
# Treatment Guidelines

**Medical Director**:
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**Hospital**:
Valley View Medical Center: 5330 Hwy 95, Fort Mojave, AZ 86426

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**PROCEDURES PROTOCOLS (Cont.)**

# 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 Valley View Medical Center EMS System.

The ***GOAL*** of the manual is to ***STANDARDIZE*** prehospital patient care in the area. 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 Arizona Department of Health and Emergency Services.

***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.

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.

Protocol Key:

 Caution / Warning / Alert

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

 Telemetry Contact Required

 Specific Protocol

E EMT Licensed Attendant and above may perform these steps

I IEMT Licensed Attendant and above may perform these steps

P 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 for the local EMS System and represent consensus among local agencies with Medical Director Kenneth Locke DO. 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 Medical Director upon recommendation by the local agencies. Additional recommendations are welcome and appreciated at any time. They may be submitted for consideration and referral.

Questions may also be telephoned to department staff at (928) 788-2273, or visit our website at http://www.valleyviewmedicalcenter.net/

## Pounds to Kilograms Conversion Table

| Pound | Kilogram | Pound | Kilogram | Pound | Kilogram | Pound | Kilogram |
|---|---|---|---|---|---|---|---|
| 1 | 0.45359237 | 26 | 11.79340162 | 51 | 23.13321087 | 76 | 34.47302012 |
| 2 | 0.90718474 | 27 | 12.24699399 | 52 | 23.58680324 | 77 | 34.92661249 |
| 3 | 1.36077711 | 28 | 12.70058636 | 53 | 24.04039561 | 78 | 35.38020486 |
| 4 | 1.81436948 | 29 | 13.15417873 | 54 | 24.49398798 | 79 | 35.83379723 |
| 5 | 2.26796185 | 30 | 13.6077711 | 55 | 24.94758035 | 80 | 36.2873896 |
| 6 | 2.72155422 | 31 | 14.06136347 | 56 | 25.40117272 | 81 | 36.74098197 |
| 7 | 3.17514659 | 32 | 14.51495584 | 57 | 25.85476509 | 82 | 37.19457434 |
| 8 | 3.62873896 | 33 | 14.96854821 | 58 | 26.30835746 | 83 | 37.64816671 |
| 9 | 4.08233133 | 34 | 15.42214058 | 59 | 26.76194983 | 84 | 38.10175908 |
| 10 | 4.5359237 | 35 | 15.87573295 | 60 | 27.2155422 | 85 | 38.55535145 |
| 11 | 4.98951607 | 36 | 16.32932532 | 61 | 27.66913457 | 86 | 39.00894382 |
| 12 | 5.44310844 | 37 | 16.78291769 | 62 | 28.12272694 | 87 | 39.46253619 |
| 13 | 5.89670081 | 38 | 17.23651006 | 63 | 28.57631931 | 88 | 39.91612856 |
| 14 | 6.35029318 | 39 | 17.69010243 | 64 | 29.02991168 | 89 | 40.36972093 |
| 15 | 6.80388555 | 40 | 18.1436948 | 65 | 29.48350405 | 90 | 40.8233133 |
| 16 | 7.25747792 | 41 | 18.59728717 | 66 | 29.93709642 | 100 | 45.359237 |
| 17 | 7.71107029 | 42 | 19.05087954 | 67 | 30.39068879 | 125 | 56.69904625 |
| 18 | 8.16466266 | 43 | 19.50447191 | 68 | 30.84428116 | 150 | 68.0388555 |
| 19 | 8.61825503 | 44 | 19.95806428 | 69 | 31.29787353 | 175 | 79.37866475 |
| 20 | 9.0718474 | 45 | 20.41165665 | 70 | 31.7514659 | 200 | 90.718474 |
| 21 | 9.52543977 | 46 | 20.86524902 | 71 | 32.20505827 | 250 | 113.3980925 |
| 22 | 9.97903214 | 47 | 21.31884139 | 72 | 32.65865064 | 300 | 136.077711 |
| 23 | 10.43262451 | 48 | 21.77243376 | 73 | 33.11224301 | 500 | 226.796185 |
| 24 | 10.88621688 | 49 | 22.22602613 | 74 | 33.56583538 | 750 | 340.1942775 |
| 25 | 11.33980925 | 50 | 22.6796185 | 75 | 34.01942775 | 1000 | 453.59237 |

## TERMS AND CONVENTIONS

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

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

# ADULT TREATMENT PROTOCOLS

# General Adult Assessment

Scene Safety / Scene Size-Up
Nature of Call / Mechanism of Injury
PPE / BSI
Bring all equipment to patient's side

→ S.T.A.R.T. Triage

Level of Consciousness
- Unresponsive → Check Pulse
  - None → Cardiac Arrest
  - Pulse → Altered Mental Status/ Syncope

Airway
- Signs of Compromise or Not Protecting → Ventilation Management

Breathing
- Inadequate or Respiratory Distress → Respiratory Distress

Circulation
- Bleeding → General Trauma

Disability
- Altered or Confused → Altered Mental Status/ Syncope

History – HPI & AMPLE

Vital Signs & Physical Exam

E
- Blood glucose testing as indicated
- Specific treatment protocol as indicated
- Cervical Stabilization as indicated

Comfort measures (splint, position of comfort)

P
- Cardiac monitor as indicated

I
- Vascular Access as indicated

Oxygen therapy to keep $SpO_2$ ≥94%

P
- Pain Management as indicated

Radio Contact for all Trauma patients, Code 3 returns, and need for Physician per protocol

→ Transport to closest facility for:
- Airway emergencies (unable to oxygenate/ventilate)

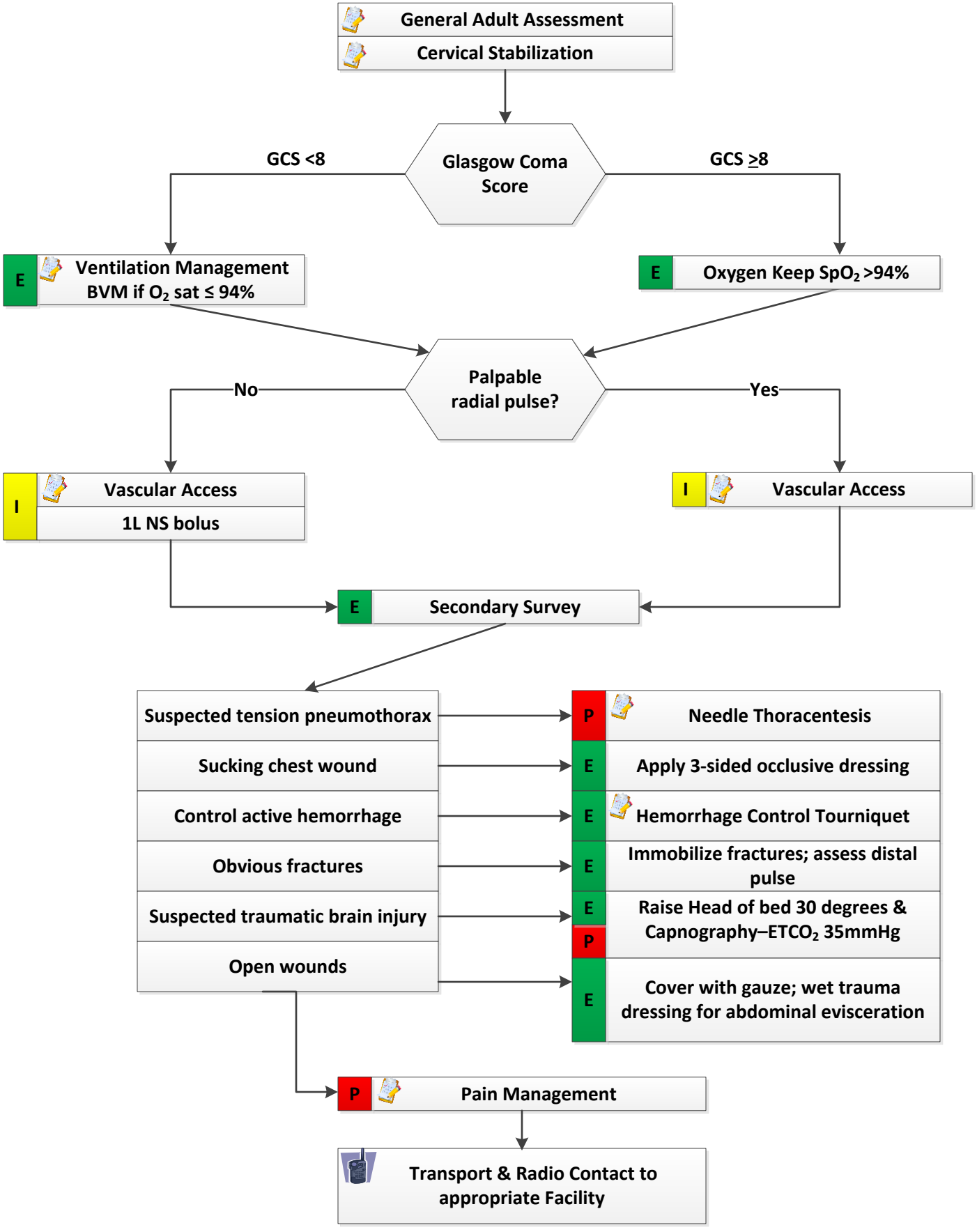
**Pearls**

- 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 VVMC at 928-788-3048.

**Disposition**

- 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 the protocol designated transport destinations, the licensee providing emergency medical care shall transport the patient to the nearest appropriate facility.

# General Adult Trauma Assessment



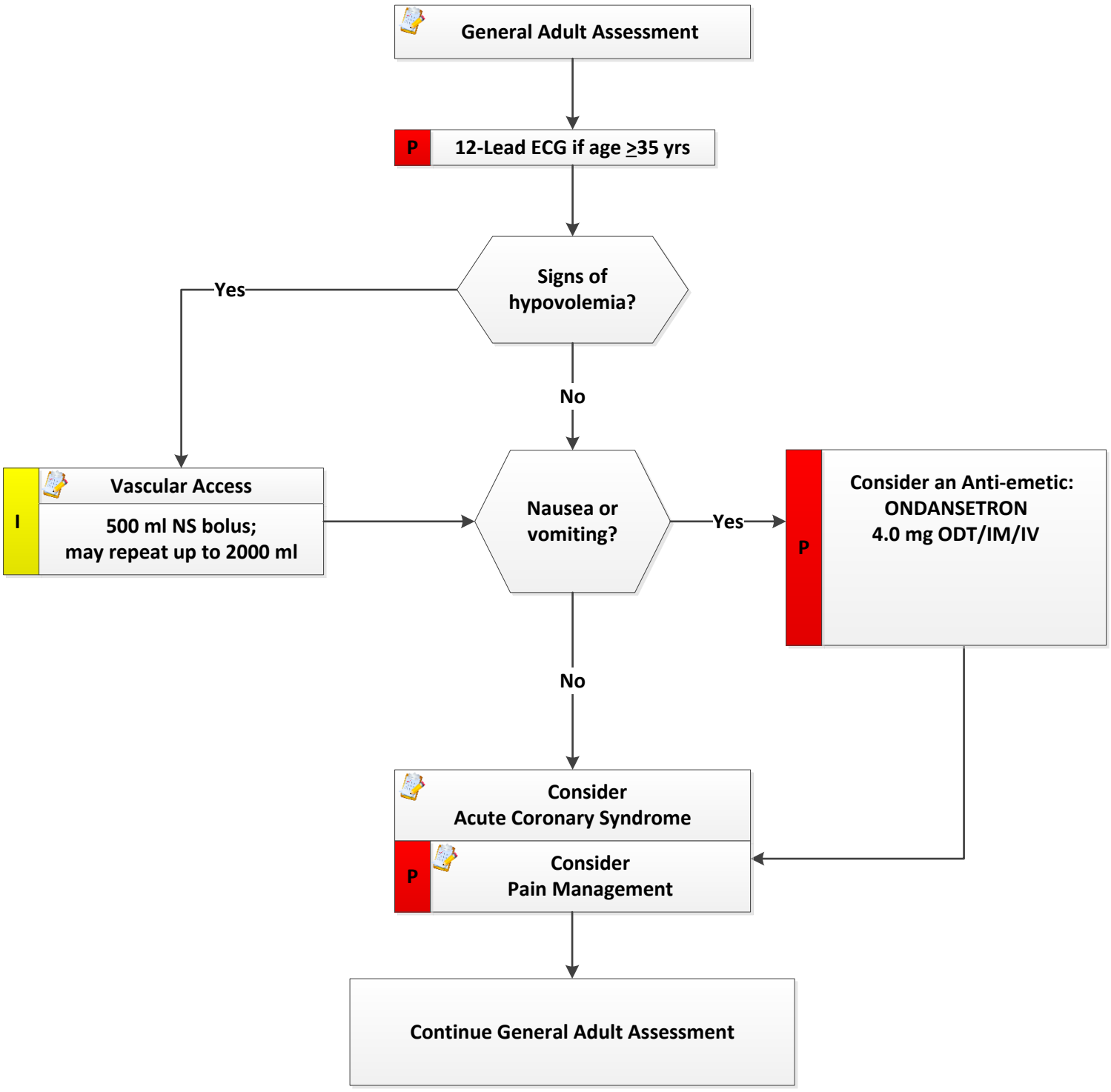
**History**
- Time and mechanism of injury
- Damage to structure or vehicle
- Location in structure or vehicle
- Others injured or dead
- Speed and details of MVC
- Restraints/protective equipment
- Past medical history
- Medications

**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 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 oximetery can be maintained ≥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 anti-emetics & pain management.
- Repeat vital signs after each fluid bolus
- In patients ≥35 years old consider cardiac origin and 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.

# Acute Coronary Syndrome (Suspected)

General Adult Assessment

P 12-Lead ECG

## STEMI

I Vascular Access

E Oxygen
Keep $SpO_2$ >94%

E ASPIRIN
324 mg PO

NITROGLYCERIN

E Assist pt with own NTG as prescribed; may repeat x 3

P 0.4 mg SL;
may repeat q 5 min x 3

P Pain Management for continued pain

P Consider Anti-emetic for nausea/vomiting:
ONDANSETRON
4.0 mg ODT/IM/IV

Transport to and Notify Receiving Hospital

Nitroglycerin is contraindicated in any patient with hypotension, bradycardia, tachycardia (HR >100 bpm) in the absence of heart failure, and evidence of a right ventricular infarction. Caution is advised in patients with Inferior Wall STEMI and a right-sided ECG should be performed to evaluate RV infarction.

Refer to Arrhythmia and Shock Protocols as needed

## Non-Diagnostic 12-Lead

I Vascular Access

E Oxygen
Keep $SpO_2$ >94%

E ASPIRIN
324 mg PO

NITROGLYCERIN

E Assist pt with own NTG as prescribed; may repeat x 3

P 0.4 mg SL;
may repeat q 5 min x 3

P Pain Management for continued pain

P Consider Anti-emetic for nausea/vomiting:
ONDANSETRON
4.0 mg ODT/IM/IV

Transport to Hospital of Patient's Choice

**History**

- Age
- Medication: 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, 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 vs medical
- Anginal vs 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)

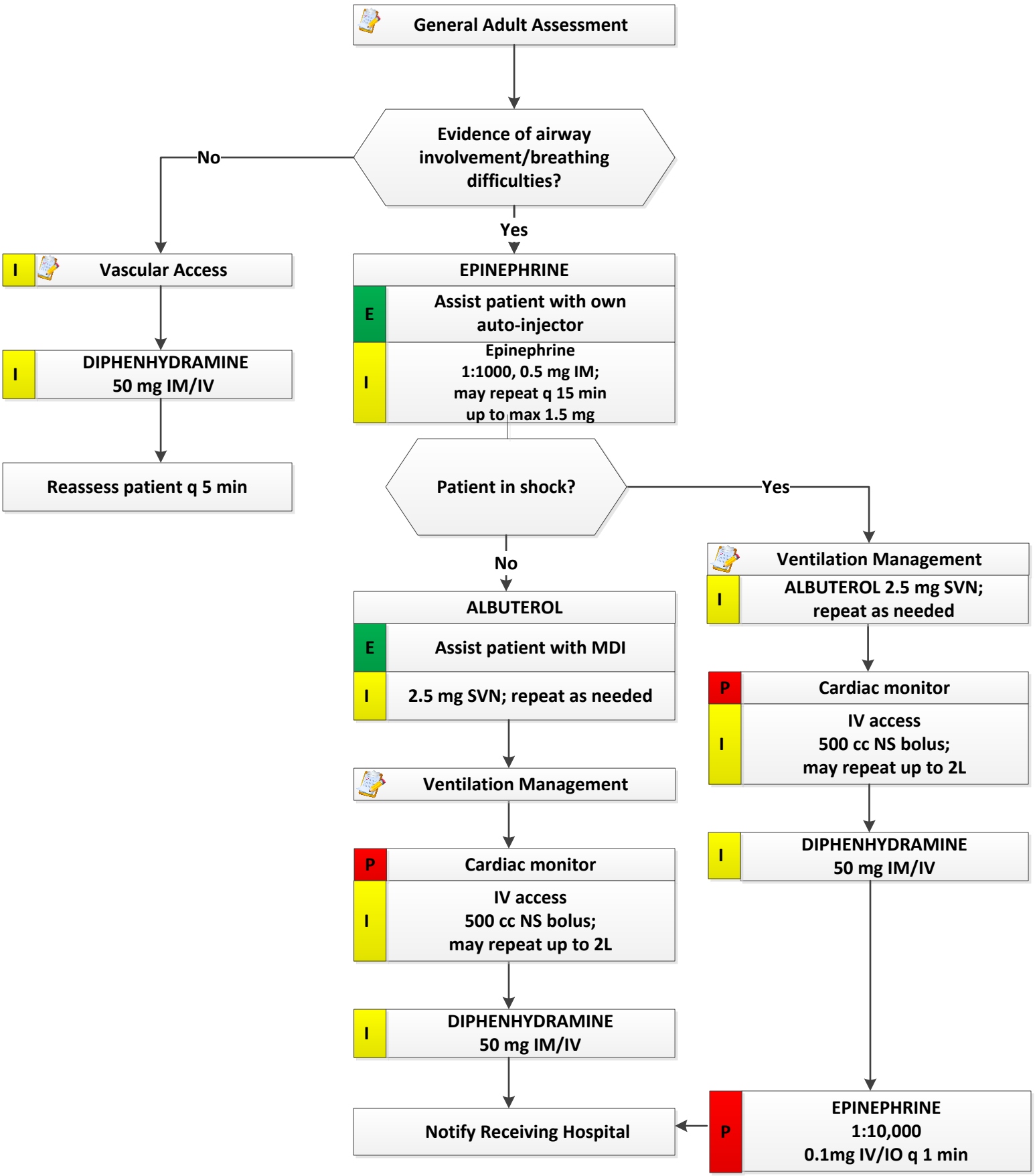
**Pearls**

- 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 as quickly as practicable.

**QI Metrics**

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

# 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

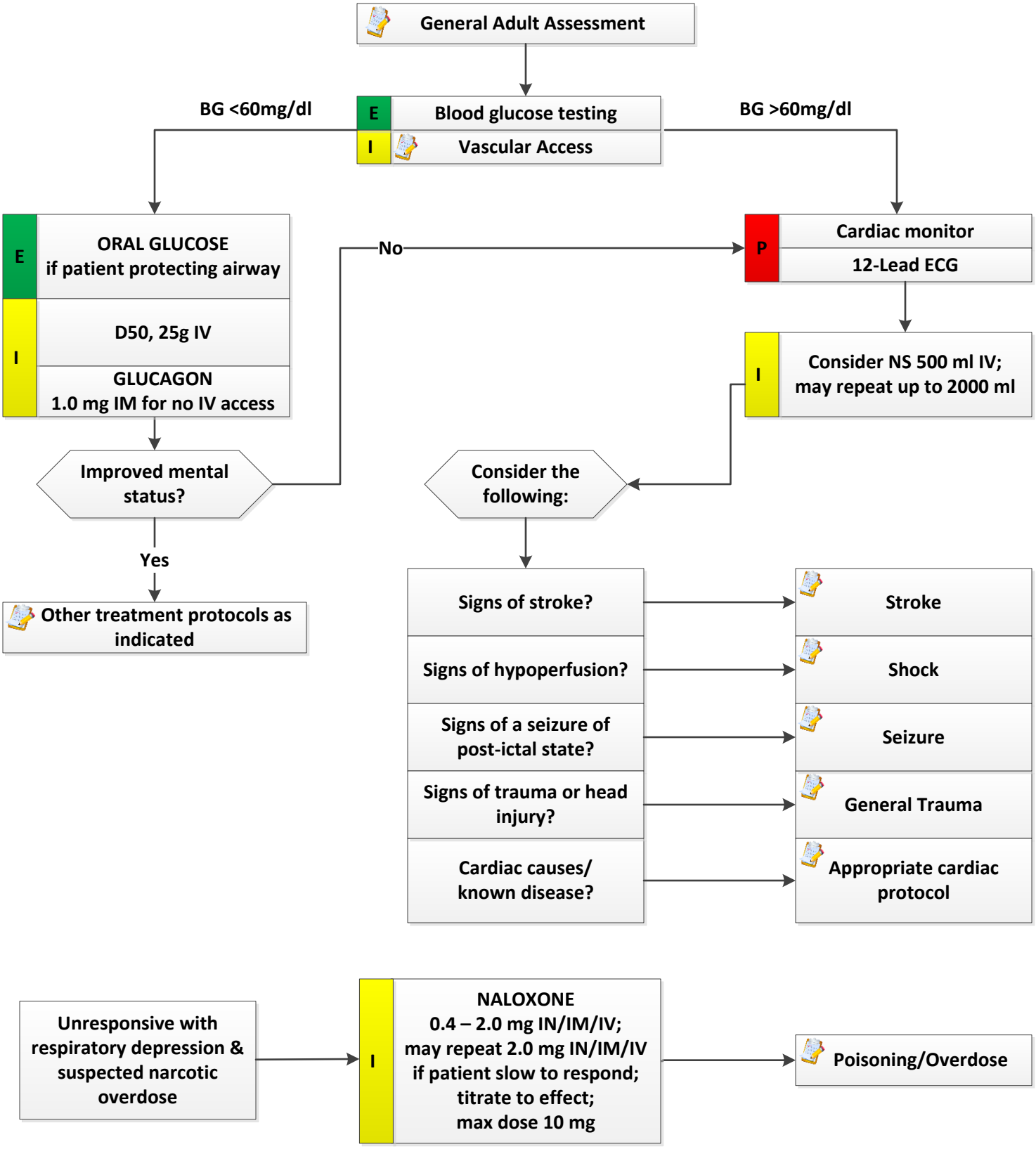
**Pearls**
- Recommended Exam: Mental Status, Skin, Heart, Lung.
- Anaphylaxis is an acute and potentially lethal multisystem allergic reaction.
- Epinephrine is a first-line drug that should be administered in acute anaphylaxis (moderate / severe symptoms). IM Epinephrine (1:1,000) should be administered in priority before or during attempts at IV or IO access.
- Anaphylaxis refractory to repeat doses of IM Epinephrine may require IV Epinephrine (1:10,000) administration by IV push or Epinephrine infusion.
- Contact Medical Control for refractory anaphylaxis.
- Consider $ETCO_2$ monitoring.

## Severity
- **Mild** reactions involve skin rashes, itchy sensation, or hives with no respiratory involvement.
- **Moderate** reactions involve skin disorders and may include some respiratory involvement like wheezing, yet the patient still maintains good tidal volume air exchange.
- **Severe** reactions involve skin disorders, respiratory difficulty, and may include hypotension.

## Special Considerations
- Always perform ECG monitoring when administering Epinephrine.
- Consider Dopamine for hypotension refractory to administration of Epinephrine.
- Provide oxygen and airway support as needed.

## 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

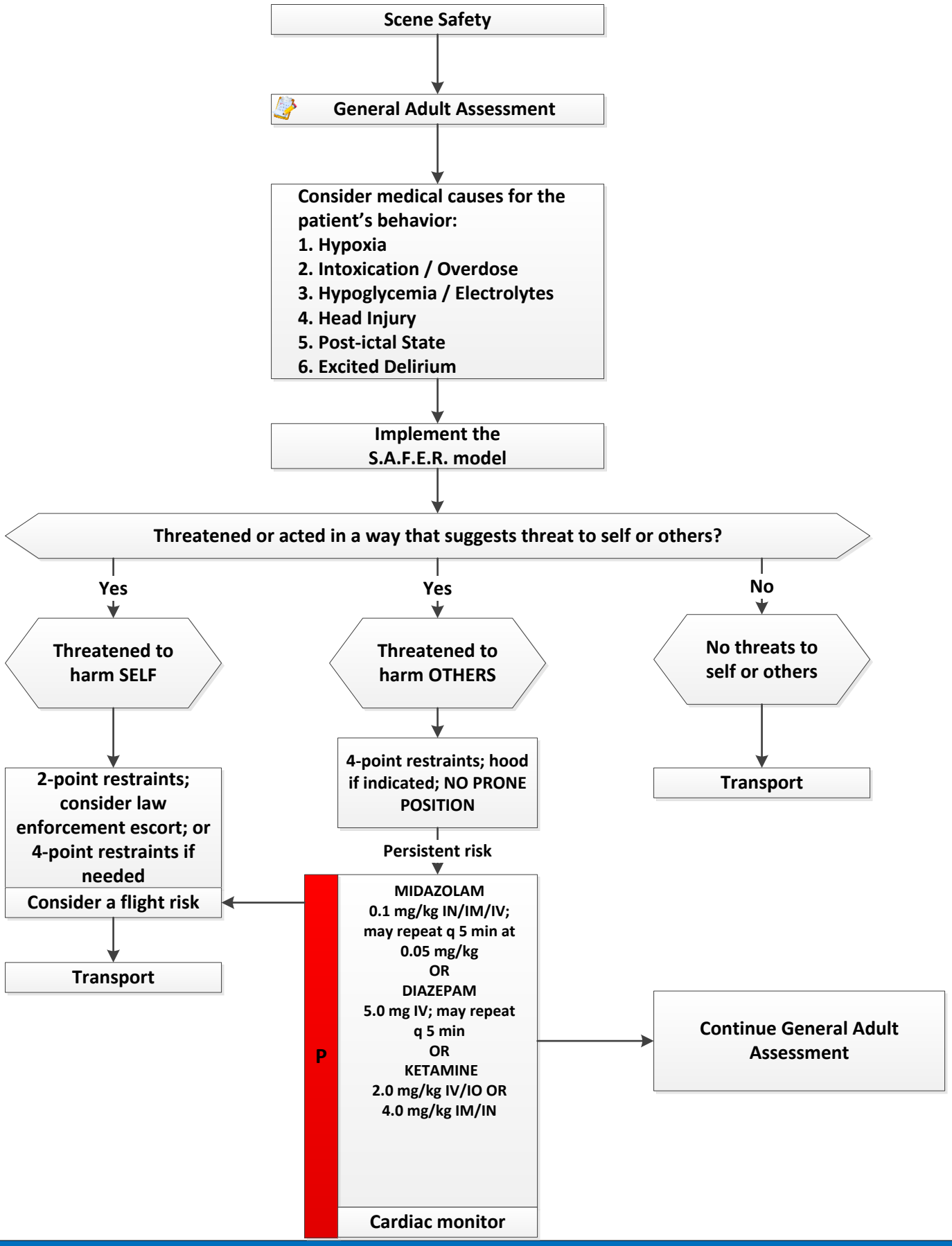
**Differential**

- 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 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

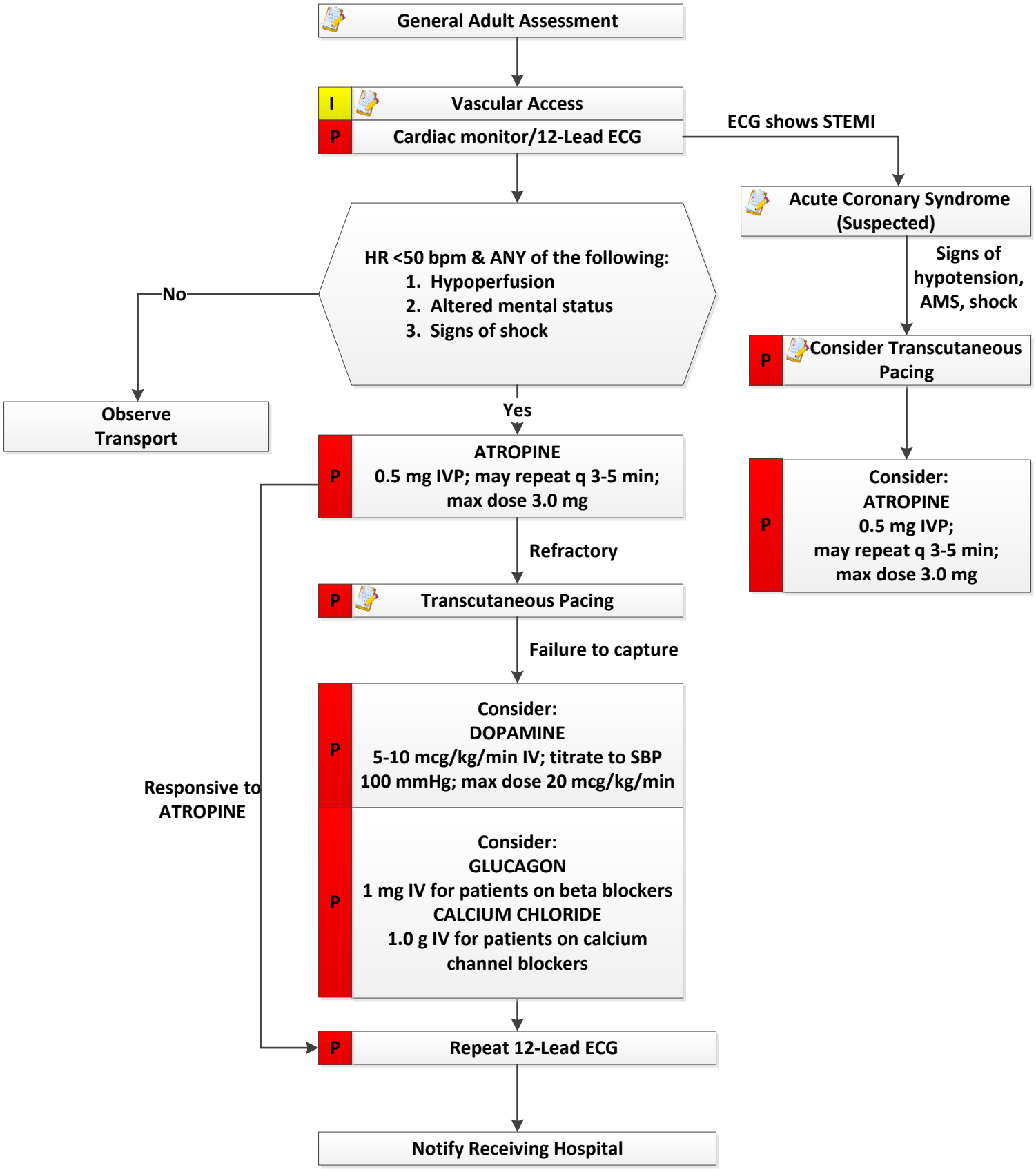
## Pearls
- Law enforcement assistance should be requested on all calls involving potentially violent patients.
- Under no circumstances are patients to be transported restrained in the prone position.
- Recommended Exam: Mental Status, Skin, Heart, Lung, Neuro.
- Consider all possible medical/trauma 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 $ETCO_2$ monitoring.

## Excited Delirium Syndrome
- Medical emergency-combination of delirium, psychomotor agitation, anxiety, hallucinations, speech disturbances, disorientation, violent behavior, insensitivity to pain, hyperthermia, and increased strength.
- Potentially life threatening, and associated with the use of physical control measures including restraints, TASER, or similar device.
- Most common in male subjects with a history of serious mental illness and/or acute or chronic drug abuse, particularly stimulants.

## 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.
- **S**tabilize the situation by containing and lowering the stimuli.
- **A**ssess and acknowledge the crisis.
- **F**acilitate the identification and activation of resources (chaplain, family, friends or police).
- **E**ncourage patient to use resources and take actions in his/her best interest.
- **R**ecovery or referral – leave patient in care of responsible person or professional, or transport to appropriate facility.

# 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.
- 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.
- Do not delay pacing while waiting for IV access.
- Hypoxemia is a common cause of bradycardia; be sure to oxygenate the patient and provide ventilatory support as needed.

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

# Burns

General Adult Assessment

Thermal Exposure

Stop the burning process with water or saline
Remove smoldering clothing and jewelry
Do not remove STUCK clothing

Ventilation Management

Cover burned area with dry sterile dressing
DO NOT USE any ice, lotion, ointment or antiseptic!

I — Vascular Access

IVF – NS 500 ml fluid bolus if signs of hypoperfusion, OR >10% BSA burn present;
If no improvement in patient condition, administer additional fluid challenges up to 2000 ml.

P — Cardiac monitor

P — Pain Management

Consider Smoke Inhalation

Chemical / Electrical Exposure

P — Cardiac monitor

Eye Involvement?
Continuous saline flush in affected eyes.
Flush with water or NS for 10-15 min

Remove jewelry, constricting items, and expose burned area

Identify entry and exit sites, apply sterile dressings

I — Vascular Access

IVF – NS 500 ml fluid bolus if signs of hypoperfusion, OR >10% BSA burn present;
If no improvement in patient condition, administer additional fluid challenges up to 2000 ml

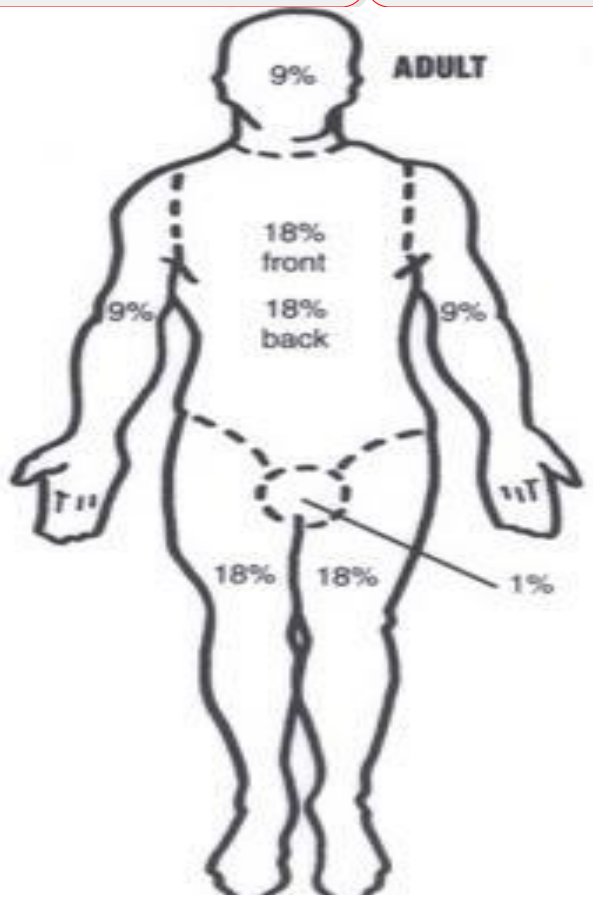
P — Pain Management

Transport

**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 (1st degree) – red and painful
- Partial Thickness (2nd degree) – blistering
- Full Thickness (3rd 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.
- Early intubation is required when the patient experiences 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.
- Burn patients are prone to hypothermia - never apply ice or cool burns; must maintain normal body temperature.
- Consider $ETCO_2$ monitoring.

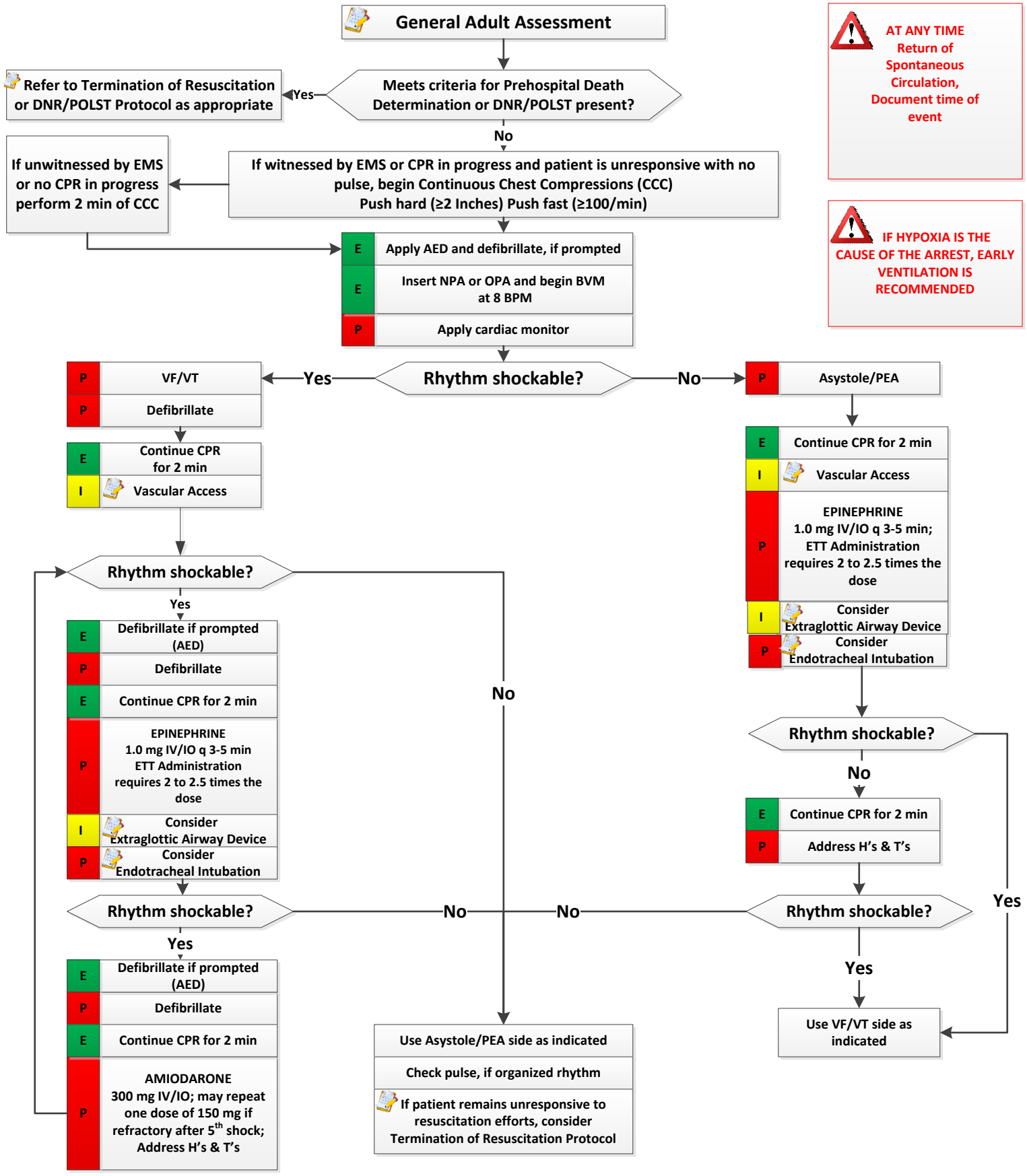
**Patients meeting the following Criteria shall be transported to the nearest Adult or Pediatric Burn Center**
1. Second and/or third degree burns >20% body surface area (BSA).
2. Second and/or third degree burns >10% body surface area (BSA) in patients under 10 years old or over 50 years old.
3. Burns that involve the face, hands, feet, genitalia, perineum or major joints.
4. Electrical burns, including lightning injury.
5. Chemical burns.
6. Circumferential burns.
7. Inhalational injury.

**Parkland Formula for Fluid Replacement:**
**4ml x (body wt in kg) x (% BSA burned) = total fluids for 24 hrs**
Give ½ in the first 8 hrs; give remainder over next 16 hrs.

**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) (Adult CCC CPR)

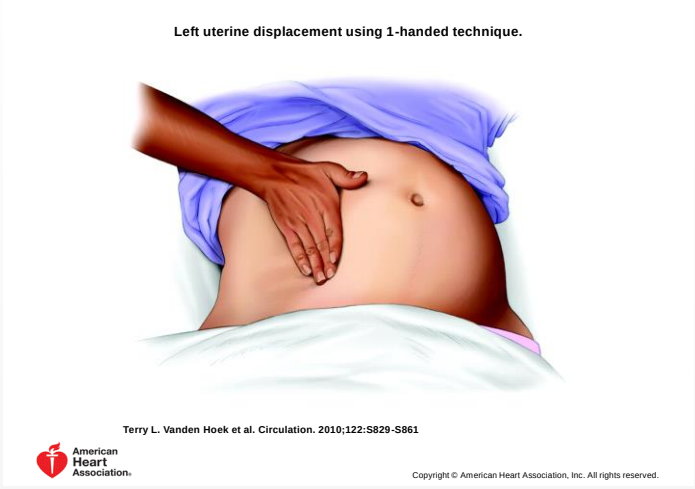


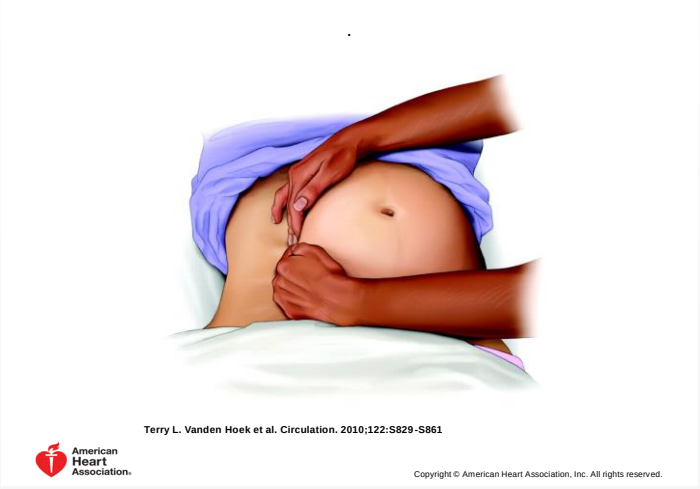
**History**
- Events leading to arrest
- Estimated down time
- Past medical history
- Medications
- Existence of terminal illness

**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
- For cardiac arrest patients who are pregnant, manual CPR is recommended.
- For cardiac arrest patients who are pregnant, manual displacement of the uterus to the left side is recommended.

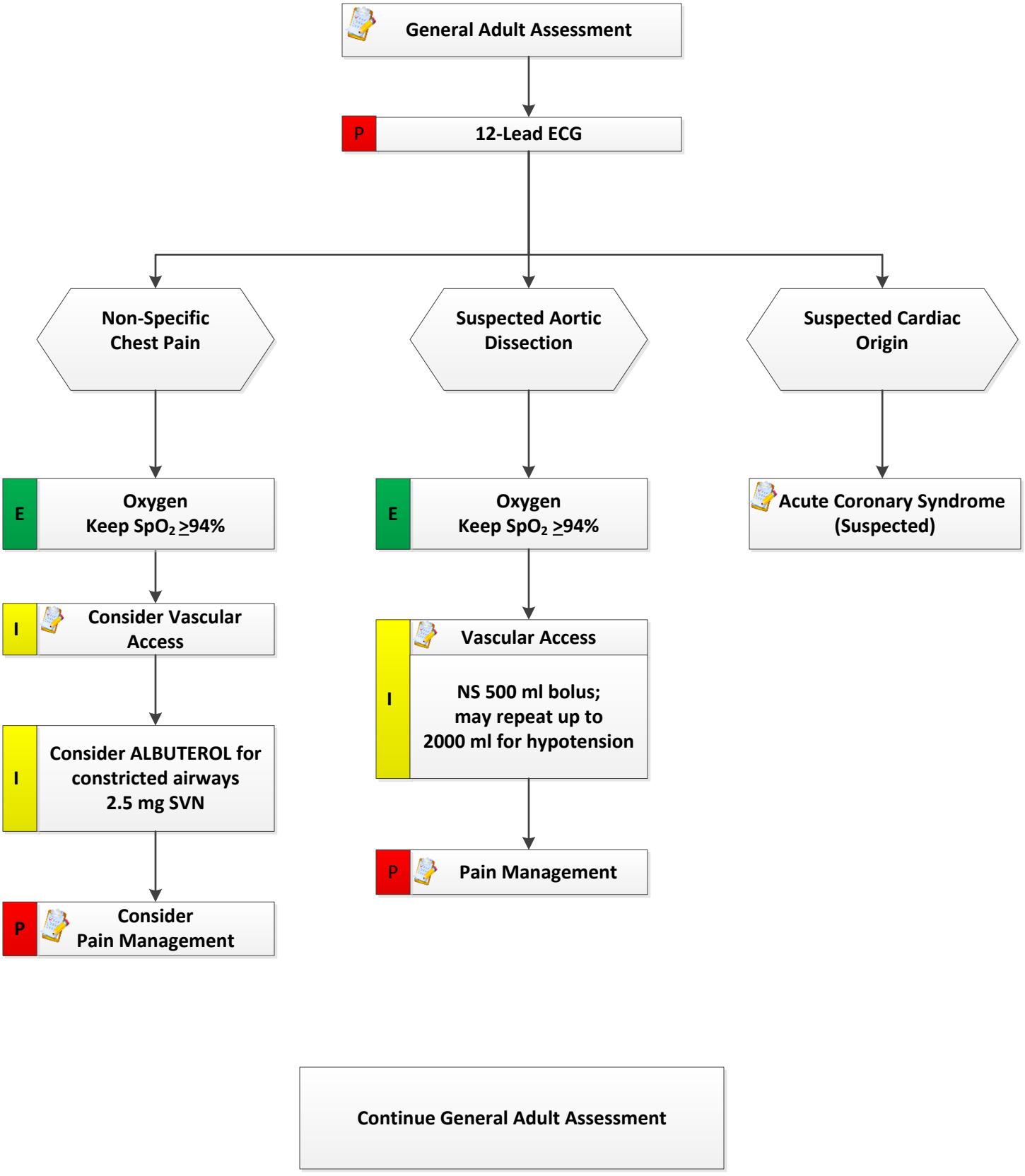



- Efforts should be directed at high quality and continuous compressions with limited interuptions and early defibrillation when indicated.
- Consider early IO placement if IV is difficult.
- DO NOT HYPERVENTILATE.
- Reassess and document ETT placement using auscultation and $ETCO_2$ capnography.
- Switch compressors every two minutes.
- Try to maintain patient modesty.
- Mechanical chest compression devices should be used if available in order to provide for consistent uninterrupted chest compressions and crew safety. As noted above, mechanical chest compression devices are not recommended for the pregnant patient.

**H's & T's (reversible causes)**
- Hypovolemia – Volume infusion
- Hypoxia – Oxygenation & ventilation, CPR
- Hydrogen ion (acidosis) – Ventilation, CPR
- Hypo/Hyperkalemia – Calcium Chloride, Glucose, 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


General Adult Assessment
P
12-Lead ECG
Non-Specific Chest Pain
Suspected Aortic Dissection
Suspected Cardiac Origin
E
Oxygen
Keep SpO2 ≥94%
I
Consider Vascular Access
I
Consider ALBUTEROL for constricted airways
2.5 mg SVN
P
Consider Pain Management
E
Oxygen
Keep SpO2 ≥94%
I
Vascular Access
NS 500 ml bolus;
may repeat up to
2000 ml for hypotension
P
Pain Management
Acute Coronary Syndrome (Suspected)
Continue General Adult Assessment

**History**
- Age
- Medications (Viagra/Sildenafil/ Levitra, Cialis/Tadalafil)
- Past medical history (MI, angina, diabetes, post menopausal)
- Allergies
- Recent physical exertion
- Palliation/Provocation
- Quality (crampy, constant, sharp, dull, etc.)
- Region/Radiation/Referred
- Time (onset/duration/repetition)

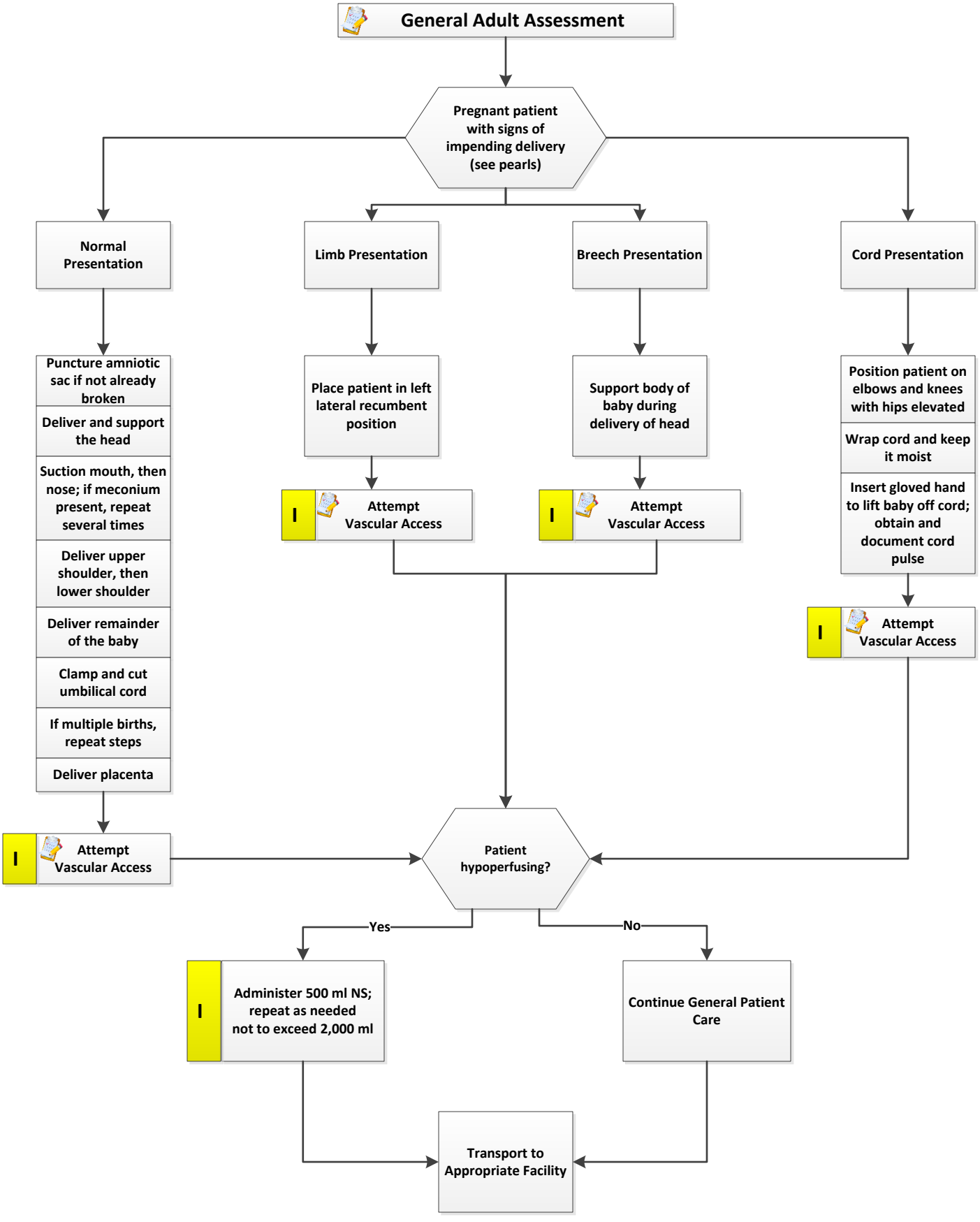
**Signs and Symptoms**
- CP (pressure, pain, ache, vice-like tightness)
- Location (substernal, epigastric, arm, jaw, neck, shoulder)
- Pale
- Diaphoresis
- Shortness of breath
- Nausea, vomiting, dizzy
- Time of onset

**Differential**
- Medical vs. Trauma
- Angina vs. MI
- Pericarditis
- Pulmonary embolism
- Asthma/COPD
- Pneumothorax
- Aortic dissection or aneurysm
- GE reflux or hiatal hernia
- Esophageal spasm
- Chest wall injury or pain
- Pleural pain
- Overdose (cocaine or methamphetamine)

**Pearls**
- Nitroglycerine is contraindicated for any patient having taken Viagra or similar medication in the past 24 hours, or 48 hours for Tadalifil, or similar.
- Nitroglycerine is contraindicated in any patient with hypotension, bradycardia or tachycardia in the absence of heart failure and evidence of a right ventricular infarction. Caution is advised in patients with inferior wall STEMI and a right sided ECG should be performed to evaluate right ventricular infarction.
- Diabetics, geriatric and female patients often present with atypical pain or only generalized complaints (have a low threshold to perform a 12-Lead ECG).

**QI Metrics**
- 12-Lead ECG completed within 5 minutes of patient contact.
- 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

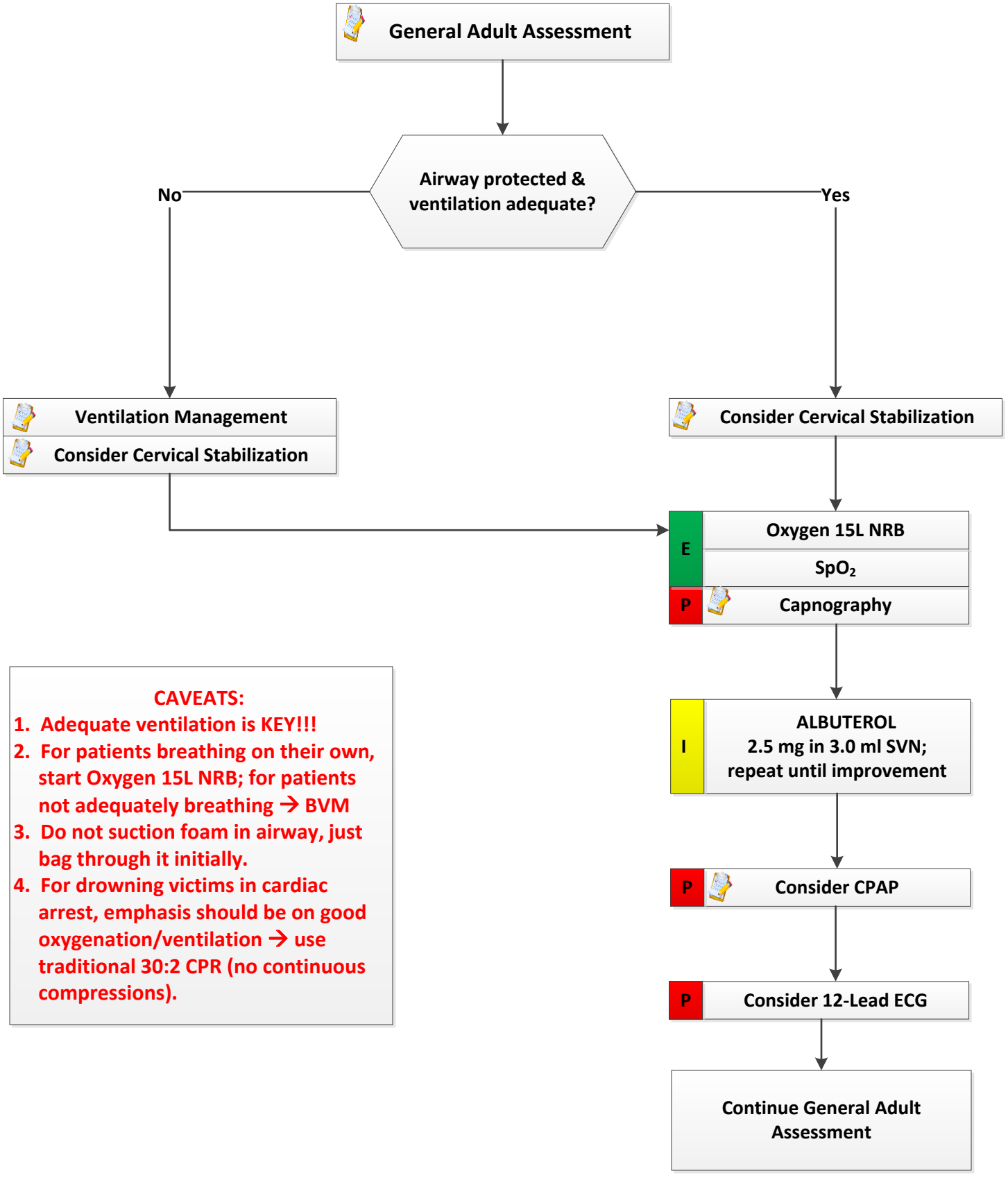
**Signs and Symptoms**
- Spasmodic pain
- Vaginal discharge or bleeding
- Crowning or urge to push
- Meconium

**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.

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

# Drowning




**CAVEATS:**

1. **Adequate ventilation is KEY!!!**
2. **For patients breathing on their own, start Oxygen 15L NRB; for patients not adequately breathing → BVM**
3. **Do not suction foam in airway, just bag through it initially.**
4. **For drowning victims in cardiac arrest, emphasis should be on good oxygenation/ventilation → use traditional 30:2 CPR (no continuous compressions).**

**History**
- Submersion in water, regardless of depth
- Possible history of trauma (dive)
- Duration of immersion
- Temperature of water or possibility of hypothermia
- Degree of water contamination

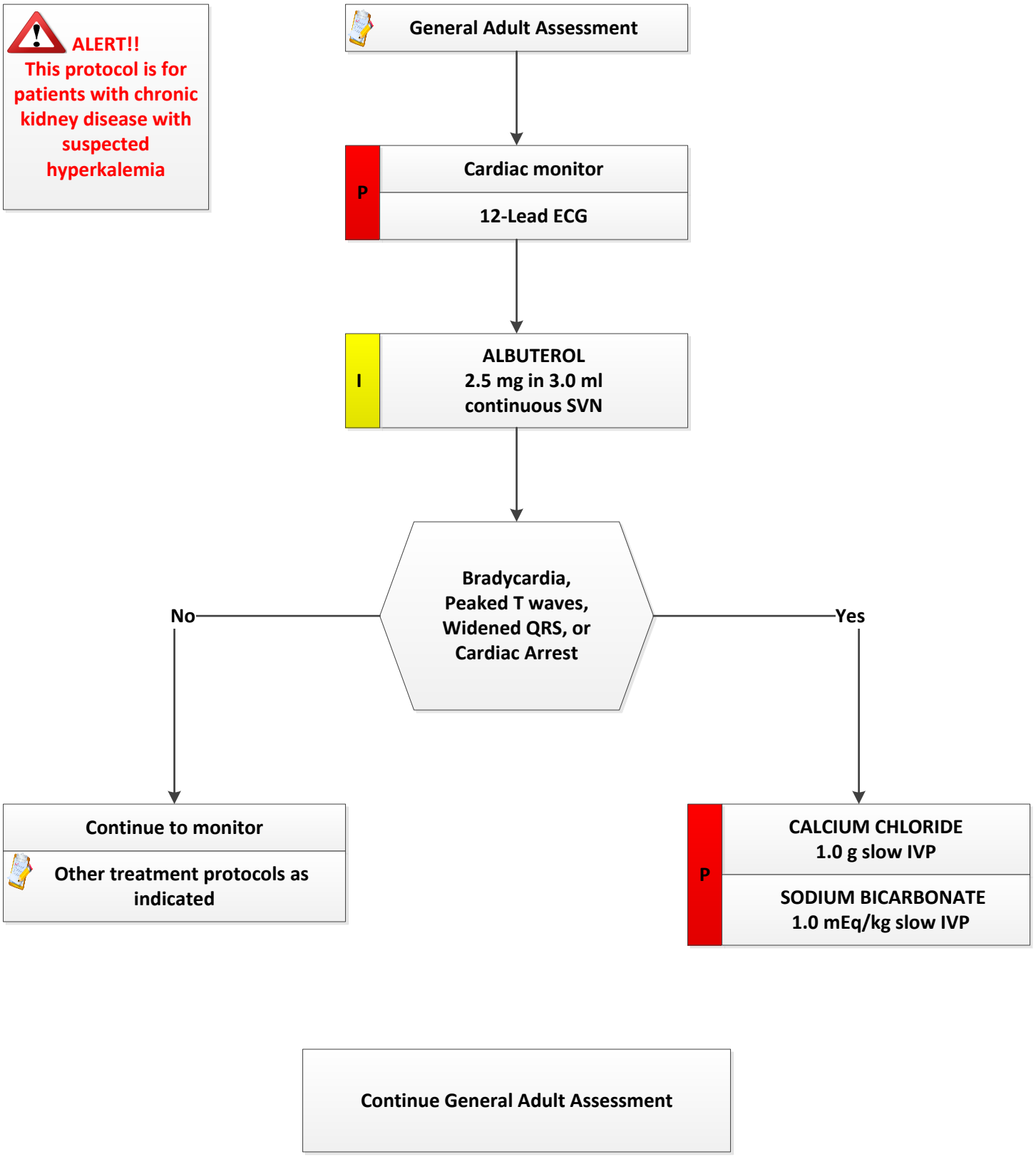
**Signs and Symptoms**
- Unresponsive
- Mental status changes
- Decreased or absent vital signs
- Vomiting
- Coughing, wheezing, rales, stridor, rhonchi
- Apnea
- Frothy/foamy sputum

**Differential**
- Trauma
- Pre-existing medical condition
- Barotrauma
- Decompression illness
- Post-immersion syndrome

**Pearls**
- Recommended Exam: Trauma Survey, Head, Neck, Chest, Abdomen, Back, Extremities, Skin, Neuro.
- Ensure scene safety.
- Hypothermia is often associated with submersion incidents.
- All patients should be transported for evaluation because of potential for worsening over the next several hours.

**CAVEATS:**
1. **Adequate ventilation is KEY!!!**
2. **For patients breathing on their own, start Oxygen 15L NRB; for patients not adequately breathing → BVM**
3. **Do not suction foam in airway, just bag through it initially.**
4. **For drowning victims in cardiac arrest, emphasis should be on good oxygenation/ventilation → use traditional 30:2 CPR (no continuous compressions).**

# Hyperkalemia (Suspected)



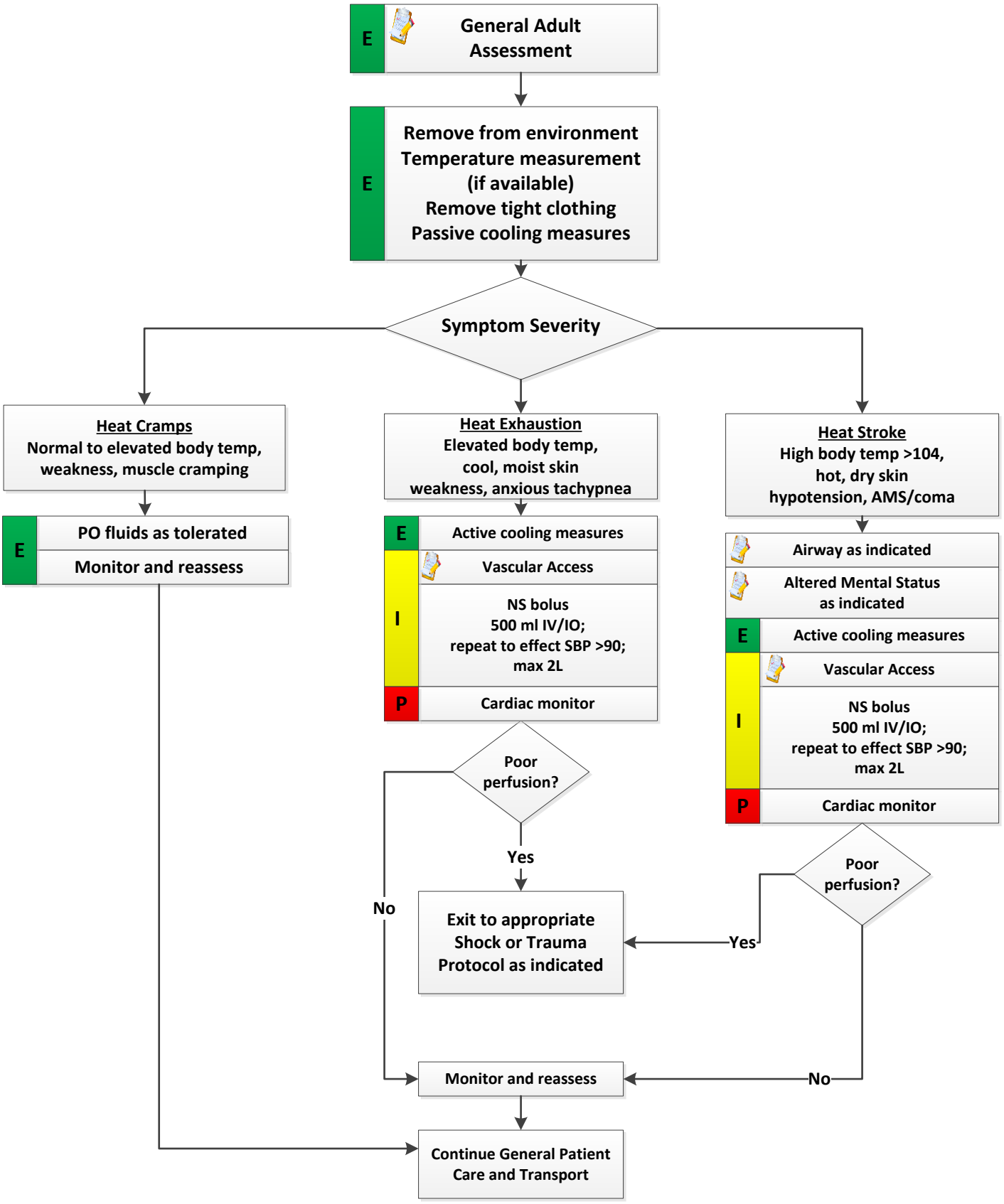
**History**
- History of renal failure
- History of dialysis
- Trauma, crush injury

**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 (crush syndrome, chronic renal failure) ***AND*** electrocardiographic findings consistent with hyperkalemia (bradycardia with widening QRS complexes) ***AND*** hemodynamic instability ***BEFORE*** initiating treatment.
- Calcium Chloride is contraindicated in patients taking digitalis products.
- 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.

# Hyperthermia/Environmental 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

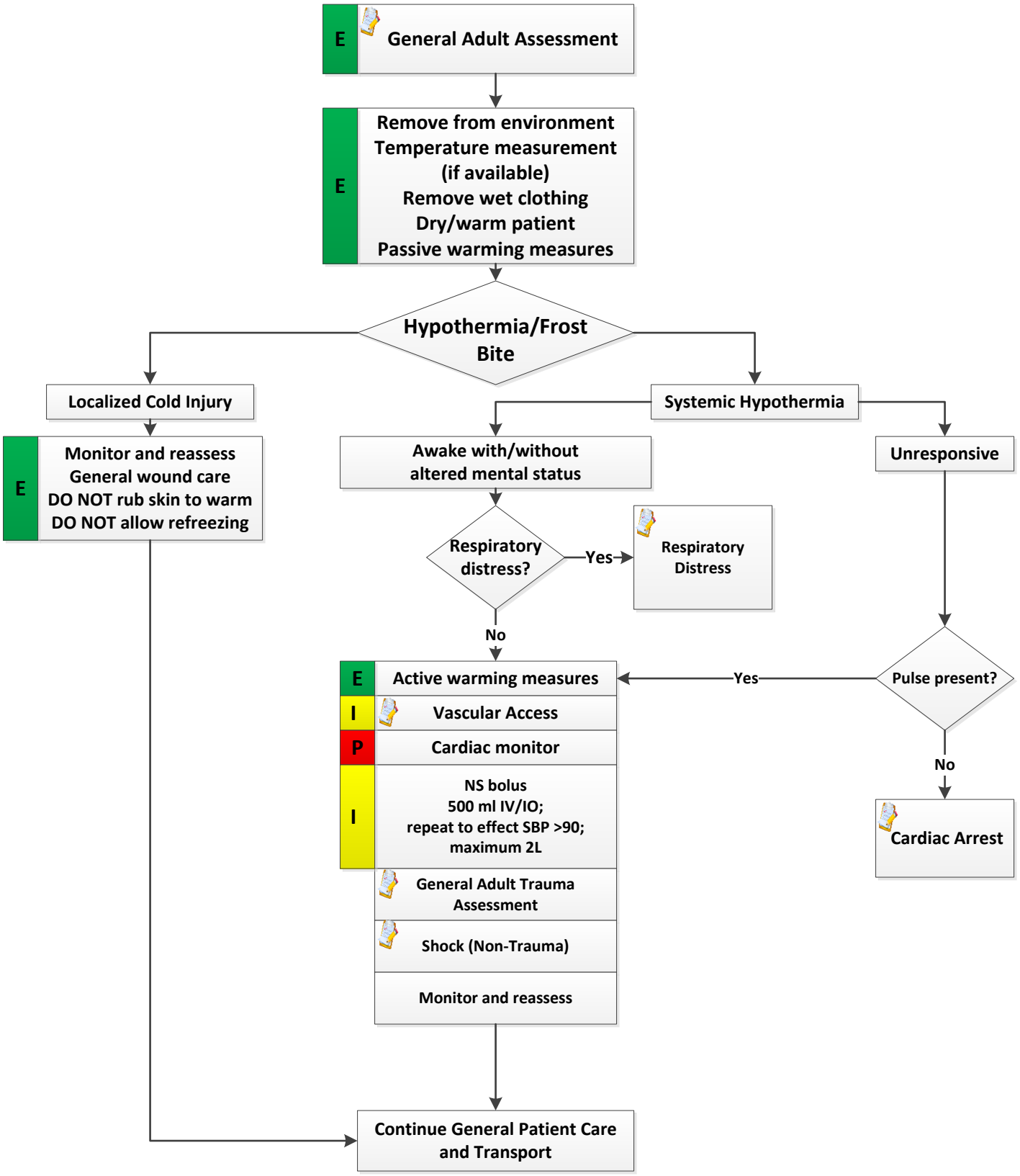
**Pearls**
- Recommended exam: Mental Status, Skin, Heart, Lung, Abdomen, Extremities, Neuro.
- Extremes of age are more prone to heat emergencies.
- Cocaine, amphetamines, and salicylates may elevate body temperatures.
- Sweating generally disappears as body temperatures rise over 104° F (40° C).
- 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.

**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.

# Hypothermia/Environmental 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

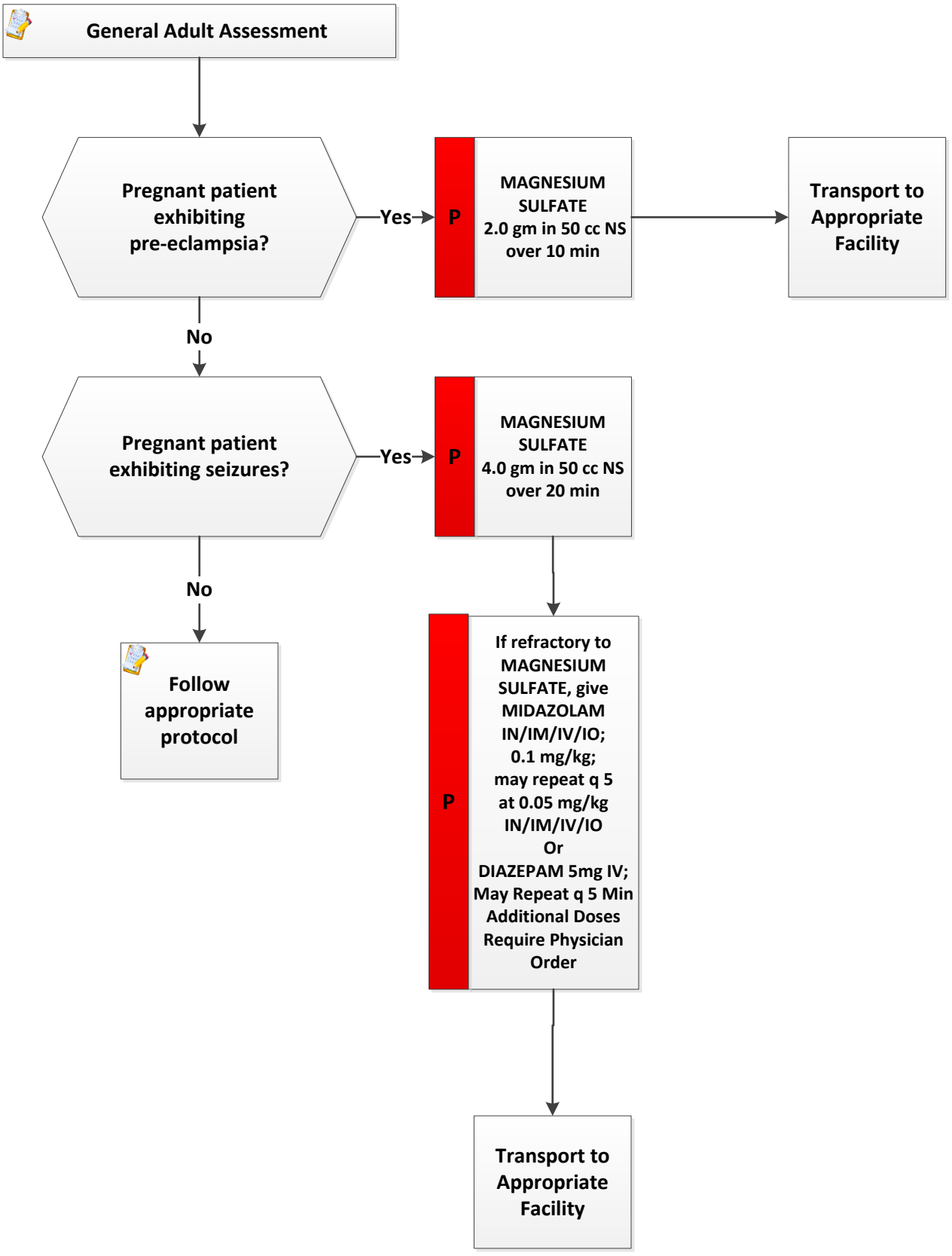
**Differential**
- Sepsis
- Environmental exposure
- Hypoglycemia
- Stroke
- Head injury
- Spinal cord injury

**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 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

# Obstetrical Emergency



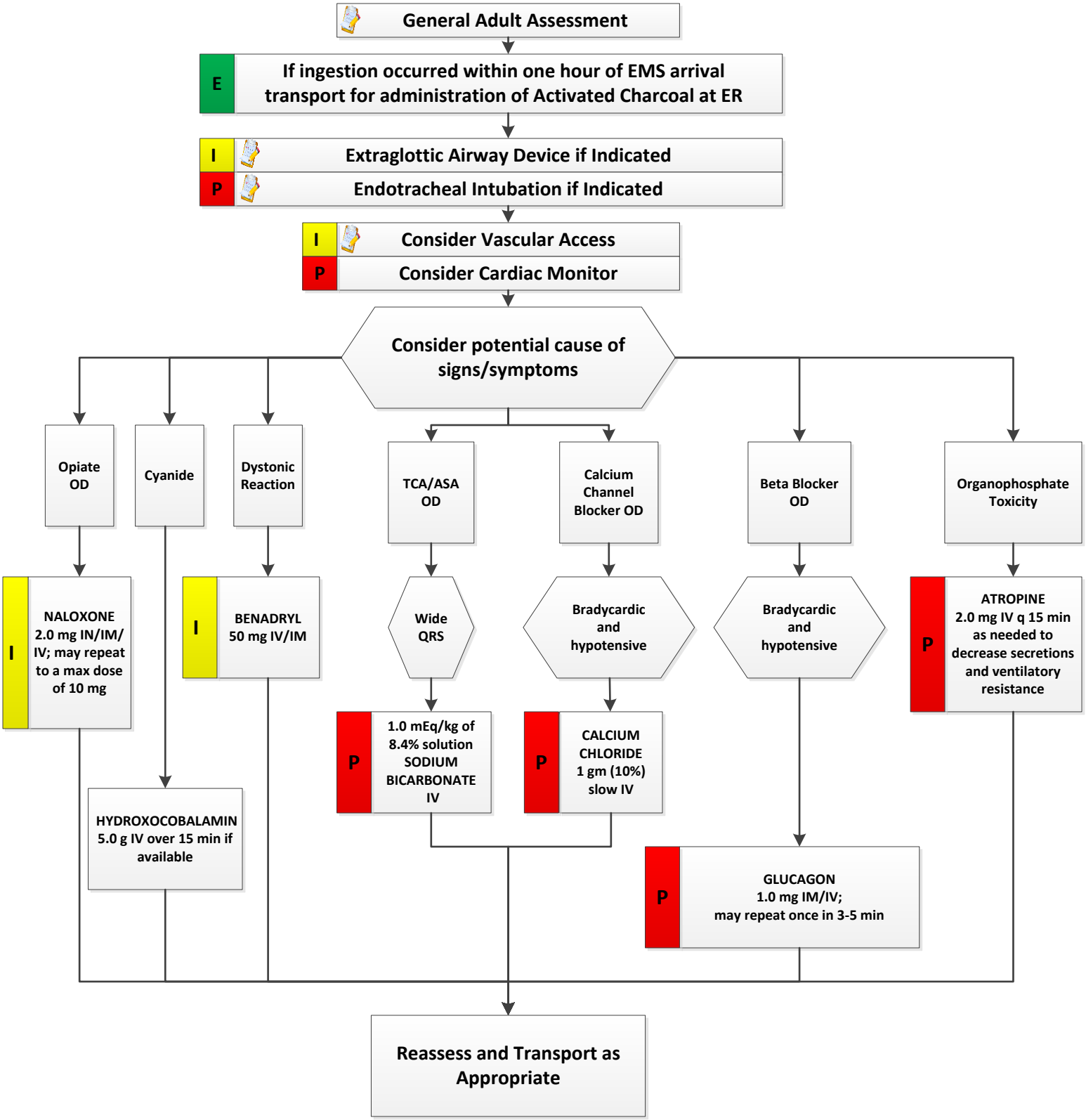
**History**
- Medical history
- Hypertension medication
- Prenatal care
- Prior pregnancies/births
- Previous pregnancy complications

**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-eclapsia.
- 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.

# 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

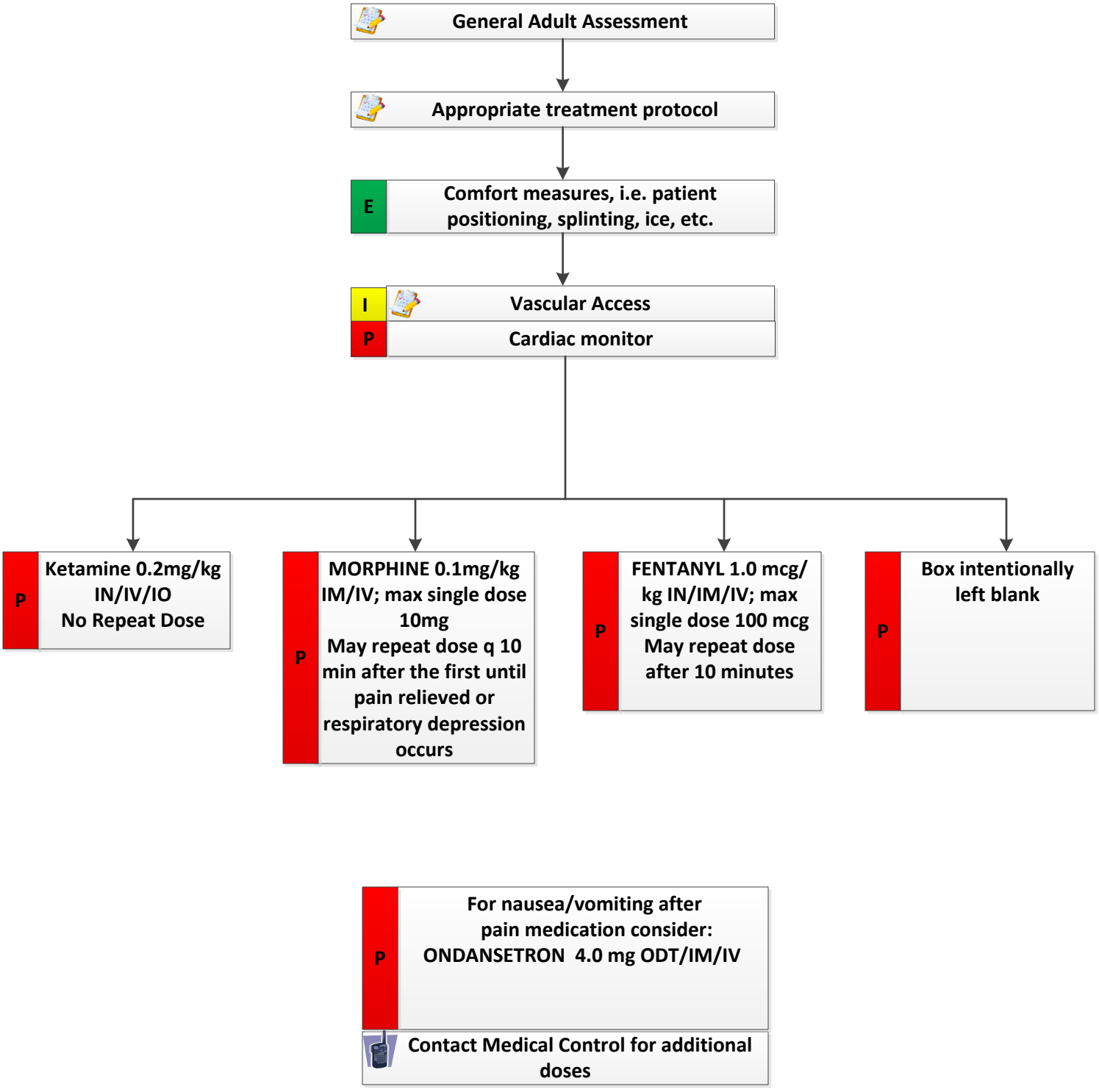
**Signs and Symptoms**
- Mental status changes
- Hypotension/hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures
- SLUDGE
- Malaise, weakness
- GI symptoms
- Dizziness
- Syncope
- Chestpain

**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.
- Calcium Chloride is contraindicated in patients taking digitalis products.
- 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 exrtraglottic 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



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

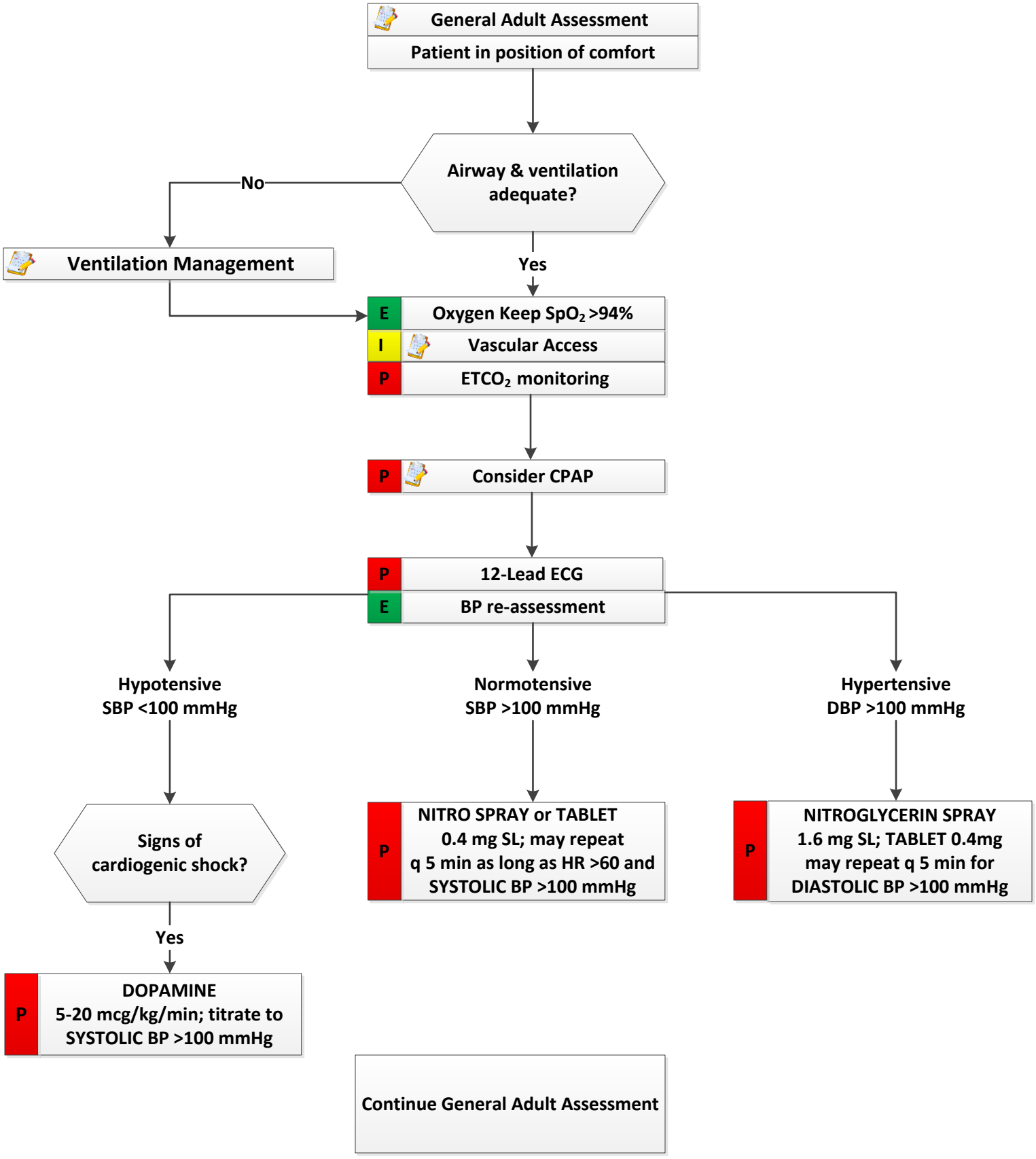
**Signs and Symptoms**
- Severity (pain scale)
- Quality
- Radiation
- Relation to movement, respiration
- Increased with palpation of area

**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 a vital sign 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.
- 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.
- Administration of Droperidol can result in hypotension, QT prolongation and Torsades de Pointes.

- **QI Metrics**
- Vital signs with $O_2$ 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

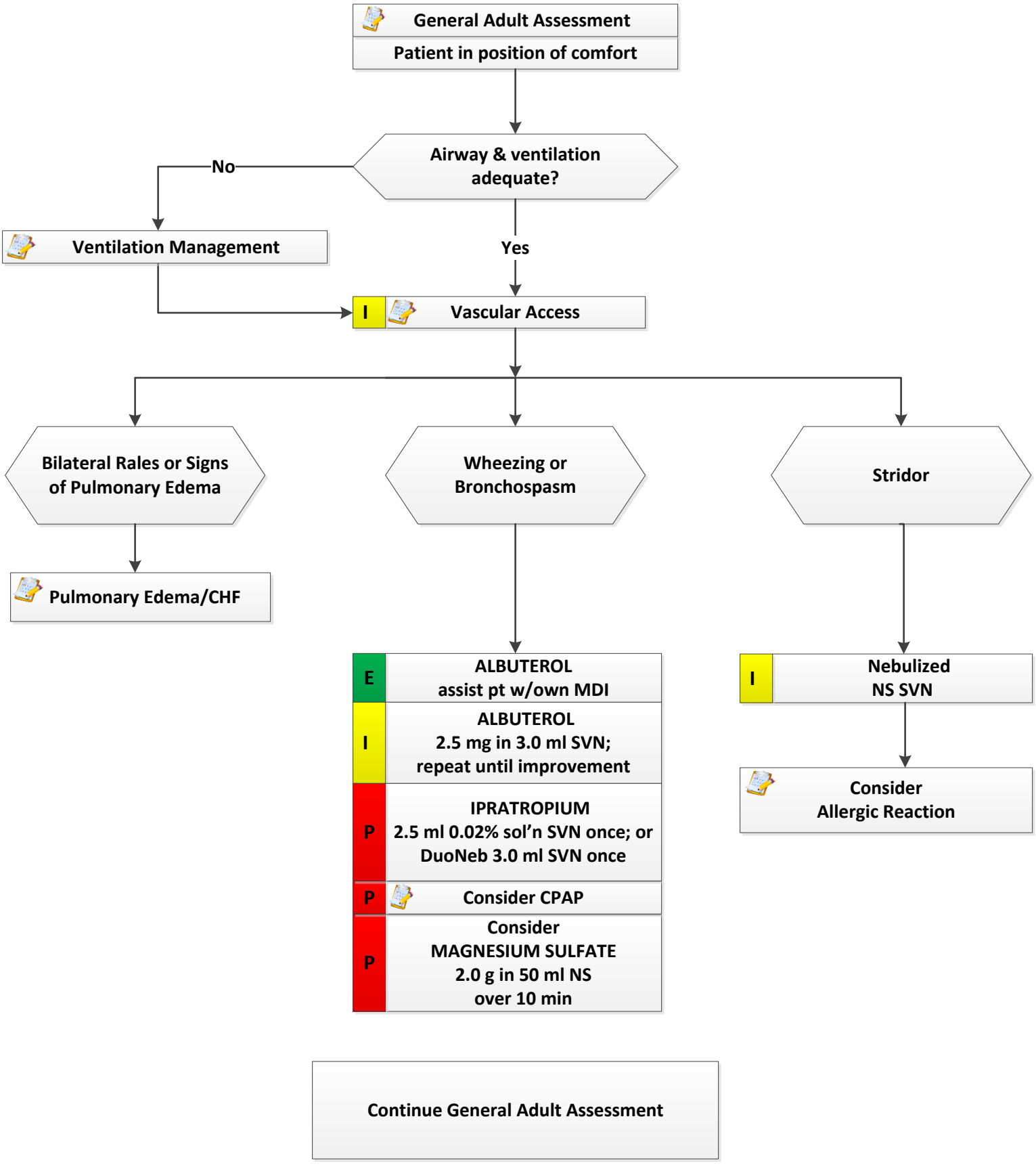
**Signs and Symptoms**
- Respiratory distress, bilateral rales
- Apprehension, orthopnea
- JVD
- Pink, frothy sputum
- Peripheral edema
- Diaphoresis
- Hypotension, shock
- Chest pain

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

**Pearls**
- Avoid administering Nitroglycerin to any patient who has used Viagra or Levitra in the past 24 hours, avoid administering nitroglycerin to any patient who has used Cialis in the past 48 hours.
- Carefully monitor the patient as you administer interventions.
- Consider MI.
- Allow patient to maintain position of comfort.
- Consider dose related effects of Dopamine: 2-10 mcg/kg/min increases myocardial contractility and HR, improves BP via vasoconstriction; 10-20 mcg/kg/min causes vasoconstriction of renal, mesenteric, and peripheral blood vessels that can result in poor perfusion and renal failure.

**QI Metrics**
- Blood pressure reassessed after each nitroglycerin dose.
- CPAP used appropriately.
- $ETCO_2$ monitored.

# Respiratory Distress



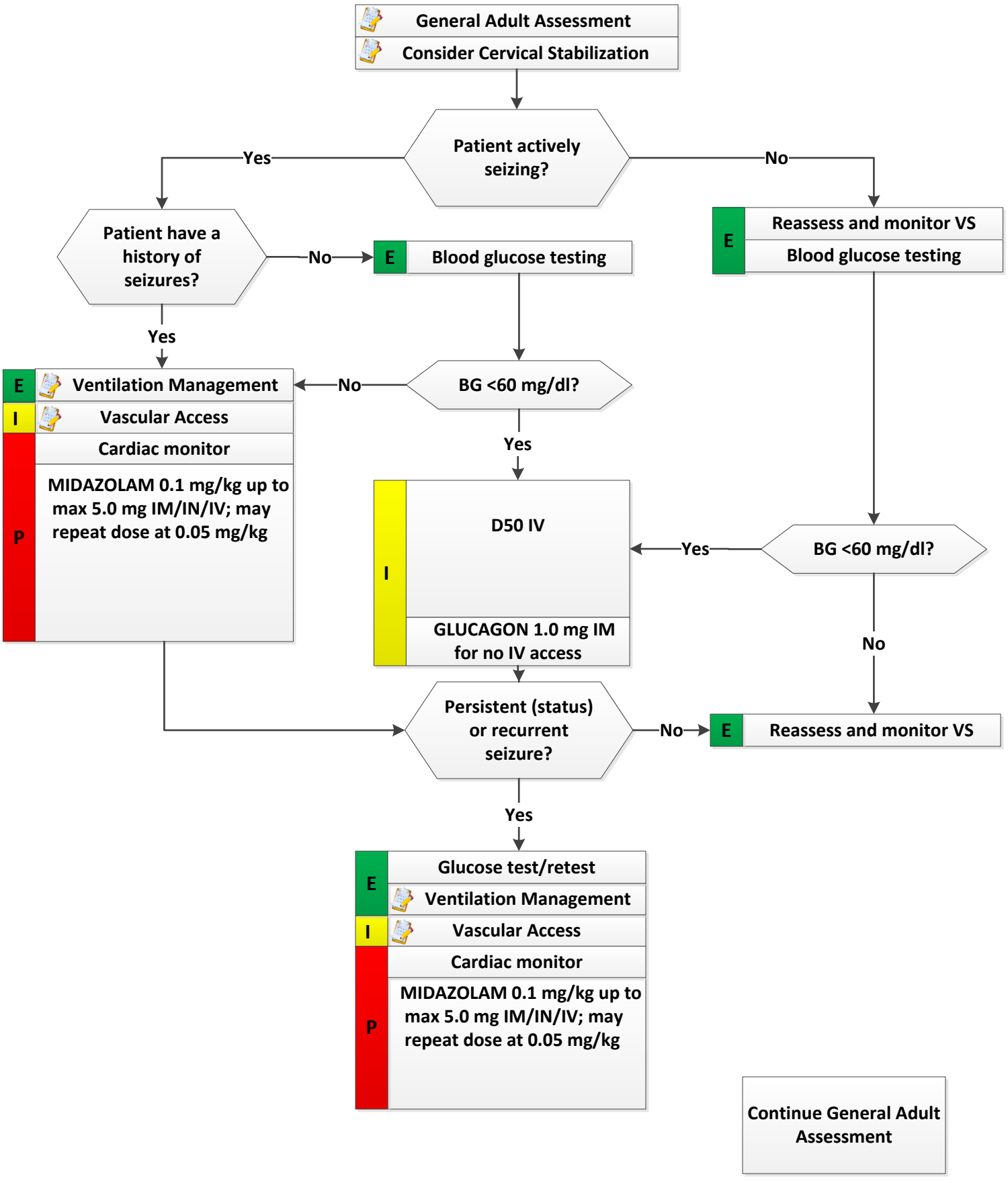
**History**
- Asthma, COPD, CHF, chronic bronchitis, emphysema
- Home treatment (oxygen, nebulizers)
- Medication
- Toxic exposure

**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


General Adult Assessment
Consider Cervical Stabilization
Patient actively seizing?
Yes
No
Patient have a history of seizures?
No
E
Blood glucose testing
Yes
E
Ventilation Management
I
Vascular Access
Cardiac monitor
P
MIDAZOLAM 0.1 mg/kg up to max 5.0 mg IM/IN/IV; may repeat dose at 0.05 mg/kg
No
BG <60 mg/dl?
Yes
I
D50 IV
GLUCAGON 1.0 mg IM for no IV access
E
Reassess and monitor VS
Blood glucose testing
Yes
BG <60 mg/dl?
No
Persistent (status) or recurrent seizure?
No
E
Reassess and monitor VS
Yes
E
Glucose test/retest
Ventilation Management
I
Vascular Access
Cardiac monitor
P
MIDAZOLAM 0.1 mg/kg up to max 5.0 mg IM/IN/IV; may repeat dose at 0.05 mg/kg
Continue General Adult Assessment

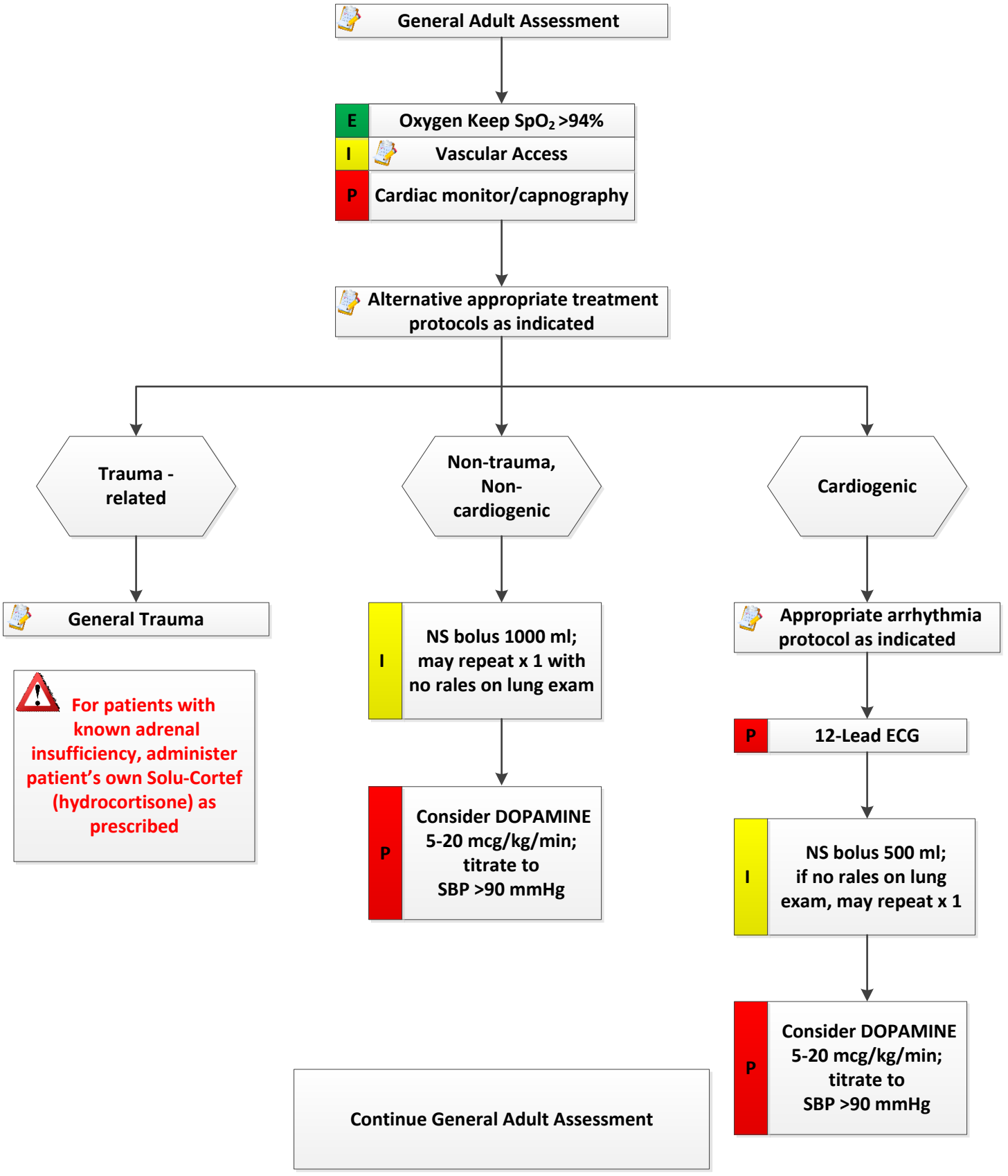
**History**
- Reported or witnessed seizure activity
- Previous seizure history
- Seizure medications
- History of trauma
- History of diabetes
- History of pregnancy
- Time of seizure onset
- Number of seizures
- Alcohol use, abuse, or abrupt cessation
- Fever

**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 $ETCO_2$ monitoring.

# Shock


General Adult Assessment
E
Oxygen Keep SpO2 >94%
I
Vascular Access
P
Cardiac monitor/capnography
Alternative appropriate treatment protocols as indicated
Trauma - related
Non-trauma, Non-cardiogenic
Cardiogenic
General Trauma
For patients with known adrenal insufficiency, administer patient's own Solu-Cortef (hydrocortisone) as prescribed
I
NS bolus 1000 ml; may repeat x 1 with no rales on lung exam
P
Consider DOPAMINE 5-20 mcg/kg/min; titrate to SBP >90 mmHg
Appropriate arrhythmia protocol as indicated
P
12-Lead ECG
I
NS bolus 500 ml; if no rales on lung exam, may repeat x 1
P
Consider DOPAMINE 5-20 mcg/kg/min; titrate to SBP >90 mmHg
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 embolis
- 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.
- 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

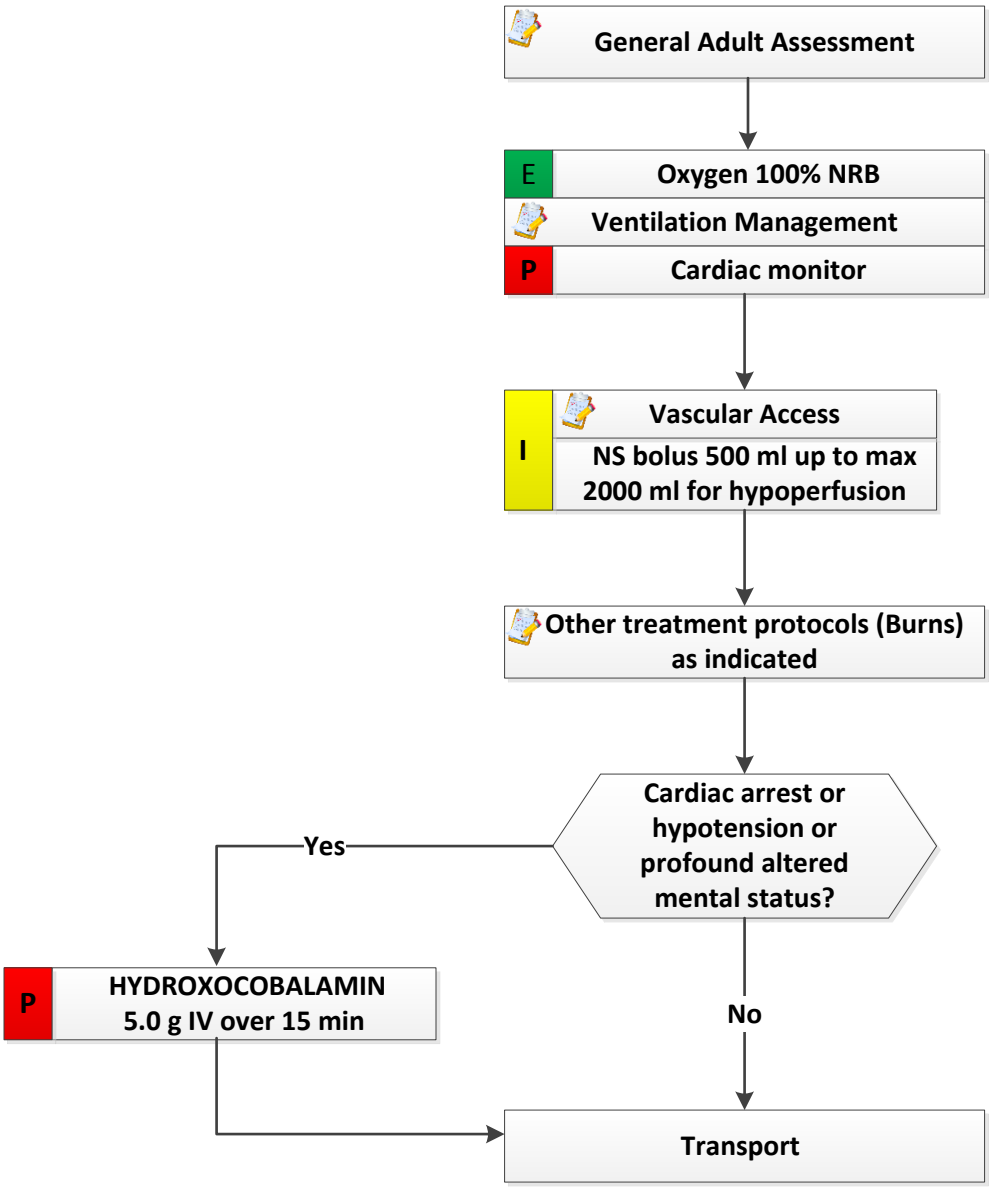
**Distributive shock**
- Sepsis, anaphylaxis, neurogenic, toxins

**Obstructive shock**
- Pericardial tamponade, pulmonary embolus, tension pneumothorax

**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**

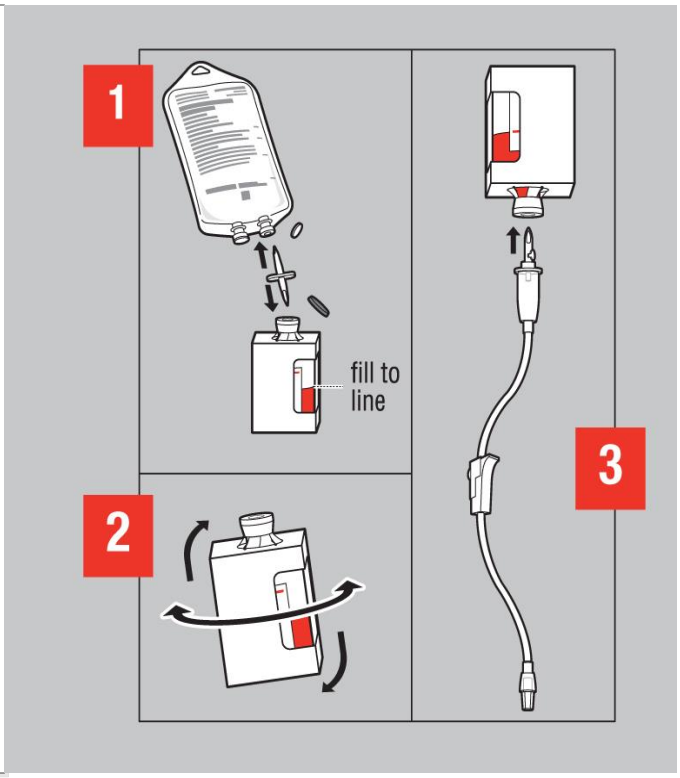
**Complete Starting Dose: 5 g**

**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.**

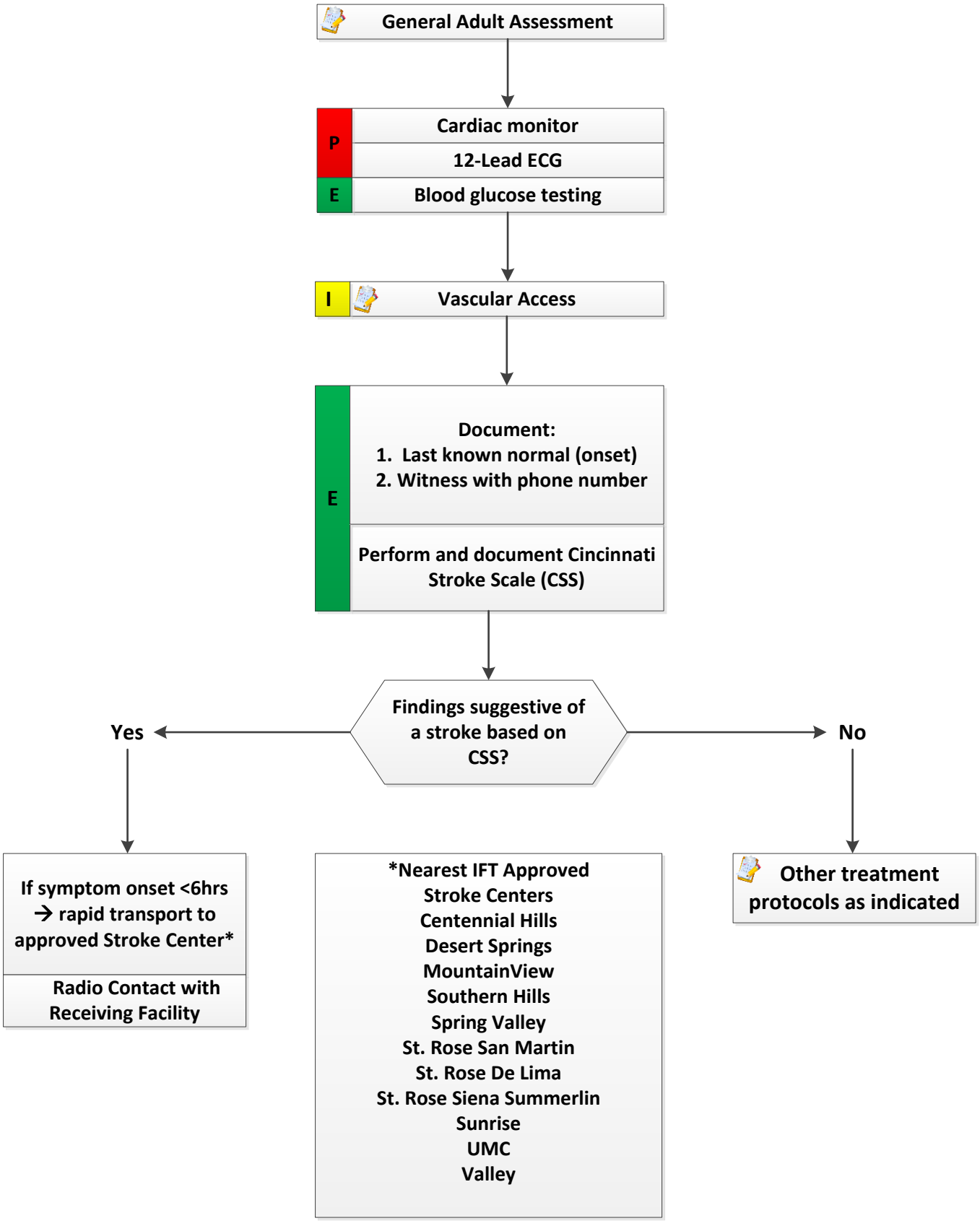
* 0.9% Sodium Chloride Injection is the recommended diluent (diluent not included in the kit). Lactated Ringer's Solution and 5% Dextrose Injection have also been found to be compatible with Hydroxocobalamin.

**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**.



# Stroke (CVA)


General Adult Assessment
P
Cardiac monitor
12-Lead ECG
E
Blood glucose testing
I
Vascular Access
E
Document:
1. Last known normal (onset)
2. Witness with phone number
Perform and document Cincinnati Stroke Scale (CSS)
Findings suggestive of a stroke based on CSS?
Yes
No
If symptom onset <6hrs → rapid transport to approved Stroke Center*
Radio Contact with Receiving Facility
*Nearest IFT Approved Stroke Centers
Centennial Hills
Desert Springs
MountainView
Southern Hills
Spring Valley
St. Rose San Martin
St. Rose De Lima
St. Rose Siena Summerlin
Sunrise
UMC
Valley
Other treatment protocols as indicated

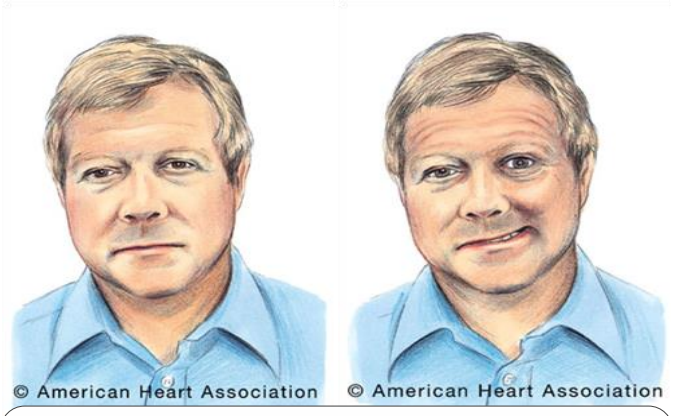
**History**
- Previous CVA, TIAs
- Previous cardiac/vascular surgery
- Associated diseases: diabetes, HTN, CAD
- Atrial fibrillation
- Medications
- History of trauma

**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.

**Stroke centers**
- Centennial Hills
- Desert Springs
- MountainView
- Southern Hills
- Spring Valley
- St. Rose de Lima
- St. Rose San Martin
- St. Rose Siena
- Summerlin
- Sunrise
- UMC
- Valley




Facial Droop
- Normal: Both sides of face move equally
- Abnormal: One side of face does not move at all

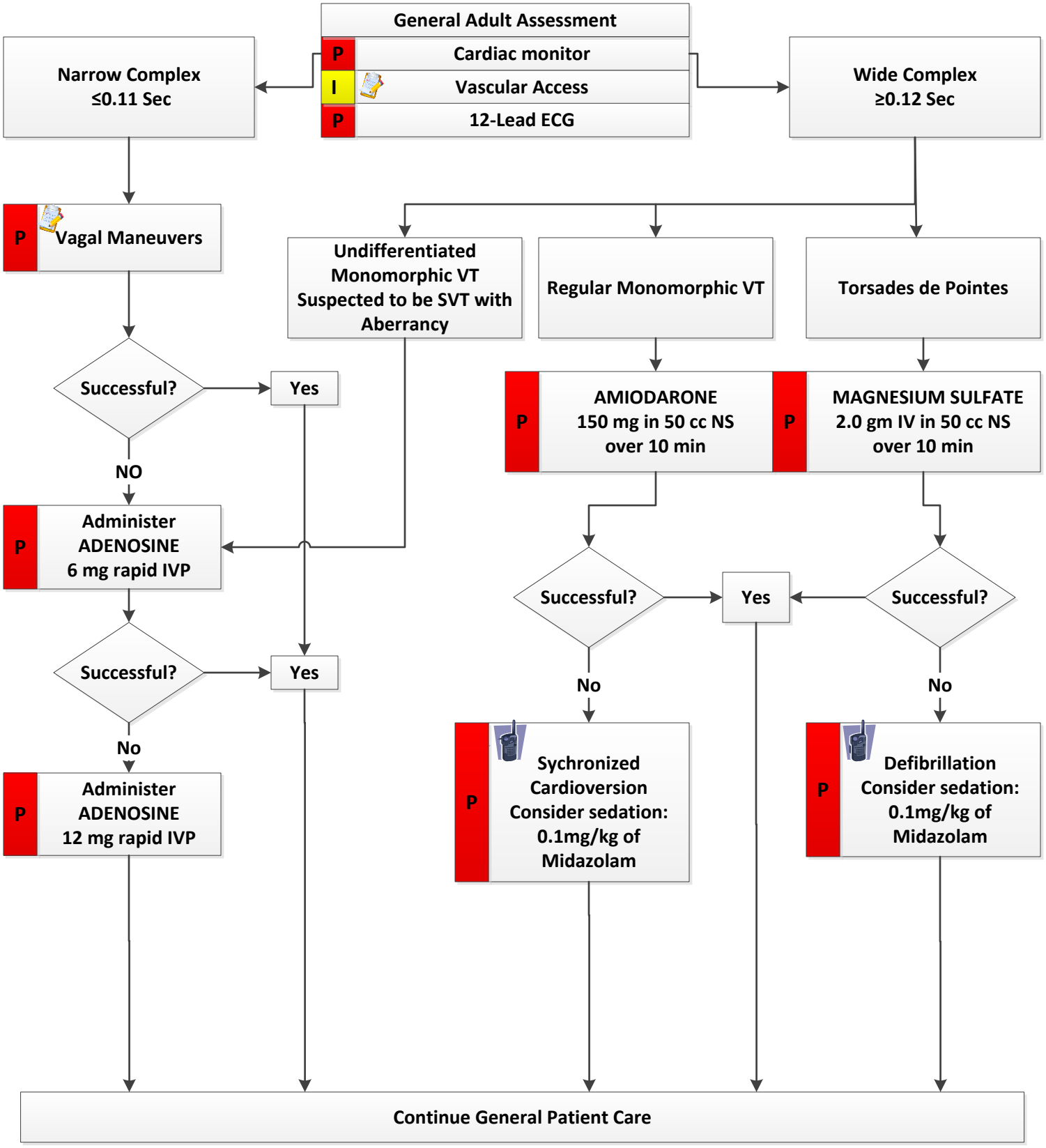
**QI Metrics**
- Cincinnati Stroke Scale completed.
- Time of symptom onset documented.
- Blood glucose documented.
- 12 lead ECG completed.
- Scene time <10 min.

**QI Metrics:**
1. **Cincinnati Stroke Scale and time of symptom onset documented**
2. **Blood Glucose documented**
3. **12-Lead ECG done**
4. **Scene time <10 min**


Arm Drift
- Normal: Both arms move equally well, or not at all.
- Abnormal: One arm drifts compared to the other.

Speech
- Normal: Uses correct words without slurring.
- Abnormal: No speech, or slurred or inappropriate words.

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



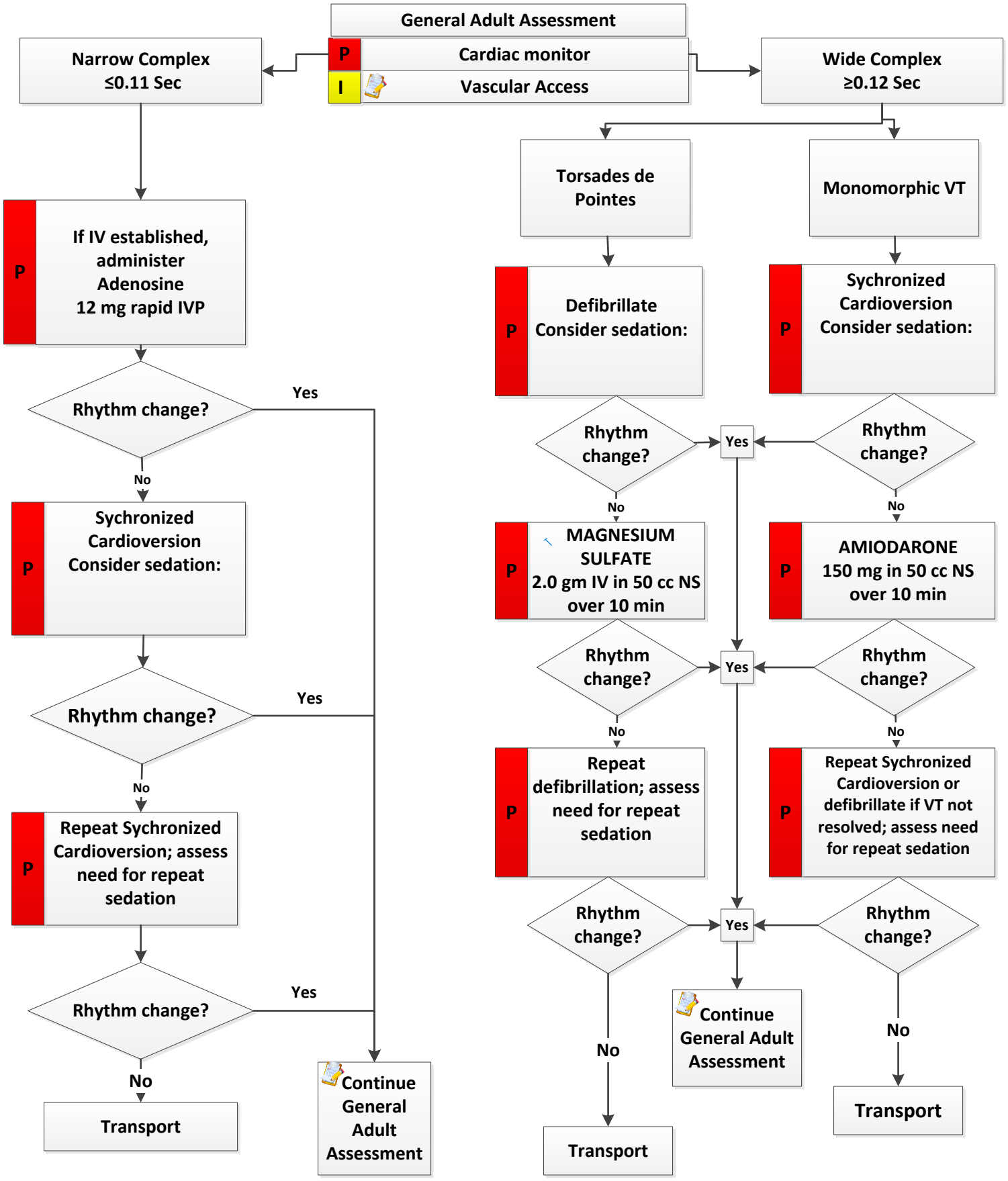
**History**
- Medications (aminophylline, diet pills, thyroid supplements, decongestants, digoxin)
- Diet (caffeine)
- Drugs (cocaine, methamphetamines)
- Past medical history
- Syncope/near syncope
- History of palpitations/racing heart

**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

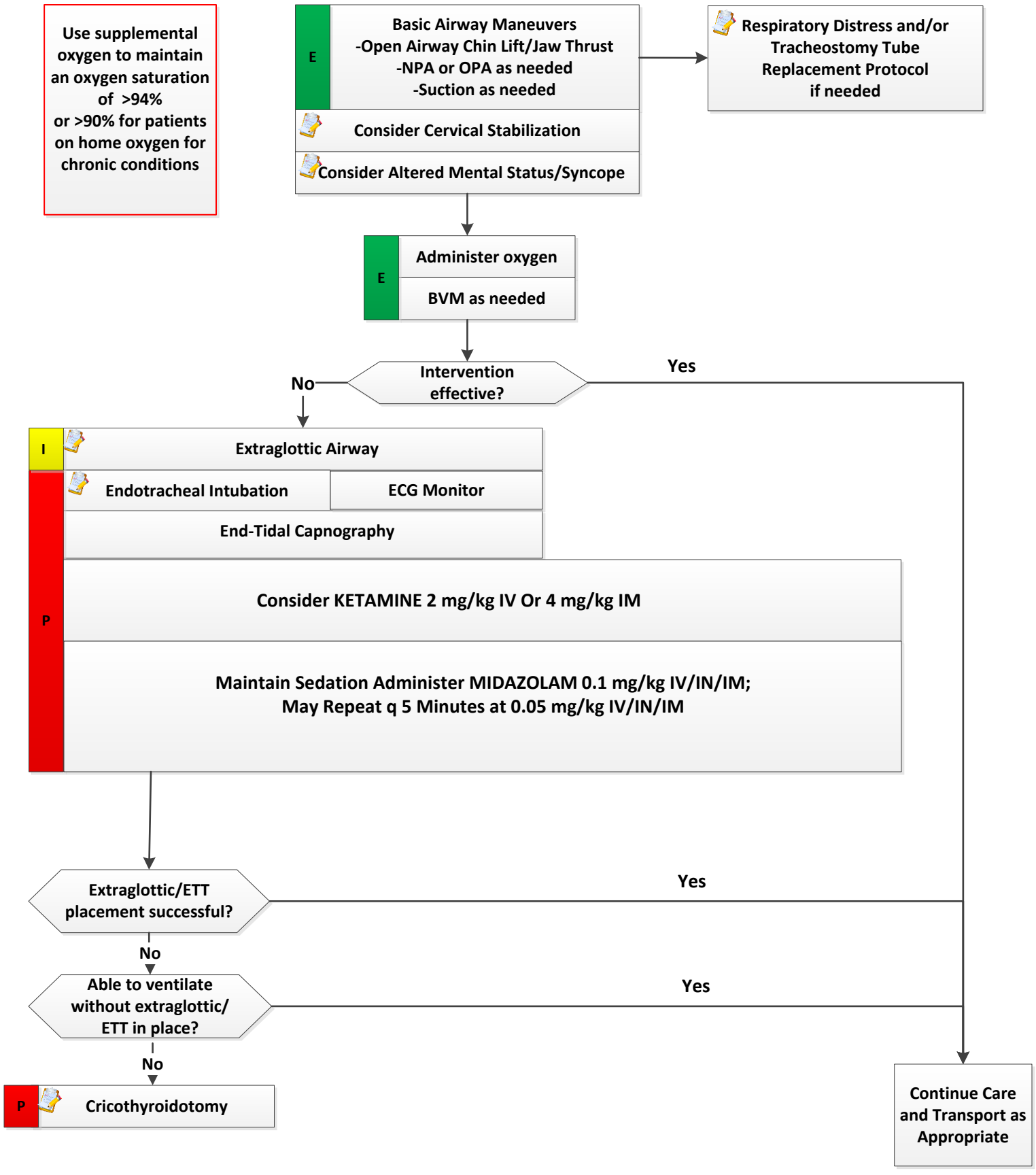
**Differential**

- 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



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**bese 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:** **L**ook externally for anatomical distortions (small mandible, short neck, large tongue); **E**valuate 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 / Obese or late pregnancy; **N**eck mobility.

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

***Orotracheal intubation is the preferred choice.***

**Pearls**

- Capnometry (Color) or capnography is mandatory with all methods of intubation. Document results.
- Continuous capnography ($ETCO_2$) 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 CPAP 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 $ETCO_2$ 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.
- Cricoid pressure and BURP maneuver may assist with difficult intubations. They may worsen view in some cases.
- 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

# General Pediatric Assessment

Scene Safety / Scene Size-Up
Nature of Call / Mechanism of Injury
PPE / BSI
Bring all equipment to patient's side, including Broselow Tape

→ S.T.A.R.T. Triage

| | | | |
|---|---|---|---|
| Level of Consciousness | Unresponsive → | Check Pulse | None or <60 → Cardiac Arrest |
| Airway | Signs of compromise or not protecting → | | Ventilation Management |
| Breathing | Inadequate or respiratory distress → | | Respiratory Distress |
| Circulation | Bleeding → | | Hemorrhage Control Tourniquet |
| Disability | Altered or confused → | | Altered Mental Status/ Syncope |

- History – HPI & AMPLE
- Vital Signs & Physical Exam
- E — Blood glucose testing as indicated
- Specific treatment protocol as indicated
- Cervical Stabilization as indicated
- Comfort measures (splint, position of comfort)
- P — Cardiac monitor as indicated
- I — Vascular Access as indicated
- Oxygen therapy to keep $SpO_2$ ≥94%
- P — Pain Management as indicated

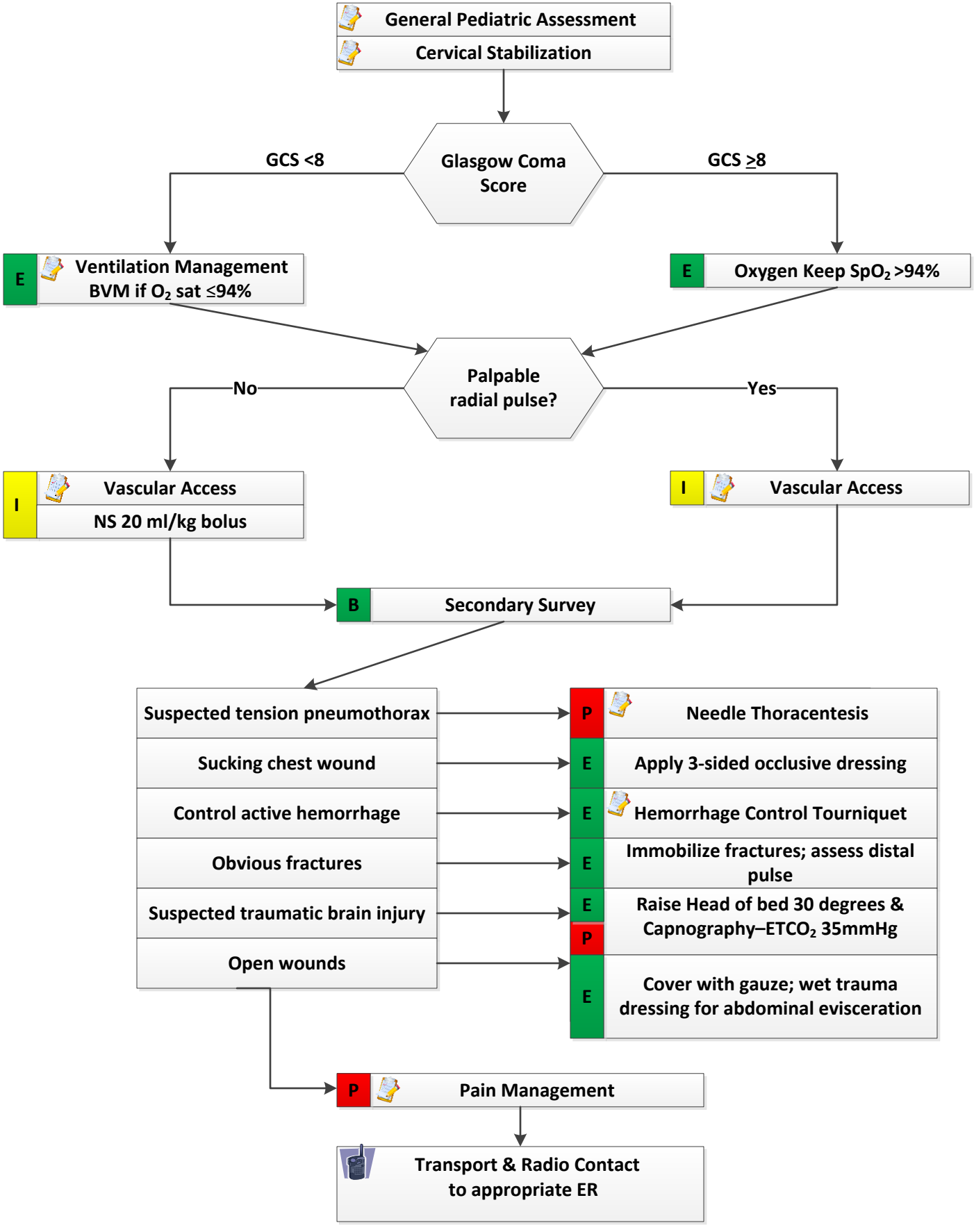
Radio Contact for all pediatric patients.

→ Transport to closest facility for:
- Airway emergencies (unable to oxygenate/ventilate)

**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 VVMC at 928-788-3048.

# General Pediatric Trauma Assessment



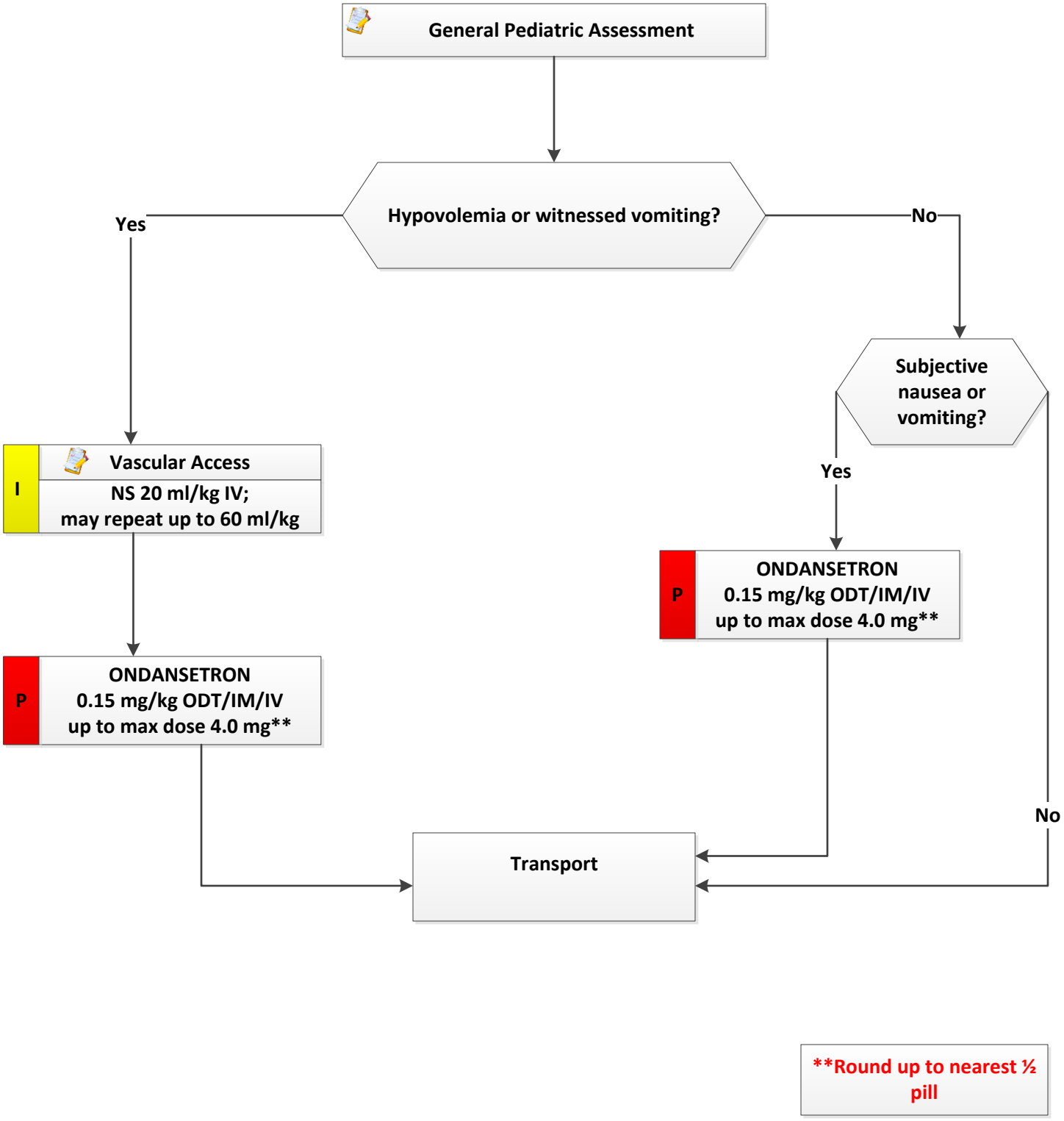
**History**
- Time and mechanism of injury
- Damage to structure or vehicle
- Location in structure or vehicle
- Others injured or dead
- Speed and details of MVC
- Restraints/protective equipment
- Past medical history
- Medications

**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 would
- 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 oximetery can be maintained ≥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

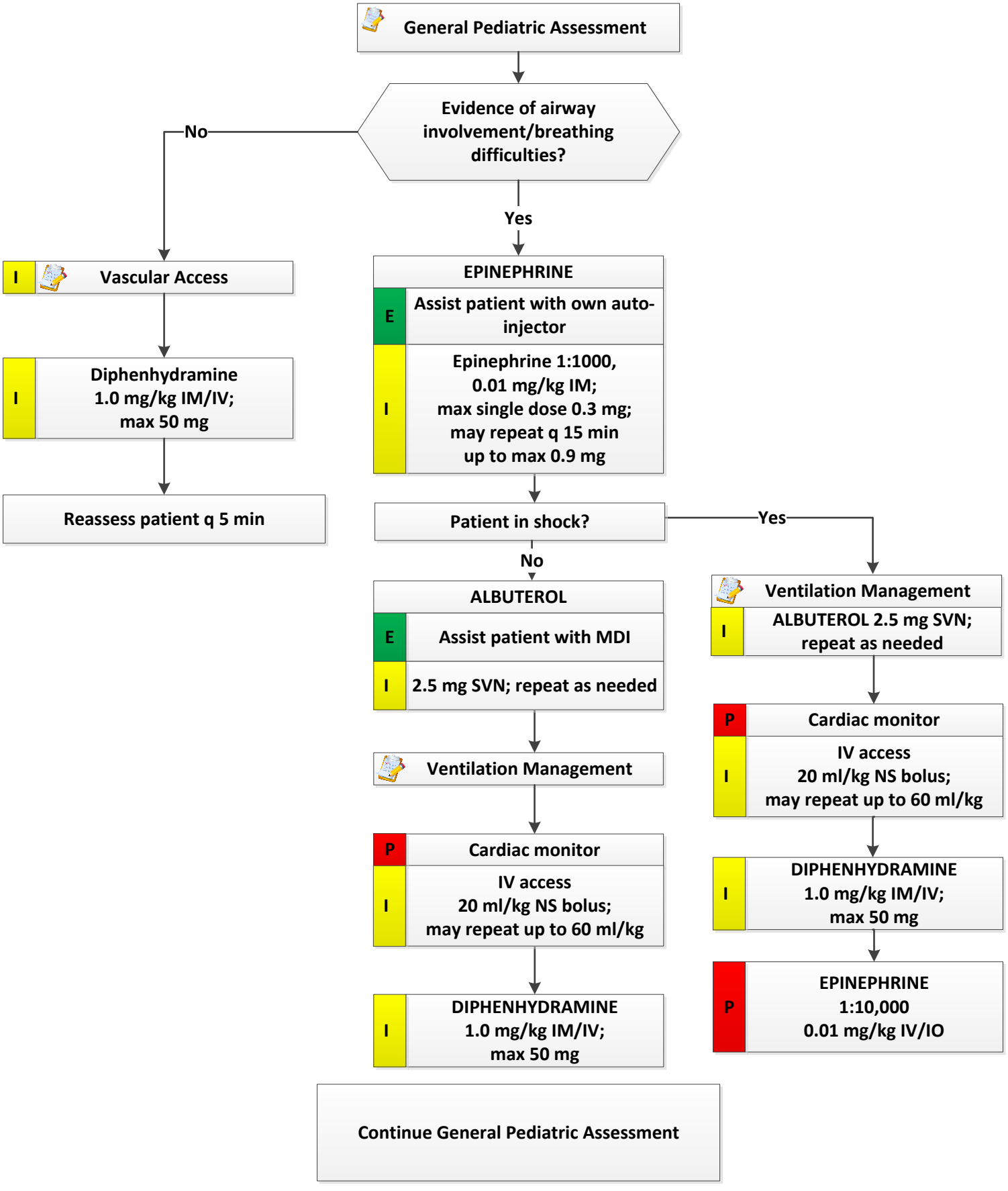
**History**
- Age
- Medical/surgical history
- Onset
- Quality
- Severity
- Fever

**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 anti-emetics & 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.
- Morphine is not recommended in children for abdominal pain.
- Consider cardiac and $ETCO_2$ monitoring.

# Pediatric 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

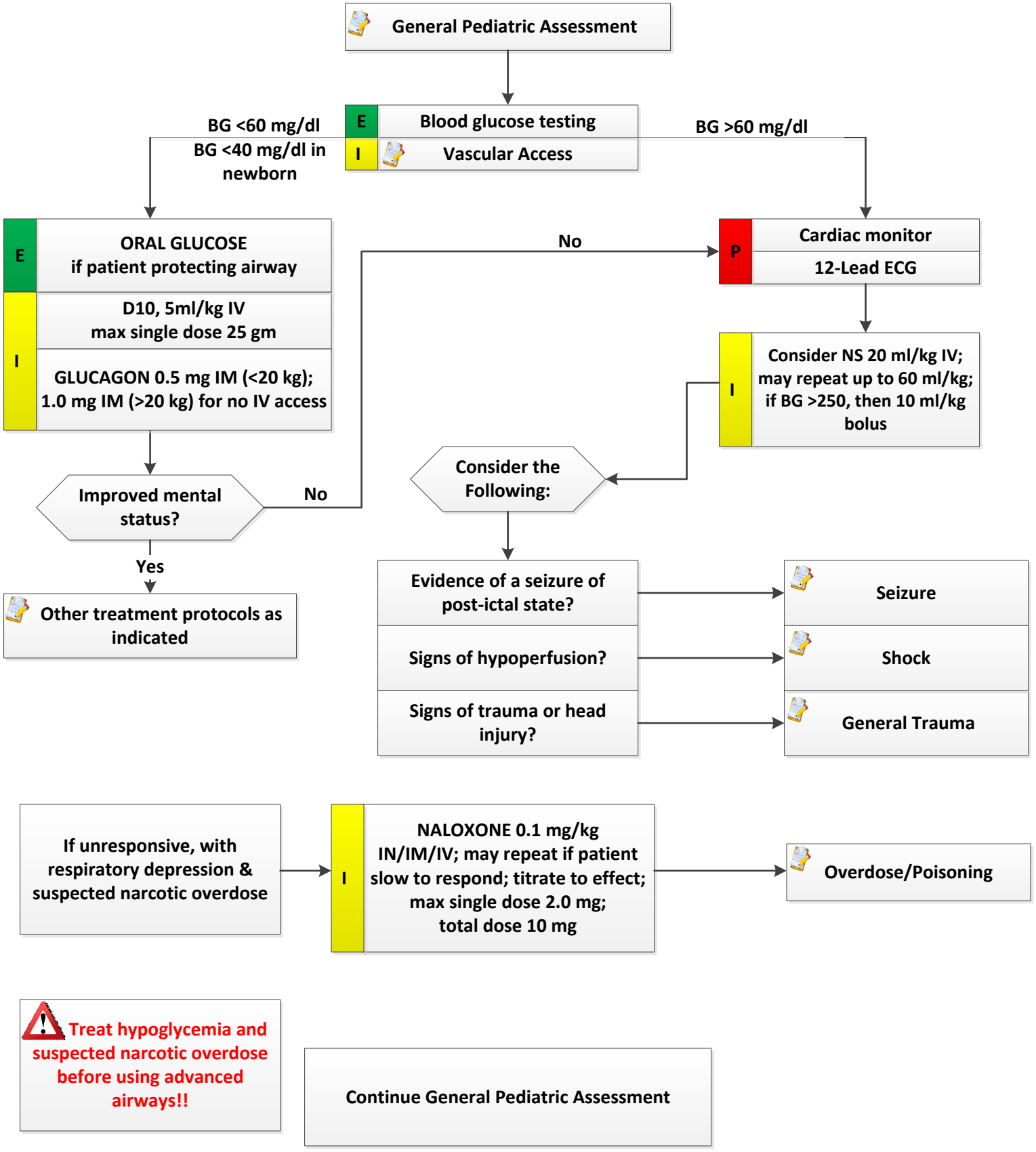
## Pearls
- Recommended Exam: Mental Status, Skin, Heart, Lung.
- Anaphylaxis is an acute and potentially lethal multisystem allergic reaction.
- Epinephrine is a first-line drug that should be administered in acute anaphylaxis (moderate/severe symptoms). IM Epinephrine (1:1,000) should be administered in priority before or during attempts at IV or IO access.
- Anaphylaxis refractory to repeat doses of IM Epinephrine may require IV Epinephrine (1:10,000) administration by IV push or Epinephrine infusion.
- Contact Medical Control for refractory anaphylaxis.

## Severity
- **Mild** reactions involve skin rashes, itchy sensation or hives with no respiratory involvement.
- **Moderate** reactions involve skin disorders and may include some respiratory involvement like wheezing, yet the patient still maintains good tidal volume air exchange.
- **Severe** reactions involve skin disorders, respiratory difficulty, and may include hypotension.

## Special Considerations
- Always perform ECG monitoring when administering Epinephrine.
- Consider Dopamine for hypotension refractory to administration of Epinephrine.
- Provide oxygen and airway support as needed.

## 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

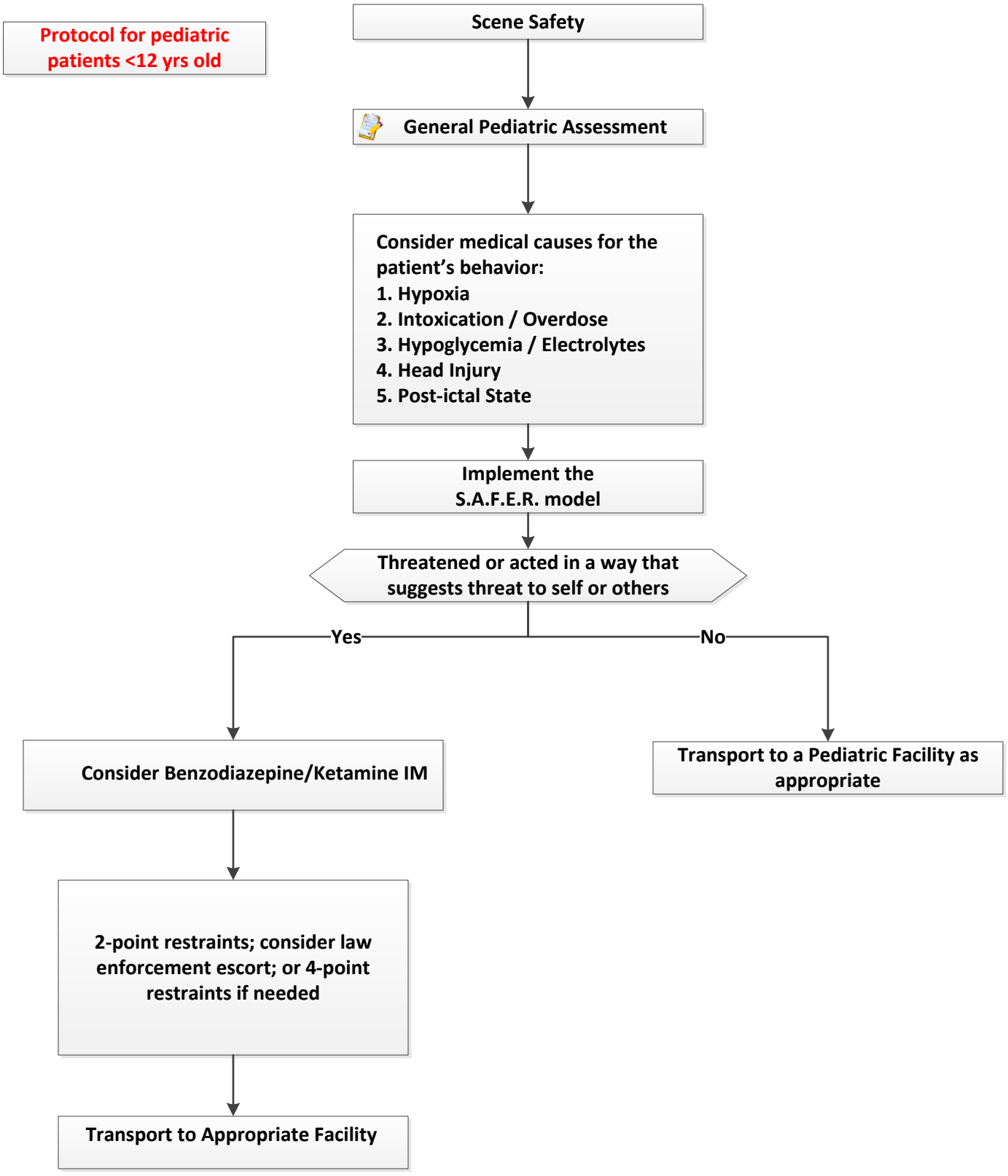
**Differential**

- 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 or Glucose prior to advanced airway procedures.
- Narcan is not recommended in the newly born.

# Pediatric Behavioral Emergency



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

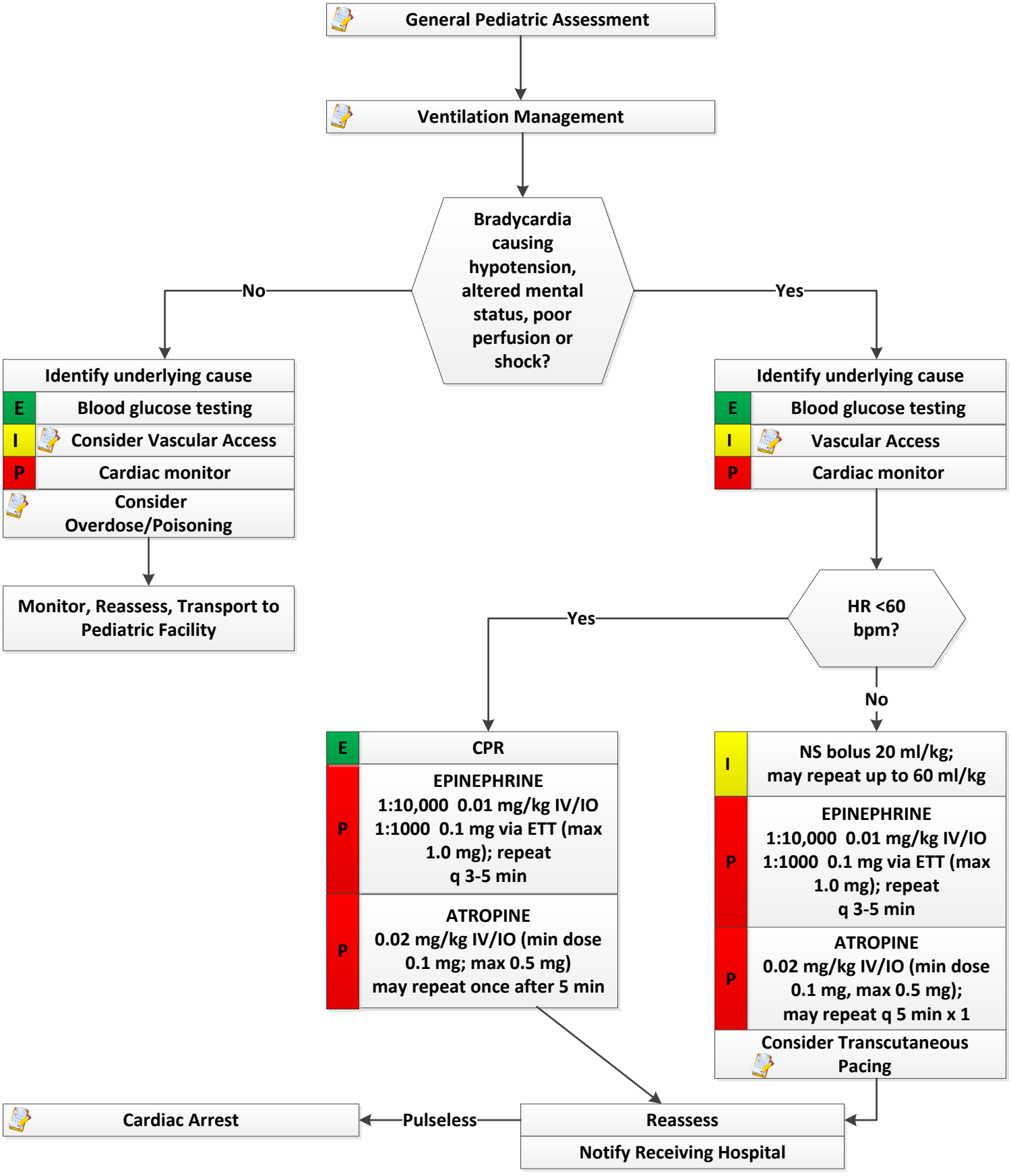
**Signs and Symptoms**
- Anxiety, agitation, confusion
- Affect change, hallucinations
- Delusional thoughts, bizarre behavior
- Combative, violent
- Expression of suicidal/ homicidal thoughts

**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 $ETCO_2$ 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.

# 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

General Pediatric Assessment

Thermal Exposure

Stop the burning process with water or saline
Remove smoldering clothing and jewelry
Do not remove STUCK clothing

Ventilation Management

Cover burned area with dry sterile dressing
DO NOT USE any ice, lotion, ointment or antiseptic!

I Vascular Access

IVF – NS 20 ml/kg fluid bolus if signs of hypoperfusion, OR >10% BSA burn present.
If no improvement in patient condition, administer additional fluid challenges up to 60 ml/kg.

P Cardiac monitor

P Pain Management

Consider Smoke Inhalation

Protect from hypothermia!

Chemical/Electrical Exposure

P Cardiac monitor

Eye Involvement?
Continuous saline flush in affected eyes.
Flush with water or NS for 10-15 min

Remove jewelry, constricting items, and expose burned area

Identify entry and exit sites, apply sterile dressings

I Vascular Access

IVF – NS 20 ml/kg fluid bolus if signs of hypoperfusion, OR >10% BSA burn present.
If no improvement in patient condition, administer additional fluid challenges up to 60 ml/kg.

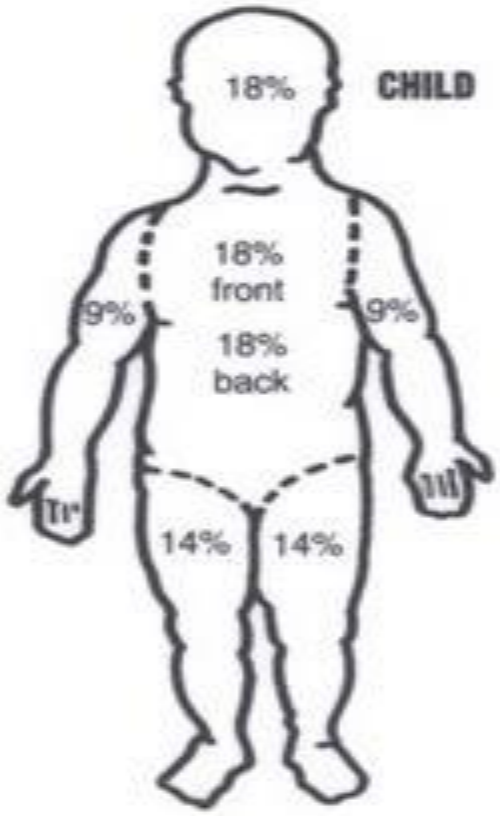
P Pain Management

Transport for evaluation

**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 (1st degree) – red and painful
- Partial Thickness (2nd degree) – blistering
- Full Thickness (3rd 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.
- Early intubation is required when the patient experiences 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.
- Burn patients are prone to hypothermia - never apply ice or cool burns; must maintain normal body temperature.
- Evaluate the possibility of child abuse with children and burn injuries.
- Consider $ETCO_2$ monitoring.

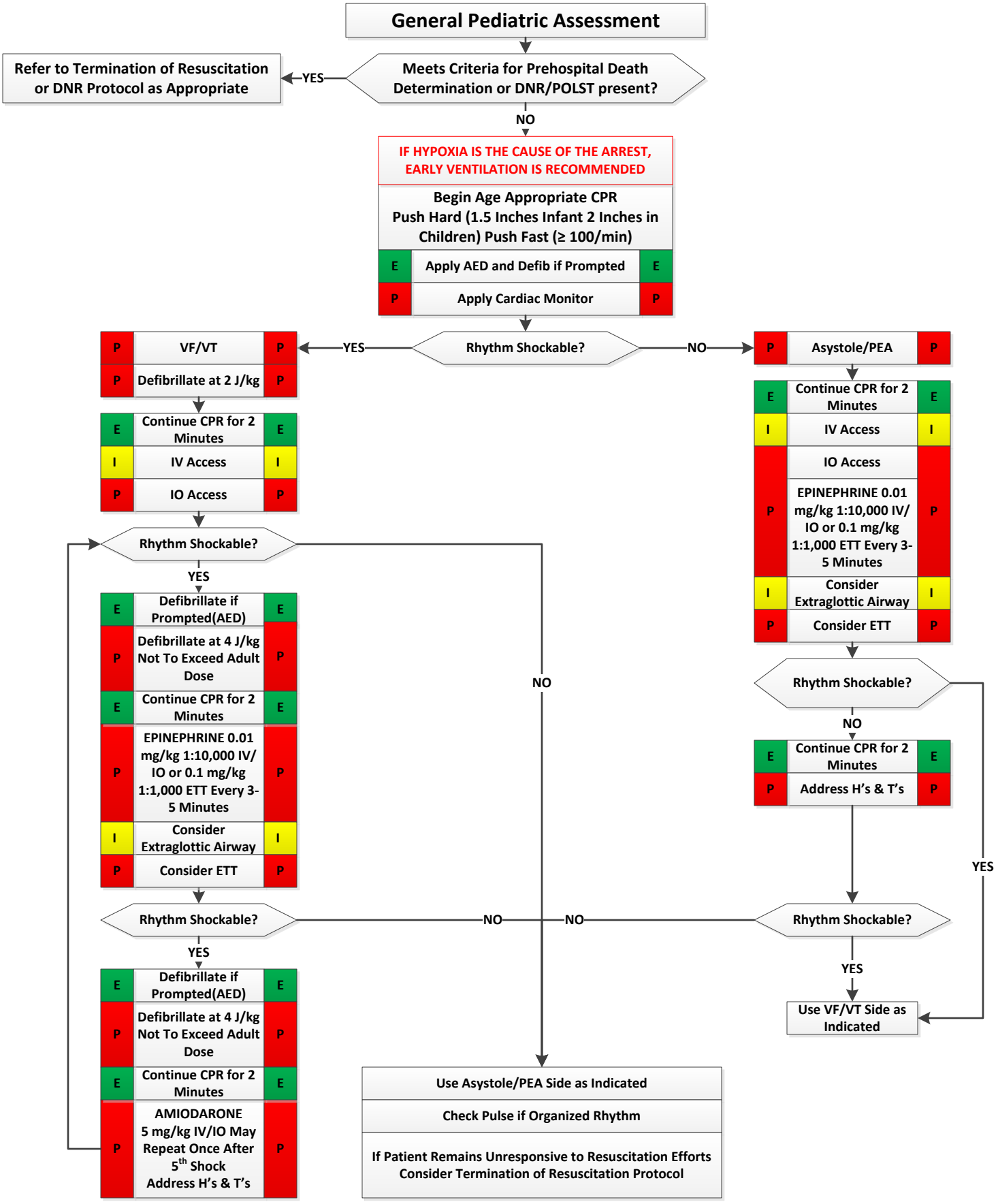
**Patients meeting the following criteria shall be transported ER for transfer to Pediatric Burn Center:**
1. Second and/or third degree burns >20% body surface area (BSA).
2. Second and/or third degree burns >10% body surface area (BSA) in patients under 10 years old or over 50 years old.
3. Burns that involve the face, hands, feet, genitalia, perineum or major joints.
4. Electrical burns, including lightning injury.
5. Chemical burns.
6. Circumferential burns.
7. Inhalational injury.

**Parkland Formula for Fluid Replacement:**
**4 ml x (body wt in kg) x (% BSA burned) = total fluids for 24 hrs**
Give ½ in the first 8 hrs; give remainder over next 16 hrs.

**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 Pediatric



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

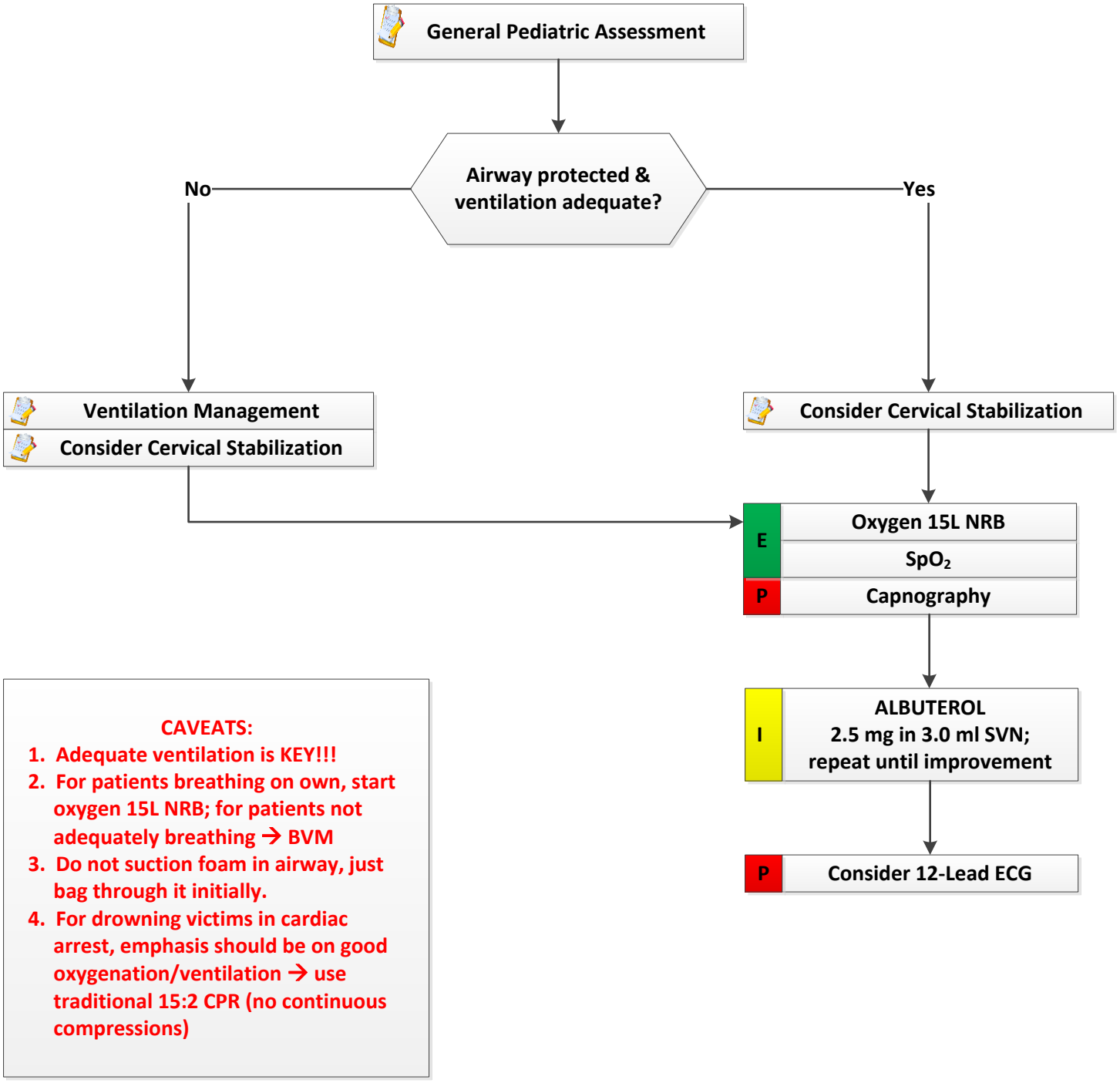
**Signs and Symptoms**
- Unresponsive
- Apneic
- Pulseless

**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 and continuous compressions with limited interuptions and early defibrillation when indicated.
- Consider early IO placement if IV is difficult.
- DO NOT HYPERVENTILATE.
- Reassess and document ETT placement using auscultation and $ETCO_2$ 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 15kg.

**H's & T's (reversible causes)**
- Hypovolemia – Volume infusion
- Hypoxia – Oxygenation & ventilation, CPR
- Hydrogen ion (acidosis) – Ventilation, CPR
- Hypo/Hyperkalemia – Calcium Chloride, Glucose, 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

# Pediatric Drowning




**CAVEATS:**

1. Adequate ventilation is KEY!!!
2. For patients breathing on own, start oxygen 15L NRB; for patients not adequately breathing → BVM
3. Do not suction foam in airway, just bag through it initially.
4. For drowning victims in cardiac arrest, emphasis should be on good oxygenation/ventilation → use traditional 15:2 CPR (no continuous compressions)

Continue General Pediatric Assessment

**History**
- Submersion in water regardless of depth
- Possible history of trauma (dive)
- Duration of immersion
- Temperature of water or possibility of hypothermia
- Degree of water contamination

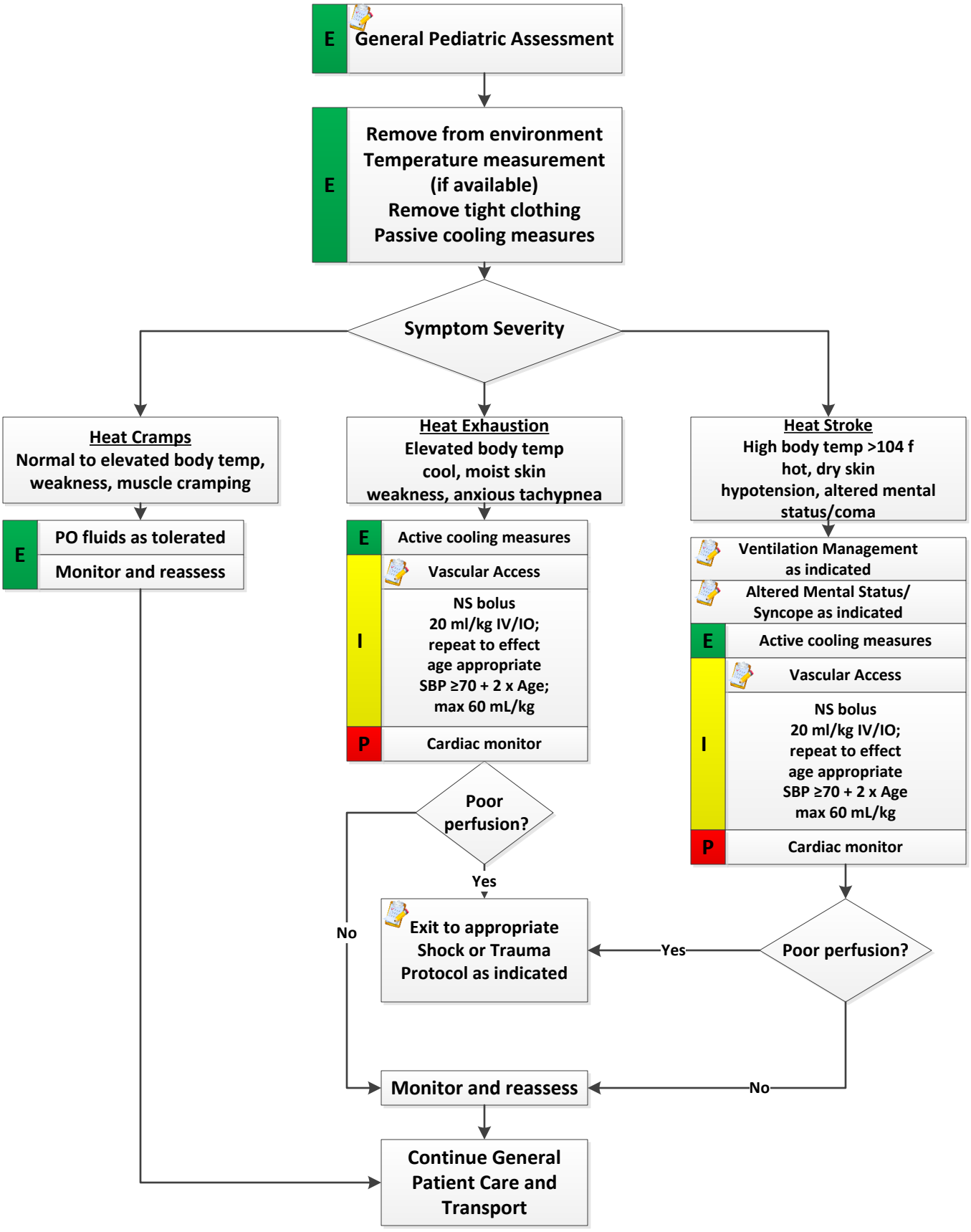
**Signs and Symptoms**
- Unresponsive
- Mental status changes
- Decreased or absent vital signs
- Vomiting
- Coughing, wheezing, rales, stridor, rhonchi
- Apnea
- Frothy/foamy sputum

**Differential**
- Trauma
- Pre-existing medical condition
- Barotrauma
- Decompression illness
- Post-immersion syndrome

**Pearls**
- Recommended Exam: Trauma Survey, Head, Neck, Chest, Abdomen, Back, Extremities, Skin, Neuro.
- Ensure scene safety.
- Hypothermia is often associated with submersion incidents.
- All patients should be transported for evaluation because of potential for worsening over the next several hours.

CAVEATS:
1. Adequate ventilation is KEY!!!
2. For patients breathing on own, start oxygen 15L NRB; for patients not adequately breathing → BVM
3. Do not suction foam in airway, just bag through it initially.
4. For drowning victims in cardiac arrest, emphasis should be on good oxygenation/ventilation → use traditional 15:2 CPR (no continuous compressions)

# Pediatric Environmental Illness / Hyperthermia



**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

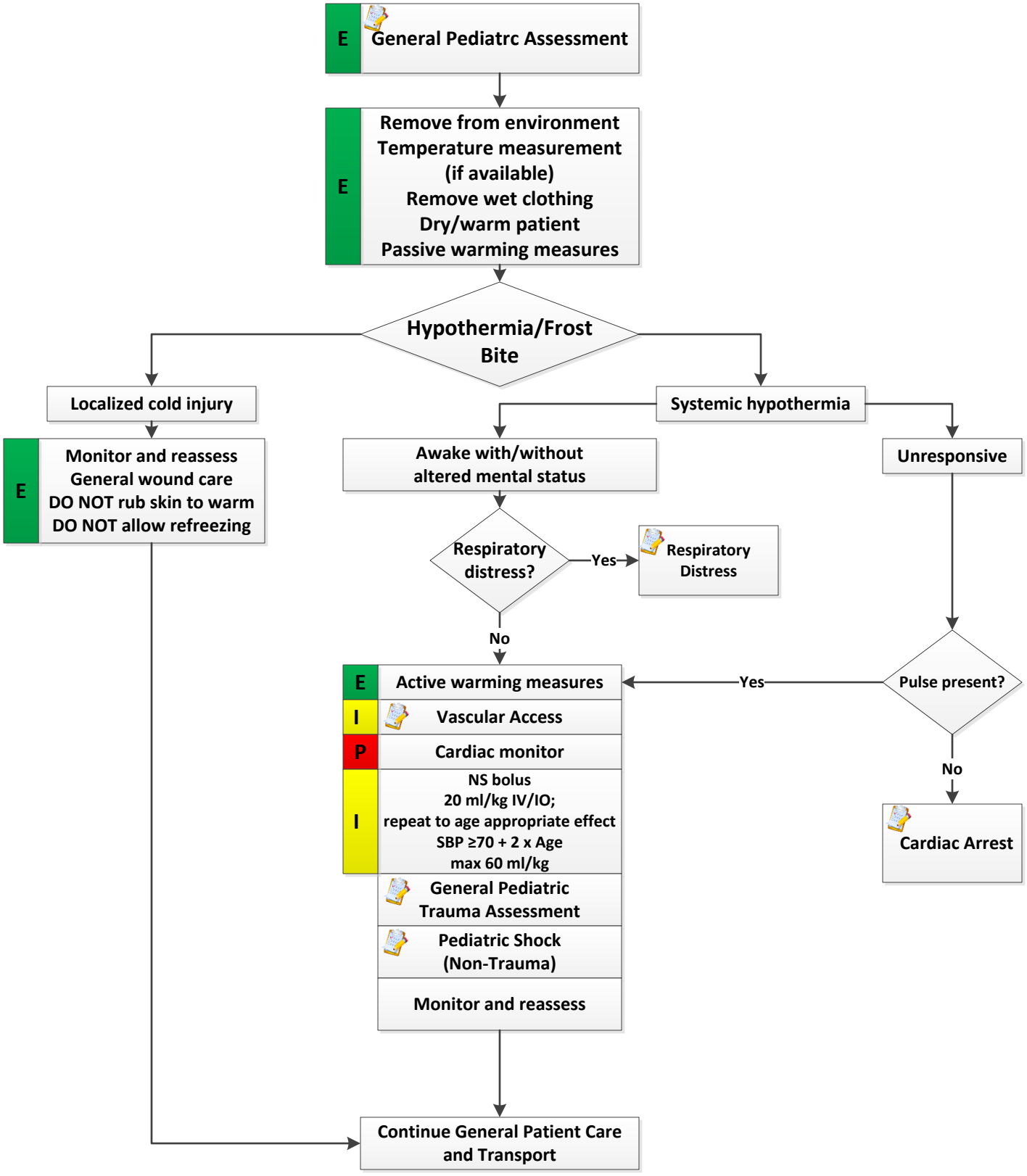
**Pearls**
- Recommended exam: Mental Status, Skin, Heart, Lung, Abdomen, Extremities, Neuro.
- Extremes of age are more prone to heat emergencies.
- Cocaine, amphetamines, and salicylates may elevate body temperatures.
- Sweating generally disappears as body temperatures rise over 104° F (40° C).
- 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.

**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.

# Pediatric Environmental Illness / Hypothermia



**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

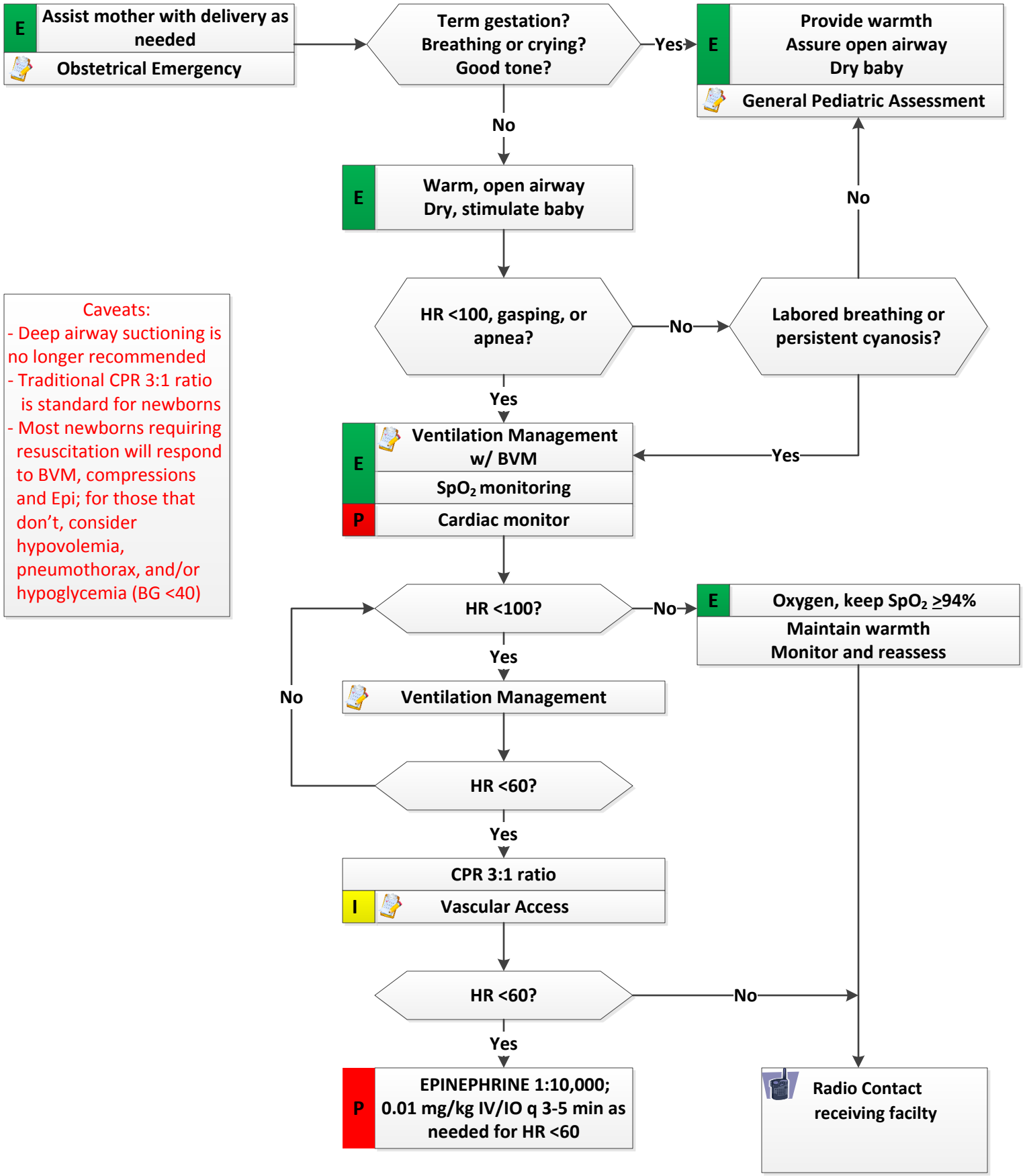
**Differential**
- Sepsis
- Environmental exposure
- Hypoglycemia
- Stroke
- Head injury
- Spinal cord injury

**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

# Neonatal Resuscitation



**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

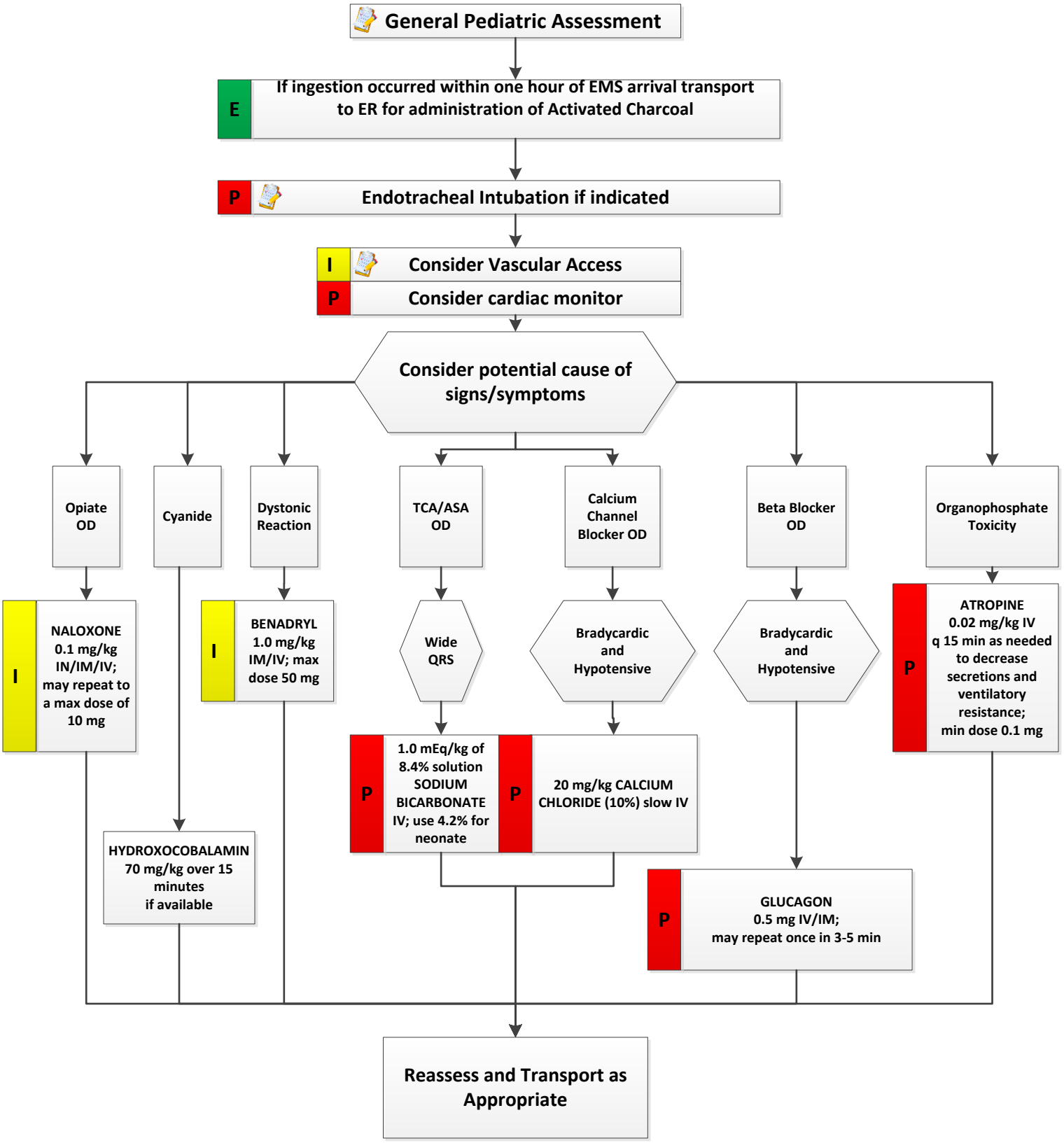
**Differential**
- Abnormal presentation (breech, limb)
- Prolapsed cord
- Placenta previa
- Abruptio placenta

**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.

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

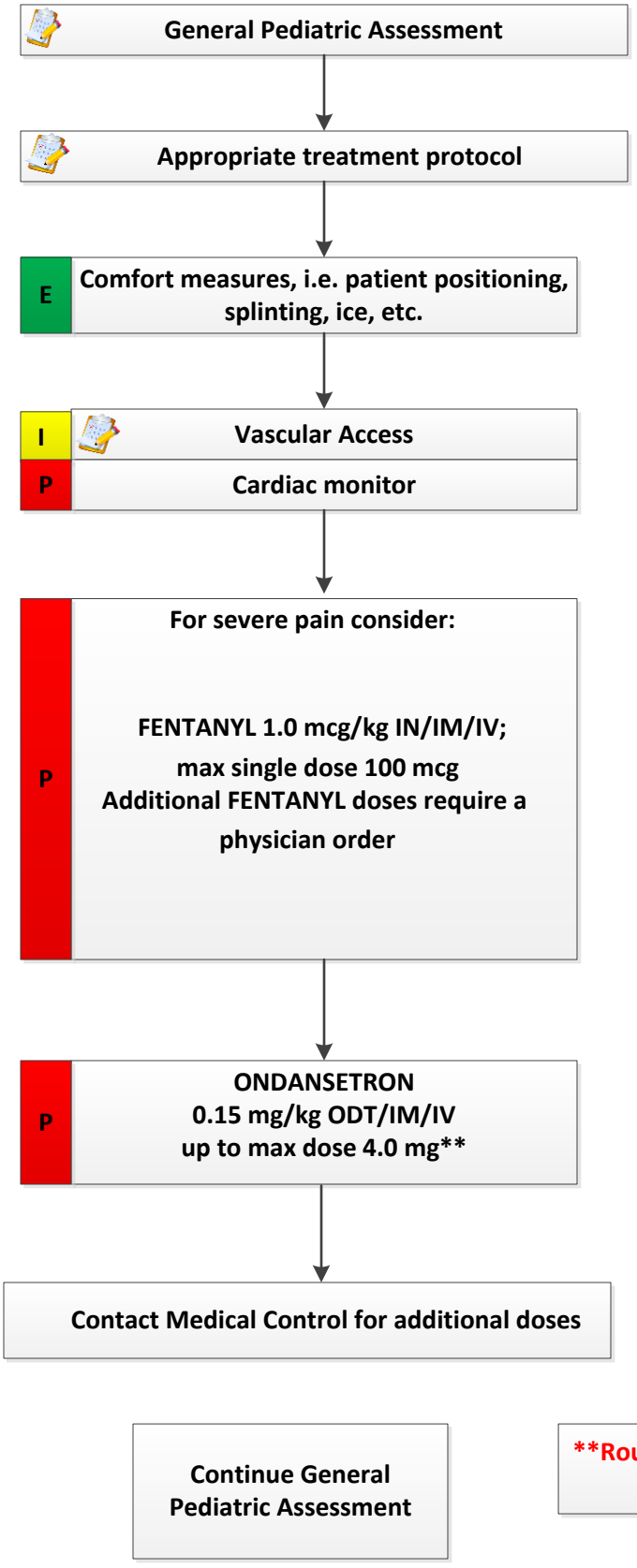
**Signs and Symptoms**
- Mental status changes
- Hypotension/hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures
- SLUDGE
- Malaise, weakness
- GI symptoms
- Dizziness
- Syncope
- Chestpain

**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.
- Recommended exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Neuro.
- Calcium Chloride is contraindicated in patients taking digitalis products.
- 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
- Do not use Activated Charcoal if altered mental status, caustic, hydrocarbon or heavy metal ingestion.

**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




Continue General Pediatric Assessment

**Round up to nearest ½ pill

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

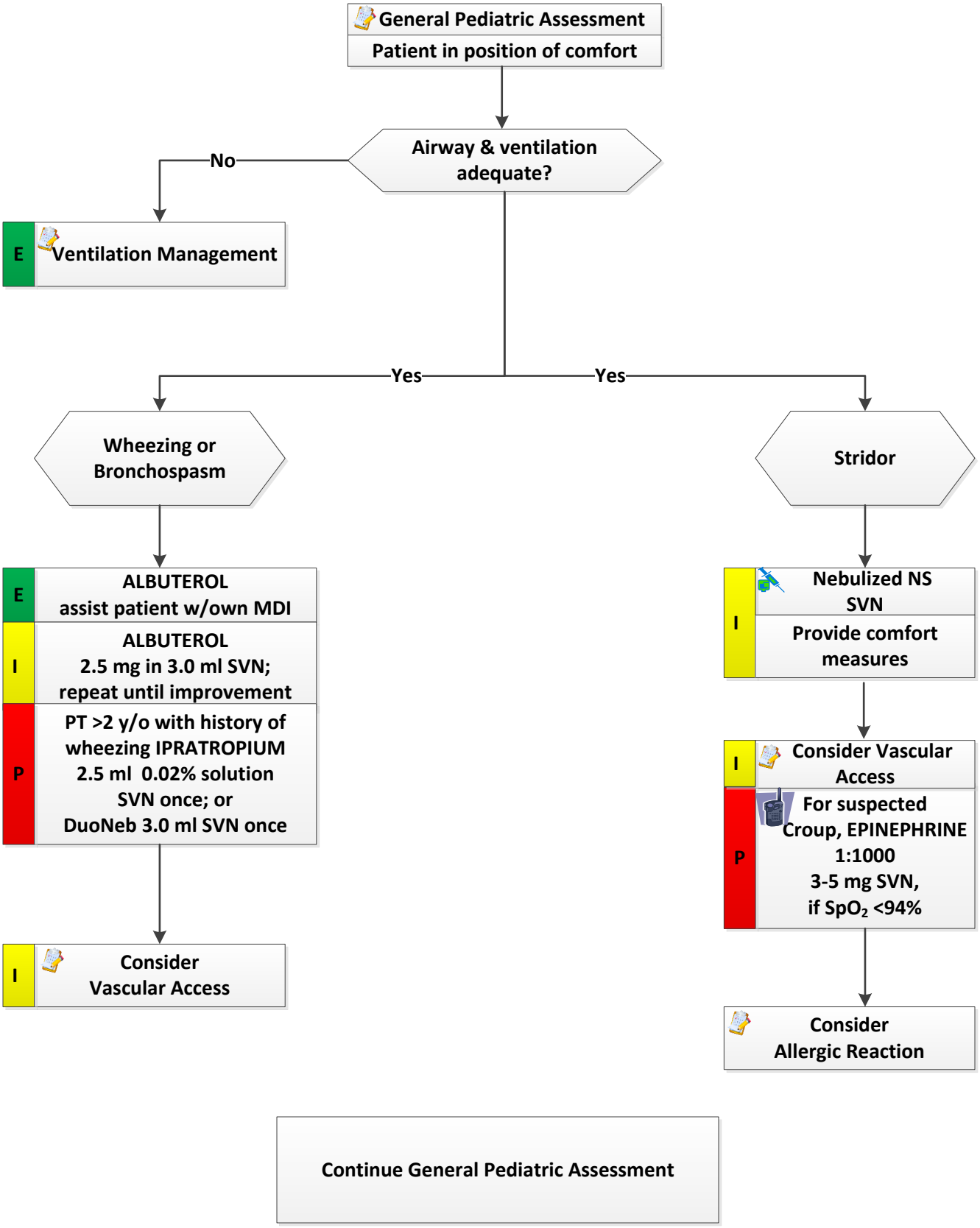
**Signs and Symptoms**
- Severity (pain scale)
- Quality
- Radiation
- Relation to movement, respiration
- Increased with palpation of area

**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 a vital sign 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.
- 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.

**QI Metrics**
- Vital signs with $O_2$ sats documented.
- Pain scale documented before and after each intervention.
- Repeat vital signs after each intervention.

# Pediatric Respiratory Distress



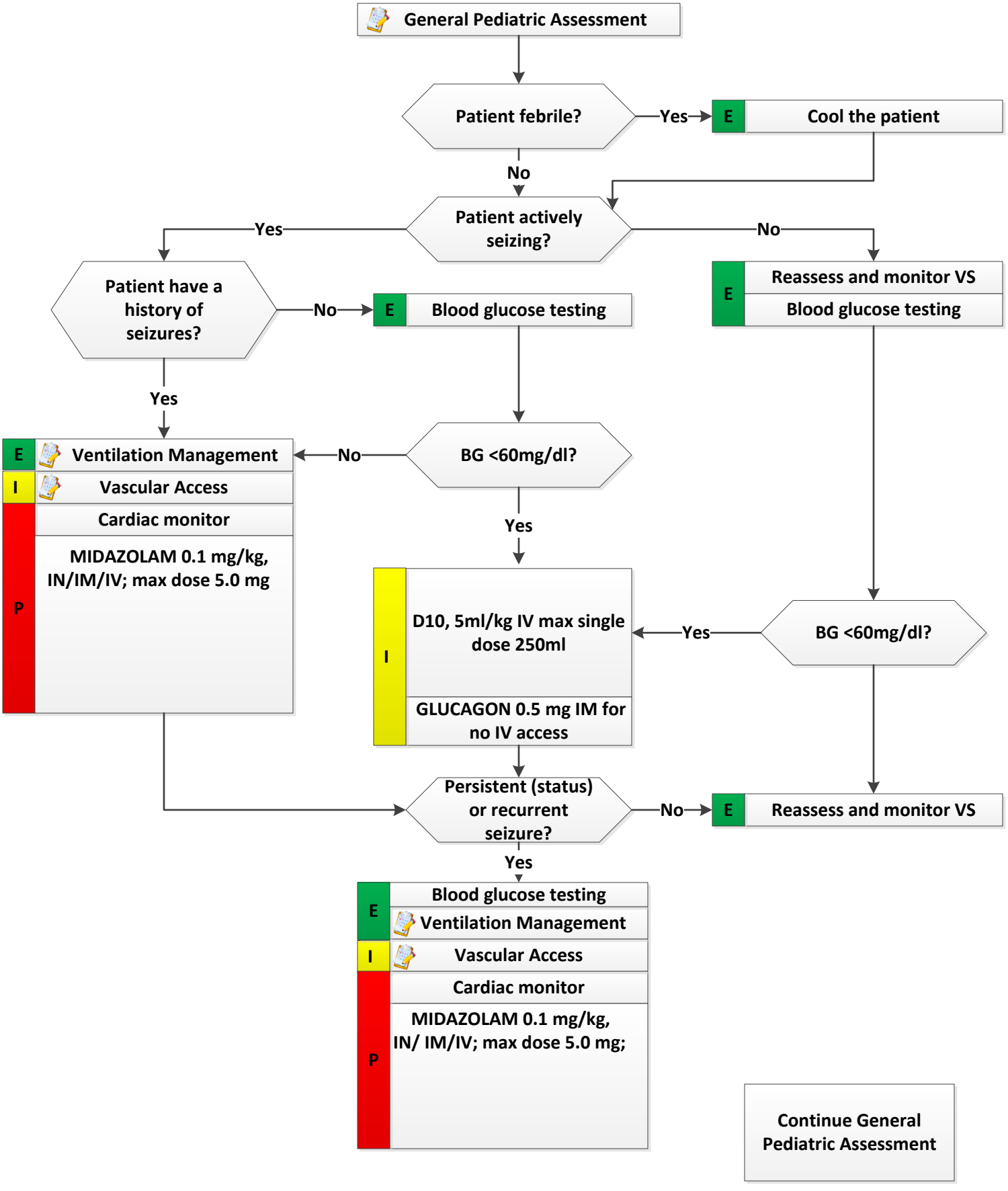
**History**
- Asthma
- Home treatment (oxygen, nebulizers)
- Medication
- Toxic exposure

**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 $ETCO_2$ monitoring.

# Pediatric Shock

General Pediatric Assessment

Estimated Minimum Systolic BP Calculation
(Age in Years x 2) + 70

BP calculation applies up to age 10 years

E Oxygen 15L NRB

I Vascular Access

P Cardiac monitor/Capnography

Alternative appropriate treatment protocols as indicated

Trauma - related

Non-Trauma related

General Trauma

E Blood glucose testing

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

BG normal

BG >250mg/dl

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

E ORAL GLUCOSE if patient protecting airway

I D10, 1ml/kg IV max single dose 250ml

I GLUCAGON
0.5 mg IM (<20 kg);
1.0 mg IM (>20kg) for no IV access

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

I NS bolus
20 ml/kg;
may repeat x 2 with no rales on lung exam

P Consider DOPAMINE
5-20 mcg/kg/min;
titrate to SBP
>70mmHg + 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 embolis
- 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 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.
- 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.
-

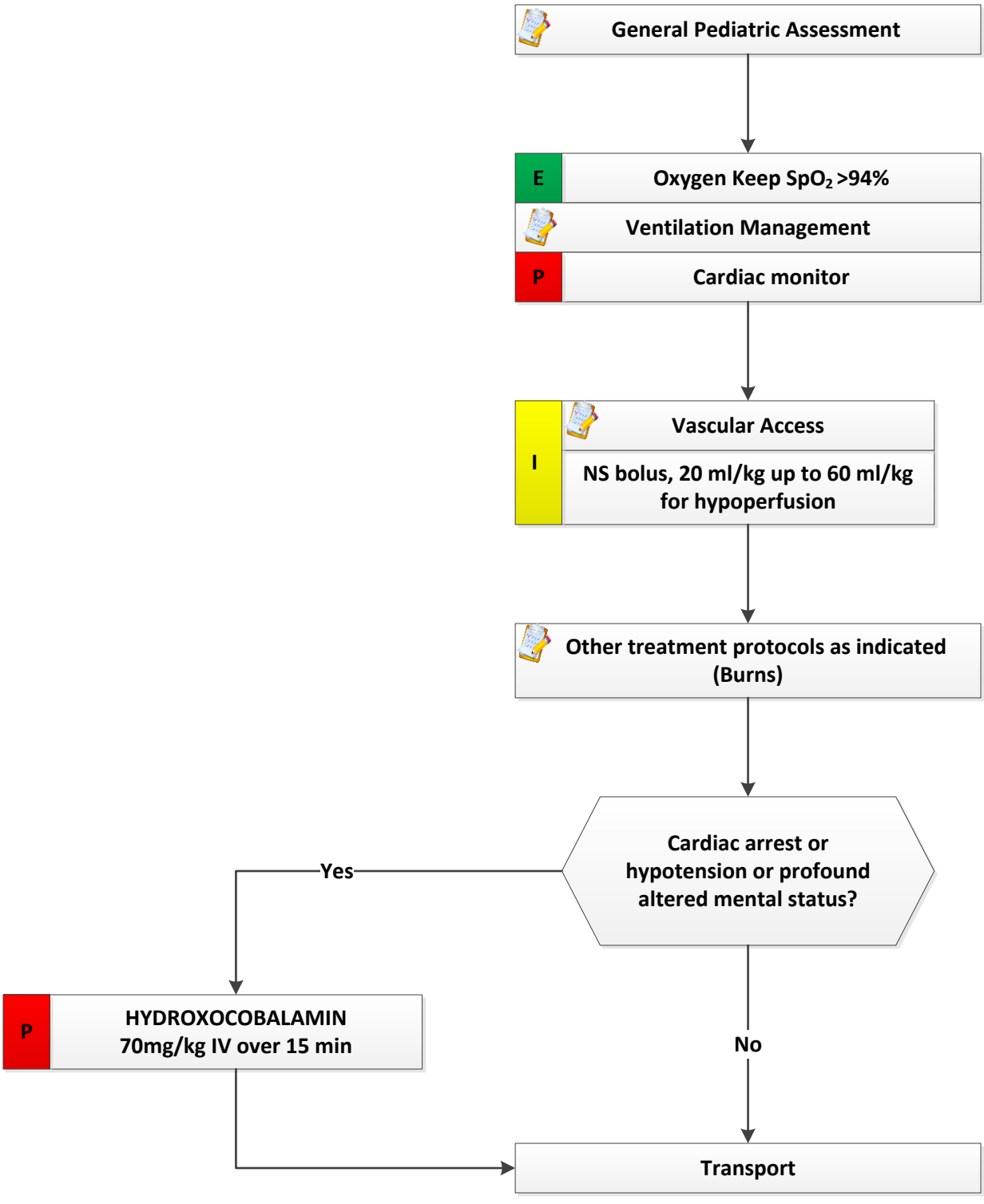
**Hypovolemic shock**
- Hemorrhage, trauma, GI bleeding, ruptured aortic aneurysm or pregnancy-related bleeding

**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.

**Preparation and Administration of Hydroxocobalamin**

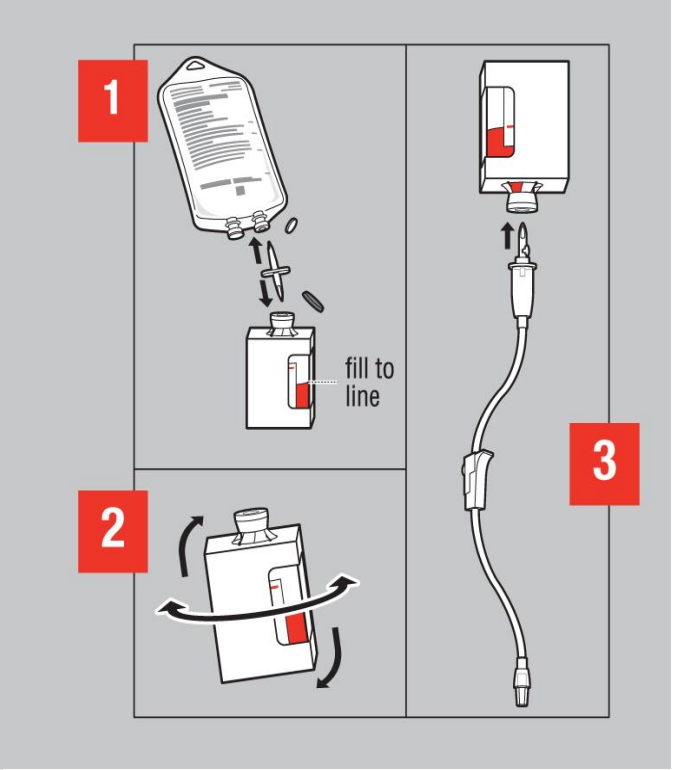
**Complete Starting Dose: 5 g**

**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.**

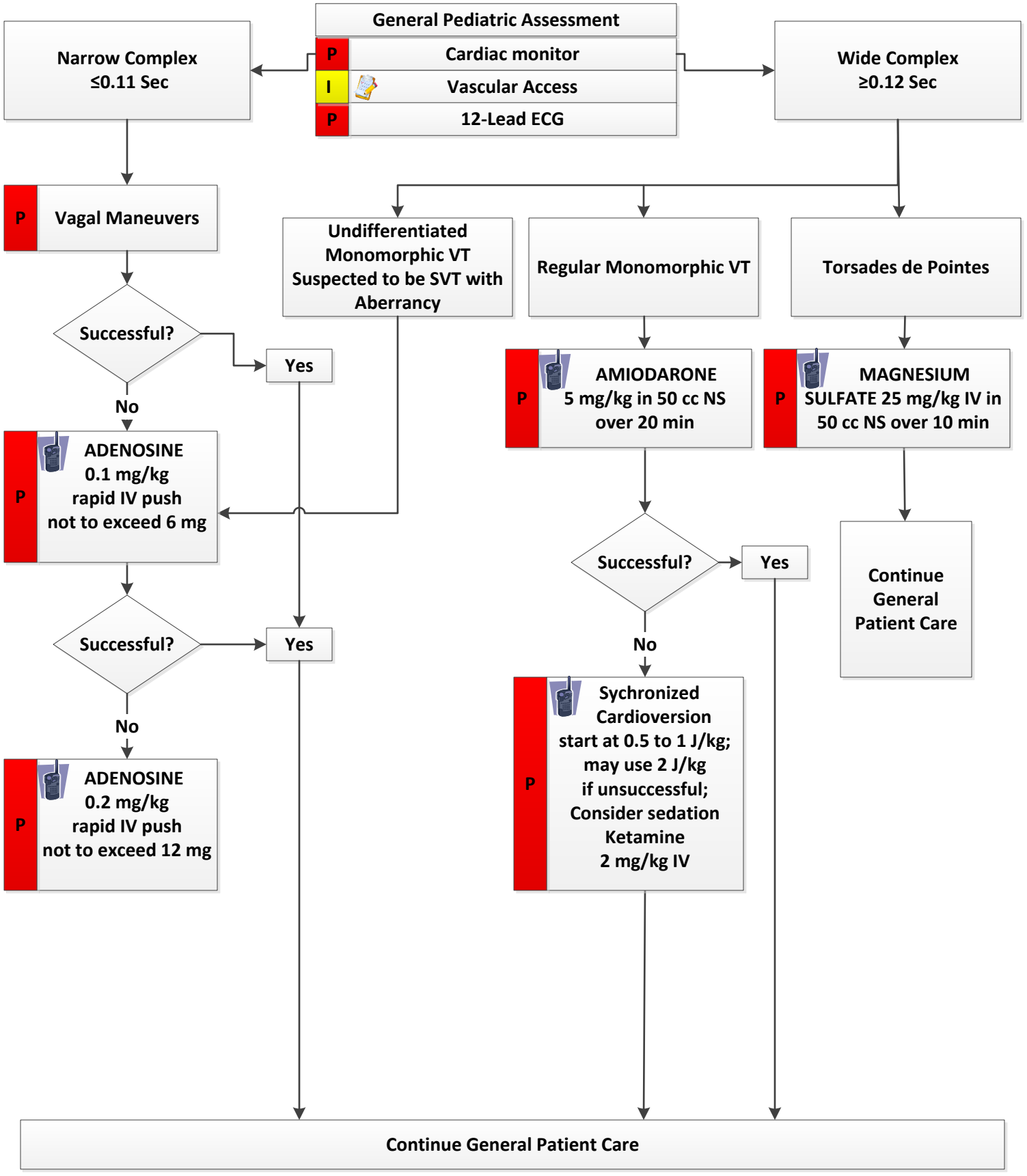
*0.9% Sodium Chloride Injection is the recommended diluent (diluent not included in the kit). Lactated Ringer's Solution and 5% Dextrose Injection have also been found to be compatible with hydroxocobalamin.

**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 70 mg/kg over **15 minutes**.



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



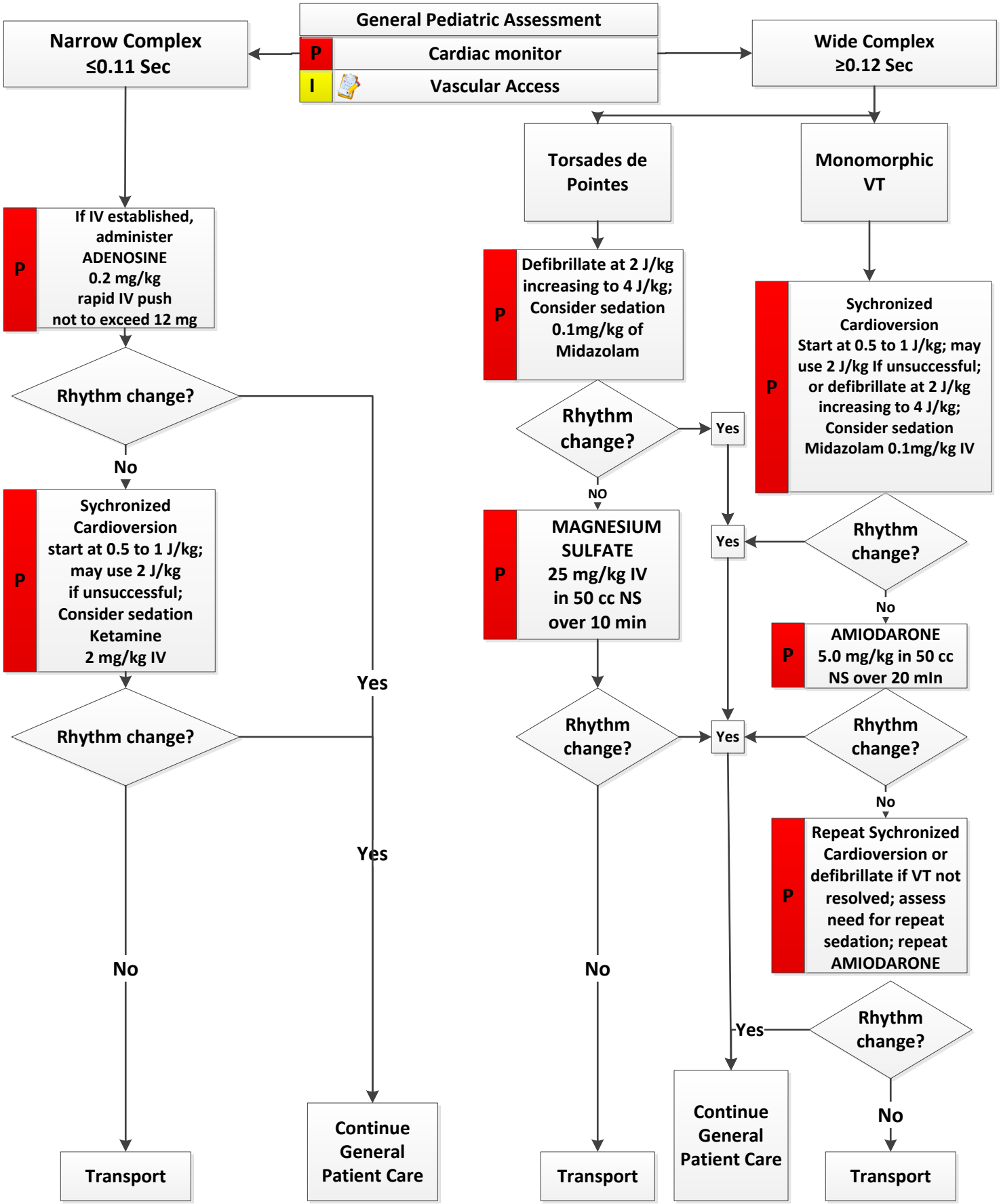
**History**
- Medications
- Diet (caffeine)
- Drugs (cocaine, methamphetamines)
- Past medical history
- Syncope/near syncope
- History of palpitations/racing heart

**Signs and Symptoms**
- Heart rate ≥ 180 in children
- Heart rate ≥ 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 tachyarrythmia 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 ≥ 180 in children
- Heart rate ≥ 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 tachyarrythmia 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

Consider Cervical Stabilization

Consider Altered Mental Status/Syncope

Respiratory Distress and/or Tracheostomy Tube Replacement Protocol if needed

E
Administer oxygen
BVM as needed

Intervention effective?

No

Yes

I
Extraglottic Airway

Endotracheal Intubation

ECG Monitor

P
Consider Sedation Administer MIDAZOLAM 0.1 mg/kg IV/IN Titrated to Effect. Must be Given Slowly Over 3-5 Minutes. Additional Doses by Physician Order Only. Or; KETAMINE 2 mg/kg IV Or 4 mg/kg IM

Maintain Sedation Administer MIDAZOLAM 0.1mg/kg IV. May Repeat After 5 Minutes with Physician Order.

Extraglottic/ETT placement successful?

Yes

No

Able to ventilate without extraglottic/ ETT in place?

Yes

No

P
Cricothyroidotomy

Continue Care and Transport as Appropriate

**Pearls**

- Capnometry (Color) or capnography is mandatory with all methods of intubation. Document results.
- Continuous capnography ($ETCO_2$) 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 postdrowning 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 $ETCO_2$ 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.
- Cricoid pressure and BURP maneuver may assist with difficult intubations. They may worsen view in some cases.
- 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 VVMC at 928-788-3048.**

1. **Telemetry contact shall be established:**
   - A. **For all Code 3 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.**
   - D. **When telemetry contact is required per protocol.**
2. **For Trauma Patients a telemetry report shall include:**
   - A. **Patient age**
   - B. **Gender**
   - C. **Mechanism of injury**
   - D. **Ambulatory at scene**
   - E. **Suspected injuries**
   - F. **Vital signs**
   - G. **Airway status**
   - H. **Neurologic status**
   - I. **ETA**
   - J.

.....

3. **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 VVMC at 928-788-3048.**

4. **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) **EMSystem**
   - **B. Notification reports shall include:**
     1) **Patient age**
     2) **Chief complaint**
     3) **Type of bed required (monitored/unmonitored)**
     4) **Unit number**
     5) **ETA**
5. **Providers will relay assessment findings and treatment provided to the individual(s) assuming responsibility for the patient(s).**
6. **Patient confidentiality must be maintained at all times.**
7. **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, medical medallion, 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.**

   **<u>Note</u>: 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 (Cont.)

**Withhold Life-Resuscitating Treatment:**

**CPR and its components including:**

- **Chest compressions**
- **Defibrillation**
- **Cardioversion**
- **Assisted ventilation**
- **Airway intubation**
- **Administration of cardiotonic 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.**

# INTER-FACILITY TRANSFER 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/EMT-I and Paramedic/EMT-P ambulance attendants are authorized to administer or monitor any crystalloid IV solution during transport.**
   - **C. Arterial lines should be discontinued unless appropriate personnel from the initiating facility accompany the patient.**
   - **D. 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.**
   - **E. IV pump systems should be discontinued unless capable personnel accompany the patient.**
   - **F. 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.**
   - **G. 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.**
   - **H. 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.**

# 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 FMMFD 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**

   ***OR* if *ALL* four (4) presumptive signs of death *AND AT LEAST* one (1) conclusive sign of death are identified.**

**The four (4) presumptive signs of death that *MUST* be present are:**

1) **Unresponsiveness**
2) **Apnea**
3) **Pulselessness**
4) **Fixed, dilated pupils**

**Conclusive signs of death include:**

1) **Dependent lividity of any degree**
2) **Rigor mortis**
3) **Massive trauma to the head, neck or chest with visible organ destruction**

2. **If there is any question regarding patient viability, to include potential hypothermia, resuscitation will be initiated.**

3. **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.**

# TERMINATION OF RESUSCITATION

1. **Resuscitation that is started in the field by licensed EMS personnel *CANNOT* be discontinued without a physician order. 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 started in the field may be discontinued only by physician order when the following conditions have been met:**

   A. **For medical arrest:**

      **The patient remains in persistent asystole or agonal rhythm and has capnography <10 after twenty (20) minutes of appropriate Paramedic/EMT-P resuscitation, to include:**

      1) **CPR**
      2) **Effective ventilation with 100% oxygenation**
      3) **Administration of appropriate ACLS medications**

   B. **For traumatic arrest:**

      1) **Open airway with basic life support measures**
      2) **Provide effective ventilation with 100% oxygenation for two (2) minutes**
      3) **Perform bilateral needle thoracentesis if tension pneumothorax suspected**

   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 of any degree**
      2) **Rigor mortis of any degree**

3. **When resuscitation has been terminated in the field, all medical interventions shall be left in place.**
4. **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.**
5. ***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.**

# PROCEDURES
# PROTOCOLS

# CERVICAL STABILIZATION

**LEVEL: EMT/IEMT/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. Backboards are only indicated for extrication and patient movement. Patients are not to be transported on backboards (unless movement off the backboard would delay immediate transport of patients with life-threatening injuries or acute spinal injuries).**
- **D. Tape, head straps, wedges, and head and/or neck support devices are not recommended.**
- **E. 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.**
- **F. Once on the stretcher, the patient may be moved to a semi-Fowler's or high-Fowler's position for comfort.**
- **G. If a backboard is used for extrication or movement, the patient should be immediately moved to a soft mattress, if possible.**
- **H. In special situations, alternate stabilization devices (e.g. vacuum mattress, KED, etc. may be used as indicated).**
- **I. Pediatric patients may be stabilized in an approved car seat or with a commercial pediatric stabilization device.**

# CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

**LEVEL: Paramedic**

**Indications:**

**This procedure 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. $SpO_2$ ≤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, $SpO_2$ and $ETCO_2$ prior to applying oxygen.**
**B. Select the appropriate size face mask for the patient.**
**C. Inform patient about procedure process.**
**D. Gradually increase the flow rate, slowly reaching the desired CPAP pressure.**
**E. Secure face mask onto patient face using the head harness.**
**F. Check the mask and tubing for leaks.**
**G. Reassess patient and document every five minutes.**
**H. If patient develops any of the contraindications or requires definitive airway control, discontinue CPAP and provide necessary airway control.**

# 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) sugggested 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/k and continue at 4 J/k until conversion occurs. Adult paddles/pads may be used in children weighing more than 15 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: Consider sedation prior to defibrillation in the awake patient, administer MIDAZOLAM 0.1 mg/kg IV.**

**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 15 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. May repeat every five minutes at 0.05 mg/kg IN/IM/IV**

**Analgesia: Fentanyl up to 0.1 mcg/kg slow IV to a maximum single dose of 100 mg. May repeat every 10 minutes with physicains order or until pain is relieved or respiratory/mental status depression occurs**

**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 $CO_2$ 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**

**Contraindications:**

**Absolute Contraindications: None**

**Relative Contraindications:**

- **A. Presence of gag reflex**
- **B. Suspected narcotic overdose/hypoglycemia prior to administration or Naloxone/Glucose 50%**

**Adjunctive Therapy:**

**If patient is 12 years of age or greater, administer Ketamine 2 mg/kg IV for induction.**

**If patient is less than 12 years of age, administer Midazolam 0.1 mg/kg IV/IN titrated to effect. Maximum single dose: 5 mg. Must be given slowly over a period of 3-5 minutes. Additional pediatric doses by telemetry physician order only.**

**Maintain patient sedation. Administer Midazolam 0.1 mg/kg IV/IN. May repeat every five minutes at .05 mg/kg IV/IN/IM.**

**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**

**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.

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

# EXTRAGLOTTIC AIRWAY DEVICE

**LEVEL: IEMT/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.**

# HEMORRHAGE CONTROL TOURNIQUET

**LEVEL: EMT/IEMT/Paramedic**

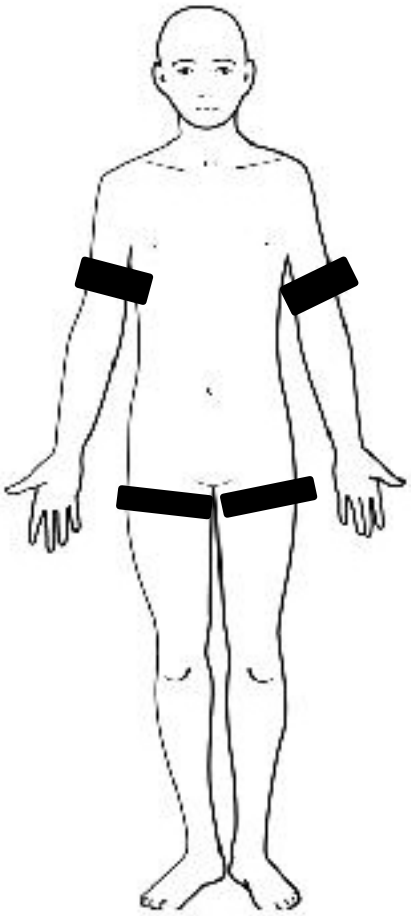
**Indications:**

**This procedure may be performed on any patient that has bleeding from an extremity than can not be controlled by direct pressure.**

**Contraindications: None**

**Key procedural considerations:**

**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. Record the time of tourniquet application, on the patient, that is clearly visible.**



# MEDICATION ADMINISTRATION

**LEVEL: EMT/IEMT/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 | SQ |
|---|---|
| Pull skin tight | Pinch to lift skin slightly |
| Insert needle at a 90° angle to the skin | Insert needle at a 45° angle to the skin |
| Advance into muscle layer | Advance into subcutaneous layer |

# MEDICATION ADMINISTRATION (Cont.)

**LEVEL: EMT/IEMT/Paramedic (based on medication)**

**Mucosal Atomizer Device (MAD) Administration**

**Medications: Fentanyl, 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.**

**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**

**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**

# 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:**

**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. Insert needle/catheter at a 45° angle; gently aspirate with attached syringe while inserting.**

**E. When syringe is able to aspirate air, stop advancing needle.**

**F. Continue to advance catheter downward and withdraw needle.**

**G. Ventilate the patient allowing an inspiratory/expiratory ratio of 1:3.**

**H. Secure the device and auscultate lung fields.**

# NEEDLE THORACENTESIS

**LEVEL: Paramedic**

**Indications:**

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

**Progressive respiratory distress and/or increased resistance to bagging, *AND* unilateral diminished/absent breath sounds, associated with:**

**A. Tracheal deviation, or**
**B. Jugular venous distension, or**
**C. Signs of shock, low BP with chest trauma present**

**Contraindications: None**

**Needle Thoracentesis is permitted in pediatric patients.**

**Key procedural considerations:**

**A. Primary site is the 2nd intercostal space mid-clavicular line of the affected side.**
**B. Alternate location is the 4th- 5th intercostal space in the mid-axillary line of the affected side.**
**C. Use a site specific, appropriate length needle to decompress the chest.**
**D. Prep site with iodine and/or alcohol.**
**E. Place tip of needle on top of appropriate rib and insert over top of rib into intercostal space.**
**F. Advance catheter and remove needle.**
**G. Secure catheter and consider attaching a flutter valve assembly.**

# 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/IEMT/Paramedic**

**Indications:**

**This procedure may be performed on any patient with an isolated closed 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.**

# 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: IEMT/Paramedic**

**Vascular access attempts should not unnecessarily delay transport: attempts should be completed en route. All attempts are to be documented on the PCR.**

**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/EMT-P only):**

**This procedure may be performed on any patient who requires IV drugs or IV fluids *AND* who is:**

**A. Unconscious and unresponsive; and**
**B. Peripheral line cannot be immediately established.**

**Contraindications: Placement in, or distal to a fractured bone**

**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