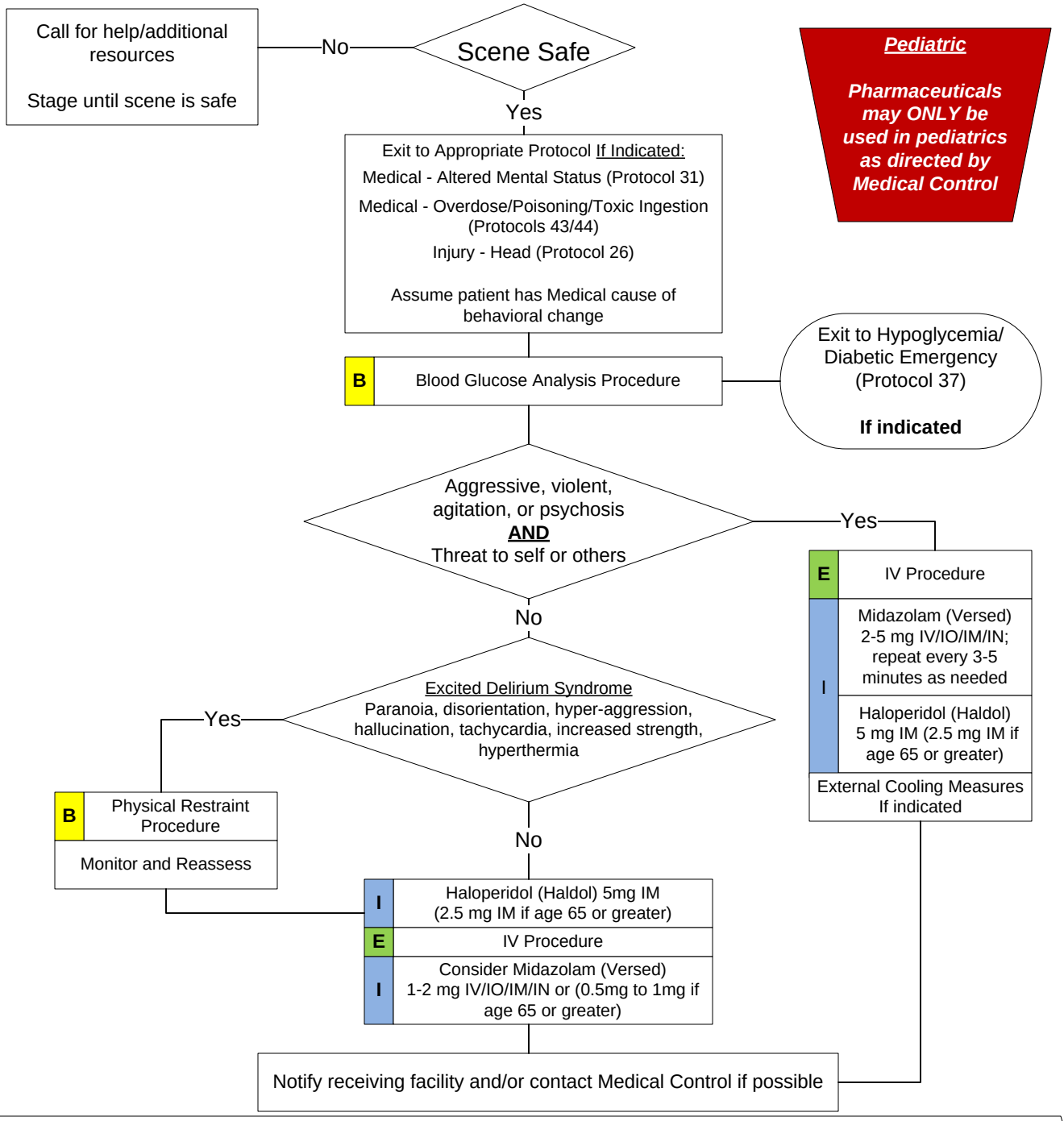
General – Behavioral/Patient Restraint



PEARLS

* Your safety is the main priority.
* Restraints (both physical and chemical) should be considered as a "last resort". The least restrictive means to maintain provider and patient safety should be used.
* Consider Haloperidol (Haldol) for patients with history of psychosis or a benzodiazepine for patients with presumed substance abuse.
* All patients who receive chemical restraint must be continuously observed by ALS personnel.
* Be sure to consider all possible medical/trauma causes for behavior (hypoglycemia, overdose, substance abuse, hypoxia, head injury, etc.).
* Do not irritate the patient with a prolonged exam.
* Do not overlook the possibility of associated domestic violence or child abuse.
* If patient is suspected of agitated delirium and suffers cardiac arrest, consider a fluid bolus and sodium bicarbonate (early).
* Do not position or transport any restrained patient in such a way that could impair the patients respiratory or circulatory status.

General – Cardiac Arrest (Adult)

Continuous Compression CPR (CC-CPR)

INDICATED FOR SUDDEN CARDIAC ARREST ONLY

Contraindications:

Children < 8
Known/suspected overdose
Respiratory cause of arrest
Hypothermia
Near Drowning
Traumatic Arrest

Begin standard CPR and/or go to appropriate protocol

*** Push Hard (≥ 2") & Fast (≥ 100/Min)**
*** Basic Airway- 30:2 compression/ventilation**
*** Advanced Airway- continuous compressions, ventilate every 6 secs.**
*** Minimize Interruptions**

Consider bilateral Chest Decompression in traumatic arrests

Sudden Cardiac Arrest

200 Chest Compressions
Insert OPA, apply Non-rebreather mask at 100%

Rhythm analysis: Single shock without pulse check
****** 1st analysis/defib attempt should occur as early as possible once equipment is available ******

200 Chest Compressions

Rhythm analysis: Single shock without pulse check

200 Chest Compressions

Rhythm analysis: Single shock without pulse check

200 Chest Compressions

Rhythm analysis: Single shock without pulse check

Endotracheal Intubation/King Airway while NOT interrupting compressions

Continue standard CPR and / or Exit to Appropriate Cardiac Protocol

As Early as Possible:	
E	IV Procedure
I	Epinephrine 1 mg IV/IO Repeat every 3-5 minutes until ROSC or termination

1. Defibrillate at highest energy setting or the manufacturer's recommendation for energy level.

2. Chest compressions at least 100/min., deep with complete recoil.

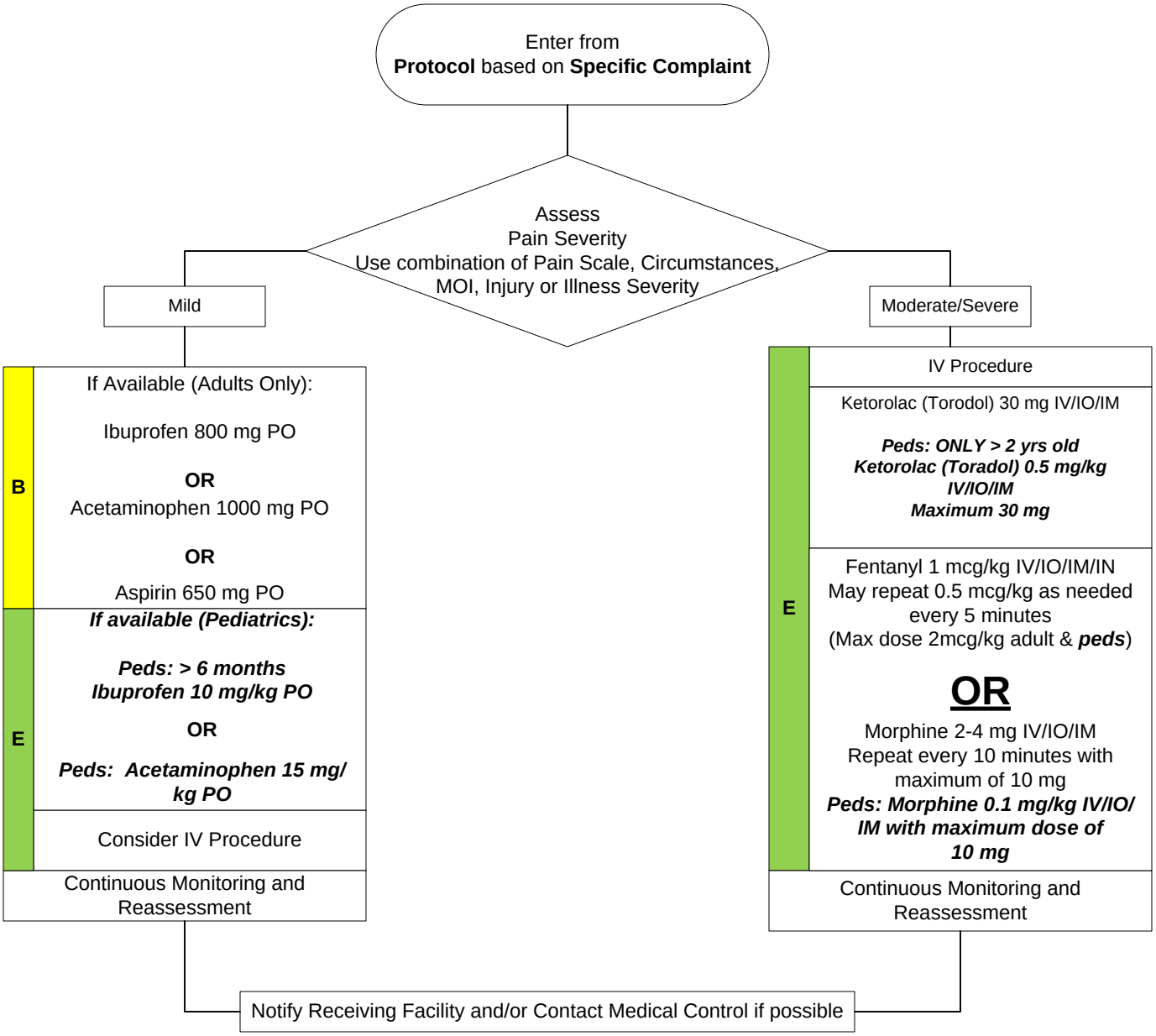
3. If potentially perfusing rhythm returns, or signs of circulation, continue with one more round of 200 compressions before pulse check.

4. Upon return of circulation, go to Post Resuscitation Care (Adult) (Protocol 15)

Do NOT attempt ventilation/ intubation until after fourth set of 200 compressions

PEARLS
* Consider early IO placement if available and difficult IV anticipated.
* DO NOT HYPERVENTILATE: If advanced airway in place, ventilate 8-10 breaths per minute.
* Use a Team Focused Approach, assigning responders to predetermined tasks.
* Defibrillation energy should be at manufacturer's recommendation, maximum energy if unknown.
TERMINATION – If after 25 minutes of quality resuscitation effort and no Return of Spontaneous Circulation (ROSC) occurs, the team leader should inform the family of the situation and consider termination of resuscitation on the scene.

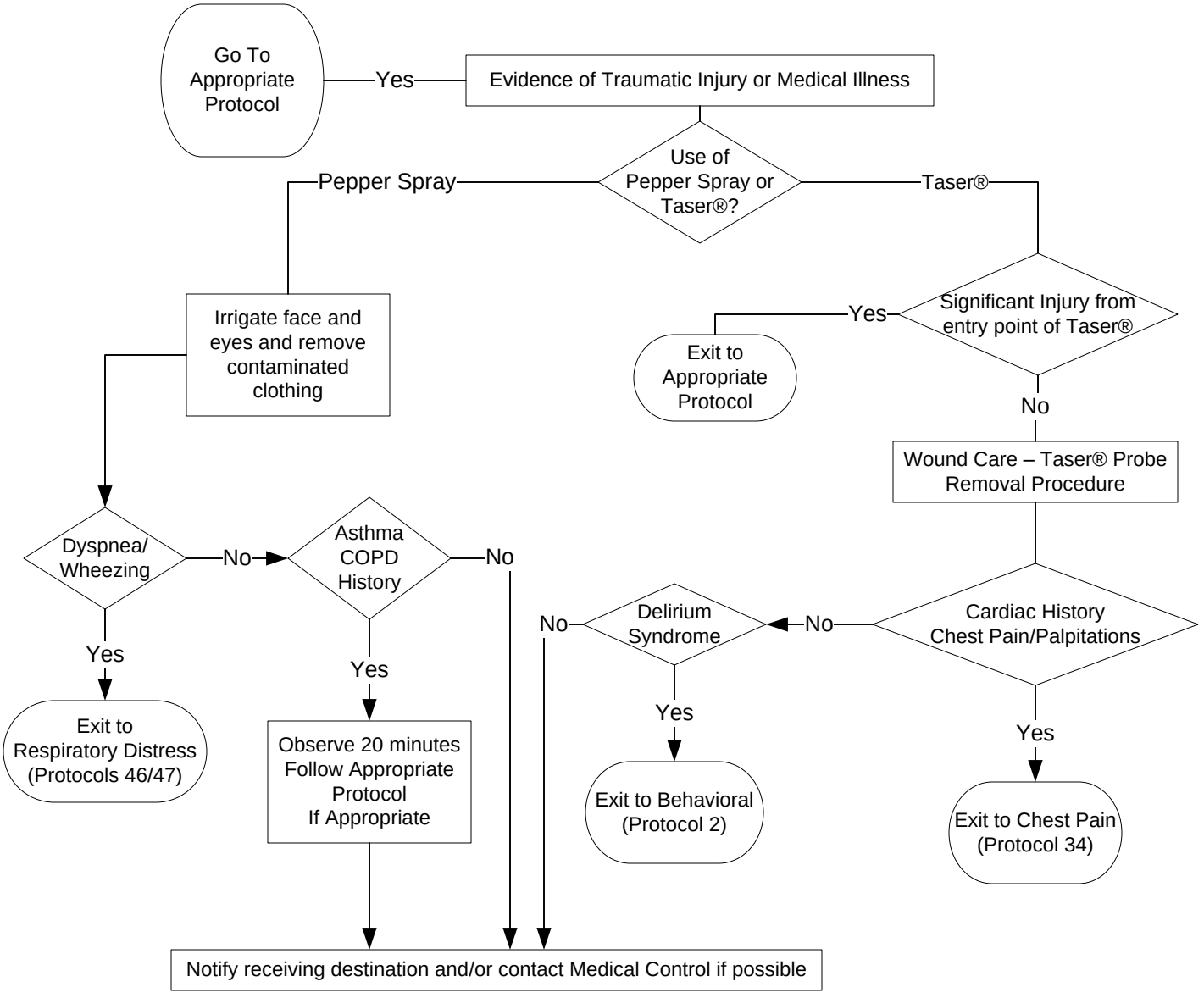
General – Pain Control



PEARLS

* Pain severity (0-10) is a vital sign to be recorded before and after PO, IV, IO, IM or IN medication delivery and at patient hand off.
* Both arms of the treatment may be used in concert. For patients in Moderate pain for instance, you may use the combination of an oral medication and parenteral if no contraindication are present.
* Do NOT administer any PO medication for patients who may need surgical intervention such as open fractures or fracture deformities, headaches or abdominal pain.
* Ketorolac (Toradol) and Ibuprofen should not be used in patients with known renal disease or renal transplant, in patients who have know drug allergies to NSAID's, with active bleeding, headaches, abdominal pain, stomach ulcers or in patients who may need surgical intervention such as open fractures or fracture deformities.
* **Do NOT** administer Acetaminophen to patients with a history of liver disease.

General – Pepper Spray/Taser® Removal



PEARLS

* Patient does not have to be in police custody or under arrest to employ this protocol.
* Local EMS agencies should formulate a policy with local law enforcement agencies concerning patients requiring EMS and Law Enforcement simultaneously. Agencies should work together to formulate a disposition in the best interest of the patient.
* Patients restrained by law enforcement devices must be transported accompanied by law enforcement officer in the patient compartment, who is capable of removing the devices. However, when rescuers have utilized restraints in accordance with Restraint Procedure, the law enforcement agent may follow behind the ambulance during transport.
* The responsibility for patient care rests with the highest authorized medical provider on the scene.
* All patients in police custody retain the right to participate in decision making regarding their care and may request care of EMS.

General – Rehabilitation (Responder)

Exposure
Remove all PPE if possible
e.g. bunker pants pushed down on boots

Rehab
Rest, active/passive cooling, oral rehydration

Consider Carbon Monoxide/ Smoke Inhalation (Protocol 23)

Evaluate Pulse:
Minimum 10 minutes from last exertion
>85% maximum for age?

Yes

Observe for symptoms
Have stand for 2 minutes
Orthostatic Vitals
↑ Pulse > 20 bpm
Or
↓ SBP >20mm?

Yes

NO Return to Scene Activities

E	IV Procedure
	Re-hydration: Infuse up to 2 liters NS Until HR ≤ 100 & SBP ≥ 110

If HR & SBP do not normalize
Transport to ED

No

No

Assess Vitals:
SBP > 160 or DBP >100
Or
Pulse >100
Or
Respirations <12 or > 20
Or
Temp > 100.6°F
Or
Pulse Oximetry < 94%

Any VS outside limits?

Yes

- Mandatory Rest
- Rehydration
- Cooling Techniques

➢10 minute Re-evaluations

If not improved after
20 minutes total Rehab
Transport to ED

No

Return to Full Duty

Structure and formality of Rehab is variable, based on magnitude of the event and resources available. There should be adequate documentation of events and vital signs and accountability for personnel.

85% Max HR by Age Group	
Age	85%
20-25	170
25-30	165
30-35	160
35-40	155
40-45	152
45-50	148
50-55	140
55-60	136
60-65	132
Max HR = 220-Age	

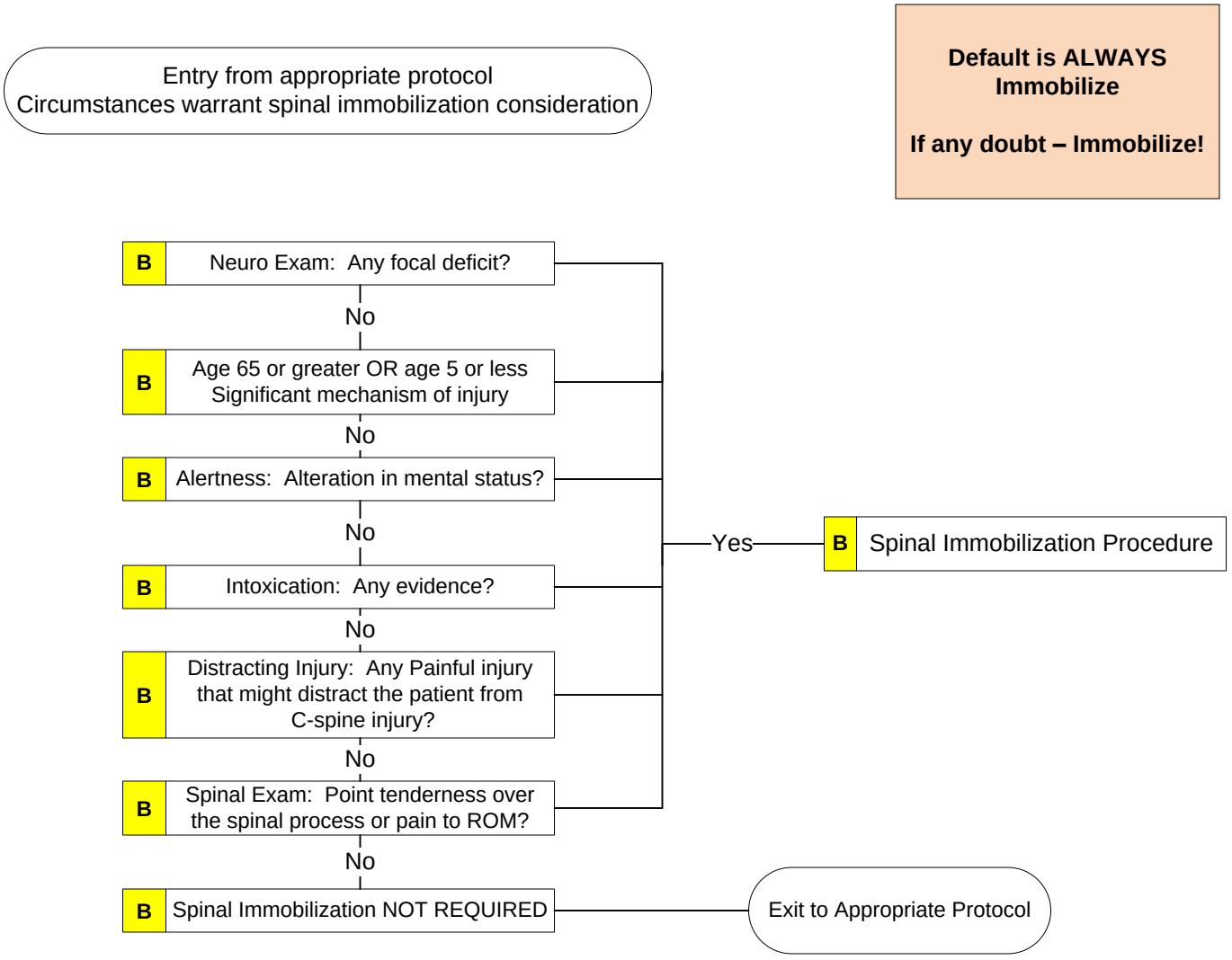
Event Rehabilitation:
- Refers to fire scenes, hazmat, rescue, extrication, training or other events as determined by the Incident Commander (IC).
- Rehab usually initiated after two 30 min SCBA bottles or one 45-60 min bottle; Earlier if determined by IC or FF.
- Length of work period prior to Rehab adjusted by IC based on exertion level, temperature, humidity, length of event and resources available.

Automatic Transport Criteria(ATC):
- Chest Pain, Cardiac Arrhythmia, Syncope, altered mental status, confusion, disorientation, Shortness of breath unresolved by 10 minutes of high flow oxygen, any episode vomiting or inability to hold fluids down.
- Vital signs that have not returned to normal after 20 minutes of rest
- Any request for transport

Cooling Techniques:
- Remove full gear
- When available use *forearm immersion* in rehab chairs (most effective)
- Cooling fans, ambient evaporative cooling
- Cold wet towels to head and neck (FF consider risk of steam burns if later exposed to high temperatures)
- Oral re-hydration with water or balanced electrolyte and sugar sport drinks.

Refer to NFPA 1584 – Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises. 2008 Edition

General – Spinal Immobilization/Clearance



PEARLS

* Significant mechanism includes high-energy events such as ejection, high falls, and abrupt deceleration crashes that may indicate the need for spinal immobilization in the absence of symptoms.
* Consider immobilization in any patient with arthritis, cancer, dialysis or other underlying spinal or bone disease.
* The decision to NOT implement spinal immobilization in a patient is the responsibility of the patient attendant solely.
* In the very young and the very old, a normal exam may not be sufficient to rule out spinal injury.
* The acronym "NSAIDS" should be used to remember the steps in this protocol:

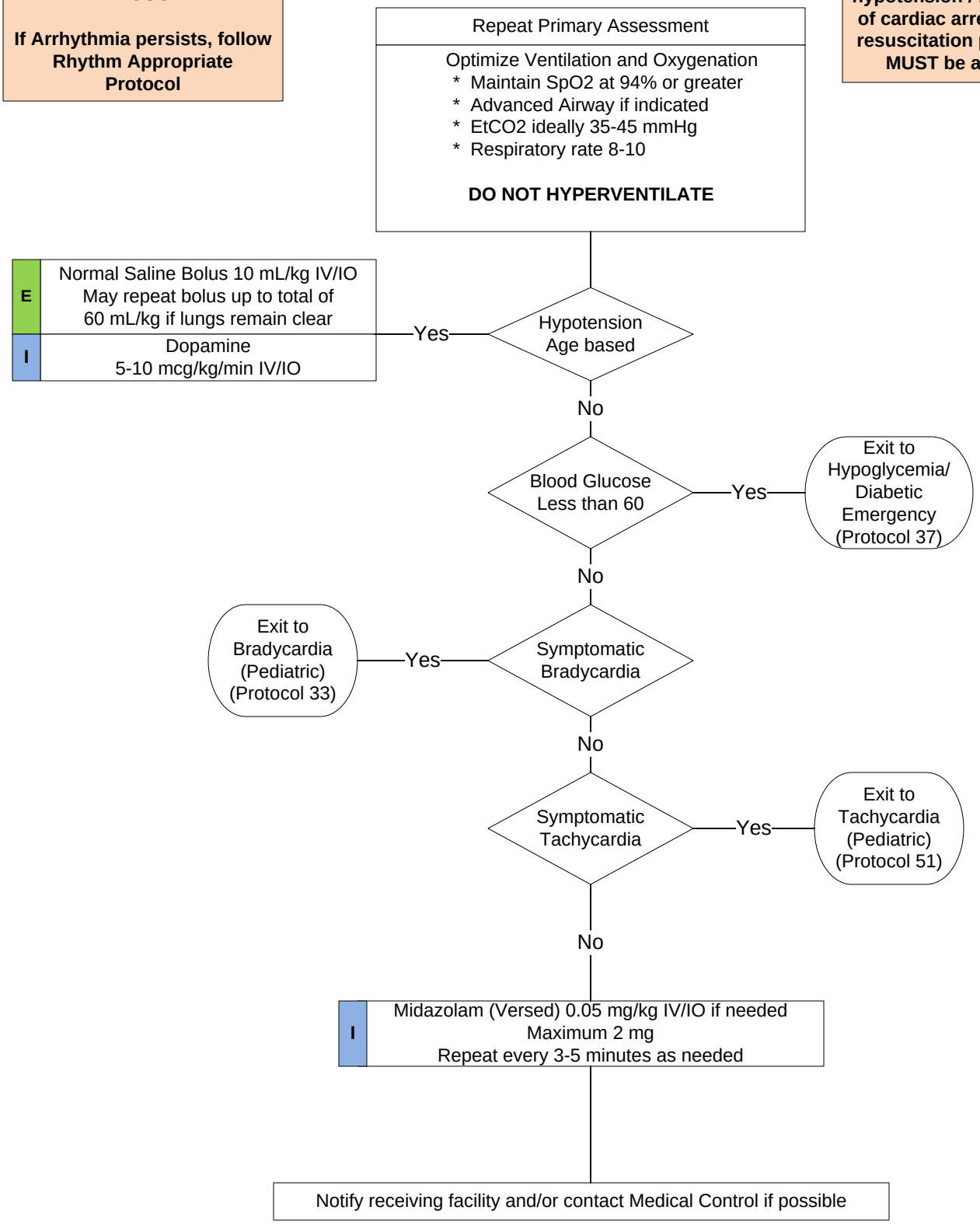
N – Neurologic exam. Look for focal deficits such as tingling, reduced strength, or numbness in an extremity.
S – Significant mechanism or extremes of age.
A – Alertness. Is patient oriented to person, place, time and event? Any change of alertness with incident?
I – Intoxication. Is there any indication that the person is intoxicated, impaired decision making ability?
D – Distracting Injury. Is there any other injury producing significant pain in the patient? Any injury which the patient seems to focus on and rate 6 or greater on the pain scale is likely distracting.
S – Spinal exam. Look for point tenderness in any spinal process or spinal process tenderness with range of motion. Each of the spinal processes must be palpated during the exam.

Cardiac Arrest – Post Resuscitation Care (Pediatric)

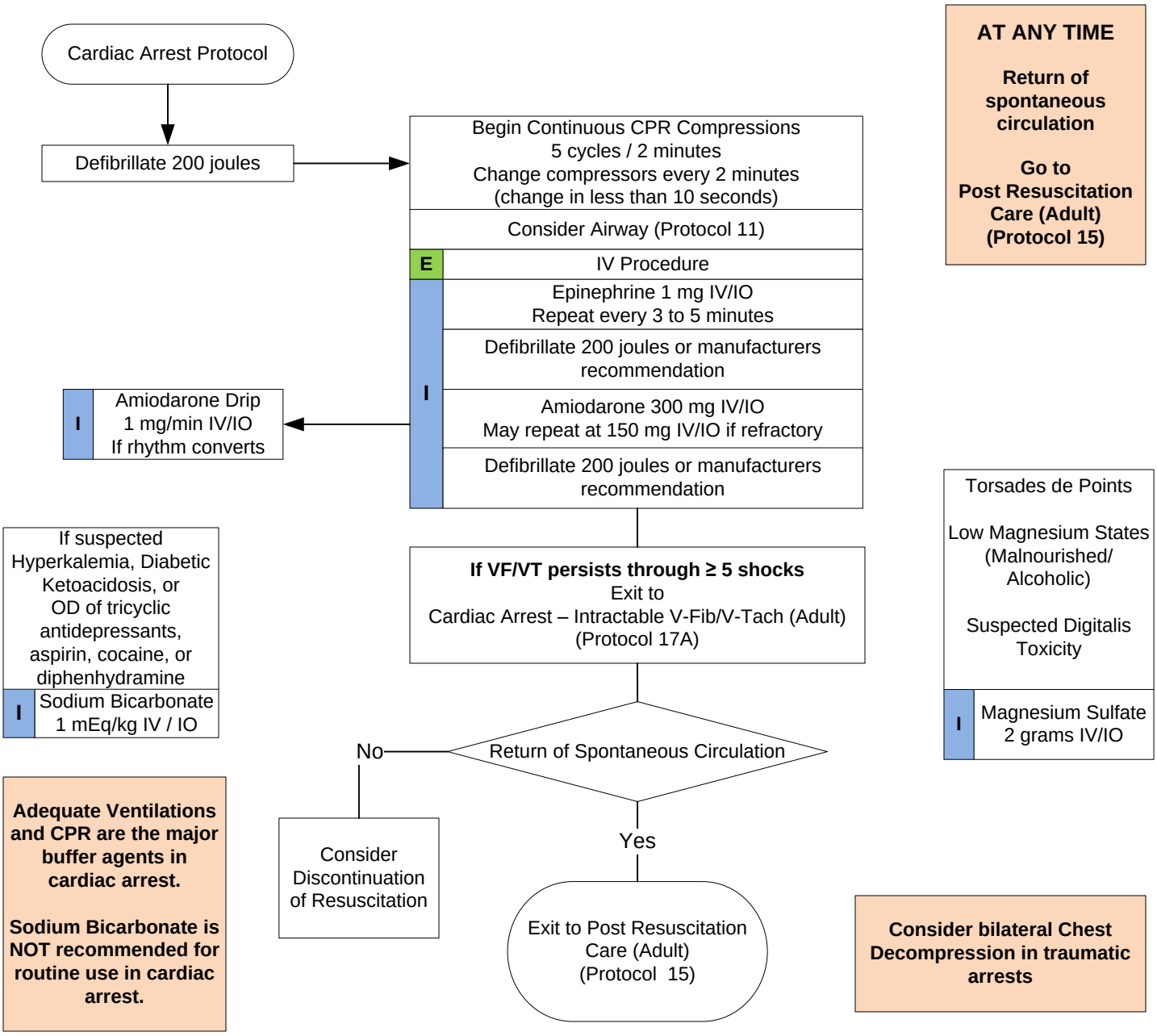
Arrhythmias are common and usually self limiting after ROSC

If Arrhythmia persists, follow Rhythm Appropriate Protocol

Hyperventilation is a significant cause of hypotension / recurrence of cardiac arrest in post resuscitation phase and MUST be avoided



Cardiac Arrest – Ventricular Fibrillation/ Ventricular Tachycardia (Adult)

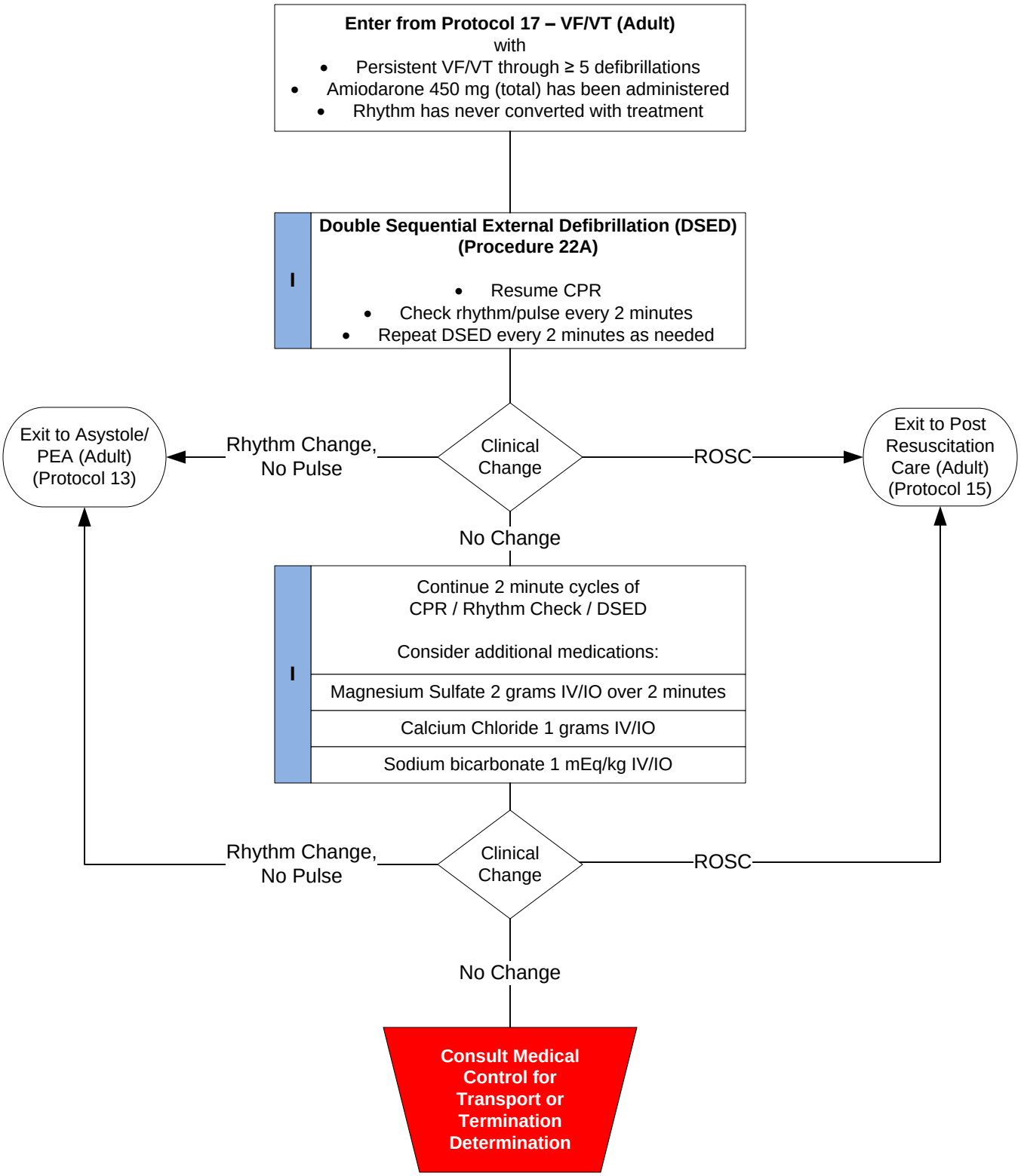


PEARLS

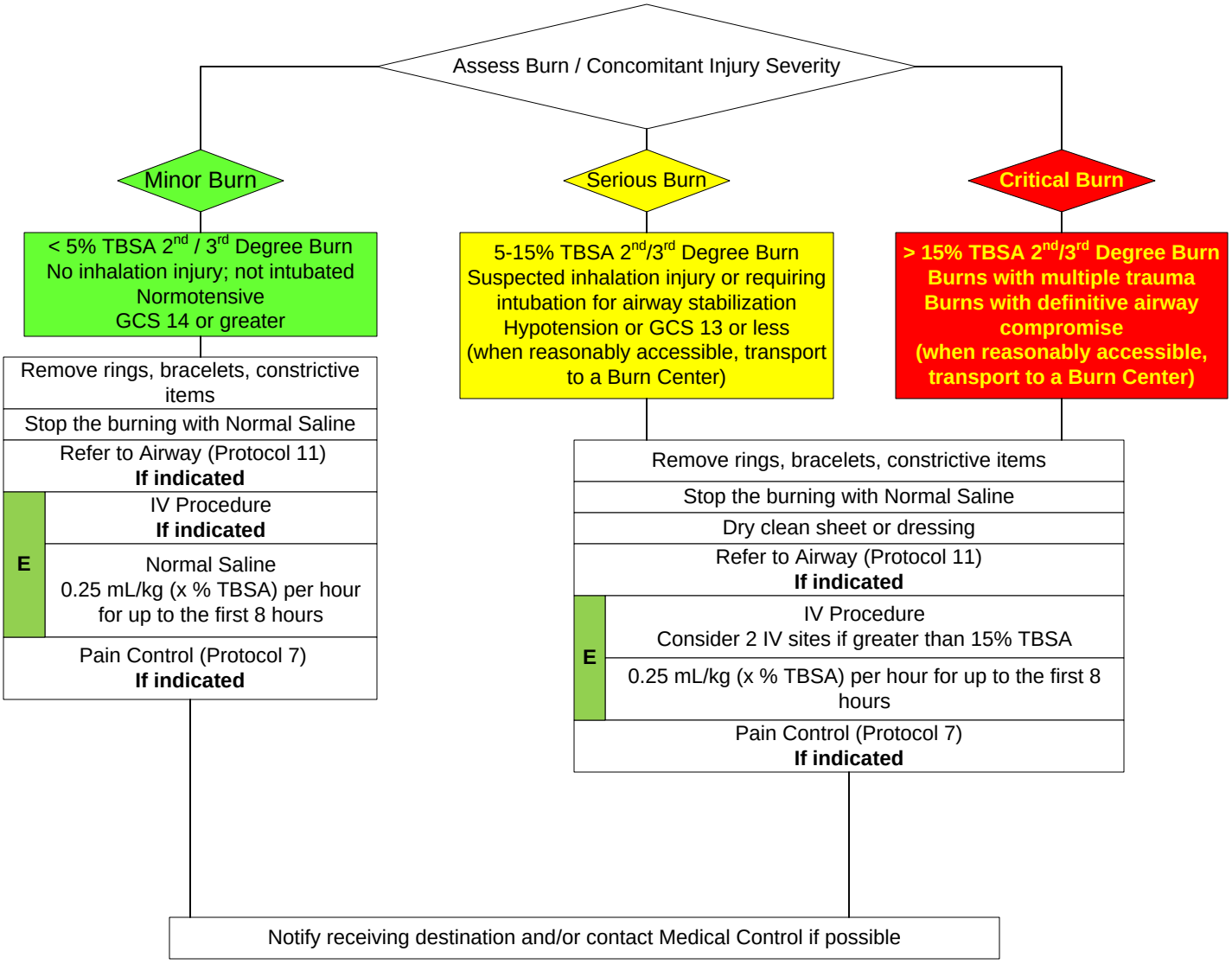
* Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated.
* Do NOT hyperventilate: If no advanced airway, compressions to ventilations are 30:2. If advanced airway in place, ventilate 8-10 breaths per minute.
* Do NOT interrupt compressions to place endotracheal tube. Consider BIAD first to limit interruptions.
* Reassess and document endotracheal tube placement and EtCO2 frequently, after every move, and at transfer of care.
* Do NOT stop CPR to check for placement of ET tube or to give medications.
* Defibrillation energy should be at manufacturer's recommendation; maximum energy if unknown.
* Effective CPR and prompt defibrillation are the keys to successful resuscitation.
* If BVM is ventilating the patient successfully, intubation should be deferred until rhythm has changed or 4 or 5 defibrillation sequences have been completed.

Cardiac Arrest Protocols

Cardiac Arrest – Intractable V-Fib/V-Tach (Adult)



Injury – Burns



Injury – Burns

PEARLS

* > 5 – 15% TBSA 2nd or 3rd degree burns, OR 3rd degree burns > 5% TBSA for any age group, or circumferential burns of extremities, or electrical or lightning injuries, or suspicion of abuse or neglect, or inhalation injury or chemical burns, or burns of the face, hands, perineum, or feet, or any burn requiring hospitalization – REQUIRE direct transport to a burn center OR transfer once seen at a local facility where the patient can be stabilized with interventions such as airway management or pain
  relief if this is not available in the field or the distance to a Burn Center is significant.
* 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)
* Early intubation is required when the patient experiences significant inhalation injuries
* 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 to cool the burn; must maintain normal body temperature
* Evaluate the possibility of child abuse with children and burn injuries
* NEVER administer IM pain injections to a burn patient
* Do NOT contact the patient until you are sure the source of electric shock has been discontinued.
* Attempt to locate contact points; (entry wound – where AC source contacted patient – exit wound at ground point). Both sites will generally be full thickness.
* Cardiac monitor. Anticipate Ventricular Fibrillation – atrial rhythms.
* Attempt to identify the chemical and brush off any dry chemical prior to flushing with water or appropriate agent.
* Consider any chemical exposure a Hazardous Material until proven otherwise.
* **Assure proper decontamination of all patients, providers and equipment AND contact receiving facility as soon as possible.**

BURN CENTER VERIFICATION

Verification of burn centers is a joint program of the American Burn Association (ABA) and the American College of Surgeons (ACS). It is a rigorous review program designed to verify a burn center's resources that are required for the provision of optimal care to burn patients from the time of injury through rehabilitation. Elements of this voluntary program include an application, pre-review questionnaire, an in-depth on-site review by members of the ABA Verification Committee, as well as senior members of the ABA. A written report of the site visit team is reviewed by the ABA Verification Committee and by the Committee on Trauma of the ACS.

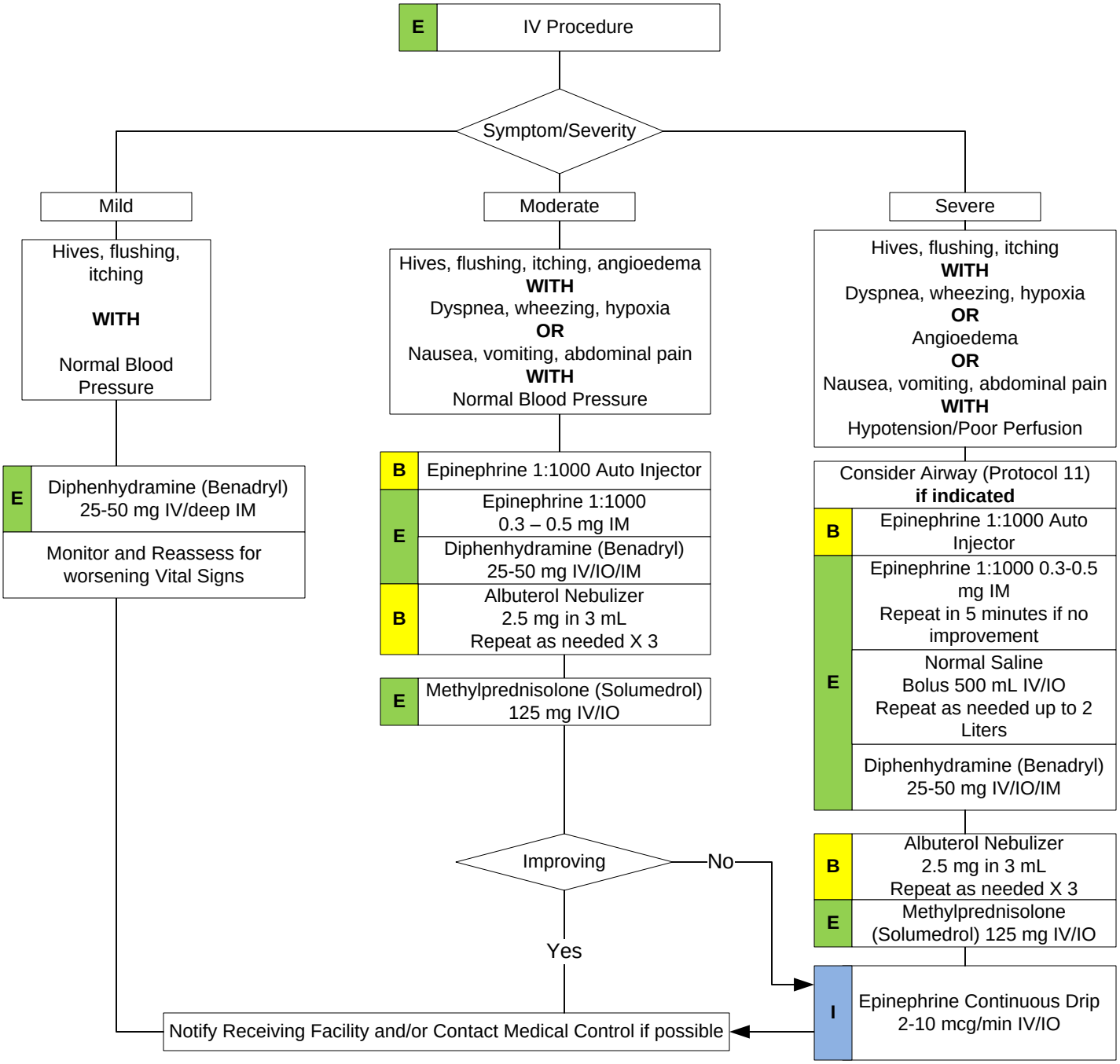
Burn Center verification provides a true mark of distinction for a burn center. It is an indicator to government, third-party payers, patients and their families, and accreditation organizations that the center provides high quality patient care and meets the demanding standards for organizational structure, personnel qualifications, facilities resources and medical care services set out in the ABA chapter on Guidelines for the Operation of Burn Centers in the ACS publication on Resources For Optimal Care Of The Injured Patient 2006.

Verified Burn Centers in Virginia and Surrounding States*

Burn Center:	Location:	Verification dates:
VCU Evans Haynes Burn Center (Adult & Peds)	Richmond, VA	4/11/11 to 4/11/14
North Carolina Jaycee Medical Center (Adult & Peds)	Chapel Hill, NC	7/14/09 to 7/14/12
Wake Forest University Baptist Medical Center (Adult & Peds)	Winston-Salem, NC	5/20/12 to 5/20/15
Johns Hopkins Regional Burn Center (Adult)	Baltimore, MD	12/15/09 to 12/15/12
Washington Hospital Center (Adult)	Washington, DC	3/18/10 to 3/18/13

*As of 02 October 2012. For the most current information, please refer to
http://www.ameriburn.org/verification_verifiedcenters.php

Medical – Allergic Reaction/Anaphylaxis (Adult)



PEARLS

* Allergic reactions occur when a patient is exposed to an allergen (pollen, insect, medication, food, etc.) causing the body to respond by releasing specific immunoglobulins such as histamine which causes hives, itching and capillary leaking leading to edema. Most allergic reactions are mild and involve only the skin such as erythema, hives and / or itching and are usually resolved with an anti-histamine like diphenhydramine.
* Anaphylaxis is a severe form of an allergic reaction and recent studies show it is under-recognized and under-treated.

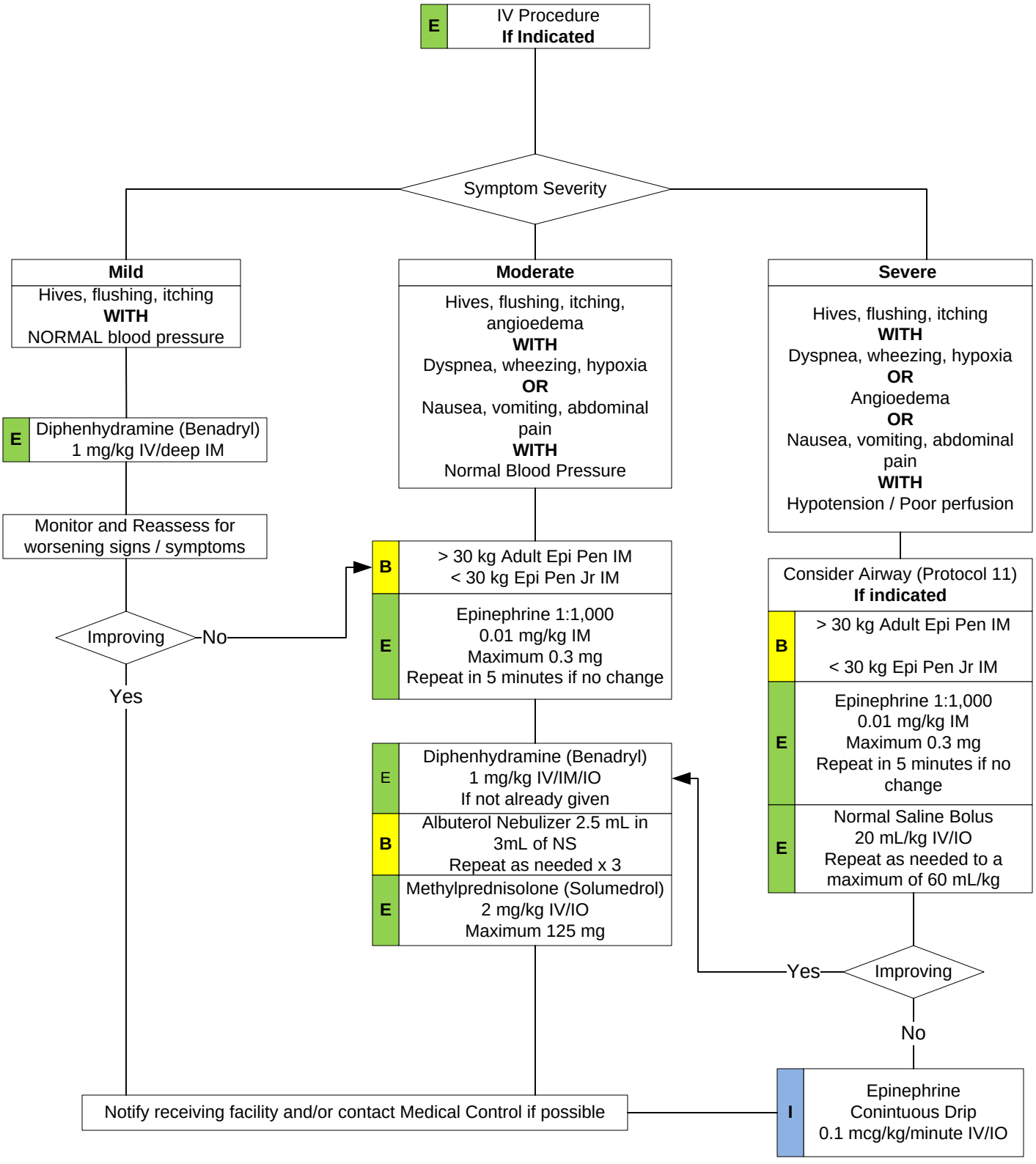
Epinephrine Continuous Drip:

In the patient with severe anaphylaxis who is not responding to Epinephrine IM and fluid resuscitation, IV Epinephrine should be administered. Add 2 mg of epinephrine 1:1,000 to a 1,000 mL IV bag of normal saline. This forms a concentration of 2 mcg/mL.

Refer to Epinephrine Drip Rates, and monitor infusion rate frequently to ensure correct dose is being given.

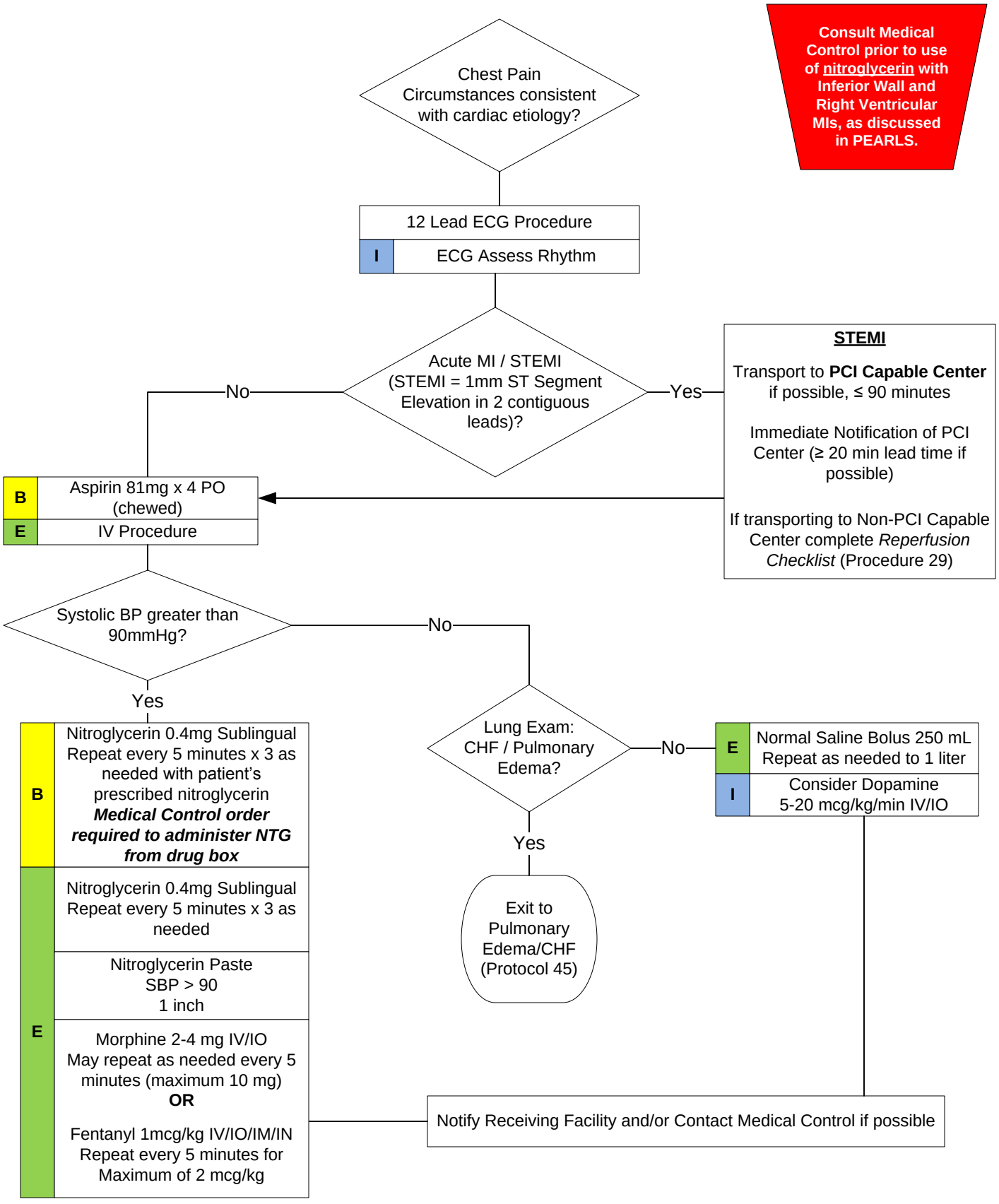
Medical Protocols

Medical – Allergic Reaction/Anaphylaxis (Pediatric)



Medical Protocols

Medical – Cardiac Chest Pain



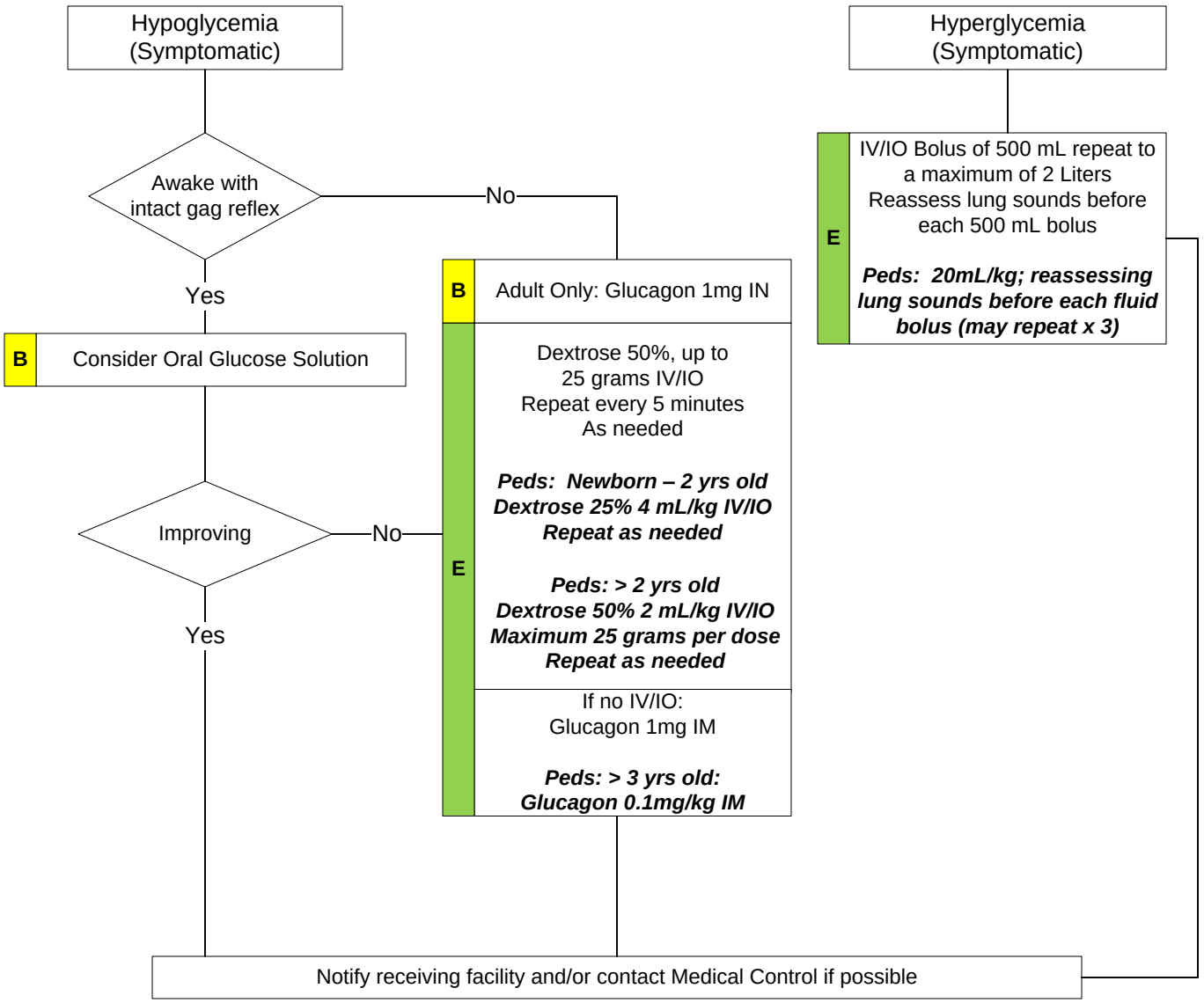
Medical – Cardiac Chest Pain

PEARLS

** Do NOT administer Nitroglycerin to any patient who has used Viagra or Levitra in the past 24 hours or Cialis in the past 36 hours due to potential severe hypotension.*
** Nitroglycerin should be avoided in **Inferior Wall MIs**, unless Right-Side ECG is obtained to rule out **Right Ventricular MI**.*
**** Consult with Online Medical Control before giving nitroglycerin to patients experiencing RVMI.** Nitroglycerin use in RVMI may cause persistent and dangerous hypotension.*
* Monitor for hypotension after administration of nitroglycerin and narcotics.
* Patients with STEMI (ST – Elevation Myocardial Infarction) should be transported to the appropriate facility based on the EMS Heart Alert Plan.
* Diabetics and geriatric patients often have atypical pain, or only generalized complaints.

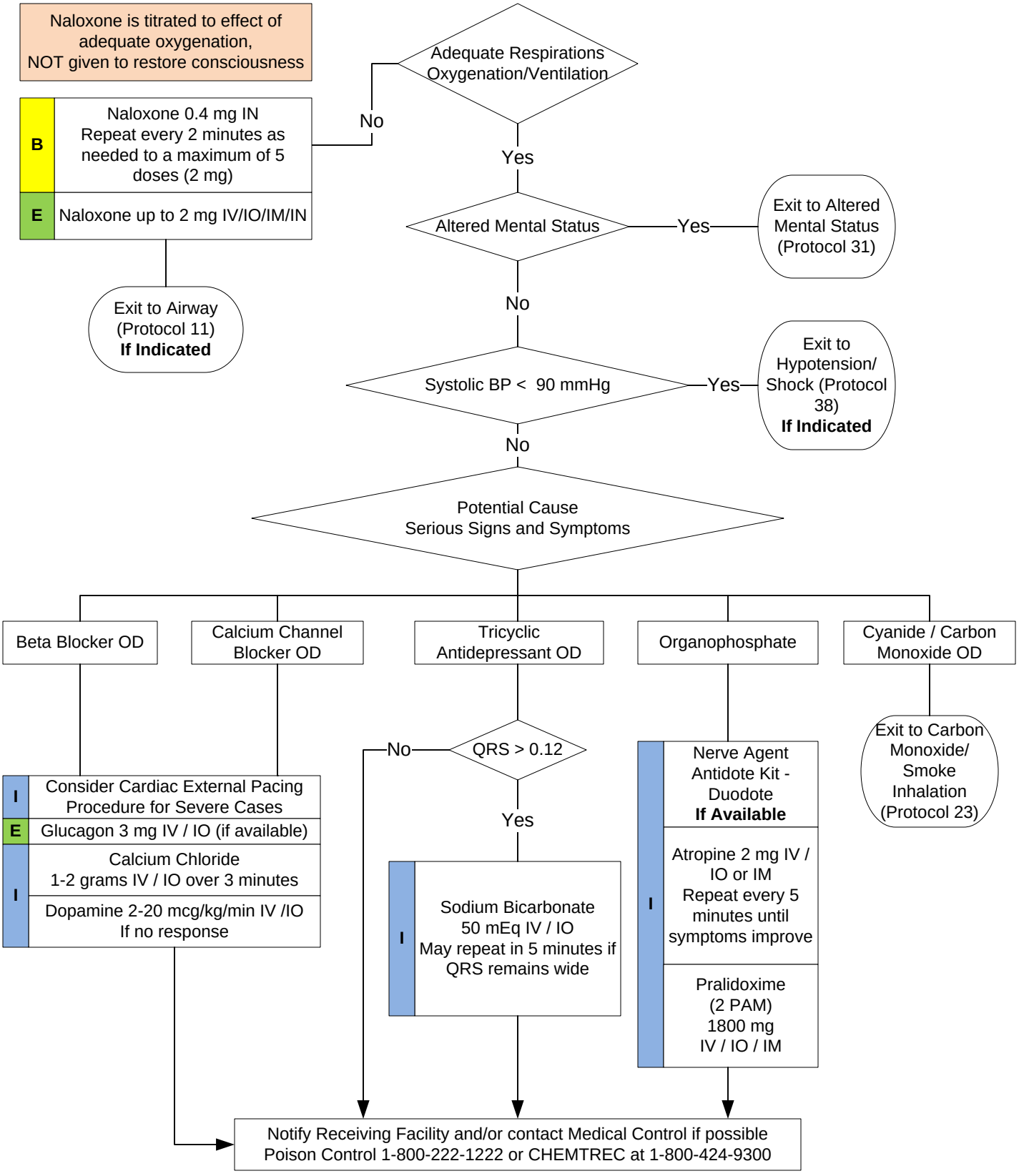
STEMI Best Practices:
* Seconds count. Time clock starts with FMC (First Medical Contact) with ideal goal of STEMI patient being in cath lab and device (stint) placed in no more than 90 min. A Heart Alert is as time sensitive as a Trauma Alert, perhaps more.
* If scene allows and at patient's side, perform **12 Lead EKG**, give immediate notification of **Heart Alert**, initiate care with rapid transport and consider use of aeromedical resources. Especially after hours, cath labs require minimum of 20 minutes to staff and set up.
* EMS is the most important player in driving this process forward to benefit the patient!

Medical – Hypoglycemia/Diabetic Emergency

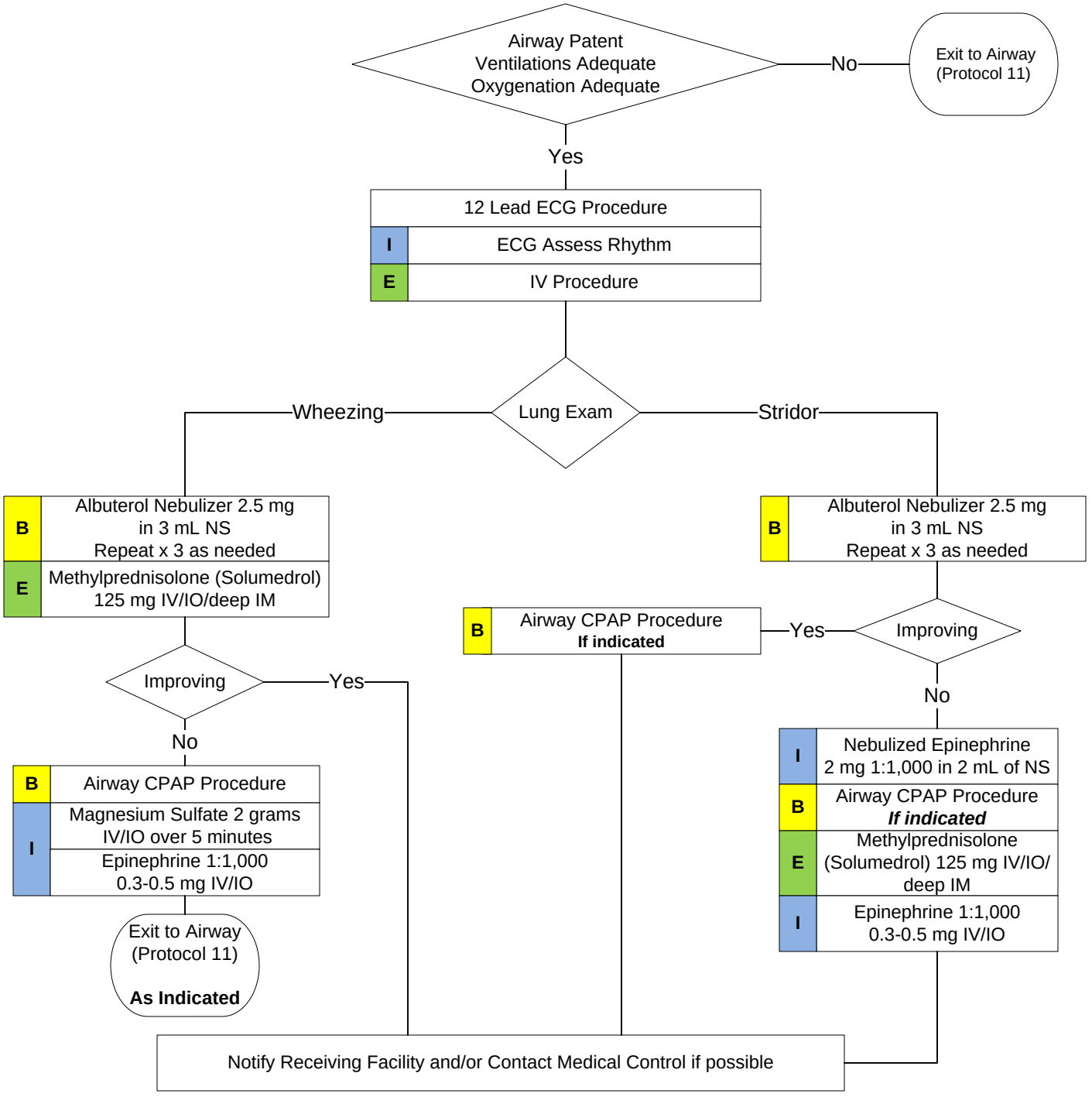


PEARLS
* Patients with prolonged hypoglycemia may not respond to glucagon
* Do NOT administer oral glucose to patients that are not able to swallow or protect their airway
* Quality control checks should be maintained per manufacturers recommendations for ALL glucometers
* Normal blood sugar ranges are typically 70-110; treatment is usually only required if < 60 or > 300.

Medical – Overdose/Poisoning/Toxic Ingestion (Adult)



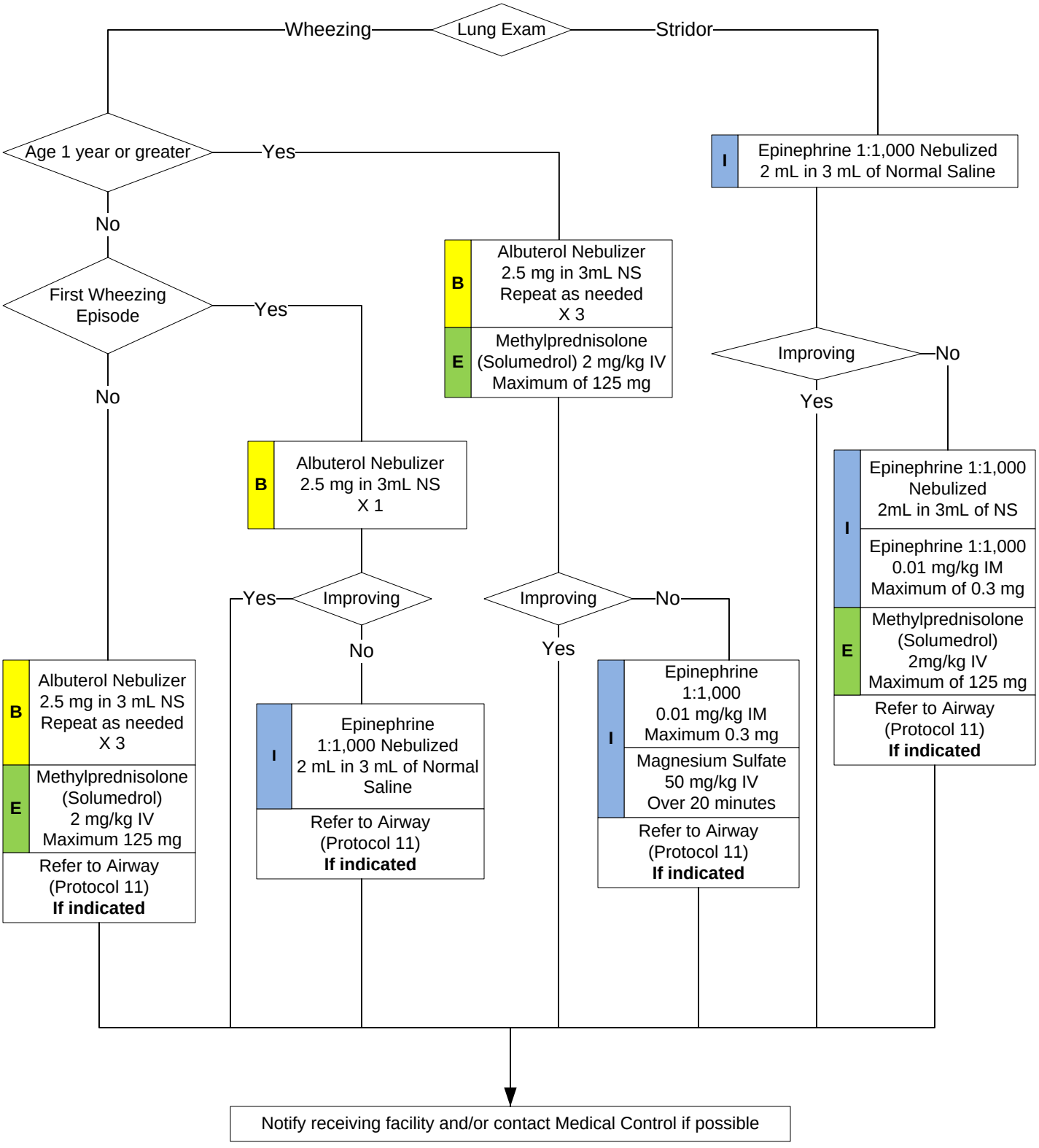
Medical – Respiratory Distress (Adult)



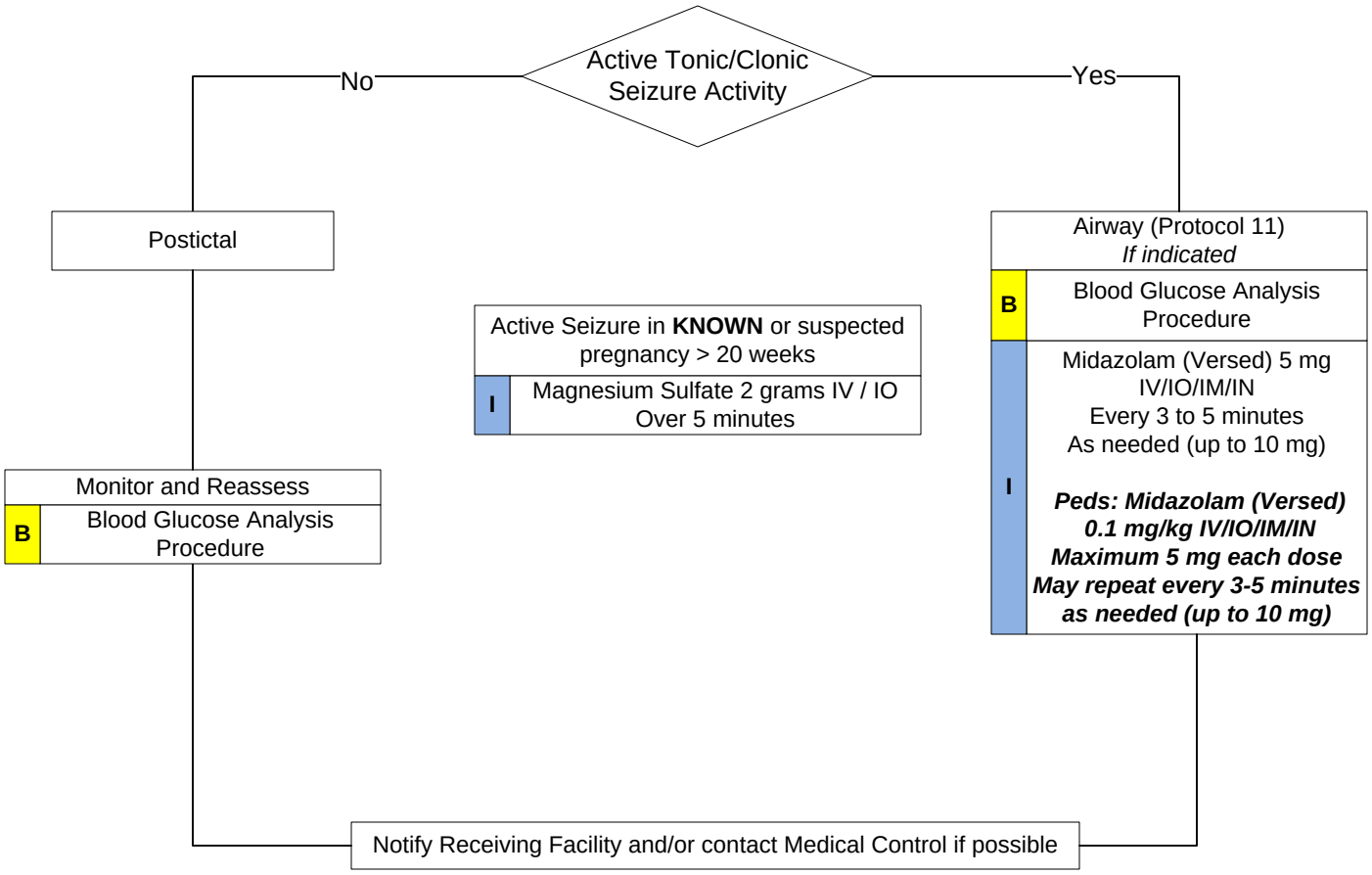
PEARLS

* Pulse Oximetry and EtCO2 should be monitored continuously if initial saturation is ≤ 94%, or there is a decline in patient's status.
* Contact Medical Control prior to administration of epinephrine in patients who are >50 years of age, have a history of cardiac disease, or if the patient's heart rate is > 150. Epinephrine may precipitate ischemia. A 12 Lead should be performed on these patients.
* A silent chest in respiratory distress is a pre-respiratory arrest sign.

Medical – Respiratory Distress (Pediatric)



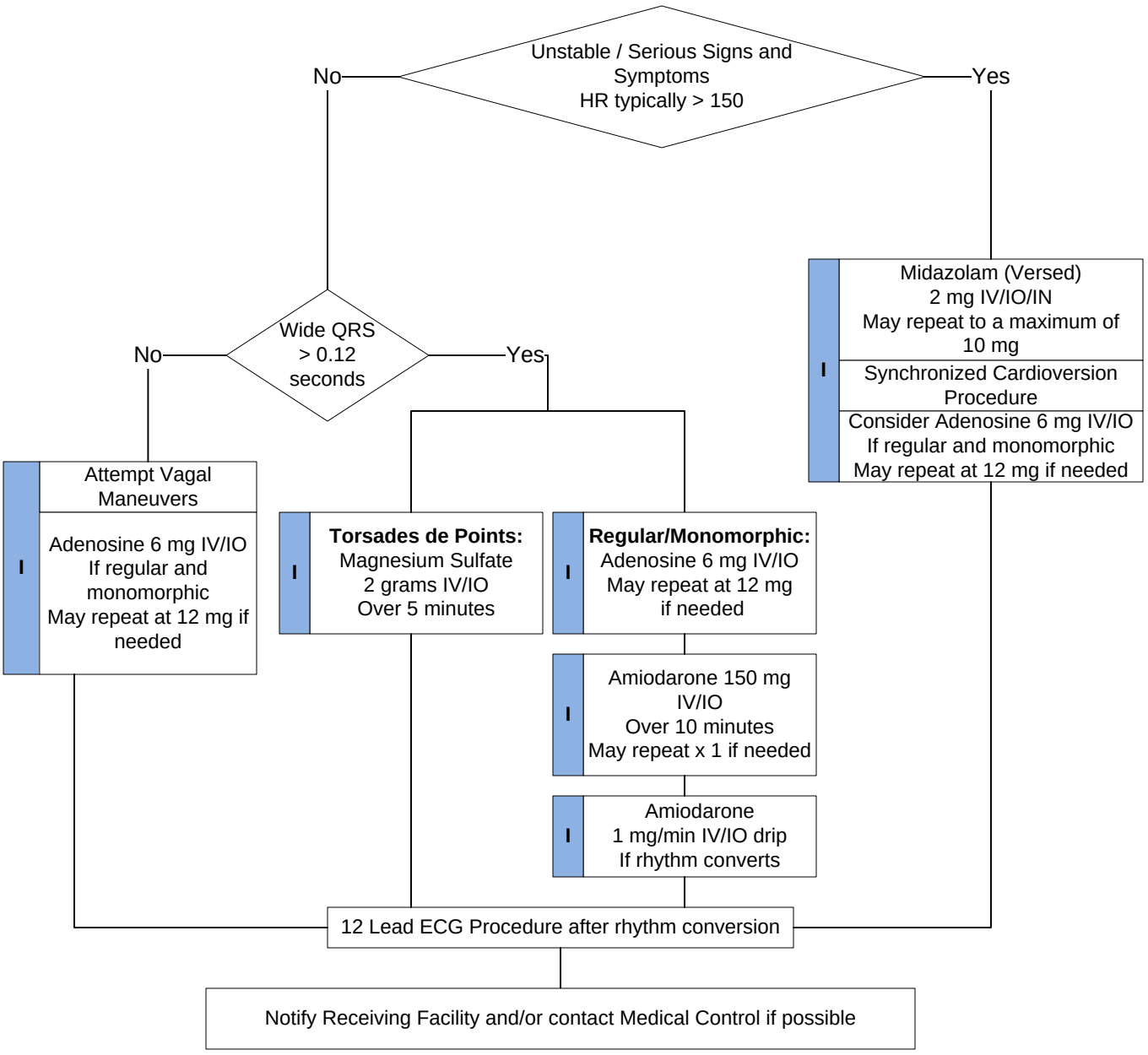
Medical – Seizure



PEARLS

* Status epilepticus is defined as two or more successive seizures without a period of consciousness or recovery. This is a true emergency, requiring rapid airway control, treatment and transport.
* Grand mal seizures (generalized) are associated with loss of consciousness, incontinence and tongue trauma.
* Focal seizures (petit mal) effect only a part of the body and are not usually associated with a loss on consciousness.
* Be prepared for airway problems and continued seizures.
* Assess possibility of occult trauma and substance abuse.
* Be prepared for airway problems and continued seizures.
* Assess possibility of occult trauma and substance abuse.
* Be prepared to assist ventilations especially if diazepam or midazolam is used.
* For any seizure in a pregnant patient, follow the OB Emergencies Protocols.
* Midazolam (Versed) is well absorbed when administered IM.

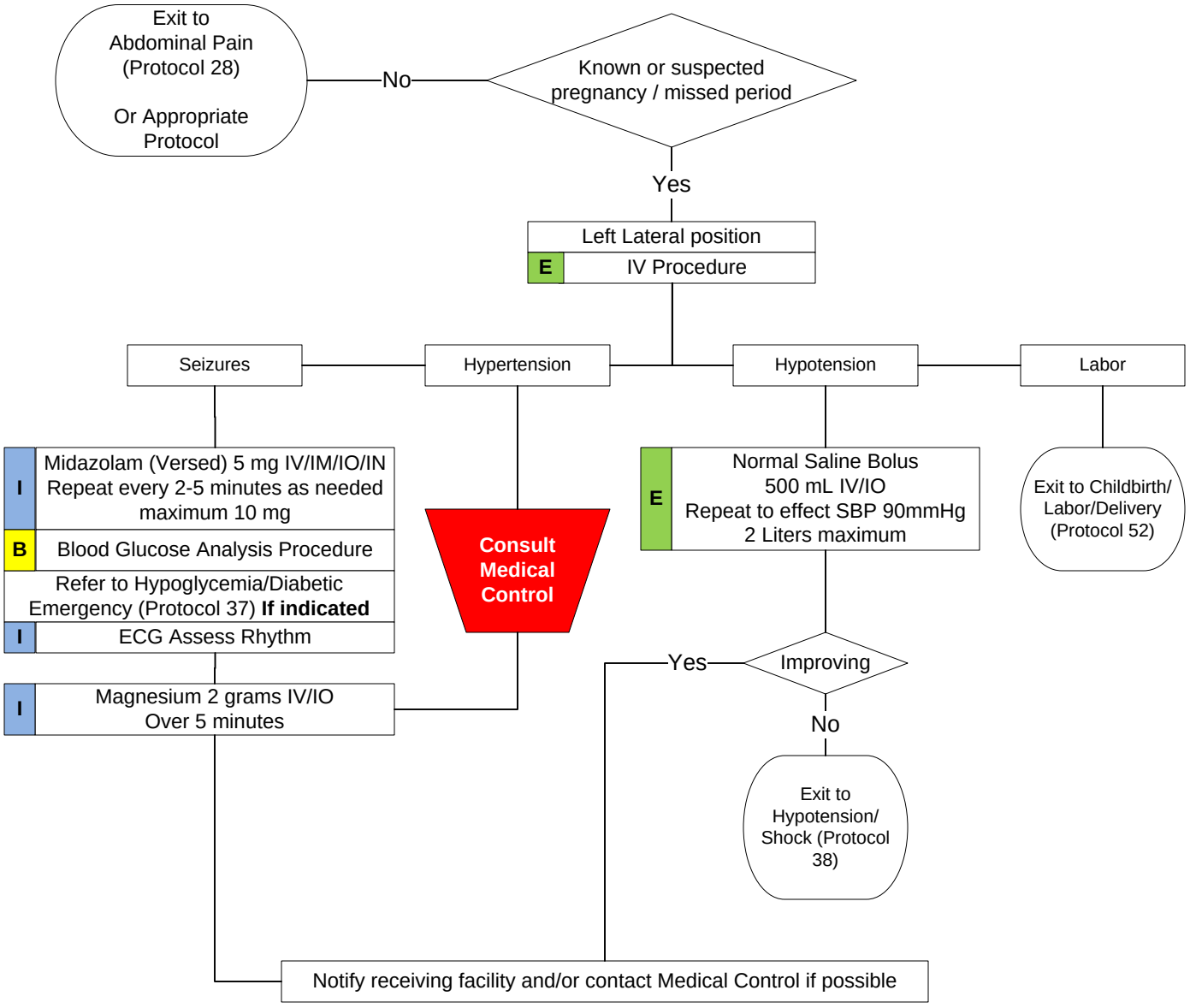
Medical – Tachycardia (Adult)



PEARLS

* When giving Adenosine, push rapidly, followed by a 10 mL flush.
* Adenosine may **not** be effective in identifiable atrial flutter/fibrillation, yet is not harmful.
* Monitor for respiratory depression and hypotension associated with Versed.
* Continuous pulse oximetry is required for all SVT patients.
* Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.

OB/GYN – Pregnancy Related Emergencies



PEARLS

* Severe headache, vision changes or RUQ pain may indicate pre-eclampsia.
* In the setting of pregnancy, hypertension is defined as a BP greater than 140 systolic and 90 diastolic.
* Maintain patient in a left lateral position to prevent supine hypotensive syndrome.
* Ask patient to quantify bleeding – number of pads used per hour.
* Any pregnant patient involved in an MVC should be seen immediately by a physician for evaluation. Greater than 20 weeks, generally required 4-6 hours of fetal monitoring.
* Magnesium may cause hypotension and decreased respiratory drive. Use with caution.
* If Abruptio Placenta or Placenta Previa suspected, monitor closely for signs and symptoms of shock and refer to the Hypotension/Shock Protocol.

Airway - CPAP

Clinical Indications for Continuous Positive Airway Pressure (CPAP) Use:

- CPAP is indicated in all patients whom inadequate ventilation is suspected. This could be as a result of pulmonary edema, pneumonia, COPD, etc.

Procedure:

1. Ensure adequate oxygen supply to ventilation device.
2. Explain the procedure to the patient.
3. Consider placement of a nasopharyngeal airway.
4. Place the delivery mask over the mouth and nose. Oxygen should be flowing through the device at this point.
5. Secure the mask with provided straps starting with the lower straps until minimal air leak occurs.

6a. EMT & EMT-E: Use fixed Positive End Expiratory Pressure (PEEP) of 7.5 cm H_2O.

6b. EMT-I & EMT-P: If the Positive End Expiratory Pressure (PEEP) is adjustable on the CPAP device adjust the PEEP beginning with the lowest setting and slowly titrate to achieve a positive pressure of 5-10 cm H_2O.

7. Evaluate the response of the patient assessing breath sounds, oxygen saturation, and general appearance.
8. Titrate oxygen levels to the patient's response. Many patients respond to low FIO_2 (30-50%).
9. Encourage the patient to allow forced ventilation to occur. Observe closely for signs of complications. The patient must be breathing for optimal use of the CPAP device.
10. Document time and response on patient care report (PCR).

Defibrillation – Manual, Double Sequential

Clinical Indications:

- Patient with persistent ventricular fibrillation/pulseless tachycardia, without even transient interruption of fibrillation and ≥ 5 shocks attempted.
- Administered Amiodarone 450mg total dose.
- An EMT-I/P has verified the persistence of the arrhythmia immediately post-shock.

Procedure:

1. Ensure quality of CPR is not compromised during prolonged efforts.
2. Prepare for additional set of external defibrillation pads by drying the sites and minimizing interference of hair or other obstacles to good pad adhesion.
3. Apply a new set of external defibrillation pads adjacent to, but not touching the pad set currently in use. If initial pads placed were placed Sternum/Apex, then second set should be Anterior/Posterior. If initial placement is Anterior/Posterior then position second set Sternum/Apex.
4. Assure that controls for the second cardiac monitor are accessible to the code commander
5. On rhythm check, the provider will confirm the rhythm.
    a. If a shockable rhythm is detected, CPR will resume immediately. The provider will verify that both cardiac monitors/defibrillators are attached to the patient, that all pads are well adhered, and direct the simultaneous charging of both attached cardiac monitors.
    b. When both monitors are charged to maximum energy and all persons are clear, the code commander or other medic will push both shock buttons as synchronously as possible.
    c. Immediately resume CPR for 2 minutes.
6. If a non-shockable rhythm is present care will resume according to the appropriate protocol.
7. Recurrent or Intractable V-fib/Pulseless V-tach not responsive to defibrillation should be considered exception to philosophy of managing cardiac arrest on scene. Transport to an emergency department should be considered for additional antiarrhythmics not available in the field.

Venous Access – Intravenous Access

Clinical Indications:

- Any patient where intravenous access is indicated (significant trauma or mechanism, emergent or potentially emergent medical condition).

Procedure:

1. Saline locks should be used as an alternative to an IV tubing and IV fluid in every protocol, unless clinical indicators for IV fluid administration exist.
2. Intraosseous access may be used in place of IV access where threat to life exists as provided for in the Venous Access – Intraosseous procedure.
3. Use the largest catheter bore necessary based upon the patient's condition and size of veins.
4. Fluid and setup choice is preferably:
    - Normal Saline with a macro drip (i.e., 10-15 gtt/mL) for medical conditions, and
    - Normal Saline with a micro drip (60 gtt/mL) for medication infusions.
5. Inspect the IV solution for expiration date, cloudiness, discoloration, leaks, or the presence of particles.
6. Connect IV tubing to the solution in a sterile manner. Fill the drip chamber half full and then flush the tubing bleeding all air bubbles from the line.
7. Place a tourniquet around the patient's extremity to restrict venous flow only.
8. Select a vein and an appropriate gauge catheter for the vein and the patient's condition.
9. Prep the skin with an antiseptic solution.
10. Insert the needle with the bevel up into the skin in a steady, deliberate motion until the bloody flashback is visualized in the catheter.
11. Advance the catheter into the vein. **Never** reinsert the needle through the catheter. Dispose of the needle into the proper container without recapping.
12. Draw blood samples when appropriate.
13. Remove the tourniquet and connect the IV tubing or saline lock.
14. Open the IV to assure free flow of the fluid and then adjust the flow rate as per protocol or as clinically indicated.

    Rates are preferably:
    - Adult: KVO: 60 mL/hr (1 gtt/ 6 sec for a macro drip set)
    - Pediatric: KVO: 30 mL/hr (1 gtt/ 12 sec for a macro drip set)

    If shock is present:
    - Adult: 500 mL fluid boluses repeated as long as lungs are dry and BP < 90. Consider a second IV line.
    - Pediatric: 20 mL/kg blouses repeated PRN for poor perfusion.
15. Cover the site with a sterile dressing and secure the IV and tubing.
16. Label the IV with date and time, catheter gauge, and name/ID of the person starting the IV.
17. Document the procedure, time and result (success) on/with the patient care report (PCR).

Note: Venous access should be obtained preferentially via peripheral IV sites, Intraosseous, and external jugular. If the patient has a portacath, central, or PICC line, and the provider is properly trained and equipped to access them via sterile technique, they may be accessed only in hemodynamically unstable patients after failing to obtain access through other means.

Venous Access – Intraosseous Access

Clinical Indications:
Patients where rapid, regular IV access is unavailable with any of the following:

- Cardiac arrest.
- Multisystem trauma with severe hypovolemia.
- Severe dehydration with vascular collapse and/or loss of consciousness.
- Respiratory failure / Respiratory arrest.

Contraindications:

- Fracture proximal to proposed intraosseous site.
- History of Osteogenesis Imperfecta
- Current or prior infection at proposed intraosseous site.
- Previous intraosseous insertion or joint replacement at the selected site.

Procedure:

1. Don personal protective equipment (gloves, eye protection, etc.).
2. Identify anteromedial aspect of the proximal tibia (bony prominence below the knee cap). The insertion location will be 1-2 cm (2 finger widths) below this. If this site is not suitable, and patient >12 years of age, identify the anterior medial aspect of the distal tibia (2 cm proximal to the medial malleolus).
3. Prep the site recommended by the device manufacturer with providone-iodine ointment or solution.
4. For manual pediatric devices, hold the intraosseous needle at a 60 to 90 degree angle, aimed away from the nearby joint and epiphyseal plate, twist the needle handle with a rotating grinding motion applying controlled downward force until a “pop” or “give” is felt indicating loss of resistance. Do not advance the needle any further.
5. For the EZ-IO intraosseous device, hold the intraosseous needle at a 60 to 90 degree angle, aimed away from the nearby joint and epiphyseal plate, power the driver until a “pop” or “give” is felt indicating loss of resistance. Do not advance the needle any further. EZIO can be placed Humeral Head, Anterior Tibia, and Distal Tibia (Medial Malleolus). The Humeral Head is the preferred site if the patient is responsive to pain.
6. For the Bone Injection Gun (BIG), find and mark the manufacturers recommended site. Position the device and pull out the safety latch. Trigger the BIG at 90° to the surface and remove the injection device.
7. Remove the stylette and place in an approved sharps container.
8. Attach a syringe filled with at least 5 mL NS; aspirate bone marrow for manual devices only, to verify placement; then inject at least 5 mL of NS to clear the lumen of the needle.
9. Attach the IV line and adjust flow rate. A pressure bag may assist with achieving desired flows.
10. Stabilize and secure the needle with dressings and tape.
11. You may administer 10 to 20 mg (1 to 2 mL) of 2% Lidocaine in adult patients who experience infusion-related pain. This may be repeated prn to a maximum of 60 mg (6 mL).
12. Following the administration of any IO medications, flush the IO line with 10 mL of IV fluid.
13. Document the procedure, time, and result (success) on/with the patient care report (PCR).

Note: Venous access should be obtained preferentially via peripheral IV sites, Intraosseous, and external jugular. If the patient has a portacath, central, or PICC line, and the provider is properly trained and equipped to access them via sterile technique, they may be accessed only in hemodynamically unstable patients after failing to obtain access through other means.

Criteria for Death

Policy:

CPR and other EMS interventions are to be withheld only if the patient is obviously dead or a valid Virginia Durable Do Not Resuscitate Order and/or POST form (see separate policy) is present.

Purpose:

The purpose of this policy is to:

- Honor those who have obviously expired prior to EMS arrival.

Procedure:

1. If a patient is in complete cardiopulmonary arrest (clinically dead) and meets one or more of the criteria below, CPR and other EMS interventions need not be initiated:
    - Body decomposition
    - Rigor mortis
    - Dependent lividity
    - Major blunt force trauma
    - Injury not compatible with life (i.e., decapitation, burned beyond recognition, massive open or penetrating trauma to the head or chest with obvious organ destruction)
    - Extended downtime with asystole on the ECG
2. If a bystander or first responder has initiated CPR or automated defibrillation prior to EMS's arrival, and any of the above criteria (signs of obvious death) are present, EMS may discontinue CPR and other interventions.
3. If doubt exists, start resuscitation immediately. Once resuscitation is initiated, continue resuscitation efforts until either:
    a) Resuscitation efforts meet the criteria for implementing the **Discontinuation of Prehospital Resuscitation Policy (Policy 5)**
    b) Patient care responsibilities are transferred to the destination hospital staff.

Note:

DDNR/POST regulations are often updated. Refer to the Virginia OEMS website for the most current information at http://www.vdh.state.va.us/OEMS/DDNR

Discontinuation of Prehospital Resuscitation

Policy:

Unsuccessful cardiopulmonary resuscitation (CPR) and other life support interventions may be discontinued prior to transport or arrival at the hospital when this policy is followed.

Purpose:

The purpose of this policy is to allow the discontinuation of prehospital resuscitation after the delivery of adequate and appropriate therapy.

Procedure:

1. Discontinuation of CPR and EMS interventions should be considered **if <u>ALL</u>** of the following criteria have been met:
    A. Adequate CPR has been administered.
    B. Successful management of the airway with verification of device placement. Acceptable management techniques include intubation, and supraglottic airway devices, e.g. King, Combitube.
    C. Arrest not witnessed by EMS.
    D. No return of pulse at any time during resuscitation.
    E. No shock delivered during resuscitation.
    F. Minimum of 25 minutes of resuscitation.
    G. All EMS personnel involved in the patient's care agree that discontinuation of the resuscitation is appropriate.

2. If all the above criteria have met, contact Medical Control and request an online order to discontinue resuscitation.

3. In the event that the above criteria have not been met, and EMS personnel feel discontinuing efforts is still appropriate, contact Medical Control for online orders regarding further care to be provided. Medical Control may authorize discontinuation of efforts based on the current situation.

4. Follow Deceased Subjects Policy.

Medical Emergency Custody Orders

Policy:

Medical Emergency Custody Orders (ECOs) may be issued by the courts to permit the treatment of medical conditions in persons not capable of making informed decisions. EMS should initiate this process any time a patient requires medical care, refuses said care, but is not capable of making an informed decision.

Purpose:

- To ensure appropriate care and transportation is provided to persons incapable of making informed decisions.

Procedure:

After a comprehensive assessment of an adult patient and the patient is refusing further care and the provider feels that patient is NOT capable of making an informed decision due to their illness or injury and that further test and/or treatment are needed to prevent irreversible harm, the provider shall take the following measures:

1. Confirm that there is no legally authorized person available to give consent.
2. Contact medical control and speak directly to a physician. You should immediately indicate to the physician you are considering a Medical ECO.
3. Attempt to have the patient speak directly with the physician to give the physician an opportunity to encourage consent.
4. Upon confirming that the physician will be seeking a Medical ECO, contact law enforcement for on scene assistance.
5. With the assistance of law enforcement, which shall have the custody order, transport the patient to the emergency department of which the physician consultation was with rendering appropriate care for such protocol(s) of which the patient presents themselves.
6. If there is a change in the person's condition, the EMS Personnel shall contact the licensed physician. If at any time the licensed physician determines that a person subject to the order has become capable of making an informed decision, the physician shall rely on the person's decision on whether to consent to further observation, testing, or treatment.
7. Thoroughly document the incident.

Refusal of Treatment/Transport

Any competent adult may refuse medical care and/or transportation for any reason as long as he/she is in fact mentally competent and has been fully informed of the circumstances surrounding their illness or injury. A mentally competent patient is considered to be alert and oriented to person, place, time, and event or situation. Suicidal patients should not be considered as being mentally competent.

When an adult refuses treatment, perform the following procedures:

1. Perform as thorough an assessment as possible and allowed by the patient. Completely inform the patient of their medical condition. Indicate what treatment are necessary and possible problems or complication that may occur from refusing care within the scope of your training. Document assessment findings and indications that the patient understands and is competent to refuse care.
2. Encourage the patient to grant consent for treatment and transportation to the hospital
3. Do not force assistance on a mentally competent patient
4. Always have at least one witness present. Obtain written release. It is preferable to have a neutral party witness the signing of the release.
5. Any pregnant patient regardless of age is considered to be an adult for the sole purpose of giving consent for herself and her child to surgical and medical treatment relating to the delivery of her child.
6. Any patient displaying documents from a recognized court system that indicates the patient is an emancipated minor is considered to be an adult; should be accompanied by photo identification.
7. Any patient who is age 14 or older is considered to be an adult unless they are in the care and company of a parent or legal guardian who are competent (i.e., school official, law enforcement, etc.)
8. If there is any doubt in regards to a patient's mental capacity or the patient is a minor, perform the following:
    a. If an emergency medical condition exists, initiate treatment under implied consent when informed consent cannot be quickly obtained from another appropriate party.
    b. A reasonable form of restraint may be used **ONLY if necessary** and when there is implied consent. Restraint should only be used when the patient is a threat to themselves or others. Restraint should not exceed that reasonably necessary. If the patient is combative reasonable care should be used. Whenever possible, law enforcement personnel should be utilized to assist. Document what indications lead to your determination of incompetence.
    c. If a parent refuses medical care for a child, follow the same steps outlined above for competent adults. If you believe that the child has a life threatening condition, local law enforcement or social services officials should be contacted immediately. Consultation between the EMS provider, Medical Control and the appropriate authorities may allow the authorities to take the child into protective custody.
9. Document verbatim what you told the patient relative to specific risks and potential complications that could result from refusing care and transportation. Include measurement indicators used to assess the patient's mental competency and ability to understand.
10. In certain situations where the provider is in doubt or concerned regarding the patient's condition or assistance is needed in making a rational medical decision the provider should always err on the side of the patient. The provider should contact online medical control for guidance. While the physician is not there they may be able to assist in the decision making process by your assessment findings and description of the current conditions and/or situation.

Medication Reference

Medication	Adult Dosage	Pediatric Dosage
acetaminophen (Tylenol) **WVEMS Protocols:** * 6-Fever * 7-Pain Control **Indication/Contraindications:** * Used for Pain and fever control * *Avoid in patients with severe liver disease*	* 1000 mg PO	* See Color Coded List **Pain** * 15 mg/kg PO **Fever** * 15 mg/kg PO
adenosine (Adenocard) **WVEMS Protocols:** * 50-Tachycardia (Adult) * 51-Tachycardia (Pediatric) **Indication/Contraindications:** * Specifically for treatment or diagnosis of supraventricular tachycardia	* 6 mg IV/IO RAPID push • Repeat with 12 mg IV/IO RAPID push if needed	* See Color Coded List * 0.1 mg/kg IV/IO RAPID push (MAX 6 mg) • Repeat with 0.2 mg/kg IV/IO RAPID push if needed (MAX 12 mg)
albuterol sulfate (Proventil) **WVEMS Protocols:** * 29-Allergies/Anaphylaxis (Adult) * 30-Allergies/Anaphylaxis (Pediatric) * 46-Respiratory Distress (Adult) * 47-Respiratory Distress (Pediatric) **Indication/Contraindications:** * Beta-Agonist nebulized treatment for use in respiratory distress with bronchospasm	* 2.5 mg in 3 mL NS	* See Color Coded List * 2.5 mg in 3 mL NS
amiodarone (Cordarone) **WVEMS Protocols:** * 17-VF/VT (Adult) * 18-VF/VT (Pediatric) * 50-Tachycardia (Adult) * 51-Tachycardia (Pediatric) **Indication/Contraindications:** * Antiarrhythmic used in ventricular fibrillation and tachycardia * *Avoid in patients with heart block or profound bradycardia* * *Contraindicated in patients with iodine hypersensitivity*	**Antiarrhythmic (with Pulse)** * 150 mg IV/IO over 10 minutes • May repeat once if needed * If rhythm converts: • 1 mg/min IV/IO Drip **Refractory VF/VT:** * 300 mg IV/IO • May repeat at 150 mg IV/IO if needed	* See Color Coded List **Antiarrhythmic (with Pulse)** * 5 mg/kg IV/IO over 20 minutes (MAX 150 mg) • May repeat once if needed **Refractory VF/VT:** * 5 mg/kg IV/IO (MAX 300 mg) • May repeat at 5 mg/kg IV/IO if needed (MAX 150 mg) • MAX Total Dose 15 mg/kg

Medication Reference

Medication	Adult Dosage	Pediatric Dosage
aspirin **WVEMS Protocols:** * **7-Pain Control** * **34- Cardiac Chest Pain** **Indication/Contraindications:** * NSAID used for pain control * Antiplatelet drug used in cardiac chest pain * *Not to be used in patients with history of GI bleeding/ulcers*	**Pain** * 650 mg PO **Cardiac** * Four (4) 81 mg PO • Chewable/"baby" tablets	Ø
atropine **(AtroPen)** **WVEMS Protocols:** * **32-Bradycardia (Adult)** * **33-Bradycardia (Pediatric)** * **43-OD/Poison/Toxics (Adult)** * **44-OD/Poison/Toxics (Pediatric)** **Indication/Contraindications:** * Anticholinergic used in bradycardias * For organophosphate poisoning/ nerve agent exposure, large doses may be required (>10 mg)	**Bradycardia** * 0.5 mg IV/IO Rapid Push • Repeat every 3-5 minutes as needed to MAX 3 mg. **Organophosphate Poisoning** * 2 mg IV/IO/IM • Repeat every 5 minutes as needed until symptoms improve	* **See Color Coded List** **Bradycardia - ONLY if increased vagal tone:** * 0.02 mg/kg IV/IO Rapid Push • Minimum Dose 0.1 mg • Repeat once after 5 minutes if needed **Organophosphate Poisoning** * 0.05-0.1 mg IV/IO/IM • Repeat every 5 minutes as needed until symptoms resolve
calcium chloride **WVEMS Protocols:** * **17A-Intractable VF/VT (Adult)** * **24-Crush Syndrome** * **35-Dialysis/Renal Failure** * **43-OD/Poison/Toxics (Adult)** * **44-OD/Poison/Toxics (Pediatric)** **Indication/Contraindications:** * Indicated in severe hyperkalemia	**Renal Failure** * 1 g IV/IO over 3 minutes **Beta or Calcium Channel Blocker Overdoses:** * 1-2 g IV/IO over 3 minutes **Crush Syndrome Trauma:** * 1 g IV/IO over 3 minutes	* **See Color Coded List** **Beta or Calcium Channel Blocker Overdoses:** * 60 mg/kg IV/IO over 3 minutes

Medication Reference

Medication	Adult Dosage	Pediatric Dosage
dextrose 25% **WVEMS Protocols:** * **14-Asystole/PEA (Pediatric)** * **37-Hypoglycemia/Diabetic** * **39-Hypotension/Shock (Pediatric)** **Indication/Contraindications:** * Use in hypoglycemic states	Ø	* See Color Coded List **<2 years:** * 4 mL/kg IV/IO • Repeat as needed
dextrose 50% **WVEMS Protocols:** * **13-Asystole/PEA (Adult)** * **14-Asystole/PEA (Pediatric)** * **37-Hypoglycemia/Diabetic** * **39-Hypotension/Shock (Pediatric)** **Indication/Contraindications:** * Use in hypoglycemic states	* Up to 25 g IV/IO • MAX 25 g per dose • Repeat as needed	* See Color Coded List **>2 years:** * 2 mL/kg IV/IO • MAX 25 g per dose • Repeat as needed
diphenhydramine **(Benadryl)** **WVEMS Protocols:** * **29-Allergies/Anaphylaxis (Adult)** * **30-Allergies/Anaphylaxis (Pediatric)** **Indication/Contraindications:** * Antihistamine for control of allergic reactions * Used to counteract dystonic reaction to haloperidol	**Allergies/Anaphylaxis** * 20-50 mg IV/IO/Deep IM **Dystonic Reaction** * 25 mg IV/IO/Deep IM	* See Color Coded List * 1 mg/kg IV/IO/Deep IM

Medication Reference

Medication	Adult Dosage	Pediatric Dosage
dopamine **(Intropin)** **WVEMS Protocols:** *** 13-Asystole/PEA (Adult)** *** 14-Asystole/PEA (Pediatric)** *** 15-Post Resuscitation Care (Adult)** *** 16-Post Resuscitation Care (Pediatric)** *** 23-CO/Smoke Inhalation** *** 32-Bradycardia (Adult)** *** 33-Bradycardia (Pediatric)** *** 34-Cardiac Chest Pain** *** 38-Hypotension/Shock (Adult)** *** 39-Hypotension/Shock (Pediatric)** *** 43-OD/Poison/Toxics (Adult)** *** 44-OD/Poison/Toxics (Pediatric)** *** 45-Pulmonary Edema/CHF** **Indication/Contraindications:** * Vasopressor used in shock or hypotensive states	* 5-20 mcg/kg/min IV/IO • Titrate to obtain/maintain SBP ≥90 mmHg *** REFER TO DOPAMINE * DRIP RATES ***	*** See Color Coded List** * 5-20 mcg/kg/min IV/IO • Titrate to obtain/maintain SBP ≥70 + (2 x age in yrs)
DuoDote **(atropine & pralidoxime)** **WVEMS Protocols:** *** 43-OD/Poison/Toxics (Adult)** *** 44-OD/Poison/Toxics (Pediatric)** *** 54-WMD-CHEM PACK** **Indication/Contraindications:** * Antidote for organophosphate poisoning or nerve agent exposure	* Each autoinjector contains: • atropine 2.1 mg/0.7 mL • pralidoxime 600 mg/2 mL **Minor Symptoms:** * 1-2 Autoinjectors IM **Major Symptoms:** * 3 Autoinjectors IM	* **Only for use >1 year of age** • <1 year, use weight-based doses **Minor Symptoms:** * 1-2 Autoinjectors IM **Major Symptoms:** * 3 Autoinjectors IM

Medication Reference

Medication	Adult Dosage	Pediatric Dosage
epinephrine **(EpiPen)** **WVEMS Protocols:** * **13-Asystole/PEA (Adult)** * **14-Asystole/PEA (Pediatric)** * **29-Allergies/Anaphylaxis (Adult)** * **30-Allergies/Anaphylaxis (Pediatric)** * **33-Bradycardia (Pediatric)** * **42-Newborn/Neonatal Resuscitation** * **46-Respiratory Distress (Adult)** * **47-Respiratory Distress (Pediatric)** **Indication/Contraindications:** * 1:1,000 – Used in allergic reactions/ anaphylaxis, severe respiratory distress, and in nebulized form * 1:10,000 – Used in cardiac arrest and pediatric bradycardia * Continuous Drip – Used in anaphylaxis not responsive to other means; *Monitor carefully to ensure correct dose is given & for desired/ adverse effects*	**Anaphylaxis (1:1,000)** * 0.3-0.5 mg IM • Repeat in 5 minutes if no improvement **Anaphylaxis (Continuous Drip)** * 2-10 mcg/min IV/IO **Cardiac Arrest (1:10,000)** * 1 mg IV/IO • Repeat every 3-5 minutes until ROSC or termination of efforts **Nebulized (1:1,000)** * 2 mg in 2 mL NS nebulized	* **See Color Coded List** **Anaphylaxis (1:1,000)** * 0.01 mg/kg IM • MAX 0.3 mg • Repeat in 5 minutes if no improvement **Anaphylaxis (Continuous Drip)** * 0.1 mcg/kg/minute IV/IO **Cardiac Arrest (1:10,000)** * 0.01 mg/kg IV/IO • Repeat every 3-5 minutes until ROSC or termination of efforts **Bradycardia (1:10,000)** * 0.01 mg/kg IV/IO • Repeat every 3-5 minutes as needed **Nebulized (1:1,000)** * 2 mg in 3 mL NS nebulized
fentanyl **(Sublimaze)** **WVEMS Protocols:** * **7-Pain Control** * **24-Crush Syndrome** * **34-Cardiac Chest Pain** **Indication/Contraindications:** * Narcotic pain relief * Antianxiety * Possible beneficial effect in pulmonary edema * *Avoid if SBP <110* * *Administer slowly – If given rapidly, can cause chest wall rigidity*	* 1 mcg/kg IV/IO/IM/IN • May repeat 0.5 mcg/kg every 5 minutes as needed • MAX 2 mcg/kg	* **See Color Coded List** * 1 mcg/kg IV/IO/IM/IN • May repeat 0.5 mcg/kg every 5 minutes as needed • MAX 2 mcg/kg

Medication Reference

Medication	Adult Dosage	Pediatric Dosage
furosemide **(Lasix)** **WVEMS Protocols:** *** 45-Pulmonary Edema/CHF** **Indication/Contraindications:** ** Used in CHF/PE ONLY with online order from Medical Control*	* 40 mg IV or Double the last dose	Ø
glucagon **(GlucaGen)** **WVEMS Protocols:** *** 37-Hypoglycemia/Diabetic** *** 39-Hypotension/Shock (Pediatric)** *** 43-OD/Poison/Toxics (Adult)** *** 44-OD/Poison/Toxics (Pediatric)** **Indication/Contraindications:** * Use in hypoglycemic states when no IV access is available * Drug releases glucose into blood stream by glycogen breakdown	**Hypoglycemia** * 1 mg IM **Beta or Calcium Channel Blocker Overdoses:** * 3 mg IV/IO	* **See Color Coded List** **Hypoglycemia >3 years:** * 0.1 mg/kg IM **Beta or Calcium Channel Blocker Overdoses:** * 0.5 mg IV/IO (MAX 2 mg)
glucose, oral **(Insta-Glucose Gel)** **WVEMS Protocols:** *** 37-Hypoglycemia/Diabetic** *** 39-Hypotension/Shock (Pediatric)** **Indication/Contraindications:** * Use in hypoglycemic states ** Patient MUST be awake, able to swallow, with intact gag reflex*	* 1-2 Tubes (15-30 g) Buccally	* **See Color Coded List** **ONLY if >3 years:** * 0.5-1 Tube (7.5-15 g) Buccally
haloperidol **(Haldol)** **WVEMS Protocols:** *** 2-Behavioral/Pt. Restraint** **Indication/Contraindications:** * Medication to assist with sedation of agitated patients ** Consider diphenhydramine (Benadryl) for dystonic reaction*	**Chemical Restraint** * <65 years: 5 mg IM * >65 years: 2.5 mg IM	Ø

Medication Reference

Medication	Adult Dosage	Pediatric Dosage
hydroxocobalamin **WVEMS Protocols:** * **23-CO/Smoke Inhalation** **Indication/Contraindications:** * For use in exposure to cyanide	**Cyanide Exposure** * 70 mg/kg IV/IO (MAX 5 g)	**Cyanide Exposure** * 70 mg/kg IV/IO (MAX 5 g)
ibuprofen **(Motrin)** **WVEMS Protocols:** * **6-Fever** * **7-Pain Control** **Indication/Contraindications:** * NSAID for pain and fever control * *Not to be used in patients with history of GI bleeding/ulcers or renal insufficiency* * *Avoid in patients taking anticoagulants, i.e. Coumadin*	* 800 mg PO	* **See Color Coded List** **Pain** * 10 mg/kg PO **Fever >6 Months** * 10 mg/kg PO
ketorolac **(Toradol)** **WVEMS Protocols:** * **7-Pain Control** **Indication/Contraindications:** * NSAID for pain control * *Not to be used in patients with history of GI bleeding/ulcers or renal insufficiency, or in patients who may need immediate surgical intervention (i.e. obvious fractures)* * *Avoid in patients taking anticoagulants, i.e. Coumadin*	* 30 mg IV/IO/IM	* **See Color Coded List** **ONLY if >2 years:** * 0.5 mg/kg IV/IO/IM (MAX 30 mg)

Medication Reference

Medication	Adult Dosage	Pediatric Dosage
lidocaine **(Xylocaine)** **WVEMS Procedures:** * **Venous Access: Intraosseous** * **Airway – Intubation, Nasotracheal** **Indication/Contraindications:** * Used as local anesthetic following insertion of IO devices in conscious patients * Used to lubricate NPA prior to nasotracheal intubation	**Lidocaine 2%** For Pain During IO Access: * 20-40 mg IO **Lidocaine Jelly** Nasotracheal Intubation: * Lubricate NPA with jelly for use prior to ETT placement	* See Color Coded List **Lidocaine 2%** For Pain During IO Access: * 0.5 mg/kg IO **Lidocaine Jelly** **NOT USED:** Nasotracheal intubation not authorized in peds
magnesium sulfate **WVEMS Protocols:** * **17-VF/VT (Adult)** * **17A-Intractable VF/VT (Adult)** * **18-VF/VT (Pediatric)** * **46-Respiratory Distress (Adult)** * **47-Respiratory Distress (Pediatric)** * **48-Seizure** * **53-Pregnancy Related Emerg.** **Indication/Contraindications:** * Used to treat eclampsia during pregnancy * Smooth muscle relaxer used in refractory respiratory distress resistant to beta-agonists * Used to treat Torsades de Pointes	**Seizures** * 2 g IV/IO over 5 minutes **Respiratory Distress** * 2 g IV/IO over 5 minutes **Torsades de Pointes** * 2 g IV/IO Bolus	* See Color Coded List **Respiratory Distress** * 50 mg/kg IV over 20 minutes **Torsades de Pointes** * 50 mg/kg IV/IO • Repeat every 5 minutes to MAX 2 g
methylprednisolone **(Solu-Medrol)** **WVEMS Protocols:** * **29-Allergies/Anaphylaxis (Adult)** * **30-Allergies/Anaphylaxis (Pediatric)** * **46-Respiratory Distress (Adult)** * **47-Respiratory Distress (Pediatric)** **Indication/Contraindications:** * Steroid used in respiratory distress to reverse inflammatory and allergic reactions	* 125 mg IV/IO	* See Color Coded List * 2 mg/kg IV/IO • MAX 125 mg

Medication Reference

Medication	Adult Dosage	Pediatric Dosage
midazolam **(Versed)** **WVEMS Protocols:** *** 2-Behavioral/Pt. Restraint** *** 11-Airway** *** 15-Post Resuscitation Care (Adult)** *** 16-Post Resuscitation Care (Pediatric)** *** 24-Crush Syndrome** *** 48-Seizure** *** 50-Tachycardia (Adult)** *** 51-Tachycardia (Pediatric)** *** 53-Pregnancy Related Emerg.** **Indication/Contraindications:** * Benzodiazepine used to control seizures and for sedation ** Use with caution if hypotensive*	**Chemical Restraint** * 2 -5mg IV/IO/IM, repeated every 3-5 minutes as needed **Sedation** * 2-5 mg IV/IO repeated every 3-5 minutes as needed **Seizures** * 5mg IV/IO/IM/IN, repeated every 3-5 minutes as needed **Shivering in Induced Hypothermia** * 3-5 mg IV/IO • May repeat once	*** See Color Coded List** **Sedation** * 0.2 mg/kg IV/IO **Seizures** * 0.1 mg/kg IV/IO/IM/IN, repeated every 3-5 minutes as needed (MAX 10 mg)
morphine sulfate **(MS Contin)** **WVEMS Protocols:** *** 7-Pain Control** *** 34-Cardiac Chest Pain** **Indication/Contraindications:** * Narcotic pain relief * Antianxiety * Possible beneficial effect in pulmonary edema ** Avoid if hypotensive*	* 2-4 mg IV/IO/IM • May repeat every 5 minutes as needed (MAX 10 mg)	*** See Color Coded List** * 0.1 mg/kg IV/IO/IM • May repeat every 10 minutes as needed (MAX 10 mg)

Medication Reference

Medication	Adult Dosage	Pediatric Dosage
naloxone **(Narcan)** **WVEMS Protocols:** * **13-Asystole/PEA (Adult)** * **14-Asystole/PEA (Pediatric)** * **43-OD/Poison/Toxics (Adult)** * **44-OD/Poison/Toxics (Pediatric)** **Indication/Contraindications:** * Narcotic antagonist	* Up to 2 mg IV/IO/IM/IN • Titrate to respirations/ oxygenation, NOT consciousness	* **See Color Coded List** * 0.1 mg/kg IV/IO/IM/IN • Titrate to respirations/ oxygenation, NOT consciousness
nitroglycerin **(Nitrostat)** **WVEMS Protocols:** * **34-Cardiac Chest Pain** * **45-Pulmonary Edema/CHF** **Indication/Contraindications:** * Vasodilator used in anginal syndromes and CHF * ***Contraindicated*** *if:* • *SBP <90 mmHg* • *Use of Viagra or Levitra within previous 24 hours* • *Use of Cialis within previous 36 hours*	**Sublingual Tablets** * 0.4 mg SL • Repeat every 5 minutes as needed to MAX of 3 tablets **Paste** * Apply 1 inch topically	Ø
ondansetron **(Zofran)** **WVEMS Protocols:** * **28-Abdominal Pain** * **41-Nausea/Vomiting** **Indication/Contraindications:** * Antiemetic used to control nausea and/or vomiting	* 4 mg IV/IO • May repeat once as needed	* **See Color Coded List** **ONLY if >6 months:** * 0.15 mg/kg IV/IO • May repeat once as needed

Medication Reference

Medication	Adult Dosage	Pediatric Dosage
oxymetazoline **(Afrin)** **WVEMS Protocols:** *** 5-Epistaxis** **Indication/Contraindications:** * Vasoconstrictor used with nasotracheal intubation and epistaxis * *Relative contraindication is significant hypertension*	* 4 sprays to bleeding nostril • Follow with direct pressure	* **See Color Coded List** * 1-2 sprays to bleeding nostril • Follow with direct pressure
pralidoxime **(2-PAM)** **WVEMS Protocols:** *** 43-OD/Poison/Toxics (Adult)** *** 44-OD/Poison/Toxics (Pediatric)** **Indication/Contraindications:** * Antidote for organophosphate poisoning/nerve agent exposure * Administered with atropine	**Organophosphate Poisoning** * Major Sxs: 1800 mg IV/IO/IM * Minor Sxs: 600 mg IV/IO/IM * Give with atropine	* **See Color Coded List** **Organophosphate Poisoning** * 25-50 mg/kg IV/IO/IM * Give with atropine
sodium bicarbonate **WVEMS Protocols:** *** 17-VF/Pulseless VT, Adult** *** 17A-Intractable VF/VT (Adult)** *** 18-VF/Pulseless VT, Pediatric** *** 24-Crush Syndrome** *** 35-Dialysis/Renal Failure** *** 43-OD/Poison/Toxics (Adult)** *** 44-OD/Poison/Toxics (Pediatric)** **Indication/Contraindications:** * Buffer used to increase pH in acidotic states	**Renal Failure:** * 1 mEq/kg IV/IO **Tricyclic Antidepressant OD:** * 50 mEq IV/IO • Repeat once in 5 minutes if QRS remains wide **Cardiac Arrest:** * 1 mEq/kg IV/IO **Crush Syndrome Trauma:** * 50 mEq IV/IO	* **See Color Coded List** **Tricyclic Antidepressant OD:** * 1 mEq/kg IV/IO • Repeat once in 5 minutes if QRS remains wide • MAX 50 mEq/kg **Cardiac Arrest:** * 1 mEq/kg IV/IO

WVEMS Regional Hospitals

Regional Hospitals with 24/7 Emergency Departments

Bedford Memorial Hospital
Level IV Stroke Center

1613 Oakwood St.
Bedford, VA 24523
Main Phone: (540) 586-2441
ED Phone: (XXX) XXX-XXXX

Carilion Franklin Memorial Hospital
Level IV Stroke Center

180 Floyd Ave.
Rocky Mount, VA 24151
Main Phone: (540) 489-6388
ED Phone: (540) 489-6367

Carilion Giles Community Hospital
Level IV Stroke Center

159 Hartley Way
Pearisburg, VA 24134
Main Phone: (540) 921-6000
ED Phone: (XXX) XXX-XXXX

Carilion New River Valley Medical Center
Level III Trauma Center *Level IV Stroke Center*

2900 Lamb Circle
Christiansburg, VA 24073
Main Phone: (540) 731-2000
ED Phone: (540) 731-2866

Carilion Roanoke Memorial Hospital
Level I Trauma Center *Level I Stroke Center*

1906 Belleview Ave.
Roanoke, VA 24014
Main Phone: (540) 981-7000
ED Phone (MEDCOM): (540) 981-7500

Centra Lynchburg General Hospital
Level I Stroke Center

1901 Tate Springs Rd.
Lynchburg, VA 24501
Main Phone: (434) 200-3000
ED Phone: (XXX) XXX-XXXX

Danville Regional Medical Center

142 South Main St.
Danville, VA 24541
Main Phone: (434) 799-2100
ED Phone: (434) 799-3742

LewisGale Hospital Alleghany

1 ARH Ln.
Low Moor, VA 24457
Main Phone: (540) 862-6011
ED Phone: (540) 862-6293

LewisGale Hospital Montgomery
Level III Trauma Center *Level IV Stroke Center*

3700 South Main St.
Blacksburg, VA 24060
Main Phone: (540) 951-1111
ED Phone: (540) 953-5122

LewisGale Hospital Pulaski
Level III Stroke Center

2400 Lee Hwy.
Pulaski, VA 24301
Main Phone: (540) 994-8100
ED Phone: (540) 994-8400

LewisGale Medical Center
Level II Stroke Center

1900 Electric Rd.
Salem, VA 24153
Main Phone: (540) 776-4000
ED Phone: (540) 776-4060

Memorial Hospital of Martinsville & Henry Co

320 Hospital Dr.
Martinsville, VA 24115
Main Phone: (276) 666-7200
ED Phone: (276) 666-7237

Pioneer Community Hospital

18688 Jeb Stuart Hwy.
Stuart, VA 24171
Main Phone: (276) 694-3151
ED Phone: (276) 694-8600

Veterans Affairs Medical Center – Salem

1970 Roanoke Rd.
Salem, VA 24153
Main Phone: (540) 982-2463
ED Phone: (XXX) XXX-XXXX

Epinephrine Drip Rates

Adult Epinepherine Continuous Infusion

Add 2 mg of epinephrine 1:1,000 to a 1,000 mL bag of normal Saline
Concentration: 2 mcg/mL
Dose: Infuse 2-10 mcg/minute

	2 mcg/min	3 mcg/min	4 mcg/min	5 mcg/min	6 mcg/min	7 mcg/min	8 mcg/min	9 mcg/min	10 mcg/min
10 gtt set	10	15	20	25	30	35	40	45	50
15 gtt set	15	23	30	38	45	53	60	68	75
60 gtt set	60	90	120	150	180	210	240	270	300
Drops per minute									

Pediatric Epinepherine Continuous Infusion

Add 2 mg of epinephrine 1:1,000 to a 1,000 mL bag of normal Saline
Concentration: 2 mcg/mL
Dose: Infuse 0.1 mcg/kg/minute
Note: **60 gtt set is preferred and should be used when available.** Macrodrip rates are provided if microdrip is unavailable.

	Gray 3-5 kg	Pink 6-7 kg	Red 8-9 kg	Purple 10-11 kg	Yellow 12-14 kg	White 15-18 kg	Blue 19-22 kg	Orange 24-30 kg	Green 32-40 kg
10 gtt set	2	3	4	5	7	8	10	14	18
15 gtt set	3	5	6	8	10	12	16	20	27
60 gtt set	12	20	26	32	39	50	63	81	108
Drops per minute									

Appendix I – Change Log (6/2014)

Protocol 2 – General – Behavioral/Patient Restraint
- Changed haloperidol from Paramedic to Intermediate level
- Reorganized decision box to clarify that "threat to self or others" is a required component to begin chemical restraint

Protocol 3 – General – Cardiac Arrest (Adult)
- Clarified first rhythm analysis/defibrillation should be attempted as soon as it becomes available
- Added standard CPR information

Protocol 7 – Pain Control
- Enlarged the "OR" to emphasize while either fentanyl or morphine may be used, providers may only administer one of them, not both

Protocol 8 – General – Pepper Spray/Taser® Removal
- Corrected arrow labels

Protocol 9 – General – Rehabilitation (Responder)
- Updated heart rates, vital sign standards, and times to more closely reflect NFPA 1584 rehab standards

Protocol 10 – General – Spinal Immobilization/Clearance
- Clarified language – entire spine should be palpated, not just c-spine

Protocol 16 – Cardiac Arrest – Post Resuscitation Care (Pediatric)
- Clarified fluid bolus language

Protocol 17 – Cardiac Arrest – Ventricular Fibrillation/Ventricular Tachycardia (Adult)
- Added link to new protocol (17A)

Protocol 17A – Cardiac Arrest – Intractable V-Fib/V-Tach (Adult)
- New protocol

Protocol 22/22A – Injury – Burns
- Clarified language to stop the burning process
- Typo corrected

Protocol 29 – Medical – Allergic Reaction/Anaphylaxis (Adult)
- Epinephrine – 1:100,000 IV Push has been replaced by Epinephrine – Continuous Infusion/IV Drip

Protocol 30 – Medical – Allergic Reaction/Anaphylaxis (Pediatric)
- Epinephrine – 1:100,000 IV Push has been replaced by Epinephrine – Continuous Infusion/IV Drip

Protocol 34/34A – Medical – Cardiac Chest Pain
- Updated STEMI section to emphasize time sensitivity, adequate notification, and transport to PCI facilities
- Added language regarding nitroglycerin in inferior wall & right ventricular MIs

Protocol 37 – Medical – Hypoglycemia/Diabetic Emergency
- Added glucagon IN for the EMT level

Protocol 43 – Medical – Overdose/Poisoning/Toxic Ingestion (Adult)
- Added naloxone IN for the EMT level

Protocol 46 – Medical – Respiratory Distress (Adult)
- Added epinephrine IV/IO to the end of the algorithms

Appendix I – Change Log (6/2014)

Protocol 47 – Medical – Respiratory Distress (Pediatric)
- Changed solumedrol to Enhanced level

Protocol 48 – Seizure
- Reworded to ensure midazolam is only administered to patients experiencing active tonic/clonic seizures

Protocol 50 – Medical – Tachycardia (Adult)
- Reorganized to better reflect treatment for torsades de pointes

Protocol 53 – OB/GYN – Pregnancy Related Emergencies
- Added IN to routes for midazolam
- Corrected terminology regarding online medical control

Procedure 5 – Airway – CPAP
- Updated to reflect state scope of practice change – EMT & Enhanced now use fixed PEEP setting

Procedure 22A – Defibrillation – Manual, Dual Sequential
- New procedure for Dual Sequential External Defibrillation for intractable ventricular fibrillation/ventricular tachycardia

Procedure 38 – Venous Access – Intravenous Access
- Modified to show saline locks should be used rather than full tubing and bag, unless clinical indicators for fluid exist

Procedure 39 – Venous Access – Intraosseous Access
- Added language to #5 EZIO to clarify approved sites, and site preference

Policy 3 – Criteria for Death
- Added link to referenced policy
- Added web link to OEMS DNR information

Policy 5 – Discontinuation of Prehospital Resuscitation
- Updated policy to reflect OEMS guidance. Online order from medical control is needed to discontinue EMS resuscitation.

Policy 7 – Medical Emergency Custody Orders
- Clarified language in #6 regarding change in patient mental capacity

Policy 8 – Refusal of Treatment/Transport
- Corrected terminology regarding online medical control

Medication Reference
- Formatting update – Contraindications/Warnings, etc now appear in red/italics
- Links updated for new protocol (17A)

Medication Reference – diphenhydramine
- Added acceptable use for dystonic reaction to haloperidol

Medication Reference – epinephrine
- Updated to reflect changes from protocols 29 & 30, replacing epinephrine 1:100,000 with a continuous infusion.

Medication Reference – haloperidol
- Added use of diphenhydramine for dystonic reaction

Appendix I – Change Log (6/2014)

Medication Reference – morphine

- Added missing “kg” to pediatric dosage
- Change administration frequency to every 5 minutes

References – WVEMS Regional Hospitals

- Added Stroke Center Designations

References – Epinephrine Drip Rates

- Added new reference for drip rates when giving epinephrine via continuous infusion