and during transport;
  - I. Patient destination;
  - J. Name of attendant(s);
  - K. If care is provided as authorized by protocol;
  - L. File Attachments: The associated monitor file must be uploaded and attached to the PCR if the monitor was used for any of the following purposes:
    - 1) Assessing and/or monitoring the cardiac rhythm;
    - 2) Obtaining a 12-lead electrocardiogram (ECG)
    - 3) Providing electrical therapy; cardioversion, defibrillation, and/or pacing
    - 4) Monitoring End-Tidal Carbon Dioxide (ETCo2) levels and/or waveform of an intubated patient
  - M. In cases of trauma, the patient's trauma score, TFTC status, and any injury mitigation devices shall be documented, i.e. car seats, seat belts, air bags, helmets, etc.;
  - N. At least one full set of vital signs;
    - 1) Blood pressure
    - 2) Heart rate
    - 3) Respiratory rate
    - 4) Temperature as indicated
    - 5) Oxygen saturation
    - 6) Reassessment after interventions, i.e. pain score after medications;
    - 7) Any complications or other relevant information.
  
3. Any agency that provides patient care activities prior to the arrival of the transporting agency shall provide the transporting agency with, at a minimum, a verbal report reflecting those activities. This verbal report must be documented in the transporting agency's PCR.

# Hostile Mass Casualty Incident





# Inter-Facility Transport of Patients By Ambulance

1. Ambulance attendants should only transfer a patient whose therapy required during the transfer lies within the ambulance attendant's capabilities, unless capable personnel accompany the patient.
  - A. Ambulance attendants are authorized to administer or monitor all medications listed on the official drug inventory as appropriate for their level of licensure and as per protocol.
  - B. AEMT and Paramedic ambulance attendants are authorized to administer or monitor any crystalloid IV solution during transport.
  - C. EMT ambulance attendants are authorized to monitor locked intravenous peripheral lines during transport, including helpocks, Broviacs, Hickmans, Port-A-Catheters, and PICC lines.
  - D. Arterial lines should be discontinued unless appropriate personnel from the initiating facility accompany the patient.
  - E. Heparin locks/implantable catheters with/without reservoirs may be closed off and left in place. If they are to be used during transport, then an IV drip should be established if tolerated by the patient.
  - F. IV pump systems should be discontinued unless capable personnel accompany the patient.
  - G. Orogastric or nasogastric tubes may be left in place and should either be closed off or left to suction per order of the transferring physician.
  - H. Orthopedic devices may be left in place at the ambulance attendant's discretion as to ability to properly transport the patient with existing device(s) in place.
  - I. Trained personnel authorized to operate the apparatus should accompany any patient requiring mechanical ventilation during transport. If the patient will require manual ventilatory assistance, then at least two persons shall be available to attend to the patient.
2. Prior to the transfer, the transferring physician is responsible for notifying the receiving physician of the following:
  - 1) Reason for transfer
  - 2) Patient condition
  - 3) Estimated time of arrival
3. The transferring physician must provide the ambulance attendants with the name of the receiving facility and receiving physician, copies of any available diagnostic tests, X-rays, medical records, copy of code status, DNR, POLST, or advanced directive paperwork as applicable, any isolation precaution information, and the EMTALA form prior to releasing the patient.
4. Any agency that provides patient care activities prior to the arrival of the transporting agency shall provide the transporting agency with, at a minimum, a verbal report reflecting those activities. This verbal report must be documented in the transporting agency's PCR.

# Pediatric Patient Destination

**Pediatric patients (<18 years of age) shall be transported in accordance with the following criteria:**

- 1. Pediatric patients (including psychiatric patients) shall be transported, based on the preference of the parent or legal guardian, to one of the following facilities:**
  - A. St. Rose Dominican – Siena Campus**
  - B. Summerlin Hospital Medical Center**
  - C. Sunrise Hospital & Medical Center**
  - D. University Medical Center**
- 2. If the parent or legal guardian does not have a preference, the patient shall be transported to the closest of the above facilities.**
- 3. If, in the judgment of prehospital personnel, the transport time to one of the above facilities would be detrimental to a critically ill/unstable pediatric patient, the patient should be transported to the closest Emergency Department.**
- 4. The patient may be transported to a non-designated facility:**
  - A. At the request of the parent or legal guardian, and if the child is deemed stable by the EMS provider; or**
  - B. The incident is greater than 50 miles from the closest pediatric facility; and**
  - C. The receiving facility and physician are contacted and agree to accept the patient.**
- 5. Pediatric sexual assault victims shall be transported as follows:**
  - A. Victims <13 years of age shall be transported to Sunrise Hospital and Medical Center.**
  - B. Victims 13 years of age and up to 18 years of age shall be transported to either Sunrise Hospital & Medical Center or University Medical Center.**
  - C. For sexual assault victims outside a 50-mile radius from the above facilities, the licensee providing emergency medical care shall transport the patient to the nearest appropriate facility.**

# Prehospital Death Determination



For all emergency scenes where patient needs exceed available EMS resources, initial assessment and treatment shall be in accordance with the START/SMART triage methodology.

1. Patients who appear to have expired will not be resuscitated or transported by Clark County EMS personnel if any of the following obvious signs of death are present:

- A. Body decomposition
- B. Decapitation
- C. Transection of thorax (hemicorpectomy)
- D. Incineration

If there are any extenuating circumstances regarding access to patient, contact medical control.



- E. For other traumatic injuries suspected to be incompatible with life, medical control must be contacted for medical direction.

OR if ALL (5) presumptive signs of death AND AT LEAST one (1) conclusive sign of death are identified.

The (5) presumptive signs of death that **MUST** be present are:

- 1) Unresponsiveness
- 2) Apnea
- 3) Pulselessness
- 4) Fixed, dilated pupils
- 5) For Non-Traumatic Arrests, Asystole in at least 2 (two) leads or a "No Shock Advised" prompt from an AED

Conclusive signs of death include:

- 1) Dependent lividity
- 2) Rigor mortis



If any of the findings are different than those described above, clinical death is not confirmed, and resuscitative measures should be immediately initiated or continued.

2. Once it has been determined that the patient has expired and resuscitation will not be attempted:
  - A) Immediately notify the appropriate authority;
  - B) **DO NOT** leave a body unattended. You may be excused once a responsible person (i.e. Coroner's investigator, police, security, or family member) is present;
  - C) **DO NOT** remove any property from the body or the scene for any purpose;
  - D) **NEVER** transport/move a body without permission from the Coroner's office except for assessment or its protection.



If the body is in the public view and cannot be isolated, screened, or blocked from view, and is creating an unsafe situation with citizens/family, the body can be covered with a clean, **STERILE BURN SHEET** obtained from the EMS vehicle.

# Public Intoxication

1. A person who is suspected to be intoxicated and has no other emergent need should be transported to an approved alcohol and drug abuse facility rather than a hospital's emergency department *IF* the patient meets *ALL* of the following criteria:

A. Patient is able to stand with minimal assistance of one or two people.

B. Vitals as follows:

1. Blood Pressure: Systolic: 90 – 180  
Diastolic: 60 – 100
2. Pulse Rate: 60 – 120
3. Respiratory Rate: 12 – 22
4. Blood Glucose between 60 – 250
5. Glasgow Coma Score  $\geq$  14
6. SPO<sub>2</sub> >94% or 90% if smoker
7. No acute medical complications
8. No signs of trauma
9. No suspected head injury
10. Approval of the physician or medical staff upon assessment prior to transport to an alternative facility. Contact with the facility needs to be routed via recorded phone patch through FAO at 702-382-9007

All of the above parameters must be met and the patient must be clinically stable.

2. If there is *ANY* doubt about whether the person is in need of emergency medical care, the person should be transported to a receiving emergency facility.

**\* Approved Public Intoxication  
Facilities:**

**Crossroads of Southern Nevada  
(CRSN)**

# Quality Improvement Review

When EMS or hospital personnel wish to have an incident involving patient care reviewed within the Clark County EMS system, the following steps shall be taken:

1. The person requesting a review of an incident should contact the designated representative of the agency/hospital involved to initiate the process. If after gathering appropriate information and discussing the incident both parties are satisfied a problem does not exist, nothing further needs to be done.
2. If either party would like to pursue an investigation of the incident, the "Southern Nevada Health District EMS Incident Report" should be completed and a copy should be forwarded to the OEMSTS.
3. Upon receipt of the "Southern Nevada Health District EMS Incident Report" OEMSTS staff will review the case, gather information from the agencies/hospitals involved, and evaluate the need for further investigation. The agency/hospital may be asked to conduct an internal investigation, involving their medical director when appropriate, and provide a summary of their findings to the OEMSTS.
4. The personnel involved in the incident may be interviewed by the EMS medical director or his designee and their agency/hospital medical director to gather additional information.
5. Upon completion of the investigation, a report will be prepared and given to the agency/hospital representatives involved. Direct communication between the agency/hospital and complainant is recommended with a brief written summary of actions taken provided to the OEMSTS.
6. A quarterly aggregate summary of the incidents reviewed by the OEMSTS will be prepared and reported at the Quality Improvement Directors and Medical Advisory Board meetings.
7. All documentation and correspondence regarding this quality improvement activity; to monitor, review, evaluate, and report on the necessity, quality, and level of care provided a patient is confidential pursuant to NRS 49.117 – NRS 49.123, NRS 49.265, NRS 450B.810 and NRS 629.061.

# Termination of Resuscitation

1. Licensed EMS personnel are not obligated to continue resuscitation efforts that have been started by other persons at the scene if the patient meets the criteria listed in the Prehospital Death Determination protocol. This includes telephone CPR initiated by Emergency Medical Dispatchers.
2. Resuscitation should be terminated/ not initiated without telemetry contact if a valid DNR/POLST or physician written order is provided.
3. Resuscitation started in the field may be discontinued only by a telemetry physician order when the following conditions have been met:
  - A. For medical arrest, contact closest hospital for telemetry physician order:

The patient remains in persistent asystole or agonal rhythm after twenty (20) minutes of appropriate resuscitation, to include:

    - 1) CPR
    - 2) Effective ventilation with 100% oxygenation
    - 3) Administration of appropriate ACLS medications, if available.
    - 4) Confirm no organized rhythm or PEA<40, or a "No Shock Advised" on AED
  - B. For traumatic arrest, contact TRAUMA CENTER based on catchment for telemetry physician order:
    - 1) Open airway with basic life support measures
    - 2) Provide CPR and effective ventilations with 100% oxygenation for two (2) minutes
    - 3) Perform bilateral needle decompression if tension pneumothorax suspected
    - 4) Confirm no organized rhythm or PEA <40, or a "No Shock Advised" on AED
  - C. The patient develops, or is found to have one of the following conclusive signs of death at any point during the resuscitative effort:
    - 1) Lividity
    - 2) Rigor mortis
4. When resuscitation has been terminated in the field, all medical interventions shall be left in place.
5. If possible, do not leave a body unattended. Once a responsible person (i.e. Coroner's investigator, police, security, or family member) is present at the scene, you may be excused.
6. **NEVER** transport/move a body without permission from the Coroner's office, except for assessment or its protection.



If the body is in the public view and cannot be isolated, screened, or blocked from view, and is creating an unsafe situation with citizens/family, the body can be covered with a clean, **STERILE BURN SHEET** obtained from the EMS vehicle.

**NOTES:** In rural or wilderness situations, EMS providers must make every effort to contact medical control, but resuscitation may be terminated in the field without medical control when any of the following have occurred:

- A. There has been no return of pulse despite greater than 20 minutes of CPR and effective ventilation (consider extending in the case of hypothermia or drowning)
- B. Transport to an emergency department will take greater than 40 minutes (consider extending in the case of hypothermia or drowning)
- C. The EMS providers are exhausted and it is physically impossible to continue the resuscitation.

# Transport Destinations

1. Medically stable patients should be transported to their hospital of choice if the destination is not significantly beyond the primary response area of the transporting agency. If the patient does not have a preference, the patient should be transported to the nearest appropriate facility.
2. Patients sustaining traumatic injuries shall be transported in accordance with the Trauma Field Triage Criteria Protocol.
3. Patients sustaining burn injuries shall be transported in accordance with the Burns Protocol.
4. Pediatric patients (<18 years of age for transport purposes *ONLY*) shall be transported in accordance with the Pediatric Destination Protocol.
5. Patients with evidence of an acute cerebrovascular accident shall be transported in accordance with the Stroke Protocol.
6. Sexual assault victims shall be transported as follows:
  - A. Victims <13 years of age shall be transported to Sunrise Hospital & Medical Center.
  - B. Victims 13 years of age and up to 18 years of age shall be transported to either Sunrise Hospital & Medical Center or University Medical Center.
  - C. Victims 18 years of age and older shall be transported to University Medical Center.
  - D. For sexual assault victims outside of a 50-mile radius from the above facilities, the licensee providing emergency medical care shall transport the patient to the nearest appropriate facility.
7. All medical patients in cardiac arrest or in whom the ability to adequately ventilate cannot be established should be transported to the closest facility.
8. If a hospital declares an *Internal Disaster*, that facility is to be bypassed for *ALL* patients except patients in cardiac arrest, or in whom the ability to adequately ventilate has not been established.
9. For patients outside of a 50 mile radius from protocol designated transport destinations, the licensee providing emergency medical care shall transport the patient to the nearest appropriate facility.

## Remote Outpatient Emergency Department Alternate Destination Criteria

1. Patients who require a medical or psychiatric evaluation and do not have evidence of any potentially life-threatening illness or injury at the time of transport may be transported to a remote outpatient emergency department if;
2. The patient has normal vital signs, unless accepted by the remote outpatient emergency department, telemetry contact is made, and;
3. The patient does not meet any of the following exclusions criteria:
  - A. Violent or uncooperative patients
  - B. Obstetric patients > 20 weeks gestation
  - C. Any patient in need of time-critical intervention that can be provided only at a hospital-based emergency department. For example, but not limited to STEMI, Stroke, or ACS.
  - D. Any condition covered by another destination directive:

Trauma Field Triage Criteria	Normal Vital Signs:
Stroke Protocol	Heart Rate 60-100
Burns Protocol	Respiratory Rate 10-20
Pediatric Destination Protocol	Systolic BP 100-180
Sexual Assault Victims	Diastolic BP 60-110
Cardiac Arrest	Room air pulse oximetry >94%
	Alert and oriented X4
4. Alternate transportation and destination decisions should be consistent with medical necessity and with consideration for patient preference when the patient's condition allows.

# Trauma Field Triage Criteria

## RED INJURY PATTERNS

- Penetrating injuries to head, neck, torso, and proximal extremities
- Skull deformity, suspected skull fracture
- Suspected spinal injury with new motor or sensory loss
- Chest wall instability, deformity, or suspected flail chest
- Suspected pelvic fracture
- Suspected fracture of two or more proximal long bones
- Crushed, degloved, mangled, or pulseless extremity
- Amputation proximal to wrist or ankle
- Active bleeding requiring a tourniquet or wound packing with continuous pressure

## RED MENTAL STATUS & VITAL SIGNS

### All Patients

- Unable to follow commands (GCS Motor <6)
- RR <10 or > 29 breaths/min
- Respiratory distress or need for respiratory support
- Room-air pulse oximetry < 90%
- The following vital signs fall into Red criteria when found in the presence of traumatic mechanism:

### Age 0-9 years

- SBP < 70 mm Hg + (2 x age years)

### Age 10-64 years

- SBP < 90 mm Hg or
- HR > SBP

### Age > 65 years

- SBP < 110 mm Hg or
- HR > SBP

## YELLOW MECHANISM OF INJURY

- High-Risk Auto Crash:
  - Partial or complete ejection
  - Significant intrusion (including roof) of >12 inches on occupant site OR >18 inches on any site OR need for extrication for entrapped patient
  - Death in passenger compartment
  - Child (Age 0-9) unrestrained or in unsecured child safety seat
  - Vehicle telemetry data consistent with severe injury
- Rider separated from transport vehicle with significant impact (eg, motorcycle, ATV, horse, etc)
- Pedestrian/bicycle rider thrown, run over, or with significant impact
- Fall from height > 10 feet (all ages)

## YELLOW EMS JUDGMENT

### Consider risk factors, including:

- Low-level falls in young children (age 5 or less) or older adults (age 65 or older) with suspected head injury
- Anticoagulant/Antiplatelet use
- Suspicion of child abuse
- Special, high-resource healthcare needs
- Pregnancy > 20 weeks

**If concerned, take to a trauma center**



# Trauma Field Triage Criteria (Cont.)

## Red Injury Patterns and Red Mental Status V/S

**Adult Patient:** UMC or Sunrise based on geographical location

- **Sunrise:**  
West border: Paradise Rd  
North border: Sahara Ave  
\*\*\*\*\*Including St. Rose Siena's catchment and the city of Henderson in its entirety\*\*\*\*\*  
East border: County line  
South border: County line
- **UMC:** Everything outside of the above-described area

**Pediatric Patient: All go to UMC**

## Yellow Mechanism of Injury

**Adult Patient:** UMC, Sunrise, Siena, or MOMMC based on geographical location

- **Sunrise:**  
West border: Paradise Rd  
North border: Sahara Ave  
East border: County line  
South border: Sunset Rd
- **Siena:**  
West border: Maryland Pkwy/Paradise Rd  
North border: Sunset Rd  
\*\*\*\*including the city of Henderson in its entirety\*\*\*\*  
East border: County line  
South border: County line
- **MOMMC**  
West border: N 5<sup>th</sup> Street  
North border: County line  
East border: County line  
South border: Lake Mead Blvd
- **UMC:** Any area outside of the above-described areas

**Pediatric Patient:** UMC, Sunrise, or Siena based on geographical location

- **Sunrise:**  
West border: Paradise Rd  
North border: Sahara Ave  
East border: County line  
South border: Sunset Rd
- **Siena:**  
West border: Maryland Pkwy/ Paradise Rd  
North border: Sunset Rd  
East border: County line  
South border: County line
- **UMC:** Any area outside of the above-described areas

## Yellow EMS Judgment

\*\*\*Patients of any age meeting these criteria *may* be transported to the same trauma catchment area as Yellow Mechanism of Injury but may be taken to another appropriate receiving facility based on EMS provider judgment.

## Additional Notes:

- All trauma calls that meet the Trauma Field Triage Criteria protocol, regardless of location, that are transported by air ambulance are to be transported to University Medical Center/Trauma and the medical directions for the treatment of the patient must originate at that center.
- Nothing contained within these guidelines precludes transport to any trauma facility if, in the provider's judgment, time to transport to the designated center would be unduly prolonged due to traffic and/or weather conditions and might jeopardize the patient's condition.
- Nothing contained within these guidelines precludes transport to the closest facility if, in the provider's judgment, an ability to adequately ventilate the patient might result in increased patient mortality.
- Trauma center internal disaster and trauma bypass status must be considered.
- Trauma patients (or their parent or guardian) who refuse transport to the closest appropriate trauma center must sign a release of medical assistance acknowledging their refusal.

# Waiting Room Criteria

Upon arrival in the emergency department, if transfer of care has not occurred in accordance with NRS 450B.790, any patient, excluding patients placed on a legal psychiatric hold, meeting **ALL** the following criteria may be placed in the hospital waiting room or other appropriate location:

1. Normal vital signs
  - A. Heart rate 60 - 100
  - B. Respiratory rate 10 - 20
  - C. Systolic BP 100 - 180
  - D. Diastolic BP 60 - 110
  - E. Room air pulse oximetry >94%
  - F. Alert and oriented x 4
2. Did not receive any parenteral medications during EMS transport except a single dose of analgesia and/or an antiemetic.
3. In the judgment of the Paramedic, does not require continuous cardiac monitoring. Note: Any ECG monitoring initiated by a transferring facility may not be discontinued by EMS personnel.
4. Can maintain a sitting position without adverse impact on their medical condition.
5. Is left with a verbal report to hospital personnel.

# **PROCEDURES PROTOCOLS**

# Cervical Stabilization

LEVEL: EMT/AEMT/Paramedic



Cervical stabilization is indicated in any patient who meets the indications (A-E) below:

## Indications:

This procedure may be performed on any patient with potential for spinal injury based upon the following (NEXUS) criteria:

- A. Midline cervical spinal tenderness
- B. Focal neurologic deficit
- C. Altered mental status
- D. Evidence of drug and/or alcohol intoxication
- E. Any painful, distracting injury

## Contraindications:

Cervical stabilization is *NOT* performed in the following conditions:

- A. Penetrating trauma to the head and/or neck and no evidence of spinal injury
- B. Injuries where placement of the collar might compromise patient assessment, airway management, ventilation and/or hemorrhage control
- C. Patients in cardiac arrest

## Key procedural considerations:

- A. If (A-E) above are *ALL NEGATIVE*, cervical stabilization is not required.
- B. If required, cervical stabilization is the placement of an approved, properly-sized cervical collar before the patient is moved.
- C. Tape, head straps, wedges, and head and/or neck support devices are not recommended.
- D. Patients found in motor vehicles should be asked if they are able to exit the motor vehicle on their own. If so, they should be assisted to a soft stretcher and secured for transport. Patients unable to exit the vehicle on their own accord should be removed by the appropriate extrication method.
- E. Once on the stretcher, the patient may be moved to a semi-Fowler's or high-Fowler's position for comfort.
- F. If a backboard is used for extrication or movement, the patient should be immediately moved to a soft mattress, if possible.
- G. In special situations, alternate stabilization devices (e.g. vacuum mattress, KED, etc. may be used as indicated).
- H. Pediatric patients may be stabilized in an approved car seat or with a commercial pediatric stabilization device.

# Electrical Therapy/Defibrillation

LEVEL: Paramedic

## Indications:

This procedure may be performed on any patient experiencing:

- A. Ventricular fibrillation
- B. Pulseless ventricular tachycardia
- C. Torsades de Pointes

Contraindications: None

Use device per  
manufacturer  
instructions

## Key procedural considerations:

- A. The initial and subsequent attempts shall be at the energy level(s) suggested by the device manufacturer and/or the agency's medical director.
- B. Defibrillation should be immediately provided in an arrest *WITNESSED* by EMS personnel. In an arrest that is *UNWITNESSED* by EMS personnel, two minutes of CPR should be provided prior to defibrillation.
- C. Patients with automatic implantable cardioverter-defibrillators (AICD) will need external defibrillation if the AICD is ineffective.
- D. If defibrillation is needed on a patient with a permanent implanted pacemaker, the defibrillator paddles or self adhesive electrodes should be placed at least one inch from the pulse generator of the pacemaker.

Initial attempt at pediatric defibrillation shall be at 2 J/kg. If unsuccessful, defibrillation should be attempted at 4 J/kg. Repeated defibrillations should be at >4 J/kg to 10 J/kg until conversion occurs. Adult paddles/pads may be used in children weighing more than 10 kg.

# Electrical Therapy/Synchronized Cardioversion

LEVEL: Paramedic



The patient **MUST** be on a cardiac monitor and **SHOULD** have Vascular Access

## Indications:

This procedure may be performed on any patient experiencing:

- A. Ventricular tachycardia with inadequate perfusion
- B. Supraventricular tachycardia with inadequate perfusion
- C. Ventricular tachycardia with adequate perfusion, but refractory to drug therapy

## Adjunctive therapy:

In the conscious patient with a systolic blood pressure of >90mmHg consider:

Sedation: Etomidate 0.15 mg/kg IV/IO or;

Midazolam 0.1 mg/kg IN/IM/IV/IO, max dose 5mg. May repeat X 1 after 5 min at 0.05 mg/kg IN/IM/IV/IO, max dose 2.5 mg  
Further doses with Physician Order

Or;

Diazepam 5 mg IV/IO. May repeat after five minutes with physician order.

Analgesia: Morphine Sulfate up to 0.1 mg/kg slow IV/IO to a maximum single dose of 10 mg. May repeat after 10 minutes or;

Fentanyl up to 1 mcg/kg IN/IM/IV/IO to a maximum single dose of 100 mcg. May repeat dose after 10 minutes with physician order or;

Hydromorphone up to 1 mg IV/IO. May repeat dose after ten minutes with physician order or;

Ketamine 0.2 mg/kg IM/IV/IN/IO no repeat dose.

Contraindications: None

## Key procedural considerations:

- A. Biphasic device: The initial and subsequent attempts shall be at the energy level(s) suggested by the device manufacturer and/or the agency's medical director.
- B. Monophasic device:
  - 1. Ventricular dysrhythmias: 100 J escalating to 200, 300, and 360
  - 2. Supraventricular dysrhythmias: 50 J with subsequent attempts at 100 J



Initial attempt at pediatric cardioversion shall be at 0.5 J/kg.

If unsuccessful, cardioversion should be attempted at 2 J/kg.

Adult paddle/pads may be used in children weighing more than 10 kg.

# Electrical Therapy/Transcutaneous Pacing

LEVEL: Paramedic

## Indications:

This procedure may be performed on any patient experiencing:

- A. Hemodynamically unstable bradycardia
- B. Unstable clinical condition that is likely because of bradycardia
- C. For pacing readiness (i.e. standby mode) in the setting of MI with bradycardia, second degree type II AV block, third degree AV block, new left or right alternating BBB or bifascicular block
- D. Overdrive pacing of tachycardias refractory to drug therapy or electrical cardioversion

Contraindications: None

## Adjunctive therapy:

In the conscious patient with a systolic blood pressure of >90mmHg consider:

**Sedation:** Midazolam 0.1 mg/kg IN/IM/IV/IO, max dose 5 mg. May repeat X 1 after 5 min at 0.05 mg/kg, max dose 2.5 mg. Further doses with Physician Order or;

**Diazepam** 5 mg IV/IO. May repeat after five minutes with physician order.

**Analgesia:** Morphine Sulfate up to 0.1 mg/kg slow IV/IO to a maximum single dose of 10 mg. May repeat after 10 minutes or;

**Fentanyl** up to 1 mcg/kg IN/IM/IV/IO to a maximum single dose of 100 mcg. May repeat dose after 10 minutes with physician order or;

**Hydromorphone** up to 1 mg IV/IO. May repeat dose after ten minutes with physician order or;

**Ketamine** 0.2 mg/kg IM/IV/IN/IO no repeat dose.

## Key procedural considerations:

- A. Apply pacing pads, begin pacing at a rate of 60 beats per minute at the lowest available current.
- B. Increase current by 20 milliamp increments until electrical capture.
- C. In the event of electrical capture and no pulses, continue pacing and CPR.



Pediatric pacing is by telemetry physician order only

# Endotracheal Intubation

**LEVEL: Paramedic**

1. All intubations **MUST** have initial, en route, and at transfer of care End-Tidal CO<sub>2</sub> detection/capnography performed and recorded on the PCR.
2. All intubation attempts **MUST** be documented on the PCR.

## Indications:

This procedure may be performed on any patient in whom attempts at basic airway and ventilatory support are unsuccessful **AND** who has at least one of the following:

- A. Hypoxia
- B. Respiratory arrest/failure
- C. Inability to maintain airway patency

## Contraindications:

**Absolute Contraindications: None**

**Relative Contraindications:**

- A. Presence of gag reflex
- B. Suspected narcotic overdose/hypoglycemia prior to administration of Naloxone/Glucose

**Check and prepare the endotracheal airway device prior to insertion**

## Key procedural considerations:

- A. Position head properly.
- B. Insert blade while displacing tongue and elevate mandible with laryngoscope.
- C. Introduce ET tube and advance to proper depth.
- D. Inflate cuff to proper pressure and disconnect syringe.
- E. Ventilate patient and confirm proper placement.
- F. Verify proper tube placement by secondary confirmation such as capnography or colorimetric device.
- G. Secure device or confirm that the device remains properly secured.



# Endotracheal Intubation (Cont.)

LEVEL: Paramedic

## Nasotracheal Intubation:

### Contraindications:

- A. Apnea or near-apnea
- B. Suspected basilar skull, nasal, or midface fractures
- C. Coumadin anticoagulation therapy or hemostatic disorders
- D. Upper neck hematomas
- E. Should *NOT* be attempted in children

### Adjunctive Therapy:

#### Prep the nostrils with:

- 1) Phenylephrine 2-3 drops (or 1-2 sprays in each nostril),  
or  
Oxymetazoline 2 sprays in each nostril.  
and
- 2) Lidocaine 2% lubricant.

Check and prepare the  
endotracheal airway device prior  
to insertion

### Key procedural considerations:

- A. Position patient semi-Fowler, sitting or supine.
- B. Insert lubricated ET tube into dilated nostril and advance straight back (posteriorly).
- C. Listen to end ET tube for sounds of patient's breathing.
- D. During inhalation, smoothly advance tube through glottic opening.
- E. Inflate cuff to proper pressure and disconnect syringe.
- F. Verify proper tube placement by secondary confirmation such as capnography or colorimetric device.
- G. Secure device or confirm that the device remains properly secured.

# Extraglottic Airway Device

LEVEL: AEMT/Paramedic

## Indications:

This procedure may be performed on any patient in which attempts at basic airway and ventilatory support are unsuccessful *AND* who has at least one of the following:

- A. Hypoxia
- B. Respiratory arrest/failure
- C. Obtundation
- D. Failed endotracheal intubation

## Contraindications:

- A. Gag reflex
- B. History of esophageal trauma, or known esophageal disease
- C. Recent ingestion of a caustic substance
- D. Tracheostomy or laryngectomy
- E. Suspected foreign body obstruction

Check and prepare the  
extraglottic airway  
device prior to insertion

## Key procedural considerations:

- A. Pre-oxygenate the patient.
- B. Position the patient's head in a neutral or slightly flexed position if no suspected spinal injury (if a spine injury is suspected, maintain a neutral, in-line head position).
- C. Perform a tongue-jaw lift.
- D. Insert device to proper depth. *NEVER* force. If device does not advance, readjust the insertion.
- E. Secure device in the patient (inflate cuff(s) with proper volume(s) and immediately remove syringe).
- F. Ventilate patient and confirm proper ventilation (correct lumen and proper insertion depth) by auscultation bilaterally over lungs and over epigastrium.
- G. Adjust ventilation as necessary (ventilate through additional lumen or slightly withdraw tube until ventilation is optimized).
- H. Verify proper tube placement by secondary confirmation such as capnography or colorimetric device.
- I. Secure device or confirm that the device remains properly secured.

# First Response Evaluate/Release

LEVEL: AEMT/PARAMEDIC

## Inclusion Criteria:

- A. Coded and dispatched using MPDS as an Alpha or Omega category
- B. Patient age  $\geq 18 \leq 65$
- C. Full assessment performed by first response
- D. Patient deemed to have decision making capacity
- E. Normal vital signs including SpO<sub>2</sub>
- F. Patient has a phone, ability and willingness to call 9-1-1 if their condition worsens
- G. In the opinion of the AEMT/paramedic and the patient it is safe to release until an ambulance arrives

## Exclusion Criteria:

- A. Abnormal vital signs including SpO<sub>2</sub>
- B. Pregnancy
- C. Any high risk complaints/symptoms
  - a. Chest pain
  - b. Signs/symptoms of possible stroke
  - c. Allergic reaction
  - d. Shortness of breath
  - e. Abdominal pain/flank pain above umbilicus age  $>35$
  - f. Syncope, near syncope, dizziness
  - g. Seizure
  - h. History or sign of head trauma
  - i. Active bleeding
  - j. Threat to self or others
  - k. Overdose or ingestional error
  - l. Patients meets Trauma Field Triage Criteria
- D. No SNHD EMS Protocol indication for obtaining EKG or placing the patient on a cardiac monitor

*EMS patient care record must be completed within four hours of clearing the call*

The Field Response Low-Risk Alpha Evaluate and Release Form must be completed and a copy left with the patient for inclusion in the secondary responder's patient care report

# Hemorrhage Control

LEVEL: EMT/AEMT/Paramedic \*Note: Use of Tranexamic Acid is Paramedic only\*

## Hemorrhage:

This procedure may be performed on any patient that has bleeding from an extremity, junctional hemorrhage or torso hemorrhage.

## Extremity Hemorrhage – Tourniquet Application:

- A. Apply tourniquet proximal to the bleeding site.
- B. Absolute contraindication: Bleeding has stopped
- C. If bleeding is not controlled, consider additional tightening or applying a second tourniquet proximal side by side to the first.
- D. Wound packing does not preclude you from placing a tourniquet.

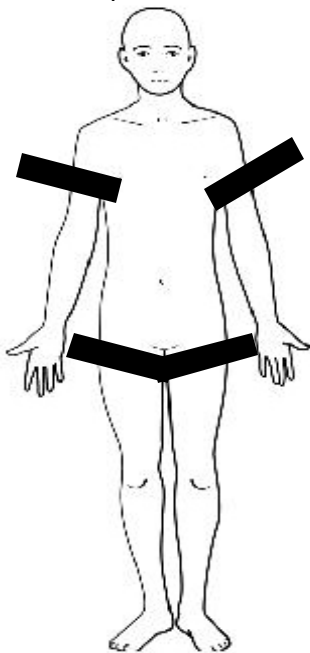
## Junctional Hemorrhage – Wound Packing:

- A. Junctional Hemorrhage Defined: hemorrhage occurring at the junction of an extremity with the torso, and/or the base of the neck.
- B. Use direct pressure and an appropriate pressure dressing with deep wound packing (plain gauze or, if available, hemostatic gauze).
- C. Absolute Contraindication: Hemostatic gauze use on hemorrhaging abdominal wounds.

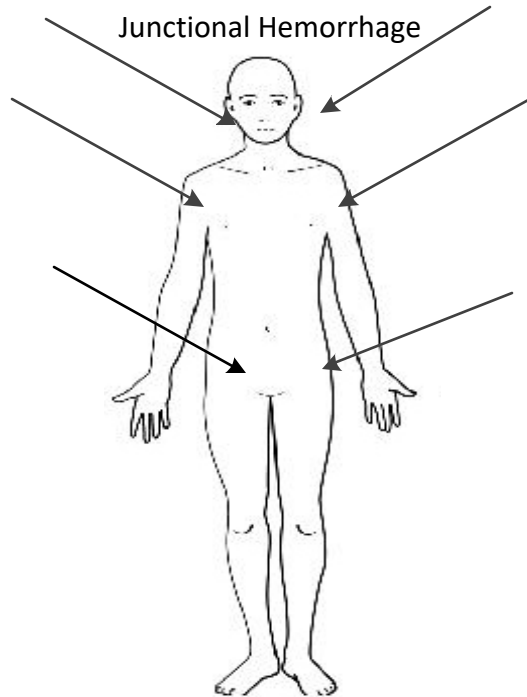
Torso Hemorrhage – Consider Tranexamic Acid for blunt or penetrating chest or abdominal trauma with suspected blood loss. Paramedic Administration Only.

1. Dose: Adults: 1 g IV/IO over 10 min for patients with SBP<90 and HR>110
2. Tranexamic Acid is ideally given within the first hour of injury.
3. Tranexamic Acid administration is contraindicated if the chest or abdominal injury occurred more than three hours prior to proposed administration.

Tourniquet Placement



Junctional Hemorrhage



# Medication Administration

LEVEL: EMT/AEMT/Paramedic (based on medication)

## Indications:

This procedure may be performed on any patient that requires the administration of a medication.

## Key procedural considerations (GENERAL):

- A. Inquire about allergies and previous medication reactions
- B. Check and recheck medication
- C. Solution clarity and expiration date
- D. Right drug
  - Right patient
  - Right dose
  - Right time
  - Right route
  - Right documentation
- E. Dispose of syringe and other material in proper container

## Intravenous and Intraosseous Bolus Medications

### Key procedural considerations:

- A. Identify and cleanse injection site closest to the patient
- B. Administer correct dose at proper push rate
- C. Turn IV on and adjust drip rate to TKO/KVO

## Intramuscular and Subcutaneous Drug Administration

### Key procedural considerations:

- A. Needle should be 20 gauge or smaller
- B. Locate administration site
  - Deltoid muscle
  - Vastus lateralis (lateral thigh) muscle
  - Ventrogluteal or dorsogluteal muscles (buttocks)

### IM

Pull skin tight

Insert needle at a 90° angle to the skin

Advance into muscle layer

### SQ

Pinch to lift skin slightly

Insert needle at a 45° angle to the skin

Advance into subcutaneous layer

## Mucosal Atomizer Device (MAD) Administration

Medications: Fentanyl, Ketamine, Midazolam, Naloxone Hydrochloride

### Key procedural considerations:

- A. Using the free hand, hold the crown of the head stable.
- B. Place the tip of the MAD snugly against the nostril, aiming slightly up and outward (toward the top of the ear).
- C. Briskly compress the syringe to deliver half the medication into the nostril.
- D. Move the device over to the opposite nostril and administer the remaining medication.

# Needle Cricothyroidotomy

LEVEL: Paramedic

## Indications:

This procedure may be performed on any patient with:

- A. Total airway obstruction by any BLS or ALS procedures, *OR*
- B. Inability to be adequately ventilate with any provider level emergency care procedures prior to the attempt.

## Contraindications:

- A. Inability to identify landmarks (cricothyroid membrane)
- B. Underlying anatomical abnormality (tumor)
- C. Tracheal transection
- D. Acute laryngeal disease due to infection or trauma



- Pediatric needle cricothyroidotomy is by Telemetry Physician order only.
- You **MUST** use a 14 gauge over-the-needle catheter attached to a 10 cc syringe or commercial cricothyroidotomy device.

## Key procedural considerations:

**\*Please follow Manufacturer's Instructions\***

- A. Position patient supine (if possible), hyperextending the head.
- B. Locate cricothyroid membrane and clean site thoroughly.
- C. Stabilize cricoid and thyroid cartilages with one hand.
- D. Puncture needle/catheter at a 90° angle and then change insertion angle to 45° up to the stopper; gently aspirate with attached syringe.
- E. When syringe is able to aspirate air, stop advancing needle.
- F. Remove the stopper from the cannula and advance the cannula only until the phlange is flush with the patient's neck. Remove the metal needle from the cannula. Remove the syringe.
- G. Secure the cannula with the neck strap.
- H. Apply connecting tube and attach to BVM and ventilate patient.

# Needle Thoracostomy

LEVEL: Paramedic

## Indications:

This procedure may be performed on any patient who has evidence of a tension pneumothorax, demonstrated by the following criteria:

1. Severe/progressive respiratory distress and/or increased resistance to bagging, AND unilateral diminished/absent breath sounds, AND:

- A. Hypotension with signs of shock, or
- B. Persistent hypoxia despite supplemental oxygen, or
- C. Jugular venous distention, or
- D. Tracheal deviation (late sign)

2. Any traumatic cardiac arrest with chest or abdominal trauma and undergoing resuscitation should have bilateral needle thoracostomy performed as soon as possible.

Contraindications: None



Needle Decompression is permitted in pediatric patients.

## Key procedural considerations:

A. Select and identify insertion site:

1. Primary site is the 4<sup>th</sup> intercostal space in the mid-axillary line of the affected side.

a. Needle should be placed within the “triangle of safety” .

Insertion site must be above the nipple line as the nipple lies flat against the chest wall with the arm abducted.

b. In females, the breast can displace the nipple inferiorly. If displaced, the clinician should identify where the nipple would lie if flat against the chest wall. This will be superior to the inframammary fold/crease. When in doubt, a more superior site is preferred.

2. Alternate site is the 2<sup>nd</sup> intercostal space in the mid-clavicular line of the affected side.

C. Use appropriate size needle and length.

D. Prep site with appropriate disinfectant (e.g. iodine, chlorhexidine, alcohol)

E. Place tip of needle on top of appropriate rib and insert over top of rib into intercostal space.

F. Advance needle into pleural space and remove needle. Leave catheter in place.

G. Consider attaching a one-way valve, if available.

# Non-Invasive Positive Pressure Ventilation (NIPPV)

LEVEL: Paramedic/AEMT

## Indications:

This process may be performed on any patient 18 years old or older in CHF, Respiratory Distress with Bronchospasm, and pneumonia, who has *TWO* of the following:

- A. Retractions or accessory muscle use
- B. Respiratory rate >25 per minute
- C. SpO<sub>2</sub> ≤ 94%

## Contraindications:

- A. Apnea
- B. Vomiting or active GI bleed
- C. Major trauma/pneumothorax
- D. Altered Mental Status

Use device per  
manufacturer  
instructions

## Key procedural considerations:

- A. Assess patient and document VS, SpO<sub>2</sub> and ETCO<sub>2</sub> if available prior to applying oxygen. Paramedics must document ETCO<sub>2</sub>.
- B. Select the appropriate size face mask for the patient.
- C. Inform the patient about procedure process.
- D. If using CPAP, gradually increase the flow rate, slowly reaching the desired CPAP pressure. Secure face mask onto patient's face using the head harness.
- E. If using bilevel ventilation, select bilevel on the device, and set appropriate EPAP level and other device settings as appropriate.
- F. Check the mask and tubing for leaks.
- G. Reassess patient and document every five minutes.
- H. If the patient develops any of the contraindications or requires definitive airway control, discontinue NIPPV and provide necessary airway control.



# Patient Restraint

LEVEL: EMT/AEMT/PARAMEDIC

## Indications:

- A. Patient exhibiting behaviors or actions that may pose a danger to the patient or others.
- B. Restraints MAY be indicated for patients who meet any of the following criteria:
  1. A patient who is significantly impaired (e.g. intoxication, medical illness, injury, psychiatric condition, dementia, etc) and lacks decision-making capacity regarding his or her own care.
  2. A patient who exhibits violent, combative, or uncooperative behavior who does not respond to verbal de-escalation and such behavior poses a danger to themselves or others either directly or by interfering with emergency treatment.
  3. A patient who is suicidal, homicidal, or on a mental health hold and who exhibits behaviors or actions that may pose a danger to themselves or others.
- C. Restraints should only be used when less restrictive techniques are unsuccessful, impractical, or likely to endanger the patient or others.

Contraindications: None

## Precautions:

- **Under no circumstances are patients to be restrained in the prone position.**
- **Patients may not be restrained with their arms behind their backs or in an ankle-to-wrist (hog-tied) manner, or in any other position which impairs their airway or breathing.**
- Only reasonable force is allowable, i.e. the minimum amount of force necessary to control the patient and prevent harm to the patient and others. Try alternative methods first (e.g. verbal de-escalation).
- Restraints shall be used only when necessary to prevent a patient from injuring themselves or others, including EMS personnel, and only if safe treatment and transportation of the patient cannot be accomplished without restraints.
- Any attempt to restrain a patient involves risk to the patient and the EMS clinician. Efforts to restrain a patient should only be done with adequate assistance present.
- Handcuffs are not appropriate medical restraints and should only be placed by law enforcement personnel. If handcuffs have been placed by law enforcement, a law enforcement officer must accompany the patient to the hospital in the transporting EMS vehicle.
- Paramedics only – Consider pharmacologic sedation, if indicated. Refer to Behavioral Emergencies protocol.

# Patient Restraint (cont.)

## Key Procedural Considerations:

- Treat the patient with respect. Attempts to verbally reassure or calm the patient should be done prior to the use of restraints. To the extent possible, explain what is being done and why.
- Acceptable restraints are “hard-type” restraints made of padded leather material or “soft-type” restraints made of padded soft cloth or Velcro and which are manufactured for the purpose of restraint. Gauze (e.g. kerlix), tape, or hard plastic ties should not be used.
- Any restraint device used must allow for rapid removal if necessary for management of the patient’s medical condition, including airway, breathing, or circulation.
- Restraints should be secured to the frame of the gurney. Avoid securing restraints to moveable parts such as rails, levers, etc.
- Apply restraints to the extent necessary to allow treatment of, and prevent injury to, the patient. Under-restraint may place both patient and clinician at greater risk. Restraints may be applied to all four extremities, or both upper extremities, or to one upper and one lower extremity.
- Patients shall be restrained in the supine position.
- The patient’s upper extremities should be restrained at the wrist, either at the patient’s sides or with one arm above the patient’s head and the other to the side.
- The patient’s lower extremities should be restrained at the ankles in the extended and uncrossed position.
- If necessary, straps may be placed across the patient’s pelvis and/or legs.
- Gurney seatbelts/straps may be used as designed, but must not restrict breathing/chest movement. Additional straps may not be placed on the patient’s neck, chest, or abdomen, and patient should not be sandwiched by any device.
- After application of restraints, check all restrained limbs for circulation as soon as possible after application, and then at least every 15 minutes. During the time that a patient is in restraints, continuous attention to the patient’s airway, circulation, and vital signs is mandatory. Apply ECG, SpO<sub>2</sub> and EtCO<sub>2</sub> monitors if available.
- The restrained patient must be under constant observation by a licensed EMS clinician at all times and may not be left unattended.
- Consider de-escalation of restraints if appropriate in the judgment of the EMS clinician.

## QI Metrics:

Whenever restraints have been applied in the field, EMS Personnel should document the following in the patient care report (PCR):

- The reason restraints were needed, including previous attempts to control patient prior to restraint use.
- The type of restraint used and which extremities were restrained.
- The condition of the patient while restrained, including cardiac and respiratory status and circulatory status of restrained extremities. Re-evaluations during transport must be documented.
- Condition of the patient at the time of transfer of care to emergency department staff.
- Any injury to patient or to EMS personnel.

# Tracheostomy Tube Replacement

LEVEL: Paramedic

## Indications:

This procedure may be performed on any patient that has A *TRACHEOSTOMY TUBE* and *WHO HAS*:

- A. Hypoxia
- B. Respiratory arrest/failure
- C. Obtundation
- D. Secretions unable to be cleared by suctioning

Contraindications: None

## Key procedural considerations:

- A. If the patient or family has a replacement tube available, it may be used. If a replacement tube is not available, an endotracheal tube of a similar outer diameter may be used.
- B. Premoisten the tube with water soluble lubricant.
- C. Extend the neck and, if necessary, place a roll between the patient's shoulder blades to aid in visualizing the stoma.
- D. If the tube cannot be placed easily, withdraw the tube; administer oxygen and positive pressure ventilation. *NEVER* force the tube.
- E. Secure the device to the patient.
- F. If the tube cannot be easily placed, a suction catheter may be used as a guide.

# Traction Splint

**LEVEL: EMT/AEMT/Paramedic**

## **Indications:**

**This procedure may be performed on any patient with an isolated midshaft femur fracture.**

## **Contraindications:**

- A. Pelvic fracture or instability**
- B. Knee, lower leg, or ankle instability**

## **Key procedural considerations:**

- A. Assess motor, sensory, and circulatory function in the involved extremity.**
- B. Apply traction splint per the manufacturer's guidelines.**
- C. Initiate mechanical traction to match manual traction.**
- D. Reassess motor, sensory, and circulatory function in the involved extremity.**
- E. Exercise care when applying traction not to reintroduce bone ends into the body.**

# Vagal Maneuvers

LEVEL: Paramedic



The patient **MUST** be attached to a cardiac monitor and **MUST** have vascular access prior to performing the procedure

## Indications:

This procedure may be performed on any patient who is experiencing Supraventricular Tachycardia with adequate perfusion.

## Contraindications:

None

## Key procedural considerations:

### A. Approved methods include:

1. Valsalva maneuver
2. Head-down tilt with deep inspiration
3. Activation of the “diving reflex” by facial immersion in ice water (unless ischemic heart disease is present)
4. Carotid massage (only on patients under 40 years of age)



B. In infants and young children, the most effective vagal maneuver is the application of ice to the face. IV access is not mandatory prior to vagal maneuvers in children.

# Vascular Access

**LEVEL: AEMT/Paramedic, EMTs holding EMT-IV endorsement**



**Vascular access attempts should not unnecessarily delay transport**

**Attempts should be completed en route.**

**All attempts are to be documented on the PCR.**

**EMTs with IV endorsement are only to perform skill under direction of paramedic or AEMT**

**Indications for Peripheral Vascular Access:**

**This procedure may be performed on any patient whenever there is a potential need for:**

- A. Intravenous drug administration**
- B. Need to administer IV fluids for volume expansion**

**Contraindications: None**

**Key procedural considerations:**

- A. Saline locks may be used when appropriate and flushed with a 3 cc bolus of NS as needed.**
- B. Extension tubing should be used on all IV lines.**

**Indications for Intraosseous Access (Paramedic for Adult/ Peds, AEMT for Adult, Unc/Unresponsive Peds only)**  
**Critically ill or injured patient who requires IV drugs/fluids and in whom a peripheral line cannot be immediately established.**

**Contraindications:**

- A. Placement in, or distal to a fractured bone.**
- B. Previous significant orthopedic procedure at the site; prosthetic limb or joint; IO catheter use in past 48 hours of the target bone.**
- C. Infection at the area of insertion.**
- D. Absence of adequate anatomical landmarks.**

**Paramedic may administer lidocaine 1% or 2% preservative-free for anesthetic in a patient responsive to pain.**

- 1) Prime IO extension tubing set with lidocaine (EZ IO, EZ Connect priming volume is 1ml)**
- 2) Slowly infuse lidocaine 40mg (PEDIATRIC dose: 0.5 mg/kg not to exceed 40 mg) IO over 120 seconds.**
- 3) Allow lidocaine to dwell in IO space for 60 seconds.**
- 4) Flush IO with 5-10 ml normal saline.**
- 5) Slowly administer an additional dose of lidocaine IO (20mg) over 60 seconds. (Pediatric dose: 0.25 mg/kg, not to exceed 20 mg)**
- 6) Consider systemic pain medication for patients not responding to IO lidocaine.**

**Key procedural considerations: Only 1 (one) attempt is permitted per extremity**

**Indications for use of Previously Established Central Line Access:**

**This procedure may be performed on any critically ill or injured patient who requires IV drugs or IV fluids AND in whom a peripheral line cannot be established.**

**Contraindications: Inability to freely aspirate blood out of the catheter.**

**Key procedural considerations: Central line access (Implantable Ports, Port-A-Caths, Medports)**



- A. May only be used if the device has already been accessed and IV fluid set-up has been established and running.**
- B. These devices require special needles (non-coring type) for access. The device may be damaged if standard jumper (conventional) needles are used to access the ports.**

# FORMULARY

## **ACETAMINOPHEN (Ofirmev)**

**CLASS:** Analgesic

**ACTION:** Reduction of prostaglandin in CNS for pain relief

Protocol	IV/IO/PO	Repeat?	Notes
Pain Management (45)	325mg to 1g IV/IO/PO	No	IV dose should be given slowly over 2 min
Peds Pain Management (98)	15 mg/kg IV/IO/PO, max single dose 1 g	No	IV dose should be given slowly over 2 min

**DOSE:**

**CONTRAINDICATIONS:** Hypersensitivity to the drug; acetaminophen dose within 4 hours; 4 grams of acetaminophen within a 24-hour period; chronic liver disease; liver failure; hyperthermia with environmental etiology.

**ADVERSE REACTIONS:** None

## **ACETYLSALICYLIC ACID (Aspirin)**

**CLASS:** Nonsteroidal anti-inflammatory

**ACTION:** Platelet inhibition

**DOSE:**

Protocol	PO
Chest Pain (Non Traumatic) and Suspected ACS (29)	324 mg (81 mg tablet X 4) chew and swallow
STEMI (Suspected) (59)	324 mg (81 mg tablet X 4) chew and swallow

**CONTRAINDICATIONS:** Allergy to Aspirin

**ADVERSE REACTIONS:** None

## **ADENOSINE (Adenocard)**

**CLASS:** Antiarrhythmic

**ACTION:** Slows conduction through the AV node and can interrupt re-entry pathways

**DOSE:**

Protocol	IV/IO	Repeat?	Notes
Tachycardia/Stable (63)	6 mg Rapid IVP/IO	If unsuccessful, repeat with 12 mg rapid IVP/IO	
Tachycardia/Unstable (65)	12 mg rapid IVP/IO	No	
Pediatric Tachycardia/Stable (108)	0.1 mg/kg rapid IVP/IO, not to exceed 6 mg	0.2 mg/kg rapid IVP/IO, not to exceed 12 mg	Initial and repeat doses by physician order only
Pediatric Tachycardia/Unstable (110)	0.2 mg/kg rapid IVP/IO, not to exceed 12 mg	No	Initial dose by physician order only



## **ADENOSINE (cont)**

**CONTRAINDICATIONS:** Second or third degree AV block or sick sinus syndrome (unless patient with a functional artificial pacemaker); atrial flutter; atrial fibrillation. Repeat doses are not indicated if the dysrhythmia occurs after conversion.

**ADVERSE REACTIONS:** Facial flushing; headache; sweating; palpitations

## **ALBUTEROL (Proventil)**

**CLASS:** Sympathomimetic

**ACTION:** Bronchodilator

**DOSE:**

Protocol	Nebulized	Repeat
Allergic Reaction (17)	2.5 mg in 3 ml SVN	Yes until improved
Hyperkalemia (39)	2.5 mg in 3 ml SVN	Continuous
Respiratory Distress (49)	2.5 mg in 3 ml SVN	Yes until improved
Pediatric Allergic Reaction (76)	2.5 mg in 3 ml SVN	Yes until improved
Pediatric Respiratory Distress (102)	2.5 mg in 3 ml SVN	Yes until improved

**CONTRAINDICATIONS:** Hypersensitivity to the drug

**ADVERSE REACTIONS:** Tachycardia; palpitations; anxiousness; headache.

## **AMIODARONE (Cordarone)**

**CLASS:** Antiarrhythmic

**ACTION:** Suppresses ventricular ectopy; increases ventricular fibrillation threshold

**DOSE:**

Protocol	IV/IO	Repeat	Note
Cardiac Arrest (27)	300 mg IV/IO	150 mg if refractory after 5th shock	Consider H's & T's
Tachycardia/Stable (63)	150 mg in 50 cc NS over 10 min	No	By physician order only
Tachycardia/Unstable (65)	150 mg in 50 cc NS over 10 min	No	
Pediatric Cardiac Arrest (86)	5 mg/kg IV/IO	5 mg/kg IV/IO if refractory after 5th shock	Repeat to a total of 3 doses, consider H's & T's
Peds Tachycardia/Stable (108)	5 mg/kg IV/IO in 50 cc NS over 20 min	No	
Peds Tachycardia/Unstable (110)	5 mg/kg IV/IO in 50 cc NS over 20 min	No	

**CONTRAINDICATIONS:** Hypersensitivity to the drug; cardiogenic shock; high grade AV block; marked sinus bradycardia; or bradycardia with ventricular escape beats

**ADVERSE REACTIONS:** Seizures; respiratory depression; restlessness; confusion; tinnitus; blurred vision; numbness; muscle twitching; hypotension; bradycardia; heart block; nausea; vomiting.

## **ATROPINE SULFATE**

**CLASS:** Parasympathetic blocker

**ACTION:** Cholinergic blocking agent; increases rate of SA node discharge; increases conduction

**DOSE:**

<b>Protocol</b>	<b>IV/IO</b>	<b>Repeat</b>	<b>Note</b>
Bradycardia (23)	1 mg IV/IO	Yes, q 5 min to max 3 mg	
Overdose/Poisoning (43)	2 mg IV/IO	Yes, q 15 min as needed	For organophosphate toxicity. Administer to decrease secretions and ventilatory resistance
Pediatric Bradycardia (82)	0.02 mg/kg IV/IO, min dose 0.1 mg, max dose 0.5 mg	Yes, X1 after 5 min	
Peds Overdose/Poisoning(96)	0.02 mg/kg IV/IO, min dose 0.1 mg, max dose 0.5 mg	Yes, q 15 min as needed	For organophosphate toxicity. Administer to decrease secretions and ventilatory resistance

**CONTRAINDICATIONS:** None

**ADVERSE REACTIONS:** None

## **BRONCHODILATOR METERED DOSE INHALER**

**CLASS:** Sympathomimetic

**ACTION:** Bronchodilator

**DOSE:** Assist the patient in administering their own Bronchodilator Metered Dose Inhaler exactly as prescribed.

**CONTRAINDICATIONS:** Sensitivity to the drug

**ADVERSE REACTIONS:** Tachycardia; palpitations; anxiousness; headache

## **CALCIUM CHLORIDE**

**CLASS:** Electrolyte

**ACTION:** Increases myocardial contractility; increases myocardial excitability; decreases heart rate

**DOSE:**

<b>Protocol</b>	<b>IV/IO</b>	<b>Note</b>
Hyperkalemia (39)	1 g slow IVP/IO	
Overdose/Poisoning (43)	1 g slow IVP/IO	For calcium channel blocker overdose
Peds Overdose/Poisoning (96)	20 mg/kg slow IVP/IO	For calcium channel blocker overdose

**CONTRAINDICATIONS:** None

**ADVERSE REACTIONS:** None

## **DIAZEPAM (Valium)**

**CLASS:** Antianxiety/Anticonvulsant

**ACTION:** CNS Depressant

**DOSE:**

Protocol	IV/IO/IM	PR	Repeat?
Obstetrical Emergency (41)	5 mg IV		Yes, X1. Additional doses with physician order
Seizure (51)	5 mg IV/IM/IO		
Ventilation Management (67)	5 mg IV/IO		With physician order only
Pediatric Seizure (102)	0.1 mg/kg IV/IM/IO, max dose 5 mg	0.1 mg/kg PR, max dose 5 mg	No
Peds Ventilation Management (112)	0.2 mg/kg IV/IO, max dose 5 mg	0.5 mg/kg PR, max dose 20 mg	With physician order only
Synchronized Cardioversion (134)	5 mg IV/IO		With physician order only
Transcutaneous Pacing (135)	5 mg IV/IO		With physician order only

**CONTRAINDICATIONS:** Hypersensitivity; hypotension

**ADVERSE REACTIONS:** Respiratory depression; CNS depression; nausea; vomiting

## **DIPHENHYDRAMINE HYDROCHLORIDE (Benadryl)**

**CLASS:** Antihistamine

**ACTION:** Blocks histamine receptors; has some sedative effects; anticholinergic

**DOSE:**

Protocol	IM/IV/IO
Allergic Reaction (17)	50 mg IM/IV/IO/PO
Overdose/Poisoning (43)	50 mg IM/IV/IO/PO
Peds Allergic Reaction (76)	1 mg/kg IV/IM/IO/PO, max 50 mg
Peds Overdose/Poisoning (96)	1 mg/kg IV/IM/IO/PO, max 50 mg

**CONTRAINDICATIONS:** Hypersensitivity to the drug

**ADVERSE REACTIONS:** Sedation; palpitations; decreased blood pressure; headache; dries (thickens) bronchial secretions; blurred vision

## **DROPERIDOL (Inapsine)**

**CLASS:** Antiemetic

**ACTION:** Lowers incidence of nausea and vomiting

## **DROPERIDOL (Inapsine) (cont)**

### **DOSE:**

<b>Protocol</b>	<b>IM/IV/IO</b>
Abdominal/Flank Pain, Nausea & Vomiting (15)	1.25 mg IM/IV/IO
Behavioral Emergency (21)- <b>Moderate Agitation</b>	2.5 mg - 5 mg IV/IO or 5 mg IM
Behavioral Emergency (21)- <b>Severe Agitation</b>	5 - 10 mg IM
Pain Management (45)	1.25 mg IM/IV/IO

**CONTRAINDICATIONS:** Suspected STEMI or chest pain; hypotension; respiratory depression; hypersensitivity to the drug; known prolonged QT interval

**ADVERSE REACTIONS:** EPS; syncope; cardiac dysrhythmias

## **EPINEPHRINE 1:1000**

**CLASS:** Sympathomimetic

**ACTION:** Bronchodilation; positive chronotrope; positive inotrope

### **DOSE:**

<b>Protocol</b>	<b>IM/ETT/SVN</b>	<b>Repeat?</b>
Allergic Reaction (17)	0.5 mg IM	Yes, q 15 min to a max of 1.5 mg
Peds Allergic Reaction (76)	0.01 mg/kg IM, max single dose 0.5 mg	Yes, q 5 min to a max of 1.5 mg
Peds Bradycardia (82)	0.1 mg/kg ETT max 1 mg	Yes, q 3-5 min
Peds Cardiac Arrest (86)	0.1 mg/kg ETT max 1 mg	Yes, q 3-5 min
Peds Respiratory Distress (100)	3-5 mg SVN if SPO <sub>2</sub> <94%	

**CONTRAINDICATIONS:** None

**ADVERSE REACTIONS:** Palpitations due to tachycardia or ectopic beats may produce arrhythmia if cardiac disease is present; elevated blood pressure; headache; anxiousness

## **EPINEPHRINE 1:10,000**

**CLASS:** Sympathomimetic

**ACTION:** Bronchodilation; positive chronotrope; positive inotrope

## **EPINEPHRINE 1:10,000 (cont)**

### **DOSE:**

<b>Protocol</b>	<b>IV/IO</b>	<b>ETT</b>	<b>Repeat?</b>
Cardiac Arrest (27)	1 mg IV/IO	2-2.5 mg ETT	Yes, q 3-5 min
Peds Bradycardia (82)	0.01 mg/kg IV/IO		Yes, q 3-5 min
Peds Cardiac Arrest (86)	0.01 mg/kg IV/IO		Yes, q 3-5 min
Neonatal Resuscitation (94)	0.01 mg/kg IV/IO		As needed q 3-5 min for HR<60

**CONTRAINDICATIONS:** None

**ADVERSE REACTIONS:** Palpitations due to tachycardia or ectopic beats may produce arrhythmia if cardiac disease is present; elevated blood pressure; headache; anxiousness

## **EPINEPHRINE 1:100,000**

**CLASS:** Sympathomimetic

**ACTION:** Bronchodilation; positive chronotrope; positive inotrope

### **DOSE:**

<b>Protocol</b>	<b>IV/IO</b>	<b>Repeat?</b>	<b>Preparation</b>
Allergic Reaction (17)	Push dose 1:100,000 10 mcg IV/IO	Yes, q 2-5 min to SBP>90	To prepare: mix cardiac epinephrine 1:10,000 1 ml PLUS 9 ml NS = 10 ml EPINEPHRINE 1:100,000 at 10 mcg/ml
Bradycardia (23)	Push dose 1:100,000 10 mcg IV/IO	Yes, q 2-5 min to SBP>90	To prepare: mix cardiac epinephrine 1:10,000 1 ml PLUS 9 ml NS = 10 ml EPINEPHRINE 1:100,000 at 10 mcg/ml
Pulmonary Edema/CHF (47)	Push dose 1:100,000 10 mcg IV/IO	Yes, q 2-5 min to SBP>90	To prepare: mix cardiac epinephrine 1:10,000 1 ml PLUS 9 ml NS = 10 ml EPINEPHRINE 1:100,000 at 10 mcg/ml
Sepsis (53)	Push dose 1:100,000 10 mcg IV/IO	Yes, q 2-5 min to SBP>90	To prepare: mix cardiac epinephrine 1:10,000 1 ml PLUS 9 ml NS = 10 ml EPINEPHRINE 1:100,000 at 10 mcg/ml
Shock (55)	Push dose 1:100,000 10 mcg IV/IO	Yes, q 2-5 min to SBP>90	To prepare: mix cardiac epinephrine 1:10,000 1 ml PLUS 9 ml NS = 10 ml EPINEPHRINE 1:100,000 at 10 mcg/ml
Pediatric Shock (104)	Push dose 1:100,000 0.1 mcg/kg IV/IO, max dose 5 mcg	Yes, q 2-5 min to SBP>70 + 2X age	To prepare: mix cardiac epinephrine 1:10,000 1 ml PLUS 9 ml NS = 10 ml EPINEPHRINE 1:100,000 at 10 mcg/ml

**CONTRAINDICATIONS:** None

**ADVERSE REACTIONS:** Palpitations due to tachycardia or ectopic beats may produce arrhythmia if cardiac disease is present; elevation of blood pressure; headache; anxiousness

## **EPINEPHRINE AUTO-INJECTOR**

**CLASS:** Sympathomimetic

**ACTION:** Bronchodilation; positive chronotrope; positive inotrope

**DOSE:** Assist the patient in administering their own Epinephrine auto-injector exactly as prescribed

**CONTRAINDICATIONS:** None

**ADVERSE REACTIONS:** Palpitations due to tachycardia or ectopic beats may produce arrhythmia if cardiac disease is present; elevation of blood pressure; headache; anxiousness

## **ETOMIDATE (Amidate)**

**CLASS:** Sedative/hypnotic

**ACTION:** CNS Depressant

**DOSE:**

<b>Protocol</b>	<b>IV/IO</b>	<b>Notes</b>
Tachycardia/Stable (63)	0.15 mg/kg IV/IO	Physician Order only
Tachycardia/Unstable (65)	0.15 mg/kg IV/IO	
Ventilation Management- <b>Induction</b> (67)	0.3 mg/kg IV/IO	Max dose 30 mg
Peds Tachycardia/Stable (108)	0.15 mg/kg IV/IO	Physician Order only
Peds Tachycardia/Unstable (110)	0.15 mg/kg IV/IO	
Peds Ventilation Mgmt- <b>Induction</b> (112)	0.3 mg/kg IV/IO	Max dose 20 mg
Synchronized Cardioversion (134)	0.15 mg/kg IV/IO	

**CONTRAINDICATIONS:** Known hypersensitivity to the drug

**ADVERSE REACTIONS:** Pain; transient skeletal movements; nausea; vomiting; hypoventilation; hypotension

## **FENTANYL CITRATE**

**CLASS:** Analgesic

**ACTION:** CNS Depressant

**DOSE:**

<b>Protocol</b>	<b>IN/IM/IV/IO</b>	<b>Repeat?</b>
Pain Management (45)	1 mcg/kg IN/IM/IV/IO, max single dose 100 mcg	Yes, X1 after 10 min
Ventilation Management (67)	1 mcg/kg IN/IM/IV/IO, max single dose 100 mcg	Physician order only
Peds Pain Management (98)	1 mcg/kg IN/IM/IV/IO, max single dose 100 mcg	Physician order only
Peds Ventilation Management (112)	1 mcg/kg IN/IM/IV/IO, max single dose 100 mcg	Physician order only
Synchronized Cardioversion (134)	1 mcg/kg IN/IM/IV/IO, max single dose 100 mcg	Physician order only
Transcutaneous Pacing (135)	1 mcg/kg IN/IM/IV/IO, max single dose 100 mcg	Physician order only

## **FENTANYL CITRATE (cont)**

**CONTRAINDICATIONS:** Known hypersensitivity to the drug

**ADVERSE REACTIONS:** Respiratory depression; rapid infusion may produce “stiff chest syndrome”

## **GLUCAGON**

**CLASS:** Insulin Antagonist

**ACTION:** Reverses the effects of hypoglycemia

**DOSE:**

Protocol	IV/IM/IO	Notes
Altered Mental Status/Syncope (19)	1 mg IM	
Overdose/Poisoning (43)	1 mg IV/IM/IO	For patients on beta blockers, may repeat X 1
Seizure (51)	1 mg IM	
Peds Altered Mental Status (78)	0.5 mg IM if pt is <20kg; otherwise 1 mg IM	
Peds Overdose/Poisoning (96)	0.5 mg IV/IM/IO	For beta blocker overdose, may repeat X 1
Peds Seizure (102)	0.5 mg IM	
Peds Shock (104)	0.5 mg IM if pt is <20kg; otherwise 1 mg IM	

**CONTRAINDICATIONS:** None

**ADVERSE REACTIONS:** Nausea; vomiting

## **GLUCOSE – ORAL GLUCOSE**

**CLASS:** Carbohydrate

**ACTION:** Quick infusion of sugar into the blood for metabolism

**DOSE:**

Protocol	PO	Notes
Altered Mental Status/ Syncope (19)	15 g PO	Use if patient is able to protect their own airway
Peds Altered Mental Status (78)	Up to 15 g PO	Use if patient is able to protect their own airway
Peds Shock (104)	Up to 15 g PO	Use if patient is able to protect their own airway

**CONTRAINDICATIONS:** None

**ADVERSE REACTIONS:** None

## **GLUCOSE – D10**

**CLASS:** Carbohydrate

**ACTION:** Quick infusion of sugar into blood for metabolism

**DOSE:**

<b>Protocol</b>	<b>IV/IO</b>	<b>Repeat?</b>
Altered Mental Status/ Syncope (19)	25 g IV/IO (250 ml of 10% solution)	Yes, X1 in 5 min
Seizure (51)	25 g IV/IO (250 ml of 10% solution)	Yes, X1 in 5 min
Peds Altered Mental Status (78)	5 ml/kg IV/IO, max single dose 25 g	
Peds Seizure (102)	5 ml/kg IV/IO, max single dose 25 g	
Peds Shock (104)	5 ml/kg IV/IO, max single dose 25 g	

**CONTRAINDICATIONS:** None

**ADVERSE REACTIONS:** None

## **HYDROMORPHONE (Dilaudid)**

**CLASS:** Analgesic

**ACTION:** CNS Depressant

**DOSE:**

<b>Protocol</b>	<b>IM/IV/IO</b>	<b>Repeat?</b>
Pain Management (45)	0.01 mg/kg IM/IV/IO, max single dose 1 mg	Yes, X1 after 10 min
Synchronized Cardioversion (134)	Up to 1 mg IV/IO	Physician order only
Transcutaneous Pacing (135)	Up to 1 mg IV/IO	Physician order only

**CONTRAINDICATIONS:** Known hypersensitivity to the drug; intolerance to opiate analgesics

**ADVERSE REACTIONS:** Respiratory depression

## **HYDROXOCOBALAMIN**

**CLASS:** Detoxifying agent

**ACTION:** Competitively binds to cyanide ions

**DOSE:**

<b>Protocol</b>	<b>IV/IO</b>	<b>Notes</b>
Overdose/Poisoning (43)	5 g IV/IO over 15 min	For cyanide poisoning
Smoke Inhalation (57)	5 g IV/IO over 15 min	
Peds Overdose/Poisoning (96)		refer to protocol
Peds Smoke Inhalation (106)		refer to protocol



## **HYDROXOCOBALAMIN (cont)**

**CONTRAINDICATIONS:** None

**ADVERSE REACTIONS:** None

## **IPRATROPIUM BROMIDE (Atrovent)**

**CLASS:** Anticholinergic

**ACTION:** Appears to inhibit vagally mediated reflexes

**DOSE:**

Protocol	SVN	Repeat?
Respiratory Distress (49)	2.5 ml 0.02% solution SVN	No
Peds Respiratory Distress (100)	2.5 ml 0.02% solution SVN	No

**CONTRAINDICATIONS:** Hypersensitivity to the drug

**ADVERSE REACTIONS:** Headache; nausea

## **IPRATROPIUM BROMIDE and ALBUTEROL SULFATE (Duoneb)**

**CLASS:** Anticholinergic/ Sympathomimetic

**ACTION:** Appears to inhibit vagally mediated reflexes and acts as a bronchodilator

**DOSE:**

Protocol	SVN	Repeat?
Respiratory Distress (49)	3 ml SVN	No
Peds Respiratory Distress (100)	3 ml SVN	No

**CONTRAINDICATIONS:** Hypersensitivity to either of the base medications

**ADVERSE REACTIONS:** Tachycardia; palpitations; anxiousness; headache; nausea

## **KETAMINE (Ketalar)**

**CLASS:** General anesthetic/ induction agent

**ACTION:** CNS Depressant

**DOSE:**

Protocol	IV/IO/IN	IM	Repeat ok?	Note
Behavioral Emergency (21)	not indicated	3-4 mg/kg IM	No	max dose 400 mg
Pain Management (45)	0.2 mg/kg IV/IO/IN	0.2 mg/kg IM	No	Avoid in chest pain/ACS/STEMI
Ventilation Management (67/112)- <b>Induction</b>	2 mg/kg IV/IO	4 mg/kg IM	No	Peds max 200mg IV/IO, 400 mg IM
Ventilation Management (67/112)- <b>Sedation</b>	2 mg/kg IV/IO	4 mg/kg IM	No	
Electrical Cardioversion (134)	0.2 mg/kg IV/IO/IN	0.2 mg/kg IM	No	Given in addition to sedation
Transcutaneous Pacing (135)	0.2 mg/kg IV/IO/IN	0.2 mg/kg IM	No	Given in addition to sedation

## **KETAMINE (cont)**

**CONTRAINDICATIONS:** Use caution in patients with systolic BP over 180 mm Hg

**ADVERSE REACTIONS:** Respiratory depression

## **LEVALBUTEROL (Xopenex)**

**CLASS:** Bronchodilator

**ACTION:** Relaxation of the bronchial wall smooth muscle

**DOSE:**

Protocol	Nebulized	Repeat
Allergic Reaction (17)	1.25 mg in 3 ml SVN	Yes until improved
Hyperkalemia (39)	1.25 mg in 3 ml SVN	Continuous
Respiratory Distress (49)	1.25 mg in 3 ml SVN	Yes until improved
Pediatric Allergic Reaction (76)	1.25 mg in 3 ml SVN	Yes until improved
Pediatric Respiratory Distress (100)	1.25 mg in 3 ml SVN	Yes until improved

**CONTRAINDICATIONS:** Hypersensitivity to the drug

**ADVERSE REACTIONS:** Tachycardia; palpitations; anxiousness; tremors; nausea; vomiting

## **LIDOCAINE (Xylocaine) 1% or 2% INJECTION**

**CLASS:** Anesthetic

**ACTION:** Produces anesthesia by interfering with nervous system transmission

**DOSE:**

Protocol	IO	Repeat?	Notes
Vascular Access (148)	Adult: 40 mg IO, Peds: 0.5 mg/kg IO not to exceed 40 mg	Yes, 20 mg slow IO after IO has initially been flushed. Peds dose 0.25 mg/kg max 20 mg	Infuse slowly over 2 min, then allow to dwell in IO space for 1 min

**CONTRAINDICATIONS:** Hypersensitivity to the drug

**ADVERSE REACTIONS:** Seizures; respiratory depression; dizziness; restlessness; confusion; tinnitus; blurred vision; muscle twitching; hypotension; bradycardia; heart block; nausea; vomiting

## **LIDOCAINE (Xylocaine) 2% LUBRICANT**

**CLASS:** Topical anesthetic

**ACTION:** Produces anesthesia by interfering with nervous system transmission

**DOSE:**

Protocol	Topical	Notes
Ventilation Management (67)	As needed	for nasotracheal intubation
Endotracheal Intubation (136)	As needed	for nasotracheal intubation

## **LIDOCAINE 2% LUBRICANT (cont)**

**CONTRAINDICATIONS:** Hypersensitivity to the drug

**ADVERSE REACTIONS:** Seizures; respiratory depression; dizziness; restlessness; confusion; tinnitus; blurred vision; muscle twitching; hypotension; bradycardia; heart block; nausea; vomiting

## **MAGNESIUM SULFATE**

**CLASS:** Electrolyte

**ACTION:** Membrane stabilization; raises seizure threshold

**DOSE:**

Protocol	IV/IO	Notes
Obstetrical Emergency (41)	2-4 g IV/IO in 50 cc NS over 10 min	2 g dose for pre-eclamptic over 10 min, 4 g dose for pregnant patient in seizure over 20 min
Respiratory Distress (49)	2 g IV/IO in 50 cc NS over 10 min	
Tachycardia/Stable (63)	2 g IV/IO in 50 cc NS over 10 min	
Tachycardia/Unstable (65)	2 g IV/IO in 50 cc NS over 10 min	
Peds Tachycardia/Stable (108)	25 mg/kg IV/IO in 50 cc NS over 10 min	Physician order only
Peds Tachycardia/Unstable (110)	25 mg/kg IV/IO in 50 cc NS over 10 min	Physician order only

**CONTRAINDICATIONS:** Hypersensitivity to the drug; high degree heart block; renal failure

**ADVERSE REACTIONS:** Hypotension; asystole; respiratory depression; weakness

## **METOCLOPRAMIDE (Reglan)**

**CLASS:** Antiemetic

**ACTION:** Dopamine agonist that works by blocking CNS vomiting chemoreceptor trigger zone (CRT)

**DOSE:**

Protocol	IV/IO/IM	Notes
Abdominal/Flank Pain, Nausea & Vomiting (15)	10 mg slow IV bolus over 1-2 min OR IM	
Chest Pain (Non-Traumatic) (29)	10 mg slow IV bolus over 1-2 min OR IM	
Pain Management (45)	10 mg slow IV bolus over 1-2 min OR IM	
STEMI (59)	10 mg slow IV bolus over 1-2 min OR IM	
Peds Abdominal Pain, Nausea & Vomiting (74)	5 mg slow IV/IO bolus over 1-2 min OR IM	age 8 and older
Peds Pain Management (98)	5 mg slow IV/IO bolus over 1-2 min OR IM	age 8 and older

**CONTRAINDICATIONS:** Known hypersensitivity to the drug

**ADVERSE REACTIONS:** Restlessness; hyperactivity; anxiety; sedation; increased GI motility; use caution in suspected bowel obstruction. Extra-pyramidal reactions have been seen days to hours after treatment. Protect medication from light (photosensitive).

## **MIDAZOLAM (Versed)**

**CLASS:** Anxiolytic

**ACTION:** CNS Depressant

**DOSE:**

Protocol	IN/IM/IV/IO	Repeat?	Notes
Behavioral Emergency (21)- <b>Moderate Agitation</b>	2.5 mg - 5 mg IN/IM/IV/IO	Yes, X1 after 5 min at 2.5 mg	Further orders with physician order
Behavioral Emergency (21)- <b>Severe Agitation</b>	2.5 mg - 10 mg IM	MD Order Only	Further orders with physician order
Obstetrical Emergency (41)	0.1 mg/kg IN/IM/IV/IO, max 5 mg	Yes, X1 after 5 min at 0.05 mg/kg, max 2.5 mg	Further orders with physician order
Seizure (51)	0.1 mg/kg IN/IM/IV/IO, max 5 mg	Yes, X1 after 5 min at 0.05 mg/kg, max 2.5 mg	Further orders with physician order
Ventilation Mgmt- <b>Induction</b> (67)	0.1 mg/kg IN/IM/IV/IO, max 10 mg	MD Order Only	Further orders with physician order
Ventilation Mgmt- <b>Sedation</b> (67)	0.1 mg/kg IN/IM/IV/IO, max 10 mg	Yes, X1 after 5 min at 0.05 mg/kg, max 2.5 mg	Further orders with physician order
Peds Seizure (102)	0.1 mg/kg IN/IM/IV/IO, max 5 mg	Yes, X1 after 5 min at 0.05 mg/kg, max 2.5 mg	Further orders with physician order
Peds Ventilation Management (112)- <b>Induction</b>	0.1 mg/kg IN/IM/IV/IO, titrated to effect, max 5 mg	MD Order Only	Further orders with physician order
Peds Ventilation Management (112)- <b>Sedation</b>	0.1 mg/kg IN/IM/IV/IO, max 10 mg	Yes, X1 after 5 min at 0.05 mg/kg, max 2.5 mg	Further orders with physician order
Synchronized Cardioversion (134)	0.1 mg/kg IN/IM/IV/IO, max 5 mg	Yes, X1 after 5 min at 0.05 mg/kg, max 2.5 mg	Further orders with physician order
Transcutaneous Pacing (135)	0.1 mg/kg IN/IM/IV/IO, max 5 mg	Yes, X1 after 5 min at 0.05 mg/kg, max 2.5 mg	Further orders with physician order

**CONTRAINDICATIONS:** Hypersensitivity to the drug; hypotension; clinical signs of shock

**ADVERSE REACTIONS:** CNS depression; hypotension; respiratory depression

## **MORPHINE SULFATE**

**CLASS:** Narcotic

**ACTION:** CNS Depressant

**DOSE:**

Protocol	IM/IV/IO	Repeat?
Pain Management (45)	0.1mg/kg IM/IV/IO, max single dose 10 mg	Yes, X1 after 10 min
Peds Pain Management (98)	0.1mg/kg IM/IV/IO, max single dose 10 mg	No
Synchronized Cardioversion (134)	Up to 0.1 mg/kg slow IV/IO, max single dose 10 mg	Yes, X1 after 10 min
Transcutaneous Pacing (135)	Up to 0.1 mg/kg slow IV/IO, max single dose 10 mg	Yes, X1 after 10 min

## **MORPHINE SULFATE (cont)**

**CONTRAINDICATIONS:** Hypersensitivity to opiates; head injuries; chest or abdominal injury; clinical signs of shock

**ADVERSE REACTIONS:** Respiratory depression; nausea; vomiting; bradycardia; orthostatic hypotension; altered level of consciousness

## **NALOXONE HYDROCHLORIDE (Narcan)**

**CLASS:** Narcotic antagonist

**ACTION:** Reverses the effects of narcotics

**DOSE:**

<b>Protocol</b>	<b>IM/IV/IO</b>	<b>IN</b>	<b>Repeat?</b>
Altered Mental Status/Syncope (20)	0.4-2 mg IM/IV/IO titrated to increase in respiratory effort, max dose 10 mg	2-4 mg IN	Yes
Overdose/Poisoning (43)	0.4-2 mg IM/IV/IO titrated to increase in respiratory effort, max dose 10 mg	2-4 mg IN	Yes
Peds Altered Mental Status (78)	0.1 mg/kg IM/IV, titrated to increase in respiratory effort, max single dose 2 mg, max total dose 10 mg	0.1 mg/kg IN, max single dose 2 mg, max total dose 10 mg	Yes
Peds Overdose/Poisoning (96)	0.1 mg/kg IM/IV, titrated to increase in respiratory effort, max single dose 2 mg, max total dose 10 mg	2-4 mg IN	Yes

**CONTRAINDICATIONS:** Hypersensitivity to the drug; intubated patients; the newly born

**ADVERSE REACTIONS:** Rapid administration causes projectile vomiting

## **NITROGLYCERIN**

**CLASS:** Vasodilator

**ACTION:** Dilates systemic arteries and veins; reduces both preload and afterload

**DOSE:**

<b>Protocol</b>	<b>SL</b>	<b>Repeat</b>
Chest Pain (Non-Traumatic) (29)	0.4 mg SL	Yes, q 5 min X 2
Pulmonary Edema/CHF (47)	0.4 mg SL if normotensive, 1.6 mg SL if hypertensive	Yes, q 5 min as long as HR>60 and SBP>100
STEMI (59)	0.4 mg SL	Yes, q 5 min X 2

**CONTRAINDICATIONS:** Hypotension (do not administer if systolic pressure is below 100 mm Hg unless ordered by a physician; use of erectile dysfunction meds within 48 hours; hypersensitivity to nitrates

**ADVERSE REACTIONS:** Hypotension

## **ONDANSETRON HYDROCHLORIDE (Zofran)**

**CLASS:** Selective serotonin blocking agent

**ACTION:** Antiemetic

## **ONDANSETRON HYDROCHLORIDE (cont)**

### **DOSE:**

<b>Protocol</b>	<b>ODT/IM/IV/IO</b>
Abdominal/Flank Pain, Nausea & Vomiting (15)	4 mg ODT/IM/IV/IO
Chest Pain (Non-Traumatic) (29)	4 mg ODT/IM/IV/IO
Pain Management (45)	4 mg ODT/IM/IV/IO
STEMI (59)	4 mg ODT/IM/IV/IO
Peds Abdominal Pain (74)	0.15 mg/kg ODT/IM/IV/IO, up to max dose 4 mg
Peds Pain Management (98)	0.15 mg/kg ODT/IM/IV/IO, up to max dose 4 mg

**CONTRAINDICATIONS:** Hypersensitivity to the drug

**ADVERSE REACTIONS:** Headache; chest pain; dizziness; hypotension

## **OXYMETAZOLINE (Afrin) 0.05% SPRAY**

**CLASS:** Sympathomimetic

**ACTION:** Direct local vasoconstriction

### **DOSE:**

<b>Protocol</b>	<b>IN</b>	<b>Notes</b>
Epistaxis (35)	2 sprays to each nostril	follow with direct pressure
Ventilation Management (67)	1-2 sprays to each nostril	for nasotracheal intubation preparation
Peds Epistaxis (90)	2 sprays to each nostril	follow with direct pressure
Endotracheal Intubation (136)	2 sprays to each nostril	for nasotracheal intubation preparation

**CONTRAINDICATIONS:** Monoamine oxidase inhibitor (MAOI) use within 14 days

**ADVERSE REACTIONS:** None

## **PHENYLEPHRINE**

**CLASS:** Sympathomimetic

**ACTION:** Direct local vasoconstriction

### **DOSE:**

<b>Protocol</b>	<b>IN</b>	<b>Notes</b>
Epistaxis (35)	2 sprays to each nostril	follow with direct pressure
Ventilation Management (67)	1-2 sprays to each nostril	for nasotracheal intubation preparation
Peds Epistaxis (90)	2 sprays to each nostril	follow with direct pressure
Endotracheal Intubation (136)	1-2 sprays to each nostril	for nasotracheal intubation preparation

**CONTRAINDICATIONS:** Ventricular tachycardia; severe coronary disease; head injured patients with altered mental status

**ADVERSE REACTIONS:** None

## **PHENYLEPHRINE PUSH DOSE (Injectable)**

**CLASS:** Sympathomimetic

**ACTION:** Alpha-1 adrenergic receptor agonist

**DOSE:**

Protocol	IV/IO	Repeat?	Preparation
Sepsis (53)	100-200 mcg IV/IO	Yes, q 2-5 min to maintain SBP>90	Mix 10 mg phenylephrine into a 100 ml bag of NS = 100 ml of phenylephrine at a concentration of 100 mcg/ml
Shock (55)	100-200 mcg IV/IO	Yes, q 2-5 min to maintain SBP>90	Mix 10 mg phenylephrine into a 100 ml bag of NS = 100 ml of phenylephrine at a concentration of 100 mcg/ml

**CONTRAINDICATIONS:** Hypovolemic shock is a relative contraindication. Hypotension due to hypovolemia or distributive shock should be addressed with a fluid bolus before administering Push Dose Phenylephrine.

**ADVERSE REACTIONS:** None

## **PROCHLORPERAZINE (Compazine)**

**CLASS:** Antiemetic

**ACTION:** Dopamine agonist with antiemetic actions

**DOSE:**

Protocol	IV/IO/IM
Abdominal/Flank Pain, Nausea & Vomiting (15)	up to 10 mg IV/IM/IO
Chest Pain (Non-Traumatic) (29)	up to 10 mg IV/IM/IO
Pain Management (45)	up to 10 mg IV/IM/IO
STEMI (59)	up to 10 mg IV/IM/IO

**CONTRAINDICATIONS:** Known hypersensitivity to the drug

**ADVERSE REACTIONS:** Possible dystonic reactions

## **SODIUM BICARBONATE**

**CLASS:** Alkalinizing agent

**ACTION:** Increases blood pH

**DOSE:**

Protocol	IV/IO	Repeat?
Hyperkalemia (39)	50 mEq slow IV/IO push	No
Overdose/Poisoning (43)	50 mEq IV/IO	Yes, X1 in 3-5 min if QRS remains wide
Peds Overdose/Poisoning (96)	1 mEq/kg IV/IO ,max 50 mEq	Yes, X1 in 3-5 min if QRS remains wide

## **SODIUM BICARBONATE (cont)**

**CONTRAINDICATIONS:** Alkalotic states; respiratory acidosis

**ADVERSE REACTIONS:** None

## **SOLU-CORTEF**

**CLASS:** Corticosteroid

**ACTION:** Anti-inflammatory; replaces absent glucocorticoids; suppresses immune response

**DOSE:** Assist the patient in administering their own Solu-Cortef exactly as prescribed

**CONTRAINDICATIONS:** Systemic fungal infections; hypersensitivity to the drug

**ADVERSE REACTIONS:** ECG changes; hypertension; headache

## **TRANEXAMIC ACID (TXA)**

**CLASS:** Antifibrinolytic

**ACTION:** Inhibits the binding of plasminogen to fibrin, stabilizing clot formation

**DOSE:**

<b>Protocol</b>	<b>IV/IO</b>	<b>Notes</b>
Hemorrhage Control (140)	1 g	Given over 10 min

**CONTRAINDICATIONS:** Known allergy to medication; intracranial bleeding; history of venous or arterial thromboembolism; greater than 3 hours from traumatic injury

**ADVERSE REACTIONS:** Seizure; headache; pulmonary embolism; deep vein thrombosis; impaired color vision.



## First Response Low-Risk Alpha Evaluate and Release Form (example)

Incident #:

EMS Agency:

Patient Name:

Date of Birth:

Address:

Phone #:

Responding Ambulance Service: **AMR** **MW** **Community Ambulance**

Medical Priority Dispatch System Code:

Time of Patient Contact:

Patient Complaint(s):

**Primary Survey Complete**

**Secondary Survey Complete**

Vital Signs: **HR** \_\_\_\_\_ **RR** \_\_\_\_\_ **BP** \_\_\_\_\_ **SpO2** \_\_\_\_\_ **BG (as applicable)** \_\_\_\_\_

General Impression:

### **Confirm the following:**

Normal vital signs      Time last taken:

Patient does not meet Trauma Field Triage Criteria

No indication for an ECG or cardiac monitoring per SNHD Emergency Medical Care Protocols

Patient is not a threat to self or others

### **Patient denies AND no evidence or suspicion of the following:**

Pregnancy      Head trauma      Chest pain

Active bleeding      Seizure      Stroke

Allergic reaction      Shortness of breath      Syncope, near syncope, or dizziness

Overdose or ingestional error      Abdominal pain/flank pain above the  
Umbilicus if >35 years of age

### **Inclusion Criteria:**

Call coded and dispatched using MPDS, Alpha or Omega category

Patient between 18 and 65 years of age

Patient has decision making capacity

Patient has a phone to call 9-1-1 if their condition worsens

We have assessed and examined you and have determined your condition as NOT THREATENING TO LIFE/LIMB. With your permission, we will return to service so we may be available in the case of another emergency. An ambulance is continuing to respond. If your condition worsens in any way, call 9-1-1.

I consent to waiting for the ambulance and understand that I can call 9-1-1 if I get worse in any way.

Patient signature

Provider signature

## SAMPLE RELEASE OF MEDICAL ASSISTANCE

1. I (or my guardian) have been informed of the reason I should go to the hospital for further emergency care.
2. I (or my guardian) have been informed that only an initial evaluation has been rendered to me and have been advised that I seek the advice of a physician as soon as possible.
3. I (or my guardian) have been informed of the potential consequences and/or complications that may result in my (or my guardian's) refusal to go to the hospital for further emergency care.
4. I (or my guardian), the undersigned, have been advised that emergency medical care on my/the patient's behalf is necessary, and that refusal of recommended care and transport to a hospital facility may result in death, or imperil my/the patient's health by increasing the opportunity for consequences or complications. Nevertheless, and understanding all of the above, I (or my guardian), refuse to:

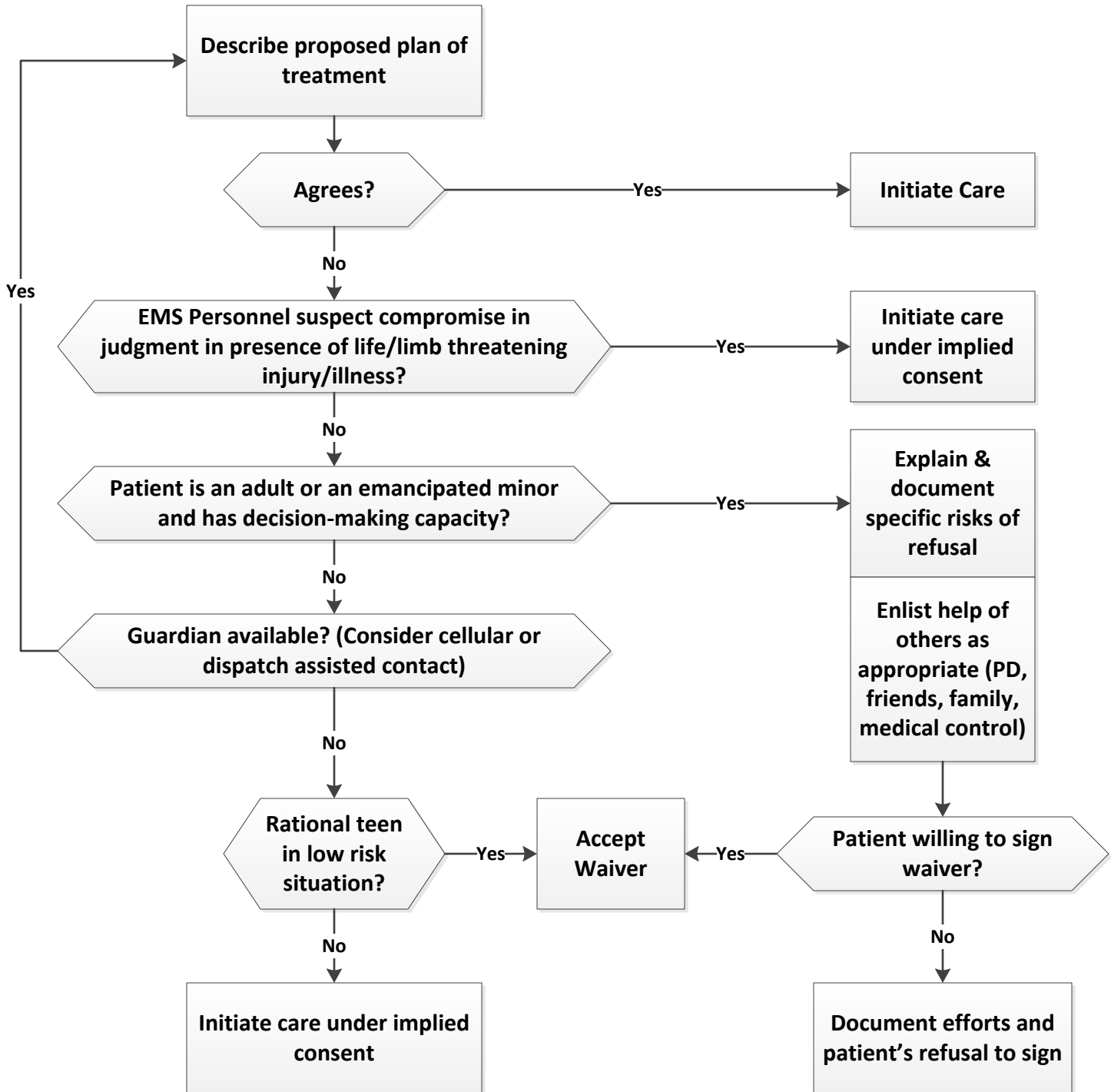
- accept emergency medical care
- accept transport to a hospital facility
- accept transport to \_\_\_\_\_ Hospital as directed by Southern Nevada EMS protocols, but request transport to \_\_\_\_\_ Hospital; and

assume all risks and consequences resulting from my (or my guardian's) decision, and release Clark County provider agencies, and all personnel directly or indirectly involved in my care from any and all liability resulting from my (or my guardian's) refusal. I have had the opportunity to ask all of the questions I feel necessary to provide this informed refusal.

5. The reason for this refusal is as follows: (to be completed by patient/guardian) \_\_\_\_\_  
\_\_\_\_\_

Patient's Name:	DOB:	
Patient's Address:		
Patient's Phone Number:		
Signature (Patient/Guardian):		
Witness:		
Witness:		
Date:	Time:	Incident #:
Refused to Sign (Patient/Guardian):		
Telemetry Physician:	Hospital:	

# Sample Algorithm, Release of Medical Assistance



**Note:**

1. For all patients refusing transport who meet Trauma Field Triage Criteria protocol, contact a trauma center.
2. EMS personnel may make telemetry contact for further guidance at any time.

# Scope of Practice

Southern Nevada Health District  
Office of Emergency Medical Services & Trauma System  
Authorized Medication List

The following is the formulary used by EMS agencies in Clark County. Licensed EMS providers working in the EMS System for a permitted agency are authorized, within their level of certification and training, to administer medications as directed by the written treatment protocols.

Medications	EMT	AEMT	Paramedic
Acetaminophen	X	X	X
Acetylsalicylic Acid	X	X	X
Adenosine			X
Albuterol		X	X
Amiodarone			X
Atropine Sulfate			X
Bronchodilator Metered Dose Inhaler	X	X	X
Calcium Chloride			X
Diazepam			X
Diphenhydramine Hydrochloride		X	X
Droperidol			X
Epinephrine		X	X
Epinephrine Autoinjector	X	X	X
Etomidate			X
Fentanyl Citrate			X
Glucagon		X	X
Glucose - Oral	X	X	X
Glucose Sterile Injectible		X	X
Hydromorphone			X
Hydroxocobalamin			X
Ipratropium Bromide			X
Ipratropium Bromide & Albuterol Sulfate			X
Ketamine			X
Levalbuterol		X	X
Lidocaine			X
Magnesium Sulfate			X
Metoclopramide			X
Midazolam			X
Morphine Sulfate			X
Naloxone Hydrochloride	X	X	X
Nitroglycerin	X	X	X
Ondansetron Hydrochloride		X	X
Oxymetazoline	X	X	X
Phenylephrine	X	X	X
Push Dose Phenylephrine			X
Prochlorperazine			X
Sodium Bicarbonate			X
Solu-Cortef		X	X

# Scope of Practice

Southern Nevada Health District  
Office of Emergency Medical Services & Trauma System  
Authorized Skills List

The following are the authorized skills used by EMS providers in Clark County. Licensed EMS providers working in the EMS System for a permitted agency are authorized, within their level of certification and training, to perform the skills as directed by the written treatment protocols.

Skills	EMT	AEMT	Paramedic
12-Lead ECG Interpretation			X
3-Lead ECG Interpretation			X
Airway Adjunct OPA/NPA	X	X	X
Airway Suction	X	X	X
Capnometry (Color Change Device)		X	X
Capnometry (Continuous Waveform)			X
Carotid Massage			X
Cervical Stabilization	X	X	X
CPR	X	X	X
Defibrillation - AED	X	X	X
Defibrillation - Manual			X
Endotracheal Intubation - Nasal			X
Endotracheal Intubation - Oral			X
Extraglottic Airway		X	X
Gastric Decompression			X
Glucose Measurement	X	X	X
Hemorrhage Control	X	X	X
Medication Administration	X	X	X
Needle Cricothyroidotomy			X
Needle Decompression			X
NIPPV		X	X
Oxygen Administration	X	X	X
Patient Assessment	X	X	X
Pulse Oximetry	X	X	X
Restraints	X	X	X
Splinting	X	X	X
Stroke Screening	X	X	X
Synchronized Cardioversion			X
Thermometer	X	X	X
Tracheostomy Tube Replacement			X
Transcutaneous Pacing			X
Vagal Maneuvers			X
Vascular Access IV	X**	X	X
Vascular Access IO		X (Adult, Peds unc)	X
** requires IV endorsement, skill performance under direct observation of licensed AEMT or paramedic			

# Telemetry Radio Map

CCFD-2019 FLEETMAP				ALL OTHER FIRE DEPTS (LVFD, NLVFD, HFD, BCFD)				EMS (AMR, MWA, CA, GEMS, etc...)			
Zone #	Zone 12	Zone 13	Zone 14	Zone #	Zone 12	Zone 13	Zone 14	Zone #	ZONE-5	ZONE-6	ZONE-7
Zone Name	Hospitals 1	Hospitals 2	Hospitals 3	Zone Name	Hospitals 1	Hospitals 2	Hospitals 3	Zone Name	MEDICAL_ZONE	HOSPITAL_1	HOSPITAL_2
Chn	Talk Group	Talk Group	Talk Group	Chn	Talk Group	Talk Group	Talk Group	Chn	Talk Group	Talk Group	Talk Group
1	ALIANTE	SR SIENA	NEW HOSP 6	1	ER at HCA	SR SIENA	NEW HOSP 6	1	AMR	BOULDER_CITY	SUMMERLIN
2	BLDR CITY	SUMRLIN	NEW HOSP 7	2	BLDR CITY	SUMRLIN	NEW HOSP 7	2	MEDIC_WEST	CENTENNIAL	SUMRLIN_PEDS
3	CENTEN HILLS	SUMRLIN PED	NEW HOSP 8	3	CENTEN HILLS	SUMRLIN PED	NEW HOSP 8	3	COMMUNITY	DSRT_SPRINGS	SUNRISE_ER
4	CROSSROADS	SUN ER	NEW HOSP 9	4	DETOX LOC	SUN ER	NEW HOSP 9	4	MED_BRANCH	MESA_VIEW	SUNRISE_PEDS
5	DSRT SPRG	SUN PEDS	NEW HOSP 10	5	DSRT SPRG	SUN PEDS	NEW HOSP 10	5	ALL_HOSPITLS	MTN_VIEW	SUNRISE_TRAUMA
6	GREEN VALLEY	SUN TRMA	NEW HOSP 11	6	ER at VHS	SUN TRMA	NEW HOSP 11	6	EMS_TAC_6	NELLIS/CALAGHN	UMC_ER
7	HENDERSON	UMC ER	NEW HOSP 12	7	HENDERSON	UMC ER	NEW HOSP 12	7	EMS_TAC_7	NORTH_VISTA	UMC_PEDS
8	LAKES ER	UMC PEDS	NEW HOSP 13	8	BLANK	UMC PEDS	NEW HOSP 13	8	EMS_TAC_8	SOUTH_HILLS	UMC_TRAUMA
9	MESA VIEW	UMC TRMA	NEW HOSP 14	9	MESA VIEW	UMC TRMA	NEW HOSP 14	9	EMS_TAC_9	SPRG_VALLEY	VALLEY
10	MTN VIEW	VALLEY	NEW HOSP 15	10	MTN VIEW	VALLEY	NEW HOSP 15	10	EMS_TAC_10	ST_ROSE_LIMA	VA_MC
11	NELLIS	VAMC	NEW HOSP 16	11	NELLIS	VAMC	NEW HOSP 16	11	EMS_TAC_11	SAN_MARTIN	NEW_HOSP_1
12	N VISTA	NEW HOSP 1	NEW HOSP 17	12	N VISTA	SR MICRO	NEW HOSP 17	12	EMS_TAC_12	ST_ROSE_SIEN	NEW_HOSP_2
13	SO. HILLS	NEW HOSP 2	NEW HOSP 18	13	SO. HILLS	NEW HOSP 2	NEW HOSP 18	13	EMS_TAC_13	UHS_HENDERSON	NEW_HOSP_3
14	SPRG VALL	NEW HOSP 3	NEW HOSP 19	14	SPRG VALL	NEW HOSP 3	NEW HOSP 19	14	EMS_TAC_14	LAKES_ER	MERCY_AIR
15	SR DELIMA	NEW HOSP 4	NEW HOSP 20	15	SR DELIMA	NEW HOSP 4	NEW HOSP 20	15	EMS_TAC_15	BLANK	BLANK
16	SR SAN MART	NEW HOSP 5	NEW HOSP 21	16	SR SAN MART	NEW HOSP 5	NEW HOSP 21	16	BLANK	BLANK	BLANK

11/21/2019		12/10/2019		12/10/2019		12/10/2019		12/10/2019		12/10/2019	
Communications to SR MICRO can be performed via zone - 13 (Hospital 2) on channel - 12 (New HOSP 1) via the CCFD FLEETMAP.	Communications to SR MICRO can be performed via zone - 13 (Hospital 2) on channel - 12 (SR MICRO) via the ALL OTHER FIRE DEPTS FLEETMAP.	Communications to Elite Medical FED can be performed via zone - 13 (Hospital 2) on channel - 13 (New HOSP 2) via the CCFD FLEETMAP.	Communications to Elite Medical FED can be performed via zone - 13 (Hospital 2) on channel - 13 (New HOSP 2) via the ALL OTHER FIRE DEPTS FLEETMAP.	Communications to ER at VHS can be performed via zone - 12 (Hospital 1) on channel - 6 (Green Valley) via the CCFD FLEETMAP.	Communications to ER at VHS can be performed via zone - 12 (Hospital 1) on channel - 6 (ER at VHS) via the ALL OTHER FIRE DEPTS FLEETMAP.	Communications to DETOX LOC can be performed via zone - 12 (Hospital 1) on channel - 4 (CROSS ROADS) via the CCFD FLEETMAP.	Communications to DETOX LOC can be performed via zone - 12 (Hospital 1) on channel - 4 (DETOX LOC) via the ALL OTHER FIRE DEPTS FLEETMAP.	Communications to ER at HCA can be performed via zone - 12 (Hospital 1) on channel - 1 (ALIANTE) via the CCFD FLEETMAP.	Communications to ER at HCA can be performed via zone - 12 (Hospital 1) on channel - 1 (ER at HCA) via the CCFD FLEETMAP.	Communications to SR MICRO are NOT available at this time via the EMS FLEETMAP.	Communications to Elite Medical FED are NOT available at this time via the EMS FLEETMAP.

LEGEND	
SR MICRO	ER at HCA
St. Rose Blue Diamond	aliante ER
St. Rose NLV	the lakes ER
St. Rose Sahara	
St. Rose W. Flamingo	
ELITE MED FED	
ER at VHS	
green valley ER	
blue diamond ER	
DETOX LOC	
crossroads	
westcare	

## **Appendix E**

### **Mass Casualty Incident**

Licensed EMS providers who are on duty for a permitted agency may operate within their scope of practice at a receiving facility during a Mass Casualty Incident if that incident is classified as a Level 3, Level 2, Level 1, Extreme MCI or Hostile MCI as defined by the Fire Alarm Office Standard Operating Procedure, M-1 dated 5/09/2016 if requested by an authorized agent of the receiving facility. Further, if the licensed EMS provider is requested through the Incident Commander or Designee to assist with Mass Casualty Incident (as defined above) related patient surge at a hospital to provide triage expertise or act as a liaison with the EMS system they may do so with consideration being made to EMS system needs, status and relevant law.

Revised and approved by MAB 12-05-2018