EMS Protocols

Policies & Procedures
Medication Reference

Revised: Dec 2015

WV EMS

Protocols

Protocols

Scope of Practice Legend	
[Unlabeled]	First Responder & EMR
B	EMT-Basic & EMT
E	EMT-Enhanced & Advanced EMT
I	EMT-Intermediate & Intermediate
P	EMT-Paramedic & Paramedic

Reminder:

This document provides protocols for common situations faced by EMS. It is not intended to provide complete instructions for all patients in all situations.

Many patients may require the use of more than one protocol, or may require care not addressed at all in these pages.

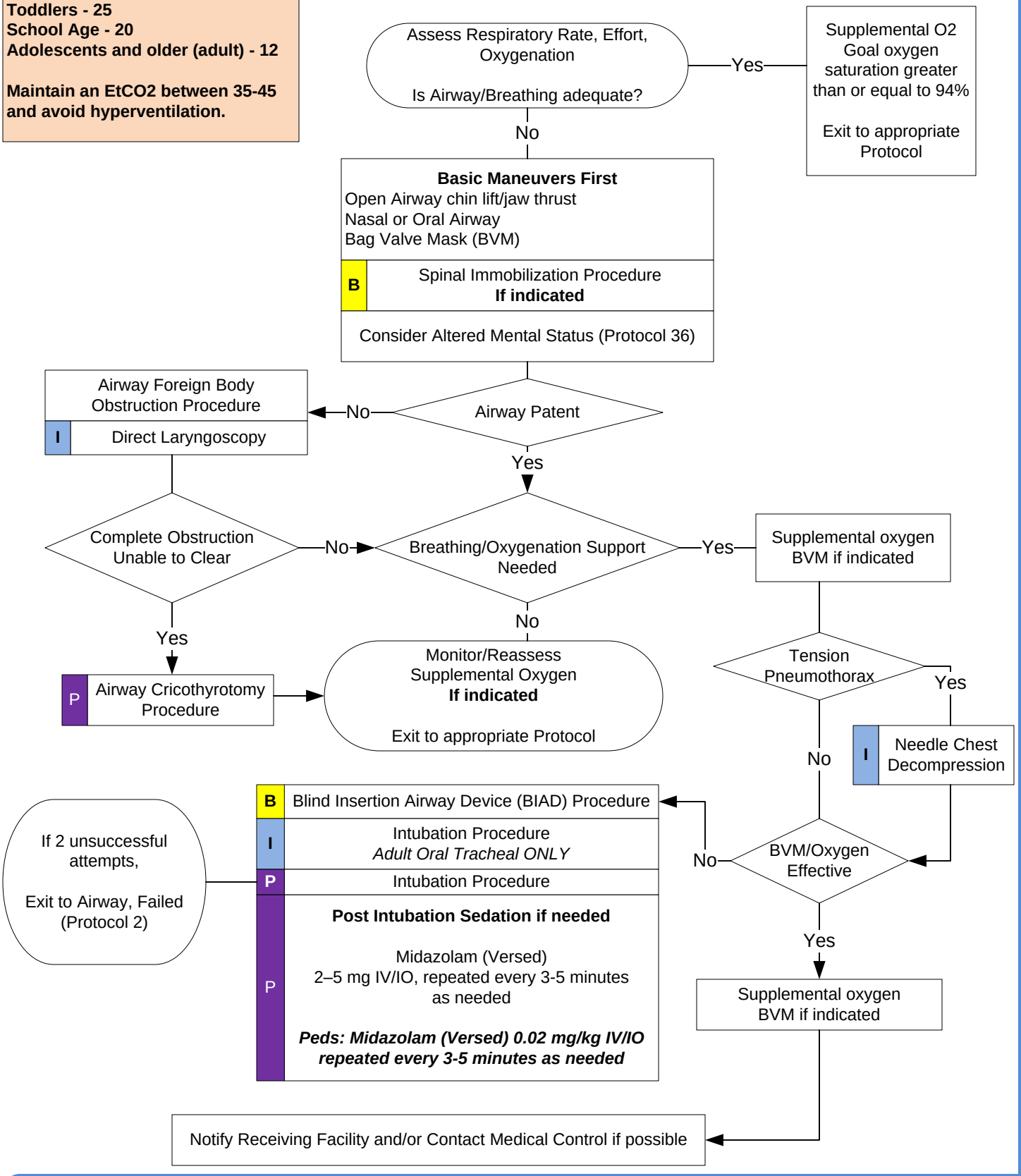
Remember that any provider may contact online medical control for advice, and to obtain orders for medications, dosages, and procedures not authorized here under standing orders.

All medications given and procedures performed must be in compliance with the Scope of Practice Formulary and Procedures, published by the Virginia Office of EMS. No provider may ever perform skills or administer medications outside of the scope of practice for their level of certification.

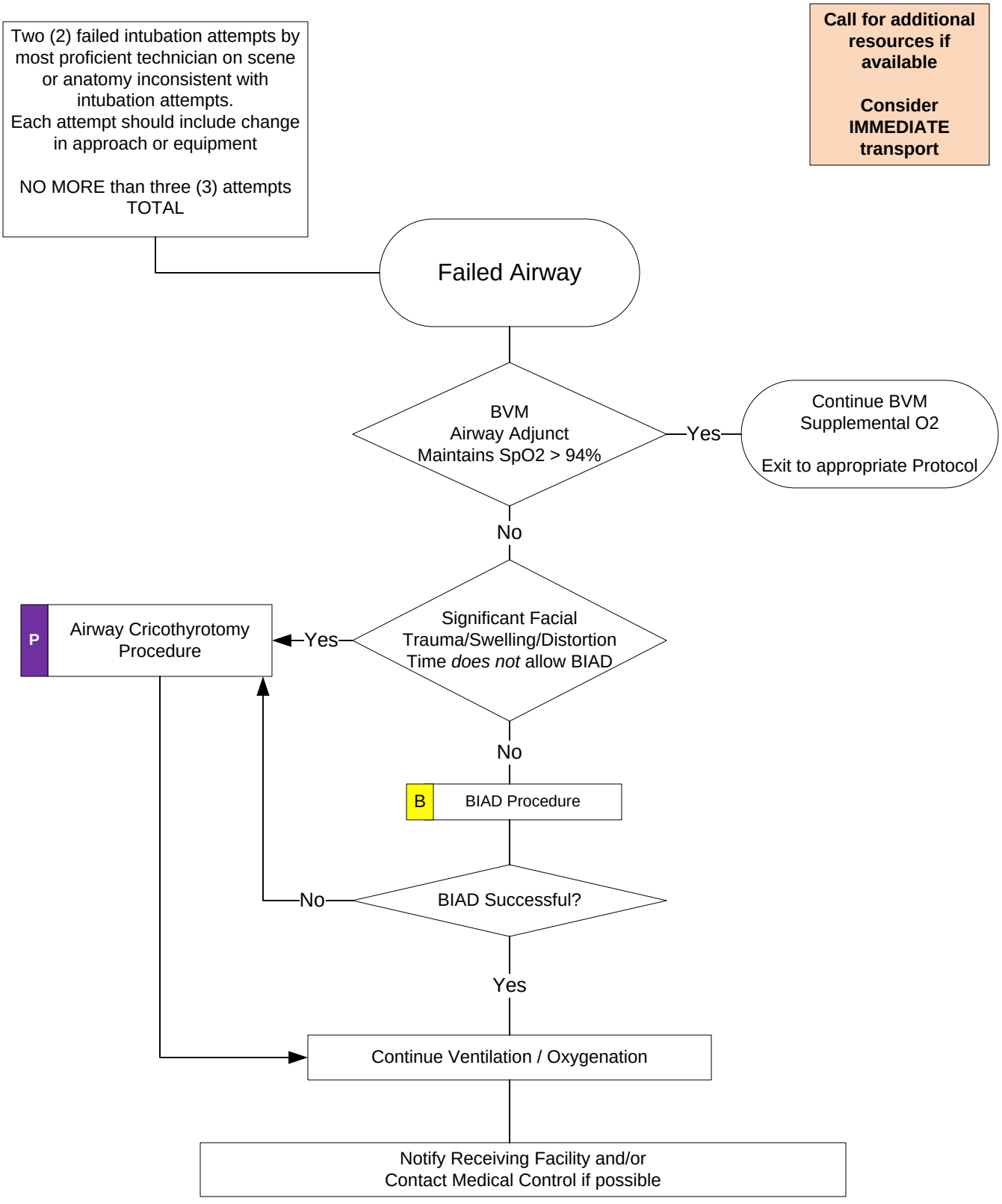
Airway

Ventilatory rates should be:
Neonates – 30
Toddlers - 25
School Age - 20
Adolescents and older (adult) - 12

Maintain an EtCO2 between 35-45 and avoid hyperventilation.



Airway – Failed



Airway – Failed

PEARLS:

* Secondary confirmation devices will be used with all methods of intubation with documentation of device used and results.
* If an effective airway is being maintained by BVM with continuous pulse oximetry values >94%, it is acceptable to continue basic airway measures.
* Ventilatory rate should be age appropriate to maintain an EtCO2 of 35-45. Avoid hyperventilation.
* Hyperventilation in deteriorating head trauma should only be done to maintain an EtCO2 of 30-35.
* Do not assume hyperventilation is psychogenic.
* Maintain C-spine immobilization for patients with suspected spinal injury.
* Gastric tube placement should be considered in all intubated patients if available or time allows.
* It is important to secure the endotracheal tube well. Consider head blocks in the absence of trauma, to better maintain ETT placement.

Cardiac Arrest – Unknown Rhythm (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.

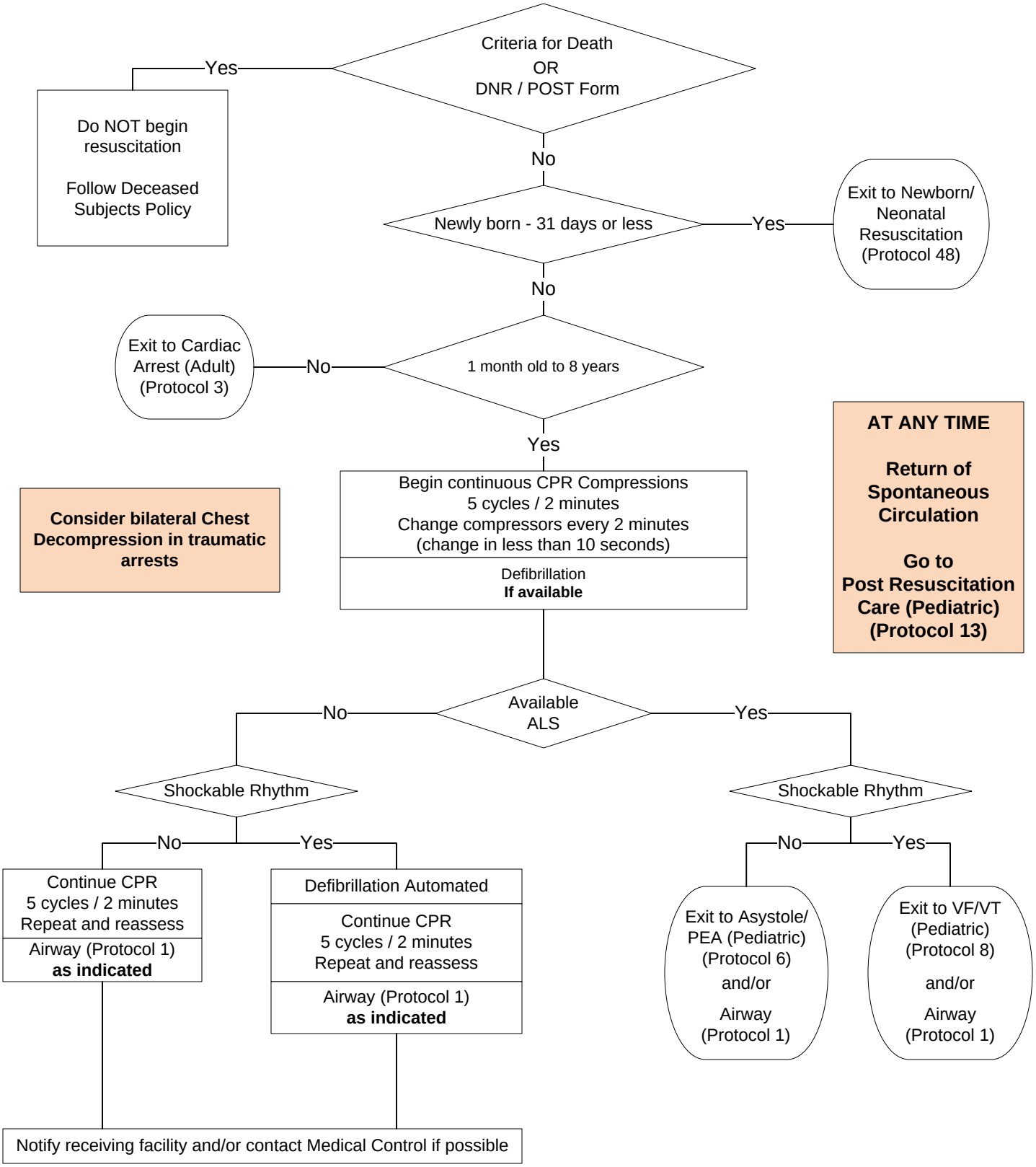
3. If potentially perfusing rhythm returns, or signs of circulation, continue with one more round of 200 compressions before pulse check.

4. Upon return of circulation, go to Post Resuscitation Care (Adult) (Protocol 12)

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.

Cardiac Arrest – Unknown Rhythm (Pediatric)



Cardiac Arrest – Unknown Rhythm (Pediatric)

In contrast to adults, cardiac arrest in infants and children DOES NOT usually result from a primary cardiac event. Typically cardiac arrest is the end result of a progressive process precipitated by respiratory distress or asphyxiation leading to hypoxemia, acidosis and hypotension resulting finally in cardiac arrest.

Compressions:
Compressions should be started immediately with interposed ventilations or ventilations performed by second rescuer when available. High quality, uninterrupted compressions are key to the resuscitative effort. At least 100 compressions per minute should be performed in a 15:2 ratio of compressions:ventilations until and advanced airway is in place then ventilations should be at 8 – 10 breaths per minute. Depth of compressions should be 1.5 inches in the infant and 2 inches in children with complete chest recoil allowed.

Ventilations:
Ventilations are more important in the pediatric patient due to the nature of most cardiac arrests. However DO NOT hyperventilate with volume or by rate of ventilations. Hyperventilation and hyper-oxygenation carry the same dangers in pediatrics as adults. King Airway or BVM is the preferred method of oxygen delivery and ventilation.

Immediately resume compressions / CPR after each defibrillation and check pulses every 2 minutes.

Defibrillation Energy:
First shock is 2 joules / kg with all subsequent shocks at 4 joules / kg.

Scene / Family Members / Public Areas:
In general high quality compressions cannot be effected during transport. This also represents a hazard to the crew. Cardiac arrests should have resuscitation effort performed where the victim is found unless a hazard exists, physical space does not allow access to patient or until return of spontaneous circulation. In the pediatric patient, after 30 minutes of effort with no response, then transport should be undertaken safely.

Studies show family members who desire to be present during a resuscitation demonstrate better understanding of the event and improved closure. This can be of enormous benefit to the family during the grieving process. The Team Leader should update the family and assign a rescuer to the family to answer questions and be of support during the event. Family members should be allowed access to the resuscitation effort unless they demonstrate a disruption to the effort.

PEARLS
* Monophasic and Biphasic waveform defibrillators should use the same energy levels of 2 joules/kg and increase to 4 joules/kg on subsequent shocks.
* In order to be successful in pediatric arrest, a cause must be identified and corrected.
* Airway is more important intervention in pediatric arrest. This should be accomplished quickly with BVM or supraglottic device. Patient survival is often dependent on proper ventilation and oxygenation airway interventions.
* Effective CPR is critical
  1. Push hard and fast at appropriate rate
  2. Ensure full chest recoil
  3. Minimize interruptions in CPR. Pause CPR < 10 seconds to verify rhythm

Cardiac Arrest – Asystole (Adult)

Consider bilateral Chest Decompression in traumatic arrests

AT ANY TIME

Return of spontaneous circulation

Go to Post Resuscitation Care (Adult) (Protocol 12)

Do NOT begin resuscitation

Yes

Criteria for Death
OR
DNR / POST Form

No

Begin Continuous CPR Compressions
5 Cycles / 2 Minutes
Change Compressors every 2 minutes
(change in less than 10 seconds)
Utilize AED if no ALS available

I	ECG Assess Rhythm

Consider Beta Blocker
OD
AND/OR
Calcium Channel Blocker
OD

(Protocol 49)

Follow Rhythm Appropriate Protocol

Yes

Shockable Rhythm

No

E	IV Procedure
	Consider Normal Saline Bolus (500 mL)
I	Epinephrine 1 mg, IV / IO Repeat every 3-5 minutes
E	Consider Naloxone 2 mg IV / IO
	Consider Dextrose 50%, 25 grams IV / IO
I	Consider Dopamine 5-20 mcg/kg/min IV / IO
	Consider Needle Chest Decompression

Consider Dialysis / Renal Failure (Protocol 35)

Criteria For Discontinuation

Yes

Discontinue Resuscitation and follow Deceased Subjects Policy

No

Notify Receiving Facility and/or Contact Medical Control if possible

PEARLS
* Consider each possible cause listed in the differential: Survival is based on identifying and correcting the cause!
* Discussion with Medical Control can be a valuable tool in developing a differential diagnosis and identifying possible treatment options.

Cardiac Arrest – Asystole (Pediatric)

Consider bilateral Chest Decompression in traumatic arrests

Cardiac Arrest, Pediatric Protocol

AT ANY TIME

Return of Spontaneous Circulation

Go to Post Resuscitation Care (Pediatric) (Protocol 13)

E	IV Procedure
I	Epinephrine 1:10,000 0.01 mg/kg IV/IO (max 1 mg)
E	Consider NS Bolus 10mL/kg IV/IO
E	Consider Naloxone, 0.1 mg/kg IV/IO
E	**Newborn to 2 yrs old:** D25 4 mL/kg IV/IO Repeat as needed **> 2 yrs old:** D50 2 mL/kg IV/IO Maximum 25 grams per dose Repeat as needed
I	Consider Dopamine 5-20 mcg/kg/min IV/IO
I	Needle Chest Decompression Procedure If indicated

Criteria for Discontinuation

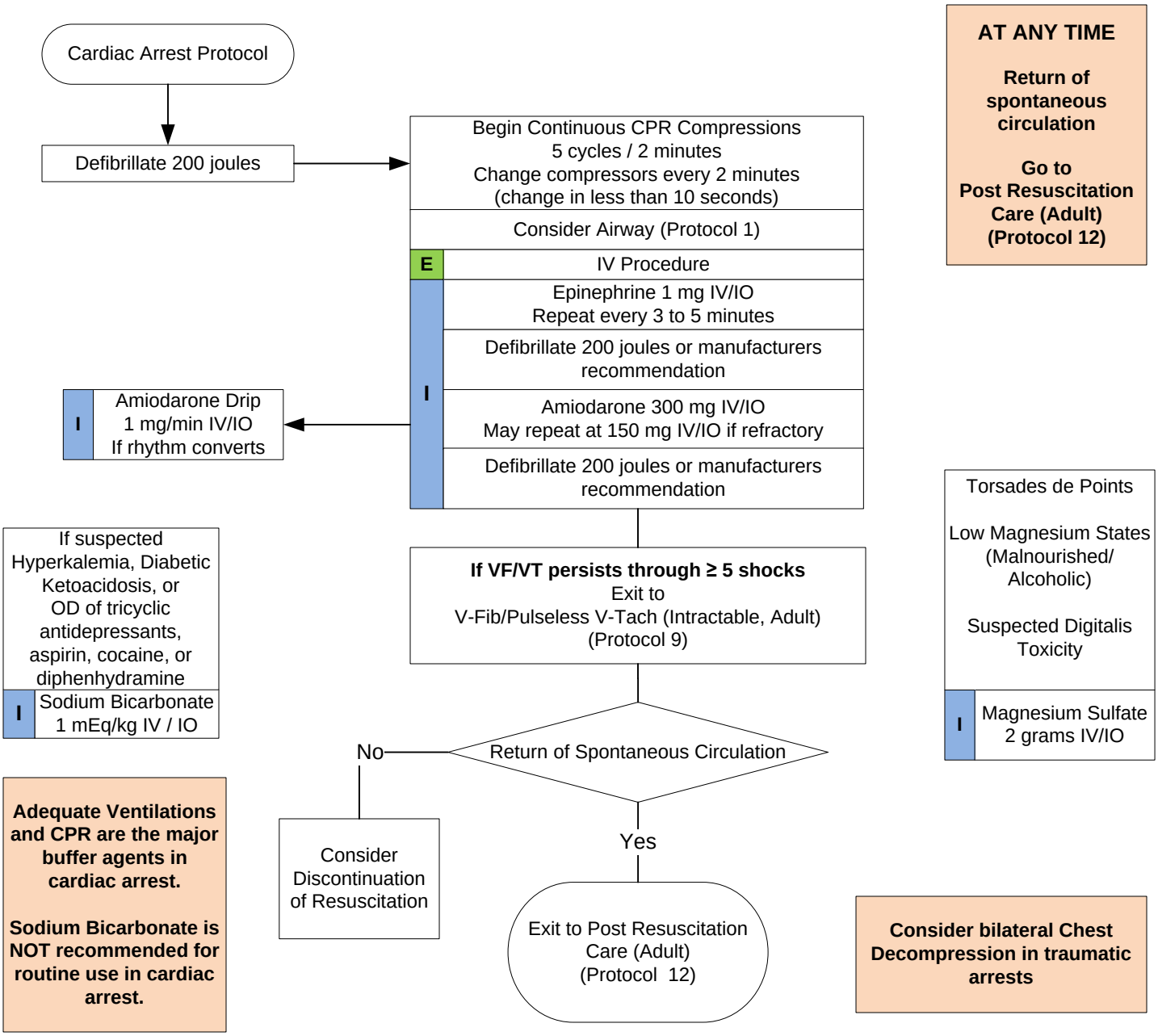
Yes → Discontinue Resuscitation and follow Deceased Subjects Policy

No

Notify receiving facility and/or contact Medical Control if possible

PEARLS
* In order to be successful in pediatric arrests, a cause must be identified and corrected.
* Respiratory arrest is a common cause of cardiac arrest. Unlike adults, early airway intervention is critical.
* In most cases, pediatric airways can be managed by basic interventions.

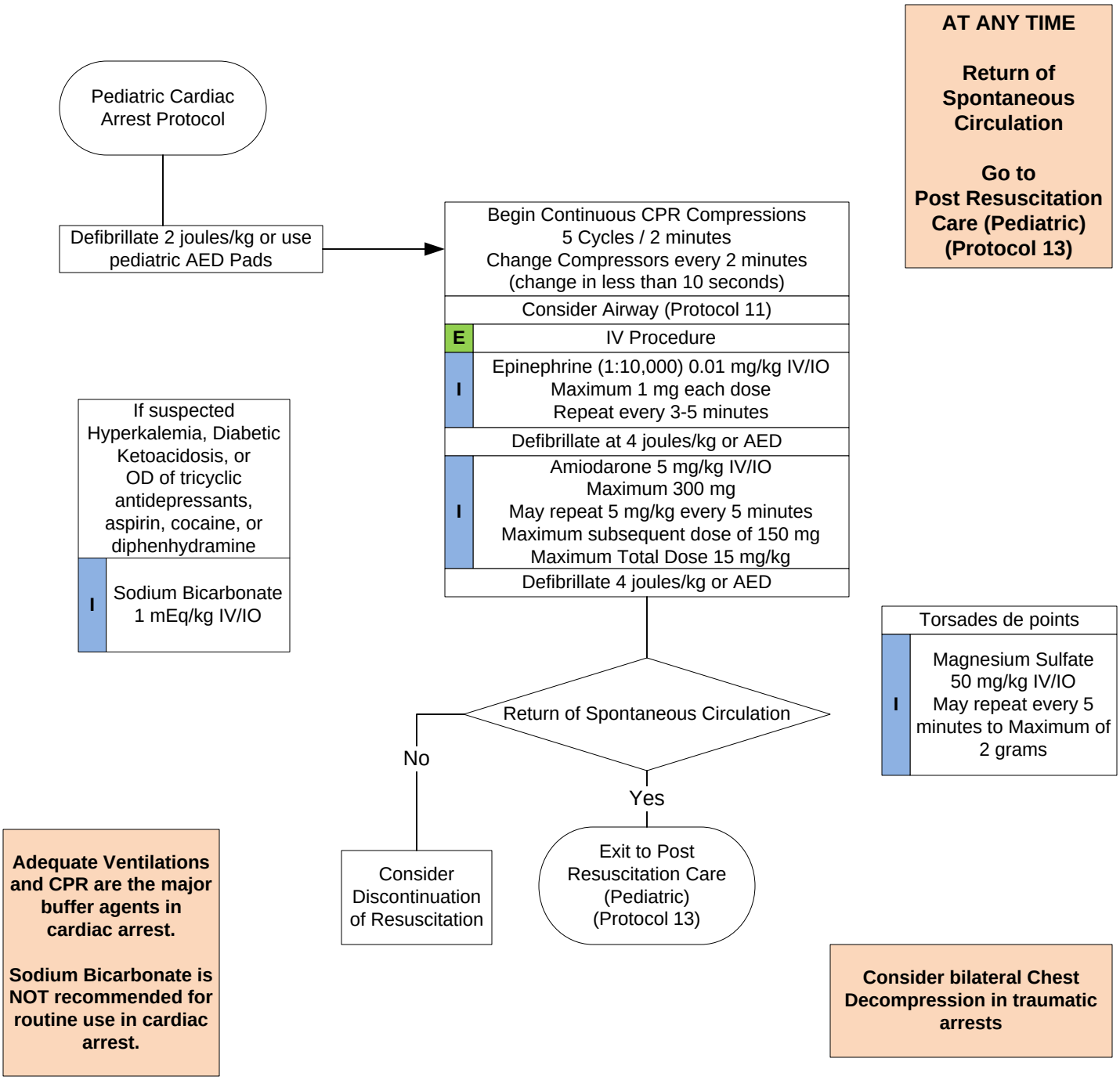
Cardiac Arrest – V-Fib/Pulseless V-Tach (Adult)



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.

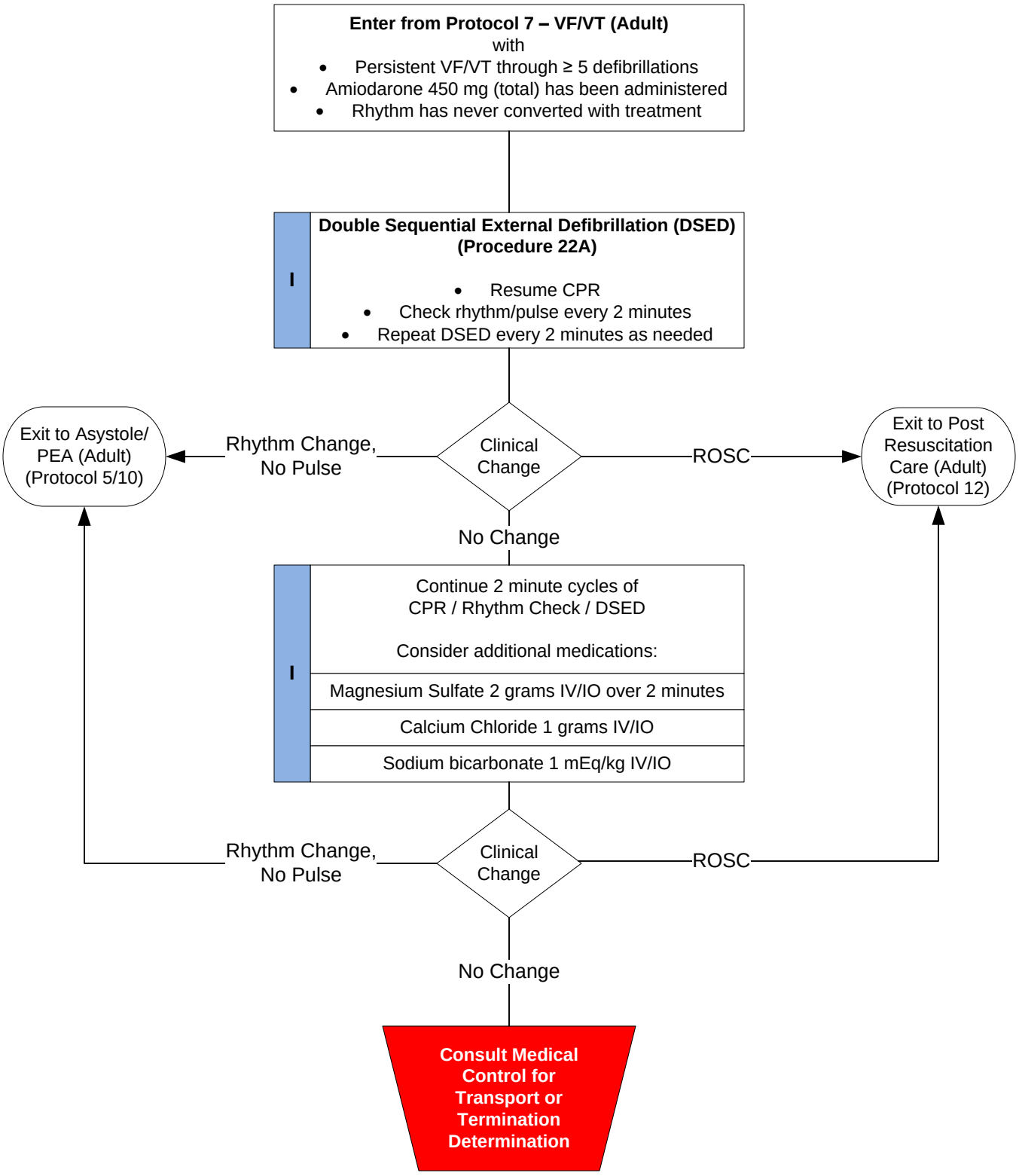
Cardiac Arrest – V-Fib/ Pulseless V-Tach (Pediatric)



PEARLS

* In order to be successful in pediatric arrests, a cause must be identified and corrected.
* Respiratory arrest is a common cause of cardiac arrest; unlike adults, early ventilation intervention is critical.
* In most cases, pediatric airways can be managed by basic interventions.
* Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated. Consider early IO placement if available and difficult IV anticipated.
* DO NOT HYPERVENTILATE.
* If no advanced airway (BIAD, ETT), compressions to ventilations are 15:2 with 2 persons and 30:2 with one person.
* If advanced airway in place, ventilate patient every 6-8 seconds.

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



Cardiac Arrest – Pulseless Electrical Activity (Adult)

Consider bilateral Chest Decompression in traumatic arrests

AT ANY TIME

Return of spontaneous circulation

Go to Post Resuscitation Care (Adult) (Protocol 12)

Do NOT begin resuscitation

Yes

Criteria for Death
OR
DNR / POST Form

No

Begin Continuous CPR Compressions
5 Cycles / 2 Minutes
Change Compressors every 2 minutes
(change in less than 10 seconds)
Utilize AED if no ALS available

I — ECG Assess Rhythm

Consider Beta Blocker
OD
AND/OR
Calcium Channel Blocker
OD

(Protocol 49)

Follow Rhythm Appropriate Protocol

Yes

Shockable Rhythm

No

E — IV Procedure
Consider Normal Saline Bolus (500 mL)

I — Epinephrine 1 mg, IV / IO
Repeat every 3-5 minutes

E — Consider Naloxone 2 mg IV / IO
Consider Dextrose 50%, 25 grams IV / IO

I — Consider Dopamine 5-20 mcg/kg/min IV / IO
Consider Needle Chest Decompression

Consider Dialysis / Renal Failure (Protocol 42)

Criteria For Discontinuation

Yes

Discontinue Resuscitation and follow Deceased Subjects Policy

No

Notify Receiving Facility and/or Contact Medical Control if possible

PEARLS
* Consider each possible cause listed in the differential: Survival is based on identifying and correcting the cause!
* Discussion with Medical Control can be a valuable tool in developing a differential diagnosis and identifying possible treatment options.

Cardiac Arrest Protocols

Cardiac Arrest – Pulseless Electrical Activity (Pediatric)

Consider bilateral Chest Decompression in traumatic arrests

Cardiac Arrest, Pediatric Protocol

AT ANY TIME

Return of Spontaneous Circulation

Go to Post Resuscitation Care (Pediatric) (Protocol 13)

E	IV Procedure
I	Epinephrine 1:10,000 0.01 mg/kg IV/IO (max 1 mg)
E	Consider NS Bolus 10mL/kg IV/IO
E	Consider Naloxone, 0.1 mg/kg IV/IO
E	**Newborn to 2 yrs old:** D25 4 mL/kg IV/IO Repeat as needed **> 2 yrs old:** D50 2 mL/kg IV/IO Maximum 25 grams per dose Repeat as needed
I	Consider Dopamine 5-20 mcg/kg/min IV/IO
I	Needle Chest Decompression Procedure If indicated

Criteria for Discontinuation

Yes → Discontinue Resuscitation and follow Deceased Subjects Policy

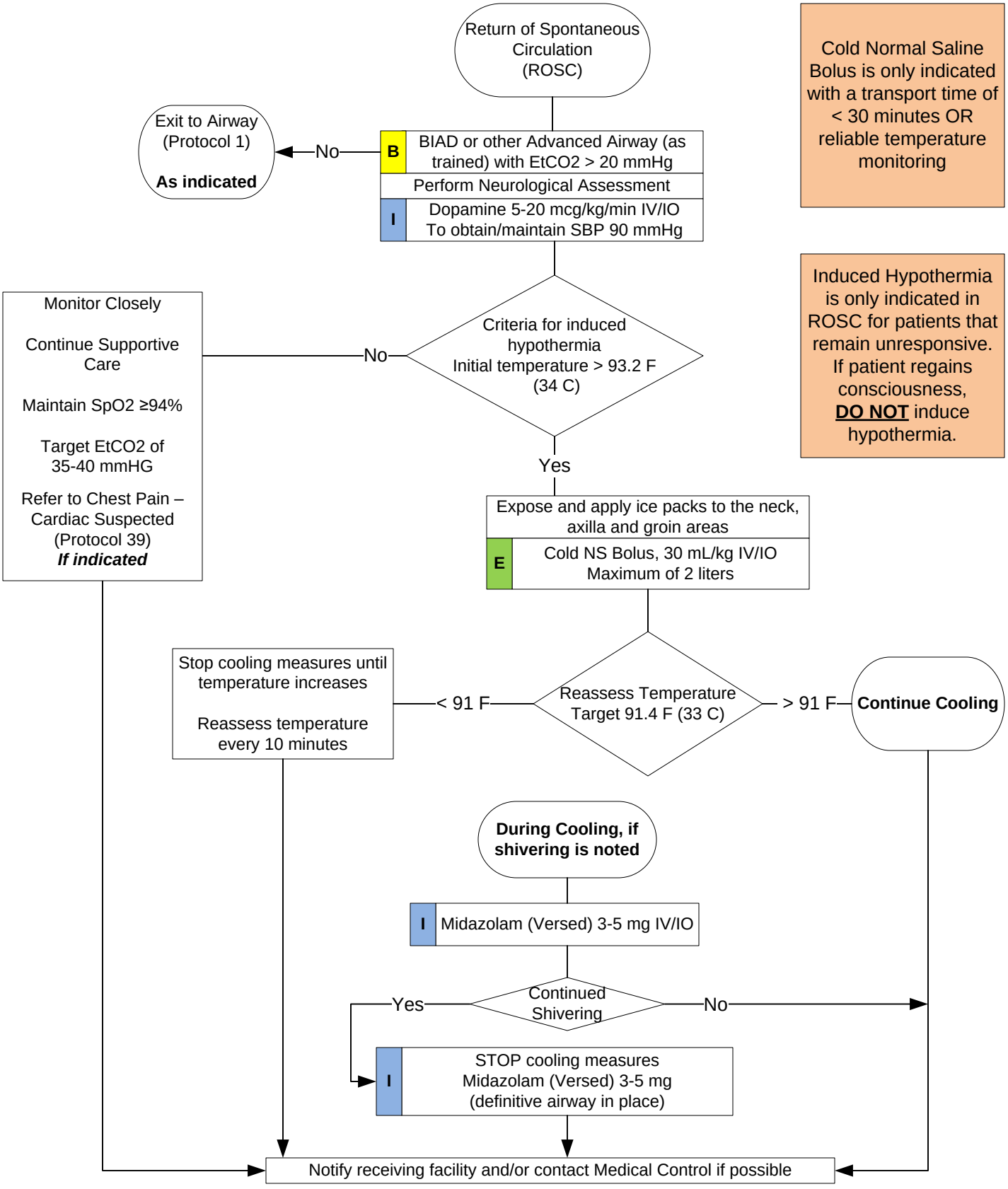
No

Notify receiving facility and/or contact Medical Control if possible

PEARLS
* In order to be successful in pediatric arrests, a cause must be identified and corrected.
* Respiratory arrest is a common cause of cardiac arrest. Unlike adults, early airway intervention is critical.
* In most cases, pediatric airways can be managed by basic interventions.

Cardiac Arrest Protocols

Cardiac Arrest – Post Resuscitation Care (Adult)



Cardiac Arrest Protocols

Cardiac Arrest – Post Resuscitation Care (Adult)

Criteria for Induced Hypothermia:

Patient must have a return of spontaneous circulation following cardiac arrest, and remain unresponsive/unconscious.
Any presenting rhythm is eligible for induced hypothermia.

Contraindications for Induced Hypothermia:

Patient is now responsive/conscious.
Initial rectal temperature < 93 degrees F (about 34 degrees C).
Traumatic arrest or hemorrhage.

Relative Contraindications:

Pregnancy: Contact medical control for advice and transport to appropriate obstetrical center.

Sepsis: Contact medical control for advice.

Temperature Target:

The target cooling temperature is 89.6 degrees F (32 C) to 93.3 degrees F (34 C.) Overshooting the target temperature is easily done. Environmental temperatures should be taken into account. Reassess the rectal temperature frequently and when approaching 90 degrees F begin to remove some ice packs and / or slow cool IV fluids and reassess. As the temperature approaches 93 degrees add ice packs and / or continue / increase cool IV infusion.

Remember this is a range. Overshooting is probably more harmful than staying at the upper limit of the range and the number of times the patient cools below 89.6 degrees F may increase morbidity.

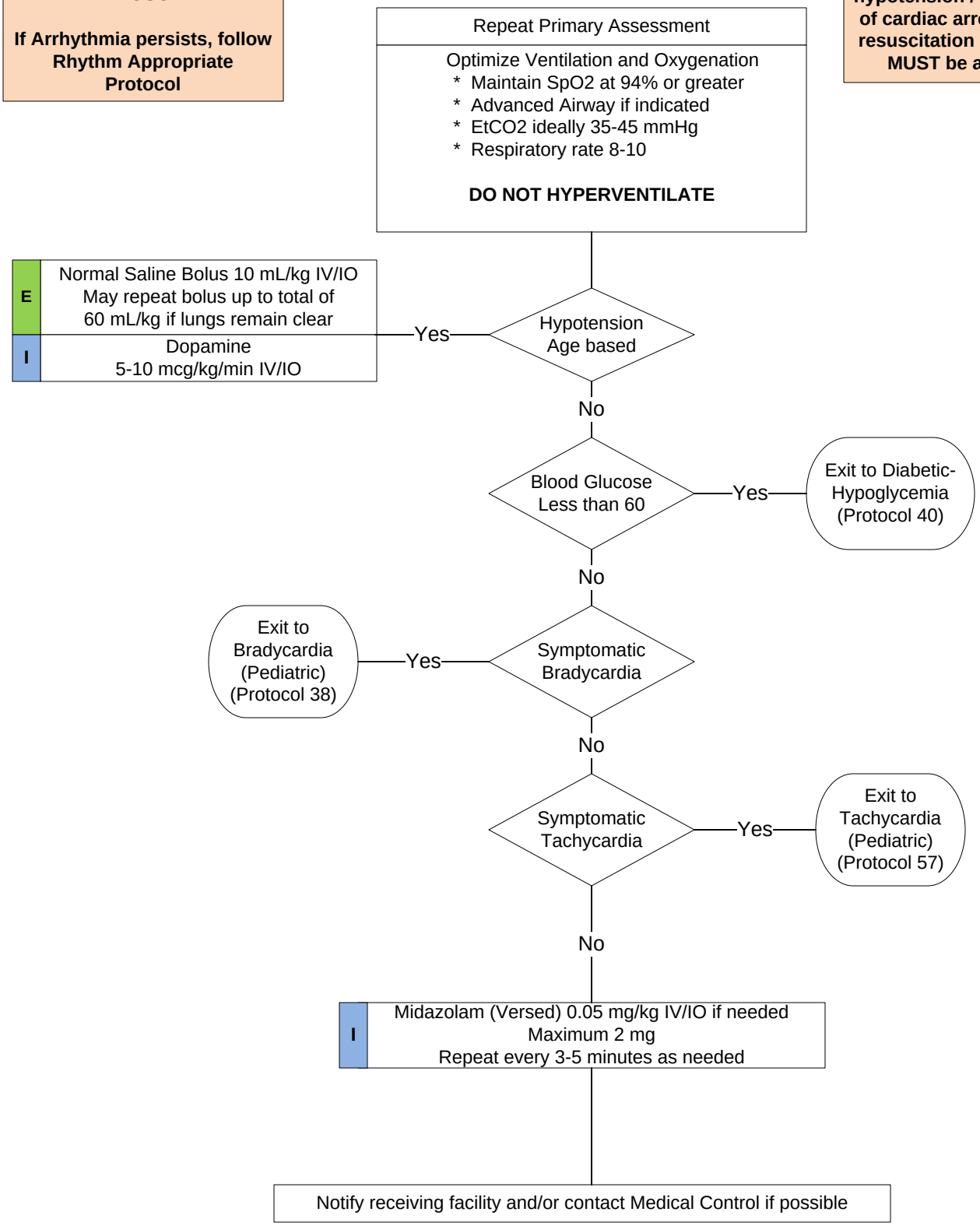
Follow Post Resuscitation Protocol:
Do not hyperventilate as this is proven to increase morbidity and mortality.
Blood pressure target is about 90 mm/Hg systolic and dopamine should be used to maintain blood pressure during cooling.

Cardiac Arrest – Post Resuscitation Care (Pediatric)

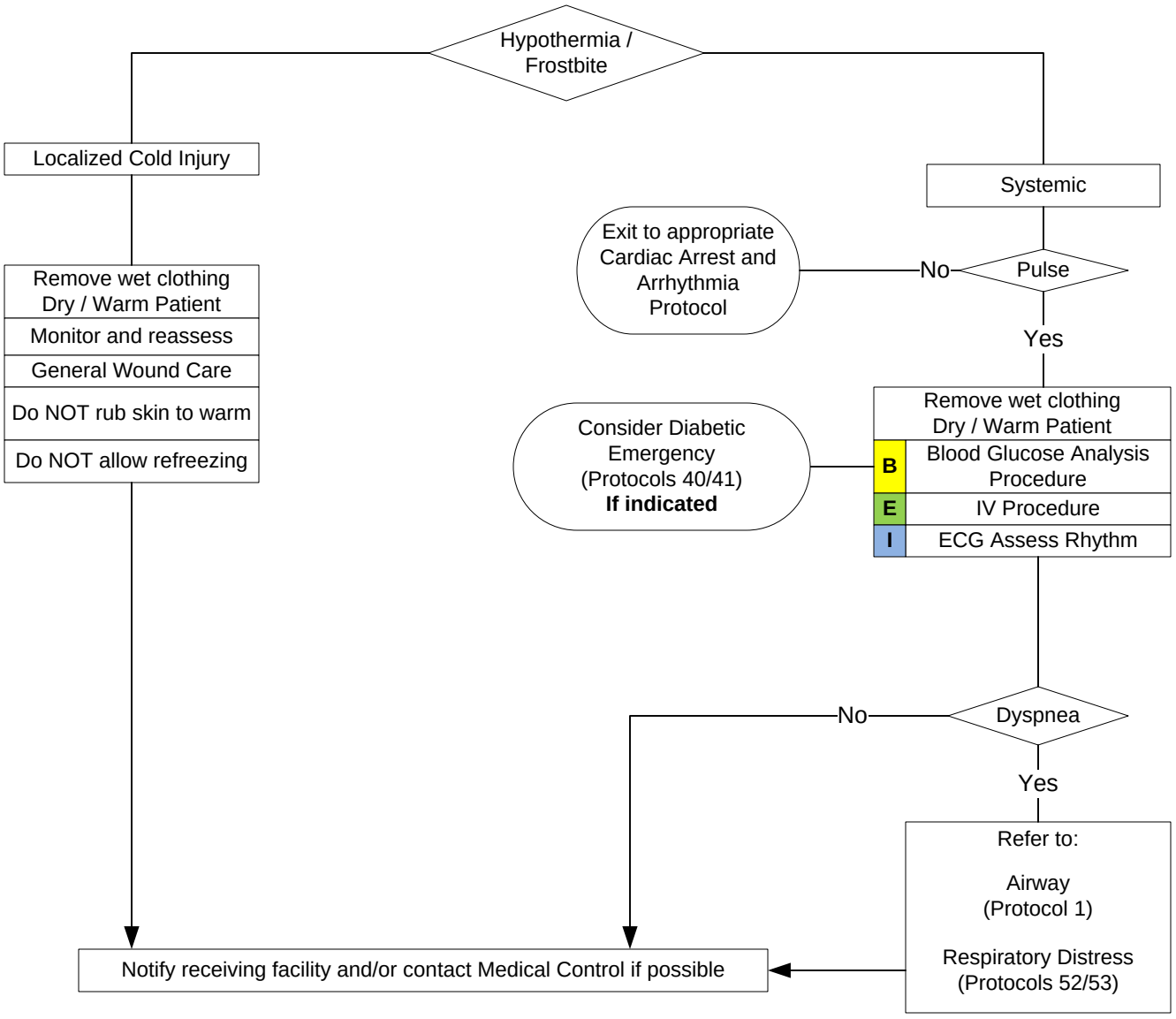
Arrhythmias are common and usually self limiting after ROSC

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



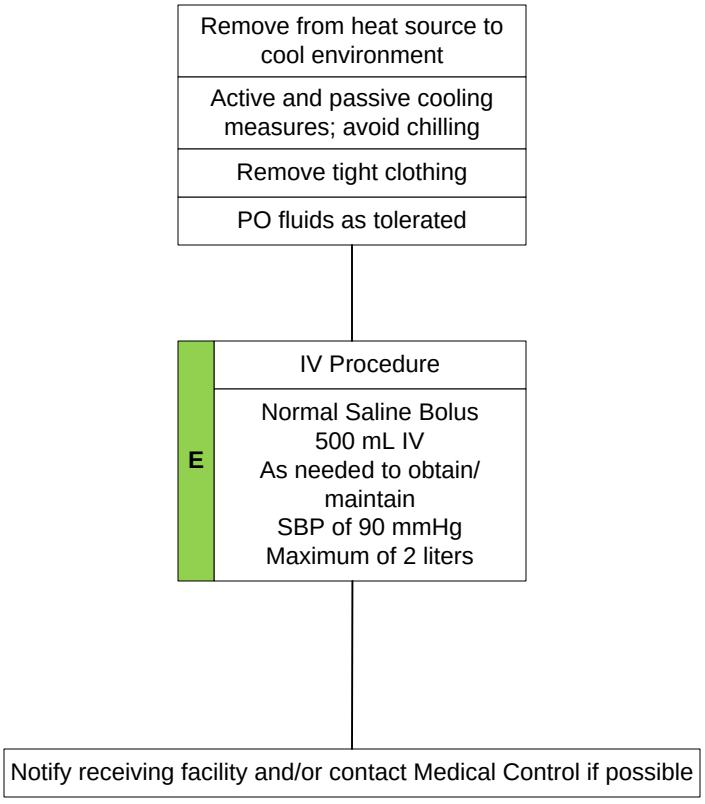
Environmental – Cold Exposure



PEARLS

* NO PATIENT IS DEAD UNTIL WARM AND DEAD.
* Hypothermia defined as core temperature < 35 C (95 F). Extremes of age are more susceptible (young, old).
* If the temperature is unable to be measured, treat the patient based on the suspected temperature.
* Hypothermia may produce severe bradycardia, so take at least 45 seconds to palpate a pulse.
* Hot packs can be activated and placed in the armpit and groin area if available. Care should be taken not to place the packs directly against the patient's skin.
* Consider withholding CPR if patient has organized rhythm or has other signs of life. Discuss with medical control.
* Intubation can cause ventricular fibrillation, so it should be done gently by most experienced provider.
* Do not hyperventilate the patient as this can cause ventricular fibrillation.
* If the patient is below 30 C or 86 F, then only defibrillate 1 time if defibrillation is required. Normal defibrillation procedure may resume after patient reaches 30 C or 86 F.
* Below 30 C (86 F), antiarrhythmic may not work and if given should be given at reduced intervals. Contact Medical Control before they are administered. Below 30 C (86 F), pacing should NOT be done.

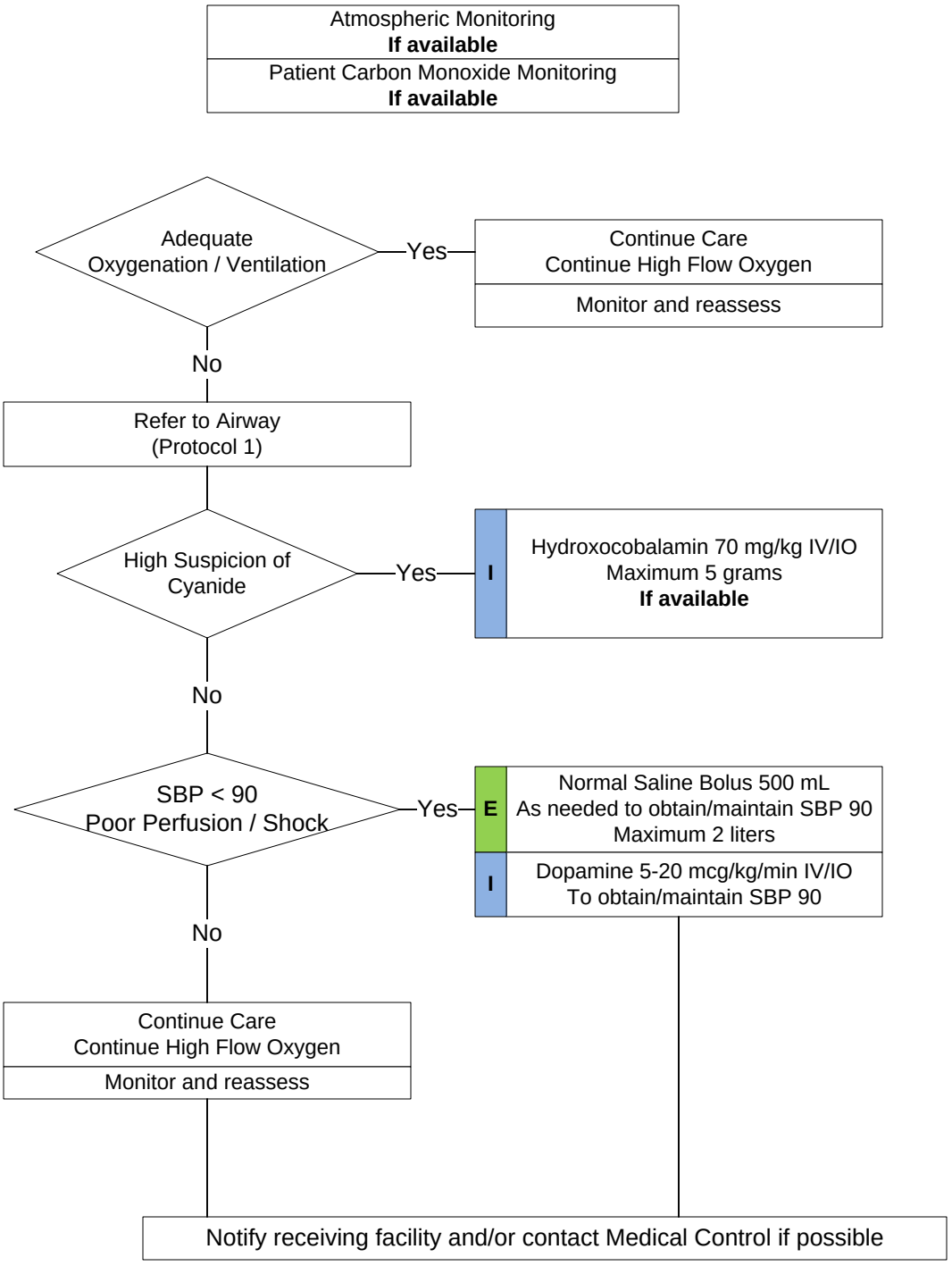
Environmental – Heat Exposure/Exhaustion



PEARLS

* Extremes of age are more prone to heat emergencies (young, old). Obtain and document patient temperature if able
* Predisposed by use of: tricyclic anti-depressants, phenothiazines, anticholinergic medications and alcohol
* Cocaine, amphetamines, and salicylates may elevate body temperature
* Sweating generally disappears as body temperature rises above 104 F (40 C)
* Intense shivering may occur as patient is cooled
* Heat Cramps consists of benign muscle cramping, secondary to dehydration and is not associated with an elevated temperature.
* Heat Exhaustion consists of dehydration, salt depletion, dizziness, fever, mental status changes, headache, cramping nausea and vomiting. Vital signs usually consist of tachycardia, hypotension and elevated temperature
* Heat Stroke consists of dehydration, tachycardia, hypotension, temperature > 104 F (40 C) and an altered mental status

Exposure – Carbon Monoxide



PEARLS
* Consider CO and Cyanide with any product of combustion
* Normal environmental CO level does not exclude CO poisoning
* Symptoms present with lower CO levels in pregnancy, children and the elderly
* Continue high flow oxygen regardless of pulse ox readings

Exposure – Nerve Agent

This protocol is designed for WMD ONLY. Providers are only to perform skills that they have been trained on.

S: Salivation
L: Lacrimation
U: Urination (increase)
D: Defecation/Diarrhea
G: GI Upset/ABD pain
E: Emesis
M: Muscle twitching

Scene Safe
Appropriate PPE

Yes → Obtain history of exposure
Observe for specific toxidromes
Initiate triage and/or decontamination
As indicated

No → Call for help / additional resources
Stage until scene is safe

Symptom Severity

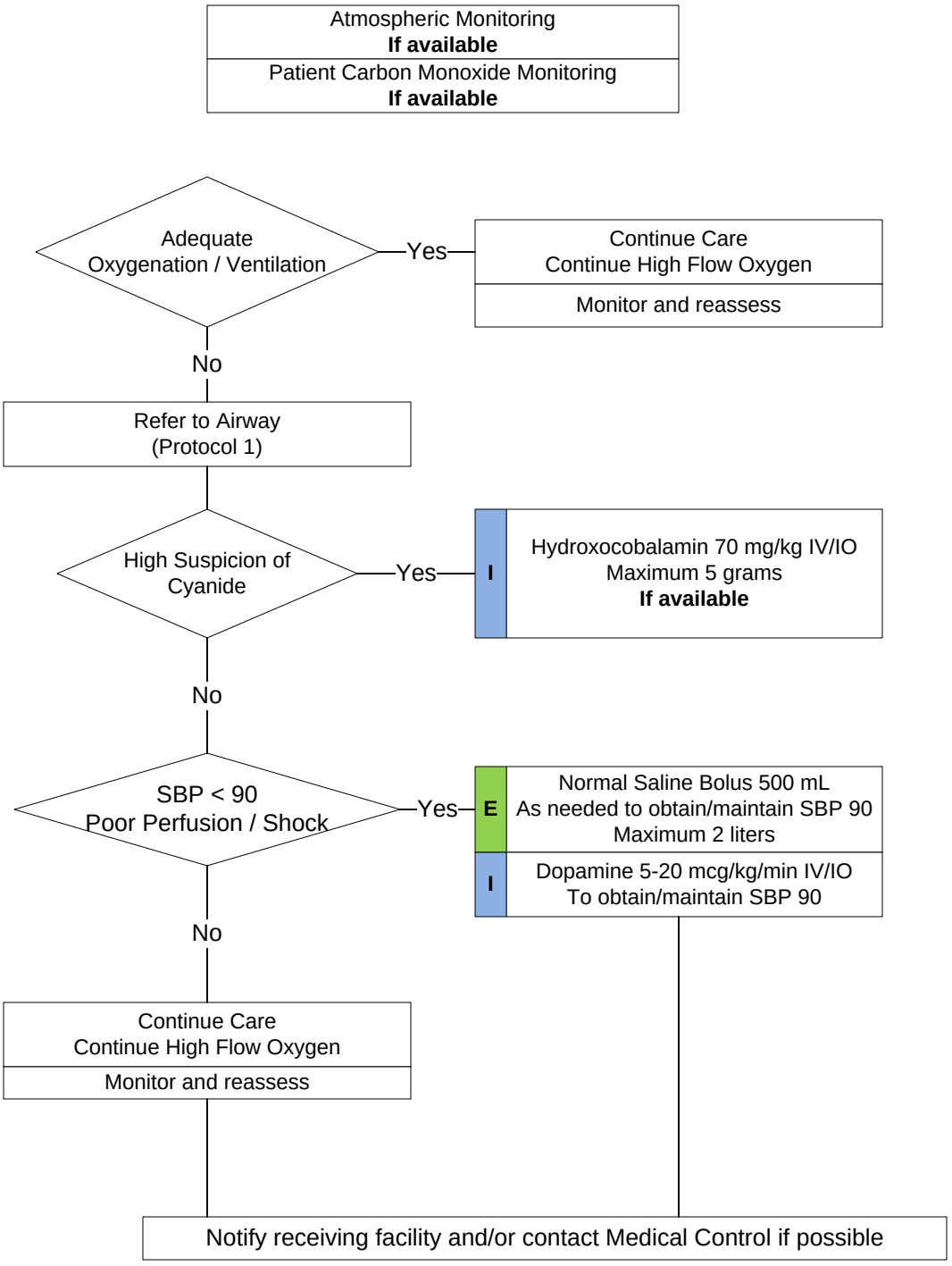
Asymptomatic	Minor Symptoms: Respiratory Distress + SLUDGEM	Major Symptoms Altered Mental Status, Seizures, Respiratory Distress, Respiratory Arrest
Monitor and reassess every 15 minutes Initiate appropriate treatment	IV Procedure	IV Procedure
	Duodote Kit if available OR Nerve Agent Kit IM 2 doses rapidly **If available**	Duodote Kit if available OR Nerve Agent Kit IM 3 doses rapidly **If available**
	Atropine 2 mg IV/IO/IM Every 5 minutes ***Peds: 0.05 – 0.1 mg/kg*** ***Until symptoms Resolve***	Atropine 6 mg IV/IO/IM Every 5 minutes ***Peds: 0.05 – 0.1 mg/kg,*** ***until symptoms resolve***
	Pralidoxime (2 PAM) 600 mg IV/IO/IM ***Peds: 25-50 mg/kg***	Pralidoxime (2 PAM) 1800 mg IV/IO/IM ***Peds: 25-50 mg/kg***

Seizure Activity?
Exit to Seizure (Protocol 54)

Notify receiving facility and/or contact Medical Control if possible

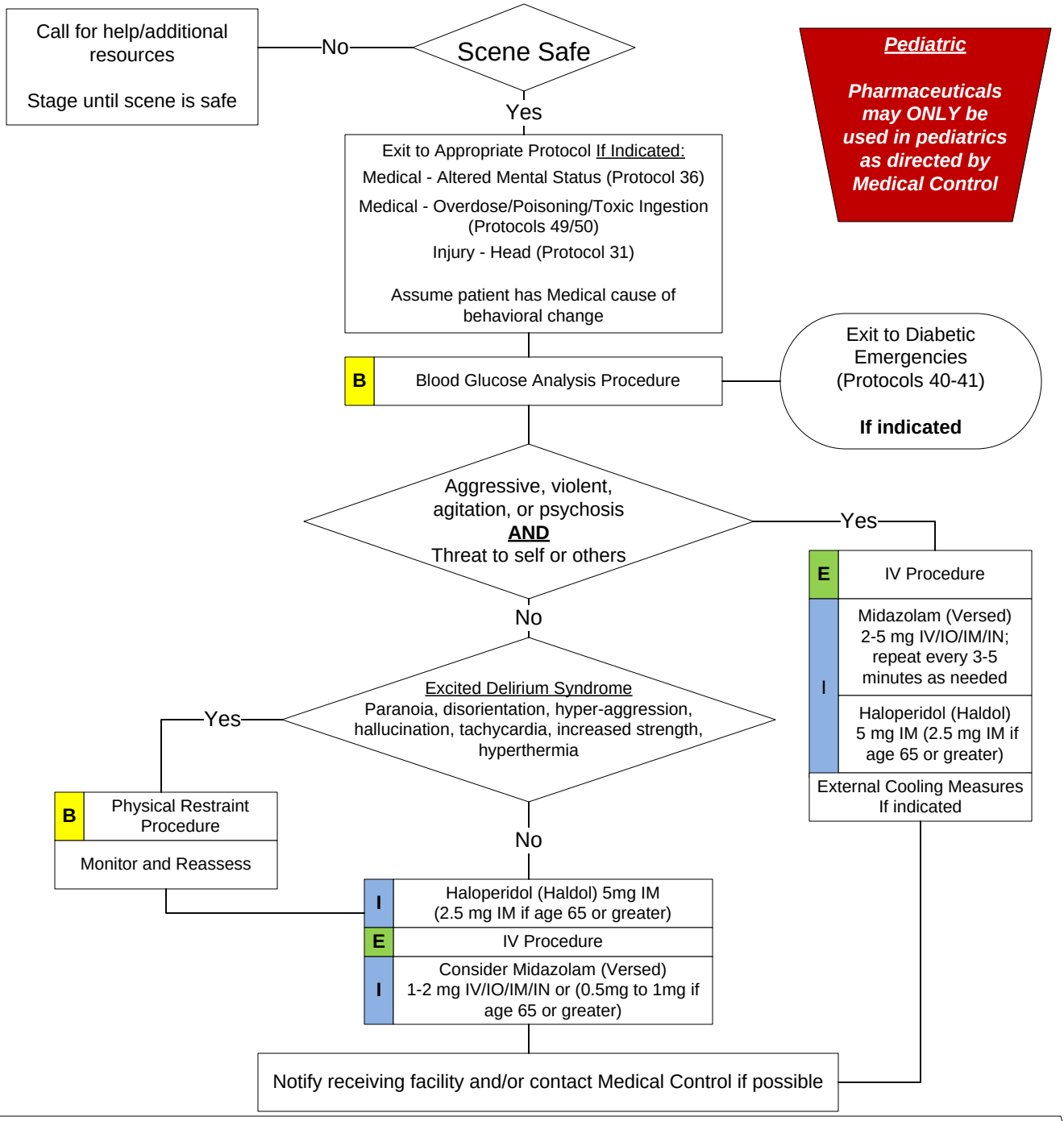
PEARLS
* In the face of a bona fide attack, begin with 1 Nerve Agent Kit for patients less than 7 years of age; 2 Nerve Agent Kits for children 8-14 years of age, and 3 Nerve Agent Kits for patients 15 years of age and over.
* Follow local HAZMAT guidelines for decontamination and transportation of patient; use of personal protective equipment.
* For patients with major symptoms, there is no limit for Atropine dosing.
* Carefully evaluate patients to ensure they are not symptomatic from exposure to another agent (e.g., narcotics, vesicants, etc.).
* Each Nerve Agent Kit contains 600mg of Pralidoxime (2 PAM) and 2 mg of Atropine
* The main symptom that the atropine addresses is excessive secretions, so Atropine should be given until salivation improves.

Exposure – Smoke Inhalation



PEARLS
* Consider CO and Cyanide with any product of combustion
* Normal environmental CO level does not exclude CO poisoning
* Symptoms present with lower CO levels in pregnancy, children and the elderly
* Continue high flow oxygen regardless of pulse ox readings

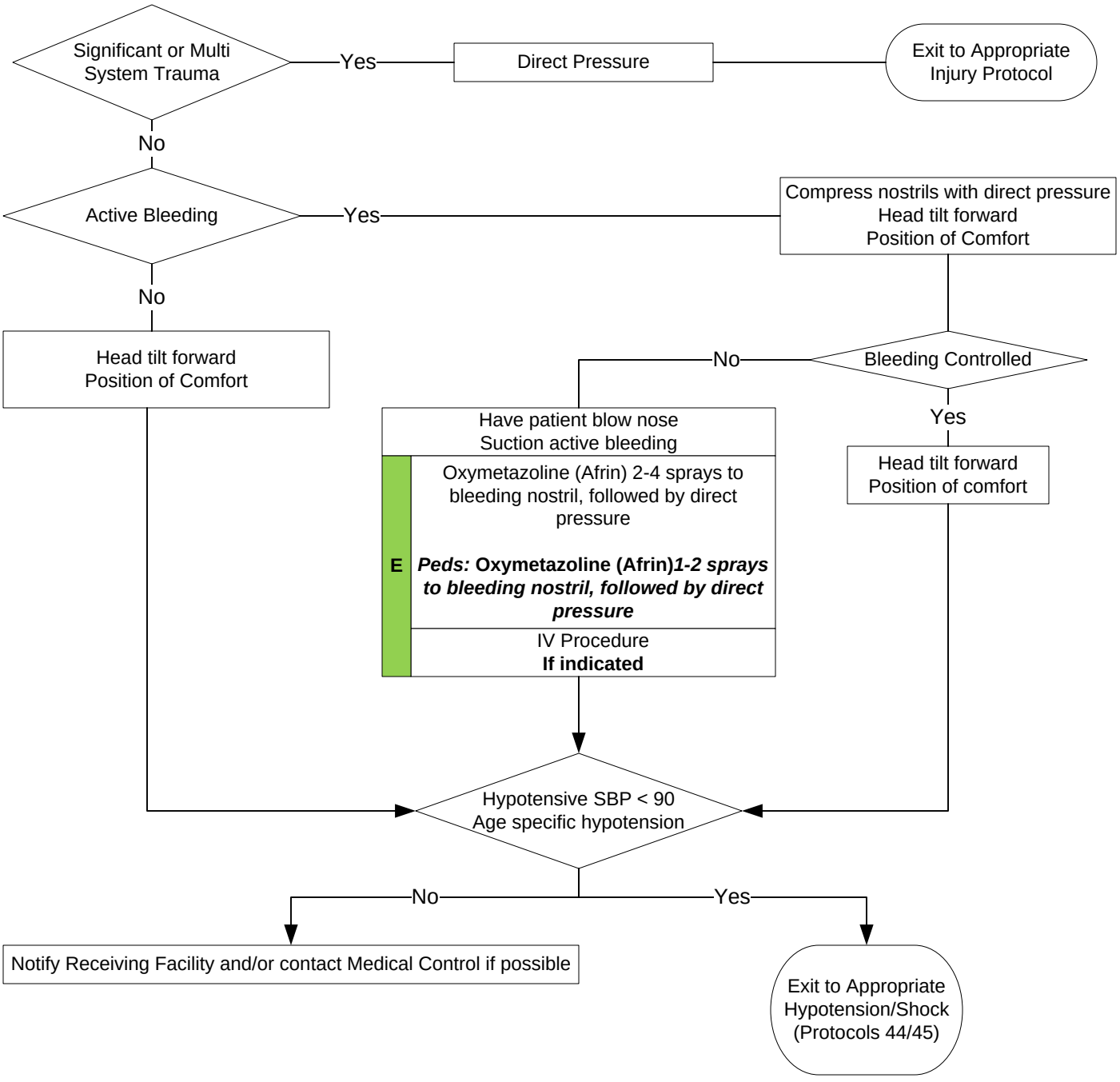
General – Behavioral/Patient Restraint



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.

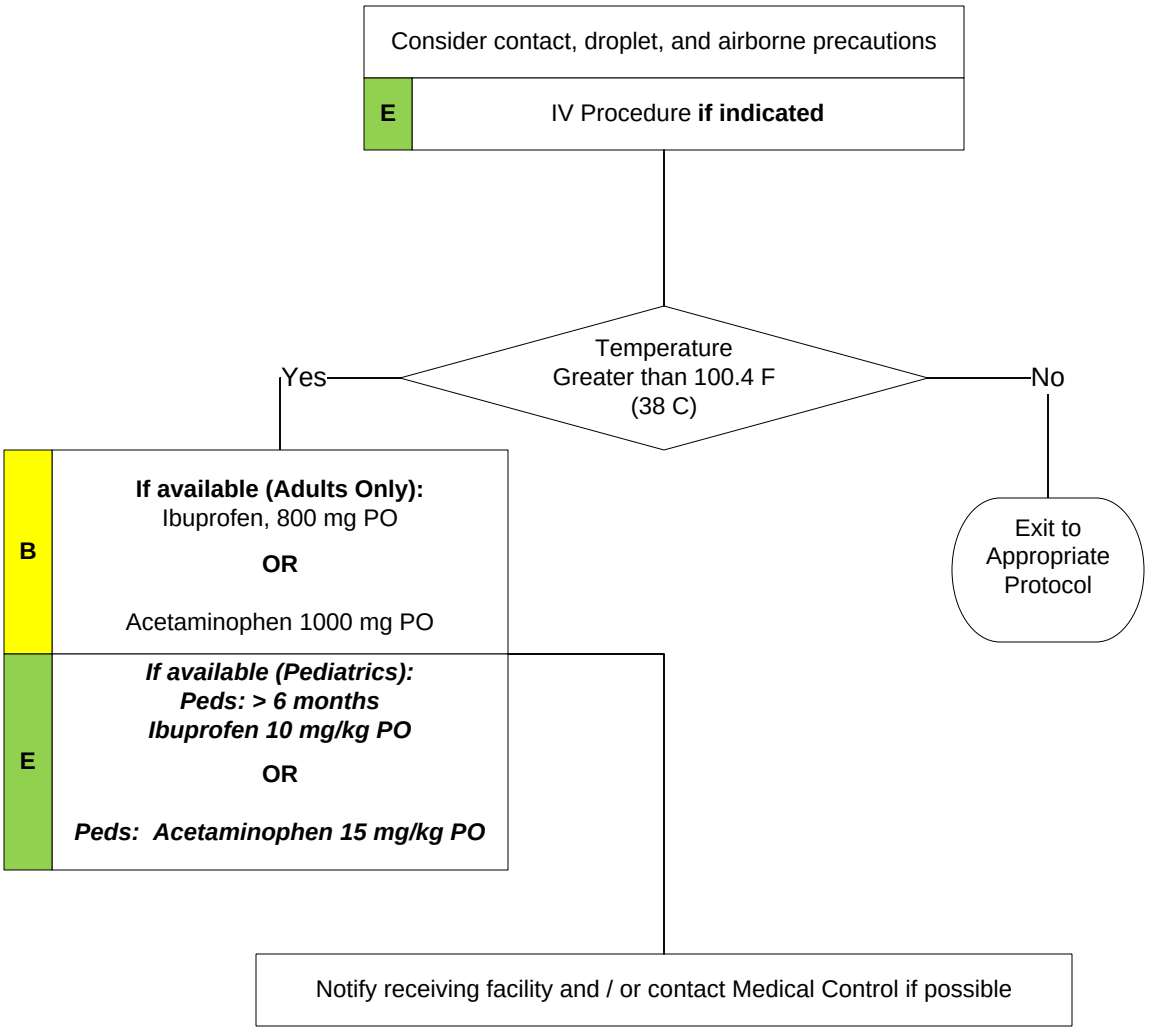
General – Epistaxis



PEARLS

* Avoid Afrin in patients who have a blood pressure of greater that 110 mmHg diastolic or known coronary artery disease.
* It is very difficult to quantify the amount of blood loss with epistaxis.
* Bleeding may also be occurring posteriorly. Evaluate for posterior blood loss by examining the posterior pharynx.
* Anti-coagulants may impede clotting. These include aspirin, Coumadin, non-steroidal anti-inflammatory medications, and many over the counter headache relief powders.

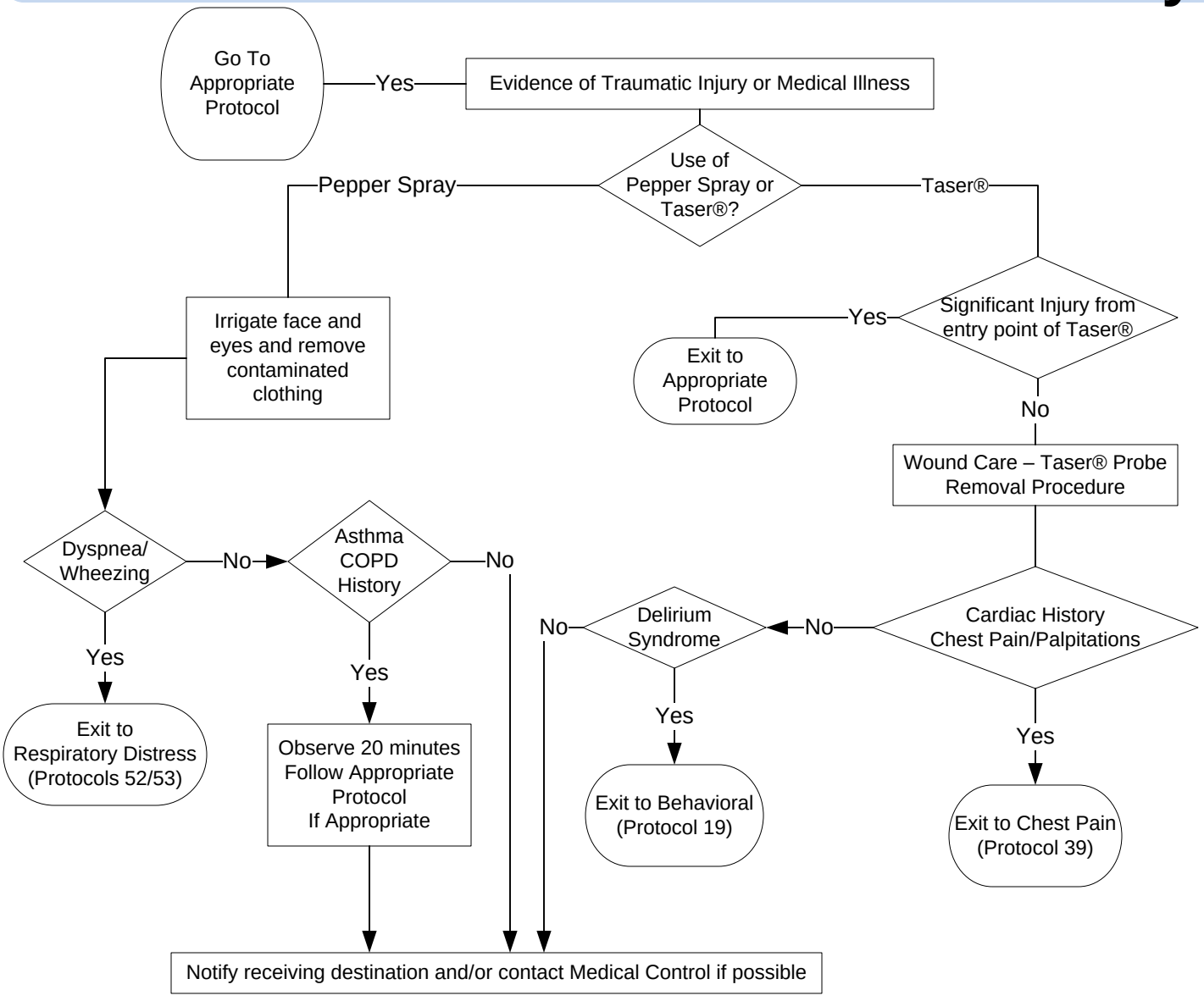
General – Fever



PEARLS

* Febrile seizures are more likely in children with a history of febrile seizures and with a rapid elevation in temperature.
* Patient with a history of Liver Failure should not receive acetaminophen.
* **Droplet Precautions** include standard PPE plus a standard surgical mask for providers who accompany patients in the back of the ambulance and a surgical mask or NRB O2 mask for the patient. The level of precaution should be utilized when influenza, meningitis, mumps, streptococcal pharyngitis, and other illnesses spread via large particle droplets are suspected. A patient with a potentially infectious rash should be treated with droplet precautions.
* **Airborne Precautions** include standard PPE plus utilization of a gown, change of gloves after every patient contact, and strict hand washing precautions. This level of precaution is utilized when multi-drug resistant organisms (e.g. MRSA), scabies, or zoster (shingles), or other illnesses spread by contact are suspected.
* Rehydration with fluids increases the patients ability to sweat and improves heat loss.
* All patients should have drug allergies documented prior to administering pain medication.
* Allergies to NSAIDS (non-steroidal anti-inflammatory medications) are a **contraindication to ibuprofen.**
* NSAID's should not be used in the setting of environmental heat emergencies.

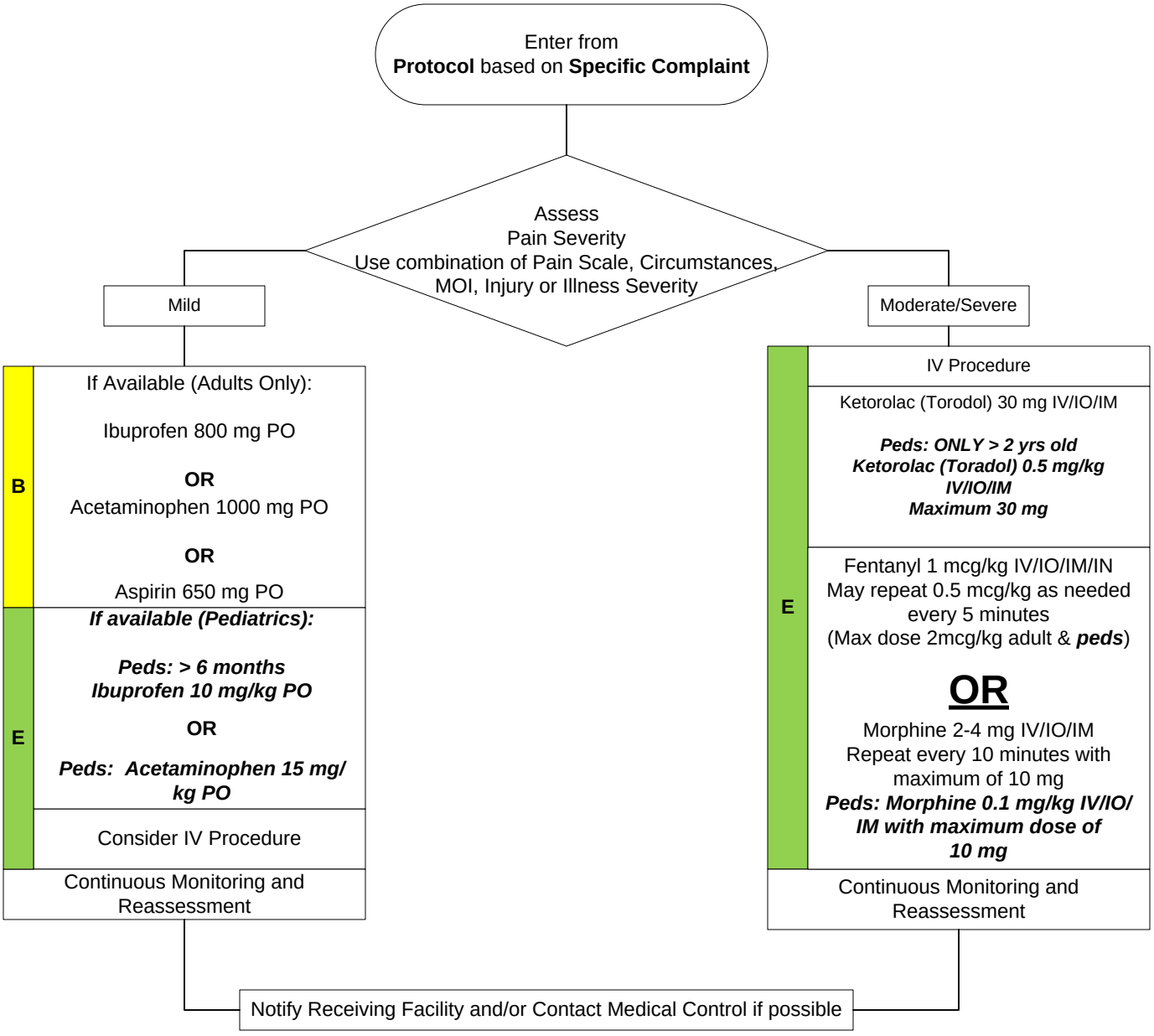
General – Law Enforcement – Assist with Law Enforcement Activity



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 – 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 – Rehabilitation

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 16/18)

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

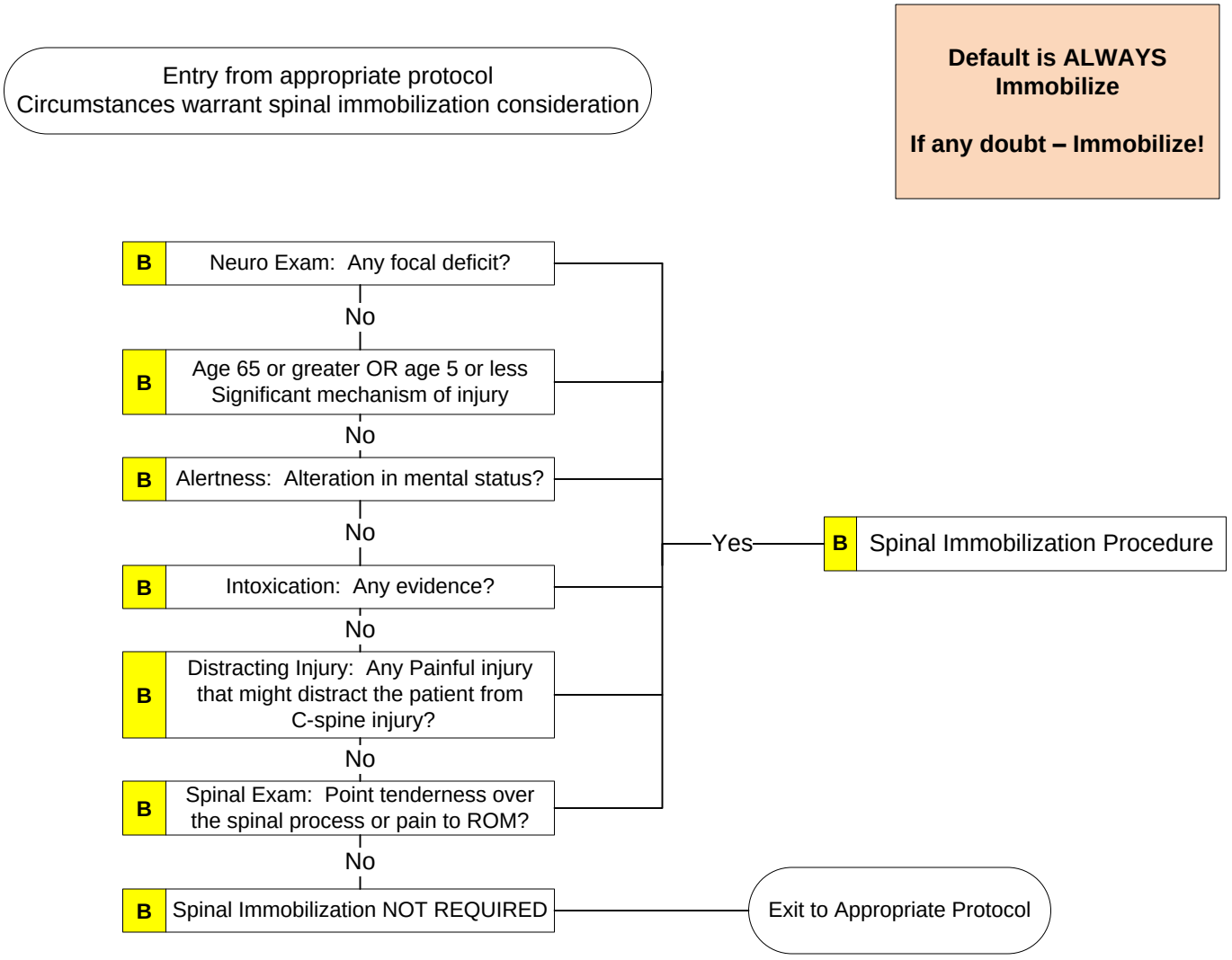
Event Rehabilitation:
- Refers to fire scenes, hazmat, rescue, extrication, training or other events as determined by the Incident Commander (IC).
- Rehab usually initiated after two 30 min SCBA bottles or one 45-60 min bottle; Earlier if determined by IC or FF.
- Length of work period prior to Rehab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

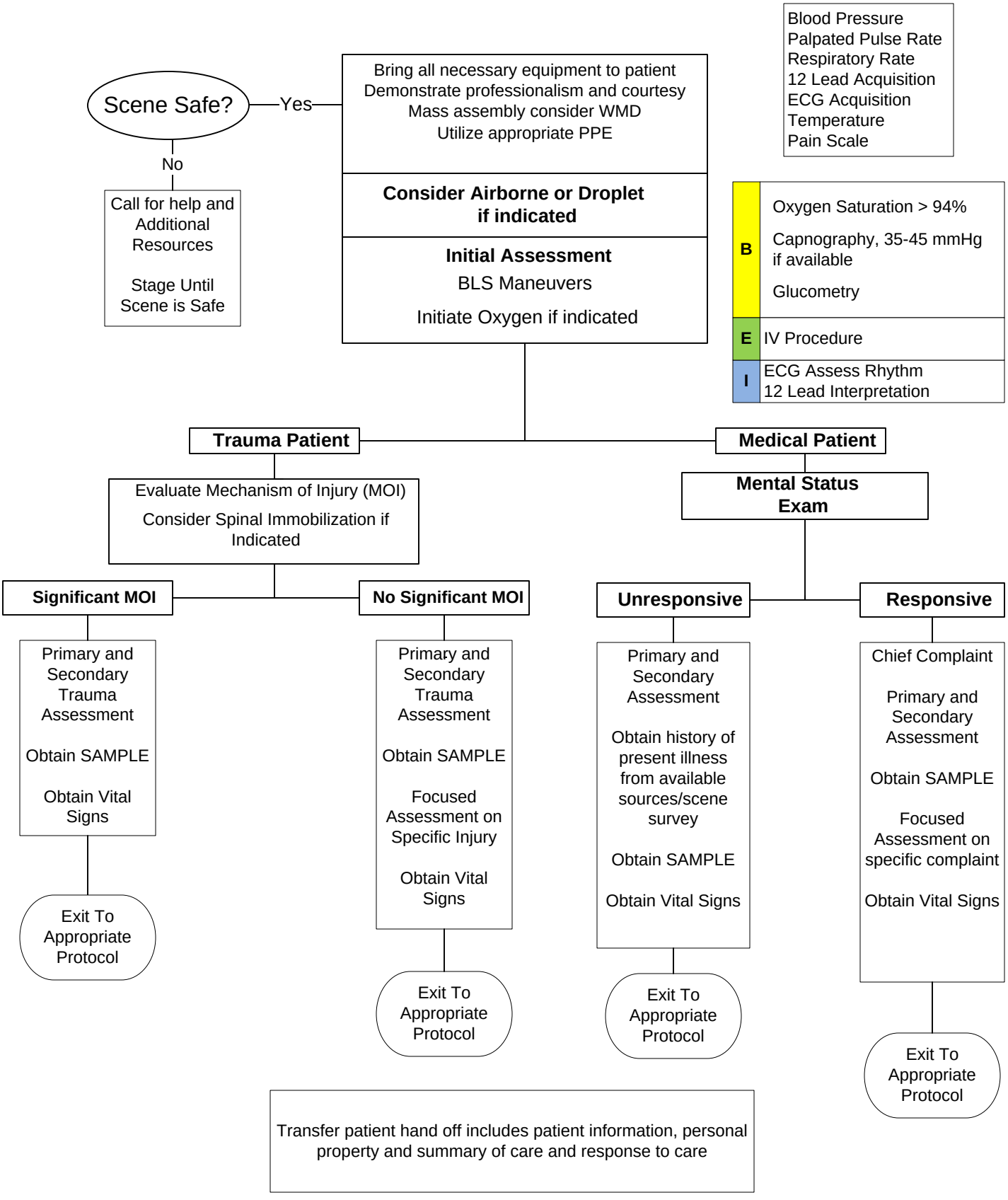


PEARLS

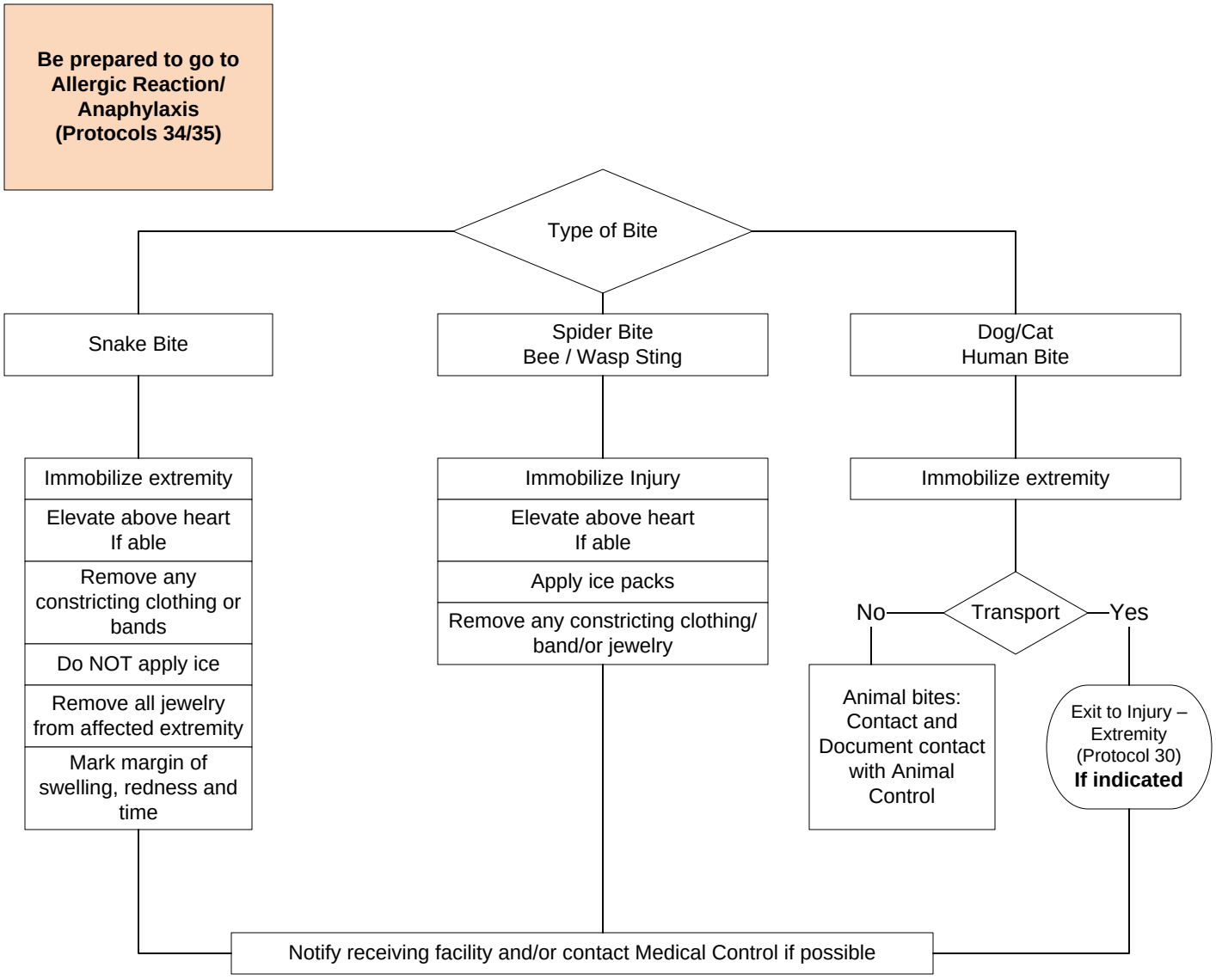
* Significant mechanism includes high-energy events such as ejection, high falls, and abrupt deceleration crashes that may indicate the need for spinal immobilization in the absence of symptoms.
* Consider immobilization in any patient with arthritis, cancer, dialysis or other underlying spinal or bone 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.

General – Universal Patient Care/Initial Patient Contact



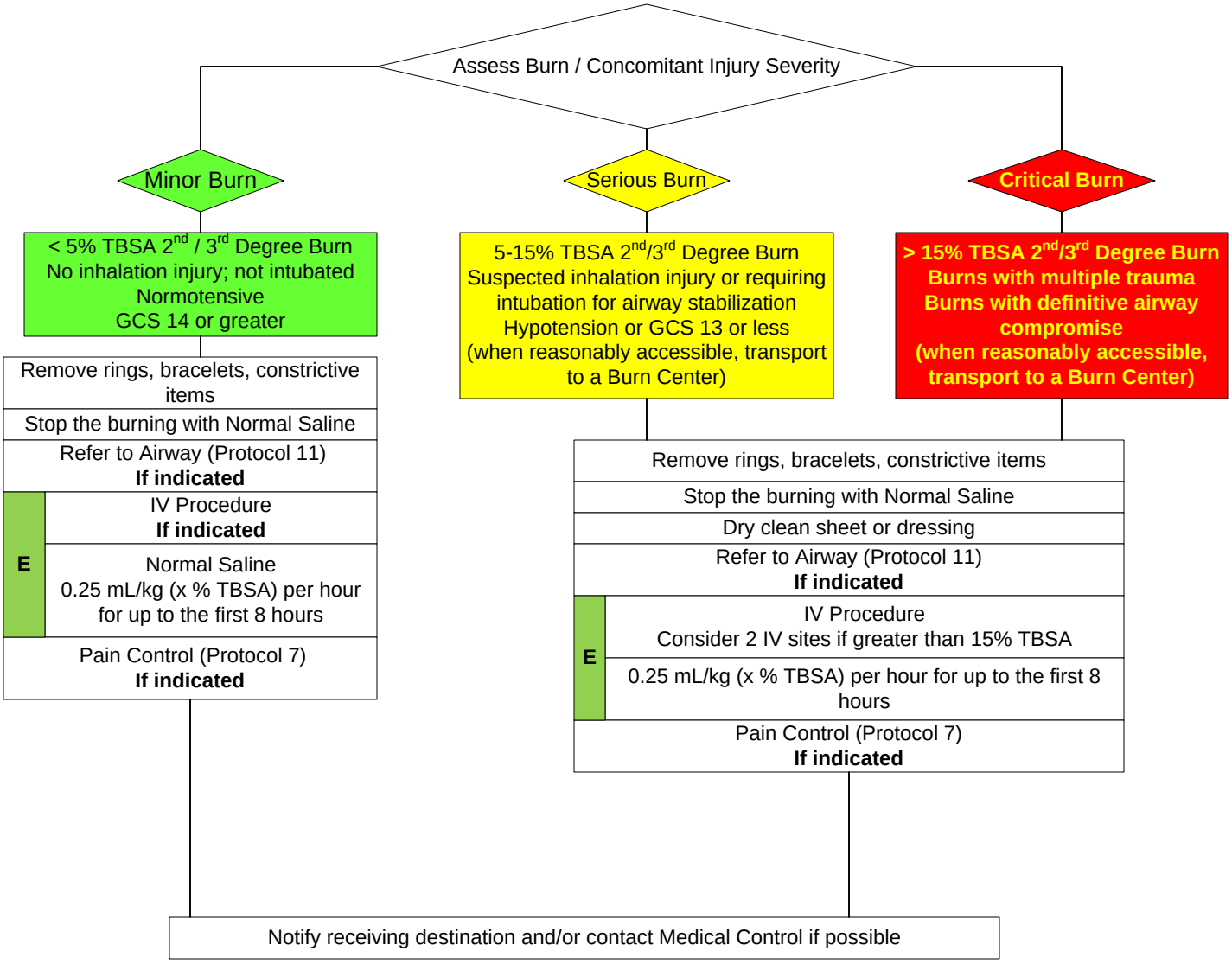
Injury – Bites and Envenomation-Land



PEARLS

* Human bites have higher infection rates than animal bites due to normal mouth bacteria.
* Carnivore bites are much more likely to become infected and all have risk of Rabies exposure.
* Cat bites may progress to infection rapidly due to a specific bacteria (Pasteurella multicoda).
* Poisonous snakes in this area are generally of the pit viper family: rattlesnake and copperhead.
  - ~ Coral snake bites are rare; very little pain but very toxic. "Red on yellow will kill a fellow; red on black, venom lack."
  - ~ Amount of envenomation is variable, generally worse with smaller (young) snakes.
  - ~ If no pain or swelling, envenomation is unlikely. About 25% of snake bites are "dry" bites.
* Black Widow spider bites tend to be minimally painful, but over a few hours, muscular pain and severe abdominal pain may develop (spider is black with red hourglass on belly).
* Brown Recluse spider bites are minimally painful to painless. Little reaction is noted initially, but tissue necrosis at the site of the bite develops over the next few days (small, brown spider with fiddle shape on back).
* Evidence of infection: swelling, redness, drainage, fever, red streaks proximal to the wound.
* Immunocompromised patients are at an increased risk for infection: diabetics, chemotherapy, transplant patients.
* Consider contacting the Poison Control Center for guidance.

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.

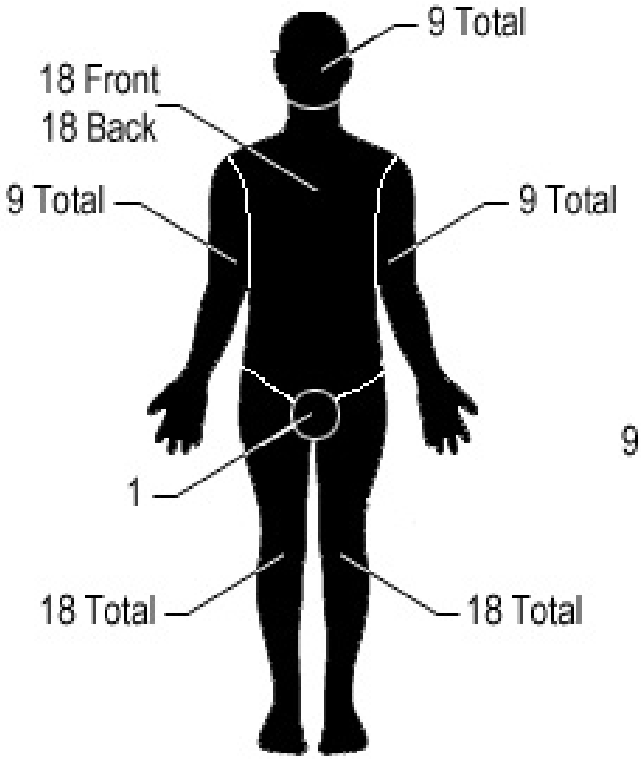
Burn Center verification provides a true mark of distinction for a burn center. It is an indicator to government, third-party payers, patients and their families, and accreditation organizations that the center provides high quality patient care and meets the demanding standards for organizational structure, 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.

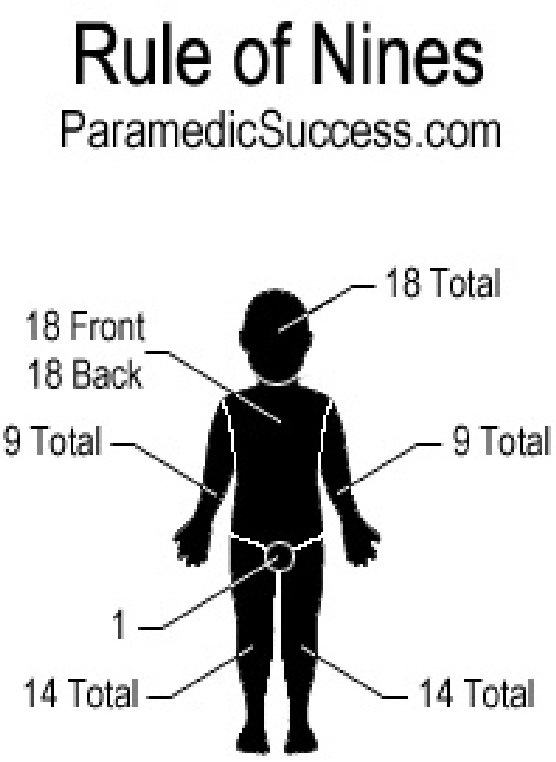
Verified Burn Centers in Virginia and Surrounding States*

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

Injury – Burns





Rule of Nines

Seldom do you find a complete portion of the body that is injured in isolation to ease the use of the rule of nines application in estimating the size of the burn

More likely it will be portions of one area; portions of another and an approximation will be needed

For the purpose of determining the extent of serious injury differentiate the area with minimal or 1st degree burn from those of partial (2nd) or full (3rd) thickness burns

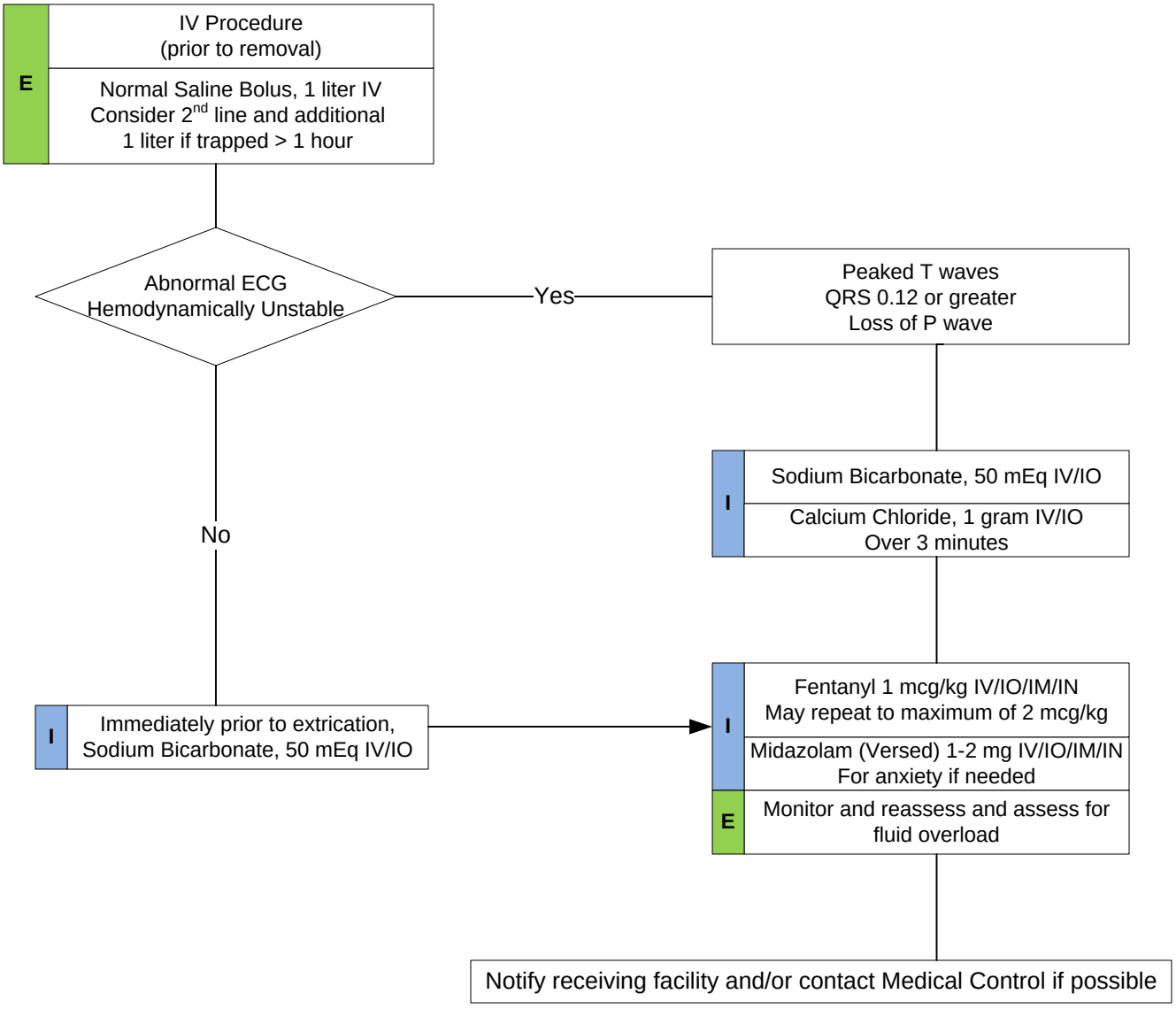
For the purpose of determining Total Body Surface Area (TBSA) of burn, include only Partial and Full Thickness burns. Report the observation of other superficial (1st degree) burns but do not include those burns in your TBSA estimate.

Some texts will refer to 4th, 5th and 6th degree burns. There is significant debate regarding the actual value of identifying a burn injury beyond that of the superficial, partial and full thickness burn at least at the level of emergent and primary care. For our work, all are included in Full Thickness burns.

Other burn classifications in general Include:
4th referring to a burn that destroys the dermis and involves muscle tissue.
5th referring to a burn that destroys dermis, penetrates muscle tissue, and involves tissue around the bone.
6th referring to a burn that destroys dermis, destroys muscle tissue and penetrates or destroys bone tissue.

Estimate spotty areas of burn by using the size of the patient's palm as 1%

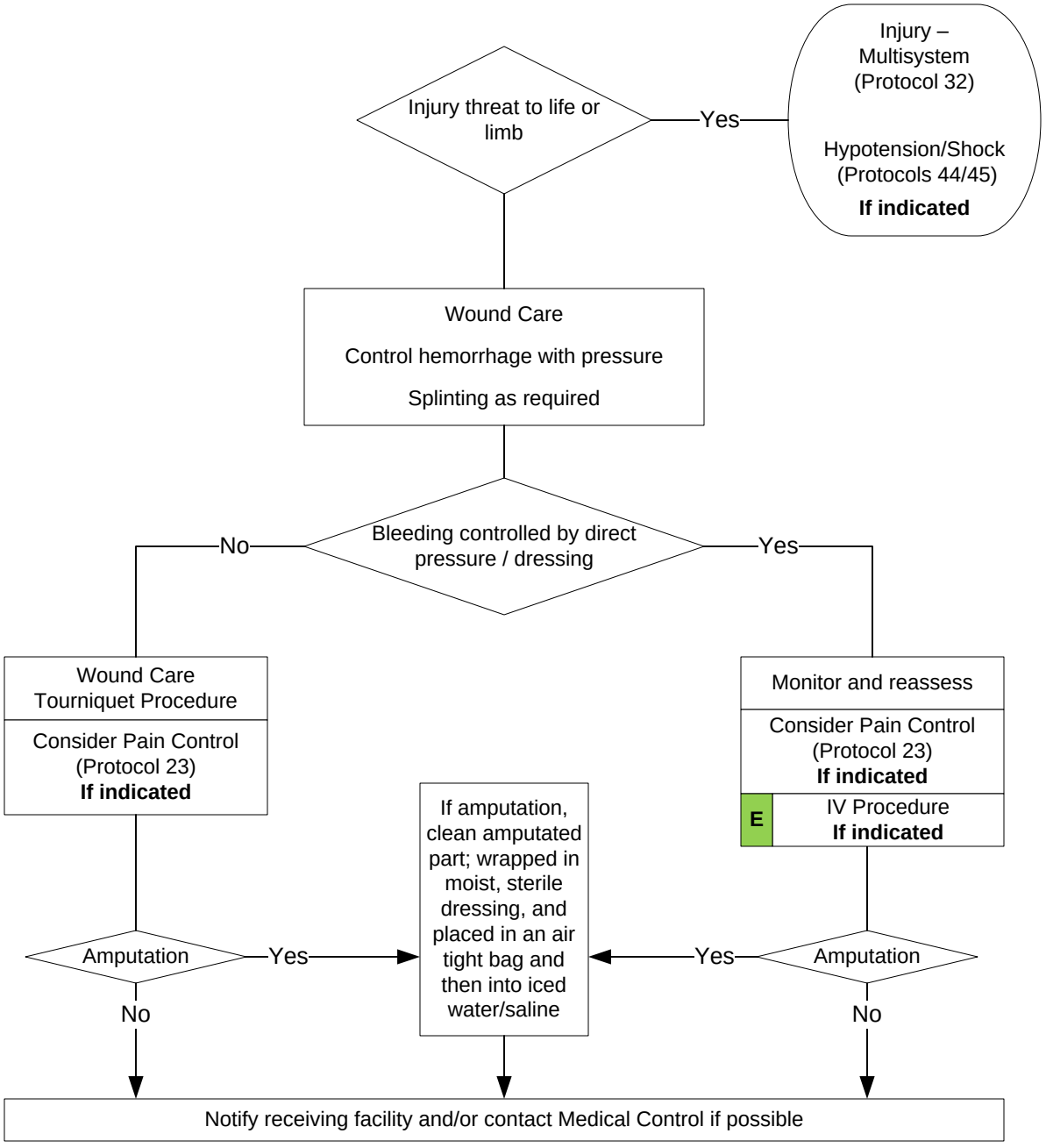
Injury – Crush Syndrome



PEARLS

* For patient's that have prolonged entrapment, contact Medical Control if possible, for additional treatment options.
* Scene safety is of paramount importance as typical scenes pose hazards to rescuers. Call for appropriate resources.
* Crush injury is very painful. Contact Medical Control if additional pain medication is needed.
* ECG changes with hyperkalemia include those in this protocol, but may also be a "bizarre," wide complex.
* Patients may become hypothermic, even in warm environments.

Injury – Extremity



PEARLS

* Peripheral neurovascular status is important
* In amputations, time is critical. Transport and notify medical control immediately, so that the appropriate destination can be determined.
* Hip dislocations and knee and elbow fracture / dislocations have a high incidence of vascular compromise.
* Time critical transport is necessary with any injury that has vascular compromise.
* Blood loss may be concealed or not apparent with extremity injuries.
* Lacerations must be evaluated for repair with 6 hours from the time of injury.

Injury – Head

Do NOT hyperventilate

Ventilate:
Adult: 8-10/min
PED: 12-20/min
Infant: 20-25 /min

EtCO2 35-45 mmHg

Spinal Immobilization/Clearance (Protocol 25)
If indicated

Injury – Multisystem (Protocol 32)
If indicated

Altered Mental Status (Protocol 36)
If indicated

Seizure (Protocol 54)
If indicated

Brain herniation
Unilateral or Bilateral dilation of pupils / posturing

Increase ventilation
Adult: 14-16
PED: 20-25
Infant: 25-30

EtCO2 30-35 mmHg

Assess Mental Status and record GCS

GCS 8 or less

No

Monitor and Reassess

Able to Cough / Speak

Yes

BVM / Basic Airway maneuvers
Maintain SpO2 of at least 94%

Monitor and reassess

No

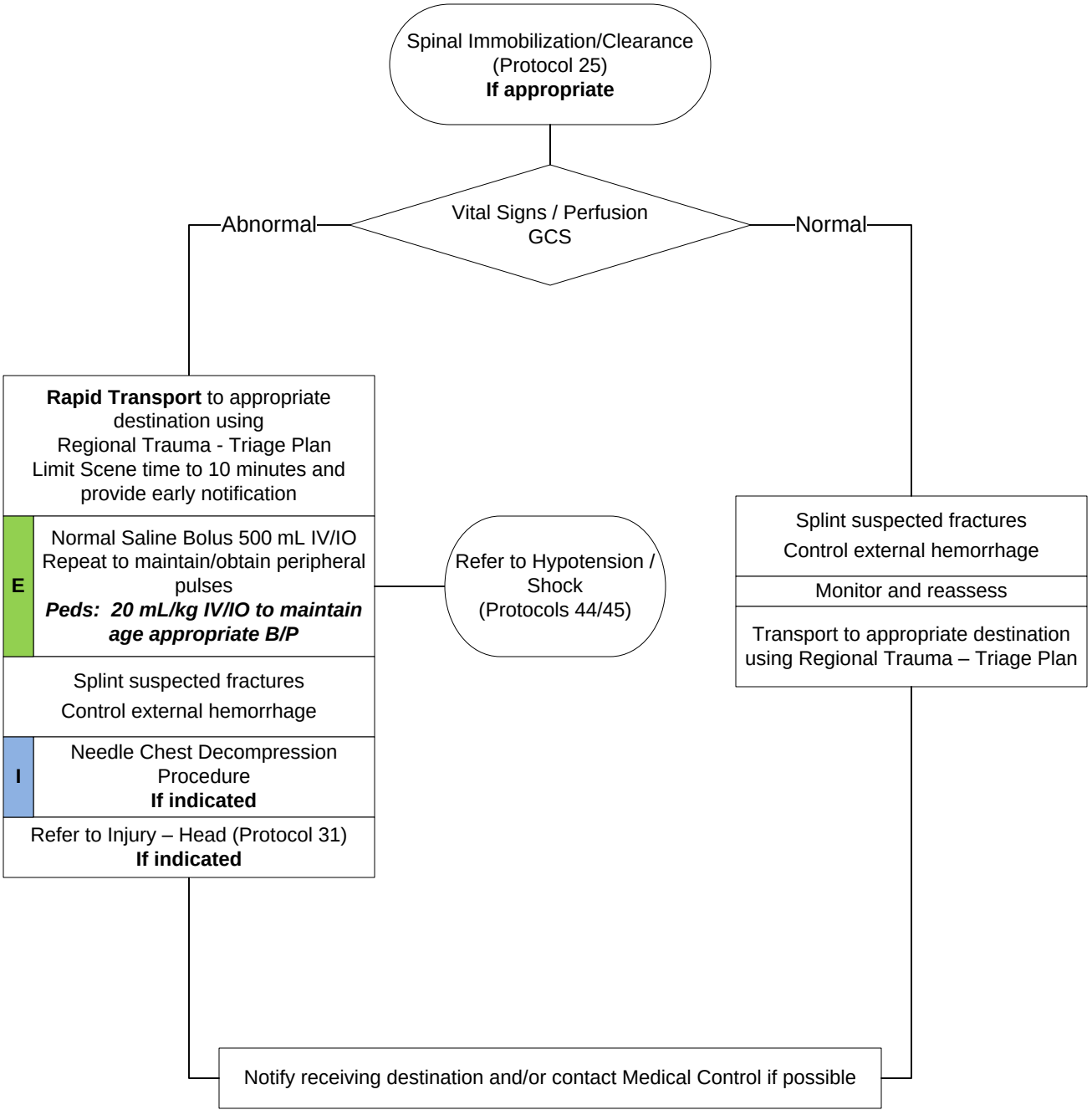
Exit to Airway (Protocol 1)

Notify receiving facility and/or contact Medical Control if possible

PEARLS

* In the absence of capnography, increase ventilation (adult 20, child 30, infant 35), ONLY if ongoing evidence of brain herniation (blown pupil, decorticate or decerebrate posturing or bradycardia)
* Increased ICP may cause hypertension and bradycardia (Cushing's Response)
* Hypotension usually indicates injury or shock unrelated to the head injury and should be aggressively treated
* The most important item to monitor and document is a change in the level of consciousness
* Limit IV fluids unless patient is hypotensive
* Concussions are periods of confusion or LOC associated with trauma which may have resolved by the time EMS arrives. Any prolonged confusion or mental status abnormality which does not return to normal within 15 minutes or any documented loss of consciousness should be evaluated by a physician ASAP

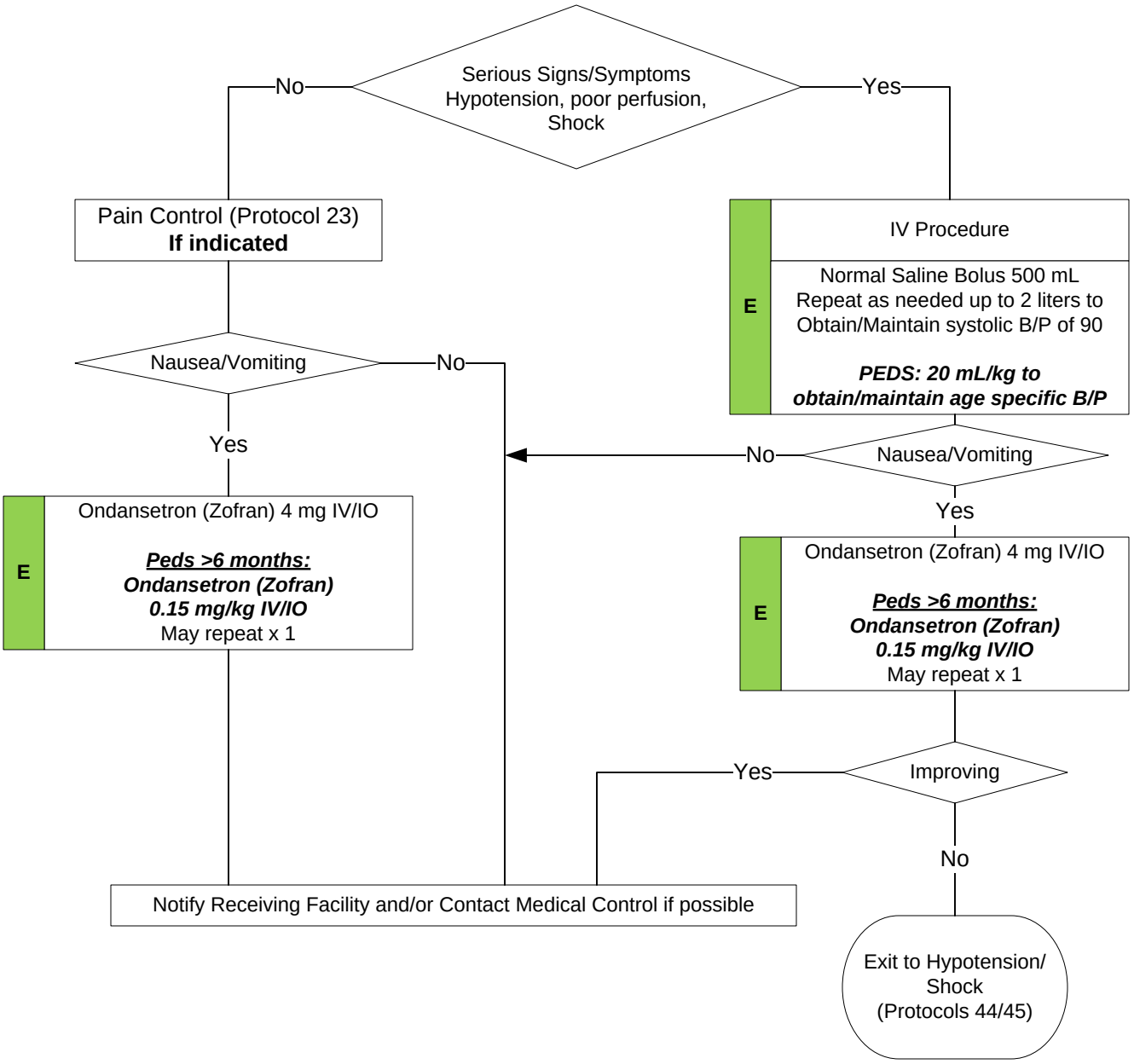
Injury – Multisystem



PEARLS

* Geriatric patients should be evaluated with a high index of suspicion. Often occult injuries are more difficult to recognize and patients can decompensate unexpectedly, with little warning.
* Mechanism is the most reliable predictor of serious injury.
* In prolonged extrications or serious trauma, consider air transportation for transport times and the ability to give blood.
* Do not overlook the possibility of associated domestic violence or abuse.
* Scene times should not be delayed for procedures. These should be performed en-route when possible. Rapid transport of the unstable trauma patient is the goal.
* Bag valve mask is an acceptable method of managing the airway if pulse oximetry can be maintained above 94%.

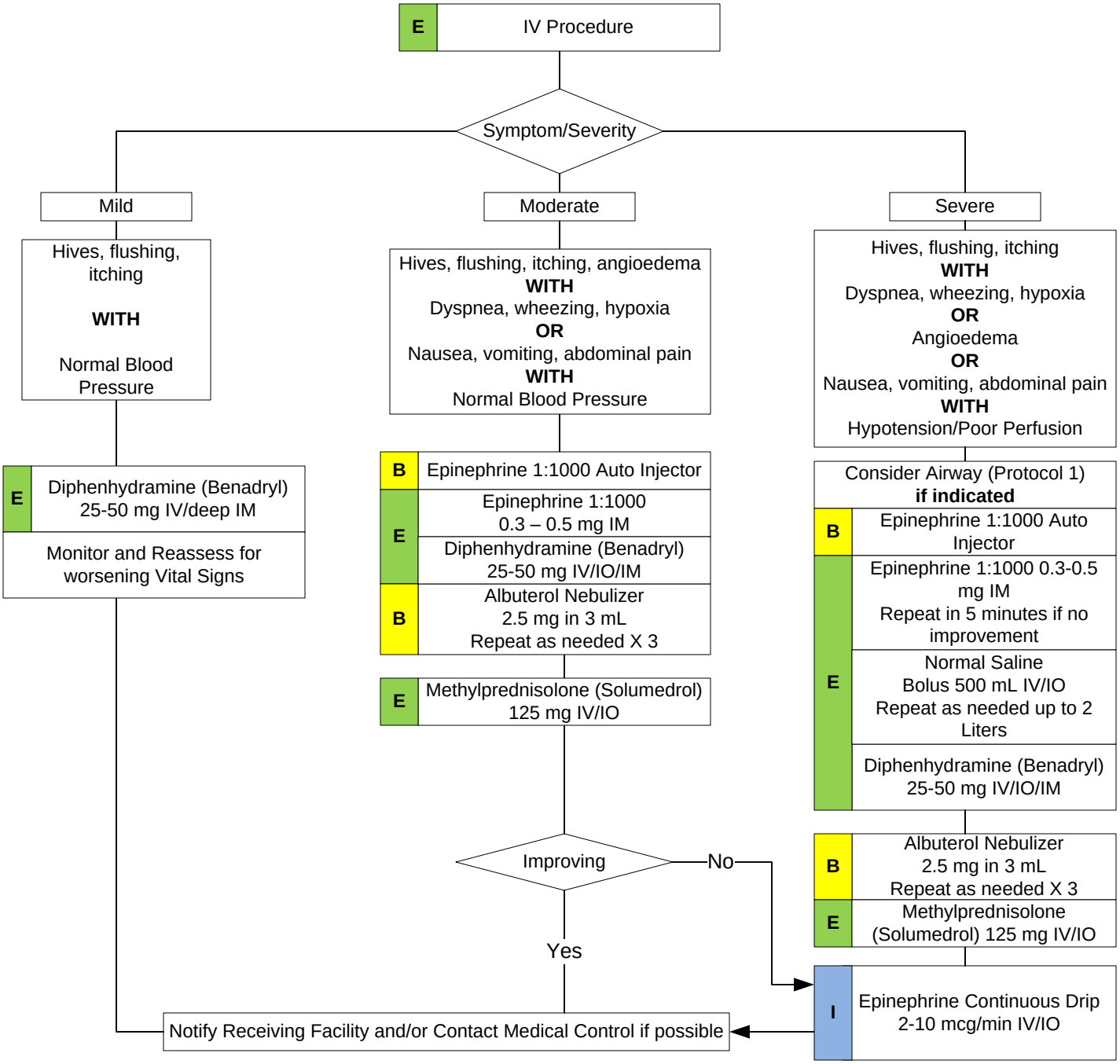
Medical – Abdominal Pain



PEARLS

* Document mental status and vital signs prior to administration of anti-emetics.
* Abdominal pain in women of childbearing age should be treated as pregnancy related until proven otherwise.
* Antacids should be avoided in patients with renal disease.
* The diagnosis of abdominal aneurysm should be considered with abdominal pain in patients over 50.
* Repeat vitals after each bolus.
* Consider cardiac etiology in patients > 50, diabetics and/or women, especially with upper abdominal complaints.

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.

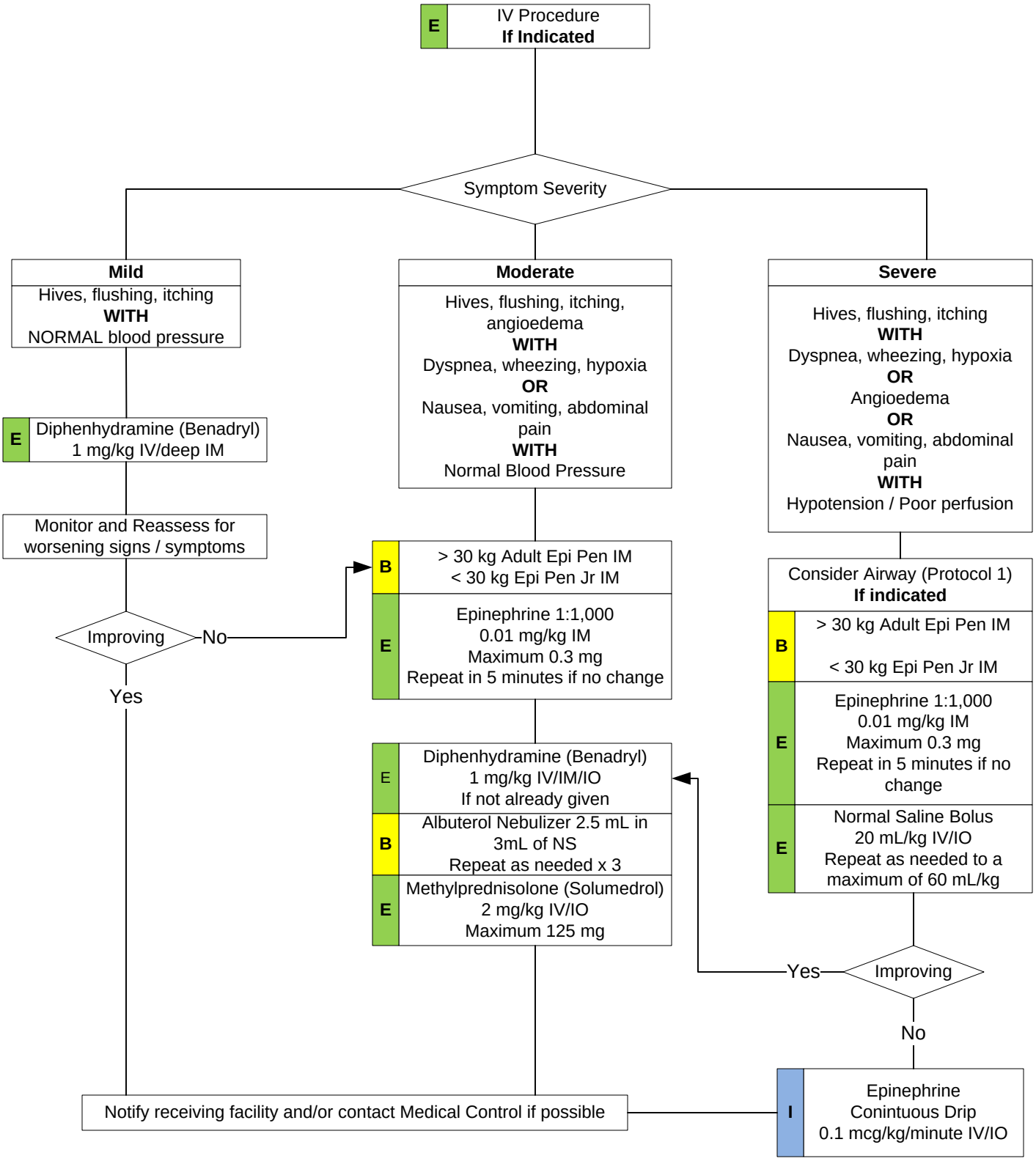
Epinephrine Continuous Drip:

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)

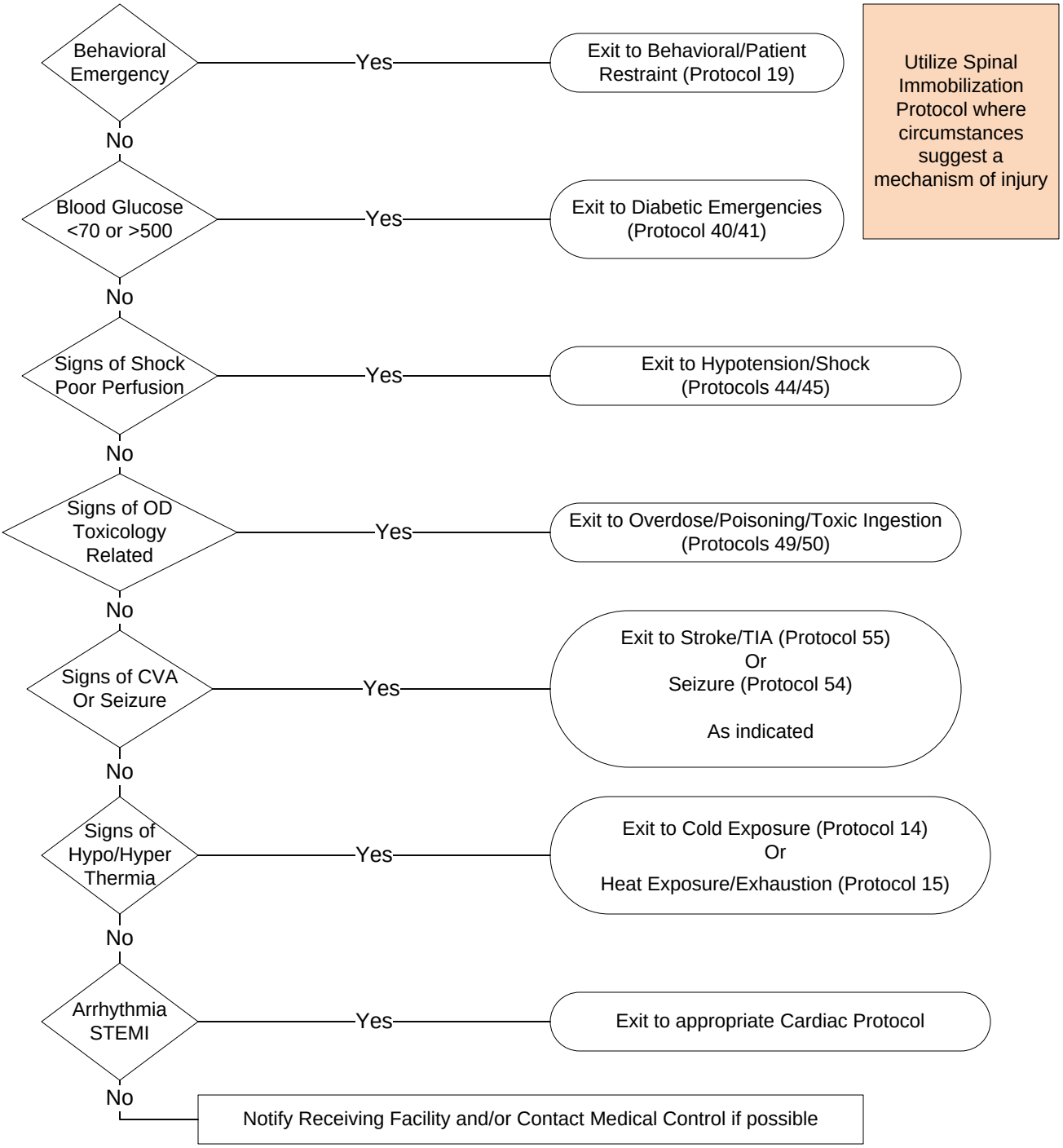


Medical Protocols

Medical – Allergic Reaction/Anaphylaxis (Pediatric)

PEARLS
* Patients with moderate and severe reactions should receive a 12 Lead ECG and should be continually monitored.
* Any patient with respiratory symptoms or extensive skin reaction should receive IV or IM diphenhydramine.
* The shorter the onset from exposure to symptoms, the more severe the reaction.
* Fluids and medication titrated to maintain a SBP > 70 + age (in years) x 2 mmHg
* IV / IO Epinephrine 1:10,000 (0.01 mg/kg) IVP (maximum 1 mg) in the presence of shock.
* Tachycardia and chest tightness are a side effect of epinephrine administration.

Medical – Altered Mental Status



PEARLS

The patient with AMS poses one of the most significant challenges to you as a provider. A careful assessment of the patient, scene and circumstances should be undertaken. Assume the patient has a life threatening cause of their AMS until proven otherwise.

Substance Abuse: Patients ingesting substances also pose a great challenge. **DO NOT** assume recreational drug use and/or alcohol are the sole reason for AMS as more serious underlying medical and/or trauma conditions may be present.

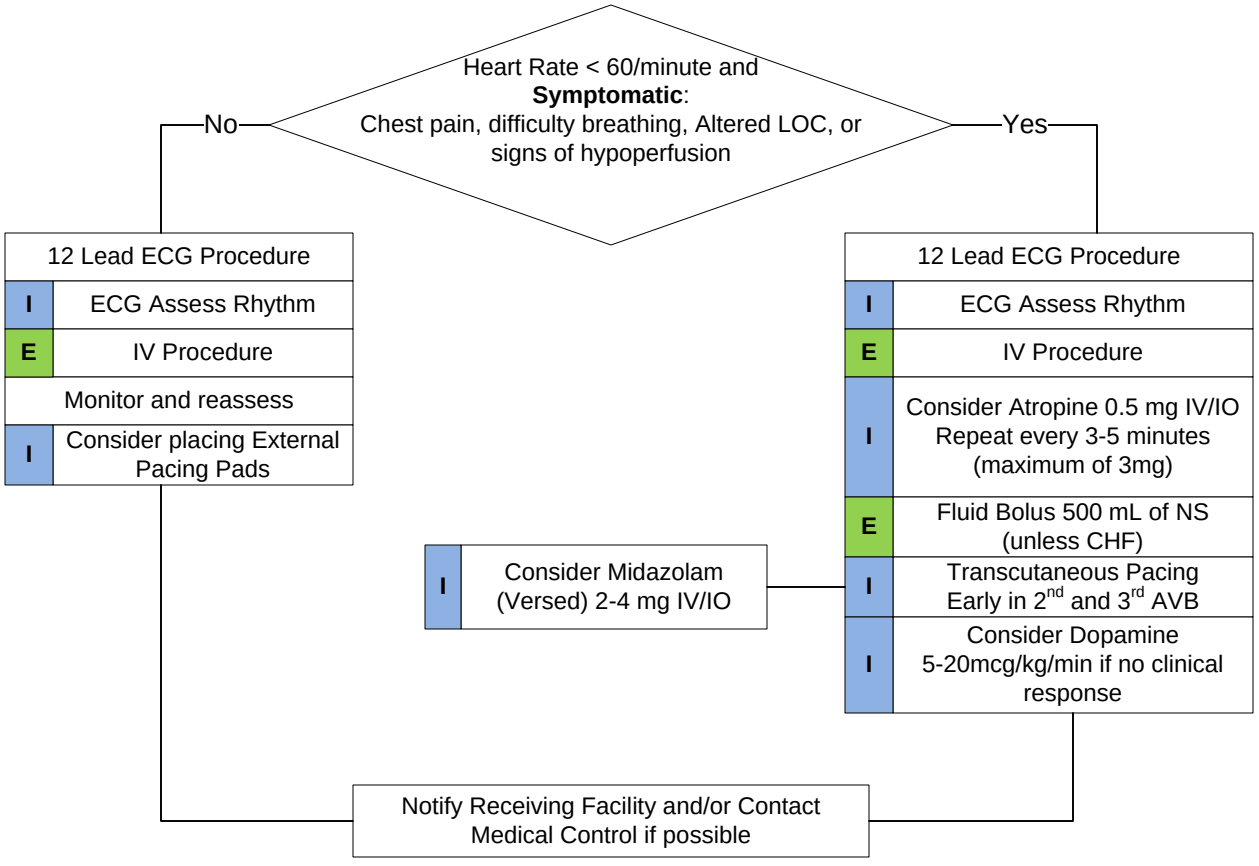
Behavioral Health Patient: The behavioral health patient also presents a great challenge. **DO NOT** assume AMS is the result solely of an underlying psychiatric etiology. Often an underlying medical/trauma condition precipitates a deterioration of a patients underlying psychiatric disease.

Spinal Immobilization/Trauma: As noted only employ spinal immobilization if the situation warrants. The patient with AMS may worsen in some instances when immobilized; so, only use when necessary

Medical – Bradycardia (Adult)

Suspected Beta-Blocker or Calcium Channel Blocker

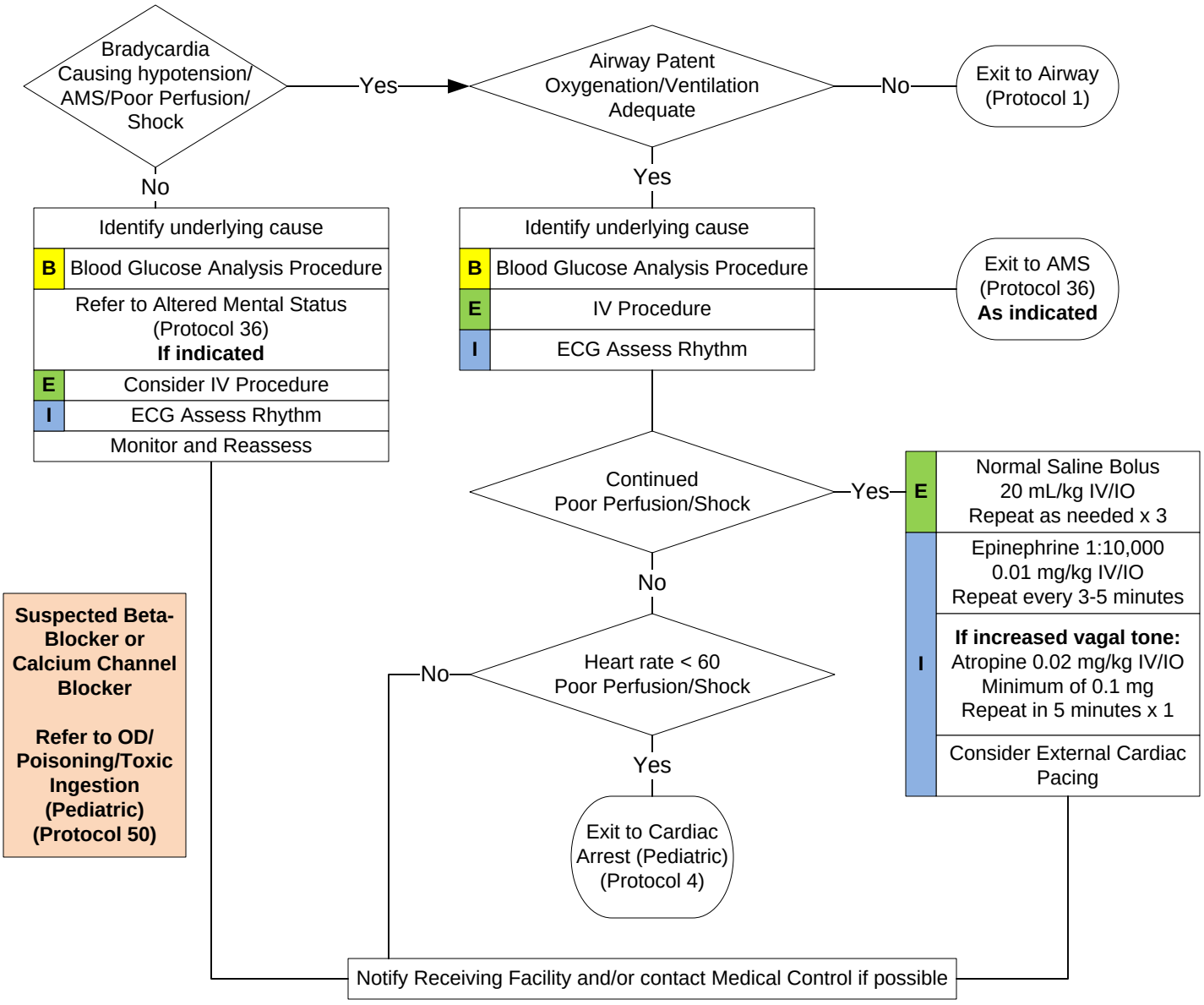
Refer to OD/Poisoning/ Toxic Ingestion (Adult) (Protocol 49)



PEARLS

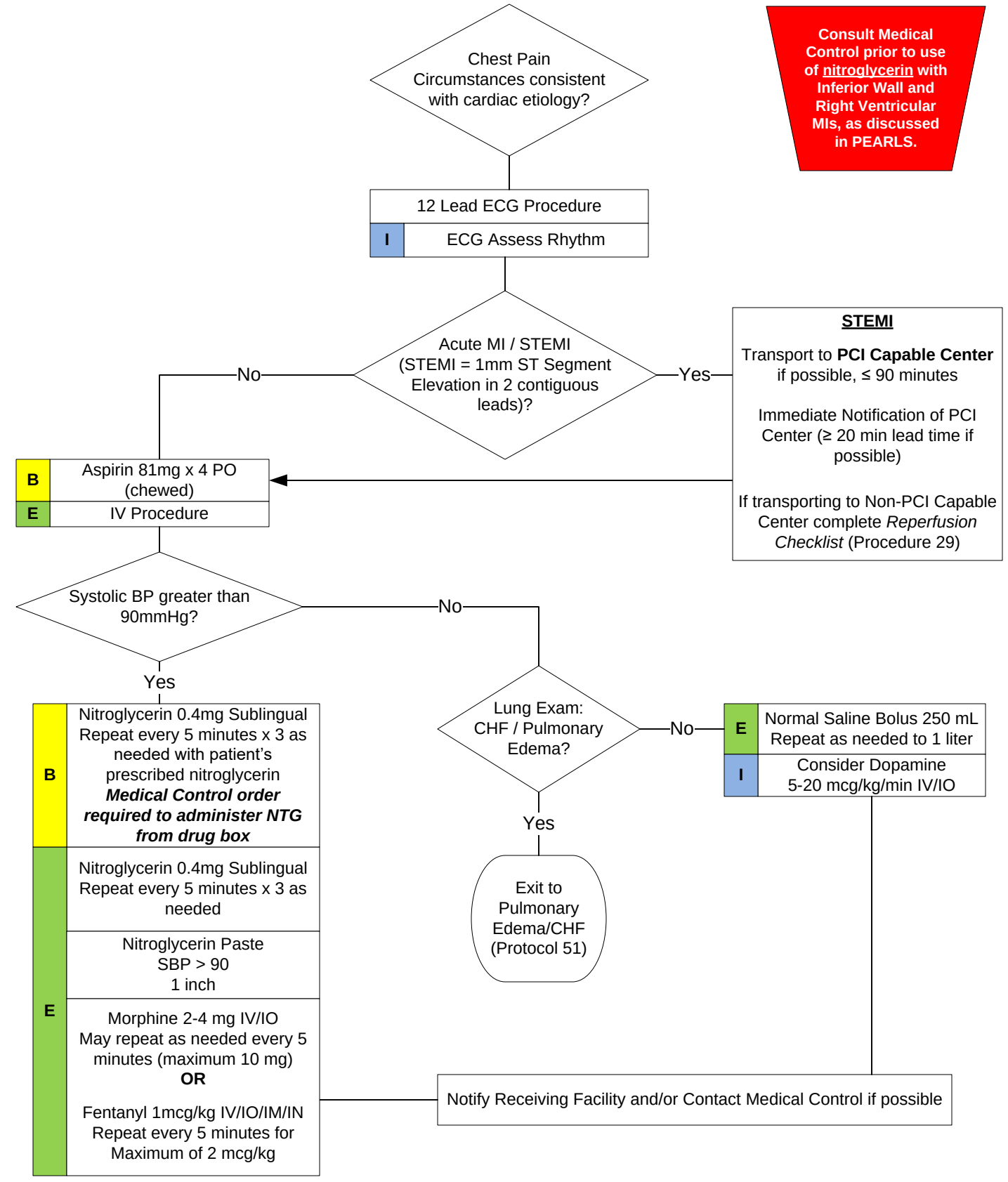
* Bradycardia causing symptoms is typically < 60/minute. Rhythm should be interpreted in the context of symptoms and pharmacological treatment given only when symptomatic, otherwise monitor and reassess.
* **Atropine:** Caution in setting of acute MI. The use of Atropine for PVCs in the presence of an MI may worsen heart damage. Should not delay Transcutaneous Pacing with poor perfusion. Ineffective in cardiac transplantation. Likely ineffective in 2nd and 3rd blocks.
* The use of Lidocaine, Beta Blockers, and Calcium Channel Blockers in heart block can worsen bradycardia and lead to asystole and death.
* Wide complex, slow rhythm, consider hyperkalemia.
* Consider treatable causes for bradycardia (i.e. Beta Blocker OD, Calcium Channel Blocker OD, etc).

Medical – Bradycardia (Pediatric)



PEARLS
* Use Length Based Measuring Tape for drug dosages.
* Infant ≤ 1 year old
* The majority of pediatric arrests are due to airway problems.
* Most maternal medication pass through breast milk to infant.
* Hypoglycemia, severe dehydration and narcotic effects may produce bradycardia.
* Pediatric patients requiring external pacing require the use of pads appropriate for pediatric patients per manufacturers guidelines.
* ATROPINE – ONLY give Atropine to pediatric patients IF there is an increase in vagal tone.

Medical – Chest Pain, Presumed Cardiac



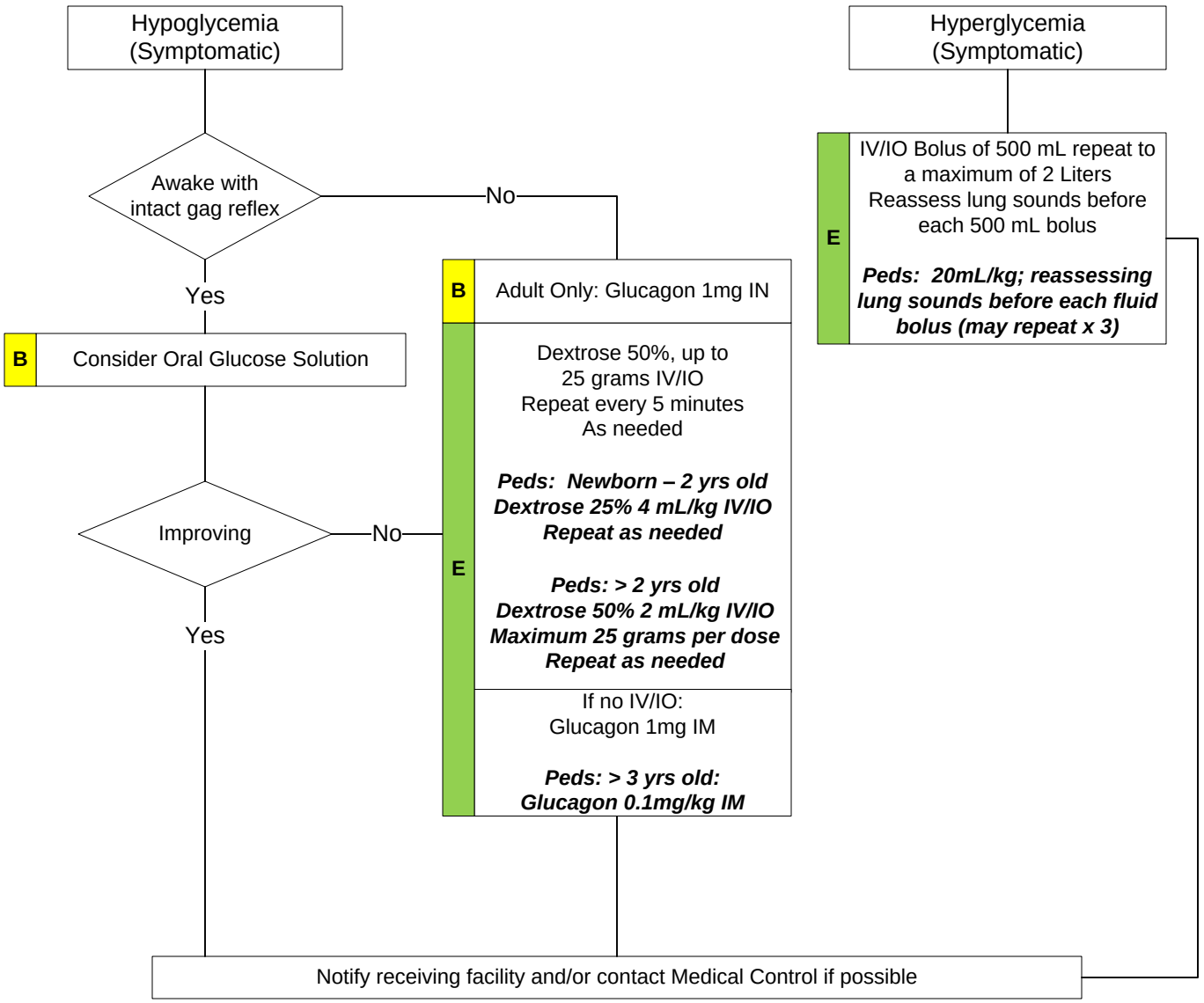
Medical – Chest Pain, Presumed Cardiac

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.

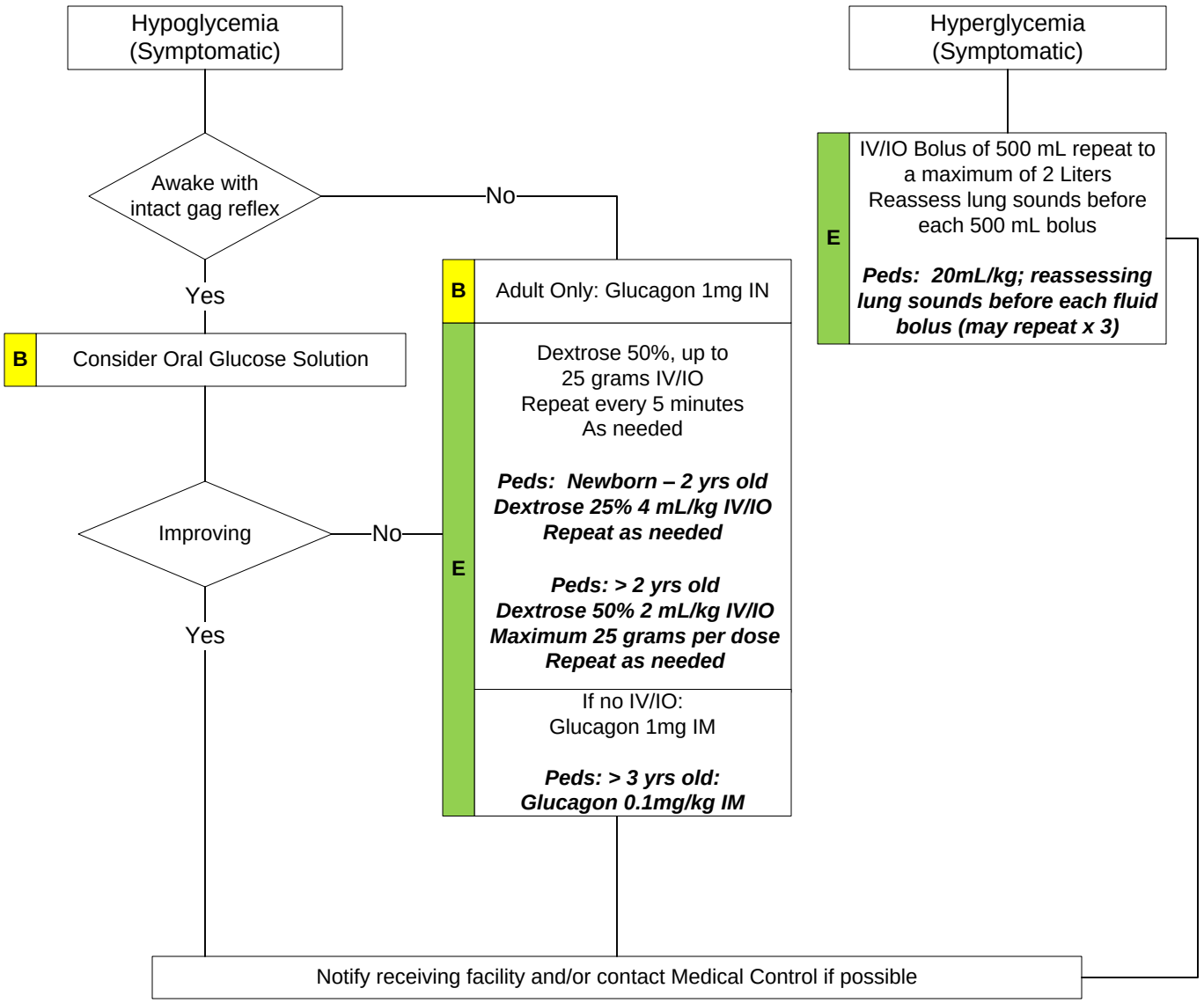
STEMI Best Practices:
* Seconds count. Time clock starts with FMC (First Medical Contact) with ideal goal of STEMI patient being in cath lab and device (stint) placed in no more than 90 min. A Heart Alert is as time sensitive as a Trauma Alert, perhaps more.
* If scene allows and at patient's side, perform **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 – Diabetic-Hyperglycemia



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 – Diabetic-Hypoglycemia



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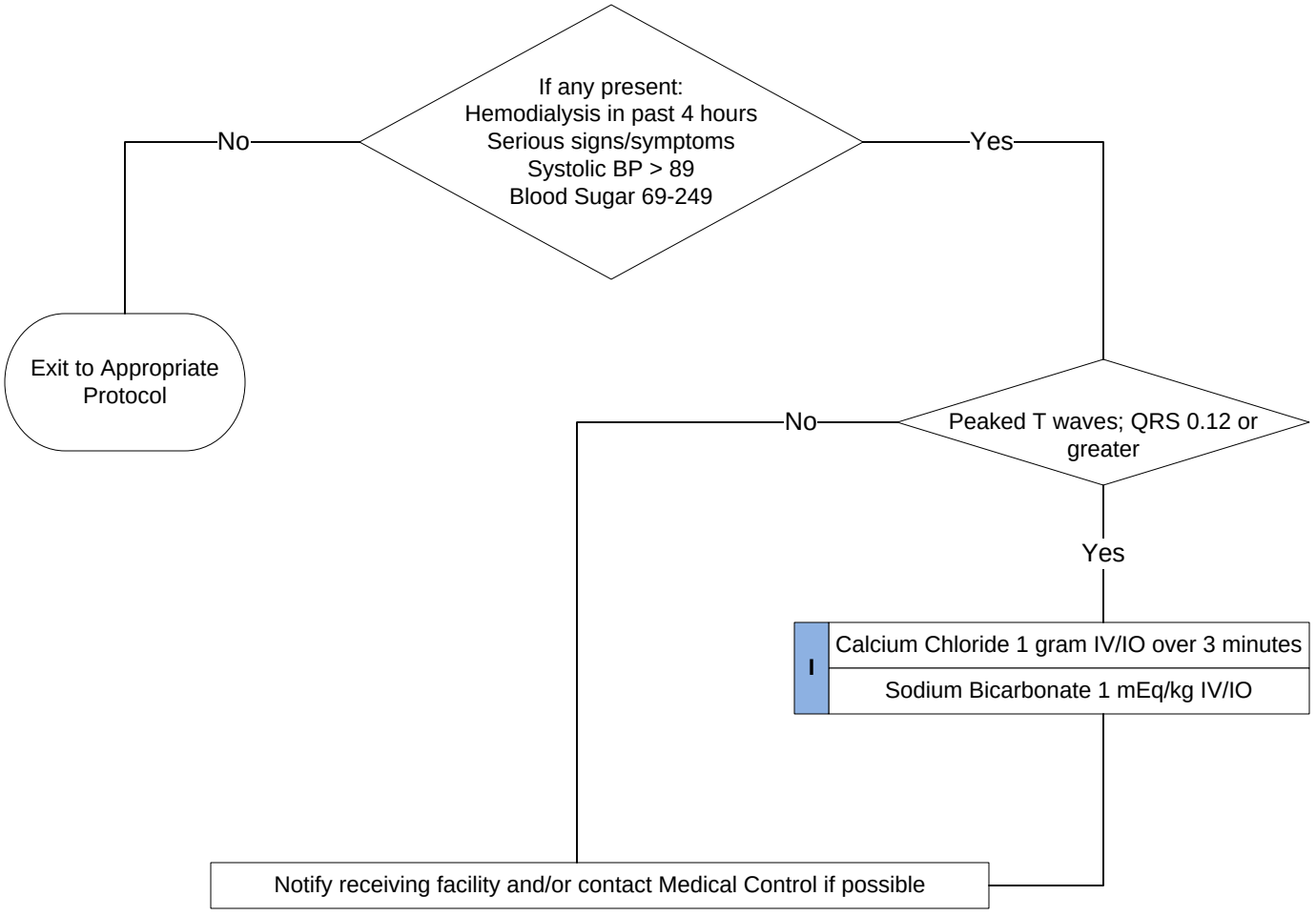
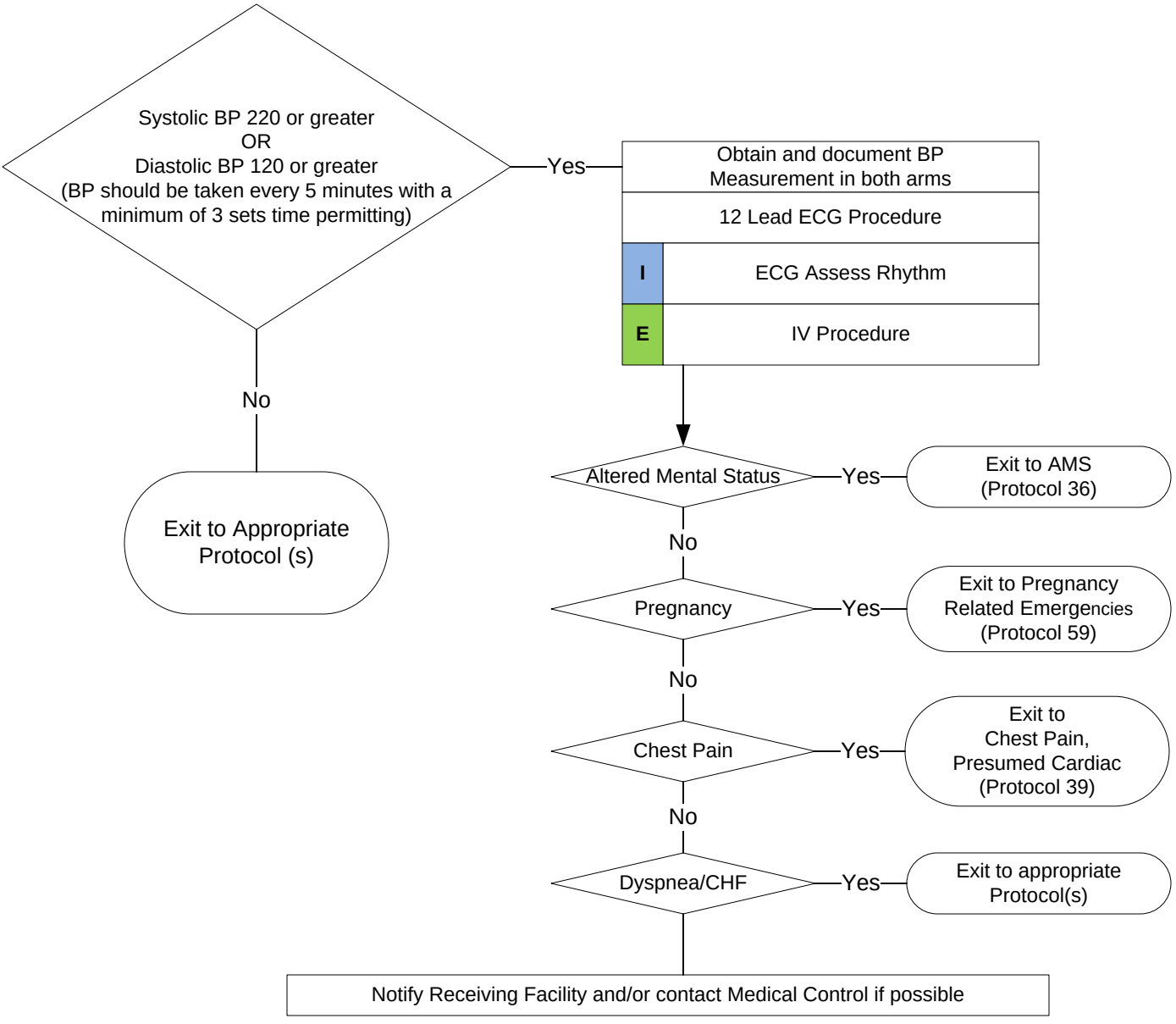
Medical – Dialysis/Renal Failure



PEARLS
* Renal dialysis patients have numerous medical problems. Hypertension and cardiac disease are prevalent.
* Do NOT take blood pressure or start IV in extremity which has an active, working shunt or fistula in place (if possible).
* Always consider Hyperkalemia in all dialysis or renal failure patients.

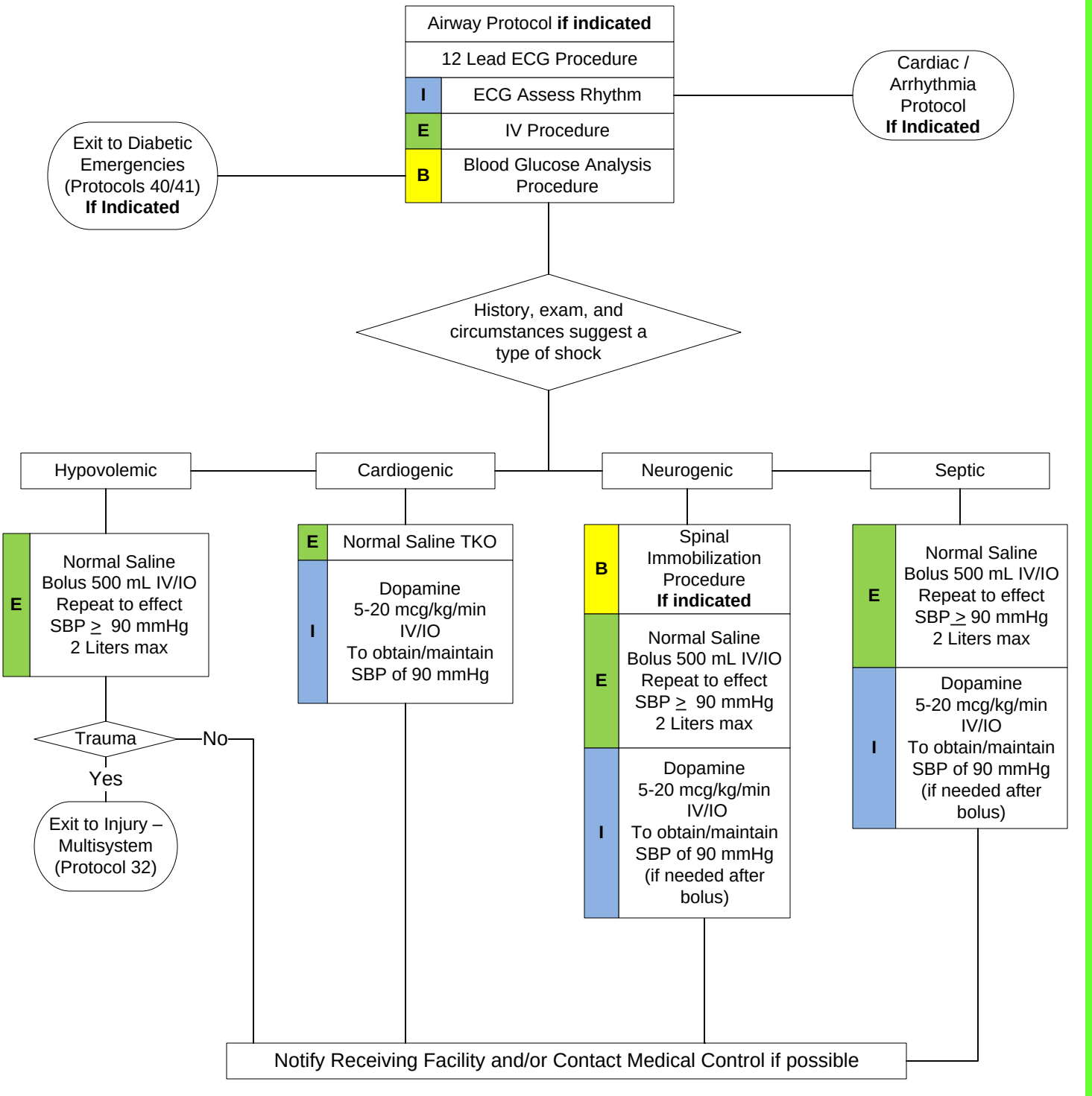
Medical – Hypertension

Hypertension is not uncommon, especially in an emergency setting. Hypertension is usually transient and in response to stress and/or pain. A hypertensive emergency is based on blood pressure along with symptoms which suggest an organ is suffering damage, such as an MI, CVA or renal failure. This is very difficult to determine in the prehospital setting in most cases. Aggressive treatment of hypertension can result in harm. Most patients, even with significant elevation in blood pressure, need only supportive care. Specific complaints such as chest pain, dyspnea, pulmonary edema or altered mental status, should be treated based on specific protocols and consultation with Medical Control.



PEARLS
* Elevated blood pressure is based on 2 to 3 sets of vital signs.
* All symptomatic patients with hypertension should be transported with their head elevated at 30 degrees.
* No BP should be taken in extremity with working dialysis shunts and fistulas OR history of mastectomy.

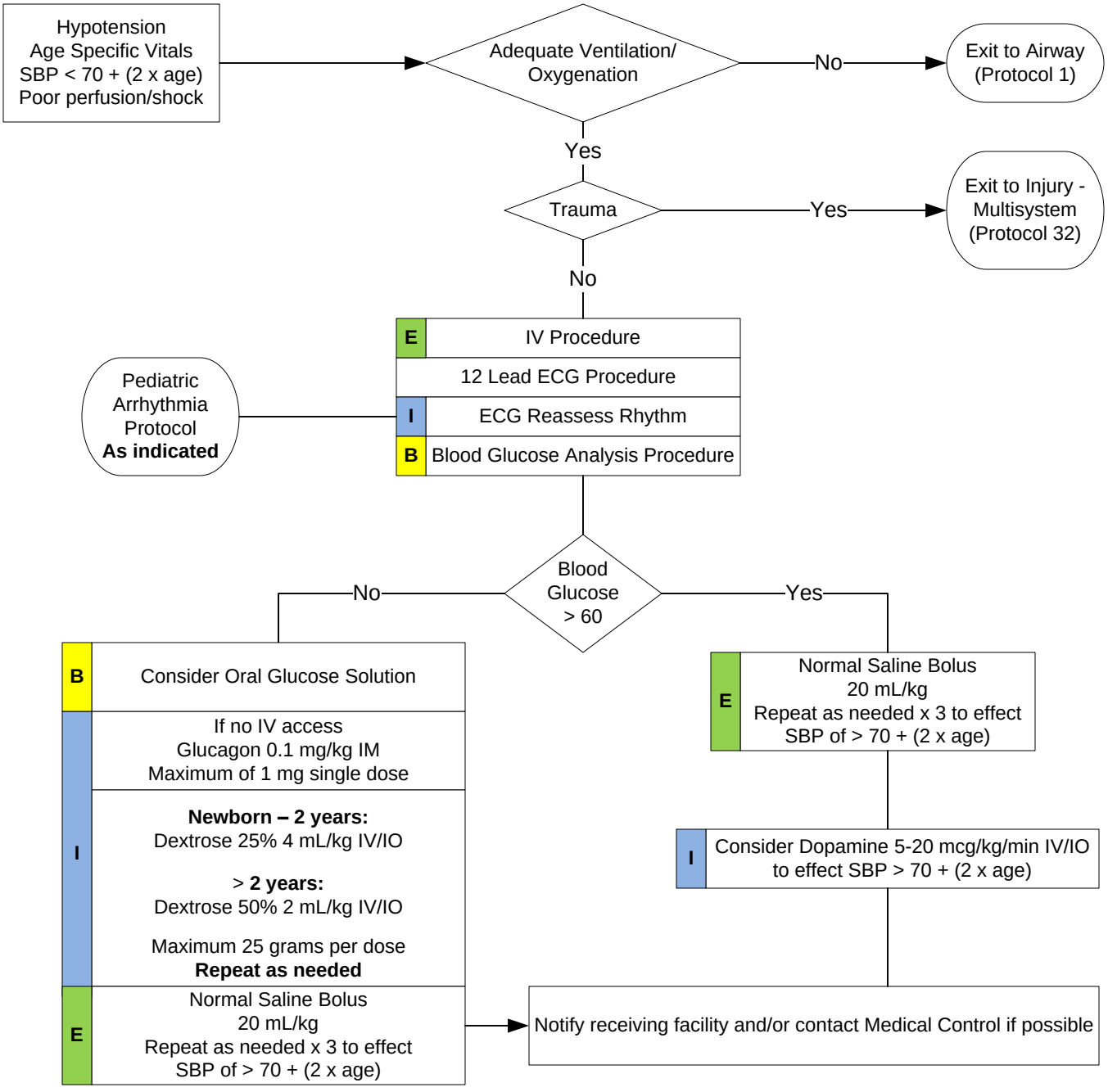
Medical – Hypotension/Shock (Non-Trauma, Adult)



PEARLS
* Hypotension can be defined as a systolic blood pressure of less than 90 mmHg and/or loss of peripheral pulses.
* Consider all possible causes of shock and treat per appropriate protocol.
* For non-cardiac, non-trauma hypotension, Dopamine should only be started after 2 liters of NS have been given.
* Monitor lung sounds before all fluid boluses.

Medical Protocols

Medical – Hypotension/Shock (Non-Trauma, Pediatric)



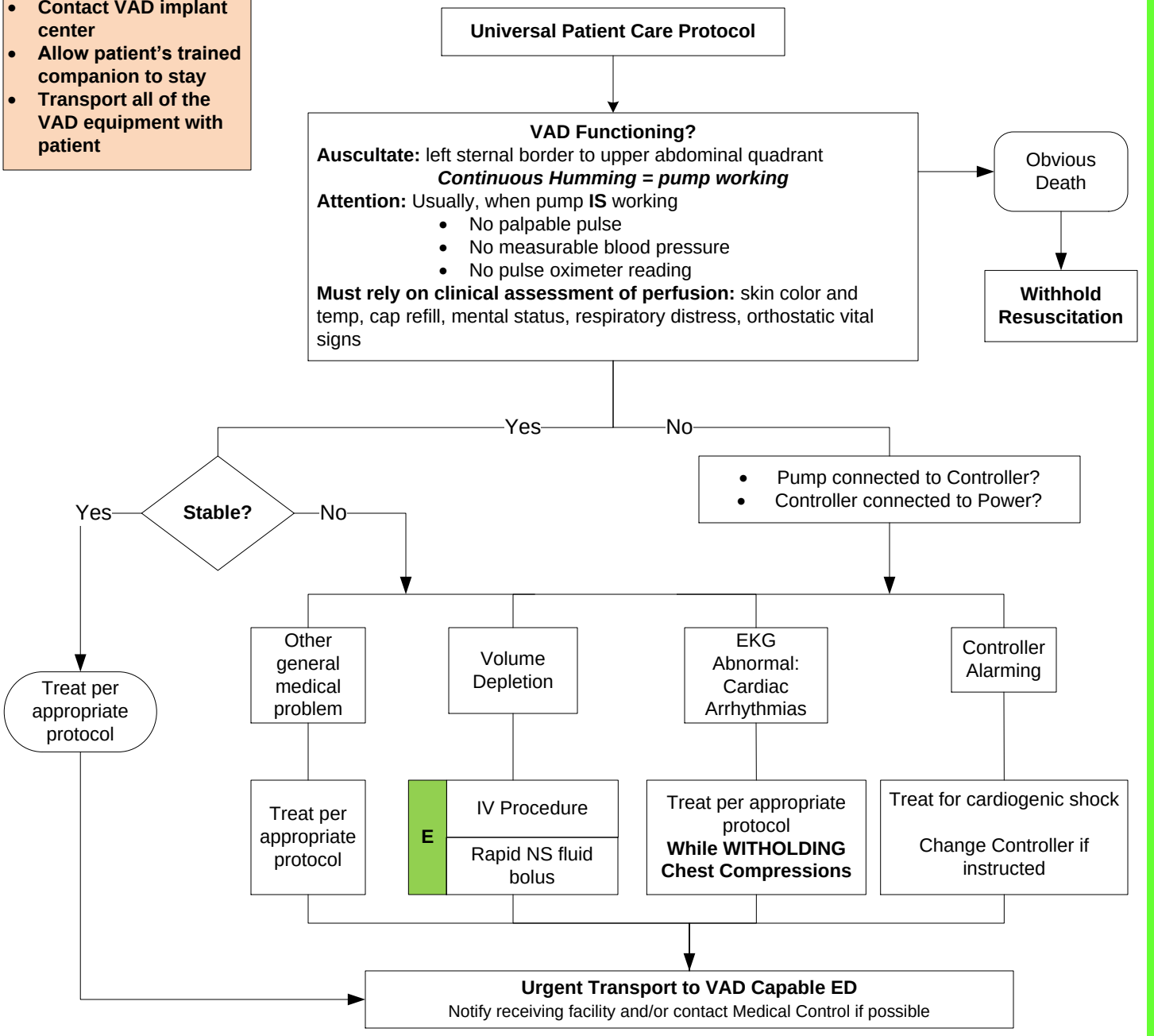
PEARLS

* Lowest blood pressure by age:
  < 31 days; > 60 mmHg
  31 day – 1 year; > 70 mmHg
  1 year and older; 70 + (2 x age) in years
* Consider all possible causes of shock and treat per appropriate protocol. Majority of decompensating in pediatrics is airway related.
* Consider possible allergic reaction or early anaphylaxis.
* If patient has a history of cardiac disease, (prematurity), chronic lung disease or renal disease limit Normal Saline Bolus to 10 mL/kg.

Medical Protocols

Medical – Left Ventricular Assist Device (LVAD)

Always:
- **Contact VAD implant center**
- **Allow patient's trained companion to stay**
- **Transport all of the VAD equipment with patient**



Pearls:
- VAD pumps run continuously, there is no pulse pressure. You will unlikely feel a pulse and automatic BP machines will not register a blood pressure, nor will a pulse oximeter register a reliable oxygen saturation. Using a doppler you may obtain a single average blood pressure in the range of 60-100 mm Hg.
- Clinical assessment is your primary tool: Mental Status, Skin Color and Temperature, Capillary Refill Time, Orthostatic Vital signs.
- Defibrillation, Cardioversion and External pacing are allowed if indicated. Patients with LVADS can actually come home in Vfib, the pump still perfuses the patient adequately. However, new arrhythmias can reduce cardiac output and require treatment.
- LVADS are very volume dependent. Even minor fluid loss can initial poor perfusion. IV fluid therapy is the first step in any unstable LVAD patient.

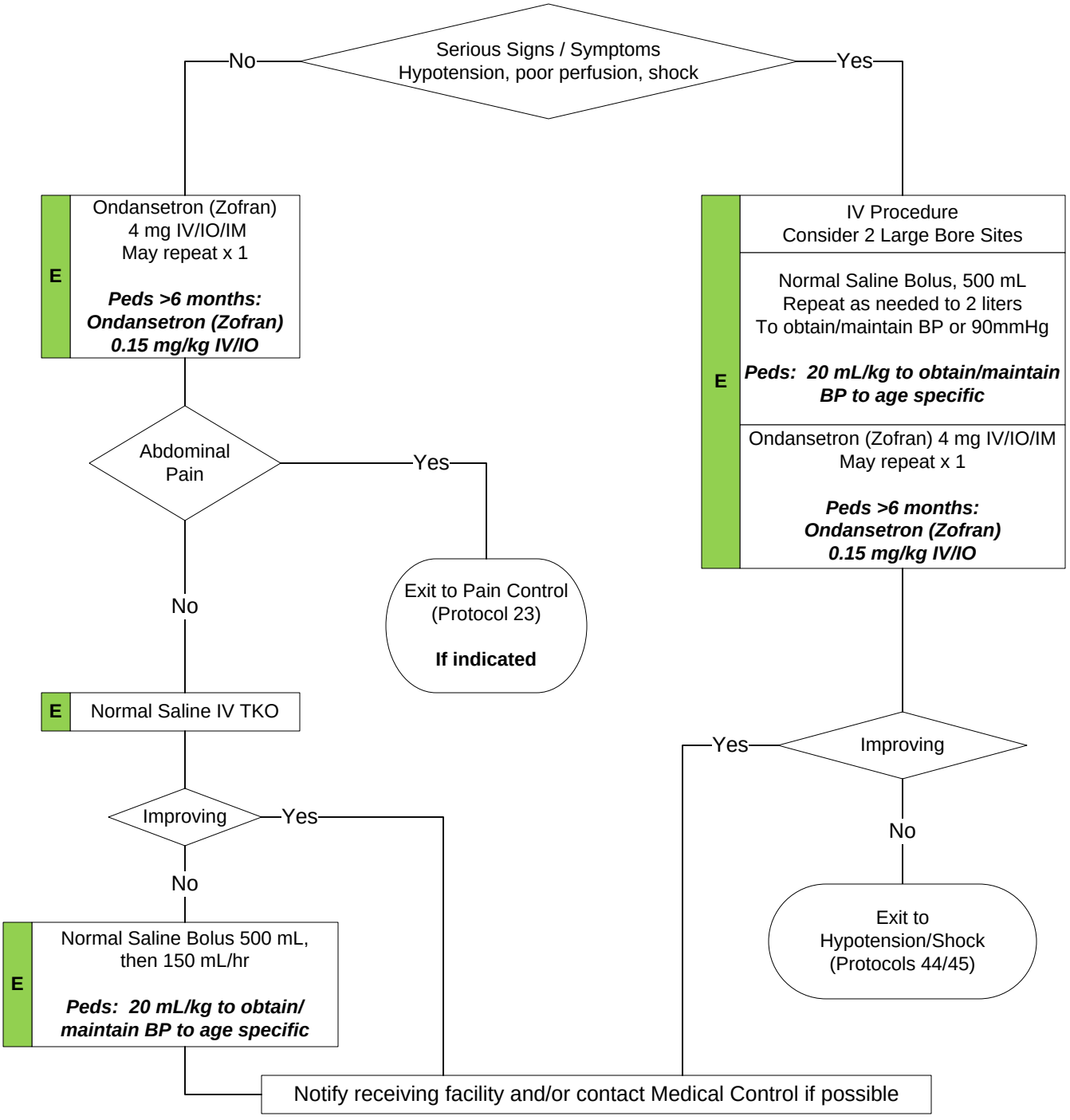
Medical – Left Ventricular Assist Device (LVAD)

A Ventricular Assist Device, usually connected surgically to the left ventricle (LVAD) is an implanted mechanical heart. This mechanical device boosts cardiac output and is dependent upon some right ventricular function and adequate blood volume to provide forward flow. It pumps blood continuously, so that is why you will not usually feel a pulse nor be able to get a blood pressure. The typical automatic blood pressure device and pulse oximetry monitor will not result in reliable data. If a doppler device were available you should be able to determine a mean arterial pressure (MAP) usually between 60-90mmHg. Therefore you will need to assess the patient perfusion using basic skills: mental status, skin color and temperature, capillary refill, and perhaps orthostatic changes. The pump is connected through drive connections which exit the body and are attached to a System Controller which has an internal computer that controls the pump system. This is an electrical device. There is also a home monitor device, spare System Controller, batteries and charger. The patient will be anticoagulated. There is usually an Emergency Bag which will contain contact numbers of the LVAD team and Emergency Guidelines. There will be a "VAD competent" person, a family member who has been trained by the LVAD team. Keep this person with you and allow them to help troubleshoot any system problems. Also, you can contact the LVAD team and they can assist you in management and troubleshooting.
There are two basic reasons for a patient to have a LVAD. First as a bridge to transplant, to provide cardiac output pending a heart transplant. Or secondly, as a destination therapy, in someone who has critical heart failure and a transplant is not an option.

Basic Approach to LVAD patients:

1. Use basic assessment skills to determine patient status.
2. LVAD Failure:
    A. See if power supplied, check for green light on Controller.
    B. Make sure pump connected to Controller.
3. LVAD working, EKG abnormal, poor perfusion, low LVAD flow
    A. Patient symptomatic, initiate appropriate therapy to stabilize patient.
    B. If indicated defibrillation, cardioversion or external pacing. Leave pump connected and running.
    C. If LVAD monitor shows low output (usually less than 3 liters per minute) aggressive IVF therapy.
4. LVAD working, EKG normal, poor perfusion, low LVAD flow
    A. Suspect internal bleeding if clinical signs and symptoms are consistent.
    B. Initiate IV/IO fluid therapy.
    C. May require inotrope (dopamine) therapy to maximize right heart function.
5. Follow Cardiac Protocols, LVAD presence does not alter them. However, if possible withhold chest compressions with CPR. Compressions may dislodge the titanium pump and the connections resulting in catastrophic bleeding around the heart. If the LVAD is functioning and there is adequate blood volume then compressions will not be helpful.
6. For complications it would be best to transport the patient to the LVAD Center/medical facility that placed the device. However, if this is not an option then transfer to the closest LVAD capable hospital.
7. Transport all of the LVAD equipment with the patient.

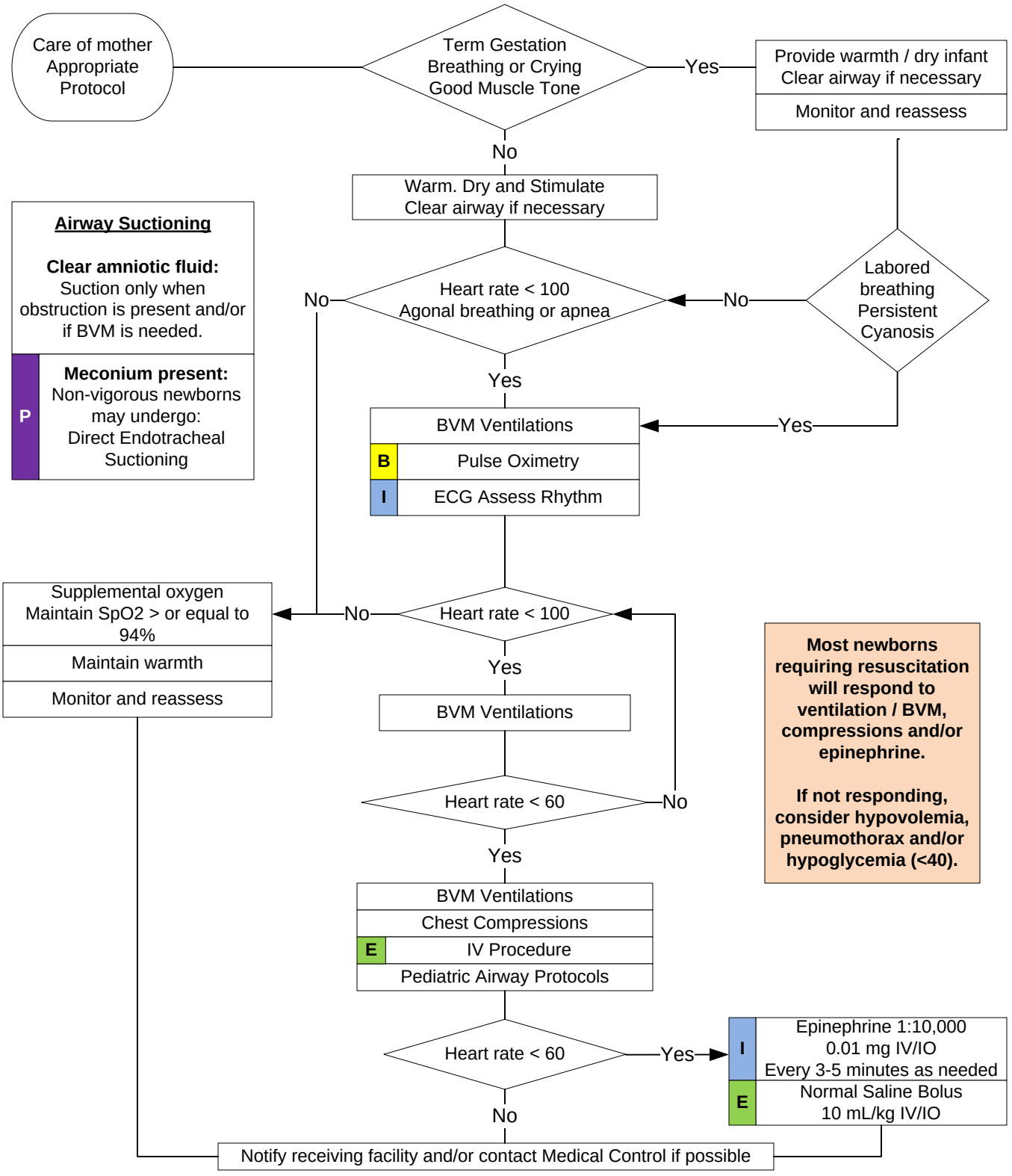
Medical – Nausea/Vomiting



PEARLS

* Beware of vomiting in the absence of nausea in children. Pyloric stenosis, bowel obstruction and CMS processes (bleeding, tumors, or increased SCF pressures) all often present with vomiting.

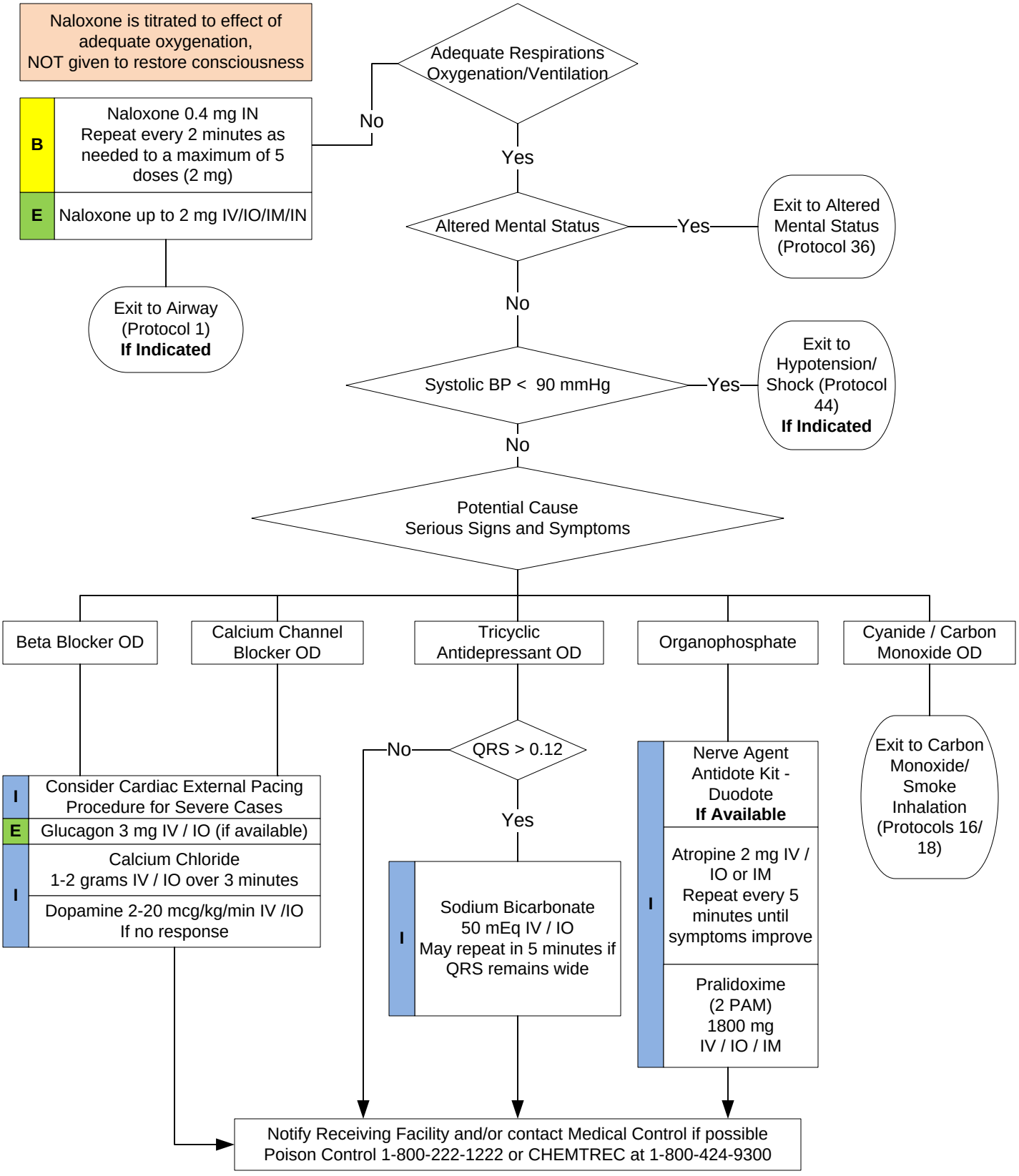
Medical – Newborn/Neonatal Resuscitation



PEARLS

* CPR in infants is 120 compressions/minute with a 3:1 compression to ventilation ratio.
* It is extremely important to keep infant warm.
* Document 1 and 5 minute APGAR (see procedures)
* Use Mother/Baby ID bands where available.

Medical – Overdose/Poisoning/Toxic Ingestion (Adult)

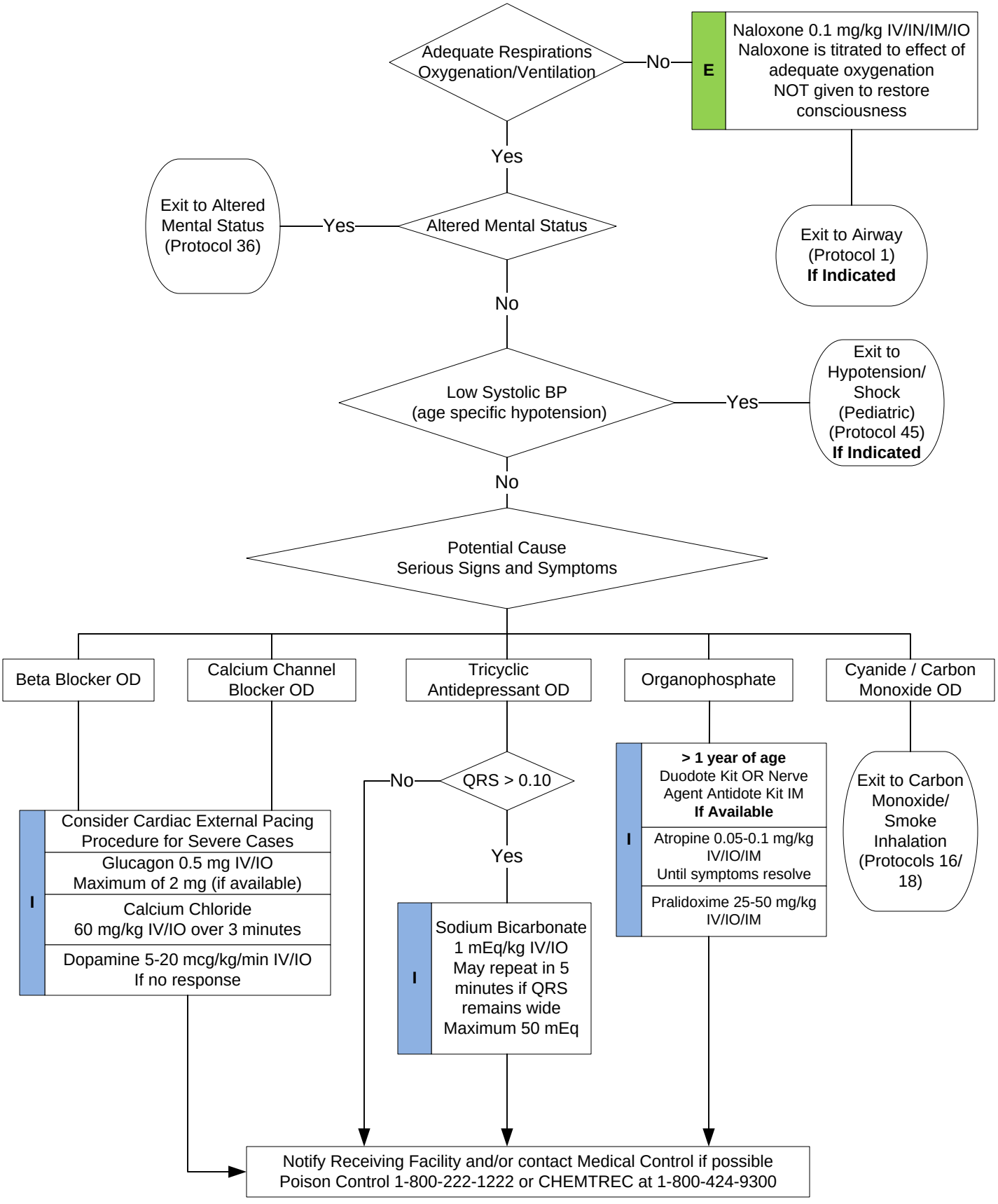


Medical – Overdose/Poisoning/Toxic Ingestion

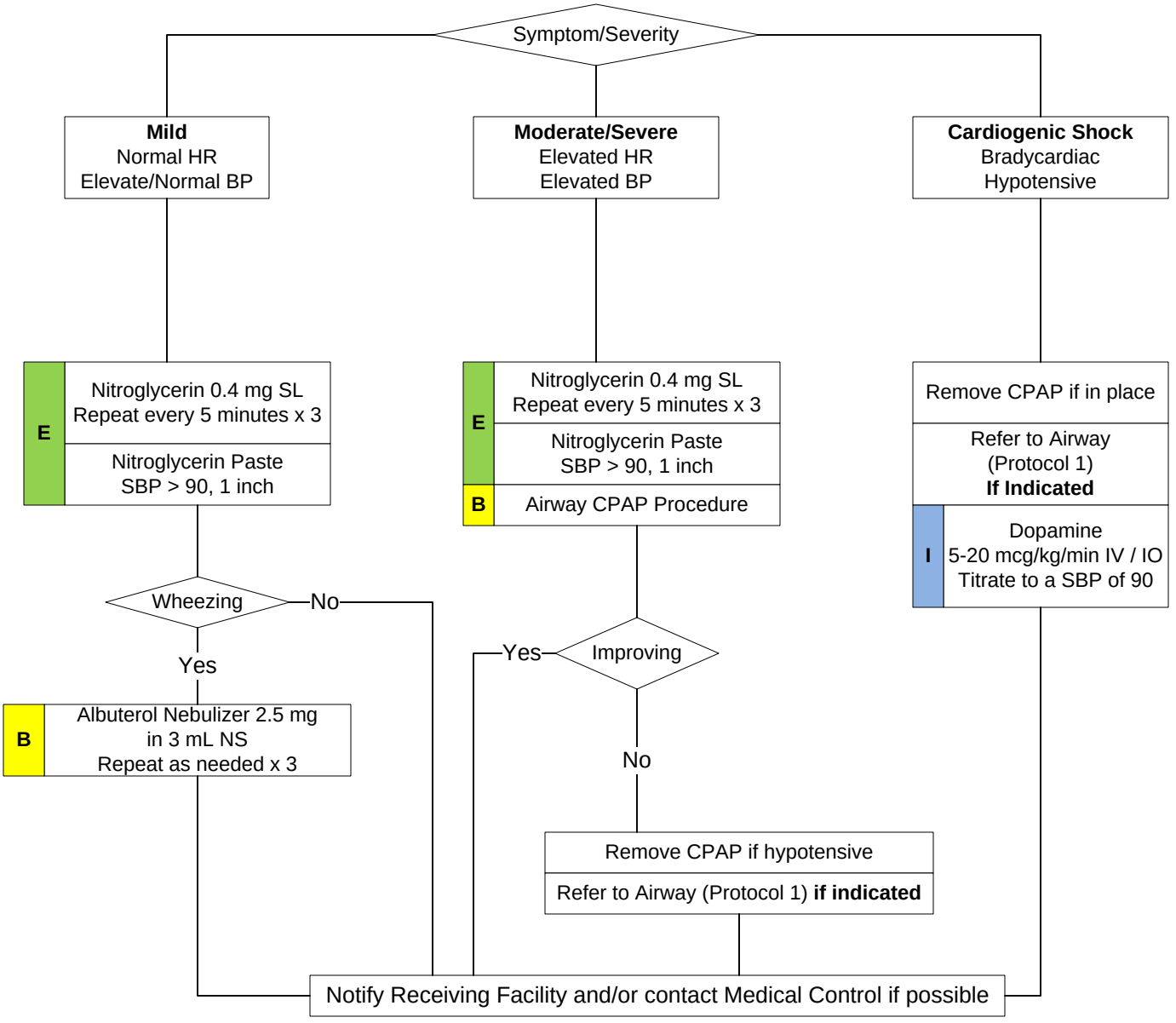
PEARLS

* Do not rely on patient history of exposure, especially in suicide attempts. Make sure patient is still not carrying other medications or has any weapons.
* Bring bottles, contents, emesis to ED.
* **Tricyclic:** 4 major areas of toxicity: seizures, dysrhythmias, hypotension, decreased mental status or coma; rapid progression from alert mental status to death.
* **Acetaminophen:** initially normal or nausea/vomiting. If not detected and treated, causes irreversible liver failure.
* **Aspirin:** Early signs consist of abdominal pain and vomiting. Tachypnea and altered mental status may occur later. Renal dysfunction, liver failure, and/or cerebral edema among other things can take place later.
* **Depressants:** decreased HR, decreased BP, decreased temperature, decreased respirations, non-specific pupils.
* **Stimulants:** increased HR, increased BP, increased temperature, dilated pupils, seizures.
* **Anticholinergic:** increased HR, increased temperature, dilated pupils, mental status changes.
* **Cardiac Medications:** dysrhythmias and mental status changes.
* **Solvents:** nausea, coughing, vomiting and mental status changes.
* **Insecticides:** increased or decreased HR, increased secretions, nausea, vomiting, diarrhea, pin-point pupils.
* **Nerve Agent Antidote kit** contains 2 mg of Atropine and 600 mg of pralidoxime in an auto-injector for self administration or patient care if needed.

Medical – Overdose/Poisoning/Toxic Ingestion (Pediatric)



Medical – Pulmonary Edema/CHF

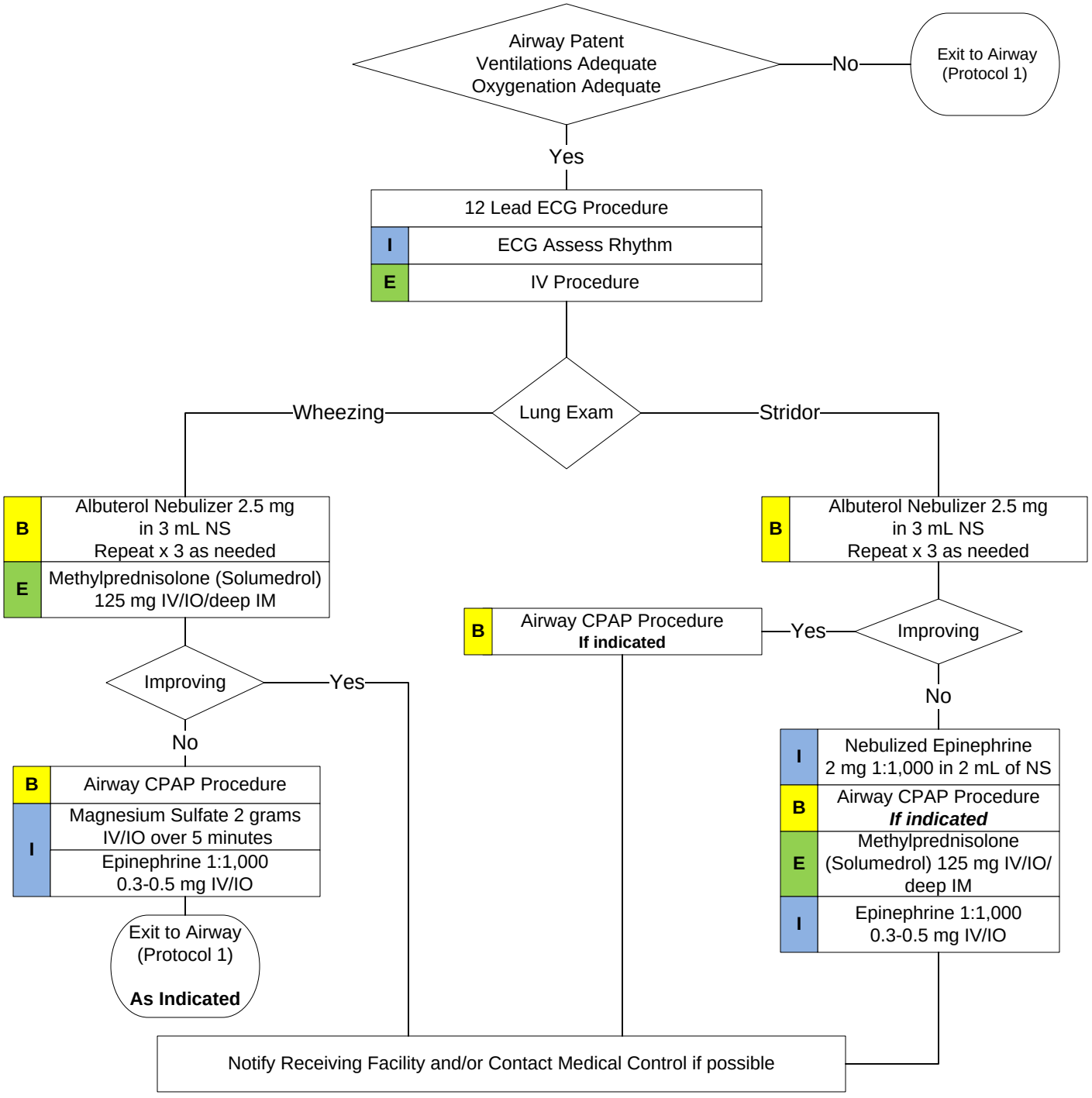


Furosemide (Lasix) may be effective in selected CHF & Pulmonary Edema patients. Consult with Medical Control prior to administration of 40 mg IV Push or double the last dose if already prescribed (max 200 mg)

PEARLS

* Do **NOT** give 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.
* Consider MI in all of these patients. Diabetics and geriatric patients often have atypical pain, or only generalized complaints.
* Allow the patient to be in the position of comfort to maximize breathing effort.
* Document time of CPAP application.

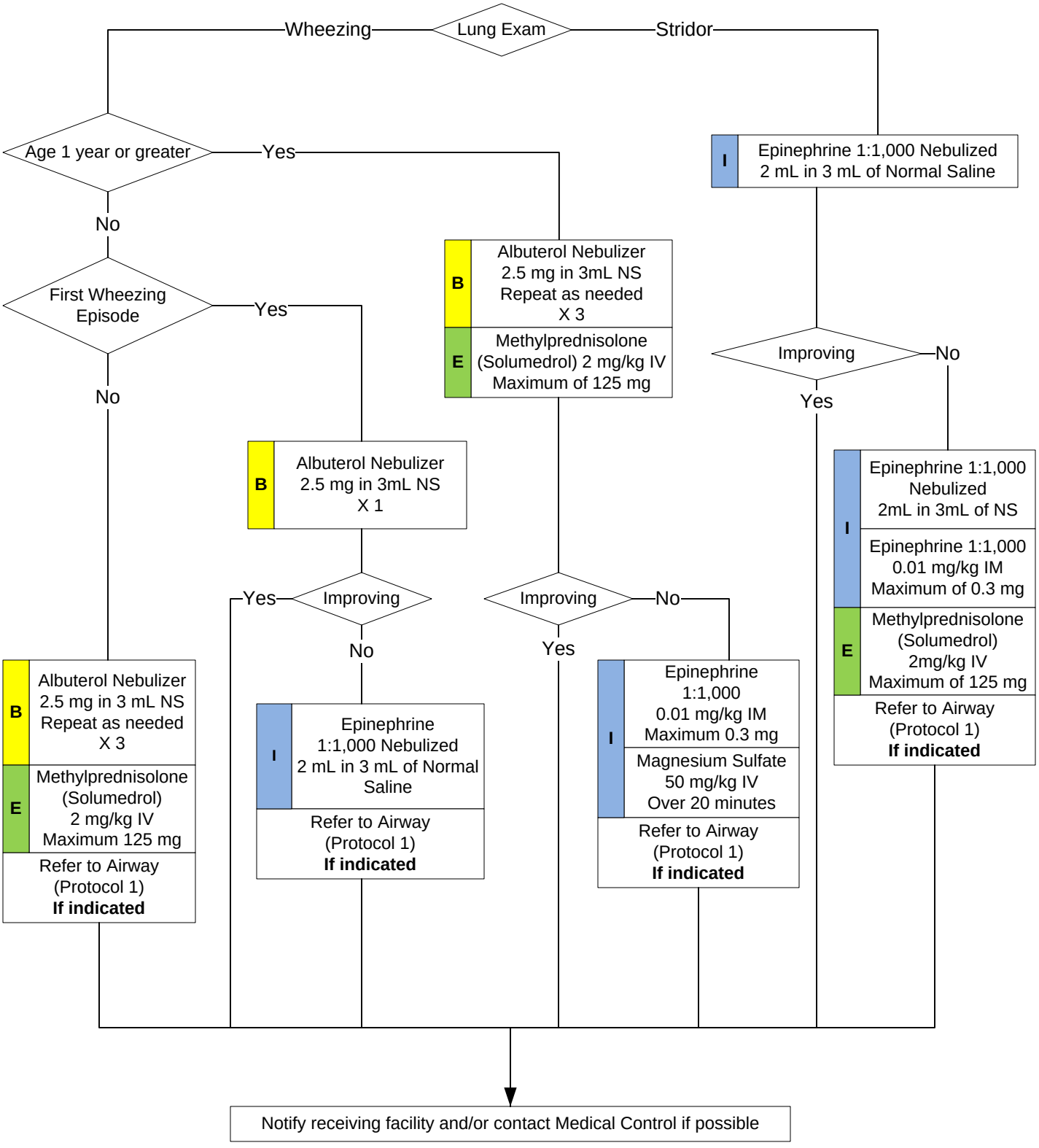
Medical – Respiratory Distress/Asthma/ COPD/Croup/Reactive (Adult)



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/Asthma/ COPD/Croup/Reactive (Pediatric)

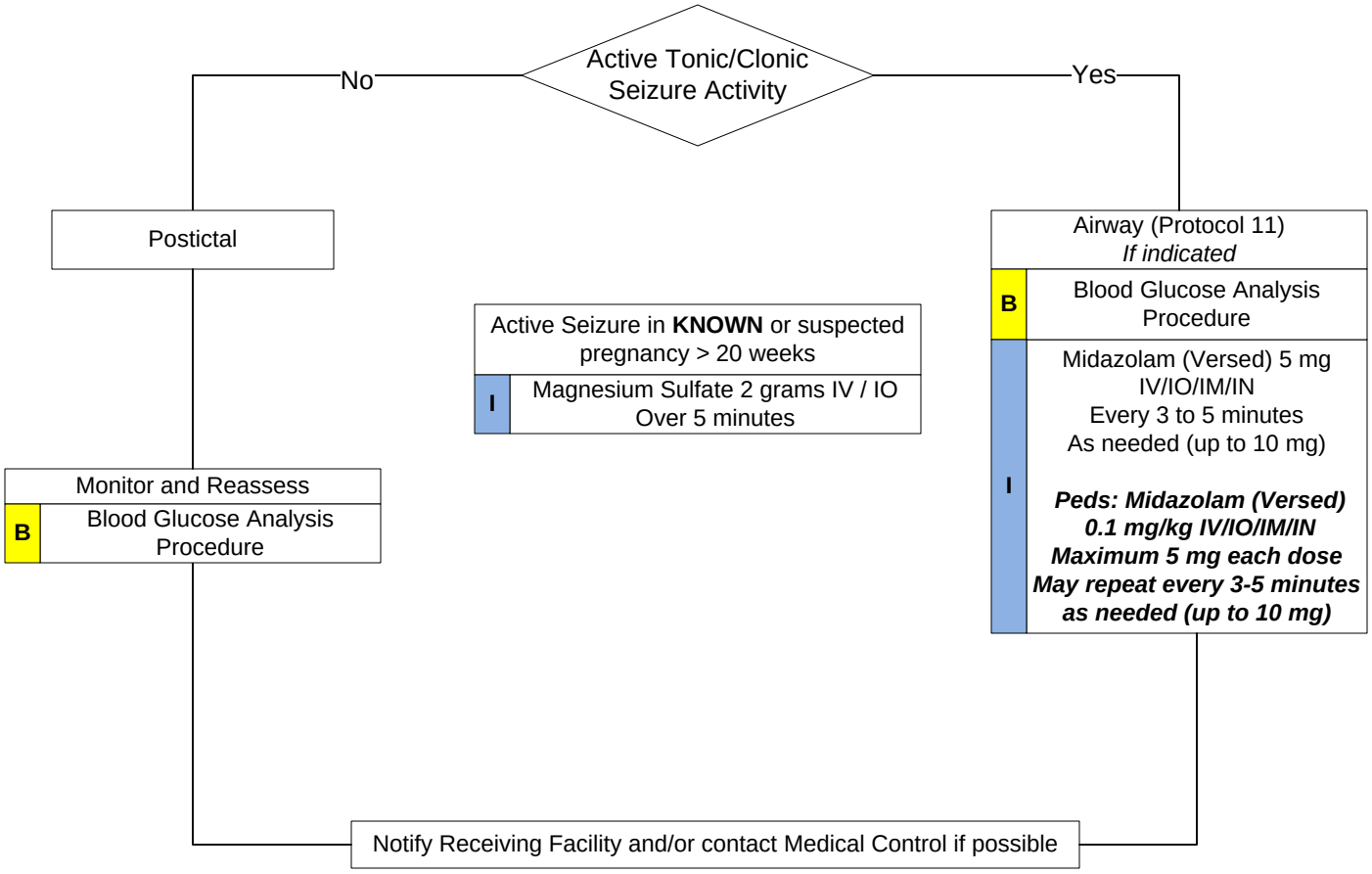


Medical – Respiratory Distress/Asthma/ COPD/Croup/Reactive (Pediatric)

PEARLS

* Pulse oximetry should be monitored continuously on the patient with respiratory distress.
* EMT – B can administer Epinephrine Auto Injector, where IM Epinephrine is indicated: Weight < 30 kg, use Epi Jr. pen.
* Consider IV procedures when pulse oximetry remains < 94% or less after first beta agonist treatment.
* Do not force a child into a position; allow them to assume position of comfort. They will protect their airway by their body position.
* The most important component of respiratory distress is airway control.
* Bronchiolitis is viral infection, typically affecting infants, which result in wheezing; may not respond to beta agonist. Consider Epinephrine if patient is < 18 months and not responding to initial beta agonist treatment.
* Croup typically affects children < 2 years of age. It is viral, possible fever, gradual onset, NO drooling is noted.
* Epiglottitis typically affects children > 2 years of age. It is bacterial, with fever, rapid onset, possible stridor, patient wants to sit up to keep airway open, drooling is common. **Airway manipulation may worsen the condition.**
* **Use caution when attempting to start an IV in children with relatively "stable" epiglottitis (as this may worsen the child's condition).**

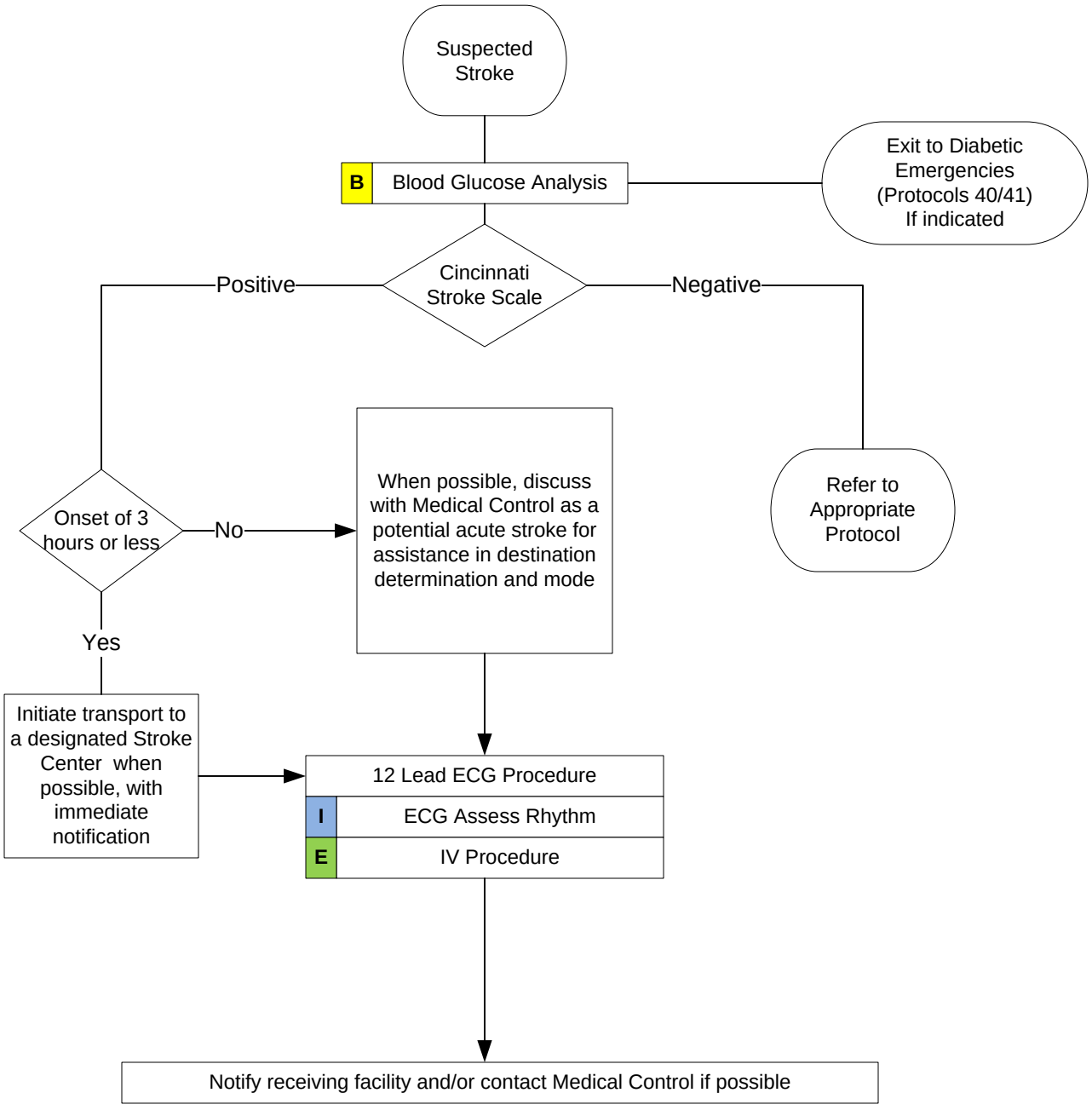
Medical – Seizure



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.

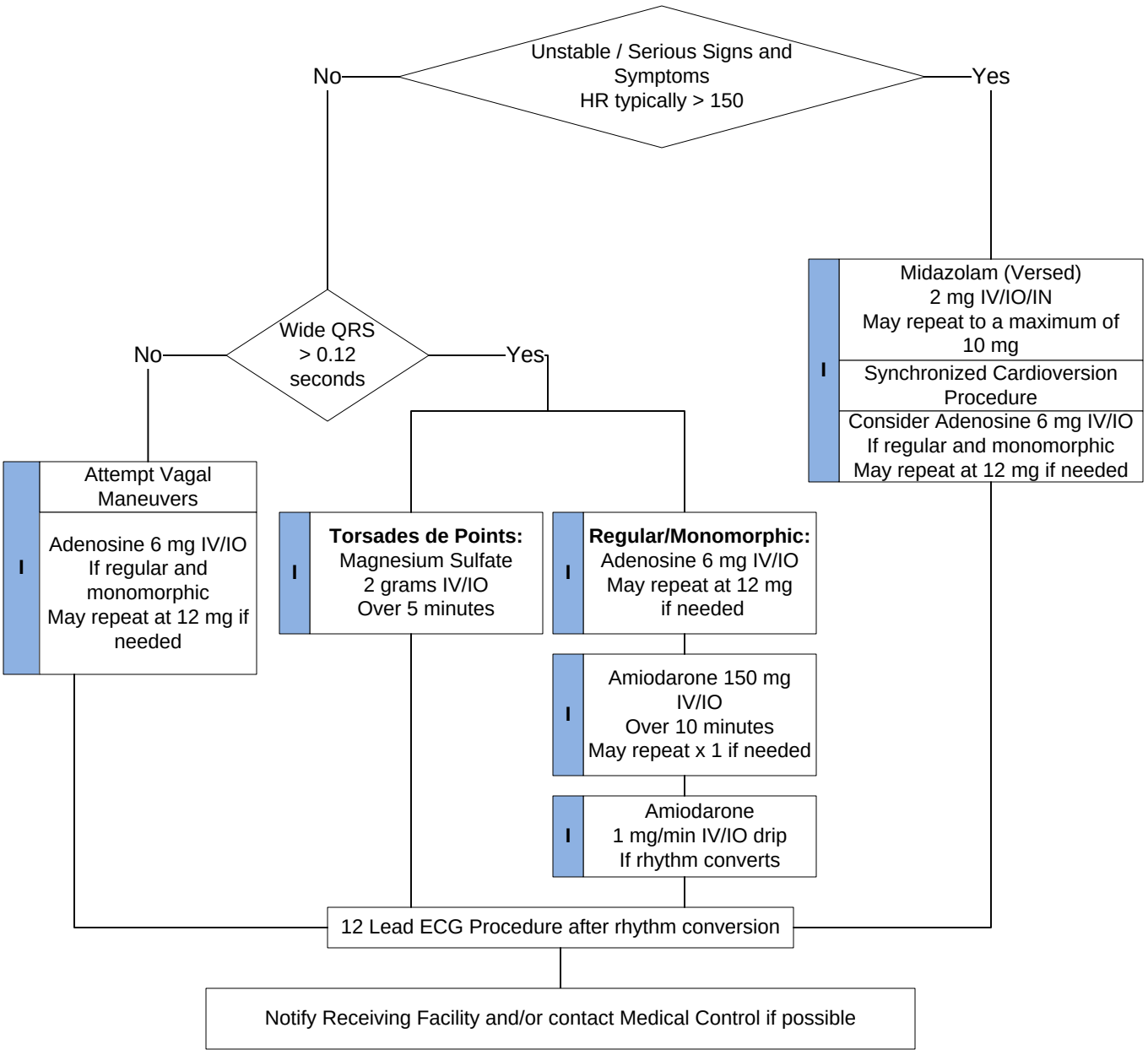
Medical – Stroke/TIA



PEARLS

* The provider must make the effort to bring a witness or individual able to legally provide consent for treatment to hospital, or at a minimum, a phone number for the witness/consenting individual.
* Cincinnati Stroke Scale:
  F – facial droop
  A – arm drift
  S – slurred or difficult speech
  T – time (onset of signs and symptoms or last known "normal" < 3 hours)
* Aeromedical transport should be considered for extended transport times.

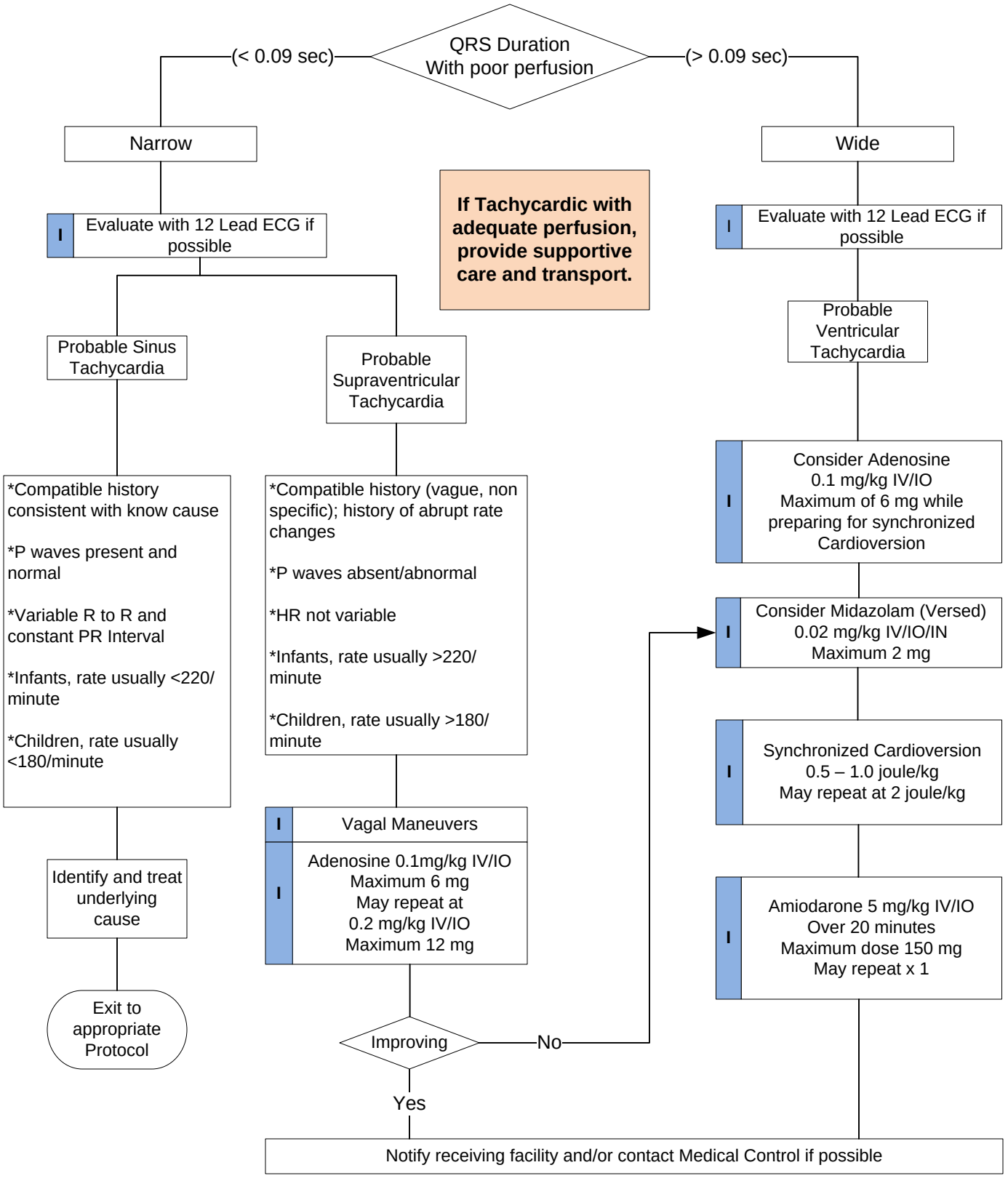
Medical – Tachycardia (Adult)



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.

Medical – Tachycardia (Pediatric)

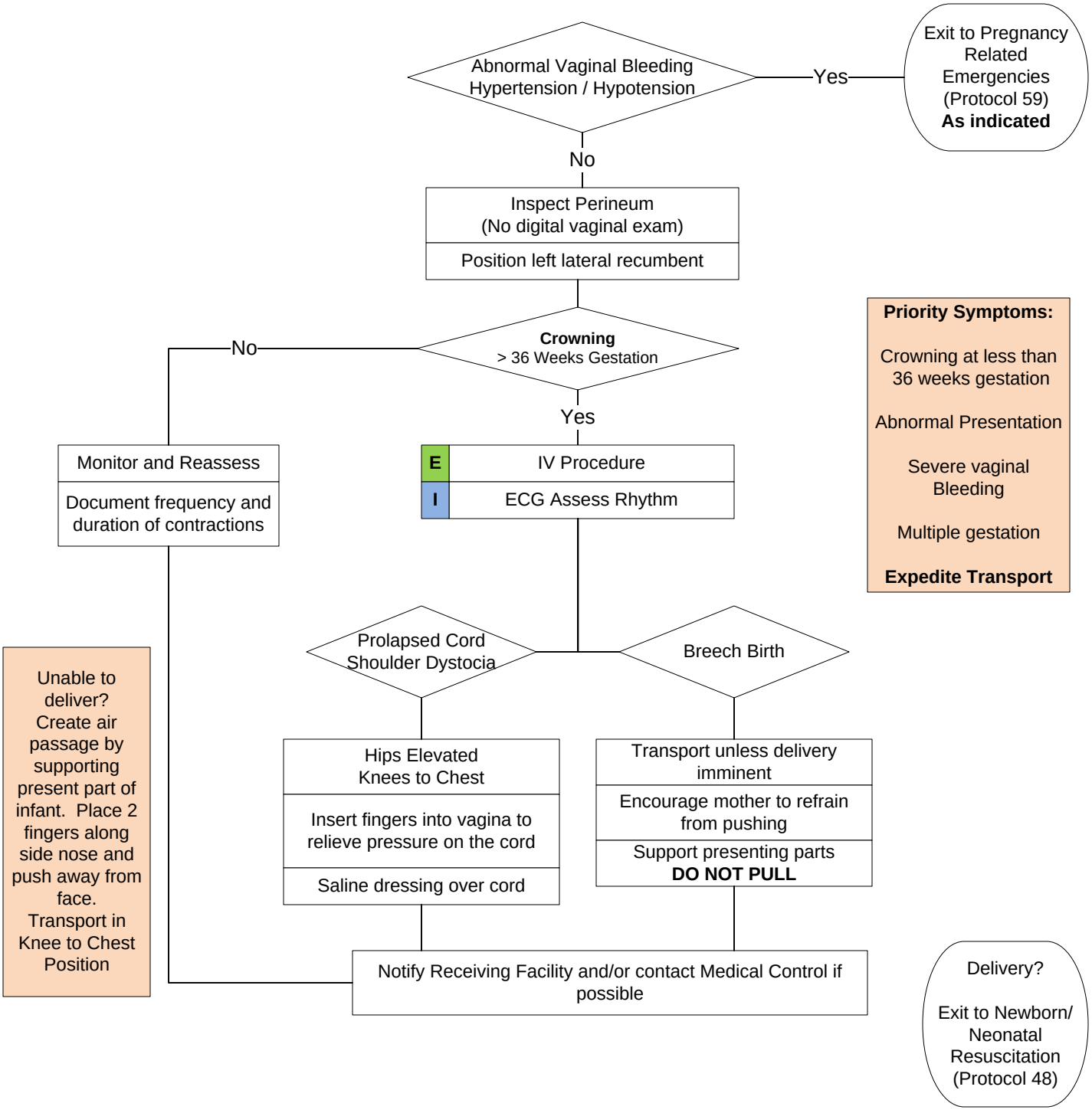


Medical Protocols

Medical – Tachycardia (Pediatric)

PEARLS
* Carefully evaluate the rhythm to distinguish Sinus Tachycardia, Supraventricular Tachycardia and Ventricular Tachycardia.
* Separating the child from the caregiver may worsen the child's clinical condition.
* Pediatric pads/paddles should be used on children < 10 kg or per Length Based Measuring Tape (Purple) if available.
* Monitor for respiratory depression and hypotension associated if Versed is used.
* Continuous pulse oximetry is required for all SVT patients if available.
* Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
* Generally, the maximum sinus tachycardic rate is 220 minus the patient's age in years.

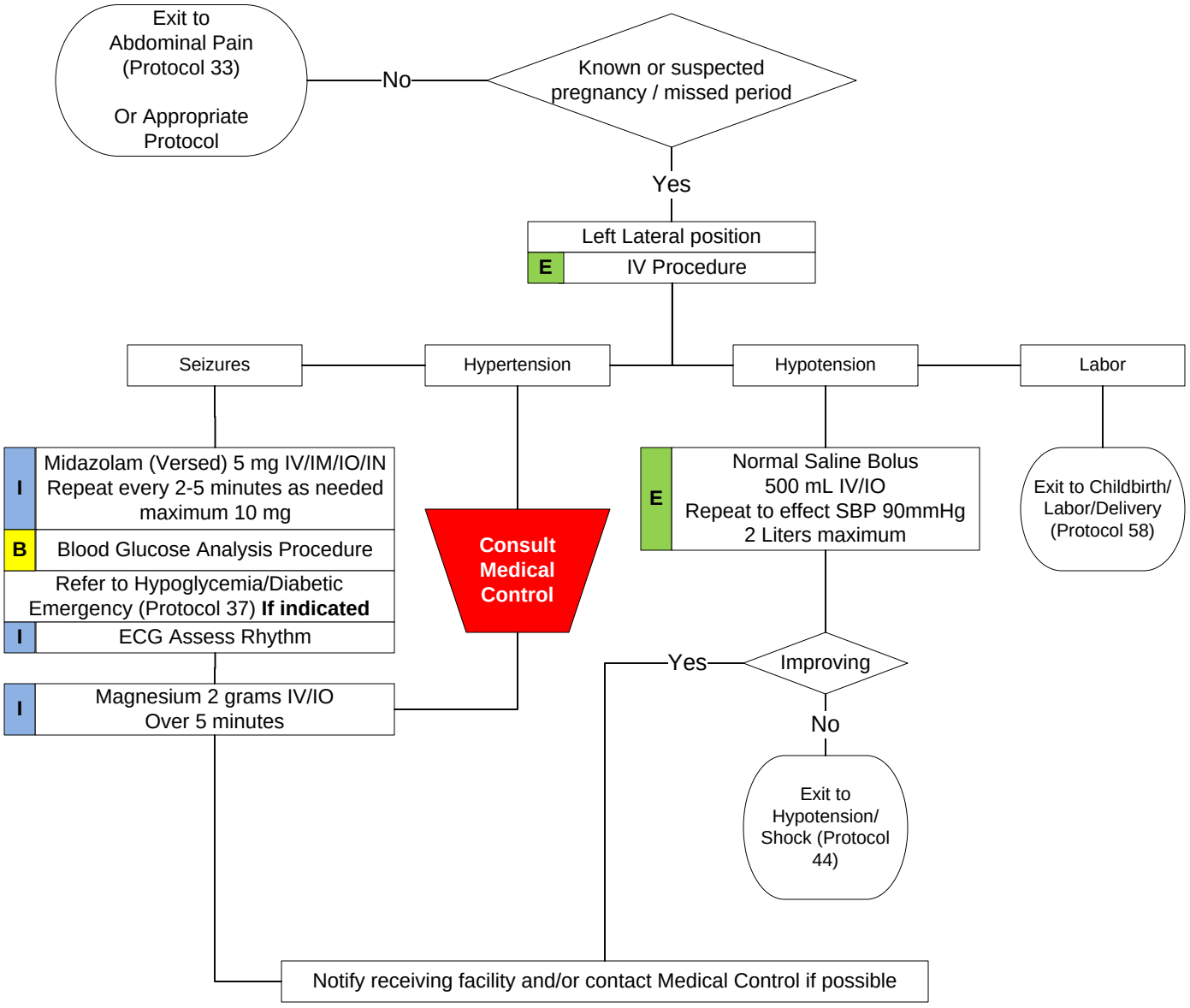
OB/GYN – Childbirth/Labor/Delivery



PEARLS

* Document all times (delivery, contraction frequency and length).
* If maternal seizures occur, refer to the Obstetrical Emergencies Protocol.
* After delivery, massaging the uterus (lower abdomen), will promote uterine contraction to assist in controlling post – partum bleeding.
* Some perineal bleeding is normal with any childbirth. Large quantities of blood or free bleeding are abnormal.
* Record APGAR at 1 minute and 5 minutes after birth (see procedures).

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.

Procedures

Procedures

Procedures may only be performed as trained, authorized by an OMD, and in accordance with the Virginia Scope of Practice Maximums.

The procedures listed here contain general instructions and protocols for their implementation.

If using equipment not listed here, or in the event of conflicting instructions, follow the manufacturer's suggested settings and/or procedures.

12 Lead ECG

Clinical Indications:

- Suspected cardiac patient
- Suspected tricyclic overdose
- Electrical injuries
- Syncope

Procedure:

1. Assess patient and monitor cardiac status.
2. Administer oxygen as patient condition warrants.
3. If patient is unstable, definitive treatment is the priority. If patient is stable or stabilized after treatment, perform a 12 Lead ECG.
4. Prepare ECG monitor and connect patient cable with electrodes.
5. Enter the required patient information (patient name, etc.) into the 12 lead ECG device.
6. Expose chest and prep as necessary. Modesty of the patient should be respected.
7. Apply chest leads and extremity leads using the following landmarks:
    - RA -Right arm
    - LA -Left arm
    - RL -Right leg
    - LL -Left leg
    - V1 -4th intercostal space at right sternal border
    - V2 -4th intercostal space at left sternal border
    - V3 -Directly between V2 and V4
    - V4 -5th intercostal space at midclavicular line
    - V5 -Level with V4 at left anterior axillary line
    - V6 -Level with V5 at left midaxillary line
8. Instruct patient to remain still.
9. Press the appropriate button to acquire the 12 Lead ECG.
10. If the monitor detects signal noise (such as patient motion or a disconnected electrode), the 12 Lead acquisition will be interrupted until the noise is removed.
11. Once acquired, transmit the ECG data to the appropriate hospital if possible. Contact the receiving hospital to confirm that a 12 Lead ECG has been received.
12. Monitor the patient while continuing with the treatment protocol.
13. Document the procedure, time, and results on/with the patient care report (PCR)

Note that while 12 Lead ECG acquisition may be performed by BLS providers, only Intermediates and Paramedics may interpret the 12 lead. Other levels may acquire and transmit to the ED, and may communicate the machine's interpretation to the hospital, but under no circumstances should they attempt to interpret the 12 lead ECG.

Airway - Basic

Oropharyngeal Airway (OPA)

1. Take BSI precautions.
2. Position patient and open their mouth.
3. Select proper size oral airway (Measure from corner of the mouth to the lower angle of the jaw).
4. Insert the airway with the tip pointing to the roof of the patient's mouth.
    - Pediatrics: Use a tongue blade to hold the tongue while inserting the OPA right side up.
5. Insert the airway and slide it along the roof of the mouth, past the uvula, or until resistance is met against the soft palate.
    - If the patient begins to gag at any stage of this procedure, immediately stop the advancement, and remove the airway. If you are aggressive during the insertion process, you can cause trauma, spasming, and swelling to the upper airways. Remember to gently insert the airway. This is very important in the suspected head trauma patient that could have fractures in the soft palate.
6. Gently rotate the airway 180 degrees. Continue to advance the oral airway until it lies flat on the top of the tongue. Stop advancing when the flange of the airway rests against the patient's mouth.
7. Place the mask you will use for ventilation over the airway adjunct you have inserted.
8. Reassess the patient's and begin ventilations.
    - If the patient begins to gag, immediately remove the airway.
9. Document insertion of oral airway, and any changes in the patient's condition.

Nasopharyngeal Airway (NPA)

1. Take BSI precautions.
2. Place patient preferably in a supine position.
3. Assess the level of responsiveness.
4. Select proper size nasal airway (Measure from the nare to the lower angle of the jaw).
5. Apply a water-soluble lubricant to the NPA before inserting.
6. Gently pushing the tip of the nose upward, insert the airway with the bevel pointing towards the base of the nostril or toward the septum.
7. Slowly insert the airway into the nostril. By slightly rotating the airway from side to side you may make insertion easier.
    - At NO time should the airway be forced into the nostril. If you meet resistance consider re-lubrication of the airway and insertion in the other nostril. If the patient begins to gag at any stage of this procedure, immediately stop the advancement, and remove the airway.
8. Stop advancing the airway when the proximal ring has come in contact with the end of the nostril.
9. Assess the patient's breathing. Apply supplemental oxygen or begin ventilations as necessary.
10. Document insertion of nasal airway, and any changes in the patient's condition.

Airway – BIAD (Combitube)

Clinical Indications for Blind Insertion Airway Device (BIAD) Use:

- Inability to adequately ventilate a patient with a Bag Valve Mask or longer EMS transport distances require a more advanced airway.
- Appropriate intubation is impossible due to patient access or difficult airway anatomy.
- Inability to secure an endotracheal tube in a patient who does not have a gag reflex where at least one failed intubation attempt has occurred.
- Patient must be > 5 feet and >16 years of age and must be unconscious.

Procedure:

1. Preoxygenate the patient.
2. Lubricate the tube.
3. Grasp the patient's tongue and jaw with your gloved hand and pull forward.
4. Gently insert the tube until the teeth are between the printed rings.
5. Inflate line 1 (blue pilot balloon) leading to the pharyngeal cuff with 100 mL of air.
6. Inflate line 2 (white pilot balloon) leading to the distal cuff with 15 mL of air.
7. Ventilate the patient through the longer blue tube.
    - Auscultate for breath sounds and sounds over the epigastrium.
    - Look for the chest to rise and fall.
8. If breath sounds are positive and epigastric sounds are negative, continue ventilation through the blue tube. The tube is in the esophagus.
    - In the esophageal mode, stomach contents can be aspirated through the #2, white tube relieving gastric distention.
9. If breath sounds are negative and epigastric sounds are positive, attempt ventilation through the shorter, #2 white tube and reassess for lung and epigastric sounds. If breath sounds are present and the chest rises, you have intubated the trachea and continue ventilation through the shorter tube.
10. The device is secured by the large pharyngeal balloon.
11. Confirm tube placement using end-tidal CO2 detector or esophageal bulb device.
12. It is strongly recommended that the airway (if equipment is available) be monitored continuously through Capnography and Pulse Oximetry.

Endotracheal intubation with a Combitube in Place (Only if ventilation unsuccessful):

A. The tube must be in the esophageal mode.
B. Prepare all equipment needed for endotracheal intubation.
C. Decompress the stomach by aspirating contents through the shorter, white tube.
D. Hyperventilate the patient.
E. Deflate the balloons on the Combitube and remove. Suction equipment must be ready.
F. Rapidly proceed with endotracheal intubation.

Airway – BIAD (King)

Clinical Indications for Blind Insertion Airway Device (BIAD) Use:

- Inability to adequately ventilate a patient with a Bag Valve Mask or longer EMS transport distances require a more advanced airway.
- Appropriate intubation is impossible due to patient access or difficult airway anatomy.
- Inability to secure an endotracheal tube in a patient who does not have a gag reflex where at least one failed intubation attempt has occurred.
- Patient must be unconscious.

Procedure:

1. Preoxygenate the patient.
2. Select the appropriate tube size for the patient.
3. Lubricate the tube.
4. Grasp the patient's tongue and jaw with your gloved hand and pull forward.
5. Gently insert the tube rotated laterally 45-90 degrees so that the blue orientation line is touching the corner of the mouth. Once the tip is at the base of the tongue, rotate the tube back to midline. Insert the airway until the base of the connector is in line with the teeth and gums.
6. Inflate the pilot balloon with 45-90 mL of air depending on the size of the device used.
7. Ventilate the patient while gently withdrawing the airway until the patient is easily ventilated.
8. Auscultate for breath sounds and sounds over the epigastrium and look for the chest to rise and fall.
9. The large pharyngeal balloon secures the device.
10. Confirm tube placement using end-tidal CO2 detector.
11. It is strongly recommended that the airway (if equipment is available) be monitored continuously through Capnography and Pulse Oximetry.

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 H2O.

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 H2O.

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 FIO2 (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).

Airway - Cricothyrotomy

Clinical Indications:

- Failed Airway Protocol
- Management of an airway when standard airway procedures cannot be performed or have failed in a patient > 12 years old.

Procedure:

1. Have suction and supplies available and ready.
2. Locate the cricothyroid membrane utilizing anatomical landmarks.
3. Prep the area with an antiseptic swab.
4. Attach a 5 mL syringe to an 18G - 1 & 1/2-inch needle.
5. Insert the needle (with syringe attached) perpendicularly through the cricothyroid membrane with the needle directed posteriorly.
6. During needle insertion, gentle aspiration should be applied to the syringe. Rapid aspiration of air into the syringe indicates successful entry into the trachea. Do not advance the needle any further. Attach forceps and remove syringe.
7. With the needle remaining in place, make a 1-inch vertical incision through the skin and subcutaneous tissue above and below the needle using a scalpel. Using blunt dissection technique, expose the cricothyroid membrane. This is a bloody procedure. The needle should act as a guide to the cricothyroid membrane.
8. With the needle still in place, make a horizontal stabbing incision approx. 1/2 inch through the membrane on each side of the needle. Remove the needle.
9. Using (skin hook, tracheal hook, or gloved finger) to maintain surgical opening, insert the cuffed tube into the trachea. (Cric tube from the kit or a #6 endotracheal tube is usually sufficient).
10. Inflate the cuff with 5-10mL of air and ventilate the patient while manually stabilizing the tube.
11. All of the standard assessment techniques for insuring tube placement should be performed (auscultation, chest rise & fall, end-tidal CO2 detector, etc.) Esophageal bulb devices are not accurate with this procedure.
12. Secure the tube.
13. If Available apply end tidal carbon dioxide monitor (Capnography) and record readings on scene, en route to the hospital, and at the hospital.
14. Document ETT size, time, result (success), and placement location by the centimeter marks at the neck on the patient care report (PCR). Document all devices used to confirm initial tube placement and after each movement of the patient.
15. Consider placing an NG or OG tube to clear stomach contents after the airway is secured.
16. It is strongly recommended that the airway (if equipment is available) be monitored continuously through Capnography and Pulse Oximetry.

Airway – Foreign Body Obstruction

Clinical Indications:

- Sudden onset of respiratory distress often with coughing, wheezing, gagging, or stridor due to a foreign-body obstruction of the upper airway.

Procedure:

1. Assess the degree of foreign body obstruction
    - Do not interfere with a mild obstruction allowing the patient to clear their airway by coughing.
    - In severe foreign-body obstructions, the patient may not be able to make a sound. The victim my clutch his/her neck in the universal choking sign.
2. **For an infant**, deliver 5 back blows (slaps) followed by 5 chest thrusts repeatedly until the object is expelled or the victim becomes unresponsive.
3. **For a child**, perform a subdiaphragmatic abdominal thrust (Heimlich Maneuver) until the object is expelled or the victim becomes unresponsive.
4. **For adults**, a combination of maneuvers may be required.
    - First, subdiaphragmatic abdominal thrusts (Heimlich Maneuver) should be used in rapid sequence until the obstruction is relieved.
    - If abdominal thrusts are ineffective, chest thrusts should be used. Chest thrusts should be used primarily in morbidly obese patients and in the patients who are in the late stages of pregnancy
5. If the victim becomes unresponsive, begin CPR immediately but look in the mouth before administering any ventilations. If a foreign-body is visible, remove it.
6. Do not perform blind finger sweeps in the mouth and posterior pharynx. This may push the object farther into the airway.
7. In unresponsive patients, EMT-Intermediate and EMT-Paramedic level professionals should visualize the posterior pharynx with a laryngoscope to potentially identify and remove the foreign-body using Magil forceps.
8. Document the methods used and result of these procedures in the patient care report (PCR).

Airway – Intubation Confirmation

End-Tidal CO2 Detector

Clinical Indications:

- The End-Tidal CO2 detector shall be used with any Endotracheal Tube or Blind Insertion Airway Device use.

It is strongly recommended that continuous Capnography be used in place of or in addition to the use of an End-Tidal CO2 detector.

Procedure:

1. Attach End-Tidal CO2 detector to the Blind Insertion Airway Device or the Endotracheal Tube.
2. Note color change. A color change or CO2 detection will be documented on each respiratory failure or cardiac arrest patient.
3. The CO2 detector shall remain in place with the airway and monitored throughout the prehospital care and transport unless continuous Capnography is used. Any loss of CO2 detection or color change is to be documented and monitored as procedures are done to verify or correct the airway problem.
4. Tube placement should be verified frequently and always with each patient move or loss of color change in the End-Tidal CO2 detector.
5. Document the procedure and the results on/with the Patient Care Report (PCR).

Esophageal Bulb

Clinical Indications:

- To assist in determining and documenting the correct placement of an Endotracheal or Nasotracheal tube.

It is strongly recommended that continuous Capnography be used in place of or in addition to the use of an Esophageal Bulb device.

Procedure:

1. Complete intubation as per Airway-Intubation Oral or Airway-Intubation Nasal procedures.
2. Place the bulb device over the proximal end of the ETT or NTT. Squeeze the bulb to remove air prior to securing the bulb on the tube.
3. Once secured on the tube, release the bulb.
4. If the bulb expands evenly and easily, this indicates probable tracheal intubation. Assessment of the patient's breath sounds bilaterally should also be performed.
5. If the bulb does not expand easily, this indicates possible esophageal intubation and the need to reassess the airway.
6. Document time and result in the patient care report (PCR).

Airway - Intubation (Nasotracheal)

Clinical Indications:

- A spontaneously breathing patient in need of intubation (inadequate respiratory effort, evidence of hypoxia or carbon dioxide retention, or need for airway protection).
- Rigidity or clenched teeth prohibiting other airway procedures.
- Patient must be 12 years of age or older.

Procedure:

1. Premedicate the patient with oxymetazoline (Afrin) nasal spray.
2. Select the largest and least obstructed nostril and insert a nasal airway lubricated with lidocaine jelly to help dilate the nasal passage.
3. Preoxygenate the patient. Lubricate the tube. The use of a BAAM device is recommended.
4. Remove the nasal airway and gently insert the tube keeping the bevel of the tube toward the septum.
5. Continue to pass the tube listening for air movement and looking for vapor condensation in the tube. As the tube approaches the larynx, the air movement gets louder.
6. Gently and evenly advance the tube through the glottic opening on the inspiration. This facilitates passage of the tube and reduces the incidence of trauma to the vocal cords.
7. Upon entering the trachea, the tube may cause the patient to cough, buck, strain, or gag. Do not remove the tube! This is normal, but be prepared to control the cervical spine and the patient, and be alert for vomiting.
8. Auscultate for bilaterally equal breath sounds and absence of sounds of the epigastrium. Observe for symmetrical chest expansion. The 15mm adapter usually rests close to the nostril with proper positioning.
9. Inflate the cuff with 5-10 mL of air.
10. Confirm tube placement using an end-tidal CO2 monitoring or esophageal bulb device.
11. Secure the tube.
12. Reassess airway and breath sounds after transfer to the stretcher and during transport. These tubes are easily dislodged and require close monitoring and frequent reassessment.
13. Document the procedure, time, and result (success) on/with the patient care report (PCR).
14. It is strongly recommended that the airway (if equipment is available) be monitored continuously through Capnography and Pulse Oximetry.

Airway – Intubation (Orotracheal)

Clinical Indications:

- Inability to adequately ventilate a patient with a Bag Valve Mask or longer EMS transport distances require a more advanced airway.
- An unconscious patient without a gag reflex who is apneic or is demonstrating inadequate respiratory effort.

Procedure:

1. Prepare, position and oxygenate the patient with 100% Oxygen.
2. Select proper ET tube (and stylette or bougie, if used), have suction ready.
3. Using laryngoscope, visualize vocal cords. (Use Sellick maneuver/BURP to assist you).
4. Limit each intubation attempt to 30 seconds (unless SpO2 remains >94%) with BVM between attempts.
5. Visualize tube passing through vocal cords.
6. Confirm and document tube placement using an end-tidal CO2 monitoring or esophageal bulb device.
7. Inflate the cuff; secure the tube to the patient's face.
8. Auscultate for bilaterally equal breath sounds and absence of sounds over the epigastrium. If you are unsure of placement, ventilate patient with bag-valve mask.
9. Consider using a Blind Insertion Airway Device if intubation efforts are unsuccessful.
10. If Available apply end tidal carbon dioxide monitor (Capnography) and record readings on scene, en route to the hospital, and at the hospital.
11. Document ETT size, time, result (success), and placement location by the centimeter marks either at the patient's teeth or lips on/with the patient care report (PCR). Document all devices used to confirm initial tube placement. Also document positive or negative breath sounds before and after each movement of the patient.
12. Consider placing an NG or OG tube to clear stomach contents after the airway is secured with an ET tube.
13. It is strongly recommended that the airway (if equipment is available) be monitored continuously through Capnography and Pulse Oximetry.

Airway - Nebulizer

Clinical Indications:

- Patients experiencing bronchospasm.

Procedure:

1. Gather the necessary equipment.
2. Assemble the nebulizer kit.
3. Instill the drug (such as albuterol, epinephrine or other approved drug) into the reservoir well of the nebulizer with 3 mL normal saline.
4. Connect the nebulizer device to oxygen at an adequate flow to produce a steady, visible mist (usually 8-10 lpm).
5. Instruct the patient to inhale through their mouth.
6. The treatment should last until the solution is depleted. Tapping the reservoir well near the end of the treatment will assist in utilizing all of the solution.
7. Monitor the patient for medication effects. This should include the patient's assessment of his/her response to he treatment and reassessment of vital signs, ECG, and breath sounds.
8. Document the treatment, dose, and route on/with the patient care report (PCR).

Airway – Oxygen Administration

The amount of oxygen administered should be based on clinical evaluation of the patient, i.e. respiratory rate and depth, skin color and temperature, capillary refill, level of consciousness, lung sounds, pulse oximetry, and history of present illness or mechanism of injury.

Oxygen should be delivered in a manner that maintains **oxygen saturation (SaO2) levels of at least 94%**. If pulse oximetry is not available, oxygen should be delivered using a non-rebreather mask at 15 lpm.

There are no absolute contraindications to oxygen administration. However it should be used with **CAUTION** with patients who are likely to have a hypoxic drive, i.e. emphysema and chronic bronchitis patient on continual home oxygen. In such cases, oxygen should be delivered in a manner that maintains **oxygen saturation (SaO2) levels of at least 92%**

For patients on home oxygen, continue their home oxygen delivery level **EXCEPT** in patients with signs of shock, cardiovascular or respiratory complaints. **If pulse oximetry is not available,** oxygen should be delivered to the potential **hypoxic drive patient at 1 to 3 lpm via nasal cannula.** Increased oxygen delivery may result in respiratory depression; be prepared to assist ventilation with a bag-valve-mask device. The decision to increase oxygen flow above the previous listed recommendations must be based on careful overall patient evaluation and assessment.

The following devices are commonly used in the pre-hospital setting:

Nasal Cannula

1 lpm: 24%
2 lpm: 28%
3 lpm: 32%
4 lpm: 36%
5 lpm: 40%
6 lpm: 44%

Non-rebreather mask

10-15 lpm: 80% - 100%

Airway - Suctioning

Basic

Clinical Indications:

- Obstruction of the airway (secondary to secretions, blood, or any other substance) in a patient who cannot maintain or keep the airway clear.

Procedure:

1. Ensure suction device is in proper working order with suction tip in place.
2. Preoxygenate the patient.
3. Explain the procedure to the patient if they are coherent.
4. Examine the oropharynx and remove any potential foreign bodies or material which may occlude the airway if dislodged by the suction device.
5. If applicable, remove ventilation devices from the airway.
6. Use the suction device to remove any secretions, blood, or other substance.
7. The alert patient may assist with this procedure.
8. Reattach ventilation device (e.g., bag-valve mask) and ventilate or assist the patient
9. Record the time and result of the suctioning in the patient care report (PCR).

Advanced

Clinical Indications:

- Obstruction of the airway (secondary to secretions, blood, or any other substance) in a patient currently being assisted by an airway adjunct such as a naso-tracheal tube, endotracheal tube, Combitube, tracheostomy tube, or a cricothyrotomy tube.

Procedure:

1. Ensure suction device is in proper working order.
2. Preoxygenate the patient.
3. Attach suction catheter to suction device, keeping sterile plastic covering over catheter.
4. Using the suprasternal notch and the end of the airway into the catheter will be placed as guides, measure the depth desired for the catheter. Judgment must be used regarding the depth of suctioning with cricothyrotomy and tracheostomy tubes (consider sizing against packaging).
5. If applicable, remove ventilation devices from the airway.
6. With the thumb port of the catheter uncovered, insert the catheter through the airway device.
7. Once the desired depth (measured in #4 above) has been reached, occlude the thumb port and remove the suction catheter slowly.
8. A small amount of Normal Saline may be used if needed to loosen secretions for suctioning.
9. Reattach ventilation device (e.g., bag-valve mask) and ventilate the patient
10. Document time and result in the patient care report (PCR).

For non-vigorous newborn with meconium present:

1. Intubate patient
2. Connect meconium aspirator to ET tube
3. Apply suction while withdrawing tube
4. Repeat as needed until clear or newborn will not tolerate, using a new ET tube for each attempt if possible. If tube must be reused, prevent external contamination and clean tube with saline between attempts.

Airway – Tracheostomy Tube Change

Clinical Indications:

- Presence of Tracheostomy site.
- Urgent or emergent indication to change the tube, such as obstruction that will not clear with suction, dislodgement, or inability to oxygenate/ventilate the patient without other obvious explanation.

Procedure:

1. Have all airway equipment prepared for standard airway management, including equipment of orotracheal intubation and failed airway.
2. Have airway device (endotracheal tube or tracheostomy tube) of the same size as the tracheostomy tube currently in place as well as 0.5 size smaller available (e.g., if the patient has a #6.0 Shiley, then have a 6.0 and a 5.5 tube).
3. Lubricate the replacement tube(s) and check the cuff.
4. Remove the tracheostomy tube from mechanical ventilation devices and use a bag-valve apparatus to pre-oxygenate the patient as much as possible.
5. Once all equipment is in place, remove devices securing the tracheostomy tube, including sutures and/or supporting bandages.
6. If applicable, deflate the cuff on the tube. If unable to aspirate air with a syringe, cut the balloon off to allow the cuff to lose pressure.
7. Remove the tracheostomy tube.
8. Insert the replacement tube. Confirm placement via standard measures except for esophageal detection (which is ineffective for surgical airways).
9. If there is any difficultly placing the tube, re-attempt procedure with the smaller tube.
10. If difficulty is still encountered, use standard airway procedures such as oral bag-valve mask or endotracheal intubation (as per protocol). More difficulty with tube changing can be anticipated for tracheostomy sites that are immature – i.e., less than two weeks old. Great caution should be exercised in attempts to change immature tracheotomy sites.
11. Document procedure, confirmation, patient response, and any complications in the PCR

Airway – Ventilator Operation

Clinical Indications:

- Management of the ventilation of a patient during a prolonged or interfacility transport of an intubated patient.

Procedure:

1. Transporting personnel should review the operation of the ventilator with the treating personnel (physician, nurse, or respiratory therapy) in the referring facility prior to transport if possible.
2. All ventilator settings, including respiratory rate, FiO2, mode of ventilation, and tidal volumes should be recorded prior to initiating transport. Additionally, the recent trends in oxygen saturation experienced by the patient should be noted.
3. Prior to transport, specific orders regarding any anticipated changes to ventilator settings as well as causes for significant alarm should be reviewed with the referring medical personnel as well as medical control.
4. Once in the transporting unit, confirm adequate oxygen delivery to the ventilator.
5. Frequently assess breath sounds to assess for possible tube dislodgment during transfer.
6. Frequently assess the patient's respiratory status, noting any decreases in oxygen saturation or changes in tidal volumes, peak pressures, etc.
7. Note any changes in ventilator settings or patient condition in the PCR.
8. It is strongly recommended that the airway (if equipment is available) be monitored continuously through Capnography and Pulse Oximetry.
9. If any significant change in patient condition, including vital signs or oxygen saturation or there is a concern regarding ventilator performance/alarms, remove the ventilator from the endotracheal tube and use a bag-valve mask with 100% O2. Contact medical control immediately.

Arterial Access - Line Maintenance

Clinical Indications:

- Transport of a patient with an existing arterial line.

Procedure:

1. Make certain arterial line is secured prior to transport, including intersection of arterial catheter and IV/ Monitoring lines.
2. Use available equipment for monitoring of arterial pressures via arterial line.
3. Do not use the arterial line for administration of any fluids or medications.
4. If there is any question regarding dislodgement of the arterial line and bleeding results, remove the line and apply direct pressure over the site for at least five minutes before checking to ensure hemostasis.

Blood Glucose Analysis

Clinical Indications:

- Patients with altered mental status and/or suspected hypoglycemia (diabetic emergencies, change in mental status, bizarre behavior, etc.)

Procedure:

1. Gather and prepare equipment.
2. Blood samples for performing glucose analysis can be obtained through a finger-stick or when possible simultaneously with intravenous access.
3. Place correct amount of blood on reagent strip or site on glucometer per the manufacturer's instructions.
4. Time the analysis as instructed by the manufacturer.
5. Document the glucometer reading and treat the patient as indicated by the analysis and protocol.
6. Repeat glucose analysis as indicated for reassessment after treatment and as per protocol.

Capnography

Clinical Indications:

- Capnography shall be used when available with the use of all invasive airway procedures including endotracheal, nasotracheal, cricothyrotomy, or Blind Insertion Airway Devices (BIAD), or as otherwise indicated by patient's condition.
- Capnography should also be used with CPAP when possible.

Procedure:

1. Attach capnography sensor to the BIAD, endotracheal tube, or oxygen delivery device.
2. Note CO2 level and waveform changes.
3. The capnography sensor shall remain in place and be monitored throughout the prehospital care and transport.
4. Any loss of CO2 detection or waveform indicates an airway problem and should be documented.
5. The capnogram should be monitored as procedures are performed to verify or correct the airway problem.

Cardioversion

Clinical Indications:

- Unstable patient with a tachydysrhythmia (rapid atrial fibrillation, supraventricular tachycardia, ventricular tachycardia)
- Patient is not pulseless (the pulseless patient requires unsynchronized cardioversion, i.e., defibrillation)

Procedure:

1. Ensure the patient is attached properly (with leads and multi-function pads) to a monitor/defibrillator capable of synchronized cardioversion.
2. Have all equipment prepared for unsynchronized cardioversion/defibrillation if the synchronized cardioversion fails and the patient's condition worsens.
3. Consider the use of pain or sedating medications.
4. Set energy selection to the appropriate setting.
5. Set monitor/defibrillator to synchronized cardioversion mode.
6. Make certain all personnel are clear of patient.
7. Press and hold the shock button to cardiovert. Stay clear of the patient until you are certain the energy has been delivered. NOTE: It may take the monitor/defibrillator several cardiac cycles to "synchronize", so there may a delay between activating the cardioversion and the actual delivery of energy.
8. Note patient response and perform immediate unsynchronized cardioversion/defibrillation if the patient's rhythm has deteriorated into pulseless ventricular tachycardia/ventricular fibrillation, following the procedure for Defibrillation-Manual.
9. If the patient's condition is unchanged, repeat steps 2 to 8 above, using escalating energy settings.
10. Repeat until maximum setting or until efforts succeed. Consider discussion with medical control if cardioversion is unsuccessful after 2 attempts.
11. Note procedure, response, and time in the patient care report (PCR).

Chest Decompression

Clinical Indications:

- Patients with hypotension (SBP <90), clinical signs of shock, and at least one of the following signs:
  - Jugular vein distention.
  - Tracheal deviation away from the side of the injury (often a late sign).
  - Absent or decreased breath sounds on the affected side.
  - Hyper-resonance to percussion on the affected side.
  - Increased resistance when ventilating a patient.
- Patients in traumatic arrest with chest or abdominal trauma for whom resuscitation is indicated. These patients may require bilateral chest decompression even in the absence of the signs above.

Procedure:

1. Don personal protective equipment (gloves, eye protection, etc.).
2. Administer high flow oxygen.
3. Identify and prep the site:
   - Locate the second intercostal space at the mid-clavicular line on the same side as the pneumothorax.
   - If unable to place anteriorly, lateral placement may be used at the fourth ICS mid-axillary line.
   - Prepare the site with an antiseptic solution.
4. Insert the catheter (at least 14 gauge and 3.25 inches in length if available for adults) into the skin over the top of the rib (superior border) into the intercostal space.
5. Advance the catheter through the parietal pleura until a “pop” is felt and air or blood exits under pressure through the catheter, then advance catheter only to chest wall.
6. Remove the needle, leaving the plastic catheter in place.
7. Secure the catheter hub to the chest wall with dressings and tape.

Defibrillation - Automated

Clinical Indications:

- Patients in cardiac arrest (pulseless, non-breathing).
- Age < 8 years, use Pediatric Pads if available.

Contraindication:

- Pediatric patients who are so small that the pads cannot be placed without touching one another even if placed anterior-posterior.

Procedure:

1. If multiple rescuers available, one rescuer should provide uninterrupted chest compressions while the AED is being prepared for use.
2. Remove any medication patches on the chest and wipe off any residue.
3. Apply defibrillator pads per manufacturer recommendations. Use alternate placement when implanted devices (pacemakers, AICDs) occupy preferred pad positions if possible.
4. When prompted, Stop CPR and clear the patient for rhythm analysis. Keep interruptions in CPR as brief as possible.
5. Assertively state “CLEAR” and visualize that no one, including yourself, is in contact with the patient prior to defibrillation. Defibrillate if appropriate by depressing the “shock” button.
6. Begin CPR (chest compressions and ventilations) immediately after the delivery of the defibrillation.
7. Continue CPR until prompted to analyze rhythm and defibrillate if indicated.
8. If “no shock advised” appears, perform CPR until prompted to reanalyze.
9. Transport and continue treatment as indicated.
10. Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.
11. If pulse returns refer to the appropriate Return of Spontaneous Circulation Protocol.

Defibrillation – Manual

Clinical Indications:

- Cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia

Procedure:

1. Ensure that Chest Compressions are adequate and interrupted only when absolutely necessary.
2. Clinically confirm the diagnosis of cardiac arrest and identify the need for defibrillation.
3. Apply defibrillation hands free pads (recommended to allow more continuous CPR) or paddles (after application of an appropriate conductive agent) to the patient's chest in the proper position
    - Paddles: right of sternum at 2nd ICS and anterior axillary line at 5th ICS
    - Pads: per manufacturer's recommendation
4. Set the appropriate energy level
5. Charge the defibrillator to the selected energy level. Continue chest compressions while the defibrillator is charging.
6. If using paddles, assure proper contact by applying 25 pounds of pressure on each paddle.
7. Hold Compressions, assertively state, "CLEAR" and visualize that no one, including yourself, is in contact with the patient.
8. Deliver the countershock by depressing the discharge button(s) when using paddles, or depress the shock button for hands free operation.
9. Immediately resume chest compressions and ventilations for 2 minutes. After 2 minutes of CPR, analyze rhythm and check for pulse only if a potentially perfusable rhythm is found.
10. Repeat the procedure every two minutes as indicated by patient response and ECG rhythm.
11. Keep interruptions of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.

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.

External Pacing

Clinical Indications:

- Patients with symptomatic bradycardia (less than 60 per minute) with signs and symptoms of inadequate cerebral or cardiac perfusion such as:
    - Chest Pain
    - Hypotension
    - Pulmonary Edema
    - Altered Mental Status, Confusion, etc.
    - Ventricular Ectopy

Procedure:

1. Attach standard ECG monitor.
2. Apply defibrillation/pacing pads per manufacturer's recommendation
3. Set monitor to pacing option.
4. Adjust rate to an age-appropriate value (such as 70 BPM for an adult and 100 BPM for a child).
5. Note pacer spikes on EKG screen.
6. Slowly increase output until capture of electrical rhythm on the monitor.
7. If unable to capture while at maximum current output, stop pacing immediately.
8. If capture observed on monitor, check for corresponding pulse and assess vital signs. Continue to increase output until mechanical capture is obtained or maximum output setting is reached.
9. Consider the use of sedation or analgesia if patient is uncomfortable.
10. Document the dysrhythmia and the response to external pacing with ECG strips in the PCR.

Gastric Tube Insertion

Clinical Indications:

- Gastric decompression in intubated patients.

Procedure:

1. Estimate insertion length by superimposing the tube over the body from the nose to the stomach.
2. Flex the neck if not contraindicated to facilitate esophageal passage.
3. Liberally lubricate the distal end of the tube and pass through the patient's nostril along the floor of the nasal passage. Do not orient the tip upward into the turbinates. This increases the difficulty of the insertion and may cause bleeding.
4. In the setting of an unconscious, intubated patient or a patient with facial trauma, oral insertion of the tube may be considered or preferred.
5. Continue to advance the tube gently until the appropriate distance is reached.
6. Confirm placement by injecting 20mL of air and auscultate for the swish or bubbling of the air over the stomach. Additionally, aspirate gastric contents to confirm proper placement.
7. Secure the tube.
8. Decompress the stomach of air and food either by connecting the tube to suction or manually aspirating with the large catheter tip syringe.
9. Document the procedure, time, and result (success) on/with the patient care report (PCR).

Medication Administration - Intranasal

Indications:

The intranasal route may be used for administering medications as an alternate route for naloxone (Narcan), midazolam (Versed), and fentanyl.

Contraindications:

- Epistaxis
- Facial trauma
- Nasal congestion or discharge
- Any recognized nasal mucosal abnormality

Equipment:

- 3 mL syringe with MAD (Mucosal Atomization Device)
- Appropriate medication

Procedure:

1. Determine correct medication
2. Disconnect MAD (Mucosal Atomization Device) from included syringe.
3. Fill syringe with desired volume of medication and eliminate remaining air.
4. Connect the MAD to the syringe.
5. Place the MAD tip in the nostril.
6. Compress the syringe plunger to spray ½ of the atomized solution in each nostril.
7. The MAD may be reused on the same patient as needed.
8. Do not administer more than 1 mL per nostril.

Medication Administration - Injections

Clinical Indications:

- When medication administration is necessary and the medication must be given via the SQ (not auto-injector) or IM route or as an alternative route in selected medications.

Procedure:

1. Receive and confirm medication order or perform according to standing orders.
2. Prepare equipment and medication expelling air from the syringe.
3. Explain the procedure to the patient and reconfirm patient allergies.
4. The most common site for subcutaneous injection is the arm.
    - Injection volume should not exceed 1 mL.
5. The possible injection sites for intramuscular injections include the arm, buttock and thigh.
    - Injection volume should not exceed 1 mL for the arm
    - Injection volume should not exceed 2 mL in the thigh or buttock.
6. The thigh should be used for injections in pediatric patients and injection volume should not exceed 1 mL.
7. Expose the selected area and cleanse the injection site with alcohol.
8. Insert the needle into the skin with a smooth, steady motion
    - SQ: 45-degree angle, skin pinched
    - IM: 90-degree angle, skin flattened
9. Aspirate for blood
10. Inject the medication.
11. Withdraw the needle quickly and dispose of properly without recapping.
12. Apply pressure to the site.
13. Monitor the patient for the desired therapeutic effects as well as any possible side effects.
14. Document the medication, dose, route, and time on/with the patient care report (PCR).

Medication Administration - Oral

Liquid Medication:

1. Shake the bottle well before giving the medication.
2. Measure carefully using a measuring device. This could be a small clear plastic measuring cup, a syringe, a dropper or a specially designed measuring spoon.
3. Hold the measuring device at eye level, fill to the right level using the markings on the device as a guide and then IF POSSIBLE re-check on a level surface.
4. Document time of administration; Reassess patient.

Tablets or capsules:

1. Be sure patient can chew/swallow a tablet/capsule.
2. Place medication into soufflé cup (if available) or patient's cupped hand.
3. Monitor patient as they take medication.
4. Document time of administration; Reassess patient.

Pulse Oximetry

Clinical Indications:

- Patients with suspected hypoxemia.

Procedure:

1. Apply probe to patient's finger or any other digit as recommended by the device manufacturer.
2. Allow machine to register saturation level.
3. Record time and initial saturation percent on room air if possible on/with the patient care report (PCR).
4. Verify pulse rate on machine with actual pulse of the patient.
5. Monitor critical patients continuously until arrival at the hospital. If recording a one-time reading, monitor patients for a few minutes as oxygen saturation can vary.
6. Document percent of oxygen saturation every time vital signs are recorded and in response to therapy to correct hypoxemia.
7. In general, normal saturation is 97-99%. Below 94%, suspect a respiratory compromise.
8. Use the pulse oximetry as an added tool for patient evaluation. Treat the patient, not the data provided by the device.
9. The pulse oximeter reading should never be used to withhold oxygen from a patient in respiratory distress or when it is the standard of care to apply oxygen despite good pulse oximetry readings.
10. Factors which may reduce the reliability of the pulse oximetry reading include:
    - Poor peripheral circulation (blood volume, hypotension, hypothermia)
    - Excessive pulse oximeter sensor motion
    - Fingernail polish (may be removed with acetone pad)
    - Carbon monoxide bound to hemoglobin
    - Irregular heart rhythms (atrial fibrillation, SVT, etc.)
    - Jaundice
    - Placement of BP cuff on same extremity as pulse ox probe.

Reperfusion Checklist

Clinical Indications:
Rapid evaluation of a patient with suspected acute stroke and/or acute myocardial infarction (STEMI) to:

- Determine eligibility and potential benefit from fibrinolysis.
- Rapid identification of patients who are not eligible for fibrinolysis and will require interventional therapy.

Procedure:

1. Follow the appropriate protocol for the patient's complaint to assess and identify an acute condition which could potentially benefit from fibrinolysis. If a positive finding is noted on one of the following assessments, proceed to step 2.
    - Perform a 12-lead ECG to identify an acute ST elevation myocardial infarction (STEMI).
    - Perform the Cincinnati Stroke Screen to identify an acute stroke
2. Complete the Reperfusion Check Sheet to identify any potential contraindications to fibrinolysis:
    - Systolic Blood Pressure greater than 180 mm Hg
    - Diastolic Blood Pressure greater than 110 mm Hg
    - Right vs. Left Arm Systolic Blood Pressure difference of greater than 15 mm Hg
    - History of structural Central Nervous System disease (tumors, masses, hemorrhage, etc.)
    - Significant closed head or facial trauma within the previous 3 months
    - Recent (within 6 weeks) major trauma, surgery (including laser eye surgery), gastrointestinal bleeding, or severe genital-urinary bleeding
    - Bleeding or clotting problem or on blood thinners
    - CPR performed greater than 10 minutes
    - Currently Pregnant
    - Serious Systemic Disease such as advanced/terminal cancer or severe liver or kidney failure.
3. Identify if the patient is currently in heart failure or cardiogenic shock. For these patients, a percutaneous coronary intervention is more effective.
    - Presence of pulmonary edema (rales greater than halfway up lung fields)
    - Systemic hypoperfusion (cool and clammy)
4. If any contraindication is noted using the check list and an acute Stroke is suspected by exam or a STEMI is confirmed by ECG, activate the EMS Stroke Plan or EMS STEMI Plan for fibrinolytic ineligible patients. This may require the EMS Agency, an Air Medical Service, or a Specialty Care Transport Service to transport directly to an specialty center capable of interventional care within the therapeutic window of time.
5. Record all findings in the Patient Care Report (PCR).

Restraints - Physical

Clinical Indications:

- Any patient who may harm himself, herself, or others may be gently restrained to prevent injury to the patient or crew. This restraint must be in a humane manner and used only as a last resort. Other means to prevent injury to the patient or crew must be attempted first. These efforts could include reality orientation, distraction techniques, or other less restrictive therapeutic means. Physical or chemical restraint should be a last resort technique.

Procedure:

1. Attempt less restrictive means of managing the patient.
2. Request law enforcement assistance and Contact Medical Control.
3. Ensure that there are sufficient personnel available to physically restrain the patient safely.
4. Restrain the patient in a lateral or supine position. No devices such as backboards, splints, or other devices will be on top of the patient. The patient will never be restrained in the prone position.
5. The patient must be under constant observation by the EMS crew at all times. This includes direct visualization of the patient as well as cardiac and pulse oximetry monitoring.
6. The extremities that are restrained will have a circulation check at least every 15 minutes. The first of these checks should occur as soon after placement of the restraints as possible. This MUST be documented on the PCR.
7. Documentation on/with the patient care report (PCR) should include the reason for the use of restraints, the type of restraints used, and the time restraints were placed. Use of the Restraint Checklist is highly recommended.
8. If the above actions are unsuccessful, or if the patient is resisting the restraints, consider administering medications per protocol. (Chemical restraint may be considered earlier.)
9. If a patient is restrained by law enforcement personnel with handcuffs, or other devices that EMS personnel cannot remove, a law enforcement officer must accompany the patient to the hospital. in the transporting EMS vehicle.

Spinal Immobilization

Clinical Indications:

- Need for spinal immobilization as determined by protocol

Procedure:

1. Gather a backboard, straps, C-collar appropriate for patient's size, tape, and head rolls or similar device to secure the head.
2. Explain the procedure to the patient
3. Place the patient in an appropriately sized C-collar while maintaining in-line stabilization of the C-spine. This stabilization, to be provided by a second rescuer, should not involve traction or tension but rather simply maintaining the head in a neutral, midline position while the first rescuer applied the collar.
4. Once the collar is secure, the second rescuer should still maintain their position to ensure stabilization (the collar is helpful but will not do the job by itself.)
5. Place the patient on a long spine board with the log-roll technique if the patient is supine or prone. For the patient in a vehicle or otherwise unable to be placed prone or supine, place them on a backboard by the safest method available that allows maintenance of in-line spinal stability.
6. Stabilize the patient with straps and head rolls/tape or other similar device. Once the head is secured to the backboard, the second rescuer may release manual in-line stabilization.
7. NOTE: Some patients, due to size or age, will not be able to be immobilized through in-line stabilization with standard backboards and C-collars. Never force a patient into a non-neutral position to immobilize them. Such situations may require a second rescuer to maintain manual stabilization throughout the transport to the hospital.
8. Document the time of the procedure in the patient care report (PCR).

Splinting

Clinical Indications:

- Immobilization of an extremity for transport, either due to suspected fracture, sprain, or injury.
- Immobilization of an extremity for transport to secure medically necessary devices such as intravenous catheters

Procedure:

1. Assess and document pulses, sensation, and motor function prior to placement of the splint. If no pulses are present and a fracture is suspected, consider reduction of the fracture prior to placement of the splint.
2. Remove all clothing from the extremity.
3. Select a site to secure the splint both proximal and distal to the area of suspected injury, or the area where the medical device will be placed.
4. Do not secure the splint directly over the injury or device.
5. Place the splint and secure with Velcro, straps, or bandage material (e.g., kling, kerlex, cloth bandage, etc.) depending on the splint manufacturer and design.
6. Document pulses, sensation, and motor function after placement of the splint. If there has been a deterioration in any of these 3 parameters, remove the splint and reassess
7. If a femur fracture is suspected and there is no evidence of pelvic fracture or instability, the following procedure may be followed for placement of a femoral traction splint:
    - Assess neurovascular function as in #1 above.
    - Place the ankle device over the ankle.
    - Place the proximal end of the traction splint on the posterior side of the affected extremity, being careful to avoid placing too much pressure on genitalia or open wounds. Make certain the splint extends proximal to the suspected fracture. If the splint will not extend in such a manner, reassess possible involvement of the pelvis
    - Extend the distal end of the splint at least 6 inches beyond the foot.
    - Attach the ankle device to the traction crank.
    - Twist until moderate resistance is met.
    - Reassess alignment, pulses, sensation, and motor function. If there has been deterioration in any of these 3 parameters, release traction and reassess.
8. Document the time, type of splint, and the pre and post assessment of pulse, sensation, and motor function in the patient care report (PCR).

Stroke Screening - Cincinnati

Cincinnati Pre-hospital Stroke Scale (FAST)

All patients suspected of having an acute stroke should undergo a formal screening algorithm such as the FAST. Use of stroke algorithms has been shown to improve identification of acute strokes by EMS providers up to as much as 30 percent. The results of the FAST should be noted on the pre-hospital medical record. ANY abnormal (positive) finding which is suspected or known to be acute in onset is considered an indicator of potential acute stroke.

F-(Face) FACIAL DROOP: Have patient smile or show teeth. (Look for asymmetry)

- Normal: Both sides of the face move equally or not at all.
- Abnormal**:** One side of the patient's face droops.

A-(Arm) MOTOR WEAKNESS: Arm drift (close eyes, extend arms, palms up for 10 seconds; in only one leg is involved, have patient hold leg off floor for 5 seconds)

- Normal: Remain extended equally, drifts equally, or does not move at all.
- Abnormal: One arm drifts down when compared with the other.

S-(Speech) Have the patient repeat, "You can't teach an old dog new tricks"

- Normal: Phrase is repeated clearly and correctly.
- Abnormal: Words are slurred (dysarthria) or abnormal (dysphasia) or none (aphasia).

T-(Time) Time of FIRST SYMPTOM ONSET

If patient awakened with symptoms, when were they last known to be normal?

Venous Access – Blood Draw

Clinical Indications:

- Collection of a patient's blood for laboratory analysis

Procedure:

1. Utilize universal precautions.
2. Select vein and prep as usual.
3. Select appropriate blood-drawing devices.
4. Draw appropriate tubes of blood for lab testing.
5. Assure that the blood samples are labeled with the correct information (a minimum of the patients name, along with the date and time the sample was collected).
6. Deliver the blood tubes to the appropriate individual at the hospital.

Venous Access – Central Line Maintenance

Clinical Indications:

- Transport of a patient with a central venous pressure line already in place

Procedure:

1. Prior to transportation, ensure the line is secure.
2. Medications and IV fluids may be administered through a central venous pressure line. Such infusions must be held while the central venous pressure is transduced to obtain a central venous pressure, but may be restarted afterwards.
3. Do not manipulate the central venous catheter.
4. If the central venous catheter becomes dysfunctional, does not allow drug administration, or becomes dislodged, contact medical control.
5. Document the time of any pressure measurements, the pressure obtained, and any medication administration in 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 – Existing Catheters

Clinical Indications:

- Inability to obtain adequate peripheral access.
- Access of an existing venous catheter for medication or fluid administration.
- Central venous access in a patient in cardiac arrest.

Procedure:

1. Clean the port of the catheter with alcohol wipe.
2. Using sterile technique, withdraw 5-10 mL of blood and discard syringe in sharps container.
3. Using 5mL of normal saline, access the port with sterile technique and gently attempt to flush the saline.
    - If there is no resistance, no evidence of infiltration (e.g., no subcutaneous collection of fluid), and no pain experienced by the patient, then proceed to step 4. If there is resistance, evidence of infiltration, pain experienced by the patient, or any concern that the catheter may be clotted or dislodged, do not use the catheter.
4. Begin administration of medications or IV fluids slowly and observe for any signs of infiltration. If difficulties are encountered, stop the infusion and reassess.
5. Record procedure, any complications, and fluids/medications administered in the Patient Care Report (PCR).

Venous Access – External Jugular Access

Clinical Indications:

- External jugular vein cannulation is indicated in a critically ill patient > 8 years of age who requires intravenous access for fluid or medication administration and in whom an extremity vein is not obtainable.
- External jugular cannulation can be attempted initially in life threatening events where no obvious peripheral site is noted.

Procedure:

1. Place the patient in a supine head down position. This helps distend the vein and prevents air embolism.
2. Turn the patient's head toward the opposite side if no risk of cervical injury exists.
3. Prep the site as per peripheral IV site.
4. Align the catheter with the vein and aim toward the same side shoulder.
5. "Tourniqueting" the vein lightly with one finger above the clavicle, puncture the vein midway between the angle of the jaw and the clavicle and cannulate the vein in the usual method.
6. Attach the IV and secure the catheter avoiding circumferential dressing or taping.
7. 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 – 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.

Venous Access – Swan-Ganz Catheter Maintenance

Clinical Indications:

- Transport of a patient with a Swan-Ganz catheter that is in place prior to transport.

Procedure:

1. Make certain catheter is secure prior to transport.
2. Under the supervision of the nurse or physician caring for the patient, make certain the transport personnel are aware of the depth at which the catheter is secured.
3. **UNDER NO CIRCUMSTANCES SHOULD TRANSPORT PERSONNEL ADVANCE THE SWAN-GANZ CATHETER.**
4. The sterile plastic sheath that surrounds the catheter should not be manipulated.
5. The ports of the catheter may be used to continue administration of medications or IV fluids that were initiated prior to transport. These should be used as any other IV port with attention to sterile technique.
6. If applicable, measurements from the catheter may be obtained during transport and used to guide care as per local protocols and medical control orders.
7. If at any time during the transport difficulties with the function of the Swan-Ganz catheter is noted, contact medical control.
8. Document the time and any adjustments or problems associated with the catheter in 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.

Wound Care - General

Clinical Indications:

- Protection and care for open wounds prior to and during transport.

Procedure:

1. Use personal protective equipment, including gloves, gown, and mask as indicated.
2. If active bleeding, elevate the affected area if possible and hold direct pressure. Do not rely on “compression” bandage to control bleeding. Direct pressure is much more effective.
3. Once bleeding is controlled, irrigate contaminated wounds with saline as appropriate (this may have to be avoided if bleeding was difficult to control). Consider analgesia per protocol prior to irrigation.
4. Cover wounds with sterile gauze/dressings. Check distal pulses, sensation, and motor function to ensure the bandage is not too tight.
5. Monitor wounds and/or dressings throughout transport for bleeding.
6. Document the wound and assessment and care in the patient care report (PCR).

Wound Care - Taser® Probe Removal

Clinical Indications:

- Patient with uncomplicated conducted electrical weapon (Taser®) probes embedded subcutaneously in non-sensitive areas of skin.
- Taser probes are barbed metal projectiles that may embed themselves up to 13 mm into the skin.

Contraindications:

- Patients with conducted electrical weapon (Taser®) probe penetration in vulnerable areas of body as mentioned below should be transported for further evaluation and probe removal
- Probes embedded in skin above level of clavicles, female breasts, or genitalia
- Suspicion that probe might be embedded in bone, blood vessel, or other sensitive structure.

Procedure:

1. Ensure wires are disconnected from weapon.
2. Stabilize skin around probe using non-dominant hand.
3. Grasp probe by metal body using dominant hand.
4. Remove probe in single quick motion.
5. Wipe wound with antiseptic wipe and apply dressing.

Wound Care - Tourniquet

Clinical Indications:

- Life threatening extremity hemorrhage that cannot be controlled by other means.
- Serious or life threatening extremity hemorrhage and tactical considerations prevent the use of standard hemorrhage control techniques.

Contraindications:

- Non-extremity hemorrhage
- Proximal extremity location where tourniquet application is not practical

Procedure:

1. Place tourniquet proximal to wound
2. Tighten per manufacturer instructions until hemorrhage stops and/or distal pulses in affected extremity disappear.
3. Secure tourniquet per manufacturer instructions
4. Note time of tourniquet application and communicate this to receiving care providers
5. Dress wounds per standard wound care protocol
6. If delayed or prolonged transport and tourniquet application time > 45 minutes: consider reattempting standard hemorrhage control techniques and removing tourniquet

Policies

Abuse & Neglect

Recognition and Reporting

Policy:

Domestic violence is physical, sexual, or psychological abuse and/or intimidation, which attempts to control another person in a current or former family, dating, or household relationship. The recognition, appropriate reporting, and referral of abuse is a critical step to improving patient safety, providing quality health care, and preventing further abuse.

Abuse is the physical and/or mental injury, sexual abuse, negligent treatment, or maltreatment of a child, senior citizen, or incapacitated adult by another person. Abuse may be at the hand of a parent, caregiver, spouse, neighbor, or adult child of the patient. The recognition of abuse and the proper reporting is a critical step to improve the health and wellbeing of these at-risk populations.

Purpose:

Ensure compliance with "Mandatory Reporter" status under the Code of Virginia.

Assessment of an abuse case based upon the following principles:

- **Protect** the patient from harm, as well as protecting the EMS team from harm and liability.
- **Suspect** that the patient may be a victim of abuse, especially if the injury/illness is not consistent with the reported history.
- **Respect** the privacy of the patient and family.
- **Collect** as much information and evidence as possible and preserve physical evidence.

Procedure:

1. Assess the/all patient(s) for any psychological characteristics of abuse, including excessive passivity, compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, behavioral disorders, substance abuse, medical non-compliance, or repeated EMS requests. This is typically best done in private with the patient.
2. Assess the patient for any physical signs of abuse, especially any injuries that are inconsistent with the reported mechanism of injury. Defensive injuries (e.g. to forearms), and injuries during pregnancy are also suggestive of abuse. Injuries in different stages of healing may indicate repeated episodes of violence.
3. Assess all patients for signs and symptoms of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentive caregiver(s), or physical signs of malnutrition.
4. Immediately report any suspicious findings to both the receiving hospital (if transported) and social services:
   - If child abuse or neglect is suspected, contact Child Protective Services at (800) 552-7096.
   - If elder abuse or neglect (including incapacitated adults), contact Adult Protective Services at (888) 832-3858.
5. EMS personnel should attempt in private to provide the patient with the phone number of the local domestic violence program, or the **National Hotline, 1-800-799-SAFE**.

Ambulance Patient Destination

Scope:

This policy pertains to all licensed EMS agencies providing basic, advanced and specialized ambulance transportation.

Purpose:

To provide for a defined, consistent policy for the destination of ambulance patients consistent with quality patient care and regional medical protocol.

Policy Elements:

1. All ambulance patients (resulting from requests for emergency assistance that result in transport) will normally be transported to the closest appropriate hospital emergency department unless redirected by the Medical Control Physician. The closest appropriate hospital is defined as the hospital closest to the location of the patient that can provide the level of care needed by the patient. The Medical Control Physician is defined as the attending emergency department physician at the hospital contacted by radio, cellular phone, or other means by the prehospital provider attending to the patient to be transported.

2. Stable patients may be transported to the patient's destination of choice if allowed by local EMS agency policies and available resources.

3. Patients that meet certain criteria as severe trauma patients, as defined in the Western Virginia Regional Trauma Triage Plan, will normally be transported directly to a Level I or Level II Trauma Center unless redirected by the Medical Control Physician as defined in the trauma triage plan.

4. Individual EMS agencies are responsible for determining operational policies related to the most effective ambulance deployment and utilization patterns. This may include policies allowing transport of stable patients to hospitals of a patient's choice.

5. In mass casualty incident (MCI) situations, transport patterns and destinations may be altered, as directed in the MCI plan(s) that are in place governing the incident.

6. Other policies and protocols related to patient transport and ambulance-to-hospital communications are defined in the Western Virginia EMS Council "Operational Protocols," current edition.

7. In no event shall patient destination be selected based upon the participation or non-participation of the hospital or the ambulance service in the Council's Ambulance Restocking Program.

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

Deceased Subjects

Policy:

EMS will handle the disposition of deceased subjects in a uniform, professional, and timely manner.

Purpose:

The purpose of this policy is to:

- Organize and provide for a timely disposition of any deceased subject
- Maintain respect for the deceased and family
- Allow EMS to return to service in a timely manner.

Procedure:

1. Do not remove lines or tubes from unsuccessful cardiac arrests/codes unless directed below.
2. Notify the law enforcement agency with jurisdiction if applicable.
3. If subject was found deceased by EMS, the scene is turned over to law enforcement.
4. If EMS has attempted to resuscitate the patient and then terminated the resuscitative efforts, the EMS personnel should contact the family physician (medical cases) or medical examiner (traumatic cases or family physician unavailable) to provide information about the resuscitative efforts.
5. Transport arrangements should be made in concert with law enforcement and the family's wishes.
6. If the deceased subject's destination is other than the county morgue, any line(s) or tube(s) placed by EMS should be removed prior to transport.
7. Document the situation, name of Physician or Medical Examiner contacted, the agency providing transport of the deceased subject, and the destination on the patient care report form (PCR).

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.

Infant Abandonment

Policy:
The Code of Virginia identifies the potential for a parent to surrender their child to a hospital or EMS agency under certain circumstances.

§ 18.2-371:

> If the prosecution under this section is based solely on the accused parent having left the child at a hospital or rescue squad, it shall be an affirmative defense to prosecution of a parent under this section that such parent safely delivered the child to a hospital that provides 24-hour emergency services or to an attended rescue squad that employs emergency medical technicians, within the first 14 days of the child's life. In order for the affirmative defense to apply, the child shall be delivered in a manner reasonably calculated to ensure the child's safety.

§ 8.01-226.5:2:

> Any personnel of a hospital or rescue squad receiving a child under the circumstances described in subsection B of § 18.2-371, subdivision B 2 of § 18.2-371.1 or subsection B of § 40.1-103 shall be immune from civil liability or criminal prosecution for injury or other damage to the child unless such injury or other damage is the result of gross negligence or willful misconduct by such personnel.

Purpose:

To provide:

- Protection to infants that are left in the custody of EMS under this law
- Protection to EMS systems and personnel when confronted with this issue

Procedure:

1. Initiate the Pediatric Assessment.
2. Initiate Newly Born Protocol as appropriate.
3. Initiate other treatment protocols as appropriate.
4. Keep infant warm.
5. Notify law enforcement and the local Department of Social Services as soon as possible.
6. Transport infant to an appropriate medical facility.
7. Assure infant is secured in appropriate child restraint device for transport.
8. Document protocols, procedures, and agency notifications in the PCR.

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.

Transport

Policy:

All individuals served by the EMS system will be evaluated, treated, and furnished transportation (if indicated) in the most timely and appropriate manner for each individual situation.

Purpose:

To provide:

- Rapid emergency EMS transport when needed.
- Appropriate medical stabilization and treatment at the scene when necessary
- Protection of patients, EMS personnel, and citizens from undue risk when possible.

Procedure:

1. All trauma patients with significant mechanism or history for multiple system trauma will be transported as soon as possible. The scene time should be 10 minutes or less.
2. All acute Stroke and acute ST-Elevation Myocardial Infarction patients will be transported as soon as possible. The scene time should be 10 minutes or less for acute Stroke patients and 15 minutes or less (with 12 Lead ECG) for STEMI patients
3. Other Medical patients will be transported in the most efficient manner possible considering the medical condition. Advanced life support therapy should be provided at the scene if it would positively impact patient care. Justification for scene times greater than 20 minutes should be documented.
4. No patients will be transported in initial response non-transport vehicles.
5. In unusual circumstances, transport in other vehicles may be appropriate when directed by EMS administration.

Verification of On-Scene Medical Personnel

Policy:

The medical direction of prehospital care at the scene of an emergency is the responsibility of those most appropriately trained in providing such care.

Purpose:

- To identify a chain of command to allow field personnel to adequately care for the patient
- To assure the patient receives the maximum benefit from prehospital care
- To minimize the liability of the EMS system as well as the on-scene physician

Procedure:

1. When a non medical-control physician offers assistance to EMS or the patient is being attended by a physician with whom they do not have an ongoing patient relationship, credentials must be verified and the physician must be approved by on-line medical control. Any deviation from local EMS protocols requires the physician accompany the patient to the hospital.
2. When the patient is being attended by a physician with whom they have an ongoing patient relationship, EMS personnel may follow orders given by the physician if the orders conform to current EMS protocols, and if the physician signs the PCR. Notify medical control at the earliest opportunity. Any deviation from local EMS protocols requires the physician to accompany the patient to the hospital.
3. EMS personnel may accept orders from the patient's physician over the phone with the approval of medical control. EMS Personnel should obtain the specific order and the physician's phone number for relay to medical control so that medical control can discuss any concerns with the physician directly.

Virginia DDNR Orders & POST Forms

Policy:
EMS providers will honor a patient's wishes regarding withholding life sustaining measures in accordance with Virginia laws and regulations.

Purpose:
- To honor the terminal wishes of the patient
- To prevent the initiation of unwanted resuscitation

Procedure:

12VAC5-66-80. Durable DNR Order implementation procedures

A. Qualified health care personnel shall comply with the following general procedures and published Virginia Durable DNR Order Implementation Protocols when caring for a patient who is in cardiac or respiratory arrest and who is known or suspected to have a Durable DNR Order in effect.

B. Initial assessment and intervention. Perform routine patient assessment and resuscitation or intervention until a valid Durable DNR Order, Alternate DNR jewelry, or Other DNR Order can be confirmed, as follows:
   1. Determine the presence of a Durable DNR Order approved Alternate Durable DNR jewelry, or Other DNR Order.
   2. If the patient is within a qualified health care facility or in transit between qualified health care facilities, any qualified health care personnel may honor an Other DNR Order as set forth in 12VAC5-66-60.
   3. Determine that the Durable DNR form or Alternate DNR jewelry is not altered.
   4. Verify, through driver's license or other identification with photograph and signature or by positive identification by a family member or other person who knows the patient, that the patient in question is the one for whom the Durable DNR Order, Alternate DNR jewelry, or Other DNR Order was issued.
   5. If the Durable DNR Order, Alternate DNR jewelry, or Other DNR Order is intact, unaltered, and verified as issued for the patient, qualified health care personnel may consider the Durable DNR Order to it valid.

C. Resuscitative measures to be withheld or withdrawn. In the event of cardiac or respiratory arrest of a patient with a valid Durable DNR Order, Alternate Durable DNR jewelry, or Other DNR Order under the criteria set forth in subsection B of this section, qualified health care personnel shall withhold or withdraw cardiopulmonary resuscitation (CPR) unless otherwise directed by a physician physically present at the patient location CPR shall include:
   1. Cardiac compression;
   2. Artificial ventilation;
   3. Defibrillation;
   4. Endotracheal Intubation or other advanced airway management including supra-glottic devices such as the LMA, or other airway devices that pass beyond the oral pharynx, such as the Combi Tube, PTL etc.; or
   5. Administration of related procedures or cardiac resuscitation medications as prescribed by the patient's physician or medical protocols.

D. Procedures to provide comfort care or to alleviate pain. In order to provide comfort care or to alleviate pain for a patient with a valid Durable DNR Order of any type or Other DNR Order the following interventions may be provided, depending on the needs of the particular patient:
   1. Airway management, including positioning, nasal or pharyngeal airway placement;
   2. Suctioning;

3. Supplemental oxygen delivery devices;
4. Pain medications or intravenous fluids;
5. Bleeding control;
6. Patient positioning; or
7. Other therapies deemed necessary to provide comfort care or to alleviate pain.

E. Revocation.
1. If a patient is able to, and does, express to a health care provider or practitioner the desire to be resuscitated in the event of cardiac or respiratory arrest, such expression shall revoke the provider's or practitioner's authority to follow a Durable DNR Order or Other DNR Order. In no case shall any person other than the patient have authority to revoke a Durable DNR Order or Other DNR Order executed upon the request of and with the consent of the patient himself.
2. If the patient is a minor or is otherwise incapable of making an informed decision and the Durable DNR Order or Other DNR Order was issued upon the request and with the consent of the person authorized to consent on the patient's behalf, then the expression by said person to a health care provider or practitioner of the desire that the patient be resuscitated shall so revoke the provider's or practitioner's authority to follow a Durable DNR Order or Other DNR Order.
3. The expression of such desire to be resuscitated prior to cardiac or respiratory arrest shall constitute revocation of the order; however, a new order may be issued upon consent of the patient or the person authorized to consent on the patient's behalf.
4. The provisions of this section shall not authorize any qualified emergency medical services personnel or licensed health care provider or practitioner who is attending the patient at the time of cardiac or respiratory arrest to provide, continue, withhold or withdraw treatment if such provider or practitioner knows that taking such action is protested by the patient incapable of making an informed decision. No person shall authorize providing, continuing, withholding or withdrawing treatment pursuant to this section that such person knows, or upon reasonable inquiry ought to know, is contrary to the religious beliefs or basic values of a patient incapable of making an informed when the patient was capable of making an informed decision.

F. Documentation. When following a Durable DNR Order or Other DNR Order for a particular patient admitted to a qualified health care facility, qualified health care personnel shall document care rendered or withheld as required by facility policies and procedures. When following a Durable DNR Order or Other DNR Order for a particular patient who is not admitted to a qualified health care facility or who is in transit from a health care facility, qualified health care personnel shall document in the patient's medical record the care rendered or withheld in the following manner:
1. Use standard patient care reporting documents (i.e. patient chart, pre-hospital patient care report).
2. Describe assessment of patient's cardiac or respiratory arrest status.
3. Document which identification (Durable DNR Order, Alternate Durable DNR jewelry, or Other DNR Order or alternate form of identification) was used to confirm Durable DNR status and that it was intact, not altered, not canceled or not officially revoked.
4. Record the name of the patient's physician who issued the Durable DNR Order, or Other DNR Order.
5. If the patient is being transported, keep the Durable DNR Order, Alternate Durable DNR jewelry, or Other DNR Order with the patient.

G. General considerations. The following general principles shall apply to implementation of all Durable DNR Orders.
    1. If there is misunderstanding with family members or others present at the patient's location or if there are other concerns about following the Durable DNR Order or Other] DNR Order, contact the patient's physician or EMS medical control for guidance.
    2. If there is any question about the validity of a Durable DNR Order, resuscitative measures should be administered until the validity of the Durable DNR Order or Other DNR Order is established.

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

WVEMS Regional Drug Boxes

Policy:
Agencies participating in the regional drug box exchange program shall follow the procedures below regarding the use and exchange of boxes at regional hospitals.

Procedure:

1. EMS provider breaks seal and places seal in top tray of drug box. There will be a new/unused GREEN seal in both the box, and another in the narcotics box, and must be saved for resealing the opened box(es) after use.
2. EMS provider documents medications used on the patient care report and the WVEMS/BREMS Regional Pharmacy Administration Record Physician Order Form, and **a physician's signature shall be obtained** (**including DEA number in any and all cases where narcotics are used).** Boxes will be returned to the Emergency Department, if the signature of the physician or nurse is not legible and/or there is not a DEA number when needed. Enter the RESEAL serial number(s) on the WVEMS/BREMS Regional Pharmacy Administration Record Physician Order Form.
3. EMS provider and E.D. nurse, physician, Pharmacist or Pharmacy Technician and/or other person as authorized, check used box to account for narcotics. Both assure that all trash and used needles have been removed from the box. The old seal should be left in the box and forwarded to the pharmacy. The nurse, physician, or authorized person will sign the appropriate space indicating that all narcotics have been accounted for. After everything is accounted for, the AIC shall take the green reseal(s) provided in the drug box/narcotics box, and seal the box(es).
4. E.D. nurse, physician, Pharmacist or Pharmacy Technician or authorized person issues a new box to the EMS provider, both complete the "Drug Box Exchange Log". The seal on the new box is not to be broken until needed on the scene of an emergency. Boxes on which seals have been broken must be returned to the E.D. or Pharmacy for exchange. A copy of a PPCR or patient reporting printout with an explanation of why the seal was broken must accompany the box.
5. Pharmacy will fill the box in accordance with the contents used from the box schematic. The pharmacy checks the box to assure all contents are present and in-date. The box is sealed with a numbered seal provided by the EMS Council. A hospital sticker indicating the date of the first drug to expire is to be placed on the outside of the box.
6. If a box is returned to the pharmacy with dirty needles or excessive litter and debris, the box will be held out of service and the EMS Council notified. The Council will in turn notify the agency and/or personnel responsible and they will be required to report to the hospital to correct the situation. Repeated occurrences by the same provider/ agency may result in suspension or revocation of drug box privileges.
7. Refilled boxes are returned to the E.D. or stored in the pharmacy for distribution. Each hospital is responsible to assure that the boxes are properly secured against tampering while at the hospital.
8. If an EMS provider opens a box and finds one or more medications missing he/she shall document such on the PPCR or patient reporting software and the EMS provider shall notify the EMS Council in writing of the discrepancy; noting the box number and seal number in the report. If the missing drug is a narcotic **refer to item # 11**. As long as the missing medication is not a narcotic, the box may be returned to service by the hospital pharmacy after restocking the box.
9. No item for item exchange may be made in the E.D. The box must be returned to the pharmacy to be checked, restocked, and resealed.
10. When narcotics are used on a call, the **ALS technician** will bring the unused portion to the E.D. The nurse, physician, or authorized person checking the box will record the amount remaining on the patient care report and the WVEMS/BREMS Regional Pharmacy Administration Record Physician Order Form, and sign his/her name. The person signing will then be responsible for proper disposal and accounting for the narcotic according to hospital policy.

WVEMS Regional Drug Boxes

11. In the event that medications are missing are missing from the box the following steps must be followed:
    A. If the seal is found to be broken during a routine drug inspection:
        1. Avoid handling the box.
        2. Contact local law enforcement. **(NARCOTICS ONLY)**
        3. Contact the agency Chief or Captain
        4. Contact the Western Virginia EMS Council
        5. Complete and file a drug diversion form with the Office of EMS **(see 12 VAC 5-31-520, D of the Virginia EMS Rules and Regulations)**
        6. Have drug box inspection forms ready for police, EMS Council, and Office of EMS personnel.
    B. If the seal is on the box and medications are missing while performing patient care or after arriving at the hospital:
        1. Continue patient care, you may continue to utilize the contents of the box.
        2. If the medication needed is not present consider requesting another unit to meet en route, DO NOT DELAY TRANSPORT.
        3. Upon arrival at the hospital notify the E.D. Nursing Supervisor of the problem.
        4. Follow the procedures listed in **11-A.**
        5. The box must be secured in the hospital and may be released only after being notified by the EMS Council.
    C. In all cases you will be asked to write a report stating the events surrounding the incident. It should include the box number, seal number, witnesses and a description of what occurred.
    D. Depending on the individual circumstances, the Operational Medical Director of the agency or the Regional Medical Director may suspend the agency's authorization to administer drugs in the pre-hospital setting pending the outcome of a formal investigation by law enforcement or the Office of EMS, and may require implementation of additional security measures at the agency's expense.

Medication Reference

Medication	Adult Dosage	Pediatric Dosage
acetaminophen (Tylenol) **WVEMS Protocols:** * **21-Fever** * **23-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:** * **56-Tachycardia (Adult)** * **57-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:** * **34-Allergies/Anaphylaxis (Adult)** * **35-Allergies/Anaphylaxis (Pediatric)** * **52-Respiratory Distress (Adult)** * **53-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:** * **7/9-VF/VT (Adult)** * **8-VF/VT (Pediatric)** * **56-Tachycardia (Adult)** * **57-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:** * **23-Pain Control** * **39- 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:** * **37-Bradycardia (Adult)** * **38-Bradycardia (Pediatric)** * **49-OD/Poison/Toxics (Adult)** * **50-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:** * **9-Intractable VF/VT (Adult)** * **29-Crush Syndrome** * **42-Dialysis/Renal Failure** * **49-OD/Poison/Toxics (Adult)** * **50-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:** * **5/11-Asystole/PEA (Pediatric)** * **41-Diabetic-Hypoglycemia** * **45-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:** * **5/10-Asystole/PEA (Adult)** * **6/11-Asystole/PEA (Pediatric)** * **41-Diabetic-Hypoglycemia** * **45-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:** * **34-Allergies/Anaphylaxis (Adult)** * **35-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:** *** 5/10-Asystole/PEA (Adult)** *** 6/11-Asystole/PEA (Pediatric)** *** 12-Post Resuscitation Care (Adult)** *** 13-Post Resuscitation Care (Pediatric)** *** 16/18-CO/Smoke Inhalation** *** 37-Bradycardia (Adult)** *** 38-Bradycardia (Pediatric)** *** 39-Chest Pain, Presumed Cardiac** *** 44-Hypotension/Shock (Adult)** *** 45-Hypotension/Shock (Pediatric)** *** 49-OD/Poison/Toxics (Adult)** *** 50-OD/Poison/Toxics (Pediatric)** *** 51-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:** *** 49-OD/Poison/Toxics (Adult)** *** 50-OD/Poison/Toxics (Pediatric)** *** 17-Exposure-Nerve Agent** **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:** * **5/10-Asystole/PEA (Adult)** * **6/11-Asystole/PEA (Pediatric)** * **34-Allergies/Anaphylaxis (Adult)** * **35-Allergies/Anaphylaxis (Pediatric)** * **38-Bradycardia (Pediatric)** * **48-Newborn/Neonatal Resuscitation** * **52-Respiratory Distress (Adult)** * **53-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:** * **23-Pain Control** * **29-Crush Syndrome** * **39-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:** *** 51-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:** *** 41-Diabetic-Hypoglycemia** *** 45-Hypotension/Shock (Pediatric)** *** 49-OD/Poison/Toxics (Adult)** *** 50-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:** *** 41-Diabetic-Hypoglycemia** *** 45-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:** *** 19-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:** * **16-Carbon Monoxide** **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:** * **21-Fever** * **23-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:** * **23-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:** * **7-VF/VT (Adult)** * **9-Intractable VF/VT (Adult)** * **8-VF/VT (Pediatric)** * **52-Respiratory Distress (Adult)** * **53-Respiratory Distress (Pediatric)** * **54-Seizure** * **59-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:** * **34-Allergies/Anaphylaxis (Adult)** * **35-Allergies/Anaphylaxis (Pediatric)** * **52-Respiratory Distress (Adult)** * **53-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:** *** 1-Airway** *** 12-Post Resuscitation Care (Adult)** *** 13-Post Resuscitation Care (Pediatric)** *** 19-Behavioral/Pt. Restraint** *** 29-Crush Syndrome** *** 54-Seizure** *** 56-Tachycardia (Adult)** *** 57-Tachycardia (Pediatric)** *** 59-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:** *** 23-Pain Control** *** 39-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:** * **5/10-Asystole/PEA (Adult)** * **6/11-Asystole/PEA (Pediatric)** * **49-OD/Poison/Toxics (Adult)** * **50-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:** * **39-Cardiac Chest Pain** * **51-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:** * **33-Abdominal Pain** * **47-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:** *** 20-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:** *** 49-OD/Poison/Toxics (Adult)** *** 50-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:** *** 7-VF/Pulseless VT, Adult** *** 8-VF/Pulseless VT, Pediatric** *** 9-Intractable VF/VT (Adult)** *** 29-Crush Syndrome** *** 42-Dialysis/Renal Failure** *** 49-OD/Poison/Toxics (Adult)** *** 50-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

Color Coded Medication Reference

Weight 3-5 Kg (Avg 4 Kg)

Length <59.5 cm

Vital Signs	
Heart Rate	120-150
Respirations	24-48
BP Systolic	70 (+/-25)
Equipment	
ET Tube	2.5 - 3.5
Blade Size	0 - 1
Defibrillation	
Defibrillation	8 J, 15 J
Cardioversion	2 J,4 J
Normal Saline	80 ml

Acetaminophen	60 mg
Adenosine *1st Dose-*	0.4 mg
Repeat Dose-	0.8 mg
Albuterol	2.5 mg
Amiodarone	20 mg
Aspirin	HOLD
Atropine (antidote)	0.2 mg
Atropine (cardiac)	0.1 mg
Calcium Chloride	80 mg
Dextrose 25%	16 mL
Dextrose 50%	HOLD
Diphenhydramine	4 mg
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	0.3 mL/hr
5 mcg/kg/min	0.8 mL/hr
10 mcg/kg/min	1.5 mL/hr
20 mcg/kg/min	3 mL/hr
DuoDote	HOLD

Epinephrine 1:10,000	0.04 mg
Epinephrine 1:1,000 NEB	2 mg
Epinephrine 1:1,000 IM	0.04 mg
Fentanyl	8 mcg
Glucagon	0.5 mg
Glucose, oral	HOLD
hydroxocobalmin	280 mg
Ibuprofen	HOLD
Ketorolac	2 mg
Lidocaine 2%	2 mg
Magnesium Sulfate	200 mg
Methylprednisolone	6 mg
Midazolam	0.4 mg
Morphine Sulfate	0.4 mg
Naloxone	0.4 mg
Ondansetron	0.6 mg
Oxymetazoline	HOLD
Pralidoxime	100 mg
Sodium Bicarbonate	4 mEq

Gray (0-3 months)

Weight 6-7 Kg (Avg 6.5 Kg)

Length 59.5-66.5 cm

Vital Signs	
Heart Rate	120-125
Respirations	24-48
BP Systolic	85 (+/-25)
Equipment	
ET Tube	3.5
Blade Size	1
Defibrillation	
Defibrillation	10 J, 20 J
Cardioversion	2 J,5 J
Normal Saline	130 ml

Acetaminophen	98 mg
Adenosine *1st Dose-*	0.7 mg
Repeat Dose-	1.3 mg
Albuterol	2.5 mg
Amiodarone	33 mg
Aspirin	HOLD
Atropine (antidote)	0.3 mg
Atropine (cardiac)	0.13 mg
Calcium Chloride	130 mg
Dextrose 25%	26 mL
Dextrose 50%	HOLD
Diphenhydramine	6.5 mg
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	0.5 mL/hr
5 mcg/kg/min	1.3 mL/hr
10 mcg/kg/min	2.5 mL/hr
20 mcg/kg/min	5.0 mL/hr
DuoDote	HOLD

Epinephrine 1:10,000	0.07 mg
Epinephrine 1:1,000 NEB	2 mg
Epinephrine 1:1,000 IM	0.07 mg
Fentanyl	13 mcg
Glucagon	0.5 mg
Glucose, oral	HOLD
hydroxocobalmin	455 mg
Ibuprofen	HOLD
Ketorolac	3 mg
Lidocaine 2%	3 mg
Magnesium Sulfate	325 mg
Methylprednisolone	13 mg
Midazolam	0.7 mg
Morphine Sulfate	0.7 mg
Naloxone	0.7 mg
Ondansetron	1 mg
Oxymetazoline	HOLD
Pralidoxime	163 mg
Sodium Bicarbonate	7 mEq

Pink (3-6 months)

Weight 8-9 Kg (Avg 8.5 Kg)

Length 66.5-74 cm

Vital Signs	
Heart Rate	120
Respirations	24-32
BP Systolic	92 (+/-30)
Equipment	
ET Tube	3.5 - 4.0
Blade Size	1
Defibrillation	
Defibrillation	20 J, 40 J
Cardioversion	5 J,9 J
Normal Saline	170 ml

Acetaminophen	128 mg
Adenosine *1st Dose-*	0.9 mg
Repeat Dose-	1.7 mg
Albuterol	2.5 mg
Amiodarone	43 mg
Aspirin	HOLD
Atropine (antidote)	0.4 mg
Atropine (cardiac)	0.17 mg
Calcium Chloride	170 mg
Dextrose 25%	34 mL
Dextrose 50%	HOLD
Diphenhydramine	9 mg
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	0.7 mL/hr
5 mcg/kg/min	1.6 mL/hr
10 mcg/kg/min	3.2 mL/hr
20 mcg/kg/min	6.4 mL/hr
DuoDote	HOLD

Epinephrine 1:10,000	0.09 mg
Epinephrine 1:1,000 NEB	2 mg
Epinephrine 1:1,000	0.09 mg
Fentanyl	17 mcg
Glucagon	0.5 mg
Glucose, oral	HOLD
hydroxocobalmin	595 mg
Ibuprofen	85 mg
Ketorolac	4.3 mg
Lidocaine 2%	4.3 mg
Magnesium Sulfate	425 mg
Methylprednisolone	17 mg
Midazolam	0.9 mg
Morphine Sulfate	0.9 mg
Naloxone	0.9 mg
Ondansetron	1.3 mg
Oxymetazoline	HOLD
Pralidoxime	213 mg
Sodium Bicarbonate	9 mEq

Red (7-10 months)

Color Coded Medication Reference

Weight 10-11 Kg (Avg 10.5 Kg)

Length 74-84.5 cm

Purple (11-18 months)

Vital Signs	
Heart Rate	115-120
Respirations	22-30
BP Systolic	96 (+/-30)
Equipment	
ET Tube	4.0
Blade Size	1
Defibrillation	
Defibrillation	20 J, 40 J
Cardioversion	5 J,10 J
Normal Saline	210 ml

Acetaminophen	158 mg
Adenosine *1st Dose-*	1 mg
Repeat Dose-	2 mg
Albuterol	2.5 mg
Amiodarone	53 mg
Aspirin	HOLD
Atropine (antidote)	0.5 mg
Atropine (cardiac)	0.2 mg
Calcium Chloride	210 mg
Dextrose 25%	42 mL
Dextrose 50%	HOLD
Diphenhydramine	11 mg
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	0.8 mL/hr
5 mcg/kg/min	2 mL/hr
10 mcg/kg/min	4 mL/hr
20 mcg/kg/min	8 mL/hr
DuoDote	1-3 Autoinjectors

Epinephrine 1:10,000	0.1 mg
Epinephrine 1:1,000 NEB	2 mg
Epinephrine 1:1,000 IM	0.1 mg
Fentanyl	21 mcg
Glucagon	0.5 mg
Glucose, oral	HOLD
hydroxocobalmin	735 mg
Ibuprofen	105 mg
Ketorolac	5.3 mg
Lidocaine 2%	5.3 mg
Magnesium Sulfate	525 mg
Methylprednisolone	21 mg
Midazolam	1 mg
Morphine Sulfate	1 mg
Naloxone	1 mg
Ondansetron	1.6 mg
Oxymetazoline	HOLD
Pralidoxime	263 mg
Sodium Bicarbonate	11 mEq

Weight 12-14 Kg (Avg 13 Kg)

Length 84.5-97.5 cm

Yellow (19-35 months)

Vital Signs	
Heart Rate	110-115
Respirations	20-28
BP Systolic	100 (+/-30)
Equipment	
ET Tube	4.5
Blade Size	2
Defibrillation	
Defibrillation	30 J, 50 J
Cardioversion	6 J,15 J
Normal Saline	260 ml

Acetaminophen	195 mg
Adenosine *1st Dose-*	1.3 mg
Repeat Dose-	2.6 mg
Albuterol	2.5 mg
Amiodarone	65 mg
Aspirin	HOLD
Atropine (antidote)	0.7 mg
Atropine (cardiac)	0.3 mg
Calcium Chloride	260 mg
Dextrose 25%	52 mL
Dextrose 50%	HOLD
Diphenhydramine	13 mg
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	1 mL/hr
5 mcg/kg/min	2.5 mL/hr
10 mcg/kg/min	5 mL/hr
20 mcg/kg/min	10 mL/hr
DuoDote	1-3 Autoinjectors

Epinephrine 1:10,000	0.1 mg
Epinephrine 1:1,000 NEB	2 mg
Epinephrine 1:1,000 IM	0.1 mg
Fentanyl	26 mcg
Glucagon	0.5 mg
Glucose, oral	HOLD
hydroxocobalmin	910 mg
Ibuprofen	130 mg
Ketorolac	6.5 mg
Lidocaine 2%	6.5 mg
Magnesium Sulfate	650 mg
Methylprednisolone	26 mg
Midazolam	1.3 mg
Morphine Sulfate	1.3 mg
Naloxone	1.3 mg
Ondansetron	2 mg
Oxymetazoline	1 spray
Pralidoxime	325 mg
Sodium Bicarbonate	13 mEq

Weight 15-18 Kg (Avg 16.5 Kg)

Length 97.5-110 cm

White (3-4 years)

Vital Signs	
Heart Rate	100-115
Respirations	20-26
BP Systolic	100 (+/-20)
Equipment	
ET Tube	5.0
Blade Size	2
Defibrillation	
Defibrillation	30 J, 70 J
Cardioversion	8 J,15 J
Normal Saline	330 ml

Acetaminophen	248 mg
Adenosine *1st Dose-*	1.7 mg
Repeat Dose-	3.3 mg
Albuterol	2.5 mg
Amiodarone	83 mg
Aspirin	HOLD
Atropine (antidote)	0.8 mg
Atropine (cardiac)	0.3 mg
Calcium Chloride	330 mg
Dextrose 25%	HOLD
Dextrose 50%	33 mL
Diphenhydramine	17 mg
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	1.2 mL/hr
5 mcg/kg/min	3 mL/hr
10 mcg/kg/min	6 mL/hr
20 mcg/kg/min	12 mL/hr
DuoDote	1-3 Autoinjectors

Epinephrine 1:10,000	0.17 mg
Epinephrine 1:1,000 NEB	2 mg
Epinephrine 1:1,000 IM	0.17 mg
Fentanyl	33 mcg
Glucagon	0.5 mg
Glucose, oral	HOLD
hydroxocobalmin	1155 mg
Ibuprofen	165 mg
Ketorolac	8.25 mg
Lidocaine 2%	8.25 mg
Magnesium Sulfate	825 mg
Methylprednisolone	33 mg
Midazolam	1.7 mg
Morphine Sulfate	1.7 mg
Naloxone	1.7 mg
Ondansetron	2.5 mg
Oxymetazoline	1 spray
Pralidoxime	413 mg
Sodium Bicarbonate	17 mEq

Color Coded Medication Reference

Blue (5-6 years)

Weight 19-22 Kg (Avg 20.75 Kg)

Length 110-122 cm

Vital Signs	
Heart Rate	100
Respirations	20-24
BP Systolic	100 (+/-15)
Equipment	
ET Tube	5.5
Blade Size	2
Defibrillation	
Defibrillation	40 J, 85 J
Cardioversion	10 J,20 J
Normal Saline	410 ml

Acetaminophen	312 mg
Adenosine *1st Dose-*	2 mg
Repeat Dose-	4 mg
Albuterol	2.5 mg
Amiodarone	104 mg
Aspirin	HOLD
Atropine (antidote)	1 mg
Atropine (cardiac)	0.4 mg
Calcium Chloride	415 mg
Dextrose 25%	HOLD
Dextrose 50%	42 mL
Diphenhydramine	21 mg
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	1.6 mL/hr
5 mcg/kg/min	4 mL/hr
10 mcg/kg/min	8 mL/hr
20 mcg/kg/min	16 mL/hr
DuoDote	1-3 Autoinjectors

Epinephrine 1:10,000	0.2 mg
Epinephrine 1:1,000 NEB	2 mg
Epinephrine 1:1,000 IM	0.2 mg
Fentanyl	42 mcg
Glucagon	1 mg
Glucose, oral	HOLD
hydroxocobalmin	1453 mg
Ibuprofen	208 mg
Ketorolac	10.4 mg
Lidocaine 2%	10.4 mg
Magnesium Sulfate	1038 mg
Methylprednisolone	42 mg
Midazolam	2 mg
Morphine Sulfate	2 mg
Naloxone	2 mg
Ondansetron	3 mg
Oxymetazoline	1 spray
Pralidoxime	519 mg
Sodium Bicarbonate	21 mEq

Orange (7-9 years)

Weight 24-30 Kg (Avg 27 Kg)

Length 122-137 cm

Vital Signs	
Heart Rate	90
Respirations	18-22
BP Systolic	105 (+/-15)
Equipment	
ET Tube	6.0
Blade Size	2-3
Defibrillation	
Defibrillation	50 J, 100 J
Cardioversion	15 J,30 J
Normal Saline	540 ml

Acetaminophen	405 mg
Adenosine *1st Dose-*	2.7 mg
Repeat Dose-	5.4 mg
Albuterol	2.5 mg
Amiodarone	135 mg
Aspirin	HOLD
Atropine (antidote)	1.35 mg
Atropine (cardiac)	0.5 mg
Calcium Chloride	540 mg
Dextrose 25%	HOLD
Dextrose 50%	54 mL
Diphenhydramine	27 mg
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	2 mL/hr
5 mcg/kg/min	5 mL/hr
10 mcg/kg/min	10 mL/hr
20 mcg/kg/min	20 mL/hr
DuoDote	1-3 Autoinjectors

Epinephrine 1:10,000	0.3 mg
Epinephrine 1:1,000 NEB	2 mg
Epinephrine 1:1,000 IM	0.3 mg
Fentanyl	54 mcg
Glucagon	1 mg
Glucose, oral	HOLD
hydroxocobalmin	1890 mg
Ibuprofen	270 mg
Ketorolac	13.5 mg
Lidocaine 2%	13.5 mg
Magnesium Sulfate	1350 mg
Methylprednisolone	54 mg
Midazolam	2.7 mg
Morphine Sulfate	2.7 mg
Naloxone	2 mg
Ondansetron	4 mg
Oxymetazoline	2 spray
Pralidoxime	675 mg
Sodium Bicarbonate	27 mEq

Green (10-12 years)

Weight 32-40 Kg (Avg 36 Kg)

Length 137-150 cm

Vital Signs	
Heart Rate	85-90
Respirations	16-22
BP Systolic	115 (+/-20)
Equipment	
ET Tube	6.5
Blade Size	3
Defibrillation	
Defibrillation	60 J, 150 J
Cardioversion	15 J,30 J
Normal Saline	720 ml

Acetaminophen	540 mg
Adenosine *1st Dose-*	3.6 mg
Repeat Dose-	7.2 mg
Albuterol	2.5 mg
Amiodarone	180 mg
Aspirin	HOLD
Atropine (antidote)	1.8 mg
Atropine (cardiac)	0.5 mg
Calcium Chloride	720 mg
Dextrose 25%	HOLD
Dextrose 50%	72 mL
Diphenhydramine	36 mg
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	3 mL/hr
5 mcg/kg/min	7 mL/hr
10 mcg/kg/min	14 mL/hr
20 mcg/kg/min	28 mL/hr
DuoDote	1-3 Autoinjectors

Epinephrine 1:1,000 IM	0.3 mg
Epinephrine 1:1,000 NEB	2 mg
Epinephrine 1:10,000	0.3 mg
Fentanyl	72 mcg
Glucagon	1 mg
Glucose, oral	HOLD
hydroxocobalmin	2520 mg
Ibuprofen	360 mg
Ketorolac	18 mg
Lidocaine 2%	18 mg
Magnesium Sulfate	1800 mg
Methylprednisolone	72 mg
Midazolam	3.6 mg
Morphine Sulfate	3.6 mg
Naloxone	2 mg
Ondansetron	4 mg
Oxymetazoline	2 sprays
Pralidoxime	900 mg
Sodium Bicarbonate	36 mEq

EMS Resources

Western Virginia EMS Council, Inc.

Main Office:

1944 Peters Creek Rd.
Roanoke, VA 24017
Toll Free: (800) 972-4367
Local: (540) 562-3482
Fax: (540) 562-3488
E-Mail: western@vaems.org

New River Valley Field Office:

New River Valley Business Center
6580 Valley Center Dr.
Radford, VA 24141
Toll Free: (800) 972-4367
Local: (540) 267-3326
Fax: (206) 202-1190

Piedmont Field Office:

Henry County Department of Public Safety
Emergency Services Training Center
1024 DuPont Rd.
Martinsville, VA 24112
Toll Free: (800) 972-4367
Local: (276) 634-4771
Fax: (206) 984-3120

Regional Critical Incident Stress Management Team

Danville/Pittsylvania Area Team Dispatcher: (434) 793-4922
New River Valley Team Dispatcher: (540) 961-1150
Roanoke Area Team Dispatcher: (888) 377-7628

Tell the dispatcher that you need to set up a debriefing. The communications center will contact a Team Leader who will contact you.

Virginia Office of Emergency Medical Services

1041 Technology Park Dr.
Glen Allen, VA 23059
Toll Free: (800) 523-6019
Main Office: (804) 888-9100
Training Office: (804) 888-9120
Fax: (804) 371-3108

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: (540) 587-3250

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: (540) 922-4201

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) 731-2805

Carilion Roanoke Memorial Hospital PCI
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: (434) 200-3211

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 PCI
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 PCI
Level II Stroke Center

1900 Electric Rd.
Salem, VA 24153
Main Phone: (540) 776-4000
ED Phone: (540) 776-4970

Memorial Hospital of Martinsville & Henry Co

320 Hospital Dr.
Martinsville, VA 24115
Main Phone: (276) 666-7200
ED Phone: (276) 666-7894

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: (540) 224-1999

Other Resources

Adult Protective Services
(888) 832-3858 or your local Department of Social Services

Child Protective Services
(800) 552-7096 or your local Department of Social Services

CHEMTREC
(800) 424-9300

Medical Examiner
(800) 862-8312

Poison Control
(800) 222-1222

APGAR Score & IV Drip Rates

APGAR Score:

Appearance and Color 2 – Completely Pink 1 – Pink, hands/feet blue 0 – Blue, pale	1 MIN.	5 MIN.
Pulse / Heart Rate 2 – Over 100 1 – Less than 100 0 - Absent	1 MIN.	5 MIN.
Grimace / Stimulation 2 – Cough or sneeze 1 – Grimace 0 – No response	1 MIN.	5 MIN.
Activity / Muscle Tone 2 – Well flexed and active 1 – Flexion of extremities 0 - Limp	1 MIN	5 MIN.
Respiratory Effort 2 – Strong cry 1 – Weak/hypoventilation 0 - Absent	1 MIN	5 MIN.

IV Drip Rates:

		mL's per hour										
		50	100	150	175	200	250	300	350	400	450	500
Drip Set	10	8	17	25	29	33	42	50	58	67	75	83
	15	13	25	38	44	50	63	75	88	100	113	125
	20	17	33	50	58	67	83	100	117	133	150	167
	60	50	100	150	175	200	250	300	350	400	450	500

Dopamine Drip Rates

Desired Dose (mcg/kg/min)	Patient's Weight																											
Pounds:	99	110	121	132	143	154	165	176	187	198	209	220	231	242	253	264	275	286	297	308	319	330	341	352	363	374	385
Kilograms:	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175
2	3	4	4	5	5	5	6	6	6	7	7	8	8	8	9	9	9	10	10	11	11	11	12	12	12	13	13
3	5	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	14	15	15	16	16	17	17	18	19	19	20
4	7	8	8	9	10	11	11	12	13	14	14	15	16	17	17	18	19	20	20	21	22	23	23	24	25	26	26
5	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	23	24	25	26	27	28	29	30	31	32	33
6	10	11	12	14	15	16	17	18	19	20	21	23	24	25	26	27	28	29	30	32	33	34	35	36	37	38	39
7	12	13	14	16	17	18	20	21	22	24	25	26	28	29	30	32	33	34	35	37	38	39	41	42	43	45	46
8	14	15	17	18	20	21	23	24	26	27	29	30	32	33	35	36	38	39	41	42	44	45	47	48	50	51	53
9	15	17	19	20	22	24	25	27	29	30	32	34	35	37	39	41	42	44	46	47	49	51	52	54	56	57	59
10	17	19	21	23	24	26	28	30	32	34	36	38	39	41	43	45	47	49	51	53	54	56	58	60	62	64	66
11	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	50	52	54	56	58	60	62	64	66	68	70	72
12	20	23	25	27	29	32	34	36	38	41	43	45	47	50	52	54	56	59	61	63	65	68	70	72	74	77	79
13	22	24	27	29	32	34	37	39	41	44	46	49	51	54	56	59	61	63	66	68	71	73	76	78	80	83	85
14	24	26	29	32	34	37	39	42	45	47	50	53	55	58	60	63	66	68	71	74	76	79	81	84	87	89	92
15	25	28	31	34	37	39	42	45	48	51	53	56	59	62	65	68	70	73	76	79	82	84	87	90	93	96	98
16	27	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	75	78	81	84	87	90	93	96	99	102	105
17	29	32	35	38	41	45	48	51	54	57	61	64	67	70	73	77	80	83	86	89	92	96	99	102	105	108	112
18	30	34	37	41	44	47	51	54	57	61	64	68	71	74	78	81	84	88	91	95	98	101	105	108	111	115	118
19	32	36	39	43	46	50	53	57	61	64	68	71	75	78	82	86	89	93	96	100	103	107	110	114	118	121	125
20	34	38	41	45	49	53	56	60	64	68	71	75	79	83	86	90	94	98	101	105	109	113	116	120	124	128	131
	Drops per minute (60 gtt/mL Drip Set)																											

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									

Glasgow Coma Scales

Adult Glasgow Coma Scale:

Eye Opening	Spontaneous	4
	To Voice	3
	To Pain	2
	None	1
Verbal Response	Oriented	5
	Confused	4
	Inappropriate words	3
	Incomprehensible words	2
	None	1
Motor Response	Obeys commands	6
	Localizes pain	5
	Withdraws to pain	4
	Flexion to pain	3
	Extension to pain	2
	None	1

Pediatric Glasgow Coma Scale:

Eye Opening	Spontaneous	4
	To Voice	3
	To Pain	2
	None	1
Verbal Response	Coos, babbles	5
	Irritable crying, consolable	4
	Cries to pain, weak cry	3
	Moans to pain	2
	None	1
Motor Response	Spontaneous movement	6
	Withdraws to touch	5
	Withdraws to pain	4
	Abnormal flexion	3
	Abnormal extension	2
	None	1

Trauma Scores

Revised Trauma Score:

GCS Score	13-15	4
	9-12	3
	6-8	2
	4-5	1
	3	0
Systolic Blood Pressure	> 89	4
	76-89	3
	50-75	2
	1-49	1
	0	0
Respiratory Rate	10-29 per minute	4
	> 29 per minunte	3
	6-9 per minute	2
	1-5 per minute	1
	0	0

Pediatric Trauma Score:

	+2	+1	-1
Size	> 20 kg (44 lbs)	10-20 kg (22-44 lbs)	< 10 kg (22 lbs)
Airway	Normal	Assisted: O2 Mask, Cannula	Intubated: ETT, Cricothyroidotomy
Consciousness	Awake	Obtunded, Lost Consciousness	Coma, unresponsive
Systolic BP	>90 mmHg Good peripheral pulses, perfusion	51-90 mmHg Carotid, Femoral pulses palpable	<50 mmHg Weak or absent pulses
Fractures	None seen or suspected	Single closed fracture anywhere	Open or multiple fractures
Cutaneous	No Visible Injury	Contusion, abrasion, laceration <7 cm not through fascia	Tissue loss, any gun shot wound or stab through fascia

Field Trauma Triage

1 Measure vital signs and level of consciousness

Glasgow Coma Scale:	<14
Systolic Blood Pressure:	<90 mmHg
Respiratory Rate:	<10 or >29 breaths/min, OR need for ventilatory support (<20 in infants)

Yes → **Transport to a Trauma Center.** These patients should be transported preferentially to a Level I or Level II Trauma Center.

No

2 Assess anatomy of injury

- All penetrating injuries to head, neck, torso, and extremities proximal to elbow or knee
- Chest wall instability or deformity (e.g. flail chest)
- Two or more long bone fractures
- Crushed, degloved, mangled, or pulseless extremity
- Amputation proximal to wrist or ankle
- Pelvic fractures
- Open or depressed skull fracture
- Paralysis

Yes → **Transport to a Trauma Center.** These patients should be transported preferentially to a Level I or Level II Trauma Center.

No

3 Assess MOI and evidence of high-energy impact

- **Falls:**
  - Adults: > 20 feet
  - Children: >10 feet or 2-3 times the height of the child
- **High Risk Auto Crash**
  - Intrusion, including roof: >12 inches occupant site; >18 inches any site
  - Ejection (partial or complete) from automobile
  - Death in same passenger compartment
  - Vehicle telemetry data consistent with a high risk of injury
- **Auto vs. pedestrian/bicyclist thrown, run over, or with significant (>20 mph) impact**
- **Motorcycle crash >20 mph**

Yes → **Transport to a Trauma Center.** Preferentially a Level 1, II, or III Trauma Center.

No

4 Assess special patient or system considerations

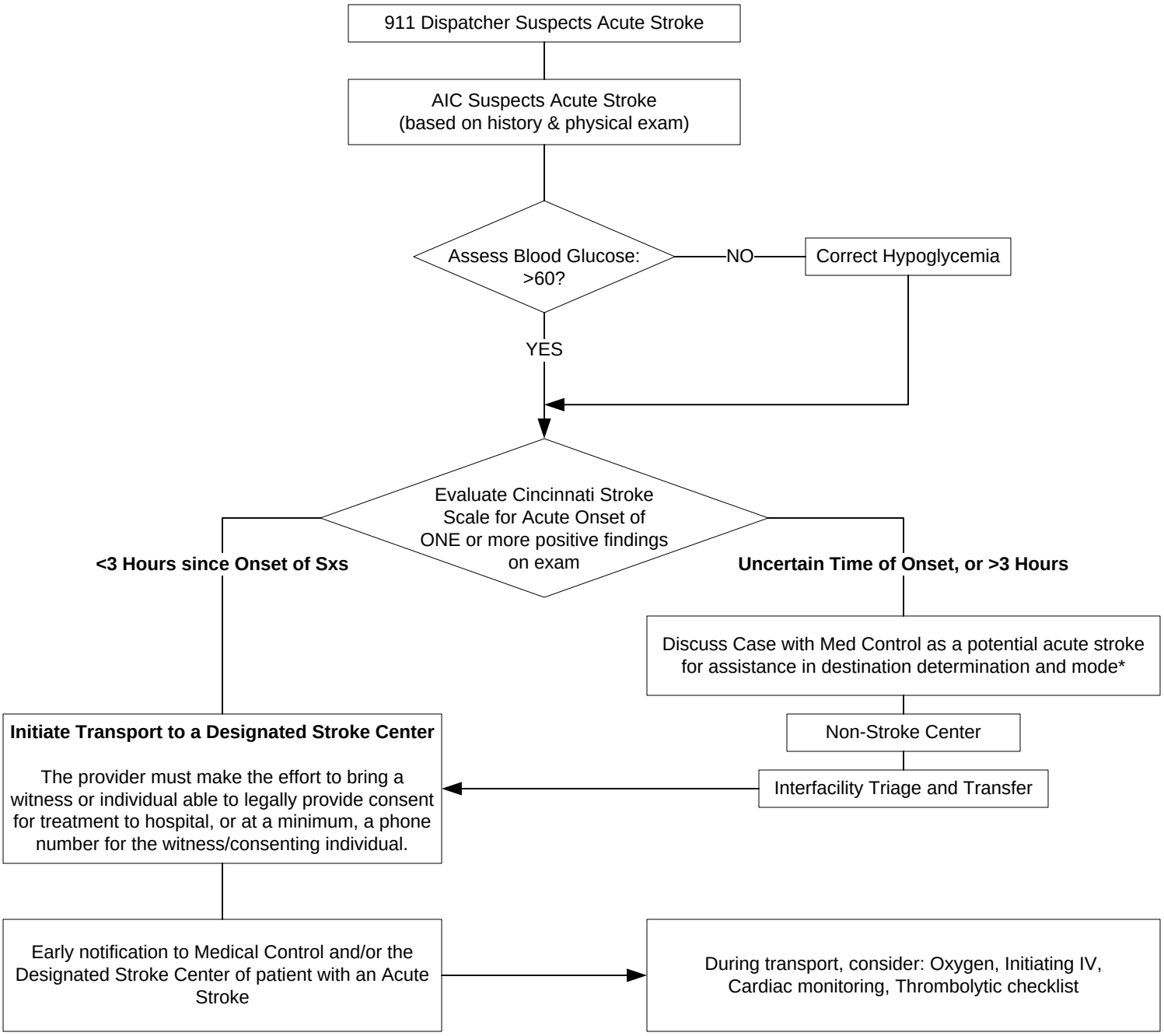
- **Older Adults**
  - Risk of injury/death increases after age 55
- **Children**
  - Should be triaged preferentially to pediatric capable trauma centers
- **Anticoagulants and bleeding disorders**
  - Patients with head injury are at high risk for rapid deterioration
- **Burns**
  - Without other trauma mechanism: Triage to burn center
  - With trauma mechanism: Triage to trauma center
- **Time Sensitive Extremity Injury**
- **End-Stage Renal Disease Requiring Dialysis**
- **EMS Provider Judgment**

Yes → **Contact Medical Control/Follow established protocol and consider transport to a trauma center or specialty care hospital.**

No → **Transport according to protocol**

For the complete WVEMS Regional Trauma Triage Plan, please refer the council webpage and click on "Plans/Reports/ Documents".

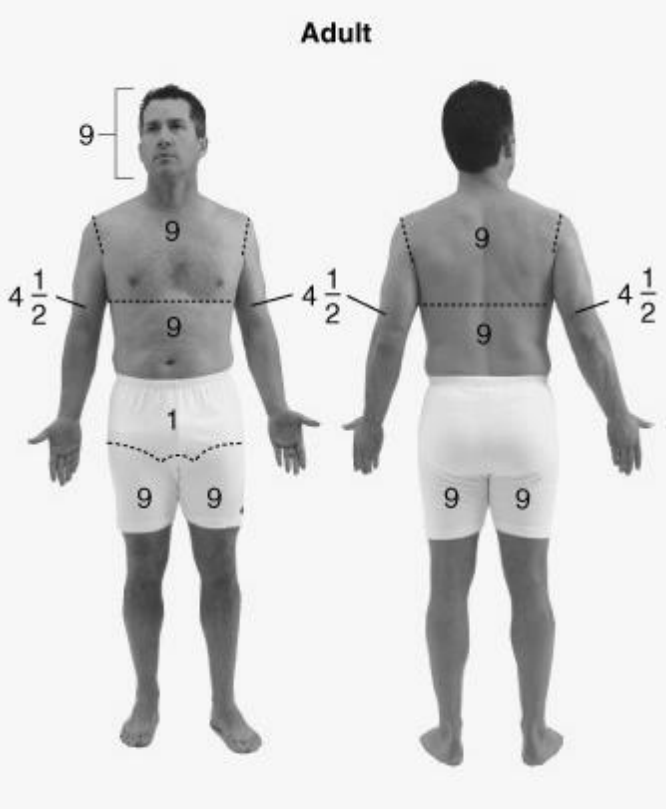
Field Stroke Triage Decision Scheme



*If time from symptom onset is more than 3 hours, discuss case with Medical Control as a potential acute stroke for destination determination. Patients with specific acute stroke types may benefit from intervention up to 24 hours, although the sooner an acute stroke is treated, the better the potential outcome. Based on patient time of onset and discussion with Medical Control, consider whether use of HEMS will offer potential benefit to the patient, either in time to Designated Stroke Center, or for critical care management expertise. EMS does not determine whether a patient is excluded from any or all therapeutic options. Final decisions regarding patient eligibility for any given intervention will be determined by the receiving physician(s).

For the complete WVEMS Regional Stroke Triage Plan, please refer the council webpage and click on "Plans/Reports/Documents".

Rule of Nines



Rule of Nines

Seldom do you find a complete portion of the body that is injured in isolation to ease the use of the rule of nines application in estimating the size of the burn

More likely it will be portions of one area; portions of another and an approximation will be needed

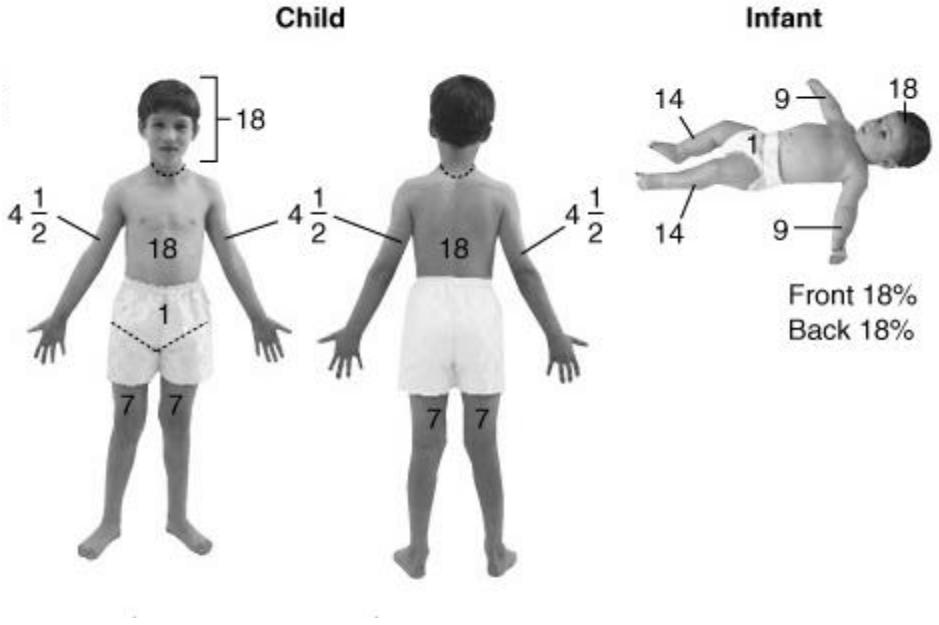
For the purpose of determining the extent of serious injury differentiate the area with minimal or 1st degree burn from those of partial (2nd) or full (3rd) thickness burns

For the purpose of determining Total Body Surface Area (TBSA) of burn, include only Partial and Full Thickness burns. Report the observation of other superficial (1st degree) burns but do not include those burns in your TBSA estimate.

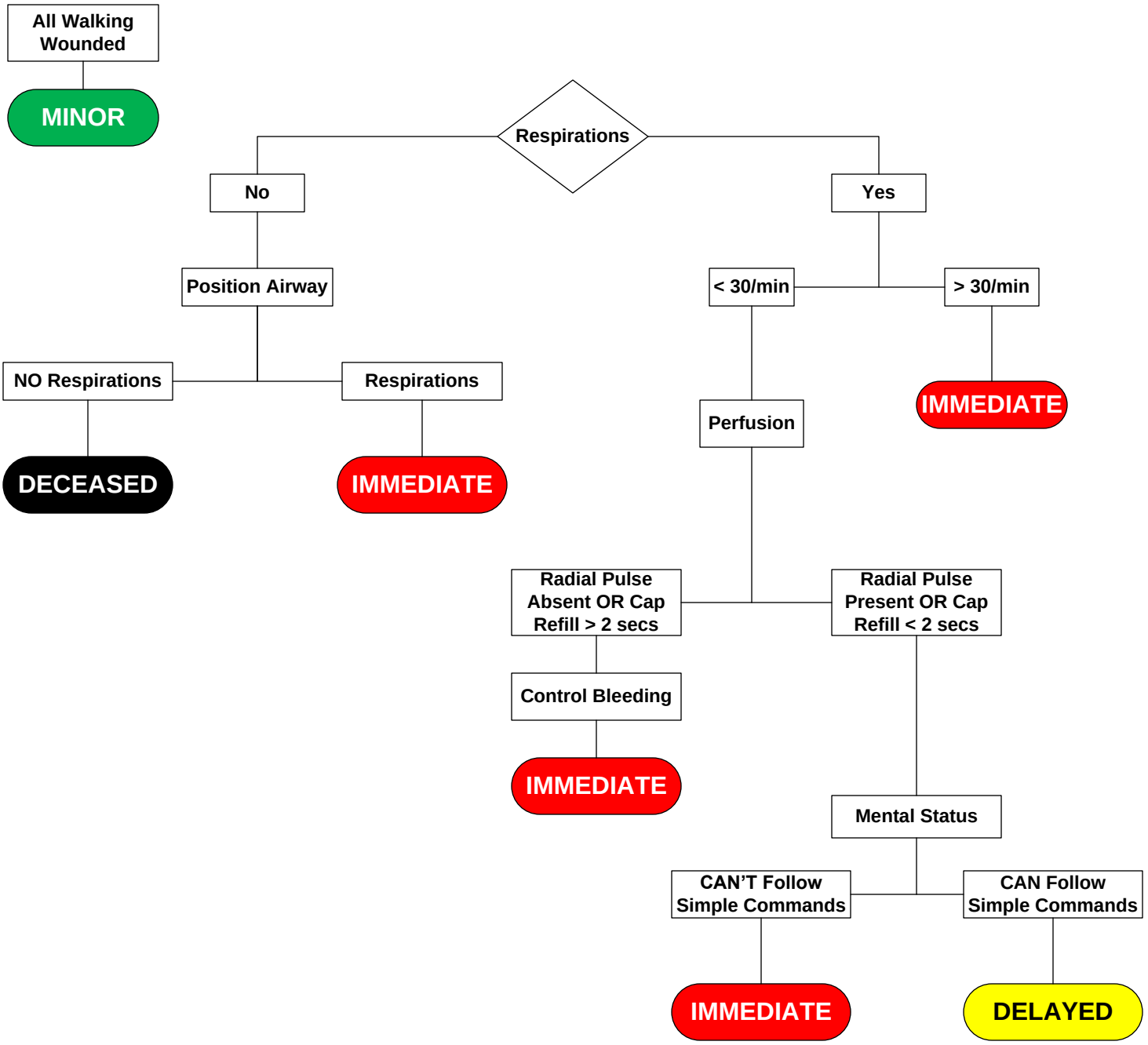
Some texts will refer to 4th, 5th and 6th degree burns. There is significant debate regarding the actual value of identifying a burn injury beyond that of the superficial, partial and full thickness burn at least at the level of emergent and primary care. For our work, all are included in Full Thickness burns.

Other burn classifications in general
Include:
4th referring to a burn that destroys the dermis and involves muscle tissue.
5th referring to a burn that destroys dermis, penetrates muscle tissue, and involves tissue around the bone.
6th referring to a burn that destroys dermis, destroys muscle tissue and penetrates or destroys bone tissue.

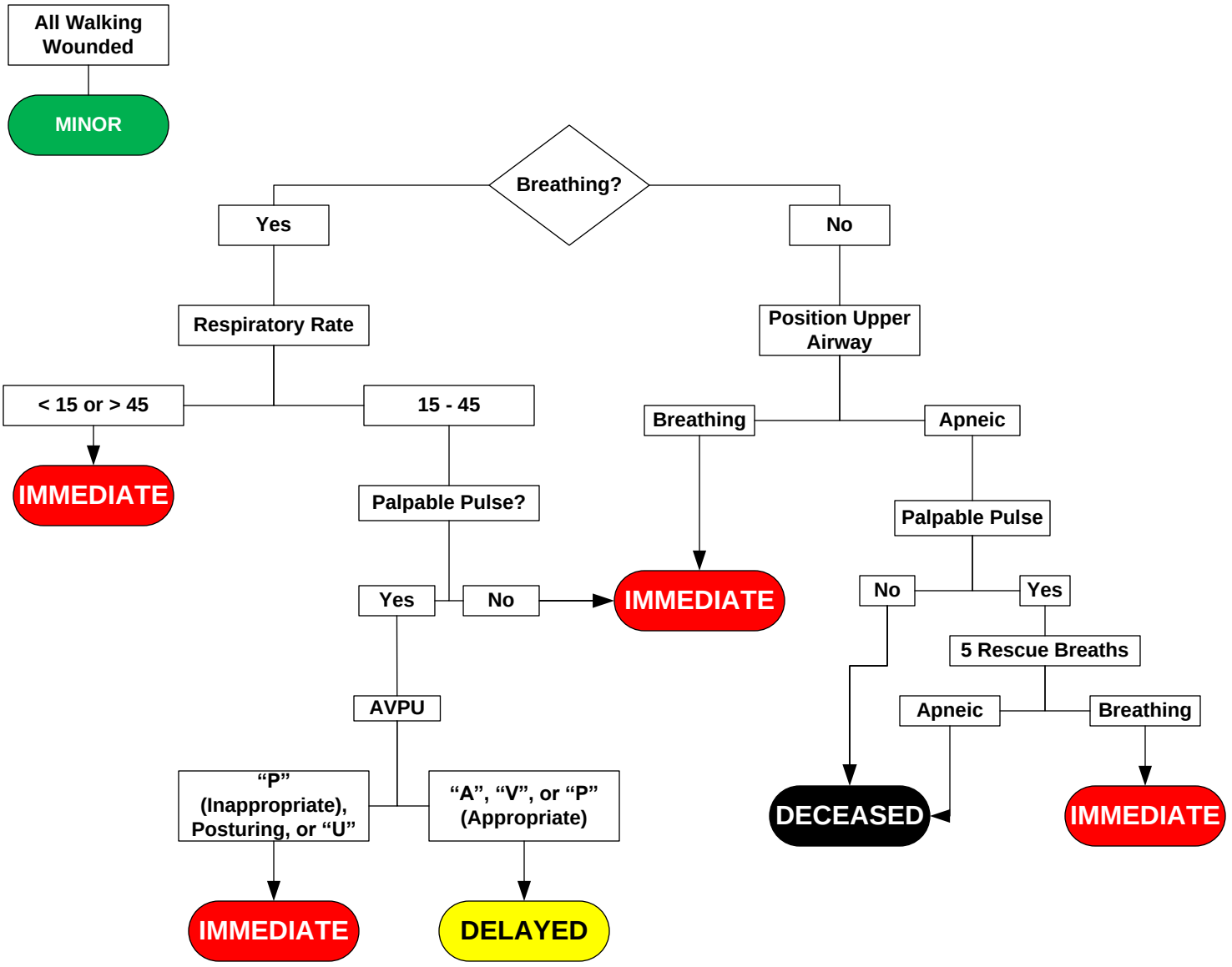
Estimate spotty areas of burn by using the size of the patient's palm as 1%



START Triage



JUMPSTART Triage



Appendix I – Change Log (12/2015)

Resources – Field Trauma Triage

- Updated to match current council triage plan

Color Coded Medication Reference

- 'Green' Fentanyl typo corrected

All Protocols

- Updated names and reorganized to reflect current OEMS protocol naming requirements, however no substantive changes made to the actual protocols.